RESOLUTION NO. 12-201

A RESOLUTION OF THE CITY COMMISSION OF THE CITY OF KEY WEST, FLORIDA, ACCEPTING A GRANT FROM THE STATE OF FLORIDA DIVISION OF EMERGENCY MANAGEMENT (FDEM) FOR PHASE II FEMA FUNDING FOR THE GEORGE STREET DRAINAGE PROJECT IN THE AMOUNT OF $2,577,951.00; AUTHORIZING THE CITY MANAGER TO EXECUTE A GRANT AGREEMENT CONTRACT UPON ADVICE AND CONSENT OF THE CITY ATTORNEY; AMENDING THE FY 2012 STORMWATER BUDGET TO ACCEPT THE GRANT; PROVIDING FOR AN EFFECTIVE DATE

BE IT RESOLVED BY THE CITY COMMISSION OF THE CITY OF KEY WEST, FLORIDA, AS FOLLOWS:

Section 1: That a grant in the amount of $2,577,951.00 from the State of Florida Division of Emergency Management for Phase II of the George Street Drainage Project is hereby accepted.

Section 2: That authorization is hereby granted for the City Manager to execute the Grant Agreement Contract, upon advice and consent of the City Attorney.

Section 3: That the 2012 Stormwater fund revenue account #402-0000-334-36 shall be adjusted to reflect the allocation of grant funding.

Section 4: That the City's matching funds required for this grant, in the amount of $859,317.00, are budgeted in expense account 402-3802-538-31-00/ST0802.

Section 5: That this Resolution shall go into effect immediately upon its passage and adoption and authentication by the signature of the presiding officer and the Clerk of the Commission.

Passed and adopted by the City Commission at a meeting held this 19 day of June, 2012.

Authenticated by the presiding officer and Clerk of the Commission on June 20, 2012.

Filed with the Clerk June 20, 2012.

CRAIG CATES, MAYOR

ATTEST:

CHERYL SMITH, CITY CLERK

THE CITY OF KEY WEST
Post Office Box 1409 Key West, FL 33041-1409 (305) 809-3700

MEMORANDUM

EXECUTIVE SUMMARY

TO: Jim Scholl, City Manager
E. David Fernandez, Asst. City Manager - Operations

FROM: Jay Gewin, Utilities Manager

DATE: May 21, 2012

RE: **Acceptance and Execution of a Contract with the Florida Division of Emergency Management for $2,577,951.00 (25% match) Phase II FEMA funding for the George Street Drainage Project. Amending the FY 2012 Stormwater Budget to Accept the Grant.**

ACTION STATEMENT:

This resolution will accept and authorize the execution of a grant agreement with the Florida Division of Emergency Management (FDEM) to accept a $2,577,951.00 FEMA grant that requires a 25% match ($2,577,951.00 FEMA / $859,317.00 City of Key West) for the construction of the George Street Drainage Project, Phase II.

This resolution will also amend the FY 2012 stormwater budget to reflect our acceptance of the grant.

BACKGROUND:

Phase I FEMA funding was approved with Resolution 09-006 on January 6, 2009, which provided funding for the design of a pump assisted stormwater system to reduce flooding in the George Street drainage basin.

With the approval of Task Order 2-09STM (Resolution 09-082, April 7, 2009), CH2M Hill designed a pump-assisted outfall system for the George Street basin area. This design was reviewed and approved by FEMA resulting in the obligation of Phase II funding for the construction of the approved project.

There are multiple low lying areas within the existing gravity drainage system that flood during rain events. The pump station would alleviate flooding during

these rain events. The pump station would be connected to the existing storm water gravity system and would operate when stormwater reaches a predetermined elevation in the existing gravity system. The new storm water pump station includes an upstream sediment removal structure, a permanent stand-by generator elevated above the 100 year flood elevation, two (2) 120 foot injection wells and an emergency outfall system consisting of a force main and outfall.

During the design of the project the City and Monroe County School District (MCSD) met to discuss the installation of the emergency force main being routed through the Horace O'Bryant (HOB) school property as well as constructing the generator within the school property. Due to changes in the design and construction of the HOB" project, the force main could no longer be routed through the school property. Instead, an alternate route of the 30" emergency outfall pipe will be installed along Catherine Street, through the existing Leon Street easement and connecting to the outfall that has been previously designed and permitted. Additionally, the City obtained an easement from MCSD to install the generator inside HOB property at the end of Ashby Street.

PURPOSE AND JUSTIFICATION

With Phase I design now complete, FEMA has approved Phase II funding for construction. The George Street project will provide protection against a 50 year rain event for 50 years for approximately 75 homes. The benefit-to-cost ratio is over 2.0 saving the taxpayer over $10,000,000 for an estimated $4,000,000 lifecycle cost (including maintenance).

The City of Key West's Stormwater fund is heavily grant-dependent. The fund has been very aggressive and successful at pursuing state and federal grants over time, and many of our improvements would not be possible without grant assistance.

OPTIONS / ADVANTAGES / DISADVANTAGES:

1. The City Commission can accept the grant and proceed with the proposed project. Without the grant, the proposed project cannot be accomplished with available resources unless other projects are set aside. If the grant is accepted, the George Street Drainage Project can be constructed and approximately 75 homes will be provided protection against flooding.

2. The City Commission can reject the grant. With this option, the George Street Drainage project will not be constructed and no protection against flooding provided.

FINANCIAL IMPACT:

Funds would be deposited into the Stormwater fund revenue account 402-0000-334-36.

The project cost associated with the City's matching share of this grant is budgeted in expense account 402-3802-538-31-00 / ST0802.

RECOMMENDATION:
Staff recommends that the City Commission select option 1, accepting the $2,577,951.00 FEMA grant from the Florida Division of Emergency Management.

JG/cds

FEDERALLY-FUNDED SUBGRANT AGREEMENT

THIS AGREEMENT is entered into by the State of Florida, Division of Emergency Management, with headquarters in Tallahassee, Florida (hereinafter referred to as the "Division"), and the City of Key West, (hereinafter referred to as the "Recipient").

THIS AGREEMENT IS ENTERED INTO BASED ON THE FOLLOWING REPRESENTATIONS:

A. The Recipient represents that it is fully qualified and eligible to receive these grant funds to provide the services identified herein; and

B. The Division has received these grant funds from the State of Florida, and has the authority to subgrant these funds to the Recipient upon the terms and conditions below; and

C. The Division has statutory authority to disburse the funds under this Agreement.

THEREFORE, the Division and the Recipient agree to the following:

(1) SCOPE OF WORK.

The Recipient shall perform the work in accordance with the Budget and Scope of Work, Attachment A of this Agreement.

(2) INCORPORATION OF LAWS, RULES, REGULATIONS AND POLICIES

The Recipient and the Division shall be governed by applicable State and Federal laws, rules and regulations, including those identified in Attachment B.

(3) PERIOD OF AGREEMENT.

This Agreement shall begin upon execution by both parties and shall end October 22, 2013, unless terminated earlier in accordance with the provisions of Paragraph (12) of this Agreement.

(4) MODIFICATION OF CONTRACT

Either party may request modification of the provisions of this Agreement. Changes which are agreed upon shall be valid only when in writing, signed by each of the parties, and attached to the original of this Agreement.

(5) RECORDKEEPING

(a) As applicable, Recipient's performance under this Agreement shall be subject to the federal OMB Circular No. A-102, "Common Rule: Uniform Administrative Requirements for Grants and Cooperative Agreements to State and Local Governments" (53 Federal Register 8034) or OMB Circular No. A-110, "Uniform Administrative Requirements for Grants and Agreements with Institutions of Higher Education, Hospitals, and Other Nonprofit Organizations," and either OMB Circular No. A-87, "Cost Principles for State, Local and Indian Tribal Governments," OMB Circular No. A-21, "Cost Principles for Educational Institutions," or OMB Circular No. A-122, "Cost Principles for Non-profit Organizations."

b) The Recipient shall retain sufficient records to show its compliance with the terms of this Agreement, and the compliance of all subcontractors or consultants paid from funds under this Agreement,

for a period of five years from the date the audit report is issued, and shall allow the Division or its designee, the State Chief Financial Officer or the State Auditor General access to the records upon request. The Recipient shall ensure that audit working papers are available to them upon request for a period of five years from the date the audit report is issued, unless extended in writing by the Division. The five year period may be extended for the following exceptions:

1. If any litigation, claim or audit is started before the five year period expires, and extends beyond the five year period, the records shall be retained until all litigation, claims or audit findings involving the records have been resolved.

2. Records for the disposition of non-expendable personal property valued at $5,000 or more at the time it is acquired shall be retained for five years after final disposition.

3. Records relating to real property acquired shall be retained for five years after the closing on the transfer of title.

(c) The Recipient shall maintain all records for the Recipient and for all subcontractors or consultants to be paid from funds provided under this Agreement, including documentation of all program costs, in a form sufficient to determine compliance with the requirements and objectives of the Budget and Scope of Work - Attachment A - and all other applicable laws and regulations.

(d) The Recipient, its employees or agents, including all subcontractors or consultants to be paid from funds provided under this Agreement, shall allow access to its records at reasonable times to the Division, its employees, and agents. "Reasonable" shall ordinarily mean during normal business hours of 8:00 a.m. to 5:00 p.m., local time, on Monday through Friday. "Agents" shall include, but not be limited to, auditors retained by the Division.

(6) AUDIT REQUIREMENTS

(a) The Recipient agrees to maintain financial procedures and support documents, in accordance with generally accepted accounting principles, to account for the receipt and expenditure of funds under this Agreement.

(b) These records shall be available at reasonable times for inspection, review, or audit by state personnel and other personnel authorized by the Division. "Reasonable" shall ordinarily mean normal business hours of 8:00 a.m. to 5:00 p.m., local time, Monday through Friday.

(c) The Recipient shall provide the Division with the records, reports or financial statements upon request for the purposes of auditing and monitoring the funds awarded under this Agreement.

(d) If the Recipient is a State or local government or a non-profit organization as defined in OMB Circular A-133, as revised, and in the event that the Recipient expends $500,000 or more in Federal awards in its fiscal year, the Recipient must have a single or program-specific audit conducted in accordance with the provisions of OMB Circular A-133, as revised. EXHIBIT 1 to this Agreement shows the Federal resources awarded through the Division by this Agreement. In determining the Federal awards expended in its fiscal year, the Recipient shall consider all sources of Federal awards, including Federal resources received from the Division. The determination of amounts of Federal

awards expended should be in accordance with the guidelines established by OMB Circular A-133, as revised. An audit of the Recipient conducted by the Auditor General in accordance with the provisions of OMB Circular A-133, as revised, will meet the requirements of this paragraph.

In connection with the audit requirements addressed in this Paragraph 6 (d) above, the Recipient shall fulfill the requirements for auditee responsibilities as provided in Subpart C of OMB Circular A-133, as revised.

If the Recipient expends less than $500,000 in Federal awards in its fiscal year, an audit conducted in accordance with the provisions of OMB Circular A-133, as revised, is not required. In the event that the Recipient expends less than $500,000 in Federal awards in its fiscal year and chooses to have an audit conducted in accordance with the provisions of OMB Circular A-133, as revised, the cost of the audit must be paid from non-Federal funds.

(e) Send copies of reporting packages for audits conducted in accordance with OMB Circular A-133, as revised, and required by subparagraph (d) above, when required by Section .320 (d), OMB Circular A-133, as revised, by or on behalf of the Recipient to:
The Division at the following address:

Division of Emergency Management
Office of Inspector General
2555 Shumard Oak Boulevard
Tallahassee, Florida 32399-2100

Send the Single Audit reporting package and Form SF-SAC to the Federal Audit Clearinghouse by submission online at

http://harvester.census.gov/fac/collect/ddeindex.html

And to any other Federal agencies and pass-through entities in accordance with Sections .320 (e) and (f), OMB Circular A-133, as revised.

(f) Pursuant to Section .320 (f), OMB Circular A-133, as revised, the Recipient shall send a copy of the reporting package described in Section .320 (c), OMB Circular A-133, as revised, and any management letter issued by the auditor, to the Division at the following address:

Division of Emergency Management
Office of Inspector General
2555 Shumard Oak Boulevard
Tallahassee, Florida 32399-2100

(g) By the date due, send any reports, management letter, or other information required to be submitted to the Division pursuant to this Agreement in accordance with OMB Circular A-133, Florida Statutes, and Chapters 10.550 (local governmental entities) or 10.650 (nonprofit and for-profit organizations), Rules of the Auditor General, as applicable.

(h) Recipients should state the date that the reporting package was delivered to the Recipient when submitting financial reporting packages to the Division for audits done in accordance with

OMB Circular A-133 or Chapters 10.550 (local governmental entities) or 10.650 (nonprofit and for-profit organizations), Rules of the Auditor General,

(i) If the audit shows that all or any portion of the funds disbursed were not spent in accordance with the conditions of this Agreement, the Recipient shall be held liable for reimbursement to the Division of all funds not spent in accordance with these applicable regulations and Agreement provisions within thirty days after the Division has notified the Recipient of such non-compliance.

(j) The Recipient shall have all audits completed by an independent certified public accountant (IPA), either a certified public accountant or a public accountant licensed under Chapter 473, Fla. Stat. The IPA shall state that the audit complied with the applicable provisions noted above. The audit must be received by the Division no later than nine months from the end of the Recipient's fiscal year.

(7) REPORTS

(a) The Recipient shall provide the Division with quarterly reports and a close-out report. These reports shall include the current status and progress by the Recipient and all subrecipients and subcontractors in completing the work described in the Scope of Work and the expenditure of funds under this Agreement, in addition to any other information requested by the Division.

(b) Quarterly reports are due to the Division no later than 15 days after the end of each quarter of the program year and shall be sent each quarter until submission of the administrative close-out report. The ending dates for each quarter of the program year are March 31, June 30, September 30 and December 31.

(c) The close-out report is due 60 days after termination of this Agreement or 60 days after completion of the activities contained in this Agreement, whichever first occurs.

(d) If all required reports and copies are not sent to the Division or are not completed in a manner acceptable to the Division, the Division may withhold further payments until they are completed or may take other action as stated in Paragraph (11) REMEDIES. "Acceptable to the Division" means that the work product was completed in accordance with the Budget and Scope of Work.

(e) The Recipient shall provide additional program updates or information that may be required by the Division.

(f) The Recipient shall provide additional reports and information identified in Attachment D.

(8) MONITORING.

The Recipient shall monitor its performance under this Agreement, as well as that of its subcontractors and/or consultants who are paid from funds provided under this Agreement, to ensure that time schedules are being met, the Schedule of Deliverables and Scope of Work are being accomplished within the specified time periods, and other performance goals are being achieved. A review shall be done for each function or activity in Attachment A to this Agreement, and reported in the quarterly report.

In addition to reviews of audits conducted in accordance with paragraph (6) above, monitoring procedures may include, but not be limited to, on-site visits by Division staff, limited scope audits, and/or

other procedures. The Recipient agrees to comply and cooperate with any monitoring procedures/processes deemed appropriate by the Division. In the event that the Division determines that a limited scope audit of the Recipient is appropriate, the Recipient agrees to comply with any additional instructions provided by the Division to the Recipient regarding such audit. The Recipient further agrees to comply and cooperate with any inspections, reviews, investigations or audits deemed necessary by the Florida Chief Financial Officer or Auditor General. In addition, the Division will monitor the performance and financial management by the Recipient throughout the contract term to ensure timely completion of all tasks.

(9) LIABILITY

(a) Unless Recipient is a State agency or subdivision, as defined in Section 768.28, Fla. Stat., the Recipient is solely responsible to parties it deals with in carrying out the terms of this Agreement, and shall hold the Division harmless against all claims of whatever nature by third parties arising from the work performance under this Agreement. For purposes of this Agreement, Recipient agrees that it is not an employee or agent of the Division, but is an independent contractor.

(b) Any Recipient which is a state agency or subdivision, as defined in Section 768.28, Fla. Stat., agrees to be fully responsible for its negligent or tortious acts or omissions which result in claims or suits against the Division, and agrees to be liable for any damages proximately caused by the acts or omissions to the extent set forth in Section 768.28, Fla. Stat. Nothing herein is intended to serve as a waiver of sovereign immunity by any Recipient to which sovereign immunity applies. Nothing herein shall be construed as consent by a state agency or subdivision of the State of Florida to be sued by third parties in any matter arising out of any contract.

(10) DEFAULT.

If any of the following events occur ("Events of Default"), all obligations on the part of the Division to make further payment of funds shall, if the Division elects, terminate and the Division has the option to exercise any of its remedies set forth in Paragraph (11). However, the Division may make payments or partial payments after any Events of Default without waiving the right to exercise such remedies, and without becoming liable to make any further payment:

(a) If any warranty or representation made by the Recipient in this Agreement or any previous agreement with the Division is or becomes false or misleading in any respect, or if the Recipient fails to keep or perform any of the obligations, terms or covenants in this Agreement or any previous agreement with the Division and has not cured them in timely fashion, or is unable or unwilling to meet its obligations under this Agreement;

(b) If material adverse changes occur in the financial condition of the Recipient at any time during the term of this Agreement, and the Recipient fails to cure this adverse change within thirty days from the date written notice is sent by the Division.

(c) If any reports required by this Agreement have not been submitted to the Division or have been submitted with incorrect, incomplete or insufficient information;

(d) If the Recipient has failed to perform and complete on time any of its obligations under this Agreement.

(11) REMEDIES.

If an Event of Default occurs, then the Division may, after thirty calendar days written notice to the Recipient and upon the Recipient's failure to cure within those thirty days, exercise any one or more of the following remedies, either concurrently or consecutively:

(a) Terminate this Agreement, provided that the Recipient is given at least thirty days prior written notice of the termination. The notice shall be effective when placed in the United States, first class mail, postage prepaid, by registered or certified mail-return receipt requested, to the address in paragraph (13) herein;

(b) Begin an appropriate legal or equitable action to enforce performance of this Agreement;

(c) Withhold or suspend payment of all or any part of a request for payment;

(d) Require that the Recipient refund to the Division any monies used for ineligible purposes under the laws, rules and regulations governing the use of these funds.

(e) Exercise any corrective or remedial actions, to include but not be limited to:

1. request additional information from the Recipient to determine the reasons for or the extent of non-compliance or lack of performance,

2. issue a written warning to advise that more serious measures may be taken if the situation is not corrected,

3. advise the Recipient to suspend, discontinue or refrain from incurring costs for any activities in question or

4. require the Recipient to reimburse the Division for the amount of costs incurred for any items determined to be ineligible;

(f) Exercise any other rights or remedies which may be available under law.

(g) Pursuing any of the above remedies will not stop the Division from pursuing any other remedies in this Agreement or provided at law or in equity. If the Division waives any right or remedy in this Agreement or fails to insist on strict performance by the Recipient, it will not affect, extend or waive any other right or remedy of the Division, or affect the later exercise of the same right or remedy by the Division for any other default by the Recipient.

(12) TERMINATION.

(a) The Division may terminate this Agreement for cause after thirty days written notice. Cause can include misuse of funds, fraud, lack of compliance with applicable rules, laws and regulations, failure to perform on time, and refusal by the Recipient to permit public access to any document, paper, letter, or other material subject to disclosure under Chapter 119, Fla. Stat., as amended.

(b) The Division may terminate this Agreement for convenience or when it determines, in its sole discretion, that continuing the Agreement would not produce beneficial results in line with the further expenditure of funds, by providing the Recipient with thirty calendar days prior written notice.

(c) The parties may agree to terminate this Agreement for their mutual convenience through a written amendment of this Agreement. The amendment will state the effective date of the termination and the procedures for proper closeout of the Agreement.

(d) In the event that this Agreement is terminated, the Recipient will not incur new obligations for the terminated portion of the Agreement after the Recipient has received the notification of termination. The Recipient will cancel as many outstanding obligations as possible. Costs incurred after receipt of the termination notice will be disallowed. The Recipient shall not be relieved of liability to the Division because of any breach of Agreement by the Recipient. The Division may, to the extent authorized by law, withhold payments to the Recipient for the purpose of set-off until the exact amount of damages due the Division from the Recipient is determined.

(13) NOTICE AND CONTACT.

(a) All notices provided under or pursuant to this Agreement shall be in writing, either by hand delivery, or first class, certified mail, return receipt requested, to the representative named below, at the address below, and this notification attached to the original of this Agreement.

(b) The name and address of the Division contract manager for this Agreement is:

Ms. Kathleen Marshall
Bureau of Mitigation
Division of Emergency Management
2555 Shumard Oak Boulevard
Tallahassee, Florida 32399
Telephone: (850) 922-5944
Fax: (850) 922-1259
Email: kathleen.marshall@em.myflorida.com

(c) The name and address of the Representative of the Recipient responsible for the administration of this Agreement is:

Ms. Carolyn D. Sheldon
Grants Administrator
City of Key West
525 Angela Street
Key West, Florida, 33040
Telephone: (305) 809-3741
Fax: (305) 296-7909
Email: csheldon@keywestcity.com

(d) In the event that different representatives or addresses are designated by either party after execution of this Agreement, notice of the name, title and address of the new representative will be provided as outlined in (13)(a) above.

(14) SUBCONTRACTS

If the Recipient subcontracts any of the work required under this Agreement, a copy of the unsigned subcontract must be forwarded to the Division for review and approval before it is executed by the Recipient.

The Recipient agrees to include in the subcontract that (i) the subcontractor is bound by the terms of this Agreement, (ii) the subcontractor is bound by all applicable state and federal laws and regulations, and (iii) the subcontractor shall hold the Division and Recipient harmless against all claims of whatever nature arising out of the subcontractor's performance of work under this Agreement, to the extent allowed and required by law. The Recipient shall document in the quarterly report the subcontractor's progress in performing its work under this Agreement.

For each subcontract, the Recipient shall provide a written statement to the Division as to whether that subcontractor is a minority business enterprise, as defined in Section 288.703, Fla. Stat.

(15) TERMS AND CONDITIONS

This Agreement contains all the terms and conditions agreed upon by the parties.

(16) ATTACHMENTS

(a) All attachments to this Agreement are incorporated as if set out fully.

(b) In the event of any inconsistencies or conflict between the language of this Agreement and the attachments, the language of the attachments shall control, but only to the extent of the conflict or inconsistency.

(c) This Agreement has the following attachments:

Exhibit 1 - Funding Sources
Attachment A – Budget and Scope of Work
Attachment B – Program Statutes and Regulations
Attachment C – Statement of Assurances
Attachment D – Request for Reimbursement
Attachment E – Justification of Advance
Attachment F – Quarterly Report Form
Attachment G – Warranties and Representations
Attachment H – Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion

(17) FUNDING/CONSIDERATION

(a) This is a cost-reimbursement Agreement. The Recipient shall be reimbursed for costs incurred in the satisfactory performance of work hereunder in an amount not to exceed **$2,610,804.00,** subject to the availability of funds.

(b) Any advance payment under this Agreement is subject to Section 216.181(16), Fla.Stat., and is contingent upon the Recipient's acceptance of the rights of the Division under Paragraph (12)(b) of this Agreement. The amount which may be advanced may not exceed the expected cash needs of the Recipient within the first three (3) months of the contract term. For a federally funded contract, any advance payment is also subject to federal OMB Circulars A-87, A-110, A-122 and the Cash Management Improvement Act of 1990. All advances are required to be held in an interest-bearing account. If an

advance payment is requested, the budget data on which the request is based and a justification statement shall be included in this Agreement as Attachment E. Attachment E will specify the amount of advance payment needed and provide an explanation of the necessity for and proposed use of these funds. No advance shall be accepted for processing if a reimbursement has been paid prior to the submittal of a request for advanced payment.

(c) After the initial advance, if any, payment shall be made on a reimbursement basis as needed. The Recipient agrees to expend funds in accordance with the Budget and Scope of Work, Attachment A of this Agreement.

(d) Invoices shall be submitted at least quarterly and shall include the supporting documentation for all costs of the project or services. Invoices shall be accompanied by a statement signed and dated by an authorized representative of the Recipient certifying that "all disbursements made in accordance with conditions of the Division agreement and payment is due and has not been previously requested for these amounts." The supporting documentation must comply with the documentation requirements of applicable OMB Circular Cost Principles. The final invoice shall be submitted within sixty (60) days after the expiration date of the agreement. An explanation of any circumstances prohibiting the submittal of quarterly invoices shall be submitted to the Division contract manager as part of the Recipient's quarterly reporting as referenced in Paragraph 7 of this Agreement.

If the necessary funds are not available to fund this Agreement as a result of action by the United States Congress, the federal Office of Management and Budgeting, the State Chief Financial Officer or under subparagraph (19)(h) of this Agreement, all obligations on the part of the Division to make any further payment of funds shall terminate, and the Recipient shall submit its closeout report within thirty days of receiving notice from the Division.

(18) REPAYMENTS

All refunds or repayments due to the Division under this Agreement are to be made payable to the order of "Division of Emergency Management", and mailed directly to the following address:

Division of Emergency Management
Cashier
2555 Shumard Oak Boulevard
Tallahassee FL 32399-2100

In accordance with Section 215.34(2), Fla. Stat., if a check or other draft is returned to the Division for collection, Recipient shall pay the Division a service fee of $15.00 or 5% of the face amount of the returned check or draft, whichever is greater.

(19) MANDATED CONDITIONS

(a) The validity of this Agreement is subject to the truth and accuracy of all the information, representations, and materials submitted or provided by the Recipient in this Agreement, in any later submission or response to a Division request, or in any submission or response to fulfill the requirements of this Agreement. All of said information, representations, and materials is incorporated by reference. The

inaccuracy of the submissions or any material changes shall, at the option of the Division and with thirty days written notice to the Recipient, cause the termination of this Agreement and the release of the Division from all its obligations to the Recipient.

(b) This Agreement shall be construed under the laws of the State of Florida, and venue for any actions arising out of this Agreement shall be in the Circuit Court of Leon County. If any provision of this Agreement is in conflict with any applicable statute or rule, or is unenforceable, then the provision shall be null and void to the extent of the conflict, and shall be severable, but shall not invalidate any other provision of this Agreement.

(c) Any power of approval or disapproval granted to the Division under the terms of this Agreement shall survive the term of this Agreement.

(d) This Agreement may be executed in any number of counterparts, any one of which may be taken as an original.

(e) The Recipient agrees to comply with the Americans With Disabilities Act (Public Law 101-336, 42 U.S.C. Section 12101 et seq.), which prohibits discrimination by public and private entities on the basis of disability in employment, public accommodations, transportation, State and local government services, and telecommunications.

(f) Those who have been placed on the convicted vendor list following a conviction for a public entity crime or on the discriminatory vendor list may not submit a bid on a contract to provide any goods or services to a public entity, may not submit a bid on a contract with a public entity for the construction or repair of a public building or public work, may not submit bids on leases of real property to a public entity, may not be awarded or perform work as a contractor, supplier, subcontractor, or consultant under a contract with a public entity, and may not transact business with any public entity in excess of $25,000.00 for a period of 36 months from the date of being placed on the convicted vendor list or on the discriminatory vendor list.

(g) Any Recipient which is not a local government or state agency, and which receives funds under this Agreement from the federal government, certifies, to the best of its knowledge and belief, that it and its principals:

1. are not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from covered transactions by a federal department or agency;

2. have not, within a five-year period preceding this proposal been convicted of or had a civil judgment rendered against them for fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (federal, state or local) transaction or contract under public transaction; violation of federal or state antitrust statutes or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, or receiving stolen property;

3. are not presently indicted or otherwise criminally or civilly charged by a governmental entity (federal, state or local) with commission of any offenses enumerated in paragraph 19(g)2. of this certification; and

4. have not within a five-year period preceding this Agreement had one or more public transactions (federal, state or local) terminated for cause or default.

If the Recipient is unable to certify to any of the statements in this certification, then the Recipient shall attach an explanation to this Agreement.

In addition, the Recipient shall send to the Division (by email or by facsimile transmission) the completed "Certification Regarding Debarment, Suspension, Ineligibility And Voluntary Exclusion" (Attachment H) for each intended subcontractor which Recipient plans to fund under this Agreement. The form must be received by the Division before the Recipient enters into a contract with any subcontractor.

(h) The State of Florida's performance and obligation to pay under this Agreement is contingent upon an annual appropriation by the Legislature, and subject to any modification in accordance with Chapter 216, Fla. Stat. or the Florida Constitution.

(i) All bills for fees or other compensation for services or expenses shall be submitted in detail sufficient for a proper preaudit and postaudit thereof.

(j) Any bills for travel expenses shall be submitted in accordance with Section 112.061, Fla. Stat.

(k) The Division reserves the right to unilaterally cancel this Agreement if the Recipient refuses to allow public access to all documents, papers, letters or other material subject to the provisions of Chapter 119, Fla. Stat., which the Recipient created or received under this Agreement.

(l) If the Recipient is allowed to temporarily invest any advances of funds under this Agreement, any interest income shall either be returned to the Division or be applied against the Division's obligation to pay the contract amount.

(m) The State of Florida will not intentionally award publicly-funded contracts to any contractor who knowingly employs unauthorized alien workers, constituting a violation of the employment provisions contained in 8 U.S.C. Section 1324a(e) [Section 274A(e) of the Immigration and Nationality Act ("INA")]. The Division shall consider the employment by any contractor of unauthorized aliens a violation of Section 274A(e) of the INA. Such violation by the Recipient of the employment provisions contained in Section 274A(e) of the INA shall be grounds for unilateral cancellation of this Agreement by the Division.

(n) The Recipient is subject to Florida's Government in the Sunshine Law (Section 286.011, Fla. Stat.) with respect to the meetings of the Recipient's governing board or the meetings of any subcommittee making recommendations to the governing board. All of these meetings shall be publicly noticed, open to the public, and the minutes of all the meetings shall be public records, available to the public in accordance with Chapter 119, Fla. Stat.

(o) All unmanufactured and manufactured articles, materials and supplies which are acquired for public use under this Agreement must have been produced in the United States as required under 41 U.S.C. 10a, unless it would not be in the public interest or unreasonable in cost.

(20) LOBBYING PROHIBITION

(a) No funds or other resources received from the Division under this Agreement may be used directly or indirectly to influence legislation or any other official action by the Florida Legislature or any state agency.

(b) The Recipient certifies, by its signature to this Agreement, that to the best of his or her knowledge and belief:

1. No Federal appropriated funds have been paid or will be paid, by or on behalf of the Recipient, to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment or modification of any Federal contract, grant, loan or cooperative agreement.

2. If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan or cooperative agreement, the Recipient shall complete and submit Standard Form-LLL, "Disclosure of Lobbying Activities."

3. The Recipient shall require that this certification be included in the award documents for all subawards (including subcontracts, subgrants, and contracts under grants, loans, and cooperative agreements) and that all subrecipients shall certify and disclose.

This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by Section 1352, Title 31, U.S. Code. Any person who fails to file the required certification shall be subject to a civil penalty of not less than $10,000 and not more than $100,000 for each such failure.

(21) COPYRIGHT, PATENT AND TRADEMARK

ANY AND ALL PATENT RIGHTS ACCRUING UNDER OR IN CONNECTION WITH THE PERFORMANCE OF THIS AGREEMENT ARE HEREBY RESERVED TO THE STATE OF FLORIDA. ANY AND ALL COPYRIGHTS ACCRUING UNDER OR IN CONNECTION WITH THE PERFORMANCE OF THIS AGREEMENT ARE HEREBY TRANSFERRED BY THE RECIPIENT TO THE STATE OF FLORIDA.

(a) If the Recipient has a pre-existing patent or copyright, the Recipient shall retain all rights and entitlements to that pre-existing patent or copyright unless the Agreement provides otherwise.

(b) If any discovery or invention is developed in the course of or as a result of work or services performed under this Agreement, or in any way connected with it, the Recipient shall refer the discovery or invention to the Division for a determination whether the State of Florida will seek patent protection in its name. Any patent rights accruing under or in connection with the performance of this Agreement are reserved to the State of Florida. If any books, manuals, films, or other copyrightable material

are produced, the Recipient shall notify the Division. Any copyrights accruing under or in connection with the performance under this Agreement are transferred by the Recipient to the State of Florida.

(c) Within thirty days of execution of this Agreement, the Recipient shall disclose all intellectual properties relating to the performance of this Agreement which he or she knows or should know could give rise to a patent or copyright. The Recipient shall retain all rights and entitlements to any pre-existing intellectual property which is disclosed. Failure to disclose will indicate that no such property exists. The Division shall then, under Paragraph (b), have the right to all patents and copyrights which accrue during performance of the Agreement.

(22) LEGAL AUTHORIZATION.

The Recipient certifies that it has the legal authority to receive the funds under this Agreement and that its governing body has authorized the execution and acceptance of this Agreement. The Recipient also certifies that the undersigned person has the authority to legally execute and bind Recipient to the terms of this Agreement.

(23) ASSURANCES.

The Recipient shall comply with any Statement of Assurances incorporated as Attachment.C.

IN WITNESS WHEREOF, the parties hereto have executed this Agreement.

RECIPIENT: CITY OF KEY WEST

By: J K Scholl

Name and title: J. K. Scholl, City Manager

Date: 21 June 2012

FID# 59-6000346

STATE OF FLORIDA
DIVISION OF EMERGENCY MANGEMENT

By: _____

Name and Title: Bryan W. Koon, Director

Date: 7/16/2012

EXHIBIT – 1

THE FOLLOWING FEDERAL RESOURCES ARE AWARDED TO THE RECIPIENT UNDER THIS AGREEMENT:

Federal Program: ***Federal Emergency Management Agency, Hazard Mitigation Grant***
Catalog of Federal Domestic Assistance Number: ***97.039***
Amount of Federal Funding: **$ $2,610,804.00**

THE FOLLOWING COMPLIANCE REQUIREMENTS APPLY TO THE FEDERAL RESOURCES AWARDED UNDER THIS AGREEMENT:

Federal Program:
List applicable compliance requirements as follows:

1. **Recipient is to use funding to perform the following eligible activities:**
   - **Infrastructure protection measures**
   - **Storm water management improvements**
   - **Minor structural flood control projects**
   - **Relocation of structures from hazard prone areas**
   - **Other projects that reduce future disaster losses**

2. **Recipient is subject to all administrative and financial requirements as set forth in this Agreement, or will be in violation of the terms of the Agreement.**

NOTE: Section .400(d) of OMB Circular A-133, as revised, and Section 215.97(5)(a), Florida Statutes, require that the information about Federal Programs and State Projects included in Exhibit 1 be provided to the Recipient.

Attachment A

Budget and Scope of Work

Scope of Work

As a Hazard Mitigation Grant Program project, the Recipient, the City of Key West, will provide protection by constructing a drainage system capable of solving or reducing the flooding problem within the City of Key West. The project entails the construction of a new pump station at Ashby Street, terminating at a new outfall structure located at the lagoon by US 1 and Jose Marti Drive, +/- 900 linear-foot of emergency outfall pipe and structure, two injection wells, a vortex pretreatment unit, inlet structures, piping and a 500-kilowatt generator for the pump stations, secured to an elevated platform above the 100-year flood elevation.

Environmental Review Project Conditions:

1. NHPA: Per FEMA Historic Preservationists e-mail dated 04/03/2012:
   - The Miccosukee Tribe of Indians of Florida has requested that archaeological monitoring, specifically an archaeologist who can identify human remains, be present during the construction phase of the project.
   - Verification of compliance will be required at project closeout and copies of any reports will be required to add to the projection file.

2. Any change, addition or supplement to the approved Scope of Work that alters the project (including other work not funded by FEMA, but done substantially at the same time) will require re-submission of the application to FEMA for NEPA re-evaluation before starting project work.

3. NHPA: If prehistoric or historic artifacts, such as pottery or ceramics, projectile point, dugout canoes, metal implements, historic building materials, or any other physical remains that could be associated with early Native American, early European, or American settlement are encountered at any time within the project site area, the permitted project should cease all activities involving subsurface disturbance in the immediate vicinity of such discoveries. The applicant shall contact the Florida Department of State, Division of Historical Resources, Review and Compliance Section at (850) 245-6333. Project activities should not resume without verbal and/or written authorization.

4. Prior to the initiation of any of the work, the Permittee shall install floating turbidity barriers with weighted skirts that extend to within 1 foot of the bottom around all work areas that are in, or adjacent to, surface waters. The turbidity barriers shall remain in place and be maintained until the authorized work has been completed and all erodible materials have been stabilized

5. If a construction contractor places reinforcing materials only 10 feet waterward of the seawall, we do not expect there to be any impacts to that community. Any placement of turbidity curtains should be done so as to avoid the sea grass bed, and curtains should be removed as soon as practicable after the project concludes and turbidity levels have subsided.

6. Any SFWMD or DEP permit issued for the project address stormwater runoff and water quality. The project design should include provisions to catch silt, oils, and greases, and a maintenance plan to ensure continued proper function.

8. Applicant must adhere to Special Condition No.'s 13 and 14 outlined in the SFWM standard general permit No. 44-00314-P in regards to standard manatee construction conditions and the installation of manatee exclusion grating across the outfall opening.

9. For projects that involve diesel fuel storage tanks (if storage capacity is greater than 550 gallons for above ground diesel fuel tanks and 110 gallons underground diesel fuel

tanks); the applicant must provide a copy of the Florida Department of Environmental Protection's Storage Tank Facility Registration. The documentation must be provided at project close-out.

- Additional coordination may also be needed with the Local Floodplain Administrator to address elevation of the fuel tank out of the floodplain. The documentation must be provided at project closeout.

This is FEMA project **1609-110-R**, funded under **1609-DR-FL**.

The Period of Performance of this project ends on **October 22, 2013**.

Schedule of Work

Final Design	3 months
Bid Construction	3 months
Award Construction	1 month
Start Construction	1 month
Complete Construction	6 months
State Contracting:	1 month
State Final Inspection	1 month
State Closeout	1 month
Total Period of Performance:	**17 months**

Budget

Line Item Budget*

	Project Cost	Federal Share	Local Share
Final Design & Construction:	$3,437,268.00	$ 2,577,951.00	$859,317.00
Sub-Total:	**$3,437,268.00**	**$ 2,577,951.00**	**$859,317.00**
Administrative Cost:	$ 0.00	$ 32,853.00	$ 0.00
Total:	**$3,437,268.00**	**$ 2,610,804.00**	**$ 859,317.00**

**Any line item amount in this Budget may be increased or decreased 10% or less without an amendment to this Agreement being required, so long as the overall amount of the funds obligated under this Agreement is not increased.*

Funding Summary

Federal Share:	*$2,577,951.00 (75%)*
Local Share:	*$ 859,317.00 (25%)*
Total Project Cost:	***$3,437,268.00 (100%)***

*Recipient Administrative Allowance up to **$32,853.00**.*

Attachment B

Program Statutes and Regulations

The parties to this Agreement and the Hazard Mitigation Grant Program (HMGP) are generally governed by the following statutes and regulations:

(1) The Robert T. Stafford Disaster Relief and Emergency Assistance Act;

(2) 44 CFR Parts 7, 9, 10, 13, 14, 17, 18, 25, 206, 220, and 221, and any other applicable FEMA policy memoranda and guidance documents;

(3) State of Florida Administrative Plan for the Hazard Mitigation Grant Program;

(4) Hazard Mitigation Long-term Recovery Guidance; and

(5) All applicable laws and regulations delineated in Attachment C of this Agreement

In addition to the above statutes and regulations, the Recipient must comply with the following:

The Recipient shall fully perform the approved hazard mitigation project, as described in the Application and Attachment A (Budget and Scope of Work) attached to this Agreement, in accordance with the approved scope of work indicated therein, the estimate of costs indicated therein, the allocation of funds indicated therein, and the terms and conditions of this Agreement. The Recipient shall not deviate from the approved project and the terms and conditions of this Agreement. The Recipient shall comply with any and all applicable codes and standards in performing work funded under this Agreement, and shall provide any appropriate maintenance and security for the project.

Any development permit issued by, or development activity undertaken by, the Recipient and any land use permitted by or engaged in by the Recipient, shall be consistent with the local comprehensive plan and land development regulations prepared and adopted pursuant to Chapter 163, Part II, Florida Statutes. Funds shall be expended for, and development activities and land uses authorized for, only those uses which are permitted under the comprehensive plan and land development regulations. The Recipient shall be responsible for ensuring that any development permit issued and any development activity or land use undertaken is, where applicable, also authorized by the Water Management District, the Florida Department of Environmental Protection, the Florida Department of Health, the Florida Game and Fish Commission, and any federal, state, or local environmental or land use permitting authority, where required. The Recipient agrees that any repair or construction shall be in accordance with applicable standards of safety, decency, and sanitation, and in conformity with applicable codes, specifications and standards.

The Recipient will provide and maintain competent and adequate engineering supervision at the construction site to ensure that the completed work conforms with the approved plans and specifications and will furnish progress reports and such other information to HMGP as may be required.

If the hazard mitigation project described in Attachment A includes an acquisition or relocation project, then the Recipient shall ensure that, as a condition of funding under this Agreement, the owner of the affected real property shall record in the public records of the county where it is located the following covenants and restrictions, which shall run with and apply to any property acquired, accepted, or from which a structure will be removed pursuant to the project:

1. The property will be dedicated and maintained in perpetuity for a use that is compatible with open space, recreational, or wetlands management practices;

2. No new structure will be erected on property other than:
   (a) a public facility that is open on all sides and functionally related to a designated open space;
   (b) a restroom; or
3. A structure that the Director of the Federal Emergency Management Agency approves in writing before the commencement of the construction of the structure;
4. After the date of the acquisition or relocation no application for disaster assistance for any purpose will be made to any Federal entity and no disaster assistance will be provided for the property by any Federal source; and
5. If any of these covenants and restrictions is violated by the owner or by some third party with the knowledge of the owner, fee simple title to the Property described herein shall be conveyed to the Board of Trustees of the Internal Improvement Trust Fund of the State of Florida without further notice to the owner, its successors and assigns, and the owner, its successors and assigns shall forfeit all right, title and interest in and to the property.

HMGP Contract Manager will evaluate requests for cost overruns and submit to the Regional Director written determination of cost overrun eligibility. Cost overruns shall meet Federal regulations set forth in 44CFR 206.438(b).

The National Environmental Policy Act (NEPA) stipulates that additions or amendments to a HMGP Recipient Scope of Work (SOW) shall be reviewed by all State and Federal agencies participating in the NEPA process. You are reminded that no construction may occur in this phase, that a full environmental review must be completed prior to funding Phase II.

As a reminder, the Recipient must obtain prior approval from the State, before implementing changes to the approved project Scope of Work (SOW). Per the Uniform Administrative Requirements for Grants and Cooperative Agreements to State and Local Governments:

1. For construction projects, the grantee must "obtain prior written approval for any budget revision which result in a need for additional funds" (44 CFR 13 (c));
2. A change in the scope of work must be approved by FEMA in advance regardless of the budget implications; and
3. The Recipient must notify the State as soon as significant developments become known, such as delays or adverse conditions that might raise costs or delay completion, or favorable conditions allowing lower cost or earlier completion. Any extensions of the period of performance must be submitted to FEMA 60 days prior to the project expiration date.

