

LOUIS R. RIGBY
Mayor
JOHN ZEMANEK
Councilmember At Large A
DOTTIE KAMINSKI
Councilmember At Large B
DANNY EARP
Councilmember District 1



CHUCK ENGELKEN
Councilmember District 2
DARYL LEONARD
Councilmember District 3
KRISTIN MARTIN
Mayor Pro-Tem
Councilmember District 4
JAY MARTIN
Councilmember District 5
NANCY OJEDA
Councilmember District 6

CITY COUNCIL MEETING AGENDA

Notice is hereby given of a Regular Meeting of the La Porte City Council to be held April 23, 2018, beginning at 6:00 PM in the City Hall Council Chambers, 604 W. Fairmont Parkway, La Porte, Texas, for the purpose of considering the following agenda items. All agenda items are subject to action.

1. **CALL TO ORDER**
2. **INVOCATION** – The invocation will be given by Brian Christen, La Porte Community Church.
3. **PLEDGE OF ALLEGIANCE** – The Pledge of Allegiance will be led by Councilmember Jay Martin.
4. **PRESENTATIONS, PROCLAMATIONS, and RECOGNITIONS**
 - (a) Recognition - Councilmember Daryl Leonard - Appreciation of Nine Years of Service to the City of La Porte - Mayor Rigby
5. **PUBLIC COMMENTS** (Limited to five minutes per person.)
6. **CONSENT AGENDA** *(All consent agenda items are considered routine by City Council and will be enacted by one motion. There will be no separate discussion of these items unless a Councilmember requests an item be removed and considered separately.)*
 - (a) Consider approval or other action regarding minutes of the meeting held on April 9, 2018 - P. Fogarty
 - (b) Consider approval or other action regarding an amended Ordinance consenting to petition for creation of Harris County MUD 561 and adoption of utility agreement between the City of La Porte and Beazer Homes Texas, L. P. - C. Alexander
 - (c) Consider approval or other action authorizing the City Manager to execute a professional services contract with HDR, Inc., for design, bidding and construction phase services for the Coupland Drive Improvement project - D. Pennell
 - (d) Consider approval or other action authorizing the City Manager to execute an agreement with Jones Carter Engineering Inc., to provide professional engineering services for the 2018 Water Master Plan Update - D. Pennell
 - (e) Consider approval or other action regarding an Interlocal Agreement between the City of La Porte and North Central Texas Council of Governments for actuarial services in relation to GASB 74 and 75 - M. Dolby
 - (f) Consider approval or other action to reject Bid #18008 for Wave Pool Renovations - R. Epting
7. **AUTHORIZATIONS**
 - (a) Consider approval or other action authorizing City Staff to execute payment in the amount of \$96,558.79 to Oakland Land and Development Inc., for the development of Sector 23, in accordance with Chapter 380 economic development agreement between City of La Porte and Oakland Land and Development, Inc. - R. Cramer

8. DISCUSSION AND POSSIBLE ACTION

- (a) Discussion and possible action regarding report on a dangerous/substandard residential building located at 9906 Rocky Hollow - M. Kirkwood
- (b) Discussion and possible action regarding the five-year update to the City of La Porte Comprehensive Plan 2030 - I. Clowes
- (c) Discussion and possible action regarding an agreement between the City of La Porte and La Porte Independent School District for an additional Sergeant position at school campus and an Ordinance adding Sergeant and Patrolman civil service classification positions to La Porte Police Department - K. Adcox
- (d) Discussion and possible action regarding policy for mutual aid response by the City of La Porte Emergency Medical Service - R. Nolen

9. ADMINISTRATIVE REPORTS

- Fiscal Affairs Committee Meeting, Monday, May 14, 2018
- Drainage and Flooding Committee Meeting, Monday, May 14, 2018
- City Council Meeting, Monday, May 14, 2018
- Planning and Zoning Commission Meeting, Thursday, May 17, 2018
- Zoning Board of Adjustment Meeting, Thursday, May 24, 2018

10. **COUNCIL COMMENTS** regarding matters appearing on the agenda; recognition of community members, city employees, and upcoming events; inquiry of staff regarding specific factual information or existing policies – Councilmembers J. Martin, K. Martin, Kaminski, Zemanek, Leonard, Engelken, Earp, Ojeda and Mayor Rigby

11. ADJOURN

The City Council reserves the right to meet in closed session on any agenda item should the need arise and if applicable pursuant to authorization by Title 5, Chapter 551, of the Texas Government Code (the Texas open meetings laws).

In compliance with the Americans with Disabilities Act, the City of La Porte will provide for reasonable accommodations for persons attending public meetings. To better serve attendees, requests should be received 24 hours prior to the meeting. Please contact Patrice Fogarty, City Secretary, at 281.470.5019.

CERTIFICATION

I certify that a copy of the April 23, 2018, agenda of items to be considered by the City Council was posted on the City Hall bulletin board on April 17, 2018.



City Secretary



**Council Agenda Item
April 23, 2018**

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5. **PUBLIC COMMENTS** (Limited to five minutes per person.)



**Council Agenda Item
April 23, 2018**

6. **CONSENT AGENDA** *All consent agenda items are considered routine by City Council and will be enacted by one motion. There will be no separate discussion of these items unless a Councilmember requests an item be removed and considered separately.)*
- (a) Consider approval or other action regarding minutes of the meeting held on April 9, 2018 - P. Fogarty
 - (b) Consider approval or other action regarding an amended Ordinance consenting to petition for creation of Harris County MUD 561 and adoption of utility agreement between the City of La Porte and Beazer Homes Texas, L. P. - C. Alexander
 - (c) Consider approval or other action authorizing the City Manager to execute a professional services contract with HDR, Inc., for design, bidding and construction phase services for the Coupland Drive Improvement project - D. Pennell
 - (d) Consider approval or other action authorizing the City Manager to execute an agreement with Jones Carter Engineering Inc., to provide professional engineering services for the 2018 Water Master Plan Update - D. Pennell
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**MINUTES OF THE REGULAR MEETING OF THE
CITY COUNCIL OF THE CITY OF LA PORTE
APRIL 9, 2018**

The City Council of the City of La Porte met in a regular meeting on **Monday, April 9, 2018**, at the City Hall Council Chambers, 604 West Fairmont Parkway, La Porte, Texas, at **6:00 p.m.** to consider the following items of business:

1. **CALL TO ORDER** – Mayor Rigby called the meeting to order at 6:00 p.m. Members of Council present: Councilmembers Ojeda, J. Martin, K. Martin, Kaminski, Zemanek, Leonard, Engelken, and Earp. Also present were City Secretary Patrice Fogarty, City Manager Corby Alexander, Assistant City Manager Jason Weeks, and Assistant City Attorney Clark Askins.

2. **INVOCATION** – The invocation was given by Assistant City Attorney, Clark Askins

3. **PLEDGE OF ALLEGIANCE** – The Pledge of Allegiance was led by Councilmember Nancy Ojeda.

4. **PRESENTATIONS, PROCLAMATIONS, and RECOGNITIONS**

(a) Proclamation – Fair Housing Month in the City of La Porte – Mayor Rigby

Mayor Rigby presented a proclamation to Planning and Development Director Richard Mancilla for Fair Housing Month in the City of La Porte.

(b) Proclamation – National Public Safety – Telecommunications Week – Mayor Rigby

Mayor Rigby presented a proclamation to Police Chief Ken Adcox and dispatchers for National Public Safety – Telecommunications Week.

(c) Proclamation – National Animal Control Officers Week – Mayor Rigby

Mayor Rigby presented a proclamation for National Animal Control Officers Week to Animal Control Supervisor Clarence Anderson and Police Chief Adcox.

5. **PUBLIC COMMENTS** (Limited to five minutes per person.)

There were no public comments.

6. **CONSENT AGENDA** *(All consent agenda items are considered routine by City Council and will be enacted by one motion. There will be no separate discussion of these items unless a Councilmember requests an item be removed and considered separately.)*

(a) Consider approval or other action regarding the minutes of the meeting held on March 26, 2018 – P. Fogarty

- (b) Consider approval or other action regarding an amended Ordinance consenting to petition for creation of Harris County MUD 561 and adoption of utility agreement between the City of La Porte and Beazer Homes Texas, L.P. – C. Alexander
- (c) Consider approval or other action regarding a Resolution designating the City Manager as the authorized grant official for the child identification system and electric vehicle supporting the Neighborhood Storefront & Community Outreach Program, through the Criminal Justice Division, Office of the Governor, State of Texas – K. Adcox

Councilmembers Earp and Zemanek had questions regarding Items (b) and (c). Staff responded to the questions.

Councilmember Earp made a motion to approve Consent Agenda Items (a) and (c) pursuant to staff recommendations. Councilmember Engelken seconded the motion. **MOTION PASSED UNANIMOUSLY 9/0.**

Ayes: Mayor Rigby, Councilmembers Leonard, Engelken, Ojeda, Zemanek, Kaminski, Earp, J. Martin, and K. Martin
 Nays: None
 Absent: None

Councilmember Earp made a motion to postpone Consent Agenda Item (b) until the April 23, 2018, meeting. Councilmember Zemanek seconded the motion. **MOTION PASSED UNANIMOUSLY 9/0.**

Ayes: Mayor Rigby, Councilmembers Leonard, Engelken, Ojeda, Zemanek, Kaminski, Earp, J. Martin, and K. Martin
 Nays: None
 Absent: None

7. PUBLIC HEARING AND ASSOCIATED ORDINANCES

- (a) Public hearing to receive comments regarding recommendation by the Planning and Zoning Commission to approve an Ordinance amending the City’s Future Land Use Map Component of the Comprehensive Plan for a 20-acre tract of land located on the east side of SH 146 north of Wharton Weems Blvd., and legally described as Tract 1L, Abstract 35, J Hunter Survey, by changing from “Mid-High Density Residential,” “Commercial,” and “Mixed Use” to “Mid-High Density Residential”; consider approval or other action regarding an Ordinance amending the City’s Future Land Use Map Component of the Comprehensive Plan for a 20-acre tract of land located on the east side of SH 146 north of Wharton Weems Blvd., legally described as Tract 1L, Abstract 35, J Hunter Survey, from “Mid-High Density Residential,” “Commercial,” and “Mixed Use” to “Mid-High Residential.” – I. Clowes

The public hearing opened at 6:26 p.m.

Planning and Development Director Richard Mancilla presented a combined summary for Items 7(a) and 7(b).

There being no public comments, the public hearing closed at 6:29 p.m.

Councilmember J. Martin made a motion to accept the recommendation by the Planning and Zoning Commission. Councilmember Leonard seconded. **MOTION PASSED UNANIMOUSLY 9/0.**

Ayes: Mayor Rigby, Councilmembers Leonard, Engelken, Ojeda, Zemanek, Kaminski, Earp, J. Martin, and K. Martin
 Nays: None
 Absent: None

Prior to council action, Assistant City Attorney Clark Askins read the caption of **Ordinance 2018-3700**: AN ORDINANCE ADOPTING AN UPDATE TO THE FUTURE LAND USE MAP COMPONENT OF THE COMPREHENSIVE PLAN OF THE CITY OF LA PORTE, TEXAS UPON RECOMMENDATION OF THE PLANNING AND ZONING COMMISSION OF THE CITY OF LA PORTE, TEXAS; FINDING COMPLIANCE WITH THE OPEN MEETINGS LAW; AND PROVIDING AN EFFECTIVE DATE HEREOF.

- (b) Public hearing to receive comments regarding recommendation by the Planning and Zoning Commission to approve Special Conditional Use Permit #18-91000002 to allow for a multi-family apartment complex, to be located on a 20-acre tract of land described as Tract 1L, Abstract 35, J Hunter Survey in a PUD zone; consider approval or other action regarding an Ordinance amending the Code of Ordinances of the City of La Porte, Chapter 106 "Zoning," by granting Special Conditional Use Permit #18-9100000-02, to allow for the development of a multi-family apartment complex to be located on a 20-acre tract of land described as Tract 1L, Abstract 35, J Hunter Survey in a PUD zone – I. Clowes

The public hearing opened at 6:30 p.m.

There being no public comments, the public hearing closed at 6:30 p.m.

Councilmember J. Martin made a motion to accept the Planning and Zoning Commission's recommendation to approve an Ordinance amending the Code of Ordinances of the City of La Porte, Chapter 106 "Zoning," by granting Special Conditional Use Permit #18-9100000-02, to allow for the development of a multi-family apartment complex to be located on a 20-acre tract of land described as Tract 1L, Abstract 35, J Hunter Survey in a PUD zone. Councilmember Leonard seconded. **MOTION PASSED UNANIMOUSLY 9/0.**

Ayes:	Mayor Rigby, Councilmembers Leonard, Engelken, Ojeda, Zemanek, Kaminski, Earp, J. Martin, and K. Martin
Nays:	None
Absent:	None

Prior to council action, Assistant City Attorney Clark Askins read the caption of **Ordinance 2018-3701**: AN ORDINANCE AMENDING THE CODE OF ORDINANCES OF THE CITY OF LA PORTE, CHAPTER 106, MORE COMMONLY REFERRED TO AS THE ZONING ORDINANCE OF THE CITY OF LA PORTE, BY GRANTING SPECIAL CONDITIONAL USE PERMIT NO. 18-91000002, TO ALLOW FOR THE DEVELOPMENT OF A MULTI-FAMILY APARTMENT COMPLEX IN A PLANNED UNIT DEVELOPMENT (PUD) ZONING DISTRICT, ON A 20-ACRE TRACT OF LAND AND BEING LEGALLY DESCRIBED AS TRACT 1L, ABSTRACT 35, J HUNTER SURVEY, LA PORTE HARRIS COUNTY, TEXAS; MAKING CERTAIN FINDINGS OF FACT RELATED TO THE SUBJECT; FINDING COMPLIANCE WITH THE OPEN MEETINGS LAW; AND PROVIDING AN EFFECTIVE DATE HEREOF.

- (c) Public hearing to receive comments regarding recommendation by the Planning and Zoning Commission to approve an Ordinance amending the City's Future Land Use Map Component of the Comprehensive Plan for a 19.17-acre tract of land located on the east side of SH 146 south of Baypoint Townhomes, and legally described as Tract 1, Abstract 35, J Hunter Survey, by changing from "Mid-High Density Residential," "Commercial," and "Mixed Use" to "Mid-High Density Residential"; consider approval or other action regarding an Ordinance amending the City's Future Land Use Map Component of the Comprehensive Plan for a 19.17-acre tract of land located on the east side of SH 146 south of Baypoint Townhomes, and legally described as Tract 1, Abstract 35, J Hunter Survey, by changing from "Mid-High Density Residential," "Commercial," and "Mixed Use" to "Mid-High Density Residential" – I. Clowes

The public hearing opened at 6:31 p.m.

Planning and Development Director Richard Mancilla presented a combined summary for Items 7(c) and 7(d).

There being no public comments, the public hearing closed at 6:32 p.m.

Councilmember J. Martin made a motion to accept the recommendation by the Planning and Zoning Commission. Councilmember Leonard seconded. **MOTION PASSED UNANIMOUSLY 9/0.**

Ayes:	Mayor Rigby, Councilmembers Leonard, Engelken, Ojeda, Zemanek, Kaminski, Earp, J. Martin, and K. Martin
Nays:	None
Absent:	None

Prior to council action, Assistant City Attorney Clark Askins read the caption of **Ordinance 2018-3702: AN ORDINANCE ADOPTING AN UPDATE TO THE FUTURE LAND USE MAP COMPONENT OF THE COMPREHENSIVE PLAN OF THE CITY OF LA PORTE, TEXAS UPON RECOMMENDATION OF THE PLANNING AND ZONING COMMISSION ON THE CITY OF LA PORTE, TEXAS; FINDING COMPLIANCE WITH THE OPEN MEETINGS LAW; AND PROVIDING AN EFFECTIVE DATE HEREOF.**

- (d) Public hearing to receive comments regarding recommendation by the Planning and Zoning Commission to approve Special Conditional Use Permit # 18-91000003 to allow for a patio home development, to be located on a 19.17-acre tract of land described as Tract 1, Abstract 35, J Hunter Survey, in a PUD zone; consider approval or other action regarding an Ordinance amending the Code of Ordinances of the City of La Porte, Chapter 106 "Zoning," by granting Special Conditional Use Permit #18-91000003, to allow for the development of a patio development, to be located on a 19.17-acre tract of land described as Tract 1, Abstract 35, J Hunter Survey, in a PUD zone – I. Clowes

The public hearing opened at 6:33 p.m.

There being no public comments, the public hearing closed at 6:33 p.m.

Councilmember J. Martin made a motion to accept the Planning and Zoning Commission's recommendation to approve an Ordinance amending the Code of Ordinances of the City of La Porte, Chapter 106 "Zoning," by granting Special Conditional Use Permit #18-9100000-03, to allow for the development of a patio development, to be located on a 19.17-acre tract of land described as Tract 1, Abstract 35, J Hunter Survey, in a PUD zone. Councilmember K. Martin seconded. **MOTION PASSED UNANIMOUSLY 9/0.**

Ayes:	Mayor Rigby, Councilmembers Leonard, Engelken, Ojeda, Zemanek, Kaminski, Earp, J. Martin, and K. Martin
Nays:	None
Absent:	None

Prior to council action, Assistant City Attorney Clark Askins read the caption of **Ordinance 2018-3703: AN ORDINANCE AMENDING THE CODE OF ORDINANCES OF THE CITY OF LA PORTE, CHAPTER 106, MORE COMMONLY REFERRED TO AS THE ZONING ORDINANCE OF THE CITY OF LA PORTE, BY GRANTING SPECIAL CONDITIONAL USE PERMIT NO. 18-91000003, TO ALLOW FOR THE DEVELOPMENT OF A PATIO HOME DEVELOPMENT IN A PLANNED UNIT DEVELOPMENT (PUD) ZONING DISTRICT, ON A 19.17-ACRE TRACT OF LAND AND BEING LEGALLY DESCRIBED AS TRACT 1, ABSTRACT 35, J HUNTER SURVEY, LA PORTE HARRIS COUNTY, TEXAS; MAKING CERTAIN FINDINGS OF FACT RELATED TO THE SUBJECT; FINDING COMPLIANCE WITH THE OPEN MEETINGS LAW; AND PROVIDING AN EFFECTIVE DATE HEREOF.**

8. AUTHORIZATIONS

- (a) Consider approval or other action to reschedule or cancel the May 28, 2018, Council meeting due to the Memorial Day holiday – P. Fogarty

Councilmember Engelken made a motion to cancel the May 28, 2018, Council meeting. Councilmember Leonard seconded. **MOTION PASSED UNANIMOUSLY 9/0.**

Ayes: Mayor Rigby, Councilmembers Leonard, Engelken, Ojeda, Zemanek, Kaminski, Earp, J. Martin, and K. Martin
Nays: None
Absent: None

9. ADMINISTRATIVE REPORTS

There were no administrative reports.

- 10. COUNCIL COMMENTS** regarding matters appearing on the agenda; recognition of community members, city employees, and upcoming events; inquiry of staff regarding specific factual information.

Councilmember Ojeda thanked Police Chief Ken Adcox and Staff for applying for grants; thanked Planning and Development Director Richard Mancilla for presented a Special Workshop Meeting and commented she is looking forward to the patio home development; Councilmember J. Martin congratulated recipients of the proclamations; commented the patio home development will be a nice addition to the community; asked that the issue be resolved for the creation of Harris County MUD 561 and adoption of utility agreement for the April 23, 2018, meeting, and advised of a delayed traffic signal on Fairmont Parkway at Bay Park and requested Staff contact the appropriate authorities to check the operation of the light; Councilmember Zemanek recognized the recipients of the proclamations and shared the great news that his wife Stephanie Zemanek completed cancer treatments at M.D. Anderson hospital; Councilmembers Leonard and Engelken congratulated Councilmember Zemanek and his family on their great news; and Mayor Rigby thanked everyone for attending the meeting and advised he attended Easter Sunrise Services, that it was well attended, and congratulated Councilmember Zemanek and Stephanie on their great news.

- 11. ADJOURN** - There being no further business, Councilmember Engelken made a motion to adjourn the meeting at 6:39 p.m. Councilmember Leonard seconded the motion. **MOTION PASSED UNANIMOUSLY 9/0.**

Patrice Fogarty, City Secretary

Passed and approved on April 23, 2018.

Mayor Louis R. Rigby

REQUEST FOR CITY COUNCIL AGENDA ITEM

Agenda Date Requested <u>April 23, 2018</u>
Requested By <u>Corby D. Alexander</u>
Department: <u>CMO</u>
Report: _____ Resolution: _____ Ordinance: _____

<u>Appropriation</u>
Source of Funds: _____
Account Number: _____
Amount Budgeted: _____
Amount Requested: _____
Budgeted Item: YES _____ NO _____

Exhibits: Consent Ordinance (clean)

Exhibits: Amended and Restated Utility Agreement (redline)

Exhibits: Amended and Restated Utility Agreement (clean)

Exhibit: Deed conveying property to Beazer

SUMMARY & RECOMMENDATION

On December 11, 2017, the City Council voted to approve an ordinance that created a Municipal Utility District. The original ordinance contained a clause that it would only become effective if and when Beazer completed the purchase of the subject property.

Beazer has closed on the purchase as indicated by the enclosed deed. However, Beazer has now requested that we revise the ordinance eliminating this provision that the ordinance become effective upon purchase. Beazer believes removing this provision will make gaining TCEQ approval easier as this type of clause is atypical for consent ordinances.

Included in this agenda item is a revised ordinance deleting the above referenced provision. Additionally, the developer has acquire a new survey of the property. The new survey indicates that the property is 234.65 acres. The previous survey was for 234.686 acres with all documents reflecting the latter 234.686 acres. The enclosed consent ordinance, MUD petition, and utility agreement are revised to reflect the latest survey.

Moreover, council provided staff direction at the April 9th meeting to incorporate further changes to the Utility Agreement. The attached Utility Agreement has been revised for the following:

- Article VI – City Plant Capacity, Section 6.01 Water Supply and Distribution Facilities:
 - Added second paragraph to include language “**Notwithstanding any other provision of this Agreement or any act of the City, the District shall not be guaranteed any specific quantity or pressure of water whenever the City's water supply is limited or when the City's equipment or facilities may become inoperative due to emergencies, equipment installation, repairs, modifications, replacements, inspections, breakdown or maintenance; and the City is in no case to be held to any liability for failure to furnish any specific amount or pressure of water under such circumstances. In case of a shortage of water resulting from drought, the water to be distributed by the City among those entitled to receive water from the City, including the District, shall be divided in accordance with Texas Water Code, Section 11.039.**”

- Article IX – Material Breach, Notice and Remedies, Section 9.04 Remedies:
 - Added the following language to (b) in this section “If the District terminates the Agreement, the City may, at its sole option, convey the City Facilities and Facilities previously conveyed by the District to the City back to the District, and the District shall thereafter operate, maintain, and repair same.”

Action Required by Council:

Consider approval or other action Consent Ordinance and Utility Agreement associated with the creation of MUD 561.

Approved for City Council Agenda

Corby D. Alexander, City Manager

Date

ORDINANCE NO. _____

AN ORDINANCE OF THE CITY OF LA PORTE, TEXAS CONSENTING TO AND GRANTING A PETITION FOR THE CREATION OF HARRIS COUNTY MUNICIPAL UTILITY DISTRICT NO. 561, A MUNICIPAL UTILITY DISTRICT TO BE LOCATED WITHIN THE BOUNDARIES OF THE CITY OF LA PORTE, TEXAS, AND BEING MORE PARTICULARLY DESCRIBED AS A 234.650 ACRE TRACT OF LAND SITUATED IN THE RICHARD PEARSALL SURVEY, ABSTRACT NO. 265, HARRIS COUNTY, TEXAS; APPROVING A UTILITY AGREEMENT BY AND BETWEEN THE CITY OF LA PORTE, TEXAS AND BEAZER HOMES TEXAS, L.P., ON BEHALF OF HARRIS COUNTY MUNICIPAL UTILITY DISTRICT NO. 561; REPEALING ALL ORDINANCES OR PARTS OF ORDINANCES IN CONFLICT HEREWITH; PROVIDING FOR SEVERABILITY; CONTAINING AN OPEN MEETINGS CLAUSE; AND PROVIDING AN EFFECTIVE DATE.

WHEREAS, the City of La Porte (the "City") has received a petition seeking consent for the creation of Harris County Municipal Utility District No. 561 (the "District") within the city limits of the City, the boundaries of said District being legally described on Exhibit A, attached hereto; and

WHEREAS, the petitioners request that the City Council authorize the Mayor to sign an Amended and Restated Utility Agreement between the City of La Porte and Beazer Homes Texas, L.P. on behalf of proposed Harris County Municipal Utility District No. 561;

BE IT ORDAINED BY THE CITY COUNCIL OF THE CITY OF LA PORTE, TEXAS:

Section 1. That all of the recitals and preambles hereinabove stated are found to be true and correct and are incorporated herein and made a part of this Ordinance.

Section 2. That the petition seeking the City's consent to the creation of HARRIS COUNTY MUNICIPAL UTILITY DISTRICT NO. 561, is hereby granted subject to the terms and conditions set forth in Exhibit B attached hereto (the "Consent Conditions"), and incorporated herein for all purposes.

Section 3. That the Amended and Restated Utility Agreement (the “Agreement”) by and between the City and Beazer Homes Texas, L.P. on behalf of proposed Harris County Municipal Utility District No. 561, a copy of which is attached hereto as Exhibit C and incorporated herein for all purposes, is hereby approved and the Mayor of the City is hereby authorized to execute the Agreement on behalf of the City.

Section 4. All ordinances or parts of ordinances inconsistent or in conflict herewith are, to the extent of such inconsistency or conflict, hereby repealed.

Section 5. In the event any clause, phrase, provision, sentence, or part of this Ordinance or the application of the same to any person or circumstance shall for any reason be adjudged invalid or held unconstitutional by a court of competent jurisdiction, it shall not affect , impair, or invalidate this Ordinance as a whole or any part or provision hereof other than the part declared to be invalid or unconstitutional; and the City Council of the City of La Porte, Texas, declares that it would have passed each and every part of the same notwithstanding the omission of any such part.

Section 6. The City Council officially finds, determines, recites and declares that a sufficient written notice of the date, hour, place and subject of this meeting of the City Council is posted at a place convenient to the public at the City Hall of the city for the time required by law preceding this meeting, as required by Chapter 551, TX. Gov’t Code; and that this meeting has been open to the public as required by law at all times during which this ordinance and the subject matter thereof has been discussed, considered and formally acted upon. The City Council further ratifies, approves and confirms such written notice and the contents and posting thereof.

Section 7. This Ordinance shall be effective upon its passage and approval.

PASSED AND APPROVED this 23rd day of April, 2018.

CITY OF LA PORTE, TEXAS

Louis R. Rigby, Mayor

ATTEST:

Patrice Fogarty, City Secretary

APPROVED AS TO FORM:

Clark Askins, City Attorney

EXHIBIT A

DESCRIPTION OF A TRACT OF LAND CONTAINING
234.650 ACRES (10,221,335 SQUARE FEET) SITUATED
IN THE RICHARD PEARSALL SURVEY, A-625 IN
HARRIS COUNTY, TEXAS

Being a tract of land containing 234.650 acres (10,221,335 square feet) situated in the Richard Pearsall Survey, A-625 in Harris County, Texas, and being out of a called 485.51426-acre tract conveyed unto PPG Industries, Inc., by deed recorded under County Clerk's File No. G484569 of the Official Public Records of Real Property of Harris County, Texas. Said 234.650 acre tract being more particularly described by metes and bounds as follows:

**Note: All bearings cited herein are Grid bearings, referenced to the Texas State Plane Coordinate System of 1983, South Central Zone No. 4204 (NAD83, 2011).*

BEGINNING at a found 5/8-inch iron rod with cap stamped "RPLS 5007" located at the intersection of the south property line of said 485.51426-acre tract with the west right-of-way line of Bay Area Boulevard (200-feet wide, as recorded under County Clerk's File No. G484569 and X626685, of the Official Public Records of Real Property of Harris County, Texas), for the northeast corner of a called 3.659-acre tract conveyed unto Ambrose Joseph Smith, III, by deed recorded under County Clerk's File No. 20110443002 of the Official Public Records of Real Property of Harris County, Texas, and for the southeast corner of said tract herein described;

THENCE South 86°55'34" West with the south line of said 485.51426-acre tract, with the north line of said 3.659-acre tract, with the north line of a called 2.5497-acre tract conveyed unto Elizabethtown Properties, LLC, by deed recorded under County Clerk's File No. 20090584848 of the Official Public Records of Real Property of Harris County, Texas, with the north line of a called 2.323-acre tract conveyed unto Stanwood Interests, LP, by deed recorded under County Clerk's File No. R922416 of the Official Public Records of Real Property of Harris County, Texas, with the north line of a called 4.000-acre tract (Tract 2) conveyed unto CCC Group, Inc., by deed recorded under County Clerk's File No. U723491 of the Official Public Records of Real Property of Harris County, Texas, with the north line of a called 10.37-acre tract conveyed unto Green Bishop Holdings, LLC, by deed recorded under County Clerk's File No. T183215 of the Official Public Records of Real Property of Harris County, Texas, with the north line of the remainder of a called 12.20-acre tract (Tract 1) conveyed unto CCC Group, Inc., by deed recorded under County Clerk's File No. U723491 of the Official Public Records of Real Property of Harris County, Texas, with the north line of a called 1.744-acre tract conveyed unto Jason R. Morman, by deed recorded under County Clerk's File No. T815823 of the Official Public Records of Real Property of Harris County, Texas, with the north line of a called 4.255-acre tract conveyed unto Jim M. Morman, et al, by deed recorded under County Clerk's File No. T815824 of the Official Public Records of Real Property of Harris County, Texas, a distance of 2,724.54 feet to a found 1/2-inch iron rod in the east property line of a called 5.927-acre tract conveyed unto C.M. Millstid Properties, LLC, by deed recorded under County Clerk's File No. 20140496527 of the Official Public Records of Real Property of Harris County, Texas, for corner on the south line of said tract herein described;

THENCE North 03° 06' 13" West with the east property line of said 5.927-acre tract, a distance of 389.16 feet to a 1/2-inch iron rod found for the northeast corner of said 5.927-acre tract, and for an interior corner of said tract herein described;

THENCE South 87° 05' 32" West with the north property line of said 5.927-acre tract, a distance of 389.52 feet to a found 3/4-inch iron rod for the northwest corner of said 5.927-acre tract, in the west line of said 485.51426-acre tract, in the east right-of-way line of a 200-foot wide Exxon Pipeline Company, Inc., pipeline corridor, recorded under Volume 5310, Page 582 of the Deed Records of Harris County, Texas, and for the westernmost south corner of said tract herein described;

THENCE North 03° 11' 46" West with the west property line of said 485.51426-acre tract and the east right-of-way line of said pipeline corridor, a distance of 2,834.19 feet to a set 5/8-inch iron rod with plastic cap stamped "Cobb, Fendley & Associates" for corner, from which a found 1/2-inch iron rod (disturbed) bears North 61° 59' East, a distance of 0.85 feet;

THENCE North 86° 52' 57" East with the north property line of said 485.51426-acre tract and the south line of a called 2.347-acre tract conveyed unto WBI-MC Properties, Inc., by deed recorded under County Clerk's File No. 20140412351 of the Official Public Records of Real Property of Harris County, Texas, at a distance of 61.05 feet pass a found 5/8-inch iron rod with orange cap stamped "G.B.I. PARTNERS", and continuing for a total distance of 389.58 feet to a found 5/8-inch iron rod with orange cap stamped "PREJEAN & CO 4925", for the southeast corner of said 2.347-acre tract, and for an interior corner of said 485.51426-acre tract;

THENCE North 02° 49' 53" West with a westerly property line of said 485.51426-acre tract and the east property line of said 2.347-acre tract, a distance of 323.90 feet to a set 5/8-inch iron rod with plastic cap stamped "Cobb, Fendley & Associates" for corner for the northernmost west corner of said 485.51426-acre tract, from which a found railroad spike in asphalt bears South 88° 08' West, a distance of 2.78 feet;

THENCE North 86° 53' 30" East with the south line of a 60-foot wide Public Road and Utility right-of-way (recorded under County Clerk's File No. F395945 of the Official Public Records of Real Property of Harris County, Texas) and the north property line of said 485.51426-acre tract, a distance of 59.98 feet to a found 5/8-inch iron rod with orange cap stamped "PREJEAN & CO 4925" for an angle point in the north property line of said 485.51426-acre tract;

THENCE North 86° 57' 10" East with the north property line of said 485.51426-acre tract, with the south right-of-way line of said 60-foot wide Public Road and Utility right-of-way, and with the south property line of a 3.2320-acre tract conveyed unto Bruce Meisner & Dennis McClung, by deed recorded under County Clerk's File No. W980075 of the Official Public Records of Real Property of Harris County, Texas, a distance of 2,260.61 feet to a set 5/8-inch iron rod with plastic cap stamped "Cobb, Fendley & Associates" for an interior corner of said 485.51426-acre tract, from which a found 5/8-inch iron rod (disturbed) bears North 45° 51' West, a distance of 1.82 feet;

THENCE North $02^{\circ} 37' 10''$ West with an interior property line of said 485.51426-acre tract and the east property line of said 3.2320-acre tract, a distance of 158.30 feet to a point for corner, from which a found 1/2-inch iron rod bears South $86^{\circ} 29'$ West, a distance of 0.31 feet;

THENCE North $86^{\circ} 31' 59''$ East with the north property line of said 485.51426-acre tract, the south property line of a called 8.069-acre tract conveyed unto Shell Federal Credit Union, by deed recorded under County Clerk's File No. Y501711 of the Official Public Records of Real Property of Harris County, Texas, and the south property line of a tract of land conveyed unto La Porte Properties Partnership, by deed recorded under County Clerk's File No. J860208 of the Official Public Records of Real Property of Harris County, Texas, a distance of 586.33 feet to a set 5/8-inch iron rod with plastic cap stamped "Cobb, Fendley & Associates" in the west right-of-way line of said Bay Area Boulevard, for the northeast corner of said tract herein described, from which a found 1/2-inch iron rod (disturbed) bears South $00^{\circ} 54'$ West, a distance of 0.21 feet;

THENCE in a southerly direction with the west right-of-way line of said Bay Area Boulevard, the following courses and distances:

1. Southerly direction with a curve to the right, whose radius is 1,297.50 feet, a central angle of $30^{\circ} 40' 34''$ (chord bears South $12^{\circ} 12' 29''$ West, a distance of 686.41 feet) for an arc length of 694.68 feet to a found 5/8-inch iron rod with orange cap stamped "PREJEAN & CO 4925";
2. South $27^{\circ} 30' 06''$ West, a distance of 397.99 feet to a found 5/8-inch iron rod with orange cap stamped "PREJEAN & CO 4925";
3. Southerly direction with a curve to the right, whose radius is 1,567.18 feet, a central angle of $47^{\circ} 20' 47''$ (chord bears South $03^{\circ} 45' 37''$ West, a distance of 1,258.51 feet) for an arc length of 1,295.04 feet to a found 5/8-inch iron rod with orange cap stamped "PREJEAN & CO 4925";
4. South $19^{\circ} 54' 47''$ East, a distance of 1,006.97 feet to a found 5/8-inch iron rod (disturbed) with orange cap stamped "PREJEAN & CO 4925";

THENCE continuing with the west right-of-way line of said Bay Area Boulevard, with a curve to the right, whose radius is 1,488.80 feet, a central angle of 19° 10' 11" (chord bears South 10° 19' 41" East, a distance of 495.79 feet) for an arc length of 498.11 feet to the **POINT OF BEGINNING** and containing 234.650 acres (10,221,335 square feet) of land, more or less.

Notes:

1. Square footage area shown is for information only and surveyor does not certify accuracy of survey to nearest square foot.

2. This metes and bounds description is referenced to a survey drawing prepared by Cobb, Fendley & Associates, Inc. dated December 7, 2017 and Revised December 21, 2017, titled "SURVEY OF A 234.650 ACRE TRACT OF LAND SITUATED IN THE RICHARD PEARSALL SURVEY, ABSTRACT NO. 625 HARRIS COUNTY, TEXAS".

Cobb, Fendley & Associates, Inc.
TBPLS Firm Registration No. 100467
13430 Northwest Freeway, Suite 1100
Houston, Texas 77040
Phone: (713) 462-3242

Job No. 1710-009-01-01
Revised: December 21, 2017
Original Date: December 7, 2017



A handwritten signature in cursive script that reads "Blaine Fisher".

Exhibit B

Consent Conditions

(a) To the extent authorized by law, the District will issue bonds only for the purpose of purchasing and constructing, or purchasing, or constructing under contract with the City of La Porte, or otherwise acquiring waterworks systems, sanitary sewer systems, storm sewer systems, drainage facilities, recreational facilities, road facilities, or parts of such systems or facilities, and to make any and all necessary purchases, construction, improvements, extensions, additions, and repairs thereto, and to purchase or acquire all necessary land, right-of-way, easements, sites, equipment, buildings, plants, structures, and facilities therefor, and to operate and maintain drainage facilities and recreational facilities, and for refunding such bonds. Such bonds will expressly provide that the District reserves the right to redeem the bonds on any interest- payment date subsequent to the fifteenth (15th) anniversary of the date of issuance without premium and will be sold only after the taking of public bids therefor, and none of such bonds, other than refunding bonds, will be sold for less than 95% of par; provided that the net effective interest rate on bonds so sold, taking into account any discount or premium as well as the interest rate borne by such bonds, will not exceed two percent (2%) above the highest average interest rate reported by the Daily Bond Buyer in its weekly "20 Bond Index" during the one-month period next preceding the date notice of the sale of such bonds is given, and that bids for the bonds will be received not more than forty-five (45) days after notice of sale of the bonds is given. No land located within the city limits or extraterritorial jurisdiction of the City of La Porte will be added or annexed to the District until the City of La Porte has given its written consent by resolution or ordinance of the City Council to such addition or annexation.

(b) (1) Before the commencement of any construction within the District, its directors, officers, or developers and landowners will submit to the Director of the Department of Public Works of the City of La Porte, or to his designated representative, all plans and specifications for the construction of water, sanitary sewer, drainage, and road facilities and related improvements to serve the District and obtain the approval of such plans and specifications therefrom. All water wells, water meters, flushing valves, valves, pipes, and appurtenances thereto, installed or used within the District, will conform exactly to the specifications of the City of La Porte. All water service lines and sewer service lines, lift stations, sewage treatment facilities, and road facilities, and appurtenances thereto, installed or used within the District will comply with the City of La Porte's standard plans and specifications as amended from time to time. Prior to the construction of any water, sanitary sewer, drainage or road facilities within or by the District, the District or its engineer will give written notice by registered or certified mail to the Director of Public Works, stating the date that such construction will be commenced. The construction of the District's water, sanitary sewer, drainage and road facilities will be in accordance with the approved plans and specifications, and with applicable standards and specifications of the City of La Porte; and during the progress of the construction and installation of such facilities, the Director of Public Works of the City of La Porte, or an employee thereof, may make periodic on-the-ground inspections.

(2) Before the expenditure by the District of bond proceeds for the acquisition, construction or development of recreational facilities, the District shall obtain and maintain on file, from a registered landscape architect, registered professional engineer or a design professional allowed by law to engage in architecture, a certification that the recreational facilities, as constructed, conform to the applicable recreational facilities design standards and specifications of the City of La Porte's Department of Parks and Recreation and shall submit a copy of the certification and the "as built" plans and specifications for such recreational facilities to the Director of the City of La Porte Parks and Recreation Department.

(c) The District, its board of directors, officers, developers, and/or landowners will not permit the construction, or commit to any development within, the District that will result in a wastewater flow to the serving treatment facility which exceeds that facility's legally permitted average daily flow limitations or the District's allocated capacity therein.

(d) Prior to the sale of any lot or parcel of land, the owner or the developer of the land included within the limits of the District will obtain the approval of the Planning Commission of the City of La Porte of a plat which will be duly recorded in the Real Property Records of Harris County, Texas, and otherwise comply with the rules and regulations of the City of La Porte.

AMENDED AND RESTATED UTILITY AGREEMENT

THIS AMENDED AND RESTATED UTILITY AGREEMENT (this "Agreement") is made and entered into as of April 9, 2018, by THE CITY OF LA PORTE, TEXAS (the "City"), a home rule municipality in Harris County, Texas, acting by and through its governing body the City Council of La Porte Texas; and BEAZER HOMES TEXAS, L.P., a Delaware limited partnership ("Developer") on behalf of proposed Harris County Municipal Utility District No. 561.

RECITALS

The City and Developer entered into a Utility Agreement dated December 11, 2017 (the "Original Agreement"), when Developer was under contract to purchase approximately 234.686 acres of land in Harris County, Texas, as described therein (the "Original Acreage").

Developer desires to develop a quality master-planned single-family and multi-family residential community with senior living facilities and supporting commercial uses within the Tract. The Tract is located within the corporate boundaries of the City.

Developer intends to create Harris County Municipal Utility District No. 561 (the "District") within the City's corporate limits for the purposes of, among other matters, providing water distribution, wastewater collection, and storm sewer and drainage, recreational and road facilities to serve development occurring within the District. The District will contain the Tract.

The City is a municipal corporation and is operating under the home rule municipality laws of the State of Texas. The City has the power under the laws of the State of Texas to acquire, own, and operate a water and sanitary sewer system and works and improvements necessary for the drainage of the lands in the City. The City also has the authority to contract with a district organized under the authority of Article XVI, Section 59, of the Constitution of Texas, whereby the District will acquire or construct for the City (i) water distribution systems and sanitary sewer collection to connect to the City's water supply or treatment systems and (ii) improvements necessary for the drainage of lands in the City.

The City and Developer on behalf of the District may enter into an agreement under the terms of which the District will acquire for the benefit of and conveyance to the City the water distribution, wastewater collection, and storm sewer facilities needed to serve lands being developed within the boundaries of the District.

The City and Developer have determined that they are authorized by the Constitution and laws of the State of Texas to enter into this Agreement and have further determined that the terms, provisions, and conditions hereof are mutually fair and advantageous to each.

After acquisition of the Original Acreage, the survey was updated and provides for a slight revision in the metes and bounds description and the total acreage. The updated metes and bounds

description reflects approximately 234.650 acres of land in Harris County, Texas, and is described by metes and bounds in **Exhibit A** attached hereto (the "Tract"). The City and Developer desire to amend the Original Agreement to delete Exhibit A in the Original Agreement and replace it with **Exhibit A** attached hereto.

AGREEMENT

For and in consideration of these premises and of the mutual promises, obligations, covenants, and benefits herein contained, the City and Developer on behalf of the District contract and agree as follows:

ARTICLE I DEFINITIONS

The capitalized terms and phrases used in this Agreement shall have the meanings as follows:

"Approved Plans" means plans and specifications approved in accordance with Section 3.01.

"Approving Bodies" means any or all of the following entities, as appropriate in a particular context: the City; Harris County, Texas; the TCEQ; the Attorney General of Texas; the Comptroller of Public Accounts of Texas; the United States Department of Justice; and all other federal, state, and local governmental authorities having regulatory jurisdiction and authority over the financing of the Facilities, the construction of the Facilities, or the subject matter of this Agreement.

"Bonds" means the District's bonds, notes, or other evidences of indebtedness issued from time to time for the purpose of purchasing, constructing, acquiring, operating, repairing, improving, or extending the Facilities, and for such other purposes permitted or provided by state law, whether payable from ad valorem taxes, the proceeds of one or more future bond issues, or otherwise, and including any bonds, notes, or similar obligations issued to refund such bonds.

"City" means the City of La Porte, Texas.

"City Facilities" means and includes the water distribution, wastewater collection, and drainage systems (but not including detention systems), recreational facilities within road rights-of-way, including trails and sidewalks, and road facilities constructed or acquired or to be constructed or acquired by the District to serve lands within and near its boundaries, and all improvements, appurtenances, additions, extensions, enlargements, or betterments thereto, including any pro rata interest or share in such facilities, together with all contract rights, permits, licenses, properties, rights-of-way, easements, sites, and other interests related thereto.

“Consent Ordinance” means the ordinance adopted by the City evidencing the City's consent to the inclusion of land within the District in accordance with Texas Water Code Section 54.016, as amended.

“Construction Costs” means costs associated with any particular construction project under the terms of this Agreement, including, but not limited to, costs of construction, acquisition, and installation; engineering fees and expenses; costs of advertising; costs of acquiring necessary licenses, permits, waste control orders, discharge permits or amendments thereto; fiscal, legal, and administrative costs; material-testing costs; site, easement, and permit costs; and all other costs and expenses directly relating to the foregoing, together with an amount for contingencies on estimated Construction Costs of fifteen percent (15%) of the foregoing, provided that no contingency amount shall be included in "Construction Costs" regarding a particular construction project once that project is complete.

“Developer” means Beazer Homes Texas, L.P.

“District” means Harris County Municipal Utility District No. 561, a body politic and corporate and a political subdivision of the State of Texas organized under the provisions of Article XVI, Section 59 of the Texas Constitution. Any references herein to District shall mean Developer; provided that upon assignment of this Agreement by Developer to the District pursuant to Section 11.11 below, any references herein to the District shall mean the District.

“District Assets” means (i) all rights, title, and interests of the District in and to the Facilities, (ii) any Bonds of the District which are authorized but have not been issued by the District, (iii) all rights and powers of the District under any agreements or commitments with any persons or entities pertaining to the financing, construction, or operation of all or any portion of the Facilities and/or the operations of the District, (iv) all cash and investments, and amounts owed to the District, and (v) all books, records, files, documents, permits, funds, and other materials or property of the District.

“District Engineer” means any engineering firm as the District may engage from time to time.

“District Obligations” means (i) all outstanding Bonds of the District, (ii) all other debts, liabilities, and obligations of the District to or for the benefit of any persons or entities relating to the financing, construction, or operation of all or any portion of the Facilities or the operations of the District, and (iii) all functions performed and services rendered by the District for and to the owners of property within the District and the customers of the services provided from the Facilities.

“Facilities” means and includes the water distribution, wastewater collection, and drainage and detention systems, recreational facilities outside of a City road right-of-way, and road facilities constructed or acquired or to be constructed or acquired by the District to serve lands within and near its boundaries, and all improvements, appurtenances, additions, extensions, enlargements, or betterments thereto, including any pro rata interest or share in such facilities, together with all

contract rights, permits, licenses, properties, rights-of-way, easements, sites, and other interests related thereto.

“Financing and Reimbursement Agreement” means the District's agreement, if any, as defined in Section 4.04.

“State” means the State of Texas.

“TCEQ” means the Texas Commission on Environmental Quality, or any successor or successors exercising any of its duties and functions related to water conservation and reclamation districts.

ARTICLE II REPRESENTATIONS

Section 2.01 Representations of the City. The City hereby represents to Developer that:

(a) This Agreement has been duly authorized, executed and delivered by the City and, constitutes a legal, valid and binding obligation of the City, enforceable in accordance with its terms.

(b) The execution, delivery and performance of this Agreement by the City does not require the consent or approval of any Person which has not been obtained.

Section 2.02 Representations of Developer. Developer hereby represents to the City that:

(a) It is duly authorized, created and existing under the laws of the State of Texas, is qualified to do business in the State of Texas and is duly qualified to do business wherever necessary to carry on the operations contemplated by this Agreement.

(b) It has the power, authority and legal right to enter into and perform its obligations set forth in this Agreement, and the execution, delivery and performance hereof (i) have been duly authorized, will not, to the best of its knowledge, violate any judgment, order, law or regulation applicable to it or any provisions of its articles of incorporation and by-laws, and (ii) do not constitute a default under, or result in the creation of any lien, charge, encumbrance or security interest upon any of its assets under, any agreement or instrument to which it is a party or by which it or its assets may be bound or affected.

(c) It has sufficient capital to perform its obligations under this Agreement.

(d) This Agreement has been duly authorized, executed and delivered and constitutes a legal, valid and binding obligation of such entity, enforceable in accordance with its terms.

(e) With respect to Developer only, the petition for the creation of a municipal utility district and the petition for consent to the creation of a municipal utility district that have been previously submitted to the City have been duly authorized, executed and delivered.

(f) The execution, delivery and performance of this Agreement by it does not require the consent or approval of any Person which has not been obtained.

ARTICLE III
DESIGN AND CONSTRUCTION OF THE FACILITIES

Section 3.01 Design. The Facilities shall be designed by the District Engineer in accordance with sound engineering principles and in compliance with all applicable requirements of the Approving Bodies. The plans and specifications for the Facilities shall be subject to review and approval by the City, the District, and the Approving Bodies with jurisdiction (the "Approved Plans"). The District shall not make any changes to the Approved Plans without the approval of the City. The City shall not require that the Facilities be designed to requirements more stringent than the City's requirements applicable to the design of similar facilities outside the District but within the City's jurisdiction. The District shall design the Facilities in such phases or stages as the District and/or Developer from time to time, in their sole discretion, may determine to be necessary and economically feasible.

Section 3.02 Construction. When the District determines, in its sole discretion, that it is necessary and economically feasible to construct the Facilities, the District shall proceed to award a construction contract for the Facilities based upon the Approved Plans. The Facilities shall be installed, construction contracts shall be awarded, and payment and performance bonds obtained all in accordance with the general law for municipal utility districts and in full compliance with the applicable requirements of the Approving Bodies. In addition to any other construction contract provisions, any construction contract for the Facilities shall include the contractor's one (1) year warranty of work performed under the contract. The District shall file all required documents with the TCEQ.

Section 3.03 Acceptance of Facilities. Upon completion of the Facilities, the District shall order the District Engineer to certify that the Facilities have been completed in substantial compliance with the Approved Plans, and the District shall certify that all bills and sums of money due in connection with the construction and installation of the Facilities have been fully paid and that the Facilities are free of any and all liens and claims, all according to the certification of the construction contractor. The District shall require the District Engineer to provide three (3) copies of construction drawings of the Facilities to the District. The District shall accept the construction of the Facilities in writing from the construction contractor. The District shall then convey the City Facilities to the City in accordance with the City's procedure for acceptance of such facilities in areas outside the District and within the City and the provisions of Article IV below.

Section 3.04 Permits, Fees, and Inspections. The District understands and agrees that all City ordinances and codes, including applicable permits, fees, and inspections, shall be of full force and effect within its boundaries the same as to other areas within the City's corporate limits; provided, however, that no permits, permit fees, or inspection fees shall be required for the Facilities to be conveyed to the City.

ARTICLE IV
FINANCING OF THE FACILITIES

Section 4.01 Authority of District to Issue Bonds. The District shall have authority to issue, sell, and deliver Bonds from time to time, as deemed necessary and appropriate by the Board of Directors of the District, for the purposes, in such forms and manner, and as permitted or provided by federal law, the general laws of the State of Texas, and the Consent Ordinance; provided, however, that such authority to issue, sell, and deliver Bonds will be limited to Bonds issued, sold, and delivered for the purpose of reimbursing Developer or any other developers within the District for the purposes described in Exhibit B of the Consent Ordinance and for the repair and rehabilitation of Facilities to be owned and maintained by the District.

Section 4.02 Distribution of Bond Proceeds. The proceeds of Bonds issued by the District shall be used and may be invested or reinvested, from time to time, as provided in the order or orders of the District authorizing the issuance, sale, and delivery of such Bonds and in accordance with the federal, state, and local laws and regulations governing the proceeds of the District's sale of its Bonds.

Section 4.03 Bonds as Obligation of District. Unless and until the City shall dissolve the District and assume the District Assets and District Obligations, the Bonds of the District, as to both principal and interest, shall be and remain obligations solely of the District and shall never be deemed or construed to be obligations or indebtedness of the City.

Section 4.04 Financing by Third Parties. From time to time, the District may enter into one or more agreements (the "Financing and Reimbursement Agreement") with Developer or other landowners of property located within the District whereby Developer or such landowners will construct the Facilities on behalf of the District or advance funds to or on behalf of the District for the acquisition and construction of the Facilities. The construction of any Facilities financed under the terms of a Financing and Reimbursement Agreement shall be subject to all the terms and conditions of this Agreement. Each Financing and Reimbursement Agreement will provide for the District's reimbursement of the person or entity advancing funds for the Facilities (i) from the proceeds of the District's sale of its Bonds, subject to all the terms and conditions of such Financing and Reimbursement Agreement, including, among other conditions, the approval of the TCEQ of the sale of the Bonds and the use of sale proceeds for such purpose; and/or (ii) from District funds lawfully available for such purpose.

ARTICLE V
OWNERSHIP, OPERATION, AND MAINTENANCE OF FACILITIES

Section 5.01 Conveyance of Facilities. As the City Facilities are constructed and accepted in accordance with Article II and the City Facilities are conveyed to the City under this Article V, the construction contractor's one (1) year warranty of its work shall be assigned to the City, as required under Section 3.02 above.

Section 5.02 City Acceptance. As the Facilities are constructed and completed, representatives of the City shall inspect the same and, if the City finds that the City Facilities have been completed in substantial compliance with the approved plans and specifications, the City will accept the conveyance of the City Facilities, and the City Facilities so conveyed shall be operated, maintained, and repaired by the City at its sole expense as provided in this Agreement. The City shall accept ownership of the City Facilities under this Section 5.02 in accordance with the City's procedure for acceptance of such facilities in areas outside the District and within the City. If the City Facilities have not been completed in substantial compliance with the approved plans and specifications, the City will immediately advise in what manner the City Facilities do not comply so that the problems may immediately be corrected; whereupon the City shall again inspect the City Facilities and accept the same if the non-complying items have been corrected. In conjunction with the City's acceptance of the City Facilities, the City shall be provided with one (1) set of the construction drawings for such City Facilities.

Section 5.03 Operation of the Facilities by the City. Upon the acceptance of the City Facilities by the City, the City will operate the City Facilities and provide services from the City Facilities to users within the District without discrimination. The City shall at all times maintain the City Facilities, or cause the same to be maintained, in good condition and working order and will operate the same, or cause the same to be operated, in an efficient and economical manner at a reasonable cost and in accordance with sound business principles, and the City will comply with all the terms and conditions of this Agreement and with all applicable federal, state, and local laws and regulations.

(a) The City shall provide competent, trained personnel, licensed or certified as necessary by the appropriate regulatory authority, to operate, inspect, maintain, and repair the City Facilities. The City shall implement a scheduled maintenance program for the City Facilities and shall ensure that the City Facilities are maintained in the same fashion and with the same frequency as similar facilities owned and operated by the City to serve areas outside the District.

(b) The City shall maintain all customer information and records necessary to provide monthly billings to customers served by the City Facilities. The City shall respond to inquiries or correspondence from governmental or regulatory authorities and the District's directors, customers, or consultants.

Section 5.04 Rates and Conditions of Service. The connection of improvements to the water and sanitary sewer City Facilities shall be made in the same manner, by the same procedures, and for the same charges, if any, per City policy for other water and wastewater connections. Water and wastewater customers within the District shall pay rates and charges for such services to the City, on the same basis and conditions as the City provides such services to similar City customers who do not receive services from the Facilities. The equivalent number of single family residences attributable to any particular connection shall be computed in accordance with the service unit factors determined by the City in its sole discretion, provided that the City shall always apply the same service unit factors within the District as it applies to other areas within the City. The City shall bill and collect charges from the customers of the City Facilities, calculated in accordance with this Section 5.04, in the same manner and under the same procedures as it bills and collects from other customers of the City that are not served by the City Facilities.

Section 5.05 Repair of the Facilities. After its acceptance of the City Facilities, the City shall provide all personnel and equipment necessary to perform repairs on, and shall bear sole cost responsibility for repair of, the City Facilities, including, but not limited to, service line leaks, leaks at water meters, water main breaks, repairs to valves and fire hydrants, manhole repairs, and sanitary sewer line repair and cleaning, as needed. The City shall not, however, bear cost or responsibility for initial repair of any equipment or facilities identified by the City as in need of correction prior to the City's acceptance of the City Facilities under Section 5.02 above. The cost of all materials and supplies used to operate, maintain, and repair the Facilities shall be borne solely by the City.

ARTICLE VI
CITY PLANT CAPACITY

Section 6.01 Water Supply and Distribution Facilities. The City shall provide the District with its ultimate requirements for water supply and distribution capacities. The number and location of the points of connection between the City's water distribution system and the Facilities shall be mutually agreed upon by the District and the City. The City acknowledges its obligation to provide water supply and distribution capacities for the actual requirements of the development within the District's boundaries. Any water supply and distribution capacities so required by the District shall be reserved and allocated by the City exclusively to serve the property within the District and the City shall not use such capacities to serve any other property. The City shall at all times manage the capacities in its water supply and distribution facilities so that capacity to serve development within the District is available at the time such improvements are to be connected to the Facilities. To enable the City to effectively manage its water system capacities in compliance with the City's obligation under this Section 6.01, the District shall provide to the City, by December 31 of each year during the term of this Agreement, a written projection of the new improvements within the District expected to be connected to the Facilities within the coming year, and such other related information as the City may reasonably require. The City confirms that 1,200 equivalent single-family connections of excess water supply are available to serve the Tract and will remain available to serve the Tract so long as development of the Tract commences within 3 years of the date of this Agreement and is complete within 15 years of the date of this Agreement.

Notwithstanding any other provision of this Agreement or any act of the City, the District shall not be guaranteed any specific quantity or pressure of water whenever the City's water supply is limited or when the City's equipment or facilities may become inoperative due to emergencies, equipment installation, repairs, modifications, replacements, inspections, breakdown or maintenance; and the City is in no case to be held to any liability for failure to furnish any specific amount or pressure of water under such circumstances. In case of a shortage of water resulting from drought, the water to be distributed by the City among those entitled to receive water from the City, including the District, shall be divided in accordance with Texas Water Code, Section 11.039.

Section 6.02 Wastewater Collection and Treatment Facilities. The number and location of the points of connection between the City's wastewater collection system and the Facilities shall be mutually agreed upon by the District and the City. The City acknowledges its obligation to provide wastewater collection and treatment capacities for the actual requirements of the development within the District's boundaries. Any wastewater collection and treatment capacities so required by the District shall be reserved and allocated by the City exclusively to serve the property within the District and the City shall not use such capacities to serve any other property. The City shall at all times manage the capacities in its wastewater collection and treatment facilities so that capacity to serve development within the District is available at the time such improvements are to be connected to the Facilities. To enable the City to effectively manage its wastewater system capacities in compliance with the City's obligation under this Section 6.02, the District shall provide the City no less than annually a written projection of the new improvements within the District expected to be connected to the Facilities within the coming year, and such other related information as the City may reasonably require. The City confirms that 1,200 equivalent single-family connections of excess wastewater treatment are available to serve the Tract and will remain available to serve the Tract so long as development of the Tract commences within 3 years of the date of this Agreement and is complete within 15 years of the date of this Agreement.

Section 6.03 Letter of Capacity Assurance; Assignability. The City agrees that the City shall, upon reasonable request from the District, issue a letter of assurance to the owner of platted property within the District confirming water and wastewater utility availability for such platted property, based upon the standard City criteria published by the City regarding the calculation of water and wastewater requirements for various types of improvements.

ARTICLE VII
DISTRICT AND OVERLAPPING TAXES

Section 7.01 Overlapping Taxes. The City agrees that no portion of City taxes to be derived from the taxpayers of the District will be used to finance elsewhere in the City services the District proposes to provide, and the City and the District agree that no portion of City taxes to be derived from the taxpayers of the District are required to be rebated to the District.

Section 7.02 District Taxes. The District is authorized to assess, levy, and collect ad valorem taxes upon all taxable properties within the District to provide for (i) the payment in full of the District Obligations, including principal, redemption premium, if any, or interest on the Bonds and to establish and maintain any interest and sinking fund, debt service fund, or reserve fund and (ii) for maintenance purposes, all in accordance with applicable law. The parties agree that nothing herein shall be deemed or construed to prohibit, limit, restrict, or otherwise inhibit the District's authority to levy ad valorem taxes as the Board of Directors of the District from time to time in its sole discretion may determine to be necessary for the Facilities consistent with the consent conditions in the Consent Ordinance. The City and the District recognize and agree that all ad valorem tax receipts and revenues collected by the District shall become the property of the District and may be applied by the District to the payment of all proper debts, obligations, costs, and expenses of the District and may be pledged or assigned to the payment of all or any designated portion of the principal or redemption premium, if any, or interest on the Bonds or otherwise in accordance with applicable law.

ARTICLE VIII
DISSOLUTION OF THE DISTRICT

Section 8.01 Dissolution of District. The City and District recognize and agree that the City may, pursuant to the procedures and provisions and subject to the limitations set forth in the laws of the State of Texas including, but not limited to, Section 43.074, Texas Local Government Code, abolish and dissolve the District and assume the District Assets and District Obligations upon a vote of not less than two-thirds (2/3) of the entire membership of the City Council to adopt an ordinance to such effect, if the City Council finds: (a) that the District is no longer needed, (b) that the services and functions performed by the District can be served and performed by the City, and (c) that it would be in the best interests of the citizens and property within the District and the City that the District be abolished. In order to ensure that the property owners and inhabitants of the City and the District are afforded sufficient time and opportunity to realize the benefits and public utility to be derived from the creation and operation of the District and the financing, construction and implementation of the plan of improvements for the District, and in order to contribute to the financial stability and feasibility of the District by ensuring a sufficient longevity of the District's existence to permit the District to reach a satisfactory level of financial maturity, the City agrees that the District shall not be abolished until such time as the District is fully developed and has sold all Bonds necessary to finance the costs of the Facilities and has reimbursed Developer and any other landowners within the District

in accordance with the Financing and Reimbursement Agreements previously entered into by the District.

Section 8.02 Transition upon Dissolution. In the event all required findings and procedures for the dissolution of the District have been duly, properly, and finally made and satisfied by the City, and unless otherwise mutually agreed by the City and the District pursuant to then existing law, the District agrees that its officers, agents, and representatives shall be directed to cooperate with the City in any and all respects reasonably necessary to facilitate the dissolution of the District and the transfer of the District Assets to and the assumption of the District Obligations by the City.

ARTICLE IX
MATERIAL BREACH, NOTICE AND REMEDIES

Section 9.01 Material Breach of Agreement.

(a) The parties acknowledge and agree that any substantial deviation by the District from the material terms of this Agreement would frustrate the intent of this Agreement and, therefore, would be a material breach of this Agreement. By way of example, a substantial deviation from the material terms of this Agreement by the District would be the failure of the District to obtain approval from the City prior to annexing an additional property into the District as provided for herein.

(b) The parties acknowledge and agree that any substantial deviation by the City from the material terms of this Agreement would frustrate the intent of this Agreement and, therefore, would be a material breach of this Agreement. By way of example, a substantial deviation from the material terms of this Agreement would be an attempt by the City to dissolve the District other than as provided for herein.

(c) In the event that a party to this Agreement believes that another party has, by act or omission, committed a material breach of this Agreement, the provisions of this Article IX shall provide the sole remedies for such default, unless otherwise specifically provided herein.

Section 9.02 Notice of District's Default.

(a) The City shall notify the District in writing of an alleged failure by the District to comply with a provision of this Agreement, which notice shall specify the alleged failure with reasonable particularity. The District shall, within thirty (30) days after receipt of such notice or such longer period of time as the City may specify in such notice, either cure such alleged failure or, in a written response to the City, either present facts and arguments in refutation or excuse of such alleged failure or state that such alleged failure will be cured and set forth the method and time schedule for accomplishing such cure.

(b) The City shall determine (i) whether a failure to comply with a provision has occurred; (ii) whether such failure is excusable; and (iii) whether such failure has been cured or will be cured by the District. The District shall make available and deliver to the City, if requested, any records, documents or other information necessary to make the determination without charge.

(c) In the event that the City determines that such failure has not occurred, or that such failure either has been or will be cured in a manner and in accordance with a schedule reasonably satisfactory to the City, or that such failure is excusable, such determination shall conclude the investigation.

(d) If the City determines that a failure to comply with a provision has occurred and that such failure is not excusable and has not been or will not be cured by the District in a manner and in accordance with a schedule reasonably satisfactory to the City, then the City may pursue the remedies provided in Section 9.04.

Section 9.03 Notice of City's Default.

(a) The District shall notify the City in writing of an alleged failure by the City to comply with a provision of this Agreement, which notice shall specify the alleged failure with reasonable particularity. The City shall, within 30 days after receipt of such notice or such longer period of time as the District may specify in such notice, either cure such alleged failure or, in a written response to the District, either present facts and arguments in refutation or excuse of such alleged failure or state that such alleged failure will be cured and set forth the method and time schedule for accomplishing such cure.

(b) The District shall determine (i) whether a failure to comply with a provision has occurred; (ii) whether such failure is excusable; and (iii) whether such failure has been cured or will be cured by the City. The City shall make available and deliver to the District, if requested, any records, documents or other information necessary to make the determination without charge.

(c) In the event that the District determines that such failure has not occurred, or that such failure either has been or will be cured in a manner and in accordance with a schedule reasonably

satisfactory to the District, or that such failure is excusable, such determination shall conclude the investigation.

(d) If the District determines that a failure to comply with a provision has occurred and that such failure is not excusable and has not been or will not be cured by the City in a manner and in accordance with a schedule reasonably satisfactory to the District, then the District may pursue the remedies provided in Section 9.04.

Section 9.04 Remedies.

(a) In the event of a determination by the City that the District has committed a material breach of this Agreement the City may, subject to the provisions of Section 9.02, file suit in a competent jurisdiction in Harris County, Texas, and seek either (1) specific performance, (ii) injunctive relief, (iii) an action under the Uniform Declaratory Judgment Act, or (iv) termination of this Agreement.

(b) In the event of a determination by the District that the City has committed a material breach of this Agreement, the District may, subject to the provisions of Section 9.03, file suit in a court of competent jurisdiction in Harris County, Texas, and seek (1) specific performance, (ii) injunctive relief, (iii) an action under the Uniform Declaratory Judgment Act, or (iv) termination of this Agreement. If the District terminates the Agreement, the City may, at its sole option, convey the City Facilities and Facilities previously conveyed by the District to the City back to the District, and the District shall thereafter operate, maintain, and repair same.

(c) Neither party shall be liable for any monetary damages of the other party for any reason whatsoever, including punitive damages, exemplary damages, consequential damages or attorneys' fees.

ARTICLE X
BINDING AGREEMENT, TERM, AND AMENDMENT

Section 10.01 Beneficiaries. This Agreement shall bind and inure to the benefit of the City and the District, their successors and assigns, including any additional districts created by division of the District.

Section 10.02 Term. This Agreement shall remain in effect until the earlier to occur of (i) the dissolution of the District by the City or (ii) the expiration of thirty (30) years from the date hereof.

Section 10.03 Termination. In the event this Agreement is terminated as provided in this Agreement or is terminated pursuant to other provisions, or is terminated by mutual agreement of the parties, the parties shall promptly execute and file of record, in the Real Property Records of Harris County, Texas, a document confirming the termination of this Agreement, and such other documents as may be appropriate to reflect the basis upon which such termination occurred.

Section 10.04 Amendment. This Agreement may be amended only upon written amendment executed by the parties affected by such amendment.

ARTICLE XI
MISCELLANEOUS PROVISIONS

Section 11.01 Notice. The parties contemplate that they will engage in informal communications with respect to the subject matter of this Agreement. However, any formal notices or other communications ("Notice") required to be given by one party to another by this Agreement shall be given in writing addressed to the party to be notified at the address set forth below for such party, (a) by delivering the same in person, (b) by depositing the same in the United States Mail, certified or registered, return receipt requested, postage prepaid, addressed to the party to be notified; (c) by depositing the same with FedEx or another nationally recognized courier service guaranteeing "next day delivery," addressed to the party to be notified, or (d) by sending the same by telefax with confirming copy sent by mail. Notice deposited in the United States mail in the manner herein above described shall be deemed effective from and after three (3) days after the date of such deposit. Notice given in any other manner shall be effective only if and when received by the party to be notified. For the purposes of notice, the addresses of the parties, until changed as provided below, shall be as follows:

City: City of La Porte
 604 W. Fairmont Parkway
 La Porte, Texas 77571
 Attn: City Secretary

With copy to: Mr. Clark Askins
 Askins & Askins
 702 W. Fairmont Parkway
 La Porte, Texas 77571

Developer: Beazer Homes Texas, L.P.
Attn: Mr. Jeff Anderson
10235 West Little York, Suite 200
Houston, TX 77040

District: Allen Boone Humphries Robinson LLP
Attn: Jim Boone
3200 Southwest Freeway, Suite 2600
Houston, Texas 77027

The parties shall have the right from time to time to change their respective addresses, and each shall have the right to specify as its address any other address within the United States of America by giving at least 5 days written notice to the other parties. If any date or any period provided in this Agreement ends on a Saturday, Sunday, or legal holiday, the applicable period for calculating the notice shall be extended to the first business day following such Saturday, Sunday or legal holiday.

Section 11.02 Severability by Court Action. Unless the court applies Section 11.03, if any provision of this Agreement or the application thereof to any person or circumstance is ever judicially declared invalid, such provision shall be deemed severed from this Agreement, and the remaining portions of this Agreement shall remain in effect.

Section 11.03 Invalid Provisions. If any provision of this Agreement or the application thereof to any person or circumstance is prohibited by or invalid under applicable law, it shall be deemed modified to conform with the minimum requirements of such law, or, if for any reason it is not deemed so modified, it shall be prohibited or invalid only to the extent of such prohibition or invalidity without the remainder thereof or any such other provision being prohibited or invalid.

Section 11.04 Waiver. Any failure by a party hereto to insist upon strict performance by the other party of any provision of this Agreement shall not be deemed a waiver thereof or of any other provision hereof, and such party shall have the right at any time thereafter to insist upon strict performance of any and all of the provisions of this Agreement.

Section 11.05 Applicable Law and Venue. The construction and validity of this Agreement shall be governed by the laws of the State of Texas without regard to conflicts of law principles. Venue shall be in Harris County, Texas.

Section 11.06 Reservation of Rights. To the extent not inconsistent with this Agreement, each party reserves all rights, privileges, and immunities under applicable laws, including sovereign immunity, except to enforce any rights and remedies under this Agreement.

Section 11.07 Further Documents. The parties agree that at any time after execution of this Agreement, they will, upon request of another party, execute and deliver such further documents

and do such further acts and things as the other party may reasonably request in order to effectuate the terms of this Agreement.

Section 11.08 Incorporation of Exhibits and Other Documents by Reference. All Exhibits and other documents attached to or referred to in this Agreement are incorporated herein by reference for the purposes set forth in this Agreement. Exhibit A to the Original Agreement is hereby deleted and replaced with **Exhibit A** attached hereto.

Section 11.9 Effect of State and Federal Laws. Notwithstanding any other provision of this Agreement, the District shall comply with all applicable statutes or regulations of the United States and the State of Texas, as well as any City ordinances to the extent not in conflict with this Agreement, and any rules implementing such statutes or regulations.

Section 11.10 Authority for Execution. The City hereby certifies, represents, and warrants that the execution of this Agreement is duly authorized and adopted in conformity with City ordinances. The District hereby certifies, represents, and warrants that the execution of this Agreement is duly authorized and adopted by the District's board of directors.

Section 11.11 Creation of the District. The rights, duties and obligations of the District hereunder shall be the rights, duties and obligations of Developer. Upon the creation of and confirmation of the District, the District shall automatically assume all rights, duties and obligations of Developer under this Agreement and Developer shall have no further liability under this Agreement, without any further action by the District, Developer, or the City being necessary.

Section 11.12 Force Majeure. In the event any party is rendered unable, wholly or in part, by force majeure to carry out any of its obligations under this Agreement, except the obligation to pay amounts owed or required to be paid pursuant to the terms of this Agreement, then the obligations of such party, to the extent affected by such force majeure and to the extent that due diligence is being used to resume performance at the earliest practicable time, shall be suspended during the continuance of any inability so caused to the extent provided but for no longer period. As soon as reasonably possible after the occurrence of the force majeure relied upon, the party whose contractual obligations are affected thereby shall give notice and full particulars of such force majeure to the other party. Such cause, as far as possible, shall be remedied with all reasonable diligence. The term "force majeure," as used herein, shall include without limitation of the generality thereof, acts of God, strikes, lockouts, or other industrial disturbances, acts of the public enemy, orders of any kind of the government of the United States or the State of Texas or any civil or military authority, insurrections, riots, epidemics, landslides, lightning, earthquakes, fires, hurricanes, storms, floods, washouts, drought, arrests, restraint of government, civil disturbances, explosions, breakage or accidents to machinery, pipelines or canals, partial or entire failure of water supply resulting in an inability to provide water necessary for operation of the water and wastewater systems hereunder, and any other incapacities of any party, whether similar to those enumerated or otherwise, which are not within the control of the party claiming such inability, which such party could not have avoided by the exercise of due diligence and care.

Section 11.13 Parties in Interest. This Agreement shall be for the sole and exclusive benefit of the parties hereto and shall not be construed to confer any rights upon any third parties.

Section 11.14 Merger. This Agreement embodies the entire understanding between the parties and there are no representations, warranties, or agreements between the parties covering the subject matter of this Agreement other than the Consent Ordinance between the City and the District. If any provisions of the Consent Ordinance appear to be inconsistent or in conflict with the provisions of this Agreement, then the provisions contained in this Agreement shall be interpreted in a way which is consistent with the Consent Ordinance.

Section 11.15 Modification. This Agreement shall be subject to change or modification only with the mutual written consent of the City and the District.

Section 11.16 Captions. The captions of each section of this Agreement are inserted solely for convenience and shall never be given effect in construing the duties, obligations or liabilities of the parties hereto or any provisions hereof, or in ascertaining the intent of either party, with respect to the provisions hereof.

Section 11.17 Interpretations. This Agreement and the terms and provisions hereof shall be liberally construed to effectuate the purposes set forth herein and to sustain the validity of this Agreement.

Section 11.18 Voter Trailer. The City agrees that a trailer may be located on the Tract to provide housing for voters in connection with the election to confirm the District, authorize bonds for the District, and elect the initial board of directors for the District; provided, however, that the trailer may not be located on the Tract for a period of time exceeding 8 months.

IN WITNESS WHEREOF, the parties hereto have executed this Agreement in multiple copies, each of equal dignity, as of the date first given above.

THE CITY OF LA PORTE, TEXAS

By: _____
Mayor

ATTEST:

By _____
City Secretary

(SEAL)

APPROVED AS TO FORM:

By: _____
City Attorney

THE STATE OF TEXAS §
 §
COUNTY OF HARRIS §

This instrument was acknowledged before me on the ____ day of _____, 2018, by _____, Mayor of the City of La Porte, Texas.

Notary Public, State of Texas

[Official Notary Stamp]

BEAZER HOMES TEXAS, L.P.,
a Delaware limited partnership

By: Beazer Homes Texas Holdings Inc.,
a Delaware corporation,
its general partner

By: _____

Name: _____

Title: _____

THE STATE OF TEXAS §
 §
COUNTY OF HARRIS §

This instrument was acknowledged before me, the undersigned authority, this ____ day of April, 2018, by _____, _____ of Beazer Homes Texas Holdings, Inc., a Delaware corporation, general partner of Beazer Homes Texas, L.P., a Delaware limited partnership, on behalf of said Delaware corporation and Delaware limited partnership.

Notary Public, State of Texas

[Official Notary Stamp]

Exhibits

A Legal Description of Tract

Exhibit A

EXHIBIT A

DESCRIPTION OF A TRACT OF LAND CONTAINING
234.650 ACRES (10,221,335 SQUARE FEET) SITUATED
IN THE RICHARD PEARSALL SURVEY, A-625 IN
HARRIS COUNTY, TEXAS

Being a tract of land containing 234.650 acres (10,221,335 square feet) situated in the Richard Pearsall Survey, A-625 in Harris County, Texas, and being out of a called 485.51426-acre tract conveyed unto PPG Industries, Inc., by deed recorded under County Clerk's File No. G484569 of the Official Public Records of Real Property of Harris County, Texas. Said 234.650 acre tract being more particularly described by metes and bounds as follows:

**Note: All bearings cited herein are Grid bearings, referenced to the Texas State Plane Coordinate System of 1983, South Central Zone No. 4204 (NAD83, 2011).*

BEGINNING at a found 5/8-inch iron rod with cap stamped "RPLS 5007" located at the intersection of the south property line of said 485.51426-acre tract with the west right-of-way line of Bay Area Boulevard (200-feet wide, as recorded under County Clerk's File No. G484569 and X626685, of the Official Public Records of Real Property of Harris County, Texas), for the northeast corner of a called 3.659-acre tract conveyed unto Ambrose Joseph Smith, III, by deed recorded under County Clerk's File No. 20110443002 of the Official Public Records of Real Property of Harris County, Texas, and for the southeast corner of said tract herein described;

THENCE South 86°55'34" West with the south line of said 485.51426-acre tract, with the north line of said 3.659-acre tract, with the north line of a called 2.5497-acre tract conveyed unto Elizabethtown Properties, LLC, by deed recorded under County Clerk's File No. 20090584848 of the Official Public Records of Real Property of Harris County, Texas, with the north line of a called 2.323-acre tract conveyed unto Stanwood Interests, LP, by deed recorded under County Clerk's File No. R922416 of the Official Public Records of Real Property of Harris County, Texas, with the north line of a called 4.000-acre tract (Tract 2) conveyed unto CCC Group, Inc., by deed recorded under County Clerk's File No. U723491 of the Official Public Records of Real Property of Harris County, Texas, with the north line of a called 10.37-acre tract conveyed unto Green Bishop Holdings, LLC, by deed recorded under County Clerk's File No. T183215 of the Official Public Records of Real Property of Harris County, Texas, with the north line of the remainder of a called 12.20-acre tract (Tract 1) conveyed unto CCC Group, Inc., by deed recorded under County Clerk's File No. U723491 of the Official Public Records of Real Property of Harris County, Texas, with the north line of a called 1.744-acre tract conveyed unto Jason R. Morman, by deed recorded under County Clerk's File No. T815823 of the Official Public Records of Real Property of Harris County, Texas, with the north line of a called 4.255-acre tract conveyed unto Jim M. Morman, et al, by deed recorded under County Clerk's File No. T815824 of the Official Public Records of Real Property of Harris County, Texas, a distance of 2,724.54 feet to a found 1/2-inch iron rod in the east property line of a called 5.927-acre tract conveyed unto C.M. Millstid Properties, LLC, by deed recorded under County Clerk's File No. 20140496527 of the Official Public Records of Real Property of Harris County, Texas, for corner on the south line of said tract herein described;

THENCE North 03° 06' 13" West with the east property line of said 5.927-acre tract, a distance of 389.16 feet to a 1/2-inch iron rod found for the northeast corner of said 5.927-acre tract, and for an interior corner of said tract herein described;

THENCE South 87° 05' 32" West with the north property line of said 5.927-acre tract, a distance of 389.52 feet to a found 3/4-inch iron rod for the northwest corner of said 5.927-acre tract, in the west line of said 485.51426-acre tract, in the east right-of-way line of a 200-foot wide Exxon Pipeline Company, Inc., pipeline corridor, recorded under Volume 5310, Page 582 of the Deed Records of Harris County, Texas, and for the westernmost south corner of said tract herein described;

THENCE North 03° 11' 46" West with the west property line of said 485.51426-acre tract and the east right-of-way line of said pipeline corridor, a distance of 2,834.19 feet to a set 5/8-inch iron rod with plastic cap stamped "Cobb, Fendley & Associates" for corner, from which a found 1/2-inch iron rod (disturbed) bears North 61° 59' East, a distance of 0.85 feet;

THENCE North 86° 52' 57" East with the north property line of said 485.51426-acre tract and the south line of a called 2.347-acre tract conveyed unto WBI-MC Properties, Inc., by deed recorded under County Clerk's File No. 20140412351 of the Official Public Records of Real Property of Harris County, Texas, at a distance of 61.05 feet pass a found 5/8-inch iron rod with orange cap stamped "G.B.I. PARTNERS", and continuing for a total distance of 389.58 feet to a found 5/8-inch iron rod with orange cap stamped "PREJEAN & CO 4925", for the southeast corner of said 2.347-acre tract, and for an interior corner of said 485.51426-acre tract;

THENCE North 02° 49' 53" West with a westerly property line of said 485.51426-acre tract and the east property line of said 2.347-acre tract, a distance of 323.90 feet to a set 5/8-inch iron rod with plastic cap stamped "Cobb, Fendley & Associates" for corner for the northernmost west corner of said 485.51426-acre tract, from which a found railroad spike in asphalt bears South 88° 08' West, a distance of 2.78 feet;

THENCE North 86° 53' 30" East with the south line of a 60-foot wide Public Road and Utility right-of-way (recorded under County Clerk's File No. F395945 of the Official Public Records of Real Property of Harris County, Texas) and the north property line of said 485.51426-acre tract, a distance of 59.98 feet to a found 5/8-inch iron rod with orange cap stamped "PREJEAN & CO 4925" for an angle point in the north property line of said 485.51426-acre tract;

THENCE North 86° 57' 10" East with the north property line of said 485.51426-acre tract, with the south right-of-way line of said 60-foot wide Public Road and Utility right-of-way, and with the south property line of a 3.2320-acre tract conveyed unto Bruce Meisner & Dennis McClung, by deed recorded under County Clerk's File No. W980075 of the Official Public Records of Real Property of Harris County, Texas, a distance of 2,260.61 feet to a set 5/8-inch iron rod with plastic cap stamped "Cobb, Fendley & Associates" for an interior corner of said 485.51426-acre tract, from which a found 5/8-inch iron rod (disturbed) bears North 45° 51' West, a distance of 1.82 feet;

THENCE North 02° 37' 10" West with an interior property line of said 485.51426-acre tract and the east property line of said 3.2320-acre tract, a distance of 158.30 feet to a point for corner, from which a found 1/2-inch iron rod bears South 86° 29' West, a distance of 0.31 feet;

THENCE North 86° 31' 59" East with the north property line of said 485.51426-acre tract, the south property line of a called 8.069-acre tract conveyed unto Shell Federal Credit Union, by deed recorded under County Clerk's File No. Y501711 of the Official Public Records of Real Property of Harris County, Texas, and the south property line of a tract of land conveyed unto La Porte Properties Partnership, by deed recorded under County Clerk's File No. J860208 of the Official Public Records of Real Property of Harris County, Texas, a distance of 586.33 feet to a set 5/8-inch iron rod with plastic cap stamped "Cobb, Fendley & Associates" in the west right-of-way line of said Bay Area Boulevard, for the northeast corner of said tract herein described, from which a found 1/2-inch iron rod (disturbed) bears South 00° 54' West, a distance of 0.21 feet;

THENCE in a southerly direction with the west right-of-way line of said Bay Area Boulevard, the following courses and distances:

1. Southerly direction with a curve to the right, whose radius is 1,297.50 feet, a central angle of 30° 40' 34" (chord bears South 12° 12' 29" West, a distance of 686.41 feet) for an arc length of 694.68 feet to a found 5/8-inch iron rod with orange cap stamped "PREJEAN & CO 4925";
2. South 27° 30' 06" West, a distance of 397.99 feet to a found 5/8-inch iron rod with orange cap stamped "PREJEAN & CO 4925";
3. Southerly direction with a curve to the right, whose radius is 1,567.18 feet, a central angle of 47° 20' 47" (chord bears South 03° 45' 37" West, a distance of 1,258.51 feet) for an arc length of 1,295.04 feet to a found 5/8-inch iron rod with orange cap stamped "PREJEAN & CO 4925";
4. South 19° 54' 47" East, a distance of 1,006.97 feet to a found 5/8-inch iron rod (disturbed) with orange cap stamped "PREJEAN & CO 4925";

THENCE continuing with the west right-of-way line of said Bay Area Boulevard, with a curve to the right, whose radius is 1,488.80 feet, a central angle of 19° 10' 11" (chord bears South 10° 19' 41" East, a distance of 495.79 feet) for an arc length of 498.11 feet to the **POINT OF BEGINNING** and containing 234.650 acres (10,221,335 square feet) of land, more or less.

Notes:

1. Square footage area shown is for information only and surveyor does not certify accuracy of survey to nearest square foot.

2. This metes and bounds description is referenced to a survey drawing prepared by Cobb, Fendley & Associates, Inc. dated December 7, 2017 and Revised December 21, 2017, titled "SURVEY OF A 234.650 ACRE TRACT OF LAND SITUATED IN THE RICHARD PEARSALL SURVEY, ABSTRACT NO. 625 HARRIS COUNTY, TEXAS".

Cobb, Fendley & Associates, Inc.
TBPLS Firm Registration No. 100467
13430 Northwest Freeway, Suite 1100
Houston, Texas 77040
Phone: (713) 462-3242

Job No. 1710-009-01-01
Revised: December 21, 2017
Original Date: December 7, 2017



A handwritten signature in cursive script that reads "Blaine Fisher".

AMENDED AND RESTATED UTILITY AGREEMENT

THIS AMENDED AND RESTATED UTILITY AGREEMENT (this "Agreement") is made and entered into as of April 9, 2018, by THE CITY OF LA PORTE, TEXAS (the "City"), a home rule municipality in Harris County, Texas, acting by and through its governing body the City Council of La Porte Texas; and BEAZER HOMES TEXAS, L.P., a Delaware limited partnership ("Developer") on behalf of proposed Harris County Municipal Utility District No. 561.

RECITALS

The City and Developer entered into a Utility Agreement dated December 11, 2017 (the "Original Agreement"), when Developer was under contract to purchase approximately 234.686 acres of land in Harris County, Texas, as described therein (the "Original Acreage").

Developer desires to develop a quality master-planned single-family and multi-family residential community with senior living facilities and supporting commercial uses within the Tract. The Tract is located within the corporate boundaries of the City.

Developer intends to create Harris County Municipal Utility District No. 561 (the "District") within the City's corporate limits for the purposes of, among other matters, providing water distribution, wastewater collection, and storm sewer and drainage, recreational and road facilities to serve development occurring within the District. The District will contain the Tract.

The City is a municipal corporation and is operating under the home rule municipality laws of the State of Texas. The City has the power under the laws of the State of Texas to acquire, own, and operate a water and sanitary sewer system and works and improvements necessary for the drainage of the lands in the City. The City also has the authority to contract with a district organized under the authority of Article XVI, Section 59, of the Constitution of Texas, whereby the District will acquire or construct for the City (i) water distribution systems and sanitary sewer collection to connect to the City's water supply or treatment systems and (ii) improvements necessary for the drainage of lands in the City.

The City and Developer on behalf of the District may enter into an agreement under the terms of which the District will acquire for the benefit of and conveyance to the City the water distribution, wastewater collection, and storm sewer facilities needed to serve lands being developed within the boundaries of the District.

The City and Developer have determined that they are authorized by the Constitution and laws of the State of Texas to enter into this Agreement and have further determined that the terms, provisions, and conditions hereof are mutually fair and advantageous to each.

After acquisition of the Original Acreage, the survey was updated and provides for a slight revision in the metes and bounds description and the total acreage. The updated metes and bounds

description reflects approximately 234.650 acres of land in Harris County, Texas, and is described by metes and bounds in **Exhibit A** attached hereto (the "Tract"). The City and Developer desire to amend the Original Agreement to delete Exhibit A in the Original Agreement and replace it with **Exhibit A** attached hereto.

AGREEMENT

For and in consideration of these premises and of the mutual promises, obligations, covenants, and benefits herein contained, the City and Developer on behalf of the District contract and agree as follows:

ARTICLE I DEFINITIONS

The capitalized terms and phrases used in this Agreement shall have the meanings as follows:

"Approved Plans" means plans and specifications approved in accordance with Section 3.01.

"Approving Bodies" means any or all of the following entities, as appropriate in a particular context: the City; Harris County, Texas; the TCEQ; the Attorney General of Texas; the Comptroller of Public Accounts of Texas; the United States Department of Justice; and all other federal, state, and local governmental authorities having regulatory jurisdiction and authority over the financing of the Facilities, the construction of the Facilities, or the subject matter of this Agreement.

"Bonds" means the District's bonds, notes, or other evidences of indebtedness issued from time to time for the purpose of purchasing, constructing, acquiring, operating, repairing, improving, or extending the Facilities, and for such other purposes permitted or provided by state law, whether payable from ad valorem taxes, the proceeds of one or more future bond issues, or otherwise, and including any bonds, notes, or similar obligations issued to refund such bonds.

"City" means the City of La Porte, Texas.

"City Facilities" means and includes the water distribution, wastewater collection, and drainage systems (but not including detention systems), recreational facilities within road rights-of-way, including trails and sidewalks, and road facilities constructed or acquired or to be constructed or acquired by the District to serve lands within and near its boundaries, and all improvements, appurtenances, additions, extensions, enlargements, or betterments thereto, including any pro rata interest or share in such facilities, together with all contract rights, permits, licenses, properties, rights-of-way, easements, sites, and other interests related thereto.

“Consent Ordinance” means the ordinance adopted by the City evidencing the City's consent to the inclusion of land within the District in accordance with Texas Water Code Section 54.016, as amended.

“Construction Costs” means costs associated with any particular construction project under the terms of this Agreement, including, but not limited to, costs of construction, acquisition, and installation; engineering fees and expenses; costs of advertising; costs of acquiring necessary licenses, permits, waste control orders, discharge permits or amendments thereto; fiscal, legal, and administrative costs; material-testing costs; site, easement, and permit costs; and all other costs and expenses directly relating to the foregoing, together with an amount for contingencies on estimated Construction Costs of fifteen percent (15%) of the foregoing, provided that no contingency amount shall be included in "Construction Costs" regarding a particular construction project once that project is complete.

“Developer” means Beazer Homes Texas, L.P.

“District” means Harris County Municipal Utility District No. 561, a body politic and corporate and a political subdivision of the State of Texas organized under the provisions of Article XVI, Section 59 of the Texas Constitution. Any references herein to District shall mean Developer; provided that upon assignment of this Agreement by Developer to the District pursuant to Section 11.11 below, any references herein to the District shall mean the District.

“District Assets” means (i) all rights, title, and interests of the District in and to the Facilities, (ii) any Bonds of the District which are authorized but have not been issued by the District, (iii) all rights and powers of the District under any agreements or commitments with any persons or entities pertaining to the financing, construction, or operation of all or any portion of the Facilities and/or the operations of the District, (iv) all cash and investments, and amounts owed to the District, and (v) all books, records, files, documents, permits, funds, and other materials or property of the District.

“District Engineer” means any engineering firm as the District may engage from time to time.

“District Obligations” means (i) all outstanding Bonds of the District, (ii) all other debts, liabilities, and obligations of the District to or for the benefit of any persons or entities relating to the financing, construction, or operation of all or any portion of the Facilities or the operations of the District, and (iii) all functions performed and services rendered by the District for and to the owners of property within the District and the customers of the services provided from the Facilities.

“Facilities” means and includes the water distribution, wastewater collection, and drainage and detention systems, recreational facilities outside of a City road right-of-way, and road facilities constructed or acquired or to be constructed or acquired by the District to serve lands within and near its boundaries, and all improvements, appurtenances, additions, extensions, enlargements, or betterments thereto, including any pro rata interest or share in such facilities, together with all

contract rights, permits, licenses, properties, rights-of-way, easements, sites, and other interests related thereto.

“Financing and Reimbursement Agreement” means the District's agreement, if any, as defined in Section 4.04.

“State” means the State of Texas.

“TCEQ” means the Texas Commission on Environmental Quality, or any successor or successors exercising any of its duties and functions related to water conservation and reclamation districts.

ARTICLE II REPRESENTATIONS

Section 2.01 Representations of the City. The City hereby represents to Developer that:

(a) This Agreement has been duly authorized, executed and delivered by the City and, constitutes a legal, valid and binding obligation of the City, enforceable in accordance with its terms.

(b) The execution, delivery and performance of this Agreement by the City does not require the consent or approval of any Person which has not been obtained.

Section 2.02 Representations of Developer. Developer hereby represents to the City that:

(a) It is duly authorized, created and existing under the laws of the State of Texas, is qualified to do business in the State of Texas and is duly qualified to do business wherever necessary to carry on the operations contemplated by this Agreement.

(b) It has the power, authority and legal right to enter into and perform its obligations set forth in this Agreement, and the execution, delivery and performance hereof (i) have been duly authorized, will not, to the best of its knowledge, violate any judgment, order, law or regulation applicable to it or any provisions of its articles of incorporation and by-laws, and (ii) do not constitute a default under, or result in the creation of any lien, charge, encumbrance or security interest upon any of its assets under, any agreement or instrument to which it is a party or by which it or its assets may be bound or affected.

(c) It has sufficient capital to perform its obligations under this Agreement.

(d) This Agreement has been duly authorized, executed and delivered and constitutes a legal, valid and binding obligation of such entity, enforceable in accordance with its terms.

(e) With respect to Developer only, the petition for the creation of a municipal utility district and the petition for consent to the creation of a municipal utility district that have been previously submitted to the City have been duly authorized, executed and delivered.

(f) The execution, delivery and performance of this Agreement by it does not require the consent or approval of any Person which has not been obtained.

ARTICLE III DESIGN AND CONSTRUCTION OF THE FACILITIES

Section 3.01 Design. The Facilities shall be designed by the District Engineer in accordance with sound engineering principles and in compliance with all applicable requirements of the Approving Bodies. The plans and specifications for the Facilities shall be subject to review and approval by the City, the District, and the Approving Bodies with jurisdiction (the "Approved Plans"). The District shall not make any changes to the Approved Plans without the approval of the City. The City shall not require that the Facilities be designed to requirements more stringent than the City's requirements applicable to the design of similar facilities outside the District but within the City's jurisdiction. The District shall design the Facilities in such phases or stages as the District and/or Developer from time to time, in their sole discretion, may determine to be necessary and economically feasible.

Section 3.02 Construction. When the District determines, in its sole discretion, that it is necessary and economically feasible to construct the Facilities, the District shall proceed to award a construction contract for the Facilities based upon the Approved Plans. The Facilities shall be installed, construction contracts shall be awarded, and payment and performance bonds obtained all in accordance with the general law for municipal utility districts and in full compliance with the applicable requirements of the Approving Bodies. In addition to any other construction contract provisions, any construction contract for the Facilities shall include the contractor's one (1) year warranty of work performed under the contract. The District shall file all required documents with the TCEQ.