STATEMENT OF ASSURANCES

The Recipient assures that it will comply with the following statutes and regulations, to the extent applicable:

1) 53 Federal Register 8034
2) Federal Acquisition Regulations 31.2
3) Section 1352, Title 31, US Code
4) OMB Circulars A-21, A-87, A-110, A-122
5) Chapter 473, Florida Statutes
6) Chapter 215, Florida Statutes
7) Section 768.28, Florida Statutes
8) Chapter 119, Florida Statutes
9) Section 216.181(6), Florida Statutes
10) Cash Management Improvement Act Of 1990
11) American with Disabilities Act
12) Section 112.061, Florida Statutes
13) Immigration and Nationality Act
14) Section 286.011, Florida Statutes

15) E.O. 12372 and Uniform Administrative Requirements for Grants and Cooperative Agreements 28 CFR, Part 66, Common rule,
16) Uniform Relocation Assistance and Real Property Acquisitions Act of 1970
17) Title I of the Omnibus Crime Control and Safe Streets Act of 1968,
18) Juvenile Justice and Delinquency Prevention Act, or the Victims of Crime Act
19) 28 CFR applicable to grants and cooperative agreements
20) Omnibus Crime Control and Safe Streets Act of 1968, as amended
21) 42 USC 3789(d) or Victims of Crime Act (as appropriate)
22) Section 504 of the Rehabilitation Act of 1973, as amended
23) Subtitle A, Title II of the Americans with Disabilities Act (ADA) (1990)
24) 28 CFR Part 42, Subparts C,D,E, and G
25) Department of Justice regulations on disability discrimination, 28 CFR Part 35 and Part 39
26) 42 USC 5154a
27) 44 CFR Part 60.3 and City/County Ordinance

Attachment C

Statement of Assurances

To the extent the following provisions apply to this Agreement, the Recipient certifies that:

(a) It possesses legal authority to enter into this Agreement and to carry out the proposed program;

(b) Its governing body has duly adopted or passed as an official act a resolution, motion or similar action authorizing the execution of the hazard mitigation agreement with the Division of Emergency Management (DEM), including all understandings and assurances contained in it, and directing and authorizing the Recipient's chief administrative officer or designee to act in connection with the application and to provide such additional information as may be required;

(c) No member of or delegate to the Congress of the United States, and no Resident Commissioner, shall receive any share or part of this Agreement or any benefit. No member, officer, or employee of the Recipient or its designees or agents, no member of the governing body of the locality in which the program is situated, and no other public official of the locality or localities who exercises any functions or responsibilities with respect to the program during his tenure or for one year after, shall have any interest, direct or indirect, in any contract or subcontract, or the proceeds, for work be performed in connection with the program assisted under this Agreement. The Recipient shall incorporate, in all contracts or subcontracts a provision prohibiting any interest pursuant to the purpose stated above;

(d) All Recipient contracts for which the State Legislature is in any part a funding source, shall contain language to provide for termination with reasonable costs to be paid by the Recipient for eligible contract work completed prior to the date the notice of suspension of funding was received by the Recipient. Any cost incurred after a notice of suspension or termination is received by the Recipient may not be funded with funds provided under this Agreement unless previously approved in writing by the Division. All Recipient contracts shall contain provisions for termination for cause or convenience and shall provide for the method of payment in such event;

(e) It will comply with:

(1) Contract Work Hours and Safety Standards Act of 1962, 40 U.S.C. 327 et seq., requiring that mechanics and laborers (including watchmen and guards) employed on federally assisted contracts be paid wages of not less than one and one-half times their basic wage rates for all hours worked in excess of forty hours in a work week; and

(2) Federal Fair Labor Standards Act, 29 U.S.C. Section 201 et seq., requiring that covered employees be paid at least the minimum prescribed wage, and also that they be paid one and one-half times their basic wage rates for all hours worked in excess of the prescribed work-week.

(f) It will comply with:

(1) Title VI of the Civil Rights Act of 1964 (P.L. 88-352), and the regulations issued pursuant thereto, which provides that no person in the United States shall on the grounds of race, color, or national origin, be excluded from participation in, be denied the benefits of, or be otherwise subjected to discrimination under any program or activity for which the Recipient receives Federal financial assistance and will immediately take any measures necessary to effectuate this assurance. If any real property or structure thereon is provided or improved with the aid of Federal financial assistance extended to the Recipient, this assurance shall obligate the Recipient, or in the case of any transfer of such property, any transferee, for the period during which the real property or structure is used for a purpose for which the Federal financial assistance is extended, or for another purpose involving the provision of similar services or benefits;

(2) Any prohibition against discrimination on the basis of age under the Age Discrimination Act of 1975, as amended (42 U.S.C.: 6101-6107) which prohibits discrimination on the basis of age or with respect to otherwise qualified handicapped individuals as provided in Section 504 of the Rehabilitation Act of 1973;

(3) Executive Order 11246 as amended by Executive Orders 11375 and 12086, and the regulations issued pursuant thereto, which provide that no person shall be discriminated against on the basis of race, color, religion, sex or national origin in all phases of employment during the performance of federal or federally assisted construction contracts; affirmative action to insure fair treatment in employment, upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff/termination, rates of pay or other forms of compensation; and election for training and apprenticeship;

(g) It will establish safeguards to prohibit employees from using positions for a purpose that is or gives the appearance of being motivated by a desire for private gain for themselves or others, particularly those with whom they have family, business, or other ties pursuant to Section 112.313 and Section 112.3135, FS;

(h) It will comply with the Anti-Kickback Act of 1986, 41 U.S.C. Section 51 which outlaws and prescribes penalties for "kickbacks" of wages in federally financed or assisted construction activities;

(i) It will comply with the provisions of 18 USC 594, 598, 600-605 (further known as the Hatch Act) which limits the political activities of employees;

(j) It will comply with the flood insurance purchase and other requirements of the Flood Disaster Protection Act of 1973 as amended, 42 USC 4002-4107, including requirements regarding the purchase of flood insurance in communities where such insurance is available as a condition for the receipt of any Federal financial assistance for construction or acquisition purposes for use in any area having special flood hazards. The phrase "Federal financial assistance" includes any form of loan, grant, guaranty, insurance payment, rebate, subsidy, disaster assistance loan or grant, or any other form of direct or indirect Federal assistance;

For sites located within Special Flood Hazard Areas (SFHA), the Recipient must include a FEMA Model Acknowledgement of Conditions for Mitigation of Property in a Special Flood Hazard Area with FEMA Grant Funds executed by the title holder with the closeout request verifying that certain SFHA requirements were satisfied on each of the properties. This Model Acknowledgment can be found at www.fema.gov/government/grant/sfha_conditions.shtm

(k) It will require every building or facility (other than a privately owned residential structure) designed, constructed, or altered with funds provided under this Agreement to comply with the "Uniform Federal Accessibility Standards," (AS) which is Appendix A to 41 CFR Section 101-19.6 for general type buildings and Appendix A to 24 CFR Part 40 for residential structures. The Recipient will be responsible for conducting inspections to ensure compliance with these specifications by the contractor;

(l) It will, in connection with its performance of environmental assessments under the National Environmental Policy Act of 1969, comply with Section 106 of the National Historic Preservation Act of 1966 (U.S.C. 470), Executive Order 11593, 24 CFR Part 800, and the Preservation of Archaeological and Historical Data Act of 1966 (16 U.S.C. 469a-1, et seq.) by:

(1) Consulting with the State Historic Preservation Office to identify properties listed in or eligible for inclusion in the National Register of Historic Places that are subject to adverse effects (see 36 CFR Section 800.8) by the proposed activity; and

(2) Complying with all requirements established by the State to avoid or mitigate

adverse effects upon such properties.

(3) Abiding by the terms and conditions of the **"Programmatic Agreement Among the Federal Emergency Management Agency, the Florida State Historic Preservation Office, the Florida Division of Emergency Management and the Advisory Council on Historic Preservation, (PA)"** which addresses roles and responsibilities of Federal and State entities in implementing Section 106 of the National Historic Preservation Act (NHPA), 16 U.S.C. 470f, and implementing regulations in 36 CFR part 800.

(4) When any of the Recipient's projects funded under this Agreement may affect a historic property, as defined in 36 CFR 800. (2)(e), the Federal Emergency Management Agency (FEMA) may require the Recipient to review the eligible scope of work in consultation with the State Historic Preservation Office (SHPO) and suggest methods of repair or construction that will conform with the recommended approaches set out in the **Secretary of Interior's Standards for Rehabilitation and Guidelines for Rehabilitating Historic Buildings 1992 (Standards),** the **Secretary of the Interior's Guidelines for Archeological Documentation (Guidelines)** (48 Federal Register 44734-37), or any other applicable Secretary of Interior standards. If FEMA determines that the eligible scope of work will not conform with the **Standards**, the Recipient agrees to participate in consultations to develop, and, after execution by all parties, to abide by, a written agreement that establishes mitigation and recondition measures, including but not limited to, impacts to archeological sites, and the salvage, storage, and reuse of any significant architectural features that may otherwise be demolished.

(5) The Recipient agrees to notify FEMA and the Division if any project funded under this Agreement will involve ground disturbing activities, including, but not limited to: subsurface disturbance; removal of trees; excavation for footings and foundations; and installation of utilities (such as water, sewer, storm drains, electrical, gas, leach lines and septic tanks) except where these activities are restricted solely to areas previously disturbed by the installation, replacement or maintenance of such utilities. FEMA will request the SHPO's opinion on the potential that archeological properties may be present and be affected by such activities. The SHPO will advise the Recipient on any feasible steps to be accomplished to avoid any National Register eligible archeological property or will make recommendations for the development of a treatment plan for the recovery of archeological data from the property.

If the Recipient is unable to avoid the archeological property, develop, in consultation with the SHPO, a treatment plan consistent with the **Guidelines** and take into account the Advisory Council on Historic Preservation (Council) publication "Treatment of Archeological Properties". The Recipient shall forward information regarding the treatment plan to FEMA, the SHPO and the Council for review. If the SHPO and the Council do not object within 15 calendar days of receipt of the treatment plan, FEMA may direct the Recipient to implement the treatment plan. If either the Council or the SHPO object, Recipient shall not proceed with the project until the objection is resolved.

(6) The Recipient shall notify the Division and FEMA as soon as practicable: (a) of any changes in the approved scope of work for a National Register eligible or listed property; (b) of all changes to a project that may result in a supplemental DSR or modify an HMGP project for a National Register eligible or listed property; (c) if it appears that a project funded under this Agreement will affect a previously unidentified property that may be eligible for inclusion in the National Register or affect a known historic property in an unanticipated manner. The Recipient acknowledges that FEMA may require the Recipient to stop construction in the

vicinity of the discovery of a previously unidentified property that may be eligible for inclusion in the National Register or upon learning that construction may affect a known historic property in an unanticipated manner. The Recipient further acknowledges that FEMA may require the Recipient to take all reasonable measures to avoid or minimize harm to such property until FEMA concludes consultation with the SHPO. The Recipient also acknowledges that FEMA will require, and the Recipient shall comply with, modifications to the project scope of work necessary to implement recommendations to address the project and the property.

(7) The Recipient acknowledges that, unless FEMA specifically stipulates otherwise, it shall not receive funding for projects when, with intent to avoid the requirements of the PA or the NHPA, the Recipient intentionally and significantly adversely affects a historic property, or having the legal power to prevent it, allowed such significant adverse affect to occur.

(m) It will comply with Title IX of the Education Amendments of 1972, as amended (20 U.S.C.: 1681-1683 and 1685 - 1686) which prohibits discrimination on the basis of sex;

(n) It will comply with the Comprehensive Alcohol Abuse and Alcoholism Prevention, Treatment and Rehabilitation Act of 1970, (42 U.S.C. 4521-45-94) relating to nondiscrimination on the basis of alcohol abuse or alcoholism;

(o) It will comply with 523 and 527 of the Public Health Service Act of 1912 (42 U.S.C. 290 dd-3 and 290 ee-3), as amended, relating to confidentiality of alcohol and drug abuse patient records;

(p) It will comply with Lead-Based Paint Poison Prevention Act (42 U.S.C.: 4821 et seq.) which prohibits the use of lead based paint in construction of rehabilitation or residential structures;

(q) It will comply with the Energy Policy and Conservation Act (P.L. 94-163; 42 U.S.C. 6201-6422), and the provisions of the State Energy Conservation Plan adopted pursuant thereto;

(r) It will comply with the Laboratory Animal Welfare Act of 1966, 7 U.S.C. 2131-2159, pertaining to the care, handling, and treatment of warm blooded animals held for research, teaching, or other activities supported by an award of assistance under this agreement;

(s) It will comply with Title VIII of the Civil Rights Act of 1968, 42 U.S.C. 2000c and 42 3601-3619, as amended, relating to non-discrimination in the sale, rental, or financing of housing, and Title VI of the Civil Rights Act of 1964 (P.L. 88-352), which prohibits discrimination on the basis of race, color or nation origin;

(t) It will comply with the Clean Air Act of 1955, as amended, 42 U.S.C. 7401-7642;

(u) It will comply with the Clean Water Act of 1977, as amended, 42 U.S.C. 7419-7626;

(v) It will comply with the Endangered Species Act of 1973, 16 U.S.C. 1531-1544;

(w) It will comply with the Intergovernmental Personnel Act of 1970, 42 U.S.C. 4728-4763;

(x) It will assist the awarding agency in assuring compliance with the National Historic Preservation Act of 1966, as amended, 16 U.S.C. 270;

(y) It will comply with environmental standards which may be prescribed pursuant to the National Environmental Policy Act of 1969, 42 U.S.C. 4321-4347;

(z) It will assist the awarding agency in assuring compliance with the Preservation of Archeological and

Historical Preservation Act of 1966, 16 U.S.C. 469a, et seq;

(aa) It will comply with the Rehabilitation Act of 1973, Section 504, 29 U.S.C. 794, regarding non-discrimination;

(bb) It will comply with the environmental standards which may be prescribed pursuant to the Safe Drinking Water Act of 1974, 42 U.S.C. 300f-300j, regarding the protection of underground water sources;

(cc) It will comply with the requirements of Titles II and III of the Uniform Relocation Assistance and Property Acquisition Policies Act of 1970, 42 U.S.C. 4621-4638, which provide for fair and equitable treatment of persons displaced or whose property is acquired as a result of Federal or federally assisted programs;

(dd) It will comply with the Wild and Scenic Rivers Act of 1968, 16 U.S.C. 1271-1287, related to protecting components or potential components of the national wild and scenic rivers system;

(ee) It will comply with the following Executive Orders: EO 11514 (NEPA); EO 11738 (violating facilities); EO 11988 (Floodplain Management); EO 11990 (Wetlands); and EO 12898 (Environmental Justice);

(ff) It will comply with the Coastal Barrier Resources Act of 1977, 16 U.S.C. 3510;

(gg) It will assure project consistency with the approved State program developed under the Coastal Zone Management Act of 1972, 16 U.S.C. 1451-1464; and

(hh) It will comply with the Fish and Wildlife Coordination Act of 1958; 16 U.S.C. 661-666.

(ii) With respect to demolition activities, it will:

1. Create and make available documentation sufficient to demonstrate that the Recipient and its demolition contractor have sufficient manpower and equipment to comply with the obligations as outlined in this Agreement.

2. Return the property to its natural state as though no improvements had ever been contained thereon.

3. Furnish documentation of all qualified personnel, licenses and all equipment necessary to inspect buildings located in the Recipient's jurisdiction to detect the presence of asbestos and lead in accordance with requirements of the U.S. Environmental Protection Agency, the Florida Department of Environmental Protection and the County Health Department.

4. Provide documentation of the inspection results for each structure to indicate:
   a. Safety Hazards Present
   b. Health Hazards Present
   c. Hazardous Materials Present

5. Provide supervision over contractors or employees employed by the Recipient to remove asbestos and lead from demolished or otherwise applicable structures.

6. Leave the demolished site clean, level and free of debris.

7. Notify the Division promptly of any unusual existing condition which hampers the contractor's work.

8. Obtain all required permits.

9. Provide addresses and marked maps for each site where water wells and septic tanks are to be closed along with the number of wells and septic tanks located on each site. Provide documentation of closures.

10. Comply with mandatory standards and policies relating to energy efficiency which are contained in the State Energy Conservation Plan issued in compliance with the Energy Policy and Conservation Act (Public Law 94-163).

11. Comply with all applicable standards, orders, or requirements issued under Section 112 and 306 of the Clean Air Act (42 U.S.C. 1857 (h), Section 508 of the Clean Water Act (33 U.S. 1368), Executive Order 11738, and the U.S. Environmental Protection Agency regulations (40 CFR Part 15 and 61). This clause shall be added to any subcontracts.

12. Provide documentation of public notices for demolition activities.

Attachment D

DIVISION OF EMERGENCY MANAGEMENT

REQUEST FOR ADVANCE OR REIMBURSEMENT OF HAZARD MITIGATION GRANT PROGRAM FUNDS

RECIPIENT NAME: City of Key West

ADDRESS: _____

CITY, STATE, ZIP CODE: _____

PAYMENT No:_____ DEM Agreement No: 13HM-3B-11-54-02-136

FEMA Tracking Numbers: 1609-110-R Invoice Period: to

Eligible Amount 100%	Obligated Federal 75%	Obligated Non-Federal 25%	Previous Payments	Current Request	DEM Use Only	
					Approved	Comments

TOTAL CURRENT REQUEST $_____

I certify that to the best of my knowledge and belief the above accounts are correct, and that all disbursements were made in accordance with all conditions of the Division agreement and payment is due and has not been previously requested for these amounts.

RECIPIENT SIGNATURE _____

NAME AND TITLE _____ DATE:_____

TO BE COMPLETED BY DIVISION OF EMERGENCY MANAGEMENT

APPROVED PROJECT TOTAL $_____

ADMINISTRATIVE COST $ _____

APPROVED FOR PAYMENT $_____

_____
GOVERNOR'S AUTHORIZED REPRESENTATIVE

_____
DATE

Attachment D
(continued)

DIVISION OF EMERGENCY MANAGEMENT

SUMMARY OF DOCUMENTATION IN SUPPORT OF AMOUNT CLAIMED FOR ELIGIBLE DISASTER WORK UNDER THE HAZARD MITIGATION GRANT PROGRAM

RECIPIENT NAME: City of Key West Disaster No.: 1609

DEM Agreement No: 13HM-3B-11-54-02-136 FEMA Tracking #: 1609-110-R

Applicant's Reference No. (Warrant, Voucher, Claim Check, or Schedule No.)	Date of delivery of articles, completion of work or performance services.	DOCUMENTATION List Documentation (Applicant's payroll, material out of applicant's stock, applicant owned equipment and name of vendor or contractor) by category and line item in the approved project application and give a brief description of the articles or services.	Applicant's Eligible Costs 100%
		TOTAL	

Attachment E

JUSTIFICATION OF ADVANCE PAYMENT

RECIPIENT:

If you are requesting an advance, indicate same by checking the box below.

[ ] ADVANCE REQUESTED
Advance payment of $ _____ is requested. Balance of payments will be made on a reimbursement basis. These funds are needed to pay staff, award benefits to clients, duplicate forms and purchase start-up supplies and equipment. We would not be able to operate the program without this advance.

If you are requesting an advance, complete the following chart and line item justification below.

ESTIMATED EXPENSES

BUDGET CATEGORY/LINE ITEMS (list applicable line items)	**20___-20___ Anticipated Expenditures for First Three Months of Contract**
For example ADMINISTRATIVE COSTS (Include Secondary Administration.)	
For example PROGRAM EXPENSES	
TOTAL EXPENSES	

LINE ITEM JUSTIFICATION **(For each line item, provide a detailed justification explaining the need for the cash advance. The justification must include supporting documentation that clearly shows the advance will be expended within the first ninety (90) days of the contract term. Support documentation should include quotes for purchases, delivery timelines, salary and expense projections, etc. to provide the Division reasonable and necessary support that the advance will be expended within the first ninety (90) days of the contract term. Any advance funds not expended within the first ninety (90) days of the contract term shall be returned to the Division Cashier, 2555 Shumard Oak Boulevard, Tallahassee, Florida 32399, within thirty (30) days of receipt, along with any interest earned on the advance)**

_____

_____

_____

_____

Attachment F

DIVISION OF EMERGENCY MANAGEMENT
HAZARD MITIGATION GRANT PROGRAM
QUARTERLY REPORT FORM

RECIPIENT: City of Key West Project Number #: 1609-110-R

PROJECT LOCATION Drainage DEM ID #: 13HM-3B-11-54-02-136

DISASTER NUMBER: 1609 QUARTERENDING: _____

Provide amount of advance funds disbursed for period (if applicable) $_____
Provide reimbursement projections for this project:

July-Sep, 20___$_____ Oct-Dec, 20__$_____ Jan-Mar, 20__$_____ Apr-June, 20__$_____
July-Sep, 20___$_____ Oct-Dec, 20__$_____ Jan-Mar, 20__$_____ Apr-June, 20__$_____

Percentage of Work Completed (may be confirmed by state inspectors): _____%

Project Proceeding on Schedule: [ ] Yes [ ] No

Describe milestones achieved during this quarter:

_____

_____

Provide a schedule for the remainder of work to project completion:

_____

_____

Describe problems or circumstances affecting completion date, milestones, scope of work, and cost:

_____

_____

Cost Status: [ ] Cost Unchanged [__] Under Budget [___] Over Budget

Additional Comments/Elaboration:

_____

_____

NOTE: Division of Emergency Management (DEM) staff may perform interim inspections and/or audits at any time. Events may occur between quarterly reports, which have significant impact upon your project(s), such as anticipated overruns, changes in scope of work, etc. Please contact the Division as soon as these conditions become known, otherwise you may be found non-compliant with your subgrant award.

Name and Phone Number of Person Completing This Form _____

Attachment G

Warranties and Representations

Financial Management

Recipient's financial management system shall provide for the following:

(1) Accurate, current and complete disclosure of the financial results of this project or program

(2) Records that identify the source and use of funds for all activities. These records shall contain information pertaining to grant awards, authorizations, obligations, unobligated balances, assets, outlays, income and interest.

(3) Effective control over and accountability for all funds, property and other assets. Recipient shall safeguard all such assets and assure that they are used solely for authorized purposes.

(4) Comparison of expenditures with budget amounts for each Request For Payment. Whenever appropriate, financial information should be related to performance and unit cost data.

(5) Written procedures to determine whether costs are allowed and reasonable under the provisions of the applicable OMB cost principles and the terms and conditions of this Agreement.

(6) Cost accounting records that are supported by backup documentation..

Competition.
All procurement transactions shall be done in a manner to provide open and free competition. The Recipient shall be alert to conflicts of interest as well as noncompetitive practices among contractors that may restrict or eliminate competition or otherwise restrain trade. In order to ensure excellent contractor performance and eliminate unfair competitive advantage, contractors that develop or draft specifications, requirements, statements of work, invitations for bids and/or requests for proposals shall be excluded from competing for such procurements. Awards shall be made to the bidder or offeror whose bid or offer is responsive to the solicitation and is most advantageous to the Recipient, considering the price, quality and other factors. Solicitations shall clearly set forth all requirements that the bidder or offeror must fulfill in order for the bid or offer to be evaluated by the Recipient. Any and all bids or offers may be rejected when it is in the Recipient's interest to do so.

Codes of Conduct.
The Recipient shall maintain written standards of conduct governing the performance of its employees engaged in the award and administration of contracts. No employee, officer, or agent shall participate in the selection, award, or administration of a contract supported by public grant funds if a real or apparent conflict of interest would be involved. Such a conflict would arise when the employee, officer, or agent, any member of his or her immediate family, his or her partner, or an organization which employs or is about to employ any of the parties indicated, has a financial or other interest in the firm selected for an award. The officers, employees, and agents of the Recipient shall neither solicit nor accept gratuities, favors, or anything of monetary value from contractors, or parties to subcontracts. The standards of conduct shall provide for disciplinary actions to be applied for violations of such standards by officers, employees, or agents of the Recipient.

Business Hours
The Recipient shall have its offices open for business, with the entrance door open to the public, and at least one employee on site, from 8:00 a.m. to 5:00 p.m., local time, Monday through Friday.

Licensing and Permitting
All subcontractors or employees hired by the Recipient shall have all current licenses and permits required for all of the particular work for which they are hired by the Recipient.

Attachment H

Certification Regarding Debarment, Suspension, Ineligibility And Voluntary Exclusion

Contractor Covered Transactions

(1) The prospective contractor of the Recipient, City of Key West, certifies, by submission of this document, that neither it nor its principals is presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participation in this transaction by any Federal department or agency.

(2) Where the Recipient's contractor is unable to certify to the above statement, the prospective contractor shall attach an explanation to this form.

CONTRACTOR:

_____

By_____
Signature

_____
Name and Title

_____
Street Address

_____
City, State, Zip

_____
Date

City of Key West
Recipient's Name

13HM-3B-11-54-02-136
Division Contract Number

1609-110-R
FEMA Project Number

Attachment H

Certification Regarding Debarment, Suspension, Ineligibility And Voluntary Exclusion

Contractor Covered Transactions

(1) The prospective contractor of the Recipient, City of Key West, certifies, by submission of this document, that neither it nor its principals is presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participation in this transaction by any Federal department or agency.

(2) Where the Recipient's contractor is unable to certify to the above statement, the prospective contractor shall attach an explanation to this form.

CONTRACTOR:

_____

By JKScholl
Signature

J.K. Scholl, City Manager
Name and Title

3130 Flagler Avenue
Street Address

Key West, FL 33040
City, State, Zip

7-17-12
Date

City of Key West
Recipient's Name

13HM-3B-11-54-02-
Division Contract Number

1609-110-R
FEMA Project Number

RESOLUTION NO. 09-006

A RESOLUTION OF THE CITY COMMISSION OF THE CITY OF KEY WEST, FLORIDA, APPROVING STATE OF FLORIDA DIVISION OF EMERGENCY MANAGEMENT/FEMA GRANT FUNDING IN THE AMOUNT OF $227,760.00, WITH A CITY MATCH OF $84,240.00 FROM THE STORM WATER UTILITY, TO DESIGN A PUMP ASSISTED STORM WATER OUTFALL SYSTEM TO REDUCE FLOODING IN THE UNITED/GEORGE STREET BASIN; AUTHORIZING A BUDGET TRANSFER OF $63,990.00 FROM OPERATING CONTINGENCY; PROVIDING FOR AN EFFECTIVE DATE

WHEREAS, funding is available to the City of Key West from the State of Florida in the amount of $227,760.00 for storm water management, which requires a City contribution of $84,240.00.

NOW, THEREFORE, BE IT RESOLVED BY THE CITY COMMISSION OF THE CITY OF KEY WEST, FLORIDA, AS FOLLOWS:

Section 1: That a FEMA grant in the amount of $227,760.00 is hereby approved.

Section 2: That a budget transfer of $63,990.00 from the operating contingency for this project is hereby approved.

Section 3: That this Resolution shall go into effect immediately upon its passage and adoption and authentication by the signature of the presiding officer and the Clerk of the Commission.

Passed and adopted by the City Commission at a meeting held this 6th day of January, 2009.

Authenticated by the presiding officer and Clerk of the Commission on January 7, 2009.

Filed with the Clerk January 7, 2009.

MORGAN McPHERSON, MAYOR

ATTEST:

CHERYL SMITH, CITY CLERK

GENERAL SERVICES DEPARTMENT MEMORANDUM

EXECUTIVE SUMMARY

TO: **Jim Scholl , City Manager**

FROM: **Annalise Mannix, P.E. Manager of Engineering Services and Environmental Programs**

VIA: **David Fernandez, Assistant City Manager**
Gary Bowman, General Services Director

DATE: **December 8, 2008**

RE: **State of Florida Division of Emergency Management/FEMA Grant Funding for the George/1st Street Pump Station Drainage Phase 1 (Design)**

ACTION STATEMENT: Resolution authorizing the execution of a State of Florida Division of Emergency Management grant for $227,760.00 with a city match of $84,240 from the Stormwater Utility to design a pump assisted storm water outfall system to reduce flooding in the United/George Street drainage basin. Authorizing a FY 09 budget transfer for $63,990 from Stormwater Operating Contingency account number 402 3802 535.98.

STRATIGIC PLAN INITIATIVE
The maintenance and improvement of our stormwater system is essential in protecting our nearshore water quality which is a key goal in the City's strategic and Business Plan.

BACKGROUND:
Mitigation is one of the cornerstones of emergency management. Its goal is to lessen the impact that disasters have on people's lives and property. Authorized under Section 404 of the Robert T. Stafford Disaster Relief and Emergency Assistance Act, the Hazard Mitigation Grant Program (HMGP) is administered by the Federal Emergency Management Agency (FEMA) and the Florida Division of Emergency Management (DEM). The City has been awarded an HMGP grant for this project.

Flooding due to large rains has caused disruption of vehicular travel on United Street for years. Flooding impacts numerous homes and has required, in the past, barricade placement during flood events taking critical staff away from stormwater duties. The City Stormwater Utility applied for Hurricane Wilma HMGP funds in 2005 to implement a project to reduce the rain related flooding. The Stormwater Utility's grant application ranked high enough to be funded due to the social and economic affects the project will have.

PURPOSE & JUSTIFICATION:

FEMA has approved the application in two phases. Phase I is the design of the stormwater system, the hydraulics of the pre and post project, a cost to benefit analysis to demonstrate the mitigation effectiveness of the infrastructure a set of community approved, and state reviewed construction plans and bid documents.

If Phase I is completed successfully and the cost to benefit analysis is good the state will authorize the construction project. Phase II work will include a pump station well and outfall to accept stormwater flow and dispose of it.

The DCA has supplied the Utility an initial contract to perform the design work in Phase I. The design phase grant is for $227,760.00. The Stormwater Utility match is 25%, or $84,240 for a total project of $312,000. A fee is provided to the city for sub-grantee administration of the grant ($7,240). The time frame for the design work is 13 months.

The Utility seeks grant funding to match City funding to leverage many projects that the City not afford alone. This grant is one of many the Utility has received in an effort to reduce the financial burden our citizens.

OPTIONS:
Accept the grant and obtain a design to reduce flooding on United Street and surrounding areas.

Fund a design to reduce flooding on United Street with only City of Key West funding.

Do not attempt this design to reduce flooding in the United Street Area.

FINANCIAL IMPACT:
The total project cost for this design program will be $312,000. Under the FEMA/Division of Emergency Management grant program the City will be required to supply a 25% ($84,240) match which is currently in the utility budget. The match for this project will be funded through budget line item # 402-3802-535-65-00. The match require a FY 09 budget transfer for $63,990 from Stormwater Operating Contingency account number 402 3802 535.98.

Due to the expense of this project the city cannot afford to move forward wit this project with out this FEMA HMGP funding.

RECOMMENDATION:
Execute this contract.

09-006

STATE OF FLORIDA

DIVISION OF EMERGENCY MANAGEMENT

CHARLIE CRIST
Governor

W. CRAIG FUGATE
Director

February 20, 2009

2009 FEB 27 PM 12:24
CITY CLERK
KEY WEST, FLORIDA

Ms. Cheri Smith
City Clerk
City of Key West
525 Angela Street
Key West, Florida 33040

Re: FEMA Project 1609-110-R
City of Key West, Monroe County, George/1st Street Station, Drainage, Phase I

Dear Ms. Smith:

Enclosed is the executed Hazard Mitigation Grant Program contract (DEM No. 09HM-37-11-54-02-030) between City of Key West and the Division of Emergency Management. Upon completion of the work identified in the contract, a Request for Reimbursement form (Attachment D) should be completed and submitted to the Division for processing in accordance with Paragraphs (17) and (18) of the Agreement. Additional assistance is available regarding your Project on the Florida Division of Emergency Management Website: **http://www.floridadisaster.org/brm/hmgp.htm**. Please reference the heading: "Grant Management Tools Listed Below" which contains sample documents that will provide guidance for completing requests for reimbursement, reporting requirements and supporting documents containing important points, and subgrantee close-out checklists.

Please forward all Requests for Reimbursement (Attachment D) to the Division of Emergency Management at the following address:

Shaurita Jackson, Project Manager
Division of Emergency Management
State of Florida, Mitigation Section
2555 Shumard Oaks Boulevard
Tallahassee, Florida 32399-2100

If you have any specific questions regarding the contract or the Request for Reimbursement form, please call Shaurita Jackson at (850) 922-5332.

Respectfully,

Miles E. Anderson, State Hazard Mitigation Officer
Bureau of Recovery and Mitigation
Mitigation Section

WCF:sj/w

Enclosures

Contract Number: 09HM-37-11-54-02-030
CFDA Number: 97.039

FEDERALLY FUNDED SUBGRANT AGREEMENT

THIS AGREEMENT is entered into by the State of Florida, Division of Emergency Management, with headquarters in Tallahassee, Florida (hereinafter referred to as the "Division"), and City of Key West, (hereinafter referred to as the "Recipient").

THIS AGREEMENT IS ENTERED INTO BASED ON THE FOLLOWING REPRESENTATIONS:

A. The Recipient represents that it is fully qualified and eligible to receive these grant funds to provide the services identified herein; and

B. The Division has received these grant funds from the State of Florida, and has the authority to subgrant these funds to the Recipient upon the terms and conditions below; and

C. The Division has statutory authority to disburse the funds under this Agreement.

THEREFORE, the Division and the Recipient agree to the following:

(1) SCOPE OF WORK

The Recipient shall perform the work in accordance with the Budget and Scope of Work, Attachment A of this Agreement.

(2) INCORPORATION OF LAWS, RULES, REGULATIONS AND POLICIES

The Recipient and the Division shall be governed by applicable State and Federal laws, rules and regulations, including those identified in Attachment B.

(3) PERIOD OF AGREEMENT

This Agreement shall begin on June 24, 2008 and shall end July 28, 2009, unless terminated earlier in accordance with the provisions of Paragraph (12) of this Agreement.

(4) MODIFICATION OF CONTRACT

Either party may request modification of the provisions of this Agreement. Changes which are agreed upon shall be valid only when in writing, signed by each of the parties, and attached to the original of this Agreement.

(5) RECORDKEEPING

(a) As applicable, Recipient's performance under this Agreement shall be subject to the federal "Common Rule: Uniform Administrative Requirements for State and Local Governments" (53 Federal Register 8034) or OMB Circular No. A-110, "Grants and Agreements with Institutions of High Education, Hospitals, and Other Nonprofit Organizations," and either OMB Circular No. A-87, "Cost Principles for State and Local Governments," OMB Circular No. A-21, "Cost Principles for Educational Institutions," or OMB Circular No. A-122, "Cost Principles for Nonprofit Organizations." If this Agreement is made with a commercial (for-profit) organization on a cost-reimbursement basis, the Recipient shall be subject to Federal Acquisition Regulations 31.2 and 931.2.

(b) The Recipient shall retain sufficient records to show its compliance with the terms of this

Agreement, and the compliance of all subcontractors or consultants paid from funds under this Agreement, for a period of five years from the date the audit report is issued, and shall allow the Division or its designee, the State Chief Financial Officer or the State Auditor General access to the records upon request. The Recipient shall ensure that audit working papers are available to them upon request for a period of five years from the date the audit report is issued, unless extended in writing by the Division. The five year period may be extended for the following exceptions:

1. If any litigation, claim or audit is started before the five year period expires, and extends beyond the five year period, the records shall be retained until all litigation, claims or audit findings involving the records have been resolved.

2. Records for the disposition of non-expendable personal property valued at $5,000 or more at the time it is acquired shall be retained for five years after final disposition.

3. Records relating to real property acquired shall be retained for five years after the closing on the transfer of title.

(c) The Recipient shall maintain all records for the Recipient and for all subcontractors or consultants to be paid from funds provided under this Agreement, including documentation of all program costs, in a form sufficient to determine compliance with the requirements and objectives of the Budget and Scope of Work - Attachment A - and all other applicable laws and regulations.

(d) The Recipient, its employees or agents, including all subcontractors or consultants to be paid from funds provided under this Agreement, shall allow access to its records at reasonable times to the Division, its employees, and agents. "Reasonable" shall ordinarily mean during normal business hours of 8:00 a.m. to 5:00 p.m., local time, on Monday through Friday. "Agents" shall include, but not be limited to, auditors retained by the Division.

(6) AUDIT REQUIREMENTS

(a) The Recipient agrees to maintain financial procedures and support documents, in accordance with generally accepted accounting principles, to account for the receipt and expenditure of funds under this Agreement.

(b) These records shall be available at reasonable times for inspection, review, or audit by state personnel and other personnel authorized by the Department or the Division. "Reasonable" shall ordinarily mean normal business hours of 8:00 a.m. to 5:00 p.m., local time, Monday through Friday.

(c) The Recipient shall provide the Department with the records, reports or financial statements upon request for the purposes of auditing and monitoring the funds awarded under this Agreement.

(d) If the Recipient is a State or local government or a non-profit organization as defined in OMB Circular A-133, as revised, and in the event that the Recipient expends $500,000 or more in Federal awards in its fiscal year, the Recipient must have a single or program-specific audit conducted in accordance with the provisions of OMB Circular A-133, as revised. EXHIBIT 1 to this Agreement shows the Federal resources awarded through the Division by this Agreement. In determining the Federal awards expended in its fiscal year, the Recipient shall consider all sources of Federal awards, including Federal resources received from the Division. The determination

of amounts of Federal awards expended should be in accordance with the guidelines established by OMB Circular A-133, as revised. An audit of the Recipient conducted by the Auditor General in accordance with the provisions of OMB Circular A-133, as revised, will meet the requirements of this paragraph.

In connection with the audit requirements addressed in this Paragraph 6 (d) above, the Recipient shall fulfill the requirements for auditee responsibilities as provided in Subpart C of OMB Circular A-133, as revised.

If the Recipient expends less than $500,000 in Federal awards in its fiscal year, an audit conducted in accordance with the provisions of OMB Circular A-133, as revised, is not required. In the event that the Recipient expends less than $500,000 in Federal awards in its fiscal year and chooses to have an audit conducted in accordance with the provisions of OMB Circular A-133, as revised, the cost of the audit must be paid from non-Federal funds.

(e) Send copies of reporting packages for audits conducted in accordance with OMB Circular A-133, as revised, and required by subparagraph (d) above, when required by Section .320 (d), OMB Circular A-133, as revised, by or on behalf of the Recipient to:

The Division at each of the following addresses:

Department of Community Affairs
Office of Audit Services
2555 Shumard Oak Boulevard
Tallahassee, Florida 32399-2100
[also send an electronic copy to aurilla.parrish@dca.state.fl.us]

and

Division of Emergency Management
Bureau of Recovery and Mitigation
2555 Shumard Oak Boulevard
Tallahassee, Florida 32399-2100

The Federal Audit Clearinghouse designated in OMB Circular A-133, as revised (submit the number of copies required by Sections .320(d)(1) and (2), OMB Circular A-133, as revised), at the following address:

Federal Audit Clearinghouse
Bureau of the Census
1201 East 10th Street
Jeffersonville, IN 47132

Other Federal agencies and pass-through entities in accordance with Sections .320 (e) and (f), OMB Circular A-133, as revised.

(f) Pursuant to Section .320 (f), OMB Circular A-133, as revised, the Recipient shall send a copy of the reporting package described in Section .320 (c), OMB Circular A-133, as revised, and any management letter issued by the auditor, to the Division at the following addresses:

Department of Community Affairs
Office of Audit Services
2555 Shumard Oak Boulevard
Tallahassee, Florida 32399-2100
[also send an electronic copy to aurilla.parrish@dca.state.fl.us]

and

Division of Emergency Management
Bureau of Recovery and Mitigation
2555 Shumard Oak Boulevard
Tallahassee, Florida 32399-2100

(g) By the date due, send any reports, management letter, or other information required to be submitted to the Division pursuant to this Agreement in accordance with OMB Circular A-133, Florida Statutes, and Chapters 10.550 (local governmental entities) or 10.650 (nonprofit and for-profit organizations), Rules of the Auditor General, as applicable.

(h) Recipients should state the date that the reporting package was delivered to the Recipient when submitting financial reporting packages to the Division for audits done in accordance with OMB Circular A-133 or Chapters 10.550 (local governmental entities) or 10.650 (nonprofit and for-profit organizations), Rules of the Auditor General,

(i) If the audit shows that all or any portion of the funds disbursed were not spent in accordance with the conditions of this Agreement, the Recipient shall be held liable for reimbursement to the Division of all funds not spent in accordance with these applicable regulations and Agreement provisions within thirty days after the Division has notified the Recipient of such non-compliance.

(j) The Recipient shall have all audits completed by an independent certified public accountant (IPA), either a certified public accountant or a public accountant licensed under Chapter 473, Fla. Stat. The IPA shall state that the audit complied with the applicable provisions noted above. The audit must be received by the Division no later than nine months from the end of the Recipient's fiscal year.

(7) REPORTS

(a) The Recipient shall provide the Division with quarterly reports and a close-out report. These reports shall include the current status and progress by the Recipient and all subrecipients and subcontractors in completing the work described in the Scope of Work and the expenditure of funds under this Agreement, in addition to any other information requested by the Division.

(b) Quarterly reports are due to the Division no later than 15 days after the end of each quarter of the program year and shall be sent each quarter until submission of the administrative close-out report. The ending dates for each quarter of the program year are March 31, June 30, September 30 and December 31.

(c) The close-out report is due 60 days after termination of this Agreement or 60 days after completion of the activities contained in this Agreement, whichever first occurs.

(d) If all required reports and copies are not sent to the Division or are not completed in a manner acceptable to the Division, the Division may withhold further payments until they are completed or may take other action as stated in Paragraph (11) REMEDIES. "Acceptable to the Division" means that the work product was completed in accordance with the Budget and Scope of Work.

(e) The Recipient shall provide additional program updates or information that may be required by the Division.

(f) The Recipient shall provide additional reports and information identified in Attachment F.

(8) MONITORING

The Recipient shall monitor its performance under this Agreement, as well as that of its subcontractors and/or consultants who are paid from funds provided under this Agreement, to ensure that time schedules are being met, the Schedule of Deliverables and Scope of Work are being accomplished within the specified time periods, and other performance goals are being achieved. A review shall be done for each function or activity in Attachment A to this Agreement, and reported in the quarterly report.

In addition to reviews of audits conducted in accordance with paragraph (6) above, monitoring procedures may include, but not be limited to, on-site visits by Division staff, limited scope audits, and/or other procedures. The Recipient agrees to comply and cooperate with any monitoring procedures/processes deemed appropriate by the Division. In the event that the Division or the Department determines that a limited scope audit of the Recipient is appropriate, the Recipient agrees to comply with any additional instructions provided by the Division or the Department to the Recipient regarding such audit. The Recipient further agrees to comply and cooperate with any inspections, reviews, investigations or audits deemed necessary by the Florida Chief Financial Officer or Auditor General. In addition, the Division will monitor the performance and financial management by the Recipient throughout the contract term to ensure timely completion of all tasks.