Section 3.03 Acceptance of Facilities. Upon completion of the Facilities, the District shall order the District Engineer to certify that the Facilities have been completed in substantial compliance with the Approved Plans, and the District shall certify that all bills and sums of money due in connection with the construction and installation of the Facilities have been fully paid and that the Facilities are free of any and all liens and claims, all according to the certification of the construction contractor. The District shall require the District Engineer to provide three (3) copies of construction drawings of the Facilities to the District. The District shall accept the construction of the Facilities in writing from the construction contractor. The District shall then convey the City Facilities to the City in accordance with the City's procedure for acceptance of such facilities in areas outside the District and within the City and the provisions of Article IV below.

Section 3.04 Permits, Fees, and Inspections. The District understands and agrees that all City ordinances and codes, including applicable permits, fees, and inspections, shall be of full force and effect within its boundaries the same as to other areas within the City's corporate limits; provided, however, that no permits, permit fees, or inspection fees shall be required for the Facilities to be conveyed to the City.

ARTICLE IV
FINANCING OF THE FACILITIES

Section 4.01 Authority of District to Issue Bonds. The District shall have authority to issue, sell, and deliver Bonds from time to time, as deemed necessary and appropriate by the Board of Directors of the District, for the purposes, in such forms and manner, and as permitted or provided by federal law, the general laws of the State of Texas, and the Consent Ordinance; provided, however, that such authority to issue, sell, and deliver Bonds will be limited to Bonds issued, sold, and delivered for the purpose of reimbursing Developer or any other developers within the District for the purposes described in Exhibit B of the Consent Ordinance and for the repair and rehabilitation of Facilities to be owned and maintained by the District.

Section 4.02 Distribution of Bond Proceeds. The proceeds of Bonds issued by the District shall be used and may be invested or reinvested, from time to time, as provided in the order or orders of the District authorizing the issuance, sale, and delivery of such Bonds and in accordance with the federal, state, and local laws and regulations governing the proceeds of the District's sale of its Bonds.

Section 4.03 Bonds as Obligation of District. Unless and until the City shall dissolve the District and assume the District Assets and District Obligations, the Bonds of the District, as to both principal and interest, shall be and remain obligations solely of the District and shall never be deemed or construed to be obligations or indebtedness of the City.

Section 4.04 Financing by Third Parties. From time to time, the District may enter into one or more agreements (the "Financing and Reimbursement Agreement") with Developer or other landowners of property located within the District whereby Developer or such landowners will construct the Facilities on behalf of the District or advance funds to or on behalf of the District for the acquisition and construction of the Facilities. The construction of any Facilities financed under the terms of a Financing and Reimbursement Agreement shall be subject to all the terms and conditions of this Agreement. Each Financing and Reimbursement Agreement will provide for the District's reimbursement of the person or entity advancing funds for the Facilities (i) from the proceeds of the District's sale of its Bonds, subject to all the terms and conditions of such Financing and Reimbursement Agreement, including, among other conditions, the approval of the TCEQ of the sale of the Bonds and the use of sale proceeds for such purpose; and/or (ii) from District funds lawfully available for such purpose.

ARTICLE V
OWNERSHIP, OPERATION, AND MAINTENANCE OF FACILITIES

Section 5.01 Conveyance of Facilities. As the City Facilities are constructed and accepted in accordance with Article II and the City Facilities are conveyed to the City under this Article V, the construction contractor's one (1) year warranty of its work shall be assigned to the City, as required under Section 3.02 above.

Section 5.02 City Acceptance. As the Facilities are constructed and completed, representatives of the City shall inspect the same and, if the City finds that the City Facilities have been completed in substantial compliance with the approved plans and specifications, the City will accept the conveyance of the City Facilities, and the City Facilities so conveyed shall be operated, maintained, and repaired by the City at its sole expense as provided in this Agreement. The City shall accept ownership of the City Facilities under this Section 5.02 in accordance with the City's procedure for acceptance of such facilities in areas outside the District and within the City. If the City Facilities have not been completed in substantial compliance with the approved plans and specifications, the City will immediately advise in what manner the City Facilities do not comply so that the problems may immediately be corrected; whereupon the City shall again inspect the City Facilities and accept the same if the non-complying items have been corrected. In conjunction with the City's acceptance of the City Facilities, the City shall be provided with one (1) set of the construction drawings for such City Facilities.

Section 5.03 Operation of the Facilities by the City. Upon the acceptance of the City Facilities by the City, the City will operate the City Facilities and provide services from the City Facilities to users within the District without discrimination. The City shall at all times maintain the City Facilities, or cause the same to be maintained, in good condition and working order and will operate the same, or cause the same to be operated, in an efficient and economical manner at a reasonable cost and in accordance with sound business principles, and the City will comply with all the terms and conditions of this Agreement and with all applicable federal, state, and local laws and regulations.

(a) The City shall provide competent, trained personnel, licensed or certified as necessary by the appropriate regulatory authority, to operate, inspect, maintain, and repair the City Facilities. The City shall implement a scheduled maintenance program for the City Facilities and shall ensure that the City Facilities are maintained in the same fashion and with the same frequency as similar facilities owned and operated by the City to serve areas outside the District.

(b) The City shall maintain all customer information and records necessary to provide monthly billings to customers served by the City Facilities. The City shall respond to inquiries or correspondence from governmental or regulatory authorities and the District's directors, customers, or consultants.

Section 5.04 Rates and Conditions of Service. The connection of improvements to the water and sanitary sewer City Facilities shall be made in the same manner, by the same procedures, and for the same charges, if any, per City policy for other water and wastewater connections. Water and wastewater customers within the District shall pay rates and charges for such services to the City, on the same basis and conditions as the City provides such services to similar City customers who do not receive services from the Facilities. The equivalent number of single family residences attributable to any particular connection shall be computed in accordance with the service unit factors determined by the City in its sole discretion, provided that the City shall always apply the same service unit factors within the District as it applies to other areas within the City. The City shall bill and collect charges from the customers of the City Facilities, calculated in accordance with this Section 5.04, in the same manner and under the same procedures as it bills and collects from other customers of the City that are not served by the City Facilities.

Section 5.05 Repair of the Facilities. After its acceptance of the City Facilities, the City shall provide all personnel and equipment necessary to perform repairs on, and shall bear sole cost responsibility for repair of, the City Facilities, including, but not limited to, service line leaks, leaks at water meters, water main breaks, repairs to valves and fire hydrants, manhole repairs, and sanitary sewer line repair and cleaning, as needed. The City shall not, however, bear cost or responsibility for initial repair of any equipment or facilities identified by the City as in need of correction prior to the City's acceptance of the City Facilities under Section 5.02 above. The cost of all materials and supplies used to operate, maintain, and repair the Facilities shall be borne solely by the City.

ARTICLE VI
CITY PLANT CAPACITY

Section 6.01 Water Supply and Distribution Facilities. The City shall provide the District with its ultimate requirements for water supply and distribution capacities. The number and location of the points of connection between the City's water distribution system and the Facilities shall be mutually agreed upon by the District and the City. The City acknowledges its obligation to provide water supply and distribution capacities for the actual requirements of the development within the District's boundaries. Any water supply and distribution capacities so required by the District shall be reserved and allocated by the City exclusively to serve the property within the District and the City shall not use such capacities to serve any other property. The City shall at all times manage the capacities in its water supply and distribution facilities so that capacity to serve development within the District is available at the time such improvements are to be connected to the Facilities. To enable the City to effectively manage its water system capacities in compliance with the City's obligation under this Section 6.01, the District shall provide to the City, by December 31 of each year during the term of this Agreement, a written projection of the new improvements within the District expected to be connected to the Facilities within the coming year, and such other related information as the City may reasonably require. The City confirms that 1,200 equivalent single-family connections of excess water supply are available to serve the Tract and will remain available to serve the Tract so long as development of the Tract commences within 3 years of the date of this Agreement and is complete within 15 years of the date of this Agreement.

Notwithstanding any other provision of this Agreement or any act of the City, the District shall not be guaranteed any specific quantity or pressure of water whenever the City's water supply is limited or when the City's equipment or facilities may become inoperative due to emergencies, equipment installation, repairs, modifications, replacements, inspections, breakdown or maintenance; and the City is in no case to be held to any liability for failure to furnish any specific amount or pressure of water under such circumstances. In case of a shortage of water resulting from drought, the water to be distributed by the City among those entitled to receive water from the City, including the District, shall be divided in accordance with Texas Water Code, Section 11.039.

Section 6.02 Wastewater Collection and Treatment Facilities. The number and location of the points of connection between the City's wastewater collection system and the Facilities shall be mutually agreed upon by the District and the City. The City acknowledges its obligation to provide wastewater collection and treatment capacities for the actual requirements of the development within the District's boundaries. Any wastewater collection and treatment capacities so required by the District shall be reserved and allocated by the City exclusively to serve the property within the District and the City shall not use such capacities to serve any other property. The City shall at all times manage the capacities in its wastewater collection and treatment facilities so that capacity to serve development within the District is available at the time such improvements are to be connected to the Facilities. To enable the City to effectively manage its wastewater system capacities in compliance with the City's obligation under this Section 6.02, the District shall provide the City no less than annually a written projection of the new improvements within the District expected to be connected to the Facilities within the coming year, and such other related information as the City may reasonably require. The City confirms that 1,200 equivalent single-family connections of excess wastewater treatment are available to serve the Tract and will remain available to serve the Tract so long as development of the Tract commences within 3 years of the date of this Agreement and is complete within 15 years of the date of this Agreement.

Section 6.03 Letter of Capacity Assurance; Assignability. The City agrees that the City shall, upon reasonable request from the District, issue a letter of assurance to the owner of platted property within the District confirming water and wastewater utility availability for such platted property, based upon the standard City criteria published by the City regarding the calculation of water and wastewater requirements for various types of improvements.

ARTICLE VII
DISTRICT AND OVERLAPPING TAXES

Section 7.01 Overlapping Taxes. The City agrees that no portion of City taxes to be derived from the taxpayers of the District will be used to finance elsewhere in the City services the District proposes to provide, and the City and the District agree that no portion of City taxes to be derived from the taxpayers of the District are required to be rebated to the District.

Section 7.02 District Taxes. The District is authorized to assess, levy, and collect ad valorem taxes upon all taxable properties within the District to provide for (i) the payment in full of the District Obligations, including principal, redemption premium, if any, or interest on the Bonds and to establish and maintain any interest and sinking fund, debt service fund, or reserve fund and (ii) for maintenance purposes, all in accordance with applicable law. The parties agree that nothing herein shall be deemed or construed to prohibit, limit, restrict, or otherwise inhibit the District's authority to levy ad valorem taxes as the Board of Directors of the District from time to time in its sole discretion may determine to be necessary for the Facilities consistent with the consent conditions in the Consent Ordinance. The City and the District recognize and agree that all ad valorem tax receipts and revenues collected by the District shall become the property of the District and may be applied by the District to the payment of all proper debts, obligations, costs, and expenses of the District and may be pledged or assigned to the payment of all or any designated portion of the principal or redemption premium, if any, or interest on the Bonds or otherwise in accordance with applicable law.

ARTICLE VIII
DISSOLUTION OF THE DISTRICT

Section 8.01 Dissolution of District. The City and District recognize and agree that the City may, pursuant to the procedures and provisions and subject to the limitations set forth in the laws of the State of Texas including, but not limited to, Section 43.074, Texas Local Government Code, abolish and dissolve the District and assume the District Assets and District Obligations upon a vote of not less than two-thirds (2/3) of the entire membership of the City Council to adopt an ordinance to such effect, if the City Council finds: (a) that the District is no longer needed, (b) that the services and functions performed by the District can be served and performed by the City, and (c) that it would be in the best interests of the citizens and property within the District and the City that the District be abolished. In order to ensure that the property owners and inhabitants of the City and the District are afforded sufficient time and opportunity to realize the benefits and public utility to be derived from the creation and operation of the District and the financing, construction and implementation of the plan of improvements for the District, and in order to contribute to the financial stability and feasibility of the District by ensuring a sufficient longevity of the District's existence to permit the District to reach a satisfactory level of financial maturity, the City agrees that the District shall not be abolished until such time as the District is fully developed and has sold all Bonds necessary to finance the costs of the Facilities and has reimbursed Developer and any other landowners within the District

in accordance with the Financing and Reimbursement Agreements previously entered into by the District.

Section 8.02 Transition upon Dissolution. In the event all required findings and procedures for the dissolution of the District have been duly, properly, and finally made and satisfied by the City, and unless otherwise mutually agreed by the City and the District pursuant to then existing law, the District agrees that its officers, agents, and representatives shall be directed to cooperate with the City in any and all respects reasonably necessary to facilitate the dissolution of the District and the transfer of the District Assets to and the assumption of the District Obligations by the City.

ARTICLE IX
MATERIAL BREACH, NOTICE AND REMEDIES

Section 9.01 Material Breach of Agreement.

(a) The parties acknowledge and agree that any substantial deviation by the District from the material terms of this Agreement would frustrate the intent of this Agreement and, therefore, would be a material breach of this Agreement. By way of example, a substantial deviation from the material terms of this Agreement by the District would be the failure of the District to obtain approval from the City prior to annexing an additional property into the District as provided for herein.

(b) The parties acknowledge and agree that any substantial deviation by the City from the material terms of this Agreement would frustrate the intent of this Agreement and, therefore, would be a material breach of this Agreement. By way of example, a substantial deviation from the material terms of this Agreement would be an attempt by the City to dissolve the District other than as provided for herein.

(c) In the event that a party to this Agreement believes that another party has, by act or omission, committed a material breach of this Agreement, the provisions of this Article IX shall provide the sole remedies for such default, unless otherwise specifically provided herein.

Section 9.02 Notice of District's Default.

(a) The City shall notify the District in writing of an alleged failure by the District to comply with a provision of this Agreement, which notice shall specify the alleged failure with reasonable particularity. The District shall, within thirty (30) days after receipt of such notice or such longer period of time as the City may specify in such notice, either cure such alleged failure or, in a written response to the City, either present facts and arguments in refutation or excuse of such alleged failure or state that such alleged failure will be cured and set forth the method and time schedule for accomplishing such cure.

(b) The City shall determine (i) whether a failure to comply with a provision has occurred; (ii) whether such failure is excusable; and (iii) whether such failure has been cured or will be cured by the District. The District shall make available and deliver to the City, if requested, any records, documents or other information necessary to make the determination without charge.

(c) In the event that the City determines that such failure has not occurred, or that such failure either has been or will be cured in a manner and in accordance with a schedule reasonably satisfactory to the City, or that such failure is excusable, such determination shall conclude the investigation.

(d) If the City determines that a failure to comply with a provision has occurred and that such failure is not excusable and has not been or will not be cured by the District in a manner and in accordance with a schedule reasonably satisfactory to the City, then the City may pursue the remedies provided in Section 9.04.

Section 9.03 Notice of City's Default.

(a) The District shall notify the City in writing of an alleged failure by the City to comply with a provision of this Agreement, which notice shall specify the alleged failure with reasonable particularity. The City shall, within 30 days after receipt of such notice or such longer period of time as the District may specify in such notice, either cure such alleged failure or, in a written response to the District, either present facts and arguments in refutation or excuse of such alleged failure or state that such alleged failure will be cured and set forth the method and time schedule for accomplishing such cure.

(b) The District shall determine (i) whether a failure to comply with a provision has occurred; (ii) whether such failure is excusable; and (iii) whether such failure has been cured or will be cured by the City. The City shall make available and deliver to the District, if requested, any records, documents or other information necessary to make the determination without charge.

(c) In the event that the District determines that such failure has not occurred, or that such failure either has been or will be cured in a manner and in accordance with a schedule reasonably

satisfactory to the District, or that such failure is excusable, such determination shall conclude the investigation.

(d) If the District determines that a failure to comply with a provision has occurred and that such failure is not excusable and has not been or will not be cured by the City in a manner and in accordance with a schedule reasonably satisfactory to the District, then the District may pursue the remedies provided in Section 9.04.

Section 9.04 Remedies.

(a) In the event of a determination by the City that the District has committed a material breach of this Agreement the City may, subject to the provisions of Section 9.02, file suit in a competent jurisdiction in Harris County, Texas, and seek either (1) specific performance, (ii) injunctive relief, (iii) an action under the Uniform Declaratory Judgment Act, or (iv) termination of this Agreement.

(b) In the event of a determination by the District that the City has committed a material breach of this Agreement, the District may, subject to the provisions of Section 9.03, file suit in a court of competent jurisdiction in Harris County, Texas, and seek (1) specific performance, (ii) injunctive relief, (iii) an action under the Uniform Declaratory Judgment Act, or (iv) termination of this Agreement. If the District terminates the Agreement, the City may, at its sole option, convey the City Facilities and Facilities previously conveyed by the District to the City back to the District, and the District shall thereafter operate, maintain, and repair same.

(c) Neither party shall be liable for any monetary damages of the other party for any reason whatsoever, including punitive damages, exemplary damages, consequential damages or attorneys' fees.

ARTICLE X
BINDING AGREEMENT, TERM, AND AMENDMENT

Section 10.01 Beneficiaries. This Agreement shall bind and inure to the benefit of the City and the District, their successors and assigns, including any additional districts created by division of the District.

Section 10.02 Term. This Agreement shall remain in effect until the earlier to occur of (i) the dissolution of the District by the City or (ii) the expiration of thirty (30) years from the date hereof.

Section 10.03 Termination. In the event this Agreement is terminated as provided in this Agreement or is terminated pursuant to other provisions, or is terminated by mutual agreement of the parties, the parties shall promptly execute and file of record, in the Real Property Records of Harris County, Texas, a document confirming the termination of this Agreement, and such other documents as may be appropriate to reflect the basis upon which such termination occurred.

Section 10.04 Amendment. This Agreement may be amended only upon written amendment executed by the parties affected by such amendment.

ARTICLE XI
MISCELLANEOUS PROVISIONS

Section 11.01 Notice. The parties contemplate that they will engage in informal communications with respect to the subject matter of this Agreement. However, any formal notices or other communications ("Notice") required to be given by one party to another by this Agreement shall be given in writing addressed to the party to be notified at the address set forth below for such party, (a) by delivering the same in person, (b) by depositing the same in the United States Mail, certified or registered, return receipt requested, postage prepaid, addressed to the party to be notified; (c) by depositing the same with FedEx or another nationally recognized courier service guaranteeing "next day delivery," addressed to the party to be notified, or (d) by sending the same by telefax with confirming copy sent by mail. Notice deposited in the United States mail in the manner herein above described shall be deemed effective from and after three (3) days after the date of such deposit. Notice given in any other manner shall be effective only if and when received by the party to be notified. For the purposes of notice, the addresses of the parties, until changed as provided below, shall be as follows:

City: City of La Porte
 604 W. Fairmont Parkway
 La Porte, Texas 77571
 Attn: City Secretary

With copy to: Mr. Clark Askins
 Askins & Askins
 702 W. Fairmont Parkway
 La Porte, Texas 77571

Developer: Beazer Homes Texas, L.P.
Attn: Mr. Jeff Anderson
10235 West Little York, Suite 200
Houston, TX 77040

District: Allen Boone Humphries Robinson LLP
Attn: Jim Boone
3200 Southwest Freeway, Suite 2600
Houston, Texas 77027

The parties shall have the right from time to time to change their respective addresses, and each shall have the right to specify as its address any other address within the United States of America by giving at least 5 days written notice to the other parties. If any date or any period provided in this Agreement ends on a Saturday, Sunday, or legal holiday, the applicable period for calculating the notice shall be extended to the first business day following such Saturday, Sunday or legal holiday.

Section 11.02 Severability by Court Action. Unless the court applies Section 11.03, if any provision of this Agreement or the application thereof to any person or circumstance is ever judicially declared invalid, such provision shall be deemed severed from this Agreement, and the remaining portions of this Agreement shall remain in effect.

Section 11.03 Invalid Provisions. If any provision of this Agreement or the application thereof to any person or circumstance is prohibited by or invalid under applicable law, it shall be deemed modified to conform with the minimum requirements of such law, or, if for any reason it is not deemed so modified, it shall be prohibited or invalid only to the extent of such prohibition or invalidity without the remainder thereof or any such other provision being prohibited or invalid.

Section 11.04 Waiver. Any failure by a party hereto to insist upon strict performance by the other party of any provision of this Agreement shall not be deemed a waiver thereof or of any other provision hereof, and such party shall have the right at any time thereafter to insist upon strict performance of any and all of the provisions of this Agreement.

Section 11.05 Applicable Law and Venue. The construction and validity of this Agreement shall be governed by the laws of the State of Texas without regard to conflicts of law principles. Venue shall be in Harris County, Texas.

Section 11.06 Reservation of Rights. To the extent not inconsistent with this Agreement, each party reserves all rights, privileges, and immunities under applicable laws, including sovereign immunity, except to enforce any rights and remedies under this Agreement.

Section 11.07 Further Documents. The parties agree that at any time after execution of this Agreement, they will, upon request of another party, execute and deliver such further documents

and do such further acts and things as the other party may reasonably request in order to effectuate the terms of this Agreement.

Section 11.08 Incorporation of Exhibits and Other Documents by Reference. All Exhibits and other documents attached to or referred to in this Agreement are incorporated herein by reference for the purposes set forth in this Agreement. Exhibit A to the Original Agreement is hereby deleted and replaced with **Exhibit A** attached hereto.

Section 11.9 Effect of State and Federal Laws. Notwithstanding any other provision of this Agreement, the District shall comply with all applicable statutes or regulations of the United States and the State of Texas, as well as any City ordinances to the extent not in conflict with this Agreement, and any rules implementing such statutes or regulations.

Section 11.10 Authority for Execution. The City hereby certifies, represents, and warrants that the execution of this Agreement is duly authorized and adopted in conformity with City ordinances. The District hereby certifies, represents, and warrants that the execution of this Agreement is duly authorized and adopted by the District's board of directors.

Section 11.11 Creation of the District. The rights, duties and obligations of the District hereunder shall be the rights, duties and obligations of Developer. Upon the creation of and confirmation of the District, the District shall automatically assume all rights, duties and obligations of Developer under this Agreement and Developer shall have no further liability under this Agreement, without any further action by the District, Developer, or the City being necessary.

Section 11.12 Force Majeure. In the event any party is rendered unable, wholly or in part, by force majeure to carry out any of its obligations under this Agreement, except the obligation to pay amounts owed or required to be paid pursuant to the terms of this Agreement, then the obligations of such party, to the extent affected by such force majeure and to the extent that due diligence is being used to resume performance at the earliest practicable time, shall be suspended during the continuance of any inability so caused to the extent provided but for no longer period. As soon as reasonably possible after the occurrence of the force majeure relied upon, the party whose contractual obligations are affected thereby shall give notice and full particulars of such force majeure to the other party. Such cause, as far as possible, shall be remedied with all reasonable diligence. The term "force majeure," as used herein, shall include without limitation of the generality thereof, acts of God, strikes, lockouts, or other industrial disturbances, acts of the public enemy, orders of any kind of the government of the United States or the State of Texas or any civil or military authority, insurrections, riots, epidemics, landslides, lightning, earthquakes, fires, hurricanes, storms, floods, washouts, drought, arrests, restraint of government, civil disturbances, explosions, breakage or accidents to machinery, pipelines or canals, partial or entire failure of water supply resulting in an inability to provide water necessary for operation of the water and wastewater systems hereunder, and any other incapacities of any party, whether similar to those enumerated or otherwise, which are not within the control of the party claiming such inability, which such party could not have avoided by the exercise of due diligence and care.

Section 11.13 Parties in Interest. This Agreement shall be for the sole and exclusive benefit of the parties hereto and shall not be construed to confer any rights upon any third parties.

Section 11.14 Merger. This Agreement embodies the entire understanding between the parties and there are no representations, warranties, or agreements between the parties covering the subject matter of this Agreement other than the Consent Ordinance between the City and the District. If any provisions of the Consent Ordinance appear to be inconsistent or in conflict with the provisions of this Agreement, then the provisions contained in this Agreement shall be interpreted in a way which is consistent with the Consent Ordinance.

Section 11.15 Modification. This Agreement shall be subject to change or modification only with the mutual written consent of the City and the District.

Section 11.16 Captions. The captions of each section of this Agreement are inserted solely for convenience and shall never be given effect in construing the duties, obligations or liabilities of the parties hereto or any provisions hereof, or in ascertaining the intent of either party, with respect to the provisions hereof.

Section 11.17 Interpretations. This Agreement and the terms and provisions hereof shall be liberally construed to effectuate the purposes set forth herein and to sustain the validity of this Agreement.

Section 11.18 Voter Trailer. The City agrees that a trailer may be located on the Tract to provide housing for voters in connection with the election to confirm the District, authorize bonds for the District, and elect the initial board of directors for the District; provided, however, that the trailer may not be located on the Tract for a period of time exceeding 8 months.

IN WITNESS WHEREOF, the parties hereto have executed this Agreement in multiple copies, each of equal dignity, as of the date first given above.

THE CITY OF LA PORTE, TEXAS

By: _____
Mayor

ATTEST:

By _____
City Secretary

(SEAL)

APPROVED AS TO FORM:

By: _____
City Attorney

THE STATE OF TEXAS §
 §
COUNTY OF HARRIS §

This instrument was acknowledged before me on the ____ day of _____, 2018, by _____, Mayor of the City of La Porte, Texas.

Notary Public, State of Texas

[Official Notary Stamp]

BEAZER HOMES TEXAS, L.P.,
a Delaware limited partnership

By: Beazer Homes Texas Holdings Inc.,
a Delaware corporation,
its general partner

By: _____

Name: _____

Title: _____

THE STATE OF TEXAS §
 §
COUNTY OF HARRIS §

This instrument was acknowledged before me, the undersigned authority, this ____ day of April, 2018, by _____, _____ of Beazer Homes Texas Holdings, Inc., a Delaware corporation, general partner of Beazer Homes Texas, L.P., a Delaware limited partnership, on behalf of said Delaware corporation and Delaware limited partnership.

Notary Public, State of Texas

[Official Notary Stamp]

Exhibits

A Legal Description of Tract

Exhibit A

EXHIBIT A

DESCRIPTION OF A TRACT OF LAND CONTAINING
234.650 ACRES (10,221,335 SQUARE FEET) SITUATED
IN THE RICHARD PEARSALL SURVEY, A-625 IN
HARRIS COUNTY, TEXAS

Being a tract of land containing 234.650 acres (10,221,335 square feet) situated in the Richard Pearsall Survey, A-625 in Harris County, Texas, and being out of a called 485.51426-acre tract conveyed unto PPG Industries, Inc., by deed recorded under County Clerk's File No. G484569 of the Official Public Records of Real Property of Harris County, Texas. Said 234.650 acre tract being more particularly described by metes and bounds as follows:

**Note: All bearings cited herein are Grid bearings, referenced to the Texas State Plane Coordinate System of 1983, South Central Zone No. 4204 (NAD83, 2011).*

BEGINNING at a found 5/8-inch iron rod with cap stamped "RPLS 5007" located at the intersection of the south property line of said 485.51426-acre tract with the west right-of-way line of Bay Area Boulevard (200-feet wide, as recorded under County Clerk's File No. G484569 and X626685, of the Official Public Records of Real Property of Harris County, Texas), for the northeast corner of a called 3.659-acre tract conveyed unto Ambrose Joseph Smith, III, by deed recorded under County Clerk's File No. 20110443002 of the Official Public Records of Real Property of Harris County, Texas, and for the southeast corner of said tract herein described;

THENCE South 86°55'34" West with the south line of said 485.51426-acre tract, with the north line of said 3.659-acre tract, with the north line of a called 2.5497-acre tract conveyed unto Elizabethtown Properties, LLC, by deed recorded under County Clerk's File No. 20090584848 of the Official Public Records of Real Property of Harris County, Texas, with the north line of a called 2.323-acre tract conveyed unto Stanwood Interests, LP, by deed recorded under County Clerk's File No. R922416 of the Official Public Records of Real Property of Harris County, Texas, with the north line of a called 4.000-acre tract (Tract 2) conveyed unto CCC Group, Inc., by deed recorded under County Clerk's File No. U723491 of the Official Public Records of Real Property of Harris County, Texas, with the north line of a called 10.37-acre tract conveyed unto Green Bishop Holdings, LLC, by deed recorded under County Clerk's File No. T183215 of the Official Public Records of Real Property of Harris County, Texas, with the north line of the remainder of a called 12.20-acre tract (Tract 1) conveyed unto CCC Group, Inc., by deed recorded under County Clerk's File No. U723491 of the Official Public Records of Real Property of Harris County, Texas, with the north line of a called 1.744-acre tract conveyed unto Jason R. Morman, by deed recorded under County Clerk's File No. T815823 of the Official Public Records of Real Property of Harris County, Texas, with the north line of a called 4.255-acre tract conveyed unto Jim M. Morman, et al, by deed recorded under County Clerk's File No. T815824 of the Official Public Records of Real Property of Harris County, Texas, a distance of 2,724.54 feet to a found 1/2-inch iron rod in the east property line of a called 5.927-acre tract conveyed unto C.M. Millstid Properties, LLC, by deed recorded under County Clerk's File No. 20140496527 of the Official Public Records of Real Property of Harris County, Texas, for corner on the south line of said tract herein described;

THENCE North 03° 06' 13" West with the east property line of said 5.927-acre tract, a distance of 389.16 feet to a 1/2-inch iron rod found for the northeast corner of said 5.927-acre tract, and for an interior corner of said tract herein described;

THENCE South 87° 05' 32" West with the north property line of said 5.927-acre tract, a distance of 389.52 feet to a found 3/4-inch iron rod for the northwest corner of said 5.927-acre tract, in the west line of said 485.51426-acre tract, in the east right-of-way line of a 200-foot wide Exxon Pipeline Company, Inc., pipeline corridor, recorded under Volume 5310, Page 582 of the Deed Records of Harris County, Texas, and for the westernmost south corner of said tract herein described;

THENCE North 03° 11' 46" West with the west property line of said 485.51426-acre tract and the east right-of-way line of said pipeline corridor, a distance of 2,834.19 feet to a set 5/8-inch iron rod with plastic cap stamped "Cobb, Fendley & Associates" for corner, from which a found 1/2-inch iron rod (disturbed) bears North 61° 59' East, a distance of 0.85 feet;

THENCE North 86° 52' 57" East with the north property line of said 485.51426-acre tract and the south line of a called 2.347-acre tract conveyed unto WBI-MC Properties, Inc., by deed recorded under County Clerk's File No. 20140412351 of the Official Public Records of Real Property of Harris County, Texas, at a distance of 61.05 feet pass a found 5/8-inch iron rod with orange cap stamped "G.B.I. PARTNERS", and continuing for a total distance of 389.58 feet to a found 5/8-inch iron rod with orange cap stamped "PREJEAN & CO 4925", for the southeast corner of said 2.347-acre tract, and for an interior corner of said 485.51426-acre tract;

THENCE North 02° 49' 53" West with a westerly property line of said 485.51426-acre tract and the east property line of said 2.347-acre tract, a distance of 323.90 feet to a set 5/8-inch iron rod with plastic cap stamped "Cobb, Fendley & Associates" for corner for the northernmost west corner of said 485.51426-acre tract, from which a found railroad spike in asphalt bears South 88° 08' West, a distance of 2.78 feet;

THENCE North 86° 53' 30" East with the south line of a 60-foot wide Public Road and Utility right-of-way (recorded under County Clerk's File No. F395945 of the Official Public Records of Real Property of Harris County, Texas) and the north property line of said 485.51426-acre tract, a distance of 59.98 feet to a found 5/8-inch iron rod with orange cap stamped "PREJEAN & CO 4925" for an angle point in the north property line of said 485.51426-acre tract;

THENCE North 86° 57' 10" East with the north property line of said 485.51426-acre tract, with the south right-of-way line of said 60-foot wide Public Road and Utility right-of-way, and with the south property line of a 3.2320-acre tract conveyed unto Bruce Meisner & Dennis McClung, by deed recorded under County Clerk's File No. W980075 of the Official Public Records of Real Property of Harris County, Texas, a distance of 2,260.61 feet to a set 5/8-inch iron rod with plastic cap stamped "Cobb, Fendley & Associates" for an interior corner of said 485.51426-acre tract, from which a found 5/8-inch iron rod (disturbed) bears North 45° 51' West, a distance of 1.82 feet;

THENCE North $02^{\circ} 37' 10''$ West with an interior property line of said 485.51426-acre tract and the east property line of said 3.2320-acre tract, a distance of 158.30 feet to a point for corner, from which a found 1/2-inch iron rod bears South $86^{\circ} 29'$ West, a distance of 0.31 feet;

THENCE North $86^{\circ} 31' 59''$ East with the north property line of said 485.51426-acre tract, the south property line of a called 8.069-acre tract conveyed unto Shell Federal Credit Union, by deed recorded under County Clerk's File No. Y501711 of the Official Public Records of Real Property of Harris County, Texas, and the south property line of a tract of land conveyed unto La Porte Properties Partnership, by deed recorded under County Clerk's File No. J860208 of the Official Public Records of Real Property of Harris County, Texas, a distance of 586.33 feet to a set 5/8-inch iron rod with plastic cap stamped "Cobb, Fendley & Associates" in the west right-of-way line of said Bay Area Boulevard, for the northeast corner of said tract herein described, from which a found 1/2-inch iron rod (disturbed) bears South $00^{\circ} 54'$ West, a distance of 0.21 feet;

THENCE in a southerly direction with the west right-of-way line of said Bay Area Boulevard, the following courses and distances:

1. Southerly direction with a curve to the right, whose radius is 1,297.50 feet, a central angle of $30^{\circ} 40' 34''$ (chord bears South $12^{\circ} 12' 29''$ West, a distance of 686.41 feet) for an arc length of 694.68 feet to a found 5/8-inch iron rod with orange cap stamped "PREJEAN & CO 4925";
2. South $27^{\circ} 30' 06''$ West, a distance of 397.99 feet to a found 5/8-inch iron rod with orange cap stamped "PREJEAN & CO 4925";
3. Southerly direction with a curve to the right, whose radius is 1,567.18 feet, a central angle of $47^{\circ} 20' 47''$ (chord bears South $03^{\circ} 45' 37''$ West, a distance of 1,258.51 feet) for an arc length of 1,295.04 feet to a found 5/8-inch iron rod with orange cap stamped "PREJEAN & CO 4925";
4. South $19^{\circ} 54' 47''$ East, a distance of 1,006.97 feet to a found 5/8-inch iron rod (disturbed) with orange cap stamped "PREJEAN & CO 4925";

THENCE continuing with the west right-of-way line of said Bay Area Boulevard, with a curve to the right, whose radius is 1,488.80 feet, a central angle of 19° 10' 11" (chord bears South 10° 19' 41" East, a distance of 495.79 feet) for an arc length of 498.11 feet to the **POINT OF BEGINNING** and containing 234.650 acres (10,221,335 square feet) of land, more or less.

Notes:

1. Square footage area shown is for information only and surveyor does not certify accuracy of survey to nearest square foot.

2. This metes and bounds description is referenced to a survey drawing prepared by Cobb, Fendley & Associates, Inc. dated December 7, 2017 and Revised December 21, 2017, titled "SURVEY OF A 234.650 ACRE TRACT OF LAND SITUATED IN THE RICHARD PEARSALL SURVEY, ABSTRACT NO. 625 HARRIS COUNTY, TEXAS".

Cobb, Fendley & Associates, Inc.
TBPLS Firm Registration No. 100467
13430 Northwest Freeway, Suite 1100
Houston, Texas 77040
Phone: (713) 462-3242

Job No. 1710-009-01-01
Revised: December 21, 2017
Original Date: December 7, 2017



A handwritten signature in cursive script that reads "Blaine Fisher".

NOTICE OF CONFIDENTIALITY RIGHTS: IF YOU ARE A NATURAL PERSON, YOU MAY REMOVE OR STRIKE ANY OR ALL OF THE FOLLOWING INFORMATION FROM ANY INSTRUMENT BEFORE IT IS FILED FOR RECORD IN THE PUBLIC RECORDS: YOUR SOCIAL SECURITY NUMBER OR YOUR DRIVER'S LICENSE NUMBER.

SPECIAL WARRANTY DEED

THE STATE OF TEXAS §
 § KNOW ALL PERSONS BY THESE PRESENTS:
COUNTY OF HARRIS §

THAT **PPG INDUSTRIES, INC.**, a Pennsylvania corporation ("Grantor"), for and in consideration of the sum of TEN AND NO/100 DOLLARS (\$10.00) and other good and valuable consideration to Grantor in hand paid by **BEAZER HOMES, TEXAS, LP**, a Delaware limited partnership ("Grantee"), whose mailing address is 10235 West Little York, Suite 200 Houston, Texas 77040, the receipt and sufficiency of which consideration is hereby acknowledged and confessed, subject to all of the matters set forth or referred to herein, has GRANTED, SOLD, AND CONVEYED, and by these presents does GRANT, SELL, AND CONVEY, unto Grantee all of the real property located in La Porte, Harris County, Texas and described in **Exhibit A** attached hereto (the "Land"), together with: (i) all easements, rights, privileges and appurtenances relating thereto, and any abutting strips or gores; (ii) Seller's right, title and interest, if any, in and to any land lying in the bed of any street, road or avenue, open or proposed, in front of or adjoining the Land to the center line thereof; (iii) all water rights appurtenant to the Land; and (iv) all appurtenant easements for parking, ingress and egress and utilities (hereinafter collectively referred to as the "Appurtenances"). The Land and the Appurtenances are collectively referred to herein as the "Property". Notwithstanding the foregoing, Grantor hereby reserves for itself all of Grantor's right, title and interest in and to all of the oil, gas and other minerals in, on, under or which may be produced from the Land; provided however, Grantor hereby releases and waives, on behalf of itself and its successors and assigns, all right of ingress and egress to enter upon the surface of the Land for purposes of exploring for, developing, drilling, producing, transporting, mining, treating, storing, or any other purposes incident to the development or production of the oil, gas and other minerals reserved to Grantor; however, such waiver and release shall not prevent Grantor, or its successors and assigns, from developing or producing said oil, gas and other minerals in, on and under the Land by pooling, by directional drilling under the Land from well sites located on tracts other than the Land (provided that any such directional drilling under the Land will be at least 500 feet below the surface of the Land), or otherwise so long as Grantor does not physically enter upon the surface.

This Special Warranty Deed is made by Grantor and accepted by Grantee subject to all the things or matters set forth on **Exhibit B** attached hereto and made a part hereof for all purposes and to any unrecorded easements or rights of way which are visually apparent on the Property, to the extent that the same are applicable and validly exists with respect to the Property.

TO HAVE AND TO HOLD the Property, together with all and singular the rights and

RP-2017-544919

appurtenances thereto in any wise belonging unto Grantee and Grantee's successors and assigns, forever; and, subject to all of the matters set forth or referred to herein, Grantor does hereby bind Grantor and Grantor's successors and assigns to WARRANT and FOREVER DEFEND all and singular the Property unto Grantee and Grantee's successors and assigns, against every person whomsoever lawfully claiming or to claim the same, or any part thereof, by, through, or under Grantor, but not otherwise.

The Property is being conveyed by Grantor to Grantee on an **"AS IS, WHERE IS" BASIS ONLY, WITHOUT REPRESENTATIONS OR WARRANTIES, EXPRESS OR IMPLIED, OR DISCLOSURES REQUIRED BY LAW, ALL OF WHICH BEING HEREBY WAIVED, AS TO THE CONDITION, FITNESS, MERCHANTABILITY OR HABITABILITY THEREOF OR AS TO USE FOR A PARTICULAR PURPOSE OR COMPLIANCE WITH ANY LOCAL, STATE OR FEDERAL ORDINANCES, REGULATIONS, STATUTES OR OTHER LAWS, INCLUDING, WITHOUT LIMITATION, ENVIRONMENTAL LAWS (AS DEFINED IN THE AGREEMENT) AND REGULATIONS OR RESTRICTIVE COVENANTS (EXCEPT AS PROVIDED HEREIN).** Grantee is relying solely upon its inspections of the Property prior to the date hereof, including, without limitation, the condition of the surface and subsurface and is not relying on any representations by Grantor (except as provided herein). Grantor will have no liability to Grantee hereafter with respect to the condition of the Property (except as provided herein) and **GRANTEE WAIVES ANY AND ALL CLAIMS OR CAUSES OF ACTION AGAINST GRANTOR** arising therefrom in the future.

Grantor assumes payment of ad valorem taxes.

[Remainder of Page Intentionally Left Blank. Signature Page to Follow.]

EXECUTED effective as of the 12 day of December, 2017.

GRANTOR:

PPG INDUSTRIES, INC., a
Pennsylvania corporation

By: *Michael H. McGarry*
Name: Michael H. McGarry
Title: Chairman and Chief Executive Officer

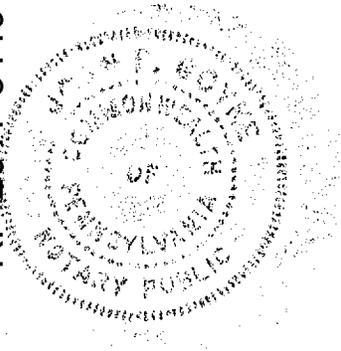
COMMONWEALTH OF PENNSYLVANIA §
 §
COUNTY OF ALLEGHENY §

This instrument was acknowledged before me on this the 7 day of December, 2017, by Michael H. McGarry, Chairman and Chief Executive Officer of PPG Industries, Inc., a Pennsylvania corporation, on behalf of such corporation.

Joan E. Goyke
Notary Public in and for
Commonwealth of Pennsylvania

COMMONWEALTH OF PENNSYLVANIA
NOTARIAL SEAL
Joan E. Goyke, Notary Public
City of Pittsburgh, Allegheny County
My Commission Expires June 15, 2020
MEMBER, PENNSYLVANIA ASSOCIATION OF NOTARIES

RP-2017-544919



ACKNOWLEDGED AND ACCEPTED:

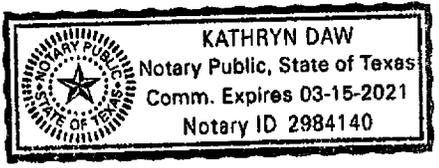
BEAZER HOMES, TEXAS, LP,
a Delaware limited partnership

By: Beazer Homes Texas Holdings, Inc.,
Its General Partner


 By: _____
 Name: _____
 Title: _____
BEAZER HOMES TEXAS, L.P.
 By: Beazer Homes Texas Holdings, Inc.,
 Its General Partner
Bruce Craig, Division President - Houston

THE STATE OF TEXAS §
 §
COUNTY OF _____ §

This instrument was acknowledged before me on December 11, 2017 by Bruce Craig, Div. President, of Beazer Homes Texas Holdings, Inc., General Partner of BEAZER HOMES TEXAS, L.P., a Delaware limited partnership, on behalf of said limited partnership.



Kathryn Daw
Notary Public, State of Texas

After Recording, Return to:
Chicago Title Insurance Company
712 Main Street, Suite 2000E
Houston, Texas 77002
Attention: Reno Hartfiel
GF No. 3711000447

RP-2017-544919

Exhibit A
Legal Description

All that certain 234.6733 acres of land being out of the Richard Pearsall Survey, A-625, City of LaPorte, Harris County, Texas and being out of a called 485.5142 acre tract of land described in a deed dated 03-28-1980 from Fairmont, Ltd. to PPG Industries, Inc. filed in the Official Public Records of Harris County, Texas in Clerk's File No.G-484569, Film Code No.154-90-9155 and being more particularly described by metes and bounds as follows:

COMMENCING at a found 5/8" iron rod located on the north right-of-way line of Fairmont Parkway (width varies) and the west right-of-way line of Bay Area Boulevard (150' wide), THENCE N 01 06' 39" W - 505.35', with said west right-of-way line to a found 5/8" iron rod marking the POINT OF BEGINNING of the herein described tract;

THENCE S 86 55' 54" W - 2,723.74', with the most westerly south line of said 485.5142 acre tract to a found 5/8" iron rod with cap for corner;

THENCE N 03 11' 51" W - 389.45', with the east line of that certain called 3.3780 acre tract described in a deed to PV International Inc. recorded under Harris County Clerk's File No. 20070377740 to a found 5/8" iron rod with cap for corner;

THENCE S 86 59' 23" W - 389.57', with the north line of said 3.3780 acre tract to a found 5/8" iron rod with cap for corner;

THENCE N 03 11' 59" W - 2,833.97', with the west line of said 485.5142 acre tract to a found 5/8" iron rod with cap for corner;

THENCE N 86 52' 56" E - 389.66', with the south line of that certain called 2.35 acre tract described in a deed to New Life Christian Fellowship of La Porte recorded under Harris County Clerk's File No. U217429 to a set 5/8" iron rod with cap for corner;

THENCE N 02 50' 41" W - 323.90', with the east line of said 2.35 acre tract to a found 5/8" iron rod for corner;

THENCE N 86 52' 42" E - 59.98', with the north line of said 485.5142 acre tract to a set 5/8" iron rod with cap for angle point;

THENCE N 86 54' 57" E - 2,259.29', with said north line to a found 5/8" iron rod for corner;

THENCE N 02 12' 33" W - 157.02', with the east line of that certain called 3.2320 acre tract described in a deed to Bruce Melsmer and Dennis McClung recorded under Harris County Clerk's File No. W980075 to a found 5/8" iron rod for corner;

THENCE N 86 33' 25" E - 586.69', with the south line of that certain called 8.0688 acre tract described in a deed to Shell Federal Credit Union recorded under Harris County Clerk File No. Y501711 to a found 5/8" iron rod with and being the start of a curve to the right having a central angle of 30 28' 52", a radius of 1,305.00', a chord bearing of S 12 14' 26" W, a chord distance of 686.09';

THENCE with said curve to the right and with said west right-of-way line of Bay Area Boulevard an arc distance of 694.25' to a set 5/8" iron rod with cap for the end of curve;

THENCE S 27 26' 12" W - 397.88', with said west right-of-way line to a set 5/8" iron rod with cap and being the start of a curve to the left having a central angle of 47 20' 40", a radius of 1,567.18', a chord bearing of S 03 45' 52" W, a chord distance of 1,258.46';

THENCE with said curve to the left and with said west right-of-way line of Bay Area Boulevard an arc distance of 1,294.99' to a set 5/8" iron rod with cap;

THENCE S 19 54' 29" E - 1,006.88', with said west right-of-way line to a found 5/8" Iron rod with cap and being the start of a curve to the right having a central angle of 19 10' 05", a radius of 1,488.80', a chord bearing of S 10 19' 30" E, a chord distance of 495.75';

THENCE with said curve to the right and with said west right-of-way line of Bay Area Boulevard an arc distance of 498.07' to the POINT OF BEGINNING and containing 234.6733 acres of land, more or less.

RP-2017-544919

Exhibit B
Permitted Exceptions

1. Easement for pipeline purposes granted to Shell Pipeline Corporation by instrument recorded in Volume 1272, Page 188 of the Deed Records of Harris County, Texas, as shown on survey dated June 26, 2017, last revised December 5, 2017, prepared by N.M. Mathis, R.P.L.S. No. 4517, of Prejean & Company, Inc., Job No. 325-2 (the "Survey").
2. Easement for pipeline purposes Fifty (50) feet in width as granted to the United States of America (now held by Texas Eastern Transmission Corporation) as evidenced by instrument recorded in Volume 1544, Page 470 of the Deed Records of Harris County, Texas as to Tract 6A & Tract 8 as defined therein, as shown on the Survey.
3. Easement for pipeline purposes Twenty (20) feet in width as granted to Gulf Refining Company and Gulf Oil Corporation by instrument recorded in Volume 2329, Page 48 of the Deed Records of Harris County, Texas, as shown on the Survey.
4. Easements for public utility purposes Ten (10) and Twenty (20) feet in width granted to the City of La Porte, as evidenced by instrument recorded under Harris County Clerk's File No. E639031, as shown on the Survey.
5. Big Three Industries, Inc. pipe line easement 5 feet in width as set forth and defined in instrument dated March 29, 1983 filed for record under Harris County Clerk's File No. J731901, as shown on the Survey.
6. A 1/8th non-participating royalty interest in and to all the oil, gas and other minerals in, on, under or that may be produced from subject property reserved by W. D. Mayes, et al., as set forth in instrument recorded in Volume 3052, Page 263 of the Deed Records of Harris County, Texas. Title to said interest not checked subsequent to date of aforesaid instrument.
7. A 1/8th non-participating royalty interest in and to all the oil, gas and other minerals in, on, under or that may be produced from subject property reserved by James E. Stewart in instrument recorded in Volume 3131, Page 350 of the Deed Records of Harris County, Texas. Title to said interest not checked subsequent to date of aforesaid instrument.
8. An undivided 1/16 non-participating mineral royalty interest reserved by Joseph Alexander Morris and Charles Ray Morris in instrument recorded in Volume 8076, Page 11 of the Deed Records (D145552) of Harris County, Texas. Title to said interest not checked subsequent to date of aforesaid instrument.
9. All leases, grants, exceptions or reservations of coal, lignite, oil, gas and other minerals, together with all rights, privileges, and immunities relating thereto, appearing in the Public Records.

10. A sanitary sewer and waterline easement granted to the City of La Porte containing 1.3403 acres, more or less, as set forth in instrument recorded under Harris County Clerk's File No. X626686 and being more particularly described by metes and bounds attached thereto, as shown on the Survey.
11. Easement Agreement for Access by and between PPG Industries, Inc. (Grantor) and Jonny Steeland, and wife, Bonnie Steeland (Grantee) recorded under Harris County Clerk's File No. RP-2016-554119, as shown on the Survey.
12. Tax and Platting Agreement – LaPorte, dated effective January 22, 2013, by and between PPG Industries, Inc., a Pennsylvania corporation, and Eagle US 2, LLC, a Delaware limited liability company.
13. Emergency Assistance Compact, by and between City of La Porte, Texas, PPG Industries, Inc., a Pennsylvania corporation, and Robert Grant Sexton.
14. Lease, dated effective as of February 28, 2015, as amended on June 1, 2017, by and between PPG Industries, Inc., a Pennsylvania corporation, and Robert Grant Sexton.

RP-2017-544919

Exhibit B
Permitted Exceptions

1. Easement for pipeline purposes granted to Shell Pipeline Corporation by instrument recorded in Volume 1272, Page 188 of the Deed Records of Harris County, Texas, as shown on survey dated June 26, 2017, last revised December 5, 2017, prepared by N.M. Mathis, R.P.L.S. No. 4517, of Prejean & Company, Inc., Job No. 325-2 (the "Survey").
2. Easement for pipeline purposes Fifty (50) feet in width as granted to the United States of America (now held by Texas Eastern Transmission Corporation) as evidenced by instrument recorded in Volume 1544, Page 470 of the Deed Records of Harris County, Texas as to Tract 6A & Tract 8 as defined therein, as shown on the Survey.
3. Easement for pipeline purposes Twenty (20) feet in width as granted to Gulf Refining Company and Gulf Oil Corporation by instrument recorded in Volume 2329, Page 48 of the Deed Records of Harris County, Texas, as shown on the Survey.
4. Easements for public utility purposes Ten (10) and Twenty (20) feet in width granted to the City of La Porte, as evidenced by instrument recorded under Harris County Clerk's File No. E639031, as shown on the Survey.
5. Big Three Industries, Inc. pipe line easement 5 feet in width as set forth and defined in instrument dated March 29, 1983 filed for record under Harris County Clerk's File No. J731901, as shown on the Survey.
6. A 1/8th non-participating royalty interest in and to all the oil, gas and other minerals in, on, under or that may be produced from subject property reserved by W. D. Mayes, et al., as set forth in instrument recorded in Volume 3052, Page 263 of the Deed Records of Harris County, Texas. Title to said interest not checked subsequent to date of aforesaid instrument.
7. A 1/8th non-participating royalty interest in and to all the oil, gas and other minerals in, on, under or that may be produced from subject property reserved by James E. Stewart in instrument recorded in Volume 3131, Page 350 of the Deed Records of Harris County, Texas. Title to said interest not checked subsequent to date of aforesaid instrument.
8. An undivided 1/16 non-participating mineral royalty interest reserved by Joseph Alexander Morris and Charles Ray Morris in instrument recorded in Volume 8076, Page 11 of the Deed Records (D145552) of Harris County, Texas. Title to said interest not checked subsequent to date of aforesaid instrument.
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RP-2017-544919

RP-2017-544919
Pages 11
12/12/2017 01:32 PM
e-Filed & e-Recorded in the
Official Public Records of
HARRIS COUNTY
STAN STANART
COUNTY CLERK
Fees \$52.00

RECORDERS MEMORANDUM

This instrument was received and recorded electronically and any blackouts, additions or changes were present at the time the instrument was filed and recorded.

Any provision herein which restricts the sale, rental, or use of the described real property because of color or race is invalid and unenforceable under federal law.
THE STATE OF TEXAS
COUNTY OF HARRIS

I hereby certify that this instrument was FILED in File Number Sequence on the date and at the time stamped hereon by me; and was duly RECORDED in the Official Public Records of Real Property of Harris County, Texas.



Stan Stanart

COUNTY CLERK
HARRIS COUNTY, TEXAS

RP-2017-544919

REQUEST FOR CITY COUNCIL AGENDA ITEM

Agenda Date Requested: <u>April 23, 2018</u>
Requested By: <u>Don Pennell</u>
Department: <u>Public Works</u>
Report: _____ Resolution: _____ Ordinance: _____

<u>Budget</u>	
Source of Funds:	<u>015, 051</u>
Account Number:	<u>033-7071-531-1100</u> <u>051-7071-531-1100</u>
Amount Budgeted:	033 \$100,000 <u>051 \$1,110,000</u>
Amount Requested:	<u>\$135,835</u>
Budgeted Item:	<u>YES</u> /NO

Exhibit: Coupland Drainage Analysis

Exhibit: Harris County Preliminary Drainage Approval

Exhibit: HDR Inc. Design Proposal

SUMMARY & RECOMMENDATION

The Fiscal Years 2016 and 2017 budgets include an allocation for the design and construction of Coupland Drive improvements. The drainage analysis and drainage improvement approval by Harris County was completed during 2016 and 2017. Design and construction were delayed for progress on the Lomax Lift Station Consolidation Project to align with the Coupland Drive project. This will allow for survey, utility verification, design, and drainage construction coordination along North L Street to be managed at the same time with a cost reduction for the Coupland Drive project.

Through the Request for Qualifications RFQ 17602 for Professional Engineering Services for the Lomax Area Lift Station Consolidation Project HDR Inc. was awarded the design contract for the project at the November 13, 2017 Council meeting. Staff requested a proposal from HDR Inc. for design, bid and construction phase services for the Coupland Drive Improvements project. The price proposal submitted by HDR Inc. (attached) total is \$135,835.00.

Benefits:

The project will address a low rated concrete street identified in the 2017 comprehensive street inspection report. The project will address drainage and flooding concerns of the residents. The design and construction phases of the Coupland and Lomax Lift Station Consolidation projects can be managed and coordinated through one design firm.

Liabilities:

Deferring the project construction would add to future year maintenance responsibilities unless substituted with a like project. Drainage and flooding problems will continue.

Operating Costs:

Slight decrease in operating costs.

Staff recommends awarding the contract for design, bidding and construction phase services for Coupland Drive Improvements to HDR Inc.

Action Required by Council:

Consider approval or other action to authorize the City Manager to enter into a professional services contract with HDR Inc. for the design, bidding, and construction phase services for the Coupland Drive Improvements in the amount of \$135,835.00.

Approved for City Council Agenda

Corby D. Alexander, City Manager Date

CITY OF LA PORTE

(CobbFendley Project No. 1612-024-01)



COUPLAND DRIVE PAVING AND DRAINAGE IMPROVEMENTS DRAINAGE IMPACT ANALYSIS

LA PORTE, TEXAS

July 2017



Submitted By:

Candyce Ward
7-31-17



Construction Management ▪ Geographic Information Systems ▪ Hydraulics and Hydrology ▪ Land Development
Public Works ▪ Right-of-Way Acquisition ▪ Site Development ▪ Subsurface Utility Engineering
Surveying ▪ Telecommunications ▪ Transportation ▪ Utility Coordination and Design

13430 Northwest Freeway, Suite 1100 | Houston, Texas 77040 | 713.462.3242 | fax 713.462.3262 | www.cobbfendley.com

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EXHIBITS

1. VICINITY MAP
2. PROJECT LOCATION MAP
3. EFFECT HEC-RAS CROSS SECTION MAP
4. TSARP CATCHEMENT MAP
5. FEMA FLOODPLAIN MAP
6. DRAINAGE AREA MAP
7. EXISTING XPSWMM NODE MAP
8. PROPOSED XPSWMM NODE MAP
9. PROPOSED CONDITION

APPENDICES

1. EFFECTIVE FEMA PANEL
2. EXISTING XPSWMM LAYOUT
3. PROPOSED XPSWMM LAYOUT
4. EXISTING XPSWMM OUTPUT
5. PROPOSED XPSWMM OUTPUT

EXECUTIVE SUMMARY

This study was performed to analyze what impacts would result from the proposed storm sewer improvements along Coupland Drive on Big Island Slough (HCFCD Unit# B106-00-00) and the mitigation required to have no adverse impacts. B106-06-00 is a tributary to Armand Bayou (HCFCD Unit# B100-00-00) and is a FEMA studied stream. The project area outfall is located within the 100-year floodplain of Big Island Slough.

The project site is located east of Big Island Slough, south of L Street, and West of Lomax School Road in La Porte, Texas. The existing sheet flow flows north along Coupland Drive to inlets located at each entrance to the subdivision which outfalls to the road side ditch along L Street. The road side ditch flows west to Big Island Slough, which flows south.

The total contributing area for this project consists of approximately 25 acres of residential area with lots ranging in size from ¼ acre to 2 acre lots. The contributing area was split into five sub-catchments. The hydrographs used in the XPSWMM model were obtained from the effective HEC-HMS model for Big Island Slough upstream of the project outfall and generated within XPSWMM version 2016 using the hyetographs from the effective HEC-HMS model for the existing and proposed conditions. The peak flow rate in the existing condition for the roadside ditch along L Street is 44.62 cfs, 56.96 cfs and 92.34 cfs for the 5-, 10- and 100-year storm events, respectively.

The proposed storm sewer improvements include re-sloping Coupland Drive to drain towards inlets located in the back of the subdivision. The inlets will drain into proposed storm sewer ranging in size from 24" to 30" RCP. This storm sewer will then flow underneath the existing roadside ditch along L Street to a combined outfall with the existing roadside ditch to Big Island Slough. The proposed storm sewer underneath the existing ditch on L Street will be 42" RCP and the combined outfall will need to be a 60" RCP. These improvements will result in no net fill within the Big Island Slough 100-year floodplain. The proposed storm sewer was sized for the 5 year storm event, per the City of La Porte drainage criteria.

The resulting water surface elevations show that the proposed storm sewer improvements will have no adverse impact on the channel or surrounding properties for the 5-, 10-, and 100-year storm events.

1. INTRODUCTION

1.1. *Project Name and Purpose*

“Coupland Drive Paving and Drainage Improvements Impact Analysis” – La Porte, Texas

The purpose of this study is to analyze the effects of providing storm sewer improvements to Coupland Drive to drain through storm sewer to Big Island Slough.

1.2. *Project Limits*

The project site is located east of Big Island Slough, south of L Street, and West of Lomax School Road. The project is in La Porte, Texas, see Exhibit 1 – Vicinity Map and Exhibit 2 – Project Location Map.

1.3. *Project Objectives*

The project objective is to provide drainage improvements to Coupland Drive by incorporating a storm sewer system without causing adverse effects to Big Island Slough for the 5-, 10-, or 100-year storm event.

1.4. *Prior Studies*

Big Island Slough does have FEMA effective HEC-RAS and HEC-HMS models that were used for the purposes of this project, see Exhibit 3 – Effective HEC-RAS Cross Section Map and Exhibit 4 – Effective HEC-HMS Drainage Area Map. The effective models were obtained from the HCFCD Model and Map Management system.

2. EXISTING CONDITION

2.1. *Location and Topography*

Coupland Drive is located on the east side of Big Island Slough and on the south side of L Street in La Porte, Texas. The subdivision currently drains north through curb and gutter and outfalls to the roadside ditch along L Street which continues west to outfall to Big Island Slough. Big Island Slough is part of the Armand Bayou watershed.

The existing outfall pipe lies within the floodway of Big Island Slough, see Exhibit 5 – FEMA Floodplain Map. The culvert replacement will have no net fill within the floodplain.

2.2. *Land Use*

The region contributing flow to the existing roadside ditch consists of residential area of ¼ acre lots and greater than 2 acre lots, which equates to 67 percent and 50 percent impervious cover respectively.

2.3. *Pipelines and Utilities*

There are several pipelines that cross under the existing roadside ditch along L Street downstream of Coupland Drive. These pipelines consist of 5 gas pipelines: a 10" ExxonMobil gasoline pipeline, an 8" Williams Purity natural gas pipeline, a 14" Kinder Morgan natural gas pipeline, a 30" Kinder Morgan natural gas pipeline, and a 4.5" ExxonMobil butylene pipeline. The existing roadside ditch flow above these pipelines. However, since these pipelines are located between 2.5 ft and 4 ft below the existing ditch, a siphon is proposed to avoid conflict with the existing pipelines. Construction of the proposed storm sewer will be coordinated with the respective owners.

3. HYDROLOGY

3.1. *Analysis Objective*

The objectives of the Hydrologic and Hydraulic analyses are to determine peak flows and water surface elevations from the contributing drainage areas along the roadside ditch to the outfall to Big Island Slough for the existing and proposed 5-, 10-, and 100-year storm events.

3.2. *Hydrologic Methodology*

The drainage areas for Coupland Drive and the other contributing areas were established using 2008 LiDAR, aerial imagery, Google Earth imagery, and survey data. Approximately 25 acres drain to the outfall at Big Island Slough, see Exhibit 6 – Drainage Area Map.

Peak flows in the project area were calculated based Harris County Flood Control District's (HCFCD) Hydrology and Hydraulics Manual methodology. The hydrograph for the offsite area draining to Big Island Slough upstream of the project outfall was taken from the effective HEC-HMS model at node B106A and used in XPSWMM to model Big Island Slough. The rational method was used to calculate peak flows for the drainage area along L Street and Coupland Drive and the small watershed method was used to create hydrographs used in the XPSWMM model. Peak flows are calculated based on drainage area size, land use, and rainfall intensity for the desired storm event. The formulas used in the Small Watershed Method are available in Section 3.3.2 of the HCFCD Hydrology and Hydraulics Manual.

Using the methods above, the peak flows of Big Island Slough at the upstream end of the study, at the L Street outfall, and at the downstream end of the study were calculated, see Table 1 – Hydrologic Calculations.

3.3. *Hydraulic Methodology*

Existing and proposed XPSWMM models were created for the project area and Big Island Slough in the 2016 version. Maps and layouts of the XPSWMM nodes can be found in Exhibits 7 for Existing XPSWMM and Exhibit 8 for Proposed XPSWMM. The cross sections from the effective HEC-RAS model were used to model Big Island Slough

in XPSWMM, see Exhibit 3 – HEC-RAS Cross Section Map. The existing condition model is based on survey data, 2008 LiDAR, and the peak flows from the hydrological analysis described in the section above. The proposed improvements were modeled by modifying the existing condition model to include the proposed storm sewer.

Water surface elevations from the existing and proposed condition XPSWMM models were compared to determine the impacts of the proposed storm sewer routing. Table 2 shows the water surface elevations upstream and downstream of the outfall from the HEC-RAS models and Table 3 shows water surface elevations from the XPSWMM model. Both tables show no impacts along the system and along the channel.

3.4. Pre-Project Conditions

As discussed above, Big Island Slough is a modeled HCFCD channel and the subdivision currently drains through inlets on the north side of the subdivision to the road side ditch along L Street. Coupland Drive is to be re-sloped and storm sewer is to be placed along the subdivision with inlets now located at the south end of the subdivision. The storm sewer will be routed underneath the existing roadside ditch along L Street and will range in size from 24" to 60" RCP.

4. PROPOSED CONDITION

4.1. Proposed Improvements

The proposed improvements to Coupland Drive include replacing the existing curb and gutter in the subdivision with a re-sloped curb and gutter street with inlets located on the south end of the subdivision that drain into storm sewer pipe ranging in size from 24" to 30" RCP. This storm sewer will then be routed underneath the existing roadside ditch along L Street to a combined outfall to Big Island Slough. The proposed storm sewer underneath the existing ditch on L Street will be 42" RCP and the combined outfall will need to be a 60" RCP. The existing outfall is a 36" RCP but will need to be increased to a 60" RCP due to a decrease in velocity in the proposed condition. A 42" RCP siphon will be used to avoid conflict with the existing pipelines that cross the roadside ditch west of Coupland Drive. A 23" restrictor will be utilized to mitigate the increase in flows due to higher velocities in the proposed pipes. This restrictor will be located just before the combined outfall to Big Island Slough. See Exhibit 9 – Proposed Condition.

4.2. Hydrologic Analysis

No changes are proposed to the hydrology created to represent the existing condition, therefore the peak flows remain the same for both the existing and proposed conditions, see Table 1

4.3. Hydraulic Analysis

The XPSWMM model shows that rerouting Coupland Drive through storm sewer will have no adverse impacts, see Table 4.

Table 1 – Hydrologic Calculations

Drainage Area Name	A01	A02	A03	A04A	A04B
XPSWMM Node	Node19	Node18	Node17	Node34	Node39
C	0.5	0.6	0.6	0.6	0.5
I (in/hr)	3.96	4.12	4.49	4.10	4.24
A (ac)	12.24	4.87	0.36	5.21	2.27
TC (min)	30.54	28.22	23.35	28.37	26.55
Q (cfs)	24.23	12.03	0.97	12.83	4.81
%Imp	50%	67%	67%	67%	50%

Table 2 – Existing and Proposed Peak Flow Comparison Big Island Slough

Frequency	5-Year	10-Year	100-Year
Existing	670.12	850.00	1448.4
Proposed	666.01	846.45	1445.5

Table 3 – 100-YR Water Surface Elevations from HEC-RAS Cross Sections

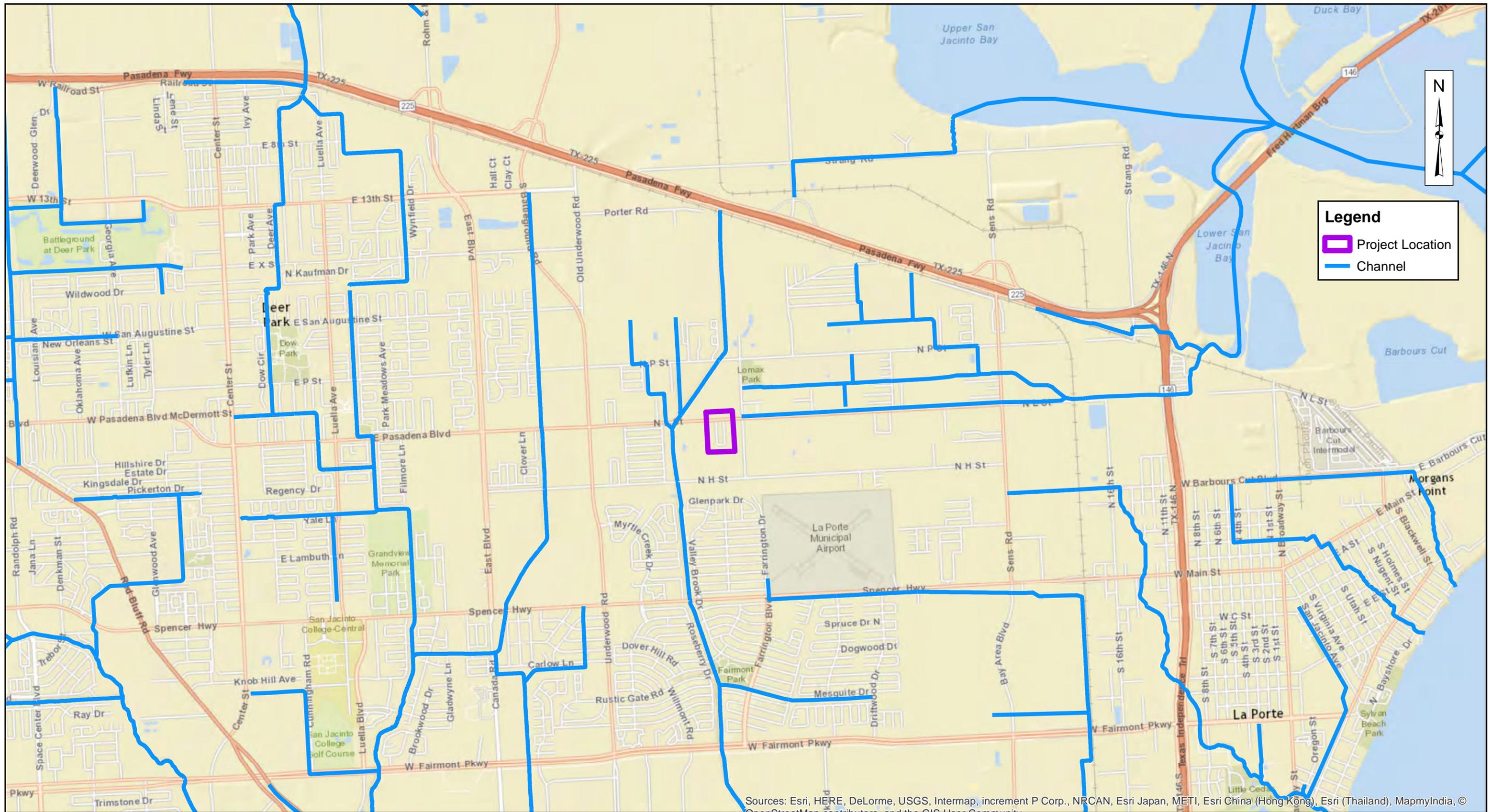
Station	FEMA Effective	Revised Existing	Proposed	Proposed Increase
34898.81	22.49	22.47	22.47	0.00
34675.54	22.42	22.4	22.4	0.00
33904.71	22.17	22.14	22.15	0.00
32723.5	21.87	21.85	21.85	0.00
32685.24	21.84	21.82	21.82	0.00
32585.4	L Street			
32485.56	21.74	21.73	21.73	0.00
32292.9	21.65	21.65	21.65	0.00
31793.46	21.51	21.5	21.5	0.00
31048.03	21.31	21.31	21.31	0.00
31028.02	21.31	21.3	21.3	0.00
30827.98	21.24	21.24	21.24	0.00

Table 4 – 100-YR Water Surface Elevations from XPSWMM Model

Node Name	Existing	Proposed	Proposed Increase
Node13	25.334	24.797	-0.537
Node14	25.312	24.78	-0.532
Node15	25.307	24.753	-0.554
Node16	25.283	24.737	-0.546
Node17	25.289	24.742	-0.547
Node18.1.1	25.268	24.747	-0.521
Node19	25.242	24.72	-0.522
Node20	25.134	24.63	-0.504
Node21	25.103	24.612	-0.491
Node22	24.991	24.522	-0.469
Node23	24.942	24.487	-0.455
Node24	24.835	24.421	-0.414
Node25	24.588	24.227	-0.361
Node26	23.603	23.176	-0.427
Node27	23.6	23.175	-0.425
Node28	22.894	22.891	-0.003
Node31	22.934	22.931	-0.003
Node33	22.823	22.821	-0.002
Node34.1.1	25.373	24.924	-0.449
Node35	22.942	22.939	-0.003
Node36	22.809	22.806	-0.003
Node37	22.734	22.731	-0.003
Node39	25.392	24.935	-0.457
Node41	22.736	22.733	-0.003

5. Conclusion

The proposed storm sewer placement on Coupland Drive, with the use of a siphon and restrictor, will have no adverse impact to the outfall channel, Big Island Slough, or surrounding properties. This project will also result in no net fill to the floodplain for Big Island Slough.



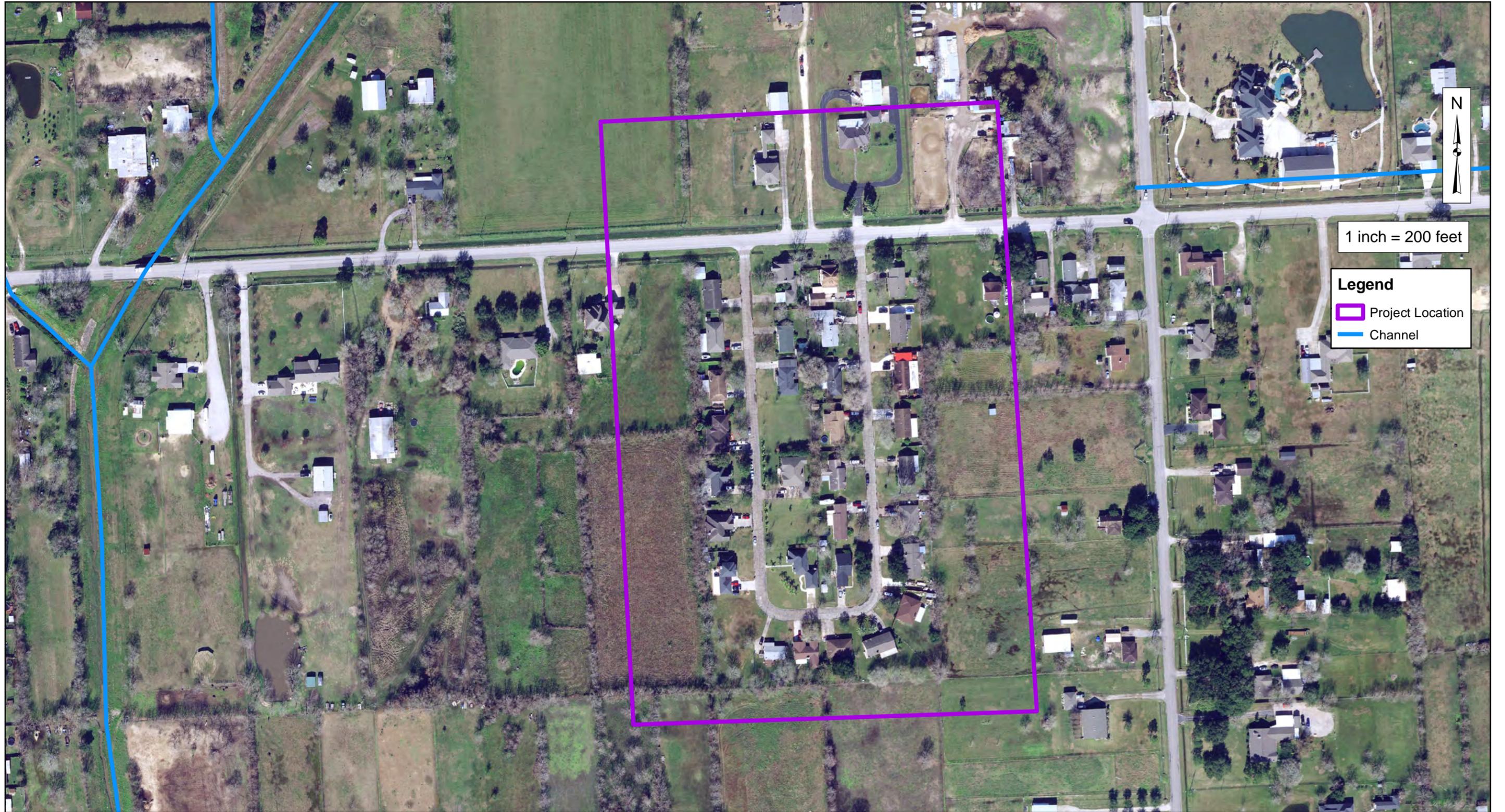
Sources: Esri, HERE, DeLorme, USGS, Intermap, increment P Corp., NRCAN, Esri Japan, METI, Esri China (Hong Kong), Esri (Thailand), MapmyIndia, ©

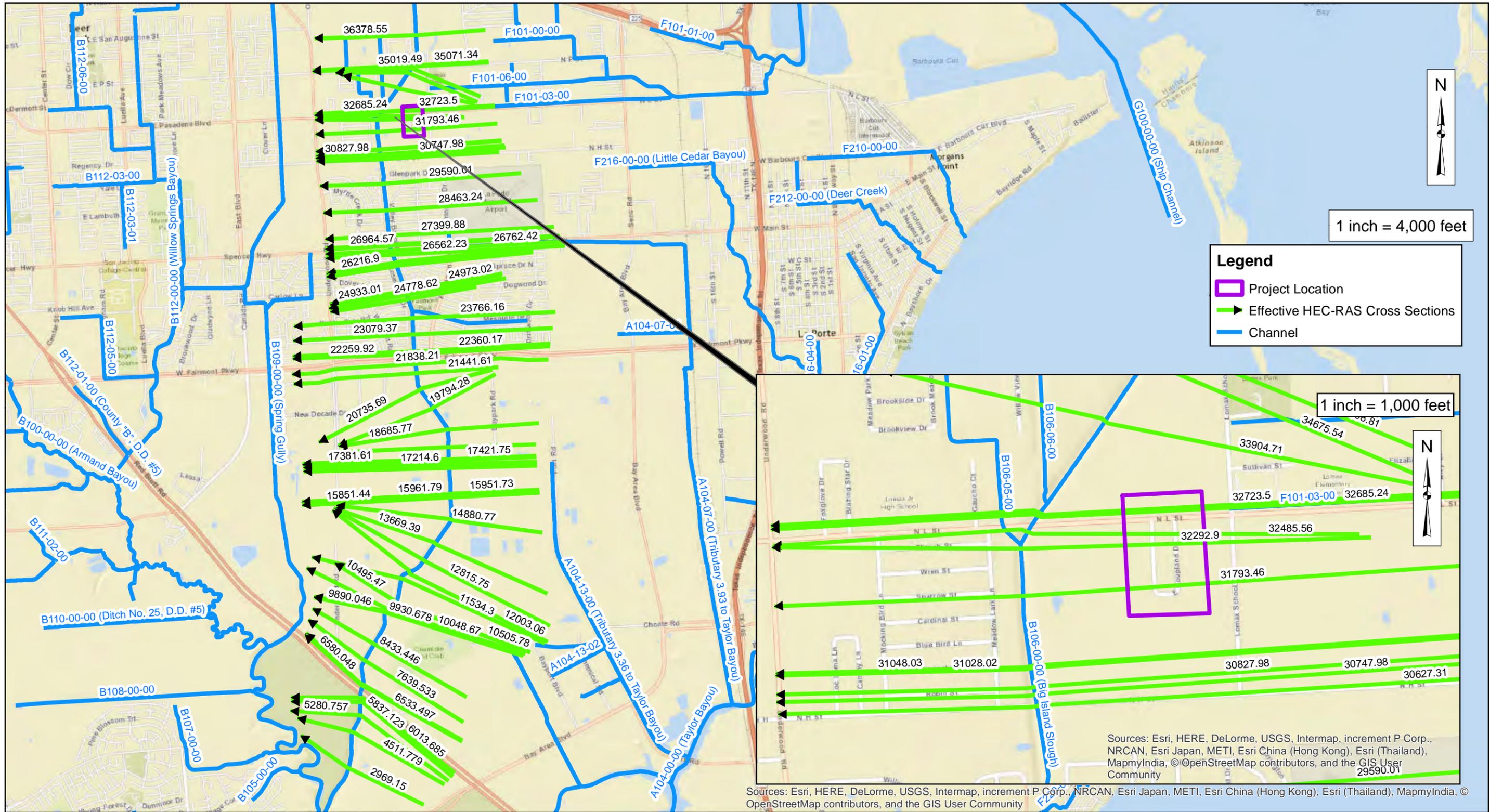
CobbFendley
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 Houston, Texas 77040
 713.462.3242 | fax 713.462.3262
 www.cobbfendley.com

**Coupland Drive
 Vicinity Map**

Date: July 2017

EXHIBIT 1



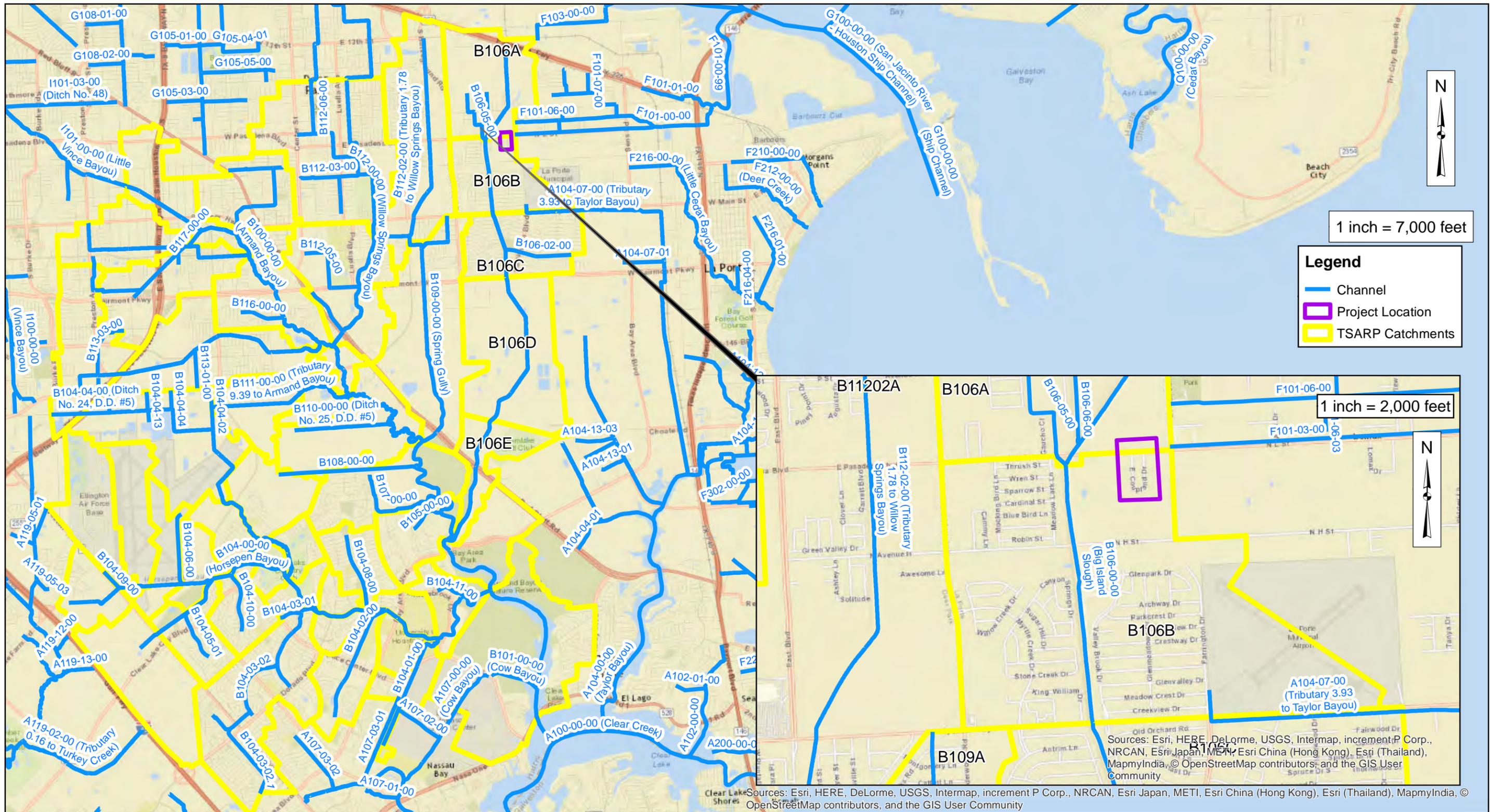


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**Coupland Drive
 HEC-RAS Cross Section Map**

Date: July 2017

EXHIBIT 3



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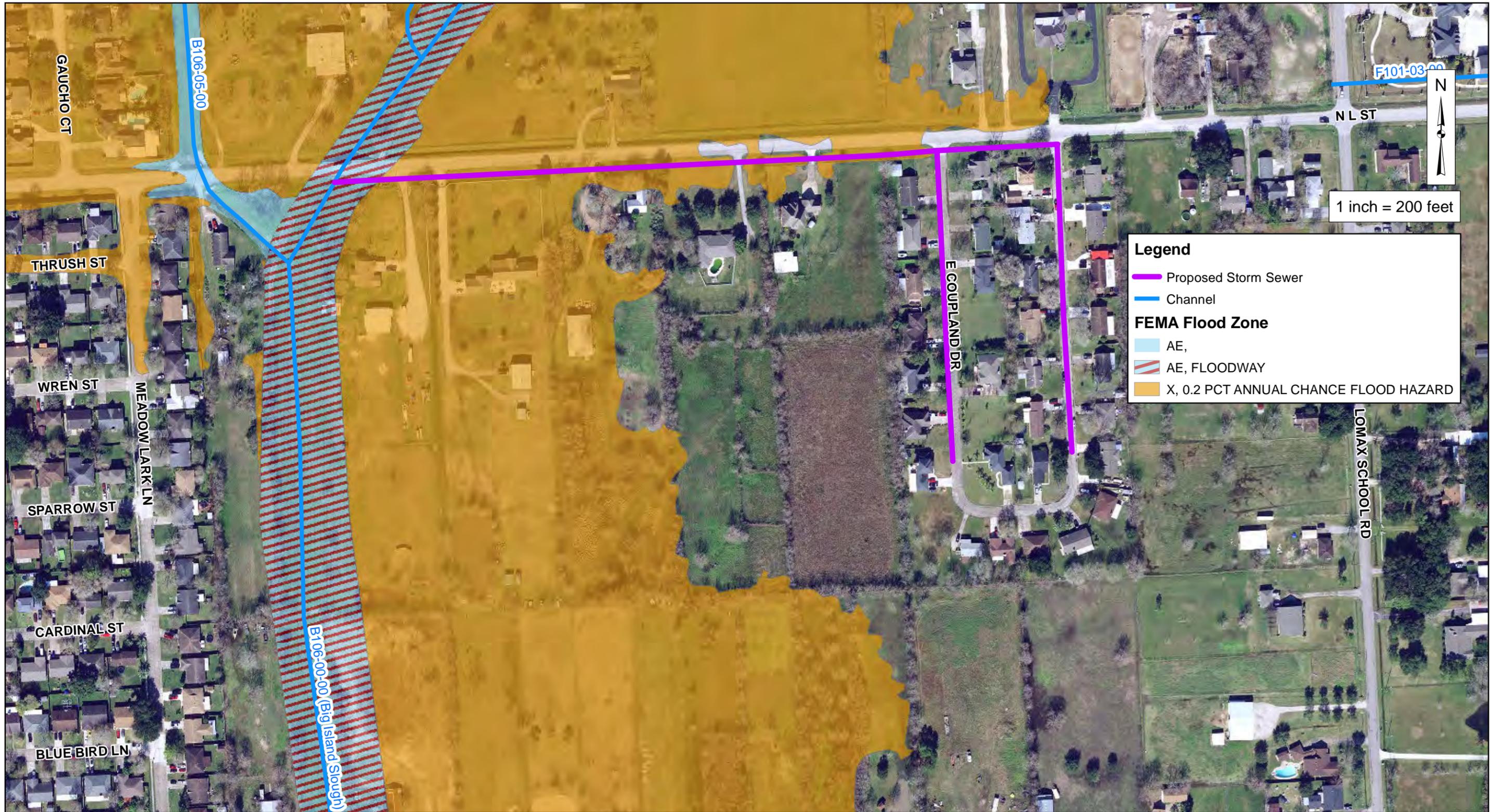
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713.462.3242 | fax 713.462.3262
www.cobbfendley.com

**Coupland Drive
TSARP Catchment Map**

Date: July 2017

EXHIBIT 4

Sources: Esri, HERE, DeLorme, USGS, Intermap, increment P Corp., NRCAN, Esri Japan, METI, Esri China (Hong Kong), Esri (Thailand), MapmyIndia, © OpenStreetMap contributors, and the GIS User Community

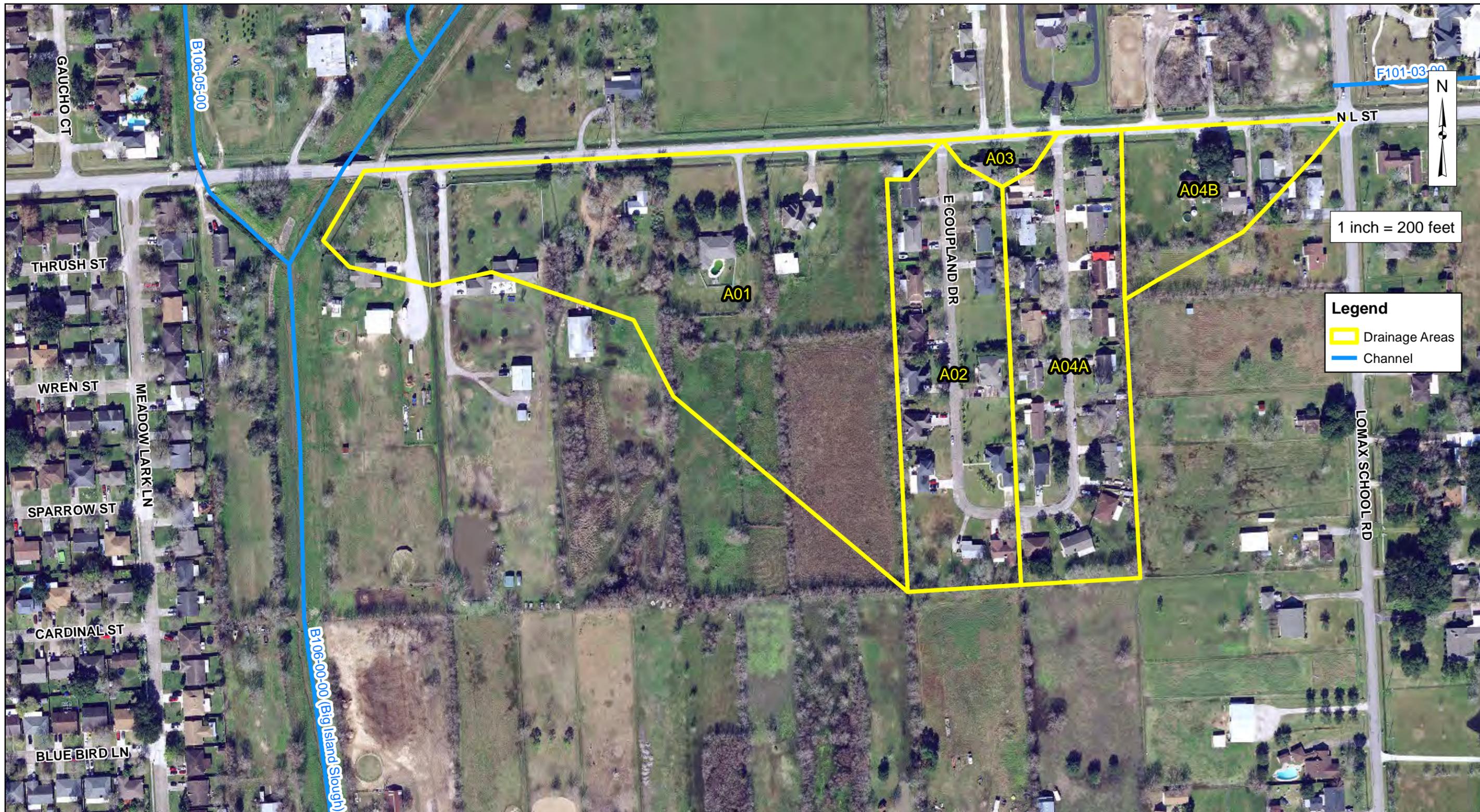


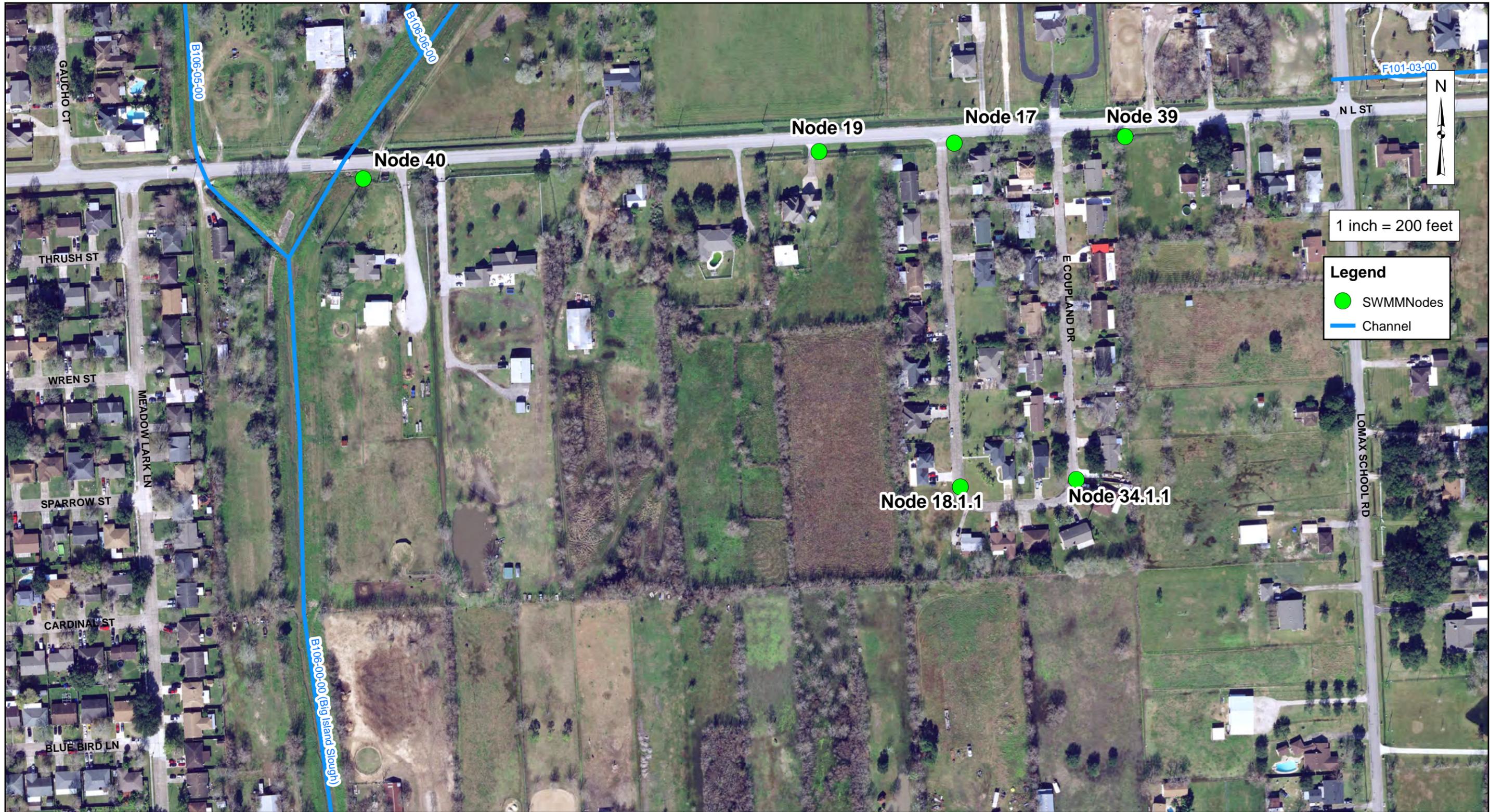
Legend

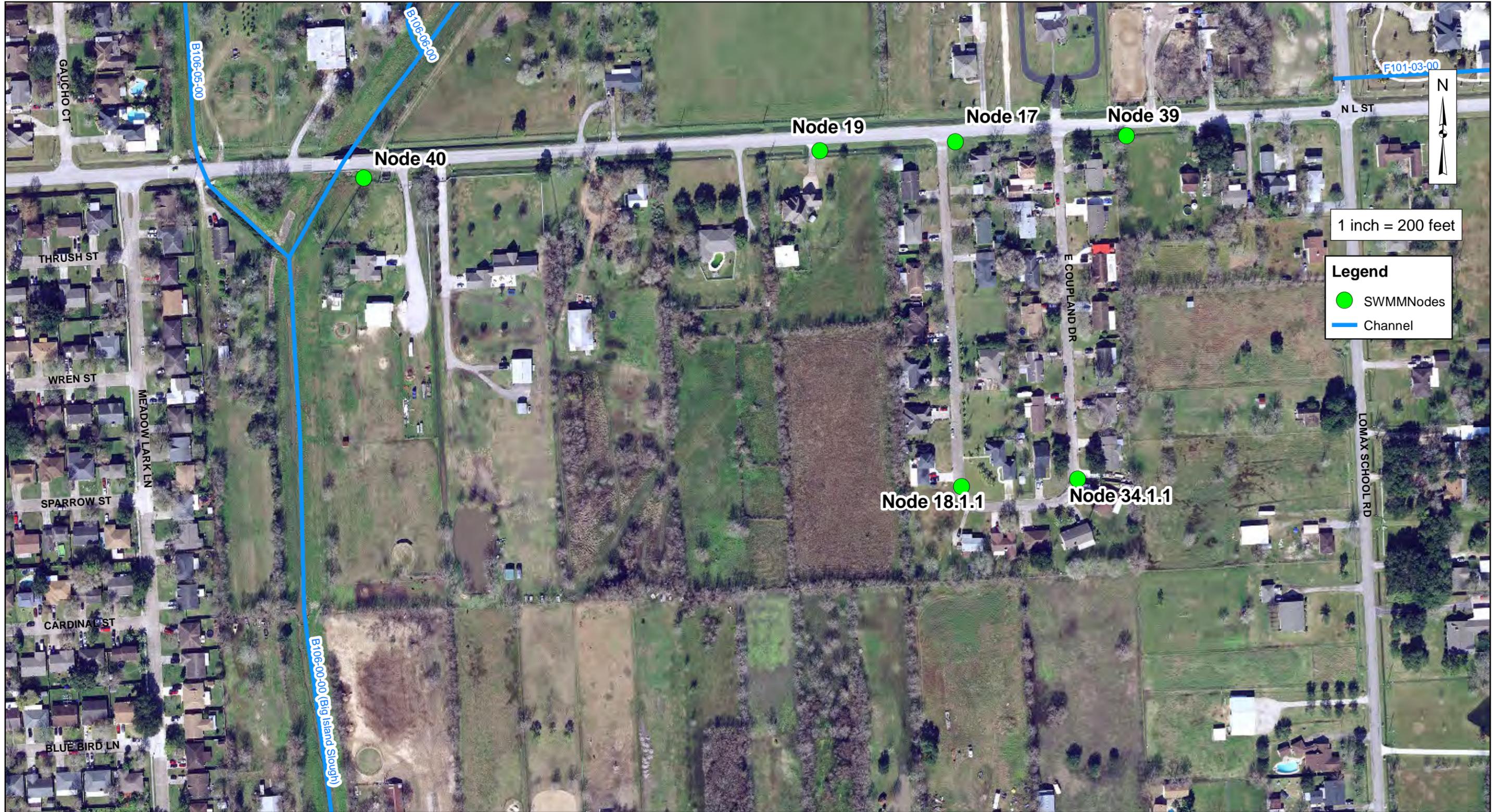
- Proposed Storm Sewer
- Channel

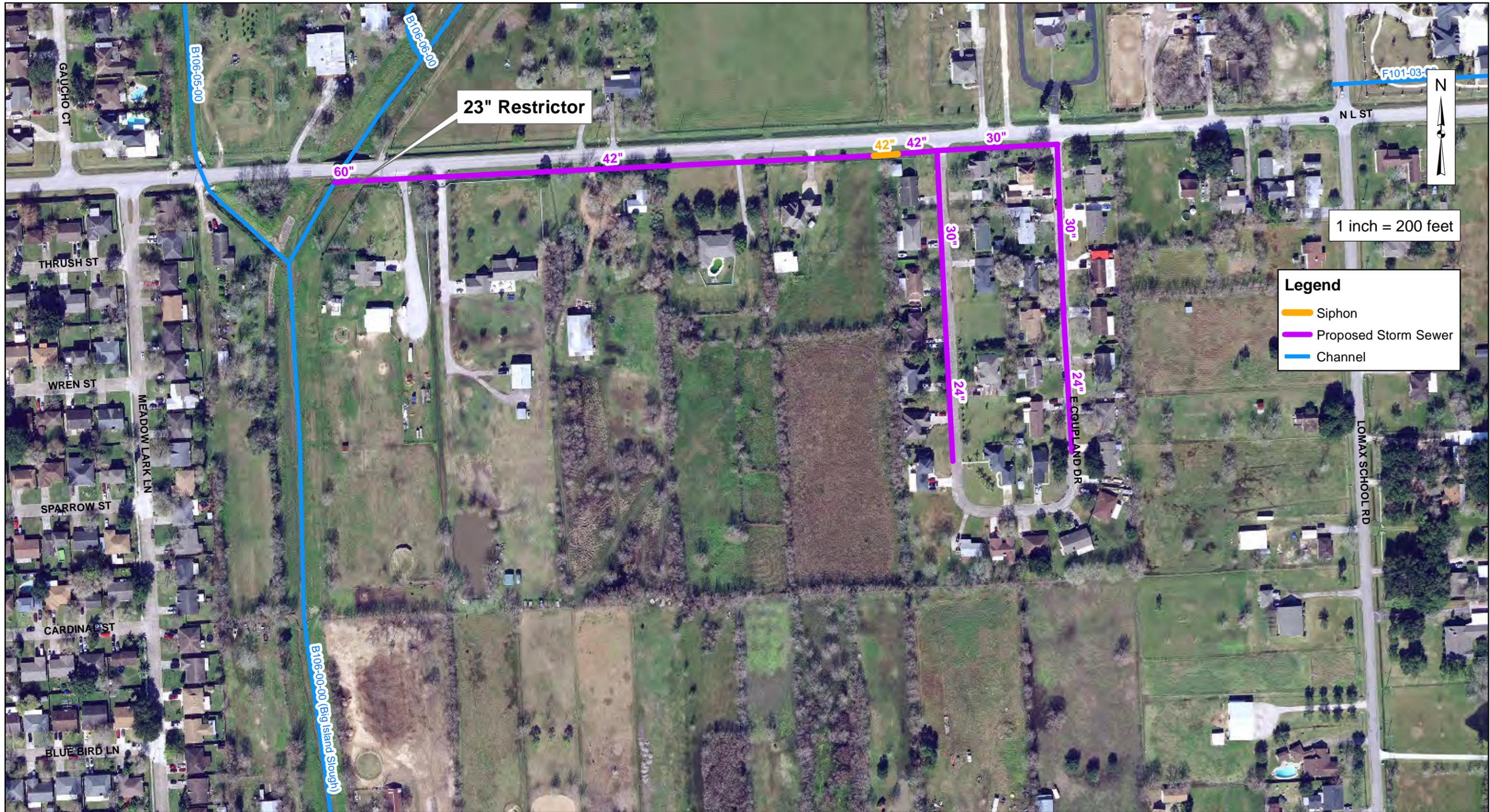
FEMA Flood Zone

- AE,
- AE, FLOODWAY
- X, 0.2 PCT ANNUAL CHANCE FLOOD HAZARD



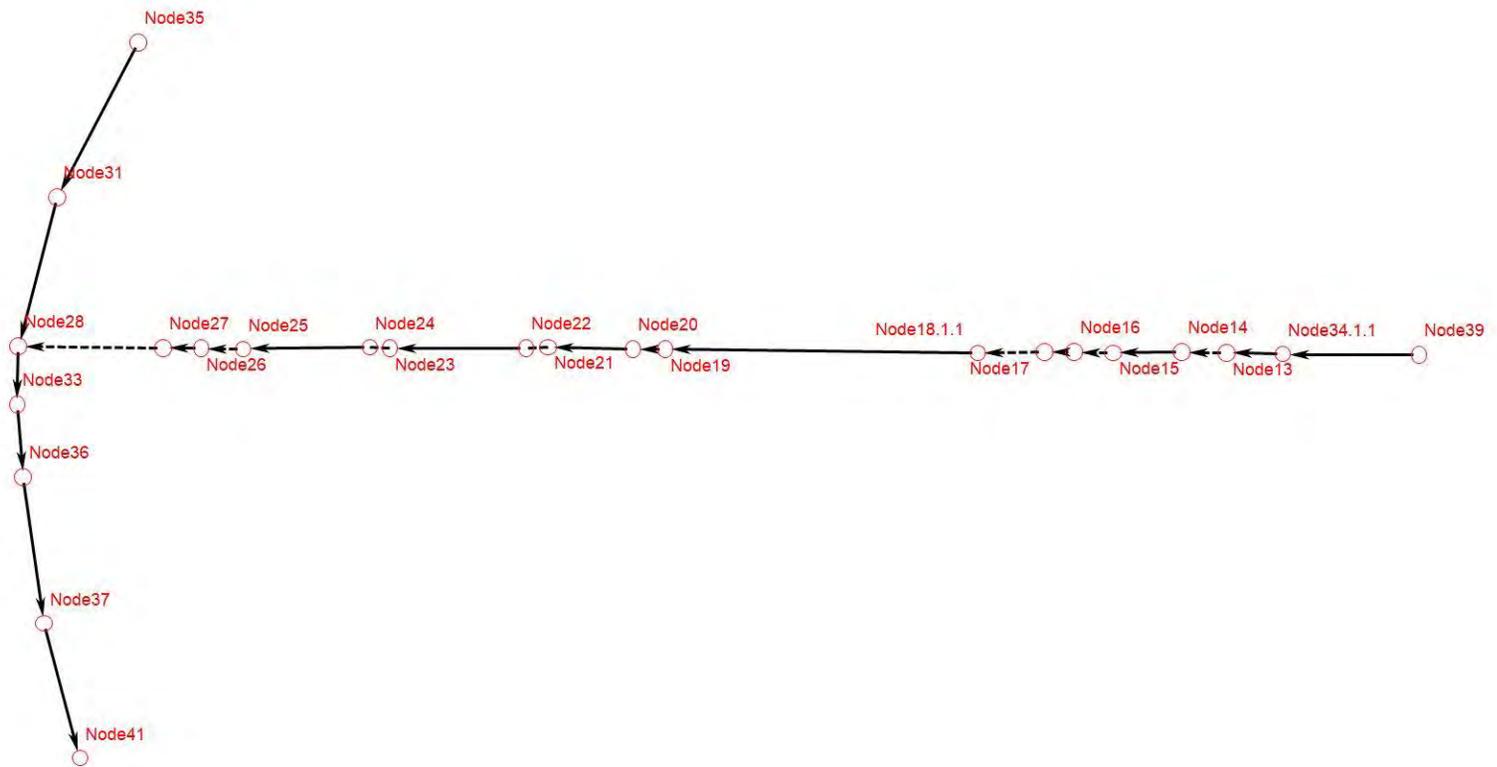






APPENDIX 1

APPENDIX 2



Existing XPSWMM Layout

Coupland_Exist5yr.out
Current Directory: C:\PROGRA~2\XPSOLU~1\XPSTOR~1.1
Engine Name: C:\PROGRA~2\XPSOLU~1\XPSTOR~1.1\SWMMEN~2.EXE

Input File : 24.Coupland_Paving_and Drainage\ENG\H&H\SWMM\Coupland_Exist5yr.XP

```
*=====*
```

```
|                                     |
```

```
|           xpswmm                   |
```

```
|   Storm and Wastewater Management Model   |
```

```
|   Developed by XP Solutions Inc.         |
```

```
|=====|
```

```
| Last Update       : October, 2015      |
```

```
| Interface Version : 2016               |
```

```
| Engine Version    : 12.0               |
```

```
| Data File Version : 12.62              |
```

```
|                                     |
```

```
*=====*
```

Engine Name: C:\PROGRA~2\XPSOLU~1\XPSTOR~1.1\SWMMEN~2.EXE

```
*=====*
```

```
|           Input and Output file names by Layer           |
```

```
*=====*
```

Input File to Layer # 1 JOT.US

Output File to Layer # 1 JOT.US

Input File to Layer # 2 JOT.US

Output File to Layer # 2 JOT.US

```

=====
Configuration Parameters
Configuration Parameters, both those that are hardwired
and those added to the simulation are listed below.
Configuration Parameters that start with a $ are set in
the engine as defaults. The remaining in UPPERCASE
have been added to the simulation in the Configuration->
Configuration Parameters dialog or as Engine Defaults in
the SWMXP.INI file.

Consult the Help File for the specific meaning/purpose
of any particular parameter.

Note:
The second column denotes the value of the parameter.
=====

```

\$powerstation	0.0000	1	2
\$perv	0.0000	0	4
\$oldegg	0.0000	0	7
\$as	0.0000	0	11
\$noflat	0.0000	0	21
\$oldomega	0.0000	0	24
\$oldvol	0.0000	1	28
\$implicit	0.0000	1	29
\$oldhot	0.0000	1	31
\$oldscs	0.0000	0	33
\$flood	0.0000	1	40
\$nokeys	0.0000	0	42
\$pzero	0.0000	0	55
\$oldvol2	0.0000	2	59
\$storage2	0.0000	3	62
\$oldhot1	0.0000	1	63
\$pumpwt	0.0000	1	70
\$ecloss	0.0000	1	77
\$exout	0.0000	0	97
\$spatial = 0.90	0.9000	5	124
\$djref = -1.0	-0.1000	3	143
\$weirlen = 50	50.0000	1	153
\$oldbnd	0.0000	1	154
\$nogrelev	0.0000	1	161
\$ncmid	0.0000	0	164
\$new_n1_97	0.0000	2	290
SCSIADDEPTH=ON	0.0000	1	293
\$best97	0.0000	1	294

Coupland_Exist5yr.out

\$newbound	0.0000	1	295
\$q_tol = 0.01	0.0001	1	316
\$new_storage	0.0000	1	322
\$old_iteration	0.0000	1	333
MINLEN=10	10.0000	1	346
\$review_elevation	0.0000	1	383
\$use_half_volume	0.0000	1	385
VERT_WALLS=ON	0.0000	1	389
\$min_ts = 1.0	1.0000	1	407
\$design_restart = on	0.0000	1	412
\$zero_value=1.e-05	0.0000	1	415
SUBCATCHMENT_RES=ON	0.0000	1	419
\$relax_depth = on	0.0000	1	427
\$saveallpts = on	0.0000	1	434
\$channel_geometry=1	0.0000	1	456

```

*=====
|   All object names are less than 20 characters.   |
|   No name substitutions required!                 |
*=====
    
```

```

*=====
| Parameter Values on the Tapes Common Block. These are the |
| values read from the data file and dynamically allocated |
| by the model for this simulation.                       |
*=====
    
```

Number of Subcatchments in the Runoff Block (NW)....	5
Number of Channel/Pipes in the Runoff Block (NG)....	0
Runoff Water quality constituents (NRQ).....	0
Runoff Land Uses per Subcatchment (NLU).....	0
Number of Elements in the Transport Block (NET).....	0
Number of Storage Junctions in Transport (NTSE).....	0
Number of Input Hydrographs in Transport (NTH).....	0
Number of Elements in the Extran Block (NEE).....	32
Number of Groundwater Subcatchments in Runoff (NGW).	0
Number of Interface locations for all Blocks (NIE)..	32
Number of Pumps in Extran (NEP).....	0
Number of Orifices in Extran (NEO).....	0
Number of Tide Gates/Free Outfalls in Extran (NTG)..	1
Number of Extran Weirs (NEW).....	8
Number of scs hydrograph points.....	3457
Number of Extran printout locations (NPO).....	0
Number of Tide elements in Extran (NTE).....	1
Number of Natural channels (NNC).....	15
Number of Storage junctions in Extran (NVSE).....	0
Number of Time history data points in Extran(NTVAL).	0

Coupland_Exist5yr.out

Number of Variable storage elements in Extran (NVST)	0
Number of Input Hydrographs in Extran (NEH).....	1
Number of Particle sizes in Transport Block (NPS)...	0
Number of User defined conduits (NHW).....	5
Number of Connecting conduits in Extran (NECC).....	20
Number of Upstream elements in Transport (NTCC).....	10
Number of Storage/treatment plants (NSTU).....	1
Number of Values for R1 lines in Transport (NR1)...	0
Number of Nodes to be allowed for (NNOD).....	32
Number of Plugs in a Storage Treatment Unit.....	1

```
#####
#   Entry made to the Runoff Layer(Block) of SWMM   #
#   Last Updated June, 2014 by XP Solutions         #
```

```
*=====*
```

RUNOFF TABLES IN THE OUTPUT FILE.	
These are the more important tables in the output file.	
You can use your editor to find the table numbers,	
for example: search for Table R3 to check continuity.	
This output file can be imported into a Word Processor	
and printed on US letter or A4 paper using portrait	
mode, courier font, a size of 8 pt. and margins of 0.75	
Table R1	- Physical Hydrology Data
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Table R4	- Groundwater Data
Table R5	- Continuity Check for Surface Water
Table R6	- Continuity Check for Channels/Pipes
Table R7	- Continuity Check for Subsurface Water
Table R8	- Infiltration/Inflow Continuity Check
Table R9	- Summary Statistics for Subcatchments
Table R10	- Sensitivity analysis for Subcatchments

```
*=====*
```

A1

```
#####
#   RUNOFF JOB CONTROL   #
#####
```

Snowmelt parameter - ISNOW.....	0
Number of rain gages - NRGAG.....	1
Quality is not simulated - KWALTY.....	0

Coupland_Exist5yr.out

```

Default evaporation rate used - IVAP..... 0
Hour of day at start of storm - NHR..... 0
Minute of hour at start of storm - NMN..... 0
Time TZERO at start of storm (hours)..... 0.000
Use U.S. Customary units for most I/O - METRIC... 0
Runoff input print control... 0
Runoff graph plot control.... 0
Runoff output print control.. 0
Limit number of groundwater convergence messages to 10000

Print headers every 50 lines - NOHEAD (0=yes, 1=no) 0

Print land use load percentages -LANDUPR (0=no, 1=yes) 0
Month, day, year of start of storm is: 1/ 1/2016
Wet time step length (seconds)..... 60.0
Dry time step length (seconds)..... 86400.0
Wet/Dry time step length (seconds)... 60.0
Simulation length is..... 48.0 Hours

```

If Horton infiltration model is being used
A mixture of infiltration options may be used in
XP-SWMM as a watershed specific option.
Rate for regeneration of infiltration = REGEN * DECAY
Decay is read in for each subcatchment
REGEN = 0.01000

```

Raingage #..... 1
KTYPE - Rainfall input type..... 0
NHISTO - Total number of rainfall values.. 899
KINC - Rainfall values(pairs) per line.. 10
KPRINT - Print rainfall(0-Yes,1-No)..... 0
KTIME - Precipitation time units
0 --> Minutes 1 --> Hours..... 0
KPREP - Precipitation unit type
0 --> Intensity 1 --> Volume..... 1
KTHIS - Variable rainfall intervals
0 --> No, >= 1 --> Yes..... 0
THISTO - Rainfall time interval..... 5.00
TZRAIN - Starting time(KTIME units)..... 0.00

```

```

#####
# Rainfall input summary from Runoff #
#####

```

Total rainfall for gage # 1 is 6.4200 inches

Coupland_Exist5yr.out

```
#####
#           Data Group F1           #
# Evaporation Rate (in/day) #
#####
```

```
JAN.  FEB.  MAR.  APR.  MAY   JUN.  JUL.  AUG.  SEP.  OCT.  NOV  DEC.
-----  -----  -----  -----  -----  -----  -----  -----  -----  -----  -----
0.100  0.100  0.100  0.100  0.100  0.100  0.100  0.100  0.100  0.100  0.100  0.100
```

```
#####
# Table R1.  S U B C A T C H M E N T  D A T A  #
#           Physical Hydrology Data           #
#####
```

Subcatchment		Deprs Deprs Prcnt			Channel	Width	Area	Per-	Slope
"n"	"n"	-sion	-sion	Zero	or inlet	(ft)	(ac)	cent	ft/ft
Number	Storage	Imprv	Imprv	Deten				Imperv	
	Name	Perv	Perv	-tion					
1	Node39#1	0.014	0.030	25.00	Node39	16.000	2.2700	50.00	0.002
2	Node34.1.1#1	0.014	0.030	25.00	Node34.1.1	44.300	5.2000	67.00	0.002
3	Node17#1	0.014	0.030	25.00	Node17	3.4000	.36000	67.00	0.002
4	Node18.1.1#1	0.014	0.030	25.00	Node18.1.1	41.600	4.8700	67.00	0.002
5	Node19#1	0.014	0.030	25.00	Node19	76.500	12.240	50.00	0.002

```
#####
#####
#           Table R2.  SUBCATCHMENT  DATA
#
#           Infiltration or Time of Concentration Data
#
#
# Infiltration Type           Infl #1(#5)           Infl #2(#6)           Infl #3(#7)
#           Infl #4(#8) #
# SCS           ->   Comp CN           Time Conc           Shape Factor
```

Coupland_Exist5yr.out

```

Depth or Fraction #
# SBUH          ->  Comp CN          Time Conc          N/A
          N/A #
# Green Ampt    ->  Suction          Hydr Cond          Initial MD
          N/A #
# Horton        ->  Max Rate          Min Rate          Decay Rate (1/sec)
Max. Infiltr. Volume #
# Proportional ->  Constant          N/A          N/A
          N/A #
# Initial/Cont Loss ->  Initial          Continuing          N/A
          N/A #
# Initial/Proportional ->  Initial          Constant          N/A
          N/A #
# Laurenson Parameters ->  B Value          Pervious "n"          Impervious Cont
          Exponent #
# Rational Formula ->  Tc Method          Flow Path Length          Flow Path Slope
Roughness or Retardance #
#
#              (#1 - #4 is Impervious Data / #5 - #8 is Pervious
Data)          #
#              Rational Formula Tc Method: 1 = Constant
#              #
#              2 = Friend's Equation
#              #
#              3 = Kinematic Wave
#              #
#              4 = Alameda Method
#              #
#              5 = Izzard's Formula
#              #
#              6 = Kerby's Equation
#              #
#              7 = Kirpich's Equation
#              #
#              8 = Bransby Williams Equation
#              #
#              9 = Federal Aviation Authority
Equation          #

```


#####

Infl	Subcatchment	Infl	Infl	Infl	Infl	Infl	
Number	Infl	Infl	# 1	# 2	# 3	# 4	# 5
6	# 7	# 8					#
1	Node39#1		12.450	0.024	0.385		
2	Node34.1.1#1		12.450	0.024	0.385		

Coupland_Exist5yr.out

3	Node17#1	12.450	0.024	0.385
4	Node18.1.1#1	12.450	0.024	0.385
5	Node19#1	12.450	0.024	0.385

```
#####
# Table R3. SUBCATCHMENT DATA #
# Rainfall and Infiltration Database Names #
#####
```

Subcatchment Number	Name	Gage No	Infiltration Type	Routing Type
1	Node39#1	1	Green Ampt	Non-linear reservoir
2	Node34.1.1#1	1	Green Ampt	Non-linear reservoir
3	Node17#1	1	Green Ampt	Non-linear reservoir
4	Node18.1.1#1	1	Green Ampt	Non-linear reservoir
5	Node19#1	1	Green Ampt	Non-linear reservoir

```
Total Number of Subcatchments... 5
Total Tributary Area (acres).... 24.94
Impervious Area (acres)..... 14.24
Pervious Area (acres)..... 10.70
Total Width (feet)..... 181.80
Impervious Area (%)..... 57.11
```

```
#####
# SUBCATCHMENT DATA #
# Default, Ratio values for subcatchment data #
# Used with the calibrate node in the runoff. #
# 1 - width 2 - area 3 - impervious % #
# 4 - slope 5 - imp "n" 6 - perv "n" #
# 7 - imp ds 8 - perv ds 9 - 1st infil #
#10 - 2nd infil 11 - 3rd infil #
#####
```

Column	1	2	3	4	5	6	7
8	9	10	11				
Default	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
0.0000	0.0000	0.0000	0.0000				
Ratio	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
1.0000	1.0000	1.0000	1.0000				

```
*****
* Arrangement of Subcatchments and Channel/Pipes *
*****
```

Coupland_Exist5yr.out

```

Inlet
Node39          No Tributary Channel/Pipes
                Tributary Subareas..... Node39#1
Node34.1.1     No Tributary Channel/Pipes
                Tributary Subareas..... Node34.1.1#1
Node17         No Tributary Channel/Pipes
                Tributary Subareas..... Node17#1
Node18.1.1    No Tributary Channel/Pipes
                Tributary Subareas..... Node18.1.1#1
Node19         No Tributary Channel/Pipes
                Tributary Subareas..... Node19#1

```

```

*****
* Hydrographs will be stored for the following 5 INLETS *
*****
Node39          Node34.1.1          Node17
Node18.1.1     Node19

```

```

*****
* Quality Simulation not included in this run *
*****

```

```

*****
* Precipitation Interface File Summary *
* Number of precipitation station... 1 *
*****

```

```

Location Station Number
-----
          1.          1

```

XXX End of Header Section XXX

```

#####
# Entry made to the HYDRAULIC Layer of XP-SWMM #
# Last Updated in June, 2014 by XP Solutions #

```

```

#####
# Entry made to the Runoff Layer(Block) of SWMM #
# Last Updated June, 2014 by XP Solutions #

```

=====

Coupland_Exist5yr.out

RUNOFF TABLES IN THE OUTPUT FILE.

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- Table R1 - Physical Hydrology Data
Table R2 - Infiltration data
Table R3 - Raingage and Infiltration Database Names
Table R4 - Groundwater Data
Table R5 - Continuity Check for Surface Water
Table R6 - Continuity Check for Channels/Pipes
Table R7 - Continuity Check for Subsurface Water
Table R8 - Infiltration/Inflow Continuity Check
Table R9 - Summary Statistics for Subcatchments
Table R10 - Sensitivity anlysis for Subcatchments

=====

A1

#####
RUNOFF JOB CONTROL
#####

Snowmelt parameter - ISNOW..... 0
Number of rain gages - NRGAG..... 1
Quality is not simulated - KWALTY..... 0
Default evaporation rate used - IVAP..... 0
Hour of day at start of storm - NHR..... 0
Minute of hour at start of storm - NMN..... 0
Time TZERO at start of storm (hours)..... 0.000
Use U.S. Customary units for most I/O - METRIC... 0
Runoff input print control... 0
Runoff graph plot control.... 0
Runoff output print control.. 0
Limit number of groundwater convergence messages to 10000
Print headers every 50 lines - NOHEAD (0=yes, 1=no) 0
Print land use load percentages -LANDUPR (0=no, 1=yes) 0
Month, day, year of start of storm is: 1/ 1/2016
Wet time step length (seconds)..... 60.0
Dry time step length (seconds)..... 86400.0
Wet/Dry time step length (seconds)... 60.0

Simulation length is.....

48.0 Hours

If Horton infiltration model is being used
 A mixture of infiltration options may be used in
 XP-SWMM as a watershed specific option.
 Rate for regeneration of infiltration = REGEN * DECAY
 Decay is read in for each subcatchment
 REGEN = 0.01000

Raingage #..... 1
 KTYPE - Rainfall input type..... 0
 NHISTO - Total number of rainfall values.. 899
 KINC - Rainfall values(pairs) per line.. 10
 KPRINT - Print rainfall(0-Yes,1-No)..... 0
 KTIME - Precipitation time units
 0 --> Minutes 1 --> Hours..... 0
 KPREP - Precipitation unit type
 0 --> Intensity 1 --> Volume..... 1
 KTHIS - Variable rainfall intervals
 0 --> No, >= 1 --> Yes..... 0
 THISTO - Rainfall time interval..... 5.00
 TZRAIN - Starting time(KTIME units)..... 0.00

 # Rainfall input summary from Runoff #
 #####

Total rainfall for gage # 1 is 6.4200 inches

 # Data Group F1 #
 # Evaporation Rate (in/day) #
 #####

JAN.	FEB.	MAR.	APR.	MAY	JUN.	JUL.	AUG.	SEP.	OCT.	NOV	DEC.
0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.100

 # Table R1. S U B C A T C H M E N T D A T A #
 # Physical Hydrology Data #
 #####

Deprs Deprs Prcnt

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					Per-	
-sion -sion Zero					cent	Slope
"n"	"n"	Subcatchment	Channel	Width	Area	
Number	Storage	Strge Deten	or inlet	(ft)	(ac)	Imperv ft/ft
Imprv	Perv	Imprv	Perv	-tion		
1		Node39#1	Node39	16.000	2.2700	50.00 0.002
0.014	0.030	0.000	0.000	25.00		
2		Node34.1.1#1	Node34.1.1	44.300	5.2000	67.00 0.002
0.014	0.030	0.000	0.000	25.00		
3		Node17#1	Node17	3.4000	.36000	67.00 0.002
0.014	0.030	0.000	0.000	25.00		
4		Node18.1.1#1	Node18.1.1	41.600	4.8700	67.00 0.002
0.014	0.030	0.000	0.000	25.00		
5		Node19#1	Node19	76.500	12.240	50.00 0.002
0.014	0.030	0.000	0.000	25.00		

#####

```

# Table R2. SUBCATCHMENT DATA
#
# Infiltration or Time of Concentration Data
#
#
# Infiltration Type Infl #1(#5) Infl #2(#6) Infl #3(#7)
# Infl #4(#8) #
# SCS -> Comp CN Time Conc Shape Factor
# SBUH -> Comp CN Time Conc N/A
# Green Ampt N/A # -> Suction Hydr Cond Initial MD
# Horton N/A # -> Max Rate Min Rate Decay Rate (1/sec)
# Proportional -> Constant N/A N/A
# Initial/Cont Loss -> Initial Continuing N/A
# Initial/Proportional -> Initial Constant N/A
# Laurenson Parameters -> B Value Pervious "n" Impervious Cont
# Exponent #
# Rational Formula -> Tc Method Flow Path Length Flow Path Slope
# Roughness or Retardance #

```

Coupland_Exist5yr.out

(#1 - #4 is Impervious Data / #5 - #8 is Pervious

```

# Data) #
# Rational Formula Tc Method: 1 = Constant
# #
# 2 = Friend's Equation
# #
# 3 = Kinematic Wave
# #
# 4 = Alameda Method
# #
# 5 = Izzard's Formula
# #
# 6 = Kerby's Equation
# #
# 7 = Kirpich's Equation
# #
# 8 = Bransby Williams Equation
# #
# 9 = Federal Aviation Authority
Equation #

```


#####

Subcatchment	Infl	Infl	Infl	Infl	Infl			
Infl	Infl	Infl	# 1	# 2	# 3	# 4	# 5	#
Number	Name							
6	# 7	# 8						
1	Node39#1		12.450	0.024	0.385			
2	Node34.1.1#1		12.450	0.024	0.385			
3	Node17#1		12.450	0.024	0.385			
4	Node18.1.1#1		12.450	0.024	0.385			
5	Node19#1		12.450	0.024	0.385			

Table R3. SUBCATCHMENT DATA #
Rainfall and Infiltration Database Names #
#####

Subcatchment	Gage	Infiltration	Routing
Number	No	Type	Type
1	1	Green Ampt	Non-linear reservoir
2	1	Green Ampt	Non-linear reservoir
3	1	Green Ampt	Non-linear reservoir
4	1	Green Ampt	Non-linear reservoir

5 Node19#1 1 Green Ampt Non-linear reservoir

Total Number of Subcatchments... 5
 Total Tributary Area (acres)... 24.94
 Impervious Area (acres)..... 14.24
 Pervious Area (acres)..... 10.70
 Total Width (feet)..... 181.80
 Impervious Area (%)..... 57.11

```
#####
#           S U B C A T C H M E N T   D A T A           #
#   Default, Ratio values for subcatchment data   #
#   Used with the calibrate node in the runoff.   #
# 1 - width      2 - area      3 - impervious %   #
# 4 - slope      5 - imp "n"   6 - perv "n"      #
# 7 - imp ds     8 - perv ds   9 - 1st infil     #
#10 - 2nd infil          11 - 3rd infil         #
#####
```

Column	1	2	3	4	5	6	7
8	9	10	11				
Default	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
0.0000	0.0000	0.0000	0.0000				
Ratio	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
1.0000	1.0000	1.0000	1.0000				

```
*****
*   Arrangement of Subcatchments and Channel/Pipes   *
*****
```

```

      Inlet
Node39          No Tributary Channel/Pipes
                Tributary Subareas..... Node39#1
Node34.1.1     No Tributary Channel/Pipes
                Tributary Subareas..... Node34.1.1#1
Node17         No Tributary Channel/Pipes
                Tributary Subareas..... Node17#1
Node18.1.1    No Tributary Channel/Pipes
                Tributary Subareas..... Node18.1.1#1
Node19         No Tributary Channel/Pipes
                Tributary Subareas..... Node19#1
```

```
*****
* Hydrographs will be stored for the following 5 INLETS *
*****
```

Node39
Node18.1.1

Node34.1.1
Node19

Node17

* Quality Simulation not included in this run *

* Precipitation Interface File Summary *
* Number of precipitation station.... 1 *

Location Station Number

1. 1

A1

| HYDRAULICS TABLES IN THE OUTPUT FILE |
| These are the more important tables in the output file. |
| You can use your editor to find the table numbers, |
| for example: search for Table E20 to check continuity. |
| This output file can be imported into a Word Processor |
| and printed on US letter or A4 paper using portrait |
| mode, courier font, a size of 8 pt. and margins of 0.75 |
| Table E1 - Basic Conduit Data |
| Table E2 - Conduit Factor Data |
| Table E3a - Junction Data |
| Table E3b - Junction Data |
| Table E4 - Conduit Connectivity Data |
| Table E4a - Dry Weather Flow Data |
| Table E4b - Real Time Control Data |
| Table E5 - Junction Time Step Limitation Summary |
| Table E5a - Conduit Explicit Condition Summary |
| Table E6 - Final Model Condition |
| Table E7 - Iteration Summary |
| Table E8 - Junction Time Step Limitation Summary |

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	Table E9	- Junction Summary Statistics	
	Table E10	- Conduit Summary Statistics	
	Table E11	- Area assumptions used in the analysis	
	Table E12	- Mean conduit information	
	Table E13	- Channel losses(H) and culvert info	
	Table E13a	- Culvert Analysis Classification	
	Table E14	- Natural Channel Overbank Flow Information	
	Table E14a	- Natural Channel Encroachment Information	
	Table E14b	- Floodplain Mapping	
	Table E15	- Spreadsheet Info List	
	Table E15a	- Spreadsheet Reach List	
	Table E16	- New Conduit Output Section	
	Table E17	- Pump Operation	
	Table E18	- Junction Continuity Error	
	Table E19	- Junction Inflow & Outflow Listing	
	Table E20	- Junction Flooding and Volume List	
	Table E21	- Continuity balance at simulation end	
	Table E22	- Model Judgement Section	

=====

Time Control from Hydraulics Job Control

Year.....	2014 Month.....	1
Day.....	1 Hour.....	0
Minute.....	0 Second.....	0

Control information for simulation

Integration cycles.....	1728
Length of integration step is.....	100.00 seconds
Simulation length.....	48.00 hours
Do not create equiv. pipes(NEQUAL).	0
Use U.S. customary units for I/O...	0
Printing starts in cycle.....	1
Intermediate printout intervals of.	500 cycles
Intermediate printout intervals of.	833.33 minutes
Summary printout intervals of.....	500 cycles
Summary printout time interval of..	833.33 minutes
Hot start file parameter (REDO)....	0
Initial time.....	0.00 hours

Iteration variables: Flow Tolerance.	0.00010
Head Tolerance.	0.00050
Minimum depth (m or ft).....	0.00001
Underrelaxation parameter.....	0.85000
Time weighting parameter.....	0.85000
Conduit roughness factor.....	1.00000

Coupland_Exist5yr.out

Flow adjustment factor..... 1.00000
 Initial Condition Smoothing..... 0
 Courant Time Step Factor..... 1.00000
 Default Expansion/Contraction K. 0.00000
 Default Entrance/Exit K..... 0.00000
 Routing Method..... Dynamic Wave
 Default surface area of junctions... 12.57 square feet.
 Minimum Junction/Conduit Depth..... 0.00001 feet.
 Ponding Area Coefficient..... 5000.00
 Ponding Area Exponent..... 1.0000
 Minimum Orifice Length..... 1000.00 feet.
 NJSW input hydrograph junctions..... 1
 or user defined hydrographs....

Natural Cross-Section information for Channel Link14

=====

Cross-Section ID (from X1 card) : 1.0 Channel sequence number : 1

Left Overbank Length : 68.4 ft Maximum Elevation :
 25.09 ft.
 Main Channel Length : 68.4 ft Maximum Depth :
 4.82 ft.
 Right Overbank Length : 68.4 ft Maximum Section Area :
 78.2500 ft^2 Maximum hydraulic radius :
 1.63 ft.
 Manning N : 0.040 to Station 5.0 Max topwidth :
 45.00 ft.
 " " : 0.040 in main Channel Maximum Wetted Perimeter :
 4.80E+01 ft
 " " : 0.015 Beyond station 25.0 Max left bank area :
 9.80 ft^2 Max right bank area :
 6.02 ft^2
 Allowable Encroachment Depth : 0.00 ft Max center channel area :
 62.4250 ft^2

Natural Cross-Section information for Channel Link16

=====

Cross-Section ID (from X1 card) : 2.0 Channel sequence number : 2

Left Overbank Length : 22.9 ft Maximum Elevation :
 25.09 ft.
 Main Channel Length : 22.9 ft Maximum Depth :
 4.82 ft.
 Right Overbank Length : 22.9 ft Maximum Section Area :
 78.2500 ft^2 Maximum hydraulic radius :

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1.63 ft.
Manning N : 0.040 to Station 5.0 Max topwidth :
45.00 ft.
" " : 0.040 in main Channel Maximum Wetted Perimeter :
4.80E+01 ft
" " : 0.015 Beyond station 25.0 Max left bank area :
9.80 ft^2 Max right bank area :
6.02 ft^2
Allowable Encroachment Depth : 0.00 ft Max center channel area :
62.4250 ft^2

Natural Cross-Section information for Channel Link18

=====

Cross-Section ID (from X1 card) : 3.0 Channel sequence number : 3

Left Overbank Length : 243.1 ft Maximum Elevation :
25.09 ft.
Main Channel Length : 243.1 ft Maximum Depth :
4.82 ft.
Right Overbank Length : 243.1 ft Maximum Section Area :
78.2500 ft^2 Maximum hydraulic radius :
1.63 ft.
Manning N : 0.040 to Station 5.0 Max topwidth :
45.00 ft.
" " : 0.040 in main Channel Maximum Wetted Perimeter :
4.80E+01 ft
" " : 0.015 Beyond station 25.0 Max left bank area :
9.80 ft^2 Max right bank area :
6.02 ft^2
Allowable Encroachment Depth : 0.00 ft Max center channel area :
62.4250 ft^2

Natural Cross-Section information for Channel Link20

=====

Cross-Section ID (from X1 card) : 4.0 Channel sequence number : 4

Left Overbank Length : 117.5 ft Maximum Elevation :
25.20 ft.
Main Channel Length : 117.5 ft Maximum Depth :
5.02 ft.
Right Overbank Length : 117.5 ft Maximum Section Area :
85.7750 ft^2 Maximum hydraulic radius :
2.00 ft.
Manning N : 0.040 to Station 5.0 Max topwidth :

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40.00 ft.
 " " : 0.040 in main Channel Maximum Wetted Perimeter :
 4.28E+01 ft
 " " : 0.015 Beyond station 25.0 Max left bank area :
 10.40 ft^2
 Max right bank area :
 5.38 ft^2
 Allowable Encroachment Depth : 0.00 ft Max center channel area :
 70.0000 ft^2

Natural Cross-Section information for Channel Link22

=====

Cross-Section ID (from X1 card) : 5.0 Channel sequence number : 5

Left Overbank Length : 282.4 ft Maximum Elevation :
 25.00 ft.
 Main Channel Length : 282.4 ft Maximum Depth :
 5.35 ft.
 Right Overbank Length : 282.4 ft Maximum Section Area :
 128.5750 ft^2
 Maximum hydraulic radius :
 2.43 ft.
 Manning N : 0.040 to Station 5.0 Max topwidth :
 50.00 ft.
 " " : 0.040 in main Channel Maximum Wetted Perimeter :
 5.30E+01 ft
 " " : 0.015 Beyond station 35.0 Max left bank area :
 10.10 ft^2
 Max right bank area :
 8.50 ft^2
 Allowable Encroachment Depth : 0.00 ft Max center channel area :
 109.9750 ft^2

Natural Cross-Section information for Channel Link24

=====

Cross-Section ID (from X1 card) : 6.0 Channel sequence number : 6

Left Overbank Length : 280.1 ft Maximum Elevation :
 25.00 ft.
 Main Channel Length : 280.1 ft Maximum Depth :
 6.11 ft.
 Right Overbank Length : 280.1 ft Maximum Section Area :
 112.8500 ft^2
 Maximum hydraulic radius :
 2.32 ft.
 Manning N : 0.040 to Station 10.0 Max topwidth :
 45.00 ft.
 " " : 0.040 in main Channel Maximum Wetted Perimeter :

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4.86E+01 ft
 " " : 0.015 Beyond station 30.0 Max left bank area :
 21.17 ft^2
 Max right bank area :
 12.10 ft^2
 Allowable Encroachment Depth : 0.00 ft Max center channel area :
 79.5750 ft^2

Natural Cross-Section information for Channel Link26

=====

Cross-Section ID (from X1 card) : 7.0 Channel sequence number : 7

Left Overbank Length : 38.8 ft Maximum Elevation :
 25.00 ft.
 Main Channel Length : 38.8 ft Maximum Depth :
 6.39 ft.
 Right Overbank Length : 38.8 ft Maximum Section Area :
 123.8687 ft^2
 Maximum hydraulic radius :
 3.11 ft.
 Manning N : 0.040 to Station 5.6 Max topwidth :
 35.57 ft.
 " " : 0.040 in main Channel Maximum Wetted Perimeter :
 3.98E+01 ft
 " " : 0.015 Beyond station 25.4 Max left bank area :
 17.71 ft^2
 Max right bank area :
 14.63 ft^2
 Allowable Encroachment Depth : 0.00 ft Max center channel area :
 91.5279 ft^2

Natural Cross-Section information for Channel Link31

=====

Cross-Section ID (from X1 card) : 8.0 Channel sequence number : 8

Left Overbank Length : 240.3 ft Maximum Elevation :
 27.85 ft.
 Main Channel Length : 199.7 ft Maximum Depth :
 16.36 ft.
 Right Overbank Length : 181.6 ft Maximum Section Area :
 28065.25 ft^2
 Maximum hydraulic radius :
 3.71 ft.
 Manning N : 0.070 to Station 4659.6 Max topwidth :
 7554.14 ft.
 " " : 0.032 in main Channel Maximum Wetted Perimeter :
 7.56E+03 ft
 " " : 0.070 Beyond station 4835.3 Max left bank area :
 Max right bank area :
 Max center channel area :

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19000.27 ft^2

Max right bank area :

7493.03 ft^2

Allowable Encroachment Depth : 0.00 ft

Max center channel area :

1571.950 ft^2

Natural Cross-Section information for Channel Link33

=====

Cross-Section ID (from X1 card) : 9.0 Channel sequence number : 9

Left Overbank Length : 169.1 ft Maximum Elevation :
29.46 ft.

Main Channel Length : 192.7 ft Maximum Depth :
17.97 ft.

Right Overbank Length : 192.5 ft Maximum Section Area :
30196.69 ft^2

4.88 ft. Maximum hydraulic radius :

Manning N : 0.070 to Station 3428.2 Max topwidth :
6181.63 ft.

" " : 0.032 in main Channel Maximum Wetted Perimeter :
6.19E+03 ft

" " : 0.070 Beyond station 3547.3 Max left bank area :
17628.50 ft^2

Max right bank area :

11171.67 ft^2 Max center channel area :
Allowable Encroachment Depth : 0.00 ft

1396.517 ft^2

Natural Cross-Section information for Channel Link34

=====

Cross-Section ID (from X1 card) : 10.0 Channel sequence number : 10

Left Overbank Length : 49.2 ft Maximum Elevation :
25.09 ft.

Main Channel Length : 49.2 ft Maximum Depth :
4.82 ft.

Right Overbank Length : 49.2 ft Maximum Section Area :
78.2500 ft^2

1.63 ft. Maximum hydraulic radius :

Manning N : 0.040 to Station 5.0 Max topwidth :
45.00 ft.

" " : 0.040 in main Channel Maximum Wetted Perimeter :
4.80E+01 ft

" " : 0.015 Beyond station 25.0 Max left bank area :
9.80 ft^2

Max right bank area :

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6.02 ft²
Allowable Encroachment Depth : 0.00 ft Max center channel area :
62.4250 ft²

Natural Cross-Section information for Channel Link36

=====

Cross-Section ID (from X1 card) : 11.0 Channel sequence number : 11

Left Overbank Length : 492.1 ft Maximum Elevation :
29.46 ft.
Main Channel Length : 499.4 ft Maximum Depth :
17.97 ft.
Right Overbank Length : 512.7 ft Maximum Section Area :
30714.99 ft² Maximum hydraulic radius :
4.83 ft.
Manning N : 0.070 to Station 3592.7 Max topwidth :
6305.50 ft.
" " : 0.032 in main Channel Maximum Wetted Perimeter :
6.36E+03 ft
" " : 0.070 Beyond station 3741.1 Max left bank area :
18443.26 ft² Max right bank area :
10717.92 ft²
Allowable Encroachment Depth : 0.00 ft Max center channel area :
1553.814 ft²

Natural Cross-Section information for Channel Link37

=====

Cross-Section ID (from X1 card) : 12.0 Channel sequence number : 12

Left Overbank Length : 740.0 ft Maximum Elevation :
28.05 ft.
Main Channel Length : 745.4 ft Maximum Depth :
19.03 ft.
Right Overbank Length : 747.9 ft Maximum Section Area :
27584.49 ft² Maximum hydraulic radius :
3.59 ft.
Manning N : 0.070 to Station 4926.5 Max topwidth :
7672.71 ft.
" " : 0.032 in main Channel Maximum Wetted Perimeter :
7.68E+03 ft
" " : 0.070 Beyond station 5115.9 Max left bank area :
20807.75 ft² Max right bank area :
5154.22 ft²
Allowable Encroachment Depth : 0.00 ft Max center channel area :

Coupland_Exist5yr.out

1622.518 ft^2

Natural Cross-Section information for Channel Link42.1.1

=====

Cross-Section ID (from X1 card) : 13.0 Channel sequence number : 13

Left Overbank Length : 20.3 ft Maximum Elevation :
28.40 ft.
Main Channel Length : 20.0 ft Maximum Depth :
19.94 ft.
Right Overbank Length : 20.1 ft Maximum Section Area :
31373.45 ft^2 Maximum hydraulic radius :
4.17 ft.
Manning N : 0.070 to Station 4877.5 Max topwidth :
7515.52 ft.
" " : 0.032 in main Channel Maximum Wetted Perimeter :
7.52E+03 ft
" " : 0.070 Beyond station 5060.6 Max left bank area :
22248.55 ft^2 Max right bank area :
7383.12 ft^2
Allowable Encroachment Depth : 0.00 ft Max center channel area :
1741.771 ft^2

Natural Cross-Section information for Channel Link41

=====

Cross-Section ID (from X1 card) : 14.0 Channel sequence number : 14

Left Overbank Length : 133.6 ft Maximum Elevation :
25.09 ft.
Main Channel Length : 133.6 ft Maximum Depth :
4.82 ft.
Right Overbank Length : 133.6 ft Maximum Section Area :
78.2500 ft^2 Maximum hydraulic radius :
1.63 ft.
Manning N : 0.040 to Station 5.0 Max topwidth :
45.00 ft.
" " : 0.040 in main Channel Maximum Wetted Perimeter :
4.80E+01 ft
" " : 0.015 Beyond station 25.0 Max left bank area :
9.80 ft^2 Max right bank area :
6.02 ft^2
Allowable Encroachment Depth : 0.00 ft Max center channel area :
62.4250 ft^2

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 Natural Cross-Section information for Channel Link48
 =====

Cross-Section ID (from X1 card) : 15.0 Channel sequence number : 15

Left Overbank Length : 38.3 ft	Maximum Elevation :	
27.82 ft.		
Main Channel Length : 38.3 ft	Maximum Depth :	
16.33 ft.		
Right Overbank Length : 38.3 ft	Maximum Section Area :	
26945.91 ft^2	Maximum hydraulic radius :	
3.54 ft.		
Manning N : 0.070 to Station 4655.5	Max topwidth :	
7614.88 ft.		
" " : 0.032 in main Channel	Maximum Wetted Perimeter :	
7.62E+03 ft		
" " : 0.070 Beyond station 4770.5	Max left bank area :	
18294.32 ft^2		
	Max right bank area :	
7448.66 ft^2		
Allowable Encroachment Depth : 0.00 ft	Max center channel area :	
1202.931 ft^2		

=====

Table E1 - Conduit Data

=====

Inp Depth Num (ft)	Trapezoid Side Slopes	Hazen Conduit Williams Name c-factor	Length (ft)	Conduit Class	Area (ft^2)	Manning Coef.	Max Width (ft)
1 4.8200		Link14	68.3600	Natural	78.2500	0.0400	45.0000
2 4.8200		Link16	22.8500	Natural	78.2500	0.0400	45.0000
3 4.8200		Link18	243.1300	Natural	78.2500	0.0400	45.0000
4 5.0200		Link20	117.5100	Natural	85.7750	0.0400	40.0000
5 5.3500		Link22	282.4000	Natural	128.5750	0.0400	50.0000
6 6.1100		Link24	280.1300	Natural	112.8500	0.0400	45.0000
7		Link26	38.8400	Natural	123.8687	0.0400	35.5700

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6.3900						
8	Link31	199.6800	Natural	28065.247	0.0320	7554.1400
16.3600						
9	Link33	192.6600	Natural	30196.693	0.0320	6181.6300
17.9700						
10	Link34	49.2500	Natural	78.2500	0.0400	45.0000
4.8200						
11	Link36	499.4300	Natural	30714.993	0.0320	6305.5000
17.9700						
12	Link37	745.4400	Natural	27584.486	0.0320	7672.7100
19.0300						
13	Link42.1.1	20.0100	Natural	31373.446	0.0320	7515.5200
19.9400						
14	Link41	133.5500	Natural	78.2500	0.0400	45.0000
4.8200						
15	Link48	38.2600	Natural	26945.911	0.0320	7614.8800
16.3300						
16	227.1	33.3500	Circular	4.9087	0.0150	2.5000
2.5000						
17	231.1	37.5400	Circular	4.9087	0.0150	2.5000
2.5000						
18	235.1	33.2900	Circular	4.9087	0.0130	2.5000
2.5000						
19	239.1	33.2700	Circular	4.9087	0.0150	2.5000
2.5000						
20	243.1	33.5900	Circular	4.9087	0.0150	2.5000
2.5000						
21	247.1	23.9600	Circular	4.9087	0.0130	2.5000
2.5000						
22	251.1	48.0400	Circular	4.9087	0.0150	2.5000
2.5000						
23	255.1	124.5900	Circular	7.0686	0.0130	3.0000
3.0000						
Total length of all conduits				3299.1300	feet	

```

*=====
| If there are messages about (sqrt(g*d)*dt/dx), or |
| the sqrt(wave celerity)*time step/conduit length |
| in the output file all it means is that the      |
| program will lower the internal time step to     |
| satisfy this condition (explicit condition).     |
| You control the actual internal time step by     |
| using the minimum courant time step factor in the |
| HYDRAULICS job control. The message put in words |
| states that the smallest conduit with the fastest |
| velocity will control the time step selection.   |
| You have further control by using the modify    |
| conduit option in the HYDRAULICS Job Control.   |

```

Coupland_Exist5yr.out

=====

Conduit Name	Courant Ratio	
----- Link14 step/conduit length)	10.95	====> Warning ! (sqrt(wave celerity)*time
Link16 step/conduit length)	32.75	====> Warning ! (sqrt(wave celerity)*time
Link18 step/conduit length)	3.08	====> Warning ! (sqrt(wave celerity)*time
Link20 step/conduit length)	7.07	====> Warning ! (sqrt(wave celerity)*time
Link22 step/conduit length)	3.22	====> Warning ! (sqrt(wave celerity)*time
Link24 step/conduit length)	3.21	====> Warning ! (sqrt(wave celerity)*time
Link26 step/conduit length)	27.26	====> Warning ! (sqrt(wave celerity)*time
Link31 step/conduit length)	5.48	====> Warning ! (sqrt(wave celerity)*time
Link33 step/conduit length)	6.20	====> Warning ! (sqrt(wave celerity)*time
Link34 step/conduit length)	15.19	====> Warning ! (sqrt(wave celerity)*time
Link36 step/conduit length)	2.38	====> Warning ! (sqrt(wave celerity)*time
Link37 step/conduit length)	1.21	====> Warning ! (sqrt(wave celerity)*time
Link42.1.1 step/conduit length)	42.45	====> Warning ! (sqrt(wave celerity)*time
Link41 step/conduit length)	5.60	====> Warning ! (sqrt(wave celerity)*time
Link48 step/conduit length)	27.90	====> Warning ! (sqrt(wave celerity)*time
227.1 step/conduit length)	26.90	====> Warning ! (sqrt(wave celerity)*time
231.1 step/conduit length)	23.90	====> Warning ! (sqrt(wave celerity)*time
235.1 step/conduit length)	26.95	====> Warning ! (sqrt(wave celerity)*time
239.1 step/conduit length)	26.97	====> Warning ! (sqrt(wave celerity)*time
243.1 step/conduit length)	26.71	====> Warning ! (sqrt(wave celerity)*time
247.1 step/conduit length)	37.45	====> Warning ! (sqrt(wave celerity)*time

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251.1 18.68 ==> Warning ! (sqrt(wave celerity)*time
 step/conduit length)
 255.1 7.89 ==> Warning ! (sqrt(wave celerity)*time
 step/conduit length)

=====

Conduit Volume

=====

Full pipe or full open conduit volume
 Input full depth volume..... 4.9108E+07 cubic feet

==> Warning !! The upstream and downstream junctions for the following conduits
 have been reversed to correspond to the positive flow and
 decreasing

slope convention. A negative flow in the output thus means
 the flow was from your original upstream junction to your original
 downstream junction. Any initial flow has been multiplied by -1.

1. Conduit #...Link22 has been changed.
2. Conduit #...Link34 has been changed.
3. Conduit #...235.1 has been changed.
4. Conduit #...239.1 has been changed.
5. Conduit #...243.1 has been changed.
6. Conduit #...247.1 has been changed.

=====

Table E3a - Junction Data

=====

Inp Interface Num (%)	Junction Name	Ground Elevation	Crown Elevation	Invert Elevation	Qinst cfs	Initial Depth-ft	Flow
1	Node13	40.0000	27.8600	22.7400	0.0000	0.0000	
100.0000							
2	Node14	40.0000	27.8200	22.7000	0.0000	0.0000	
100.0000							
3	Node15	40.0000	26.3200	21.2000	0.0000	0.0000	
100.0000							
4	Node16	40.0000	26.6200	21.1600	0.0000	0.0000	
100.0000							
5	Node17	40.0000	25.5100	20.3100	0.0000	0.0000	
100.0000							
6	Node19	40.0000	24.5200	19.4300	0.0000	0.0000	

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100.0000	7	Node20	40.0000	25.1700	19.6300	0.0000	0.0000
100.0000	8	Node21	40.0000	24.7100	19.6900	0.0000	0.0000
100.0000	9	Node22	40.0000	25.5000	19.8000	0.0000	0.0000
100.0000	10	Node23	40.0000	25.5200	19.4500	0.0000	0.0000
100.0000	11	Node24	40.0000	26.2800	19.8700	0.0000	0.0000
100.0000	12	Node25	40.0000	25.9100	19.5700	0.0000	0.0000
100.0000	13	Node26	40.0000	25.2400	18.8500	0.0000	0.0000
100.0000	14	Node27	40.0000	24.6100	18.2200	0.0000	0.0000
100.0000	15	Node28	40.0000	29.4400	11.4700	0.0000	0.0000
100.0000	16	Node31	40.0000	27.8400	11.4800	0.0000	0.0000
100.0000	17	Node33	40.0000	29.4300	11.4600	0.0000	0.0000
100.0000	18	Node35	40.0000	27.8200	11.4900	0.0000	0.0000
100.0000	19	Node36	40.0000	28.0500	9.0200	0.0000	0.0000
100.0000	20	Node37	40.0000	28.4000	8.4600	0.0000	0.0000
100.0000	21	Node41	40.0000	28.4000	8.4600	0.0000	0.0000
100.0000	22	Node18.1.1	40.0000	25.5700	14.9900	0.0000	0.0000
100.0000	23	Node34.1.1	40.0000	27.1000	16.3200	0.0000	0.0000
100.0000	24	Node39	40.0000	27.9700	23.1500	0.0000	0.0000
100.0000							

=====

| Table E3b - Junction Data |

=====

Inp Maximum Num Capacity	Junction Pavement Name Shape Slope	X Coord.	Y Coord.	Type of Manhole	Type of Inlet
----	-----	-----	-----	-----	-----

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Line	Value	Node	Value	Value	Status	Condition
1	0	Node13	0.0000	0.0000	No Ponding	Normal
2	0	Node14	0.0000	0.0000	No Ponding	Normal
3	0	Node15	0.0000	0.0000	No Ponding	Normal
4	0	Node16	0.0000	0.0000	No Ponding	Normal
5	0	Node17	0.0000	0.0000	No Ponding	Normal
6	0	Node19	0.0000	0.0000	No Ponding	Normal
7	0	Node20	0.0000	0.0000	No Ponding	Normal
8	0	Node21	0.0000	0.0000	No Ponding	Normal
9	0	Node22	0.0000	0.0000	No Ponding	Normal
10	0	Node23	0.0000	0.0000	No Ponding	Normal
11	0	Node24	0.0000	0.0000	No Ponding	Normal
12	0	Node25	0.0000	0.0000	No Ponding	Normal
13	0	Node26	0.0000	0.0000	No Ponding	Normal
14	0	Node27	0.0000	0.0000	No Ponding	Normal
15	0	Node28	0.0000	0.0000	No Ponding	Normal
16	0	Node31	0.0000	0.0000	No Ponding	Normal
17	0	Node33	0.0000	0.0000	No Ponding	Normal
18	0	Node35	0.0000	0.0000	No Ponding	Normal
19	0	Node36	0.0000	0.0000	No Ponding	Normal
20	0	Node37	0.0000	0.0000	No Ponding	Normal
21	0	Node41	0.0000	0.0000	No Ponding	Normal
22	0	Node18.1.1	0.0000	0.0000	No Ponding	Normal
23	0	Node34.1.1	0.0000	0.0000	No Ponding	Normal
24	0	Node39	0.0000	0.0000	No Ponding	Normal

0 0.00

```

*-----*
|           Table E4 - Conduit Connectivity           |
*-----*
    
```

Input Upstream Number Elevation	Downstream Elevation	Conduit Name	Upstream Node	Downstream Node
1 23.0000	21.5000	Link14 No Design	Node14	Node15
2 21.8000	20.6900	Link16 No Design	Node16	Node17
3 20.7500	19.7000	Link18 No Design	Node18.1.1	Node19
4 20.1500	19.6900	Link20 No Design	Node20	Node21
5 20.1700	20.1500	Link22 No Design	Node23	Node22
6 20.1700	19.8000	Link24 No Design	Node24	Node25
7 18.8500	18.2200	Link26 No Design	Node26	Node27
8 11.4800	11.4700	Link31 No Design	Node31	Node28
9 11.4700	11.4600	Link33 No Design	Node28	Node33
10 23.0400	22.2800	Link34 No Design	Node13	Node34.1.1
11 11.4600	9.0200	Link36 No Design	Node33	Node36
12 9.0200	8.4600	Link37 No Design	Node36	Node37
13 8.4600	8.4600	Link42.1.1 No Design	Node37	Node41
14 23.1500	22.2800	Link41 No Design	Node39	Node34.1.1
15 11.4900	11.4800	Link48 No Design	Node35	Node31
16 22.7400	22.7000	227.1 No Design	Node13	Node14
17 21.2000	21.1600	231.1 No Design	Node15	Node16
18		235.1	Node18.1.1	Node17

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20.4500	20.3100	No Design		
19		239.1	Node20	Node19
19.7100	19.4300	No Design		
20		243.1	Node22	Node21
20.1500	20.0300	No Design		
21		247.1	Node24	Node23
19.8700	19.4500	No Design		
22		251.1	Node25	Node26
19.8000	19.5400	No Design		
23		255.1	Node27	Node28
18.8000	16.2700	No Design		

```

*=====
|                               |
|               Weir Data     |
|                               |
*=====
  
```

Weir	Weir Weir Name	Discharge Coefficient	From Weir Junction Power	To Junction	Type	Crest Height(ft)
17.26	W14	2.6700	Node13 1.5000	Node14	1	0.91
18.80	W15	2.6700	Node15 1.5000	Node16	1	2.99
19.69	W17	2.6700	Node17 1.5000	Node18.1.1	1	3.17
20.57	W20	2.6700	Node19 1.5000	Node20	1	4.45
20.31	W21	2.6700	Node21 1.5000	Node22	1	4.12
20.55	W24	2.6700	Node23 1.5000	Node24	1	3.76
20.43	W25	2.6700	Node25 1.5000	Node26	1	4.55
21.78	W27	2.6700	Node27 1.5000	Node28	1	5.25

```

*=====
|               FREE OUTFALL DATA (DATA GROUP I1)               |
|               BOUNDARY CONDITION ON DATA GROUP J1           |
|               |                                               |
*=====
  
```

Outfall at Junction....Node41 has boundary condition number... 1

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```
*=====*
```

Weir Outfall Data
Boundary Condition on data group J1

```
*=====*
```

```
*=====*
```

INTERNAL CONNECTIVITY INFORMATION

```
*=====*
```

CONDUIT	JUNCTION	JUNCTION
W14	Node13	Node14
W15	Node15	Node16
W17	Node17	Node18.1.1
W20	Node19	Node20
W21	Node21	Node22
W24	Node23	Node24
W25	Node25	Node26
W27	Node27	Node28
FREE# 1	Node41	BOUNDARY

```
*=====*
```

Boundary Condition Information
Data Groups J1-J4

```
*=====*
```

BC NUMBER.. 1 has no control water surface.