(9) LIABILITY

(a) Unless Recipient is a State agency or subdivision, as defined in Section 768.28, Fla. Stat., the Recipient is solely responsible to parties it deals with in carrying out the terms of this Agreement, and shall hold the Division harmless against all claims of whatever nature by third parties arising from the work performance under this Agreement. For purposes of this Agreement, Recipient agrees that it is not an employee or agent of the Division, but is an independent contractor.

(b) Any Recipient which is a state agency or subdivision, as defined in Section 768.28, Fla. Stat., agrees to be fully responsible for its negligent or tortious acts or omissions which result in claims or suits against the Division, and agrees to be liable for any damages proximately caused by the acts or omissions to the extent set forth in Section 768.28, Fla. Stat. Nothing herein is intended to serve as a waiver of sovereign immunity by any Recipient to which sovereign immunity applies. Nothing herein shall be construed as consent by a state agency or subdivision of the State of Florida to be sued by third parties in any matter arising out of any contract.

(10) DEFAULT

If any of the following events occur ("Events of Default"), all obligations on the part of the Division to make further payment of funds shall, if the Division elects, terminate and the Division has the option to exercise any of its remedies set forth in Paragraph (11). However, the Division may make payments or partial payments after any Events of Default without waiving the right to exercise such remedies, and without becoming liable to make any further payment:

(a) If any warranty or representation made by the Recipient in this Agreement or any previous agreement with the Division is or becomes false or misleading in any respect, or if the Recipient fails to keep or

perform any of the obligations, terms or covenants in this Agreement or any previous agreement with the Division and has not cured them in timely fashion, or is unable or unwilling to meet its obligations under this Agreement;

(b) If material adverse changes occur in the financial condition of the Recipient at any time during the term of this Agreement, and the Recipient fails to cure this adverse change within thirty days from the date written notice is sent by the Division.

(c) If any reports required by this Agreement have not been submitted to the Division or have been submitted with incorrect, incomplete or insufficient information;

(d) If the Recipient has failed to perform and complete on time any of its obligations under this Agreement.

(11) REMEDIES

If an Event of Default occurs, then the Division may, after thirty calendar days written notice to the Recipient and upon the Recipient's failure to cure within those thirty days, exercise any one or more of the following remedies, either concurrently or consecutively:

(a) Terminate this Agreement, provided that the Recipient is given at least thirty days prior written notice of the termination. The notice shall be effective when placed in the United States, first class mail, postage prepaid, by registered or certified mail-return receipt requested, to the address in paragraph (13) herein;

(b) Begin an appropriate legal or equitable action to enforce performance of this Agreement;

(c) Withhold or suspend payment of all or any part of a request for payment;

(d) Require that the Recipient refund to the Division any monies used for ineligible purposes under the laws, rules and regulations governing the use of these funds.

(e) Exercise any corrective or remedial actions, to include but not be limited to:

1. request additional information from the Recipient to determine the reasons for or the extent of non-compliance or lack of performance,

2. issue a written warning to advise that more serious measures may be taken if the situation is not corrected,

3. advise the Recipient to suspend, discontinue or refrain from incurring costs for any activities in question or

4. require the Recipient to reimburse the Division for the amount of costs incurred for any items determined to be ineligible;

(f) Exercise any other rights or remedies which may be available under law.

(g) Pursuing any of the above remedies will not stop the Division from pursuing any other remedies in this Agreement or provided at law or in equity. If the Division waives any right or remedy in this Agreement or fails to insist on strict performance by the Recipient, it will not affect, extend or waive any other right or remedy of the Division, or affect the later exercise of the same right or remedy by the Division for any other default by the Recipient.

(12) TERMINATION

(a) The Division may terminate this Agreement for cause after thirty days written notice. Cause can include misuse of funds, fraud, lack of compliance with applicable rules, laws and regulations, failure to perform on time, and refusal by the Recipient to permit public access to any document, paper, letter, or other material subject to disclosure under Chapter 119, Fla. Stat., as amended.

(b) The Division may terminate this Agreement for convenience or when it determines, in its sole discretion, that continuing the Agreement would not produce beneficial results in line with the further expenditure of funds, by providing the Recipient with thirty calendar days prior written notice.

(c) The parties may agree to terminate this Agreement for their mutual convenience through a written amendment of this Agreement. The amendment will state the effective date of the termination and the procedures for proper closeout of the Agreement.

(d) In the event that this Agreement is terminated, the Recipient will not incur new obligations for the terminated portion of the Agreement after the Recipient has received the notification of termination. The Recipient will cancel as many outstanding obligations as possible. Costs incurred after receipt of the termination notice will be disallowed. The Recipient shall not be relieved of liability to the Division because of any breach of Agreement by the Recipient. The Division may, to the extent authorized by law, withhold payments to the Recipient for the purpose of set-off until the exact amount of damages due the Division from the Recipient is determined.

(13) NOTICE AND CONTACT

(a) All notices provided under or pursuant to this Agreement shall be in writing, either by hand delivery, or first class, certified mail, return receipt requested, to the representative named below, at the address below, and this notification attached to the original of this Agreement.

(b) The name and address of the Division contract manager for this Agreement is:

Ms. Kathleen Marshall, Planning Manager
Bureau of Recovery and Mitigation
Division of Emergency Management
2555 Shumard Oak Boulevard
Tallahassee, Florida 32399
Telephone: (850) 922-5944
Fax: (850) 922-1259
Email: kathleen.marshall@em.myflorida.com

(c) The name and address of the Representative of the Recipient responsible for the administration of this Agreement is:

Ms. Annalise Mannix-Lachner
City Stormwater Engineer
City of Key West
627 Palm Avenue
Key West, Florida, 33040
Telephone: (305) 797-0463
Fax: (305) 292-8244
Email: amannix@keywestcity.com

(d) In the event that different representatives or addresses are designated by either party after execution of this Agreement, notice of the name, title and address of the new representative will be provided as outlined in (13)(a) above.

(14) SUBCONTRACTS

If the Recipient subcontracts any of the work required under this Agreement, a copy of the fully executed subcontract must be forwarded to the Division within ten days of execution for review and approval. The Recipient agrees to include in the subcontract that (i) the subcontractor is bound by the terms of this Agreement, (ii) the subcontractor is bound by all applicable state and federal laws and regulations, and (iii) the subcontractor shall hold the Division and Recipient harmless against all claims of whatever nature arising out of the subcontractor's performance of work under this Agreement, to the extent allowed and required by law. The Recipient shall document in the quarterly report the subcontractor's progress in performing its work under this Agreement.

For each subcontract, the Recipient shall provide a written statement to the Division as to whether that subcontractor is a minority vendor, as defined in Section 288.703, Fla. Stat.

(15) TERMS AND CONDITIONS

This Agreement contains all the terms and conditions agreed upon by the parties.

(16) ATTACHMENTS

(a) All attachments to this Agreement are incorporated as if set out fully.

(b) In the event of any inconsistencies or conflict between the language of this Agreement and the attachments, the language of the attachments shall control, but only to the extent of the conflict or inconsistency.

(c) This Agreement has the following attachments:

Exhibit 1 - Funding Sources
Attachment A – Budget and Scope of Work
Attachment B – Program Statutes and Regulations
Attachment C – Statement of Assurances
Attachment D – Request for Reimbursement
Attachment E – Justification of Advance
Attachment F – Quarterly Report Form
Attachment G – Warranties and Representations
Attachment H – Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion

(17) FUNDING/CONSIDERATION

(a) This is a cost-reimbursement Agreement. The Recipient shall be reimbursed for costs incurred in the satisfactory performance of work hereunder in an amount not to exceed $235,000.00 subject to the availability of funds. All requests for reimbursement of administrative costs must be accompanied by the back-up documentation evidencing all such administrative costs.

(b) Any advance payment under this Agreement is subject to Section 216.181(16), Fla.Stat., and is

contingent upon the Recipient's acceptance of the rights of the Division under Paragraph (12)(b) of this Agreement. The amount which may be advanced may not exceed the expected cash needs of the Recipient within the first three (3) months of the contract term. For a federally funded contract, any advance payment is also subject to federal OMB Circulars A-87, A-110, A-122 and the Cash Management Improvement Act of 1990. If an advance payment is requested, the budget data on which the request is based and a justification statement shall be included in this Agreement as Attachment E. Attachment E will specify the amount of advance payment needed and provide an explanation of the necessity for and proposed use of these funds.

_____ An advance payment of $_____ is requested.

(c) After the initial advance, if any, payment shall be made on a reimbursement basis as needed. The Recipient agrees to expend funds in accordance with the Budget and Scope of Work, Attachment A of this Agreement.

If the necessary funds are not available to fund this Agreement as a result of action by the United States Congress, the federal Office of Management and Budgeting, the State Chief Financial Officer or under subparagraph (19)(h) of this Agreement, all obligations on the part of the Division to make any further payment of funds shall terminate, and the Recipient shall submit its closeout report within thirty days of receiving notice from the Division.

(18) REPAYMENTS

All refunds or repayments due to the Division under this Agreement are to be made payable to the order of "Department of Community Affairs", and mailed directly to the following address:

Department of Community Affairs
Cashier
Finance and Accounting
2555 Shumard Oak Boulevard
Tallahassee FL 32399-2100

In accordance with Section 215.34(2), Fla. Stat., if a check or other draft is returned to the Division for collection, Recipient shall pay the Division a service fee of $15.00 or 5% of the face amount of the returned check or draft, whichever is greater.

(19) MANDATED CONDITIONS

(a) The validity of this Agreement is subject to the truth and accuracy of all the information, representations, and materials submitted or provided by the Recipient in this Agreement, in any later submission or response to a Division request, or in any submission or response to fulfill the requirements of this Agreement. All of said information, representations, and materials is incorporated by reference. The inaccuracy of the submissions or any material changes shall, at the option of the Division and with thirty days written notice to the Recipient, cause the termination of this Agreement and the release of the Division from all its obligations to the Recipient.

(b) This Agreement shall be construed under the laws of the State of Florida, and venue for any actions arising out of this Agreement shall be in the Circuit Court of Leon County. If any provision of this Agreement is in conflict with any applicable statute or rule, or is unenforceable, then the provision shall be null and void to the extent of the conflict, and shall be severable, but shall not invalidate any other provision of this Agreement.

(c) Any power of approval or disapproval granted to the Division under the terms of this Agreement shall survive the term of this Agreement.

(d) The Agreement may be executed in any number of counterparts, any one of which may be taken as an original.

(e) The Recipient agrees to comply with the Americans With Disabilities Act (Public Law 101-336, 42 U.S.C. Section 12101 et seq.), which prohibits discrimination by public and private entities on the basis of disability in employment, public accommodations, transportation, State and local government services, and telecommunications.

(f) Those who have been placed on the convicted vendor list following a conviction for a public entity crime or on the discriminatory vendor list may not submit a bid on a contract to provide any goods or services to a public entity, may not submit a bid on a contract with a public entity for the construction or repair of a public building or public work, may not submit bids on leases of real property to a public entity, may not be awarded or perform work as a contractor, supplier, subcontractor, or consultant under a contract with a public entity, and may not transact business with any public entity in excess of $25,000.00 for a period of 36 months from the date of being placed on the convicted vendor list or on the discriminatory vendor list.

(g) Any Recipient which is not a local government or state agency, and which receives funds under this Agreement from the federal government, certifies, to the best of its knowledge and belief, that it and its principals:

1. are not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from covered transactions by a federal department or agency;

2. have not, within a five-year period preceding this proposal been convicted of or had a civil judgment rendered against them for fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (federal, state or local) transaction or contract under public transaction; violation of federal or state antitrust statutes or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, or receiving stolen property;

3. are not presently indicted or otherwise criminally or civilly charged by a governmental entity (federal, state or local) with commission of any offenses enumerated in paragraph 19(g)2. of this certification; and

4. have not within a five-year period preceding this Agreement had one or more public transactions (federal, state or local) terminated for cause or default.

If the Recipient is unable to certify to any of the statements in this certification, then the Recipient shall attach an explanation to this Agreement.

In addition, the Recipient shall send to the Division (by email or by facsimile transmission) the completed "Certification Regarding Debarment, Suspension, Ineligibility And Voluntary Exclusion" (Attachment H) for each intended subcontractor which Recipient plans to fund under this Agreement. The form must be received by the Division before the Recipient enters into a contract with any subcontractor.

(h) The State of Florida's performance and obligation to pay under this Agreement is contingent upon an annual appropriation by the Legislature, and subject to any modification in accordance with Chapter 216,

Fla. Stat. or the Florida Constitution.

(i) All bills for fees or other compensation for services or expenses shall be submitted in detail sufficient for a proper preaudit and postaudit thereof.

(j) Any bills for travel expenses shall be submitted in accordance with Section 112.061, Fla. Stat.

(k) The Division reserves the right to unilaterally cancel this Agreement if the Recipient refuses to allow public access to all documents, papers, letters or other material subject to the provisions of Chapter 119, Fla. Stat., which the Recipient created or received under this Agreement.

(l) If the Recipient is allowed to temporarily invest any advances of funds under this Agreement, any interest income shall either be returned to the Division or be applied against the Division's obligation to pay the contract amount.

(m) The State of Florida will not intentionally award publicly-funded contracts to any contractor who knowingly employs unauthorized alien workers, constituting a violation of the employment provisions contained in 8 U.S.C. Section 1324a(e) [Section 274A(e) of the Immigration and Nationality Act ("INA")]. The Division shall consider the employment by any contractor of unauthorized aliens a violation of Section 274A(e) of the INA. Such violation by the Recipient of the employment provisions contained in Section 274A(e) of the INA shall be grounds for unilateral cancellation of this Agreement by the Division.

(n) The Recipient is subject to Florida's Government in the Sunshine Law (Section 286.011, Fla. Stat.) with respect to the meetings of the Recipient's governing board or the meetings of any subcommittee making recommendations to the governing board. All of these meetings shall be publicly noticed, open to the public, and the minutes of all the meetings shall be public records, available to the public in accordance with Chapter 119, Fla. Stat.

(o) All unmanufactured and manufactured articles, materials and supplies which are acquired for public use under this Agreement must have been produced in the United States as required under 41 U.S.C. 10a, unless it would not be in the public interest or unreasonable in cost.

(20) LOBBYING PROHIBITION

(a) No funds or other resources received from the Division under this Agreement may be used directly or indirectly to influence legislation or any other official action by the Florida Legislature or any state agency.

(b) The Recipient certifies, by its signature to this Agreement, that to the best of his or her knowledge and belief:

1. No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment or modification of any Federal contract, grant, loan or cooperative agreement.

2. If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an

officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan or cooperative agreement, the Recipient shall complete and submit Standard Form-LLL, "Disclosure Form to Report Lobbying."

3. The Recipient shall require that this certification be included in the award documents for all subawards (including subcontracts, subgrants, and contracts under grants, loans, and cooperative agreements) and that all subrecipients shall certify and disclose.

This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by Section 1352, Title 31, U.S. Code. Any person who fails to file the required certification shall be subject to a civil penalty of not less than $10,000 and not more than $100,000 for each such failure.

(21) COPYRIGHT, PATENT AND TRADEMARK

ANY AND ALL PATENT RIGHTS ACCRUING UNDER OR IN CONNECTION WITH THE PERFORMANCE OF THIS AGREEMENT ARE HEREBY RESERVED TO THE STATE OF FLORIDA. ANY AND ALL COPYRIGHTS ACCRUING UNDER OR IN CONNECTION WITH THE PERFORMANCE OF THIS AGREEMENT ARE HEREBY TRANSFERRED BY THE RECIPIENT TO THE STATE OF FLORIDA.

(a) If the Recipient has a pre-existing patent or copyright, the Recipient shall retain all rights and entitlements to that pre-existing patent or copyright unless the Agreement provides otherwise.

(b) If any discovery or invention is developed in the course of or as a result of work or services performed under this Agreement, or in any way connected with it, the Recipient shall refer the discovery or invention to the Division for a determination whether the State of Florida will seek patent protection in its name. Any patent rights accruing under or in connection with the performance of this Agreement are reserved to the State of Florida. If any books, manuals, films, or other copyrightable material are produced, the Recipient shall notify the Division. Any copyrights accruing under or in connection with the performance under this Agreement are transferred by the Recipient to the State of Florida.

(c) Within thirty days of execution of this Agreement, the Recipient shall disclose all intellectual properties relating to the performance of this Agreement which he or she knows or should know could give rise to a patent or copyright. The Recipient shall retain all rights and entitlements to any pre-existing intellectual property which is disclosed. Failure to disclose will indicate that no such property exists. The Division shall then, under Paragraph (b), have the right to all patents and copyrights which accrue during performance of the Agreement.

(22) LEGAL AUTHORIZATION

The Recipient certifies that it has the legal authority to receive the funds under this Agreement and that its governing body has authorized the execution and acceptance of this Agreement. The Recipient also certifies that the undersigned person has the authority to legally execute and bind Recipient to the terms of this Agreement.

(23) ASSURANCES

The Recipient shall comply with any Statement of Assurances incorporated as Attachment C.

1609-10

IN WITNESS WHEREOF, the parties hereto have executed this Agreement.

RECIPIENT: CITY OF KEY WEST

BY: _____

Name and title: Morgan McPherson, Mayor

Date: 1/28/09

FID# 59-6000346

STATE OF FLORIDA

DIVISION OF EMERGENCY MANAGEMENT

BY: _____

Name and Title: W. Craig Fugate, Director

Date: 2/18/09

EXHIBIT – 1

THE FOLLOWING FEDERAL RESOURCES ARE AWARDED TO THE RECIPIENT UNDER THIS AGREEMENT:

NOTE: If the resources awarded to the Recipient are from more than one Federal program, provide the same information shown below for each Federal program and show total Federal resources awarded.

Federal Program: ***Federal Emergency Management Agency, Hazard Mitigation Grant***
Catalog of Federal Domestic Assistance Number: ***97.039***
Amount of Federal Funding: ***$235,000.00***

THE FOLLOWING COMPLIANCE REQUIREMENTS APPLY TO THE FEDERAL RESOURCES AWARDED UNDER THIS AGREEMENT:

NOTE: If the resources awarded to the Recipient represent more than one Federal program, list applicable compliance requirements for each Federal program in the same manner as shown below.

Federal Program:
List applicable compliance requirements as follows:

1. **Recipient is to use funding to perform the following eligible activities; include mitigation projects that will result in protection of public or private property from natural hazards. Eligible projects include, but are not limited to:**
   - **Acquisition of hazard prone properties**
   - **Retrofitting of existing buildings and facilities**
   - **Elevation of flood prone structures**
   - **Infrastructure protection measures**
   - **Storm water management improvements**
   - **Minor structural flood control projects**
   - **Relocation of structures from hazard prone areas**
   - **Retrofitting of existing buildings and facilities for shelters**
   - **Vegetative management/soil stabilization**
   - **Mitigation Planning Project**
   - **Other projects that reduce future disaster losses**

2. **Recipient is subject to all administrative and financial requirements as set forth in this Agreement, or will be in violation of the terms of the Agreement.**

NOTE: Instead of listing the specific compliance requirements as shown above, the State awarding agency may elect to use language that requires the Recipient to comply with the requirements of applicable provisions of specific laws, rules, regulations, etc. For example, for Federal Program 1, the language may state that the Recipient must comply with specific laws, rules, or regulations that pertain to how the awarded resources must be used or how eligibility determinations are to be made. The State awarding agency, if practical, may want to attach a copy of the specific law, rule, or regulation referred to.

NOTE: Section .400(d) of OMB Circular A-133, as revised, and Section 215.97(5)(a), Florida Statutes, require that the information about Federal Programs and State Projects included in Exhibit 1 be provided to the Recipient.

Attachment A

Budget and Scope of Work

Scope of Work

As a Hazard Mitigation Grant Program project, the Recipient, the City of Key West, proposes to improve the existing storm-water system by installing a wet well to collect stormwater and move water to two a 90 foot injection wells and piping to an outfall. The stormwater system is located at the intersection of George Street and First Street, Key West, Florida 33040. A Phase I study will be conducted to determined modifications needed to install a storm water pump station and outfall system. Phase I study will consist of an engineering study, design services and permitting. The completed study, design and construction project will prevent current chronic flooding for the area and reduce repetitive flood loss to properties.

The Phase I deliverables should:

- Have an engineer's plan that clearly shows the engineer's estimate of the pre and post-mitigation effects of the proposed project and the relationship of the damages to be mitigated (commensurate with the level of funding requested). This includes, but is not limited to, the existing and proposed hydrology and hydraulics for the level of event being mitigated.

- Demonstrate mitigation effectiveness, in part, by showing the physical location(s) and elevation(s) of the infrastructure/structures that is being damaged and the Federal Emergency Management Agency (FEMA) Special Flood Hazard Areas on the same plan.

- Meet all required environmental laws and policies (see page 16-A, FEMA Letter dated June 24, 2008). All environmental permits and approvals/concurrences must be obtained. A public notice must be published to notify interested parties of the proposed activity. Notices must be published in a manner that anyone that may be affected or interested in this project has access to the posting. The comment period expired and all comments addressed prior to initiating any construction activities.

- Refine the cost estimate. A new BC Analysis will be performed using the revised information.

- Provide a set of Community Approved, State reviewed construction plans (sealed) for review and comment including milestones and timelines for completion of the final phase of the project and bid documents/award.

- Provide **two** copies of the requested documentation for review and approval by the state and FEMA.

Phase I of this project is approved with the condition that the above list of deliverables will be submitted, reviewed and approved prior to implementing Phase II. Phase II is defined as the construction phase for the proposed scope of work. No construction work may begin until Phase II is approved by FEMA. Failure to comply with this condition can result in the loss of all funding for this project.

This is FEMA project **1609-110-R,** funded under 1609-DR-FL.

The Period of Performance for this project ends on July 28, 2009.

Schedule of Work

Award RFP:	1 Month
Preliminary and Final Design:	6 Months
Permitting:	6 Months
Total Period of Performance:	13 Months

Budget

Line Item Budget*

	Project Cost	Federal Share	Local Share
Subcontract for Phase I Design/Engineering Feasibility Study:	$312,000.00	$227,760.00	$84,240.00
Sub-total:	$312,000.00	$227,760.00	$84,240.00
Administrative Cost:	$ 0.00	$ 7,240.00	$ 0.00
Total:	$312,000.00	$235,000.00	$84,240.00

**Any line item amount in this Budget may be increased or decreased 10% or less without an amendment to this Agreement being required, so long as the overall amount of the funds obligated under this Agreement is not increased.*

Funding Summary

Federal Share:	$227,760.00 (73%)
Local Share:	$ 84,240.00 (27%)
Total Project Cost:	$312,000.00 (100%)

Recipient Administrative Allowance up to $7,240.00.

U.S. Department of Homeland Security
FEMA, Region IV / Florida Recovery Office
36 Skyline Drive
Lake Mary, FL 32746

FEMA

2005 1609
CC: Ruben Diaz-Torres
CC: Kathleen Marshall
CC: Maleather Ross
Original: Shaurita Jackson

June 24, 2008

Mr. W. Craig Fugate, Director
Florida Division of Emergency Management
2555 Shumard Oak Boulevard
Tallahassee, Florida 32399-2100

Attention: Mr. Miles Anderson

Reference: **Hazard Mitigation Grant Program (HMGP) DR-1609-110-R (State Project Number 1609-193) City of Key West, Monroe County, George / 1st Street Pump Station & Outfall, Phase I**

Dear Mr. Fugate:

This letter is to inform you that the project referenced above has been approved for $312,000 with a Federal share of $227,760, grantee administrative expenses of $1,175 and subgrantee administrative expenses of $7,240 are included, for a total obligation of $236,175. This obligation was processed under NEMIS Supplemental Report Number 123.

The following is the approved Statement of Work (SOW) for the above-referenced project:

Phase I will provide an engineering study, design, and permitting that identify modifications needed to install a storm water pump station and outfall system located at the intersection of George Street and First Street, Key West, Florida 33040.

In order for Phase II to be considered for funding, Phase I deliverables must include:

- **Provide a complete set of signed and sealed final construction drawings.**
- **Provide a site map clearly showing the location of all proposed project components and their location relative to the areas of historic damage within the contributing watershed.**
- **Provide any hydrologic and/or hydraulic calculations or models including surge effect that support the proposed mitigation by clearly demonstrating the decrease in future flood levels and associated future flood damages.**

- **Provide a detailed narrative of the actual problem with the frequency of event causing the flooding, and estimate the damages ($) due to flood. Also, include in the narrative how the mitigation measure will solve the problem and how much residual damage ($), will be after the new proposed level of protection.**
- **Copies of any completed U.S. Fish and Wildlife Service Consultation.**
- **Public Notice, with documentation that it was published. Also need documentation regarding whether any comments were received in response to the Public Notice. If "yes," need an explanation of how the comments have been addressed.**
- **A copy of the Environmental Resource Permit (ERP) from the South Florida Water Management District, and correspondence with the U.S. Army Corps of Engineers (USACE) regarding applicable Department of Army Permits.**
- **If project disturbance area is greater than one (1) acre, the Applicant will need to submit a Notice of Intent (NOI) for coverage under the Florida Department of Environmental Protection (FDEP) General Permit, prepare and implement a storm water pollution prevention plan (SWPPP), and submit the Notice of Termination (NOT) after completion of the site activities. These three documents should be provided at project close-out.**

Phase I is approved with the condition that no construction can begin until the results of the deliverables are reviewed, and Phase II activities are approved. Failure to comply with this condition can result in the loss of all funding for this project.

The Period of Performance (POP) for this project expires on July 28, 2009.

The State (HMGP) Administrative Plan defines the procedure whereby the GAR may advance portions of the approved Federal share to the subgrantee. Upon completion of the HMGP project, the subgrantee's closeout reimbursement for the final Federal share of eligible project costs must be submitted to the Regional Director for review and determination.

Quarterly progress reports for HMGP projects are required. Please include this HMGP project in your future quarterly reports. Note that 44 CFR 206.438(c) indicates that the State must provide a quarterly progress report to the Federal Emergency Management Agency (FEMA) indicating the status and completion date for each project funded. The report will include any problems or circumstances affecting completion date, scope of work, or project cost that may result in non-compliance with the approved grant conditions.

Section 206.438(d) of 44 CFR requires the GAR to "certify that reported costs were incurred in the performance of eligible work, that the approved work was completed and that the mitigation measure is in compliance with the provisions of the FEMA-State Agreement."

The National Environmental Policy Act (NEPA) stipulates that additions or amendments to a HMGP subgrantee SOW may have to be reviewed by all State and Federal agencies participating in the NEPA process.

The National Environmental Policy Act (NEPA) stipulates that additions or amendments to a HMGP subgrantee SOW may have to be reviewed by all State and Federal agencies participating in the NEPA process.

The State (grantee) must obtain prior approval from the Federal Emergency Management Agency (FEMA) before implementing changes to the approved project SOW. According to the Uniform Administrative Requirements for grants and cooperative agreements to State and Local Governments:

- For construction projects, the grantee must "obtain prior written approval for any budget revision which would result in a need for additional funds" [44 CFR 13(c)].
- A change in the scope of work must be approved by FEMA in advance regardless of the budget implications.
- The grantee must notify FEMA as soon as significant developments become known, such as delays or adverse conditions that might raise costs or delay completion, or favorable conditions allowing lower cost or earlier completion. Any extensions of the POP must be submitted to FEMA 60 days prior to the expiration date.
- The grantee must avoid duplication of benefits between the HMGP and any other form of assistance, as required by Section 312 of the Stafford Act, and further clarified in 44 CFR 206.191.

The obligation report, management report and environmental report are included for your records. The obligated funds are available for withdrawal from **Smartlink** on sub-account number **1609MGPRFLP00000005**.

If you have any questions, please contact Linda Wells-Back, Hazard Mitigation Grants and Planning Program Manager at (407) 268-8808.

Sincerely,

Luis A. Jimenez
Mitigation Branch Director
FEMA Region IV / Florida Recovery Office

LAJ: jc

Enclosures
Obligation Report
Project Management Report
Environmental Report

FEDERAL EMERGENCY MANAGEMENT AGENCY
HAZARD MITIGATION GRANTS PROGRAM
Obligation Report w/ Signatures

Disaster No	FEMA Project No	Amendment No	State Application ID	Action No	Supplemental No	State	Grantee
1609	110-R	0	193	1	123	FL	Statewide

Subgrantee: Key West
Subgrantee FIPS Code: 087-36550

Project Title: GEORGE/FIRST STREET STORMWATER PUMP STATION AND OUTFALL

Total Amount Previously Allocated	Total Amount Previously Obligated	Total Amount Pending Obligation	Total Amount Available for New Obligation
$227,760	$227,760	$0	$0

Project Amount	Grantee Admin Est	Subgrantee Admin Est	Total Obligation	IFMIS Date	IFMIS Status	FY
$227,760	$1,175	$7,240	$236,175	06/16/2008	Accept	2008

Comments

Date: 06/16/2008 User Id: MARTHUR1

Comment: MA approves obligation and submit to HMO for approval

Date: 06/16/2008 User Id: DVANDEW1

Comment: HMO approves obligation

Authorization

Preparer Name: MARCELLE ARTHUR
Preparation Date: 06/16/2008

HMO Authorization Name: DAVID VANDEWATER
HMO Authorization Date: 06/16/2008

Sliding Scale Percentage

up to	$100,000	=	3.00%
up to	$1,000,000	=	2.00%
up to	$5,000,000.00	=	1.00%
Excess		=	0.50%

Obligation Report w/ Signatures

Disaster No	FEMA Project No	Amendment No	State Application ID	Action No	Supplemental No	State	Grantee
1609	110-R	0	193	1	123	FL	Statewide

Subgrantee: Key West
Subgrantee FIPS Code: 087-36550

Project Title : GEORGE/FIRST STREET STORMWATER PUMP STATION AND OUTFALL

Admin Calculation

Admin Cost Calculation: Sliding Scale Calculation Percentage: N/A

Justification:

Authorizing Official Signature	Authorizing Official Title	Authorization Date
6/24/08		
Authorizing Official Signature	Authorizing Official Title	Authorization Date

Sliding Scale Percentage:

up to	$100,000	=	3.00%
up to	$1,000,000	=	2.00%
up to	$5,000,000.00	=	1.00%
Excess		=	0.50%

Project Management Report

Disaster Number	FEMA Project Number	Amendment Number	App ID	State	Grantee
1609	110-R	0	193	FL	Statewide

Subgrantee: Key West
FIPS Code: 087-36550 Project Title GEORGE/FIRST STREET STORMWATER PUMP STATION AND OUTFAL

Mitigation Project Description

Amendment Status : Approved **Approval Status:** Approved

Project Title : GEORGE/FIRST STREET STORMWATER PUMP STATION AND OUTFALL

Grantee : Statewide **Subgrantee :** Key West

Grantee County Name : Monroe Subgrantee County Name : Monroe

Grantee County Code : 87 Subgrantee County Code : 87

Grantee Place Name : Key West Subgrantee Place Name : Key West

Grantee Place Code : 0 Subgrantee Place Code : 36550

Project Closeout Date : 00/00/0000

Work Schedule Status

Amend #	Description	Time Frame	Due Date	Revised Date	Completion Date
0	PHASE I: AWARD RFP	30 DAYS	00/00/0000	00/00/0000	00/00/0000
0	PHASE I: PRELIMINARY DESIGN	90 DAYS	00/00/0000	00/00/0000	00/00/0000
0	PHASE I: FINAL DESIGN	90 DAYS	00/00/0000	00/00/0000	00/00/0000
0	PHASE I: PERMITTING	180 DAYS	00/00/0000	00/00/0000	00/00/0000
0	BID CONSTRUCTION	90 DAYS	00/00/0000	00/00/0000	00/00/0000
0	AWARD CONSTRUCTION	45 DAYS	00/00/0000	00/00/0000	00/00/0000
0	START CONSTRUCTION	60 DAYS	00/00/0000	00/00/0000	00/00/0000
0	COMPLETE CONSTRUCTION	270 DAYS	00/00/0000	00/00/0000	00/00/0000
0	CLOSEOUT	90 DAYS	00/00/0000	00/00/0000	00/00/0000

Approved Amounts

Total Approved Net Eligible	Federal Share Percent	Total Approved Federal Share Amount	Non-Federal Share Percent	Total Approved Non-Fed Share Amount
$312,000	73.000000000	$227,760	27.00000000	$811,111

Allocations

Allocation Number	IFMIS Status	IFMIS Date	Submission Date	FY	ES Support Req ID	ES Amend Number	Proj Alloc Amount Fed Share	Grantee Admin Amount	Subgrantee Admin Amount	Total Alloc Amount
35	A	06/13/2008	06/12/2008	2008	1389657	25	$227,760	$1,175	$7,240	$236,175
						Total	$227,760	$1,175	$7,240	$236,175

Obligations

Action Nr	IFMIS Status	IFMIS Date	Submission Date	FY	ES Support Req ID	ES Amend Number	Suppl Nr	Project Obligated Amt - Fed Share	Grantee Admin Amount	Subgrantee Admin Amount	Total Obligated Amount
1	A	06/16/2008	06/16/2008	2008	1504376	123	123	$227,760	$1,175	$7,240	$236,175
							Total	$227,760	$1,175	$7,240	$236,175

FEDERAL EMERGENCY MANAGEMENT AGENCY
HAZARD MITIGATION GRANT PROGRAM

Environmental Report

Disaster Number	FEMA Project Number	Amendment Number	App ID	State	Grantee
1609	110-R	0	193	FL	Statewide

Subgrantee: Key West
FIPS Code: 087-36550
Project Title : GEORGE/FIRST STREET STORMWATER PUMP STATION AND OUTFAL

FEMA Laws/EOs

Laws/EOs	Status
Coastal Barriers Resources Act (CBRA)	Completed
Clean Water Act (CWA)	Completed
Coastal Zone Management Act (CZMA)	Completed
Endangered Species Act (ESA)	Completed

Comment: The action as described (Cost-plus) will have no adverse effect on Threatened and Endangered species or habitat.-BBRATCHE-04/18/2008 17:35 GMT
Disregard earlier Cost-Plus comment. The action as described (Phase I) will have no adverse effect on Threatened and Endangered Species or habitat.-BBRATCHE-06/04/2008 14:46 GMT

Fish and Wildlife Coordination Act (FWCA)	Completed
National Historic Preservation Act (NHPA)	Completed

Comment: The project as described (Phase I) will have no effect on any historic resources.-BBRATCHE-06/04/2008 14:47 GMT

Clean Air Act (CAA)	Completed
E.O. 11988: Floodplains	Completed

Comment: The action as described (Phase 1) has no potential to adversely impact the floodplain.-BBRATCHE-06/04/2008 14:47 GMT
The site is located in Zone AE (area inundated by 100-year flooding). FEMA Flood Insurance Rate Map (FIRM) 12087C1516 K, effective February 18, 2005.-BBRATCHE-06/04/2008 14:48 GMT

E.O. 11990: Wetlands	Completed
E.O. 12898: Environmental Justice for Low Income and Minority Populations	Completed

FEDERAL EMERGENCY MANAGEMENT AGENCY
HAZARD MITIGATION GRANT PROGRAM

Environmental Report

Disaster Number	FEMA Project Number	Amendment Number	App ID	State	Grantee
1609	110-R	0	193	FL	Statewide

Subgrantee: Key West

FIPS Code: 087-36550

Project Title : GEORGE/FIRST STREET STORMWATER PUMP STATION AND OUTFAL

FEMA NEPA Process

FEMA Status

Catex - Completed

1 CATEX Type Code

3. Studies that involve no commitment of resources (iii)

If an extraordinary circumstance exists and leads to a significant environmental impact (see 44CFR 10.8 (d) (3)), an Environ.Assesment shall be prepared.

☑ No Extraordinary Circumstances Requiring an EA

Documentation Complete06/04/2008

Standard Conditions

1. Any change to the approved scope of work will require re-evaluation for compliance with NEPA and other Laws and Executive Orders.

2. This review does not address all federal, state and local requirements. Acceptance of federal funding requires recipient to comply with all federal, state and local laws. Failure to obtain all appropriate federal, state and local environmental permits and clearances may jeopardize federal funding.

3. If ground disturbing activities occur during construction, applicant will monitor ground disturbance and if any potential archeological resources are discovered, will immediately cease construction in that area and notify the State and FEMA.

Comment:

The Phase I proposal by the applicant covers design and permitting for a proposed project to install a Vortex Unit to improve stormwater discharge quality, construct a pump station, install a generator, install 1,000 linear feet (lf) of 24-inch diameter ductile iron pipe, install valve systems, and restoring the site (seawall repair and associated force main, pavement patching, seeding). The proposed project is categorically excluded from preparation of an Environmental Assessment per 44CFR Part 10.8(d)(2)(iii).

Phase II deliverables for this project should include:

-Signed-and-sealed plans.
-Copies of any completed U.S. Fish and Wildlife Service Consultation.
-Copies of any completed State Historic Preservation Officer (SHPO) Consultation.
-Public Notice, with documentation that it was published. Also need documentation regarding whether any comments were received in response to the Public Notice. If "yes," need an explanation of how the comments have been addressed.
-A copy of the Environmental Resource Permit (ERP) from the South Florida Water Management District, and correspondence with the U.S. Army Corps of Engineers (USACE) regarding applicable Department of Army Permits.
-If project disturbance area is greater than one (1) acre, the Applicant will need to submit a Notice of Intent (NOI) for coverage under the Florida Department of Environmental Protection (FDEP) General Permit, prepare and implement a storm water pollution prevention plan (SWPPP), and submit the Notice of Termination (NOT) after completion of the site activities. These three documents should be provided at project close-out.

As a reminder, the sub-grantee must comply with all applicable Federal, State and local laws and regulations and must obtain all required permits as a condition of FEMA funding.

Final engineering and design and/or any other changes to the approved project description will require resubmission through the State to FEMA and will require reevaluation of compliance with the National Environmental Policy Act (NEPA) and Section 106 of the National Historic Preservation Act (NHPA) prior to initiation of any work. Non-compliance with requirements may jeopardize FEMA's ability to fund this project.
-BBRATCHE-06/04/2008 14:48 GMT

Attachment B

Program Statutes and Regulations

The parties to this Agreement and the Hazard Mitigation Grant Program (HMGP) are generally governed by the following statutes and regulations:

(1) The Robert T. Stafford Disaster Relief and Emergency Assistance Act;

(2) 44 CFR Parts 7, 9, 10, 13, 14, 17, 18, 25, 206, 220, and 221, and any other applicable FEMA policy memoranda and guidance documents;

(3) State of Florida Administrative Plan for the Hazard Mitigation Grant Program;

(4) Hazard Mitigation Long-term Recovery Guidance; and

(5) All applicable laws and regulations delineated in Attachment C of this Agreement

In addition to the above statues and regulations, the Recipient must comply with the following:

The Recipient shall fully perform the approved hazard mitigation project, as described in the Application and Attachment A (Budget and Scope of Work) attached to this Agreement, in accordance with the approved scope of work indicated therein, the estimate of costs indicated therein, the allocation of funds indicated therein, and the terms and conditions of this Agreement. Recipient shall not deviate from the approved project and the terms and conditions of this Agreement. Recipient shall comply with any and all applicable codes and standards in performing work funded under this Agreement, and shall provide any appropriate maintenance and security for the project.

Any development permit issued by, or development activity undertaken by, the Recipient and any land use permitted by or engaged in by the Recipient, shall be consistent with the local comprehensive plan and land development regulations prepared and adopted pursuant to Chapter 163, Part II, Florida Statutes. Funds shall be expended for, and development activities and land uses authorized for, only those uses which are permitted under the comprehensive plan and land development regulations. The Recipient shall be responsible for ensuring that any development permit issued and any development activity or land use undertaken is, where applicable, also authorized by the Water Management District, the Florida Department of Environmental Protection, the Florida Department of Health, the Florida Game and Fish Commission, and any federal, state, or local environmental or land use permitting authority, where required. Recipient agrees that any repair or construction shall be in accordance with applicable standards of safety, decency, and sanitation, and in conformity with applicable codes, specifications and standards.

Recipient will provide and maintain competent and adequate engineering supervision at the construction site to ensure that the completed work conforms with the approved plans and specifications and will furnish progress reports and such other information to HMGP as may be required.

If the hazard mitigation project described in Attachment A includes an acquisition or relocation project, then Recipient shall ensure that, as a condition of funding under this Agreement, the owner of the affected real property shall record in the public records of the county where it is located the following covenants and restrictions, which shall run with and apply to any property acquired, accepted, or from which a structure will be removed pursuant to the project:

1. The property will be dedicated and maintained in perpetuity for a use that is compatible with open space, recreational, or wetlands management practices;
2. No new structure will be erected on property other than:
   (a) a public facility that is open on all sides and functionally related to a designated open

space;
(b) a restroom; or

3. A structure that the Director of the Federal Emergency Management Agency approves in writing before the commencement of the construction of the structure;
4. After the date of the acquisition or relocation no application for disaster assistance for any purpose will be made to any Federal entity and no disaster assistance will be provided for the property by any Federal source; and
5. If any of these covenants and restrictions is violated by the owner or by some third party with the knowledge of the owner, fee simple title to the Property described herein shall be conveyed to the Board of Trustees of the Internal Improvement Trust Fund of the State of Florida without further notice to the owner, its successors and assigns, and the owner, its successors and assigns shall forfeit all right, title and interest in and to the property.

HMGP Contract Manager will evaluate requests for cost overruns and submit to the Regional Director written determination of cost overrun eligibility. Cost overruns shall meet Federal regulations set forth in 44CFR 206.438(b).

The National Environmental Policy Act (NEPA) stipulates that additions or amendments to a HMGP Recipient Scope of Work (SOW) shall be reviewed by all State and Federal agencies participating in the NEPA process. You are reminded that no construction may occur in this phase, that a full environmental review must be completed prior to funding Phase II.

As a reminder, the Recipient must obtain prior approval from the State, before implementing changes to the approved project Scope of Work (SOW). Per the Uniform Administrative Requirements for Grants and Cooperative Agreements to State and Local Governments:

1. For construction projects, the grantee must "obtain prior written approval for any budget revision which result in a need for additional funds" (44 CFR 13 (c));
2. A change in the scope of work must be approved by FEMA in advance regardless of the budget implications; and
3. The Recipient must notify the State as soon as significant developments become known, such as delays or adverse conditions that might raise costs or delay completion, or favorable conditions allowing lower cost or earlier completion. Any extensions of the period of performance must be submitted to FEMA 60 days prior to the project expiration date.

STATEMENT OF ASSURANCES

The Recipient assures that it will comply with the following statues and regulations, to the extent applicable:

1) 53 Federal Register 8034
2) Federal Acquisition Regulations 31.2 and 031.2
3) Section 1352, Title 31, US Code
4) OMB Circulars A-21, A-87, A-110, A-122
5) Chapter 473, Florida Statutes
6) Chapter 215, Florida Statutes
7) Section 768.28, Florida Statutes
8) Chapter 119, Florida Statutes
9) Section 216.181(6), Florida Statutes
10) Cash Management Improvement Act Of 1990
11) American with Disabilities Act
12) Section 112.061, Florida Statutes
13) Immigration and Nationality Act
14) Section 286.011, Florida Statutes
15) E.O. 12372 and Uniform Administrative Requirements for Grants and Cooperative Agreements 28 CFR,

Part 66, Common rule,
16) Uniform Relocation Assistance and Real Property Acquisitions Act of 1970
17) Title I of the Omnibus Crime Control and Safe Streets Act of 1968,
18) Juvenile Justice and Delinquency Prevention Act, or the Victims of Crime Act
19) 28 CFR applicable to grants and cooperative agreements
20) Omnibus Crime Control and Safe Streets Act of 1968, as amended,
21) 42 USC 3789(d), or Victims of Crime Act (as appropriate);
22) Section 504 of the Rehabilitation Act of 1973, as amended;
23) Subtitle A, Title II of the Americans with Disabilities Act (ADA) (1990);
24) 28 CFR Part 42, Subparts C,D,E, and G
25) Department of Justice regulations on disability discrimination, 28 CFR Part 35 and Part 39.

Attachment C

Statement of Assurances

To the extent the following provisions apply to this Agreement, the Recipient certifies that:

(a) It possesses legal authority to enter into this Agreement, and to carry out the proposed program;

(b) Its governing body has duly adopted or passed as an official act a resolution, motion or similar action authorizing the execution of the hazard mitigation agreement with the Division of Emergency Management (DEM), including all understandings and assurances contained in it, and directing and authorizing the Recipient's chief administrative officer or designee to act in connection with the application and to provide such additional information as may be required;

(c) No member of or delegate to the Congress of the United States, and no Resident Commissioner, shall receive any share or part of this Agreement or any benefit. No member, officer, or employee of the Recipient or its designees or agents, no member of the governing body of the locality in which the program is situated, and no other public official of the locality or localities who exercises any functions or responsibilities with respect to the program during his tenure or for one year after, shall have any interest, direct or indirect, in any contract or subcontract, or the proceeds, for work be performed in connection with the program assisted under this Agreement. The Recipient shall incorporate, in all contracts or subcontracts a provision prohibiting any interest pursuant to the purpose state above;

(d) All Recipient contracts for which the State Legislature is in any part a funding source, shall contain language to provide for termination with reasonable costs to be paid by the Recipient for eligible contract work completed prior to the date the notice of suspension of funding was received by the Recipient. Any cost incurred after a notice of suspension or termination is received by the Recipient may not be funded with funds provided under this Agreement unless previously approved in writing by the Division. All Recipient contracts shall contain provisions for termination for cause or convenience and shall provide for the method of payment in such event;

(e) It will comply with:

(1) Contract Work Hours and Safety Standards Act of 1962, 40 U.S.C. 327 et seq., requiring that mechanics and laborers (including watchmen and guards) employed on federally assisted contracts be paid wages of not less than one and one-half
times their basic wage rates for all hours worked in excess of forty hours in a work week; and

(2) Federal Fair Labor Standards Act, 29 U.S.C. Section 201 et seq., requiring that covered employees be paid at least the minimum prescribed wage, and also that they be paid one and one-half times their basic wage rates for all hours worked in excess of the prescribed work-week.

(f) It will comply with:

(1) Title VI of the Civil Rights Act of 1964 (P.L. 88-352), and the regulations issued pursuant thereto, which provides that no person in the United States shall on the grounds of race, color, or national origin, be excluded from participation in, be denied the benefits of, or be otherwise subjected to discrimination under any program or activity for which the Recipient receives Federal financial assistance and will immediately take any measures
necessary to effectuate this assurance. If any real property or structure thereon is provided or improved with the aid of Federal financial assistance extended to the Recipient, this assurance shall obligate the Recipient, or in the case of any transfer of such property, any transferee, for the period during which the real property or structure is used for a purpose for which the Federal financial assistance is extended, or for another purpose involving the provision of similar services or benefits;

(2) Any prohibition against discrimination on the basis of age under the Age Discrimination Act of 1975, as amended (42 U.S.C.: 6101-6107) which prohibits discrimination on the basis of age or with respect to otherwise qualified handicapped individuals as provided in Section 504 of the Rehabilitation Act of 1973;

(3) Executive Order 11246 as amended by Executive Orders 11375 and 12086, and the regulations issued pursuant thereto, which provide that no person shall be discriminated against on the basis of race, color, religion, sex or national origin in all phases of employment during the performance of federal or federally assisted construction contracts; affirmative action to insure fair treatment in employment, upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff/termination, rates of pay or other forms of compensation; and election for training and apprenticeship;

(g) It will establish safeguards to prohibit employees from using positions for a purpose that is or gives the appearance of being motivated by a desire for private gain for themselves or others, particularly those with whom they have family, business, or other ties pursuant to Section 112.313 and Section 112.3135, FS;

(h) It will comply with the Anti-Kickback Act of 1986, 41 U.S.C. Section 51 which outlaws and prescribes penalties for "kickbacks" of wages in federally financed or assisted construction activities;

(i) It will comply with the provisions of 18 USC 594, 598, 600-605 (further known as the Hatch Act) which limits the political activities of employees;

(j) It will comply with the flood insurance purchase and other requirements of the Flood Disaster Protection Act of 1973 as amended, 42 USC 4002-4107, including requirements regarding the purchase of flood insurance in communities where such insurance is available as a condition for the receipt of any Federal financial assistance for construction or acquisition purposes for use in any area having special flood hazards. The phrase "Federal financial assistance" includes any form of loan, grant, guaranty, insurance payment, rebate, subsidy, disaster assistance loan or grant, or any other form of direct or indirect Federal assistance;

(k) It will require every building or facility (other than a privately owned residential structure) designed, constructed, or altered with funds provided under this Agreement to comply with the "Uniform Federal Accessability Standards," (AS) which is Appendix A to 41 CFR Section 101-19.6 for general type buildings and Appendix A to 24 CFR Part 40 for residential structures. The Recipient will be responsible for conducting inspections to ensure compliance with these specifications by the contractor;

(l) It will, in connection with its performance of environmental assessments under the National Environmental Policy Act of 1969, comply with Section 106 of the National Historic Preservation Act of 1966 (U.S.C. 470), Executive Order 11593, 24 CFR Part 800, and the Preservation of

Archaeological and Historical Data Act of 1966 (16 U.S.C. 469a-1, et seq.) by:

(1) Consulting with the State Historic Preservation Office to identify properties listed in or eligible for inclusion in the National Register of Historic Places that are subject to adverse effects (see 36 CFR Section 800.8) by the proposed activity; and

(2) Complying with all requirements established by the State to avoid or mitigate adverse effects upon such properties.

(3) Abiding by the terms and conditions of the **"Programmatic Agreement Among the Federal Emergency Management Agency, the Florida State Historic Preservation Office, the Florida Division of Emergency Management and the Advisory Council on Historic Preservation, (PA)"** which addresses roles and responsibilities of Federal and State entities in implementing Section 106 of the National Historic Preservation Act

(NHPA), 16 U.S.C. 470f, and implementing regulations in 36 CFR part 800.

(4) When any of Recipient's projects funded under this Agreement may affect a historic property, as defined in 36 CFR 800. (2)(e), the Federal Emergency Management Agency (FEMA) may require Recipient to review the eligible scope of work in consultation with the State Historic Preservation Office (SHPO) and suggest methods of repair or construction that will conform with the recommended approaches set out in the **Secretary of Interior's Standards for Rehabilitation and Guidelines for Rehabilitating Historic Buildings 1992 (Standards),** the **Secretary of the Interior's Guidelines for Archeological Documentation (Guidelines)** (48 Federal Register 44734-37), or any other applicable Secretary of Interior standards. If FEMA determines that the eligible scope of work will not conform with the **Standards**, Recipient agrees to participate in consultations to develop, and, after execution by all parties, to abide by, a written agreement that establishes mitigation and recondition measures, including but not limited to, impacts to archeological sites, and the salvage, storage, and reuse of any significant architectural features that may otherwise be demolished.

(5) Recipient agrees to notify FEMA and the Division if any project funded under this Agreement will involve ground disturbing activities, including, but not limited to: subsurface disturbance; removal of trees; excavation for footings and foundations; and installation of utilities (such as water, sewer, storm drains, electrical, gas, leach lines and septic tanks) except where these activities are restricted solely to areas previously disturbed by the installation, replacement or maintenance of such utilities. FEMA will request the SHPO's opinion on the potential that archeological properties may be present and be affected by such activities. The SHPO will advise Recipient on any feasible steps to be accomplished to avoid any National Register eligible archeological property or will make recommendations for the development of a treatment plan for the recovery of archeological data from the property.

If Recipient is unable to avoid the archeological property, develop, in consultation with the SHPO, a treatment plan consistent with the **Guidelines** and take into account the Advisory Council on Historic Preservation (Council) publication "Treatment of Archeological Properties". Recipient shall forward information regarding the treatment plan to FEMA, the SHPO and the Council for review. If the SHPO and the Council do not object within 15 calendar days of receipt of the treatment plan, FEMA may direct Recipient to implement the treatment plan. If
either the Council or the SHPO object, Recipient shall not proceed with the project until the objection is resolved.

(6) Recipient shall notify the Division and FEMA as soon as practicable: (a) of any changes in the approved scope of work for a National Register eligible or listed property; (b) of all changes to a project that may result in a supplemental DSR or modify an HMGP project for a National Register eligible or listed property; (c) if it appears that a project funded under this Agreement will affect a previously unidentified property that may be eligible for inclusion in the National Register or affect a known historic property in an unanticipated manner. Recipient acknowledges that FEMA may require Recipient to stop construction in the vicinity of the discovery of a previously unidentified property that may be eligible for inclusion in the National Register or upon learning that construction may affect a known historic property in an unanticipated manner. Recipient further acknowledges that FEMA may require Recipient to take all reasonable measures to avoid or minimize harm to such property until FEMA concludes consultation with the SHPO. Recipient also acknowledges that FEMA will require, and Recipient shall comply with, modifications to the project scope of work necessary to implement recommendations to address the project and the property.

(7) Recipient acknowledges that, unless FEMA specifically stipulates otherwise, it shall not

receive funding for projects when, with intent to avoid the requirements of the PA or the NHPA, Recipient intentionally and significantly adversely affects a historic property, or having the legal power to prevent it, allowed such significant adverse affect to occur.

(m) It will comply with Title IX of the Education Amendments of 1972, as amended (20 U.S.C.: 1681-1683 and 1685 - 1686) which prohibits discrimination on the basis of sex;

(n) It will comply with the Comprehensive Alcohol Abuse and Alcoholism Prevention, Treatment and Rehabilitation Act of 1970, (42 U.S.C. 4521-45-94) relating to nondiscrimination on the basis of alcohol abuse or alcoholism;

(o) It will comply with 523 and 527 of the Public Health Service Act of 1912 (42 U.S.C. 290 dd-3 and 290 ee-3), as amended, relating to confidentiality of alcohol and drug abuse patient records;

(p) It will comply with Lead-Based Paint Poison Prevention Act (42 U.S.C.: 4821 et seq.) which prohibits the use of lead based paint in construction of rehabilitation or residential structures;

(q) It will comply with the Energy Policy and Conservation Act (P.L. 94-163; 42 U.S.C. 6201-6422), and the provisions of the state Energy Conservation Plan adopted pursuant thereto;

(r) It will comply with the Laboratory Animal Welfare Act of 1966, 7 U.S.C. 2131-2159, pertaining to the care, handling, and treatment of warm blooded animals held for research, teaching, or other activities supported by an award of assistance under this agreement;

(s) It will comply with Title VIII of the Civil Rights Act of 1968, 42 U.S.C. 2000c and 42 3601-3619, as amended, relating to non-discrimination in the sale, rental, or financing of housing, and Title VI of the Civil Rights Act of 1964 (P.L. 88-352), which prohibits discrimination on the basis of race, color or nation origin;

(t) It will comply with the Clean Air Act of 1955, as amended, 42 U.S.C. 7401-7642;

(u) It will comply with the Clean Water Act of 1977, as amended, 42 U.S.C. 7419-7626;

(v) It will comply with the Endangered Species Act of 1973, 16 U.S.C. 1531-1544;

(w) It will comply with the Intergovernmental Personnel Act of 1970, 42 U.S.C. 4728-4763;

(x) It will assist the awarding agency in assuring compliance with the National Historic Preservation Act of 1966, as amended, 16 U.S.C. 270;

(y) It will comply with environmental standards which may be prescribed pursuant to the National Environmental Policy Act of 1969, 42 U.S.C. 4321-4347;

(z) It will assist the awarding agency in assuring compliance with the Preservation of Archeological and Historical Preservation Act of 1966, 16 U.S.C. 469a, et seq;

(aa) It will comply with the Rehabilitation Act of 1973, Section 504, 29 U.S.C. 794, regarding non-discrimination;

(bb) It will comply with the environmental standards which may be prescribed pursuant to the Safe Drinking Water Act of 1974, 42 U.S.C. 300f-300j, regarding the protection of underground water sources;

(cc) It will comply with the requirements of Titles II and III of the Uniform Relocation Assistance and Property Acquisition Policies Act of 1970, 42 U.S.C. 4621-4638, which provide for fair and equitable treatment of persons displaced or whose property is acquired as a result of Federal or federally assisted programs;

(dd) It will comply with the Wild and Scenic Rivers Act of 1968, 16 U.S.C. 1271-1287, related to protecting components or potential components of the national wild and scenic rivers system;

(ee) It will comply with the following Executive Orders: EO 11514 (NEPA); EO 11738 (violating facilities); EO 11988 (Floodplain Management); EO 11990 (Wetlands); and EO 12898 (Environmental Justice);

(ff) It will comply with the Coastal Barrier Resources Act of 1977, 16 U.S.C. 3510;

(gg) It will assure project consistency with the approved State program developed under the Coastal Zone Management Act of 1972, 16 U.S.C. 1451-1464; and

(hh) It will comply with the Fish and Wildlife Coordination Act of 1958; 16 U.S.C. 661-666.

(ii) With respect to demolition activities, it will:

1. Create and make available documentation sufficient to demonstrate that the Recipient and its demolition contractor have sufficient manpower and equipment to comply with the obligations as outlined in this Agreement.

2. Return the property to its natural state as though no improvements had ever been contained thereon.

3. Furnish documentation of all qualified personnel, licenses and all equipment necessary to inspect buildings located in Recipient's jurisdiction to detect the presence of asbestos and lead in accordance with requirements of the U.S. Environmental Protection Agency, the Florida Department of Environmental Protection and the County Health Department.

4. Provide documentation of the inspection results for each structure to indicate:
   a. Safety Hazards Present
   b. Health Hazards Present
   c. Hazardous Materials Present

5. Provide supervision over contractors or employees employed by Recipient to remove asbestos and lead from demolished or otherwise applicable structures.

6. Leave the demolished site clean, level and free of debris.

7. Notify the Division promptly of any unusual existing condition which hampers the contractors work.

8. Obtain all required permits.

9. Provide addresses and marked maps for each site where water wells and septic tanks are to be closed along with the number of wells and septic tanks located on each site. Provide documentation of closures.

10. Comply with mandatory standards and policies relating to energy efficiency which are contained in the State energy conservation plan issued in compliance with the Energy Policy and Conservation Act (Public Law 94-163).

11. Comply with all applicable standards, orders, or requirements issued under Section 112 and 306 of the Clean Air Act (42 U.S.C. 1857 (h), Section 508 of the Clean Water Act (33 U.S. 1368), Executive Order 11738, and the U.S. Environmental Protection Agency regulations (40 CFR Part 15 and 61). This clause shall be added to any subcontracts.

12. Provide documentation of public notices for demolition activities.

Attachment D

DIVISION OF EMERGENCY MANAGEMENT

REQUEST FOR ADVANCE OR REIMBURSEMENT OF HAZARD MITIGATION GRANT PROGRAM FUNDS

RECIPIENT NAME: City of Key West

ADDRESS: _____

CITY, STATE, ZIP CODE: _____

PAYMENT No:_____ DEM Agreement No: 09HM-37-11-54-02-030

FEMA Tracking Numbers: 1609-110-R

Eligible Amount 100%	Obligated Federal 75%	Obligated Non-Federal 25%	Previous Payments	Current Request	DEM Use Only	
					Approved	Comments

TOTAL CURRENT REQUEST $_____

I certify that to the best of my knowledge and belief the above accounts are correct, and that all disbursements were made in accordance with all conditions of the Division agreement and payment is due and has not been previously requested for these amounts.

RECIPIENT SIGNATURE _____

NAME AND TITLE_____ DATE:_____

TO BE COMPLETED BY DIVISION OF EMERGENCY MANAGEMENT

APPROVED PROJECT TOTAL $_____

ADMINISTRATIVE COST $_____ _____
GOVERNOR'S AUTHORIZED REPRESENTATIVE

APPROVED FOR PAYMENT $_____ _____
DATE

Attachment D
(continued)

DIVISION OF EMERGENCY MANAGEMENT

SUMMARY OF DOCUMENTATION IN SUPPORT OF AMOUNT CLAIMED FOR ELIGIBLE DISASTER WORK UNDER THE HAZARD MITIGATION GRANT PROGRAM

Applicant: City of Key West Disaster No. 1609

DEM Agreement No. 09HM-37-11-54-02-030 FEMA Tracking # 1609-110-R

Applicant's Reference No. (Warrant, Voucher, Claim Check, or Schedule No.)	Date of delivery of articles, completion of work or performance services.	DOCUMENTATION List Documentation (Applicant's payroll, material out of applicant's stock, applicant owned equipment and name of vendor or contractor) by category and line item in the approved project application and give a brief description of the articles or services.	Applicant's Eligible Costs 100%
		TOTAL	

Attachment E

JUSTIFICATION OF ADVANCE PAYMENT

RECIPIENT:

Indicate by checking one of the boxes below, if you are requesting an advance. If an advance payment is requested, budget data on which the request is based must be submitted. Any advance payment under this Agreement is subject to s. 216.181(16), Florida Statutes. The amount which may be advanced shall not exceed the expected cash needs of the recipient within the initial three months.

[ ] **NO ADVANCE REQUESTED**	[ ] **ADVANCE REQUESTED**
No advance payment is requested. Payment will be solely on a reimbursement basis. No additional information is required.	Advance payment of $ _____ is requested. Balance of payments will be made on a reimbursement basis. These funds are needed to pay staff, award benefits to clients, duplicate forms and purchase start-up supplies and equipment. We would not be able to operate the program without this advance.

ADVANCE REQUEST WORKSHEET

If you are requesting an advance, complete the following worksheet.

	DESCRIPTION	(A) FFY 2006-2007	(B) FFY 2007-2008	(C) FFY 2008-2009	(D) Total
1	**INITIAL CONTRACT ALLOCATION**				
2	**FIRST THREE MONTHS CONTRACT EXPENDITURES[1]**				
3	**AVERAGE PERCENT EXPENDED IN FIRST THREE MONTHS (Divide line 2 by line 1.)**				

[1] **First three months expenditures need only be provided for the years in which you requested an advance. If you do not have this information, call your consultant and they will assist you.**

MAXIMUM ADVANCE ALLOWED CALULATION:

_____ **Cell D3** X $ _____ **HMGP Award (Do not include match)** = _____ **MAXIMUM ADVANCE**

REQUEST FOR WAIVER OF CALCULATED MAXIMUM

[ ] Recipient has no previous HMGP contract history. Complete Estimated Expenses chart and Explanation of Circumstances below.

[ ] Recipient has exceptional circumstances that require an advance greater than the Maximum Advance calculated above. Complete estimated expenses chart and Explanation of Circumstances below. Attach additional pages if needed.

ESTIMATED EXPENSES

BUDGET CATEGORY	2008-2009 Anticipated Expenditures for First Three Months of Contract
ADMINISTRATIVE COSTS	
PROGRAM EXPENSES	
TOTAL EXPENSES	

Explanation of Circumstances:

Attachment F

DIVISION OF EMERGENCY MANAGEMENT
HAZARD MITIGATION GRANT PROGRAM

QUARTERLY REPORT FORM

RECIPIENT: City of Key West Project Number # 1609-110-R

PROJECT LOCATION: Drainage DEM ID #: 09HM-37-11-54-02-030

DISASTER NUMBER: FEMA-1609-DR-FL QUARTER ENDING: _____

Provide amount of advance funds disbursed for period (if applicable) $_____
Provide reimbursement projections for this project:

July-Sep, 200__ $_____ Oct-Dec, 200__ $_____ Jan-Mar, 200__ $_____ Apr-June, 200__ $_____

July-Sep, 200__ $_____ Oct-Dec, 200__ $_____ Jan-Mar, 200__ $_____ Apr-June, 200__ $_____

Percentage of Work Completed (may be confirmed by state inspectors): _____%

Project Proceeding on Schedule: [ ] Yes [ ] No

Describe milestones achieved during this quarter:

_____
_____
_____

Provide a schedule for the remainder of work to project completion:

_____
_____
_____

Describe problems or circumstances affecting completion date, milestones, scope of work, and cost:

_____
_____
_____

Cost Status: [ ] Cost Unchanged [ ] Under Budget [ ] Over Budget

Additional Comments/Elaboration:

_____
_____
_____

NOTE: Division of Emergency Management (DEM) staff may perform interim inspections and/or audits at any time. Events may occur between quarterly reports, which have significant impact upon your project(s), such as anticipated overruns, changes in scope of work, etc. Please contact the Division as soon as these conditions become known, otherwise you may be found non-compliant with your subgrant award.

Name and Phone Number of Person Completing This Form _____

Attachment G

Warranties and Representations

Financial Management

Recipient's financial management system shall provide for the following:

(1) Accurate, current and complete disclosure of the financial results of this project or program

(2) Records that identify the source and use of funds for all activities. These records shall contain information pertaining to grant awards, authorizations, obligations, unobligated balances, assets, outlays, income and interest.

(3) Effective control over and accountability for all funds, property and other assets. Recipient shall safeguard all such assets and assure that they are used solely for authorized purposes.

(4) Comparison of expenditures with budget amounts for each Request For Payment. Whenever appropriate, financial information should be related to performance and unit cost data.

(5) Written procedures to determine whether costs are allowed and reasonable under the provisions of the applicable OMB cost principles and the terms and conditions of this Agreement.

(6) Cost accounting records that are supported by backup documentation..

Competition.
All procurement transactions shall be done in a manner to provide open and free competition. The Recipient shall be alert to conflicts of interest as well as noncompetitive practices among contractors that may restrict or eliminate competition or otherwise restrain trade. In order to ensure excellent contractor performance and eliminate unfair competitive advantage, contractors that develop or draft specifications, requirements, statements of work, invitations for bids and/or requests for proposals shall be excluded from competing for such procurements. Awards shall be made to the bidder or offeror whose bid or offer is responsive to the solicitation and is most advantageous to the Recipient, considering the price, quality and other factors. Solicitations shall clearly set forth all requirements that the bidder or offeror must fulfill in order for the bid or offer to be evaluated by the Recipient. Any and all bids or offers may be rejected when it is in the Recipient's interest to do so.

Codes of conduct.
The Recipient shall maintain written standards of conduct governing the performance of its employees engaged in the award and administration of contracts. No employee, officer, or agent shall participate in the selection, award, or administration of a contract supported by public grant funds if a real or apparent conflict of interest would be involved. Such a conflict would arise when the employee, officer, or agent, any member of his or her immediate family, his or her partner, or an organization which employs or is about to employ any of the parties indicated, has a financial or other interest in the firm selected for an award. The officers, employees, and agents of the Recipient shall neither solicit nor accept gratuities, favors, or anything of monetary value from contractors, or parties to subcontracts. The standards of conduct shall provide for disciplinary actions to be applied for violations of such standards by officers, employees, or agents of the Recipient.

Business Hours
The Recipient shall have its offices open for business, with the entrance door open to the public, and at least one employee on site, from 8:00 a.m. to 5:00 p.m., local time, Monday through Friday.

Licensing and Permitting
All subcontractors or employees hired by the Recipient shall have all current licenses and permits required for all of the particular work for which they are hired by the Recipient.

Attachment H

Certification Regarding
Debarment, Suspension, Ineligibility
And Voluntary Exclusion

Contractor Covered Transactions

(1) The prospective contractor of the Recipient, _____, certifies, by submission of this document, that neither it nor its principals is presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participation in this transaction by any Federal department or agency.

(2) Where the Recipient's contractor is unable to certify to the above statement, the prospective contractor shall attach an explanation to this form.

CONTRACTOR:

_____

By:_____
Signature

_____
Name and Title

_____
Street Address

_____
City, State, Zip

_____
Date

City of Key West
Recipient's Name

09HM-37-11-54-02-030
Division Contract Number

RESOLUTION NO. 09-082

A RESOLUTION OF THE CITY COMMISSION OF THE CITY OF KEY WEST, FLORIDA, AUTHORIZING THE APPROVAL OF TASK ORDER NUMBER 2-09STM FOR THE DESIGN OF A PUMP-ASSISTED OUTFALL SYSTEM FOR THE GEORGE STREET BASIN AREA, IN AN AMOUNT NOT TO EXCEED $311,821 TO CH2M HILL, INC; PROVIDING FOR AN EFFECTIVE DATE

NOW THEREFORE, BE IT RESOLVED BY THE CITY COMMISSION OF THE CITY OF KEY WEST, FLORIDA, AS FOLLOWS:

Section 1: That the attached task order 2-09STM for the design of a pump-assisted outfall system for the George Street basin area in an amount not to exceed $311,821.00 to CH2M HILL is hereby approved.

Section 2: That this Resolution shall go into effect immediately upon its passage and adoption and authentication by the signature of the presiding officer and the Clerk of the Commission.

Passed and adopted by the City Commission at a meeting held this 7TH day of April, 2009.

Authenticated by the presiding officer and Clerk of the Commission on April 8, 2009.

Filed with the Clerk April 8, 2009.

MORGAN MCPHERSON, MAYOR

ATTEST:

CHERYL SMITH, CITY CLERK

GENERAL SERVICES DEPARTMENT MEMORANDUM

EXECUTIVE SUMMARY

TO: **Jim Scholl , City Manager**

FROM: **Annalise Mannix, P.E. Manager of Engineering Services and Environmental Programs**

VIA: **David Fernandez, Assistant City Manager**
Gary Bowman, General Services Director

DATE: **February 25, 2009**

RE: **Design Services for Patricia /Ashby Street Pump Station Outfall and George Street Pump Station and Outfall**

ACTION STATEMENT
A resolution approving task order numbers 1-09STM and 2-09STM for the design of pump-assisted outfall systems for the intersection of Patricia & Ashby Streets and on George Street, in the amounts of $134,816 and $311,821 respectively, to CH2M Hill, Inc.

STRATEGIC PLAN INITIATIVES
The maintenance and improvement of our stormwater system is essential in protecting our near-shore water quality which is a key goal in the City's Strategic Plan. This project will place a sediment trap system on the George Street outfall which currently dumps untreated stormwater mixed with sediment, trash, and petroleum into the Garrison Bight. The Patricia/Ashby station already has a sediment trap.

The maintenance of our public infrastructure in a cost effective manner to serve the needs of our citizens and visitors and protect the local environment is one of our seven priorities outlined in the Strategic Plan. This project attempts to improve our current stormwater infrastructure to protect our citizens and visitors from flooded streets which often cause sewage spills. The project also removes contaminates from near-shore waters that would normally exit the island in untreated stormwater. Using a Federal Emergency Management Agency (FEMA) grant for 75% of the funds make the projects more cost effective for our ratepayers.

BACKGROUND
Mitigation is one of the cornerstones of emergency management. Its goal is to lessen the impact that disasters have on people's lives and property. Authorized under Section 404 of the Robert T. Stafford Disaster Relief and Emergency Assistance Act, the Hazard Mitigation Grant Program (HMGP) is administered by the Federal Emergency Management Agency and the Florida Division of Emergency Management (DEM). The City applied for two stormwater mitigation grant projects.

Flooding due to heavy rains has caused disruption of vehicular travel at the intersection of Ashby Street and Patricia Street and on both the 1600 block of United Street and 1000 block of George Street for years. The City Stormwater Utility applied for Hurricane Wilma HMGP funds in 2006 to implement two projects to reduce rain related flooding in those areas. The City has been awarded HMGP grants for the design and construction of these projects. The City Commission has already authorized the design phase grant contracts for both projects.

"Flooding" is a term that seems to be defined by each user differently, i.e. "my street is flooded" can mean there is a 3 inch deep puddle on one side of the road when it is in front of the orators home, or "my house was flooded" can mean water was up in the front yard to another speaker. With regard to streets, engineers speak more in terms of roadway overtopping. As a road becomes overtopped with water, the level of risk to drivers and the neighborhood increases. Roads are not designed to remove all water instantaneously from a local road and storm systems are not designed for huge rain events. Drainage systems for roads are designed, generally, to allow up to 6 inches of water on the road during a heavy rain event. Above that point we do consider a road "flooded". This condition makes it difficult for emergency vehicles to pass across the road. If water stands in a roadway for any length of time the life span of the road tends to decrease and maintenance costs increase. Asphalt is "glued" to the ground so-to-speak and that bond can be disrupted when wear, and water mix.

The City applied for a stormwater mitigation grant to install outfall piping for the existing pump station at the intersection Ashby and Patricia Street to pump the water from the neighborhood to the ocean via Bertha Street. We also applied for a project to pump water from the United Street area (by Thompson Street) out through a pipe below George Street and into the Garrison Bight.

More specifically, the Ashby/Patricia project is to pump water from the existing well pump station to the ocean out-falling at the end of Bertha Street. During hurricane storm surge events the current pump station has to be shut down due to clogging of the wells, creating a need for bypass pumping to maintain the level of protection the pumps afford. Additionally, the generator for the station is trucked in after it is determined there is a need. This project installs the generator on site so it is available instantly. Currently, when the pumps are not available and it rains at high tide the street can be covered with more then 6 inches of water. The total project cost estimated in 2006 was $1,669,560.

The George Street project consists of building a pump station to accept water from the drainage basin that encompasses the intersection of United and Thompson Streets through the intersection of Catherine and Thompson Streets and up to George Street. The rainwater will then be transferred through a sediment trap and pumped through pipes below George Street and out into the Garrison Bight. The rainwater currently flows through gravity piping down George Street and outfalls into the Garrison Bight, but with no pollutant removal system. The total project cost estimated in 2006 was $3,000,000. At some high tides, even without rain, salt water backs up onto United Street and George Street. When a rain occurs at high tide the roads can flood well over 6 inches.

PURPOSE & JUSTIFICATION

FEMA has approved both of the grant applications in two phases. The phase one (design) grants were executed by the Commission and the State of Florida for these projects. The grant is for 75% of each project cost estimate which is $103,950.00 for the Patricia/Ashby project and $227,760.00 for the George Street project. If the design phase indicates a project will be a successful mitigation project (having demonstrated a good benefit to cost ratio) FEMA will pay for 75% of construction.

The engineers cost estimate of construction will be necessary to determine the final benefit-to-cost ratio and that will not be available until the design is complete. However, a preliminary estimate was made for both sites prior to applying for the grant. For the George Street outfall, 75 homes will be protected against a 50 year rain event for 50 years (the life of the equipment). The benefit-to-cost ratio is over 2.5, saving the taxpayers over $10,000,000 for an estimated $4,000,000 lifecycle cost (including maintenance). For Ashby and Patricia, 30 homes will be

protected against a 25 year rain event for 50 years. The benefit-to-cost ratio is over 2.0 saving the taxpayer an estimated $4,000,000 for a $2,000,000 lifecycle cost (including maintenance).

In order to implement each construction phase the project must be designed. The George Street project includes the design of a sediment and petroleum trap; a wet well with submerged pumps; a control station and emergency electric generator above ground; and an underground outfall pipe down George Street exiting into the Garrison Bight. During the design phase, engineers will carry out land surveys, modeling of storm events to determine potential volumes of water to be pumped, research the actual costs incurred by homeowners and insurance companies of previous storms, and estimate the cost and benefit of the designed project using a very specific benefit-to-cost analysis.

On completion of the design phase, the engineer will need to apply for environmental permits, attend consultation and feedback meetings with all agencies involved, and perform any necessary modifications to obtain the permits. Much of the same work has to be performed on the Ashby project, however, the pump station already exists so only the piping to the outfall and the generator needs to be installed.

Although both the City Commission and FEMA have approved the grants covering each design phase, FEMA will only authorize construction for projects with a benefit-to-cost ratio greater than 1.0 (which indicates a stipulated acceptable cost saving ratio to the government over a 50 year life span). In the unexpected event that either ratio is less than 1.0, each design grant is still reimbursable and so would remain intact. The City could of course choose to build the project with its own funds should FEMA find the ratio less than 1.0.

OPTIONS

There are three options for this request. The first is to approve the task orders for the project; the second is to reject the task orders and select a different firm; and the third is to choose not to perform the projects. Not performing the projects will neither improve the existing rain related flooding conditions nor relieve the distress of effected residents. Only completing the design of one project would result in a loss of economies of scale and will increase the design cost of the selected option.

Awarding the task orders to CH2M Hill is desirable because CH2M Hill, Inc. designed the Ashby/Patricia pump station and, therefore, already has the electronic modeling information, pump design information and is familiar with the specific design and construction issues found in that station. In addition they were tasked 2 years ago to develop conceptual plans for the pump assisted outfall at Ashby and met with City and South Florida Water Management District officials to negotiate the addition of an outfall. They have also successfully designed several other sewer pump stations for the City.

We are confident that the cost of engineering for this project is not excessive. In addition, care was taken during the task order negotiation to avoid duplication of effort by reducing unnecessary administrative burdens, and associated costs, and by scheduling meetings to monitor progress of both projects with the same essential or key staff at the same time.

The second option of selecting a different engineering firm to design the pump stations gives no guarantee of a lower cost since the work is subject to the State's Consultants Competitive Negotiation Act which does not allow selecting engineers based on low bids. However, if the Commission so wishes, we could invite alternative contracted firms that also specialize in stormwater pump stations to prepare and submit a task order for the required work though there would be a loss of economies of scale, insight, and time. The price may be higher than the one

we have now. It may also be less, but since the initial task orders are public record the prices are unlikely to be much less than that offered by CH2M Hill.

The option of not designing the stations is always available. That would cause distress to the citizens of the affected areas. Many are aware the projects were considered, placed in the utility rate study, and remain hopeful they will provide them with much needed relief.

FINANCIAL IMPACT

The total design cost for the two projects will be $446,637, with the City providing matched funding for 25% ($111,660). FEMA will fund 75% ($334,977). The City's match is listed as line items in the Stormwater Utility rate study/budget for 2009 and 2010. The Ashby project is fully funded in 2010 at the rate of $135,000, with the proposed cost being $134,816. The George Street project is funded partly in 2009 ($237,000) and the remainder in 2010 ($75,000) totaling $312,000 with the actual cost being $311,821. The City may request from FEMA 50% of the funding up front so our funds do not have to be dispersed until more then 50% of the design is complete. That may take the project right into the 2010 fiscal year where most of the funds are budgeted. These funds are funded through line item # 402-802-535-65-00.

RECOMMENDATION

Authorize execution of these task orders to CH2M Hill.

TASK ORDER 2-09 STM

ENGINEERING SERVICES FOR THE STUDY, DESIGN, AND PERMITTING OF A STORMWATER PUMP STATION AND OUTFALL SYSTEM FOR GEORGE STREET DRAINAGE AREA

This TASK ORDER 2-09 STM is issued under the terms and conditions of the MASTER AGREEMENT TO FURNISH GENERAL ENGINEERING SERVICES TO THE CITY OF KEY WEST ("AGREEMENT") between the City of Key West ("CITY") and CH2M HILL, Inc. ("ENGINEER") executed on September 18, 2007, which is incorporated herein by this reference.

A. SCOPE OF SERVICES

Specific services which the ENGINEER agrees to furnish are summarized on the attached statement entitled TASK ORDER NO. 2-09 STM "SCOPE OF SERVICES." The "Scope of Services" defines the work effort anticipated for the Task Order. This Task Order, when executed, shall be incorporated in and shall become an integral part of the September 18, 2007, Master Agreement.

B. TIME OF COMPLETION

Work under this Task Order will begin immediately following acceptance and completed expeditiously subject to coordination with the City of Key West staff. Work may be performed at any time as requested by the CITY within 12 months after the date of execution of this Task Order, at which time the Task Order will expire.

C. COMPENSATION

Compensation for TASK ORDER NO. 2-09 STM, Tasks A and B will be on a lump sum fee basis as stipulated in Article 2, Paragraph 2.1 of the AGREEMENT. Compensation for Task C and all expenses will be on a Cost Reimbursable-Per Diem basis as stipulated in Article 2, Paragraph 2.2 of the AGREEMENT. The estimated compensation is shown on the attached statement entitled TASK ORDER NO. 2-09 STM COMPENSATION.

D. ACCEPTANCE

By signature, the parties each accept the provisions of this TASK ORDER NO. 2-09 STM, and authorize the ENGINEER to proceed at the direction of the CITY's representative in accordance with the "SCOPE OF SERVICES." Start date for this project will be no later than ten (10) days after execution of this authorization.

For CH2M HILL, INC.

By: Richard Morales
Rick Morales, P.E.
South Florida Area Manager

Andrew H. Smyth, P.E.
Key West Office Manager

For CITY OF KEY WEST

By: J K Scholl
Jim Scholl
City Manager

Dated the 13th day of April, 2009

ATTEST: Cheryl Smith

TASK ORDER 2-09 STM

ENGINEERING SERVICES FOR THE STUDY, DESIGN, AND PERMITTING OF A STORMWATER PUMP STATION AND OUTFALL SYSTEM FOR GEORGE STREET DRAINAGE AREA

SCOPE OF SERVICES

Project Description

The City of Key West (CITY) has received Federal Emergency Management Agency (FEMA) hazard mitigation grant program (HMGP) funding (HMGP DR-1609-110-R) to address stormwater flooding in the George Street basin area in Key West, Florida. There are multiple low lying areas within the existing gravity drainage system that flood during rain events. The CITY would like to construct a pump station that would alleviate flooding during these rain events. The pump station would be connected to the existing gravity system and would operate when stormwater reaches a predetermined elevation in the existing gravity system. The pump station discharge would utilize the existing gravity outfall by connecting downstream of the furthest catch basin. The existing outfall and outfall pipe will be modified to allow a pressurized flow. Additionally, up to 500 linear feet of collection system piping may be modified if required for the collection system or pump station to operate correctly. The actual modifications will be based on the outcome of the modeling task.

The new stormwater pump station would include an upstream sediment removal structure and a permanent stand-by generator elevated above the 100 year flood elevation. After discussions with the City it was determined that the stormwater improvements will not include two (2) 90 foot injection wells as stated in the FEMA grant document. This determination is due to the grant being based on elevating flooding issues in the area and the current scope of the project will be able to address these issues without the construction of the wells. It is assumed that the City will obtain a modification to the current FEMA grant scope of work to delete the requirement for the two (2) 90 foot injection wells and include a permanent stand-by generator and appurtenances. The location of the new pump station is assumed to be in the northeast corner of the existing school property and is assumed the City will obtain an easement from Monroe County School District for the construction.

Purpose

The CITY has requested that the ENGINEER provide engineering services for the study, design and permitting of a stormwater pump station and outfall system for the George Street drainage basin.

Scope of Services

The scope of services provided below addresses the work to be completed for the project; and includes Task A (Hydrologic Evaluation), Task B (Detailed Design), and Task C (Permitting). The scope of work for this project will result in the following deliverables:

- A complete set of signed and sealed construction drawings and specifications
- An Engineering Report that addresses the hydraulic analysis of storm water modifications for the George Street basin area will be generated and will include the following elements:
  - A site map clearly showing the location of proposed project components and their location relative to the areas of historic damage within the contributing watershed.
  - Hydrologic and/or hydraulic calculations or models including surge effects that support the proposed mitigation by clearly demonstrating the decrease in future flood levels and associated future flood damages.
  - A detailed narrative of the actual problem with the frequency of event causing the flooding, and an estimate of the damages (in dollars) due to flooding. The narrative will include a description of how the modified stormwater system will solve the problem and how much residual damage (in dollars) will occur after the new proposed level of protection.
- Copies of any completed U.S. Fish and Wildlife (USFW) Consultation
- Documentation of public notice, including an explanation of how public comments (if received) were addressed.
- A copy of the South Florida Water Management District (SFWMD) Environmental Resource Permit (ERP) and correspondence regarding applicable United States Army Corps of Engineers (USACE) permits.
- An updated project cost estimate including mobilization, demolition, permit fees, erosion and sediment control Best Management Practices (BMPs), environmental remediation, and construction easement cost will be prepared and submitted separately.

Task A – Hydrologic Evaluation and Report

The Engineer will provide data collection, field investigations, and hydraulic modeling and evaluations sufficient to provide a detailed report to be used to meet the requirements of the FEMA grant.

The following activities will be conducted as part of the Task A.

- Kickoff Meeting: Attend a kickoff meeting with City staff to obtain/discuss background information pertaining to the study area. This information may include copies of relevant planning and engineering reports, previous modeling by others, stormwater facility survey data, first floor elevation of buildings, drainage area maps, topographic maps, and land use maps, as appropriate.
- Field Investigation: The Engineer and City staff shall complete a walking review of the study area to observe land use and drainage characteristics of the area. This field investigation shall also be used to identify existing drainage problem areas, as observed by City staff and potential locations for future stormwater facilities.

- Review Background Information: The Engineer shall review the background information provided by the City, and complete a preliminary evaluation of the potential usefulness for this project. Readily available additional mapping data will be obtained and assessed for its usefulness in developing updated maps. The state has recently obtained aerial LiDAR survey of Key West. These maps are available from the state and it is assumed that they will be available to help generate new base maps.

- The ICPR model (i.e., based on the one previously completed by others) will be updated using the new LiDAR data. Contributing areas and stage-area curves will be generated using GIS tools. These data are necessary to map flooding later.

- Using the ICPR model, estimate the flood potential of the contributing basins, without the proposed pump station and with the pump station and modified outfall. The pump station and outfall system will also be modeled using the AFT Fathom model as part of the design process, but this model does not simulate storm flows. A Fathom model will be developed and used to assess the detailed head losses in the system under peak storm flows given three different tailwater conditions (mean high tide, high tide, and one storm surge condition which will be somewhat higher than the street level).