```
*=====*
```

XP Note Field Summary

```
*=====*
```

```
*=====*
```

Conduit Convergence Criteria

```
*=====*
```

Conduit Name	Full Flow	Conduit Slope
Link14	596.7483	0.0219

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Link16	887.9019	0.0486
Link18	264.7415	0.0043
Link20	316.7276	0.0039
Link22	72.5977	0.0001
Link24	267.1870	0.0013
Link26	1249.1460	0.0162
Link31	22103.9553	0.0001
Link33	29068.2089	0.0001
Link34	500.4380	0.0154
Link36	284978.9849	0.0049
Link37	82357.7976	0.0008
Link42.1.1	11938.3421	0.0000
Link41	325.1504	0.0065
Link48	46955.9126	0.0003
227.1	12.3112	0.0012
231.1	11.6038	0.0011
235.1	26.5994	0.0042
239.1	32.6114	0.0084
243.1	21.2473	0.0036
247.1	54.3058	0.0175
251.1	26.1519	0.0054
255.1	95.0460	0.0203

=====

Initial Model Condition
Initial Time = 0.03 hours

Coupland_Exist5yr.out

=====

Junction /	Depth /	Elevation	====>	"*" Junction is Surcharged.
Node13/	0.00 /	22.74		Node14/ 0.00 / 22.70
Node15/	0.00 /	21.20		
Node16/	0.00 /	21.16		Node17/ 0.00 / 20.31
Node19/	0.00 /	19.43		
Node20/	0.00 /	19.63		Node21/ 0.00 / 19.69
Node22/	0.00 /	19.80		
Node23/	0.00 /	19.45		Node24/ 0.00 / 19.87
Node25/	0.00 /	19.57		
Node26/	0.00 /	18.85		Node27/ 0.00 / 18.22
Node28/	0.00 /	11.47		
Node31/	0.00 /	11.48		Node33/ 0.00 / 11.46
Node35/	0.00 /	11.49		
Node36/	0.00 /	9.02		Node37/ 0.00 / 8.46
Node41/	0.00 /	8.46		
Node18.1.1/	0.00 /	14.99		Node34.1.1/ 0.00 / 16.32
Node39/	0.00 /	23.15		

Conduit/	FLOW	====>	"*" Conduit uses the normal flow option.
Link18/	0.00		Link16/ 0.00
Link24/	0.00		Link22/ 0.00
Link33/	0.00		Link31/ 0.00
Link37/	0.00		Link36/ 0.00
Link48/	0.00		Link41/ 0.00
235.1/	0.00		231.1/ 0.00
247.1/	0.00		243.1/ 0.00
W14/	0.00		255.1/ 0.00
W20/	0.00		W17/ 0.00
W25/	0.00		W24/ 0.00
	0.00		FREE# 1/ 0.00

Conduit/	Velocity		
Link18/	0.00		Link16/ 0.00
Link24/	0.00		Link22/ 0.00

Coupland_Exist5yr.out

Link33/	Link26/ 0.00	0.00	Link31/	0.00
Link37/	Link34/ 0.00	0.00	Link36/	0.00
Link48/	Link42.1.1/ 0.00	0.00	Link41/	0.00
235.1/	227.1/ 0.00	0.00	231.1/	0.00
247.1/	239.1/ 0.00	0.00	243.1/	0.00
	251.1/	0.00	255.1/	0.00

Conduit/ Cross Sectional Area

Link18/	Link14/ 0.00	0.00	Link16/	0.00
Link24/	Link20/ 0.00	0.00	Link22/	0.00
Link33/	Link26/ 0.00	0.00	Link31/	0.00
Link37/	Link34/ 0.00	0.00	Link36/	0.00
Link48/	Link42.1.1/ 0.00	0.00	Link41/	0.00
235.1/	227.1/ 0.00	0.00	231.1/	0.00
247.1/	239.1/ 0.00	0.00	243.1/	0.00
	251.1/	0.00	255.1/	0.00

Conduit/ Hydraulic Radius

Link18/	Link14/ 0.00	0.00	Link16/	0.00
Link24/	Link20/ 0.00	0.00	Link22/	0.00
Link33/	Link26/ 0.00	0.00	Link31/	0.00
Link37/	Link34/ 0.00	0.00	Link36/	0.00
Link48/	Link42.1.1/ 0.00	0.00	Link41/	0.00
235.1/	227.1/ 0.00	0.00	231.1/	0.00
247.1/	239.1/ 0.00	0.00	243.1/	0.00
	251.1/	0.00	255.1/	0.00

Conduit/ Upstream/ Downstream Elevation

Link14/	21.20/	21.20	Link16/	20.31/	20.31
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Coupland_Exist5yr.out

Link18/	19.43/	19.43			
Link20/	19.69/	19.69	Link22/	19.80/	19.80
Link24/	19.57/	19.57			
Link26/	18.22/	18.22	Link31/	11.47/	11.47
Link33/	11.46/	11.46			
Link34/	16.32/	16.32	Link36/	9.02/	9.02
Link37/	8.46/	8.46			
Link42.1.1/	8.46/	8.46	Link41/	16.32/	16.32
Link48/	11.48/	11.48			
227.1/	22.70/	22.70	231.1/	21.16/	21.16
235.1/	20.31/	20.31			
239.1/	19.43/	19.43	243.1/	19.69/	19.69
247.1/	19.45/	19.45			
251.1/	18.85/	18.85	255.1/	11.47/	11.47

Important Information

Start time of user hydrographs was... 0.000000000000000E+000
Start time of the simulation was..... 0.000000000000000E+000
Found a match between user hydrograph and simulation start time.

=====
==> System inflows (data group K3) at 0.00 hours (Junction / Inflow,cfs)

Node35 / 0.00E+00

==> System inflows (data group K3) at 0.03 hours (Junction / Inflow,cfs)

Node35 / 0.00E+00

==> System inflows (data group K3) at 0.08 hours (Junction / Inflow,cfs)

Node35 / 0.00E+00

==> System inflows (data group K3) at 0.19 hours (Junction / Inflow,cfs)

Node35 / 0.00E+00

==> System inflows (data group K3) at 0.25 hours (Junction / Inflow,cfs)

Node35 / 0.00E+00

==> System inflows (data group K3) at 0.33 hours (Junction / Inflow,cfs)

Node35 / 0.00E+00

Coupland_Exist5yr.out

==> System inflows (data group K3) at 0.44 hours (Junction / Inflow,cfs)

Node35 / 0.00E+00

==> System inflows (data group K3) at 0.50 hours (Junction / Inflow,cfs)

Node35 / 0.00E+00

==> System inflows (data group K3) at 0.58 hours (Junction / Inflow,cfs)

Node35 / 0.00E+00

==> System inflows (data group K3) at 0.69 hours (Junction / Inflow,cfs)

Node35 / 0.00E+00

==> System inflows (data group K3) at 0.78 hours (Junction / Inflow,cfs)

Node35 / 0.00E+00

==> System inflows (data group K3) at 0.83 hours (Junction / Inflow,cfs)

Node35 / 0.00E+00

==> System inflows (data group K3) at 0.94 hours (Junction / Inflow,cfs)

Node35 / 0.00E+00

==> System inflows (data group K3) at 1.00 hours (Junction / Inflow,cfs)

Node35 / 0.00E+00

==> System inflows (data group K3) at 1.08 hours (Junction / Inflow,cfs)

Node35 / 0.00E+00

==> System inflows (data group K3) at 1.19 hours (Junction / Inflow,cfs)

Coupland_Exist5yr.out

Node35 / 0.00E+00

==> System inflows (data group K3) at 1.25 hours (Junction / Inflow,cfs)

Node35 / 0.00E+00

==> System inflows (data group K3) at 1.33 hours (Junction / Inflow,cfs)

Node35 / 0.00E+00

==> System inflows (data group K3) at 1.44 hours (Junction / Inflow,cfs)

Node35 / 0.00E+00

==> System inflows (data group K3) at 1.50 hours (Junction / Inflow,cfs)

Node35 / 1.00E-01

==> System inflows (data group K3) at 1.58 hours (Junction / Inflow,cfs)

Node35 / 2.00E-01

==> System inflows (data group K3) at 1.69 hours (Junction / Inflow,cfs)

Node35 / 5.00E-01

==> System inflows (data group K3) at 1.75 hours (Junction / Inflow,cfs)

Node35 / 7.00E-01

==> System inflows (data group K3) at 1.83 hours (Junction / Inflow,cfs)

Node35 / 1.00E+00

==> System inflows (data group K3) at 1.94 hours (Junction / Inflow,cfs)

Node35 / 1.30E+00
#####

Coupland_Exist5yr.out

==> System inflows (data group K3) at 2.00 hours (Junction / Inflow,cfs)

Node35 / 1.60E+00

==> System inflows (data group K3) at 2.08 hours (Junction / Inflow,cfs)

Node35 / 1.80E+00

==> System inflows (data group K3) at 2.19 hours (Junction / Inflow,cfs)

Node35 / 2.10E+00

==> System inflows (data group K3) at 2.25 hours (Junction / Inflow,cfs)

Node35 / 2.40E+00

==> System inflows (data group K3) at 2.33 hours (Junction / Inflow,cfs)

Node35 / 2.60E+00

==> System inflows (data group K3) at 2.44 hours (Junction / Inflow,cfs)

Node35 / 2.90E+00

==> System inflows (data group K3) at 2.50 hours (Junction / Inflow,cfs)

Node35 / 3.10E+00

==> System inflows (data group K3) at 2.58 hours (Junction / Inflow,cfs)

Node35 / 3.40E+00

==> System inflows (data group K3) at 2.69 hours (Junction / Inflow,cfs)

Node35 / 3.60E+00

==> System inflows (data group K3) at 2.75 hours (Junction / Inflow,cfs)

Coupland_Exist5yr.out

Node35 / 3.90E+00

==> System inflows (data group K3) at 2.83 hours (Junction / Inflow,cfs)

Node35 / 4.10E+00

==> System inflows (data group K3) at 2.94 hours (Junction / Inflow,cfs)

Node35 / 4.30E+00

==> System inflows (data group K3) at 3.00 hours (Junction / Inflow,cfs)

Node35 / 4.60E+00

==> System inflows (data group K3) at 3.08 hours (Junction / Inflow,cfs)

Node35 / 4.80E+00

==> System inflows (data group K3) at 3.19 hours (Junction / Inflow,cfs)

Node35 / 5.00E+00

==> System inflows (data group K3) at 3.25 hours (Junction / Inflow,cfs)

Node35 / 5.20E+00

==> System inflows (data group K3) at 3.33 hours (Junction / Inflow,cfs)

Node35 / 5.50E+00

==> System inflows (data group K3) at 3.44 hours (Junction / Inflow,cfs)

Node35 / 5.70E+00

==> System inflows (data group K3) at 3.50 hours (Junction / Inflow,cfs)

Node35 / 5.90E+00

#####

Coupland_Exist5yr.out

==> System inflows (data group K3) at 3.58 hours (Junction / Inflow,cfs)

Node35 / 6.10E+00

#####

==> System inflows (data group K3) at 3.69 hours (Junction / Inflow,cfs)

Node35 / 6.30E+00

#####

==> System inflows (data group K3) at 3.75 hours (Junction / Inflow,cfs)

Node35 / 6.50E+00

#####

==> System inflows (data group K3) at 3.83 hours (Junction / Inflow,cfs)

Node35 / 6.70E+00

#####

==> System inflows (data group K3) at 3.94 hours (Junction / Inflow,cfs)

Node35 / 6.90E+00

#####

==> System inflows (data group K3) at 4.00 hours (Junction / Inflow,cfs)

Node35 / 7.10E+00

#####

==> System inflows (data group K3) at 4.08 hours (Junction / Inflow,cfs)

Node35 / 7.30E+00

#####

==> System inflows (data group K3) at 4.19 hours (Junction / Inflow,cfs)

Node35 / 7.50E+00

#####

==> System inflows (data group K3) at 4.25 hours (Junction / Inflow,cfs)

Node35 / 7.60E+00

#####

==> System inflows (data group K3) at 4.33 hours (Junction / Inflow,cfs)

Node35 / 7.80E+00

Coupland_Exist5yr.out

==> System inflows (data group K3) at 4.44 hours (Junction / Inflow,cfs)

Node35 / 8.00E+00

==> System inflows (data group K3) at 4.50 hours (Junction / Inflow,cfs)

Node35 / 8.20E+00

==> System inflows (data group K3) at 4.58 hours (Junction / Inflow,cfs)

Node35 / 8.40E+00

==> System inflows (data group K3) at 4.69 hours (Junction / Inflow,cfs)

Node35 / 8.50E+00

==> System inflows (data group K3) at 4.75 hours (Junction / Inflow,cfs)

Node35 / 8.70E+00

==> System inflows (data group K3) at 4.83 hours (Junction / Inflow,cfs)

Node35 / 8.90E+00

==> System inflows (data group K3) at 4.94 hours (Junction / Inflow,cfs)

Node35 / 9.00E+00

==> System inflows (data group K3) at 5.00 hours (Junction / Inflow,cfs)

Node35 / 9.20E+00

==> System inflows (data group K3) at 5.08 hours (Junction / Inflow,cfs)

Node35 / 9.40E+00

==> System inflows (data group K3) at 5.19 hours (Junction / Inflow,cfs)

Coupland_Exist5yr.out

Node35 / 9.50E+00

==> System inflows (data group K3) at 5.25 hours (Junction / Inflow,cfs)

Node35 / 9.70E+00

==> System inflows (data group K3) at 5.33 hours (Junction / Inflow,cfs)

Node35 / 9.90E+00

==> System inflows (data group K3) at 5.44 hours (Junction / Inflow,cfs)

Node35 / 1.00E+01

==> System inflows (data group K3) at 5.50 hours (Junction / Inflow,cfs)

Node35 / 1.02E+01

==> System inflows (data group K3) at 5.58 hours (Junction / Inflow,cfs)

Node35 / 1.03E+01

==> System inflows (data group K3) at 5.69 hours (Junction / Inflow,cfs)

Node35 / 1.05E+01

==> System inflows (data group K3) at 5.75 hours (Junction / Inflow,cfs)

Node35 / 1.06E+01

==> System inflows (data group K3) at 5.83 hours (Junction / Inflow,cfs)

Node35 / 1.08E+01

==> System inflows (data group K3) at 5.94 hours (Junction / Inflow,cfs)

Node35 / 1.09E+01
#####

Coupland_Exist5yr.out

==> System inflows (data group K3) at 6.00 hours (Junction / Inflow,cfs)

Node35 / 1.10E+01

==> System inflows (data group K3) at 6.08 hours (Junction / Inflow,cfs)

Node35 / 1.12E+01

==> System inflows (data group K3) at 6.19 hours (Junction / Inflow,cfs)

Node35 / 1.13E+01

==> System inflows (data group K3) at 6.25 hours (Junction / Inflow,cfs)

Node35 / 1.15E+01

==> System inflows (data group K3) at 6.33 hours (Junction / Inflow,cfs)

Node35 / 1.16E+01

==> System inflows (data group K3) at 6.44 hours (Junction / Inflow,cfs)

Node35 / 1.17E+01

==> System inflows (data group K3) at 6.50 hours (Junction / Inflow,cfs)

Node35 / 1.19E+01

==> System inflows (data group K3) at 6.58 hours (Junction / Inflow,cfs)

Node35 / 1.20E+01

==> System inflows (data group K3) at 6.69 hours (Junction / Inflow,cfs)

Node35 / 1.21E+01

==> System inflows (data group K3) at 6.75 hours (Junction / Inflow,cfs)

Coupland_Exist5yr.out

Node35 / 1.23E+01

==> System inflows (data group K3) at 6.83 hours (Junction / Inflow,cfs)

Node35 / 1.24E+01

==> System inflows (data group K3) at 6.94 hours (Junction / Inflow,cfs)

Node35 / 1.25E+01

==> System inflows (data group K3) at 7.00 hours (Junction / Inflow,cfs)

Node35 / 1.27E+01

==> System inflows (data group K3) at 7.08 hours (Junction / Inflow,cfs)

Node35 / 1.28E+01

==> System inflows (data group K3) at 7.19 hours (Junction / Inflow,cfs)

Node35 / 1.29E+01

==> System inflows (data group K3) at 7.25 hours (Junction / Inflow,cfs)

Node35 / 1.30E+01

==> System inflows (data group K3) at 7.33 hours (Junction / Inflow,cfs)

Node35 / 1.32E+01

==> System inflows (data group K3) at 7.44 hours (Junction / Inflow,cfs)

Node35 / 1.33E+01

==> System inflows (data group K3) at 7.50 hours (Junction / Inflow,cfs)

Node35 / 1.34E+01

#####

Coupland_Exist5yr.out

==> System inflows (data group K3) at 7.58 hours (Junction / Inflow,cfs)

Node35 / 1.35E+01

#####

==> System inflows (data group K3) at 7.69 hours (Junction / Inflow,cfs)

Node35 / 1.36E+01

#####

==> System inflows (data group K3) at 7.75 hours (Junction / Inflow,cfs)

Node35 / 1.38E+01

#####

==> System inflows (data group K3) at 7.83 hours (Junction / Inflow,cfs)

Node35 / 1.39E+01

#####

==> System inflows (data group K3) at 7.94 hours (Junction / Inflow,cfs)

Node35 / 1.40E+01

#####

==> System inflows (data group K3) at 8.00 hours (Junction / Inflow,cfs)

Node35 / 1.41E+01

#####

==> System inflows (data group K3) at 8.08 hours (Junction / Inflow,cfs)

Node35 / 1.42E+01

#####

==> System inflows (data group K3) at 8.19 hours (Junction / Inflow,cfs)

Node35 / 1.43E+01

#####

==> System inflows (data group K3) at 8.25 hours (Junction / Inflow,cfs)

Node35 / 1.45E+01

#####

==> System inflows (data group K3) at 8.33 hours (Junction / Inflow,cfs)

Node35 / 1.46E+01

Coupland_Exist5yr.out

==> System inflows (data group K3) at 8.44 hours (Junction / Inflow,cfs)

Node35 / 1.47E+01

==> System inflows (data group K3) at 8.50 hours (Junction / Inflow,cfs)

Node35 / 1.48E+01

==> System inflows (data group K3) at 8.58 hours (Junction / Inflow,cfs)

Node35 / 1.49E+01

==> System inflows (data group K3) at 8.69 hours (Junction / Inflow,cfs)

Node35 / 1.50E+01

==> System inflows (data group K3) at 8.75 hours (Junction / Inflow,cfs)

Node35 / 1.52E+01

==> System inflows (data group K3) at 8.83 hours (Junction / Inflow,cfs)

Node35 / 1.53E+01

==> System inflows (data group K3) at 8.94 hours (Junction / Inflow,cfs)

Node35 / 1.54E+01

==> System inflows (data group K3) at 9.00 hours (Junction / Inflow,cfs)

Node35 / 1.55E+01

==> System inflows (data group K3) at 9.08 hours (Junction / Inflow,cfs)

Node35 / 1.57E+01

==> System inflows (data group K3) at 9.19 hours (Junction / Inflow,cfs)

Coupland_Exist5yr.out

Node35 / 1.58E+01

==> System inflows (data group K3) at 9.25 hours (Junction / Inflow,cfs)

Node35 / 1.59E+01

==> System inflows (data group K3) at 9.33 hours (Junction / Inflow,cfs)

Node35 / 1.60E+01

==> System inflows (data group K3) at 9.44 hours (Junction / Inflow,cfs)

Node35 / 1.62E+01

==> System inflows (data group K3) at 9.50 hours (Junction / Inflow,cfs)

Node35 / 1.63E+01

==> System inflows (data group K3) at 9.58 hours (Junction / Inflow,cfs)

Node35 / 1.64E+01

==> System inflows (data group K3) at 9.69 hours (Junction / Inflow,cfs)

Node35 / 1.66E+01

==> System inflows (data group K3) at 9.75 hours (Junction / Inflow,cfs)

Node35 / 1.67E+01

==> System inflows (data group K3) at 9.83 hours (Junction / Inflow,cfs)

Node35 / 1.68E+01

==> System inflows (data group K3) at 9.94 hours (Junction / Inflow,cfs)

Node35 / 1.70E+01
#####

Coupland_Exist5yr.out

==> System inflows (data group K3) at 10.00 hours (Junction / Inflow,cfs)

Node35 / 1.71E+01

==> System inflows (data group K3) at 10.08 hours (Junction / Inflow,cfs)

Node35 / 1.73E+01

==> System inflows (data group K3) at 10.19 hours (Junction / Inflow,cfs)

Node35 / 1.74E+01

==> System inflows (data group K3) at 10.25 hours (Junction / Inflow,cfs)

Node35 / 1.75E+01

==> System inflows (data group K3) at 10.33 hours (Junction / Inflow,cfs)

Node35 / 1.77E+01

==> System inflows (data group K3) at 10.44 hours (Junction / Inflow,cfs)

Node35 / 1.78E+01

==> System inflows (data group K3) at 10.50 hours (Junction / Inflow,cfs)

Node35 / 1.80E+01

==> System inflows (data group K3) at 10.58 hours (Junction / Inflow,cfs)

Node35 / 1.81E+01

==> System inflows (data group K3) at 10.69 hours (Junction / Inflow,cfs)

Node35 / 1.83E+01

==> System inflows (data group K3) at 10.75 hours (Junction / Inflow,cfs)

Coupland_Exist5yr.out

Node35 / 1.84E+01

==> System inflows (data group K3) at 10.83 hours (Junction / Inflow,cfs)

Node35 / 1.86E+01

==> System inflows (data group K3) at 10.94 hours (Junction / Inflow,cfs)

Node35 / 1.88E+01

==> System inflows (data group K3) at 11.00 hours (Junction / Inflow,cfs)

Node35 / 1.89E+01

==> System inflows (data group K3) at 11.08 hours (Junction / Inflow,cfs)

Node35 / 1.91E+01

==> System inflows (data group K3) at 11.19 hours (Junction / Inflow,cfs)

Node35 / 1.93E+01

==> System inflows (data group K3) at 11.25 hours (Junction / Inflow,cfs)

Node35 / 1.94E+01

==> System inflows (data group K3) at 11.33 hours (Junction / Inflow,cfs)

Node35 / 1.96E+01

==> System inflows (data group K3) at 11.44 hours (Junction / Inflow,cfs)

Node35 / 1.98E+01

==> System inflows (data group K3) at 11.50 hours (Junction / Inflow,cfs)

Node35 / 2.00E+01

#####

==> System inflows (data group K3) at 11.58 hours (Junction / Inflow,cfs)

Node35 / 2.02E+01

#####

==> System inflows (data group K3) at 11.69 hours (Junction / Inflow,cfs)

Node35 / 2.04E+01

#####

==> System inflows (data group K3) at 11.75 hours (Junction / Inflow,cfs)

Node35 / 2.06E+01

#####

==> System inflows (data group K3) at 11.83 hours (Junction / Inflow,cfs)

Node35 / 2.08E+01

#####

==> System inflows (data group K3) at 11.94 hours (Junction / Inflow,cfs)

Node35 / 2.11E+01

#####

==> System inflows (data group K3) at 12.00 hours (Junction / Inflow,cfs)

Node35 / 2.14E+01

#####

==> System inflows (data group K3) at 12.08 hours (Junction / Inflow,cfs)

Node35 / 2.18E+01

#####

==> System inflows (data group K3) at 12.19 hours (Junction / Inflow,cfs)

Node35 / 2.22E+01

#####

==> System inflows (data group K3) at 12.25 hours (Junction / Inflow,cfs)

Node35 / 2.27E+01

#####

==> System inflows (data group K3) at 12.33 hours (Junction / Inflow,cfs)

Node35 / 2.33E+01

Coupland_Exist5yr.out

==> System inflows (data group K3) at 12.44 hours (Junction / Inflow,cfs)

Node35 / 2.39E+01

==> System inflows (data group K3) at 12.50 hours (Junction / Inflow,cfs)

Node35 / 2.46E+01

==> System inflows (data group K3) at 12.58 hours (Junction / Inflow,cfs)

Node35 / 2.53E+01

==> System inflows (data group K3) at 12.69 hours (Junction / Inflow,cfs)

Node35 / 2.61E+01

==> System inflows (data group K3) at 12.75 hours (Junction / Inflow,cfs)

Node35 / 2.70E+01

==> System inflows (data group K3) at 12.83 hours (Junction / Inflow,cfs)

Node35 / 2.79E+01

==> System inflows (data group K3) at 12.94 hours (Junction / Inflow,cfs)

Node35 / 2.89E+01

==> System inflows (data group K3) at 13.00 hours (Junction / Inflow,cfs)

Node35 / 3.00E+01

==> System inflows (data group K3) at 13.08 hours (Junction / Inflow,cfs)

Node35 / 3.13E+01

==> System inflows (data group K3) at 13.19 hours (Junction / Inflow,cfs)

Coupland_Exist5yr.out

Node35 / 3.29E+01

==> System inflows (data group K3) at 13.25 hours (Junction / Inflow,cfs)

Node35 / 3.48E+01

==> System inflows (data group K3) at 13.33 hours (Junction / Inflow,cfs)

Node35 / 3.69E+01

==> System inflows (data group K3) at 13.44 hours (Junction / Inflow,cfs)

Node35 / 3.92E+01

==> System inflows (data group K3) at 13.50 hours (Junction / Inflow,cfs)

Node35 / 4.16E+01

==> System inflows (data group K3) at 13.58 hours (Junction / Inflow,cfs)

Node35 / 4.40E+01

==> System inflows (data group K3) at 13.69 hours (Junction / Inflow,cfs)

Node35 / 4.66E+01

==> System inflows (data group K3) at 13.75 hours (Junction / Inflow,cfs)

Node35 / 4.92E+01

==> System inflows (data group K3) at 13.83 hours (Junction / Inflow,cfs)

Node35 / 5.19E+01
#####

Cycle 500 Time 13 Hrs - 53.33 Min

Junction / Depth / Elevation ==> "*" Junction is Surcharged.
Node13/ 0.67 / 23.41 Node14/ 0.70 / 23.40

Coupland_Exist5yr.out

Node15/	0.94 /	22.14			
Node16/	0.98 /	22.14		Node17/	1.24 / 21.55
Node19/	1.93 /	21.36			
Node20/	1.73 /	21.36		Node21/	1.64 / 21.33
Node22/	1.52 /	21.32			
Node23/	1.79 /	21.24		Node24/	1.37 / 21.24
Node25/	0.74 /	20.31			
Node26/	0.64 /	19.49		Node27/	0.90 / 19.12
Node28/	1.83 /	13.30			
Node31/	1.93 /	13.41		Node33/	1.46 / 12.92
Node35/	1.96 /	13.45			
Node36/	3.14 /	12.16		Node37/	3.53 / 11.99
Node41/	3.53 /	11.99			
Node18.1.1/	6.56 /	21.55		Node34.1.1/	7.10 / 23.42
Node39/	0.34 /	23.49			

	Conduit/	FLOW	==> "*" Conduit uses the normal flow option.
Link18/	Link14/	0.87*	Link16/ 0.86*
	1.49	Link20/	2.57
Link26/	Link22/	-2.47	Link24/ 2.35
	2.34	Link31/	50.34
Link36/	Link33/	51.84	Link34/ -0.87
	50.50	Link37/	45.84
Link48/	Link42.1.1/	42.87	Link41/ 0.22
	50.92	227.1/	0.87
	231.1/	0.87	235.1/ -0.91
239.1/	-2.60	243.1/	-2.54
	247.1/	-2.40	251.1/ 2.34
255.1/	2.33	W14/	0.00
	W15/	0.00	W17/ 0.00
W20/	0.00	W21/	0.00
	W24/	0.00	W25/ 0.00
W27/	0.00	FREE# 1/	42.80

 ==> System inflows (data group K3) at 13.94 hours (Junction / Inflow,cfs)

Node35 / 5.47E+01
 #####
 #####
 ==> System inflows (data group K3) at 14.00 hours (Junction / Inflow,cfs)

Node35 / 5.76E+01
 #####
 #####
 ==> System inflows (data group K3) at 14.08 hours (Junction / Inflow,cfs)

Node35 / 6.06E+01
 #####

Coupland_Exist5yr.out

==> System inflows (data group K3) at 14.19 hours (Junction / Inflow,cfs)

Node35 / 6.37E+01

==> System inflows (data group K3) at 14.25 hours (Junction / Inflow,cfs)

Node35 / 6.70E+01

==> System inflows (data group K3) at 14.33 hours (Junction / Inflow,cfs)

Node35 / 7.04E+01

==> System inflows (data group K3) at 14.44 hours (Junction / Inflow,cfs)

Node35 / 7.40E+01

==> System inflows (data group K3) at 14.50 hours (Junction / Inflow,cfs)

Node35 / 7.76E+01

==> System inflows (data group K3) at 14.58 hours (Junction / Inflow,cfs)

Node35 / 8.14E+01

==> System inflows (data group K3) at 14.69 hours (Junction / Inflow,cfs)

Node35 / 8.52E+01

==> System inflows (data group K3) at 14.75 hours (Junction / Inflow,cfs)

Node35 / 8.90E+01

==> System inflows (data group K3) at 14.83 hours (Junction / Inflow,cfs)

Node35 / 9.29E+01

==> System inflows (data group K3) at 14.94 hours (Junction / Inflow,cfs)

Coupland_Exist5yr.out

Node35 / 9.70E+01

==> System inflows (data group K3) at 15.00 hours (Junction / Inflow,cfs)

Node35 / 1.02E+02

==> System inflows (data group K3) at 15.08 hours (Junction / Inflow,cfs)

Node35 / 1.06E+02

==> System inflows (data group K3) at 15.19 hours (Junction / Inflow,cfs)

Node35 / 1.12E+02

==> System inflows (data group K3) at 15.25 hours (Junction / Inflow,cfs)

Node35 / 1.18E+02

==> System inflows (data group K3) at 15.33 hours (Junction / Inflow,cfs)

Node35 / 1.24E+02

==> System inflows (data group K3) at 15.44 hours (Junction / Inflow,cfs)

Node35 / 1.31E+02

==> System inflows (data group K3) at 15.50 hours (Junction / Inflow,cfs)

Node35 / 1.39E+02

==> System inflows (data group K3) at 15.58 hours (Junction / Inflow,cfs)

Node35 / 1.49E+02

==> System inflows (data group K3) at 15.69 hours (Junction / Inflow,cfs)

Node35 / 1.61E+02

#####

Coupland_Exist5yr.out

==> System inflows (data group K3) at 15.75 hours (Junction / Inflow,cfs)

Node35 / 1.76E+02

#####

==> System inflows (data group K3) at 15.83 hours (Junction / Inflow,cfs)

Node35 / 1.95E+02

#####

==> System inflows (data group K3) at 15.94 hours (Junction / Inflow,cfs)

Node35 / 2.23E+02

#####

==> System inflows (data group K3) at 16.00 hours (Junction / Inflow,cfs)

Node35 / 2.68E+02

#####

==> System inflows (data group K3) at 16.08 hours (Junction / Inflow,cfs)

Node35 / 3.36E+02

#####

==> System inflows (data group K3) at 16.19 hours (Junction / Inflow,cfs)

Node35 / 4.17E+02

#####

==> System inflows (data group K3) at 16.25 hours (Junction / Inflow,cfs)

Node35 / 4.97E+02

#####

==> System inflows (data group K3) at 16.33 hours (Junction / Inflow,cfs)

Node35 / 5.61E+02

#####

==> System inflows (data group K3) at 16.44 hours (Junction / Inflow,cfs)

Node35 / 6.00E+02

#####

==> System inflows (data group K3) at 16.50 hours (Junction / Inflow,cfs)

Node35 / 6.19E+02

Coupland_Exist5yr.out

==> System inflows (data group K3) at 16.58 hours (Junction / Inflow,cfs)

Node35 / 6.29E+02

==> System inflows (data group K3) at 16.69 hours (Junction / Inflow,cfs)

Node35 / 6.34E+02

==> System inflows (data group K3) at 16.75 hours (Junction / Inflow,cfs)

Node35 / 6.36E+02

==> System inflows (data group K3) at 16.83 hours (Junction / Inflow,cfs)

Node35 / 6.36E+02

==> System inflows (data group K3) at 16.94 hours (Junction / Inflow,cfs)

Node35 / 6.35E+02

==> System inflows (data group K3) at 17.00 hours (Junction / Inflow,cfs)

Node35 / 6.32E+02

==> System inflows (data group K3) at 17.08 hours (Junction / Inflow,cfs)

Node35 / 6.29E+02

==> System inflows (data group K3) at 17.19 hours (Junction / Inflow,cfs)

Node35 / 6.26E+02

==> System inflows (data group K3) at 17.25 hours (Junction / Inflow,cfs)

Node35 / 6.21E+02

==> System inflows (data group K3) at 17.33 hours (Junction / Inflow,cfs)

Coupland_Exist5yr.out

Node35 / 6.16E+02

==> System inflows (data group K3) at 17.44 hours (Junction / Inflow,cfs)

Node35 / 6.11E+02

==> System inflows (data group K3) at 17.50 hours (Junction / Inflow,cfs)

Node35 / 6.06E+02

==> System inflows (data group K3) at 17.58 hours (Junction / Inflow,cfs)

Node35 / 6.00E+02

==> System inflows (data group K3) at 17.69 hours (Junction / Inflow,cfs)

Node35 / 5.95E+02

==> System inflows (data group K3) at 17.75 hours (Junction / Inflow,cfs)

Node35 / 5.90E+02

==> System inflows (data group K3) at 17.83 hours (Junction / Inflow,cfs)

Node35 / 5.84E+02

==> System inflows (data group K3) at 17.94 hours (Junction / Inflow,cfs)

Node35 / 5.78E+02

==> System inflows (data group K3) at 18.00 hours (Junction / Inflow,cfs)

Node35 / 5.73E+02

==> System inflows (data group K3) at 18.08 hours (Junction / Inflow,cfs)

Node35 / 5.67E+02
#####

Coupland_Exist5yr.out

==> System inflows (data group K3) at 18.19 hours (Junction / Inflow,cfs)

Node35 / 5.61E+02

==> System inflows (data group K3) at 18.25 hours (Junction / Inflow,cfs)

Node35 / 5.55E+02

==> System inflows (data group K3) at 18.33 hours (Junction / Inflow,cfs)

Node35 / 5.49E+02

==> System inflows (data group K3) at 18.44 hours (Junction / Inflow,cfs)

Node35 / 5.43E+02

==> System inflows (data group K3) at 18.50 hours (Junction / Inflow,cfs)

Node35 / 5.37E+02

==> System inflows (data group K3) at 18.58 hours (Junction / Inflow,cfs)

Node35 / 5.31E+02

==> System inflows (data group K3) at 18.69 hours (Junction / Inflow,cfs)

Node35 / 5.25E+02

==> System inflows (data group K3) at 18.75 hours (Junction / Inflow,cfs)

Node35 / 5.19E+02

==> System inflows (data group K3) at 18.83 hours (Junction / Inflow,cfs)

Node35 / 5.13E+02

==> System inflows (data group K3) at 18.94 hours (Junction / Inflow,cfs)

Coupland_Exist5yr.out

Node35 / 5.07E+02

==> System inflows (data group K3) at 19.03 hours (Junction / Inflow,cfs)

Node35 / 5.01E+02

==> System inflows (data group K3) at 19.08 hours (Junction / Inflow,cfs)

Node35 / 4.95E+02

==> System inflows (data group K3) at 19.19 hours (Junction / Inflow,cfs)

Node35 / 4.89E+02

==> System inflows (data group K3) at 19.28 hours (Junction / Inflow,cfs)

Node35 / 4.82E+02

==> System inflows (data group K3) at 19.33 hours (Junction / Inflow,cfs)

Node35 / 4.75E+02

==> System inflows (data group K3) at 19.44 hours (Junction / Inflow,cfs)

Node35 / 4.69E+02

==> System inflows (data group K3) at 19.53 hours (Junction / Inflow,cfs)

Node35 / 4.62E+02

==> System inflows (data group K3) at 19.58 hours (Junction / Inflow,cfs)

Node35 / 4.56E+02

==> System inflows (data group K3) at 19.69 hours (Junction / Inflow,cfs)

Node35 / 4.49E+02

#####

Coupland_Exist5yr.out

==> System inflows (data group K3) at 19.78 hours (Junction / Inflow,cfs)

Node35 / 4.43E+02

#####

==> System inflows (data group K3) at 19.83 hours (Junction / Inflow,cfs)

Node35 / 4.36E+02

#####

==> System inflows (data group K3) at 19.94 hours (Junction / Inflow,cfs)

Node35 / 4.30E+02

#####

==> System inflows (data group K3) at 20.03 hours (Junction / Inflow,cfs)

Node35 / 4.24E+02

#####

==> System inflows (data group K3) at 20.08 hours (Junction / Inflow,cfs)

Node35 / 4.18E+02

#####

==> System inflows (data group K3) at 20.19 hours (Junction / Inflow,cfs)

Node35 / 4.12E+02

#####

==> System inflows (data group K3) at 20.28 hours (Junction / Inflow,cfs)

Node35 / 4.05E+02

#####

==> System inflows (data group K3) at 20.33 hours (Junction / Inflow,cfs)

Node35 / 4.00E+02

#####

==> System inflows (data group K3) at 20.44 hours (Junction / Inflow,cfs)

Node35 / 3.94E+02

#####

==> System inflows (data group K3) at 20.53 hours (Junction / Inflow,cfs)

Node35 / 3.88E+02

Coupland_Exist5yr.out

==> System inflows (data group K3) at 20.58 hours (Junction / Inflow,cfs)

Node35 / 3.82E+02

==> System inflows (data group K3) at 20.69 hours (Junction / Inflow,cfs)

Node35 / 3.76E+02

==> System inflows (data group K3) at 20.78 hours (Junction / Inflow,cfs)

Node35 / 3.71E+02

==> System inflows (data group K3) at 20.83 hours (Junction / Inflow,cfs)

Node35 / 3.65E+02

==> System inflows (data group K3) at 20.94 hours (Junction / Inflow,cfs)

Node35 / 3.60E+02

==> System inflows (data group K3) at 21.03 hours (Junction / Inflow,cfs)

Node35 / 3.54E+02

==> System inflows (data group K3) at 21.08 hours (Junction / Inflow,cfs)

Node35 / 3.49E+02

==> System inflows (data group K3) at 21.19 hours (Junction / Inflow,cfs)

Node35 / 3.44E+02

==> System inflows (data group K3) at 21.28 hours (Junction / Inflow,cfs)

Node35 / 3.39E+02

==> System inflows (data group K3) at 21.33 hours (Junction / Inflow,cfs)

Coupland_Exist5yr.out

Node35 / 3.34E+02

==> System inflows (data group K3) at 21.44 hours (Junction / Inflow,cfs)

Node35 / 3.29E+02

==> System inflows (data group K3) at 21.53 hours (Junction / Inflow,cfs)

Node35 / 3.24E+02

==> System inflows (data group K3) at 21.58 hours (Junction / Inflow,cfs)

Node35 / 3.19E+02

==> System inflows (data group K3) at 21.69 hours (Junction / Inflow,cfs)

Node35 / 3.14E+02

==> System inflows (data group K3) at 21.78 hours (Junction / Inflow,cfs)

Node35 / 3.09E+02

==> System inflows (data group K3) at 21.83 hours (Junction / Inflow,cfs)

Node35 / 3.04E+02

==> System inflows (data group K3) at 21.94 hours (Junction / Inflow,cfs)

Node35 / 3.00E+02

==> System inflows (data group K3) at 22.03 hours (Junction / Inflow,cfs)

Node35 / 2.95E+02

==> System inflows (data group K3) at 22.08 hours (Junction / Inflow,cfs)

Node35 / 2.91E+02
#####

Coupland_Exist5yr.out

==> System inflows (data group K3) at 22.19 hours (Junction / Inflow,cfs)

Node35 / 2.86E+02

==> System inflows (data group K3) at 22.28 hours (Junction / Inflow,cfs)

Node35 / 2.82E+02

==> System inflows (data group K3) at 22.33 hours (Junction / Inflow,cfs)

Node35 / 2.78E+02

==> System inflows (data group K3) at 22.44 hours (Junction / Inflow,cfs)

Node35 / 2.73E+02

==> System inflows (data group K3) at 22.50 hours (Junction / Inflow,cfs)

Node35 / 2.69E+02

==> System inflows (data group K3) at 22.58 hours (Junction / Inflow,cfs)

Node35 / 2.65E+02

==> System inflows (data group K3) at 22.69 hours (Junction / Inflow,cfs)

Node35 / 2.61E+02

==> System inflows (data group K3) at 22.75 hours (Junction / Inflow,cfs)

Node35 / 2.57E+02

==> System inflows (data group K3) at 22.83 hours (Junction / Inflow,cfs)

Node35 / 2.53E+02

==> System inflows (data group K3) at 22.94 hours (Junction / Inflow,cfs)

Coupland_Exist5yr.out

Node35 / 2.49E+02

==> System inflows (data group K3) at 23.00 hours (Junction / Inflow,cfs)

Node35 / 2.45E+02

==> System inflows (data group K3) at 23.08 hours (Junction / Inflow,cfs)

Node35 / 2.42E+02

==> System inflows (data group K3) at 23.19 hours (Junction / Inflow,cfs)

Node35 / 2.38E+02

==> System inflows (data group K3) at 23.25 hours (Junction / Inflow,cfs)

Node35 / 2.34E+02

==> System inflows (data group K3) at 23.33 hours (Junction / Inflow,cfs)

Node35 / 2.31E+02

==> System inflows (data group K3) at 23.44 hours (Junction / Inflow,cfs)

Node35 / 2.27E+02

==> System inflows (data group K3) at 23.50 hours (Junction / Inflow,cfs)

Node35 / 2.24E+02

==> System inflows (data group K3) at 23.58 hours (Junction / Inflow,cfs)

Node35 / 2.20E+02

==> System inflows (data group K3) at 23.69 hours (Junction / Inflow,cfs)

Node35 / 2.17E+02

#####

Coupland_Exist5yr.out

==> System inflows (data group K3) at 23.75 hours (Junction / Inflow,cfs)

Node35 / 2.14E+02

#####

==> System inflows (data group K3) at 23.83 hours (Junction / Inflow,cfs)

Node35 / 2.10E+02

#####

==> System inflows (data group K3) at 23.94 hours (Junction / Inflow,cfs)

Node35 / 2.07E+02

#####

==> System inflows (data group K3) at 24.00 hours (Junction / Inflow,cfs)

Node35 / 2.04E+02

#####

==> System inflows (data group K3) at 24.08 hours (Junction / Inflow,cfs)

Node35 / 2.00E+02

#####

==> System inflows (data group K3) at 24.19 hours (Junction / Inflow,cfs)

Node35 / 1.97E+02

#####

==> System inflows (data group K3) at 24.25 hours (Junction / Inflow,cfs)

Node35 / 1.94E+02

#####

==> System inflows (data group K3) at 24.33 hours (Junction / Inflow,cfs)

Node35 / 1.90E+02

#####

==> System inflows (data group K3) at 24.44 hours (Junction / Inflow,cfs)

Node35 / 1.86E+02

#####

==> System inflows (data group K3) at 24.50 hours (Junction / Inflow,cfs)

Node35 / 1.83E+02

Coupland_Exist5yr.out

==> System inflows (data group K3) at 24.58 hours (Junction / Inflow,cfs)

Node35 / 1.80E+02

==> System inflows (data group K3) at 24.69 hours (Junction / Inflow,cfs)

Node35 / 1.76E+02

==> System inflows (data group K3) at 24.75 hours (Junction / Inflow,cfs)

Node35 / 1.73E+02

==> System inflows (data group K3) at 24.83 hours (Junction / Inflow,cfs)

Node35 / 1.70E+02

==> System inflows (data group K3) at 24.94 hours (Junction / Inflow,cfs)

Node35 / 1.66E+02

==> System inflows (data group K3) at 25.00 hours (Junction / Inflow,cfs)

Node35 / 1.63E+02

==> System inflows (data group K3) at 25.08 hours (Junction / Inflow,cfs)

Node35 / 1.60E+02

==> System inflows (data group K3) at 25.19 hours (Junction / Inflow,cfs)

Node35 / 1.57E+02

==> System inflows (data group K3) at 25.25 hours (Junction / Inflow,cfs)

Node35 / 1.54E+02

==> System inflows (data group K3) at 25.33 hours (Junction / Inflow,cfs)

Coupland_Exist5yr.out

Node35 / 1.51E+02

==> System inflows (data group K3) at 25.44 hours (Junction / Inflow,cfs)

Node35 / 1.48E+02

==> System inflows (data group K3) at 25.50 hours (Junction / Inflow,cfs)

Node35 / 1.46E+02

==> System inflows (data group K3) at 25.58 hours (Junction / Inflow,cfs)

Node35 / 1.43E+02

==> System inflows (data group K3) at 25.69 hours (Junction / Inflow,cfs)

Node35 / 1.40E+02

==> System inflows (data group K3) at 25.75 hours (Junction / Inflow,cfs)

Node35 / 1.38E+02

==> System inflows (data group K3) at 25.83 hours (Junction / Inflow,cfs)

Node35 / 1.35E+02

==> System inflows (data group K3) at 25.94 hours (Junction / Inflow,cfs)

Node35 / 1.32E+02

==> System inflows (data group K3) at 26.00 hours (Junction / Inflow,cfs)

Node35 / 1.30E+02

==> System inflows (data group K3) at 26.08 hours (Junction / Inflow,cfs)

Node35 / 1.28E+02
#####

Coupland_Exist5yr.out

==> System inflows (data group K3) at 26.19 hours (Junction / Inflow,cfs)

Node35 / 1.25E+02

==> System inflows (data group K3) at 26.25 hours (Junction / Inflow,cfs)

Node35 / 1.23E+02

==> System inflows (data group K3) at 26.33 hours (Junction / Inflow,cfs)

Node35 / 1.21E+02

==> System inflows (data group K3) at 26.44 hours (Junction / Inflow,cfs)

Node35 / 1.18E+02

==> System inflows (data group K3) at 26.53 hours (Junction / Inflow,cfs)

Node35 / 1.16E+02

==> System inflows (data group K3) at 26.58 hours (Junction / Inflow,cfs)

Node35 / 1.14E+02

==> System inflows (data group K3) at 26.69 hours (Junction / Inflow,cfs)

Node35 / 1.12E+02

==> System inflows (data group K3) at 26.78 hours (Junction / Inflow,cfs)

Node35 / 1.10E+02

==> System inflows (data group K3) at 26.83 hours (Junction / Inflow,cfs)

Node35 / 1.08E+02

==> System inflows (data group K3) at 26.94 hours (Junction / Inflow,cfs)

Coupland_Exist5yr.out

Node35 / 1.06E+02

==> System inflows (data group K3) at 27.03 hours (Junction / Inflow,cfs)

Node35 / 1.04E+02

==> System inflows (data group K3) at 27.08 hours (Junction / Inflow,cfs)

Node35 / 1.02E+02

==> System inflows (data group K3) at 27.19 hours (Junction / Inflow,cfs)

Node35 / 9.97E+01

==> System inflows (data group K3) at 27.25 hours (Junction / Inflow,cfs)

Node35 / 9.79E+01

==> System inflows (data group K3) at 27.33 hours (Junction / Inflow,cfs)

Node35 / 9.60E+01

==> System inflows (data group K3) at 27.44 hours (Junction / Inflow,cfs)

Node35 / 9.42E+01

==> System inflows (data group K3) at 27.50 hours (Junction / Inflow,cfs)

Node35 / 9.25E+01

==> System inflows (data group K3) at 27.58 hours (Junction / Inflow,cfs)

Node35 / 9.07E+01

==> System inflows (data group K3) at 27.69 hours (Junction / Inflow,cfs)

Node35 / 8.90E+01

#####

Coupland_Exist5yr.out

==> System inflows (data group K3) at 27.75 hours (Junction / Inflow,cfs)

Node35 / 8.73E+01
#####

Cycle 1000 Time 27 Hrs - 46.67 Min

Junction / Depth / Elevation	==> "*" Junction is Surcharged.
Node13/ 0.43 / 23.17	Node14/ 0.47 / 23.17
Node15/ 0.74 / 21.94	
Node16/ 0.78 / 21.94	Node17/ 0.73 / 21.04
Node19/ 1.37 / 20.80	
Node20/ 1.17 / 20.80	Node21/ 1.10 / 20.79
Node22/ 0.99 / 20.79	
Node23/ 1.30 / 20.75	Node24/ 0.88 / 20.75
Node25/ 0.45 / 20.02	
Node26/ 0.32 / 19.17	Node27/ 0.72 / 18.94
Node28/ 2.54 / 14.01	
Node31/ 2.62 / 14.10	Node33/ 2.33 / 13.79
Node35/ 2.64 / 14.13	
Node36/ 4.46 / 13.48	Node37/ 4.90 / 13.36
Node41/ 4.90 / 13.36	
Node18.1.1/ 6.05 / 21.04	Node34.1.1/ 6.85 / 23.17
Node39/ 0.10 / 23.25	

Conduit/	FLOW	==> "*" Conduit uses the normal flow option.
Link14/ 0.10*	Link16/ 0.10*	
Link18/ 0.17*	Link20/ 0.33	
Link22/ -0.37	Link24/ 0.41	
Link26/ 0.41	Link31/ 88.94	
Link33/ 90.02	Link34/ -0.10	
Link36/ 91.30	Link37/ 94.93	
Link42.1.1/ 96.83	Link41/ 0.02*	
Link48/ 88.49	227.1/ 0.10	
231.1/ 0.10	235.1/ -0.10	
239.1/ -0.32	243.1/ -0.34	
247.1/ -0.39	251.1/ 0.41	
255.1/ 0.41	W14/ 0.00	
W15/ 0.00	W17/ 0.00	
W20/ 0.00	W21/ 0.00	
W24/ 0.00	W25/ 0.00	
W27/ 0.00	FREE# 1/ 96.89	

==> System inflows (data group K3) at 27.83 hours (Junction / Inflow,cfs)

Node35 / 8.57E+01

#####

Coupland_Exist5yr.out

==> System inflows (data group K3) at 27.94 hours (Junction / Inflow,cfs)

Node35 / 8.41E+01

#####

==> System inflows (data group K3) at 28.03 hours (Junction / Inflow,cfs)

Node35 / 8.25E+01

#####

==> System inflows (data group K3) at 28.08 hours (Junction / Inflow,cfs)

Node35 / 8.10E+01

#####

==> System inflows (data group K3) at 28.19 hours (Junction / Inflow,cfs)

Node35 / 7.94E+01

#####

==> System inflows (data group K3) at 28.28 hours (Junction / Inflow,cfs)

Node35 / 7.80E+01

#####

==> System inflows (data group K3) at 28.33 hours (Junction / Inflow,cfs)

Node35 / 7.65E+01

#####

==> System inflows (data group K3) at 28.44 hours (Junction / Inflow,cfs)

Node35 / 7.51E+01

#####

==> System inflows (data group K3) at 28.53 hours (Junction / Inflow,cfs)

Node35 / 7.36E+01

#####

==> System inflows (data group K3) at 28.58 hours (Junction / Inflow,cfs)

Node35 / 7.23E+01

#####

==> System inflows (data group K3) at 28.69 hours (Junction / Inflow,cfs)

Node35 / 7.09E+01

Coupland_Exist5yr.out

==> System inflows (data group K3) at 28.78 hours (Junction / Inflow,cfs)

Node35 / 6.96E+01

==> System inflows (data group K3) at 28.83 hours (Junction / Inflow,cfs)

Node35 / 6.83E+01

==> System inflows (data group K3) at 28.94 hours (Junction / Inflow,cfs)

Node35 / 6.70E+01

==> System inflows (data group K3) at 29.03 hours (Junction / Inflow,cfs)

Node35 / 6.57E+01

==> System inflows (data group K3) at 29.08 hours (Junction / Inflow,cfs)

Node35 / 6.45E+01

==> System inflows (data group K3) at 29.19 hours (Junction / Inflow,cfs)

Node35 / 6.33E+01

==> System inflows (data group K3) at 29.28 hours (Junction / Inflow,cfs)

Node35 / 6.21E+01

==> System inflows (data group K3) at 29.33 hours (Junction / Inflow,cfs)

Node35 / 6.09E+01

==> System inflows (data group K3) at 29.44 hours (Junction / Inflow,cfs)

Node35 / 5.98E+01

==> System inflows (data group K3) at 29.53 hours (Junction / Inflow,cfs)

Coupland_Exist5yr.out

Node35 / 5.87E+01

==> System inflows (data group K3) at 29.58 hours (Junction / Inflow,cfs)

Node35 / 5.76E+01

==> System inflows (data group K3) at 29.69 hours (Junction / Inflow,cfs)

Node35 / 5.65E+01

==> System inflows (data group K3) at 29.78 hours (Junction / Inflow,cfs)

Node35 / 5.54E+01

==> System inflows (data group K3) at 29.83 hours (Junction / Inflow,cfs)

Node35 / 5.44E+01

==> System inflows (data group K3) at 29.94 hours (Junction / Inflow,cfs)

Node35 / 5.33E+01

==> System inflows (data group K3) at 30.03 hours (Junction / Inflow,cfs)

Node35 / 5.23E+01

==> System inflows (data group K3) at 30.08 hours (Junction / Inflow,cfs)

Node35 / 5.14E+01

==> System inflows (data group K3) at 30.19 hours (Junction / Inflow,cfs)

Node35 / 5.04E+01

==> System inflows (data group K3) at 30.28 hours (Junction / Inflow,cfs)

Node35 / 4.94E+01
#####

Coupland_Exist5yr.out

==> System inflows (data group K3) at 30.33 hours (Junction / Inflow,cfs)

Node35 / 4.85E+01

==> System inflows (data group K3) at 30.44 hours (Junction / Inflow,cfs)

Node35 / 4.76E+01

==> System inflows (data group K3) at 30.53 hours (Junction / Inflow,cfs)

Node35 / 4.67E+01

==> System inflows (data group K3) at 30.58 hours (Junction / Inflow,cfs)

Node35 / 4.58E+01

==> System inflows (data group K3) at 30.69 hours (Junction / Inflow,cfs)

Node35 / 4.50E+01

==> System inflows (data group K3) at 30.78 hours (Junction / Inflow,cfs)

Node35 / 4.41E+01

==> System inflows (data group K3) at 30.83 hours (Junction / Inflow,cfs)

Node35 / 4.33E+01

==> System inflows (data group K3) at 30.94 hours (Junction / Inflow,cfs)

Node35 / 4.25E+01

==> System inflows (data group K3) at 31.03 hours (Junction / Inflow,cfs)

Node35 / 4.17E+01

==> System inflows (data group K3) at 31.08 hours (Junction / Inflow,cfs)

Coupland_Exist5yr.out

Node35 / 4.09E+01

==> System inflows (data group K3) at 31.19 hours (Junction / Inflow,cfs)

Node35 / 4.01E+01

==> System inflows (data group K3) at 31.28 hours (Junction / Inflow,cfs)

Node35 / 3.94E+01

==> System inflows (data group K3) at 31.33 hours (Junction / Inflow,cfs)

Node35 / 3.86E+01

==> System inflows (data group K3) at 31.44 hours (Junction / Inflow,cfs)

Node35 / 3.79E+01

==> System inflows (data group K3) at 31.53 hours (Junction / Inflow,cfs)

Node35 / 3.72E+01

==> System inflows (data group K3) at 31.58 hours (Junction / Inflow,cfs)

Node35 / 3.65E+01

==> System inflows (data group K3) at 31.69 hours (Junction / Inflow,cfs)

Node35 / 3.58E+01

==> System inflows (data group K3) at 31.78 hours (Junction / Inflow,cfs)

Node35 / 3.51E+01

==> System inflows (data group K3) at 31.83 hours (Junction / Inflow,cfs)

Node35 / 3.45E+01

#####

Coupland_Exist5yr.out

==> System inflows (data group K3) at 31.94 hours (Junction / Inflow,cfs)

Node35 / 3.38E+01

#####

==> System inflows (data group K3) at 32.03 hours (Junction / Inflow,cfs)

Node35 / 3.32E+01

#####

==> System inflows (data group K3) at 32.08 hours (Junction / Inflow,cfs)

Node35 / 3.26E+01

#####

==> System inflows (data group K3) at 32.19 hours (Junction / Inflow,cfs)

Node35 / 3.20E+01

#####

==> System inflows (data group K3) at 32.28 hours (Junction / Inflow,cfs)

Node35 / 3.13E+01

#####

==> System inflows (data group K3) at 32.33 hours (Junction / Inflow,cfs)

Node35 / 3.08E+01

#####

==> System inflows (data group K3) at 32.44 hours (Junction / Inflow,cfs)

Node35 / 3.02E+01

#####

==> System inflows (data group K3) at 32.53 hours (Junction / Inflow,cfs)

Node35 / 2.96E+01

#####

==> System inflows (data group K3) at 32.58 hours (Junction / Inflow,cfs)

Node35 / 2.91E+01

#####

==> System inflows (data group K3) at 32.69 hours (Junction / Inflow,cfs)

Node35 / 2.85E+01

Coupland_Exist5yr.out

==> System inflows (data group K3) at 32.78 hours (Junction / Inflow,cfs)

Node35 / 2.80E+01

==> System inflows (data group K3) at 32.83 hours (Junction / Inflow,cfs)

Node35 / 2.74E+01

==> System inflows (data group K3) at 32.94 hours (Junction / Inflow,cfs)

Node35 / 2.69E+01

==> System inflows (data group K3) at 33.03 hours (Junction / Inflow,cfs)

Node35 / 2.64E+01

==> System inflows (data group K3) at 33.08 hours (Junction / Inflow,cfs)

Node35 / 2.59E+01

==> System inflows (data group K3) at 33.19 hours (Junction / Inflow,cfs)

Node35 / 2.54E+01

==> System inflows (data group K3) at 33.28 hours (Junction / Inflow,cfs)

Node35 / 2.50E+01

==> System inflows (data group K3) at 33.33 hours (Junction / Inflow,cfs)

Node35 / 2.45E+01

==> System inflows (data group K3) at 33.44 hours (Junction / Inflow,cfs)

Node35 / 2.40E+01

==> System inflows (data group K3) at 33.53 hours (Junction / Inflow,cfs)

Coupland_Exist5yr.out

Node35 / 2.36E+01

==> System inflows (data group K3) at 33.58 hours (Junction / Inflow,cfs)

Node35 / 2.31E+01

==> System inflows (data group K3) at 33.69 hours (Junction / Inflow,cfs)

Node35 / 2.27E+01

==> System inflows (data group K3) at 33.78 hours (Junction / Inflow,cfs)

Node35 / 2.23E+01

==> System inflows (data group K3) at 33.83 hours (Junction / Inflow,cfs)

Node35 / 2.18E+01

==> System inflows (data group K3) at 33.94 hours (Junction / Inflow,cfs)

Node35 / 2.14E+01

==> System inflows (data group K3) at 34.03 hours (Junction / Inflow,cfs)

Node35 / 2.10E+01

==> System inflows (data group K3) at 34.08 hours (Junction / Inflow,cfs)

Node35 / 2.06E+01

==> System inflows (data group K3) at 34.19 hours (Junction / Inflow,cfs)

Node35 / 2.02E+01

==> System inflows (data group K3) at 34.28 hours (Junction / Inflow,cfs)

Node35 / 1.99E+01
#####

Coupland_Exist5yr.out

==> System inflows (data group K3) at 34.33 hours (Junction / Inflow,cfs)

Node35 / 1.95E+01

==> System inflows (data group K3) at 34.44 hours (Junction / Inflow,cfs)

Node35 / 1.91E+01

==> System inflows (data group K3) at 34.53 hours (Junction / Inflow,cfs)

Node35 / 1.87E+01

==> System inflows (data group K3) at 34.58 hours (Junction / Inflow,cfs)

Node35 / 1.84E+01

==> System inflows (data group K3) at 34.69 hours (Junction / Inflow,cfs)

Node35 / 1.80E+01

==> System inflows (data group K3) at 34.78 hours (Junction / Inflow,cfs)

Node35 / 1.77E+01

==> System inflows (data group K3) at 34.83 hours (Junction / Inflow,cfs)

Node35 / 1.74E+01

==> System inflows (data group K3) at 34.94 hours (Junction / Inflow,cfs)

Node35 / 1.70E+01

==> System inflows (data group K3) at 35.03 hours (Junction / Inflow,cfs)

Node35 / 1.67E+01

==> System inflows (data group K3) at 35.08 hours (Junction / Inflow,cfs)

Coupland_Exist5yr.out

Node35 / 1.64E+01

==> System inflows (data group K3) at 35.19 hours (Junction / Inflow,cfs)

Node35 / 1.61E+01

==> System inflows (data group K3) at 35.28 hours (Junction / Inflow,cfs)

Node35 / 1.58E+01

==> System inflows (data group K3) at 35.33 hours (Junction / Inflow,cfs)

Node35 / 1.55E+01

==> System inflows (data group K3) at 35.44 hours (Junction / Inflow,cfs)

Node35 / 1.52E+01

==> System inflows (data group K3) at 35.53 hours (Junction / Inflow,cfs)

Node35 / 1.49E+01

==> System inflows (data group K3) at 35.58 hours (Junction / Inflow,cfs)

Node35 / 1.46E+01

==> System inflows (data group K3) at 35.69 hours (Junction / Inflow,cfs)

Node35 / 1.43E+01

==> System inflows (data group K3) at 35.78 hours (Junction / Inflow,cfs)

Node35 / 1.41E+01

==> System inflows (data group K3) at 35.83 hours (Junction / Inflow,cfs)

Node35 / 1.38E+01

#####

==> System inflows (data group K3) at 35.94 hours (Junction / Inflow,cfs)

Node35 / 1.35E+01

#####

==> System inflows (data group K3) at 36.03 hours (Junction / Inflow,cfs)

Node35 / 1.33E+01

#####

==> System inflows (data group K3) at 36.08 hours (Junction / Inflow,cfs)

Node35 / 1.30E+01

#####

==> System inflows (data group K3) at 36.19 hours (Junction / Inflow,cfs)

Node35 / 1.28E+01

#####

==> System inflows (data group K3) at 36.28 hours (Junction / Inflow,cfs)

Node35 / 1.25E+01

#####

==> System inflows (data group K3) at 36.33 hours (Junction / Inflow,cfs)

Node35 / 1.23E+01

#####

==> System inflows (data group K3) at 36.44 hours (Junction / Inflow,cfs)

Node35 / 1.20E+01

#####

==> System inflows (data group K3) at 36.53 hours (Junction / Inflow,cfs)

Node35 / 1.18E+01

#####

==> System inflows (data group K3) at 36.58 hours (Junction / Inflow,cfs)

Node35 / 1.16E+01

#####

==> System inflows (data group K3) at 36.69 hours (Junction / Inflow,cfs)

Node35 / 1.13E+01

Coupland_Exist5yr.out

==> System inflows (data group K3) at 36.78 hours (Junction / Inflow,cfs)

Node35 / 1.11E+01

==> System inflows (data group K3) at 36.83 hours (Junction / Inflow,cfs)

Node35 / 1.09E+01

==> System inflows (data group K3) at 36.94 hours (Junction / Inflow,cfs)

Node35 / 1.07E+01

==> System inflows (data group K3) at 37.03 hours (Junction / Inflow,cfs)

Node35 / 1.05E+01

==> System inflows (data group K3) at 37.08 hours (Junction / Inflow,cfs)

Node35 / 1.02E+01

==> System inflows (data group K3) at 37.19 hours (Junction / Inflow,cfs)

Node35 / 1.00E+01

==> System inflows (data group K3) at 37.28 hours (Junction / Inflow,cfs)

Node35 / 9.80E+00

==> System inflows (data group K3) at 37.33 hours (Junction / Inflow,cfs)

Node35 / 9.60E+00

==> System inflows (data group K3) at 37.44 hours (Junction / Inflow,cfs)

Node35 / 9.40E+00

==> System inflows (data group K3) at 37.53 hours (Junction / Inflow,cfs)

Coupland_Exist5yr.out

Node35 / 9.20E+00

==> System inflows (data group K3) at 37.58 hours (Junction / Inflow,cfs)

Node35 / 9.00E+00

==> System inflows (data group K3) at 37.69 hours (Junction / Inflow,cfs)

Node35 / 8.80E+00

==> System inflows (data group K3) at 37.78 hours (Junction / Inflow,cfs)

Node35 / 8.60E+00

==> System inflows (data group K3) at 37.83 hours (Junction / Inflow,cfs)

Node35 / 8.50E+00

==> System inflows (data group K3) at 37.94 hours (Junction / Inflow,cfs)

Node35 / 8.30E+00

==> System inflows (data group K3) at 38.03 hours (Junction / Inflow,cfs)

Node35 / 8.10E+00

==> System inflows (data group K3) at 38.08 hours (Junction / Inflow,cfs)

Node35 / 7.90E+00

==> System inflows (data group K3) at 38.19 hours (Junction / Inflow,cfs)

Node35 / 7.70E+00

==> System inflows (data group K3) at 38.28 hours (Junction / Inflow,cfs)

Node35 / 7.60E+00
#####

Coupland_Exist5yr.out

==> System inflows (data group K3) at 38.33 hours (Junction / Inflow,cfs)

Node35 / 7.40E+00

==> System inflows (data group K3) at 38.44 hours (Junction / Inflow,cfs)

Node35 / 7.20E+00

==> System inflows (data group K3) at 38.53 hours (Junction / Inflow,cfs)

Node35 / 7.10E+00

==> System inflows (data group K3) at 38.58 hours (Junction / Inflow,cfs)

Node35 / 6.90E+00

==> System inflows (data group K3) at 38.69 hours (Junction / Inflow,cfs)

Node35 / 6.70E+00

==> System inflows (data group K3) at 38.78 hours (Junction / Inflow,cfs)

Node35 / 6.50E+00

==> System inflows (data group K3) at 38.83 hours (Junction / Inflow,cfs)

Node35 / 6.40E+00

==> System inflows (data group K3) at 38.94 hours (Junction / Inflow,cfs)

Node35 / 6.20E+00

==> System inflows (data group K3) at 39.03 hours (Junction / Inflow,cfs)

Node35 / 6.00E+00

==> System inflows (data group K3) at 39.08 hours (Junction / Inflow,cfs)

Coupland_Exist5yr.out

Node35 / 5.80E+00

==> System inflows (data group K3) at 39.19 hours (Junction / Inflow,cfs)

Node35 / 5.60E+00

==> System inflows (data group K3) at 39.28 hours (Junction / Inflow,cfs)

Node35 / 5.40E+00

==> System inflows (data group K3) at 39.33 hours (Junction / Inflow,cfs)

Node35 / 5.10E+00

==> System inflows (data group K3) at 39.44 hours (Junction / Inflow,cfs)

Node35 / 4.80E+00

==> System inflows (data group K3) at 39.53 hours (Junction / Inflow,cfs)

Node35 / 4.30E+00

==> System inflows (data group K3) at 39.58 hours (Junction / Inflow,cfs)

Node35 / 3.30E+00

==> System inflows (data group K3) at 39.69 hours (Junction / Inflow,cfs)

Node35 / 3.00E+00

==> System inflows (data group K3) at 39.78 hours (Junction / Inflow,cfs)

Node35 / 2.70E+00

==> System inflows (data group K3) at 39.83 hours (Junction / Inflow,cfs)

Node35 / 2.50E+00

#####

==> System inflows (data group K3) at 39.94 hours (Junction / Inflow,cfs)

Node35 / 2.40E+00

#####

==> System inflows (data group K3) at 40.03 hours (Junction / Inflow,cfs)

Node35 / 2.20E+00

#####

==> System inflows (data group K3) at 40.08 hours (Junction / Inflow,cfs)

Node35 / 2.10E+00

#####

==> System inflows (data group K3) at 40.19 hours (Junction / Inflow,cfs)

Node35 / 2.00E+00

#####

==> System inflows (data group K3) at 40.28 hours (Junction / Inflow,cfs)

Node35 / 2.00E+00

#####

==> System inflows (data group K3) at 40.33 hours (Junction / Inflow,cfs)

Node35 / 1.90E+00

#####

==> System inflows (data group K3) at 40.44 hours (Junction / Inflow,cfs)

Node35 / 1.80E+00

#####

==> System inflows (data group K3) at 40.53 hours (Junction / Inflow,cfs)

Node35 / 1.70E+00

#####

==> System inflows (data group K3) at 40.58 hours (Junction / Inflow,cfs)

Node35 / 1.60E+00

#####

==> System inflows (data group K3) at 40.69 hours (Junction / Inflow,cfs)

Node35 / 1.60E+00

Coupland_Exist5yr.out

==> System inflows (data group K3) at 40.78 hours (Junction / Inflow,cfs)

Node35 / 1.50E+00

==> System inflows (data group K3) at 40.83 hours (Junction / Inflow,cfs)

Node35 / 1.50E+00

==> System inflows (data group K3) at 40.94 hours (Junction / Inflow,cfs)

Node35 / 1.40E+00

==> System inflows (data group K3) at 41.03 hours (Junction / Inflow,cfs)

Node35 / 1.30E+00

==> System inflows (data group K3) at 41.08 hours (Junction / Inflow,cfs)

Node35 / 1.30E+00

==> System inflows (data group K3) at 41.19 hours (Junction / Inflow,cfs)

Node35 / 1.20E+00

==> System inflows (data group K3) at 41.28 hours (Junction / Inflow,cfs)

Node35 / 1.20E+00

==> System inflows (data group K3) at 41.33 hours (Junction / Inflow,cfs)

Node35 / 1.10E+00

==> System inflows (data group K3) at 41.44 hours (Junction / Inflow,cfs)

Node35 / 1.10E+00

==> System inflows (data group K3) at 41.53 hours (Junction / Inflow,cfs)

Coupland_Exist5yr.out

Node35 / 1.10E+00
 #####
 #####
 ==> System inflows (data group K3) at 41.58 hours (Junction / Inflow,cfs)

Node35 / 1.00E+00
 #####

Cycle 1500 Time 41 Hrs - 40.00 Min

Junction / Depth / Elevation	==> "*" Junction is Surcharged.
Node13/ 0.26 / 23.00	Node14/ 0.30 / 23.00
Node15/ 0.60 / 21.80	
Node16/ 0.64 / 21.80	Node17/ 0.45 / 20.76
Node19/ 0.85 / 20.28	
Node20/ 0.65 / 20.28	Node21/ 0.59 / 20.28
Node22/ 0.48 / 20.28	
Node23/ 0.81 / 20.26	Node24/ 0.39 / 20.26
Node25/ 0.25 / 19.82	
Node26/ 0.03 / 18.88	Node27/ 0.59 / 18.81
Node28/ 0.30 / 11.77	
Node31/ 0.35 / 11.83	Node33/ 0.15 / 11.61
Node35/ 0.35 / 11.84	
Node36/ 0.51 / 9.53	Node37/ 0.77 / 9.23
Node41/ 0.77 / 9.23	
Node18.1.1/ 5.77 / 20.76	Node34.1.1/ 6.72 / 23.04
Node39/ 0.00 / 23.15	

Conduit/	FLOW	==> "*" Conduit uses the normal flow option.
Link14/	0.00*	Link16/ 0.00*
Link18/ 0.00*	Link20/ 0.00	Link24/ 0.01
Link26/ 0.01*	Link31/ 1.05	Link34/ 0.00
Link36/ 1.11*	Link37/ 1.23	Link41/ 0.00*
Link42.1.1/ 1.42	Link41/ 0.00	
Link48/ 1.01	227.1/ 0.00	235.1/ 0.00
239.1/ 0.00	243.1/ 0.00	251.1/ 0.01
255.1/ 0.01	-0.01	251.1/ 0.01
	W14/ 0.00	W17/ 0.00
W20/ 0.00	W15/ 0.00	W21/ 0.00
	W24/ 0.00	W25/ 0.00
W27/ 0.00	FREE# 1/ 1.42	

 ==> System inflows (data group K3) at 41.69 hours (Junction / Inflow,cfs)

Coupland_Exist5yr.out

Node35 / 1.00E+00

==> System inflows (data group K3) at 41.78 hours (Junction / Inflow,cfs)

Node35 / 9.00E-01

==> System inflows (data group K3) at 41.83 hours (Junction / Inflow,cfs)

Node35 / 9.00E-01

==> System inflows (data group K3) at 41.94 hours (Junction / Inflow,cfs)

Node35 / 9.00E-01

==> System inflows (data group K3) at 42.03 hours (Junction / Inflow,cfs)

Node35 / 8.00E-01

==> System inflows (data group K3) at 42.08 hours (Junction / Inflow,cfs)

Node35 / 8.00E-01

==> System inflows (data group K3) at 42.19 hours (Junction / Inflow,cfs)

Node35 / 8.00E-01

==> System inflows (data group K3) at 42.28 hours (Junction / Inflow,cfs)

Node35 / 7.00E-01

==> System inflows (data group K3) at 42.33 hours (Junction / Inflow,cfs)

Node35 / 7.00E-01

==> System inflows (data group K3) at 42.44 hours (Junction / Inflow,cfs)

Node35 / 7.00E-01
#####

Coupland_Exist5yr.out

==> System inflows (data group K3) at 42.53 hours (Junction / Inflow,cfs)

Node35 / 6.00E-01

==> System inflows (data group K3) at 42.58 hours (Junction / Inflow,cfs)

Node35 / 6.00E-01

==> System inflows (data group K3) at 42.69 hours (Junction / Inflow,cfs)

Node35 / 6.00E-01

==> System inflows (data group K3) at 42.78 hours (Junction / Inflow,cfs)

Node35 / 6.00E-01

==> System inflows (data group K3) at 42.83 hours (Junction / Inflow,cfs)

Node35 / 5.00E-01

==> System inflows (data group K3) at 42.94 hours (Junction / Inflow,cfs)

Node35 / 5.00E-01

==> System inflows (data group K3) at 43.03 hours (Junction / Inflow,cfs)

Node35 / 5.00E-01

==> System inflows (data group K3) at 43.08 hours (Junction / Inflow,cfs)

Node35 / 5.00E-01

==> System inflows (data group K3) at 43.19 hours (Junction / Inflow,cfs)

Node35 / 5.00E-01

==> System inflows (data group K3) at 43.28 hours (Junction / Inflow,cfs)

Coupland_Exist5yr.out

Node35 / 4.00E-01

==> System inflows (data group K3) at 43.33 hours (Junction / Inflow,cfs)

Node35 / 4.00E-01

==> System inflows (data group K3) at 43.44 hours (Junction / Inflow,cfs)

Node35 / 4.00E-01

==> System inflows (data group K3) at 43.53 hours (Junction / Inflow,cfs)

Node35 / 4.00E-01

==> System inflows (data group K3) at 43.58 hours (Junction / Inflow,cfs)

Node35 / 4.00E-01

==> System inflows (data group K3) at 43.69 hours (Junction / Inflow,cfs)

Node35 / 4.00E-01

==> System inflows (data group K3) at 43.78 hours (Junction / Inflow,cfs)

Node35 / 3.00E-01

==> System inflows (data group K3) at 43.83 hours (Junction / Inflow,cfs)

Node35 / 3.00E-01

==> System inflows (data group K3) at 43.94 hours (Junction / Inflow,cfs)

Node35 / 3.00E-01

==> System inflows (data group K3) at 44.03 hours (Junction / Inflow,cfs)

Node35 / 3.00E-01

#####

==> System inflows (data group K3) at 44.08 hours (Junction / Inflow,cfs)

Node35 / 3.00E-01

#####

==> System inflows (data group K3) at 44.19 hours (Junction / Inflow,cfs)

Node35 / 3.00E-01

#####

==> System inflows (data group K3) at 44.28 hours (Junction / Inflow,cfs)

Node35 / 3.00E-01

#####

==> System inflows (data group K3) at 44.33 hours (Junction / Inflow,cfs)

Node35 / 3.00E-01

#####

==> System inflows (data group K3) at 44.44 hours (Junction / Inflow,cfs)

Node35 / 2.00E-01

#####

==> System inflows (data group K3) at 44.53 hours (Junction / Inflow,cfs)

Node35 / 2.00E-01

#####

==> System inflows (data group K3) at 44.58 hours (Junction / Inflow,cfs)

Node35 / 2.00E-01

#####

==> System inflows (data group K3) at 44.69 hours (Junction / Inflow,cfs)

Node35 / 2.00E-01

#####

==> System inflows (data group K3) at 44.78 hours (Junction / Inflow,cfs)

Node35 / 2.00E-01

#####

==> System inflows (data group K3) at 44.83 hours (Junction / Inflow,cfs)

Node35 / 2.00E-01

Coupland_Exist5yr.out

==> System inflows (data group K3) at 44.94 hours (Junction / Inflow,cfs)

Node35 / 2.00E-01

==> System inflows (data group K3) at 45.03 hours (Junction / Inflow,cfs)

Node35 / 2.00E-01

==> System inflows (data group K3) at 45.08 hours (Junction / Inflow,cfs)

Node35 / 2.00E-01

==> System inflows (data group K3) at 45.19 hours (Junction / Inflow,cfs)

Node35 / 2.00E-01

==> System inflows (data group K3) at 45.28 hours (Junction / Inflow,cfs)

Node35 / 1.00E-01

==> System inflows (data group K3) at 45.33 hours (Junction / Inflow,cfs)

Node35 / 1.00E-01

==> System inflows (data group K3) at 45.44 hours (Junction / Inflow,cfs)

Node35 / 1.00E-01

==> System inflows (data group K3) at 45.53 hours (Junction / Inflow,cfs)

Node35 / 1.00E-01

==> System inflows (data group K3) at 45.58 hours (Junction / Inflow,cfs)

Node35 / 1.00E-01

==> System inflows (data group K3) at 45.69 hours (Junction / Inflow,cfs)

Coupland_Exist5yr.out

Node35 / 1.00E-01

==> System inflows (data group K3) at 45.78 hours (Junction / Inflow,cfs)

Node35 / 1.00E-01

==> System inflows (data group K3) at 45.83 hours (Junction / Inflow,cfs)

Node35 / 1.00E-01

==> System inflows (data group K3) at 45.94 hours (Junction / Inflow,cfs)

Node35 / 1.00E-01

==> System inflows (data group K3) at 46.03 hours (Junction / Inflow,cfs)

Node35 / 1.00E-01

==> System inflows (data group K3) at 46.08 hours (Junction / Inflow,cfs)

Node35 / 1.00E-01

==> System inflows (data group K3) at 46.19 hours (Junction / Inflow,cfs)

Node35 / 1.00E-01

==> System inflows (data group K3) at 46.28 hours (Junction / Inflow,cfs)

Node35 / 1.00E-01

==> System inflows (data group K3) at 46.33 hours (Junction / Inflow,cfs)

Node35 / 1.00E-01

==> System inflows (data group K3) at 46.44 hours (Junction / Inflow,cfs)

Node35 / 1.00E-01
#####

Coupland_Exist5yr.out

====> System inflows (data group K3) at 46.53 hours (Junction / Inflow,cfs)

Node35 / 0.00E+00

====> System inflows (data group K3) at 46.58 hours (Junction / Inflow,cfs)

Node35 / 0.00E+00

====> System inflows (data group K3) at 46.69 hours (Junction / Inflow,cfs)

Node35 / 0.00E+00

====> System inflows (data group K3) at 46.78 hours (Junction / Inflow,cfs)

Node35 / 0.00E+00

====> System inflows (data group K3) at 46.83 hours (Junction / Inflow,cfs)

Node35 / 0.00E+00

====> System inflows (data group K3) at 46.94 hours (Junction / Inflow,cfs)

Node35 / 0.00E+00

====> System inflows (data group K3) at 47.03 hours (Junction / Inflow,cfs)

Node35 / 0.00E+00

====> System inflows (data group K3) at 47.08 hours (Junction / Inflow,cfs)

Node35 / 0.00E+00

====> System inflows (data group K3) at 47.19 hours (Junction / Inflow,cfs)

Node35 / 0.00E+00

====> System inflows (data group K3) at 47.28 hours (Junction / Inflow,cfs)

Coupland_Exist5yr.out

Node35 / 0.00E+00

==> System inflows (data group K3) at 47.33 hours (Junction / Inflow,cfs)

Node35 / 0.00E+00

==> System inflows (data group K3) at 47.44 hours (Junction / Inflow,cfs)

Node35 / 0.00E+00

==> System inflows (data group K3) at 47.53 hours (Junction / Inflow,cfs)

Node35 / 0.00E+00

==> System inflows (data group K3) at 47.58 hours (Junction / Inflow,cfs)

Node35 / 0.00E+00

==> System inflows (data group K3) at 47.69 hours (Junction / Inflow,cfs)

Node35 / 0.00E+00

==> System inflows (data group K3) at 47.78 hours (Junction / Inflow,cfs)

Node35 / 0.00E+00

==> System inflows (data group K3) at 47.83 hours (Junction / Inflow,cfs)

Node35 / 0.00E+00

==> System inflows (data group K3) at 47.94 hours (Junction / Inflow,cfs)

Node35 / 0.00E+00
#####

```
*=====*
```

Table E5 - Junction Time Limitation Summary	
(0.10 or 0.25)* Depth * Area	
Time step = -----	

Coupland_Exist5yr.out

Sum of Flow

```

|-----|
|           |
| The time this junction was the limiting junction |
|           is listed in the third column.         |
|-----|

```

Junction	Time(.10)	Time(.25)	Time(sec)
Node13	102.70	256.75	1400.0
Node14	184.87	462.18	0.0
Node15	57.33	143.32	1800.0
Node16	85.49	213.72	100.0
Node17	45.83	114.58	1100.0
Node19	46.34	115.84	100.0
Node20	59.40	148.51	0.0
Node21	59.05	147.63	0.0
Node22	35.43	88.58	700.0
Node23	83.94	209.84	0.0
Node24	92.50	231.24	0.0
Node25	39.89	99.72	100.0
Node26	71.22	178.06	100.0
Node27	27.04	67.60	50000.0
Node28	55.41	138.54	1000.0
Node31	86.75	216.88	0.0
Node33	100.70	251.76	0.0
Node35	51.66	129.15	113700.0
Node36	70.39	175.97	0.0
Node37	100.84	252.11	0.0
Node41	1000.00	1000.00	0.0
Node18.1.1	20.35	50.87	600.0
Node34.1.1	16.92	42.31	2100.0
Node39	91.06	227.65	0.0

The junction requiring the smallest time step was...Node35

```

*-----*
| Table E5a - Conduit Explicit Condition Summary |
| Courant   =      Conduit Length              |
| Time step = -----                          |
|              Velocity + sqrt(g*depth)        |
| Conduit Implicit Condition Summary          |

```

Coupland_Exist5yr.out

Courant = Conduit Length
 Time step = -----
 Velocity

```

=====
| The 3rd column is the Explicit time step times the
| minimum courant time step factor
|
| Minimum Conduit Time Step in seconds in the 4th column
| in the list. Maximum possible is 10 * maximum time step
|
| The 5th column is the maximum change at any time step
| during the simulation. The 6th column is the wobble
| value which is an indicator of the flow stability.
|
| You should use this section to find those conduits that
| are slowing your model down. Use modify conduits to
| alter the length of the slow conduits to make your
| simulation faster, or change the conduit name to
| "CHME?????" where ????? are any characters, this will
| lengthen the conduit based on the model time step,
| not the value listed in modify conduits.
=====
    
```

Wobble	Conduit Type of Soln	Time(exp)	Expl*Cmin	Time(imp)	Time(min)	Max Qchange
0.055	Link14 Normal Soln	8.86	8.86	22.18	18.3	0.063
0.043	Link16 Normal Soln	3.21	3.21	9.90	0.0	0.064
0.209	Link18 Normal Soln	30.67	30.67	277.91	0.0	0.046
0.302	Link20 Normal Soln	13.13	13.13	102.03	0.0	0.080
1.259	Link22 Normal Soln	34.97	34.97	301.89	0.0	-0.057
0.334	Link24 Normal Soln	31.35	31.35	129.12	0.0	0.046
0.071	Link26 Normal Soln	4.00	4.00	9.37	0.0	0.045
0.062	Link31 Normal Soln	14.21	14.21	84.19	0.0	0.605
0.048	Link33 Normal Soln	13.51	13.51	69.27	0.0	0.458
0.070	Link34 Normal Soln	6.92	6.92	33.51	0.0	-0.047
	Link36 Normal Soln	34.79	34.79	200.70	0.0	0.501

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0.005	Normal Soln					
	Link37	49.74	49.74	473.53	0.0	0.362
0.016	Normal Soln					
	Link42.1.1	1.31	1.31	13.58	2525.0	2.028
0.482	Normal Soln					
	Link41	23.68	23.68	162.63	8.3	0.013
0.029	Normal Soln					
	Link48	2.70	2.70	14.29	0.0	2.437
0.045	Normal Soln					
	227.1	3.62	3.62	17.27	0.0	0.012
1.287	Normal Soln					
	231.1	2.92	2.92	12.21	0.0	0.054
3.002	Normal Soln					
	235.1	2.58	2.58	12.71	0.0	-0.045
1.459	Normal Soln					
	239.1	1.64	1.64	4.01	68.3	-0.089
2.855	Normal Soln					
	243.1	1.68	1.68	3.81	0.0	-0.068
4.142	Normal Soln					
	247.1	1.25	1.25	3.02	260.0	-0.051
1.524	Normal Soln					
	251.1	2.64	2.64	5.40	0.0	0.046
3.413	Normal Soln					
	255.1	6.19	6.19	9.83	0.0	0.047
0.938	Normal Soln					

The conduit with the smallest time step limitation was..Link42.1.1

The conduit with the largest wobble was.....243.1

The conduit with the largest flow change in any

consecutive time step.....Link48

Coupland_Exist5yr.out

 * End of time step D0-loop in Runoff *

Final Date (Mo/Day/Year) = 1/ 2/2016
 Total number of time steps = 2879
 Final Julian Date = 2016002
 Final time of day = 86340. seconds.
 Final time of day = 23.98 hours.
 Final running time = 47.9833 hours.
 Final running time = 1.9993 days.

 * Extrapolation Summary for Watersheds *
 * Explains the number of time steps and iterations *
 * used in the solution of the subcatchments. *
 * # Steps ==> Total Number of Extrapolated Steps *
 * # Calls ==> Total Number of OVERLND Calls *

Subcatchment	# Steps	# Calls	Subcatchment	# Steps	# Calls
Node39#1	16860	5620	Node34.1.1#1	16962	5654
Node17#1	16590	5530			
Node18.1.1#1	16947	5649	Node19#1	17319	5773

 # Rainfall input summary from Runoff Continuity Check #
 #####

Total rainfall read for gage # 1 is 6.4200 in
 Total rainfall duration for gage # 1 is 1440.00 minutes

 * Table R5. CONTINUITY CHECK FOR SURFACE WATER *
 * Any continuity error can be fixed by lowering the *
 * wet and transition time step. The transition time *
 * should not be much greater than the wet time step. *

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	cubic feet	Inches over Total Basin
Total Precipitation (Rain plus Snow)	5.812167E+05	6.420
Total Infiltration	1.021485E+05	1.128
Total Evaporation	1.290268E+04	0.143
Surface Runoff from Watersheds	4.661761E+05	5.149
Total Water remaining in Surface Storage	0.000000E+00	0.000
Infiltration over the Pervious Area...	1.021485E+05	2.631

Infiltration + Evaporation + Surface Runoff + Snow removal + Water remaining in Surface Storage + Water remaining in Snow Cover.....	5.812273E+05	6.420
Total Precipitation + Initial Storage.	5.812167E+05	6.420

The error in continuity is calculated as

```

*****
* Precipitation + Initial Snow Cover *
*   - Infiltration -                 *
*Evaporation - Snow removal -        *
*Surface Runoff from Watersheds -    *
*Water in Surface Storage -          *
*Water remaining in Snow Cover       *
*-----*
* Precipitation + Initial Snow Cover *
*****
Percent Continuity Error.....

```

-0.0018

```

*****
* Table R6. Continuity Check for Channel/Pipes *
*   You should have zero continuity error *
*   if you are not using runoff hydraulics *
*****

```

over Basin	cubic feet	Inches Total
Initial Channel/Pipe Storage.....	0.000000E+00	0.000
Final Channel/Pipe Storage.....	0.000000E+00	0.000
Surface Runoff from Watersheds.....	4.661761E+05	5.149
Groundwater Subsurface Inflow or Diversion..	0.000000E+00	0.000
Evaporation Loss from Channels.....	0.000000E+00	0.000
Groundwater Flow Diverted Out of Network....	0.000000E+00	0.000
Channel/Pipe/Inlet Outflow.....	4.661761E+05	5.149
Initial Storage + Inflow.....	4.661761E+05	5.149
Final Storage + Outflow + Diverted GW.....	4.661761E+05	5.149

Coupland_Exist5yr.out

```
*****
* Final Storage + Outflow + Evaporation - *
* Watershed Runoff - Groundwater Inflow - *
*   Initial Channel/Pipe Storage           *
*   -----                               *
* Final Storage + Outflow + Evaporation *
*****
Percent Continuity Error..... 0.0000
```

```
#####
# Table R9. Summary Statistics for Subcatchments #
#####
```

Note: Total Runoff Depth includes pervious & impervious areas.
Pervious and Impervious Runoff Depth is only the runoff from those two areas.

For catchments receiving redirected flow, this flow will only be shown if the flow is not directed directly to the outlet. Flow that is getting redirected is also listed with the original subcatchment.

Subcatchment.....	Node39#1	Node34.1.1#1
Node17#1 Node18.1.1#1	Node19#1	
Area (acres).....	2.27000	5.20000
0.36000 4.87000	12.24000	
Percent Impervious.....	50.00000	67.00000
67.00000 67.00000	50.00000	
Total Rainfall (in)....	6.42000	6.42000
6.42000 6.42000	6.42000	
Max Intensity (in/hr)..	9.24000	9.24000
9.24000 9.24000	9.24000	
Pervious Area		

Total Runoff Depth (in)	3.65959	3.75618
3.76797 3.75650	3.63354	
Peak Runoff Rate (cfs).	1.80331	3.91214
0.28693 3.66948	8.98773	
Total Impervious Area		

Total Runoff Depth (in)	6.25962	6.25568
6.25962 6.25579	6.25501	
Peak Runoff Rate (cfs).	3.05034	8.92003
0.64821 8.36466	15.54117	

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Impervious Area with depression storage

Total Runoff Depth (in)	4.69472	4.69176
4.69472	4.69184	4.69125
Peak Runoff Rate (cfs).	2.28775	6.69003
0.48616	6.27350	11.65588

Impervious Area without depression storage

Total Runoff Depth (in)	1.56491	1.56392
1.56491	1.56395	1.56375
Peak Runoff Rate (cfs).	0.76258	2.23001
0.16205	2.09117	3.88529

Total Area

Total Runoff Depth (in)	4.95961	5.43085
5.43737	5.43102	4.94427
Peak Runoff Rate (cfs).	4.80738	12.83217
0.93514	12.03415	24.23384

Rational Formula

Pervious Tc. (mins)....	0.00000	0.00000
0.00000	0.00000	0.00000
Perv. Intensity (in/hr)	0.00000	0.00000
0.00000	0.00000	0.00000
Pervious C	0.00000	0.00000
0.00000	0.00000	0.00000
Impervious Tc. (mins)..	0.00000	0.00000
0.00000	0.00000	0.00000
Imp. Intensity (in/hr).	0.00000	0.00000
0.00000	0.00000	0.00000
Impervious C	0.00000	0.00000
0.00000	0.00000	0.00000
Partial Area (Ha).....	0.00000	0.00000
0.00000	0.00000	0.00000
Partial Area Tc.....	0.00000	0.00000
0.00000	0.00000	0.00000
Partial Area Intensity.	0.00000	0.00000
0.00000	0.00000	0.00000

==> Runoff simulation ended normally.

=====

Table E6. Final Model Condition	
This table is used for steady state	
flow comparison and is the information	

Coupland_Exist5yr.out

saved to the hot-restart file.

Final Time = 48.028 hours

=====

Junction /	Depth /	Elevation	====>	"*" Junction is Surcharged.
Node13/	0.26 /	23.00/		Node14/ 0.30 / 23.00/
Node15/	0.60 /	21.80/		
Node16/	0.64 /	21.80/		Node17/ 0.44 / 20.75/
Node19/	0.79 /	20.22/		
Node20/	0.59 /	20.22/		Node21/ 0.53 / 20.22/
Node22/	0.42 /	20.22/		
Node23/	0.76 /	20.21/		Node24/ 0.34 / 20.21/
Node25/	0.24 /	19.81/		
Node26/	0.01 /	18.86/		Node27/ 0.58 / 18.80/
Node28/	0.01 /	11.48/		
Node31/	0.00 /	11.48/		Node33/ 0.00 / 11.46/
Node35/	0.00 /	11.49/		
Node36/	0.01 /	9.03/		Node37/ 0.01 / 8.47/
Node41/	0.00 /	8.46/		
Node18.1.1/	5.76 /	20.75/		Node34.1.1/ 6.72 / 23.04/
Node39/	0.00 /	23.15/		

Conduit/	Flow	====>	"*" Conduit uses the normal flow option.
Link18/	Link14/ 0.00*/		Link16/ 0.00*/
	0.00*/		
Link24/	Link20/ 0.00 /		Link22/ 0.00 /
	0.00 /		
Link33/	Link26/ 0.00*/		Link31/ 0.00 /
	0.00 /		
Link37/	Link34/ 0.00 /		Link36/ 0.00*/
	0.00*/		
Link48/	Link42.1.1/ 0.00 /		Link41/ 0.00*/
	0.00 /		
235.1/	227.1/ 0.00 /		231.1/ 0.00 /
	0.00 /		
247.1/	239.1/ 0.00 /		243.1/ 0.00 /
	0.00 /		
W14/	251.1/ 0.00 /		255.1/ 0.00 /
	0.00 /		
W20/	W15/ 0.00 /		W17/ 0.00 /
	0.00 /		
W25/	W21/ 0.00 /		W24/ 0.00 /
	0.00 /		
	W27/ 0.00 /		FREE# 1/ 0.00 /
	0.00 /		
Link18/	Conduit/	Velocity	
	Link14/ 0.00 /		Link16/ 0.00 /
	0.00 /		

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Link24/	Link20/ 0.07 /	0.00 /	Link22/	-0.02 /
Link33/	Link26/ 0.01 /	0.01 /	Link31/	0.00 /
Link37/	Link34/ 0.03 /	0.00 /	Link36/	0.04 /
Link48/	Link42.1.1/ 0.00 /	0.03 /	Link41/	0.00 /
235.1/	227.1/ 0.00 /	0.00 /	231.1/	0.00 /
247.1/	239.1/ 0.00 /	0.00 /	243.1/	-0.01 /
	251.1/	0.28 /	255.1/	0.58 /

Conduit/ Width

Link18/	Link14/ 0.30 /	0.17 /	Link16/	0.04 /
Link24/	Link20/ 0.15 /	0.86 /	Link22/	0.58 /
Link33/	Link26/ 0.19 /	0.39 /	Link31/	0.07 /
Link37/	Link34/ 0.09 /	0.44 /	Link36/	0.06 /
Link48/	Link42.1.1/ 0.00 /	0.10 /	Link41/	0.44 /
235.1/	227.1/ 1.87 /	1.61 /	231.1/	2.14 /
247.1/	239.1/ 2.24 /	2.29 /	243.1/	1.28 /
	251.1/	0.98 /	255.1/	1.18 /

Junction/ EGL

Node15/	Node13/ 0.60 /	0.26 /	Node14/	0.30 /
Node19/	Node16/ 0.79 /	0.64 /	Node17/	0.44 /
Node22/	Node20/ 0.42 /	0.59 /	Node21/	0.53 /
Node25/	Node23/ 0.24 /	0.76 /	Node24/	0.34 /
Node28/	Node26/ 4.81 /	0.69 /	Node27/	0.58 /
Node35/	Node31/ 0.00 /	0.00 /	Node33/	0.00 /
Node41/	Node36/ 0.00 /	0.01 /	Node37/	0.01 /
Node39/	Node18.1.1/ 0.00 /	5.76 /	Node34.1.1/	6.72 /

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Junction/ Freeboard		
Node15/	Node13/ 17.00 / 18.20 /	Node14/ 17.00 /
Node19/	Node16/ 18.20 / 19.78 /	Node17/ 19.25 /
Node22/	Node20/ 19.78 / 19.78 /	Node21/ 19.78 /
Node25/	Node23/ 19.79 / 20.19 /	Node24/ 19.79 /
Node28/	Node26/ 21.14 / 28.52 /	Node27/ 21.20 /
Node35/	Node31/ 28.52 / 28.51 /	Node33/ 28.54 /
Node41/	Node36/ 30.97 / 31.54 /	Node37/ 31.53 /
Node39/	Node18.1.1/ 19.25 / 16.85 /	Node34.1.1/ 16.96 /

Junction/ Max Volume		
Node15/	Node13/ 21.14 / 38.80 /	Node14/ 21.46 /
Node19/	Node16/ 38.78 / 60.11 /	Node17/ 49.58 /
Node22/	Node20/ 54.76 / 47.02 /	Node21/ 53.71 /
Node25/	Node23/ 50.28 / 36.36 /	Node24/ 42.56 /
Node28/	Node26/ 24.63 / 96.97 /	Node27/ 26.99 /
Node35/	Node31/ 97.33 / 97.31 /	Node33/ 96.48 /
Node41/	Node36/ 126.44 / 132.41 /	Node37/ 132.44 /
Node39/	Node18.1.1/ 116.27 / 17.58 /	Node34.1.1/ 102.72 /

Junction/Total Fldng		
Node15/	Node13/ 0.00 / 0.00 /	Node14/ 0.00 /
Node19/	Node16/ 0.00 / 0.00 /	Node17/ 0.00 /
Node22/	Node20/ 0.00 / 0.00 /	Node21/ 0.00 /
Node25/	Node23/ 0.00 / 0.00 /	Node24/ 0.00 /
Node28/	Node26/ 0.00 / 0.00 /	Node27/ 0.00 /

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Node35/	Node31/ 0.00 /	0.00 /	Node33/	0.00 /
Node41/	Node36/ 0.00 /	0.00 /	Node37/	0.00 /
Node39/	Node18.1.1/ 0.00 /	0.00 /	Node34.1.1/	0.00 /

Conduit/ Cross Sectional Area

Link18/	Link14/ 0.08 /	0.03 /	Link16/	0.00 /
Link24/	Link20/ 0.02 /	0.15 /	Link22/	0.06 /
Link33/	Link26/ 0.10 /	0.11 /	Link31/	0.03 /
Link37/	Link34/ 0.04 /	0.17 /	Link36/	0.03 /
Link48/	Link42.1.1/ 0.00 /	0.06 /	Link41/	0.17 /
235.1/	227.1/ 0.56 /	0.33 /	231.1/	0.91 /
247.1/	239.1/ 1.17 /	1.27 /	243.1/	0.16 /
	251.1/	0.00 /	255.1/	0.00 /

Conduit/ Final Volume

Link18/	Link14/ 19.36 /	1.95 /	Link16/	0.08 /
Link24/	Link20/ 5.30 /	18.13 /	Link22/	17.56 /
Link33/	Link26/ 19.76 /	4.13 /	Link31/	5.60 /
Link37/	Link34/ 31.54 /	8.20 /	Link36/	16.17 /
Link48/	Link42.1.1/ 0.05 /	1.11 /	Link41/	22.26 /
235.1/	227.1/ 18.65 /	10.93 /	231.1/	34.34 /
247.1/	239.1/ 28.09 /	42.10 /	243.1/	5.27 /
	251.1/	0.23 /	255.1/	0.30 /

Conduit/ Hydraulic Radius

Link18/	Link14/ 0.02 /	0.01 /	Link16/	0.00 /
Link24/	Link20/ 0.02 /	0.05 /	Link22/	0.03 /
Link33/	Link26/ 0.01 /	0.03 /	Link31/	0.00 /

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Link37/	Link34/ 0.00 /	0.04 /	Link36/	0.00 /
Link48/	Link42.1.1/ 0.00 /	0.01 /	Link41/	0.04 /
235.1/	227.1/ 0.26 /	0.19 /	231.1/	0.36 /
247.1/	239.1/ 0.41 /	0.43 /	243.1/	0.11 /
	251.1/	0.01 /	255.1/	0.01 /

Conduit/ Upstream/ Downstream Elevation

Link14/	23.00/	21.80	Link16/	21.80/	20.75
Link18/	20.75/	20.22/	Link22/	20.21/	20.22
Link20/	20.22/	20.22	Link31/	11.48/	11.48
Link24/	20.21/	19.81/	Link36/	11.46/	9.03
Link26/	18.86/	18.80	Link41/	23.15/	23.04
Link33/	11.48/	11.46/	231.1/	21.80/	21.80
Link34/	23.00/	23.04	243.1/	20.22/	20.22
Link37/	9.03/	8.47/	255.1/	18.80/	16.27
Link42.1.1/	8.47/	8.46			
Link48/	11.49/	11.48/			
227.1/	23.00/	23.00			
235.1/	20.75/	20.75/			
239.1/	20.22/	20.22			
247.1/	20.21/	20.21/			
251.1/	19.81/	19.54			

=====

| Table E7 - Iteration Summary |

=====

Total number of time steps simulated.....	1728
Total number of passes in the simulation.....	135279
Total number of time steps during simulation....	71149
Ratio of actual # of time steps / NTCYC.....	41.174
Average number of iterations per time step.....	1.901
Average time step size(seconds).....	2.429
Smallest time step size(seconds).....	1.250
Largest time step size(seconds).....	100.000
Average minimum Conduit Courant time step (sec).	3.680
Average minimum implicit time step (sec).....	2.451
Average minimum junction time step (sec).....	2.451
Average Courant Factor Tf.....	2.451
Number of times omega reduced.....	0

=====

Table E8 - Junction Time Step Limitation Summary

```

=====
| Not Convr = Number of times this junction did not |
|           converge during the simulation.         |
| Avg Convr = Average junction iterations.         |
| Conv err  = Mean convergence error.              |
| Omega Cng = Change of omega during iterations    |
| Max Itern = Maximum number of iterations         |
=====
  
```

Junction		Not Convr	Avg Convr	Total Itt	Omega Cng	Max Itern	Ittrn >10
Ittrn >25	Ittrn >40						
	Node13	51	2.93	208783	0	501	1075
1059	1058						
	Node14	0	1.50	106747	0	9	0
0	0						
	Node15	0	1.36	96848	0	47	3
1	1						
	Node16	0	1.44	102163	0	457	2
2	2						
	Node17	0	1.68	119701	0	82	75
1	1						
	Node19	0	1.70	121288	0	69	24
2	2						
	Node20	0	1.96	139527	0	90	12
3	3						
	Node21	0	1.53	108851	0	72	1
1	1						
	Node22	0	1.53	108675	0	15	3
0	0						
	Node23	0	1.90	135333	0	84	8
2	2						
	Node24	0	1.93	136972	0	12	1
0	0						
	Node25	0	1.34	95635	0	9	0
0	0						
	Node26	0	1.64	116531	0	14	2
0	0						
	Node27	5	1.33	94929	0	501	5
5	5						
	Node28	4	1.92	136371	0	501	5
4	4						
	Node31	0	2.73	194368	0	499	134
126	120						
	Node33	0	1.70	120673	0	5	0
0	0						
	Node35	0	3.01	214371	0	498	214

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200	195						
	Node36	0	1.71	121730	0	5	0
0	0						
	Node37	0	3.58	254887	0	6	0
0	0						
	Node41	134	197.22	14031984	0	501	67354
67146	67048						
	Node18.1.1	0	1.62	115215	0	18	16
0	0						
	Node34.1.1	53	2.67	190010	0	501	1064
1057	1049						
	Node39	0	1.19	84485	0	5	0
0	0						
Total number of iterations for all junctions..		17156077					

Minimum number of possible iterations..... 1707576

Efficiency of the simulation..... 10.05

Poor Efficiency

```
*=====*
```

Extran Efficiency is an indicator of the efficiency of	
the simulation. Ideal efficiency is one iteration per	
time step. Altering the underrelaxation parameter,	
lowering the time step, increasing the flow and head	
tolerance are good ways of improving the efficiency,	

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| another is lowering the internal time step. The lower the
 | efficiency generally the faster your model will run.
 | If your efficiency is less than 1.5 then you may try
 | increasing your time step so that your overall simulation
 | is faster. Ideal efficiency would be around 2.0
 |
 | Good Efficiency < 1.5 mean iterations
 | Excellent Efficiency < 2.5 and > 1.5 mean iterations
 | Good Efficiency < 4.0 and > 2.5 mean iterations
 | Fair Efficiency < 7.5 and > 4.0 mean iterations
 | Poor Efficiency > 7.5 mean iterations

=====

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| Table E9 - JUNCTION SUMMARY STATISTICS |
 | The Maximum area is only the area of the node, it |
 | does not include the area of the surrounding conduits |
 =====

Maximum Freeboard node feet	Maximum Junction Area ft^2	Maximum Gutter Depth Name feet	Maximum Ground Width feet	Uppermost PipeCrown Gutter Elevation Velocity feet ft/s	Maximum Junction Elevation feet	Time of Occurence Hr. Min.	Feet of Surcharge at Max Elevation	of
15.58	12.5660	Node13 0.00	40.00	27.86 0.00	24.42 0.00	16 29	0.00	
15.59	12.5660	Node14 0.00	40.00	27.82 0.00	24.41 0.00	16 29	0.00	
15.71	12.5660	Node15 0.00	40.00	26.32 0.00	24.29 0.00	16 31	0.00	
15.75	12.5660	Node16 0.00	40.00	26.62 0.00	24.25 0.00	16 31	0.00	
15.74	12.5660	Node17 0.00	40.00	25.51 0.00	24.26 0.00	16 31	0.00	
15.79	12.5660	Node19 0.00	40.00	24.52 0.00	24.21 0.00	16 31	0.00	
16.01	12.5660	Node20 0.00	40.00	25.17 0.00	23.99 0.00	16 34	0.00	
16.04	12.5660	Node21 0.00	40.00	24.71 0.00	23.96 0.00	16 34	0.00	
16.46	12.5660	Node22 0.00	40.00	25.50 0.00	23.54 0.00	16 37	0.00	

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	Node23	40.00	25.52	23.45	16	38	0.00
16.55	12.5660	0.00	0.00	0.00			
	Node24	40.00	26.28	23.26	16	38	0.00
16.74	12.5660	0.00	0.00	0.00			
	Node25	40.00	25.91	22.46	16	39	0.00
17.54	12.5660	0.00	0.00	0.00			
	Node26	40.00	25.24	20.81	16	42	0.00
19.19	12.5660	0.00	0.00	0.00			
	Node27	40.00	24.61	20.37	16	47	0.00
19.63	12.5660	0.00	0.00	0.00			
	Node28	40.00	29.44	19.19	17	15	0.00
20.81	12.5660	0.00	0.00	0.00			
	Node31	40.00	27.84	19.23	17	15	0.00
20.77	12.5660	0.00	0.00	0.00			
	Node33	40.00	29.43	19.14	17	15	0.00
20.86	12.5660	0.00	0.00	0.00			
	Node35	40.00	27.82	19.23	17	15	0.00
20.77	12.5660	0.00	0.00	0.00			
	Node36	40.00	28.05	19.08	17	16	0.00
20.92	12.5660	0.00	0.00	0.00			
	Node37	40.00	28.40	19.00	17	16	0.00
21.00	12.5660	0.00	0.00	0.00			
	Node41	40.00	28.40	19.00	17	16	0.00
21.00	12.5660	0.00	0.00	0.00			
	Node18.1.1	40.00	25.57	24.24	16	31	0.00
15.76	12.5660	0.00	0.00	0.00			
	Node34.1.1	40.00	27.10	24.49	16	27	0.00
15.51	12.5660	0.00	0.00	0.00			
	Node39	40.00	27.97	24.55	16	27	0.00
15.45	12.5660	0.00	0.00	0.00			

=====

Table E10 - CONDUIT SUMMARY STATISTICS

Note: The peak flow may be less than the design flow and the conduit may still surcharge because of the downstream boundary conditions.

* denotes an open conduit that has been overtopped this is a potential source of severe errors

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Time of Occurrence	Ratio of Max. to Design	Maximum Conduit Name	Maximum Water Elev at Pipe Ends (cfs)	Conduit Design Flow Velocity Dwnstrm (ft/s)	Maximum Ratio Design Vertical d/D US DS (in)	Maximum Computed Flow (cfs)	Time of Occurrence Hr. Min.	Maximum Computed Velocity (ft/s)	Hr.
--------------------	-------------------------	----------------------	---------------------------------------	---	--	-----------------------------	-----------------------------	----------------------------------	-----

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Min.	Flow	(ft)	(ft)						
		Link14	596.7483	7.6262	57.8400	16.2261	16	17	3.0940
16	13	0.0272	24.4076	24.2881	0.292	0.578			
		Link16	887.9019	11.3470	57.8400	15.4646	16	22	2.3289
16	1	0.0174	24.2461	24.2555	0.507	0.740			
		Link18	264.7415	3.3833	57.8400	25.8772	16	28	0.8762
16	7	0.0977	24.2431	24.2135	0.725	0.936			
		Link20	316.7276	3.6925	60.2400	47.0313	16	29	1.1578
16	12	0.1485	23.9875	23.9644	0.764	0.851			
		Link22	72.5977	0.5646	64.2000	-45.3438	16	34	-0.9388
16	14	-0.6246	23.5417	23.4516	0.630	0.617			
		Link24	267.1870	2.3676	73.3200	44.6817	16	38	2.1733
16	29	0.1672	23.2570	22.4638	0.505	0.436			
		Link26	1249.146	10.0844	76.6800	44.6173	16	39	4.1452
16	32	0.0357	20.8099	20.3678	0.307	0.336			
		Link31	22103.96	0.7876	196.3200	633.5789	16	50	2.3722
16	20	0.0287	19.2253	19.1869	0.473	0.472			
		Link33	29068.21	0.9626	215.6400	670.1220	16	51	2.7839
16	17	0.0231	19.1869	19.1375	0.429	0.427			
		Link34	500.4380	6.3954	57.8400	-17.2384	16	16	-1.4712
16	13	-0.0344	24.4941	24.4222	0.302	0.444			
		Link36	284979.0	9.2782	215.6400	662.5082	17	3	2.4885
16	18	0.0023	19.1375	19.0825	0.427	0.560			
		Link37	82357.80	2.9857	228.3600	657.7703	17	11	1.5794
16	32	0.0080	19.0825	18.9994	0.529	0.554			
		Link42.1.1	11938.34	0.0000	239.2800	657.2184	17	16	1.4737
17	16	0.0551	18.9994	18.9975	0.529	0.528			
		Link41	325.1504	4.1553	57.8400	4.6936	16	17	0.8224
16	13	0.0144	24.5492	24.4941	0.290	0.459			
		Link48	46955.91	1.7426	195.9600	640.8847	16	49	2.6766
16	19	0.0136	19.2338	19.2253	0.474	0.474			
		227.1	12.3112	2.5080	30.0000	6.3564	16	23	1.9310
16	16	0.5163	24.4222	24.4076	0.673	0.683			
		231.1	11.6038	2.3639	30.0000	15.6145	16	22	3.0844
16	15	1.3456	24.2881	24.2461	1.235	1.234			
		235.1	26.5994	5.4188	30.0000	-13.2754	16	12	-2.6902
16	12	-0.4991	24.2555	24.2431	1.522	1.573			
		239.1	32.6114	6.6435	30.0000	-41.0099	16	18	-8.3136
16	18	-1.2575	24.2135	23.9875	1.801	1.823			
		243.1	21.2473	4.3285	30.0000	-43.5089	16	25	-8.8350
16	25	-2.0477	23.9644	23.5417	1.526	1.405			
		247.1	54.3058	11.0631	30.0000	-39.0879	16	28	-7.9362
16	28	-0.7198	23.4516	23.2570	1.433	1.523			
		251.1	26.1519	5.3276	30.0000	44.6283	16	39	8.9035
16	39	1.7065	22.4638	21.7564	1.066	0.887			
		255.1	95.0460	13.4463	36.0000	44.5424	16	40	12.7074

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16	27	0.4686	20.3678	19.1869	0.523	0.972			
			W14	Undefnd	Undefnd	Undefnd	10.6815	16	16
			W15	Undefnd	Undefnd	Undefnd	2.8930	16	31
			W17	Undefnd	Undefnd	Undefnd	7.9467	16	28
			W20	Undefnd	Undefnd	Undefnd	17.0957	16	31
			W21	Undefnd	Undefnd	Undefnd	5.4410	16	34
			W24	Undefnd	Undefnd	Undefnd	7.5953	16	38
			W25	Undefnd	Undefnd	Undefnd	0.0000	0	0
			W27	Undefnd	Undefnd	Undefnd	0.0000	0	0
			FREE# 1	Undefnd	Undefnd	Undefnd	657.1687	17	16

```

*-----*
| Table E11. Area assumptions used in the analysis |
| Subcritical and Critical flow assumptions from |
| Subroutine Head. See Figure 17-1 in the |
| manual for further information. |
*-----*
    
```

Maximum X-Sect Area(ft^2)	Maximum Conduit Vel*D Name (ft^2/s)	Duration of Dry Flow(min)	Duration of Sub- Critical Flow(min)	Durat. of Upstream Critical Flow(min)	Durat. of Downstream Critical Flow(min)	Maximum Hydraulic Radius-m
13.411	Link14 5.124	181.83	2689.19	0.00	8.98	0.713
28.390	Link16 3.318	98.03	2781.97	0.00	0.00	1.162
52.521	Link18 2.607	67.19	2812.81	0.00	0.00	1.540
56.637	Link20 3.695	62.56	2817.44	0.00	0.00	1.880
50.008	Link22 2.974	83.80	2754.74	41.46	0.00	1.558
18.532	Link24 6.144	123.99	1239.82	0.00	1516.20	1.317
11.781	Link26 8.331	125.71	2754.29	0.00	0.00	0.918
355.924	Link31 14.250	90.09	2789.91	0.00	0.00	4.534
325.710	Link33 16.271	90.56	2789.44	0.00	0.00	4.518
9.541	Link34 2.383	279.62	1821.99	778.40	0.00	0.982

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412.390	Link36	91.11	2788.89	0.00	0.00	4.634
17.441						
435.303	Link37	91.11	2788.89	0.00	0.00	5.369
16.104						
445.940	Link42.1.1	92.54	2787.46	0.00	0.00	5.647
15.529						
9.628	Link41	8.33	2822.74	0.00	48.93	0.696
1.371						
328.887	Link48	136.99	2743.01	0.00	0.00	4.537
15.901						
3.542	227.1	76.57	2803.43	0.00	0.00	0.731
3.068						
5.146	231.1	86.85	2793.15	0.00	0.00	0.761
9.032						
5.131	235.1	61.89	2818.11	0.00	0.00	0.760
8.157						
5.079	239.1	25.83	2851.06	3.11	0.00	0.758
34.571						
5.102	243.1	77.94	2794.54	7.52	0.00	0.760
31.291						
5.033	247.1	113.62	2766.38	0.00	0.00	0.756
28.500						
4.827	251.1	125.71	0.00	0.00	2754.29	0.760
21.724						
5.219	255.1	129.75	332.15	0.00	2418.10	0.784
22.347						

=====

| Table E12. Mean Conduit Flow Information |

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Mean	Mean	Mean	Mean	Total	Mean	Low	Mean
Hydraulic	Conduit	Conduit	Flow	Flow	Percent	Flow	Froude
Radius	Cross	Name	(cfs)	(ft^3)	Change	Weightng	Number
	Area	Roughness					
-----	-----	-----	-----	-----	-----	-----	-----
0.167	0.684	Link14	0.828	143053.260	0.000	0.974	0.317
			0.040				
0.179	1.226	Link16	0.828	142999.501	0.000	0.991	0.369
			0.040				
0.369	3.863	Link18	1.425	246293.006	0.000	0.995	0.081
			0.040				
0.548	6.891	Link20	2.697	465987.687	0.000	0.996	0.051
			0.040				
0.492	7.181	Link22	-2.697	-466086.128	0.000	0.993	0.057
			0.040				

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	Link24	2.698	466213.341	0.000	0.986	0.210
0.405	2.864	0.040				
	Link26	2.699	466351.279	0.000	0.985	0.313
0.279	1.603	0.040				
	Link31	97.133	16784641.390	0.000	0.992	0.126
1.767	96.691	0.032				
	Link33	99.866	17256798.892	0.000	0.992	0.203
1.649	82.649	0.032				
	Link34	-0.828	-143138.854	0.000	0.955	0.061
0.410	2.980	0.040				
	Link36	99.941	17269801.700	0.000	0.992	0.230
1.641	86.166	0.032				
	Link37	100.121	17300871.239	0.000	0.992	0.091
2.236	120.155	0.032				
	Link42.1.1	100.154	17306671.465	0.001	0.992	0.072
2.444	135.094	0.032				
	Link41	0.237	40905.340	0.000	1.000	0.071
0.172	0.809	0.040				
	Link48	97.125	16783262.498	0.000	0.983	0.151
1.704	85.239	0.032				
	227.1	0.582	100584.279	0.000	0.994	0.118
0.336	0.930	0.015				
	231.1	0.813	140525.916	0.000	0.993	0.073
0.472	1.655	0.015				
	235.1	-0.747	-129163.288	0.000	0.996	0.047
0.502	2.037	0.013				
	239.1	-2.541	-439159.498	0.000	1.000	0.096
0.645	3.307	0.015				
	243.1	-2.666	-460756.379	0.000	0.994	0.151
0.494	2.098	0.015				
	247.1	-2.643	-456781.635	0.000	0.988	0.114
0.626	3.080	0.013				
	251.1	2.699	466348.828	0.000	0.985	0.824
0.260	0.834	0.015				
	255.1	2.698	466187.021	0.000	0.984	1.760
0.199	0.594	0.013				
	W14	0.247	42612.477			
	W15	0.015	2528.517			
	W17	0.121	20881.272			
	W20	0.156	26936.082			
	W21	0.031	5364.295			
	W24	0.055	9433.478			
	W25	0.000	0.000			
	W27	0.000	0.000			
	FREE# 1	100.147	17305396.144			

=====

| Table E13. Channel losses(H), headwater depth (HW), tailwater |

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| depth (TW), critical and normal depth (Yc and Yn).
 | Use this section for culvert comparisons

=====

TW	Conduit Name	Maximum Flow	Head Loss	Friction Loss	Critical Depth	Normal Depth	HW Elevat
23.866	Link14 Max Flow	16.200	0.000	0.709	1.144	1.212	24.258
24.119	Link16 Max Flow	15.445	0.000	0.011	1.120	1.024	24.107
24.203	Link18 Max Flow	25.873	0.000	0.038	1.379	1.970	24.234
23.945	Link20 Max Flow	47.013	0.000	0.031	1.573	2.280	23.970
20.218	Link22 Max Flow	-0.001	0.000	-0.007	0.001	0.017	20.208
22.462	Link24 Max Flow	44.682	0.000	0.643	1.907	3.369	23.257
20.335	Link26 Max Flow	44.615	0.000	0.529	1.736	1.905	20.808
19.065	Link31 Max Flow	633.129	0.000	0.042	2.962	10.437	19.107
19.009	Link33 Max Flow	669.299	0.000	0.054	3.497	11.895	19.065
23.040	Link34 Max Flow	0.000	0.000	0.000	0.000	0.000	23.000
19.033	Link36 Max Flow	662.490	0.000	0.115	3.479	4.220	19.091
18.994	Link37 Max Flow	657.769	0.000	0.090	4.179	7.109	19.078
18.997	Link42.1.1 Max Flow	657.157	0.000	0.002	4.046	10.537	18.999
24.396	Link41 Max Flow	4.679	0.000	0.106	0.687	0.959	24.480
19.008	Link48 Max Flow	636.717	0.000	0.010	3.414	7.538	19.020
24.375	227.1 Max Flow	6.353	0.000	0.018	0.833	1.274	24.391
24.107	231.1 Max Flow	15.597	0.000	0.067	1.332	2.500	24.173
20.751	235.1 Max Flow	-0.001	0.000	0.000	0.001	0.001	20.751
20.218	239.1 Max Flow	0.000	0.000	0.000	0.000	0.000	20.218

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20.218	Max Flow	243.1	-0.001	0.000	0.000	0.001	0.002	20.218
20.208	Max Flow	247.1	-0.001	0.000	0.000	0.001	0.001	20.208
21.756	Max Flow	251.1	44.626	0.000	0.707	2.216	2.500	22.464
18.542	Max Flow	255.1	44.541	0.000	1.794	2.174	1.444	20.335

```

*=====
| Table E13a. CULVERT ANALYSIS CLASSIFICATION,
| and the time the culvert was in a particular
| classification during the simulation. The time is
| in minutes. The Dynamic Wave Equation is used for
| all conduit analysis but the culvert flow classification
| condition is based on the HW and TW depths.
|=====
  
```

		Mild Slope Critical D	Mild Slope TW Control	Steep Slope TW Insignf	Slug Flow Outlet/	Mild Slope TW > D	Mild Slope TW <= D
Outlet Control	Conduit Inlet Name Control Configuration	Outlet Inlet Control	Outlet Control	Entrance Control	Entrance Control	Outlet Control	Outlet Control
0.000	Link14	0.000	2720.000	160.000	0.000	0.000	0.000
0.000	0.000 None						
191.667	Link16	0.000	1430.000	1113.333	145.000	0.000	0.000
0.000	0.000 None						
0.000	Link18	0.000	2813.333	66.667	0.000	0.000	0.000
0.000	0.000 None						
0.000	Link20	0.000	2818.333	61.667	0.000	0.000	0.000
0.000	0.000 None						
0.000	Link22	0.000	2796.667	83.333	0.000	0.000	0.000
0.000	0.000 None						
0.000	Link24	930.000	1826.667	123.333	0.000	0.000	0.000
0.000	0.000 None						
0.000	Link26	1.667	2753.333	125.000	0.000	0.000	0.000
0.000	0.000 None						
0.000	Link31	0.000	2790.000	90.000	0.000	0.000	0.000
0.000	0.000 None						
0.000	Link33	0.000	2790.000	90.000	0.000	0.000	0.000
0.000	0.000 None						
0.000	Link34	0.000	2610.000	75.000	195.000	0.000	0.000
0.000	0.000 None						

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0.000	Link36	0.000	2790.000	90.000	0.000	0.000	0.000
0.000	0.000 None						
0.000	Link37	0.000	2790.000	90.000	0.000	0.000	0.000
0.000	0.000 None						
0.000	Link42.1.1	0.000	2788.333	0.000	91.667	0.000	0.000
0.000	0.000 None						
0.000	Link41	30.000	2841.667	8.333	0.000	0.000	0.000
0.000	0.000 None						
0.000	Link48	0.000	2741.667	138.333	0.000	0.000	0.000
0.000	0.000 None						
0.000	227.1	1.667	2803.333	75.000	0.000	0.000	0.000
0.000	0.000 None						
0.000	231.1	0.000	2736.667	86.667	0.000	56.667	0.000
0.000	0.000 None						
0.000	235.1	0.000	2625.000	61.667	103.333	23.333	66.667
0.000	0.000 None						
0.000	239.1	0.000	0.000	25.000	2688.333	55.000	111.667
0.000	0.000 None						
0.000	243.1	0.000	2696.667	76.667	0.000	106.667	0.000
0.000	0.000 None						
0.000	247.1	0.000	0.000	113.333	2661.667	0.000	105.000
0.000	0.000 None						
0.000	251.1	1168.333	1586.667	125.000	0.000	0.000	0.000
0.000	0.000 None						
88.333	255.1	0.000	0.000	2791.667	0.000	0.000	0.000
	0.000 None						

```

*=====*
| Kinematic Wave Approximations |
| Time in Minutes for Each Condition |
*=====*
    
```

Conduit Name	Duration of Normal Flow	Slope Criteria	Super-Critical	Roll Waves
Link14	2717.27	2783.11	0.09	0.00
Link16	2631.28	2782.05	0.00	0.00
Link18	1362.29	2812.92	0.00	0.00
Link20	10.00	2813.44	0.22	0.00
Link22	0.00	0.00	0.00	0.00
Link24	0.00	0.00	0.00	0.00
Link26	1200.54	2752.56	0.13	0.00
Link31	0.22	85.22	0.00	0.00
Link33	0.00	0.00	0.00	0.00
Link34	0.00	0.00	0.00	0.00
Link36	1421.04	2786.49	0.00	0.00
Link37	69.52	2571.41	0.00	0.00
Link42.1.1	1.74	1.74	0.00	0.00

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Link41	1602.25	2835.00	12.50	0.00
Link48	1.92	537.91	0.00	0.00
227.1	0.00	2597.70	0.39	0.00
231.1	0.02	2753.47	1.30	0.00
235.1	0.00	200.23	0.00	0.00
239.1	0.00	3.82	0.00	0.00
243.1	0.00	0.00	0.00	0.00
247.1	0.00	0.00	0.00	0.00
251.1	0.00	0.06	30.18	0.00
255.1	168.23	331.96	2750.19	0.00

=====

| Table E14 - Natural Channel Overbank Flow Information |

=====

		<---- Maximum Velocity ---->			<----- Maximum Flow ----->			
<----- Maximum Area ----->		<--- Max. Storage Volume --->						
Left	Center	Right	Left	Center	Right	Left	Center	Right
Area	Area	Area	Velocity	Velocity	Velocity	Flow	Maximum Depth	Flow
Conduit Name		Left	Center	Right	Left	Center	Right	Flow
0.000	Link14	0.000	1.211	0.000	0.000	16.226	0.000	0.000
13.394	Link16	0.138	0.558	0.000	0.126	15.339	0.000	0.000
0.913	Link18	0.295	0.520	0.252	1.703	24.070	0.104	0.000
5.773	Link20	0.412	1403.564	11260.950	100.236	46.317	0.113	0.000
5.585	Link22	0.467	0.873	0.383	2.609	44.310	0.000	0.000
0.141	Link24	0.092	0.912	0.000	0.013	45.331	0.000	0.000
0.000	Link26	0.000	39.846	14039.628	0.000	49.730	0.000	0.000
0.000	Link31	0.000	2.415	0.000	0.000	44.682	0.000	0.000
0.000	Link33	0.000	0.000	5182.612	0.000	18.532	0.000	0.000
0.000	Link34	0.000	3.790	0.000	0.000	44.617	0.000	0.000
0.000	Link36	0.000	0.000	457.294	0.000	11.781	0.000	0.000
0.000	Link37	0.000	1.775	0.186	0.000	631.436	2.143	0.000
0.000	Link42.1.1	11.502	0.000	71023.010	2088.311	355.924	9.964	0.000
0.000		30.151	0.000	62693.110	5804.686	325.710	0.000	0.000
0.000		0.000	1.812	0.000	0.000	17.238	0.000	0.000
0.000		0.000	0.000	468.473	0.000	9.541	0.000	0.000
0.000		0.000	1.608	0.000	0.000	662.508	0.000	0.000
0.000		0.000	0.000	205794.210	0.000	412.390	0.000	0.000
0.000		0.000	1.512	0.000	0.000	657.770	0.000	0.000
0.000		0.000	0.000	324205.485	0.000	435.303	0.000	0.000
0.000		0.000	1.475	0.000	0.000	657.218	0.000	0.000

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0.000	445.662	0.000	0.000	8917.695	0.000	445.940		
	Link41	0.000	0.489	0.000	0.000	4.694	0.000	
0.000	9.598	0.000	0.000	1281.878	0.000	9.628		
	Link48	0.000	1.946	0.173	0.000	639.861	1.023	
0.000	328.738	5.914	0.000	12577.519	226.261	328.887		

=====

| Table E14a - Natural Channel Encroachment Information |

=====

<----- Existing Conveyance Condition -----> <-----									
Encroachment Conveyance Condition -----> <- % Volume --> <-- Encroachment Data -->									
Centre	Right	Total	Left	Centre	Right	Total	Left	Right	Left
Channel	Bank	Name	Bank	Channel	Bank	Reduction	Station	Station	Bank
			Station	Station		Left	Incr.		Method
0.0000	494.71	Link14	0.0000	494.71	0.0000	494.71	7.6553	20.448	0.0000
			20.448			0.0000			494.71
						0.0000		None	
0.0000	1311.9	Link16	10.692	1301.2	0.0000	1311.9	0.0000	23.122	10.692
			23.122			0.0000			1301.2
						0.0000		None	
12.560	3128.9	Link18	205.94	2910.4	12.560	3128.9	0.0000	27.393	205.94
			27.393			0.0000			2910.4
						0.0000		None	
8.6080	3596.2	Link20	199.48	3388.1	8.6080	3596.2	0.0000	26.797	199.48
			26.797			0.0000			3388.1
						0.0000		None	
0.0000	2589.4	Link22	0.7403	2588.6	0.0000	2589.4	2.3439	34.109	0.7403
			34.109			0.0000			2588.6
						0.0000		None	
0.0000	799.71	Link24	0.0000	799.71	0.0000	799.71	13.270	26.809	0.0000
						0.0000			799.71
						0.0000		None	
0.0000	422.37	Link26	0.0000	422.37	0.0000	422.37	9.3113	21.010	0.0000
						0.0000			422.37
						0.0000		None	
		Link31	0.0000	45211.9	153.45	45365.3	4744.1	5178.0	0.0000
									45211.9

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153.45 45365.3 4744.1 5178.0 0.0000 0.0000 0.0000 None

Link33 0.0000 41245.1 622.53 41867.6 3465.5 3736.4 0.0000 41245.1
 622.53 41867.6 3465.5 3736.4 0.0000 0.0000 0.0000 None

Link34 0.0000 316.41 0.0000 316.41 8.9336 19.543 0.0000 316.41
 0.0000 316.41 8.9336 19.543 0.0000 0.0000 0.0000 None

Link36 0.0000 57431.8 0.0000 57431.8 3651.2 3728.0 0.0000 57431.8
 0.0000 57431.8 3651.2 3728.0 0.0000 0.0000 0.0000 None

Link37 0.0000 62727.3 0.0000 62727.3 5001.0 5077.3 0.0000 62727.3
 0.0000 62727.3 5001.0 5077.3 0.0000 0.0000 0.0000 None

Link42.1.1 0.0000 65630.5 0.0000 65630.5 4959.2 5034.5 0.0000 65630.5
 0.0000 65630.5 4959.2 5034.5 0.0000 0.0000 0.0000 None

Link41 0.0000 320.19 0.0000 320.19 8.9024 19.563 0.0000 320.19
 0.0000 320.19 8.9024 19.563 0.0000 0.0000 0.0000 None

Link48 0.0000 41841.0 66.926 41907.9 4688.6 5156.1 0.0000 41841.0
 66.926 41907.9 4688.6 5156.1 0.0000 0.0000 0.0000 None

=====

| Table E14b - Floodplain Mapping |

=====

Conduit	Upstream	Downstream	Channel	Center	<----- Left Offsets		
----->	<-----	----->	<-	Channel	----->		
Bank	Natural	Encroach	Bank	Length	Station	Natural	Encroach
				Total	Encroach.		
Link14	24.4076	24.2881	68.3600	15.0000	7.3447	7.3447	
10.0000	5.4480	5.4480	10.0000	12.7926	12.7926		
Link16	24.2461	24.2555	22.8500	15.0000	15.0000	15.0000	

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10.0000	8.1217	8.1217	10.0000	23.1217	23.1217		
	Link18	24.2431	24.2135	243.1300	15.0000	15.0000	15.0000
10.0000	12.3929	12.3929	10.0000	27.3929	27.3929		
	Link20	23.9875	23.9644	117.5100	15.0000	15.0000	15.0000
10.0000	11.7967	11.7967	10.0000	26.7967	26.7967		
	Link22	23.4516	23.5417	282.4000	25.0000	22.6561	22.6561
20.0000	9.1094	9.1094	10.0000	31.7656	31.7656		
	Link24	23.2570	22.4638	280.1300	20.0000	6.7304	6.7304
10.0000	6.8093	6.8093	10.0000	13.5397	13.5397		
	Link26	20.8099	20.3678	38.8400	15.3500	6.0387	6.0387
9.7200	5.6603	5.6603	10.0700	11.6990	11.6990		
	Link31	19.2253	19.1869	199.6800	4765.9700	21.9125	21.9125
106.3600	412.0021	412.0021	69.3100	433.9146	433.9146		
	Link33	19.1869	19.1375	192.6600	3498.9200	33.3743	33.3743
70.7100	237.4634	237.4634	48.4200	270.8377	270.8377		
	Link34	24.4222	24.4941	49.2500	15.0000	6.0664	6.0664
10.0000	4.5431	4.5431	10.0000	10.6095	10.6095		
	Link36	19.1375	19.0825	499.4300	3687.5900	36.4369	36.4369
94.8600	40.4090	40.4090	53.4600	76.8459	76.8459		
	Link37	19.0825	18.9994	745.4400	5037.4200	36.3766	36.3766
110.9000	39.8919	39.8919	78.4400	76.2686	76.2686		
	Link42.1.1	18.9994	18.9975	20.0100	4995.7800	36.6023	36.6023
118.3100	38.7202	38.7202	64.8400	75.3225	75.3225		
	Link41	24.5492	24.4941	133.5500	15.0000	6.0976	6.0976

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10.0000 4.5634 4.5634 10.0000 10.6610 10.6610

Link48 19.2338 19.2253 38.2600 4722.1000 33.4974 33.4974
 66.5800 433.9775 433.9775 48.4200 467.4749 467.4749

```

*=====
| Table E15 - SPREADSHEET INFO LIST |
| Conduit Flow and Junction Depth Information for use in |
| spreadsheets. The maximum values in this table are the |
| true maximum values because they sample every time step. |
| The values in the review results may only be the |
| maximum of a subset of all the time steps in the run. |
| Note: These flows are only the flows in a single barrel. |
*=====
    
```

Conduit Junction Name	Maximum Invert Elevation (ft)	Total Maximum Flow (ft ³)	Maximum Velocity (ft/s)	Maximum Volume (ft ³)	##
Link14	16.22611	143053.25989	3.09397	915.63860	##
Node13	22.74000	24.42222			
Link16	15.46463	142999.50058	2.32891	648.49781	##
Node14	22.70000	24.40764			
Link18	25.87721	246293.00600	0.87620	12764.74984	##
Node15	21.20000	24.28805			
Link20	47.03129	465987.68665	1.15778	6653.28662	##
Node16	21.16000	24.24605			
Link22	-45.34378	-466086.12829	0.93882	14079.47467	##
Node17	20.31000	24.25554			
Link24	44.68167	466213.34107	2.17331	5182.61206	##
Node19	19.43000	24.21352			
Link26	44.61734	466351.27882	4.14518	457.29358	##
Node20	19.63000	23.98748			
Link31	633.57886	16784641.38971	2.37220	73111.32089	##
Node21	19.69000	23.96440			
Link33	670.12201	17256798.89201	2.78389	68497.79646	##
Node22	19.80000	23.54172			
Link34	-17.23845	-143138.85440	1.47116	468.47294	##
Node23	19.45000	23.45156			
Link36	662.50817	17269801.70030	2.48855	205794.20968	##
Node24	19.87000	23.25699			

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Link37	657.77032	17300871.23898	1.57941	324205.48507	##
Node25	19.57000	22.46379			
Link42.1.1	657.21841	17306671.46498	1.47365	8917.69521	##
Node26	18.85000	20.80989			
Link41	4.69364	40905.34034	0.82238	1281.87771	##
Node27	18.22000	20.36782			
Link48	640.88466	16783262.49843	2.67664	12803.78000	##
Node28	11.47000	19.18691			
227.1	6.35642	100584.27936	1.93100	118.08772	##
Node31	11.48000	19.22531			
231.1	15.61448	140525.91595	3.08444	193.17247	##
Node33	11.46000	19.13748			
235.1	-13.27543	-129163.28773	2.69015	171.30662	##
Node35	11.49000	19.23377			
239.1	-41.00991	-439159.49784	8.31357	171.20395	##
Node36	9.02000	19.08245			
243.1	-43.50888	-460756.37933	8.83500	172.84984	##
Node37	8.46000	18.99938			
247.1	-39.08787	-456781.63512	7.93619	123.07779	##
Node41	8.46000	18.99748			
251.1	44.62826	466348.82832	8.90348	231.89317	##
Node18.1.1	14.99000	24.24311			
255.1	44.54241	466187.02082	12.70743	649.80484	##
Node34.1.1	16.32000	24.49415			
W14	10.68148	42612.47696	0.00000	0.00000	##
Node39	23.15000	24.54924			
W15	2.89303	2528.51680	0.00000	0.00000	##
W17	7.94669	20881.27188	0.00000	0.00000	##
W20	17.09575	26936.08237	0.00000	0.00000	##
W21	5.44102	5364.29546	0.00000	0.00000	##
W24	7.59535	9433.47757	0.00000	0.00000	##
W25	0.00000	0.00000	0.00000	0.00000	##
W27	0.00000	0.00000	0.00000	0.00000	##
FREE# 1	657.16867	17305396.14360	0.00000	0.00000	##

=====

Table E15a - SPREADSHEET REACH LIST
Peak flow and Total Flow listed by Reach or those
conduits or diversions having the same
upstream and downstream nodes.

=====

Upstream Node	Downstream Node	Maximum Flow (cfs)	Total Flow (ft^3)
Node14	Node15	16.226	1.43053E+05
Node16	Node17	15.465	1.43000E+05

Coupland_Exist5yr.out

Node18.1.1	Node19	25.877	2.46293E+05
Node20	Node21	47.031	4.65988E+05
Node23	Node22	45.344	4.66086E+05
Node24	Node25	44.682	4.66213E+05
Node26	Node27	44.617	4.66351E+05
Node31	Node28	633.58	1.67846E+07
Node28	Node33	670.12	1.72568E+07
Node13	Node34.1.1	17.238	1.43139E+05
Node33	Node36	662.51	1.72698E+07
Node36	Node37	657.77	1.73009E+07
Node37	Node41	657.22	1.73067E+07
Node39	Node34.1.1	4.6936	40905.
Node35	Node31	640.88	1.67833E+07
Node13	Node14	6.3564	1.00584E+05
Node15	Node16	15.614	1.40526E+05
Node18.1.1	Node17	13.275	1.29163E+05
Node20	Node19	41.010	4.39159E+05
Node22	Node21	43.509	4.60756E+05
Node24	Node23	39.088	4.56782E+05
Node25	Node26	44.628	4.66349E+05
Node27	Node28	44.542	4.66187E+05
Node13	Node14	10.681	42612.
Node15	Node16	2.8930	2528.5
Node17	Node18.1.1	7.9467	20881.
Node19	Node20	17.096	26936.
Node21	Node22	5.4410	5364.3
Node23	Node24	7.5953	9433.5

```
#####
# Table E16. New Conduit Information Section #
# Conduit Invert (IE) Elevation and Conduit #
# Maximum Water Surface (WS) Elevations #
#####
```

Conduit Name		Upstream Node	Downstream Node	IE Up	IE Dn
WS Up	WS Dn	Conduit Type			

24.41	24.29	Link14 Natural	Node14 Node15	23.00	21.50
24.25	24.26	Link16 Natural	Node16 Node17	21.80	20.69
24.24	24.21	Link18 Natural	Node18.1.1 Node19	20.75	19.70
23.99	23.96	Link20 Natural	Node20 Node21	20.15	19.69
23.45	23.54	Link22 Natural	Node23 Node22	20.17	20.15

Coupland_Exist5yr.out

23.26	Link24		Node24	Node25	20.17	19.80
20.81	Link26	Natural	Node26	Node27	18.85	18.22
19.23	Link31	Natural	Node31	Node28	11.48	11.47
19.19	Link33	Natural	Node28	Node33	11.47	11.46
24.42	Link34	Natural	Node13	Node34.1.1	23.04	22.28
19.14	Link36	Natural	Node33	Node36	11.46	9.020
19.08	Link37	Natural	Node36	Node37	9.020	8.460
19.00	Link42.1.1	Natural	Node37	Node41	8.460	8.460
24.55	Link41	Natural	Node39	Node34.1.1	23.15	22.28
19.23	Link48	Natural	Node35	Node31	11.49	11.48
24.42	227.1	Circular	Node13	Node14	22.74	22.70
24.29	231.1	Circular	Node15	Node16	21.20	21.16
24.24	235.1	Circular	Node18.1.1	Node17	20.45	20.31
23.99	239.1	Circular	Node20	Node19	19.71	19.43
23.54	243.1	Circular	Node22	Node21	20.15	20.03
23.26	247.1	Circular	Node24	Node23	19.87	19.45
22.46	251.1	Circular	Node25	Node26	19.80	19.54
20.37	255.1	Circular	Node27	Node28	18.80	16.27

=====

Table E18 - Junction Continuity Error. Division by Volume added 11/96

Continuity Error = Net Flow + Beginning Volume - Ending Volume

 Total Flow + (Beginning Volume + Ending Volume)/2

Net Flow = Node Inflow - Node Outflow

Total Flow = absolute (Inflow + Outflow)

Intermediate column is a judgement on the node continuity error.

Coupland_Exist5yr.out

Excellent < 1 percent	Great 1 to 2 percent	Good 2 to 5 percent
Fair 5 to 10 percent	Poor 10 to 25 percent	Bad 25 to 50 percent
Terrible > 50 percent		

=====

Net Flow	Junction Total Flow	<-----Continuity Error ----->			Remaining	Beginning
Thru Node	Thru Node	Failed to Converge	% of Node	% of Inflow	Volume	Volume
-109.5115	Node13 286335.6107	-131.5519 51	-0.0459	0.0008	22.0404	0.0000
-75.4217	Node14 286250.0162	-87.5242 0	-0.0306	0.0005	12.1025	0.0000
-14.3406	Node15 286107.6926	-42.9778 0	-0.0150	0.0002	28.6371	0.0000
33.0213	Node16 286053.9333	7.0153 0	0.0025	0.0000	26.0060	0.0000
-52.9921	Node17 300150.4222	-66.2271 0	-0.0221	0.0004	13.2351	0.0000
-152.5467	Node19 932087.9337	-211.9614 0	-0.0227	0.0012	59.4147	0.0000
45.4493	Node20 932083.2669	-5.4612 0	-0.0006	0.0000	50.9106	0.0000
-172.0440	Node21 932108.3614	-207.1631 0	-0.0222	0.0012	35.1191	0.0000
18.4032	Node22 932206.8031	4.3985 0	0.0005	0.0000	14.0047	0.0000
	Node23	-183.3966	-0.0197	0.0011	26.0465	0.0000

Coupland_Exist5yr.out

-157.3501	932301.2410	0				
	Node24	-46.2716	-0.0050	0.0003	15.2962	0.0000
-30.9754	932428.4538	0				
	Node25	-155.0265	-0.0166	0.0009	4.6528	0.0000
-150.3737	932562.1694	0				
	Node26	-21.0597	-0.0023	0.0001	7.2503	0.0000
-13.8094	932700.1071	0				
	Node27	137.0219	0.0147	0.0008	14.4458	0.0000
151.4677	932538.2996	5				
	Node28	-6851.5059	-0.0199	0.0397	12.9087	0.0000
-6838.5972	34507627.30	4				
	Node31	-2750.8353	-0.0082	0.0159	6.5690	0.0000
-2744.2663	33567903.89	0				
	Node33	-13864.1908	-0.0402	0.0804	18.7278	0.0000
-13845.4631	34526600.59	0				
	Node35	-565.7814	-0.0017	0.0033	0.0892	0.0000
-565.6921	33566490.57	0				
	Node36	-31737.7667	-0.0918	0.1840	30.0069	0.0000
-31707.7598	34570672.94	0				
	Node37	-6321.8405	-0.0183	0.0366	17.8335	0.0000
-6304.0070	34607542.70	0				
	Node41	-75.3643	-0.0002	0.0004	0.2855	0.0000
-75.0788	34612067.61	134				
	Node18.1.1	-426.8619	-0.0867	0.0025	112.7381	0.0000

Coupland_Exist5yr.out

-314.1238 492357.7810

0

	Node34.1.1	148.9871	0.0520	0.0009	135.5444	0.0000
284.5315	286567.5573	53				

	Node39	-72.1993	-0.0883	0.0004	37.3987	0.0000
-34.8007	81776.9199	0				

The total continuity error was -63528. cubic feet
 The remaining total volume was 701.26 cubic feet
 Your mean node continuity error was Excellent
 Your worst node continuity error was Excellent

```

*=====*
| Table E19 - Junction Inflow & Outflow Listing |
|           Units are either ft^3 or m^3         |
|           depending on the units in your model. |
*=====*
    
```

Inflow through Outfall	RNF Layer Junction Inflow to Node	Constant Inflow from 2D Layer	User Inflow to Node from Node	Interface Inflow Evaporation to Node from Node	DWF Inflow Basin to Node Infil.
0.0000	Node17 7105.8134	0.0000 0.0000	0.0000 0.0000	0.0000 0.0000	0.0000 0.00
0.0000	Node19 219685.8486	0.0000 0.0000	0.0000 0.0000	0.0000 0.0000	0.0000 0.00
0.0000	Node35 0.0000	0.0000 0.0000	16.7832E+06 0.0000	0.0000 0.0000	0.0000 0.00
0.0000	Node41 0.0000	0.0000 0.0000	0.0000 17.3054E+06	0.0000 0.0000	0.0000 0.00
0.0000	Node18.1.1 96013.2098	0.0000 0.0000	0.0000 0.0000	0.0000 0.0000	0.0000 0.00

Coupland_Exist5yr.out

0.0000	Node34.1.1	0.0000	0.0000	0.0000	0.0000
102515.8940		0.0000	0.0000	0.0000	0.00
0.0000	Node39	0.0000	0.0000	0.0000	0.0000
40868.8736		0.0000	0.0000	0.0000	0.00

```

*=====
| Table E20 - Junction Flooding and Volume Listing. |
| The maximum volume is the total volume |
| in the node including the volume in the |
| flooded storage area. This is the max |
| volume at any time. The volume in the |
| flooded storage area is the total volume |
| above the ground elevation, where the |
| flooded pond storage area starts. |
| The fourth column is instantaneous, the fifth is the |
| sum of the flooded volume over the entire simulation |
| Units are either ft^3 or m^3 depending on the units. |
*=====
  
```

2D cell	Junction Name	Surcharged Time (min)	Flooded Time(min)	Out of 1D-System (Flooded Volume)	Passed to OR in Pond of	
Volume Stored allowed Flood 1D-System				Maximum Volume		
-----	-----	-----	-----	-----	-----	
-----	-----	-----	-----	-----	-----	
	Node13	0.000	0.000	0.000	21.1	0.000
	Node14	0.000	0.000	0.000	21.5	0.000
	Node15	0.000	0.000	0.000	38.8	0.000
	Node16	0.000	0.000	0.000	38.8	0.000
	Node17	0.000	0.000	0.000	49.6	0.000
	Node19	0.000	0.000	0.000	60.1	0.000
	Node20	0.000	0.000	0.000	54.8	0.000
	Node21	0.000	0.000	0.000	53.7	0.000
	Node22	0.000	0.000	0.000	47.0	0.000
	Node23	0.000	0.000	0.000	50.3	0.000
	Node24	0.000	0.000	0.000	42.6	0.000
	Node25	0.000	0.000	0.000	36.4	0.000
	Node26	0.000	0.000	0.000	24.6	0.000

Coupland_Exist5yr.out

Node27	0.000	0.000	0.000	27.0	0.000
Node28	0.000	0.000	0.000	97.0	0.000
Node31	0.000	0.000	0.000	97.3	0.000
Node33	0.000	0.000	0.000	96.5	0.000
Node35	0.000	0.000	0.000	97.3	0.000
Node36	0.000	0.000	0.000	126.	0.000
Node37	0.000	0.000	0.000	132.	0.000
Node41	0.000	0.000	0.000	132.	0.000
Node18.1.1	0.000	0.000	0.000	116.	0.000
Node34.1.1	0.000	0.000	0.000	103.	0.000
Node39	0.000	0.000	0.000	17.6	0.000

*=====
 | Simulation Specific Information |
 *=====

Number of Input Conduits..... 32	23	Number of Simulated Conduits.....
Number of Natural Channels..... 24	15	Number of Junctions.....
Number of Storage Junctions..... 8	0	Number of Weirs.....
Number of Orifices..... 0	0	Number of Pumps.....
Number of Free Outfalls..... 0	1	Number of Tide Gate Outfalls.....

*=====
 | Average % Change in Junction or Conduit is defined as: |
 | Conduit % Change ==> 100.0 (Q(n+1) - Q(n)) / Qfull |
 | Junction % Change ==> 100.0 (Y(n+1) - Y(n)) / Yfull |
 *=====

The Conduit with the largest average change was.. Link42.1.1 with
 0.001 percent
 The Junction with the largest average change was. Node34.1.1 with
 0.051 percent
 The Conduit with the largest sinuosity was..... 243.1 with
 4.142

*=====
 | Table E21. Continuity balance at the end of the simulation |
 | Junction Inflow, Outflow or Street Flooding |
 | Error = Inflow + Initial Volume - Outflow - Final Volume |
 *=====

Inflow Inflow Average

Coupland_Exist5yr.out

Junction	Volume,ft ³	Inflow, cfs
Node17	7106.3620	0.0411
Node19	219699.3475	1.2714
Node35	16783228.0741	97.1252
Node18.1.1	96020.2154	0.5557
Node34.1.1	102523.3626	0.5933
Node39	40871.5796	0.2365
Node41	17305396.1436	-100.1470
Outflow Junction	Outflow Volume,ft ³	Average Outflow, cfs
Node41	17305396.1436	100.1470

=====

| Initial system volume = 0.0000 Cu Ft |

| Total system inflow volume = 17.249390E+06 Cu Ft |

| Inflow + Initial volume = 17.249390E+06 Cu Ft |

=====

| Total system outflow = 17.305396E+06 Cu Ft |

| Volume left (Final volume) = 701.2638 Cu Ft |

| Evaporation = 0.0000 Cu Ft |

Coupland_Exist5yr.out
| Basin Infiltration = 0.0000 Cu Ft |

| Outflow + Final Volume = 17.306097E+06 Cu Ft |

=====

=====

Total Model Continuity Error	
Error in Continuity, Percent =	-0.3288
Error in Continuity, ft^3 =	-56707.792
+ Error means a continuity loss, - a gain	

=====

Table E22. Numerical Model judgement section #
#####

Overall error was (minimum of Table E18 & E21) -0.3288 percent

Worst nodal error was in node Node36 with -0.0918 percent

Of the total inflow this loss was 0.1840 percent

Your overall continuity error was Excellent

Coupland_Exist5yr.out

Poor Efficiency

Efficiency of the simulation 10.05

Most Number of Non Convergences at one Node 134.

Total Number Non Convergences at all Nodes 247.

Total Number of Nodes with Non Convergences 5.

```
#####  
# Table E23. New Basin Design Information #  
# Maximum Hydraulic Grade Line, #  
# Out Conduit Sizes and Maximum Flow #  
#####
```

Coupland_Exist5yr.out

- A) Resize d/s Pipes based on given HGL
- B) Resize Basin based on given HGL
- C) Resize d/s Pipes and Basin based on HGL and max discharge
- D) Resize d/s pipes based on given max discharge

Basin Name	Type	Max.HGL	Conduit	Depth	Width
Barrels	Max.Flow	(ft)		(ft)	(ft)
(ft ³ /s)					

====> Hydraulic model simulation ended normally.
 ====> XP-SWMM Simulation ended normally.

====> Your input file was named : D:\cfa\2016\12024.Coupland_Paving_and Drainage\ENG\H&H\SWMM\Coupland_Exist5yr.DAT

====> Your output file was named : D:\cfa\2016\12024.Coupland_Paving_and Drainage\ENG\H&H\SWMM\Coupland_Exist5yr.out

```

*=====
|                SWMM Simulation Date and Time Summary                |
*=====
| Starting Date... July      18, 2017  Time... 09:34:39.699 |
| Ending Date...  July      18, 2017  Time... 09:35:06.287 |
| Elapsed Time...  0.41146 minutes or   24.68750 seconds |
*=====
  
```

Coupland_Exist10yr.out
Current Directory: C:\PROGRA~2\XPSOLU~1\XPSTOR~1.1
Engine Name: C:\PROGRA~2\XPSOLU~1\XPSTOR~1.1\SWMMEN~2.EXE

Input File : 4.Coupland_Paving_and Drainage\ENG\H&H\SWMM\Coupland_Exist10yr.XP

```
*=====*
```

```
|                                     |
```

```
|                xpswmm                |
```

```
|      Storm and Wastewater Management Model      |
```

```
|      Developed by XP Solutions Inc.              |
```

```
|=====|
```

```
| Last Update       : October, 2015              |
```

```
| Interface Version : 2016                        |
```

```
| Engine Version    : 12.0                        |
```

```
| Data File Version : 12.62                       |
```

```
|                                     |
```

```
*=====*
```

Engine Name: C:\PROGRA~2\XPSOLU~1\XPSTOR~1.1\SWMMEN~2.EXE

```
*=====*
```

```
|      Input and Output file names by Layer      |
```

```
*=====*
```

Input File to Layer # 1 JOT.US

Output File to Layer # 1 JOT.US

Input File to Layer # 2 JOT.US

Output File to Layer # 2 JOT.US

Coupland_Exist10yr.out

```

=====
Configuration Parameters
Configuration Parameters, both those that are hardwired
and those added to the simulation are listed below.
Configuration Parameters that start with a $ are set in
the engine as defaults. The remaining in UPPERCASE
have been added to the simulation in the Configuration->
Configuration Parameters dialog or as Engine Defaults in
the SWMXP.INI file.

Consult the Help File for the specific meaning/purpose
of any particular parameter.

Note:
The second column denotes the value of the parameter.
=====

```

\$powerstation	0.0000	1	2
\$perv	0.0000	0	4
\$oldegg	0.0000	0	7
\$as	0.0000	0	11
\$noflat	0.0000	0	21
\$oldomega	0.0000	0	24
\$oldvol	0.0000	1	28
\$implicit	0.0000	1	29
\$oldhot	0.0000	1	31
\$oldscs	0.0000	0	33
\$flood	0.0000	1	40
\$nokeys	0.0000	0	42
\$pzero	0.0000	0	55
\$oldvol2	0.0000	2	59
\$storage2	0.0000	3	62
\$oldhot1	0.0000	1	63
\$pumpwt	0.0000	1	70
\$ecloss	0.0000	1	77
\$exout	0.0000	0	97
\$spatial = 0.90	0.9000	5	124
\$djref = -1.0	-0.1000	3	143
\$weirlen = 50	50.0000	1	153
\$oldbnd	0.0000	1	154
\$nogrelev	0.0000	1	161
\$ncmid	0.0000	0	164
\$new_n1_97	0.0000	2	290
SCSIADDEPTH=ON	0.0000	1	293
\$best97	0.0000	1	294

Coupland_Exist10yr.out

\$newbound	0.0000	1	295
\$q_tol = 0.01	0.0001	1	316
\$new_storage	0.0000	1	322
\$old_iteration	0.0000	1	333
MINLEN=10	10.0000	1	346
\$review_elevation	0.0000	1	383
\$use_half_volume	0.0000	1	385
VERT_WALLS=ON	0.0000	1	389
\$min_ts = 1.0	1.0000	1	407
\$design_restart = on	0.0000	1	412
\$zero_value=1.e-05	0.0000	1	415
SUBCATCHMENT_RES=ON	0.0000	1	419
\$relax_depth = on	0.0000	1	427
\$saveallpts = on	0.0000	1	434
\$channel_geometry=1	0.0000	1	456

```

*=====
| All object names are less than 20 characters. |
| No name substitutions required! |
*=====

```

```

*=====
| Parameter Values on the Tapes Common Block. These are the |
| values read from the data file and dynamically allocated |
| by the model for this simulation. |
*=====

```

Number of Subcatchments in the Runoff Block (NW)....	5
Number of Channel/Pipes in the Runoff Block (NG)....	0
Runoff Water quality constituents (NRQ).....	0
Runoff Land Uses per Subcatchment (NLU).....	0
Number of Elements in the Transport Block (NET).....	0
Number of Storage Junctions in Transport (NTSE).....	0
Number of Input Hydrographs in Transport (NTH).....	0
Number of Elements in the Extran Block (NEE).....	32
Number of Groundwater Subcatchments in Runoff (NGW).	0
Number of Interface locations for all Blocks (NIE)..	32
Number of Pumps in Extran (NEP).....	0
Number of Orifices in Extran (NEO).....	0
Number of Tide Gates/Free Outfalls in Extran (NTG)..	1
Number of Extran Weirs (NEW).....	8
Number of scs hydrograph points.....	3457
Number of Extran printout locations (NPO).....	0
Number of Tide elements in Extran (NTE).....	1
Number of Natural channels (NNC).....	15
Number of Storage junctions in Extran (NVSE).....	0
Number of Time history data points in Extran(NTVAL).	0

Coupland_Exist10yr.out

Number of Variable storage elements in Extran (NVST)	0
Number of Input Hydrographs in Extran (NEH).....	1
Number of Particle sizes in Transport Block (NPS)...	0
Number of User defined conduits (NHW).....	5
Number of Connecting conduits in Extran (NECC).....	20
Number of Upstream elements in Transport (NTCC).....	10
Number of Storage/treatment plants (NSTU).....	1
Number of Values for R1 lines in Transport (NR1)...	0
Number of Nodes to be allowed for (NNOD).....	32
Number of Plugs in a Storage Treatment Unit.....	1

```
#####
#   Entry made to the Runoff Layer(Block) of SWMM   #
#   Last Updated June, 2014 by XP Solutions         #
```

```
*=====*
```

RUNOFF TABLES IN THE OUTPUT FILE.	
These are the more important tables in the output file.	
You can use your editor to find the table numbers,	
for example: search for Table R3 to check continuity.	
This output file can be imported into a Word Processor	
and printed on US letter or A4 paper using portrait	
mode, courier font, a size of 8 pt. and margins of 0.75	
Table R1	- Physical Hydrology Data
Table R2	- Infiltration data
Table R3	- Raingage and Infiltration Database Names
Table R4	- Groundwater Data
Table R5	- Continuity Check for Surface Water
Table R6	- Continuity Check for Channels/Pipes
Table R7	- Continuity Check for Subsurface Water
Table R8	- Infiltration/Inflow Continuity Check
Table R9	- Summary Statistics for Subcatchments
Table R10	- Sensitivity analysis for Subcatchments

```
*=====*
```

A1

```
#####
#   RUNOFF JOB CONTROL   #
#####
```

Snowmelt parameter - ISNOW.....	0
Number of rain gages - NRGAG.....	1
Quality is not simulated - KWALTY.....	0

Coupland_Exist10yr.out

Default evaporation rate used - IVAP..... 0
Hour of day at start of storm - NHR..... 0
Minute of hour at start of storm - NMN..... 0
Time TZERO at start of storm (hours)..... 0.000
Use U.S. Customary units for most I/O - METRIC... 0
Runoff input print control... 0
Runoff graph plot control.... 0
Runoff output print control.. 0
Limit number of groundwater convergence messages to 10000

Print headers every 50 lines - NOHEAD (0=yes, 1=no) 0

Print land use load percentages -LANDUPR (0=no, 1=yes) 0
Month, day, year of start of storm is: 1/ 1/2016
Wet time step length (seconds)..... 60.0
Dry time step length (seconds)..... 86400.0
Wet/Dry time step length (seconds)... 60.0
Simulation length is..... 48.0 Hours

If Horton infiltration model is being used
A mixture of infiltration options may be used in
XP-SWMM as a watershed specific option.
Rate for regeneration of infiltration = REGEN * DECAY
Decay is read in for each subcatchment
REGEN = 0.01000

Raingage #..... 1
KTYPE - Rainfall input type..... 0
NHISTO - Total number of rainfall values.. 898
KINC - Rainfall values(pairs) per line.. 10
KPRINT - Print rainfall(0-Yes,1-No)..... 0
KTIME - Precipitation time units
0 --> Minutes 1 --> Hours..... 0
KPREP - Precipitation unit type
0 --> Intensity 1 --> Volume..... 1
KTHIS - Variable rainfall intervals
0 --> No, >= 1 --> Yes..... 0
THISTO - Rainfall time interval..... 5.00
TZRAIN - Starting time(KTIME units)..... 0.00

Rainfall input summary from Runoff #
#####

Total rainfall for gage # 1 is 7.7600 inches

Coupland_Exist10yr.out

```
#####
#           Data Group F1           #
# Evaporation Rate (in/day) #
#####
```

```
JAN.  FEB.  MAR.  APR.  MAY   JUN.  JUL.  AUG.  SEP.  OCT.  NOV  DEC.
-----  -----  -----  -----  -----  -----  -----  -----  -----  -----  -----
0.100  0.100  0.100  0.100  0.100  0.100  0.100  0.100  0.100  0.100  0.100  0.100
```

```
#####
# Table R1.  S U B C A T C H M E N T  D A T A  #
#           Physical Hydrology Data           #
#####
```

Subcatchment		Deprs			Deprs Prcnt	Channel	Width	Area	Per-	Slope
"n"	"n"	-sion	-sion	Zero				cent		
Number	Name	Storage	Storage	Deten	or inlet	(ft)	(ac)	Imperv	ft/ft	
Imprv	Perv	Imprv	Perv	-tion						
1	Node39#1	0.014	0.030	0.000	25.00	Node39	16.000	2.2700	50.00	0.002
2	Node34.1.1#1	0.014	0.030	0.000	25.00	Node34.1.1	44.300	5.2000	67.00	0.002
3	Node17#1	0.014	0.030	0.000	25.00	Node17	3.4000	.36000	67.00	0.002
4	Node18.1.1#1	0.014	0.030	0.000	25.00	Node18.1.1	41.600	4.8700	67.00	0.002
5	Node19#1	0.014	0.030	0.000	25.00	Node19	76.500	12.240	50.00	0.002

```
#####
#####
#           Table R2.  SUBCATCHMENT  DATA
#
#           Infiltration or Time of Concentration Data
#
#
# Infiltration Type           Infl #1(#5)           Infl #2(#6)           Infl #3(#7)
#           Infl #4(#8) #
# SCS           ->   Comp CN           Time Conc           Shape Factor
```

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```

Depth or Fraction #
# SBUH          ->  Comp CN          Time Conc          N/A
          N/A #
# Green Ampt    ->  Suction          Hydr Cond          Initial MD
          N/A #
# Horton        ->  Max Rate          Min Rate          Decay Rate (1/sec)
Max. Infiltr. Volume #
# Proportional ->  Constant          N/A          N/A
          N/A #
# Initial/Cont Loss ->  Initial          Continuing          N/A
          N/A #
# Initial/Proportional ->  Initial          Constant          N/A
          N/A #
# Laurenson Parameters ->  B Value          Pervious "n"          Impervious Cont
          Exponent #
# Rational Formula ->  Tc Method          Flow Path Length          Flow Path Slope
Roughness or Retardance #
#
#              (#1 - #4 is Impervious Data / #5 - #8 is Pervious
Data)          #
#              Rational Formula Tc Method: 1 = Constant
#              #
#              2 = Friend's Equation
#              #
#              3 = Kinematic Wave
#              #
#              4 = Alameda Method
#              #
#              5 = Izzard's Formula
#              #
#              6 = Kerby's Equation
#              #
#              7 = Kirpich's Equation
#              #
#              8 = Bransby Williams Equation
#              #
#              9 = Federal Aviation Authority
Equation          #

```


#####

Infl	Subcatchment	Infl	Infl	Infl	Infl	Infl	
Number	Infl	Infl	# 1	# 2	# 3	# 4	# 5
6	# 7	# 8					#
1	Node39#1		12.450	0.024	0.385		
2	Node34.1.1#1		12.450	0.024	0.385		

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3	Node17#1	12.450	0.024	0.385
4	Node18.1.1#1	12.450	0.024	0.385
5	Node19#1	12.450	0.024	0.385

```
#####
# Table R3. SUBCATCHMENT DATA #
# Rainfall and Infiltration Database Names #
#####
```

Subcatchment Number	Name	Gage No	Infiltration Type	Routing Type
1	Node39#1	1	Green Ampt	Non-linear reservoir
2	Node34.1.1#1	1	Green Ampt	Non-linear reservoir
3	Node17#1	1	Green Ampt	Non-linear reservoir
4	Node18.1.1#1	1	Green Ampt	Non-linear reservoir
5	Node19#1	1	Green Ampt	Non-linear reservoir

```
Total Number of Subcatchments... 5
Total Tributary Area (acres).... 24.94
Impervious Area (acres)..... 14.24
Pervious Area (acres)..... 10.70
Total Width (feet)..... 181.80
Impervious Area (%)..... 57.11
```

```
#####
# SUBCATCHMENT DATA #
# Default, Ratio values for subcatchment data #
# Used with the calibrate node in the runoff. #
# 1 - width 2 - area 3 - impervious % #
# 4 - slope 5 - imp "n" 6 - perv "n" #
# 7 - imp ds 8 - perv ds 9 - 1st infil #
#10 - 2nd infil 11 - 3rd infil #
#####
```

Column	1	2	3	4	5	6	7
8	9	10	11				
Default	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Ratio	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000

```
*****
* Arrangement of Subcatchments and Channel/Pipes *
*****
```

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```

Inlet
Node39          No Tributary Channel/Pipes
                Tributary Subareas..... Node39#1
Node34.1.1      No Tributary Channel/Pipes
                Tributary Subareas..... Node34.1.1#1
Node17          No Tributary Channel/Pipes
                Tributary Subareas..... Node17#1
Node18.1.1      No Tributary Channel/Pipes
                Tributary Subareas..... Node18.1.1#1
Node19          No Tributary Channel/Pipes
                Tributary Subareas..... Node19#1

```

```

*****
* Hydrographs will be stored for the following 5 INLETS *
*****
Node39          Node34.1.1          Node17
Node18.1.1      Node19

```

```

*****
* Quality Simulation not included in this run *
*****

```

```

*****
* Precipitation Interface File Summary          *
* Number of precipitation station...           1 *
*****

```

```

Location Station Number
-----
          1.           1

```

XXX End of Header Section XXX

```

#####
#   Entry made to the HYDRAULIC Layer of XP-SWMM   #
#   Last Updated in June, 2014 by XP Solutions     #

```

```

#####
#   Entry made to the Runoff Layer(Block) of SWMM  #
#   Last Updated June, 2014 by XP Solutions       #

```

=====

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RUNOFF TABLES IN THE OUTPUT FILE.

These are the more important tables in the output file. You can use your editor to find the table numbers, for example: search for Table R3 to check continuity. This output file can be imported into a Word Processor and printed on US letter or A4 paper using portrait mode, courier font, a size of 8 pt. and margins of 0.75

- Table R1 - Physical Hydrology Data
Table R2 - Infiltration data
Table R3 - Raingage and Infiltration Database Names
Table R4 - Groundwater Data
Table R5 - Continuity Check for Surface Water
Table R6 - Continuity Check for Channels/Pipes
Table R7 - Continuity Check for Subsurface Water
Table R8 - Infiltration/Inflow Continuity Check
Table R9 - Summary Statistics for Subcatchments
Table R10 - Sensitivity anlysis for Subcatchments

=====

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#####
RUNOFF JOB CONTROL
#####

Snowmelt parameter - ISNOW..... 0
Number of rain gages - NRGAG..... 1
Quality is not simulated - KWALTY..... 0
Default evaporation rate used - IVAP..... 0
Hour of day at start of storm - NHR..... 0
Minute of hour at start of storm - NMN..... 0
Time TZERO at start of storm (hours)..... 0.000
Use U.S. Customary units for most I/O - METRIC... 0
Runoff input print control... 0
Runoff graph plot control.... 0
Runoff output print control.. 0
Limit number of groundwater convergence messages to 10000
Print headers every 50 lines - NOHEAD (0=yes, 1=no) 0
Print land use load percentages -LANDUPR (0=no, 1=yes) 0
Month, day, year of start of storm is: 1/ 1/2016
Wet time step length (seconds)..... 60.0
Dry time step length (seconds)..... 86400.0
Wet/Dry time step length (seconds)... 60.0

Simulation length is.....

48.0 Hours

If Horton infiltration model is being used
 A mixture of infiltration options may be used in
 XP-SWMM as a watershed specific option.
 Rate for regeneration of infiltration = REGEN * DECAY
 Decay is read in for each subcatchment
 REGEN = 0.01000

Raingage #..... 1
 KTYPE - Rainfall input type..... 0
 NHISTO - Total number of rainfall values.. 898
 KINC - Rainfall values(pairs) per line.. 10
 KPRINT - Print rainfall(0-Yes,1-No)..... 0
 KTIME - Precipitation time units
 0 --> Minutes 1 --> Hours..... 0
 KPREP - Precipitation unit type
 0 --> Intensity 1 --> Volume..... 1
 KTHIS - Variable rainfall intervals
 0 --> No, >= 1 --> Yes..... 0
 THISTO - Rainfall time interval..... 5.00
 TZRAIN - Starting time(KTIME units)..... 0.00

 # Rainfall input summary from Runoff #
 #####

Total rainfall for gage # 1 is 7.7600 inches

 # Data Group F1 #
 # Evaporation Rate (in/day) #
 #####

JAN.	FEB.	MAR.	APR.	MAY	JUN.	JUL.	AUG.	SEP.	OCT.	NOV	DEC.
0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.100

 # Table R1. S U B C A T C H M E N T D A T A #
 # Physical Hydrology Data #
 #####

Deprs Deprs Prcnt

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"n" Number	"n" Storage	"n" Storage	Zero Deten	Channel or inlet	Width (ft)	Area (ac)	Per-cent Imperv	Slope ft/ft
1	Node39#1	Node39	16.000	2.2700	50.00	0.002		
2	Node34.1.1#1	Node34.1.1	44.300	5.2000	67.00	0.002		
3	Node17#1	Node17	3.4000	.36000	67.00	0.002		
4	Node18.1.1#1	Node18.1.1	41.600	4.8700	67.00	0.002		
5	Node19#1	Node19	76.500	12.240	50.00	0.002		

#####

Table R2. SUBCATCHMENT DATA

```

#
# Infiltration or Time of Concentration Data
#
#
# Infiltration Type           Infl #1(#5)           Infl #2(#6)           Infl #3(#7)
# Infl #4(#8) #
# SCS                         ->  Comp CN           Time Conc           Shape Factor
# SBUH                        ->  Comp CN           Time Conc           N/A
# Green Ampt                  N/A #
# Green Ampt                  ->  Suction           Hydr Cond           Initial MD
# Horton                      N/A #
# Horton                      ->  Max Rate           Min Rate           Decay Rate (1/sec)
# Max. Infiltration Volume #
# Proportional                ->  Constant           N/A           N/A
# Initial/Continuing Loss     N/A #
# Initial/Continuing Loss     ->  Initial           Continuing           N/A
# Initial/Proportional Loss   N/A #
# Initial/Proportional Loss   ->  Initial           Constant           N/A
# Laurentson Parameters      ->  B Value           Pervious "n"           Impervious Cont
# Exponent #
# Rational Formula            ->  Tc Method           Flow Path Length           Flow Path Slope
# Roughness or Retardance #

```

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(#1 - #4 is Impervious Data / #5 - #8 is Pervious

```

# Data) #
# # Rational Formula Tc Method: 1 = Constant
# #
# # 2 = Friend's Equation
# # 3 = Kinematic Wave
# # 4 = Alameda Method
# # 5 = Izzard's Formula
# # 6 = Kerby's Equation
# # 7 = Kirpich's Equation
# # 8 = Bransby Williams Equation
# # 9 = Federal Aviation Authority
Equation #

```


#####

Subcatchment	Infl	Infl	Infl	Infl	Infl			
Infl	Infl	Infl	# 1	# 2	# 3	# 4	# 5	#
Number	Name							
6	# 7	# 8						
1	Node39#1		12.450	0.024	0.385			
2	Node34.1.1#1		12.450	0.024	0.385			
3	Node17#1		12.450	0.024	0.385			
4	Node18.1.1#1		12.450	0.024	0.385			
5	Node19#1		12.450	0.024	0.385			

Table R3. SUBCATCHMENT DATA #
Rainfall and Infiltration Database Names #
#####

Subcatchment	Gage	Infiltration	Routing
Number	No	Type	Type
1	1	Green Ampt	Non-linear reservoir
2	1	Green Ampt	Non-linear reservoir
3	1	Green Ampt	Non-linear reservoir
4	1	Green Ampt	Non-linear reservoir

5 Node19#1 1 Green Ampt Non-linear reservoir

Total Number of Subcatchments... 5
 Total Tributary Area (acres)... 24.94
 Impervious Area (acres)..... 14.24
 Pervious Area (acres)..... 10.70
 Total Width (feet)..... 181.80
 Impervious Area (%)..... 57.11

```
#####
#           S U B C A T C H M E N T   D A T A           #
#   Default, Ratio values for subcatchment data   #
#   Used with the calibrate node in the runoff.   #
# 1 - width      2 - area      3 - impervious %   #
# 4 - slope      5 - imp "n"   6 - perv "n"      #
# 7 - imp ds     8 - perv ds   9 - 1st infil     #
#10 - 2nd infil          11 - 3rd infil         #
#####
```

Column	1	2	3	4	5	6	7
8	9	10	11				
Default	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
0.0000	0.0000	0.0000	0.0000				
Ratio	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
1.0000	1.0000	1.0000	1.0000				

```
*****
*   Arrangement of Subcatchments and Channel/Pipes   *
*****
```

```

      Inlet
Node39          No Tributary Channel/Pipes
                Tributary Subareas..... Node39#1
Node34.1.1     No Tributary Channel/Pipes
                Tributary Subareas..... Node34.1.1#1
Node17         No Tributary Channel/Pipes
                Tributary Subareas..... Node17#1
Node18.1.1     No Tributary Channel/Pipes
                Tributary Subareas..... Node18.1.1#1
Node19         No Tributary Channel/Pipes
                Tributary Subareas..... Node19#1
```

```
*****
* Hydrographs will be stored for the following 5 INLETS *
*****
```

Node39
Node18.1.1

Node34.1.1
Node19

Node17

* Quality Simulation not included in this run *

* Precipitation Interface File Summary *
* Number of precipitation station.... 1 *

Location Station Number

1. 1

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| HYDRAULICS TABLES IN THE OUTPUT FILE |
| These are the more important tables in the output file. |
| You can use your editor to find the table numbers, |
| for example: search for Table E20 to check continuity. |
| This output file can be imported into a Word Processor |
| and printed on US letter or A4 paper using portrait |
| mode, courier font, a size of 8 pt. and margins of 0.75 |
| Table E1 - Basic Conduit Data |
| Table E2 - Conduit Factor Data |
| Table E3a - Junction Data |
| Table E3b - Junction Data |
| Table E4 - Conduit Connectivity Data |
| Table E4a - Dry Weather Flow Data |
| Table E4b - Real Time Control Data |
| Table E5 - Junction Time Step Limitation Summary |
| Table E5a - Conduit Explicit Condition Summary |
| Table E6 - Final Model Condition |
| Table E7 - Iteration Summary |
| Table E8 - Junction Time Step Limitation Summary |

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	Table E9	- Junction Summary Statistics	
	Table E10	- Conduit Summary Statistics	
	Table E11	- Area assumptions used in the analysis	
	Table E12	- Mean conduit information	
	Table E13	- Channel losses(H) and culvert info	
	Table E13a	- Culvert Analysis Classification	
	Table E14	- Natural Channel Overbank Flow Information	
	Table E14a	- Natural Channel Encroachment Information	
	Table E14b	- Floodplain Mapping	
	Table E15	- Spreadsheet Info List	
	Table E15a	- Spreadsheet Reach List	
	Table E16	- New Conduit Output Section	
	Table E17	- Pump Operation	
	Table E18	- Junction Continuity Error	
	Table E19	- Junction Inflow & Outflow Listing	
	Table E20	- Junction Flooding and Volume List	
	Table E21	- Continuity balance at simulation end	
	Table E22	- Model Judgement Section	

=====

Time Control from Hydraulics Job Control

Year.....	2014 Month.....	1
Day.....	1 Hour.....	0
Minute.....	0 Second.....	0

Control information for simulation

Integration cycles.....	1728
Length of integration step is.....	100.00 seconds
Simulation length.....	48.00 hours
Do not create equiv. pipes(NEQUAL).	0
Use U.S. customary units for I/O...	0
Printing starts in cycle.....	1
Intermediate printout intervals of.	500 cycles
Intermediate printout intervals of.	833.33 minutes
Summary printout intervals of.....	500 cycles
Summary printout time interval of..	833.33 minutes
Hot start file parameter (REDO)....	0
Initial time.....	0.00 hours

Iteration variables: Flow Tolerance.	0.00010
Head Tolerance.	0.00050
Minimum depth (m or ft).....	0.00001
Underrelaxation parameter.....	0.85000
Time weighting parameter.....	0.85000
Conduit roughness factor.....	1.00000

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Flow adjustment factor..... 1.00000
 Initial Condition Smoothing..... 0
 Courant Time Step Factor..... 1.00000
 Default Expansion/Contraction K. 0.00000
 Default Entrance/Exit K..... 0.00000
 Routing Method..... Dynamic Wave
 Default surface area of junctions... 12.57 square feet.
 Minimum Junction/Conduit Depth..... 0.00001 feet.
 Ponding Area Coefficient..... 5000.00
 Ponding Area Exponent..... 1.0000
 Minimum Orifice Length..... 1000.00 feet.
 NJSW input hydrograph junctions..... 1
 or user defined hydrographs....

Natural Cross-Section information for Channel Link14

=====

Cross-Section ID (from X1 card) : 1.0 Channel sequence number : 1

Left Overbank Length : 68.4 ft Maximum Elevation :
 25.09 ft.
 Main Channel Length : 68.4 ft Maximum Depth :
 4.82 ft.
 Right Overbank Length : 68.4 ft Maximum Section Area :
 78.2500 ft^2 Maximum hydraulic radius :
 1.63 ft.
 Manning N : 0.040 to Station 5.0 Max topwidth :
 45.00 ft.
 " " : 0.040 in main Channel Maximum Wetted Perimeter :
 4.80E+01 ft
 " " : 0.015 Beyond station 25.0 Max left bank area :
 9.80 ft^2 Max right bank area :
 6.02 ft^2 Max center channel area :
 Allowable Encroachment Depth : 0.00 ft
 62.4250 ft^2

Natural Cross-Section information for Channel Link16

=====

Cross-Section ID (from X1 card) : 2.0 Channel sequence number : 2

Left Overbank Length : 22.9 ft Maximum Elevation :
 25.09 ft.
 Main Channel Length : 22.9 ft Maximum Depth :
 4.82 ft.
 Right Overbank Length : 22.9 ft Maximum Section Area :
 78.2500 ft^2 Maximum hydraulic radius :

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1.63 ft.
Manning N : 0.040 to Station 5.0 Max topwidth :
45.00 ft.
" " : 0.040 in main Channel Maximum Wetted Perimeter :
4.80E+01 ft
" " : 0.015 Beyond station 25.0 Max left bank area :
9.80 ft^2
Max right bank area :
6.02 ft^2
Allowable Encroachment Depth : 0.00 ft Max center channel area :
62.4250 ft^2

Natural Cross-Section information for Channel Link18

=====

Cross-Section ID (from X1 card) : 3.0 Channel sequence number : 3

Left Overbank Length : 243.1 ft Maximum Elevation :
25.09 ft.
Main Channel Length : 243.1 ft Maximum Depth :
4.82 ft.
Right Overbank Length : 243.1 ft Maximum Section Area :
78.2500 ft^2
Maximum hydraulic radius :
1.63 ft.
Manning N : 0.040 to Station 5.0 Max topwidth :
45.00 ft.
" " : 0.040 in main Channel Maximum Wetted Perimeter :
4.80E+01 ft
" " : 0.015 Beyond station 25.0 Max left bank area :
9.80 ft^2
Max right bank area :
6.02 ft^2
Allowable Encroachment Depth : 0.00 ft Max center channel area :
62.4250 ft^2

Natural Cross-Section information for Channel Link20

=====

Cross-Section ID (from X1 card) : 4.0 Channel sequence number : 4

Left Overbank Length : 117.5 ft Maximum Elevation :
25.20 ft.
Main Channel Length : 117.5 ft Maximum Depth :
5.02 ft.
Right Overbank Length : 117.5 ft Maximum Section Area :
85.7750 ft^2
Maximum hydraulic radius :
2.00 ft.
Manning N : 0.040 to Station 5.0 Max topwidth :

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40.00 ft.
 " " : 0.040 in main Channel Maximum Wetted Perimeter :
 4.28E+01 ft
 " " : 0.015 Beyond station 25.0 Max left bank area :
 10.40 ft^2
 Max right bank area :
 5.38 ft^2
 Allowable Encroachment Depth : 0.00 ft Max center channel area :
 70.0000 ft^2

Natural Cross-Section information for Channel Link22

=====

Cross-Section ID (from X1 card) : 5.0 Channel sequence number : 5

Left Overbank Length : 282.4 ft Maximum Elevation :
 25.00 ft.
 Main Channel Length : 282.4 ft Maximum Depth :
 5.35 ft.
 Right Overbank Length : 282.4 ft Maximum Section Area :
 128.5750 ft^2
 Maximum hydraulic radius :
 2.43 ft.
 Manning N : 0.040 to Station 5.0 Max topwidth :
 50.00 ft.
 " " : 0.040 in main Channel Maximum Wetted Perimeter :
 5.30E+01 ft
 " " : 0.015 Beyond station 35.0 Max left bank area :
 10.10 ft^2
 Max right bank area :
 8.50 ft^2
 Allowable Encroachment Depth : 0.00 ft Max center channel area :
 109.9750 ft^2

Natural Cross-Section information for Channel Link24

=====

Cross-Section ID (from X1 card) : 6.0 Channel sequence number : 6

Left Overbank Length : 280.1 ft Maximum Elevation :
 25.00 ft.
 Main Channel Length : 280.1 ft Maximum Depth :
 6.11 ft.
 Right Overbank Length : 280.1 ft Maximum Section Area :
 112.8500 ft^2
 Maximum hydraulic radius :
 2.32 ft.
 Manning N : 0.040 to Station 10.0 Max topwidth :
 45.00 ft.
 " " : 0.040 in main Channel Maximum Wetted Perimeter :

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4.86E+01 ft
 " " : 0.015 Beyond station 30.0 Max left bank area :
 21.17 ft^2
 Max right bank area :
 12.10 ft^2
 Allowable Encroachment Depth : 0.00 ft Max center channel area :
 79.5750 ft^2

Natural Cross-Section information for Channel Link26

=====

Cross-Section ID (from X1 card) : 7.0 Channel sequence number : 7

Left Overbank Length : 38.8 ft Maximum Elevation :
 25.00 ft.
 Main Channel Length : 38.8 ft Maximum Depth :
 6.39 ft.
 Right Overbank Length : 38.8 ft Maximum Section Area :
 123.8687 ft^2
 Maximum hydraulic radius :
 3.11 ft.
 Manning N : 0.040 to Station 5.6 Max topwidth :
 35.57 ft.
 " " : 0.040 in main Channel Maximum Wetted Perimeter :
 3.98E+01 ft
 " " : 0.015 Beyond station 25.4 Max left bank area :
 17.71 ft^2
 Max right bank area :
 14.63 ft^2
 Allowable Encroachment Depth : 0.00 ft Max center channel area :
 91.5279 ft^2

Natural Cross-Section information for Channel Link31

=====

Cross-Section ID (from X1 card) : 8.0 Channel sequence number : 8

Left Overbank Length : 240.3 ft Maximum Elevation :
 27.85 ft.
 Main Channel Length : 199.7 ft Maximum Depth :
 16.36 ft.
 Right Overbank Length : 181.6 ft Maximum Section Area :
 28065.25 ft^2
 Maximum hydraulic radius :
 3.71 ft.
 Manning N : 0.070 to Station 4659.6 Max topwidth :
 7554.14 ft.
 " " : 0.032 in main Channel Maximum Wetted Perimeter :
 7.56E+03 ft
 " " : 0.070 Beyond station 4835.3 Max left bank area :
 Max right bank area :
 Max center channel area :

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19000.27 ft^2

Max right bank area :

7493.03 ft^2

Allowable Encroachment Depth : 0.00 ft

Max center channel area :

1571.950 ft^2

Natural Cross-Section information for Channel Link33

=====

Cross-Section ID (from X1 card) : 9.0 Channel sequence number : 9

Left Overbank Length : 169.1 ft Maximum Elevation :
29.46 ft.

Main Channel Length : 192.7 ft Maximum Depth :
17.97 ft.

Right Overbank Length : 192.5 ft Maximum Section Area :
30196.69 ft^2

Maximum hydraulic radius :

4.88 ft.

Manning N : 0.070 to Station 3428.2 Max topwidth :

6181.63 ft.

" " : 0.032 in main Channel Maximum Wetted Perimeter :

6.19E+03 ft

" " : 0.070 Beyond station 3547.3 Max left bank area :

17628.50 ft^2

Max right bank area :

11171.67 ft^2

Allowable Encroachment Depth : 0.00 ft

Max center channel area :

1396.517 ft^2

Natural Cross-Section information for Channel Link34

=====

Cross-Section ID (from X1 card) : 10.0 Channel sequence number : 10

Left Overbank Length : 49.2 ft Maximum Elevation :
25.09 ft.

Main Channel Length : 49.2 ft Maximum Depth :
4.82 ft.

Right Overbank Length : 49.2 ft Maximum Section Area :
78.2500 ft^2

Maximum hydraulic radius :

1.63 ft.

Manning N : 0.040 to Station 5.0 Max topwidth :

45.00 ft.

" " : 0.040 in main Channel Maximum Wetted Perimeter :

4.80E+01 ft

" " : 0.015 Beyond station 25.0 Max left bank area :

9.80 ft^2

Max right bank area :

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6.02 ft²
 Allowable Encroachment Depth : 0.00 ft Max center channel area :
 62.4250 ft²

Natural Cross-Section information for Channel Link36

=====

Cross-Section ID (from X1 card) : 11.0 Channel sequence number : 11

Left Overbank Length : 492.1 ft Maximum Elevation :
 29.46 ft.
 Main Channel Length : 499.4 ft Maximum Depth :
 17.97 ft.
 Right Overbank Length : 512.7 ft Maximum Section Area :
 30714.99 ft² Maximum hydraulic radius :
 4.83 ft.
 Manning N : 0.070 to Station 3592.7 Max topwidth :
 6305.50 ft.
 " " : 0.032 in main Channel Maximum Wetted Perimeter :
 6.36E+03 ft
 " " : 0.070 Beyond station 3741.1 Max left bank area :
 18443.26 ft² Max right bank area :
 10717.92 ft²
 Allowable Encroachment Depth : 0.00 ft Max center channel area :
 1553.814 ft²

Natural Cross-Section information for Channel Link37

=====

Cross-Section ID (from X1 card) : 12.0 Channel sequence number : 12

Left Overbank Length : 740.0 ft Maximum Elevation :
 28.05 ft.
 Main Channel Length : 745.4 ft Maximum Depth :
 19.03 ft.
 Right Overbank Length : 747.9 ft Maximum Section Area :
 27584.49 ft² Maximum hydraulic radius :
 3.59 ft.
 Manning N : 0.070 to Station 4926.5 Max topwidth :
 7672.71 ft.
 " " : 0.032 in main Channel Maximum Wetted Perimeter :
 7.68E+03 ft
 " " : 0.070 Beyond station 5115.9 Max left bank area :
 20807.75 ft² Max right bank area :
 5154.22 ft²
 Allowable Encroachment Depth : 0.00 ft Max center channel area :

Coupland_Exist10yr.out

1622.518 ft^2

Natural Cross-Section information for Channel Link42.1.1

=====

Cross-Section ID (from X1 card) : 13.0 Channel sequence number : 13

Left Overbank Length	:	20.3 ft	Maximum Elevation	:	
28.40 ft.					
Main Channel Length	:	20.0 ft	Maximum Depth	:	
19.94 ft.					
Right Overbank Length	:	20.1 ft	Maximum Section Area	:	
31373.45 ft^2			Maximum hydraulic radius	:	
4.17 ft.					
Manning N	:	0.070 to Station	4877.5	Max topwidth	:
7515.52 ft.					
" "	:	0.032 in main Channel		Maximum Wetted Perimeter	:
7.52E+03 ft					
" "	:	0.070 Beyond station	5060.6	Max left bank area	:
22248.55 ft^2				Max right bank area	:
7383.12 ft^2				Max center channel area	:
Allowable Encroachment Depth	:	0.00 ft			
1741.771 ft^2					

Natural Cross-Section information for Channel Link41

=====

Cross-Section ID (from X1 card) : 14.0 Channel sequence number : 14

Left Overbank Length	:	133.6 ft	Maximum Elevation	:	
25.09 ft.					
Main Channel Length	:	133.6 ft	Maximum Depth	:	
4.82 ft.					
Right Overbank Length	:	133.6 ft	Maximum Section Area	:	
78.2500 ft^2			Maximum hydraulic radius	:	
1.63 ft.					
Manning N	:	0.040 to Station	5.0	Max topwidth	:
45.00 ft.					
" "	:	0.040 in main Channel		Maximum Wetted Perimeter	:
4.80E+01 ft					
" "	:	0.015 Beyond station	25.0	Max left bank area	:
9.80 ft^2				Max right bank area	:
6.02 ft^2				Max center channel area	:
Allowable Encroachment Depth	:	0.00 ft			
62.4250 ft^2					

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 Natural Cross-Section information for Channel Link48
 =====

Cross-Section ID (from X1 card) : 15.0 Channel sequence number : 15

Left Overbank Length : 38.3 ft	Maximum Elevation :	
27.82 ft.		
Main Channel Length : 38.3 ft	Maximum Depth :	
16.33 ft.		
Right Overbank Length : 38.3 ft	Maximum Section Area :	
26945.91 ft^2	Maximum hydraulic radius :	
3.54 ft.		
Manning N : 0.070 to Station 4655.5	Max topwidth :	
7614.88 ft.		
" " : 0.032 in main Channel	Maximum Wetted Perimeter :	
7.62E+03 ft		
" " : 0.070 Beyond station 4770.5	Max left bank area :	
18294.32 ft^2	Max right bank area :	
7448.66 ft^2	Max center channel area :	
Allowable Encroachment Depth : 0.00 ft		
1202.931 ft^2		

=====

Table E1 - Conduit Data

=====

Inp Depth Num (ft)	Trapezoid Side Slopes	Hazen Conduit Williams Name c-factor	Length (ft)	Conduit Class	Area (ft^2)	Manning Coef.	Max Width (ft)
1 4.8200		Link14	68.3600	Natural	78.2500	0.0400	45.0000
2 4.8200		Link16	22.8500	Natural	78.2500	0.0400	45.0000
3 4.8200		Link18	243.1300	Natural	78.2500	0.0400	45.0000
4 5.0200		Link20	117.5100	Natural	85.7750	0.0400	40.0000
5 5.3500		Link22	282.4000	Natural	128.5750	0.0400	50.0000
6 6.1100		Link24	280.1300	Natural	112.8500	0.0400	45.0000
7		Link26	38.8400	Natural	123.8687	0.0400	35.5700

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6.3900							
8	Link31	199.6800	Natural	28065.247	0.0320	7554.1400	
16.3600							
9	Link33	192.6600	Natural	30196.693	0.0320	6181.6300	
17.9700							
10	Link34	49.2500	Natural	78.2500	0.0400	45.0000	
4.8200							
11	Link36	499.4300	Natural	30714.993	0.0320	6305.5000	
17.9700							
12	Link37	745.4400	Natural	27584.486	0.0320	7672.7100	
19.0300							
13	Link42.1.1	20.0100	Natural	31373.446	0.0320	7515.5200	
19.9400							
14	Link41	133.5500	Natural	78.2500	0.0400	45.0000	
4.8200							
15	Link48	38.2600	Natural	26945.911	0.0320	7614.8800	
16.3300							
16	227.1	33.3500	Circular	4.9087	0.0150	2.5000	
2.5000							
17	231.1	37.5400	Circular	4.9087	0.0150	2.5000	
2.5000							
18	235.1	33.2900	Circular	4.9087	0.0130	2.5000	
2.5000							
19	239.1	33.2700	Circular	4.9087	0.0150	2.5000	
2.5000							
20	243.1	33.5900	Circular	4.9087	0.0150	2.5000	
2.5000							
21	247.1	23.9600	Circular	4.9087	0.0130	2.5000	
2.5000							
22	251.1	48.0400	Circular	4.9087	0.0150	2.5000	
2.5000							
23	255.1	124.5900	Circular	7.0686	0.0130	3.0000	
3.0000							
Total length of all conduits				3299.1300	feet		

```

*=====
| If there are messages about (sqrt(g*d)*dt/dx), or |
| the sqrt(wave celerity)*time step/conduit length |
| in the output file all it means is that the      |
| program will lower the internal time step to    |
| satisfy this condition (explicit condition).    |
| You control the actual internal time step by    |
| using the minimum courant time step factor in the |
| HYDRAULICS job control. The message put in words |
| states that the smallest conduit with the fastest |
| velocity will control the time step selection.  |
| You have further control by using the modify    |
| conduit option in the HYDRAULICS Job Control.  |

```

Coupland_Exist10yr.out

=====

Conduit Name	Courant Ratio	
----- Link14 step/conduit length)	10.95	====> Warning ! (sqrt(wave celerity)*time
Link16 step/conduit length)	32.75	====> Warning ! (sqrt(wave celerity)*time
Link18 step/conduit length)	3.08	====> Warning ! (sqrt(wave celerity)*time
Link20 step/conduit length)	7.07	====> Warning ! (sqrt(wave celerity)*time
Link22 step/conduit length)	3.22	====> Warning ! (sqrt(wave celerity)*time
Link24 step/conduit length)	3.21	====> Warning ! (sqrt(wave celerity)*time
Link26 step/conduit length)	27.26	====> Warning ! (sqrt(wave celerity)*time
Link31 step/conduit length)	5.48	====> Warning ! (sqrt(wave celerity)*time
Link33 step/conduit length)	6.20	====> Warning ! (sqrt(wave celerity)*time
Link34 step/conduit length)	15.19	====> Warning ! (sqrt(wave celerity)*time
Link36 step/conduit length)	2.38	====> Warning ! (sqrt(wave celerity)*time
Link37 step/conduit length)	1.21	====> Warning ! (sqrt(wave celerity)*time
Link42.1.1 step/conduit length)	42.45	====> Warning ! (sqrt(wave celerity)*time
Link41 step/conduit length)	5.60	====> Warning ! (sqrt(wave celerity)*time
Link48 step/conduit length)	27.90	====> Warning ! (sqrt(wave celerity)*time
227.1 step/conduit length)	26.90	====> Warning ! (sqrt(wave celerity)*time
231.1 step/conduit length)	23.90	====> Warning ! (sqrt(wave celerity)*time
235.1 step/conduit length)	26.95	====> Warning ! (sqrt(wave celerity)*time
239.1 step/conduit length)	26.97	====> Warning ! (sqrt(wave celerity)*time
243.1 step/conduit length)	26.71	====> Warning ! (sqrt(wave celerity)*time
247.1 step/conduit length)	37.45	====> Warning ! (sqrt(wave celerity)*time

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251.1 18.68 ==> Warning ! (sqrt(wave celerity)*time
 step/conduit length)
 255.1 7.89 ==> Warning ! (sqrt(wave celerity)*time
 step/conduit length)

=====

| Conduit Volume |
 =====

Full pipe or full open conduit volume
 Input full depth volume..... 4.9108E+07 cubic feet

==> Warning !! The upstream and downstream junctions for the following conduits
 have been reversed to correspond to the positive flow and
 decreasing

slope convention. A negative flow in the output thus means
 the flow was from your original upstream junction to your original
 downstream junction. Any initial flow has been multiplied by -1.

1. Conduit #...Link22 has been changed.
2. Conduit #...Link34 has been changed.
3. Conduit #...235.1 has been changed.
4. Conduit #...239.1 has been changed.
5. Conduit #...243.1 has been changed.
6. Conduit #...247.1 has been changed.

=====

Table E3a - Junction Data							
Inp Interface Num (%)	Junction Name	Ground Elevation	Crown Elevation	Invert Elevation	Qinst cfs	Initial Depth-ft	Flow
1	Node13	40.0000	27.8600	22.7400	0.0000	0.0000	
100.0000							
2	Node14	40.0000	27.8200	22.7000	0.0000	0.0000	
100.0000							
3	Node15	40.0000	26.3200	21.2000	0.0000	0.0000	
100.0000							
4	Node16	40.0000	26.6200	21.1600	0.0000	0.0000	
100.0000							
5	Node17	40.0000	25.5100	20.3100	0.0000	0.0000	
100.0000							
6	Node19	40.0000	24.5200	19.4300	0.0000	0.0000	

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100.0000	7	Node20	40.0000	25.1700	19.6300	0.0000	0.0000
100.0000	8	Node21	40.0000	24.7100	19.6900	0.0000	0.0000
100.0000	9	Node22	40.0000	25.5000	19.8000	0.0000	0.0000
100.0000	10	Node23	40.0000	25.5200	19.4500	0.0000	0.0000
100.0000	11	Node24	40.0000	26.2800	19.8700	0.0000	0.0000
100.0000	12	Node25	40.0000	25.9100	19.5700	0.0000	0.0000
100.0000	13	Node26	40.0000	25.2400	18.8500	0.0000	0.0000
100.0000	14	Node27	40.0000	24.6100	18.2200	0.0000	0.0000
100.0000	15	Node28	40.0000	29.4400	11.4700	0.0000	0.0000
100.0000	16	Node31	40.0000	27.8400	11.4800	0.0000	0.0000
100.0000	17	Node33	40.0000	29.4300	11.4600	0.0000	0.0000
100.0000	18	Node35	40.0000	27.8200	11.4900	0.0000	0.0000
100.0000	19	Node36	40.0000	28.0500	9.0200	0.0000	0.0000
100.0000	20	Node37	40.0000	28.4000	8.4600	0.0000	0.0000
100.0000	21	Node41	40.0000	28.4000	8.4600	0.0000	0.0000
100.0000	22	Node18.1.1	40.0000	25.5700	14.9900	0.0000	0.0000
100.0000	23	Node34.1.1	40.0000	27.1000	16.3200	0.0000	0.0000
100.0000	24	Node39	40.0000	27.9700	23.1500	0.0000	0.0000

=====

| Table E3b - Junction Data |

=====

Inp Maximum Num Capacity	Junction Pavement Name Shape Slope	X Coord.	Y Coord.	Type of Manhole	Type of Inlet
----	-----	-----	-----	-----	-----

Coupland_Exist10yr.out

Line	Value	Node	Value	Value	Status	Condition
1	0	Node13	0.0000	0.0000	No Ponding	Normal
2	0	Node14	0.0000	0.0000	No Ponding	Normal
3	0	Node15	0.0000	0.0000	No Ponding	Normal
4	0	Node16	0.0000	0.0000	No Ponding	Normal
5	0	Node17	0.0000	0.0000	No Ponding	Normal
6	0	Node19	0.0000	0.0000	No Ponding	Normal
7	0	Node20	0.0000	0.0000	No Ponding	Normal
8	0	Node21	0.0000	0.0000	No Ponding	Normal
9	0	Node22	0.0000	0.0000	No Ponding	Normal
10	0	Node23	0.0000	0.0000	No Ponding	Normal
11	0	Node24	0.0000	0.0000	No Ponding	Normal
12	0	Node25	0.0000	0.0000	No Ponding	Normal
13	0	Node26	0.0000	0.0000	No Ponding	Normal
14	0	Node27	0.0000	0.0000	No Ponding	Normal
15	0	Node28	0.0000	0.0000	No Ponding	Normal
16	0	Node31	0.0000	0.0000	No Ponding	Normal
17	0	Node33	0.0000	0.0000	No Ponding	Normal
18	0	Node35	0.0000	0.0000	No Ponding	Normal
19	0	Node36	0.0000	0.0000	No Ponding	Normal
20	0	Node37	0.0000	0.0000	No Ponding	Normal
21	0	Node41	0.0000	0.0000	No Ponding	Normal
22	0	Node18.1.1	0.0000	0.0000	No Ponding	Normal
23	0	Node34.1.1	0.0000	0.0000	No Ponding	Normal
24	0	Node39	0.0000	0.0000	No Ponding	Normal

0 0.00

```

*-----*
|           Table E4 - Conduit Connectivity           |
*-----*
    
```

Input Upstream Number Elevation	Downstream Elevation	Conduit Name	Upstream Node	Downstream Node
1 23.0000	21.5000	Link14 No Design	Node14	Node15
2 21.8000	20.6900	Link16 No Design	Node16	Node17
3 20.7500	19.7000	Link18 No Design	Node18.1.1	Node19
4 20.1500	19.6900	Link20 No Design	Node20	Node21
5 20.1700	20.1500	Link22 No Design	Node23	Node22
6 20.1700	19.8000	Link24 No Design	Node24	Node25
7 18.8500	18.2200	Link26 No Design	Node26	Node27
8 11.4800	11.4700	Link31 No Design	Node31	Node28
9 11.4700	11.4600	Link33 No Design	Node28	Node33
10 23.0400	22.2800	Link34 No Design	Node13	Node34.1.1
11 11.4600	9.0200	Link36 No Design	Node33	Node36
12 9.0200	8.4600	Link37 No Design	Node36	Node37
13 8.4600	8.4600	Link42.1.1 No Design	Node37	Node41
14 23.1500	22.2800	Link41 No Design	Node39	Node34.1.1
15 11.4900	11.4800	Link48 No Design	Node35	Node31
16 22.7400	22.7000	227.1 No Design	Node13	Node14
17 21.2000	21.1600	231.1 No Design	Node15	Node16
18		235.1	Node18.1.1	Node17

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20.4500	20.3100	No Design		
19		239.1	Node20	Node19
19.7100	19.4300	No Design		
20		243.1	Node22	Node21
20.1500	20.0300	No Design		
21		247.1	Node24	Node23
19.8700	19.4500	No Design		
22		251.1	Node25	Node26
19.8000	19.5400	No Design		
23		255.1	Node27	Node28
18.8000	16.2700	No Design		

```

*=====
|                               |
|               Weir Data      |
|                               |
*=====
    
```

Weir	Weir Weir Name	Discharge Coefficient	From Weir Junction Power	To Junction	Type	Crest Height(ft)
Top(ft)	Length(ft)					
17.26	33.35	2.6700	Node13 1.5000	Node14	1	0.91
18.80	37.54	2.6700	Node15 1.5000	Node16	1	2.99
19.69	33.29	2.6700	Node17 1.5000	Node18.1.1	1	3.17
20.57	33.27	2.6700	Node19 1.5000	Node20	1	4.45
20.31	33.59	2.6700	Node21 1.5000	Node22	1	4.12
20.55	23.96	2.6700	Node23 1.5000	Node24	1	3.76
20.43	48.04	2.6700	Node25 1.5000	Node26	1	4.55
21.78	124.59	2.6700	Node27 1.5000	Node28	1	5.25

```

*=====
|                               |
|   FREE OUTFALL DATA (DATA GROUP I1)   |
|   BOUNDARY CONDITION ON DATA GROUP J1   |
|                               |
*=====
    
```

Outfall at Junction....Node41 has boundary condition number... 1

Coupland_Exist10yr.out

```

*=====
|           Weir Outfall Data           |
| Boundary Condition on data group J1   |
*=====
  
```

```

*=====
| INTERNAL CONNECTIVITY INFORMATION     |
*=====
  
```

CONDUIT	JUNCTION	JUNCTION
W14	Node13	Node14
W15	Node15	Node16
W17	Node17	Node18.1.1
W20	Node19	Node20
W21	Node21	Node22
W24	Node23	Node24
W25	Node25	Node26
W27	Node27	Node28
FREE# 1	Node41	BOUNDARY

```

*=====
| Boundary Condition Information         |
| Data Groups J1-J4                   |
*=====
  
```

BC NUMBER.. 1 has no control water surface.

```

*=====
| XP Note Field Summary                 |
*=====
  
```

```

*=====
| Conduit Convergence Criteria         |
*=====
  
```

Conduit Name	Full Flow	Conduit Slope
Link14	596.7483	0.0219

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Link16	887.9019	0.0486
Link18	264.7415	0.0043
Link20	316.7276	0.0039
Link22	72.5977	0.0001
Link24	267.1870	0.0013
Link26	1249.1460	0.0162
Link31	22103.9553	0.0001
Link33	29068.2089	0.0001
Link34	500.4380	0.0154
Link36	284978.9849	0.0049
Link37	82357.7976	0.0008
Link42.1.1	11938.3421	0.0000
Link41	325.1504	0.0065
Link48	46955.9126	0.0003
227.1	12.3112	0.0012
231.1	11.6038	0.0011
235.1	26.5994	0.0042
239.1	32.6114	0.0084
243.1	21.2473	0.0036
247.1	54.3058	0.0175
251.1	26.1519	0.0054
255.1	95.0460	0.0203

```
*=====*
```

	Initial Model Condition	
	Initial Time = 0.03 hours	

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=====

Junction /	Depth /	Elevation	====>	"*" Junction is Surcharged.
Node13/	0.00 /	22.74		Node14/ 0.00 / 22.70
Node15/	0.00 /	21.20		
Node16/	0.00 /	21.16		Node17/ 0.00 / 20.31
Node19/	0.00 /	19.43		
Node20/	0.00 /	19.63		Node21/ 0.00 / 19.69
Node22/	0.00 /	19.80		
Node23/	0.00 /	19.45		Node24/ 0.00 / 19.87
Node25/	0.00 /	19.57		
Node26/	0.00 /	18.85		Node27/ 0.00 / 18.22
Node28/	0.00 /	11.47		
Node31/	0.00 /	11.48		Node33/ 0.00 / 11.46
Node35/	0.00 /	11.49		
Node36/	0.00 /	9.02		Node37/ 0.00 / 8.46
Node41/	0.00 /	8.46		
Node18.1.1/	0.00 /	14.99		Node34.1.1/ 0.00 / 16.32
Node39/	0.00 /	23.15		

Conduit/	FLOW	====>	"*" Conduit uses the normal flow option.
Link18/	0.00		Link16/ 0.00
Link24/	0.00		Link22/ 0.00
Link33/	0.00		Link31/ 0.00
Link37/	0.00		Link36/ 0.00
Link48/	0.00		Link41/ 0.00
235.1/	0.00		231.1/ 0.00
247.1/	0.00		243.1/ 0.00
W14/	0.00		255.1/ 0.00
W20/	0.00		W17/ 0.00
W25/	0.00		W24/ 0.00
	0.00		FREE# 1/ 0.00

Conduit/	Velocity		
Link18/	0.00		Link16/ 0.00
Link24/	0.00		Link22/ 0.00

Coupland_Exist10yr.out

Link33/	Link26/ 0.00	0.00	Link31/	0.00
Link37/	Link34/ 0.00	0.00	Link36/	0.00
Link48/	Link42.1.1/ 0.00	0.00	Link41/	0.00
235.1/	227.1/ 0.00	0.00	231.1/	0.00
247.1/	239.1/ 0.00	0.00	243.1/	0.00
	251.1/	0.00	255.1/	0.00

Conduit/ Cross Sectional Area

Link18/	Link14/ 0.00	0.00	Link16/	0.00
Link24/	Link20/ 0.00	0.00	Link22/	0.00
Link33/	Link26/ 0.00	0.00	Link31/	0.00
Link37/	Link34/ 0.00	0.00	Link36/	0.00
Link48/	Link42.1.1/ 0.00	0.00	Link41/	0.00
235.1/	227.1/ 0.00	0.00	231.1/	0.00
247.1/	239.1/ 0.00	0.00	243.1/	0.00
	251.1/	0.00	255.1/	0.00

Conduit/ Hydraulic Radius

Link18/	Link14/ 0.00	0.00	Link16/	0.00
Link24/	Link20/ 0.00	0.00	Link22/	0.00
Link33/	Link26/ 0.00	0.00	Link31/	0.00
Link37/	Link34/ 0.00	0.00	Link36/	0.00
Link48/	Link42.1.1/ 0.00	0.00	Link41/	0.00
235.1/	227.1/ 0.00	0.00	231.1/	0.00
247.1/	239.1/ 0.00	0.00	243.1/	0.00
	251.1/	0.00	255.1/	0.00

Conduit/ Upstream/ Downstream Elevation

Link14/	21.20/	21.20	Link16/	20.31/	20.31
---------	--------	-------	---------	--------	-------

Coupland_Exist10yr.out

Link18/	19.43/	19.43			
Link20/	19.69/	19.69	Link22/	19.80/	19.80
Link24/	19.57/	19.57			
Link26/	18.22/	18.22	Link31/	11.47/	11.47
Link33/	11.46/	11.46			
Link34/	16.32/	16.32	Link36/	9.02/	9.02
Link37/	8.46/	8.46			
Link42.1.1/	8.46/	8.46	Link41/	16.32/	16.32
Link48/	11.48/	11.48			
227.1/	22.70/	22.70	231.1/	21.16/	21.16
235.1/	20.31/	20.31			
239.1/	19.43/	19.43	243.1/	19.69/	19.69
247.1/	19.45/	19.45			
251.1/	18.85/	18.85	255.1/	11.47/	11.47

Important Information

Start time of user hydrographs was... 0.000000000000000E+000
Start time of the simulation was..... 0.000000000000000E+000
Found a match between user hydrograph and simulation start time.

=====
==> System inflows (data group K3) at 0.00 hours (Junction / Inflow,cfs)

Node35 / 0.00E+00

==> System inflows (data group K3) at 0.03 hours (Junction / Inflow,cfs)

Node35 / 0.00E+00

==> System inflows (data group K3) at 0.08 hours (Junction / Inflow,cfs)

Node35 / 0.00E+00

==> System inflows (data group K3) at 0.19 hours (Junction / Inflow,cfs)

Node35 / 0.00E+00

==> System inflows (data group K3) at 0.25 hours (Junction / Inflow,cfs)

Node35 / 0.00E+00

==> System inflows (data group K3) at 0.33 hours (Junction / Inflow,cfs)

Node35 / 0.00E+00

Coupland_Exist10yr.out

==> System inflows (data group K3) at 0.44 hours (Junction / Inflow,cfs)

Node35 / 0.00E+00

==> System inflows (data group K3) at 0.50 hours (Junction / Inflow,cfs)

Node35 / 0.00E+00

==> System inflows (data group K3) at 0.58 hours (Junction / Inflow,cfs)

Node35 / 0.00E+00

==> System inflows (data group K3) at 0.69 hours (Junction / Inflow,cfs)

Node35 / 0.00E+00

==> System inflows (data group K3) at 0.78 hours (Junction / Inflow,cfs)

Node35 / 0.00E+00

==> System inflows (data group K3) at 0.83 hours (Junction / Inflow,cfs)

Node35 / 0.00E+00

==> System inflows (data group K3) at 0.94 hours (Junction / Inflow,cfs)

Node35 / 0.00E+00

==> System inflows (data group K3) at 1.00 hours (Junction / Inflow,cfs)

Node35 / 0.00E+00

==> System inflows (data group K3) at 1.08 hours (Junction / Inflow,cfs)

Node35 / 0.00E+00

==> System inflows (data group K3) at 1.19 hours (Junction / Inflow,cfs)

Coupland_Exist10yr.out

Node35 / 1.00E-01

==> System inflows (data group K3) at 1.25 hours (Junction / Inflow,cfs)

Node35 / 3.00E-01

==> System inflows (data group K3) at 1.33 hours (Junction / Inflow,cfs)

Node35 / 6.00E-01

==> System inflows (data group K3) at 1.44 hours (Junction / Inflow,cfs)

Node35 / 9.00E-01

==> System inflows (data group K3) at 1.50 hours (Junction / Inflow,cfs)

Node35 / 1.30E+00

==> System inflows (data group K3) at 1.58 hours (Junction / Inflow,cfs)

Node35 / 1.70E+00

==> System inflows (data group K3) at 1.69 hours (Junction / Inflow,cfs)

Node35 / 2.00E+00

==> System inflows (data group K3) at 1.75 hours (Junction / Inflow,cfs)

Node35 / 2.40E+00

==> System inflows (data group K3) at 1.83 hours (Junction / Inflow,cfs)

Node35 / 2.70E+00

==> System inflows (data group K3) at 1.94 hours (Junction / Inflow,cfs)

Node35 / 3.10E+00
#####

Coupland_Exist10yr.out

==> System inflows (data group K3) at 2.00 hours (Junction / Inflow,cfs)

Node35 / 3.40E+00

==> System inflows (data group K3) at 2.08 hours (Junction / Inflow,cfs)

Node35 / 3.80E+00

==> System inflows (data group K3) at 2.19 hours (Junction / Inflow,cfs)

Node35 / 4.10E+00

==> System inflows (data group K3) at 2.25 hours (Junction / Inflow,cfs)

Node35 / 4.40E+00

==> System inflows (data group K3) at 2.33 hours (Junction / Inflow,cfs)

Node35 / 4.70E+00

==> System inflows (data group K3) at 2.44 hours (Junction / Inflow,cfs)

Node35 / 5.00E+00

==> System inflows (data group K3) at 2.50 hours (Junction / Inflow,cfs)

Node35 / 5.30E+00

==> System inflows (data group K3) at 2.58 hours (Junction / Inflow,cfs)

Node35 / 5.60E+00

==> System inflows (data group K3) at 2.69 hours (Junction / Inflow,cfs)

Node35 / 5.90E+00

==> System inflows (data group K3) at 2.75 hours (Junction / Inflow,cfs)

Coupland_Exist10yr.out

Node35 / 6.20E+00

==> System inflows (data group K3) at 2.83 hours (Junction / Inflow,cfs)

Node35 / 6.50E+00

==> System inflows (data group K3) at 2.94 hours (Junction / Inflow,cfs)

Node35 / 6.80E+00

==> System inflows (data group K3) at 3.00 hours (Junction / Inflow,cfs)

Node35 / 7.10E+00

==> System inflows (data group K3) at 3.08 hours (Junction / Inflow,cfs)

Node35 / 7.40E+00

==> System inflows (data group K3) at 3.19 hours (Junction / Inflow,cfs)

Node35 / 7.70E+00

==> System inflows (data group K3) at 3.25 hours (Junction / Inflow,cfs)

Node35 / 7.90E+00

==> System inflows (data group K3) at 3.33 hours (Junction / Inflow,cfs)

Node35 / 8.20E+00

==> System inflows (data group K3) at 3.44 hours (Junction / Inflow,cfs)

Node35 / 8.50E+00

==> System inflows (data group K3) at 3.50 hours (Junction / Inflow,cfs)

Node35 / 8.70E+00

#####

Coupland_Exist10yr.out

==> System inflows (data group K3) at 3.58 hours (Junction / Inflow,cfs)

Node35 / 9.00E+00

#####

==> System inflows (data group K3) at 3.69 hours (Junction / Inflow,cfs)

Node35 / 9.20E+00

#####

==> System inflows (data group K3) at 3.75 hours (Junction / Inflow,cfs)

Node35 / 9.50E+00

#####

==> System inflows (data group K3) at 3.83 hours (Junction / Inflow,cfs)

Node35 / 9.70E+00

#####

==> System inflows (data group K3) at 3.94 hours (Junction / Inflow,cfs)

Node35 / 9.90E+00

#####

==> System inflows (data group K3) at 4.00 hours (Junction / Inflow,cfs)

Node35 / 1.02E+01

#####

==> System inflows (data group K3) at 4.08 hours (Junction / Inflow,cfs)

Node35 / 1.04E+01

#####

==> System inflows (data group K3) at 4.19 hours (Junction / Inflow,cfs)

Node35 / 1.07E+01

#####

==> System inflows (data group K3) at 4.25 hours (Junction / Inflow,cfs)

Node35 / 1.09E+01

#####

==> System inflows (data group K3) at 4.33 hours (Junction / Inflow,cfs)

Node35 / 1.11E+01

Coupland_Exist10yr.out

==> System inflows (data group K3) at 4.44 hours (Junction / Inflow,cfs)

Node35 / 1.13E+01

==> System inflows (data group K3) at 4.50 hours (Junction / Inflow,cfs)

Node35 / 1.15E+01

==> System inflows (data group K3) at 4.58 hours (Junction / Inflow,cfs)

Node35 / 1.18E+01

==> System inflows (data group K3) at 4.69 hours (Junction / Inflow,cfs)

Node35 / 1.20E+01

==> System inflows (data group K3) at 4.75 hours (Junction / Inflow,cfs)

Node35 / 1.22E+01

==> System inflows (data group K3) at 4.83 hours (Junction / Inflow,cfs)

Node35 / 1.24E+01

==> System inflows (data group K3) at 4.94 hours (Junction / Inflow,cfs)

Node35 / 1.26E+01

==> System inflows (data group K3) at 5.00 hours (Junction / Inflow,cfs)

Node35 / 1.28E+01

==> System inflows (data group K3) at 5.08 hours (Junction / Inflow,cfs)

Node35 / 1.30E+01

==> System inflows (data group K3) at 5.19 hours (Junction / Inflow,cfs)

Coupland_Exist10yr.out

Node35 / 1.32E+01

==> System inflows (data group K3) at 5.25 hours (Junction / Inflow,cfs)

Node35 / 1.34E+01

==> System inflows (data group K3) at 5.33 hours (Junction / Inflow,cfs)

Node35 / 1.36E+01

==> System inflows (data group K3) at 5.44 hours (Junction / Inflow,cfs)

Node35 / 1.38E+01

==> System inflows (data group K3) at 5.50 hours (Junction / Inflow,cfs)

Node35 / 1.40E+01

==> System inflows (data group K3) at 5.58 hours (Junction / Inflow,cfs)

Node35 / 1.42E+01

==> System inflows (data group K3) at 5.69 hours (Junction / Inflow,cfs)

Node35 / 1.44E+01

==> System inflows (data group K3) at 5.75 hours (Junction / Inflow,cfs)

Node35 / 1.45E+01

==> System inflows (data group K3) at 5.83 hours (Junction / Inflow,cfs)

Node35 / 1.47E+01

==> System inflows (data group K3) at 5.94 hours (Junction / Inflow,cfs)

Node35 / 1.49E+01
#####

Coupland_Exist10yr.out

==> System inflows (data group K3) at 6.00 hours (Junction / Inflow,cfs)

Node35 / 1.51E+01

==> System inflows (data group K3) at 6.08 hours (Junction / Inflow,cfs)

Node35 / 1.53E+01

==> System inflows (data group K3) at 6.19 hours (Junction / Inflow,cfs)

Node35 / 1.54E+01

==> System inflows (data group K3) at 6.25 hours (Junction / Inflow,cfs)

Node35 / 1.56E+01

==> System inflows (data group K3) at 6.33 hours (Junction / Inflow,cfs)

Node35 / 1.58E+01

==> System inflows (data group K3) at 6.44 hours (Junction / Inflow,cfs)

Node35 / 1.59E+01

==> System inflows (data group K3) at 6.50 hours (Junction / Inflow,cfs)

Node35 / 1.61E+01

==> System inflows (data group K3) at 6.58 hours (Junction / Inflow,cfs)

Node35 / 1.63E+01

==> System inflows (data group K3) at 6.69 hours (Junction / Inflow,cfs)

Node35 / 1.64E+01

==> System inflows (data group K3) at 6.75 hours (Junction / Inflow,cfs)

Coupland_Exist10yr.out

Node35 / 1.66E+01

==> System inflows (data group K3) at 6.83 hours (Junction / Inflow,cfs)

Node35 / 1.68E+01

==> System inflows (data group K3) at 6.94 hours (Junction / Inflow,cfs)

Node35 / 1.69E+01

==> System inflows (data group K3) at 7.03 hours (Junction / Inflow,cfs)

Node35 / 1.71E+01

==> System inflows (data group K3) at 7.08 hours (Junction / Inflow,cfs)

Node35 / 1.72E+01

==> System inflows (data group K3) at 7.19 hours (Junction / Inflow,cfs)

Node35 / 1.74E+01

==> System inflows (data group K3) at 7.28 hours (Junction / Inflow,cfs)

Node35 / 1.75E+01

==> System inflows (data group K3) at 7.33 hours (Junction / Inflow,cfs)

Node35 / 1.77E+01

==> System inflows (data group K3) at 7.44 hours (Junction / Inflow,cfs)

Node35 / 1.79E+01

==> System inflows (data group K3) at 7.53 hours (Junction / Inflow,cfs)

Node35 / 1.80E+01

#####

Coupland_Exist10yr.out

==> System inflows (data group K3) at 7.58 hours (Junction / Inflow,cfs)

Node35 / 1.82E+01

#####

==> System inflows (data group K3) at 7.69 hours (Junction / Inflow,cfs)

Node35 / 1.83E+01

#####

==> System inflows (data group K3) at 7.78 hours (Junction / Inflow,cfs)

Node35 / 1.85E+01

#####

==> System inflows (data group K3) at 7.83 hours (Junction / Inflow,cfs)

Node35 / 1.86E+01

#####

==> System inflows (data group K3) at 7.94 hours (Junction / Inflow,cfs)

Node35 / 1.87E+01

#####

==> System inflows (data group K3) at 8.03 hours (Junction / Inflow,cfs)

Node35 / 1.89E+01

#####

==> System inflows (data group K3) at 8.08 hours (Junction / Inflow,cfs)

Node35 / 1.90E+01

#####

==> System inflows (data group K3) at 8.19 hours (Junction / Inflow,cfs)

Node35 / 1.92E+01

#####

==> System inflows (data group K3) at 8.28 hours (Junction / Inflow,cfs)

Node35 / 1.93E+01

#####

==> System inflows (data group K3) at 8.33 hours (Junction / Inflow,cfs)

Node35 / 1.95E+01

Coupland_Exist10yr.out

==> System inflows (data group K3) at 8.44 hours (Junction / Inflow,cfs)

Node35 / 1.96E+01

==> System inflows (data group K3) at 8.53 hours (Junction / Inflow,cfs)

Node35 / 1.98E+01

==> System inflows (data group K3) at 8.58 hours (Junction / Inflow,cfs)

Node35 / 1.99E+01

==> System inflows (data group K3) at 8.69 hours (Junction / Inflow,cfs)

Node35 / 2.01E+01

==> System inflows (data group K3) at 8.78 hours (Junction / Inflow,cfs)

Node35 / 2.02E+01

==> System inflows (data group K3) at 8.83 hours (Junction / Inflow,cfs)

Node35 / 2.04E+01

==> System inflows (data group K3) at 8.94 hours (Junction / Inflow,cfs)

Node35 / 2.05E+01

==> System inflows (data group K3) at 9.03 hours (Junction / Inflow,cfs)

Node35 / 2.07E+01

==> System inflows (data group K3) at 9.08 hours (Junction / Inflow,cfs)

Node35 / 2.08E+01

==> System inflows (data group K3) at 9.19 hours (Junction / Inflow,cfs)

Coupland_Exist10yr.out

Node35 / 2.10E+01

==> System inflows (data group K3) at 9.28 hours (Junction / Inflow,cfs)

Node35 / 2.11E+01

==> System inflows (data group K3) at 9.33 hours (Junction / Inflow,cfs)

Node35 / 2.13E+01

==> System inflows (data group K3) at 9.44 hours (Junction / Inflow,cfs)

Node35 / 2.15E+01

==> System inflows (data group K3) at 9.53 hours (Junction / Inflow,cfs)

Node35 / 2.16E+01

==> System inflows (data group K3) at 9.58 hours (Junction / Inflow,cfs)

Node35 / 2.18E+01

==> System inflows (data group K3) at 9.69 hours (Junction / Inflow,cfs)

Node35 / 2.20E+01

==> System inflows (data group K3) at 9.78 hours (Junction / Inflow,cfs)

Node35 / 2.22E+01

==> System inflows (data group K3) at 9.83 hours (Junction / Inflow,cfs)

Node35 / 2.24E+01

==> System inflows (data group K3) at 9.94 hours (Junction / Inflow,cfs)

Node35 / 2.26E+01
#####

Coupland_Exist10yr.out

==> System inflows (data group K3) at 10.03 hours (Junction / Inflow,cfs)

Node35 / 2.29E+01

==> System inflows (data group K3) at 10.08 hours (Junction / Inflow,cfs)

Node35 / 2.32E+01

==> System inflows (data group K3) at 10.19 hours (Junction / Inflow,cfs)

Node35 / 2.35E+01

==> System inflows (data group K3) at 10.28 hours (Junction / Inflow,cfs)

Node35 / 2.38E+01

==> System inflows (data group K3) at 10.33 hours (Junction / Inflow,cfs)

Node35 / 2.42E+01

==> System inflows (data group K3) at 10.44 hours (Junction / Inflow,cfs)

Node35 / 2.45E+01

==> System inflows (data group K3) at 10.53 hours (Junction / Inflow,cfs)

Node35 / 2.49E+01

==> System inflows (data group K3) at 10.58 hours (Junction / Inflow,cfs)

Node35 / 2.54E+01

==> System inflows (data group K3) at 10.69 hours (Junction / Inflow,cfs)

Node35 / 2.59E+01

==> System inflows (data group K3) at 10.78 hours (Junction / Inflow,cfs)

Coupland_Exist10yr.out

Node35 / 2.64E+01

==> System inflows (data group K3) at 10.83 hours (Junction / Inflow,cfs)

Node35 / 2.70E+01

==> System inflows (data group K3) at 10.94 hours (Junction / Inflow,cfs)

Node35 / 2.76E+01

==> System inflows (data group K3) at 11.03 hours (Junction / Inflow,cfs)

Node35 / 2.83E+01

==> System inflows (data group K3) at 11.08 hours (Junction / Inflow,cfs)

Node35 / 2.90E+01

==> System inflows (data group K3) at 11.19 hours (Junction / Inflow,cfs)

Node35 / 2.97E+01

==> System inflows (data group K3) at 11.28 hours (Junction / Inflow,cfs)

Node35 / 3.05E+01

==> System inflows (data group K3) at 11.33 hours (Junction / Inflow,cfs)

Node35 / 3.14E+01

==> System inflows (data group K3) at 11.44 hours (Junction / Inflow,cfs)

Node35 / 3.22E+01

==> System inflows (data group K3) at 11.53 hours (Junction / Inflow,cfs)

Node35 / 3.32E+01

#####

Coupland_Exist10yr.out

==> System inflows (data group K3) at 11.58 hours (Junction / Inflow,cfs)

Node35 / 3.41E+01

#####

==> System inflows (data group K3) at 11.69 hours (Junction / Inflow,cfs)

Node35 / 3.51E+01

#####

==> System inflows (data group K3) at 11.78 hours (Junction / Inflow,cfs)

Node35 / 3.62E+01

#####

==> System inflows (data group K3) at 11.83 hours (Junction / Inflow,cfs)

Node35 / 3.72E+01

#####

==> System inflows (data group K3) at 11.94 hours (Junction / Inflow,cfs)

Node35 / 3.84E+01

#####

==> System inflows (data group K3) at 12.03 hours (Junction / Inflow,cfs)

Node35 / 3.95E+01

#####

==> System inflows (data group K3) at 12.08 hours (Junction / Inflow,cfs)

Node35 / 4.08E+01

#####

==> System inflows (data group K3) at 12.19 hours (Junction / Inflow,cfs)

Node35 / 4.20E+01

#####

==> System inflows (data group K3) at 12.28 hours (Junction / Inflow,cfs)

Node35 / 4.34E+01

#####

==> System inflows (data group K3) at 12.33 hours (Junction / Inflow,cfs)

Node35 / 4.47E+01

Coupland_Exist10yr.out

==> System inflows (data group K3) at 12.44 hours (Junction / Inflow,cfs)

Node35 / 4.61E+01

==> System inflows (data group K3) at 12.53 hours (Junction / Inflow,cfs)

Node35 / 4.76E+01

==> System inflows (data group K3) at 12.58 hours (Junction / Inflow,cfs)

Node35 / 4.91E+01

==> System inflows (data group K3) at 12.69 hours (Junction / Inflow,cfs)

Node35 / 5.07E+01

==> System inflows (data group K3) at 12.78 hours (Junction / Inflow,cfs)

Node35 / 5.23E+01

==> System inflows (data group K3) at 12.83 hours (Junction / Inflow,cfs)

Node35 / 5.40E+01

==> System inflows (data group K3) at 12.94 hours (Junction / Inflow,cfs)

Node35 / 5.57E+01

==> System inflows (data group K3) at 13.03 hours (Junction / Inflow,cfs)

Node35 / 5.76E+01

==> System inflows (data group K3) at 13.08 hours (Junction / Inflow,cfs)

Node35 / 5.97E+01

==> System inflows (data group K3) at 13.19 hours (Junction / Inflow,cfs)

Coupland_Exist10yr.out

Node35 / 6.22E+01

==> System inflows (data group K3) at 13.28 hours (Junction / Inflow,cfs)

Node35 / 6.50E+01

==> System inflows (data group K3) at 13.33 hours (Junction / Inflow,cfs)

Node35 / 6.81E+01

==> System inflows (data group K3) at 13.44 hours (Junction / Inflow,cfs)

Node35 / 7.13E+01

==> System inflows (data group K3) at 13.53 hours (Junction / Inflow,cfs)

Node35 / 7.47E+01

==> System inflows (data group K3) at 13.58 hours (Junction / Inflow,cfs)

Node35 / 7.81E+01

==> System inflows (data group K3) at 13.69 hours (Junction / Inflow,cfs)

Node35 / 8.17E+01

==> System inflows (data group K3) at 13.78 hours (Junction / Inflow,cfs)

Node35 / 8.53E+01

==> System inflows (data group K3) at 13.83 hours (Junction / Inflow,cfs)

Node35 / 8.90E+01
#####

Cycle 500 Time 13 Hrs - 53.33 Min

Junction / Depth / Elevation ==> "*" Junction is Surcharged.
Node13/ 0.76 / 23.50 Node14/ 0.79 / 23.49

Coupland_Exist10yr.out

Node15/	1.03 /	22.23			
Node16/	1.06 /	22.22		Node17/	1.47 / 21.78
Node19/	2.18 /	21.61			
Node20/	1.97 /	21.60		Node21/	1.88 / 21.57
Node22/	1.76 /	21.56			
Node23/	2.02 /	21.47		Node24/	1.60 / 21.47
Node25/	0.90 /	20.47			
Node26/	0.79 /	19.64		Node27/	1.00 / 19.22
Node28/	2.40 /	13.87			
Node31/	2.50 /	13.98		Node33/	2.10 / 13.56
Node35/	2.53 /	14.02			
Node36/	4.05 /	13.07		Node37/	4.47 / 12.93
Node41/	4.46 /	12.92			
Node18.1.1/	6.79 /	21.78		Node34.1.1/	7.20 / 23.52
Node39/	0.45 /	23.60			