- The flooding levels will be estimated based on ponding in the streets. Areas with standing water will be mapped on the base maps for the following design storms: 10-year, 24-hour; 25-year, 72-hour; and 100-year, 72-hour. No hurricane surge mapping will be conducted, however, maps with this information are available from the state and will be included as part of the background data.

- Using the 100-year flooding estimates, properties that will likely be flooded without the project will be identified on an aerial photograph. A visual survey will be made to verify which houses may be on a raised foundation. A sampling of the homes will be selected and their value determined by querying the county property appraiser's database. Commercial properties will be queried separately. Based on the relative value a sampling of homes in the flooded areas an overall estimate of the potential damages will be prepared.

- A detailed cost estimate of the project will not be available until after the design. A parametric cost estimate based on typical costs for the pump station and outfall pipeline will be developed and used for the report. Additional fees for erosion control and permitting will be included.

- A draft report will be completed and submitted to the City for review. Upon completion of the City review a meeting will be conducted to incorporate comments into final report.

Deliverables

The deliverable for Task A shall consist of an Engineering Report. The Engineering Report shall include a detailed narrative of the frequency of the storm event causing the flooding and a dollar estimate of the damages due to flood. The report will include a discussion of how the stormwater discharge system will reduce the flooding impacts and quantify the residual damage (in dollars) after the stormwater discharge system is constructed.

The following deliverables will be provided under this Task:

- Two (2) copies of kick-off meeting minutes

- One (1) electronic copy of base map
- Two (2) copies of draft report.
- Two (2) copies of review meeting minutes
- Five (5) copies of the final report and 1 electronic copy (PDF format).

Task B – Detailed Design

This task entails activities related to the design of a new stormwater pump station and permanent standby generator including all structural, mechanical, and electrical components as well as an upstream sediment removal structure, approximately 500 lineal feet of new stormwater pipeline and outfall. The task is divided into three subtasks- B.1 Field Survey and Geotechnical, B.2 Preliminary Design and B.3 Final Design.

B.1 Field Survey and Geotechnical

The Engineer shall retain a professional land surveyor to conduct a survey of the proposed stormwater pump station site and along the modified stormwater pipeline route.

The surveyor will provide a detailed survey of the proposed location of the new pump station in the northeast corner of Horace O'Bryant Middle School field. The surveyor will also provide a detailed route survey for the modified outfall piping which is assumed to start at the intersection of George Street and Vivian Street, then along George Street to existing outfall on North Roosevelt. The surveyor will obtain detailed information on the invert and size of the existing outfall. The surveying shall be based on a maximum of 600 feet.

Ground surveying shall be obtained and shall show physical features within and immediately adjacent to the street rights-of-way, as well as rights-of-way lines and elevations of accessible storm water and sanitary sewers. All horizontal coordinates shall be in U.S. Survey feet and reflect a projection of grid coordinates in the State of Florida Plane coordinate System Transverse Mercator-West Zone, NAD 1983-1990. All vertical elevations shall be in feet referenced to NGVD 29.

The Engineer will also obtain the services of a geotechnical subconsultant to conduct a geotechnical investigation of the proposed site and along the proposed route. The investigation will include the installation of eight (8) Standard Penetration Test (SPT) (ASTM D-1586) borings; two (2) to twenty (20) feet below land surface (bls), two (2) to twelve (12) feet bls and four (4) to eight (8) feet bls. The boring will not be terminated in very loose or deleterious material. Sieve analyses will be conducted on up to eight (8) soil samples collected from split spoon samples taken from the borings.

The Engineer and geotechnical sub consultant will prepare a draft geotechnical report documenting the results of the geotechnical field investigation. The report will include a discussion of field procedures, boring logs, soil test data, and maps indicating the locations of all borings.

Deliverables

- Four (4) signed and sealed copies of the topographic map for distribution to City staff.
- Four (4) signed and sealed copies of the geotechnical report for distribution to City staff.

B.2 Preliminary Design (40% Design)

The ENGINEER will perform the work to develop the preliminary project design documents, based on the approved recommendation of the preliminary report, for the purpose of constructing a new stormwater pump station, sediment removal structure, permanent stand-by generator, modifications to existing discharge piping and outfall and up to 500 lineal feet of stormwater collection pipe.

The objectives of this task are to define the design approach and intent and to communicate the design assumptions to the CITY. The ENGINEER will conduct a design review meeting with the CITY prior to the conclusion of this task.

Specific work activities in this task are identified below:

- Develop plan and profile drawings showing the proposed stormwater pump station location and layout, sediment removal structure, stand-by generator, connections to the existing gravity system and modifications of discharge piping, collection piping and outfall.
- Prepare outline of required technical specifications.
- Identify any potential constructability issues.
- Prepare budget-level cost estimate.
- 40 % Design Review Meeting.

Deliverables

The following deliverables will be provided under this Task:

- Three (3) copies: Preliminary (40%) drawings
- Three (3) copies: Specification outline
- Three (3) copies: Design Calculations and data
- Three (3) copies: Preliminary Construction cost estimate
- Two (2) copies of 40% review meeting minutes

B.3 Final Design

During this subtask, the ENGINEER will complete the technical design based on the outcome of the 40% Review Meeting. At the end of this subtask the design documents will be considered complete and ready for bidding.

Specific work activities in this task are identified below:

- Finalize technical design

- Prepare legal and technical specifications, contract documents, including Bid Form, Notice to Bidders, General and Supplemental Conditions, Bond Forms, etc.
- Prepare 90% Drawings
- Based on 90% documents, prepare updated final construction cost estimate
- Conduct 90% review meeting and incorporate review comments from City into design documents, and submit final contract documents to the CITY

Deliverables

The following deliverables will be provided under this Task:

- Five (5) copies: 90% review documents (Drawings and Specifications)
- Two (2) copies: Final construction cost estimate
- Two (2) copies of 90% review meeting minutes
- Eight (8) copies: Final Contract Documents, including drawings and specifications and one (1) CD of Contract Documents in PDF format for uploading to DemandStar.

Task C – Permitting

The ENGINEER will provide to the CITY documentation, permits or correspondence letters from the following State, Federal and Local agencies, as applicable:

- Environmental Resource Permit from the South Florida Water Management District (SFWMD).
- US Army Corps of Engineers (USACE)- copy of letter submitted to the USACE or a permit, or a letter stating that a permit is not required.
- US Fish and Wildlife (USFWS)- ENGINEER will provide correspondence letter.
- Copy of Public Notice with documentation that is published as well as documentation regarding whether any comments were received in response to the Public Notice.
- Florida Department of Transportation (FDOT) permit
- ENGINEER will provide signed and sealed plans, specifications and calculations for each permit

For purposes of budgeting, it is assumed that the USACE will allow a Nationwide permit to be utilized because of the limited dredge and fill area. One Request for Information from the SFWMD will be addressed.

Deliverables

The following deliverables will be provided under this Task:

- Two (2) copies: Final permit applications with attachments
- Two (2) copies: correspondence letters, USACE, NFWS.
- Two (2) copies of Public Notice documentation

Assumptions

The following assumptions were used in the development of this Task Order

- Work on this project will be completed by the end of August, 2009 (except for permits that may have been applied for but not yet obtained).
- Meetings will be held in Key West and attended by up to two (2) consultants staff, additional consultants staff may attend via conference call.
- Consultants and City's QC reviews will occur concurrently in order to meet schedule.
- The design work included in this Task Order is for the study and design of one stormwater pump station and discharge system serving the George Street drainage area. Additions to the scope will require an amendment to this Task Order.
- Only existing land use shall be used in the hydrologic/hydraulic evaluation of the study area as it is a mature development.
- Assumptions about ponding into lots/parcels will be made on each block.
- The design will be based on the federal, state and local codes and standards in effect at the start of the project. Any changes in these codes may necessitate a change in scope.
- The design documents will be prepared for a single construction contract.
- Attachment B lists the anticipated design drawings to be included in the contract documents.
- Geotechnical report will be delivered as one single report for both task orders 1-09 STM and task order 2-09 STM.
- No land costs shall be included in cost estimating for the project. It will be assumed that all projects can be located in City rights of way.
- Legal, easement, or plat survey or acquisitions will be the responsibility of CITY, it is assumed that the City will acquire an easement from Monroe County School District for the stormwater pump station site.
- The CITY will pay for all permit application fees.
- Concepts will be frozen at the end of each design phase and any redesigns after those points will be additional services.
- LiDAR surveys will be available for base maps and modeling.
- Pre-permitting meetings will occur at the end of the report phase (Task A)
- All field investigations, data gathering, QC reviews, meetings and other activities shall be scheduled to occur concurrently with task Order 1-09 STM in order to minimize travel and duplication of efforts.
- Consultant assumes permitting activities can be completed in 90 days. If major design changes are required based on revised permitting requirements additional funds may be required.
- The City will coordinate and implement all Public involvement and FEMA activities.

- This Task Order 1-09 STM shall be approved and work shall be started concurrently with Task Oder 2-09 STM so that similar work activities on each project may be performed at the same time.

Obligations of the CITY

To assist meeting schedule and budget estimates contained in this proposal, the CITY will provide the following:

- The City will modify the current FEMA grant, scope of work to include a permanent stand-by generator and modifications to collection system (as required by modeling) and the deletion of two (2) 90 foot injection wells.
- The CITY will obtain aerial LiDAR survey from state.
- Prompt review and comment on all deliverables. Review comments shall be submitted back to the Consultant within one week of deliverable.
- Facilitate access to any required facilities.
- Attendance of key personnel at meeting as requested.
- Payment of all permit application fees.
- City will assist in obtaining specific information from affected parties; else typical values will be used.
- Obtain easement from Monroe County School District for stormwater pump station and generator.
- Detailed surveying is being performed for the design portion only.
- CITY to provide existing topographic maps, data or existing subsurface investigation information , home flooding complaints, maintenance or recent changes to the drainage pipes in the basin, or other relevant supporting information required to construct a damage and remedial assessment report.
- The City will coordinate and implement all Public involvement and FEMA activities.
- Task Order 1-09 STM and Task Order 2-09 STM shall be approved concurrently.

Additional Services

The ENGINEER will, as directed, provide additional services that are related to the project but not included within this Scope of Services. These and other services can be provided, if desired by the CITY, as an amendment to the Task Order. Work will begin for the Additional Services after receipt of a written notice to proceed from the CITY. Additional services may include, but are not limited to, the following:

- Additional data collection
- Additional design services if requested by the City
- Bid or construction phase services
- Additional permitting involving agencies other than the those listed under Task C

Compensation

The estimated compensation for TASK ORDER NO. 2-09 STM is shown on Attachment A entitled TASK ORDER NO. 2-09 STM, COMPENSATION.

Attachment A

COMPENSATION

TASK ORDER 2-09 STM COMPENSATION

Engineering Services for the Study, Design and Permittingof a Stormwater Pump Station and Outfall System for the George Street Drainage Area

Task		Hours	Labor	Expenses	Total Cost
Task A - Hydrologic Evaluation and Report		473	$52,471	$3,250	$55,721
Task B - Design		1813	$221,638	$11,710	$233,348
Task C - Permitting		172	$20,202	$2,550	$22,752
	Total	**2458**	**$294,311**	**$17,510**	**$311,821**

COMPENSATION BREAKDOWN
Task Order 2-09 STM

TASK NO.	TASK DESCRIPTION	HOURLY RATE	TOTAL HOURS	LABOR	EXPENSES	TOTAL COST
A	**Hydraulic Evaluation and Report**					
	Principal PM/Technologist	$ 177.00	11	$1,947		$1,947
	Sr. Project Manager	$ 163.00	32	$5,216		$5,216
	Project Manager	$ 153.00	20	$3,060		$3,060
	Project Engineer	$ 126.00	112	$14,112		$14,112
	Associate Engineer	$ 113.00	66	$7,458		$7,458
	Staff Engineer	$ 101.00	142	$14,342		$14,342
	Tech 5	$ 113.00	0	$0		$0
	Tech 4	$ 96.00	0	$0		$0
	Tech 3	$ 76.00	54	$4,104		$4,104
	Editor	$ 87.00	6	$522		$522
	Clerical	$ 57.00	30	$1,710		$1,710
	TRAVEL (3) - 2 Day trips to KWF				$2,850	$2,850
	PRINTING/REPROGRAPHICS/PHONE				$400	$400
Hydraulic Evaluation and Report SUBTOTAL			473	$52,471	$3,250	$55,721
B	**Design**					
	Principal PM/Technologist	$ 177.00	186	$32,922		$32,922
	Sr. Project Manager	$ 163.00	166	$27,058		$27,058
	Project Manager	$ 153.00	218	$33,354		$33,354
	Project Engineer	$ 126.00	284	$35,784		$35,784
	Associate Engineer	$ 113.00	288	$32,544		$32,544
	Staff Engineer	$ 101.00	24	$2,424		$2,424
	Tech 5	$ 113.00	30	$3,390		$3,390
	Tech 4	$ 96.00	423	$40,608		$40,608
	Tech 3	$ 76.00	24	$1,824		$1,824
	Editor	$ 87.00	68	$5,916		$5,916
	Clerical	$ 57.00	102	$5,814		$5,814
	TRAVEL (2)-1 Week and (3)-2 Day trips to KWF				$4,600	$4,600
	Sub-Consultant				$4,710	$4,710
	PRINTING/REPROGRAPHICS/PHONE				$2,400	$2,400
Detailed Design SUBTOTAL			1813	$221,638	$11,710	$233,348
C	**Permitting**					
	Principal PM/Technologist	$ 177.00	14	$2,478		$2,478
	Sr. Project Manager	$ 163.00	0	$0		$0
	Project Manager	$ 153.00	28	$4,284		$4,284
	Project Engineer	$ 126.00	12	$1,512		$1,512
	Associate Engineer	$ 113.00	72	$8,136		$8,136
	Staff Engineer	$ 101.00	24	$2,424		$2,424
	Tech 3	$ 76.00	6	$456		$456
	Technical Editor/Spec Processor	$ 87.00	0	$0		$0
	Clerical	$ 57.00	16	$912		$912
	(2) - 1 Day trip to Permitting Agency				$2,000	$2,000
	PRINTING/REPROGRAPHICS/PHONE				$550	$550
Permitting SUBTOTAL			172	$20,202	$2,550	$22,752
PROJECT TOTALS						
	TOTAL HOURS		2,458			
	TOTAL FEE ESTIMATE			$294,311	$17,510	$311,821

Attachment B

DRAWING LIST

TASK ORDER 2-09 STM DRAWING LIST

Engineering Services for the George Street Pump Station and Stormwater Outfall

General
1. Cover & Drawing Index

Civil
2. Civil Legend
3. Site Plan
4. George Street Connections Plan 7 Sections
5. Connection Details
6. Outfall Plan and Sections
7. Outfall Details
8. Revised Stormwater Piping on George Street
9. Piping Details
10. Sedimentation and Erosion Control
11. Erosion Control Details
12. Communication Tower Plan, Sections & Details
13. Fence Plan, Sections & Details
14. Civil Standard Details

Structural
15. Structural Legend
16. Pump Station Plan and Sections
17. Pump Station Details
18. Sediment Removal Structure Plan and Sections
19. Sediment Removal Structure Details
20. Generator Platform Plan and Sections
21. Platform Details
22. Stairs, Handrails Plan, Sections and Details
23. Standard Details

Process Mechanical
24. Mechanical Legend
25. Pump Station Piping Plan and Sections
26. Valve Vault Plan and Sections
27. Discharge Vault Plan, Sections and Details
28. Standard Details

Electrical
29. Electrical Legend
30. Site Plan and One-Line Diagram
31. Generator Plan and Details
32. Pump Station Control Panel
33. Standard Details
34. Standard Details

I&C

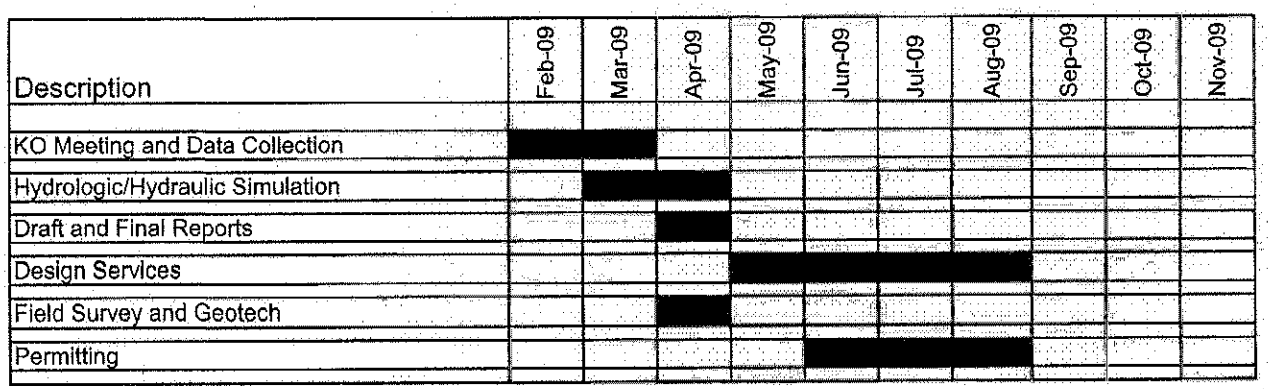
35. I&C Legend
36. Pump Station PID
37. SCADA Communications
38. Standard Details
39. Standard Details

Attachment C

SCHEDULE

TASK ORDER 2-09 STM PROJECT SCHEDULE

ENGINEERING SERVICES FOR THE STUDY, DESIGN, AND PERMITTING OF A STORMWATER PUMP STATION AND OUTFALL SYSTEM AT THE GEORGE STREET DRAINAGE AREA



Engineering Report for Proposed Stormwater Improvements in the George Street Drainage Area

PREPARED FOR: City of Key West

PREPARED BY: CH2M HILL

DATE: November 29, 2011

PROJECT NUMBER: 389709

Introduction

The City of Key West (City) has received Federal Emergency Management Agency (FEMA) hazard mitigation grant program (HMGP) funding (HMGP DR-1609-110-R) to address stormwater flooding in the George Street drainage area (the project) in Key West, Florida. The project is organized into two phases, each with an associated set of deliverables. Phase I deliverables include an engineering study, design of project components, and associated permitting activities. Phase II deliverables relate to construction of the project.

As part of the Phase I requirements, this Engineering Report addresses the hydraulic analysis of stormwater modifications in the George Street outfall drainage basin area and includes the following elements:

- A narrative of the drainage problem with the frequency of event causing the flooding, and an estimate of the damages (in dollars) due to flooding. The narrative will include a description of how the modified stormwater system will solve the problem and how much residual damage (in dollars) will occur after the new proposed level of protection.
- A site map showing the location of proposed project components and their location relative to the areas of historic damage within the contributing watershed.

- Hydrologic and/or hydraulic calculations or models that support the proposed mitigation by demonstrating the decrease in future flood levels and associated future flood damages.

Existing Drainage System and Flooding Problem

There are multiple low lying areas within the City's existing gravity drainage system that flood during rain events. One of these areas are located within the George Street drainage basin, depicted in Exhibit 1. The gravity drainage system within the George Street drainage area consists of 12-, 18-, and 24-inch PVC pipes, manholes, and an existing outfall located at the end of George Street, draining to Garrison Bight (a harbor and boat basin). Flooding typically occurs in the basin even during minor events. Areas of more severe flooding are concentrated in the northern portion of the drainage basin. Flooding can also be exasperated by street runoff from higher topography to the west of this area. There are drainage facilities to the west that include catch basins and gravity drainage wells that are overwhelmed or bypassed (primarily due to clogging) during larger storms, with this overflow eventually draining to the lower elevations in the George Street area. This extra water causes standing water for a longer period of time than would otherwise occur. This project will address only the runoff from the George Street drainage area and future projects will address runoff from outside this basin.

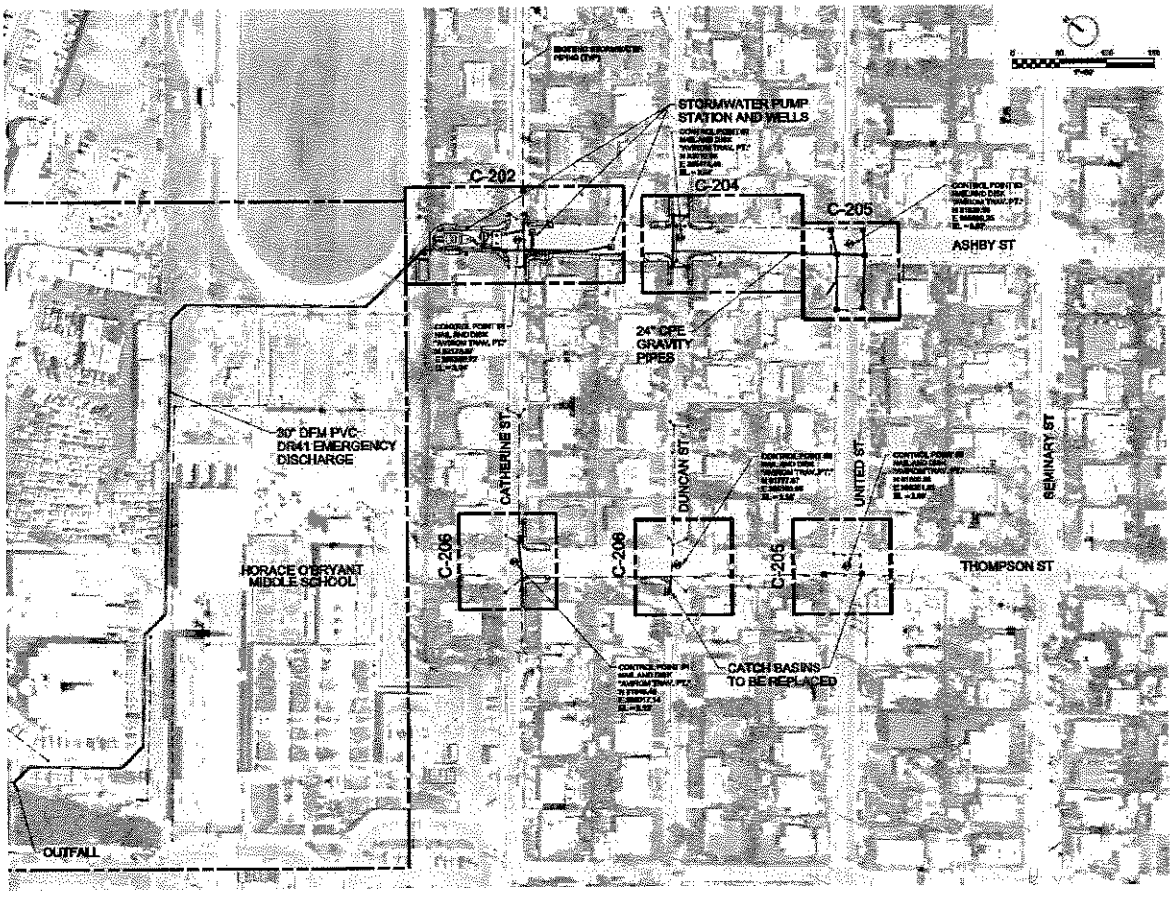
EXHIBIT 1
George Street Drainage Area Evaluated in this Project (Project Basin)

Source: Google Earth

Proposed Project Components

The City will construct a pump station located near the lowest elevation along Ashby Street, just north of Catherine Street, to reduce flooding during large rain events. The pump station would be routed to two pressurized drainage wells. The pressurized system will also have a piped connection to a new outfall at Jose Marti Pond (located west of the drainage basin) and would operate under emergency conditions (to be defined through the permitting process). An emergency generator for the pump station would be included in the project. This project also includes replacing selected drainage infrastructure that is described further below. A schematic diagram of the basin's proposed stormwater infrastructure is shown in Exhibit 2. The existing outfall would remain as is, but the volume of stormwater discharging to receiving waters from the George Street Drainage Area will be greatly reduced by this project.

EXHIBIT 2
George Street Drainage Basin Proposed Infrastructure



The drainage system improvements will include about 400 linear feet of 24-inch diameter PVC gravity pipe, 17 new inlets, a box with a flashboard weir along Catherine Street, and roughly 1,200 linear feet of 30-inch PVC force main to a new headwall at Jose Marti pond.

The new stormwater pump station will include a water quality treatment vortex unit and a permanent stand-by generator elevated above the 100 year flood elevation. Stormwater improvements will also include two 120-foot injection wells located near the pump station. The weir box (located on Catherine Street, between Ashby and George Streets) is to limit the backwater to the pump station during high-tide.

Hydrologic/Hydraulic Analysis

Hydrologic and hydraulic analyses were conducted in support of the proposed improvements in the George Street drainage basin. ICPR (Version 3.10, SP4) was utilized to simulate flood events within the George Street drainage area. This is a computer model approved by FEMA for evaluating flood profiles, and is a link-node type of simulation program. The simulations included an existing condition and post-project scenario. A summary of the modeling efforts and results, comparing existing and the proposed project's post-project conditions, are presented in this report. Please refer to Attachments A and B for the model input and output files, respectively.

The basin hydrology and drainage facility information was developed based on a recent stormwater plan developed by Perez Engineering (2006). The basin delineation, pipe diameters, and invert elevations were derived from their modeling efforts. Their model formed the basis of the existing conditions model. Modifications for the proposed project were made to their model

Hydrology

Basins

For the purposes of this analysis, the George Street drainage basin and adjacent basins[1] were divided in sixteen sub-basins, listed in Exhibit 3. Runoff from each basin is estimated and sent to a node in the model. The time of concentration (TC), area, and curve numbers were calculated for each of the sub-basins, and were inputted into the model.

EXHIBIT 3
Basin Data Table

Basin Location	Node	TC (minutes)	Area (acres)	Curve Number
Catherine and Thompson	2820	19.6	5.118	91.01
Catherine and Ashby	3020	17.8	3.125	90.86
Catherine and George	3000	20.5	3.01	91.33
United and George	3010	19.6	2.292	91.33
United and Ashby	3030	15	3.212	90.94

[1] Western basins are those that drain into Jose Marti Pond. They are not considered part of the George Street drainage area served by the proposed pump station.

EXHIBIT 3
Basin Data Table

Basin Location	Node	TC (minutes)	Area (acres)	Curve Number
Seminary and Ashby	3040	17.6	6.997	91.03
Seminary and Thompson	2830	26.5	13.683	91.63
Western Basin 1	Pond	16.9	2.583	90.89
Western Basin 2	Pond	14.6	0.351	90.92
Western Basin 3	Pond	17.7	1.714	91.07
Western Basin 4	Pond	19.2	2.08	91.7
Western Basin 5	Pond	18	1.945	91.07
Western Basin 6	Pond	13.2	1.769	91.07
Western Basin 7	Pond	20.04	3.031	91.07
Western Basin 8	Pond	18.8	3.481	90.99
Western Basin 9	Pond	18.8	4.349	90.53

Western basins are those that drain into Jose Marti Pond. They are not considered part of the George Street drainage area served by the proposed pump station.

Design Storms

All of the simulations were run using five different design storms, with recurrence intervals of between 5 and 100 years, and durations of 24 and 72 hours. The FEMA base flood is defined as the 100-year, 72-hour storm with a precipitation of 17 inches. The design storms and their associated rainfall amounts are presented in Exhibit 4.

EXHIBIT 4
Design Storms Simulated

Frequency (years)	Duration (hours)	Precipitation (inches)	Rainfall Histogram
5	24	6	FLMOD
10	24	7	FLMOD
25	24	9	FLMOD
25	72	12	SFWMD72
100	72	17	SFWMD72

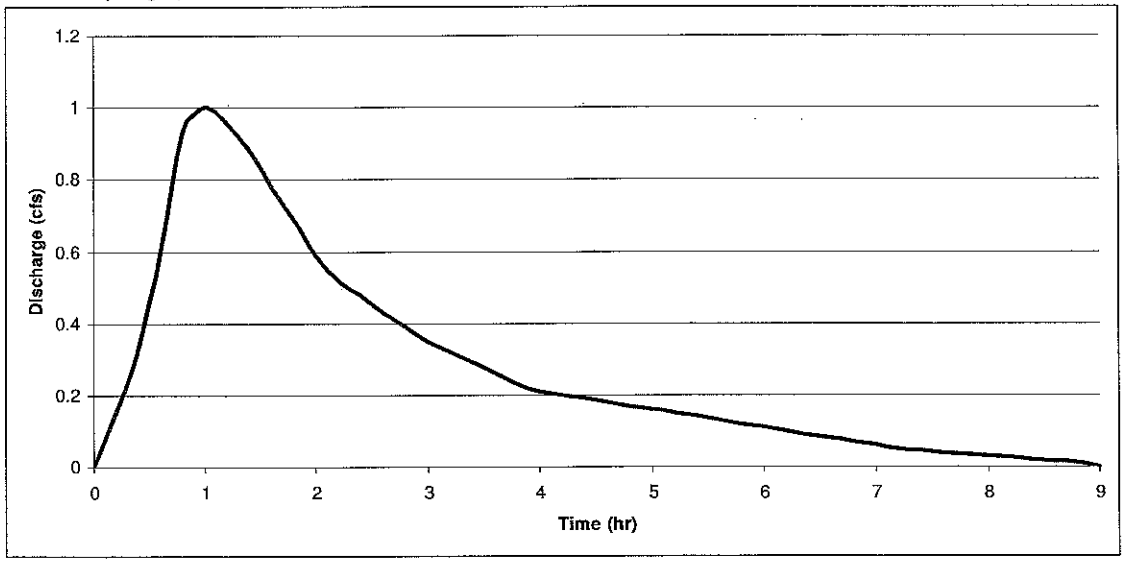
FLMOD is a 24-hour distribution adopted for use by the Florida stormwater agencies.

SFWMD72 is to be used for 72-hour storms and is the common regulatory distribution to be used for local permitting.

Runoff Hydrographs

An SCS unit hydrograph with a peaking factor of 256 (per South Florida Water Management District, SFWMD, rules) was used for all drainage basins and storm events. A graph of this unit hydrograph is shown below in Exhibit 5.

EXHIBIT 5
SCS Unit Hydrograph 256



Nodes are used to simulate the storage of stormwater on the basin surface (ponds), in manholes and in the streets, until the conveyance can drain the runoff. The nodes used in this modeling effort are described in Exhibit 6. A nodal diagram is furnished as Attachment C. All elevations are expressed in SFWMD's standard National Geodetic Vertical Datum of 1929 (NGVD29). The plunge factor increases the pipe's head loss coefficient at the node in the ICPR model. Boundary elevations are discussed further below.

EXHIBIT 6
Node Data Table

Node Location	Name	Type	Initial Stage (ft, NGVD 29)	Warning Stage (ft, NGVD 29)	Plunge Factor
Catherine and Thompson	2820	Stage/Area	1.1	3.05	1.3
Seminary and Thompson (west of interchange)	2830	Stage/Area	1.1	2.88	1.3
Seminary and Ashby	3040	Manhole: 1/2 Diam Grooved	1.1	2.83	1.3
United and Ashby (lowest intersection)	3030	Stage/Area	1.1	2.49	1.3
Catherine and Ashby (pump	3020	Stage/Area	1.1	2.97	1.3

EXHIBIT 6
Node Data Table

Node Location	Name	Type	Initial Stage (ft, NGVD 29)	Warning Stage (ft, NGVD 29)	Plunge Factor
station location)					
United and George	3010	Manhole: 1/2 Diam Grooved	1.1	3.24	1.3
Catherine and George	3000	Stage/Area	1.1	2.97	1.3
Garrison Bight, MHW	Bound	Time/Stage	1.1	999	1
Pump station at north end of Ashby*	PS	Stage/Area	1.1	2.6	1
Storage prior to pump station, wet well and vortex*	WQB	Stage/Area	1.1	2	1.3
South side of Roosevelt Road*	CheckBox	Manhole: Flat Floor	1.1	2.5	1
Duncan and Ashby*	DuncAsh	Manhole: Flat Floor	1.1	3.04	1
United and Thompson	UnitedThompson	Stage/Area	1.1	2.8	1.3
Inlet box prior to pump station, low flow diversion to vortex*	WQBa	Stage/Area	1.1	2.5	1
Jose Marti Pond	Pond	Stage/Area	1.1	3	1
Manhole between Catherine/Thompson intersection and Jose Marti Pond	cat-thom	Manhole: 1/2 Diam Grooved	1.1	0	1.3
Seminary and Thompson (east of interchange)	2830b	Stage/Area	1.1	2.88	1.3
Weir box (east Catherine) west*	WBox-ECat	Stage/Area	1.1	3	1
Weir box (east Catherine) east*	WBox-ECatb	Stage/Area	1.1	3	1
Wells*	Groundwater	Time/Stage	0.5	0	1

*Proposed project component.

Garrison Bight (a marina) is the tailwater boundary for all modeling scenarios. Jose Marti Pond is hydraulically connected to Garrison Bight also (open culverts). The tailwater elevation utilized was 1.10 feet NGVD29, the Mean High Water Level (MHW) for Garrison Bight. This data was attained was obtained using NOAA's tide data found online for Station 8724580, Key West, FL (NOAA 2009).

Conveyance of Stormwater

A table of existing and proposed pipes is provided as Exhibit 7. The existing pipes are 12 and 24 inches in diameter. The proposed PVC drainage force main, downstream of the proposed pump station, has a 30-inch diameter to facilitate a pressurized flow at lower velocities to keep losses low. Flow on basin's surface—primarily through the streets, was

simulated as channel flow using a typical trapezoidal cross-section. A summary of these channels is presented in Exhibit 8.

EXHIBIT 7
Table of Pipes

Name	From Node	To Node	Flow Direction	Length (feet)	Diameter (inches)	Upstream Invert (feet, NGVD 29)	Downstream Invert (feet, NGVD 29)
P3010	3010	3000	Both	375	24	-2	-2.64
WQBtoPS*	WQB	PS	Positive	50	36	-3	-3.2
P3020	3020	3000	Both	420	24	-1.56	-2.64
P3030*	DuncAsh	3020	Both	200	12(24*)	-1.53(-3)	-1.56(-6)
DuncAsh	3030	3020	Both	200	24	-1.53	-1.56
P3040	3040	3030	Both	250	24	-1.51	-1.53
P2820	UnitedThompson	2820	Both	400	24	-1.5	-1.79
P2830*	2830	3040	Both	400	12	-1.47	-1.51
P3000WQ1*	3000	CheckBox	Both	320	24	-2.65	-2.7
P2820b	2830	UnitedThompson	Both	250	24	-1.47	-1.5
P3030eastPS	3020	WQBa	Both	20	36	-2	-3
ChecktoBound*	CheckBox	Bound	Both	400	30	-3.6	-3.64
Culvert1	Pond	Bound	Both	80	60	-2.9	-2
2820 to 2810	2820	cat-thom	Both	400	36	-1.79	-2.52
2810 to pond	cat-thom	Pond	Both	450	42	-2.42	-4.36
PSlowflow	WQBa	WQB	Both	10	30	-5.55	-5.6
P3020b	WBox-ECatb	3000	Both	200	24	-2.5	-2.64

*Proposed project component.
Salt water barrier not included at proposed weir box along Catherine Street (Pipe 3020)

EXHIBIT 8
Table of Channels

Name	From Node	To Node	Length (feet)	Upstream Invert (feet, NGVD 29)	Downstream Invert (feet, NGVD 29)
3010to3000	3010	3000	375	3.24	2.97
3020to3000	3020	3000	425	2.97	2.97
3040to3030	3040	3030	250	2.83	2.49
3030to3020	3030	3020	375	2.49	2.97
2830to3040	2830	3040	400	2.88	2.83
2820to3020	3020	2820	400	3.05	2.97
2820toUT	2820	UnitedThompson	400	3.05	2.8
WQBtoBOUND	3000	CheckBox	600	3	3.4
2830toUT	2830	UnitedThompson	260	2.94	2.8
UTto3030	UnitedThompson	3030	400	2.8	2.49
3010to3030	3010	3030	400	3.25	2.49

Pump Station

The proposed pump station will be located near the intersection of Catherine Street and Ashby Street, where there is room for the pump station and generator at the end of the dead end street and by the Horace O'Bryant Middle School. The proposed pump station was modeled with two 15 cfs pumps, using the operating table shown in Exhibit 9. This flow rate was selected because it is approximately the same peak capacity of the existing gravity outfall when it is able to flow freely. This flow rate is also similar to those pumps used for existing pressurized injection wells installed on the island.

EXHBIT 9
Pump Station Operating Table

Pump	On Elevation	Off Elevation
Pump 1	0.5	-4.0
Pump 2	1.0	-5.0

Elevation datum: NGVD29

Sediment Removal Structure

To improve stormwater quality prior to discharging at the outfall, a vortex sediment separator will be utilized to assist in large sediment and trash removal. The vortex is specified to handle the 30 cfs design flow of the pump station. An inlet structure to the

vortex box will be a double-chambered box, with a weir separating the chambers. The weir is modeled with a rectangular opening of 10 feet wide by 2 feet deep. The invert and control elevation of the weir is at 0.5 feet NGVD29. Low flows will be directed through the vortex unit first and weir overflow will bypass the vortex and drain to the wet well.

Simulation Results

The greatest improvements in drainage will result from the reduction in flooding duration. The pump station will drain the basin more rapidly, especially during the higher storms which may be blocked by high tides. Residential drainage improvements in coastal areas are often difficult to achieve for the large design storms typically used in FEMA benefit analyses because of the low landscape and high tide elevations. The proposed project will greatly improve drainage for the smaller 5-year storm, moreso than for the larger storms. However, most benefits are measured by FEMA in the reduction of the 100-year peak flood elevations.

The results of the model simulations are presented in Exhibit 10. Overall, the proposed project improvements would help to reduce flooding problems in the George Street drainage basin. The greatest expected reductions in flood elevations occur near the areas along Catherine Street, between Ashby and George Streets, with stage reductions ranging between 0.7-foot to 1.75-foot in areas near the pump station. Moderate improvements are seen moving southward along Ashby and George Streets, near the intersection of United Street, with stage reductions ranging from about 0.2-foot to approximately 0.7-foot near the United/George intersection for the 5-year, 24-hour synthetic storm event. Small improvements to peak stages are expected in western areas of the basin along Thompson Street, and southern areas of the basin along Seminary Street.

With regard to the design storms, the greatest improvements are expected with the 5-year storm, having a precipitation of 6 inches over a 24-hour period. For this storm, the anticipated average stage reduction over the entire basin is approximately 0.5-foot, as listed in Exhibit 11. A 0.46-foot improvement was simulated for the 10-year, 24-hour storm; 25-year, 24-hour and 25-year, 72-hour storms averaged a 0.4-foot stage reduction; and the 100-year, 72-hour storm will see a stage decrease of about 0.25-foot.

EXHIBIT 10
Simulation Results for Various Design Storms

Location	Simulation	Warning Stage (ft)	Proposed Project		Existing Conditions		Difference w/ Project (ft)
			Max. Stage (ft)	Depth of Flooding[2] (ft)	Max. Stage (ft)	Depth of Flooding[3] (ft)	
Catherine and Ashby	5-yr, 24-hr	2.97	1.42	-1.55	3.17	-0.20	1.75
Pump Station (PS) location	10-yr, 24-hr	2.97	1.54	-1.43	3.24	-0.27	1.70
	25-yr, 24-hr	2.97	1.86	-1.11	3.37	-0.40	1.51

[2] Negative value indicates that maximum flood stage occurs below street level.

[3] Negative value indicates that maximum flood stage occurs below street level.