```

Conduit/      FLOW  ==> "*" Conduit uses the normal flow option.
Link14/      1.49*      Link16/      1.49*
Link18/      2.56      Link20/      4.47
Link22/      -4.29     Link24/      4.08
Link26/      4.07      Link31/      86.90
Link33/      89.80     Link34/      -1.50
Link36/      87.47     Link37/      81.31
Link42.1.1/  77.40     Link41/      0.39
Link48/      87.65     227.1/      1.50
231.1/      1.49     235.1/      -1.56
239.1/      -4.52     243.1/      -4.41
247.1/      -4.17     251.1/      4.07
255.1/      4.05     W14/        0.00
W15/        0.00     W17/        0.00
W20/        0.00     W21/        0.00
W24/        0.00     W25/        0.00
W27/        0.00     FREE# 1/    77.31

```

```

#####
==> System inflows (data group K3) at 13.94 hours ( Junction / Inflow,cfs )

```

```

Node35 / 9.28E+01
#####
==> System inflows (data group K3) at 14.03 hours ( Junction / Inflow,cfs )

```

```

Node35 / 9.68E+01
#####
==> System inflows (data group K3) at 14.08 hours ( Junction / Inflow,cfs )

```

```

Node35 / 1.01E+02
#####

```

Coupland_Exist10yr.out

====> System inflows (data group K3) at 14.19 hours (Junction / Inflow,cfs)

Node35 / 1.05E+02

====> System inflows (data group K3) at 14.28 hours (Junction / Inflow,cfs)

Node35 / 1.09E+02

====> System inflows (data group K3) at 14.33 hours (Junction / Inflow,cfs)

Node35 / 1.14E+02

====> System inflows (data group K3) at 14.44 hours (Junction / Inflow,cfs)

Node35 / 1.19E+02

====> System inflows (data group K3) at 14.53 hours (Junction / Inflow,cfs)

Node35 / 1.24E+02

====> System inflows (data group K3) at 14.58 hours (Junction / Inflow,cfs)

Node35 / 1.28E+02

====> System inflows (data group K3) at 14.69 hours (Junction / Inflow,cfs)

Node35 / 1.34E+02

====> System inflows (data group K3) at 14.78 hours (Junction / Inflow,cfs)

Node35 / 1.39E+02

====> System inflows (data group K3) at 14.83 hours (Junction / Inflow,cfs)

Node35 / 1.44E+02

====> System inflows (data group K3) at 14.94 hours (Junction / Inflow,cfs)

Coupland_Exist10yr.out

Node35 / 1.50E+02

==> System inflows (data group K3) at 15.03 hours (Junction / Inflow,cfs)

Node35 / 1.56E+02

==> System inflows (data group K3) at 15.08 hours (Junction / Inflow,cfs)

Node35 / 1.62E+02

==> System inflows (data group K3) at 15.19 hours (Junction / Inflow,cfs)

Node35 / 1.70E+02

==> System inflows (data group K3) at 15.25 hours (Junction / Inflow,cfs)

Node35 / 1.78E+02

==> System inflows (data group K3) at 15.33 hours (Junction / Inflow,cfs)

Node35 / 1.88E+02

==> System inflows (data group K3) at 15.44 hours (Junction / Inflow,cfs)

Node35 / 1.98E+02

==> System inflows (data group K3) at 15.50 hours (Junction / Inflow,cfs)

Node35 / 2.10E+02

==> System inflows (data group K3) at 15.58 hours (Junction / Inflow,cfs)

Node35 / 2.23E+02

==> System inflows (data group K3) at 15.69 hours (Junction / Inflow,cfs)

Node35 / 2.39E+02

#####

Coupland_Exist10yr.out

==> System inflows (data group K3) at 15.75 hours (Junction / Inflow,cfs)

Node35 / 2.59E+02

#####

==> System inflows (data group K3) at 15.83 hours (Junction / Inflow,cfs)

Node35 / 2.85E+02

#####

==> System inflows (data group K3) at 15.94 hours (Junction / Inflow,cfs)

Node35 / 3.22E+02

#####

==> System inflows (data group K3) at 16.00 hours (Junction / Inflow,cfs)

Node35 / 3.77E+02

#####

==> System inflows (data group K3) at 16.08 hours (Junction / Inflow,cfs)

Node35 / 4.51E+02

#####

==> System inflows (data group K3) at 16.19 hours (Junction / Inflow,cfs)

Node35 / 5.39E+02

#####

==> System inflows (data group K3) at 16.25 hours (Junction / Inflow,cfs)

Node35 / 6.27E+02

#####

==> System inflows (data group K3) at 16.33 hours (Junction / Inflow,cfs)

Node35 / 6.99E+02

#####

==> System inflows (data group K3) at 16.44 hours (Junction / Inflow,cfs)

Node35 / 7.49E+02

#####

==> System inflows (data group K3) at 16.50 hours (Junction / Inflow,cfs)

Node35 / 7.78E+02

Coupland_Exist10yr.out

==> System inflows (data group K3) at 16.58 hours (Junction / Inflow,cfs)

Node35 / 7.93E+02

==> System inflows (data group K3) at 16.69 hours (Junction / Inflow,cfs)

Node35 / 8.01E+02

==> System inflows (data group K3) at 16.75 hours (Junction / Inflow,cfs)

Node35 / 8.06E+02

==> System inflows (data group K3) at 16.83 hours (Junction / Inflow,cfs)

Node35 / 8.08E+02

==> System inflows (data group K3) at 16.94 hours (Junction / Inflow,cfs)

Node35 / 8.08E+02

==> System inflows (data group K3) at 17.00 hours (Junction / Inflow,cfs)

Node35 / 8.06E+02

==> System inflows (data group K3) at 17.08 hours (Junction / Inflow,cfs)

Node35 / 8.04E+02

==> System inflows (data group K3) at 17.19 hours (Junction / Inflow,cfs)

Node35 / 8.00E+02

==> System inflows (data group K3) at 17.25 hours (Junction / Inflow,cfs)

Node35 / 7.96E+02

==> System inflows (data group K3) at 17.33 hours (Junction / Inflow,cfs)

Coupland_Exist10yr.out

Node35 / 7.90E+02

==> System inflows (data group K3) at 17.44 hours (Junction / Inflow,cfs)

Node35 / 7.84E+02

==> System inflows (data group K3) at 17.50 hours (Junction / Inflow,cfs)

Node35 / 7.78E+02

==> System inflows (data group K3) at 17.58 hours (Junction / Inflow,cfs)

Node35 / 7.72E+02

==> System inflows (data group K3) at 17.69 hours (Junction / Inflow,cfs)

Node35 / 7.65E+02

==> System inflows (data group K3) at 17.75 hours (Junction / Inflow,cfs)

Node35 / 7.58E+02

==> System inflows (data group K3) at 17.83 hours (Junction / Inflow,cfs)

Node35 / 7.52E+02

==> System inflows (data group K3) at 17.94 hours (Junction / Inflow,cfs)

Node35 / 7.45E+02

==> System inflows (data group K3) at 18.00 hours (Junction / Inflow,cfs)

Node35 / 7.38E+02

==> System inflows (data group K3) at 18.08 hours (Junction / Inflow,cfs)

Node35 / 7.31E+02
#####

Coupland_Exist10yr.out

==> System inflows (data group K3) at 18.19 hours (Junction / Inflow,cfs)

Node35 / 7.24E+02

==> System inflows (data group K3) at 18.25 hours (Junction / Inflow,cfs)

Node35 / 7.16E+02

==> System inflows (data group K3) at 18.33 hours (Junction / Inflow,cfs)

Node35 / 7.09E+02

==> System inflows (data group K3) at 18.44 hours (Junction / Inflow,cfs)

Node35 / 7.02E+02

==> System inflows (data group K3) at 18.50 hours (Junction / Inflow,cfs)

Node35 / 6.94E+02

==> System inflows (data group K3) at 18.58 hours (Junction / Inflow,cfs)

Node35 / 6.87E+02

==> System inflows (data group K3) at 18.69 hours (Junction / Inflow,cfs)

Node35 / 6.80E+02

==> System inflows (data group K3) at 18.75 hours (Junction / Inflow,cfs)

Node35 / 6.72E+02

==> System inflows (data group K3) at 18.83 hours (Junction / Inflow,cfs)

Node35 / 6.65E+02

==> System inflows (data group K3) at 18.94 hours (Junction / Inflow,cfs)

Coupland_Exist10yr.out

Node35 / 6.57E+02

==> System inflows (data group K3) at 19.00 hours (Junction / Inflow,cfs)

Node35 / 6.50E+02

==> System inflows (data group K3) at 19.08 hours (Junction / Inflow,cfs)

Node35 / 6.42E+02

==> System inflows (data group K3) at 19.19 hours (Junction / Inflow,cfs)

Node35 / 6.34E+02

==> System inflows (data group K3) at 19.25 hours (Junction / Inflow,cfs)

Node35 / 6.26E+02

==> System inflows (data group K3) at 19.33 hours (Junction / Inflow,cfs)

Node35 / 6.18E+02

==> System inflows (data group K3) at 19.44 hours (Junction / Inflow,cfs)

Node35 / 6.10E+02

==> System inflows (data group K3) at 19.50 hours (Junction / Inflow,cfs)

Node35 / 6.01E+02

==> System inflows (data group K3) at 19.58 hours (Junction / Inflow,cfs)

Node35 / 5.93E+02

==> System inflows (data group K3) at 19.69 hours (Junction / Inflow,cfs)

Node35 / 5.85E+02

#####

Coupland_Exist10yr.out

==> System inflows (data group K3) at 19.75 hours (Junction / Inflow,cfs)

Node35 / 5.77E+02

#####

==> System inflows (data group K3) at 19.83 hours (Junction / Inflow,cfs)

Node35 / 5.69E+02

#####

==> System inflows (data group K3) at 19.94 hours (Junction / Inflow,cfs)

Node35 / 5.61E+02

#####

==> System inflows (data group K3) at 20.03 hours (Junction / Inflow,cfs)

Node35 / 5.54E+02

#####

==> System inflows (data group K3) at 20.08 hours (Junction / Inflow,cfs)

Node35 / 5.46E+02

#####

==> System inflows (data group K3) at 20.19 hours (Junction / Inflow,cfs)

Node35 / 5.38E+02

#####

==> System inflows (data group K3) at 20.28 hours (Junction / Inflow,cfs)

Node35 / 5.31E+02

#####

==> System inflows (data group K3) at 20.33 hours (Junction / Inflow,cfs)

Node35 / 5.23E+02

#####

==> System inflows (data group K3) at 20.44 hours (Junction / Inflow,cfs)

Node35 / 5.16E+02

#####

==> System inflows (data group K3) at 20.53 hours (Junction / Inflow,cfs)

Node35 / 5.09E+02

Coupland_Exist10yr.out

==> System inflows (data group K3) at 20.58 hours (Junction / Inflow,cfs)

Node35 / 5.02E+02

==> System inflows (data group K3) at 20.69 hours (Junction / Inflow,cfs)

Node35 / 4.94E+02

==> System inflows (data group K3) at 20.78 hours (Junction / Inflow,cfs)

Node35 / 4.88E+02

==> System inflows (data group K3) at 20.83 hours (Junction / Inflow,cfs)

Node35 / 4.81E+02

==> System inflows (data group K3) at 20.94 hours (Junction / Inflow,cfs)

Node35 / 4.74E+02

==> System inflows (data group K3) at 21.03 hours (Junction / Inflow,cfs)

Node35 / 4.67E+02

==> System inflows (data group K3) at 21.08 hours (Junction / Inflow,cfs)

Node35 / 4.60E+02

==> System inflows (data group K3) at 21.19 hours (Junction / Inflow,cfs)

Node35 / 4.54E+02

==> System inflows (data group K3) at 21.28 hours (Junction / Inflow,cfs)

Node35 / 4.47E+02

==> System inflows (data group K3) at 21.33 hours (Junction / Inflow,cfs)

Coupland_Exist10yr.out

Node35 / 4.41E+02

==> System inflows (data group K3) at 21.44 hours (Junction / Inflow,cfs)

Node35 / 4.35E+02

==> System inflows (data group K3) at 21.53 hours (Junction / Inflow,cfs)

Node35 / 4.28E+02

==> System inflows (data group K3) at 21.58 hours (Junction / Inflow,cfs)

Node35 / 4.22E+02

==> System inflows (data group K3) at 21.69 hours (Junction / Inflow,cfs)

Node35 / 4.16E+02

==> System inflows (data group K3) at 21.78 hours (Junction / Inflow,cfs)

Node35 / 4.10E+02

==> System inflows (data group K3) at 21.83 hours (Junction / Inflow,cfs)

Node35 / 4.04E+02

==> System inflows (data group K3) at 21.94 hours (Junction / Inflow,cfs)

Node35 / 3.99E+02

==> System inflows (data group K3) at 22.03 hours (Junction / Inflow,cfs)

Node35 / 3.93E+02

==> System inflows (data group K3) at 22.08 hours (Junction / Inflow,cfs)

Node35 / 3.87E+02
#####

Coupland_Exist10yr.out

==> System inflows (data group K3) at 22.19 hours (Junction / Inflow,cfs)

Node35 / 3.82E+02

==> System inflows (data group K3) at 22.28 hours (Junction / Inflow,cfs)

Node35 / 3.76E+02

==> System inflows (data group K3) at 22.33 hours (Junction / Inflow,cfs)

Node35 / 3.71E+02

==> System inflows (data group K3) at 22.44 hours (Junction / Inflow,cfs)

Node35 / 3.66E+02

==> System inflows (data group K3) at 22.53 hours (Junction / Inflow,cfs)

Node35 / 3.61E+02

==> System inflows (data group K3) at 22.58 hours (Junction / Inflow,cfs)

Node35 / 3.56E+02

==> System inflows (data group K3) at 22.69 hours (Junction / Inflow,cfs)

Node35 / 3.51E+02

==> System inflows (data group K3) at 22.78 hours (Junction / Inflow,cfs)

Node35 / 3.46E+02

==> System inflows (data group K3) at 22.83 hours (Junction / Inflow,cfs)

Node35 / 3.41E+02

==> System inflows (data group K3) at 22.94 hours (Junction / Inflow,cfs)

Coupland_Exist10yr.out

Node35 / 3.36E+02

==> System inflows (data group K3) at 23.03 hours (Junction / Inflow,cfs)

Node35 / 3.31E+02

==> System inflows (data group K3) at 23.08 hours (Junction / Inflow,cfs)

Node35 / 3.27E+02

==> System inflows (data group K3) at 23.19 hours (Junction / Inflow,cfs)

Node35 / 3.22E+02

==> System inflows (data group K3) at 23.28 hours (Junction / Inflow,cfs)

Node35 / 3.18E+02

==> System inflows (data group K3) at 23.33 hours (Junction / Inflow,cfs)

Node35 / 3.13E+02

==> System inflows (data group K3) at 23.44 hours (Junction / Inflow,cfs)

Node35 / 3.09E+02

==> System inflows (data group K3) at 23.53 hours (Junction / Inflow,cfs)

Node35 / 3.04E+02

==> System inflows (data group K3) at 23.58 hours (Junction / Inflow,cfs)

Node35 / 3.00E+02

==> System inflows (data group K3) at 23.69 hours (Junction / Inflow,cfs)

Node35 / 2.96E+02

#####

Coupland_Exist10yr.out

==> System inflows (data group K3) at 23.78 hours (Junction / Inflow,cfs)

Node35 / 2.92E+02

#####

==> System inflows (data group K3) at 23.83 hours (Junction / Inflow,cfs)

Node35 / 2.88E+02

#####

==> System inflows (data group K3) at 23.94 hours (Junction / Inflow,cfs)

Node35 / 2.84E+02

#####

==> System inflows (data group K3) at 24.03 hours (Junction / Inflow,cfs)

Node35 / 2.80E+02

#####

==> System inflows (data group K3) at 24.08 hours (Junction / Inflow,cfs)

Node35 / 2.75E+02

#####

==> System inflows (data group K3) at 24.19 hours (Junction / Inflow,cfs)

Node35 / 2.71E+02

#####

==> System inflows (data group K3) at 24.28 hours (Junction / Inflow,cfs)

Node35 / 2.66E+02

#####

==> System inflows (data group K3) at 24.33 hours (Junction / Inflow,cfs)

Node35 / 2.62E+02

#####

==> System inflows (data group K3) at 24.44 hours (Junction / Inflow,cfs)

Node35 / 2.57E+02

#####

==> System inflows (data group K3) at 24.53 hours (Junction / Inflow,cfs)

Node35 / 2.52E+02

Coupland_Exist10yr.out

==> System inflows (data group K3) at 24.58 hours (Junction / Inflow,cfs)

Node35 / 2.47E+02

==> System inflows (data group K3) at 24.69 hours (Junction / Inflow,cfs)

Node35 / 2.42E+02

==> System inflows (data group K3) at 24.78 hours (Junction / Inflow,cfs)

Node35 / 2.38E+02

==> System inflows (data group K3) at 24.83 hours (Junction / Inflow,cfs)

Node35 / 2.33E+02

==> System inflows (data group K3) at 24.94 hours (Junction / Inflow,cfs)

Node35 / 2.29E+02

==> System inflows (data group K3) at 25.00 hours (Junction / Inflow,cfs)

Node35 / 2.25E+02

==> System inflows (data group K3) at 25.08 hours (Junction / Inflow,cfs)

Node35 / 2.20E+02

==> System inflows (data group K3) at 25.19 hours (Junction / Inflow,cfs)

Node35 / 2.16E+02

==> System inflows (data group K3) at 25.28 hours (Junction / Inflow,cfs)

Node35 / 2.12E+02

==> System inflows (data group K3) at 25.33 hours (Junction / Inflow,cfs)

Coupland_Exist10yr.out

Node35 / 2.08E+02

==> System inflows (data group K3) at 25.44 hours (Junction / Inflow,cfs)

Node35 / 2.04E+02

==> System inflows (data group K3) at 25.53 hours (Junction / Inflow,cfs)

Node35 / 2.01E+02

==> System inflows (data group K3) at 25.58 hours (Junction / Inflow,cfs)

Node35 / 1.97E+02

==> System inflows (data group K3) at 25.69 hours (Junction / Inflow,cfs)

Node35 / 1.93E+02

==> System inflows (data group K3) at 25.78 hours (Junction / Inflow,cfs)

Node35 / 1.90E+02

==> System inflows (data group K3) at 25.83 hours (Junction / Inflow,cfs)

Node35 / 1.86E+02

==> System inflows (data group K3) at 25.94 hours (Junction / Inflow,cfs)

Node35 / 1.82E+02

==> System inflows (data group K3) at 26.00 hours (Junction / Inflow,cfs)

Node35 / 1.79E+02

==> System inflows (data group K3) at 26.08 hours (Junction / Inflow,cfs)

Node35 / 1.76E+02
#####

Coupland_Exist10yr.out

==> System inflows (data group K3) at 26.19 hours (Junction / Inflow,cfs)

Node35 / 1.72E+02

==> System inflows (data group K3) at 26.25 hours (Junction / Inflow,cfs)

Node35 / 1.69E+02

==> System inflows (data group K3) at 26.33 hours (Junction / Inflow,cfs)

Node35 / 1.66E+02

==> System inflows (data group K3) at 26.44 hours (Junction / Inflow,cfs)

Node35 / 1.63E+02

==> System inflows (data group K3) at 26.53 hours (Junction / Inflow,cfs)

Node35 / 1.60E+02

==> System inflows (data group K3) at 26.58 hours (Junction / Inflow,cfs)

Node35 / 1.57E+02

==> System inflows (data group K3) at 26.69 hours (Junction / Inflow,cfs)

Node35 / 1.54E+02

==> System inflows (data group K3) at 26.78 hours (Junction / Inflow,cfs)

Node35 / 1.51E+02

==> System inflows (data group K3) at 26.83 hours (Junction / Inflow,cfs)

Node35 / 1.48E+02

==> System inflows (data group K3) at 26.94 hours (Junction / Inflow,cfs)

Coupland_Exist10yr.out

Node35 / 1.45E+02

==> System inflows (data group K3) at 27.03 hours (Junction / Inflow,cfs)

Node35 / 1.43E+02

==> System inflows (data group K3) at 27.08 hours (Junction / Inflow,cfs)

Node35 / 1.40E+02

==> System inflows (data group K3) at 27.19 hours (Junction / Inflow,cfs)

Node35 / 1.37E+02

==> System inflows (data group K3) at 27.28 hours (Junction / Inflow,cfs)

Node35 / 1.35E+02

==> System inflows (data group K3) at 27.33 hours (Junction / Inflow,cfs)

Node35 / 1.32E+02

==> System inflows (data group K3) at 27.44 hours (Junction / Inflow,cfs)

Node35 / 1.30E+02

==> System inflows (data group K3) at 27.53 hours (Junction / Inflow,cfs)

Node35 / 1.27E+02

==> System inflows (data group K3) at 27.58 hours (Junction / Inflow,cfs)

Node35 / 1.25E+02

==> System inflows (data group K3) at 27.69 hours (Junction / Inflow,cfs)

Node35 / 1.22E+02

#####

Coupland_Exist10yr.out

==> System inflows (data group K3) at 27.78 hours (Junction / Inflow,cfs)

Node35 / 1.20E+02
#####

Cycle 1000 Time 27 Hrs - 46.67 Min

Junction / Depth / Elevation	==> "*" Junction is Surcharged.
Node13/ 0.43 / 23.17	Node14/ 0.47 / 23.17
Node15/ 0.74 / 21.94	
Node16/ 0.78 / 21.94	Node17/ 0.73 / 21.04
Node19/ 1.39 / 20.82	
Node20/ 1.18 / 20.81	Node21/ 1.12 / 20.81
Node22/ 1.00 / 20.80	
Node23/ 1.31 / 20.76	Node24/ 0.89 / 20.76
Node25/ 0.46 / 20.03	
Node26/ 0.32 / 19.17	Node27/ 0.73 / 18.95
Node28/ 3.06 / 14.53	
Node31/ 3.13 / 14.61	Node33/ 2.90 / 14.36
Node35/ 3.15 / 14.64	
Node36/ 5.12 / 14.14	Node37/ 5.57 / 14.03
Node41/ 5.57 / 14.03	
Node18.1.1/ 6.05 / 21.04	Node34.1.1/ 6.86 / 23.18
Node39/ 0.10 / 23.25	

Conduit/	FLOW	==> "*" Conduit uses the normal flow option.
Link14/ 0.18*	0.10*	Link16/ 0.10*
Link18/ 0.18*	Link20/ 0.35	Link24/ 0.43
Link26/ 0.43	-0.39	Link31/ 122.35
Link36/ 125.61	Link33/ 123.72	Link34/ -0.10
Link48/ 121.81	Link42.1.1/ 132.89	Link37/ 130.25
239.1/ -0.33	Link41/ 0.02*	Link41/ 0.10
255.1/ 0.43	227.1/ 0.10	235.1/ -0.11
W20/ 0.00	231.1/ 0.10	251.1/ 0.43
W27/ 0.00	247.1/ -0.41	243.1/ -0.36
	W14/ 0.00	251.1/ 0.43
	W15/ 0.00	W14/ 0.00
	W21/ 0.00	W17/ 0.00
	W24/ 0.00	W25/ 0.00
	FREE# 1/ 132.88	

==> System inflows (data group K3) at 27.83 hours (Junction / Inflow,cfs)

Node35 / 1.18E+02

#####

Coupland_Exist10yr.out

==> System inflows (data group K3) at 27.94 hours (Junction / Inflow,cfs)

Node35 / 1.16E+02

#####

==> System inflows (data group K3) at 28.03 hours (Junction / Inflow,cfs)

Node35 / 1.14E+02

#####

==> System inflows (data group K3) at 28.08 hours (Junction / Inflow,cfs)

Node35 / 1.11E+02

#####

==> System inflows (data group K3) at 28.19 hours (Junction / Inflow,cfs)

Node35 / 1.09E+02

#####

==> System inflows (data group K3) at 28.28 hours (Junction / Inflow,cfs)

Node35 / 1.07E+02

#####

==> System inflows (data group K3) at 28.33 hours (Junction / Inflow,cfs)

Node35 / 1.05E+02

#####

==> System inflows (data group K3) at 28.44 hours (Junction / Inflow,cfs)

Node35 / 1.03E+02

#####

==> System inflows (data group K3) at 28.53 hours (Junction / Inflow,cfs)

Node35 / 1.01E+02

#####

==> System inflows (data group K3) at 28.58 hours (Junction / Inflow,cfs)

Node35 / 9.95E+01

#####

==> System inflows (data group K3) at 28.69 hours (Junction / Inflow,cfs)

Node35 / 9.76E+01

Coupland_Exist10yr.out

==> System inflows (data group K3) at 28.78 hours (Junction / Inflow,cfs)

Node35 / 9.58E+01

==> System inflows (data group K3) at 28.83 hours (Junction / Inflow,cfs)

Node35 / 9.40E+01

==> System inflows (data group K3) at 28.94 hours (Junction / Inflow,cfs)

Node35 / 9.22E+01

==> System inflows (data group K3) at 29.03 hours (Junction / Inflow,cfs)

Node35 / 9.05E+01

==> System inflows (data group K3) at 29.08 hours (Junction / Inflow,cfs)

Node35 / 8.88E+01

==> System inflows (data group K3) at 29.19 hours (Junction / Inflow,cfs)

Node35 / 8.71E+01

==> System inflows (data group K3) at 29.28 hours (Junction / Inflow,cfs)

Node35 / 8.55E+01

==> System inflows (data group K3) at 29.33 hours (Junction / Inflow,cfs)

Node35 / 8.39E+01

==> System inflows (data group K3) at 29.44 hours (Junction / Inflow,cfs)

Node35 / 8.23E+01

==> System inflows (data group K3) at 29.53 hours (Junction / Inflow,cfs)

Coupland_Exist10yr.out

Node35 / 8.07E+01

==> System inflows (data group K3) at 29.58 hours (Junction / Inflow,cfs)

Node35 / 7.92E+01

==> System inflows (data group K3) at 29.69 hours (Junction / Inflow,cfs)

Node35 / 7.77E+01

==> System inflows (data group K3) at 29.78 hours (Junction / Inflow,cfs)

Node35 / 7.63E+01

==> System inflows (data group K3) at 29.83 hours (Junction / Inflow,cfs)

Node35 / 7.48E+01

==> System inflows (data group K3) at 29.94 hours (Junction / Inflow,cfs)

Node35 / 7.34E+01

==> System inflows (data group K3) at 30.03 hours (Junction / Inflow,cfs)

Node35 / 7.20E+01

==> System inflows (data group K3) at 30.08 hours (Junction / Inflow,cfs)

Node35 / 7.07E+01

==> System inflows (data group K3) at 30.19 hours (Junction / Inflow,cfs)

Node35 / 6.94E+01

==> System inflows (data group K3) at 30.28 hours (Junction / Inflow,cfs)

Node35 / 6.81E+01
#####

Coupland_Exist10yr.out

==> System inflows (data group K3) at 30.33 hours (Junction / Inflow,cfs)

Node35 / 6.68E+01

==> System inflows (data group K3) at 30.44 hours (Junction / Inflow,cfs)

Node35 / 6.55E+01

==> System inflows (data group K3) at 30.53 hours (Junction / Inflow,cfs)

Node35 / 6.43E+01

==> System inflows (data group K3) at 30.58 hours (Junction / Inflow,cfs)

Node35 / 6.31E+01

==> System inflows (data group K3) at 30.69 hours (Junction / Inflow,cfs)

Node35 / 6.19E+01

==> System inflows (data group K3) at 30.78 hours (Junction / Inflow,cfs)

Node35 / 6.07E+01

==> System inflows (data group K3) at 30.83 hours (Junction / Inflow,cfs)

Node35 / 5.96E+01

==> System inflows (data group K3) at 30.94 hours (Junction / Inflow,cfs)

Node35 / 5.85E+01

==> System inflows (data group K3) at 31.03 hours (Junction / Inflow,cfs)

Node35 / 5.74E+01

==> System inflows (data group K3) at 31.08 hours (Junction / Inflow,cfs)

Coupland_Exist10yr.out

Node35 / 5.63E+01

==> System inflows (data group K3) at 31.19 hours (Junction / Inflow,cfs)

Node35 / 5.52E+01

==> System inflows (data group K3) at 31.28 hours (Junction / Inflow,cfs)

Node35 / 5.42E+01

==> System inflows (data group K3) at 31.33 hours (Junction / Inflow,cfs)

Node35 / 5.32E+01

==> System inflows (data group K3) at 31.44 hours (Junction / Inflow,cfs)

Node35 / 5.22E+01

==> System inflows (data group K3) at 31.53 hours (Junction / Inflow,cfs)

Node35 / 5.12E+01

==> System inflows (data group K3) at 31.58 hours (Junction / Inflow,cfs)

Node35 / 5.02E+01

==> System inflows (data group K3) at 31.69 hours (Junction / Inflow,cfs)

Node35 / 4.93E+01

==> System inflows (data group K3) at 31.78 hours (Junction / Inflow,cfs)

Node35 / 4.84E+01

==> System inflows (data group K3) at 31.83 hours (Junction / Inflow,cfs)

Node35 / 4.75E+01

#####

Coupland_Exist10yr.out

==> System inflows (data group K3) at 31.94 hours (Junction / Inflow,cfs)

Node35 / 4.66E+01

#####

==> System inflows (data group K3) at 32.03 hours (Junction / Inflow,cfs)

Node35 / 4.57E+01

#####

==> System inflows (data group K3) at 32.08 hours (Junction / Inflow,cfs)

Node35 / 4.48E+01

#####

==> System inflows (data group K3) at 32.19 hours (Junction / Inflow,cfs)

Node35 / 4.40E+01

#####

==> System inflows (data group K3) at 32.28 hours (Junction / Inflow,cfs)

Node35 / 4.32E+01

#####

==> System inflows (data group K3) at 32.33 hours (Junction / Inflow,cfs)

Node35 / 4.23E+01

#####

==> System inflows (data group K3) at 32.44 hours (Junction / Inflow,cfs)

Node35 / 4.15E+01

#####

==> System inflows (data group K3) at 32.53 hours (Junction / Inflow,cfs)

Node35 / 4.08E+01

#####

==> System inflows (data group K3) at 32.58 hours (Junction / Inflow,cfs)

Node35 / 4.00E+01

#####

==> System inflows (data group K3) at 32.69 hours (Junction / Inflow,cfs)

Node35 / 3.92E+01

Coupland_Exist10yr.out

==> System inflows (data group K3) at 32.78 hours (Junction / Inflow,cfs)

Node35 / 3.85E+01

==> System inflows (data group K3) at 32.83 hours (Junction / Inflow,cfs)

Node35 / 3.78E+01

==> System inflows (data group K3) at 32.94 hours (Junction / Inflow,cfs)

Node35 / 3.71E+01

==> System inflows (data group K3) at 33.03 hours (Junction / Inflow,cfs)

Node35 / 3.64E+01

==> System inflows (data group K3) at 33.08 hours (Junction / Inflow,cfs)

Node35 / 3.57E+01

==> System inflows (data group K3) at 33.19 hours (Junction / Inflow,cfs)

Node35 / 3.50E+01

==> System inflows (data group K3) at 33.28 hours (Junction / Inflow,cfs)

Node35 / 3.43E+01

==> System inflows (data group K3) at 33.33 hours (Junction / Inflow,cfs)

Node35 / 3.37E+01

==> System inflows (data group K3) at 33.44 hours (Junction / Inflow,cfs)

Node35 / 3.31E+01

==> System inflows (data group K3) at 33.53 hours (Junction / Inflow,cfs)

Coupland_Exist10yr.out

Node35 / 3.24E+01

==> System inflows (data group K3) at 33.58 hours (Junction / Inflow,cfs)

Node35 / 3.18E+01

==> System inflows (data group K3) at 33.69 hours (Junction / Inflow,cfs)

Node35 / 3.12E+01

==> System inflows (data group K3) at 33.78 hours (Junction / Inflow,cfs)

Node35 / 3.06E+01

==> System inflows (data group K3) at 33.83 hours (Junction / Inflow,cfs)

Node35 / 3.01E+01

==> System inflows (data group K3) at 33.94 hours (Junction / Inflow,cfs)

Node35 / 2.95E+01

==> System inflows (data group K3) at 34.03 hours (Junction / Inflow,cfs)

Node35 / 2.89E+01

==> System inflows (data group K3) at 34.08 hours (Junction / Inflow,cfs)

Node35 / 2.84E+01

==> System inflows (data group K3) at 34.19 hours (Junction / Inflow,cfs)

Node35 / 2.78E+01

==> System inflows (data group K3) at 34.28 hours (Junction / Inflow,cfs)

Node35 / 2.73E+01
#####

Coupland_Exist10yr.out

==> System inflows (data group K3) at 34.33 hours (Junction / Inflow,cfs)

Node35 / 2.68E+01

==> System inflows (data group K3) at 34.44 hours (Junction / Inflow,cfs)

Node35 / 2.63E+01

==> System inflows (data group K3) at 34.53 hours (Junction / Inflow,cfs)

Node35 / 2.58E+01

==> System inflows (data group K3) at 34.58 hours (Junction / Inflow,cfs)

Node35 / 2.53E+01

==> System inflows (data group K3) at 34.69 hours (Junction / Inflow,cfs)

Node35 / 2.48E+01

==> System inflows (data group K3) at 34.78 hours (Junction / Inflow,cfs)

Node35 / 2.43E+01

==> System inflows (data group K3) at 34.83 hours (Junction / Inflow,cfs)

Node35 / 2.39E+01

==> System inflows (data group K3) at 34.94 hours (Junction / Inflow,cfs)

Node35 / 2.34E+01

==> System inflows (data group K3) at 35.03 hours (Junction / Inflow,cfs)

Node35 / 2.30E+01

==> System inflows (data group K3) at 35.08 hours (Junction / Inflow,cfs)

Coupland_Exist10yr.out

Node35 / 2.25E+01

==> System inflows (data group K3) at 35.19 hours (Junction / Inflow,cfs)

Node35 / 2.21E+01

==> System inflows (data group K3) at 35.28 hours (Junction / Inflow,cfs)

Node35 / 2.17E+01

==> System inflows (data group K3) at 35.33 hours (Junction / Inflow,cfs)

Node35 / 2.13E+01

==> System inflows (data group K3) at 35.44 hours (Junction / Inflow,cfs)

Node35 / 2.09E+01

==> System inflows (data group K3) at 35.53 hours (Junction / Inflow,cfs)

Node35 / 2.05E+01

==> System inflows (data group K3) at 35.58 hours (Junction / Inflow,cfs)

Node35 / 2.01E+01

==> System inflows (data group K3) at 35.69 hours (Junction / Inflow,cfs)

Node35 / 1.97E+01

==> System inflows (data group K3) at 35.78 hours (Junction / Inflow,cfs)

Node35 / 1.93E+01

==> System inflows (data group K3) at 35.83 hours (Junction / Inflow,cfs)

Node35 / 1.89E+01

#####

Coupland_Exist10yr.out

==> System inflows (data group K3) at 35.94 hours (Junction / Inflow,cfs)

Node35 / 1.86E+01

#####

==> System inflows (data group K3) at 36.03 hours (Junction / Inflow,cfs)

Node35 / 1.82E+01

#####

==> System inflows (data group K3) at 36.08 hours (Junction / Inflow,cfs)

Node35 / 1.78E+01

#####

==> System inflows (data group K3) at 36.19 hours (Junction / Inflow,cfs)

Node35 / 1.75E+01

#####

==> System inflows (data group K3) at 36.28 hours (Junction / Inflow,cfs)

Node35 / 1.72E+01

#####

==> System inflows (data group K3) at 36.33 hours (Junction / Inflow,cfs)

Node35 / 1.68E+01

#####

==> System inflows (data group K3) at 36.44 hours (Junction / Inflow,cfs)

Node35 / 1.65E+01

#####

==> System inflows (data group K3) at 36.53 hours (Junction / Inflow,cfs)

Node35 / 1.62E+01

#####

==> System inflows (data group K3) at 36.58 hours (Junction / Inflow,cfs)

Node35 / 1.58E+01

#####

==> System inflows (data group K3) at 36.69 hours (Junction / Inflow,cfs)

Node35 / 1.55E+01

Coupland_Exist10yr.out

==> System inflows (data group K3) at 36.78 hours (Junction / Inflow,cfs)

Node35 / 1.52E+01

==> System inflows (data group K3) at 36.83 hours (Junction / Inflow,cfs)

Node35 / 1.49E+01

==> System inflows (data group K3) at 36.94 hours (Junction / Inflow,cfs)

Node35 / 1.46E+01

==> System inflows (data group K3) at 37.03 hours (Junction / Inflow,cfs)

Node35 / 1.43E+01

==> System inflows (data group K3) at 37.08 hours (Junction / Inflow,cfs)

Node35 / 1.40E+01

==> System inflows (data group K3) at 37.19 hours (Junction / Inflow,cfs)

Node35 / 1.37E+01

==> System inflows (data group K3) at 37.28 hours (Junction / Inflow,cfs)

Node35 / 1.34E+01

==> System inflows (data group K3) at 37.33 hours (Junction / Inflow,cfs)

Node35 / 1.31E+01

==> System inflows (data group K3) at 37.44 hours (Junction / Inflow,cfs)

Node35 / 1.29E+01

==> System inflows (data group K3) at 37.53 hours (Junction / Inflow,cfs)

Coupland_Exist10yr.out

Node35 / 1.26E+01

==> System inflows (data group K3) at 37.58 hours (Junction / Inflow,cfs)

Node35 / 1.23E+01

==> System inflows (data group K3) at 37.69 hours (Junction / Inflow,cfs)

Node35 / 1.21E+01

==> System inflows (data group K3) at 37.78 hours (Junction / Inflow,cfs)

Node35 / 1.18E+01

==> System inflows (data group K3) at 37.83 hours (Junction / Inflow,cfs)

Node35 / 1.16E+01

==> System inflows (data group K3) at 37.94 hours (Junction / Inflow,cfs)

Node35 / 1.13E+01

==> System inflows (data group K3) at 38.03 hours (Junction / Inflow,cfs)

Node35 / 1.11E+01

==> System inflows (data group K3) at 38.08 hours (Junction / Inflow,cfs)

Node35 / 1.08E+01

==> System inflows (data group K3) at 38.19 hours (Junction / Inflow,cfs)

Node35 / 1.06E+01

==> System inflows (data group K3) at 38.28 hours (Junction / Inflow,cfs)

Node35 / 1.03E+01
#####

Coupland_Exist10yr.out

==> System inflows (data group K3) at 38.33 hours (Junction / Inflow,cfs)

Node35 / 1.01E+01

==> System inflows (data group K3) at 38.44 hours (Junction / Inflow,cfs)

Node35 / 9.90E+00

==> System inflows (data group K3) at 38.53 hours (Junction / Inflow,cfs)

Node35 / 9.60E+00

==> System inflows (data group K3) at 38.58 hours (Junction / Inflow,cfs)

Node35 / 9.40E+00

==> System inflows (data group K3) at 38.69 hours (Junction / Inflow,cfs)

Node35 / 9.20E+00

==> System inflows (data group K3) at 38.78 hours (Junction / Inflow,cfs)

Node35 / 8.90E+00

==> System inflows (data group K3) at 38.83 hours (Junction / Inflow,cfs)

Node35 / 8.70E+00

==> System inflows (data group K3) at 38.94 hours (Junction / Inflow,cfs)

Node35 / 8.40E+00

==> System inflows (data group K3) at 39.03 hours (Junction / Inflow,cfs)

Node35 / 8.20E+00

==> System inflows (data group K3) at 39.08 hours (Junction / Inflow,cfs)

Coupland_Exist10yr.out

Node35 / 7.90E+00

==> System inflows (data group K3) at 39.19 hours (Junction / Inflow,cfs)

Node35 / 7.60E+00

==> System inflows (data group K3) at 39.28 hours (Junction / Inflow,cfs)

Node35 / 7.30E+00

==> System inflows (data group K3) at 39.33 hours (Junction / Inflow,cfs)

Node35 / 7.00E+00

==> System inflows (data group K3) at 39.44 hours (Junction / Inflow,cfs)

Node35 / 6.50E+00

==> System inflows (data group K3) at 39.53 hours (Junction / Inflow,cfs)

Node35 / 5.80E+00

==> System inflows (data group K3) at 39.58 hours (Junction / Inflow,cfs)

Node35 / 5.10E+00

==> System inflows (data group K3) at 39.69 hours (Junction / Inflow,cfs)

Node35 / 4.40E+00

==> System inflows (data group K3) at 39.78 hours (Junction / Inflow,cfs)

Node35 / 4.10E+00

==> System inflows (data group K3) at 39.83 hours (Junction / Inflow,cfs)

Node35 / 3.90E+00

#####

Coupland_Exist10yr.out

==> System inflows (data group K3) at 39.94 hours (Junction / Inflow,cfs)

Node35 / 3.60E+00

#####

==> System inflows (data group K3) at 40.03 hours (Junction / Inflow,cfs)

Node35 / 3.50E+00

#####

==> System inflows (data group K3) at 40.08 hours (Junction / Inflow,cfs)

Node35 / 3.30E+00

#####

==> System inflows (data group K3) at 40.19 hours (Junction / Inflow,cfs)

Node35 / 3.20E+00

#####

==> System inflows (data group K3) at 40.28 hours (Junction / Inflow,cfs)

Node35 / 3.00E+00

#####

==> System inflows (data group K3) at 40.33 hours (Junction / Inflow,cfs)

Node35 / 2.90E+00

#####

==> System inflows (data group K3) at 40.44 hours (Junction / Inflow,cfs)

Node35 / 2.80E+00

#####

==> System inflows (data group K3) at 40.53 hours (Junction / Inflow,cfs)

Node35 / 2.70E+00

#####

==> System inflows (data group K3) at 40.58 hours (Junction / Inflow,cfs)

Node35 / 2.60E+00

#####

==> System inflows (data group K3) at 40.69 hours (Junction / Inflow,cfs)

Node35 / 2.50E+00

Coupland_Exist10yr.out

==> System inflows (data group K3) at 40.78 hours (Junction / Inflow,cfs)

Node35 / 2.40E+00

==> System inflows (data group K3) at 40.83 hours (Junction / Inflow,cfs)

Node35 / 2.30E+00

==> System inflows (data group K3) at 40.94 hours (Junction / Inflow,cfs)

Node35 / 2.20E+00

==> System inflows (data group K3) at 41.03 hours (Junction / Inflow,cfs)

Node35 / 2.10E+00

==> System inflows (data group K3) at 41.08 hours (Junction / Inflow,cfs)

Node35 / 2.00E+00

==> System inflows (data group K3) at 41.19 hours (Junction / Inflow,cfs)

Node35 / 2.00E+00

==> System inflows (data group K3) at 41.28 hours (Junction / Inflow,cfs)

Node35 / 1.90E+00

==> System inflows (data group K3) at 41.33 hours (Junction / Inflow,cfs)

Node35 / 1.80E+00

==> System inflows (data group K3) at 41.44 hours (Junction / Inflow,cfs)

Node35 / 1.80E+00

==> System inflows (data group K3) at 41.53 hours (Junction / Inflow,cfs)

Coupland_Exist10yr.out

Node35 / 1.70E+00
 #####
 #####
 ==> System inflows (data group K3) at 41.58 hours (Junction / Inflow,cfs)

Node35 / 1.60E+00
 #####

Cycle 1500 Time 41 Hrs - 40.00 Min

Junction / Depth / Elevation	==> "*" Junction is Surcharged.
Node13/ 0.26 / 23.00	Node14/ 0.30 / 23.00
Node15/ 0.60 / 21.80	
Node16/ 0.64 / 21.80	Node17/ 0.45 / 20.76
Node19/ 0.85 / 20.28	
Node20/ 0.65 / 20.28	Node21/ 0.59 / 20.28
Node22/ 0.48 / 20.28	
Node23/ 0.81 / 20.26	Node24/ 0.39 / 20.26
Node25/ 0.25 / 19.82	
Node26/ 0.03 / 18.88	Node27/ 0.59 / 18.81
Node28/ 0.38 / 11.85	
Node31/ 0.44 / 11.92	Node33/ 0.20 / 11.66
Node35/ 0.44 / 11.93	
Node36/ 0.68 / 9.70	Node37/ 0.94 / 9.40
Node41/ 0.93 / 9.39	
Node18.1.1/ 5.77 / 20.76	Node34.1.1/ 6.72 / 23.04
Node39/ 0.00 / 23.15	

Conduit/	FLOW	==> "*" Conduit uses the normal flow option.
Link14/	0.00*	Link16/ 0.00*
Link18/	0.00*	Link20/ 0.00
		Link22/ -0.01
Link26/	0.01*	Link24/ 0.01
		Link31/ 1.66
Link36/	1.75*	Link33/ 1.72
		Link34/ 0.00
Link37/	1.99	Link37/ 1.99
Link42.1.1/	2.20	Link41/ 0.00*
Link48/	1.61	Link41/ 0.00
		Link41/ 0.00
	227.1/	Link41/ 0.00
	231.1/	Link41/ 0.00
239.1/	0.00	Link41/ 0.00
		Link41/ 0.00
	243.1/	Link41/ 0.00
	247.1/	Link41/ 0.00
255.1/	0.01	Link41/ 0.00
		Link41/ 0.00
	W14/	Link41/ 0.00
	0.00	Link41/ 0.00
W15/	0.00	Link41/ 0.00
W17/	0.00	Link41/ 0.00
W20/	0.00	Link41/ 0.00
		Link41/ 0.00
	W21/	Link41/ 0.00
	0.00	Link41/ 0.00
		Link41/ 0.00
	W24/	Link41/ 0.00
	0.00	Link41/ 0.00
W25/	0.00	Link41/ 0.00
W27/	0.00	Link41/ 0.00
		Link41/ 0.00
	FREE# 1/	Link41/ 0.00
	2.20	Link41/ 0.00

 ==> System inflows (data group K3) at 41.69 hours (Junction / Inflow,cfs)

Coupland_Exist10yr.out

Node35 / 1.60E+00

==> System inflows (data group K3) at 41.78 hours (Junction / Inflow,cfs)

Node35 / 1.50E+00

==> System inflows (data group K3) at 41.83 hours (Junction / Inflow,cfs)

Node35 / 1.50E+00

==> System inflows (data group K3) at 41.94 hours (Junction / Inflow,cfs)

Node35 / 1.40E+00

==> System inflows (data group K3) at 42.03 hours (Junction / Inflow,cfs)

Node35 / 1.30E+00

==> System inflows (data group K3) at 42.08 hours (Junction / Inflow,cfs)

Node35 / 1.30E+00

==> System inflows (data group K3) at 42.19 hours (Junction / Inflow,cfs)

Node35 / 1.20E+00

==> System inflows (data group K3) at 42.28 hours (Junction / Inflow,cfs)

Node35 / 1.20E+00

==> System inflows (data group K3) at 42.33 hours (Junction / Inflow,cfs)

Node35 / 1.10E+00

==> System inflows (data group K3) at 42.44 hours (Junction / Inflow,cfs)

Node35 / 1.10E+00
#####

Coupland_Exist10yr.out

==> System inflows (data group K3) at 42.53 hours (Junction / Inflow,cfs)

Node35 / 1.10E+00

==> System inflows (data group K3) at 42.58 hours (Junction / Inflow,cfs)

Node35 / 1.00E+00

==> System inflows (data group K3) at 42.69 hours (Junction / Inflow,cfs)

Node35 / 1.00E+00

==> System inflows (data group K3) at 42.78 hours (Junction / Inflow,cfs)

Node35 / 9.00E-01

==> System inflows (data group K3) at 42.83 hours (Junction / Inflow,cfs)

Node35 / 9.00E-01

==> System inflows (data group K3) at 42.94 hours (Junction / Inflow,cfs)

Node35 / 9.00E-01

==> System inflows (data group K3) at 43.03 hours (Junction / Inflow,cfs)

Node35 / 8.00E-01

==> System inflows (data group K3) at 43.08 hours (Junction / Inflow,cfs)

Node35 / 8.00E-01

==> System inflows (data group K3) at 43.19 hours (Junction / Inflow,cfs)

Node35 / 8.00E-01

==> System inflows (data group K3) at 43.28 hours (Junction / Inflow,cfs)

Coupland_Exist10yr.out

Node35 / 8.00E-01

==> System inflows (data group K3) at 43.33 hours (Junction / Inflow,cfs)

Node35 / 7.00E-01

==> System inflows (data group K3) at 43.44 hours (Junction / Inflow,cfs)

Node35 / 7.00E-01

==> System inflows (data group K3) at 43.53 hours (Junction / Inflow,cfs)

Node35 / 7.00E-01

==> System inflows (data group K3) at 43.58 hours (Junction / Inflow,cfs)

Node35 / 7.00E-01

==> System inflows (data group K3) at 43.69 hours (Junction / Inflow,cfs)

Node35 / 6.00E-01

==> System inflows (data group K3) at 43.78 hours (Junction / Inflow,cfs)

Node35 / 6.00E-01

==> System inflows (data group K3) at 43.83 hours (Junction / Inflow,cfs)

Node35 / 6.00E-01

==> System inflows (data group K3) at 43.94 hours (Junction / Inflow,cfs)

Node35 / 6.00E-01

==> System inflows (data group K3) at 44.03 hours (Junction / Inflow,cfs)

Node35 / 5.00E-01

#####

Coupland_Exist10yr.out

==> System inflows (data group K3) at 44.08 hours (Junction / Inflow,cfs)

Node35 / 5.00E-01

#####

==> System inflows (data group K3) at 44.19 hours (Junction / Inflow,cfs)

Node35 / 5.00E-01

#####

==> System inflows (data group K3) at 44.28 hours (Junction / Inflow,cfs)

Node35 / 5.00E-01

#####

==> System inflows (data group K3) at 44.33 hours (Junction / Inflow,cfs)

Node35 / 5.00E-01

#####

==> System inflows (data group K3) at 44.44 hours (Junction / Inflow,cfs)

Node35 / 4.00E-01

#####

==> System inflows (data group K3) at 44.53 hours (Junction / Inflow,cfs)

Node35 / 4.00E-01

#####

==> System inflows (data group K3) at 44.58 hours (Junction / Inflow,cfs)

Node35 / 4.00E-01

#####

==> System inflows (data group K3) at 44.69 hours (Junction / Inflow,cfs)

Node35 / 4.00E-01

#####

==> System inflows (data group K3) at 44.78 hours (Junction / Inflow,cfs)

Node35 / 4.00E-01

#####

==> System inflows (data group K3) at 44.83 hours (Junction / Inflow,cfs)

Node35 / 3.00E-01

Coupland_Exist10yr.out

==> System inflows (data group K3) at 44.94 hours (Junction / Inflow,cfs)

Node35 / 3.00E-01

==> System inflows (data group K3) at 45.03 hours (Junction / Inflow,cfs)

Node35 / 3.00E-01

==> System inflows (data group K3) at 45.08 hours (Junction / Inflow,cfs)

Node35 / 3.00E-01

==> System inflows (data group K3) at 45.19 hours (Junction / Inflow,cfs)

Node35 / 3.00E-01

==> System inflows (data group K3) at 45.28 hours (Junction / Inflow,cfs)

Node35 / 3.00E-01

==> System inflows (data group K3) at 45.33 hours (Junction / Inflow,cfs)

Node35 / 3.00E-01

==> System inflows (data group K3) at 45.44 hours (Junction / Inflow,cfs)

Node35 / 2.00E-01

==> System inflows (data group K3) at 45.53 hours (Junction / Inflow,cfs)

Node35 / 2.00E-01

==> System inflows (data group K3) at 45.58 hours (Junction / Inflow,cfs)

Node35 / 2.00E-01

==> System inflows (data group K3) at 45.69 hours (Junction / Inflow,cfs)

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Node35 / 2.00E-01

==> System inflows (data group K3) at 45.78 hours (Junction / Inflow,cfs)

Node35 / 2.00E-01

==> System inflows (data group K3) at 45.83 hours (Junction / Inflow,cfs)

Node35 / 2.00E-01

==> System inflows (data group K3) at 45.94 hours (Junction / Inflow,cfs)

Node35 / 2.00E-01

==> System inflows (data group K3) at 46.03 hours (Junction / Inflow,cfs)

Node35 / 2.00E-01

==> System inflows (data group K3) at 46.08 hours (Junction / Inflow,cfs)

Node35 / 1.00E-01

==> System inflows (data group K3) at 46.19 hours (Junction / Inflow,cfs)

Node35 / 1.00E-01

==> System inflows (data group K3) at 46.28 hours (Junction / Inflow,cfs)

Node35 / 1.00E-01

==> System inflows (data group K3) at 46.33 hours (Junction / Inflow,cfs)

Node35 / 1.00E-01

==> System inflows (data group K3) at 46.44 hours (Junction / Inflow,cfs)

Node35 / 1.00E-01
#####

Coupland_Exist10yr.out

==> System inflows (data group K3) at 46.53 hours (Junction / Inflow,cfs)

Node35 / 1.00E-01

==> System inflows (data group K3) at 46.58 hours (Junction / Inflow,cfs)

Node35 / 1.00E-01

==> System inflows (data group K3) at 46.69 hours (Junction / Inflow,cfs)

Node35 / 1.00E-01

==> System inflows (data group K3) at 46.78 hours (Junction / Inflow,cfs)

Node35 / 1.00E-01

==> System inflows (data group K3) at 46.83 hours (Junction / Inflow,cfs)

Node35 / 1.00E-01

==> System inflows (data group K3) at 46.94 hours (Junction / Inflow,cfs)

Node35 / 1.00E-01

==> System inflows (data group K3) at 47.03 hours (Junction / Inflow,cfs)

Node35 / 0.00E+00

==> System inflows (data group K3) at 47.08 hours (Junction / Inflow,cfs)

Node35 / 0.00E+00

==> System inflows (data group K3) at 47.19 hours (Junction / Inflow,cfs)

Node35 / 0.00E+00

==> System inflows (data group K3) at 47.28 hours (Junction / Inflow,cfs)

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Node35 / 0.00E+00
#####
#####
==> System inflows (data group K3) at 47.33 hours (Junction / Inflow,cfs)

Node35 / 0.00E+00
#####
#####
==> System inflows (data group K3) at 47.44 hours (Junction / Inflow,cfs)

Node35 / 0.00E+00
#####
#####
==> System inflows (data group K3) at 47.53 hours (Junction / Inflow,cfs)

Node35 / 0.00E+00
#####
#####
==> System inflows (data group K3) at 47.58 hours (Junction / Inflow,cfs)

Node35 / 0.00E+00
#####
#####
==> System inflows (data group K3) at 47.69 hours (Junction / Inflow,cfs)

Node35 / 0.00E+00
#####
#####
==> System inflows (data group K3) at 47.78 hours (Junction / Inflow,cfs)

Node35 / 0.00E+00
#####
#####
==> System inflows (data group K3) at 47.83 hours (Junction / Inflow,cfs)

Node35 / 0.00E+00
#####
#####
==> System inflows (data group K3) at 47.94 hours (Junction / Inflow,cfs)

Node35 / 0.00E+00
#####

*=====
| Table E5 - Junction Time Limitation Summary |
| (0.10 or 0.25)* Depth * Area |
| Time step = ----- |

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Sum of Flow

```

|-----|
| The time this junction was the limiting junction |
| is listed in the third column. |
|-----|

```

Junction	Time(.10)	Time(.25)	Time(sec)
Node13	106.77	266.93	1400.0
Node14	126.04	315.10	0.0
Node15	70.42	176.05	1800.0
Node16	64.78	161.95	200.0
Node17	60.27	150.67	1100.0
Node19	54.77	136.92	300.0
Node20	77.37	193.41	0.0
Node21	75.72	189.31	0.0
Node22	34.56	86.41	600.0
Node23	31.00	77.50	0.0
Node24	76.21	190.52	0.0
Node25	30.48	76.20	100.0
Node26	59.88	149.71	50100.0
Node27	86.10	215.24	0.0
Node28	56.09	140.22	800.0
Node31	83.13	207.82	0.0
Node33	103.91	259.77	0.0
Node35	49.96	124.90	113600.0
Node36	73.58	183.96	0.0
Node37	125.30	313.25	0.0
Node41	1000.00	1000.00	0.0
Node18.1.1	20.35	50.87	700.0
Node34.1.1	16.92	42.31	2100.0
Node39	157.96	394.90	0.0

The junction requiring the smallest time step was...Node35

```

*-----*
| Table E5a - Conduit Explicit Condition Summary |
| Courant = Conduit Length |
| Time step = ----- |
| Velocity + sqrt(g*depth) |
| Conduit Implicit Condition Summary |

```

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Courant = Conduit Length
 Time step = -----
 Velocity

```

*-----*
| The 3rd column is the Explicit time step times the
|   minimum courant time step factor
|
| Minimum Conduit Time Step in seconds in the 4th column
| in the list. Maximum possible is 10 * maximum time step
|
| The 5th column is the maximum change at any time step
| during the simulation. The 6th column is the wobble
| value which is an indicator of the flow stability.
|
| You should use this section to find those conduits that
| are slowing your model down. Use modify conduits to
| alter the length of the slow conduits to make your
| simulation faster, or change the conduit name to
| "CHME?????" where ????? are any characters, this will
| lengthen the conduit based on the model time step,
| not the value listed in modify conduits.
*-----*
    
```

Wobble	Conduit Type of Soln	Time(exp)	Expl*Cmin	Time(imp)	Time(min)	Max Qchange
0.069	Link14 Normal Soln	8.99	8.99	23.12	18.3	0.033
0.057	Link16 Normal Soln	3.06	3.06	10.22	0.0	0.088
0.267	Link18 Normal Soln	29.38	29.38	296.02	0.0	0.058
0.393	Link20 Normal Soln	12.53	12.53	109.62	0.0	0.062
1.636	Link22 Normal Soln	33.15	33.15	280.83	0.0	-0.071
0.428	Link24 Normal Soln	30.26	30.26	127.46	0.0	0.047
0.092	Link26 Normal Soln	3.90	3.90	9.24	0.0	0.054
0.078	Link31 Normal Soln	13.45	13.45	85.94	0.0	0.639
0.061	Link33 Normal Soln	12.71	12.71	72.71	0.0	0.453
0.086	Link34 Normal Soln	6.67	6.67	33.33	0.0	-0.028
	Link36 Normal Soln	32.82	32.82	211.07	0.0	0.472

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0.006	Normal Soln					
	Link37	46.94	46.94	447.18	0.0	0.370
0.020	Normal Soln					
	Link42.1.1	1.24	1.24	12.70	2696.7	2.134
0.592	Normal Soln					
	Link41	22.51	22.51	163.43	8.3	0.007
0.037	Normal Soln					
	Link48	2.54	2.54	14.78	0.0	2.824
0.057	Normal Soln					
	227.1	3.41	3.41	16.51	0.0	0.008
1.525	Normal Soln					
	231.1	2.88	2.88	11.87	0.0	-0.031
3.564	Normal Soln					
	235.1	2.48	2.48	14.46	0.0	0.070
1.475	Normal Soln					
	239.1	1.62	1.62	3.92	48.3	-0.053
3.097	Normal Soln					
	243.1	1.62	1.62	3.57	0.0	-0.058
4.772	Normal Soln					
	247.1	1.23	1.23	2.92	108.3	-0.039
1.789	Normal Soln					
	251.1	2.19	2.19	4.14	0.0	0.050
4.360	Normal Soln					
	255.1	5.94	5.94	10.26	0.0	0.055
1.217	Normal Soln					

The conduit with the smallest time step limitation was..Link42.1.1

The conduit with the largest wobble was.....243.1

The conduit with the largest flow change in any

consecutive time step.....Link48

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 * End of time step DO-loop in Runoff *

Final Date (Mo/Day/Year) = 1/ 2/2016
 Total number of time steps = 2879
 Final Julian Date = 2016002
 Final time of day = 86340. seconds.
 Final time of day = 23.98 hours.
 Final running time = 47.9833 hours.
 Final running time = 1.9993 days.

 * Extrapolation Summary for Watersheds *
 * Explains the number of time steps and iterations *
 * used in the solution of the subcatchments. *
 * # Steps ==> Total Number of Extrapolated Steps *
 * # Calls ==> Total Number of OVERLND Calls *

Subcatchment	# Steps	# Calls	Subcatchment	# Steps	# Calls
Node39#1	16914	5638	Node34.1.1#1	17001	5667
Node17#1	16629	5543			
Node18.1.1#1	16995	5665	Node19#1	17388	5796

 # Rainfall input summary from Runoff Continuity Check #
 #####

Total rainfall read for gage # 1 is 7.7600 in
 Total rainfall duration for gage # 1 is 1440.00 minutes

 * Table R5. CONTINUITY CHECK FOR SURFACE WATER *
 * Any continuity error can be fixed by lowering the *
 * wet and transition time step. The transition time *
 * should not be much greater than the wet time step. *

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	cubic feet	Inches over Total Basin
Total Precipitation (Rain plus Snow)	7.025299E+05	7.760
Total Infiltration	1.026656E+05	1.134
Total Evaporation	1.294903E+04	0.143
Surface Runoff from Watersheds	5.869235E+05	6.483
Total Water remaining in Surface Storage	0.000000E+00	0.000
Infiltration over the Pervious Area...	1.026656E+05	2.644

Infiltration + Evaporation + Surface Runoff + Snow removal + Water remaining in Surface Storage + Water remaining in Snow Cover.....	7.025381E+05	7.760
Total Precipitation + Initial Storage.	7.025299E+05	7.760

The error in continuity is calculated as

```

*****
* Precipitation + Initial Snow Cover *
*   - Infiltration - *
*Evaporation - Snow removal - *
*Surface Runoff from Watersheds - *
*Water in Surface Storage - *
*Water remaining in Snow Cover *
*-----*
* Precipitation + Initial Snow Cover *
*****
Percent Continuity Error.....

```

-0.0012

```

*****
* Table R6. Continuity Check for Channel/Pipes *
*   You should have zero continuity error *
*   if you are not using runoff hydraulics *
*****

```

over	cubic feet	Inches Total
Basin		
Initial Channel/Pipe Storage.....	0.000000E+00	0.000
Final Channel/Pipe Storage.....	0.000000E+00	0.000
Surface Runoff from Watersheds.....	5.869235E+05	6.483
Groundwater Subsurface Inflow or Diversion..	0.000000E+00	0.000
Evaporation Loss from Channels.....	0.000000E+00	0.000
Groundwater Flow Diverted Out of Network....	0.000000E+00	0.000
Channel/Pipe/Inlet Outflow.....	5.869235E+05	6.483
Initial Storage + Inflow.....	5.869235E+05	6.483
Final Storage + Outflow + Diverted GW.....	5.869235E+05	6.483

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```
*****
* Final Storage + Outflow + Evaporation - *
* Watershed Runoff - Groundwater Inflow - *
* Initial Channel/Pipe Storage *
* ----- *
* Final Storage + Outflow + Evaporation *
*****
Percent Continuity Error..... 0.0000
```

```
#####
# Table R9. Summary Statistics for Subcatchments #
#####
```

Note: Total Runoff Depth includes pervious & impervious areas.
Pervious and Impervious Runoff Depth is only the runoff from those two areas.

For catchments receiving redirected flow, this flow will only be shown if the flow is not directed directly to the outlet. Flow that is getting redirected is also listed with the original subcatchment.

Subcatchment.....	Node39#1	Node34.1.1#1
Node17#1 Node18.1.1#1	Node19#1	
Area (acres).....	2.27000	5.20000
0.36000 4.87000	12.24000	
Percent Impervious.....	50.00000	67.00000
67.00000 67.00000	50.00000	
Total Rainfall (in)....	7.76000	7.76000
7.76000 7.76000	7.76000	
Max Intensity (in/hr)..	5.88000	5.88000
5.88000 5.88000	5.88000	
Pervious Area		

Total Runoff Depth (in)	4.98422	5.08725
5.09996 5.08760	4.95659	
Peak Runoff Rate (cfs).	2.39870	4.97647
0.36265 4.66700	12.06413	
Total Impervious Area		

Total Runoff Depth (in)	7.59937	7.59539
7.59937 7.59550	7.59471	
Peak Runoff Rate (cfs).	3.74909	10.99744
0.79671 10.31188	19.17074	

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Impervious Area with depression storage

Total Runoff Depth (in)		5.69953	5.69655
5.69953	5.69663	5.69603	
Peak Runoff Rate (cfs).		2.81182	8.24808
0.59753	7.73391	14.37806	

Impervious Area without depression storage

Total Runoff Depth (in)		1.89984	1.89885
1.89984	1.89888	1.89868	
Peak Runoff Rate (cfs).		0.93727	2.74936
0.19918	2.57797	4.79269	

Total Area

Total Runoff Depth (in)		6.29180	6.76771
6.77456	6.76789	6.27565	
Peak Runoff Rate (cfs).		6.08441	15.97392
1.15936	14.97888	30.83203	

Rational Formula

Pervious Tc. (mins)....		0.00000	0.00000
0.00000	0.00000	0.00000	
Perv. Intensity (in/hr)		0.00000	0.00000
0.00000	0.00000	0.00000	
Pervious C		0.00000	0.00000
0.00000	0.00000	0.00000	
Impervious Tc. (mins)..		0.00000	0.00000
0.00000	0.00000	0.00000	
Imp. Intensity (in/hr).		0.00000	0.00000
0.00000	0.00000	0.00000	
Impervious C		0.00000	0.00000
0.00000	0.00000	0.00000	
Partial Area (Ha).....		0.00000	0.00000
0.00000	0.00000	0.00000	
Partial Area Tc.....		0.00000	0.00000
0.00000	0.00000	0.00000	
Partial Area Intensity.		0.00000	0.00000
0.00000	0.00000	0.00000	

==> Runoff simulation ended normally.

=====

Table E6. Final Model Condition
This table is used for steady state
flow comparison and is the information

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saved to the hot-restart file.

Final Time = 48.028 hours

=====

Junction /	Depth /	Elevation	====>	"*" Junction is Surcharged.
Node13/	0.26 /	23.00/		Node14/ 0.30 / 23.00/
Node15/	0.60 /	21.80/		
Node16/	0.64 /	21.80/		Node17/ 0.44 / 20.75/
Node19/	0.79 /	20.22/		
Node20/	0.59 /	20.22/		Node21/ 0.53 / 20.22/
Node22/	0.42 /	20.22/		
Node23/	0.76 /	20.21/		Node24/ 0.34 / 20.21/
Node25/	0.24 /	19.81/		
Node26/	0.01 /	18.86/		Node27/ 0.58 / 18.80/
Node28/	0.01 /	11.48/		
Node31/	0.00 /	11.48/		Node33/ 0.00 / 11.46/
Node35/	0.00 /	11.49/		
Node36/	0.01 /	9.03/		Node37/ 0.01 / 8.47/
Node41/	0.00 /	8.46/		
Node18.1.1/	5.76 /	20.75/		Node34.1.1/ 6.72 / 23.04/
Node39/	0.00 /	23.15/		

Conduit/	Flow	====>	"*" Conduit uses the normal flow option.
Link18/	Link14/ 0.00*/		Link16/ 0.00*/
	0.00*/		
Link24/	Link20/ 0.00 /		Link22/ 0.00 /
	0.00 /		
Link33/	Link26/ 0.00*/		Link31/ 0.00 /
	0.00 /		
Link37/	Link34/ 0.00 /		Link36/ 0.00*/
	0.00*/		
Link48/	Link42.1.1/ 0.00 /		Link41/ 0.00*/
	0.00 /		
235.1/	227.1/ 0.00 /		231.1/ 0.00 /
	0.00 /		
247.1/	239.1/ 0.00 /		243.1/ 0.00 /
	0.00 /		
W14/	251.1/ 0.00 /		255.1/ 0.00 /
	0.00 /		
W20/	W15/ 0.00 /		W17/ 0.00 /
	0.00 /		
W25/	W21/ 0.00 /		W24/ 0.00 /
	0.00 /		
	W27/ 0.00 /		FREE# 1/ 0.00 /
	0.00 /		
Link18/	Conduit/ Velocity		
	Link14/ 0.00 /		Link16/ 0.00 /
	0.00 /		

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Link24/	Link20/ 0.07 /	0.00 /	Link22/	-0.02 /
Link33/	Link26/ 0.01 /	0.01 /	Link31/	0.00 /
Link37/	Link34/ 0.04 /	0.00 /	Link36/	0.05 /
Link48/	Link42.1.1/ 0.00 /	0.03 /	Link41/	0.00 /
235.1/	227.1/ 0.00 /	0.00 /	231.1/	0.00 /
247.1/	239.1/ 0.00 /	0.00 /	243.1/	-0.01 /
	251.1/	0.28 /	255.1/	0.58 /

Conduit/ Width

Link18/	Link14/ 0.30 /	0.17 /	Link16/	0.04 /
Link24/	Link20/ 0.16 /	0.86 /	Link22/	0.58 /
Link33/	Link26/ 0.20 /	0.39 /	Link31/	0.09 /
Link37/	Link34/ 0.10 /	0.44 /	Link36/	0.06 /
Link48/	Link42.1.1/ 0.00 /	0.10 /	Link41/	0.44 /
235.1/	227.1/ 1.87 /	1.61 /	231.1/	2.14 /
247.1/	239.1/ 2.24 /	2.29 /	243.1/	1.28 /
	251.1/	0.98 /	255.1/	1.18 /

Junction/ EGL

Node15/	Node13/ 0.60 /	0.26 /	Node14/	0.30 /
Node19/	Node16/ 0.79 /	0.64 /	Node17/	0.44 /
Node22/	Node20/ 0.42 /	0.59 /	Node21/	0.53 /
Node25/	Node23/ 0.24 /	0.76 /	Node24/	0.34 /
Node28/	Node26/ 4.81 /	0.69 /	Node27/	0.58 /
Node35/	Node31/ 0.00 /	0.00 /	Node33/	0.00 /
Node41/	Node36/ 0.00 /	0.01 /	Node37/	0.01 /
Node39/	Node18.1.1/ 0.00 /	5.76 /	Node34.1.1/	6.72 /

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Junction/ Freeboard			
	Node13/	17.00 /	Node14/ 17.00 /
Node15/	18.20 /		
	Node16/	18.20 /	Node17/ 19.25 /
Node19/	19.78 /		
	Node20/	19.78 /	Node21/ 19.78 /
Node22/	19.78 /		
	Node23/	19.79 /	Node24/ 19.79 /
Node25/	20.19 /		
	Node26/	21.14 /	Node27/ 21.20 /
Node28/	28.52 /		
	Node31/	28.52 /	Node33/ 28.54 /
Node35/	28.51 /		
	Node36/	30.97 /	Node37/ 31.53 /
Node41/	31.54 /		
	Node18.1.1/	19.25 /	Node34.1.1/ 16.96 /
Node39/	16.85 /		

Junction/ Max Volume			
	Node13/	23.62 /	Node14/ 23.91 /
Node15/	41.50 /		
	Node16/	41.65 /	Node17/ 52.48 /
Node19/	62.90 /		
	Node20/	58.01 /	Node21/ 56.90 /
Node22/	51.39 /		
	Node23/	54.74 /	Node24/ 47.73 /
Node25/	44.55 /		
	Node26/	29.08 /	Node27/ 34.87 /
Node28/	110.49 /		
	Node31/	110.80 /	Node33/ 110.07 /
Node35/	110.77 /		
	Node36/	140.13 /	Node37/ 146.16 /
Node41/	146.14 /		
	Node18.1.1/	119.13 /	Node34.1.1/ 105.21 /
Node39/	19.99 /		

Junction/Total Fldng			
	Node13/	0.00 /	Node14/ 0.00 /
Node15/	0.00 /		
	Node16/	0.00 /	Node17/ 0.00 /
Node19/	0.00 /		
	Node20/	0.00 /	Node21/ 0.00 /
Node22/	0.00 /		
	Node23/	0.00 /	Node24/ 0.00 /
Node25/	0.00 /		
	Node26/	0.00 /	Node27/ 0.00 /
Node28/	0.00 /		

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Node35/	Node31/ 0.00 /	0.00 /	Node33/	0.00 /
Node41/	Node36/ 0.00 /	0.00 /	Node37/	0.00 /
Node39/	Node18.1.1/ 0.00 /	0.00 /	Node34.1.1/	0.00 /

Conduit/ Cross Sectional Area

Link18/	Link14/ 0.08 /	0.03 /	Link16/	0.00 /
Link24/	Link20/ 0.02 /	0.15 /	Link22/	0.06 /
Link33/	Link26/ 0.11 /	0.11 /	Link31/	0.04 /
Link37/	Link34/ 0.04 /	0.17 /	Link36/	0.03 /
Link48/	Link42.1.1/ 0.00 /	0.06 /	Link41/	0.17 /
235.1/	227.1/ 0.56 /	0.33 /	231.1/	0.91 /
247.1/	239.1/ 1.17 /	1.27 /	243.1/	0.16 /
	251.1/	0.00 /	255.1/	0.00 /

Conduit/ Final Volume

Link18/	Link14/ 19.42 /	1.95 /	Link16/	0.08 /
Link24/	Link20/ 5.34 /	18.18 /	Link22/	17.67 /
Link33/	Link26/ 20.40 /	4.13 /	Link31/	7.33 /
Link37/	Link34/ 33.22 /	8.20 /	Link36/	16.85 /
Link48/	Link42.1.1/ 0.08 /	1.16 /	Link41/	22.26 /
235.1/	227.1/ 18.63 /	10.93 /	231.1/	34.34 /
247.1/	239.1/ 28.11 /	42.14 /	243.1/	5.28 /
	251.1/	0.23 /	255.1/	0.31 /

Conduit/ Hydraulic Radius

Link18/	Link14/ 0.02 /	0.01 /	Link16/	0.00 /
Link24/	Link20/ 0.02 /	0.06 /	Link22/	0.03 /
Link33/	Link26/ 0.01 /	0.03 /	Link31/	0.00 /

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Link37/	Link34/ 0.00 /	0.04 /	Link36/	0.00 /
Link48/	Link42.1.1/ 0.00 /	0.01 /	Link41/	0.04 /
235.1/	227.1/ 0.26 /	0.19 /	231.1/	0.36 /
247.1/	239.1/ 0.41 /	0.43 /	243.1/	0.11 /
	251.1/ 0.01 /	0.01 /	255.1/	0.01 /

Conduit/ Upstream/ Downstream Elevation

Link14/	23.00/	21.80	Link16/	21.80/	20.75
Link18/	20.75/	20.22/	Link22/	20.21/	20.22
Link20/	20.22/	20.22	Link31/	11.48/	11.48
Link24/	20.21/	19.81/	Link36/	11.46/	9.03
Link26/	18.86/	18.80	Link41/	23.15/	23.04
Link33/	11.48/	11.46/	231.1/	21.80/	21.80
Link34/	23.00/	23.04	243.1/	20.22/	20.22
Link37/	9.03/	8.47/	255.1/	18.80/	16.27
Link42.1.1/	8.47/	8.46			
Link48/	11.49/	11.48/			
227.1/	23.00/	23.00			
235.1/	20.75/	20.75/			
239.1/	20.22/	20.22			
247.1/	20.21/	20.21/			
251.1/	19.81/	19.54			

=====

| Table E7 - Iteration Summary |

=====

Total number of time steps simulated..... 1728

Total number of passes in the simulation..... 147759

Total number of time steps during simulation.... 75445

Ratio of actual # of time steps / NTCYC..... 43.660

Average number of iterations per time step..... 1.958

Average time step size(seconds)..... 2.290

Smallest time step size(seconds)..... 1.220

Largest time step size(seconds)..... 100.000

Average minimum Conduit Courant time step (sec). 3.544

Average minimum implicit time step (sec)..... 2.309

Average minimum junction time step (sec)..... 2.309

Average Courant Factor Tf..... 2.309

Number of times omega reduced..... 0

=====

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Table E8 - Junction Time Step Limitation Summary

```

=====
| Not Convr = Number of times this junction did not |
|               converge during the simulation.      |
| Avg Convr  = Average junction iterations.          |
| Conv err   = Mean convergence error.              |
| Omega Cng  = Change of omega during iterations    |
| Max Itern  = Maximum number of iterations         |
=====
  
```

Junction		Not Convr	Avg Convr	Total Itt	Omega Cng	Max Itern	Ittrn >10
Ittrn >25	Ittrn >40						
	Node13	92	3.12	235644	0	501	1154
1152	1138						
0	Node14	0	1.55	117109	0	10	1
0	0						
0	Node15	0	1.40	105384	0	14	3
0	0						
13	Node16	0	1.53	115334	0	500	14
13	13						
1	Node17	0	1.73	130857	0	72	165
1	1						
3	Node19	0	1.67	126172	0	69	32
3	2						
2	Node20	0	1.96	147594	0	66	10
2	2						
1	Node21	0	1.54	115873	0	32	9
1	0						
0	Node22	0	1.53	115576	0	8	0
0	0						
2	Node23	0	1.89	142683	0	79	11
2	1						
0	Node24	0	1.87	141294	0	19	2
0	0						
0	Node25	0	1.35	101893	0	13	1
0	0						
0	Node26	0	1.67	125881	0	8	0
0	0						
371	Node27	6	2.51	189702	0	501	422
371	355						
370	Node28	4	3.14	237223	0	501	420
370	359						
173	Node31	0	2.92	220447	0	500	180
173	170						
0	Node33	0	1.67	126177	0	5	0
0	0						
	Node35	0	2.62	197319	0	495	153

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144	135						
	Node36	0	1.70	128398	0	5	0
0	0						
	Node37	0	3.59	270500	0	6	0
0	0						
	Node41	138	197.65	14912016	0	501	72568
72353	72241						
	Node18.1.1	0	1.67	126097	0	18	75
0	0						
	Node34.1.1	89	2.73	205891	0	501	1095
1078	1059						
	Node39	0	1.21	91342	0	5	0
0	0						
Total number of iterations for all junctions..		18426406					

Minimum number of possible iterations..... 1810680

Efficiency of the simulation..... 10.18

Poor Efficiency

=====

| Extran Efficiency is an indicator of the efficiency of |
 | the simulation. Ideal efficiency is one iteration per |
 | time step. Altering the underrelaxation parameter, |
 | lowering the time step, increasing the flow and head |
 | tolerance are good ways of improving the efficiency, |

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another is lowering the internal time step. The lower the efficiency generally the faster your model will run. If your efficiency is less than 1.5 then you may try increasing your time step so that your overall simulation is faster. Ideal efficiency would be around 2.0

Good Efficiency < 1.5 mean iterations
 Excellent Efficiency < 2.5 and > 1.5 mean iterations
 Good Efficiency < 4.0 and > 2.5 mean iterations
 Fair Efficiency < 7.5 and > 4.0 mean iterations
 Poor Efficiency > 7.5 mean iterations

=====

=====

Table E9 - JUNCTION SUMMARY STATISTICS

The Maximum area is only the area of the node, it does not include the area of the surrounding conduits

=====

Maximum Freeboard node feet	Maximum Junction Area ft^2	Maximum Gutter Depth Name feet	Maximum Ground Width feet	Uppermost PipeCrown Gutter Elevation Velocity feet ft/s	Maximum Junction Elevation feet	Time of Occurence Hr. Min.	Feet of Surcharge at Max Elevation	of
15.38	12.5660	Node13 0.00	40.00	27.86 0.00	24.62 0.00	16 27	0.00	
15.40	12.5660	Node14 0.00	40.00	27.82 0.00	24.60 0.00	16 27	0.00	
15.50	12.5660	Node15 0.00	40.00	26.32 0.00	24.50 0.00	16 28	0.00	
15.53	12.5660	Node16 0.00	40.00	26.62 0.00	24.47 0.00	16 28	0.00	
15.51	12.5660	Node17 0.00	40.00	25.51 0.00	24.49 0.00	16 28	0.00	
15.56	12.5660	Node19 0.00	40.00	24.52 0.00	24.44 0.00	16 29	0.00	
15.75	12.5660	Node20 0.00	40.00	25.17 0.00	24.25 0.00	16 32	0.00	
15.78	12.5660	Node21 0.00	40.00	24.71 0.00	24.22 0.00	16 32	0.00	
16.11	12.5660	Node22 0.00	40.00	25.50 0.00	23.89 0.00	16 36	0.00	

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Time	Conduit	Maximum Water	Maximum	Maximum	Time	Maximum
of Occurrence	Name	Elev at Pipe	Ratio	Computed	of Occurrence	Computed
		Upstream	Design	Flow		Velocity
		Flow	Vertical	Depth		
		Velocity	d/D	US DS		
		(cfs)	(ft/s)	(in)		
16.19	Node23	40.00	25.52	23.81	16	37
	12.5660	0.00	0.00	0.00		0.00
16.33	Node24	40.00	26.28	23.67	16	37
	12.5660	0.00	0.00	0.00		0.00
16.88	Node25	40.00	25.91	23.12	16	38
	12.5660	0.00	0.00	0.00		0.00
18.84	Node26	40.00	25.24	21.16	16	51
	12.5660	0.00	0.00	0.00		0.00
19.01	Node27	40.00	24.61	20.99	16	53
	12.5660	0.00	0.00	0.00		0.00
19.74	Node28	40.00	29.44	20.26	17	15
	12.5660	0.00	0.00	0.00		0.00
19.70	Node31	40.00	27.84	20.30	17	15
	12.5660	0.00	0.00	0.00		0.00
19.78	Node33	40.00	29.43	20.22	17	15
	12.5660	0.00	0.00	0.00		0.00
19.69	Node35	40.00	27.82	20.31	17	15
	12.5660	0.00	0.00	0.00		0.00
19.83	Node36	40.00	28.05	20.17	17	16
	12.5660	0.00	0.00	0.00		0.00
19.91	Node37	40.00	28.40	20.09	17	16
	12.5660	0.00	0.00	0.00		0.00
19.91	Node41	40.00	28.40	20.09	17	16
	12.5660	0.00	0.00	0.00		0.00
15.53	Node18.1.1	40.00	25.57	24.47	16	28
	12.5660	0.00	0.00	0.00		0.00
15.31	Node34.1.1	40.00	27.10	24.69	16	26
	12.5660	0.00	0.00	0.00		0.00
15.26	Node39	40.00	27.97	24.74	16	25
	12.5660	0.00	0.00	0.00		0.00

=====

Table E10 - CONDUIT SUMMARY STATISTICS

Note: The peak flow may be less than the design flow and the conduit may still surcharge because of the downstream boundary conditions.