EXHIBIT 10

Simulation Results for Various Design Storms

Location	Simulation	Warning Stage	Proposed Project		Existing Conditions		Difference w/ Project
			Max. Stage	Depth of Flooding[2]	Max. Stage	Depth of Flooding[3]	
		(ft)	(ft)	(ft)	(ft)	(ft)	(ft)
	25-yr, 72-hr	2.97	1.91	-1.06	3.37	-0.40	1.46
	100-yr, 72-hr	2.97	2.88	-0.09	3.56	-0.59	0.68
Duncan and Ashby	5-yr, 24-hr	3.04	2.14	-0.90	3.17	-0.13	1.03
	10-yr, 24-hr	3.04	2.26	-0.78	3.25	-0.21	0.99
	25-yr, 24-hr	3.04	2.50	-0.54	3.37	-0.33	0.87
	25-yr, 72-hr	3.04	2.50	-0.54	3.38	-0.34	0.88
	100-yr, 72-hr	3.04	3.21	0.17	3.56	-0.52	0.35
United and Ashby	5-yr, 24-hr	2.49	2.98	0.49	3.22	-0.73	0.24
	10-yr, 24-hr	2.49	3.11	0.62	3.29	-0.80	0.18
	25-yr, 24-hr	2.49	3.27	0.78	3.40	-0.91	0.13
	25-yr, 72-hr	2.49	3.28	0.79	3.41	-0.92	0.13
	100-yr, 72-hr	2.49	3.49	1.00	3.59	-1.10	0.10
Seminary and Ashby	5-yr, 24-hr	2.83	3.17	0.34	3.25	-0.42	0.08
	10-yr, 24-hr	2.83	3.23	0.40	3.32	-0.49	0.09
	25-yr, 24-hr	2.83	3.35	0.52	3.43	-0.60	0.08
	25-yr, 72-hr	2.83	3.35	0.52	3.44	-0.61	0.09
	100-yr, 72-hr	2.83	3.53	0.70	3.61	-0.78	0.08
George and N. Roosevelt	5-yr, 24-hr	2.50	1.42	-1.08	1.67	0.83	0.25
	10-yr, 24-hr	2.50	1.47	-1.03	1.69	0.81	0.22
	25-yr, 24-hr	2.50	1.55	-0.95	1.74	0.76	0.19
	25-yr, 72-hr	2.50	1.56	-0.94	1.75	0.75	0.19
	100-yr, 72-hr	2.50	1.67	-0.83	1.88	0.62	0.21
Catherine and George	5-yr, 24-hr	2.97	2.16	-0.81	2.99	-0.02	0.83
	10-yr, 24-hr	2.97	2.35	-0.62	3.06	-0.09	0.71
	25-yr, 24-hr	2.97	2.63	-0.34	3.24	-0.27	0.61
	25-yr, 72-hr	2.97	2.65	-0.32	3.25	-0.28	0.60
	100-yr, 72-hr	2.97	2.99	0.02	3.54	-0.57	0.55
United and George	5-yr, 24-hr	3.24	2.44	-0.80	3.12	0.12	0.68
	10-yr, 24-hr	3.24	2.74	-0.50	3.21	0.03	0.47
	25-yr, 24-hr	3.24	3.15	-0.09	3.35	-0.11	0.20
	25-yr, 72-hr	3.24	3.17	-0.07	3.35	-0.11	0.18

EXHIBIT 10

Simulation Results for Various Design Storms

Location	Simulation	Warning Stage	Proposed Project		Existing Conditions		Difference w/ Project
			Max. Stage	Depth of Flooding[2]	Max. Stage	Depth of Flooding[3]	
		(ft)	(ft)	(ft)	(ft)	(ft)	(ft)
	100-yr, 72-hr	3.24	3.40	0.16	3.58	-0.34	0.18
Catherine and Thompson	5-yr, 24-hr	3.05	2.21	-0.84	2.21	0.84	0.00
	10-yr, 24-hr	3.05	2.43	-0.62	2.44	0.61	0.01
	25-yr, 24-hr	3.05	2.81	-0.24	2.84	0.21	0.03
	25-yr, 72-hr	3.05	2.87	-0.18	2.91	0.14	0.04
	100-yr, 72-hr	3.05	3.18	0.13	3.37	-0.32	0.19
United and Thompson	5-yr, 24-hr	2.80	2.98	0.18	3.20	-0.40	0.22
	10-yr, 24-hr	2.80	3.11	0.31	3.27	-0.47	0.16
	25-yr, 24-hr	2.80	3.28	0.48	3.40	-0.60	0.12
	25-yr, 72-hr	2.80	3.28	0.48	3.41	-0.61	0.13
	100-yr, 72-hr	2.80	3.49	0.69	3.59	-0.79	0.10
Seminary and Thompson	5-yr, 24-hr	2.88	3.29	0.41	3.30	-0.42	0.01
west of interchange	10-yr, 24-hr	2.88	3.34	0.46	3.36	-0.48	0.02
	25-yr, 24-hr	2.88	3.44	0.56	3.47	-0.59	0.03
	25-yr, 72-hr	2.88	3.44	0.56	3.47	-0.59	0.03
	100-yr, 72-hr	2.88	3.58	0.70	3.63	-0.75	0.05
Seminary and Thompson	5-yr, 24-hr	2.88	3.28	0.40	3.30	-0.42	0.02
east of interchange	10-yr, 24-hr	2.88	3.34	0.46	3.36	-0.48	0.02
	25-yr, 24-hr	2.88	3.44	0.56	3.46	-0.58	0.02
	25-yr, 72-hr	2.88	3.44	0.56	3.47	-0.59	0.03
	100-yr, 72-hr	2.88	3.58	0.70	3.63	-0.75	0.05
Leon and Catherine	5-yr, 24-hr	-	1.67	-	1.67	-	0.00
(Out of Drainage Area)	10-yr, 24-hr	-	1.80	-	1.81	-	0.01
	25-yr, 24-hr	-	2.08	-	2.09	-	0.01
	25-yr, 72-hr	-	2.12	-	2.14	-	0.02
	100-yr, 72-hr	-	2.52	-	2.54	-	0.02
Jose Marti (JM) Pond	5-yr, 24-hr	-	1.38	-	1.38	-	0.00
(Out of Drainage Area)	10-yr, 24-hr	-	1.47	-	1.47	-	0.00
	25-yr, 24-hr	-	1.68	-	1.68	-	0.00

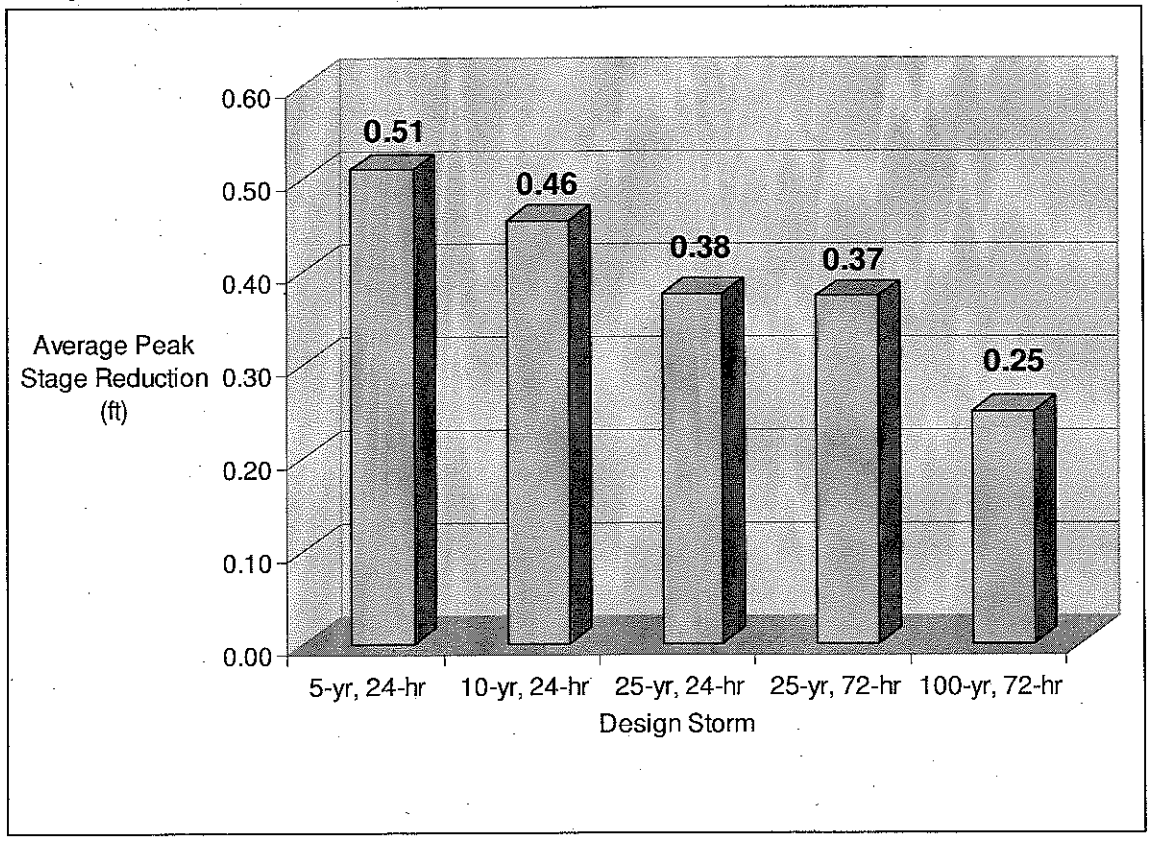
EXHIBIT 10

Simulation Results for Various Design Storms

Location	Simulation	Warning Stage	Proposed Project		Existing Conditions		Difference w/ Project
			Max. Stage	Depth of Flooding[2]	Max. Stage	Depth of Flooding[3]	
		(ft)	(ft)	(ft)	(ft)	(ft)	(ft)
	25-yr, 72-hr	-	1.72	-	1.72	-	0.00
	100-yr, 72-hr	-	2.16	-	2.17	-	0.01
Garrison Bight	5-yr, 24-hr	-	1.10	-	1.10	-	0.00
(Boundary Condition, constant)	10-yr, 24-hr	-	1.10	-	1.10	-	0.00
	25-yr, 24-hr	-	1.10	-	1.10	-	0.00
	25-yr, 72-hr	-	1.10	-	1.10	-	0.00
	100-yr, 72-hr	-	1.10	-	1.10	-	0.00

EXHIBIT 11

Average Basin Stage Reduction with Proposed Project



Estimate of Project Costs and Damages

There are significant costs associated with the previously described flooding problem and the proposed mitigation; however, the proposed improvements are anticipated to also provide some level of benefit to those within the drainage basin. Using FEMA's Benefit Cost Analysis Software version 4.5.5 (BCA), this section quantifies the benefits (in dollars) yielded through the project and compares these benefits against estimated project cost in the form of a benefit-cost ratio (BCR).

Methodology

Finish floor elevations (FFE) were surveyed for a representative sample of homes within the drainage basin. Building replacement values (BRV) for these properties were then researched on the Monroe County Property Appraiser's website. A listing and map of these homes are provided in Exhibits 12 and 13, respectively.

EXHIBIT 12

Surveyed Residences Representative in Low Areas of George Street Basin

Address	Total Living Area (SF)	BRV ($)	FFE (NGVD 29)
1708 Catherine Street	915	110,740	2.76
1704 Duncan Street	1,104	127,716	2.93
1200 George Street	1,447	139,704	2.86
1611 United Street	765	103,637	1.95
1615 United Street	1,437	186,401	2.24
1616 United Street	1,215	125,709	3.83
1605 United Street	1,292	143,183	3.90
1611 Seminary Street	1,199	143,244	3.36
1619 Seminary Street	1,040	97,895	4.15
1225 Ashby Street	1,096	126,680	4.83
1106 Ashby Street	1,008	93,743	2.60
1300 Ashby Street	1,760	190,161	3.46

EXHIBIT 13
Map of Surveyed Residences

Source: Google Earth

BCA calculates the BCR on a per-structure basis, and then calculates a project BCR based on the structures associated with the project. Because only a representative sample of the properties were surveyed and the whole basin collects runoff like a bowl during large events, parcels within the drainage basin having similar FFE were grouped into three regions (each considered a "structure" for input into BCA) for which average features of the parcels in that region—FFE, BRV, total living area, flood depth, etc.—were calculated. These regions were delineated, and averages were determined based on survey elevation data, visual inspection of the properties, and engineering judgment. Property data—including the total living area, BRV, the average FFE per area, and number of parcels in each region—are

shown in Exhibit 14. Exhibit 15 shows pre- and post-project flood depths for each region. Exhibit 16 depicts of the region boundaries.

EXHIBIT 14
Property/Area Data

Address	Region	Approximate Number of Parcels	Average FFE Per Region[1] (ft NGVD29)	Average BRV[2] ($/SF)	Total Approximate Living Area[3] (SF)	Total Building Value[4] ($ million)	Monthly Displacement Costs[5] ($)
1611 United Street	Region 1	70	2.6	102	77,887	7.9	188,390
1615 United Street							
1106 Ashby Street							
1708 Catherine Street							
1200 George Street							
1704 Duncan Street							
1611 Seminary Street	Region 2	60	3.6	97	81,990	8.0	198,315
1300 Ashby Street							
1616 United Street							
1605 United Street							
1619 Seminary Street	Region 3	90	4.5	102	96,120	9.8	232,492
1225 Ashby Street							
Total		**220**			**255,997**	**25.7**	**619,197**

1. Average FFE of surveyed properties in region.
2. Average building replacement value per square foot of living area of surveyed properties within region.
3. Approximation of total living area of all structures within region (calculated by multiplying the number of parcels in the region by the average of the total living area for each of the surveyed structures).
4. Approximation of the combined building value of all structures within the region (calculated by multiplying (2) average BRV by (3) total approximate living area).
5. Calculated by multiplying (3) total approximate living area by $2.42/SF/month (standard displacement cost adjusted for cost of living in Key West).

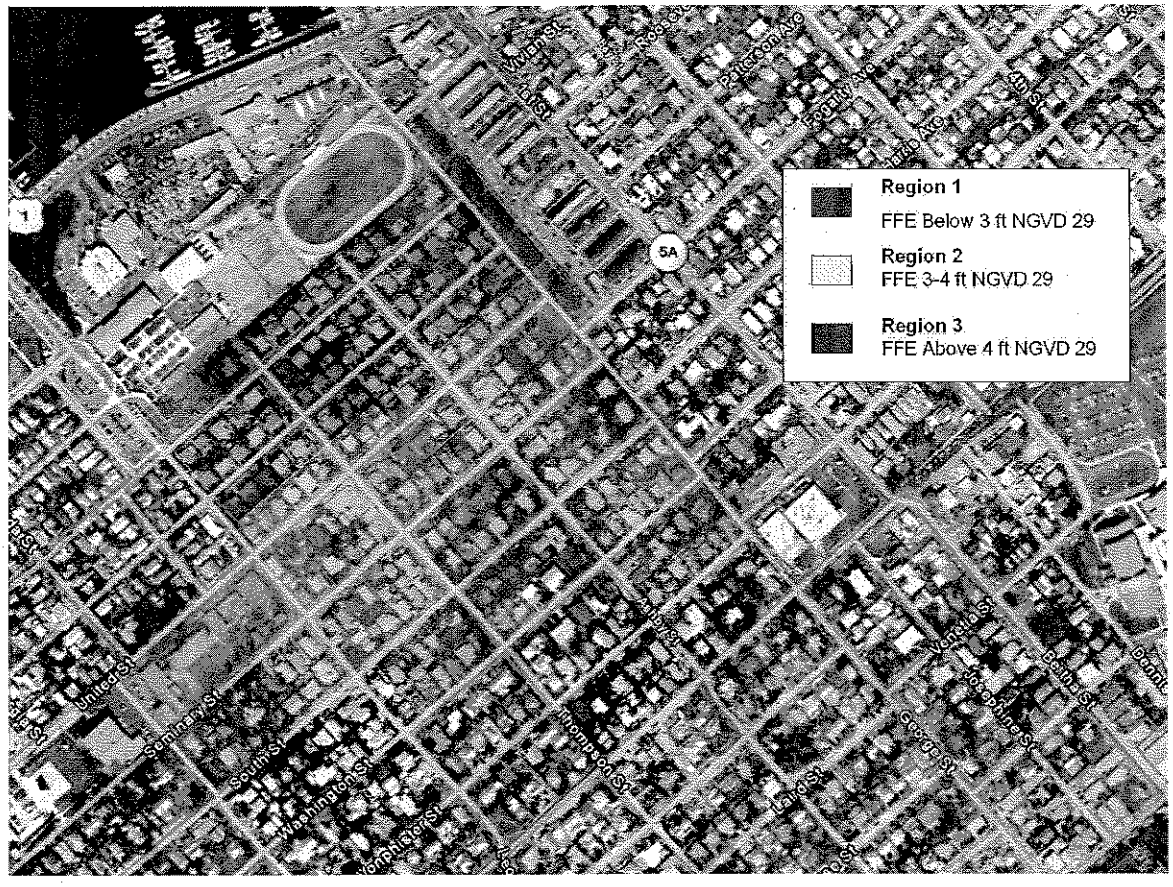
EXHIBIT 15

Region	Storm Event	Post-mitigation	Pre-mitigation	Improvement (ft)
1	5-yr, 24-hr	1.98	2.89	0.90
	10-yr, 24-hr	2.15	3.00	0.85
	25-yr, 24-hr	2.45	3.21	0.76
	25-yr, 72-hr	2.48	3.23	0.75
	100-yr, 72-hr	3.07	3.51	0.44
2	5-yr, 24-hr	3.13	3.26	0.12
	10-yr, 24-hr	3.03	3.31	0.27
	25-yr, 24-hr	3.36	3.43	0.08
	25-yr, 72-hr	3.36	3.44	0.08
	100-yr, 72-hr	3.54	3.61	0.07
3	5-yr, 24-hr	3.47	3.60	0.13
	10-yr, 24-hr	2.99	3.27	0.28
	25-yr, 24-hr	3.25	3.39	0.14
	25-yr, 72-hr	3.26	3.40	0.14
	100-yr, 72-hr	3.47	3.60	0.13

Flood Elevations and Improvements By Region

Region	Storm Event	Pre-mitigation	Post-mitigation	Improvement (ft)
1	5-yr, 24-hr	2.73	1.88	0.85
	10-yr, 24-hr	3.15	2.46	0.69
	25-yr, 72-hr	2.88	2.09	0.79
	100-yr, 72-hr	3.53	3.04	0.49
2	5-yr, 24-hr	3.31	3.12	0.19
	10-yr, 24-hr	3.48	3.35	0.13
	25-yr, 72-hr	3.37	3.21	0.16
	100-yr, 72-hr	3.63	3.54	0.09
3	5-yr, 24-hr	3.07	2.68	0.39
	10-yr, 24-hr	3.38	3.24	0.14
	25-yr, 72-hr	3.22	2.90	0.33
	100-yr, 72-hr	3.62	3.47	0.15

EXHIBIT 16
Delineation of Regions used in the BCA (Each Region grouped as a *Structure* in BCA)



Source: Google Earth

Project Cost Estimate

This estimated project cost for the proposed improvements is approximately $3.7 million, based on Phase I costs, the lowest contractor bid plus allowances, and fees for engineering services during construction. A breakdown of the construction costs is presented in Attachment D. The total annual operations and maintenance costs of the proposed improvements are estimated at $15,000, based on operations and maintenance costs of similar systems within the City.

Estimate of Damages

The damages before and after the proposed project were evaluated using BCA. Utilizing the Drainage Improvement module, the following data were entered into the software:

- FFE for each region or "structure"

- Flood depths for the 5-year, 10-year, 25-year, and 100-year storm events,[4] before and after mitigation (determined through modeling)
- Project useful life (estimated at 50 years per FEMA guidelines)
- Project cost and annual maintenance costs
- Structure information, including the information provided in Exhibit 14

The following assumptions were also made during this analysis:

- Project costs were divided among regions according to number of parcels within region
- FEMA standard displacement costs adjusted for local cost of living

BCA utilizes a depth-damage function (DDF), provided by FEMA Federal Insurance Administration (FIA), that calculates building, contents, displacement, and loss of function damages, before mitigation (i.e., non-functioning pump station) and after mitigation, for incremental flood depths over the FFE. By calculating the difference in damages before and after mitigation for different flood depth increments, BCA calculates the overall project benefits and BCR. Project benefits, costs, and benefit-cost ratios for each region, and for the overall project, are shown in Exhibit 17.

EXHIBIT 17
Project Benefits and Costs

	Region 1	Region 2	Region 3	Overall Project
Present Value of Mitigation Benefits	$8,737,274	$2,319,200	($68,029)	$10,988,445
Present Value of Mitigation Costs	$1,258,820	$1,078,987	$1,618,472	$3,956,279
Benefit-Cost Ratio	6.94	2.15	-0.04	2.78

Conclusion

Based on the hydraulic and hydrologic modeling, the proposed project is anticipated to provide improved flood relief within the drainage basin during times of high rainfall and flooding. The greatest improvements in drainage result from the reduction in flooding duration, as the wells and proposed emergency outfall will more rapidly drain the basin. The proposed project will improve drainage for smaller storm events more than for the larger storms.

The project, however, is not expected to fully remediate the flooding problem. There will continue to be flooding of roads and residences, but the depth and duration of potential flooding is reduced, which should allow a greater ease of access for municipal and emergency vehicles. With a BCR of 2.78, however, the project appears to be financially feasible, and is anticipated to be a good investment for the City of Key West.

[4]The emergency outfall is anticipated to be utilized when existing well cannot accommodate flow.

Works Cited

National Oceanic and Atmospheric Administration (NOAA). 2009. Tides & Currents. http://tidesandcurrents.noaa.gov/data_menu.shtml?stn=8724580%20Key%20West,%20FL&type=Datums. Accessed June 1, 2009.

Perez Engineering & Development Company. 2006. City of Key West Stormwater Drainage Improvements: Phase II Draft Design Memorandum. Prepared for the City of Key West and in association with Parsons Inc. October 2006.

ACCRA Cost of Living Index. 2009. http://www.bestplaces.net/City/Key_West-Florida.aspx#. Accessed August 5, 2009.

Monroe County Property Appraiser. 2009. http://www.mcpafl.org/. Accessed August 7, 2009.

ATTACHMENT A

ICPR Model Input Files

Attachment A Input

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==== Basins

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Name: 2705 Node: Pond Status: Onsite

Group: BASE Type: SCS Unit Hydrograph CN

Unit Hydrograph:	Uh256	Peaking Factor:	256.0
Rainfall File:	Flmod	Storm Duration(hrs):	24.00
Rainfall Amount(in):	6.000	Time of Conc(min):	18.80
Area(ac):	4.349	Time Shift(hrs):	0.00
Curve Number:	90.53	Max Allowable Q(cfs):	999999.000
DCIA(%):	0.00		

Name: 2810 Node: Pond Status: Onsite

Group: BASE Type: SCS Unit Hydrograph CN

Unit Hydrograph:	Uh256	Peaking Factor:	256.0
Rainfall File:	Flmod	Storm Duration(hrs):	24.00
Rainfall Amount(in):	6.000	Time of Conc(min):	20.04
Area(ac):	3.031	Time Shift(hrs):	0.00
Curve Number:	91.07	Max Allowable Q(cfs):	999999.000
DCIA(%):	0.00		

Name: 2847 Node: Pond Status: Onsite

Group: BASE Type: SCS Unit Hydrograph CN

Unit Hydrograph:	Uh256	Peaking Factor:	256.0
Rainfall File:	Flmod	Storm Duration(hrs):	24.00
Rainfall Amount(in):	6.000	Time of Conc(min):	13.20
Area(ac):	1.769	Time Shift(hrs):	0.00
Curve Number:	91.07	Max Allowable Q(cfs):	999999.000
DCIA(%):	0.00		

Name: 2850 Node: Pond Status: Onsite

Group: BASE Type: SCS Unit Hydrograph CN

Unit Hydrograph:	Uh256	Peaking Factor:	256.0
Rainfall File:	Flmod	Storm Duration(hrs):	24.00
Rainfall Amount(in):	6.000	Time of Conc(min):	16.90
Area(ac):	2.583	Time Shift(hrs):	0.00
Curve Number:	90.89	Max Allowable Q(cfs):	999999.000
DCIA(%):	0.00		

Name: 2852 Node: Pond Status: Onsite

Group: BASE Type: SCS Unit Hydrograph CN

Unit Hydrograph:	Uh256	Peaking Factor:	256.0
Rainfall File:	Flmod	Storm Duration(hrs):	24.00
Rainfall Amount(in):	6.000	Time of Conc(min):	18.00
Area(ac):	1.945	Time Shift(hrs):	0.00
Curve Number:	91.07	Max Allowable Q(cfs):	999999.000
DCIA(%):	0.00		

Name: 2855 Node: Pond Status: Onsite

Group: BASE Type: SCS Unit Hydrograph CN

Unit Hydrograph:	Uh256	Peaking Factor:	256.0
Rainfall File:	Flmod	Storm Duration(hrs):	24.00
Rainfall Amount(in):	6.000	Time of Conc(min):	19.20
Area(ac):	2.080	Time Shift(hrs):	0.00
Curve Number:	91.70	Max Allowable Q(cfs):	999999.000
DCIA(%):	0.00		

Name: 2860 Node: Pond Status: Onsite

Group: BASE Type: SCS Unit Hydrograph CN

Unit Hydrograph:	Uh256	Peaking Factor:	256.0
Rainfall File:	Flmod	Storm Duration(hrs):	24.00
Rainfall Amount(in):	6.000	Time of Conc(min):	14.60
Area(ac):	0.351	Time Shift(hrs):	0.00
Curve Number:	90.92	Max Allowable Q(cfs):	999999.000
DCIA(%):	0.00		

Name: 2865 Node: Pond Status: Onsite

Group: BASE Type: SCS Unit Hydrograph CN

Unit Hydrograph:	Uh256	Peaking Factor:	256.0
Rainfall File:	Flmod	Storm Duration(hrs):	24.00
Rainfall Amount(in):	6.000	Time of Conc(min):	17.70
Area(ac):	1.714	Time Shift(hrs):	0.00
Curve Number:	91.07	Max Allowable Q(cfs):	999999.000
DCIA(%):	0.00		

Name: 800 Node: Pond Status: Onsite

Group: BASE Type: SCS Unit Hydrograph CN

Unit Hydrograph:	Uh256	Peaking Factor:	256.0
Rainfall File:	Flmod	Storm Duration(hrs):	24.00
Rainfall Amount(in):	6.000	Time of Conc(min):	18.80
Area(ac):	3.481	Time Shift(hrs):	0.00
Curve Number:	90.99	Max Allowable Q(cfs):	999999.000
DCIA(%):	0.00		

Name: B2820 Node: 2820 Status: Onsite

Group: BASE Type: SCS Unit Hydrograph CN

Unit Hydrograph:	Uh256	Peaking Factor:	256.0
Rainfall File:	Flmod	Storm Duration(hrs):	24.00
Rainfall Amount(in):	6.000	Time of Conc(min):	19.60
Area(ac):	5.118	Time Shift(hrs):	0.00
Curve Number:	91.01	Max Allowable Q(cfs):	999999.000
DCIA(%):	0.00		

Name: B2830 Node: 2830 Status: Onsite

Group: BASE Type: SCS Unit Hydrograph CN

Unit Hydrograph:	Uh256	Peaking Factor:	256.0
Rainfall File:	Flmod	Storm Duration(hrs):	24.00
Rainfall Amount(in):	6.000	Time of Conc(min):	26.50
Area(ac):	13.683	Time Shift(hrs):	0.00
Curve Number:	91.63	Max Allowable Q(cfs):	999999.000
DCIA(%):	0.00		

Name: B3000 Node: 3000 Status: Onsite

Group: BASE Type: SCS Unit Hydrograph CN

Unit Hydrograph:	Uh256	Peaking Factor:	256.0
Rainfall File:	Flmod	Storm Duration(hrs):	24.00
Rainfall Amount(in):	6.000	Time of Conc(min):	20.50
Area(ac):	3.010	Time Shift(hrs):	0.00
Curve Number:	91.33	Max Allowable Q(cfs):	999999.000
DCIA(%):	0.00		

Name: B3010 Node: 3010 Status: Onsite

Group: BASE
Type: SCS Unit Hydrograph CN

Unit Hydrograph: Uh256
Rainfall File: Flmod
Rainfall Amount(in): 6.000
Area(ac): 2.292
Curve Number: 91.33
DCIA(%): 0.00
Peaking Factor: 256.0
Storm Duration(hrs): 24.00
Time of Conc(min): 19.60
Time Shift(hrs): 0.00
Max Allowable Q(cfs): 999999.000

Name: B3020
Node: 3020
Status: Onsite

Group: BASE
Type: SCS Unit Hydrograph CN

Unit Hydrograph: Uh256
Rainfall File: Flmod
Rainfall Amount(in): 6.000
Area(ac): 3.125
Curve Number: 90.86
DCIA(%): 0.00
Peaking Factor: 256.0
Storm Duration(hrs): 24.00
Time of Conc(min): 17.80
Time Shift(hrs): 0.00
Max Allowable Q(cfs): 999999.000

Name: B3030
Node: 3030
Status: Onsite

Group: BASE
Type: SCS Unit Hydrograph CN

Unit Hydrograph: Uh256
Rainfall File: Flmod
Rainfall Amount(in): 6.000
Area(ac): 3.212
Curve Number: 90.94
DCIA(%): 0.00
Peaking Factor: 256.0
Storm Duration(hrs): 24.00
Time of Conc(min): 15.00
Time Shift(hrs): 0.00
Max Allowable Q(cfs): 999999.000

Name: B3040
Node: 3040
Status: Onsite

Group: BASE
Type: SCS Unit Hydrograph CN

Unit Hydrograph: Uh256
Rainfall File: Flmod
Rainfall Amount(in): 6.000
Area(ac): 6.997
Curve Number: 91.03
DCIA(%): 0.00
Peaking Factor: 256.0
Storm Duration(hrs): 24.00
Time of Conc(min): 17.60
Time Shift(hrs): 0.00
Max Allowable Q(cfs): 999999.000

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==== Nodes

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Name: 2820 Base Flow(cfs): 0.000 Init Stage(ft): 0.500

Group: BASE Warn Stage(ft): 3.050

Type: Stage/Area

Stage(ft)	Area(ac)
-2.000	0.0010
3.030	0.0010
3.460	5.1200
99.000	5.1200

Name: 2830 Base Flow(cfs): 0.000 Init Stage(ft): 0.500

Group: BASE Warn Stage(ft): 2.880

Type: Stage/Area

Stage(ft)	Area(ac)
-2.000	0.0010
2.690	0.0010
2.700	0.1300
3.000	1.2200
4.000	10.4500
5.000	12.6100
5.270	13.6800
99.000	13.6800

Name: 2830b Base Flow(cfs): 0.000 Init Stage(ft): 0.500

Group: BASE Warn Stage(ft): 2.880

Type: Stage/Area

Stage(ft)	Area(ac)
-2.000	0.0010
2.690	0.0010
2.700	0.1300
99.000	0.1300

Name: 3000 Base Flow(cfs): 0.000 Init Stage(ft): 0.500

Group: BASE Warn Stage(ft): 2.970

Type: Stage/Area

Stage(ft)	Area(ac)
-3.000	0.0010
2.510	0.0010
2.520	0.0500
3.000	0.8700
4.000	3.0100
4.050	3.0100
99.000	3.0100

Name: 3010 Base Flow(cfs): 0.000 Init Stage(ft): 0.500

Group: BASE Plunge Factor: 1.30 Warn Stage(ft): 3.240

Type: Manhole, 1/2 Diameter Grooved

Stage(ft)	Area(ac)
-3.000	0.0010
3.080	0.0010
3.090	0.2600
4.000	2.2800
4.220	2.2900
99.000	2.2900

Name: 3020 Base Flow(cfs): 0.000 Init Stage(ft): 0.500

Group: BASE Warn Stage(ft): 2.970

Type: Stage/Area

Stage(ft)	Area(ac)
-2.000	0.0010
3.130	0.0010
3.190	3.1300
99.000	3.1300

Name: 3030 Base Flow(cfs): 0.000 Init Stage(ft): 0.500

Group: BASE Warn Stage(ft): 2.490

Type: Stage/Area

Stage(ft)	Area(ac)
-2.000	0.0010
2.490	0.0010
2.500	0.1900
3.000	2.3400

3.200	3.2100
99.000	3.2100

Name: 3040 Base Flow(cfs): 0.000 Init Stage(ft): 0.500

Group: BASE Plunge Factor: 1.30 Warn Stage(ft): 2.830

Type: Manhole, 1/2 Diameter Grooved

Stage(ft)	Area(ac)
-2.000	0.0010
2.820	0.0010
2.830	0.1400
3.000	0.6600
4.000	6.5100
4.310	7.0000
99.000	7.0000

Name: Bound Base Flow(cfs): 0.000 Init Stage(ft): 1.100

Group: BASE Warn Stage(ft): 999.000

Type: Time/Stage

Time(hrs)	Stage(ft)
0.00	1.100
920.00	1.100

Name: cat-thom Base Flow(cfs): 0.000 Init Stage(ft): 0.940

Group: BASE Plunge Factor: 1.30 Warn Stage(ft): 0.000

Type: Manhole, 1/2 Diameter Grooved

Stage(ft)	Area(ac)
0.000	0.0100
2.850	0.0100
2.860	0.0400
3.000	0.1900
4.000	2.5500
4.290	3.0300
99.000	3.0300

Name: CheckBox Base Flow(cfs): 0.000 Init Stage(ft): 1.100

Group: BASE Plunge Factor: 1.00 Warn Stage(ft): 2.500

Type: Manhole, Flat Floor

Stage(ft)	Area(ac)
-4.500	0.0011
2.500	0.0011

Name: DuncAsh Base Flow(cfs): 0.000 Init Stage(ft): 1.100

Group: BASE Plunge Factor: 1.00 Warn Stage(ft): 3.040

Type: Manhole, Flat Floor

Stage(ft)	Area(ac)
-7.000	0.0010
3.000	0.0010

Name: Groundwater Base Flow(cfs): 0.000 Init Stage(ft): 0.500

Group: BASE Warn Stage(ft): 0.000

Type: Time/Stage

Time(hrs)	Stage(ft)
0.00	0.500
900.00	0.500

Name: Pond Base Flow(cfs): 0.000 Init Stage(ft): 1.100

Group: BASE Warn Stage(ft): 3.000

Type: Stage/Area

Stage(ft)	Area(ac)
-7.000	0.0140
-6.000	0.0990
-4.000	0.4950
-1.000	0.5750
2.300	0.7000
3.000	1.5000

Name: PS Base Flow(cfs): 0.000 Init Stage(ft): 0.500

Group: BASE Warn Stage(ft): 2.600

Type: Stage/Area

Stage(ft)	Area(ac)
-10.000	0.0018
2.600	0.0018

Name: UnitedThompson Base Flow(cfs): 0.000 Init Stage(ft): 0.500

Group: BASE Warn Stage(ft): 2.800

Type: Stage/Area

Stage(ft)	Area(ac)
-2.000	0.0010
2.800	0.0010
3.000	1.0000

Name: WBox-ECat Base Flow(cfs): 0.000 Init Stage(ft): 0.500

Group: BASE Warn Stage(ft): 3.000

Type: Stage/Area

Stage(ft)	Area(ac)
-3.000	0.0010
3.000	0.0010

Name: WBox-ECatb Base Flow(cfs): 0.000 Init Stage(ft): 0.500

Group: BASE Warn Stage(ft): 3.000

Type: Stage/Area

Stage(ft)	Area(ac)
-3.000	0.0010
3.000	0.0010

Name: WQB Base Flow(cfs): 0.000 Init Stage(ft): 0.000

Group: BASE Warn Stage(ft): 2.000

Type: Stage/Area

Stage(ft)	Area(ac)
-15.000	0.0015
2.500	0.0015

Name: WQBa Base Flow(cfs): 0.000 Init Stage(ft): 0.500

Group: BASE Warn Stage(ft): 2.500

Type: Stage/Area

Stage(ft)	Area(ac)
-6.000	0.0020
2.500	0.0020

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==== Cross Sections

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Name: X2L-RD Group: BASE

Encroachment: No

Station(ft)	Elevation(ft)	Manning's N
-20.000	2.000	0.000000
-0.100	0.500	0.150000
0.000	0.000	0.015000
12.000	0.240	0.015000
24.000	0.000	0.015000
24.000	0.500	0.015000
44.000	2.000	0.150000

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==== Operating Tables

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Name: PUMP Group: BASE

Type: Rating Curve

Function: US Stage vs. Discharge

US Stage(ft)	Discharge(cfs)
-7.000	14.00
10.000	16.00

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==== Pipes

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Name: 2810 to pond From Node: cat-thom Length(ft): 450.00

Group: BASE To Node: Pond Count: 1

Friction Equation: Automatic

	UPSTREAM	DOWNSTREAM	Solution Algorithm: Automatic
Geometry:	Circular	Circular	Flow: Both
Span(in):	42.00	42.00	Entrance Loss Coef: 0.50
Rise(in):	42.00	42.00	Exit Loss Coef: 0.00
Invert(ft):	-2.420	-4.360	Bend Loss Coef: 0.90
Manning's N:	0.013000	0.013000	Outlet Ctrl Spec: Use dc or tw
Top Clip(in):	0.000	0.000	Inlet Ctrl Spec: Use dc
Bot Clip(in):	0.000	0.000	Stabilizer Option: None

Upstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Downstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Name: 2820 to 2810 From Node: 2820 Length(ft): 400.00

Group: BASE To Node: cat-thom Count: 1

Friction Equation: Automatic

	UPSTREAM	DOWNSTREAM	Solution Algorithm: Automatic
Geometry:	Circular	Circular	Flow: Both
Span(in):	36.00	36.00	Entrance Loss Coef: 0.50
Rise(in):	36.00	36.00	Exit Loss Coef: 0.00
Invert(ft):	-1.790	-2.520	Bend Loss Coef: 0.90
Manning's N:	0.013000	0.013000	Outlet Ctrl Spec: Use dc or tw
Top Clip(in):	0.000	0.000	Inlet Ctrl Spec: Use dc
Bot Clip(in):	0.000	0.000	Stabilizer Option: None

Upstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Downstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Name: ChecktoBound From Node: CheckBox Length(ft): 400.00

Group: BASE To Node: Bound Count: 1

Friction Equation: Automatic

Solution Algorithm: Automatic

	UPSTREAM	DOWNSTREAM		
Geometry:	Circular	Circular	Flow:	Both
Span(in):	30.00	30.00	Entrance Loss Coef:	0.80
Rise(in):	30.00	30.00	Exit Loss Coef:	1.00
Invert(ft):	-3.600	-3.640	Bend Loss Coef:	0.00
Manning's N:	0.013000	0.013000	Outlet Ctrl Spec:	Use dc or tw
Top Clip(in):	0.000	0.000	Inlet Ctrl Spec:	Use dc
Bot Clip(in):	0.000	0.000	Stabilizer Option:	None

Upstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Downstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Name: Culvert1 From Node: Pond Length(ft): 80.00

Group: BASE To Node: Bound Count: 2

Friction Equation: Automatic

Solution Algorithm: Automatic

	UPSTREAM	DOWNSTREAM		
Geometry:	Circular	Circular	Flow:	Both
Span(in):	60.00	60.00	Entrance Loss Coef:	0.50
Rise(in):	60.00	60.00	Exit Loss Coef:	1.00
Invert(ft):	-2.900	-2.000	Bend Loss Coef:	0.00
Manning's N:	0.022000	0.022000	Outlet Ctrl Spec:	Use dc or tw
Top Clip(in):	0.000	0.000	Inlet Ctrl Spec:	Use dc
Bot Clip(in):	0.000	0.000	Stabilizer Option:	None

Upstream FHWA Inlet Edge Description:
Circular CMP: Headwall

Downstream FHWA Inlet Edge Description:
Circular CMP: Projecting

Name: P2820 From Node: UnitedThompson Length(ft): 400.00

Group: BASE To Node: 2820 Count: 1

Friction Equation: Automatic

	UPSTREAM	DOWNSTREAM	Solution Algorithm: Automatic
Geometry:	Circular	Circular	Flow: Both
Span(in):	24.00	24.00	Entrance Loss Coef: 0.50
Rise(in):	24.00	24.00	Exit Loss Coef: 0.00
Invert(ft):	-1.500	-1.790	Bend Loss Coef: 0.90
Manning's N:	0.013000	0.013000	Outlet Ctrl Spec: Use dc or tw
Top Clip(in):	0.000	0.000	Inlet Ctrl Spec: Use dc
Bot Clip(in):	0.000	0.000	Stabilizer Option: None

Upstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Downstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Name: P2820b From Node: 2830 Length(ft): 250.00

Group: BASE To Node: UnitedThompson Count: 1

Friction Equation: Automatic

	UPSTREAM	DOWNSTREAM	Solution Algorithm: Automatic
Geometry:	Circular	Circular	Flow: Both
Span(in):	24.00	24.00	Entrance Loss Coef: 0.50
Rise(in):	24.00	24.00	Exit Loss Coef: 0.00
Invert(ft):	-1.470	-1.500	Bend Loss Coef: 0.90
Manning's N:	0.013000	0.013000	Outlet Ctrl Spec: Use dc or tw
Top Clip(in):	0.000	0.000	Inlet Ctrl Spec: Use dc
Bot Clip(in):	0.000	0.000	Stabilizer Option: None

Upstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Downstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Name: P2830 From Node: 2830b Length(ft): 400.00

Group: BASE To Node: 3040 Count: 1

Friction Equation: Automatic

	UPSTREAM	DOWNSTREAM	Solution Algorithm:

Automatic			
Geometry:	Circular	Circular	Flow: Both
Span(in):	12.00	12.00	Entrance Loss Coef: 0.00
Rise(in):	12.00	12.00	Exit Loss Coef: 1.00
Invert(ft):	-1.470	-1.510	Bend Loss Coef: 0.00
Manning's N:	0.013000	0.013000	Outlet Ctrl Spec: Use dc
or tw			
Top Clip(in):	0.000	0.000	Inlet Ctrl Spec: Use dc
Bot Clip(in):	0.000	0.000	Stabilizer Option: None

Upstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Downstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Name: P3000WQ1 From Node: 3000 Length(ft): 320.00

Group: BASE To Node: CheckBox Count: 1

Friction Equation: Average

Solution Algorithm:

Conveyance	UPSTREAM	DOWNSTREAM	
Automatic			
Geometry:	Circular	Circular	Flow: Both
Span(in):	24.00	24.00	Entrance Loss Coef: 0.50
Rise(in):	24.00	24.00	Exit Loss Coef: 1.00
Invert(ft):	-2.650	-2.700	Bend Loss Coef: 0.00
Manning's N:	0.013000	0.013000	Outlet Ctrl Spec: Use dc
or tw			
Top Clip(in):	0.000	0.000	Inlet Ctrl Spec: Use dc
Bot Clip(in):	0.000	0.000	Stabilizer Option: None

Upstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Downstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Name: P3010 From Node: 3010 Length(ft): 375.00

Group: BASE To Node: 3000 Count: 1

Friction Equation: Average

Solution Algorithm:

Conveyance	UPSTREAM	DOWNSTREAM	
Automatic			
Geometry:	Circular	Circular	Flow: Both
Span(in):	24.00	24.00	Entrance Loss Coef: 0.50
Rise(in):	24.00	24.00	Exit Loss Coef: 0.00
Invert(ft):	-2.000	-2.640	Bend Loss Coef: 0.00

Manning's N:	0.013000	0.013000	Outlet Ctrl Spec: Use dc or tw
Top Clip(in):	0.000	0.000	Inlet Ctrl Spec: Use dc
Bot Clip(in):	0.000	0.000	Stabilizer Option: None

Upstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Downstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Name: P3020 From Node: 3020 Length(ft): 220.00

Group: BASE To Node: WBox-ECat Count: 1

Friction Equation: Average

Solution Algorithm: Automatic

Conveyance	UPSTREAM	DOWNSTREAM	
Geometry:	Circular	Circular	Flow: Both
Span(in):	24.00	24.00	Entrance Loss Coef: 0.50
Rise(in):	24.00	24.00	Exit Loss Coef: 0.00
Invert(ft):	-1.560	-2.500	Bend Loss Coef: 0.90
Manning's N:	0.013000	0.013000	Outlet Ctrl Spec: Use dc or tw
Top Clip(in):	0.000	0.000	Inlet Ctrl Spec: Use dc
Bot Clip(in):	0.000	0.000	Stabilizer Option: None

Upstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Downstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Name: P3020b From Node: WBox-ECatb Length(ft): 200.00

Group: BASE To Node: 3000 Count: 1

Friction Equation: Average

Solution Algorithm: Automatic

Conveyance	UPSTREAM	DOWNSTREAM	
Geometry:	Circular	Circular	Flow: Both
Span(in):	24.00	24.00	Entrance Loss Coef: 0.50
Rise(in):	24.00	24.00	Exit Loss Coef: 0.00
Invert(ft):	-2.500	-2.640	Bend Loss Coef: 0.90
Manning's N:	0.013000	0.013000	Outlet Ctrl Spec: Use dc or tw
Top Clip(in):	0.000	0.000	Inlet Ctrl Spec: Use dc
Bot Clip(in):	0.000	0.000	Stabilizer Option: None

Upstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Downstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Name: P3030	From Node: 3030	Length(ft): 200.00	
Group: BASE	To Node: DuncAsh	Count: 1	
		Friction Equation: Average	
Conveyance			
	UPSTREAM	DOWNSTREAM	Solution Algorithm: Automatic
Geometry:	Circular	Circular	Flow: Both
Span(in):	24.00	24.00	Entrance Loss Coef: 0.50
Rise(in):	24.00	24.00	Exit Loss Coef: 0.00
Invert(ft):	-3.000	-6.000	Bend Loss Coef: 0.90
Manning's N:	0.013000	0.013000	Outlet Ctrl Spec: Use dc or tw
Top Clip(in):	0.000	0.000	Inlet Ctrl Spec: Use dc
Bot Clip(in):	0.000	0.000	Stabilizer Option: None

Upstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Downstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Name: P3030b	From Node: DuncAsh	Length(ft): 200.00	
Group: BASE	To Node: 3020	Count: 1	
		Friction Equation: Average	
Conveyance			
	UPSTREAM	DOWNSTREAM	Solution Algorithm: Automatic
Geometry:	Circular	Circular	Flow: Both
Span(in):	24.00	24.00	Entrance Loss Coef: 0.50
Rise(in):	24.00	24.00	Exit Loss Coef: 0.00
Invert(ft):	-1.000	-3.000	Bend Loss Coef: 0.90
Manning's N:	0.013000	0.013000	Outlet Ctrl Spec: Use dc or tw
Top Clip(in):	0.000	0.000	Inlet Ctrl Spec: Use dc
Bot Clip(in):	0.000	0.000	Stabilizer Option: None

Upstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Downstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Name: P3030eastPS From Node: 3020 Length(ft): 20.00

Group: BASE To Node: WQBa Count: 1

Friction Equation: Average

Conveyance

	UPSTREAM	DOWNSTREAM	Solution Algorithm: Automatic
Geometry:	Circular	Circular	Flow: Both
Span(in):	36.00	36.00	Entrance Loss Coef: 0.50
Rise(in):	36.00	36.00	Exit Loss Coef: 0.00
Invert(ft):	-2.000	-3.000	Bend Loss Coef: 0.90
Manning's N:	0.013000	0.013000	Outlet Ctrl Spec: Use dc or tw
Top Clip(in):	0.000	0.000	Inlet Ctrl Spec: Use dc
Bot Clip(in):	0.000	0.000	Stabilizer Option: None

Upstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Downstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Name: P3040 From Node: 3040 Length(ft): 250.00

Group: BASE To Node: 3030 Count: 1

Friction Equation: Average

Conveyance

	UPSTREAM	DOWNSTREAM	Solution Algorithm: Automatic
Geometry:	Circular	Circular	Flow: Both
Span(in):	24.00	24.00	Entrance Loss Coef: 0.50
Rise(in):	24.00	24.00	Exit Loss Coef: 0.00
Invert(ft):	-1.510	-1.530	Bend Loss Coef: 0.00
Manning's N:	0.013000	0.013000	Outlet Ctrl Spec: Use dc or tw
Top Clip(in):	0.000	0.000	Inlet Ctrl Spec: Use dc
Bot Clip(in):	0.000	0.000	Stabilizer Option: None

Upstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Downstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Name: PSlowflow From Node: WQBa Length(ft): 10.00

Group: BASE To Node: WQB Count: 1

Friction Equation: Average

Conveyance

	UPSTREAM	DOWNSTREAM	Solution Algorithm:
Automatic			
Geometry:	Circular	Circular	Flow: Both
Span(in):	30.00	30.00	Entrance Loss Coef: 0.50
Rise(in):	30.00	30.00	Exit Loss Coef: 1.00
Invert(ft):	-5.550	-5.600	Bend Loss Coef: 0.00
Manning's N:	0.013000	0.013000	Outlet Ctrl Spec: Use dc
or tw			
Top Clip(in):	0.000	0.000	Inlet Ctrl Spec: Use dc
Bot Clip(in):	0.000	0.000	Stabilizer Option: None

Upstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Downstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Name: WQBtoPS From Node: WQB Length(ft): 10.00

Group: BASE To Node: PS Count: 1

Friction Equation: Average

Conveyance

	UPSTREAM	DOWNSTREAM	Solution Algorithm:
Automatic			
Geometry:	Circular	Circular	Flow:
Positive			
Span(in):	30.00	30.00	Entrance Loss Coef: 0.50
Rise(in):	30.00	30.00	Exit Loss Coef: 1.00
Invert(ft):	-3.050	-3.100	Bend Loss Coef: 0.00
Manning's N:	0.013000	0.013000	Outlet Ctrl Spec: Use dc
or tw			
Top Clip(in):	0.000	0.000	Inlet Ctrl Spec: Use dc
Bot Clip(in):	0.000	0.000	Stabilizer Option: None

Upstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Downstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

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==== Channels

Name: 2820to3020 From Node: 3020 Length(ft): 400.00
Group: BASE To Node: 2820 Count: 1

	UPSTREAM	DOWNSTREAM
Automatic Geometry:	Irregular	Irregular
Automatic Invert(ft):	3.050	2.970
TClpInitZ(ft):	99.000	99.000
Manning's N:		
Top Clip(ft):		
Bot Clip(ft):		
Main XSec:	X2L-RD	X2L-RD
or tw AuxElev1(ft):	0.000	0.000
Aux XSec1:		
AuxElev2(ft):	0.000	0.000
Aux XSec2:		
Top Width(ft):		
Depth(ft):		
Bot Width(ft):		
LtSdSlp(h/v):		
RtSdSlp(h/v):		

Friction Equation:
Solution Algorithm:
Flow: Both
Contraction Coef: 0.100
Expansion Coef: 0.300
Entrance Loss Coef: 0.000
Exit Loss Coef: 0.000
Outlet Ctrl Spec: Use dc or tw
Inlet Ctrl Spec: Use dc
Stabilizer Option: None

Name: 2820toOUT From Node: 2820 Length(ft): 400.00
Group: BASE To Node: UnitedThompson Count: 1

	UPSTREAM	DOWNSTREAM
Automatic Geometry:	Irregular	Irregular
Automatic Invert(ft):	3.050	2.800
TClpInitZ(ft):	99.000	99.000
Manning's N:		
Top Clip(ft):		
Bot Clip(ft):		
Main XSec:	X2L-RD	X2L-RD
or tw AuxElev1(ft):	0.000	0.000
Aux XSec1:		
AuxElev2(ft):	0.000	0.000
Aux XSec2:		
Top Width(ft):		
Depth(ft):		
Bot Width(ft):		
LtSdSlp(h/v):		
RtSdSlp(h/v):		

Friction Equation:
Solution Algorithm:
Flow: Both
Contraction Coef: 0.100
Expansion Coef: 0.300
Entrance Loss Coef: 0.000
Exit Loss Coef: 0.000
Outlet Ctrl Spec: Use dc or tw
Inlet Ctrl Spec: Use dc
Stabilizer Option: None

Name: 2830to3040 From Node: 2830b Length(ft): 400.00

Group: BASE To Node: 3040 Count: 1

	UPSTREAM	DOWNSTREAM	
Automatic Geometry:	Irregular	Irregular	Friction Equation: Solution Algorithm:
Automatic Invert(ft):	2.880	2.830	Flow: Both
TClpInitZ(ft):	9999.000	9999.000	Contraction Coef: 0.100
Manning's N:			Expansion Coef: 0.300
Top Clip(ft):			Entrance Loss Coef: 0.000
Bot Clip(ft):			Exit Loss Coef: 0.000
Main XSec:	X2L-RD	X2L-RD	Outlet Ctrl Spec: Use dc or tw
AuxElev1(ft):	0.000	0.000	Inlet Ctrl Spec: Use dc
Aux XSec1:			Stabilizer Option: None
AuxElev2(ft):	0.000	0.000	
Aux XSec2:			
Top Width(ft):			
Depth(ft):			
Bot Width(ft):			
LtSdSlp(h/v):			
RtSdSlp(h/v):			

Name: 2830toOUT From Node: 2830 Length(ft): 260.00

Group: BASE To Node: UnitedThompson Count: 1

	UPSTREAM	DOWNSTREAM	
Automatic Geometry:	Irregular	Irregular	Friction Equation: Solution Algorithm:
Automatic Invert(ft):	2.940	2.800	Flow: Both
TClpInitZ(ft):	99.000	99.000	Contraction Coef: 0.100
Manning's N:			Expansion Coef: 0.300
Top Clip(ft):			Entrance Loss Coef: 0.000
Bot Clip(ft):			Exit Loss Coef: 0.000
Main XSec:	X2L-RD	X2L-RD	Outlet Ctrl Spec: Use dc or tw
AuxElev1(ft):	0.000	0.000	Inlet Ctrl Spec: Use dc
Aux XSec1:			Stabilizer Option: None
AuxElev2(ft):	0.000	0.000	
Aux XSec2:			
Top Width(ft):			
Depth(ft):			
Bot Width(ft):			
LtSdSlp(h/v):			
RtSdSlp(h/v):			

Name: 3010to3000 From Node: 3010 Length(ft): 375.00

Group: BASE To Node: 3000 Count: 1

	UPSTREAM	DOWNSTREAM		
Average Conveyance Geometry:	Irregular	Irregular	Friction Equation: Solution Algorithm:	Automatic
Invert(ft):	3.240	2.970	Flow:	Both
TClpInitZ(ft):	99.000	99.000	Contraction Coef:	0.100
Manning's N:			Expansion Coef:	0.300
Top Clip(ft):			Entrance Loss Coef:	0.000
Bot Clip(ft):			Exit Loss Coef:	0.000
Main XSec:	X2L-RD	X2L-RD	Outlet Ctrl Spec:	Use dc or tw
AuxElev1(ft):	0.000	0.000	Inlet Ctrl Spec:	Use dc
Aux XSec1:			Stabilizer Option:	None
AuxElev2(ft):	0.000	0.000		
Aux XSec2:				
Top Width(ft):				
Depth(ft):				
Bot Width(ft):				
LtSdSlp(h/v):				
RtSdSlp(h/v):				

Name:	3010to3030	From Node:	3010	Length(ft):	400.00
Group:	BASE	To Node:	3030	Count:	1

	UPSTREAM	DOWNSTREAM		
Automatic Geometry:	Irregular	Irregular	Friction Equation: Solution Algorithm:	Automatic
Invert(ft):	3.250	2.490	Flow:	Both
TClpInitZ(ft):	99.000	99.000	Contraction Coef:	0.100
Manning's N:			Expansion Coef:	0.300
Top Clip(ft):			Entrance Loss Coef:	0.000
Bot Clip(ft):			Exit Loss Coef:	0.000
Main XSec:	X2L-RD	X2L-RD	Outlet Ctrl Spec:	Use dc or tw
AuxElev1(ft):	0.000	0.000	Inlet Ctrl Spec:	Use dc
Aux XSec1:			Stabilizer Option:	None
AuxElev2(ft):	0.000	0.000		
Aux XSec2:				
Top Width(ft):				
Depth(ft):				
Bot Width(ft):				
LtSdSlp(h/v):				
RtSdSlp(h/v):				

Name:	3020to3000	From Node:	3020	Length(ft):	425.00
Group:	BASE	To Node:	3000	Count:	1

	UPSTREAM	DOWNSTREAM	
			Friction Equation:

Average Conveyance				
Geometry:	Irregular	Irregular	Solution Algorithm:	Automatic
Invert(ft):	2.970	2.970	Flow:	Both
TClpInitZ(ft):	99.000	99.000	Contraction Coef:	0.100
Manning's N:			Expansion Coef:	0.300
Top Clip(ft):			Entrance Loss Coef:	0.000
Bot Clip(ft):			Exit Loss Coef:	0.000
Main XSec:	X2L-RD	X2L-RD	Outlet Ctrl Spec:	Use dc or tw
AuxElev1(ft):	0.000	0.000	Inlet Ctrl Spec:	Use dc
Aux XSec1:			Stabilizer Option:	None
AuxElev2(ft):	0.000	0.000		
Aux XSec2:				
Top Width(ft):				
Depth(ft):				
Bot Width(ft):				
LtSdSlp(h/v):				
RtSdSlp(h/v):				

Name:	3030to3020	From Node:	3030	Length(ft):	375.00
Group:	BASE	To Node:	3020	Count:	1

	UPSTREAM	DOWNSTREAM		
			Friction Equation:	Automatic
Geometry:	Irregular	Irregular	Solution Algorithm:	Automatic
Invert(ft):	2.490	2.970	Flow:	Both
TClpInitZ(ft):	99.000	99.000	Contraction Coef:	0.100
Manning's N:			Expansion Coef:	0.300
Top Clip(ft):			Entrance Loss Coef:	0.000
Bot Clip(ft):			Exit Loss Coef:	0.000
Main XSec:	X2L-RD	X2L-RD	Outlet Ctrl Spec:	Use dc or tw
AuxElev1(ft):	0.000	0.000	Inlet Ctrl Spec:	Use dc
Aux XSec1:			Stabilizer Option:	None
AuxElev2(ft):	0.000	0.000		
Aux XSec2:				
Top Width(ft):				
Depth(ft):				
Bot Width(ft):				
LtSdSlp(h/v):				
RtSdSlp(h/v):				

Name:	3040to3030	From Node:	3040	Length(ft):	250.00
Group:	BASE	To Node:	3030	Count:	1

	UPSTREAM	DOWNSTREAM		
			Friction Equation:	Automatic
Geometry:	Irregular	Irregular	Solution Algorithm:	Automatic

Invert(ft):	2.830	2.490	Flow:	Both
TClpInitZ(ft):	9999.000	9999.000	Contraction Coef:	0.100
Manning's N:			Expansion Coef:	0.300
Top Clip(ft):			Entrance Loss Coef:	0.000
Bot Clip(ft):			Exit Loss Coef:	0.000
Main XSec:	X2L-RD	X2L-RD	Outlet Ctrl Spec:	Use dc or tw
AuxElev1(ft):	0.000	0.000	Inlet Ctrl Spec:	Use dc
Aux XSec1:			Stabilizer Option:	None
AuxElev2(ft):	0.000	0.000		
Aux XSec2:				
Top Width(ft):				
Depth(ft):				
Bot Width(ft):				
LtSdSlp(h/v):				
RtSdSlp(h/v):				

Name: UTto3030 From Node: UnitedThompson Length(ft): 400.00

Group: BASE To Node: 3030 Count: 1

	UPSTREAM	DOWNSTREAM		
Friction Equation:				Automatic
Geometry:	Irregular	Irregular	Solution Algorithm:	Automatic
Invert(ft):	2.800	2.490	Flow:	Both
TClpInitZ(ft):	99.000	99.000	Contraction Coef:	0.100
Manning's N:			Expansion Coef:	0.300
Top Clip(ft):			Entrance Loss Coef:	0.000
Bot Clip(ft):			Exit Loss Coef:	0.000
Main XSec:	X2L-RD	X2L-RD	Outlet Ctrl Spec:	Use dc or tw
AuxElev1(ft):	0.000	0.000	Inlet Ctrl Spec:	Use dc
Aux XSec1:			Stabilizer Option:	None
AuxElev2(ft):	0.000	0.000		
Aux XSec2:				
Top Width(ft):				
Depth(ft):				
Bot Width(ft):				
LtSdSlp(h/v):				
RtSdSlp(h/v):				

Name: WQBtoBOUND From Node: 3000 Length(ft): 600.00

Group: BASE To Node: CheckBox Count: 1

	UPSTREAM	DOWNSTREAM		
Friction Equation:				Automatic
Geometry:	Irregular	Irregular	Solution Algorithm:	Automatic
Invert(ft):	3.000	3.400	Flow:	Both
TClpInitZ(ft):	9999.000	9999.000	Contraction Coef:	0.100
Manning's N:			Expansion Coef:	0.300

```
  Top Clip(ft):                                        Entrance Loss Coef: 0.000
  Bot Clip(ft):                                            Exit Loss Coef: 0.000
     Main XSec: X2L-RD          X2L-RD                  Outlet Ctrl Spec: Use dc
or tw
  AuxElev1(ft): 0.000           0.000                     Inlet Ctrl Spec: Use dc
     Aux XSec1:                                        Stabilizer Option: None
  AuxElev2(ft): 0.000           0.000
     Aux XSec2:
 Top Width(ft):
     Depth(ft):
 Bot Width(ft):
  LtSdSlp(h/v):
  RtSdSlp(h/v):
```

==========

==== Drop Structures

==========

```
        Name:                       From Node:                 Length(ft): 0.00

       Group: BASE                   To Node:                      Count: 1

              UPSTREAM       DOWNSTREAM          Friction Equation:
Automatic
     Geometry: Circular       Circular          Solution Algorithm: Most
Restrictive
     Span(in): 0.00           0.00                             Flow: Both
     Rise(in): 0.00           0.00          Entrance Loss Coef: 0.000
   Invert(ft): 0.000          0.000             Exit Loss Coef: 1.000
  Manning's N: 0.000000       0.000000        Outlet Ctrl Spec: Use dc
or tw
 Top Clip(in): 0.000          0.000             Inlet Ctrl Spec: Use dc
 Bot Clip(in): 0.000          0.000               Solution Incs: 10

Upstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Downstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall
```

==========

==== Weirs

==========

```
        Name: ThomSem              From Node: 2830
       Group: BASE                   To Node: 2830b
        Flow: Both                     Count: 1
        Type: Vertical: Paved      Geometry: Rectangular

              Span(in): 240.00
              Rise(in): 9999.00
```

Invert(ft): 2.940
Control Elevation(ft): 2.940
TABLE
Bottom Clip(in): 0.000
Top Clip(in): 0.000
Weir Discharge Coef: 2.800
Orifice Discharge Coef: 0.600

Intersection of Thompson and Seminary, overflow across intersection

---

Name: W3020 From Node: WBox-ECat
Group: BASE To Node: WBox-ECatb
Flow: Both Count: 1
Type: Vertical: Fread Geometry: Rectangular

Span(in): 54.00
Rise(in): 30.00
Invert(ft): 1.100
Control Elevation(ft): 1.100
TABLE
Bottom Clip(in): 7.000
Top Clip(in): 0.000
Weir Discharge Coef: 3.200
Orifice Discharge Coef: 0.600

Name: WBBa From Node: WQBa
Group: BASE To Node: WQB
Flow: Both Count: 1
Type: Vertical: Mavis Geometry: Rectangular

Span(in): 120.00
Rise(in): 24.00
Invert(ft): 0.500
Control Elevation(ft): 0.500
TABLE
Bottom Clip(in): 0.000
Top Clip(in): 0.000
Weir Discharge Coef: 3.100
Orifice Discharge Coef: 0.600

==========

==== Rating Curves

==========

Name: PStoWells From Node: PS Count: 1

Group: BASE To Node: Groundwater Flow: Positive

	TABLE	ELEV ON(ft)	ELEV OFF(ft)
#1:	PUMP	0.500	-4.000
#2:	PUMP	1.000	-5.000

#3:	0.000	0.000
#4:	0.000	0.000

==========

==== Hydrology Simulations

==========

==========

Name: Dpond-100y24h
Filename:
\\GAINESVILLE\PROJ\KEYWESTFLCITYOF\389709GEORGESTREETDR\FIRSTGEO\ICPR\Dpond-100y24h.R32

Override Defaults: Yes
Storm Duration(hrs): 24.00
Rainfall File: Flmod
Rainfall Amount(in): 12.00

Time(hrs)	Print Inc(min)
24.000	5.00

Name: Dpond-100y72h
Filename:
\\GAINESVILLE\PROJ\KEYWESTFLCITYOF\389709GEORGESTREETDR\FIRSTGEO\ICPR\Dpond-100y72h.R32

Override Defaults: Yes
Storm Duration(hrs): 72.00
Rainfall File: Sfwmd72
Rainfall Amount(in): 17.00

Time(hrs)	Print Inc(min)
72.000	5.00

Name: Dpond-10yr24h
Filename:
\\GAINESVILLE\PROJ\KEYWESTFLCITYOF\389709GEORGESTREETDR\FIRSTGEO\ICPR\Dpond-10yr24h.R32

Override Defaults: Yes
Storm Duration(hrs): 24.00
Rainfall File: Flmod
Rainfall Amount(in): 7.00

Time(hrs)	Print Inc(min)
24.000	5.00

Name: Dpond-25y24h
Filename:
\\GAINESVILLE\PROJ\KEYWESTFLCITYOF\389709GEORGESTREETDR\FIRSTGEO\ICPR\Dpond-25y24h.R
32

Override Defaults: Yes
Storm Duration(hrs): 24.00
Rainfall File: Flmod
Rainfall Amount(in): 9.00

Time(hrs)	Print Inc(min)
24.000	5.00

Name: Dpond-25y72h
Filename:
\\GAINESVILLE\PROJ\KEYWESTFLCITYOF\389709GEORGESTREETDR\FIRSTGEO\ICPR\Dpond-25y72h.R
32

Override Defaults: Yes
Storm Duration(hrs): 72.00
Rainfall File: Sfwmd72
Rainfall Amount(in): 12.00

Time(hrs)	Print Inc(min)
72.000	5.00

Name: Dpond-2yr24h
Filename:
\\GAINESVILLE\PROJ\KEYWESTFLCITYOF\389709GEORGESTREETDR\FIRSTGEO\ICPR\Dpond-2yr24h.R
32

Override Defaults: Yes
Storm Duration(hrs): 24.00
Rainfall File: Flmod
Rainfall Amount(in): 4.50

Time(hrs)	Print Inc(min)
24.000	5.00

Name: Dpond-5yr24h
Filename:
\\GAINESVILLE\PROJ\KEYWESTFLCITYOF\389709GEORGESTREETDR\FIRSTGEO\ICPR\Dpond-5yr24h.R
32

```
     Override Defaults: Yes
    Storm Duration(hrs): 24.00
          Rainfall File: Flmod
   Rainfall Amount(in): 6.00

Time(hrs)       Print Inc(min)
--------------- ---------------
24.000          5.00

================================================================================
======
==== Routing Simulations
================================================================
================================================================================
======

         Name: Dpond-100yr24hr     Hydrology Sim: Dpond-100y24h
     Filename:
\\gainesville\Proj\KeyWestFlCityOf\389709GeorgeStreetDr\FirstGeo\ICPR\Dpond-100yr24h
r.I32


      Execute: Yes         Restart: No            Patch: No
  Alternative: No

        Max Delta Z(ft): 1.00                    Delta Z Factor: 0.00500
    Time Step Optimizer: 15.000
        Start Time(hrs): 0.000                    End Time(hrs): 36.00
     Min Calc Time(sec): 0.5000               Max Calc Time(sec): 30.0000
        Boundary Stages:                         Boundary Flows:


Time(hrs)       Print Inc(min)
--------------- ---------------
10.000          15.000
15.000          5.000
48.000          15.000

Group           Run
--------------- -----
BASE            Yes

--------------------------------------------------------------------------------
----------------
         Name: Dpond-100yr72hr     Hydrology Sim: Dpond-100y72h
     Filename:
\\gainesville\Proj\KeyWestFlCityOf\389709GeorgeStreetDr\FirstGeo\ICPR\Dpond-100yr72h
r.I32


      Execute: Yes         Restart: No            Patch: No
  Alternative: No

        Max Delta Z(ft): 1.00                    Delta Z Factor: 0.00500
    Time Step Optimizer: 15.000
        Start Time(hrs): 0.000                    End Time(hrs): 110.00
     Min Calc Time(sec): 0.5000               Max Calc Time(sec): 30.0000
        Boundary Stages:                         Boundary Flows:
```

Time(hrs)	Print Inc(min)
50.000	15.000
70.000	5.000
150.000	15.000

Group	Run
BASE	Yes

Name: Dpond-10yr24hr- Hydrology Sim: Dpond-10yr24h
Filename:
\\gainesville\Proj\KeyWestFlCityOf\389709GeorgeStreetDr\FirstGeo\ICPR\Dpond-10yr24hr-.I32

Execute: Yes Restart: No Patch: No
Alternative: No

Max Delta Z(ft): 1.00 Delta Z Factor: 0.00500
Time Step Optimizer: 15.000
Start Time(hrs): 0.000 End Time(hrs): 36.00
Min Calc Time(sec): 0.5000 Max Calc Time(sec): 30.0000
Boundary Stages: Boundary Flows:

Time(hrs)	Print Inc(min)
10.000	15.000
15.000	5.000
48.000	15.000

Group	Run
BASE	Yes

Name: Dpond-25yr24hr- Hydrology Sim: Dpond-25y24h
Filename:
\\gainesville\Proj\KeyWestFlCityOf\389709GeorgeStreetDr\FirstGeo\ICPR\Dpond-25yr24hr-.I32

Execute: Yes Restart: No Patch: No
Alternative: No

Max Delta Z(ft): 1.00 Delta Z Factor: 0.00500
Time Step Optimizer: 15.000
Start Time(hrs): 0.000 End Time(hrs): 36.00
Min Calc Time(sec): 0.5000 Max Calc Time(sec): 30.0000
Boundary Stages: Boundary Flows:

Time(hrs)	Print Inc(min)
10.000	15.000
15.000	5.000
48.000	15.000

Group	Run
BASE	Yes

Name: Dpond-25yr72hr- Hydrology Sim: Dpond-25y72h
Filename:
\\gainesville\Proj\KeyWestFlCityOf\389709GeorgeStreetDr\FirstGeo\ICPR\Dpond-25yr72hr-.I32

Execute: Yes Restart: No Patch: No
Alternative: No

Max Delta Z(ft): 1.00 Delta Z Factor: 0.00500
Time Step Optimizer: 15.000
Start Time(hrs): 0.000 End Time(hrs): 110.00
Min Calc Time(sec): 0.5000 Max Calc Time(sec): 30.0000
Boundary Stages: Boundary Flows:

Time(hrs)	Print Inc(min)
50.000	15.000
70.000	5.000
150.000	15.000

Group	Run
BASE	Yes

Name: Dpond-2yr24h-pc Hydrology Sim: Dpond-2yr24h
Filename:
\\gainesville\Proj\KeyWestFlCityOf\389709GeorgeStreetDr\FirstGeo\ICPR\Dpond-2yr24h-pc.I32

Execute: Yes Restart: No Patch: No
Alternative: No

Max Delta Z(ft): 1.00 Delta Z Factor: 0.00500
Time Step Optimizer: 15.000
Start Time(hrs): 0.000 End Time(hrs): 36.00
Min Calc Time(sec): 0.5000 Max Calc Time(sec): 30.0000
Boundary Stages: Boundary Flows:

Time(hrs)	Print Inc(min)
10.000	15.000
15.000	5.000
48.000	15.000

Group	Run
BASE	Yes

Name: Dpond-5yr24h-pc Hydrology Sim: Dpond-5yr24h
Filename:
\\gainesville\Proj\KeyWestFlCityOf\389709GeorgeStreetDr\FirstGeo\ICPR\Dpond-5yr24h-pc.I32

Execute: Yes Restart: No Patch: No
Alternative: No

Max Delta Z(ft): 1.00 Delta Z Factor: 0.00500
Time Step Optimizer: 15.000
Start Time(hrs): 0.000 End Time(hrs): 36.00
Min Calc Time(sec): 0.5000 Max Calc Time(sec): 30.0000
Boundary Stages: Boundary Flows:

Time(hrs)	Print Inc(min)
10.000	15.000
15.000	5.000
48.000	15.000

Group	Run
BASE	Yes

ATTACHMENT B

ICPR Model Output Files

Attachment B Basin

Simulation	Basin	Group	Time Max	Flow Max	Volume
			hrs	cfs	in
Dpond-100y24h	2705	BASE	12.12	23.50	10.824
170877					
Dpond-100y24h	2810	BASE	12.11	15.87	10.890
119817					
Dpond-100y24h	2847	BASE	12.06	11.19	10.894
69957					
Dpond-100y24h	2850	BASE	12.09	14.68	10.872
101937					
Dpond-100y24h	2852	BASE	12.12	10.78	10.895
76922					
Dpond-100y24h	2855	BASE	12.12	11.19	10.972
82843					
Dpond-100y24h	2860	BASE	12.07	2.13	10.873
13854					
Dpond-100y24h	2865	BASE	12.11	9.57	10.894
67781					
Dpond-100y24h	800	BASE	12.12	18.86	10.882
137510					
Dpond-100y24h	B2820	BASE	12.11	27.07	10.887
202265					
Dpond-100y24h	B2830	BASE	12.19	62.68	10.962
544467					
Dpond-100y24h	B3000	BASE	12.12	15.61	10.923
119351					
Dpond-100y24h	B3010	BASE	12.11	12.14	10.928
90918					
Dpond-100y24h	B3020	BASE	12.10	17.35	10.865
123247					
Dpond-100y24h	B3030	BASE	12.10	19.25	10.878
126837					
Dpond-100y24h	B3040	BASE	12.12	39.05	10.887
276516					
Dpond-100y72h	2705	BASE	60.07	25.77	15.798
249402					
Dpond-100y72h	2810	BASE	60.07	17.41	15.867
174574					
Dpond-100y72h	2847	BASE	60.04	12.11	15.869
101905					
Dpond-100y72h	2850	BASE	60.05	16.02	15.847
148588					
Dpond-100y72h	2852	BASE	60.08	11.78	15.872
112061					
Dpond-100y72h	2855	BASE	60.07	12.22	15.951
120439					
Dpond-100y72h	2860	BASE	60.05	2.32	15.851
20197					
Dpond-100y72h	2865	BASE	60.06	10.43	15.869
98733					
Dpond-100y72h	800	BASE	60.07	20.65	15.859
200392					
Dpond-100y72h	B2820	BASE	60.06	29.63	15.864
294719					
Dpond-100y72h	B2830	BASE	60.12	68.32	15.940
791714					
Dpond-100y72h	B3000	BASE	60.09	17.16	15.903
173758					
Dpond-100y72h	B3010	BASE	60.06	13.28	15.906

132334					
Dpond-100y72h	B3020	BASE	60.08	18.95	15.843
179717					
Dpond-100y72h	B3030	BASE	60.03	20.96	15.855
184859					
Dpond-100y72h	B3040	BASE	60.07	42.78	15.861
402862					
Dpond-10yr24h	2705	BASE	12.12	13.14	5.881
92843					
Dpond-10yr24h	2810	BASE	12.16	8.91	5.942
65377					
Dpond-10yr24h	2847	BASE	12.06	6.29	5.944
38172					
Dpond-10yr24h	2850	BASE	12.09	8.23	5.924
55544					
Dpond-10yr24h	2852	BASE	12.12	6.06	5.945
41973					
Dpond-10yr24h	2855	BASE	12.12	6.31	6.016
45426					
Dpond-10yr24h	2860	BASE	12.07	1.19	5.926
7550					
Dpond-10yr24h	2865	BASE	12.11	5.38	5.944
36985					
Dpond-10yr24h	800	BASE	12.12	10.58	5.934
74985					
Dpond-10yr24h	B2820	BASE	12.15	15.19	5.938
110315					
Dpond-10yr24h	B2830	BASE	12.19	35.27	6.008
298390					
Dpond-10yr24h	B3000	BASE	12.16	8.78	5.972
65256					
Dpond-10yr24h	B3010	BASE	12.15	6.83	5.975
49711					
Dpond-10yr24h	B3020	BASE	12.10	9.72	5.919
67138					
Dpond-10yr24h	B3030	BASE	12.10	10.82	5.930
69139					
Dpond-10yr24h	B3040	BASE	12.12	21.93	5.938
150832					
Dpond-25y24h	2705	BASE	12.12	17.31	7.852
123952					
Dpond-25y24h	2810	BASE	12.11	11.70	7.915
87088					
Dpond-25y24h	2847	BASE	12.06	8.26	7.918
50848					
Dpond-25y24h	2850	BASE	12.09	10.82	7.897
74043					
Dpond-25y24h	2852	BASE	12.12	7.96	7.919
55910					
Dpond-25y24h	2855	BASE	12.12	8.27	7.993
60354					
Dpond-25y24h	2860	BASE	12.07	1.57	7.899
10064					
Dpond-25y24h	2865	BASE	12.11	7.06	7.918
49266					
Dpond-25y24h	800	BASE	12.12	13.91	7.907
99919					
Dpond-25y24h	B2820	BASE	12.15	19.97	7.912
146984					
Dpond-25y24h	B2830	BASE	12.19	46.29	7.984
396561					
Dpond-25y24h	B3000	BASE	12.12	11.52	7.947
86833					

Dpond-25y24h	B3010	BASE	12.15	8.97	7.950
66147					
Dpond-25y24h	B3020	BASE	12.10	12.79	7.891
89511					
Dpond-25y24h	B3030	BASE	12.10	14.21	7.903
92147					
Dpond-25y24h	B3040	BASE	12.12	28.81	7.912
200954					
Dpond-25y72h	2705	BASE	60.07	18.05	10.824
170884					
Dpond-25y72h	2810	BASE	60.07	12.21	10.891
119830					
Dpond-25y72h	2847	BASE	60.04	8.49	10.893
69949					
Dpond-25y72h	2850	BASE	60.05	11.23	10.871
101932					
Dpond-25y72h	2852	BASE	60.08	8.26	10.895
76921					
Dpond-25y72h	2855	BASE	60.07	8.57	10.972
82844					
Dpond-25y72h	2860	BASE	60.05	1.62	10.875
13856					
Dpond-25y72h	2865	BASE	60.06	7.31	10.893
67772					
Dpond-25y72h	800	BASE	60.07	14.47	10.883
137516					
Dpond-25y72h	B2820	BASE	60.06	20.77	10.887
202260					
Dpond-25y72h	B2830	BASE	60.12	47.93	10.962
544454					
Dpond-25y72h	B3000	BASE	60.09	12.04	10.925
119373					
Dpond-25y72h	B3010	BASE	60.06	9.31	10.927
90915					
Dpond-25y72h	B3020	BASE	60.08	13.29	10.867
123275					
Dpond-25y72h	B3030	BASE	60.03	14.69	10.878
126836					
Dpond-25y72h	B3040	BASE	60.07	29.99	10.886
276493					
Dpond-2yr24h	2705	BASE	12.12	7.87	3.448
54429					
Dpond-2yr24h	2810	BASE	12.16	5.37	3.502
38534					
Dpond-2yr24h	2847	BASE	12.09	3.80	3.504
22500					
Dpond-2yr24h	2850	BASE	12.09	4.95	3.485
32681					
Dpond-2yr24h	2852	BASE	12.12	3.65	3.504
24740					
Dpond-2yr24h	2855	BASE	12.12	3.83	3.569
26944					
Dpond-2yr24h	2860	BASE	12.07	0.72	3.488
4444					
Dpond-2yr24h	2865	BASE	12.11	3.24	3.504
21800					
Dpond-2yr24h	800	BASE	12.12	6.37	3.495
44163					
Dpond-2yr24h	B2820	BASE	12.15	9.16	3.498
64984					
Dpond-2yr24h	B2830	BASE	12.19	21.35	3.561
176860					
Dpond-2yr24h	B3000	BASE	12.16	5.31	3.529

38563					
Dpond-2yr24h	B3010	BASE	12.15	4.13	3.531
29377					
Dpond-2yr24h	B3020	BASE	12.10	5.85	3.481
39490					
Dpond-2yr24h	B3030	BASE	12.10	6.53	3.491
40700					
Dpond-2yr24h	B3040	BASE	12.12	13.23	3.499
88868					
Dpond-5yr24h	2705	BASE	12.12	11.04	4.902
77387					
Dpond-5yr24h	2810	BASE	12.16	7.50	4.961
54583					
Dpond-5yr24h	2847	BASE	12.06	5.30	4.963
31870					
Dpond-5yr24h	2850	BASE	12.09	6.92	4.943
46348					
Dpond-5yr24h	2852	BASE	12.12	5.10	4.963
35043					
Dpond-5yr24h	2855	BASE	12.12	5.32	5.033
37999					
Dpond-5yr24h	2860	BASE	12.07	1.01	4.945
6301					
Dpond-5yr24h	2865	BASE	12.11	4.53	4.963
30879					
Dpond-5yr24h	800	BASE	12.12	8.90	4.953
62590					
Dpond-5yr24h	B2820	BASE	12.15	12.79	4.957
92086					
Dpond-5yr24h	B2830	BASE	12.19	29.73	5.024
249550					
Dpond-5yr24h	B3000	BASE	12.16	7.40	4.990
54525					
Dpond-5yr24h	B3010	BASE	12.15	5.76	4.992
41537					
Dpond-5yr24h	B3020	BASE	12.10	8.18	4.938
56018					
Dpond-5yr24h	B3030	BASE	12.10	9.11	4.949
57701					
Dpond-5yr24h	B3040	BASE	12.12	18.47	4.957
125914					

Attachment B Node

Name	Simulation	Max Stage ft	Warning Stage ft	Max Delta Stage ft	Max Surf Area ft2	Max Inflow cfs	Max Outflow cfs
2820Dpond	-100yr24hr	3.14	3.05	0.0173	63766	26.36	23.81
2820Dpond	-100yr72hr	3.18	3.05	0.0173	87212	27.85	23.81
2820Dpond	-10yr24hr-	2.43	3.05	0.0173	378	21.44	21.40
2820Dpond	-25yr24hr-	2.81	3.05	0.0173	913	23.45	23.22
2820Dpond	-25yr72hr-	2.87	3.05	0.0173	987	23.65	23.40
2820Dpond	-2yr24h-pc	1.87	3.05	0.0173	163	17.13	17.12
2820Dpond	-5yr24h-pc	2.21	3.05	0.0173	163	19.93	19.91
2830Dpond	-100yr24hr	3.56	2.88	-0.0208	281744	62.29	35.21
2830Dpond	-100yr72hr	3.58	2.88	-0.0215	290648	67.85	36.89
2830Dpond	-10yr24hr-	3.34	2.88	-0.0226	194830	35.11	19.77
2830Dpond	-25yr24hr-	3.44	2.88	-0.0219	233876	46.04	25.95
2830Dpond	-25yr72hr-	3.44	2.88	-0.0233	233468	47.60	25.79
2830Dpond	-2yr24h-pc	3.17	2.88	-0.0223	124274	21.30	12.43
2830Dpond	-5yr24h-pc	3.29	2.88	-0.0231	171436	29.61	16.80
2830bDpond	-100yr24hr	3.56	2.88	-0.0092	11415	12.43	12.14
2830bDpond	-100yr72hr	3.58	2.88	-0.0092	11545	13.02	12.67
2830bDpond	-10yr24hr-	3.34	2.88	-0.0094	10491	6.48	6.45
2830bDpond	-25yr24hr-	3.44	2.88	-0.0093	10748	8.88	8.79
2830bDpond	-25yr72hr-	3.44	2.88	-0.0095	10744	8.82	8.72
2830bDpond	-2yr24h-pc	3.17	2.88	-0.0094	10399	3.49	2.43
2830bDpond	-5yr24h-pc	3.28	2.88	-0.0094	10488	5.15	5.13
3000Dpond	-100yr24hr	2.91	2.97	0.0220	32845	16.50	12.12
3000Dpond	-100yr72hr	2.99	2.97	0.0220	39608	18.59	12.39
3000Dpond	-10yr24hr-	2.35	2.97	0.0220	158	10.09	10.07
3000Dpond	-25yr24hr-	2.63	2.97	0.0220	10141	12.19	11.15
3000Dpond	-25yr72hr-	2.65	2.97	0.0220	12114	12.64	11.25

8.04	3000Dpond-2yr24h-pc	1.89	2.97	0.0220	158	8.05
9.29	3000Dpond-5yr24h-pc	2.16	2.97	0.0220	158	9.30
7.57	3010Dpond-100yr24hr	3.36	3.24	0.0080	42623	12.04
8.01	3010Dpond-100yr72hr	3.40	3.24	0.0080	48941	13.27
6.60	3010Dpond-10yr24hr-	2.74	3.24	0.0080	1335	6.78
8.44	3010Dpond-25yr24hr-	3.15	3.24	0.0080	18301	8.90
8.57	3010Dpond-25yr72hr-	3.17	3.24	0.0080	20046	9.31
4.07	3010Dpond-2yr24h-pc	2.04	3.24	0.0080	885	4.10
5.61	3010Dpond-5yr24h-pc	2.44	3.24	0.0080	1334	5.71
27.69	3020Dpond-100yr24hr	2.64	2.97	-0.0149	5219	26.39
27.93	3020Dpond-100yr72hr	2.88	2.97	-0.0149	6766	27.53
22.55	3020Dpond-10yr24hr-	1.54	2.97	-0.0149	1263	19.04
24.94	3020Dpond-25yr24hr-	1.86	2.97	-0.0149	1264	21.13
24.89	3020Dpond-25yr72hr-	1.91	2.97	-0.0149	1265	21.67
24.78	3020Dpond-2yr24h-pc	1.41	2.97	-0.0149	674	16.17
24.85	3020Dpond-5yr24h-pc	1.42	2.97	-0.0149	623	17.94
22.69	3030Dpond-100yr24hr	3.46	2.49	0.0320	163660	43.96
22.73	3030Dpond-100yr72hr	3.49	2.49	0.0320	164339	47.97
13.25	3030Dpond-10yr24hr-	3.11	2.49	0.0320	139226	25.23
17.11	3030Dpond-25yr24hr-	3.27	2.49	0.0320	159926	32.49
17.17	3030Dpond-25yr72hr-	3.28	2.49	0.0320	159976	33.21
11.63	3030Dpond-2yr24h-pc	2.74	2.49	0.0320	66179	14.66
12.32	3030Dpond-5yr24h-pc	2.98	2.49	0.0320	113503	21.04
28.57	3040Dpond-100yr24hr	3.50	2.83	0.0103	166787	42.60
30.07	3040Dpond-100yr72hr	3.53	2.83	-0.0103	174537	47.41
17.31	3040Dpond-10yr24hr-	3.23	2.83	-0.0108	95714	22.83
21.61	3040Dpond-25yr24hr-	3.35	2.83	-0.0107	126387	30.96
21.58	3040Dpond-25yr72hr-	3.35	2.83	-0.0112	126641	32.60
9.57	3040Dpond-2yr24h-pc	3.06	2.83	0.0103	52954	12.30
	3040Dpond-5yr24h-pc	3.17	2.83	0.0103	79804	18.47