* denotes an open conduit that has been overtopped this is a potential source of severe errors

=====

Time	Ratio of	Maximum	Conduit	Maximum	Maximum	Time	Maximum
of Occurrence	Max. to	Elev at	Water	Ratio	Computed	of Occurrence	Computed
	Design	Pipe	Design	Vertical	Flow		Velocity
	Conduit	Ends	Flow	d/D	Depth		
	Upstream	Flow	Velocity	US	DS		
	Name	(cfs)	(ft/s)	(in)	(cfs)	Hr. Min.	(ft/s) Hr.

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Min.	Flow	(ft)	(ft)						
		Link14	596.7483	7.6262	57.8400	20.3382	16	22	2.9570
16	9	0.0341	24.6025	24.5026	0.332	0.623			
		Link16	887.9019	11.3470	57.8400	19.7368	16	25	2.2402
15	46	0.0222	24.4746	24.4867	0.555	0.788			
		Link18	264.7415	3.3833	57.8400	33.6962	16	26	0.8224
16	58	0.1273	24.4706	24.4356	0.772	0.982			
		Link20	316.7276	3.6925	60.2400	61.6797	16	26	1.0721
16	23	0.1947	24.2461	24.2181	0.816	0.902			
		Link22	72.5977	0.5646	64.2000	-59.0637	16	30	-1.0056
16	21	-0.8136	23.8893	23.8062	0.695	0.683			
		Link24	267.1870	2.3676	73.3200	57.1997	16	36	2.2046
16	22	0.2141	23.6687	23.1151	0.573	0.543			
		Link26	1249.146	10.0844	76.6800	56.9730	16	38	4.2028
16	26	0.0456	21.1639	20.9948	0.362	0.434			
		Link31	22103.96	0.7876	196.3200	805.3429	17	1	2.3242
16	20	0.0364	20.2977	20.2627	0.539	0.537			
		Link33	29068.21	0.9626	215.6400	850.0030	16	55	2.6505
16	20	0.0292	20.2627	20.2191	0.489	0.487			
		Link34	500.4380	6.3954	57.8400	-21.1400	16	19	-1.4810
16	13	-0.0422	24.6926	24.6197	0.343	0.485			
		Link36	284979.0	9.2782	215.6400	843.1707	17	1	2.3665
16	19	0.0030	20.2191	20.1718	0.487	0.621			
		Link37	82357.80	2.9857	228.3600	838.3455	17	14	1.6672
16	53	0.0102	20.1718	20.0917	0.586	0.611			
		Link42.1.1	11938.34	0.0000	239.2800	837.7624	17	16	1.5763
17	15	0.0702	20.0917	20.0898	0.583	0.583			
		Link41	325.1504	4.1553	57.8400	5.8635	16	22	0.8172
16	13	0.0180	24.7408	24.6926	0.330	0.501			
		Link48	46955.91	1.7426	195.9600	807.5183	17	0	2.5891
16	20	0.0172	20.3052	20.2977	0.540	0.540			
		227.1	12.3112	2.5080	30.0000	7.8252	16	23	2.0201
16	18	0.6356	24.6197	24.6025	0.752	0.761			
		231.1	11.6038	2.3639	30.0000	16.8768	16	16	3.3114
16	16	1.4544	24.5026	24.4746	1.321	1.326			
		235.1	26.5994	5.4188	30.0000	-12.1215	16	9	-2.4566
16	9	-0.4557	24.4867	24.4706	1.615	1.664			
		239.1	32.6114	6.6435	30.0000	-41.8360	16	15	-8.4799
16	15	-1.2829	24.4356	24.2461	1.890	1.926			
		243.1	21.2473	4.3285	30.0000	-46.4472	16	19	-9.4298
16	19	-2.1860	24.2181	23.8893	1.627	1.544			
		247.1	54.3058	11.0631	30.0000	-40.4561	16	21	-8.2133
16	21	-0.7450	23.8062	23.6687	1.574	1.687			
		251.1	26.1519	5.3276	30.0000	57.0057	16	38	11.6173
16	38	2.1798	23.1151	21.9030	1.326	0.945			
		255.1	95.0460	13.4463	36.0000	56.8378	16	38	12.1444

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16	25	0.5980	20.9948	20.2627	0.732	1.331			
		W14	Undefnd	Undefnd	Undefnd	13.1141	16	22	
		W15	Undefnd	Undefnd	Undefnd	9.8872	16	26	
		W17	Undefnd	Undefnd	Undefnd	11.6378	16	25	
		W20	Undefnd	Undefnd	Undefnd	33.9663	16	28	
		W21	Undefnd	Undefnd	Undefnd	23.3831	16	32	
		W24	Undefnd	Undefnd	Undefnd	25.9654	16	36	
		W25	Undefnd	Undefnd	Undefnd	0.0000	0	0	
		W27	Undefnd	Undefnd	Undefnd	0.0000	0	0	
		FREE# 1	Undefnd	Undefnd	Undefnd	837.7380	17	16	

```

*-----*
| Table E11. Area assumptions used in the analysis |
| Subcritical and Critical flow assumptions from |
| Subroutine Head. See Figure 17-1 in the |
| manual for further information. |
*-----*
  
```

Maximum X-Sect Area(ft^2)	Maximum Conduit Vel*D Name (ft^2/s)	Duration of Dry Flow(min)	Duration of Sub- Critical Flow(min)	Durat. of Upstream Critical Flow(min)	Durat. of Downstream Critical Flow(min)	Maximum Hydraulic Radius-m
16.373	Link14 5.144	197.19	2673.97	0.00	8.84	0.792
33.056	Link16 2.851	97.83	2782.17	0.00	0.00	1.266
59.255	Link18 2.987	67.19	2812.81	0.00	0.00	1.652
63.691	Link20 4.550	62.56	2817.44	0.00	0.00	2.005
61.901	Link22 3.502	83.70	2754.94	41.37	0.00	1.736
26.551	Link24 7.015	123.84	1296.60	0.00	1459.56	1.486
18.353	Link26 9.420	125.51	2754.49	0.00	0.00	1.082
441.926	Link31 16.457	70.00	2810.00	0.00	0.00	5.093
404.638	Link33 18.841	70.73	2809.27	0.00	0.00	5.149
11.758	Link34 2.702	272.64	1830.60	776.76	0.00	1.069

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499.766	Link36	71.15	2808.85	0.00	0.00	5.247
	20.036					
521.394	Link37	71.15	2808.85	0.00	0.00	6.013
	18.883					
531.442	Link42.1.1	71.35	2808.65	0.00	0.00	6.245
	18.331					
11.822	Link41	8.33	2822.74	0.00	48.93	0.784
	1.480					
407.797	Link48	87.05	2792.95	0.00	0.00	5.164
	18.125					
	227.1	76.74	2803.26	0.00	0.00	0.754
3.983	3.734					
	231.1	86.88	2793.12	0.00	0.00	0.761
5.146	9.512					
	235.1	61.89	2818.11	0.00	0.00	0.760
5.131	7.546					
	239.1	25.83	2851.06	3.11	0.00	0.758
5.079	35.506					
	243.1	77.88	2794.64	7.48	0.00	0.760
5.101	34.021					
	247.1	113.41	2766.59	0.00	0.00	0.756
5.033	29.882					
	251.1	125.45	0.00	0.00	2754.55	0.760
4.933	32.981					
	255.1	129.69	443.93	0.00	2306.38	0.884
6.353	28.353					

=====

| Table E12. Mean Conduit Flow Information |

=====

Mean	Mean	Mean	Mean	Total	Mean	Low	Mean
Hydraulic	Conduit	Conduit	Flow	Flow	Percent	Flow	Froude
Radius	Cross	Name	(cfs)	(ft^3)	Change	Weightng	Number
-----	Area	Roughness	-----	-----	-----	-----	-----
0.181	Link14	1.037	179251.483	0.000	0.972	0.320	
	0.836	0.040					
0.200	Link16	1.037	179169.866	0.000	0.991	0.364	
	1.577	0.040					
0.402	Link18	1.781	307748.790	0.000	0.996	0.080	
	4.692	0.040					
0.587	Link20	3.395	586687.033	0.000	0.996	0.052	
	8.000	0.040					
0.526	Link22	-3.397	-586973.502	0.000	0.993	0.058	
	8.435	0.040					

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	Link24	3.399	587285.956	0.000	0.986	0.211
0.435	3.408	0.040				
	Link26	3.400	587470.254	0.000	0.985	0.312
0.304	2.001	0.040				
	Link31	129.972	22459184.951	0.000	0.995	0.128
2.054	123.413	0.032				
	Link33	133.413	23053819.482	0.000	0.995	0.199
1.940	107.205	0.032				
	Link34	-1.038	-179411.672	0.000	0.958	0.065
0.425	3.247	0.040				
	Link36	133.498	23068443.348	0.000	0.995	0.220
1.943	111.847	0.032				
	Link37	133.733	23109063.799	0.000	0.995	0.091
2.565	150.584	0.032				
	Link42.1.1	133.769	23115232.415	0.002	0.995	0.073
2.785	166.885	0.032				
	Link41	0.300	51891.001	0.000	1.000	0.073
0.187	0.952	0.040				
	Link48	129.966	22458156.923	0.000	0.992	0.153
1.993	109.880	0.032				
	227.1	0.691	119325.735	0.000	0.994	0.125
0.348	0.999	0.015				
	231.1	0.938	162160.708	0.000	0.993	0.080
0.479	1.728	0.015				
	235.1	-0.890	-153738.802	0.000	0.996	0.050
0.511	2.157	0.013				
	239.1	-2.965	-512340.494	0.000	1.000	0.107
0.641	3.380	0.015				
	243.1	-3.161	-546251.860	0.000	0.994	0.164
0.502	2.217	0.015				
	247.1	-3.114	-538070.885	0.000	0.988	0.127
0.625	3.163	0.013				
	251.1	3.400	587461.571	0.000	0.985	0.831
0.277	0.949	0.015				
	255.1	3.399	587303.636	0.000	0.985	1.682
0.226	0.793	0.013				
	W14	0.348	60136.736			
	W15	0.099	17074.417			
	W17	0.198	34222.643			
	W20	0.431	74416.152			
	W21	0.235	40612.645			
	W24	0.284	49123.793			
	W25	0.000	0.000			
	W27	0.000	0.000			
	FREE# 1	133.760	23113649.540			

=====

| Table E13. Channel losses(H), headwater depth (HW), tailwater |

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| depth (TW), critical and normal depth (Yc and Yn).
 | Use this section for culvert comparisons

=====

TW	Conduit Name	Maximum Flow	Head Loss	Friction Loss	Critical Depth	Normal Depth	HW Elevat
24.467	Link14 Max Flow	20.324	0.000	0.336	1.249	1.323	24.586
24.482	Link16 Max Flow	19.708	0.000	0.008	1.234	1.125	24.470
24.430	Link18 Max Flow	33.688	0.000	0.045	1.535	2.175	24.466
24.188	Link20 Max Flow	61.679	0.000	0.038	1.760	2.538	24.219
20.218	Link22 Max Flow	-0.001	0.000	-0.007	0.001	0.017	20.208
23.109	Link24 Max Flow	57.178	0.000	0.507	2.103	3.691	23.668
20.817	Link26 Max Flow	56.961	0.000	0.394	1.916	2.094	21.102
20.196	Link31 Max Flow	805.183	0.000	0.036	3.356	12.060	20.233
20.049	Link33 Max Flow	849.845	0.000	0.048	3.886	12.442	20.099
23.040	Link34 Max Flow	0.000	0.000	0.000	0.000	0.000	23.000
20.100	Link36 Max Flow	843.158	0.000	0.104	3.872	4.635	20.150
20.090	Link37 Max Flow	838.342	0.000	0.087	4.641	7.784	20.171
20.090	Link42.1.1 Max Flow	837.673	0.000	0.002	4.470	11.629	20.092
24.669	Link41 Max Flow	5.858	0.000	0.071	0.761	1.037	24.724
20.214	Link48 Max Flow	807.518	0.000	0.008	3.808	8.351	20.223
24.586	227.1 Max Flow	7.823	0.000	0.020	0.928	1.447	24.604
24.023	231.1 Max Flow	16.050	0.000	0.070	1.352	2.500	24.094
20.751	235.1 Max Flow	0.001	0.000	0.000	0.001	0.002	20.751
20.218	239.1 Max Flow	0.000	0.000	0.000	0.000	0.000	20.218

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20.218	Max Flow	243.1	-0.001	0.000	0.000	0.001	0.002	20.218
20.208	Max Flow	247.1	-0.001	0.000	0.000	0.001	0.001	20.208
21.903	Max Flow	251.1	57.004	0.000	1.212	2.363	2.500	23.115
19.471	Max Flow	255.1	56.803	0.000	1.343	2.440	1.671	20.817

=====

| Table E13a. CULVERT ANALYSIS CLASSIFICATION, |
 | and the time the culvert was in a particular |
 | classification during the simulation. The time is |
 | in minutes. The Dynamic Wave Equation is used for |
 | all conduit analysis but the culvert flow classification |
 | condition is based on the HW and TW depths. |

=====

		Mild Slope Critical D	Mild Slope TW Control	Steep Slope TW Insignf	Slug Flow Outlet/	Mild Slope TW > D	Mild Slope TW <= D
Outlet Control	Conduit Inlet Name Control Configuration	Outlet Inlet Control	Outlet Control	Entrance Control	Entrance Control	Outlet Control	Outlet Control
0.000	Link14	1.667	2678.333	200.000	0.000	0.000	0.000
0.000	0.000 None						
266.667	Link16	0.000	1425.000	1003.333	185.000	0.000	0.000
0.000	0.000 None						
0.000	Link18	0.000	2813.333	66.667	0.000	0.000	0.000
0.000	0.000 None						
0.000	Link20	0.000	2818.333	61.667	0.000	0.000	0.000
0.000	0.000 None						
0.000	Link22	0.000	2796.667	83.333	0.000	0.000	0.000
0.000	0.000 None						
0.000	Link24	831.667	1925.000	123.333	0.000	0.000	0.000
0.000	0.000 None						
0.000	Link26	0.000	2755.000	125.000	0.000	0.000	0.000
0.000	0.000 None						
0.000	Link31	0.000	2810.000	70.000	0.000	0.000	0.000
0.000	0.000 None						
0.000	Link33	0.000	2810.000	70.000	0.000	0.000	0.000
0.000	0.000 None						
0.000	Link34	0.000	2588.333	76.667	215.000	0.000	0.000
0.000	0.000 None						

Coupland_Exist10yr.out

0.000	Link36	0.000	2810.000	70.000	0.000	0.000	0.000
0.000	0.000 None						
0.000	Link37	0.000	2810.000	70.000	0.000	0.000	0.000
0.000	0.000 None						
0.000	Link42.1.1	0.000	2810.000	0.000	70.000	0.000	0.000
0.000	0.000 None						
0.000	Link41	30.000	2841.667	8.333	0.000	0.000	0.000
0.000	0.000 None						
0.000	Link48	0.000	2791.667	88.333	0.000	0.000	0.000
0.000	0.000 None						
0.000	227.1	0.000	2803.333	76.667	0.000	0.000	0.000
0.000	0.000 None						
0.000	231.1	0.000	2715.000	86.667	0.000	78.333	0.000
0.000	0.000 None						
0.000	235.1	0.000	2565.000	61.667	136.667	41.667	75.000
0.000	0.000 None						
0.000	239.1	0.000	0.000	25.000	2640.000	45.000	170.000
0.000	0.000 None						
0.000	243.1	0.000	2666.667	76.667	0.000	136.667	0.000
0.000	0.000 None						
0.000	247.1	0.000	0.000	113.333	2631.667	0.000	135.000
0.000	0.000 None						
0.000	251.1	1070.000	1685.000	125.000	0.000	0.000	0.000
0.000	0.000 None						
0.000	255.1	0.000	0.000	2671.667	0.000	0.000	0.000
208.333	0.000 None						

```

*=====*
| Kinematic Wave Approximations |
| Time in Minutes for Each Condition |
*=====*
    
```

Conduit Name	Duration of Normal Flow	Slope Criteria	Super-Critical	Roll Waves
Link14	2697.38	2783.33	0.14	0.00
Link16	2587.58	2782.17	0.00	0.00
Link18	1355.18	2812.92	0.00	0.00
Link20	9.92	2813.44	0.22	0.00
Link22	0.00	0.00	0.00	0.00
Link24	0.00	0.00	0.00	0.00
Link26	1188.82	2752.69	0.13	0.00
Link31	0.22	55.22	0.00	0.00
Link33	0.00	0.00	0.00	0.00
Link34	0.00	0.00	0.00	0.00
Link36	1183.18	2807.78	1.31	0.00
Link37	39.24	2627.50	0.00	0.00
Link42.1.1	1.92	1.92	0.00	0.00

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Link41	1597.15	2835.00	12.50	0.00
Link48	1.90	570.96	0.00	0.00
227.1	0.00	2609.25	0.45	0.00
231.1	0.06	2778.34	1.01	0.00
235.1	0.00	201.41	0.00	0.00
239.1	0.00	3.82	0.00	0.00
243.1	0.00	0.00	0.00	0.00
247.1	0.00	0.00	0.00	0.00
251.1	0.00	0.00	53.65	0.00
255.1	180.82	443.91	2590.26	0.00

=====

| Table E14 - Natural Channel Overbank Flow Information |

=====

		<---- Maximum Velocity ----->			<----- Maximum Flow ----->			
<----- Maximum Area ----->		<--- Max. Storage Volume --->						
Left	Center	Right	Left	Center	Right	Left	Center	Right
Area	Area	Area	Velocity	Velocity	Velocity	Flow	Maximum Depth	Flow
Area	Name	Area	Area	Area	Area	Area	Depth	Area
0.000	Link14	0.000	1.244	0.000	0.000	20.338		0.000
16.348	Link16	0.230	0.620	0.000	0.438	19.299		0.000
31.138	Link18	0.354	0.602	0.389	2.466	30.771		0.459
51.097	Link20	0.573	1.023	0.619	3.932	57.169		0.579
55.863	Link22	0.304	0.974	0.039	0.544	58.520		0.000
60.097	Link24	0.000	504.654	16971.424	0.035	60.099		0.000
26.542	Link26	0.000	2.155	0.000	0.000	57.200		0.000
18.347	Link31	0.000	3.105	0.000	0.000	56.973		0.000
441.533	Link33	0.000	0.000	712.607	0.000	18.353		0.000
39.205	Link34	0.000	1.794	0.335	0.000	792.200	13.143	
404.397	Link36	0.000	2.027	0.445	0.000	819.724	30.279	
68.109	Link37	0.000	0.000	77911.032	13112.312	404.638		
11.727	Link42.1.1	0.000	1.803	0.000	0.000	21.140		0.000
499.603		0.000	0.000	577.548	0.000	11.758		0.000
521.356		0.000	1.688	0.000	0.000	843.171		0.000
		0.000	0.000	249516.496	0.000	499.766		0.000
		0.000	1.608	0.000	0.000	838.345		0.000
		0.000	0.000	388639.291	0.000	521.394		0.000
		0.000	1.578	0.000	0.000	837.762		0.000

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0.000	531.038	0.000	0.000	10626.075	0.000	531.442		
	Link41	0.000	0.497	0.000	0.000	5.863	0.000	
0.000	11.791	0.000	0.000	1574.649	0.000	11.822		
	Link48	0.091	1.959	0.317	0.036	798.113	9.370	
0.393	407.495	29.602	15.025	15590.741	1132.560	407.797		

=====

| Table E14a - Natural Channel Encroachment Information |

=====

<----- Existing Conveyance Condition -----> <----- Encroachment Conveyance Condition -----> <- % Volume --> <-- Encroachment Data -->										
Centre	Right	Total	Left	Centre	Right	Total	Left	Right	Left	
Channel	Bank	Name	Bank	Channel	Bank	Reduction	Station	Station	Bank	
			Station	Station		Left	Incr.		Method	
0.0000	641.25	Link14	0.0000	641.25	0.0000	641.25	6.8163	21.101	0.0000	641.25
			21.101	0.0000	0.0000	0.0000	None			
0.0000	1605.1	Link16	35.642	1569.4	0.0000	1605.1	0.0000	23.718	35.642	1569.4
			23.718	0.0000	0.0000	0.0000	None			
51.185	3753.9	Link18	274.70	3428.0	51.185	3753.9	0.0000	29.053	274.70	3428.0
			29.053	0.0000	0.0000	0.0000	None			
40.257	4291.0	Link20	273.58	3977.2	40.257	4291.0	0.0000	28.204	273.58	3977.2
			28.204	0.0000	0.0000	0.0000	None			
.000285	3509.7	Link22	32.318	3477.4	.000285	3509.7	0.0000	35.033	32.318	3477.4
			35.033	0.0000	0.0000	0.0000	None			
0.0000	1267.5	Link24	0.0000	1267.5	0.0000	1267.5	11.233	28.070	0.0000	1267.5
			28.070	0.0000	0.0000	0.0000	None			
0.0000	755.07	Link26	0.0000	755.07	0.0000	755.07	7.2315	22.093	0.0000	755.07
			22.093	0.0000	0.0000	0.0000	None			
		Link31	0.0000	60653.1	1006.3	61659.3	4740.5	5178.9	0.0000	60653.1

Coupland_Exist10yr.out

1006.3 61659.3 4740.5 5178.9 0.0000 0.0000 0.0000 None

Link33 0.0000 55946.4 2066.6 58013.0 3462.7 3740.7 0.0000 55946.4
 2066.6 58013.0 3462.7 3740.7 0.0000 0.0000 0.0000 None

Link34 0.0000 416.44 0.0000 416.44 8.1755 20.043 0.0000 416.44
 0.0000 416.44 8.1755 20.043 0.0000 0.0000 0.0000 None

Link36 0.0000 75077.0 0.0000 75077.0 3648.3 3731.4 0.0000 75077.0
 0.0000 75077.0 3648.3 3731.4 0.0000 0.0000 0.0000 None

Link37 0.0000 81108.5 0.0000 81108.5 4998.6 5080.0 0.0000 81108.5
 0.0000 81108.5 4998.6 5080.0 0.0000 0.0000 0.0000 None

Link42.1.1 0.0000 83632.3 0.0000 83632.3 4956.7 5037.7 0.0000 83632.3
 0.0000 83632.3 4956.7 5037.7 0.0000 0.0000 0.0000 None

Link41 0.0000 419.38 0.0000 419.38 8.1548 20.059 0.0000 419.38
 0.0000 419.38 8.1548 20.059 0.0000 0.0000 0.0000 None

Link48 2.5307 56545.9 663.86 57212.3 4685.8 5160.7 2.5307 56545.9
 663.86 57212.3 4685.8 5160.7 0.0000 0.0000 0.0000 None

=====

| Table E14b - Floodplain Mapping |

=====

Conduit		Upstream	Downstream	Channel	Center	<----- Left Offsets	
----->		<----- Right Offsets		----->		<- Channel Widths->	
Bank	Natural	Encroach	Bank	Length	Station	Natural	Encroach
		WS Elev.	WS Elev.	Total	Encroach.		
10.0000	6.1011	6.1011	10.0000	68.3600 14.2847	15.0000 14.2847	8.1837	8.1837
		24.4746	24.4867	22.8500	15.0000	15.0000	15.0000

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10.0000	8.7183	8.7183	10.0000	23.7183	23.7183		
	Link18	24.4706	24.4356	243.1300	15.0000	15.0000	15.0000
10.0000	14.0526	14.0526	10.0000	29.0526	29.0526		
	Link20	24.2461	24.2181	117.5100	15.0000	15.0000	15.0000
10.0000	13.2041	13.2041	10.0000	28.2041	28.2041		
	Link22	23.8062	23.8893	282.4000	25.0000	25.0000	25.0000
20.0000	10.0331	10.0331	10.0000	35.0331	35.0331		
	Link24	23.6687	23.1151	280.1300	20.0000	8.7668	8.7668
10.0000	8.0699	8.0699	10.0000	16.8367	16.8367		
	Link26	21.1639	20.9948	38.8400	15.3500	8.1185	8.1185
9.7200	6.7429	6.7429	10.0700	14.8614	14.8614		
	Link31	20.2977	20.2627	199.6800	4765.9700	25.5043	25.5043
106.3600	412.9322	412.9322	69.3100	438.4365	438.4365		
	Link33	20.2627	20.2191	192.6600	3498.9200	36.1769	36.1769
70.7100	241.7582	241.7582	48.4200	277.9351	277.9351		
	Link34	24.6197	24.6926	49.2500	15.0000	6.8245	6.8245
10.0000	5.0431	5.0431	10.0000	11.8676	11.8676		
	Link36	20.2191	20.1718	499.4300	3687.5900	39.2819	39.2819
94.8600	43.7648	43.7648	53.4600	83.0467	83.0467		
	Link37	20.1718	20.0917	745.4400	5037.4200	38.7863	38.7863
110.9000	42.5924	42.5924	78.4400	81.3788	81.3788		
	Link42.1.1	20.0917	20.0898	20.0100	4995.7800	39.1100	39.1100
118.3100	41.9157	41.9157	64.8400	81.0257	81.0257		
	Link41	24.7408	24.6926	133.5500	15.0000	6.8452	6.8452

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10.0000 5.0591 5.0591 10.0000 11.9043 11.9043

Link48 20.3052 20.2977 38.2600 4722.1000 36.2823 36.2823
 66.5800 438.6488 438.6488 48.4200 474.9311 474.9311

```

*=====
| Table E15 - SPREADSHEET INFO LIST |
| Conduit Flow and Junction Depth Information for use in |
| spreadsheets. The maximum values in this table are the |
| true maximum values because they sample every time step. |
| The values in the review results may only be the |
| maximum of a subset of all the time steps in the run. |
| Note: These flows are only the flows in a single barrel. |
*=====
    
```

Conduit Junction Name	Maximum Invert Elevation (ft)	Total Maximum Flow (ft ³)	Maximum Velocity (ft/s)	Maximum Volume (ft ³)	##
Link14	20.33825	179251.48321	2.95697	1117.52244	##
Node13	22.74000	24.61975			
Link16	19.73680	179169.86601	2.24019	755.12924	##
Node14	22.70000	24.60246			
Link18	33.69619	307748.78991	0.82235	14404.71596	##
Node15	21.20000	24.50257			
Link20	61.67969	586687.03252	1.07214	7481.04226	##
Node16	21.16000	24.47458			
Link22	-59.06372	-586973.50161	1.00563	17476.11249	##
Node17	20.31000	24.48670			
Link24	57.19974	587285.95615	2.20465	7435.27302	##
Node19	19.43000	24.43559			
Link26	56.97304	587470.25444	4.20281	712.60705	##
Node20	19.63000	24.24608			
Link31	805.34293	22459184.95101	2.32416	95283.43446	##
Node21	19.69000	24.21812			
Link33	850.00295	23053819.48185	2.65052	91023.34428	##
Node22	19.80000	23.88930			
Link34	-21.13999	-179411.67209	1.48097	577.54787	##
Node23	19.45000	23.80615			
Link36	843.17073	23068443.34793	2.36648	249516.49637	##
Node24	19.87000	23.66870			

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Link37	838.34547	23109063.79946	1.66716	388639.29053	##
Node25	19.57000	23.11514			
Link42.1.1	837.76243	23115232.41550	1.57630	10626.07450	##
Node26	18.85000	21.16391			
Link41	5.86346	51891.00130	0.81717	1574.64937	##
Node27	18.22000	20.99485			
Link48	807.51830	22458156.92295	2.58911	16738.32614	##
Node28	11.47000	20.26271			
227.1	7.82523	119325.73529	2.02011	132.80811	##
Node31	11.48000	20.29765			
231.1	16.87677	162160.70847	3.31141	193.17887	##
Node33	11.46000	20.21910			
235.1	-12.12152	-153738.80172	2.45662	171.28494	##
Node35	11.49000	20.30522			
239.1	-41.83605	-512340.49371	8.47994	171.20539	##
Node36	9.02000	20.17175			
243.1	-46.44716	-546251.85967	9.42983	172.84117	##
Node37	8.46000	20.09173			
247.1	-40.45612	-538070.88517	8.21328	123.07137	##
Node41	8.46000	20.08983			
251.1	57.00574	587461.57057	11.61730	236.88797	##
Node18.1.1	14.99000	24.47065			
255.1	56.83776	587303.63639	12.14439	820.03345	##
Node34.1.1	16.32000	24.69263			
W14	13.11413	60136.73611	0.00000	0.00000	##
Node39	23.15000	24.74084			
W15	9.88719	17074.41713	0.00000	0.00000	##
W17	11.63780	34222.64294	0.00000	0.00000	##
W20	33.96629	74416.15217	0.00000	0.00000	##
W21	23.38314	40612.64510	0.00000	0.00000	##
W24	25.96541	49123.79310	0.00000	0.00000	##
W25	0.00000	0.00000	0.00000	0.00000	##
W27	0.00000	0.00000	0.00000	0.00000	##
FREE# 1	837.73799	23113649.54033	0.00000	0.00000	##

=====

| Table E15a - SPREADSHEET REACH LIST |

| Peak flow and Total Flow listed by Reach or those |

| conduits or diversions having the same |

| upstream and downstream nodes. |

=====

Upstream Node	Downstream Node	Maximum Flow (cfs)	Total Flow (ft^3)
Node14	Node15	20.338	1.79251E+05
Node16	Node17	19.737	1.79170E+05

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Node18.1.1	Node19	33.696	3.07749E+05
Node20	Node21	61.680	5.86687E+05
Node23	Node22	59.064	5.86974E+05
Node24	Node25	57.200	5.87286E+05
Node26	Node27	56.973	5.87470E+05
Node31	Node28	805.34	2.24592E+07
Node28	Node33	850.00	2.30538E+07
Node13	Node34.1.1	21.140	1.79412E+05
Node33	Node36	843.17	2.30684E+07
Node36	Node37	838.35	2.31091E+07
Node37	Node41	837.76	2.31152E+07
Node39	Node34.1.1	5.8635	51891.
Node35	Node31	807.52	2.24582E+07
Node13	Node14	7.8252	1.19326E+05
Node15	Node16	16.877	1.62161E+05
Node18.1.1	Node17	12.122	1.53739E+05
Node20	Node19	41.836	5.12340E+05
Node22	Node21	46.447	5.46252E+05
Node24	Node23	40.456	5.38071E+05
Node25	Node26	57.006	5.87462E+05
Node27	Node28	56.838	5.87304E+05
Node13	Node14	13.114	60137.
Node15	Node16	9.8872	17074.
Node17	Node18.1.1	11.638	34223.
Node19	Node20	33.966	74416.
Node21	Node22	23.383	40613.
Node23	Node24	25.965	49124.

```
#####
# Table E16. New Conduit Information Section #
# Conduit Invert (IE) Elevation and Conduit #
# Maximum Water Surface (WS) Elevations #
#####
```

Conduit Name		Upstream Node	Downstream Node	IE Up	IE Dn
WS Up	WS Dn	Conduit Type			
24.60	24.50	Natural	Node14	Node15	23.00 21.50
24.47	24.49	Natural	Node16	Node17	21.80 20.69
24.47	24.44	Natural	Node18.1.1	Node19	20.75 19.70
24.25	24.22	Natural	Node20	Node21	20.15 19.69
23.81	23.89	Natural	Node23	Node22	20.17 20.15

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23.67	Link24		Node24	Node25	20.17	19.80
23.12	23.12	Natural				
21.16	Link26		Node26	Node27	18.85	18.22
20.99	20.99	Natural				
20.30	Link31		Node31	Node28	11.48	11.47
20.26	20.26	Natural				
20.22	Link33		Node28	Node33	11.47	11.46
20.22	20.22	Natural				
24.62	Link34		Node13	Node34.1.1	23.04	22.28
24.62	24.69	Natural				
20.22	Link36		Node33	Node36	11.46	9.020
20.17	20.17	Natural				
20.17	Link37		Node36	Node37	9.020	8.460
20.17	20.09	Natural				
20.09	Link42.1.1		Node37	Node41	8.460	8.460
20.09	20.09	Natural				
24.74	Link41		Node39	Node34.1.1	23.15	22.28
24.74	24.69	Natural				
20.31	Link48		Node35	Node31	11.49	11.48
20.31	20.30	Natural				
24.62	227.1		Node13	Node14	22.74	22.70
24.62	24.60	Circular				
24.50	231.1		Node15	Node16	21.20	21.16
24.50	24.47	Circular				
24.47	235.1		Node18.1.1	Node17	20.45	20.31
24.47	24.49	Circular				
24.25	239.1		Node20	Node19	19.71	19.43
24.25	24.44	Circular				
23.89	243.1		Node22	Node21	20.15	20.03
23.89	24.22	Circular				
23.67	247.1		Node24	Node23	19.87	19.45
23.67	23.81	Circular				
23.12	251.1		Node25	Node26	19.80	19.54
23.12	21.90	Circular				
20.99	255.1		Node27	Node28	18.80	16.27
20.99	20.26	Circular				

=====

Table E18 - Junction Continuity Error. Division by Volume added 11/96

Continuity Error = Net Flow + Beginning Volume - Ending Volume

 Total Flow + (Beginning Volume + Ending Volume)/2

Net Flow = Node Inflow - Node Outflow

Total Flow = absolute (Inflow + Outflow)

Intermediate column is a judgement on the node continuity error.

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Excellent < 1 percent	Great 1 to 2 percent	Good 2 to 5 percent
Fair 5 to 10 percent	Poor 10 to 25 percent	Bad 25 to 50 percent
Terrible > 50 percent		

=====

Net Flow	Junction Total Flow	<-----Continuity Error ----->			Remaining	Beginning
Thru Node	Thru Node	Failed to Converge	% of Node	% of Inflow	Volume	Volume
-88.2651	Node13 358874.1435	-110.3018 92	-0.0307	0.0005	22.0367	0.0000
-81.9205	Node14 358713.9546	-94.0200 0	-0.0262	0.0004	12.0995	0.0000
-6.9084	Node15 358486.6088	-35.5447 0	-0.0099	0.0002	28.6362	0.0000
34.9530	Node16 358404.9916	8.9488 0	0.0025	0.0000	26.0041	0.0000
-55.3173	Node17 375984.9839	-68.5437 0	-0.0182	0.0003	13.2264	0.0000
-201.4521	Node19 1173357.072	-261.0716 0	-0.0222	0.0011	59.6195	0.0000
-0.8573	Node20 1173443.678	-51.8427 0	-0.0044	0.0002	50.9854	0.0000
-226.6079	Node21 1173551.537	-261.7930 0	-0.0223	0.0011	35.1851	0.0000
-124.8327	Node22 1173838.006	-138.9005 0	-0.0118	0.0006	14.0679	0.0000
	Node23	-281.5199	-0.0240	0.0012	26.1108	0.0000

Coupland_Exist10yr.out

-255.4091	1174168.180	0				
	Node24	-141.9007	-0.0121	0.0006	15.3245	0.0000
-126.5762	1174480.634	0				
	Node25	-199.3645	-0.0170	0.0009	4.6704	0.0000
-194.6941	1174747.527	0				
	Node26	-26.6537	-0.0023	0.0001	7.2571	0.0000
-19.3967	1174931.825	0				
	Node27	137.8114	0.0117	0.0006	14.4521	0.0000
152.2635	1174773.891	6				
	Node28	-8434.1221	-0.0183	0.0366	13.9790	0.0000
-8420.1431	46100308.07	4				
	Node31	-4186.9640	-0.0093	0.0182	7.4829	0.0000
-4179.4811	44917341.87	0				
	Node33	-15605.3461	-0.0338	0.0677	19.5470	0.0000
-15585.7991	46122262.83	0				
	Node35	-843.6617	-0.0019	0.0037	0.1378	0.0000
-843.5240	44916874.82	0				
	Node36	-41367.0496	-0.0896	0.1795	31.4849	0.0000
-41335.5647	46177507.15	0				
	Node37	-7362.3510	-0.0159	0.0319	18.7182	0.0000
-7343.6328	46224296.21	0				
	Node41	-65.0481	-0.0001	0.0003	0.3016	0.0000
-64.7465	46228881.96	138				
	Node18.1.1	-359.8249	-0.0585	0.0016	112.9233	0.0000

Coupland_Exist10yr.out

-246.9016 615362.2994

0

Node34.1.1 92.0330 0.0256 0.0004 135.5456 0.0000
 227.5785 359059.0638 89

Node39 -81.1286 -0.0782 0.0004 37.3998 0.0000
 -43.7288 103739.4377 0

The total continuity error was -79738. cubic feet
 The remaining total volume was 707.20 cubic feet
 Your mean node continuity error was Excellent
 Your worst node continuity error was Excellent

```

*=====*
| Table E19 - Junction Inflow & Outflow Listing |
| Units are either ft^3 or m^3 |
| depending on the units in your model. |
*=====*
    
```

Inflow through Outfall	RNF Layer Junction Inflow to Node	Constant Inflow from 2D Layer	User Inflow to Node from Node	Interface Inflow to Node from Node	DWF Inflow to Node Basin Infil.
0.0000	Node17 8853.1262	0.0000 0.0000	0.0000 0.0000	0.0000 0.0000	0.0000 0.00
0.0000	Node19 278837.8089	0.0000 0.0000	0.0000 0.0000	0.0000 0.0000	0.0000 0.00
0.0000	Node35 0.0000	0.0000 0.0000	22.4587E+06 0.0000	0.0000 0.0000	0.0000 0.00
0.0000	Node41 0.0000	0.0000 0.0000	0.0000 23.1136E+06	0.0000 0.0000	0.0000 0.00
0.0000	Node18.1.1 119645.0489	0.0000 0.0000	0.0000 0.0000	0.0000 0.0000	0.0000 0.00

Coupland_Exist10yr.out

0.0000	Node34.1.1	0.0000	0.0000	0.0000	0.0000
127748.9098		0.0000	0.0000	0.0000	0.00
0.0000	Node39	0.0000	0.0000	0.0000	0.0000
51845.6818		0.0000	0.0000	0.0000	0.00

```

*=====
| Table E20 - Junction Flooding and Volume Listing. |
| The maximum volume is the total volume |
| in the node including the volume in the |
| flooded storage area. This is the max |
| volume at any time. The volume in the |
| flooded storage area is the total volume |
| above the ground elevation, where the |
| flooded pond storage area starts. |
| The fourth column is instantaneous, the fifth is the |
| sum of the flooded volume over the entire simulation |
| Units are either ft^3 or m^3 depending on the units. |
*=====
  
```

2D cell	Junction Name	Surcharged Time (min)	Flooded Time(min)	Out of 1D-System (Flooded Volume)	Passed to OR in Pond of	
Volume Stored allowed Flood 1D-System				Maximum Volume		
-----	-----	-----	-----	-----	-----	
-----	-----	-----	-----	-----	-----	
	Node13	0.000	0.000	0.000	23.6	0.000
	Node14	0.000	0.000	0.000	23.9	0.000
	Node15	0.000	0.000	0.000	41.5	0.000
	Node16	0.000	0.000	0.000	41.7	0.000
	Node17	0.000	0.000	0.000	52.5	0.000
	Node19	0.000	0.000	0.000	62.9	0.000
	Node20	0.000	0.000	0.000	58.0	0.000
	Node21	0.000	0.000	0.000	56.9	0.000
	Node22	0.000	0.000	0.000	51.4	0.000
	Node23	0.000	0.000	0.000	54.7	0.000
	Node24	0.000	0.000	0.000	47.7	0.000
	Node25	0.000	0.000	0.000	44.5	0.000
	Node26	0.000	0.000	0.000	29.1	0.000

Coupland_Exist10yr.out

Node27	0.000	0.000	0.000	34.9	0.000
Node28	0.000	0.000	0.000	110.	0.000
Node31	0.000	0.000	0.000	111.	0.000
Node33	0.000	0.000	0.000	110.	0.000
Node35	0.000	0.000	0.000	111.	0.000
Node36	0.000	0.000	0.000	140.	0.000
Node37	0.000	0.000	0.000	146.	0.000
Node41	0.000	0.000	0.000	146.	0.000
Node18.1.1	0.000	0.000	0.000	119.	0.000
Node34.1.1	0.000	0.000	0.000	105.	0.000
Node39	0.000	0.000	0.000	20.0	0.000

*=====
 | Simulation Specific Information |
 =====

Number of Input Conduits.....	23	Number of Simulated Conduits.....
32		
Number of Natural Channels.....	15	Number of Junctions.....
24		
Number of Storage Junctions.....	0	Number of Weirs.....
8		
Number of Orifices.....	0	Number of Pumps.....
0		
Number of Free Outfalls.....	1	Number of Tide Gate Outfalls.....
0		

*=====
 | Average % Change in Junction or Conduit is defined as: |
 | Conduit % Change ==> 100.0 (Q(n+1) - Q(n)) / Qfull |
 | Junction % Change ==> 100.0 (Y(n+1) - Y(n)) / Yfull |
 =====

The Conduit with the largest average change was.. Link42.1.1 with
 0.002 percent
 The Junction with the largest average change was. Node34.1.1 with
 0.051 percent
 The Conduit with the largest sinuosity was..... 243.1 with
 4.772

*=====
 | Table E21. Continuity balance at the end of the simulation |
 | Junction Inflow, Outflow or Street Flooding |
 | Error = Inflow + Initial Volume - Outflow - Final Volume |
 =====

Inflow	Inflow	Average
--------	--------	---------

Coupland_Exist10yr.out

Junction	Volume,ft^3	Inflow, cfs
Node17	8853.6732	0.0512
Node19	278851.6367	1.6137
Node35	22458717.8952	129.9694
Node18.1.1	119652.0648	0.6924
Node34.1.1	127756.3904	0.7393
Node39	51848.4364	0.3000
Node41	-23113649.5403	-133.7595
Outflow Junction	Outflow Volume,ft^3	Average Outflow, cfs
Node41	23113649.5403	133.7595

=====

| Initial system volume = 0.0000 Cu Ft |

| Total system inflow volume = 23.045621E+06 Cu Ft |

| Inflow + Initial volume = 23.045621E+06 Cu Ft |

=====

| Total system outflow = 23.113650E+06 Cu Ft |

| Volume left (Final volume) = 707.1956 Cu Ft |

| Evaporation = 0.0000 Cu Ft |

Coupland_Exist10yr.out
| Basin Infiltration = 0.0000 Cu Ft |

| Outflow + Final Volume = 23.114357E+06 Cu Ft |

=====

=====

Total Model Continuity Error	
Error in Continuity, Percent =	-0.2983
Error in Continuity, ft^3 =	-68736.112
+ Error means a continuity loss, - a gain	

=====

Table E22. Numerical Model judgement section #
#####

Overall error was (minimum of Table E18 & E21) -0.2983 percent

Worst nodal error was in node Node36 with -0.0896 percent

Of the total inflow this loss was 0.1795 percent

Your overall continuity error was Excellent

Coupland_Exist10yr.out

Poor Efficiency

Efficiency of the simulation 10.18

Most Number of Non Convergences at one Node 138.

Total Number Non Convergences at all Nodes 329.

Total Number of Nodes with Non Convergences 5.

```
#####  
# Table E23. New Basin Design Information #  
# Maximum Hydraulic Grade Line, #  
# Out Conduit Sizes and Maximum Flow #  
#####
```

Coupland_Exist10yr.out

- A) Resize d/s Pipes based on given HGL
- B) Resize Basin based on given HGL
- C) Resize d/s Pipes and Basin based on HGL and max discharge
- D) Resize d/s pipes based on given max discharge

Basin Name	Type	Max.HGL	Conduit	Depth	Width
Barrels	Max.Flow	(ft)		(ft)	(ft)
(ft ³ /s)					

====> Hydraulic model simulation ended normally.
====> XP-SWMM Simulation ended normally.

====> Your input file was named : D:\cfa\2016\12024.Coupland_Paving_and Drainage\ENG\H&H\SWMM\Coupland_Exist10yr.DAT

====> Your output file was named : D:\cfa\2016\12024.Coupland_Paving_and Drainage\ENG\H&H\SWMM\Coupland_Exist10yr.out

```
*=====*
```

SWMM Simulation Date and Time Summary			
Starting Date...	July	18, 2017	Time... 09:25:05.391
Ending Date...	July	18, 2017	Time... 09:25:34.286
Elapsed Time...	0.44271 minutes or		26.56250 seconds

```
*=====*
```

Coupland_Exist100yr.out
Current Directory: C:\PROGRA~2\XPSOLU~1\XPSTOR~1.1
Engine Name: C:\PROGRA~2\XPSOLU~1\XPSTOR~1.1\SWMMEN~2.EXE

Input File : .Coupland_Paving_and Drainage\ENG\H&H\SWMM\Coupland_Exist100yr.XP

```
*=====*
```

xpswmm	
Storm and Wastewater Management Model	
Developed by XP Solutions Inc.	
=====	
Last Update	: October, 2015
Interface Version:	2016
Engine Version	: 12.0
Data File Version:	12.62

```
*=====*
```

Engine Name: C:\PROGRA~2\XPSOLU~1\XPSTOR~1.1\SWMMEN~2.EXE

```
*=====*
```

Input and Output file names by Layer	
--------------------------------------	--

```
*=====*
```

Input File to Layer # 1 JOT.US

Output File to Layer # 1 JOT.US

Input File to Layer # 2 JOT.US

Output File to Layer # 2 JOT.US

```

=====
Configuration Parameters
Configuration Parameters, both those that are hardwired
and those added to the simulation are listed below.
Configuration Parameters that start with a $ are set in
the engine as defaults. The remaining in UPPERCASE
have been added to the simulation in the Configuration->
Configuration Parameters dialog or as Engine Defaults in
the SWMXP.INI file.

Consult the Help File for the specific meaning/purpose
of any particular parameter.

Note:
The second column denotes the value of the parameter.
=====

```

\$powerstation	0.0000	1	2
\$perv	0.0000	0	4
\$oldegg	0.0000	0	7
\$as	0.0000	0	11
\$noflat	0.0000	0	21
\$oldomega	0.0000	0	24
\$oldvol	0.0000	1	28
\$implicit	0.0000	1	29
\$oldhot	0.0000	1	31
\$oldscs	0.0000	0	33
\$flood	0.0000	1	40
\$nokeys	0.0000	0	42
\$pzero	0.0000	0	55
\$oldvol2	0.0000	2	59
\$storage2	0.0000	3	62
\$oldhot1	0.0000	1	63
\$pumpwt	0.0000	1	70
\$ecloss	0.0000	1	77
\$exout	0.0000	0	97
\$spatial = 0.90	0.9000	5	124
\$djref = -1.0	-0.1000	3	143
\$weirlen = 50	50.0000	1	153
\$oldbnd	0.0000	1	154
\$nogrelev	0.0000	1	161
\$ncmid	0.0000	0	164
\$new_n1_97	0.0000	2	290
SCSIADDEPTH=ON	0.0000	1	293
\$best97	0.0000	1	294

Coupland_Exist100yr.out

\$newbound	0.0000	1	295
\$q_tol = 0.01	0.0001	1	316
\$new_storage	0.0000	1	322
\$old_iteration	0.0000	1	333
MINLEN=10	10.0000	1	346
\$review_elevation	0.0000	1	383
\$use_half_volume	0.0000	1	385
VERT_WALLS=ON	0.0000	1	389
\$min_ts = 1.0	1.0000	1	407
\$design_restart = on	0.0000	1	412
\$zero_value=1.e-05	0.0000	1	415
SUBCATCHMENT_RES=ON	0.0000	1	419
\$relax_depth = on	0.0000	1	427
\$saveallpts = on	0.0000	1	434
\$channel_geometry=1	0.0000	1	456

```

*=====
| All object names are less than 20 characters. |
| No name substitutions required! |
*=====
  
```

```

*=====
| Parameter Values on the Tapes Common Block. These are the |
| values read from the data file and dynamically allocated |
| by the model for this simulation. |
*=====
  
```

Number of Subcatchments in the Runoff Block (NW)....	5
Number of Channel/Pipes in the Runoff Block (NG)....	0
Runoff Water quality constituents (NRQ).....	0
Runoff Land Uses per Subcatchment (NLU).....	0
Number of Elements in the Transport Block (NET).....	0
Number of Storage Junctions in Transport (NTSE).....	0
Number of Input Hydrographs in Transport (NTH).....	0
Number of Elements in the Extran Block (NEE).....	32
Number of Groundwater Subcatchments in Runoff (NGW).	0
Number of Interface locations for all Blocks (NIE)..	32
Number of Pumps in Extran (NEP).....	0
Number of Orifices in Extran (NEO).....	0
Number of Tide Gates/Free Outfalls in Extran (NTG)..	1
Number of Extran Weirs (NEW).....	8
Number of scs hydrograph points.....	3457
Number of Extran printout locations (NPO).....	0
Number of Tide elements in Extran (NTE).....	1
Number of Natural channels (NNC).....	15
Number of Storage junctions in Extran (NVSE).....	0
Number of Time history data points in Extran(NTVAL).	0

Coupland_Exist100yr.out

```

Default evaporation rate used - IVAP..... 0
Hour of day at start of storm - NHR..... 0
Minute of hour at start of storm - NMN..... 0
Time TZERO at start of storm (hours)..... 0.000
Use U.S. Customary units for most I/O - METRIC... 0
Runoff input print control... 0
Runoff graph plot control.... 0
Runoff output print control.. 0
Limit number of groundwater convergence messages to 10000

Print headers every 50 lines - NOHEAD (0=yes, 1=no) 0

Print land use load percentages -LANDUPR (0=no, 1=yes) 0
Month, day, year of start of storm is: 1/ 1/2016
Wet time step length (seconds)..... 60.0
Dry time step length (seconds)..... 86400.0
Wet/Dry time step length (seconds)... 60.0
Simulation length is..... 48.0 Hours

```

```

If Horton infiltration model is being used
A mixture of infiltration options may be used in
XP-SWMM as a watershed specific option.
Rate for regeneration of infiltration = REGEN * DECAY
Decay is read in for each subcatchment
REGEN = ..... 0.01000

```

```

Raingage #..... 1
KTYPE - Rainfall input type..... 0
NHISTO - Total number of rainfall values.. 898
KINC - Rainfall values(pairs) per line.. 10
KPRINT - Print rainfall(0-Yes,1-No)..... 0
KTIME - Precipitation time units
0 --> Minutes 1 --> Hours..... 0
KPREP - Precipitation unit type
0 --> Intensity 1 --> Volume..... 1
KTHIS - Variable rainfall intervals
0 --> No, >= 1 --> Yes..... 0
THISTO - Rainfall time interval..... 5.00
TZRAIN - Starting time(KTIME units)..... 0.00

```

```

#####
# Rainfall input summary from Runoff #
#####

```

Total rainfall for gage # 1 is 13.5100 inches

Coupland_Exist100yr.out

```
#####
#           Data Group F1           #
# Evaporation Rate (in/day) #
#####
```

```
JAN.  FEB.  MAR.  APR.  MAY   JUN.  JUL.  AUG.  SEP.  OCT.  NOV  DEC.
-----
0.100 0.100 0.100 0.100 0.100 0.100 0.100 0.100 0.100 0.100 0.100 0.100
```

```
#####
# Table R1.  S U B C A T C H M E N T  D A T A  #
#           Physical Hydrology Data           #
#####
```

Deprs					Deprs Prcnt			
"n"	"n"	Storage	Strge	Deten	Channel	Width	Area	Per-
Number	Imprv	Perv	Imprv	Perv	or inlet	(ft)	(ac)	cent
				-tion				Slope
								Imperv
								ft/ft
1	0.014	0.030	0.000	0.000	Node39#1	16.000	2.2700	50.00
				25.00				0.002
2	0.014	0.030	0.000	0.000	Node34.1.1#1	44.300	5.2000	67.00
				25.00				0.002
3	0.014	0.030	0.000	0.000	Node17#1	3.4000	.36000	67.00
				25.00				0.002
4	0.014	0.030	0.000	0.000	Node18.1.1#1	41.600	4.8700	67.00
				25.00				0.002
5	0.014	0.030	0.000	0.000	Node19#1	76.500	12.240	50.00
				25.00				0.002

```
#####
#####
#           Table R2.  SUBCATCHMENT  DATA
#
#           Infiltration or Time of Concentration Data
#
#
# Infiltration Type           Infl #1(#5)           Infl #2(#6)           Infl #3(#7)
#           Infl #4(#8) #
# SCS           ->   Comp CN           Time Conc           Shape Factor
```

Coupland_Exist100yr.out

```

Depth or Fraction #
# SBUH          ->  Comp CN          Time Conc          N/A
          N/A #
# Green Ampt    ->  Suction          Hydr Cond          Initial MD
          N/A #
# Horton        ->  Max Rate          Min Rate          Decay Rate (1/sec)
Max. Infiltr. Volume #
# Proportional ->  Constant          N/A          N/A
          N/A #
# Initial/Cont Loss ->  Initial          Continuing          N/A
          N/A #
# Initial/Proportional ->  Initial          Constant          N/A
          N/A #
# Laurenson Parameters ->  B Value          Pervious "n"          Impervious Cont
          Exponent #
# Rational Formula ->  Tc Method          Flow Path Length          Flow Path Slope
Roughness or Retardance #
#
#              (#1 - #4 is Impervious Data / #5 - #8 is Pervious
Data)          #
#              Rational Formula Tc Method: 1 = Constant
#              #
#              #              2 = Friend's Equation
#              #              3 = Kinematic Wave
#              #              4 = Alameda Method
#              #              5 = Izzard's Formula
#              #              6 = Kerby's Equation
#              #              7 = Kirpich's Equation
#              #              8 = Bransby Williams Equation
#              #              9 = Federal Aviation Authority
Equation          #

```


#####

Infl	Subcatchment	Infl	Infl	Infl	Infl	Infl	
Number	Infl	Name	# 1	# 2	# 3	# 4	# 5
6	# 7	# 8					#
1	Node39#1		12.450	0.024	0.385		
2	Node34.1.1#1		12.450	0.024	0.385		

Coupland_Exist100yr.out

3	Node17#1	12.450	0.024	0.385
4	Node18.1.1#1	12.450	0.024	0.385
5	Node19#1	12.450	0.024	0.385

```
#####
# Table R3. SUBCATCHMENT DATA #
# Rainfall and Infiltration Database Names #
#####
```

Subcatchment Number	Name	Gage No	Infiltration Type	Routing Type
1	Node39#1	1	Green Ampt	Non-linear reservoir
2	Node34.1.1#1	1	Green Ampt	Non-linear reservoir
3	Node17#1	1	Green Ampt	Non-linear reservoir
4	Node18.1.1#1	1	Green Ampt	Non-linear reservoir
5	Node19#1	1	Green Ampt	Non-linear reservoir

```
Total Number of Subcatchments... 5
Total Tributary Area (acres).... 24.94
Impervious Area (acres)..... 14.24
Pervious Area (acres)..... 10.70
Total Width (feet)..... 181.80
Impervious Area (%)..... 57.11
```

```
#####
# SUBCATCHMENT DATA #
# Default, Ratio values for subcatchment data #
# Used with the calibrate node in the runoff. #
# 1 - width 2 - area 3 - impervious % #
# 4 - slope 5 - imp "n" 6 - perv "n" #
# 7 - imp ds 8 - perv ds 9 - 1st infil #
#10 - 2nd infil 11 - 3rd infil #
#####
```

Column	1	2	3	4	5	6	7
8	9	10	11				
Default	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
0.0000	0.0000	0.0000	0.0000				
Ratio	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
1.0000	1.0000	1.0000	1.0000				

```
*****
* Arrangement of Subcatchments and Channel/Pipes *
*****
```

Coupland_Exist100yr.out

```

Inlet
Node39          No Tributary Channel/Pipes
                 Tributary Subareas..... Node39#1
Node34.1.1      No Tributary Channel/Pipes
                 Tributary Subareas..... Node34.1.1#1
Node17          No Tributary Channel/Pipes
                 Tributary Subareas..... Node17#1
Node18.1.1      No Tributary Channel/Pipes
                 Tributary Subareas..... Node18.1.1#1
Node19          No Tributary Channel/Pipes
                 Tributary Subareas..... Node19#1

```

```

*****
* Hydrographs will be stored for the following 5 INLETS *
*****
Node39          Node34.1.1          Node17
Node18.1.1      Node19

```

```

*****
* Quality Simulation not included in this run *
*****

```

```

*****
* Precipitation Interface File Summary *
* Number of precipitation station... 1 *
*****

```

```

Location Station Number
-----
          1.          1

```

XXX End of Header Section XXX

```

#####
# Entry made to the HYDRAULIC Layer of XP-SWMM #
# Last Updated in June, 2014 by XP Solutions #

```

```

#####
# Entry made to the Runoff Layer(Block) of SWMM #
# Last Updated June, 2014 by XP Solutions #

```

=====

Coupland_Exist100yr.out

RUNOFF TABLES IN THE OUTPUT FILE.

These are the more important tables in the output file. You can use your editor to find the table numbers, for example: search for Table R3 to check continuity. This output file can be imported into a Word Processor and printed on US letter or A4 paper using portrait mode, courier font, a size of 8 pt. and margins of 0.75

- Table R1 - Physical Hydrology Data
- Table R2 - Infiltration data
- Table R3 - Raingage and Infiltration Database Names
- Table R4 - Groundwater Data
- Table R5 - Continuity Check for Surface Water
- Table R6 - Continuity Check for Channels/Pipes
- Table R7 - Continuity Check for Subsurface Water
- Table R8 - Infiltration/Inflow Continuity Check
- Table R9 - Summary Statistics for Subcatchments
- Table R10 - Sensitivity anlysis for Subcatchments

=====

A1

RUNOFF JOB CONTROL #
#####

```

Snowmelt parameter - ISNOW..... 0
Number of rain gages - NRGAG..... 1
Quality is not simulated - KWALTY..... 0
Default evaporation rate used - IVAP..... 0
Hour of day at start of storm - NHR..... 0
Minute of hour at start of storm - NMN..... 0
Time TZERO at start of storm (hours)..... 0.000
Use U.S. Customary units for most I/O - METRIC... 0
Runoff input print control... 0
Runoff graph plot control.... 0
Runoff output print control.. 0
Limit number of groundwater convergence messages to 10000

Print headers every 50 lines - NOHEAD (0=yes, 1=no) 0

Print land use load percentages -LANDUPR (0=no, 1=yes) 0
Month, day, year of start of storm is: 1/ 1/2016
Wet time step length (seconds)..... 60.0
Dry time step length (seconds)..... 86400.0
Wet/Dry time step length (seconds)... 60.0

```

Simulation length is.....

48.0 Hours

If Horton infiltration model is being used
 A mixture of infiltration options may be used in
 XP-SWMM as a watershed specific option.
 Rate for regeneration of infiltration = REGEN * DECAY
 Decay is read in for each subcatchment
 REGEN = 0.01000

Raingage #..... 1
 KTYPE - Rainfall input type..... 0
 NHISTO - Total number of rainfall values.. 898
 KINC - Rainfall values(pairs) per line.. 10
 KPRINT - Print rainfall(0-Yes,1-No)..... 0
 KTIME - Precipitation time units
 0 --> Minutes 1 --> Hours..... 0
 KPREP - Precipitation unit type
 0 --> Intensity 1 --> Volume..... 1
 KTHIS - Variable rainfall intervals
 0 --> No, >= 1 --> Yes..... 0
 THISTO - Rainfall time interval..... 5.00
 TZRAIN - Starting time(KTIME units)..... 0.00

 # Rainfall input summary from Runoff #
 #####

Total rainfall for gage # 1 is 13.5100 inches

 # Data Group F1 #
 # Evaporation Rate (in/day) #
 #####

JAN.	FEB.	MAR.	APR.	MAY	JUN.	JUL.	AUG.	SEP.	OCT.	NOV	DEC.
0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.100

 # Table R1. S U B C A T C H M E N T D A T A #
 # Physical Hydrology Data #
 #####

Deprs Deprs Prcnt

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"n" Number	"n" Storage	"n" Storge	Zero Deten	Channel or inlet	Width (ft)	Area (ac)	Per-cent Imperv	Slope ft/ft
1	Node39#1	Node39	16.000	2.2700	50.00	0.002		
2	Node34.1.1#1	Node34.1.1	44.300	5.2000	67.00	0.002		
3	Node17#1	Node17	3.4000	.36000	67.00	0.002		
4	Node18.1.1#1	Node18.1.1	41.600	4.8700	67.00	0.002		
5	Node19#1	Node19	76.500	12.240	50.00	0.002		

#####

Table R2. SUBCATCHMENT DATA

```

#
# Infiltration or Time of Concentration Data
#
#
# Infiltration Type           Infl #1(#5)           Infl #2(#6)           Infl #3(#7)
# Infl #4(#8) #
# SCS                         ->  Comp CN           Time Conc           Shape Factor
# SBUH                         ->  Comp CN           Time Conc           N/A
# Green Ampt                   ->  Suction           Hydr Cond           Initial MD
# Horton                       ->  Max Rate           Min Rate           Decay Rate (1/sec)
# Proportional                 ->  Constant           N/A           N/A
# Initial/Cont Loss            ->  Initial           Continuing           N/A
# Initial/Proportional        ->  Initial           Constant           N/A
# Laurenson Parameters        ->  B Value           Pervious "n"           Impervious Cont
# Rational Formula            ->  Tc Method           Flow Path Length           Flow Path Slope
# Roughness or Retardance #

```

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(#1 - #4 is Impervious Data / #5 - #8 is Pervious

```
#
Data)      #
#          # Rational Formula Tc Method: 1 = Constant
#          #
#          # 2 = Friend's Equation
#          #
#          # 3 = Kinematic Wave
#          #
#          # 4 = Alameda Method
#          #
#          # 5 = Izzard's Formula
#          #
#          # 6 = Kerby's Equation
#          #
#          # 7 = Kirpich's Equation
#          #
#          # 8 = Bransby Williams Equation
#          #
#          # 9 = Federal Aviation Authority
Equation   #
```


#####

Subcatchment	Infl	Infl	Infl	Infl	Infl			
Infl	Infl	Infl	# 1	# 2	# 3	# 4	# 5	#
Number	Name							
6	# 7	# 8						
1	Node39#1		12.450	0.024	0.385			
2	Node34.1.1#1		12.450	0.024	0.385			
3	Node17#1		12.450	0.024	0.385			
4	Node18.1.1#1		12.450	0.024	0.385			
5	Node19#1		12.450	0.024	0.385			

Table R3. SUBCATCHMENT DATA #
Rainfall and Infiltration Database Names #
#####

Subcatchment	Gage	Infiltration	Routing
Number	No	Type	Type
1	1	Green Ampt	Non-linear reservoir
2	1	Green Ampt	Non-linear reservoir
3	1	Green Ampt	Non-linear reservoir
4	1	Green Ampt	Non-linear reservoir

5 Node19#1 1 Green Ampt Non-linear reservoir

```

Total Number of Subcatchments...      5
Total Tributary Area (acres)....      24.94
Impervious Area (acres).....          14.24
Pervious Area (acres).....            10.70
Total Width (feet).....                181.80
Impervious Area (%).....               57.11

```

```

#####
#           S U B C A T C H M E N T   D A T A           #
#   Default, Ratio values for subcatchment data         #
#   Used with the calibrate node in the runoff.         #
# 1 - width      2 - area      3 - impervious %         #
# 4 - slope      5 - imp "n"   6 - perv "n"           #
# 7 - imp ds     8 - perv ds   9 - 1st infil          #
#10 - 2nd infil          11 - 3rd infil          #
#####

```

Column	1	2	3	4	5	6	7
8	9	10	11				
Default	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
0.0000	0.0000	0.0000	0.0000				
Ratio	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
1.0000	1.0000	1.0000	1.0000				

```

*****
*   Arrangement of Subcatchments and Channel/Pipes   *
*****

```

```

      Inlet
Node39          No Tributary Channel/Pipes
                Tributary Subareas..... Node39#1
Node34.1.1     No Tributary Channel/Pipes
                Tributary Subareas..... Node34.1.1#1
Node17         No Tributary Channel/Pipes
                Tributary Subareas..... Node17#1
Node18.1.1     No Tributary Channel/Pipes
                Tributary Subareas..... Node18.1.1#1
Node19         No Tributary Channel/Pipes
                Tributary Subareas..... Node19#1

```

```

*****
* Hydrographs will be stored for the following 5 INLETS *
*****

```

Node39
Node18.1.1

Node34.1.1
Node19

Node17

* Quality Simulation not included in this run *

* Precipitation Interface File Summary *
* Number of precipitation station.... 1 *

Location Station Number

1. 1

A1

| HYDRAULICS TABLES IN THE OUTPUT FILE |
| These are the more important tables in the output file. |
| You can use your editor to find the table numbers, |
| for example: search for Table E20 to check continuity. |
| This output file can be imported into a Word Processor |
| and printed on US letter or A4 paper using portrait |
| mode, courier font, a size of 8 pt. and margins of 0.75 |
| Table E1 - Basic Conduit Data |
| Table E2 - Conduit Factor Data |
| Table E3a - Junction Data |
| Table E3b - Junction Data |
| Table E4 - Conduit Connectivity Data |
| Table E4a - Dry Weather Flow Data |
| Table E4b - Real Time Control Data |
| Table E5 - Junction Time Step Limitation Summary |
| Table E5a - Conduit Explicit Condition Summary |
| Table E6 - Final Model Condition |
| Table E7 - Iteration Summary |
| Table E8 - Junction Time Step Limitation Summary |

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	Table E9	- Junction Summary Statistics	
	Table E10	- Conduit Summary Statistics	
	Table E11	- Area assumptions used in the analysis	
	Table E12	- Mean conduit information	
	Table E13	- Channel losses(H) and culvert info	
	Table E13a	- Culvert Analysis Classification	
	Table E14	- Natural Channel Overbank Flow Information	
	Table E14a	- Natural Channel Encroachment Information	
	Table E14b	- Floodplain Mapping	
	Table E15	- Spreadsheet Info List	
	Table E15a	- Spreadsheet Reach List	
	Table E16	- New Conduit Output Section	
	Table E17	- Pump Operation	
	Table E18	- Junction Continuity Error	
	Table E19	- Junction Inflow & Outflow Listing	
	Table E20	- Junction Flooding and Volume List	
	Table E21	- Continuity balance at simulation end	
	Table E22	- Model Judgement Section	

=====

Time Control from Hydraulics Job Control

Year.....	2014 Month.....	1
Day.....	1 Hour.....	0
Minute.....	0 Second.....	0

Control information for simulation

Integration cycles.....	1728
Length of integration step is.....	100.00 seconds
Simulation length.....	48.00 hours
Do not create equiv. pipes(NEQUAL).	0
Use U.S. customary units for I/O...	0
Printing starts in cycle.....	1
Intermediate printout intervals of.	500 cycles
Intermediate printout intervals of.	833.33 minutes
Summary printout intervals of.....	500 cycles
Summary printout time interval of..	833.33 minutes
Hot start file parameter (REDO)....	0
Initial time.....	0.00 hours

Iteration variables: Flow Tolerance.	0.00010
Head Tolerance.	0.00050
Minimum depth (m or ft).....	0.00001
Underrelaxation parameter.....	0.85000
Time weighting parameter.....	0.85000
Conduit roughness factor.....	1.00000

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Flow adjustment factor..... 1.00000
 Initial Condition Smoothing..... 0
 Courant Time Step Factor..... 1.00000
 Default Expansion/Contraction K. 0.00000
 Default Entrance/Exit K..... 0.00000
 Routing Method..... Dynamic Wave
 Default surface area of junctions... 12.57 square feet.
 Minimum Junction/Conduit Depth..... 0.00001 feet.
 Ponding Area Coefficient..... 5000.00
 Ponding Area Exponent..... 1.0000
 Minimum Orifice Length..... 1000.00 feet.
 NJSW input hydrograph junctions..... 1
 or user defined hydrographs....

Natural Cross-Section information for Channel Link14

=====

Cross-Section ID (from X1 card) : 1.0 Channel sequence number : 1

Left Overbank Length : 68.4 ft Maximum Elevation :
 25.09 ft.
 Main Channel Length : 68.4 ft Maximum Depth :
 4.82 ft.
 Right Overbank Length : 68.4 ft Maximum Section Area :
 78.2500 ft^2 Maximum hydraulic radius :
 1.63 ft.
 Manning N : 0.040 to Station 5.0 Max topwidth :
 45.00 ft.
 " " : 0.040 in main Channel Maximum Wetted Perimeter :
 4.80E+01 ft
 " " : 0.015 Beyond station 25.0 Max left bank area :
 9.80 ft^2 Max right bank area :
 6.02 ft^2
 Allowable Encroachment Depth : 0.00 ft Max center channel area :
 62.4250 ft^2

Natural Cross-Section information for Channel Link16

=====

Cross-Section ID (from X1 card) : 2.0 Channel sequence number : 2

Left Overbank Length : 22.9 ft Maximum Elevation :
 25.09 ft.
 Main Channel Length : 22.9 ft Maximum Depth :
 4.82 ft.
 Right Overbank Length : 22.9 ft Maximum Section Area :
 78.2500 ft^2 Maximum hydraulic radius :

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1.63 ft.
Manning N : 0.040 to Station 5.0 Max topwidth :
45.00 ft.
" " : 0.040 in main Channel Maximum Wetted Perimeter :
4.80E+01 ft
" " : 0.015 Beyond station 25.0 Max left bank area :
9.80 ft^2
Max right bank area :
6.02 ft^2
Allowable Encroachment Depth : 0.00 ft Max center channel area :
62.4250 ft^2

Natural Cross-Section information for Channel Link18

=====

Cross-Section ID (from X1 card) : 3.0 Channel sequence number : 3

Left Overbank Length : 243.1 ft Maximum Elevation :
25.09 ft.
Main Channel Length : 243.1 ft Maximum Depth :
4.82 ft.
Right Overbank Length : 243.1 ft Maximum Section Area :
78.2500 ft^2
Maximum hydraulic radius :
1.63 ft.
Manning N : 0.040 to Station 5.0 Max topwidth :
45.00 ft.
" " : 0.040 in main Channel Maximum Wetted Perimeter :
4.80E+01 ft
" " : 0.015 Beyond station 25.0 Max left bank area :
9.80 ft^2
Max right bank area :
6.02 ft^2
Allowable Encroachment Depth : 0.00 ft Max center channel area :
62.4250 ft^2

Natural Cross-Section information for Channel Link20

=====

Cross-Section ID (from X1 card) : 4.0 Channel sequence number : 4

Left Overbank Length : 117.5 ft Maximum Elevation :
25.20 ft.
Main Channel Length : 117.5 ft Maximum Depth :
5.02 ft.
Right Overbank Length : 117.5 ft Maximum Section Area :
85.7750 ft^2
Maximum hydraulic radius :
2.00 ft.
Manning N : 0.040 to Station 5.0 Max topwidth :

Coupland_Exist100yr.out

40.00 ft.
 " " : 0.040 in main Channel Maximum Wetted Perimeter :
 4.28E+01 ft
 " " : 0.015 Beyond station 25.0 Max left bank area :
 10.40 ft^2
 Max right bank area :
 5.38 ft^2
 Allowable Encroachment Depth : 0.00 ft Max center channel area :
 70.0000 ft^2

Natural Cross-Section information for Channel Link22

=====

Cross-Section ID (from X1 card) : 5.0 Channel sequence number : 5

Left Overbank Length : 282.4 ft Maximum Elevation :
 25.00 ft.
 Main Channel Length : 282.4 ft Maximum Depth :
 5.35 ft.
 Right Overbank Length : 282.4 ft Maximum Section Area :
 128.5750 ft^2
 Maximum hydraulic radius :
 2.43 ft.
 Manning N : 0.040 to Station 5.0 Max topwidth :
 50.00 ft.
 " " : 0.040 in main Channel Maximum Wetted Perimeter :
 5.30E+01 ft
 " " : 0.015 Beyond station 35.0 Max left bank area :
 10.10 ft^2
 Max right bank area :
 8.50 ft^2
 Allowable Encroachment Depth : 0.00 ft Max center channel area :
 109.9750 ft^2

Natural Cross-Section information for Channel Link24

=====

Cross-Section ID (from X1 card) : 6.0 Channel sequence number : 6

Left Overbank Length : 280.1 ft Maximum Elevation :
 25.00 ft.
 Main Channel Length : 280.1 ft Maximum Depth :
 6.11 ft.
 Right Overbank Length : 280.1 ft Maximum Section Area :
 112.8500 ft^2
 Maximum hydraulic radius :
 2.32 ft.
 Manning N : 0.040 to Station 10.0 Max topwidth :
 45.00 ft.
 " " : 0.040 in main Channel Maximum Wetted Perimeter :

Coupland_Exist100yr.out

4.86E+01 ft
 " " : 0.015 Beyond station 30.0 Max left bank area :
 21.17 ft^2
 Max right bank area :
 12.10 ft^2
 Allowable Encroachment Depth : 0.00 ft Max center channel area :
 79.5750 ft^2

Natural Cross-Section information for Channel Link26

=====

Cross-Section ID (from X1 card) : 7.0 Channel sequence number : 7

Left Overbank Length : 38.8 ft Maximum Elevation :
 25.00 ft.
 Main Channel Length : 38.8 ft Maximum Depth :
 6.39 ft.
 Right Overbank Length : 38.8 ft Maximum Section Area :
 123.8687 ft^2
 Maximum hydraulic radius :
 3.11 ft.
 Manning N : 0.040 to Station 5.6 Max topwidth :
 35.57 ft.
 " " : 0.040 in main Channel Maximum Wetted Perimeter :
 3.98E+01 ft
 " " : 0.015 Beyond station 25.4 Max left bank area :
 17.71 ft^2
 Max right bank area :
 14.63 ft^2
 Allowable Encroachment Depth : 0.00 ft Max center channel area :
 91.5279 ft^2

Natural Cross-Section information for Channel Link31

=====

Cross-Section ID (from X1 card) : 8.0 Channel sequence number : 8

Left Overbank Length : 240.3 ft Maximum Elevation :
 27.85 ft.
 Main Channel Length : 199.7 ft Maximum Depth :
 16.36 ft.
 Right Overbank Length : 181.6 ft Maximum Section Area :
 28065.25 ft^2
 Maximum hydraulic radius :
 3.71 ft.
 Manning N : 0.070 to Station 4659.6 Max topwidth :
 7554.14 ft.
 " " : 0.032 in main Channel Maximum Wetted Perimeter :
 7.56E+03 ft
 " " : 0.070 Beyond station 4835.3 Max left bank area :
 Max right bank area :
 Max center channel area :

Coupland_Exist100yr.out

19000.27 ft^2

Max right bank area :

7493.03 ft^2

Allowable Encroachment Depth : 0.00 ft

Max center channel area :

1571.950 ft^2

Natural Cross-Section information for Channel Link33

=====

Cross-Section ID (from X1 card) : 9.0 Channel sequence number : 9

Left Overbank Length : 169.1 ft Maximum Elevation :
29.46 ft.

Main Channel Length : 192.7 ft Maximum Depth :
17.97 ft.

Right Overbank Length : 192.5 ft Maximum Section Area :
30196.69 ft^2

Maximum hydraulic radius :

4.88 ft.

Manning N : 0.070 to Station 3428.2 Max topwidth :

6181.63 ft.

" " : 0.032 in main Channel Maximum Wetted Perimeter :

6.19E+03 ft

" " : 0.070 Beyond station 3547.3 Max left bank area :

17628.50 ft^2

Max right bank area :

11171.67 ft^2

Allowable Encroachment Depth : 0.00 ft

Max center channel area :

1396.517 ft^2

Natural Cross-Section information for Channel Link34

=====

Cross-Section ID (from X1 card) : 10.0 Channel sequence number : 10

Left Overbank Length : 49.2 ft Maximum Elevation :
25.09 ft.

Main Channel Length : 49.2 ft Maximum Depth :
4.82 ft.

Right Overbank Length : 49.2 ft Maximum Section Area :
78.2500 ft^2

Maximum hydraulic radius :

1.63 ft.

Manning N : 0.040 to Station 5.0 Max topwidth :

45.00 ft.

" " : 0.040 in main Channel Maximum Wetted Perimeter :

4.80E+01 ft

" " : 0.015 Beyond station 25.0 Max left bank area :

9.80 ft^2

Max right bank area :

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6.02 ft²
Allowable Encroachment Depth : 0.00 ft Max center channel area :
62.4250 ft²

Natural Cross-Section information for Channel Link36

=====

Cross-Section ID (from X1 card) : 11.0 Channel sequence number : 11

Left Overbank Length : 492.1 ft Maximum Elevation :
29.46 ft.
Main Channel Length : 499.4 ft Maximum Depth :
17.97 ft.
Right Overbank Length : 512.7 ft Maximum Section Area :
30714.99 ft² Maximum hydraulic radius :
4.83 ft.
Manning N : 0.070 to Station 3592.7 Max topwidth :
6305.50 ft.
" " : 0.032 in main Channel Maximum Wetted Perimeter :
6.36E+03 ft
" " : 0.070 Beyond station 3741.1 Max left bank area :
18443.26 ft² Max right bank area :
10717.92 ft²
Allowable Encroachment Depth : 0.00 ft Max center channel area :
1553.814 ft²

Natural Cross-Section information for Channel Link37

=====

Cross-Section ID (from X1 card) : 12.0 Channel sequence number : 12

Left Overbank Length : 740.0 ft Maximum Elevation :
28.05 ft.
Main Channel Length : 745.4 ft Maximum Depth :
19.03 ft.
Right Overbank Length : 747.9 ft Maximum Section Area :
27584.49 ft² Maximum hydraulic radius :
3.59 ft.
Manning N : 0.070 to Station 4926.5 Max topwidth :
7672.71 ft.
" " : 0.032 in main Channel Maximum Wetted Perimeter :
7.68E+03 ft
" " : 0.070 Beyond station 5115.9 Max left bank area :
20807.75 ft² Max right bank area :
5154.22 ft²
Allowable Encroachment Depth : 0.00 ft Max center channel area :

Coupland_Exist100yr.out

1622.518 ft^2

Natural Cross-Section information for Channel Link42.1.1

=====

Cross-Section ID (from X1 card) : 13.0 Channel sequence number : 13

Left Overbank Length	:	20.3 ft	Maximum Elevation	:
28.40 ft.				
Main Channel Length	:	20.0 ft	Maximum Depth	:
19.94 ft.				
Right Overbank Length	:	20.1 ft	Maximum Section Area	:
31373.45 ft^2			Maximum hydraulic radius	:
4.17 ft.				
Manning N	:	0.070 to Station 4877.5	Max topwidth	:
7515.52 ft.				
" "	:	0.032 in main Channel	Maximum Wetted Perimeter	:
7.52E+03 ft				
" "	:	0.070 Beyond station 5060.6	Max left bank area	:
22248.55 ft^2			Max right bank area	:
7383.12 ft^2			Max center channel area	:
Allowable Encroachment Depth	:	0.00 ft		
1741.771 ft^2				

Natural Cross-Section information for Channel Link41

=====

Cross-Section ID (from X1 card) : 14.0 Channel sequence number : 14

Left Overbank Length	:	133.6 ft	Maximum Elevation	:
25.09 ft.				
Main Channel Length	:	133.6 ft	Maximum Depth	:
4.82 ft.				
Right Overbank Length	:	133.6 ft	Maximum Section Area	:
78.2500 ft^2			Maximum hydraulic radius	:
1.63 ft.				
Manning N	:	0.040 to Station 5.0	Max topwidth	:
45.00 ft.				
" "	:	0.040 in main Channel	Maximum Wetted Perimeter	:
4.80E+01 ft				
" "	:	0.015 Beyond station 25.0	Max left bank area	:
9.80 ft^2			Max right bank area	:
6.02 ft^2			Max center channel area	:
Allowable Encroachment Depth	:	0.00 ft		
62.4250 ft^2				

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 Natural Cross-Section information for Channel Link48
 =====

Cross-Section ID (from X1 card) : 15.0 Channel sequence number : 15

Left Overbank Length : 38.3 ft	Maximum Elevation :	
27.82 ft.		
Main Channel Length : 38.3 ft	Maximum Depth :	
16.33 ft.		
Right Overbank Length : 38.3 ft	Maximum Section Area :	
26945.91 ft^2		
	Maximum hydraulic radius :	
3.54 ft.		
Manning N : 0.070 to Station 4655.5	Max topwidth :	
7614.88 ft.		
" " : 0.032 in main Channel	Maximum Wetted Perimeter :	
7.62E+03 ft		
" " : 0.070 Beyond station 4770.5	Max left bank area :	
18294.32 ft^2		
	Max right bank area :	
7448.66 ft^2		
Allowable Encroachment Depth : 0.00 ft	Max center channel area :	
1202.931 ft^2		

=====

	Table E1 - Conduit Data	
--	-------------------------	--

=====

Inp Depth Num (ft)	Trapezoid Side Slopes	Hazen Conduit Williams Name c-factor	Length (ft)	Conduit Class	Area (ft^2)	Manning Coef.	Max Width (ft)

1		Link14	68.3600	Natural	78.2500	0.0400	45.0000
4.8200							
2		Link16	22.8500	Natural	78.2500	0.0400	45.0000
4.8200							
3		Link18	243.1300	Natural	78.2500	0.0400	45.0000
4.8200							
4		Link20	117.5100	Natural	85.7750	0.0400	40.0000
5.0200							
5		Link22	282.4000	Natural	128.5750	0.0400	50.0000
5.3500							
6		Link24	280.1300	Natural	112.8500	0.0400	45.0000
6.1100							
7		Link26	38.8400	Natural	123.8687	0.0400	35.5700

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6.3900						
8	Link31	199.6800	Natural	28065.247	0.0320	7554.1400
16.3600						
9	Link33	192.6600	Natural	30196.693	0.0320	6181.6300
17.9700						
10	Link34	49.2500	Natural	78.2500	0.0400	45.0000
4.8200						
11	Link36	499.4300	Natural	30714.993	0.0320	6305.5000
17.9700						
12	Link37	745.4400	Natural	27584.486	0.0320	7672.7100
19.0300						
13	Link42.1.1	20.0100	Natural	31373.446	0.0320	7515.5200
19.9400						
14	Link41	133.5500	Natural	78.2500	0.0400	45.0000
4.8200						
15	Link48	38.2600	Natural	26945.911	0.0320	7614.8800
16.3300						
16	227.1	33.3500	Circular	4.9087	0.0150	2.5000
2.5000						
17	231.1	37.5400	Circular	4.9087	0.0150	2.5000
2.5000						
18	235.1	33.2900	Circular	4.9087	0.0130	2.5000
2.5000						
19	239.1	33.2700	Circular	4.9087	0.0150	2.5000
2.5000						
20	243.1	33.5900	Circular	4.9087	0.0150	2.5000
2.5000						
21	247.1	23.9600	Circular	4.9087	0.0130	2.5000
2.5000						
22	251.1	48.0400	Circular	4.9087	0.0150	2.5000
2.5000						
23	255.1	124.5900	Circular	7.0686	0.0130	3.0000
3.0000						
Total length of all conduits				3299.1300	feet	

```

*=====
| If there are messages about (sqrt(g*d)*dt/dx), or |
| the sqrt(wave celerity)*time step/conduit length |
| in the output file all it means is that the      |
| program will lower the internal time step to     |
| satisfy this condition (explicit condition).     |
| You control the actual internal time step by     |
| using the minimum courant time step factor in the |
| HYDRAULICS job control. The message put in words |
| states that the smallest conduit with the fastest |
| velocity will control the time step selection.   |
| You have further control by using the modify     |
| conduit option in the HYDRAULICS Job Control.   |

```

Coupland_Exist100yr.out

=====

Conduit Name	Courant Ratio	
----- Link14 step/conduit length)	10.95	====> Warning ! (sqrt(wave celerity)*time
Link16 step/conduit length)	32.75	====> Warning ! (sqrt(wave celerity)*time
Link18 step/conduit length)	3.08	====> Warning ! (sqrt(wave celerity)*time
Link20 step/conduit length)	7.07	====> Warning ! (sqrt(wave celerity)*time
Link22 step/conduit length)	3.22	====> Warning ! (sqrt(wave celerity)*time
Link24 step/conduit length)	3.21	====> Warning ! (sqrt(wave celerity)*time
Link26 step/conduit length)	27.26	====> Warning ! (sqrt(wave celerity)*time
Link31 step/conduit length)	5.48	====> Warning ! (sqrt(wave celerity)*time
Link33 step/conduit length)	6.20	====> Warning ! (sqrt(wave celerity)*time
Link34 step/conduit length)	15.19	====> Warning ! (sqrt(wave celerity)*time
Link36 step/conduit length)	2.38	====> Warning ! (sqrt(wave celerity)*time
Link37 step/conduit length)	1.21	====> Warning ! (sqrt(wave celerity)*time
Link42.1.1 step/conduit length)	42.45	====> Warning ! (sqrt(wave celerity)*time
Link41 step/conduit length)	5.60	====> Warning ! (sqrt(wave celerity)*time
Link48 step/conduit length)	27.90	====> Warning ! (sqrt(wave celerity)*time
227.1 step/conduit length)	26.90	====> Warning ! (sqrt(wave celerity)*time
231.1 step/conduit length)	23.90	====> Warning ! (sqrt(wave celerity)*time
235.1 step/conduit length)	26.95	====> Warning ! (sqrt(wave celerity)*time
239.1 step/conduit length)	26.97	====> Warning ! (sqrt(wave celerity)*time
243.1 step/conduit length)	26.71	====> Warning ! (sqrt(wave celerity)*time
247.1 step/conduit length)	37.45	====> Warning ! (sqrt(wave celerity)*time

Coupland_Exist100yr.out

251.1 18.68 ==> Warning ! (sqrt(wave celerity)*time
step/conduit length)
255.1 7.89 ==> Warning ! (sqrt(wave celerity)*time
step/conduit length)

=====\n| Conduit Volume |\n*=====*

Full pipe or full open conduit volume\nInput full depth volume..... 4.9108E+07 cubic feet

==> Warning !! The upstream and downstream junctions for the following conduits
have been reversed to correspond to the positive flow and
decreasing

slope convention. A negative flow in the output thus means
the flow was from your original upstream junction to your original
downstream junction. Any initial flow has been multiplied by -1.

- 1. Conduit #...Link22 has been changed.
- 2. Conduit #...Link34 has been changed.
- 3. Conduit #...235.1 has been changed.
- 4. Conduit #...239.1 has been changed.
- 5. Conduit #...243.1 has been changed.
- 6. Conduit #...247.1 has been changed.

=====\n| Table E3a - Junction Data |\n*=====*

Inp Interface Num (%)	Junction Name	Ground Elevation	Crown Elevation	Invert Elevation	Qinst cfs	Initial Depth-ft	Flow
1	Node13	40.0000	27.8600	22.7400	0.0000	0.0000	
100.0000							
2	Node14	40.0000	27.8200	22.7000	0.0000	0.0000	
100.0000							
3	Node15	40.0000	26.3200	21.2000	0.0000	0.0000	
100.0000							
4	Node16	40.0000	26.6200	21.1600	0.0000	0.0000	
100.0000							
5	Node17	40.0000	25.5100	20.3100	0.0000	0.0000	
100.0000							
6	Node19	40.0000	24.5200	19.4300	0.0000	0.0000	

Coupland_Exist100yr.out

100.0000	7	Node20	40.0000	25.1700	19.6300	0.0000	0.0000
100.0000	8	Node21	40.0000	24.7100	19.6900	0.0000	0.0000
100.0000	9	Node22	40.0000	25.5000	19.8000	0.0000	0.0000
100.0000	10	Node23	40.0000	25.5200	19.4500	0.0000	0.0000
100.0000	11	Node24	40.0000	26.2800	19.8700	0.0000	0.0000
100.0000	12	Node25	40.0000	25.9100	19.5700	0.0000	0.0000
100.0000	13	Node26	40.0000	25.2400	18.8500	0.0000	0.0000
100.0000	14	Node27	40.0000	24.6100	18.2200	0.0000	0.0000
100.0000	15	Node28	40.0000	29.4400	11.4700	0.0000	0.0000
100.0000	16	Node31	40.0000	27.8400	11.4800	0.0000	0.0000
100.0000	17	Node33	40.0000	29.4300	11.4600	0.0000	0.0000
100.0000	18	Node35	40.0000	27.8200	11.4900	0.0000	0.0000
100.0000	19	Node36	40.0000	28.0500	9.0200	0.0000	0.0000
100.0000	20	Node37	40.0000	28.4000	8.4600	0.0000	0.0000
100.0000	21	Node41	40.0000	28.4000	8.4600	0.0000	0.0000
100.0000	22	Node18.1.1	40.0000	25.5700	14.9900	0.0000	0.0000
100.0000	23	Node34.1.1	40.0000	27.1000	16.3200	0.0000	0.0000
100.0000	24	Node39	40.0000	27.9700	23.1500	0.0000	0.0000

=====

| Table E3b - Junction Data |

=====

Inp Maximum Num Capacity	Junction Pavement Name Shape Slope	X Coord.	Y Coord.	Type of Manhole	Type of Inlet
----	-----	-----	-----	-----	-----

Coupland_Exist100yr.out

Line	Value	Node	Value	Value	Status	Condition
1	0	Node13	0.0000	0.0000	No Ponding	Normal
2	0	Node14	0.0000	0.0000	No Ponding	Normal
3	0	Node15	0.0000	0.0000	No Ponding	Normal
4	0	Node16	0.0000	0.0000	No Ponding	Normal
5	0	Node17	0.0000	0.0000	No Ponding	Normal
6	0	Node19	0.0000	0.0000	No Ponding	Normal
7	0	Node20	0.0000	0.0000	No Ponding	Normal
8	0	Node21	0.0000	0.0000	No Ponding	Normal
9	0	Node22	0.0000	0.0000	No Ponding	Normal
10	0	Node23	0.0000	0.0000	No Ponding	Normal
11	0	Node24	0.0000	0.0000	No Ponding	Normal
12	0	Node25	0.0000	0.0000	No Ponding	Normal
13	0	Node26	0.0000	0.0000	No Ponding	Normal
14	0	Node27	0.0000	0.0000	No Ponding	Normal
15	0	Node28	0.0000	0.0000	No Ponding	Normal
16	0	Node31	0.0000	0.0000	No Ponding	Normal
17	0	Node33	0.0000	0.0000	No Ponding	Normal
18	0	Node35	0.0000	0.0000	No Ponding	Normal
19	0	Node36	0.0000	0.0000	No Ponding	Normal
20	0	Node37	0.0000	0.0000	No Ponding	Normal
21	0	Node41	0.0000	0.0000	No Ponding	Normal
22	0	Node18.1.1	0.0000	0.0000	No Ponding	Normal
23	0	Node34.1.1	0.0000	0.0000	No Ponding	Normal
24	0	Node39	0.0000	0.0000	No Ponding	Normal

0 0.00

```

*-----*
|           Table E4 - Conduit Connectivity           |
*-----*
    
```

Input Upstream Number Elevation	Downstream Elevation	Conduit Name	Upstream Node	Downstream Node
1 23.0000	21.5000	Link14 No Design	Node14	Node15
2 21.8000	20.6900	Link16 No Design	Node16	Node17
3 20.7500	19.7000	Link18 No Design	Node18.1.1	Node19
4 20.1500	19.6900	Link20 No Design	Node20	Node21
5 20.1700	20.1500	Link22 No Design	Node23	Node22
6 20.1700	19.8000	Link24 No Design	Node24	Node25
7 18.8500	18.2200	Link26 No Design	Node26	Node27
8 11.4800	11.4700	Link31 No Design	Node31	Node28
9 11.4700	11.4600	Link33 No Design	Node28	Node33
10 23.0400	22.2800	Link34 No Design	Node13	Node34.1.1
11 11.4600	9.0200	Link36 No Design	Node33	Node36
12 9.0200	8.4600	Link37 No Design	Node36	Node37
13 8.4600	8.4600	Link42.1.1 No Design	Node37	Node41
14 23.1500	22.2800	Link41 No Design	Node39	Node34.1.1
15 11.4900	11.4800	Link48 No Design	Node35	Node31
16 22.7400	22.7000	227.1 No Design	Node13	Node14
17 21.2000	21.1600	231.1 No Design	Node15	Node16
18		235.1	Node18.1.1	Node17

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20.4500	20.3100	No Design		
19		239.1	Node20	Node19
19.7100	19.4300	No Design		
20		243.1	Node22	Node21
20.1500	20.0300	No Design		
21		247.1	Node24	Node23
19.8700	19.4500	No Design		
22		251.1	Node25	Node26
19.8000	19.5400	No Design		
23		255.1	Node27	Node28
18.8000	16.2700	No Design		

```

*=====
|                               |
|               Weir Data     |
|                               |
*=====
  
```

Weir	Weir Weir Name	Discharge Coefficient	From Weir Junction Power	To Junction	Type	Crest Height(ft)
17.26	W14	2.6700	Node13 1.5000	Node14	1	0.91
18.80	W15	2.6700	Node15 1.5000	Node16	1	2.99
19.69	W17	2.6700	Node17 1.5000	Node18.1.1	1	3.17
20.57	W20	2.6700	Node19 1.5000	Node20	1	4.45
20.31	W21	2.6700	Node21 1.5000	Node22	1	4.12
20.55	W24	2.6700	Node23 1.5000	Node24	1	3.76
20.43	W25	2.6700	Node25 1.5000	Node26	1	4.55
21.78	W27	2.6700	Node27 1.5000	Node28	1	5.25

```

*=====
|               FREE OUTFALL DATA (DATA GROUP I1) |
|               BOUNDARY CONDITION ON DATA GROUP J1 |
*=====
  
```

Outfall at Junction....Node41 has boundary condition number... 1

Coupland_Exist100yr.out

```

*=====
|           Weir Outfall Data           |
| Boundary Condition on data group J1   |
*=====
  
```

```

*=====
| INTERNAL CONNECTIVITY INFORMATION      |
*=====
  
```

CONDUIT	JUNCTION	JUNCTION
W14	Node13	Node14
W15	Node15	Node16
W17	Node17	Node18.1.1
W20	Node19	Node20
W21	Node21	Node22
W24	Node23	Node24
W25	Node25	Node26
W27	Node27	Node28
FREE# 1	Node41	BOUNDARY

```

*=====
| Boundary Condition Information          |
| Data Groups J1-J4                     |
*=====
  
```

BC NUMBER.. 1 has no control water surface.

```

*=====
| XP Note Field Summary                  |
*=====
  
```

```

*=====
| Conduit Convergence Criteria          |
*=====
  
```

Conduit Name	Full Flow	Conduit Slope
Link14	596.7483	0.0219

Coupland_Exist100yr.out

Link16	887.9019	0.0486
Link18	264.7415	0.0043
Link20	316.7276	0.0039
Link22	72.5977	0.0001
Link24	267.1870	0.0013
Link26	1249.1460	0.0162
Link31	22103.9553	0.0001
Link33	29068.2089	0.0001
Link34	500.4380	0.0154
Link36	284978.9849	0.0049
Link37	82357.7976	0.0008
Link42.1.1	11938.3421	0.0000
Link41	325.1504	0.0065
Link48	46955.9126	0.0003
227.1	12.3112	0.0012
231.1	11.6038	0.0011
235.1	26.5994	0.0042
239.1	32.6114	0.0084
243.1	21.2473	0.0036
247.1	54.3058	0.0175
251.1	26.1519	0.0054
255.1	95.0460	0.0203

=====

	Initial Model Condition	
	Initial Time = 0.03 hours	

Coupland_Exist100yr.out

=====

Junction /	Depth /	Elevation	====>	"*" Junction is Surcharged.
Node13/	0.00 /	22.74		Node14/ 0.00 / 22.70
Node15/	0.00 /	21.20		
Node16/	0.00 /	21.16		Node17/ 0.00 / 20.31
Node19/	0.00 /	19.43		
Node20/	0.00 /	19.63		Node21/ 0.00 / 19.69
Node22/	0.00 /	19.80		
Node23/	0.00 /	19.45		Node24/ 0.00 / 19.87
Node25/	0.00 /	19.57		
Node26/	0.00 /	18.85		Node27/ 0.00 / 18.22
Node28/	0.00 /	11.47		
Node31/	0.00 /	11.48		Node33/ 0.00 / 11.46
Node35/	0.00 /	11.49		
Node36/	0.00 /	9.02		Node37/ 0.00 / 8.46
Node41/	0.00 /	8.46		
Node18.1.1/	0.00 /	14.99		Node34.1.1/ 0.00 / 16.32
Node39/	0.00 /	23.15		

Conduit/	FLOW	====>	"*" Conduit uses the normal flow option.
Link18/	0.00		Link16/ 0.00
Link24/	0.00		Link22/ 0.00
Link33/	0.00		Link31/ 0.00
Link37/	0.00		Link36/ 0.00
Link48/	0.00		Link41/ 0.00
235.1/	0.00		231.1/ 0.00
247.1/	0.00		243.1/ 0.00
W14/	0.00		255.1/ 0.00
W20/	0.00		W17/ 0.00
W25/	0.00		W24/ 0.00
	0.00		FREE# 1/ 0.00

Conduit/	Velocity		
Link18/	0.00		Link16/ 0.00
Link24/	0.00		Link22/ 0.00

Coupland_Exist100yr.out

Link33/	Link26/ 0.00	0.00	Link31/	0.00
Link37/	Link34/ 0.00	0.00	Link36/	0.00
Link48/	Link42.1.1/ 0.00	0.00	Link41/	0.00
235.1/	227.1/ 0.00	0.00	231.1/	0.00
247.1/	239.1/ 0.00	0.00	243.1/	0.00
	251.1/	0.00	255.1/	0.00

Conduit/ Cross Sectional Area

Link18/	Link14/ 0.00	0.00	Link16/	0.00
Link24/	Link20/ 0.00	0.00	Link22/	0.00
Link33/	Link26/ 0.00	0.00	Link31/	0.00
Link37/	Link34/ 0.00	0.00	Link36/	0.00
Link48/	Link42.1.1/ 0.00	0.00	Link41/	0.00
235.1/	227.1/ 0.00	0.00	231.1/	0.00
247.1/	239.1/ 0.00	0.00	243.1/	0.00
	251.1/	0.00	255.1/	0.00

Conduit/ Hydraulic Radius

Link18/	Link14/ 0.00	0.00	Link16/	0.00
Link24/	Link20/ 0.00	0.00	Link22/	0.00
Link33/	Link26/ 0.00	0.00	Link31/	0.00
Link37/	Link34/ 0.00	0.00	Link36/	0.00
Link48/	Link42.1.1/ 0.00	0.00	Link41/	0.00
235.1/	227.1/ 0.00	0.00	231.1/	0.00
247.1/	239.1/ 0.00	0.00	243.1/	0.00
	251.1/	0.00	255.1/	0.00

Conduit/ Upstream/ Downstream Elevation

Link14/	21.20/	21.20	Link16/	20.31/	20.31
---------	--------	-------	---------	--------	-------

Coupland_Exist100yr.out

Link18/	19.43/	19.43			
Link20/	19.69/	19.69	Link22/	19.80/	19.80
Link24/	19.57/	19.57			
Link26/	18.22/	18.22	Link31/	11.47/	11.47
Link33/	11.46/	11.46			
Link34/	16.32/	16.32	Link36/	9.02/	9.02
Link37/	8.46/	8.46			
Link42.1.1/	8.46/	8.46	Link41/	16.32/	16.32
Link48/	11.48/	11.48			
227.1/	22.70/	22.70	231.1/	21.16/	21.16
235.1/	20.31/	20.31			
239.1/	19.43/	19.43	243.1/	19.69/	19.69
247.1/	19.45/	19.45			
251.1/	18.85/	18.85	255.1/	11.47/	11.47

Important Information

Start time of user hydrographs was... 0.000000000000000E+000
Start time of the simulation was..... 0.000000000000000E+000
Found a match between user hydrograph and simulation start time.