14.91						
	BoundDpond-100yr24hr	1.10	999.00	0.0000	396	143.74
0.00						
	BoundDpond-100yr72hr	1.10	999.00	0.0000	396	152.76
0.00						
	BoundDpond-10yr24hr-	1.10	999.00	0.0000	396	94.38
0.00						
	BoundDpond-25yr24hr-	1.10	999.00	0.0000	396	116.16
0.00						
	BoundDpond-25yr72hr-	1.10	999.00	0.0000	396	119.73
0.00						
	BoundDpond-2yr24h-pc	1.10	999.00	0.0000	396	63.61
0.00						
	BoundDpond-5yr24h-pc	1.10	999.00	0.0000	396	82.41
0.00						
	cat-thomDpond-100yr24hr	2.41	0.00	0.0028	505	27.81
27.89						
	cat-thomDpond-100yr72hr	2.52	0.00	0.0028	505	28.86
28.91						
	cat-thomDpond-10yr24hr-	1.80	0.00	0.0028	505	21.40
21.37						
	cat-thomDpond-25yr24hr-	2.08	0.00	0.0028	505	23.22
23.17						
	cat-thomDpond-25yr72hr-	2.12	0.00	0.0028	505	23.40
23.33						
	cat-thomDpond-2yr24h-pc	1.47	0.00	0.0028	505	17.12
17.11						
	cat-thomDpond-5yr24h-pc	1.67	0.00	0.0028	505	19.91
19.89						
	CheckBoxDpond-100yr24hr	1.64	2.50	-0.0236	154	12.12
12.12						
	CheckBoxDpond-100yr72hr	1.67	2.50	-0.0236	154	12.39
12.39						
	CheckBoxDpond-10yr24hr-	1.47	2.50	-0.0236	154	10.07
10.07						
	CheckBoxDpond-25yr24hr-	1.55	2.50	-0.0236	154	11.15
11.15						
	CheckBoxDpond-25yr72hr-	1.56	2.50	-0.0236	154	11.25
11.25						
	CheckBoxDpond-2yr24h-pc	1.34	2.50	-0.0236	154	8.04
8.04						
	CheckBoxDpond-5yr24h-pc	1.42	2.50	-0.0236	154	9.29
9.29						
	DuncAshDpond-100yr24hr	3.09	3.04	-0.0733	133	12.63
12.64						
	DuncAshDpond-100yr72hr	3.21	3.04	-0.0733	133	12.64
12.64						
	DuncAshDpond-10yr24hr-	2.26	3.04	-0.0733	133	12.58
12.59						
	DuncAshDpond-25yr24hr-	2.50	3.04	-0.0733	133	12.64
12.64						
	DuncAshDpond-25yr72hr-	2.50	3.04	-0.0733	133	12.64
12.65						
	DuncAshDpond-2yr24h-pc	2.07	3.04	-0.0733	133	11.63
11.63						
	DuncAshDpond-5yr24h-pc	2.14	3.04	-0.0733	133	12.32
12.32						
	GroundwaterDpond-100yr24hr	0.50	0.00	0.0000	0	29.92

0.00	GroundwaterDpond-100yr72hr	0.50	0.00	0.0000	0	29.98
0.00	GroundwaterDpond-10yr24hr-	0.50	0.00	0.0000	0	29.88
0.00	GroundwaterDpond-25yr24hr-	0.50	0.00	0.0000	0	29.88
0.00	GroundwaterDpond-25yr72hr-	0.50	0.00	0.0000	0	29.87
0.00	GroundwaterDpond-2yr24h-pc	0.50	0.00	0.0000	0	29.88
0.00	GroundwaterDpond-5yr24h-pc	0.50	0.00	0.0000	0	29.88
131.91	PondDpond-100yr24hr	2.02	3.00	0.0013	30244	139.26
140.71	PondDpond-100yr72hr	2.16	3.00	0.0014	30420	149.30
84.30	PondDpond-10yr24hr-	1.47	3.00	0.0003	29460	86.16
105.04	PondDpond-25yr24hr-	1.68	3.00	0.0004	29768	108.66
108.52	PondDpond-25yr72hr-	1.72	3.00	0.0005	29825	112.95
55.57	PondDpond-2yr24h-pc	1.26	3.00	-0.0003	29139	55.96
73.13	PondDpond-5yr24h-pc	1.38	3.00	0.0003	29320	74.23
29.92	PSDpond-100yr24hr	1.16	2.60	-0.0655	114	30.00
29.98	PSDpond-100yr72hr	1.40	2.60	-0.0654	114	30.07
29.88	PSDpond-10yr24hr-	1.00	2.60	-0.0655	114	24.35
29.88	PSDpond-25yr24hr-	1.00	2.60	-0.0654	114	28.24
29.87	PSDpond-25yr72hr-	1.00	2.60	-0.0654	114	28.72
29.88	PSDpond-2yr24h-pc	1.00	2.60	-0.0654	114	24.11
29.88	PSDpond-5yr24h-pc	1.00	2.60	-0.0654	114	24.18
12.47	UnitedThompsonDpond-100yr24hr	3.46	2.80	0.0075	158791	19.63
12.20	UnitedThompsonDpond-100yr72hr	3.49	2.80	0.0075	166677	20.33
11.68	UnitedThompsonDpond-10yr24hr-	3.11	2.80	0.0075	78769	13.30
12.44	UnitedThompsonDpond-25yr24hr-	3.28	2.80	0.0075	116230	16.42
12.40	UnitedThompsonDpond-25yr72hr-	3.28	2.80	0.0075	116713	16.34
10.29	UnitedThompsonDpond-2yr24h-pc	2.63	2.80	0.0075	3347	10.10
11.22	UnitedThompsonDpond-5yr24h-pc	2.98	2.80	-0.0078	48169	11.66
0.00	WBox-ECatDpond-100yr24hr	2.74	3.00	-0.0070	124	1.72
0.00	WBox-ECatDpond-100yr72hr	2.92	3.00	-0.0070	124	1.72

Attachment B Node

WBox-ECatDpond-10yr24hr-	1.71	3.00	-0.0070	124	1.72
0.00					
WBox-ECatDpond-25yr24hr-	2.18	3.00	-0.0070	124	1.72
0.00					
WBox-ECatDpond-25yr72hr-	2.22	3.00	-0.0070	124	1.72
0.00					
WBox-ECatDpond-2yr24h-pc	1.42	3.00	-0.0070	124	1.72
0.00					
WBox-ECatDpond-5yr24h-pc	1.44	3.00	-0.0070	124	1.72
0.00					
WBox-ECatbDpond-100yr24hr	2.77	3.00	0.0093	123	0.00
0.77					
WBox-ECatbDpond-100yr72hr	2.94	3.00	0.0093	123	0.00
0.73					
WBox-ECatbDpond-10yr24hr-	2.18	3.00	0.0093	123	0.00
0.79					
WBox-ECatbDpond-25yr24hr-	2.32	3.00	0.0093	123	0.00
0.77					
WBox-ECatbDpond-25yr72hr-	2.34	3.00	0.0093	123	0.00
0.74					
WBox-ECatbDpond-2yr24h-pc	1.88	3.00	0.0093	123	0.00
0.82					
WBox-ECatbDpond-5yr24h-pc	2.08	3.00	0.0093	123	0.00
0.81					
WQBDpond-100yr24hr	2.09	2.00	0.0918	114	31.67
30.00					
WQBDpond-100yr72hr	2.33	2.00	0.0918	114	32.52
30.07					
WQBDpond-10yr24hr-	1.24	2.00	0.0918	114	23.94
24.35					
WQBDpond-25yr24hr-	1.32	2.00	0.0918	114	27.96
28.24					
WQBDpond-25yr72hr-	1.35	2.00	0.0918	114	28.46
28.72					
WQBDpond-2yr24h-pc	1.23	2.00	0.0918	114	22.06
24.11					
WQBDpond-5yr24h-pc	1.24	2.00	0.0918	114	22.06
24.18					
WQBaDpond-100yr24hr	2.19	2.50	-0.0462	115	30.11
31.67					
WQBaDpond-100yr72hr	2.42	2.50	-0.0462	115	30.21
32.52					
WQBaDpond-10yr24hr-	1.30	2.50	-0.0462	115	23.85
23.94					
WQBaDpond-25yr24hr-	1.47	2.50	-0.0462	115	27.81
27.96					
WQBaDpond-25yr72hr-	1.50	2.50	-0.0462	115	28.34
28.46					
WQBaDpond-2yr24h-pc	1.29	2.50	-0.0462	115	25.09
22.06					
WQBaDpond-5yr24h-pc	1.30	2.50	-0.0462	115	25.05
22.06					

Attachment B Links

Time Stage hrs	Max Name US Stage ft	Max Time DS Stage hrs	Group Max Simulation DS Stage ft	Max Time Flow hrs	Max Flow cfs	Max Delta Q cfs	Max US
2810 to pond			BASEDpond-100yr24hr	12.90	27.89	-17.844	
12.24	2.41	12.22	2.02				
2820 to 2810			BASEDpond-100yr24hr	12.89	27.81	-18.597	
12.49	3.14	12.24	2.41				
2820to3020			BASEDpond-100yr24hr	0.00	0.00	-0.001	
12.49	3.11	12.49	3.14				
2820toUT			BASEDpond-100yr24hr	12.19	0.01	-0.008	
13.31	3.32	13.31	3.46				
2830to3040			BASEDpond-100yr24hr	12.73	11.67	0.132	
12.96	3.56	13.19	3.50				
2830toUT			BASEDpond-100yr24hr	12.76	17.89	0.021	
12.92	3.56	13.31	3.46				
3010to3000			BASEDpond-100yr24hr	12.61	0.33	0.001	
12.61	3.36	12.61	3.05				
3010to3030			BASEDpond-100yr24hr	12.47	0.25	-0.045	
13.30	3.41	13.30	3.46				
3020to3000			BASEDpond-100yr24hr	0.00	0.00	0.000	
13.03	2.64	12.57	2.91				
3030to3020			BASEDpond-100yr24hr	13.30	13.77	0.012	
13.30	3.46	13.30	3.31				
3040to3030			BASEDpond-100yr24hr	12.48	23.59	0.032	
13.19	3.50	13.30	3.46				
ChecktoBound			BASEDpond-100yr24hr	12.57	12.12	-2.583	
12.57	1.64	0.00	1.10				
Culvert1			BASEDpond-100yr24hr	12.22	131.91	-3.183	
12.22	2.02	0.00	1.10				
P2820			BASEDpond-100yr24hr	15.84	12.48	-1.347	
13.31	3.46	12.49	3.14				
P2820b			BASEDpond-100yr24hr	17.65	9.46	-0.545	
12.92	3.56	13.31	3.46				
P2830			BASEDpond-100yr24hr	18.19	2.28	0.115	
12.96	3.56	13.19	3.50				
P3000WQ1			BASEDpond-100yr24hr	12.57	12.12	-8.345	
12.57	2.91	12.57	1.64				
P3010			BASEDpond-100yr24hr	13.67	9.34	-1.429	
12.61	3.36	12.57	2.91				
P3020			BASEDpond-100yr24hr	0.00	1.72	1.301	
13.03	2.64	12.96	2.74				
P3020b			BASEDpond-100yr24hr	11.62	0.77	-1.743	
12.93	2.77	12.57	2.91				
P3030			BASEDpond-100yr24hr	16.25	12.63	-9.782	
13.30	3.46	13.08	3.09				
P3030b			BASEDpond-100yr24hr	16.24	12.64	10.175	
13.08	3.09	13.03	2.64				
P3030eastPS			BASEDpond-100yr24hr	12.71	30.11	16.608	
13.03	2.64	13.04	2.19				
P3040			BASEDpond-100yr24hr	11.85	7.58	-2.229	
13.19	3.50	13.30	3.46				
PSlowflow			BASEDpond-100yr24hr	0.00	22.06	22.062	
13.04	2.19	13.05	2.09				
PStoWells			BASEDpond-100yr24hr	13.04	29.92	29.779	
13.04	1.16	0.00	0.50				
ThomSem			BASEDpond-100yr24hr	12.68	12.43	0.011	
12.92	3.56	12.96	3.56				
UTto3030			BASEDpond-100yr24hr	12.21	1.52	-0.245	

13.31	3.46	13.30	3.46			
	W3020		BASEDpond-100yr24hr	14.03	0.00	0.050
12.96	2.74	12.93	2.77			
	WBBa		BASEDpond-100yr24hr	12.74	21.04	1.602
13.04	2.19	13.05	2.09			
	WQBtoBOUND		BASEDpond-100yr24hr	0.00	0.00	0.000
12.57	2.91	12.57	1.64			
	WQBtoPS		BASEDpond-100yr24hr	13.10	30.00	7.404
13.05	2.09	13.04	1.16			
	2810 to pond		BASEDpond-100yr72hr	61.08	28.91	-17.844
60.17	2.52	60.15	2.16			
	2820 to 2810		BASEDpond-100yr72hr	61.08	28.86	-18.597
60.43	3.18	60.17	2.52			
	2820to3020		BASEDpond-100yr72hr	0.00	0.00	-0.001
60.43	3.13	60.43	3.18			
	2820toUT		BASEDpond-100yr72hr	60.13	0.07	-0.039
61.27	3.34	61.23	3.49			
	2830to3040		BASEDpond-100yr72hr	60.62	12.21	0.139
60.93	3.58	61.15	3.53			
	2830toUT		BASEDpond-100yr72hr	60.66	19.03	0.021
60.89	3.58	61.23	3.49			
	3010to3000		BASEDpond-100yr72hr	60.95	0.63	0.001
60.95	3.40	60.95	3.07			
	3010to3030		BASEDpond-100yr72hr	60.35	0.50	-0.057
61.24	3.44	61.24	3.49			
	3020to3000		BASEDpond-100yr72hr	0.00	0.00	0.002
60.88	2.98	60.61	2.99			
	3030to3020		BASEDpond-100yr72hr	61.24	15.64	0.010
61.24	3.49	61.21	3.33			
	3040to3030		BASEDpond-100yr72hr	60.35	24.93	0.036
61.15	3.53	61.24	3.49			
	ChecktoBound		BASEDpond-100yr72hr	60.61	12.39	-2.583
60.61	1.67	0.00	1.10			
	Culvert1		BASEDpond-100yr72hr	60.15	140.71	-3.183
60.15	2.16	0.00	1.10			
	P2820		BASEDpond-100yr72hr	63.80	12.46	-1.347
61.23	3.49	60.43	3.18			
	P2820b		BASEDpond-100yr72hr	65.75	9.47	-0.545
60.89	3.58	61.23	3.49			
	P2830		BASEDpond-100yr72hr	66.28	2.28	0.115
60.93	3.58	61.15	3.53			
	P3000WQ1		BASEDpond-100yr72hr	60.61	12.39	-8.345
60.61	2.99	60.61	1.67			
	P3010		BASEDpond-100yr72hr	61.98	9.79	-1.429
60.95	3.40	60.61	2.99			
	P3020		BASEDpond-100yr72hr	0.00	1.72	1.192
61.00	2.88	60.96	2.92			
	P3020b		BASEDpond-100yr72hr	59.60	0.73	-1.743
60.94	2.94	60.61	2.99			
	P3030		BASEDpond-100yr72hr	64.40	12.64	-9.782
61.24	3.49	61.05	3.21			
	P3030b		BASEDpond-100yr72hr	64.39	12.64	10.175
61.05	3.21	61.00	2.88			
	P3030eastPS		BASEDpond-100yr72hr	60.72	30.21	16.608
61.00	2.88	61.04	2.42			
	P3040		BASEDpond-100yr72hr	59.77	7.64	-2.229
61.15	3.53	61.24	3.49			
	PSlowflow		BASEDpond-100yr72hr	0.00	22.06	22.062
61.04	2.42	60.95	2.33			
	PStoWells		BASEDpond-100yr72hr	61.00	29.98	29.779
61.00	1.40	0.00	0.50			
	ThomSem		BASEDpond-100yr72hr	60.57	13.02	0.012
60.89	3.58	60.93	3.58			

UTto3030		BASEDpond-100yr72hr	61.18	2.25	0.191
61.23	3.49	61.24	3.49		
W3020		BASEDpond-100yr72hr	0.00	0.00	0.074
60.96	2.92	60.94	2.94		
WBBa		BASEDpond-100yr72hr	60.83	22.37	2.051
61.04	2.42	60.95	2.33		
WQBtoBOUND		BASEDpond-100yr72hr	0.00	0.00	0.000
60.61	2.99	60.61	1.67		
WQBtoPS		BASEDpond-100yr72hr	60.72	30.07	7.448
60.95	2.33	61.00	1.40		
2810 to pond		BASEDpond-10yr24hr-	12.17	21.37	-17.844
12.18	1.80	12.19	1.47		
2820 to 2810		BASEDpond-10yr24hr-	12.17	21.40	-18.597
12.17	2.43	12.18	1.80		
2820to3020		BASEDpond-10yr24hr-	0.00	0.00	0.000
12.20	1.54	12.17	2.43		
2820toUT		BASEDpond-10yr24hr-	0.00	0.00	0.001
13.38	3.09	13.38	3.11		
2830to3040		BASEDpond-10yr24hr-	12.90	5.89	0.098
12.89	3.34	12.81	3.23		
2830toUT		BASEDpond-10yr24hr-	12.96	7.10	0.003
12.88	3.34	13.38	3.11		
3010to3000		BASEDpond-10yr24hr-	0.00	0.00	0.000
12.21	2.74	12.19	2.35		
3010to3030		BASEDpond-10yr24hr-	0.00	0.00	0.000
12.21	2.74	13.38	3.11		
3020to3000		BASEDpond-10yr24hr-	0.00	0.00	0.000
12.20	1.54	12.19	2.35		
3030to3020		BASEDpond-10yr24hr-	13.38	0.75	0.000
13.38	3.11	13.38	3.08		
3040to3030		BASEDpond-10yr24hr-	12.63	11.41	0.004
12.81	3.23	13.38	3.11		
ChecktoBound		BASEDpond-10yr24hr-	12.19	10.07	-2.583
12.19	1.47	0.00	1.10		
Culvert1		BASEDpond-10yr24hr-	12.19	84.30	-3.183
12.19	1.47	0.00	1.10		
P2820		BASEDpond-10yr24hr-	13.95	12.25	-1.347
13.38	3.11	12.17	2.43		
P2820b		BASEDpond-10yr24hr-	15.39	9.51	-0.545
12.88	3.34	13.38	3.11		
P2830		BASEDpond-10yr24hr-	15.87	2.32	0.115
12.89	3.34	12.81	3.23		
P3000WQ1		BASEDpond-10yr24hr-	12.19	10.07	-8.345
12.19	2.35	12.19	1.47		
P3010		BASEDpond-10yr24hr-	12.24	6.60	-1.429
12.21	2.74	12.19	2.35		
P3020		BASEDpond-10yr24hr-	0.00	1.72	1.192
12.20	1.54	12.20	1.71		
P3020b		BASEDpond-10yr24hr-	11.78	0.79	-1.743
12.19	2.18	12.19	2.35		
P3030		BASEDpond-10yr24hr-	13.78	12.58	-9.782
13.38	3.11	12.34	2.26		
P3030b		BASEDpond-10yr24hr-	13.78	12.59	10.175
12.34	2.26	12.20	1.54		
P3030eastPS		BASEDpond-10yr24hr-	12.17	23.85	16.608
12.20	1.54	11.89	1.30		
P3040		BASEDpond-10yr24hr-	12.01	7.53	-2.229
12.81	3.23	13.38	3.11		
PSlowflow		BASEDpond-10yr24hr-	0.00	22.06	22.062
11.89	1.30	11.89	1.24		
PStoWells		BASEDpond-10yr24hr-	11.89	29.88	-29.775
11.89	1.00	0.00	0.50		
ThomSem		BASEDpond-10yr24hr-	12.81	6.48	-0.010

12.88	3.34	12.89	3.34			
	UTto3030		BASEDpond-10yr24hr-	12.36	0.15	-0.033
13.38	3.11	13.38	3.11			
	W3020		BASEDpond-10yr24hr-	0.00	0.00	-0.009
12.20	1.71	12.19	2.18			
	WBBa		BASEDpond-10yr24hr-	12.20	11.97	0.624
11.89	1.30	11.89	1.24			
	WQBtoBOUND		BASEDpond-10yr24hr-	0.00	0.00	0.000
12.19	2.35	12.19	1.47			
	WQBtoPS		BASEDpond-10yr24hr-	12.18	24.35	7.963
11.89	1.24	11.89	1.00			
	2810 to pond		BASEDpond-25yr24hr-	12.18	23.17	-17.844
12.20	2.08	12.21	1.68			
	2820 to 2810		BASEDpond-25yr24hr-	12.17	23.22	-18.597
12.19	2.81	12.20	2.08			
	2820to3020		BASEDpond-25yr24hr-	0.00	0.00	0.000
12.18	1.86	12.19	2.81			
	2820toUT		BASEDpond-25yr24hr-	0.00	0.00	-0.001
13.41	3.21	13.41	3.28			
	2830to3040		BASEDpond-25yr24hr-	12.84	8.27	0.130
12.89	3.44	13.07	3.35			
	2830toUT		BASEDpond-25yr24hr-	12.86	11.48	0.004
12.88	3.44	13.41	3.28			
	3010to3000		BASEDpond-25yr24hr-	0.00	0.00	0.000
12.36	3.15	12.28	2.63			
	3010to3030		BASEDpond-25yr24hr-	0.00	0.00	-0.001
13.41	3.27	13.41	3.27			
	3020to3000		BASEDpond-25yr24hr-	0.00	0.00	0.000
12.18	1.86	12.28	2.63			
	3030to3020		BASEDpond-25yr24hr-	13.41	5.12	0.001
13.41	3.27	13.41	3.20			
	3040to3030		BASEDpond-25yr24hr-	12.54	16.10	0.006
13.07	3.35	13.41	3.27			
	ChecktoBound		BASEDpond-25yr24hr-	12.28	11.15	-2.583
12.28	1.55	0.00	1.10			
	Culvert1		BASEDpond-25yr24hr-	12.21	105.04	-3.183
12.21	1.68	0.00	1.10			
	P2820		BASEDpond-25yr24hr-	14.76	12.48	-1.347
13.41	3.28	12.19	2.81			
	P2820b		BASEDpond-25yr24hr-	16.47	9.47	-0.545
12.88	3.44	13.41	3.28			
	P2830		BASEDpond-25yr24hr-	17.00	2.30	0.115
12.89	3.44	13.07	3.35			
	P3000WQ1		BASEDpond-25yr24hr-	12.28	11.15	-8.345
12.28	2.63	12.28	1.55			
	P3010		BASEDpond-25yr24hr-	12.57	8.44	-1.429
12.36	3.15	12.28	2.63			
	P3020		BASEDpond-25yr24hr-	0.00	1.72	1.192
12.18	1.86	12.21	2.18			
	P3020b		BASEDpond-25yr24hr-	11.70	0.77	-1.743
12.24	2.32	12.28	2.63			
	P3030		BASEDpond-25yr24hr-	15.08	12.64	-9.782
13.41	3.27	12.52	2.50			
	P3030b		BASEDpond-25yr24hr-	15.07	12.64	10.175
12.52	2.50	12.18	1.86			
	P3030eastPS		BASEDpond-25yr24hr-	12.18	27.81	16.608
12.18	1.86	12.18	1.47			
	P3040		BASEDpond-25yr24hr-	11.93	7.55	-2.229
13.07	3.35	13.41	3.27			
	PSlowflow		BASEDpond-25yr24hr-	0.00	22.06	22.062
12.18	1.47	12.18	1.32			
	PStoWells		BASEDpond-25yr24hr-	11.80	29.88	29.778
11.80	1.00	0.00	0.50			

	ThomSem		BASEDpond-25yr24hr-	12.78	8.88	-0.011	
12.88	3.44	12.89	3.44				
	UTto3030		BASEDpond-25yr24hr-	13.44	0.55	-0.118	
13.41	3.28	13.41	3.27				
	W3020		BASEDpond-25yr24hr-	0.00	0.00	-0.010	
12.21	2.18	12.24	2.32				
	WBBa		BASEDpond-25yr24hr-	12.19	15.82	0.957	
12.18	1.47	12.18	1.32				
	WQBtoBOUND		BASEDpond-25yr24hr-	0.00	0.00	0.000	
12.28	2.63	12.28	1.55				
	WQBtoPS		BASEDpond-25yr24hr-	12.19	28.24	6.065	
12.18	1.32	11.80	1.00				
	2810 to pond		BASEDpond-25yr72hr-	60.17	23.33	-17.844	
60.13	2.12	60.13	1.72				
	2820 to 2810		BASEDpond-25yr72hr-	60.09	23.40	-18.597	
60.12	2.87	60.13	2.12				
	2820to3020		BASEDpond-25yr72hr-	0.00	0.00	0.000	
60.11	1.91	60.12	2.87				
	2820toUT		BASEDpond-25yr72hr-	0.00	0.00	-0.001	
61.34	3.21	61.34	3.28				
	2830to3040		BASEDpond-25yr72hr-	60.76	8.20	0.139	
60.82	3.44	61.02	3.35				
	2830toUT		BASEDpond-25yr72hr-	60.78	11.41	0.004	
60.81	3.44	61.34	3.28				
	3010to3000		BASEDpond-25yr72hr-	0.00	0.00	0.000	
60.27	3.17	60.20	2.65				
	3010to3030		BASEDpond-25yr72hr-	0.00	0.00	-0.001	
61.34	3.27	61.34	3.28				
	3020to3000		BASEDpond-25yr72hr-	0.00	0.00	0.000	
60.11	1.91	60.20	2.65				
	3030to3020		BASEDpond-25yr72hr-	61.34	5.21	0.001	
61.34	3.28	61.34	3.20				
	3040to3030		BASEDpond-25yr72hr-	60.42	15.96	0.006	
61.02	3.35	61.34	3.28				
	ChecktoBound		BASEDpond-25yr72hr-	60.20	11.25	-2.583	
60.20	1.56	0.00	1.10				
	Culvert1		BASEDpond-25yr72hr-	60.13	108.52	-3.183	
60.13	1.72	0.00	1.10				
	P2820		BASEDpond-25yr72hr-	62.71	12.50	-1.347	
61.34	3.28	60.12	2.87				
	P2820b		BASEDpond-25yr72hr-	64.43	9.48	-0.545	
60.81	3.44	61.34	3.28				
	P2830		BASEDpond-25yr72hr-	64.92	2.34	0.115	
60.82	3.44	61.02	3.35				
	P3000WQ1		BASEDpond-25yr72hr-	60.20	11.25	-8.345	
60.20	2.65	60.20	1.56				
	P3010		BASEDpond-25yr72hr-	60.48	8.57	-1.429	
60.27	3.17	60.20	2.65				
	P3020		BASEDpond-25yr72hr-	0.00	1.72	1.192	
60.11	1.91	60.13	2.22				
	P3020b		BASEDpond-25yr72hr-	59.65	0.74	-1.743	
60.15	2.34	60.20	2.65				
	P3030		BASEDpond-25yr72hr-	63.01	12.64	-9.782	
61.34	3.28	60.40	2.50				
	P3030b		BASEDpond-25yr72hr-	63.00	12.65	10.175	
60.40	2.50	60.11	1.91				
	P3030eastPS		BASEDpond-25yr72hr-	60.10	28.34	16.608	
60.11	1.91	60.11	1.50				
	P3040		BASEDpond-25yr72hr-	59.85	7.59	-2.229	
61.02	3.35	61.34	3.28				
	PSlowflow		BASEDpond-25yr72hr-	0.00	22.06	22.062	
60.11	1.50	60.11	1.35				
	PStoWells		BASEDpond-25yr72hr-	59.73	29.87	29.778	

59.73	1.00	0.00	0.50			
	ThomSem		BASEDpond-25yr72hr-	60.69	8.82	-0.014
60.81	3.44	60.82	3.44			
	UTto3030		BASEDpond-25yr72hr-	61.42	0.53	0.120
61.34	3.28	61.34	3.28			
	W3020		BASEDpond-25yr72hr-	0.00	0.00	0.012
60.13	2.22	60.15	2.34			
	WBBa		BASEDpond-25yr72hr-	60.10	16.31	0.954
60.11	1.50	60.11	1.35			
	WQBtoBOUND		BASEDpond-25yr72hr-	0.00	0.00	0.000
60.20	2.65	60.20	1.56			
	WQBtoPS		BASEDpond-25yr72hr-	60.10	28.72	6.052
60.11	1.35	59.73	1.00			
	2810 to pond		BASEDpond-2yr24h-pc	12.18	17.11	-17.844
12.18	1.47	12.18	1.26			
	2820 to 2810		BASEDpond-2yr24h-pc	12.17	17.12	-18.597
12.17	1.87	12.18	1.47			
	2820to3020		BASEDpond-2yr24h-pc	0.00	0.00	0.000
12.10	1.41	12.17	1.87			
	2820toUT		BASEDpond-2yr24h-pc	0.00	0.00	0.000
12.17	1.87	12.67	2.63			
	2830to3040		BASEDpond-2yr24h-pc	12.91	1.83	0.031
12.85	3.17	12.62	3.06			
	2830toUT		BASEDpond-2yr24h-pc	12.85	1.32	0.000
12.85	3.17	12.85	2.93			
	3010to3000		BASEDpond-2yr24h-pc	0.00	0.00	0.000
12.18	2.04	12.18	1.89			
	3010to3030		BASEDpond-2yr24h-pc	0.00	0.00	0.000
12.18	2.04	12.86	2.74			
	3020to3000		BASEDpond-2yr24h-pc	0.00	0.00	0.000
12.10	1.41	12.18	1.89			
	3030to3020		BASEDpond-2yr24h-pc	0.00	0.00	0.000
12.86	2.74	12.10	1.41			
	3040to3030		BASEDpond-2yr24h-pc	12.73	2.50	-0.105
12.62	3.06	12.86	2.74			
	ChecktoBound		BASEDpond-2yr24h-pc	12.18	8.04	-2.583
12.18	1.34	0.00	1.10			
	Culvert1		BASEDpond-2yr24h-pc	12.18	55.57	-3.183
12.18	1.26	0.00	1.10			
	P2820		BASEDpond-2yr24h-pc	13.25	10.29	-1.347
12.67	2.63	12.17	1.87			
	P2820b		BASEDpond-2yr24h-pc	13.98	9.60	-0.545
12.85	3.17	12.67	2.63			
	P2830		BASEDpond-2yr24h-pc	14.08	2.39	0.115
12.85	3.17	12.62	3.06			
	P3000WQ1		BASEDpond-2yr24h-pc	12.18	8.04	-8.345
12.18	1.89	12.18	1.34			
	P3010		BASEDpond-2yr24h-pc	12.20	4.07	-1.429
12.18	2.04	12.18	1.89			
	P3020		BASEDpond-2yr24h-pc	0.00	1.72	1.192
12.10	1.41	12.10	1.42			
	P3020b		BASEDpond-2yr24h-pc	11.94	0.82	-1.743
12.18	1.88	12.18	1.89			
	P3030		BASEDpond-2yr24h-pc	13.12	11.63	-9.782
12.86	2.74	12.10	2.07			
	P3030b		BASEDpond-2yr24h-pc	13.11	11.63	10.175
12.10	2.07	12.10	1.41			
	P3030eastPS		BASEDpond-2yr24h-pc	12.47	25.09	16.608
12.10	1.41	12.10	1.29			
	P3040		BASEDpond-2yr24h-pc	13.74	8.63	-2.229
12.62	3.06	12.86	2.74			
	PSlowflow		BASEDpond-2yr24h-pc	0.00	22.06	22.062
12.10	1.29	12.10	1.23			

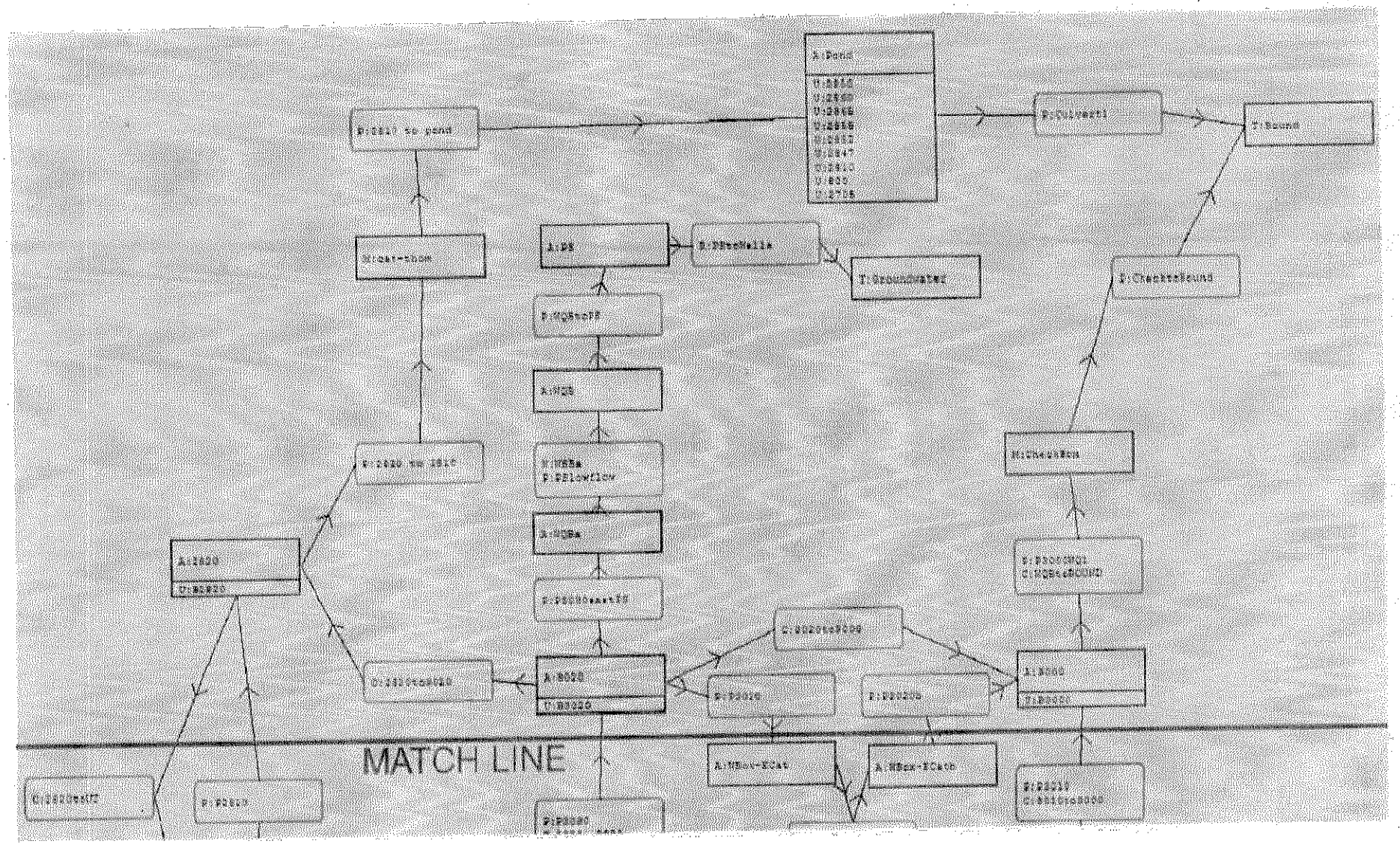
PStoWells		BASEDpond-2yr24h-pc	12.10	29.88	-29.774	
12.10	1.00	0.00	0.50			
ThomSem		BASEDpond-2yr24h-pc	12.35	3.49	-0.008	
12.85	3.17	12.85	3.17			
UTto3030		BASEDpond-2yr24h-pc	0.00	0.00	0.000	
12.67	2.63	12.86	2.74			
W3020		BASEDpond-2yr24h-pc	0.00	0.00	-0.012	
12.10	1.42	12.18	1.88			
WBBa		BASEDpond-2yr24h-pc	12.10	10.38	0.948	
12.10	1.29	12.10	1.23			
WQBtoBOUND		BASEDpond-2yr24h-pc	0.00	0.00	0.000	
12.18	1.89	12.18	1.34			
WQBtoPS		BASEDpond-2yr24h-pc	12.10	24.11	7.914	
12.10	1.23	12.10	1.00			
2810 to pond		BASEDpond-5yr24h-pc	12.18	19.89	-17.844	
12.19	1.67	12.19	1.38			
2820 to 2810		BASEDpond-5yr24h-pc	12.17	19.91	-18.597	
12.18	2.21	12.19	1.67			
2820to3020		BASEDpond-5yr24h-pc	0.00	0.00	0.000	
11.95	1.42	12.18	2.21			
2820toUT		BASEDpond-5yr24h-pc	0.00	0.00	0.000	
12.18	2.21	13.23	2.98			
2830to3040		BASEDpond-5yr24h-pc	12.91	4.54	0.076	
12.88	3.28	12.68	3.17			
2830toUT		BASEDpond-5yr24h-pc	12.88	4.82	0.002	
12.88	3.29	12.88	3.02			
3010to3000		BASEDpond-5yr24h-pc	0.00	0.00	0.000	
12.20	2.44	12.18	2.16			
3010to3030		BASEDpond-5yr24h-pc	0.00	0.00	0.000	
12.20	2.44	13.21	2.98			
3020to3000		BASEDpond-5yr24h-pc	0.00	0.00	0.000	
11.95	1.42	12.18	2.16			
3030to3020		BASEDpond-5yr24h-pc	13.21	0.00	0.000	
13.21	2.98	13.21	2.98			
3040to3030		BASEDpond-5yr24h-pc	12.61	8.59	0.003	
12.68	3.17	13.21	2.98			
ChecktoBound		BASEDpond-5yr24h-pc	12.18	9.29	-2.583	
12.18	1.42	0.00	1.10			
Culvert1		BASEDpond-5yr24h-pc	12.19	73.13	-3.183	
12.19	1.38	0.00	1.10			
P2820		BASEDpond-5yr24h-pc	13.74	11.78	-1.347	
13.23	2.98	12.18	2.21			
P2820b		BASEDpond-5yr24h-pc	14.80	9.53	-0.545	
12.88	3.29	13.23	2.98			
P2830		BASEDpond-5yr24h-pc	15.10	2.36	0.115	
12.88	3.28	12.68	3.17			
P3000WQ1		BASEDpond-5yr24h-pc	12.18	9.29	-8.345	
12.18	2.16	12.18	1.42			
P3010		BASEDpond-5yr24h-pc	12.23	5.61	-1.429	
12.20	2.44	12.18	2.16			
P3020		BASEDpond-5yr24h-pc	0.00	1.72	1.192	
11.95	1.42	12.19	1.44			
P3020b		BASEDpond-5yr24h-pc	11.83	0.81	-1.743	
12.18	2.08	12.18	2.16			
P3030		BASEDpond-5yr24h-pc	13.49	12.32	-9.782	
13.21	2.98	12.34	2.14			
P3030b		BASEDpond-5yr24h-pc	13.48	12.32	10.175	
12.34	2.14	11.95	1.42			
P3030eastPS		BASEDpond-5yr24h-pc	12.79	25.05	16.608	
11.95	1.42	11.95	1.30			
P3040		BASEDpond-5yr24h-pc	12.07	7.51	-2.229	
12.68	3.17	13.21	2.98			
PSlowflow		BASEDpond-5yr24h-pc	0.00	22.06	22.062	

Attachment B Links

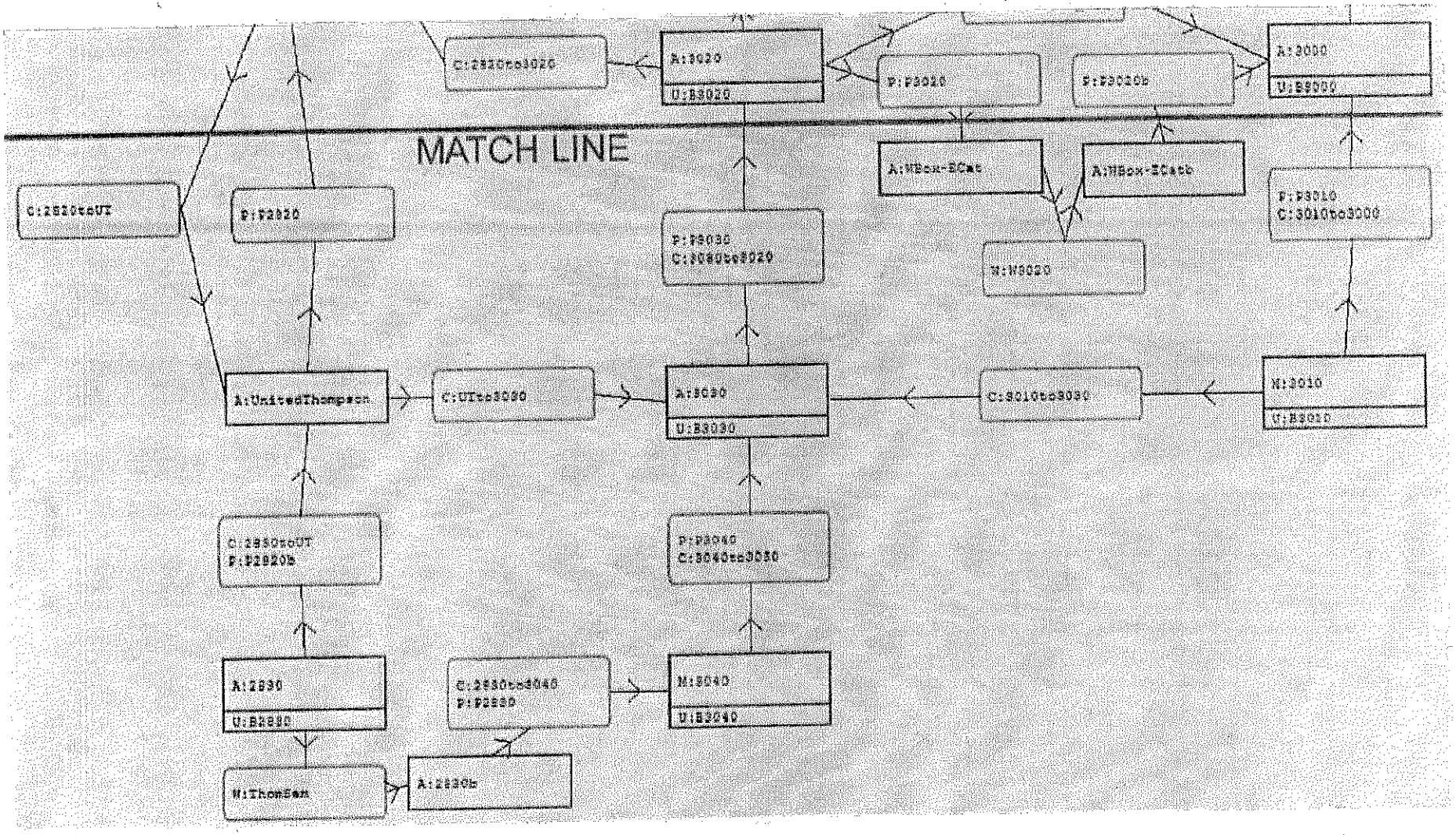
11.95	1.30	11.95	1.24			
	PStoWells		BASEDpond-5yr24h-pc	11.95	29.88	-29.775
11.95	1.00	0.00	0.50			
	ThomSem		BASEDpond-5yr24h-pc	12.81	5.15	-0.009
12.88	3.29	12.88	3.28			
	UTto3030		BASEDpond-5yr24h-pc	12.44	0.03	-0.010
13.23	2.98	13.21	2.98			
	W3020		BASEDpond-5yr24h-pc	0.00	0.00	-0.009
12.19	1.44	12.18	2.08			
	WBBa		BASEDpond-5yr24h-pc	11.95	10.51	0.953
11.95	1.30	11.95	1.24			
	WQBtoBOUND		BASEDpond-5yr24h-pc	0.00	0.00	0.000
12.18	2.16	12.18	1.42			
	WQBtoPS		BASEDpond-5yr24h-pc	11.95	24.18	7.944
11.95	1.24	11.95	1.00			

ATTACHMENT C

ICPR Nodal Diagram



Nodal Diagram, Sheet 1 of 2



Nodal Diagram, Sheet 2 of 2