=====
==> System inflows (data group K3) at 0.00 hours (Junction / Inflow,cfs)

Node35 / 0.00E+00

==> System inflows (data group K3) at 0.03 hours (Junction / Inflow,cfs)

Node35 / 0.00E+00

==> System inflows (data group K3) at 0.08 hours (Junction / Inflow,cfs)

Node35 / 0.00E+00

==> System inflows (data group K3) at 0.19 hours (Junction / Inflow,cfs)

Node35 / 0.00E+00

==> System inflows (data group K3) at 0.25 hours (Junction / Inflow,cfs)

Node35 / 0.00E+00

==> System inflows (data group K3) at 0.33 hours (Junction / Inflow,cfs)

Node35 / 0.00E+00

Coupland_Exist100yr.out

==> System inflows (data group K3) at 0.44 hours (Junction / Inflow,cfs)

Node35 / 0.00E+00

==> System inflows (data group K3) at 0.50 hours (Junction / Inflow,cfs)

Node35 / 0.00E+00

==> System inflows (data group K3) at 0.58 hours (Junction / Inflow,cfs)

Node35 / 0.00E+00

==> System inflows (data group K3) at 0.69 hours (Junction / Inflow,cfs)

Node35 / 1.00E-01

==> System inflows (data group K3) at 0.78 hours (Junction / Inflow,cfs)

Node35 / 3.00E-01

==> System inflows (data group K3) at 0.83 hours (Junction / Inflow,cfs)

Node35 / 7.00E-01

==> System inflows (data group K3) at 0.94 hours (Junction / Inflow,cfs)

Node35 / 1.20E+00

==> System inflows (data group K3) at 1.03 hours (Junction / Inflow,cfs)

Node35 / 1.80E+00

==> System inflows (data group K3) at 1.08 hours (Junction / Inflow,cfs)

Node35 / 2.50E+00

==> System inflows (data group K3) at 1.19 hours (Junction / Inflow,cfs)

Coupland_Exist100yr.out

Node35 / 3.10E+00

==> System inflows (data group K3) at 1.25 hours (Junction / Inflow,cfs)

Node35 / 3.70E+00

==> System inflows (data group K3) at 1.33 hours (Junction / Inflow,cfs)

Node35 / 4.30E+00

==> System inflows (data group K3) at 1.44 hours (Junction / Inflow,cfs)

Node35 / 4.90E+00

==> System inflows (data group K3) at 1.50 hours (Junction / Inflow,cfs)

Node35 / 5.50E+00

==> System inflows (data group K3) at 1.58 hours (Junction / Inflow,cfs)

Node35 / 6.00E+00

==> System inflows (data group K3) at 1.69 hours (Junction / Inflow,cfs)

Node35 / 6.60E+00

==> System inflows (data group K3) at 1.75 hours (Junction / Inflow,cfs)

Node35 / 7.20E+00

==> System inflows (data group K3) at 1.83 hours (Junction / Inflow,cfs)

Node35 / 7.70E+00

==> System inflows (data group K3) at 1.94 hours (Junction / Inflow,cfs)

Node35 / 8.30E+00
#####

Coupland_Exist100yr.out

==> System inflows (data group K3) at 2.00 hours (Junction / Inflow,cfs)

Node35 / 8.80E+00

==> System inflows (data group K3) at 2.08 hours (Junction / Inflow,cfs)

Node35 / 9.30E+00

==> System inflows (data group K3) at 2.19 hours (Junction / Inflow,cfs)

Node35 / 9.80E+00

==> System inflows (data group K3) at 2.25 hours (Junction / Inflow,cfs)

Node35 / 1.03E+01

==> System inflows (data group K3) at 2.33 hours (Junction / Inflow,cfs)

Node35 / 1.08E+01

==> System inflows (data group K3) at 2.44 hours (Junction / Inflow,cfs)

Node35 / 1.13E+01

==> System inflows (data group K3) at 2.50 hours (Junction / Inflow,cfs)

Node35 / 1.18E+01

==> System inflows (data group K3) at 2.58 hours (Junction / Inflow,cfs)

Node35 / 1.23E+01

==> System inflows (data group K3) at 2.69 hours (Junction / Inflow,cfs)

Node35 / 1.28E+01

==> System inflows (data group K3) at 2.75 hours (Junction / Inflow,cfs)

Coupland_Exist100yr.out

Node35 / 1.32E+01

==> System inflows (data group K3) at 2.83 hours (Junction / Inflow,cfs)

Node35 / 1.37E+01

==> System inflows (data group K3) at 2.94 hours (Junction / Inflow,cfs)

Node35 / 1.41E+01

==> System inflows (data group K3) at 3.00 hours (Junction / Inflow,cfs)

Node35 / 1.46E+01

==> System inflows (data group K3) at 3.08 hours (Junction / Inflow,cfs)

Node35 / 1.50E+01

==> System inflows (data group K3) at 3.19 hours (Junction / Inflow,cfs)

Node35 / 1.54E+01

==> System inflows (data group K3) at 3.25 hours (Junction / Inflow,cfs)

Node35 / 1.59E+01

==> System inflows (data group K3) at 3.33 hours (Junction / Inflow,cfs)

Node35 / 1.63E+01

==> System inflows (data group K3) at 3.44 hours (Junction / Inflow,cfs)

Node35 / 1.67E+01

==> System inflows (data group K3) at 3.50 hours (Junction / Inflow,cfs)

Node35 / 1.71E+01

#####

Coupland_Exist100yr.out

==> System inflows (data group K3) at 3.58 hours (Junction / Inflow,cfs)

Node35 / 1.75E+01

#####

==> System inflows (data group K3) at 3.69 hours (Junction / Inflow,cfs)

Node35 / 1.79E+01

#####

==> System inflows (data group K3) at 3.75 hours (Junction / Inflow,cfs)

Node35 / 1.83E+01

#####

==> System inflows (data group K3) at 3.83 hours (Junction / Inflow,cfs)

Node35 / 1.87E+01

#####

==> System inflows (data group K3) at 3.94 hours (Junction / Inflow,cfs)

Node35 / 1.91E+01

#####

==> System inflows (data group K3) at 4.00 hours (Junction / Inflow,cfs)

Node35 / 1.95E+01

#####

==> System inflows (data group K3) at 4.08 hours (Junction / Inflow,cfs)

Node35 / 1.98E+01

#####

==> System inflows (data group K3) at 4.19 hours (Junction / Inflow,cfs)

Node35 / 2.02E+01

#####

==> System inflows (data group K3) at 4.25 hours (Junction / Inflow,cfs)

Node35 / 2.06E+01

#####

==> System inflows (data group K3) at 4.33 hours (Junction / Inflow,cfs)

Node35 / 2.09E+01

Coupland_Exist100yr.out

==> System inflows (data group K3) at 4.44 hours (Junction / Inflow,cfs)

Node35 / 2.13E+01

==> System inflows (data group K3) at 4.50 hours (Junction / Inflow,cfs)

Node35 / 2.16E+01

==> System inflows (data group K3) at 4.58 hours (Junction / Inflow,cfs)

Node35 / 2.20E+01

==> System inflows (data group K3) at 4.69 hours (Junction / Inflow,cfs)

Node35 / 2.23E+01

==> System inflows (data group K3) at 4.75 hours (Junction / Inflow,cfs)

Node35 / 2.26E+01

==> System inflows (data group K3) at 4.83 hours (Junction / Inflow,cfs)

Node35 / 2.30E+01

==> System inflows (data group K3) at 4.94 hours (Junction / Inflow,cfs)

Node35 / 2.34E+01

==> System inflows (data group K3) at 5.00 hours (Junction / Inflow,cfs)

Node35 / 2.38E+01

==> System inflows (data group K3) at 5.08 hours (Junction / Inflow,cfs)

Node35 / 2.42E+01

==> System inflows (data group K3) at 5.19 hours (Junction / Inflow,cfs)

Coupland_Exist100yr.out

Node35 / 2.47E+01

==> System inflows (data group K3) at 5.25 hours (Junction / Inflow,cfs)

Node35 / 2.53E+01

==> System inflows (data group K3) at 5.33 hours (Junction / Inflow,cfs)

Node35 / 2.59E+01

==> System inflows (data group K3) at 5.44 hours (Junction / Inflow,cfs)

Node35 / 2.65E+01

==> System inflows (data group K3) at 5.50 hours (Junction / Inflow,cfs)

Node35 / 2.72E+01

==> System inflows (data group K3) at 5.58 hours (Junction / Inflow,cfs)

Node35 / 2.79E+01

==> System inflows (data group K3) at 5.69 hours (Junction / Inflow,cfs)

Node35 / 2.87E+01

==> System inflows (data group K3) at 5.75 hours (Junction / Inflow,cfs)

Node35 / 2.95E+01

==> System inflows (data group K3) at 5.83 hours (Junction / Inflow,cfs)

Node35 / 3.03E+01

==> System inflows (data group K3) at 5.94 hours (Junction / Inflow,cfs)

Node35 / 3.11E+01
#####

Coupland_Exist100yr.out

==> System inflows (data group K3) at 6.00 hours (Junction / Inflow,cfs)

Node35 / 3.20E+01

==> System inflows (data group K3) at 6.08 hours (Junction / Inflow,cfs)

Node35 / 3.29E+01

==> System inflows (data group K3) at 6.19 hours (Junction / Inflow,cfs)

Node35 / 3.38E+01

==> System inflows (data group K3) at 6.25 hours (Junction / Inflow,cfs)

Node35 / 3.48E+01

==> System inflows (data group K3) at 6.33 hours (Junction / Inflow,cfs)

Node35 / 3.58E+01

==> System inflows (data group K3) at 6.44 hours (Junction / Inflow,cfs)

Node35 / 3.68E+01

==> System inflows (data group K3) at 6.50 hours (Junction / Inflow,cfs)

Node35 / 3.78E+01

==> System inflows (data group K3) at 6.58 hours (Junction / Inflow,cfs)

Node35 / 3.88E+01

==> System inflows (data group K3) at 6.69 hours (Junction / Inflow,cfs)

Node35 / 3.98E+01

==> System inflows (data group K3) at 6.75 hours (Junction / Inflow,cfs)

Coupland_Exist100yr.out

Node35 / 4.09E+01

==> System inflows (data group K3) at 6.83 hours (Junction / Inflow,cfs)

Node35 / 4.20E+01

==> System inflows (data group K3) at 6.94 hours (Junction / Inflow,cfs)

Node35 / 4.31E+01

==> System inflows (data group K3) at 7.00 hours (Junction / Inflow,cfs)

Node35 / 4.42E+01

==> System inflows (data group K3) at 7.08 hours (Junction / Inflow,cfs)

Node35 / 4.53E+01

==> System inflows (data group K3) at 7.19 hours (Junction / Inflow,cfs)

Node35 / 4.64E+01

==> System inflows (data group K3) at 7.25 hours (Junction / Inflow,cfs)

Node35 / 4.76E+01

==> System inflows (data group K3) at 7.33 hours (Junction / Inflow,cfs)

Node35 / 4.88E+01

==> System inflows (data group K3) at 7.44 hours (Junction / Inflow,cfs)

Node35 / 4.99E+01

==> System inflows (data group K3) at 7.50 hours (Junction / Inflow,cfs)

Node35 / 5.11E+01

#####

Coupland_Exist100yr.out

==> System inflows (data group K3) at 7.58 hours (Junction / Inflow,cfs)

Node35 / 5.23E+01

#####

==> System inflows (data group K3) at 7.69 hours (Junction / Inflow,cfs)

Node35 / 5.35E+01

#####

==> System inflows (data group K3) at 7.75 hours (Junction / Inflow,cfs)

Node35 / 5.47E+01

#####

==> System inflows (data group K3) at 7.83 hours (Junction / Inflow,cfs)

Node35 / 5.59E+01

#####

==> System inflows (data group K3) at 7.94 hours (Junction / Inflow,cfs)

Node35 / 5.71E+01

#####

==> System inflows (data group K3) at 8.00 hours (Junction / Inflow,cfs)

Node35 / 5.83E+01

#####

==> System inflows (data group K3) at 8.08 hours (Junction / Inflow,cfs)

Node35 / 5.96E+01

#####

==> System inflows (data group K3) at 8.19 hours (Junction / Inflow,cfs)

Node35 / 6.08E+01

#####

==> System inflows (data group K3) at 8.25 hours (Junction / Inflow,cfs)

Node35 / 6.21E+01

#####

==> System inflows (data group K3) at 8.33 hours (Junction / Inflow,cfs)

Node35 / 6.34E+01

Coupland_Exist100yr.out

==> System inflows (data group K3) at 8.44 hours (Junction / Inflow,cfs)

Node35 / 6.47E+01

==> System inflows (data group K3) at 8.50 hours (Junction / Inflow,cfs)

Node35 / 6.60E+01

==> System inflows (data group K3) at 8.58 hours (Junction / Inflow,cfs)

Node35 / 6.73E+01

==> System inflows (data group K3) at 8.69 hours (Junction / Inflow,cfs)

Node35 / 6.87E+01

==> System inflows (data group K3) at 8.75 hours (Junction / Inflow,cfs)

Node35 / 7.01E+01

==> System inflows (data group K3) at 8.83 hours (Junction / Inflow,cfs)

Node35 / 7.15E+01

==> System inflows (data group K3) at 8.94 hours (Junction / Inflow,cfs)

Node35 / 7.29E+01

==> System inflows (data group K3) at 9.00 hours (Junction / Inflow,cfs)

Node35 / 7.44E+01

==> System inflows (data group K3) at 9.08 hours (Junction / Inflow,cfs)

Node35 / 7.58E+01

==> System inflows (data group K3) at 9.19 hours (Junction / Inflow,cfs)

Coupland_Exist100yr.out

Node35 / 7.73E+01

==> System inflows (data group K3) at 9.25 hours (Junction / Inflow,cfs)

Node35 / 7.89E+01

==> System inflows (data group K3) at 9.33 hours (Junction / Inflow,cfs)

Node35 / 8.04E+01

==> System inflows (data group K3) at 9.44 hours (Junction / Inflow,cfs)

Node35 / 8.20E+01

==> System inflows (data group K3) at 9.50 hours (Junction / Inflow,cfs)

Node35 / 8.36E+01

==> System inflows (data group K3) at 9.58 hours (Junction / Inflow,cfs)

Node35 / 8.52E+01

==> System inflows (data group K3) at 9.69 hours (Junction / Inflow,cfs)

Node35 / 8.68E+01

==> System inflows (data group K3) at 9.75 hours (Junction / Inflow,cfs)

Node35 / 8.85E+01

==> System inflows (data group K3) at 9.83 hours (Junction / Inflow,cfs)

Node35 / 9.02E+01

==> System inflows (data group K3) at 9.94 hours (Junction / Inflow,cfs)

Node35 / 9.19E+01
#####

Coupland_Exist100yr.out

==> System inflows (data group K3) at 10.00 hours (Junction / Inflow,cfs)

Node35 / 9.36E+01

==> System inflows (data group K3) at 10.08 hours (Junction / Inflow,cfs)

Node35 / 9.54E+01

==> System inflows (data group K3) at 10.19 hours (Junction / Inflow,cfs)

Node35 / 9.73E+01

==> System inflows (data group K3) at 10.25 hours (Junction / Inflow,cfs)

Node35 / 9.91E+01

==> System inflows (data group K3) at 10.33 hours (Junction / Inflow,cfs)

Node35 / 1.01E+02

==> System inflows (data group K3) at 10.44 hours (Junction / Inflow,cfs)

Node35 / 1.03E+02

==> System inflows (data group K3) at 10.50 hours (Junction / Inflow,cfs)

Node35 / 1.05E+02

==> System inflows (data group K3) at 10.58 hours (Junction / Inflow,cfs)

Node35 / 1.07E+02

==> System inflows (data group K3) at 10.69 hours (Junction / Inflow,cfs)

Node35 / 1.09E+02

==> System inflows (data group K3) at 10.75 hours (Junction / Inflow,cfs)

Coupland_Exist100yr.out

Node35 / 1.11E+02

==> System inflows (data group K3) at 10.83 hours (Junction / Inflow,cfs)

Node35 / 1.13E+02

==> System inflows (data group K3) at 10.94 hours (Junction / Inflow,cfs)

Node35 / 1.15E+02

==> System inflows (data group K3) at 11.00 hours (Junction / Inflow,cfs)

Node35 / 1.18E+02

==> System inflows (data group K3) at 11.08 hours (Junction / Inflow,cfs)

Node35 / 1.20E+02

==> System inflows (data group K3) at 11.19 hours (Junction / Inflow,cfs)

Node35 / 1.22E+02

==> System inflows (data group K3) at 11.25 hours (Junction / Inflow,cfs)

Node35 / 1.24E+02

==> System inflows (data group K3) at 11.33 hours (Junction / Inflow,cfs)

Node35 / 1.27E+02

==> System inflows (data group K3) at 11.44 hours (Junction / Inflow,cfs)

Node35 / 1.29E+02

==> System inflows (data group K3) at 11.50 hours (Junction / Inflow,cfs)

Node35 / 1.32E+02

#####

Coupland_Exist100yr.out

==> System inflows (data group K3) at 11.58 hours (Junction / Inflow,cfs)

Node35 / 1.34E+02

#####

==> System inflows (data group K3) at 11.69 hours (Junction / Inflow,cfs)

Node35 / 1.36E+02

#####

==> System inflows (data group K3) at 11.75 hours (Junction / Inflow,cfs)

Node35 / 1.39E+02

#####

==> System inflows (data group K3) at 11.83 hours (Junction / Inflow,cfs)

Node35 / 1.42E+02

#####

==> System inflows (data group K3) at 11.94 hours (Junction / Inflow,cfs)

Node35 / 1.44E+02

#####

==> System inflows (data group K3) at 12.00 hours (Junction / Inflow,cfs)

Node35 / 1.47E+02

#####

==> System inflows (data group K3) at 12.08 hours (Junction / Inflow,cfs)

Node35 / 1.50E+02

#####

==> System inflows (data group K3) at 12.19 hours (Junction / Inflow,cfs)

Node35 / 1.52E+02

#####

==> System inflows (data group K3) at 12.25 hours (Junction / Inflow,cfs)

Node35 / 1.55E+02

#####

==> System inflows (data group K3) at 12.33 hours (Junction / Inflow,cfs)

Node35 / 1.58E+02

Coupland_Exist100yr.out

==> System inflows (data group K3) at 12.44 hours (Junction / Inflow,cfs)

Node35 / 1.61E+02

==> System inflows (data group K3) at 12.50 hours (Junction / Inflow,cfs)

Node35 / 1.64E+02

==> System inflows (data group K3) at 12.58 hours (Junction / Inflow,cfs)

Node35 / 1.68E+02

==> System inflows (data group K3) at 12.69 hours (Junction / Inflow,cfs)

Node35 / 1.71E+02

==> System inflows (data group K3) at 12.75 hours (Junction / Inflow,cfs)

Node35 / 1.74E+02

==> System inflows (data group K3) at 12.83 hours (Junction / Inflow,cfs)

Node35 / 1.78E+02

==> System inflows (data group K3) at 12.94 hours (Junction / Inflow,cfs)

Node35 / 1.81E+02

==> System inflows (data group K3) at 13.00 hours (Junction / Inflow,cfs)

Node35 / 1.85E+02

==> System inflows (data group K3) at 13.08 hours (Junction / Inflow,cfs)

Node35 / 1.89E+02

==> System inflows (data group K3) at 13.19 hours (Junction / Inflow,cfs)

Coupland_Exist100yr.out

Node35 / 1.95E+02

==> System inflows (data group K3) at 13.25 hours (Junction / Inflow,cfs)

Node35 / 2.02E+02

==> System inflows (data group K3) at 13.33 hours (Junction / Inflow,cfs)

Node35 / 2.09E+02

==> System inflows (data group K3) at 13.44 hours (Junction / Inflow,cfs)

Node35 / 2.18E+02

==> System inflows (data group K3) at 13.50 hours (Junction / Inflow,cfs)

Node35 / 2.26E+02

==> System inflows (data group K3) at 13.58 hours (Junction / Inflow,cfs)

Node35 / 2.34E+02

==> System inflows (data group K3) at 13.69 hours (Junction / Inflow,cfs)

Node35 / 2.43E+02

==> System inflows (data group K3) at 13.75 hours (Junction / Inflow,cfs)

Node35 / 2.51E+02

==> System inflows (data group K3) at 13.83 hours (Junction / Inflow,cfs)

Node35 / 2.60E+02
#####

Cycle 500 Time 13 Hrs - 53.33 Min

Junction / Depth / Elevation ==> "*" Junction is Surcharged.
Node13/ 0.97 / 23.71 Node14/ 0.99 / 23.69

Coupland_Exist100yr.out

Node15/	1.21 /	22.41			
Node16/	1.24 /	22.40		Node17/	2.02 / 22.33
Node19/	2.78 /	22.21			
Node20/	2.55 /	22.18		Node21/	2.45 / 22.14
Node22/	2.31 /	22.11			
Node23/	2.55 /	22.00		Node24/	2.11 / 21.98
Node25/	1.34 /	20.91			
Node26/	1.13 /	19.98		Node27/	1.26 / 19.48
Node28/	4.40 /	15.87			
Node31/	4.46 /	15.94		Node33/	4.27 / 15.73
Node35/	4.47 /	15.96			
Node36/	6.55 /	15.57		Node37/	7.00 / 15.46
Node41/	7.00 /	15.46			
Node18.1.1/	7.34 /	22.33		Node34.1.1/	7.43 / 23.75
Node39/	0.70 /	23.85			

	Conduit/	FLOW	==> "*" Conduit uses the normal flow option.
	Link14/	3.67*	Link16/ 3.67*
Link18/	6.24	Link20/	11.50
	Link22/	-11.15	Link24/ 10.81
Link26/	10.71	Link31/	254.88
	Link33/	262.53	Link34/ -3.74
Link36/	256.24	Link37/	243.13
	Link42.1.1/	235.32	Link41/ 1.05
Link48/	256.84	227.1/	2.58
	231.1/	3.67	235.1/ -3.84
239.1/	-11.59	243.1/	-11.40
	247.1/	-10.91	251.1/ 10.72
255.1/	10.68	W14/	1.13
	W15/	0.00	W17/ 0.00
W20/	0.00	W21/	0.00
	W24/	0.00	W25/ 0.00
W27/	0.00	FREE# 1/	235.09

 ==> System inflows (data group K3) at 13.94 hours (Junction / Inflow,cfs)

Node35 / 2.69E+02
 #####
 #####
 ==> System inflows (data group K3) at 14.00 hours (Junction / Inflow,cfs)

Node35 / 2.78E+02
 #####
 #####
 ==> System inflows (data group K3) at 14.08 hours (Junction / Inflow,cfs)

Node35 / 2.87E+02
 #####

Coupland_Exist100yr.out

==> System inflows (data group K3) at 14.19 hours (Junction / Inflow,cfs)

Node35 / 2.97E+02

==> System inflows (data group K3) at 14.25 hours (Junction / Inflow,cfs)

Node35 / 3.06E+02

==> System inflows (data group K3) at 14.33 hours (Junction / Inflow,cfs)

Node35 / 3.16E+02

==> System inflows (data group K3) at 14.44 hours (Junction / Inflow,cfs)

Node35 / 3.27E+02

==> System inflows (data group K3) at 14.50 hours (Junction / Inflow,cfs)

Node35 / 3.37E+02

==> System inflows (data group K3) at 14.58 hours (Junction / Inflow,cfs)

Node35 / 3.48E+02

==> System inflows (data group K3) at 14.69 hours (Junction / Inflow,cfs)

Node35 / 3.60E+02

==> System inflows (data group K3) at 14.75 hours (Junction / Inflow,cfs)

Node35 / 3.72E+02

==> System inflows (data group K3) at 14.83 hours (Junction / Inflow,cfs)

Node35 / 3.85E+02

==> System inflows (data group K3) at 14.94 hours (Junction / Inflow,cfs)

Coupland_Exist100yr.out

Node35 / 3.98E+02

==> System inflows (data group K3) at 15.00 hours (Junction / Inflow,cfs)

Node35 / 4.12E+02

==> System inflows (data group K3) at 15.08 hours (Junction / Inflow,cfs)

Node35 / 4.27E+02

==> System inflows (data group K3) at 15.19 hours (Junction / Inflow,cfs)

Node35 / 4.41E+02

==> System inflows (data group K3) at 15.25 hours (Junction / Inflow,cfs)

Node35 / 4.57E+02

==> System inflows (data group K3) at 15.33 hours (Junction / Inflow,cfs)

Node35 / 4.73E+02

==> System inflows (data group K3) at 15.44 hours (Junction / Inflow,cfs)

Node35 / 4.90E+02

==> System inflows (data group K3) at 15.50 hours (Junction / Inflow,cfs)

Node35 / 5.09E+02

==> System inflows (data group K3) at 15.58 hours (Junction / Inflow,cfs)

Node35 / 5.31E+02

==> System inflows (data group K3) at 15.69 hours (Junction / Inflow,cfs)

Node35 / 5.56E+02

#####

Coupland_Exist100yr.out

==> System inflows (data group K3) at 15.75 hours (Junction / Inflow,cfs)

Node35 / 5.86E+02

#####

==> System inflows (data group K3) at 15.83 hours (Junction / Inflow,cfs)

Node35 / 6.26E+02

#####

==> System inflows (data group K3) at 15.94 hours (Junction / Inflow,cfs)

Node35 / 6.79E+02

#####

==> System inflows (data group K3) at 16.00 hours (Junction / Inflow,cfs)

Node35 / 7.59E+02

#####

==> System inflows (data group K3) at 16.08 hours (Junction / Inflow,cfs)

Node35 / 8.71E+02

#####

==> System inflows (data group K3) at 16.19 hours (Junction / Inflow,cfs)

Node35 / 1.00E+03

#####

==> System inflows (data group K3) at 16.25 hours (Junction / Inflow,cfs)

Node35 / 1.13E+03

#####

==> System inflows (data group K3) at 16.33 hours (Junction / Inflow,cfs)

Node35 / 1.23E+03

#####

==> System inflows (data group K3) at 16.44 hours (Junction / Inflow,cfs)

Node35 / 1.30E+03

#####

==> System inflows (data group K3) at 16.50 hours (Junction / Inflow,cfs)

Node35 / 1.33E+03

Coupland_Exist100yr.out

==> System inflows (data group K3) at 16.58 hours (Junction / Inflow,cfs)

Node35 / 1.36E+03

==> System inflows (data group K3) at 16.69 hours (Junction / Inflow,cfs)

Node35 / 1.37E+03

==> System inflows (data group K3) at 16.75 hours (Junction / Inflow,cfs)

Node35 / 1.38E+03

==> System inflows (data group K3) at 16.83 hours (Junction / Inflow,cfs)

Node35 / 1.38E+03

==> System inflows (data group K3) at 16.94 hours (Junction / Inflow,cfs)

Node35 / 1.38E+03

==> System inflows (data group K3) at 17.00 hours (Junction / Inflow,cfs)

Node35 / 1.38E+03

==> System inflows (data group K3) at 17.08 hours (Junction / Inflow,cfs)

Node35 / 1.38E+03

==> System inflows (data group K3) at 17.19 hours (Junction / Inflow,cfs)

Node35 / 1.38E+03

==> System inflows (data group K3) at 17.25 hours (Junction / Inflow,cfs)

Node35 / 1.38E+03

==> System inflows (data group K3) at 17.33 hours (Junction / Inflow,cfs)

Coupland_Exist100yr.out

Node35 / 1.37E+03

==> System inflows (data group K3) at 17.44 hours (Junction / Inflow,cfs)

Node35 / 1.37E+03

==> System inflows (data group K3) at 17.50 hours (Junction / Inflow,cfs)

Node35 / 1.37E+03

==> System inflows (data group K3) at 17.58 hours (Junction / Inflow,cfs)

Node35 / 1.36E+03

==> System inflows (data group K3) at 17.69 hours (Junction / Inflow,cfs)

Node35 / 1.35E+03

==> System inflows (data group K3) at 17.75 hours (Junction / Inflow,cfs)

Node35 / 1.35E+03

==> System inflows (data group K3) at 17.83 hours (Junction / Inflow,cfs)

Node35 / 1.34E+03

==> System inflows (data group K3) at 17.94 hours (Junction / Inflow,cfs)

Node35 / 1.33E+03

==> System inflows (data group K3) at 18.00 hours (Junction / Inflow,cfs)

Node35 / 1.32E+03

==> System inflows (data group K3) at 18.08 hours (Junction / Inflow,cfs)

Node35 / 1.31E+03
#####

Coupland_Exist100yr.out

==> System inflows (data group K3) at 18.19 hours (Junction / Inflow,cfs)

Node35 / 1.30E+03

==> System inflows (data group K3) at 18.25 hours (Junction / Inflow,cfs)

Node35 / 1.29E+03

==> System inflows (data group K3) at 18.33 hours (Junction / Inflow,cfs)

Node35 / 1.28E+03

==> System inflows (data group K3) at 18.44 hours (Junction / Inflow,cfs)

Node35 / 1.27E+03

==> System inflows (data group K3) at 18.50 hours (Junction / Inflow,cfs)

Node35 / 1.26E+03

==> System inflows (data group K3) at 18.58 hours (Junction / Inflow,cfs)

Node35 / 1.25E+03

==> System inflows (data group K3) at 18.69 hours (Junction / Inflow,cfs)

Node35 / 1.24E+03

==> System inflows (data group K3) at 18.75 hours (Junction / Inflow,cfs)

Node35 / 1.23E+03

==> System inflows (data group K3) at 18.83 hours (Junction / Inflow,cfs)

Node35 / 1.22E+03

==> System inflows (data group K3) at 18.94 hours (Junction / Inflow,cfs)

Coupland_Exist100yr.out

Node35 / 1.21E+03

==> System inflows (data group K3) at 19.00 hours (Junction / Inflow,cfs)

Node35 / 1.20E+03

==> System inflows (data group K3) at 19.08 hours (Junction / Inflow,cfs)

Node35 / 1.19E+03

==> System inflows (data group K3) at 19.19 hours (Junction / Inflow,cfs)

Node35 / 1.18E+03

==> System inflows (data group K3) at 19.25 hours (Junction / Inflow,cfs)

Node35 / 1.16E+03

==> System inflows (data group K3) at 19.33 hours (Junction / Inflow,cfs)

Node35 / 1.15E+03

==> System inflows (data group K3) at 19.44 hours (Junction / Inflow,cfs)

Node35 / 1.14E+03

==> System inflows (data group K3) at 19.50 hours (Junction / Inflow,cfs)

Node35 / 1.12E+03

==> System inflows (data group K3) at 19.58 hours (Junction / Inflow,cfs)

Node35 / 1.11E+03

==> System inflows (data group K3) at 19.69 hours (Junction / Inflow,cfs)

Node35 / 1.09E+03

#####

Coupland_Exist100yr.out

==> System inflows (data group K3) at 19.75 hours (Junction / Inflow,cfs)

Node35 / 1.08E+03

#####

==> System inflows (data group K3) at 19.83 hours (Junction / Inflow,cfs)

Node35 / 1.07E+03

#####

==> System inflows (data group K3) at 19.94 hours (Junction / Inflow,cfs)

Node35 / 1.05E+03

#####

==> System inflows (data group K3) at 20.00 hours (Junction / Inflow,cfs)

Node35 / 1.04E+03

#####

==> System inflows (data group K3) at 20.08 hours (Junction / Inflow,cfs)

Node35 / 1.03E+03

#####

==> System inflows (data group K3) at 20.19 hours (Junction / Inflow,cfs)

Node35 / 1.01E+03

#####

==> System inflows (data group K3) at 20.25 hours (Junction / Inflow,cfs)

Node35 / 1.00E+03

#####

==> System inflows (data group K3) at 20.33 hours (Junction / Inflow,cfs)

Node35 / 9.87E+02

#####

==> System inflows (data group K3) at 20.44 hours (Junction / Inflow,cfs)

Node35 / 9.74E+02

#####

==> System inflows (data group K3) at 20.50 hours (Junction / Inflow,cfs)

Node35 / 9.62E+02

Coupland_Exist100yr.out

==> System inflows (data group K3) at 20.58 hours (Junction / Inflow,cfs)

Node35 / 9.49E+02

==> System inflows (data group K3) at 20.69 hours (Junction / Inflow,cfs)

Node35 / 9.37E+02

==> System inflows (data group K3) at 20.75 hours (Junction / Inflow,cfs)

Node35 / 9.25E+02

==> System inflows (data group K3) at 20.83 hours (Junction / Inflow,cfs)

Node35 / 9.13E+02

==> System inflows (data group K3) at 20.94 hours (Junction / Inflow,cfs)

Node35 / 9.01E+02

==> System inflows (data group K3) at 21.00 hours (Junction / Inflow,cfs)

Node35 / 8.89E+02

==> System inflows (data group K3) at 21.08 hours (Junction / Inflow,cfs)

Node35 / 8.77E+02

==> System inflows (data group K3) at 21.19 hours (Junction / Inflow,cfs)

Node35 / 8.66E+02

==> System inflows (data group K3) at 21.25 hours (Junction / Inflow,cfs)

Node35 / 8.55E+02

==> System inflows (data group K3) at 21.33 hours (Junction / Inflow,cfs)

Coupland_Exist100yr.out

Node35 / 8.44E+02

==> System inflows (data group K3) at 21.44 hours (Junction / Inflow,cfs)

Node35 / 8.32E+02

==> System inflows (data group K3) at 21.50 hours (Junction / Inflow,cfs)

Node35 / 8.22E+02

==> System inflows (data group K3) at 21.58 hours (Junction / Inflow,cfs)

Node35 / 8.11E+02

==> System inflows (data group K3) at 21.69 hours (Junction / Inflow,cfs)

Node35 / 8.00E+02

==> System inflows (data group K3) at 21.75 hours (Junction / Inflow,cfs)

Node35 / 7.90E+02

==> System inflows (data group K3) at 21.83 hours (Junction / Inflow,cfs)

Node35 / 7.80E+02

==> System inflows (data group K3) at 21.94 hours (Junction / Inflow,cfs)

Node35 / 7.69E+02

==> System inflows (data group K3) at 22.00 hours (Junction / Inflow,cfs)

Node35 / 7.59E+02

==> System inflows (data group K3) at 22.08 hours (Junction / Inflow,cfs)

Node35 / 7.49E+02
#####

Coupland_Exist100yr.out

==> System inflows (data group K3) at 22.19 hours (Junction / Inflow,cfs)

Node35 / 7.40E+02

==> System inflows (data group K3) at 22.25 hours (Junction / Inflow,cfs)

Node35 / 7.30E+02

==> System inflows (data group K3) at 22.33 hours (Junction / Inflow,cfs)

Node35 / 7.20E+02

==> System inflows (data group K3) at 22.44 hours (Junction / Inflow,cfs)

Node35 / 7.11E+02

==> System inflows (data group K3) at 22.50 hours (Junction / Inflow,cfs)

Node35 / 7.01E+02

==> System inflows (data group K3) at 22.58 hours (Junction / Inflow,cfs)

Node35 / 6.92E+02

==> System inflows (data group K3) at 22.69 hours (Junction / Inflow,cfs)

Node35 / 6.83E+02

==> System inflows (data group K3) at 22.75 hours (Junction / Inflow,cfs)

Node35 / 6.74E+02

==> System inflows (data group K3) at 22.83 hours (Junction / Inflow,cfs)

Node35 / 6.65E+02

==> System inflows (data group K3) at 22.94 hours (Junction / Inflow,cfs)

Coupland_Exist100yr.out

Node35 / 6.57E+02

==> System inflows (data group K3) at 23.00 hours (Junction / Inflow,cfs)

Node35 / 6.48E+02

==> System inflows (data group K3) at 23.08 hours (Junction / Inflow,cfs)

Node35 / 6.40E+02

==> System inflows (data group K3) at 23.19 hours (Junction / Inflow,cfs)

Node35 / 6.31E+02

==> System inflows (data group K3) at 23.25 hours (Junction / Inflow,cfs)

Node35 / 6.23E+02

==> System inflows (data group K3) at 23.33 hours (Junction / Inflow,cfs)

Node35 / 6.15E+02

==> System inflows (data group K3) at 23.44 hours (Junction / Inflow,cfs)

Node35 / 6.07E+02

==> System inflows (data group K3) at 23.50 hours (Junction / Inflow,cfs)

Node35 / 5.99E+02

==> System inflows (data group K3) at 23.58 hours (Junction / Inflow,cfs)

Node35 / 5.91E+02

==> System inflows (data group K3) at 23.69 hours (Junction / Inflow,cfs)

Node35 / 5.84E+02

#####

Coupland_Exist100yr.out

==> System inflows (data group K3) at 23.75 hours (Junction / Inflow,cfs)

Node35 / 5.76E+02

#####

==> System inflows (data group K3) at 23.83 hours (Junction / Inflow,cfs)

Node35 / 5.68E+02

#####

==> System inflows (data group K3) at 23.94 hours (Junction / Inflow,cfs)

Node35 / 5.61E+02

#####

==> System inflows (data group K3) at 24.00 hours (Junction / Inflow,cfs)

Node35 / 5.54E+02

#####

==> System inflows (data group K3) at 24.08 hours (Junction / Inflow,cfs)

Node35 / 5.46E+02

#####

==> System inflows (data group K3) at 24.19 hours (Junction / Inflow,cfs)

Node35 / 5.38E+02

#####

==> System inflows (data group K3) at 24.25 hours (Junction / Inflow,cfs)

Node35 / 5.28E+02

#####

==> System inflows (data group K3) at 24.33 hours (Junction / Inflow,cfs)

Node35 / 5.19E+02

#####

==> System inflows (data group K3) at 24.44 hours (Junction / Inflow,cfs)

Node35 / 5.09E+02

#####

==> System inflows (data group K3) at 24.50 hours (Junction / Inflow,cfs)

Node35 / 5.00E+02

Coupland_Exist100yr.out

==> System inflows (data group K3) at 24.58 hours (Junction / Inflow,cfs)

Node35 / 4.90E+02

==> System inflows (data group K3) at 24.69 hours (Junction / Inflow,cfs)

Node35 / 4.81E+02

==> System inflows (data group K3) at 24.75 hours (Junction / Inflow,cfs)

Node35 / 4.72E+02

==> System inflows (data group K3) at 24.83 hours (Junction / Inflow,cfs)

Node35 / 4.63E+02

==> System inflows (data group K3) at 24.94 hours (Junction / Inflow,cfs)

Node35 / 4.54E+02

==> System inflows (data group K3) at 25.00 hours (Junction / Inflow,cfs)

Node35 / 4.46E+02

==> System inflows (data group K3) at 25.08 hours (Junction / Inflow,cfs)

Node35 / 4.38E+02

==> System inflows (data group K3) at 25.19 hours (Junction / Inflow,cfs)

Node35 / 4.29E+02

==> System inflows (data group K3) at 25.25 hours (Junction / Inflow,cfs)

Node35 / 4.21E+02

==> System inflows (data group K3) at 25.33 hours (Junction / Inflow,cfs)

Coupland_Exist100yr.out

Node35 / 4.13E+02

==> System inflows (data group K3) at 25.44 hours (Junction / Inflow,cfs)

Node35 / 4.06E+02

==> System inflows (data group K3) at 25.50 hours (Junction / Inflow,cfs)

Node35 / 3.98E+02

==> System inflows (data group K3) at 25.58 hours (Junction / Inflow,cfs)

Node35 / 3.90E+02

==> System inflows (data group K3) at 25.69 hours (Junction / Inflow,cfs)

Node35 / 3.83E+02

==> System inflows (data group K3) at 25.75 hours (Junction / Inflow,cfs)

Node35 / 3.76E+02

==> System inflows (data group K3) at 25.83 hours (Junction / Inflow,cfs)

Node35 / 3.69E+02

==> System inflows (data group K3) at 25.94 hours (Junction / Inflow,cfs)

Node35 / 3.62E+02

==> System inflows (data group K3) at 26.00 hours (Junction / Inflow,cfs)

Node35 / 3.55E+02

==> System inflows (data group K3) at 26.08 hours (Junction / Inflow,cfs)

Node35 / 3.48E+02
#####

Coupland_Exist100yr.out

==> System inflows (data group K3) at 26.19 hours (Junction / Inflow,cfs)

Node35 / 3.42E+02

==> System inflows (data group K3) at 26.25 hours (Junction / Inflow,cfs)

Node35 / 3.36E+02

==> System inflows (data group K3) at 26.33 hours (Junction / Inflow,cfs)

Node35 / 3.29E+02

==> System inflows (data group K3) at 26.44 hours (Junction / Inflow,cfs)

Node35 / 3.23E+02

==> System inflows (data group K3) at 26.50 hours (Junction / Inflow,cfs)

Node35 / 3.17E+02

==> System inflows (data group K3) at 26.58 hours (Junction / Inflow,cfs)

Node35 / 3.11E+02

==> System inflows (data group K3) at 26.69 hours (Junction / Inflow,cfs)

Node35 / 3.05E+02

==> System inflows (data group K3) at 26.75 hours (Junction / Inflow,cfs)

Node35 / 3.00E+02

==> System inflows (data group K3) at 26.83 hours (Junction / Inflow,cfs)

Node35 / 2.94E+02

==> System inflows (data group K3) at 26.94 hours (Junction / Inflow,cfs)

Coupland_Exist100yr.out

Node35 / 2.88E+02

==> System inflows (data group K3) at 27.00 hours (Junction / Inflow,cfs)

Node35 / 2.83E+02

==> System inflows (data group K3) at 27.08 hours (Junction / Inflow,cfs)

Node35 / 2.78E+02

==> System inflows (data group K3) at 27.19 hours (Junction / Inflow,cfs)

Node35 / 2.72E+02

==> System inflows (data group K3) at 27.25 hours (Junction / Inflow,cfs)

Node35 / 2.67E+02

==> System inflows (data group K3) at 27.33 hours (Junction / Inflow,cfs)

Node35 / 2.62E+02

==> System inflows (data group K3) at 27.44 hours (Junction / Inflow,cfs)

Node35 / 2.57E+02

==> System inflows (data group K3) at 27.50 hours (Junction / Inflow,cfs)

Node35 / 2.52E+02

==> System inflows (data group K3) at 27.58 hours (Junction / Inflow,cfs)

Node35 / 2.48E+02

==> System inflows (data group K3) at 27.69 hours (Junction / Inflow,cfs)

Node35 / 2.43E+02

#####

Coupland_Exist100yr.out

==> System inflows (data group K3) at 27.75 hours (Junction / Inflow,cfs)

Node35 / 2.39E+02
#####

Cycle 1000 Time 27 Hrs - 46.67 Min

Junction / Depth / Elevation	==> "*" Junction is Surcharged.
Node13/ 0.47 / 23.21	Node14/ 0.51 / 23.21
Node15/ 0.78 / 21.98	
Node16/ 0.82 / 21.98	Node17/ 0.79 / 21.10
Node19/ 1.51 / 20.94	
Node20/ 1.31 / 20.94	Node21/ 1.24 / 20.93
Node22/ 1.12 / 20.92	
Node23/ 1.43 / 20.88	Node24/ 1.01 / 20.88
Node25/ 0.52 / 20.09	
Node26/ 0.40 / 19.25	Node27/ 0.77 / 18.99
Node28/ 4.59 / 16.06	
Node31/ 4.64 / 16.12	Node33/ 4.51 / 15.97
Node35/ 4.64 / 16.13	
Node36/ 6.84 / 15.86	Node37/ 7.30 / 15.76
Node41/ 7.30 / 15.76	
Node18.1.1/ 6.11 / 21.10	Node34.1.1/ 6.89 / 23.21
Node39/ 0.15 / 23.30	

Conduit/	FLOW	==> "*" Conduit uses the normal flow option.
Link14/ 0.15*	Link16/ 0.15*	
Link18/ 0.27*	Link20/ 0.58	
Link22/ -0.64	Link24/ 0.70	
Link26/ 0.71	Link31/ 242.89	
Link33/ 245.42	Link34/ -0.15	
Link36/ 249.14	Link37/ 256.82	
Link42.1.1/ 261.29	Link41/ 0.04*	
Link48/ 241.77	227.1/ 0.15	
231.1/ 0.15	235.1/ -0.16	
239.1/ -0.56	243.1/ -0.60	
247.1/ -0.67	251.1/ 0.71	
255.1/ 0.71	W14/ 0.00	
W15/ 0.00	W17/ 0.00	
W20/ 0.00	W21/ 0.00	
W24/ 0.00	W25/ 0.00	
W27/ 0.00	FREE# 1/ 261.29	

==> System inflows (data group K3) at 27.83 hours (Junction / Inflow,cfs)

Node35 / 2.34E+02

#####

Coupland_Exist100yr.out

==> System inflows (data group K3) at 27.94 hours (Junction / Inflow,cfs)

Node35 / 2.30E+02

#####

==> System inflows (data group K3) at 28.00 hours (Junction / Inflow,cfs)

Node35 / 2.25E+02

#####

==> System inflows (data group K3) at 28.08 hours (Junction / Inflow,cfs)

Node35 / 2.21E+02

#####

==> System inflows (data group K3) at 28.19 hours (Junction / Inflow,cfs)

Node35 / 2.17E+02

#####

==> System inflows (data group K3) at 28.25 hours (Junction / Inflow,cfs)

Node35 / 2.13E+02

#####

==> System inflows (data group K3) at 28.33 hours (Junction / Inflow,cfs)

Node35 / 2.09E+02

#####

==> System inflows (data group K3) at 28.44 hours (Junction / Inflow,cfs)

Node35 / 2.05E+02

#####

==> System inflows (data group K3) at 28.50 hours (Junction / Inflow,cfs)

Node35 / 2.01E+02

#####

==> System inflows (data group K3) at 28.58 hours (Junction / Inflow,cfs)

Node35 / 1.97E+02

#####

==> System inflows (data group K3) at 28.69 hours (Junction / Inflow,cfs)

Node35 / 1.94E+02

Coupland_Exist100yr.out

==> System inflows (data group K3) at 28.75 hours (Junction / Inflow,cfs)

Node35 / 1.90E+02

==> System inflows (data group K3) at 28.83 hours (Junction / Inflow,cfs)

Node35 / 1.86E+02

==> System inflows (data group K3) at 28.94 hours (Junction / Inflow,cfs)

Node35 / 1.83E+02

==> System inflows (data group K3) at 29.00 hours (Junction / Inflow,cfs)

Node35 / 1.80E+02

==> System inflows (data group K3) at 29.08 hours (Junction / Inflow,cfs)

Node35 / 1.76E+02

==> System inflows (data group K3) at 29.19 hours (Junction / Inflow,cfs)

Node35 / 1.73E+02

==> System inflows (data group K3) at 29.25 hours (Junction / Inflow,cfs)

Node35 / 1.70E+02

==> System inflows (data group K3) at 29.33 hours (Junction / Inflow,cfs)

Node35 / 1.66E+02

==> System inflows (data group K3) at 29.44 hours (Junction / Inflow,cfs)

Node35 / 1.63E+02

==> System inflows (data group K3) at 29.50 hours (Junction / Inflow,cfs)

Coupland_Exist100yr.out

Node35 / 1.60E+02

==> System inflows (data group K3) at 29.58 hours (Junction / Inflow,cfs)

Node35 / 1.57E+02

==> System inflows (data group K3) at 29.69 hours (Junction / Inflow,cfs)

Node35 / 1.54E+02

==> System inflows (data group K3) at 29.75 hours (Junction / Inflow,cfs)

Node35 / 1.51E+02

==> System inflows (data group K3) at 29.83 hours (Junction / Inflow,cfs)

Node35 / 1.48E+02

==> System inflows (data group K3) at 29.94 hours (Junction / Inflow,cfs)

Node35 / 1.46E+02

==> System inflows (data group K3) at 30.00 hours (Junction / Inflow,cfs)

Node35 / 1.43E+02

==> System inflows (data group K3) at 30.08 hours (Junction / Inflow,cfs)

Node35 / 1.40E+02

==> System inflows (data group K3) at 30.19 hours (Junction / Inflow,cfs)

Node35 / 1.38E+02

==> System inflows (data group K3) at 30.25 hours (Junction / Inflow,cfs)

Node35 / 1.35E+02
#####

Coupland_Exist100yr.out

==> System inflows (data group K3) at 30.33 hours (Junction / Inflow,cfs)

Node35 / 1.32E+02

==> System inflows (data group K3) at 30.44 hours (Junction / Inflow,cfs)

Node35 / 1.30E+02

==> System inflows (data group K3) at 30.50 hours (Junction / Inflow,cfs)

Node35 / 1.28E+02

==> System inflows (data group K3) at 30.58 hours (Junction / Inflow,cfs)

Node35 / 1.25E+02

==> System inflows (data group K3) at 30.69 hours (Junction / Inflow,cfs)

Node35 / 1.23E+02

==> System inflows (data group K3) at 30.75 hours (Junction / Inflow,cfs)

Node35 / 1.20E+02

==> System inflows (data group K3) at 30.83 hours (Junction / Inflow,cfs)

Node35 / 1.18E+02

==> System inflows (data group K3) at 30.94 hours (Junction / Inflow,cfs)

Node35 / 1.16E+02

==> System inflows (data group K3) at 31.00 hours (Junction / Inflow,cfs)

Node35 / 1.14E+02

==> System inflows (data group K3) at 31.08 hours (Junction / Inflow,cfs)

Coupland_Exist100yr.out

Node35 / 1.12E+02

==> System inflows (data group K3) at 31.19 hours (Junction / Inflow,cfs)

Node35 / 1.10E+02

==> System inflows (data group K3) at 31.25 hours (Junction / Inflow,cfs)

Node35 / 1.07E+02

==> System inflows (data group K3) at 31.33 hours (Junction / Inflow,cfs)

Node35 / 1.05E+02

==> System inflows (data group K3) at 31.44 hours (Junction / Inflow,cfs)

Node35 / 1.03E+02

==> System inflows (data group K3) at 31.50 hours (Junction / Inflow,cfs)

Node35 / 1.02E+02

==> System inflows (data group K3) at 31.58 hours (Junction / Inflow,cfs)

Node35 / 9.96E+01

==> System inflows (data group K3) at 31.69 hours (Junction / Inflow,cfs)

Node35 / 9.77E+01

==> System inflows (data group K3) at 31.75 hours (Junction / Inflow,cfs)

Node35 / 9.58E+01

==> System inflows (data group K3) at 31.83 hours (Junction / Inflow,cfs)

Node35 / 9.40E+01

#####

Coupland_Exist100yr.out

==> System inflows (data group K3) at 31.94 hours (Junction / Inflow,cfs)

Node35 / 9.22E+01

#####

==> System inflows (data group K3) at 32.00 hours (Junction / Inflow,cfs)

Node35 / 9.05E+01

#####

==> System inflows (data group K3) at 32.08 hours (Junction / Inflow,cfs)

Node35 / 8.88E+01

#####

==> System inflows (data group K3) at 32.19 hours (Junction / Inflow,cfs)

Node35 / 8.71E+01

#####

==> System inflows (data group K3) at 32.25 hours (Junction / Inflow,cfs)

Node35 / 8.55E+01

#####

==> System inflows (data group K3) at 32.33 hours (Junction / Inflow,cfs)

Node35 / 8.38E+01

#####

==> System inflows (data group K3) at 32.44 hours (Junction / Inflow,cfs)

Node35 / 8.23E+01

#####

==> System inflows (data group K3) at 32.50 hours (Junction / Inflow,cfs)

Node35 / 8.07E+01

#####

==> System inflows (data group K3) at 32.58 hours (Junction / Inflow,cfs)

Node35 / 7.92E+01

#####

==> System inflows (data group K3) at 32.69 hours (Junction / Inflow,cfs)

Node35 / 7.77E+01

Coupland_Exist100yr.out

==> System inflows (data group K3) at 32.75 hours (Junction / Inflow,cfs)

Node35 / 7.62E+01

==> System inflows (data group K3) at 32.83 hours (Junction / Inflow,cfs)

Node35 / 7.48E+01

==> System inflows (data group K3) at 32.94 hours (Junction / Inflow,cfs)

Node35 / 7.33E+01

==> System inflows (data group K3) at 33.00 hours (Junction / Inflow,cfs)

Node35 / 7.19E+01

==> System inflows (data group K3) at 33.08 hours (Junction / Inflow,cfs)

Node35 / 7.06E+01

==> System inflows (data group K3) at 33.19 hours (Junction / Inflow,cfs)

Node35 / 6.92E+01

==> System inflows (data group K3) at 33.25 hours (Junction / Inflow,cfs)

Node35 / 6.79E+01

==> System inflows (data group K3) at 33.33 hours (Junction / Inflow,cfs)

Node35 / 6.66E+01

==> System inflows (data group K3) at 33.44 hours (Junction / Inflow,cfs)

Node35 / 6.54E+01

==> System inflows (data group K3) at 33.50 hours (Junction / Inflow,cfs)

Coupland_Exist100yr.out

Node35 / 6.41E+01

==> System inflows (data group K3) at 33.58 hours (Junction / Inflow,cfs)

Node35 / 6.29E+01

==> System inflows (data group K3) at 33.69 hours (Junction / Inflow,cfs)

Node35 / 6.17E+01

==> System inflows (data group K3) at 33.75 hours (Junction / Inflow,cfs)

Node35 / 6.05E+01

==> System inflows (data group K3) at 33.83 hours (Junction / Inflow,cfs)

Node35 / 5.94E+01

==> System inflows (data group K3) at 33.94 hours (Junction / Inflow,cfs)

Node35 / 5.82E+01

==> System inflows (data group K3) at 34.00 hours (Junction / Inflow,cfs)

Node35 / 5.71E+01

==> System inflows (data group K3) at 34.08 hours (Junction / Inflow,cfs)

Node35 / 5.60E+01

==> System inflows (data group K3) at 34.19 hours (Junction / Inflow,cfs)

Node35 / 5.50E+01

==> System inflows (data group K3) at 34.25 hours (Junction / Inflow,cfs)

Node35 / 5.39E+01
#####

Coupland_Exist100yr.out

==> System inflows (data group K3) at 34.33 hours (Junction / Inflow,cfs)

Node35 / 5.29E+01

==> System inflows (data group K3) at 34.44 hours (Junction / Inflow,cfs)

Node35 / 5.19E+01

==> System inflows (data group K3) at 34.50 hours (Junction / Inflow,cfs)

Node35 / 5.09E+01

==> System inflows (data group K3) at 34.58 hours (Junction / Inflow,cfs)

Node35 / 4.99E+01

==> System inflows (data group K3) at 34.69 hours (Junction / Inflow,cfs)

Node35 / 4.89E+01

==> System inflows (data group K3) at 34.75 hours (Junction / Inflow,cfs)

Node35 / 4.80E+01

==> System inflows (data group K3) at 34.83 hours (Junction / Inflow,cfs)

Node35 / 4.71E+01

==> System inflows (data group K3) at 34.94 hours (Junction / Inflow,cfs)

Node35 / 4.62E+01

==> System inflows (data group K3) at 35.00 hours (Junction / Inflow,cfs)

Node35 / 4.53E+01

==> System inflows (data group K3) at 35.08 hours (Junction / Inflow,cfs)

Coupland_Exist100yr.out

Node35 / 4.44E+01

==> System inflows (data group K3) at 35.19 hours (Junction / Inflow,cfs)

Node35 / 4.35E+01

==> System inflows (data group K3) at 35.25 hours (Junction / Inflow,cfs)

Node35 / 4.27E+01

==> System inflows (data group K3) at 35.33 hours (Junction / Inflow,cfs)

Node35 / 4.19E+01

==> System inflows (data group K3) at 35.44 hours (Junction / Inflow,cfs)

Node35 / 4.11E+01

==> System inflows (data group K3) at 35.50 hours (Junction / Inflow,cfs)

Node35 / 4.03E+01

==> System inflows (data group K3) at 35.58 hours (Junction / Inflow,cfs)

Node35 / 3.95E+01

==> System inflows (data group K3) at 35.69 hours (Junction / Inflow,cfs)

Node35 / 3.87E+01

==> System inflows (data group K3) at 35.75 hours (Junction / Inflow,cfs)

Node35 / 3.79E+01

==> System inflows (data group K3) at 35.83 hours (Junction / Inflow,cfs)

Node35 / 3.72E+01

#####

Coupland_Exist100yr.out

==> System inflows (data group K3) at 35.94 hours (Junction / Inflow,cfs)

Node35 / 3.65E+01

#####

==> System inflows (data group K3) at 36.03 hours (Junction / Inflow,cfs)

Node35 / 3.58E+01

#####

==> System inflows (data group K3) at 36.08 hours (Junction / Inflow,cfs)

Node35 / 3.51E+01

#####

==> System inflows (data group K3) at 36.19 hours (Junction / Inflow,cfs)

Node35 / 3.44E+01

#####

==> System inflows (data group K3) at 36.28 hours (Junction / Inflow,cfs)

Node35 / 3.37E+01

#####

==> System inflows (data group K3) at 36.33 hours (Junction / Inflow,cfs)

Node35 / 3.30E+01

#####

==> System inflows (data group K3) at 36.44 hours (Junction / Inflow,cfs)

Node35 / 3.24E+01

#####

==> System inflows (data group K3) at 36.53 hours (Junction / Inflow,cfs)

Node35 / 3.17E+01

#####

==> System inflows (data group K3) at 36.58 hours (Junction / Inflow,cfs)

Node35 / 3.11E+01

#####

==> System inflows (data group K3) at 36.69 hours (Junction / Inflow,cfs)

Node35 / 3.04E+01

Coupland_Exist100yr.out

==> System inflows (data group K3) at 36.78 hours (Junction / Inflow,cfs)

Node35 / 2.98E+01

==> System inflows (data group K3) at 36.83 hours (Junction / Inflow,cfs)

Node35 / 2.92E+01

==> System inflows (data group K3) at 36.94 hours (Junction / Inflow,cfs)

Node35 / 2.86E+01

==> System inflows (data group K3) at 37.03 hours (Junction / Inflow,cfs)

Node35 / 2.80E+01

==> System inflows (data group K3) at 37.08 hours (Junction / Inflow,cfs)

Node35 / 2.74E+01

==> System inflows (data group K3) at 37.19 hours (Junction / Inflow,cfs)

Node35 / 2.68E+01

==> System inflows (data group K3) at 37.28 hours (Junction / Inflow,cfs)

Node35 / 2.62E+01

==> System inflows (data group K3) at 37.33 hours (Junction / Inflow,cfs)

Node35 / 2.57E+01

==> System inflows (data group K3) at 37.44 hours (Junction / Inflow,cfs)

Node35 / 2.51E+01

==> System inflows (data group K3) at 37.53 hours (Junction / Inflow,cfs)

Coupland_Exist100yr.out

Node35 / 2.46E+01

==> System inflows (data group K3) at 37.58 hours (Junction / Inflow,cfs)

Node35 / 2.40E+01

==> System inflows (data group K3) at 37.69 hours (Junction / Inflow,cfs)

Node35 / 2.35E+01

==> System inflows (data group K3) at 37.78 hours (Junction / Inflow,cfs)

Node35 / 2.30E+01

==> System inflows (data group K3) at 37.83 hours (Junction / Inflow,cfs)

Node35 / 2.25E+01

==> System inflows (data group K3) at 37.94 hours (Junction / Inflow,cfs)

Node35 / 2.20E+01

==> System inflows (data group K3) at 38.03 hours (Junction / Inflow,cfs)

Node35 / 2.15E+01

==> System inflows (data group K3) at 38.08 hours (Junction / Inflow,cfs)

Node35 / 2.10E+01

==> System inflows (data group K3) at 38.19 hours (Junction / Inflow,cfs)

Node35 / 2.05E+01

==> System inflows (data group K3) at 38.28 hours (Junction / Inflow,cfs)

Node35 / 2.00E+01
#####

Coupland_Exist100yr.out

==> System inflows (data group K3) at 38.33 hours (Junction / Inflow,cfs)

Node35 / 1.95E+01

==> System inflows (data group K3) at 38.44 hours (Junction / Inflow,cfs)

Node35 / 1.90E+01

==> System inflows (data group K3) at 38.53 hours (Junction / Inflow,cfs)

Node35 / 1.86E+01

==> System inflows (data group K3) at 38.58 hours (Junction / Inflow,cfs)

Node35 / 1.81E+01

==> System inflows (data group K3) at 38.69 hours (Junction / Inflow,cfs)

Node35 / 1.77E+01

==> System inflows (data group K3) at 38.78 hours (Junction / Inflow,cfs)

Node35 / 1.72E+01

==> System inflows (data group K3) at 38.83 hours (Junction / Inflow,cfs)

Node35 / 1.67E+01

==> System inflows (data group K3) at 38.94 hours (Junction / Inflow,cfs)

Node35 / 1.63E+01

==> System inflows (data group K3) at 39.03 hours (Junction / Inflow,cfs)

Node35 / 1.58E+01

==> System inflows (data group K3) at 39.08 hours (Junction / Inflow,cfs)

Coupland_Exist100yr.out

Node35 / 1.53E+01

==> System inflows (data group K3) at 39.19 hours (Junction / Inflow,cfs)

Node35 / 1.48E+01

==> System inflows (data group K3) at 39.28 hours (Junction / Inflow,cfs)

Node35 / 1.43E+01

==> System inflows (data group K3) at 39.33 hours (Junction / Inflow,cfs)

Node35 / 1.37E+01

==> System inflows (data group K3) at 39.44 hours (Junction / Inflow,cfs)

Node35 / 1.29E+01

==> System inflows (data group K3) at 39.53 hours (Junction / Inflow,cfs)

Node35 / 1.20E+01

==> System inflows (data group K3) at 39.58 hours (Junction / Inflow,cfs)

Node35 / 1.04E+01

==> System inflows (data group K3) at 39.69 hours (Junction / Inflow,cfs)

Node35 / 9.70E+00

==> System inflows (data group K3) at 39.78 hours (Junction / Inflow,cfs)

Node35 / 9.10E+00

==> System inflows (data group K3) at 39.83 hours (Junction / Inflow,cfs)

Node35 / 8.70E+00

#####

Coupland_Exist100yr.out

==> System inflows (data group K3) at 39.94 hours (Junction / Inflow,cfs)

Node35 / 8.30E+00

#####

==> System inflows (data group K3) at 40.03 hours (Junction / Inflow,cfs)

Node35 / 8.00E+00

#####

==> System inflows (data group K3) at 40.08 hours (Junction / Inflow,cfs)

Node35 / 7.60E+00

#####

==> System inflows (data group K3) at 40.19 hours (Junction / Inflow,cfs)

Node35 / 7.30E+00

#####

==> System inflows (data group K3) at 40.28 hours (Junction / Inflow,cfs)

Node35 / 7.10E+00

#####

==> System inflows (data group K3) at 40.33 hours (Junction / Inflow,cfs)

Node35 / 6.80E+00

#####

==> System inflows (data group K3) at 40.44 hours (Junction / Inflow,cfs)

Node35 / 6.60E+00

#####

==> System inflows (data group K3) at 40.53 hours (Junction / Inflow,cfs)

Node35 / 6.30E+00

#####

==> System inflows (data group K3) at 40.58 hours (Junction / Inflow,cfs)

Node35 / 6.10E+00

#####

==> System inflows (data group K3) at 40.69 hours (Junction / Inflow,cfs)

Node35 / 5.90E+00

Coupland_Exist100yr.out

==> System inflows (data group K3) at 40.78 hours (Junction / Inflow,cfs)

Node35 / 5.60E+00

==> System inflows (data group K3) at 40.83 hours (Junction / Inflow,cfs)

Node35 / 5.40E+00

==> System inflows (data group K3) at 40.94 hours (Junction / Inflow,cfs)

Node35 / 5.20E+00

==> System inflows (data group K3) at 41.03 hours (Junction / Inflow,cfs)

Node35 / 5.00E+00

==> System inflows (data group K3) at 41.08 hours (Junction / Inflow,cfs)

Node35 / 4.90E+00

==> System inflows (data group K3) at 41.19 hours (Junction / Inflow,cfs)

Node35 / 4.70E+00

==> System inflows (data group K3) at 41.28 hours (Junction / Inflow,cfs)

Node35 / 4.50E+00

==> System inflows (data group K3) at 41.33 hours (Junction / Inflow,cfs)

Node35 / 4.30E+00

==> System inflows (data group K3) at 41.44 hours (Junction / Inflow,cfs)

Node35 / 4.20E+00

==> System inflows (data group K3) at 41.53 hours (Junction / Inflow,cfs)

Coupland_Exist100yr.out

Node35 / 4.00E+00
 #####
 #####
 ==> System inflows (data group K3) at 41.58 hours (Junction / Inflow,cfs)

Node35 / 3.90E+00
 #####

Cycle 1500 Time 41 Hrs - 40.00 Min

Junction / Depth / Elevation	==> "*" Junction is Surcharged.
Node13/ 0.26 / 23.00	Node14/ 0.30 / 23.00
Node15/ 0.60 / 21.80	
Node16/ 0.64 / 21.80	Node17/ 0.45 / 20.76
Node19/ 0.87 / 20.30	
Node20/ 0.67 / 20.30	Node21/ 0.61 / 20.30
Node22/ 0.50 / 20.30	
Node23/ 0.83 / 20.28	Node24/ 0.41 / 20.28
Node25/ 0.26 / 19.83	
Node26/ 0.04 / 18.89	Node27/ 0.59 / 18.81
Node28/ 0.57 / 12.04	
Node31/ 0.66 / 12.14	Node33/ 0.34 / 11.80
Node35/ 0.67 / 12.16	
Node36/ 1.12 / 10.14	Node37/ 1.49 / 9.95
Node41/ 1.49 / 9.95	
Node18.1.1/ 5.77 / 20.76	Node34.1.1/ 6.72 / 23.04
Node39/ 0.00 / 23.15	

Conduit/	FLOW	==> "*" Conduit uses the normal flow option.
Link14/	0.00*	Link16/ 0.00*
Link18/	0.00*	Link20/ 0.00
		Link22/ -0.01
Link26/	0.01*	Link24/ 0.01
		Link31/ 3.97
Link36/	4.14*	Link33/ 4.05
		Link34/ 0.00
Link42.1.1/	5.17	Link37/ 4.69
Link48/	3.91	Link41/ 0.00*
		Link42.1.1/ 227.1/ 0.00
		Link43.1.1/ 231.1/ 0.00
239.1/	0.00	Link44.1.1/ 235.1/ 0.00
		Link45.1.1/ 243.1/ -0.01
		Link46.1.1/ 247.1/ -0.01
255.1/	0.01	Link47.1.1/ 251.1/ 0.01
		W14/ 0.00
		W15/ 0.00
W20/	0.00	W17/ 0.00
		W21/ 0.00
		W24/ 0.00
W27/	0.00	W25/ 0.00
		FREE# 1/ 5.18

 ==> System inflows (data group K3) at 41.69 hours (Junction / Inflow,cfs)

Coupland_Exist100yr.out

Node35 / 3.70E+00

==> System inflows (data group K3) at 41.78 hours (Junction / Inflow,cfs)

Node35 / 3.60E+00

==> System inflows (data group K3) at 41.83 hours (Junction / Inflow,cfs)

Node35 / 3.40E+00

==> System inflows (data group K3) at 41.94 hours (Junction / Inflow,cfs)

Node35 / 3.30E+00

==> System inflows (data group K3) at 42.03 hours (Junction / Inflow,cfs)

Node35 / 3.20E+00

==> System inflows (data group K3) at 42.08 hours (Junction / Inflow,cfs)

Node35 / 3.10E+00

==> System inflows (data group K3) at 42.19 hours (Junction / Inflow,cfs)

Node35 / 2.90E+00

==> System inflows (data group K3) at 42.28 hours (Junction / Inflow,cfs)

Node35 / 2.80E+00

==> System inflows (data group K3) at 42.33 hours (Junction / Inflow,cfs)

Node35 / 2.70E+00

==> System inflows (data group K3) at 42.44 hours (Junction / Inflow,cfs)

Node35 / 2.60E+00
#####

Coupland_Exist100yr.out

==> System inflows (data group K3) at 42.53 hours (Junction / Inflow,cfs)

Node35 / 2.50E+00

==> System inflows (data group K3) at 42.58 hours (Junction / Inflow,cfs)

Node35 / 2.40E+00

==> System inflows (data group K3) at 42.69 hours (Junction / Inflow,cfs)

Node35 / 2.30E+00

==> System inflows (data group K3) at 42.78 hours (Junction / Inflow,cfs)

Node35 / 2.20E+00

==> System inflows (data group K3) at 42.83 hours (Junction / Inflow,cfs)

Node35 / 2.20E+00

==> System inflows (data group K3) at 42.94 hours (Junction / Inflow,cfs)

Node35 / 2.10E+00

==> System inflows (data group K3) at 43.03 hours (Junction / Inflow,cfs)

Node35 / 2.00E+00

==> System inflows (data group K3) at 43.08 hours (Junction / Inflow,cfs)

Node35 / 1.90E+00

==> System inflows (data group K3) at 43.19 hours (Junction / Inflow,cfs)

Node35 / 1.90E+00

==> System inflows (data group K3) at 43.28 hours (Junction / Inflow,cfs)

Coupland_Exist100yr.out

Node35 / 1.80E+00

==> System inflows (data group K3) at 43.33 hours (Junction / Inflow,cfs)

Node35 / 1.70E+00

==> System inflows (data group K3) at 43.44 hours (Junction / Inflow,cfs)

Node35 / 1.70E+00

==> System inflows (data group K3) at 43.53 hours (Junction / Inflow,cfs)

Node35 / 1.60E+00

==> System inflows (data group K3) at 43.58 hours (Junction / Inflow,cfs)

Node35 / 1.60E+00

==> System inflows (data group K3) at 43.69 hours (Junction / Inflow,cfs)

Node35 / 1.50E+00

==> System inflows (data group K3) at 43.78 hours (Junction / Inflow,cfs)

Node35 / 1.40E+00

==> System inflows (data group K3) at 43.83 hours (Junction / Inflow,cfs)

Node35 / 1.40E+00

==> System inflows (data group K3) at 43.94 hours (Junction / Inflow,cfs)

Node35 / 1.30E+00

==> System inflows (data group K3) at 44.03 hours (Junction / Inflow,cfs)

Node35 / 1.30E+00

#####

==> System inflows (data group K3) at 44.08 hours (Junction / Inflow,cfs)

Node35 / 1.20E+00

#####

==> System inflows (data group K3) at 44.19 hours (Junction / Inflow,cfs)

Node35 / 1.20E+00

#####

==> System inflows (data group K3) at 44.28 hours (Junction / Inflow,cfs)

Node35 / 1.10E+00

#####

==> System inflows (data group K3) at 44.33 hours (Junction / Inflow,cfs)

Node35 / 1.10E+00

#####

==> System inflows (data group K3) at 44.44 hours (Junction / Inflow,cfs)

Node35 / 1.00E+00

#####

==> System inflows (data group K3) at 44.53 hours (Junction / Inflow,cfs)

Node35 / 1.00E+00

#####

==> System inflows (data group K3) at 44.58 hours (Junction / Inflow,cfs)

Node35 / 1.00E+00

#####

==> System inflows (data group K3) at 44.69 hours (Junction / Inflow,cfs)

Node35 / 9.00E-01

#####

==> System inflows (data group K3) at 44.78 hours (Junction / Inflow,cfs)

Node35 / 9.00E-01

#####

==> System inflows (data group K3) at 44.83 hours (Junction / Inflow,cfs)

Node35 / 8.00E-01

Coupland_Exist100yr.out

==> System inflows (data group K3) at 44.94 hours (Junction / Inflow,cfs)

Node35 / 8.00E-01

==> System inflows (data group K3) at 45.03 hours (Junction / Inflow,cfs)

Node35 / 8.00E-01

==> System inflows (data group K3) at 45.08 hours (Junction / Inflow,cfs)

Node35 / 7.00E-01

==> System inflows (data group K3) at 45.19 hours (Junction / Inflow,cfs)

Node35 / 7.00E-01

==> System inflows (data group K3) at 45.28 hours (Junction / Inflow,cfs)

Node35 / 6.00E-01

==> System inflows (data group K3) at 45.33 hours (Junction / Inflow,cfs)

Node35 / 6.00E-01

==> System inflows (data group K3) at 45.44 hours (Junction / Inflow,cfs)

Node35 / 6.00E-01

==> System inflows (data group K3) at 45.53 hours (Junction / Inflow,cfs)

Node35 / 6.00E-01

==> System inflows (data group K3) at 45.58 hours (Junction / Inflow,cfs)

Node35 / 5.00E-01

==> System inflows (data group K3) at 45.69 hours (Junction / Inflow,cfs)

Coupland_Exist100yr.out

Node35 / 5.00E-01

==> System inflows (data group K3) at 45.78 hours (Junction / Inflow,cfs)

Node35 / 5.00E-01

==> System inflows (data group K3) at 45.83 hours (Junction / Inflow,cfs)

Node35 / 4.00E-01

==> System inflows (data group K3) at 45.94 hours (Junction / Inflow,cfs)

Node35 / 4.00E-01

==> System inflows (data group K3) at 46.03 hours (Junction / Inflow,cfs)

Node35 / 4.00E-01

==> System inflows (data group K3) at 46.08 hours (Junction / Inflow,cfs)

Node35 / 4.00E-01

==> System inflows (data group K3) at 46.19 hours (Junction / Inflow,cfs)

Node35 / 3.00E-01

==> System inflows (data group K3) at 46.28 hours (Junction / Inflow,cfs)

Node35 / 3.00E-01

==> System inflows (data group K3) at 46.33 hours (Junction / Inflow,cfs)

Node35 / 3.00E-01

==> System inflows (data group K3) at 46.44 hours (Junction / Inflow,cfs)

Node35 / 3.00E-01
#####

Coupland_Exist100yr.out

==> System inflows (data group K3) at 46.53 hours (Junction / Inflow,cfs)

Node35 / 2.00E-01

==> System inflows (data group K3) at 46.58 hours (Junction / Inflow,cfs)

Node35 / 2.00E-01

==> System inflows (data group K3) at 46.69 hours (Junction / Inflow,cfs)

Node35 / 2.00E-01

==> System inflows (data group K3) at 46.78 hours (Junction / Inflow,cfs)

Node35 / 2.00E-01

==> System inflows (data group K3) at 46.83 hours (Junction / Inflow,cfs)

Node35 / 1.00E-01

==> System inflows (data group K3) at 46.94 hours (Junction / Inflow,cfs)

Node35 / 1.00E-01

==> System inflows (data group K3) at 47.03 hours (Junction / Inflow,cfs)

Node35 / 1.00E-01

==> System inflows (data group K3) at 47.08 hours (Junction / Inflow,cfs)

Node35 / 1.00E-01

==> System inflows (data group K3) at 47.19 hours (Junction / Inflow,cfs)

Node35 / 1.00E-01

==> System inflows (data group K3) at 47.28 hours (Junction / Inflow,cfs)

Coupland_Exist100yr.out

Node35 / 1.00E-01

==> System inflows (data group K3) at 47.33 hours (Junction / Inflow,cfs)

Node35 / 0.00E+00

==> System inflows (data group K3) at 47.44 hours (Junction / Inflow,cfs)

Node35 / 0.00E+00

==> System inflows (data group K3) at 47.53 hours (Junction / Inflow,cfs)

Node35 / 0.00E+00

==> System inflows (data group K3) at 47.58 hours (Junction / Inflow,cfs)

Node35 / 0.00E+00

==> System inflows (data group K3) at 47.69 hours (Junction / Inflow,cfs)

Node35 / 0.00E+00

==> System inflows (data group K3) at 47.78 hours (Junction / Inflow,cfs)

Node35 / 0.00E+00

==> System inflows (data group K3) at 47.83 hours (Junction / Inflow,cfs)

Node35 / 0.00E+00

==> System inflows (data group K3) at 47.94 hours (Junction / Inflow,cfs)

Node35 / 0.00E+00
#####

=====

Table E5 - Junction Time Limitation Summary	
(0.10 or 0.25)* Depth * Area	
Time step = -----	

Coupland_Exist100yr.out

Sum of Flow

```

|-----|
|                               |
|*=====|
| The time this junction was the limiting junction |
| is listed in the third column. |
|*=====|

```

Junction	Time(.10)	Time(.25)	Time(sec)
Node13	66.60	166.50	1500.0
Node14	93.82	234.56	200.0
Node15	85.13	212.84	1700.0
Node16	70.41	176.02	200.0
Node17	67.71	169.27	1100.0
Node19	81.35	203.38	0.0
Node20	135.46	338.65	0.0
Node21	128.81	322.04	0.0
Node22	45.91	114.77	400.0
Node23	24.28	60.70	200.0
Node24	44.60	111.50	0.0
Node25	25.68	64.20	300.0
Node26	8.56	21.40	12900.0
Node27	14.46	36.14	52200.0
Node28	52.09	130.21	500.0
Node31	60.95	152.38	0.0
Node33	101.25	253.13	0.0
Node35	37.56	93.89	99100.0
Node36	75.68	189.21	0.0
Node37	199.41	498.52	0.0
Node41	1000.00	1000.00	0.0
Node18.1.1	20.34	50.86	400.0
Node34.1.1	16.91	42.28	2100.0
Node39	69.51	173.76	0.0

The junction requiring the smallest time step was...Node35

```

*=====|
| Table E5a - Conduit Explicit Condition Summary |
| Courant   =      Conduit Length              |
| Time step = -----|
|              Velocity + sqrt(g*depth)         |
| Conduit Implicit Condition Summary           |

```

Courant = Conduit Length
 Time step = -----
 Velocity

```

=====
| The 3rd column is the Explicit time step times the |
| minimum courant time step factor |
| Minimum Conduit Time Step in seconds in the 4th column |
| in the list. Maximum possible is 10 * maximum time step |
| The 5th column is the maximum change at any time step |
| during the simulation. The 6th column is the wobble |
| value which is an indicator of the flow stability. |
| You should use this section to find those conduits that |
| are slowing your model down. Use modify conduits to |
| alter the length of the slow conduits to make your |
| simulation faster, or change the conduit name to |
| "CHME?????" where ????? are any characters, this will |
| lengthen the conduit based on the model time step, |
| not the value listed in modify conduits. |
=====
    
```

Wobble	Conduit Type of Soln	Time(exp)	Expl*Cmin	Time(imp)	Time(min)	Max Qchange
0.118	Link14 Normal Soln	8.22	8.22	25.97	18.3	0.073
0.122	Link16 Normal Soln	2.86	2.86	10.57	0.0	0.093
0.453	Link18 Normal Soln	26.86	26.86	269.34	0.0	0.096
0.684	Link20 Normal Soln	11.52	11.52	81.13	0.0	0.186
2.659	Link22 Normal Soln	28.34	28.34	235.74	0.0	-0.190
0.708	Link24 Normal Soln	29.44	29.44	123.68	0.0	0.119
0.201	Link26 Normal Soln	3.84	3.84	10.48	0.0	0.092
0.156	Link31 Normal Soln	12.24	12.24	87.00	0.0	0.838
0.110	Link33 Normal Soln	11.45	11.45	73.08	0.0	0.747
0.148	Link34 Normal Soln	6.12	6.12	28.95	0.0	-0.064
	Link36 Normal Soln	30.91	30.91	210.35	0.0	1.147

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0.011	Normal Soln					
	Link37	43.21	43.21	403.41	0.0	0.519
0.036	Normal Soln					
	Link42.1.1	1.16	1.16	11.58	2823.3	-9.433
3.428	Normal Soln					
	Link41	20.36	20.36	162.50	8.3	0.017
0.064	Normal Soln					
	Link48	2.29	2.29	15.05	0.0	5.266
0.165	Normal Soln					
	227.1	3.00	3.00	14.01	0.0	0.016
2.141	Normal Soln					
	231.1	2.81	2.81	13.06	0.0	-0.021
3.856	Normal Soln					
	235.1	2.25	2.25	14.25	0.0	-0.012
1.759	Normal Soln					
	239.1	1.66	1.66	4.21	18.3	0.039
3.045	Normal Soln					
	243.1	1.61	1.61	3.62	0.0	0.062
5.363	Normal Soln					
	247.1	1.21	1.21	2.93	11.7	-0.068
1.686	Normal Soln					
	251.1	1.81	1.81	3.26	0.0	0.092
5.941	Normal Soln					
	255.1	5.03	5.03	10.69	0.0	-0.275
3.078	Normal Soln					

The conduit with the smallest time step limitation was..Link42.1.1

The conduit with the largest wobble was.....251.1

The conduit with the largest flow change in any

consecutive time step.....Link42.1.1

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 * End of time step DO-loop in Runoff *

Final Date (Mo/Day/Year) = 1/ 2/2016
 Total number of time steps = 2879
 Final Julian Date = 2016002
 Final time of day = 86340. seconds.
 Final time of day = 23.98 hours.
 Final running time = 47.9833 hours.
 Final running time = 1.9993 days.

 * Extrapolation Summary for Watersheds *
 * Explains the number of time steps and iterations *
 * used in the solution of the subcatchments. *
 * # Steps ==> Total Number of Extrapolated Steps *
 * # Calls ==> Total Number of OVERLND Calls *

Subcatchment	# Steps	# Calls	Subcatchment	# Steps	# Calls
Node39#1	18633	6211	Node34.1.1#1	18690	6230
Node17#1	18291	6097			
Node18.1.1#1	18678	6226	Node19#1	19131	6377

 # Rainfall input summary from Runoff Continuity Check #
 #####

Total rainfall read for gage # 1 is 13.5100 in
 Total rainfall duration for gage # 1 is 1440.00 minutes

 * Table R5. CONTINUITY CHECK FOR SURFACE WATER *
 * Any continuity error can be fixed by lowering the *
 * wet and transition time step. The transition time *
 * should not be much greater than the wet time step. *

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	cubic feet	Inches over Total Basin
Total Precipitation (Rain plus Snow)	1.223090E+06	13.510
Total Infiltration	1.109543E+05	1.226
Total Evaporation	1.334229E+04	0.147
Surface Runoff from Watersheds	1.098811E+06	12.137
Total Water remaining in Surface Storage	0.000000E+00	0.000
Infiltration over the Pervious Area...	1.109543E+05	2.857

Infiltration + Evaporation + Surface Runoff + Snow removal + Water remaining in Surface Storage + Water remaining in Snow Cover.....	1.223108E+06	13.510
Total Precipitation + Initial Storage.	1.223090E+06	13.510

The error in continuity is calculated as

```

*****
* Precipitation + Initial Snow Cover *
*   - Infiltration -                 *
*Evaporation - Snow removal -        *
*Surface Runoff from Watersheds -    *
*Water in Surface Storage -          *
*Water remaining in Snow Cover       *
*-----*
* Precipitation + Initial Snow Cover *
*****
Percent Continuity Error.....

```

-0.0015

```

*****
* Table R6. Continuity Check for Channel/Pipes *
*   You should have zero continuity error *
*   if you are not using runoff hydraulics *
*****

```

over Basin	cubic feet	Inches Total
Initial Channel/Pipe Storage.....	0.000000E+00	0.000
Final Channel/Pipe Storage.....	0.000000E+00	0.000
Surface Runoff from Watersheds.....	1.098811E+06	12.137
Groundwater Subsurface Inflow or Diversion..	0.000000E+00	0.000
Evaporation Loss from Channels.....	0.000000E+00	0.000
Groundwater Flow Diverted Out of Network....	0.000000E+00	0.000
Channel/Pipe/Inlet Outflow.....	1.098811E+06	12.137
Initial Storage + Inflow.....	1.098811E+06	12.137
Final Storage + Outflow + Diverted GW.....	1.098811E+06	12.137

Coupland_Exist100yr.out

```
*****
* Final Storage + Outflow + Evaporation - *
* Watershed Runoff - Groundwater Inflow - *
*   Initial Channel/Pipe Storage          *
*   -----                              *
* Final Storage + Outflow + Evaporation *
*****
Percent Continuity Error..... 0.0000
```

```
#####
# Table R9. Summary Statistics for Subcatchments #
#####
```

Note: Total Runoff Depth includes pervious & impervious areas.
Pervious and Impervious Runoff Depth is only the runoff from those two areas.

For catchments receiving redirected flow, this flow will only be shown if the flow is not directed directly to the outlet. Flow that is getting redirected is also listed with the original subcatchment.

Subcatchment.....	Node39#1	Node34.1.1#1
Node17#1 Node18.1.1#1	Node19#1	
Area (acres).....	2.27000	5.20000
0.36000 4.87000	12.24000	
Percent Impervious.....	50.00000	67.00000
67.00000 67.00000	50.00000	
Total Rainfall (in)....	13.51000	13.51000
13.51000 13.51000	13.51000	
Max Intensity (in/hr)..	14.40000	14.40000
14.40000 14.40000	14.40000	
Pervious Area		

Total Runoff Depth (in)	10.51244	10.62824
10.64345 10.62865	10.48268	
Peak Runoff Rate (cfs).	4.46281	8.79656
0.63900 8.24872	22.90707	
Total Impervious Area		

Total Runoff Depth (in)	13.34617	13.34202
13.34616 13.34213	13.34131	
Peak Runoff Rate (cfs).	6.41619	18.80772
1.36348 17.63543	32.78414	

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Impervious Area with depression storage

```

-----
Total Runoff Depth (in)          10.00962          10.00651
10.00962          10.00660          10.00598
Peak Runoff Rate (cfs).         4.81214          14.10579
1.02261          13.22657          24.58810
    
```

Impervious Area without depression storage

```

-----
Total Runoff Depth (in)          3.33654          3.33550
3.33654          3.33553          3.33533
Peak Runoff Rate (cfs).         1.60405          4.70193
0.34087          4.40886          8.19603
    
```

Total Area

```

-----
Total Runoff Depth (in)          11.92930          12.44647
12.45427          12.44668          11.91199
Peak Runoff Rate (cfs).         10.72560          27.60428
2.00248          25.88415          54.59076
    
```

Rational Formula

```

-----
Pervious Tc. (mins)....         0.00000          0.00000
0.00000          0.00000          0.00000
Perv. Intensity (in/hr)         0.00000          0.00000
0.00000          0.00000          0.00000
Pervious C .....              0.00000          0.00000
0.00000          0.00000          0.00000
Impervious Tc. (mins)..         0.00000          0.00000
0.00000          0.00000          0.00000
Imp. Intensity (in/hr).         0.00000          0.00000
0.00000          0.00000          0.00000
Impervious C .....              0.00000          0.00000
0.00000          0.00000          0.00000
Partial Area (Ha).....          0.00000          0.00000
0.00000          0.00000          0.00000
Partial Area Tc.....           0.00000          0.00000
0.00000          0.00000          0.00000
Partial Area Intensity.         0.00000          0.00000
0.00000          0.00000          0.00000
    
```

==> Runoff simulation ended normally.

```

*=====*
| Table E6. Final Model Condition |
| This table is used for steady state |
| flow comparison and is the information|
    
```

Coupland_Exist100yr.out

saved to the hot-restart file.

Final Time = 48.028 hours

=====

Junction /	Depth /	Elevation	====>	"*" Junction is Surcharged.
Node13/	0.26 /	23.00/		Node14/ 0.30 / 23.00/
Node15/	0.60 /	21.80/		
Node16/	0.64 /	21.80/		Node17/ 0.44 / 20.75/
Node19/	0.79 /	20.22/		
Node20/	0.59 /	20.22/		Node21/ 0.53 / 20.22/
Node22/	0.42 /	20.22/		
Node23/	0.76 /	20.21/		Node24/ 0.34 / 20.21/
Node25/	0.24 /	19.81/		
Node26/	0.01 /	18.86/		Node27/ 0.58 / 18.80/
Node28/	0.02 /	11.49/		
Node31/	0.01 /	11.49/		Node33/ 0.00 / 11.46/
Node35/	0.00 /	11.49/		
Node36/	0.01 /	9.03/		Node37/ 0.01 / 8.47/
Node41/	0.00 /	8.46/		
Node18.1.1/	5.76 /	20.75/		Node34.1.1/ 6.72 / 23.04/
Node39/	0.00 /	23.15/		

Conduit/	Flow	====>	"*" Conduit uses the normal flow option.
Link18/	Link14/ 0.00*/		Link16/ 0.00*/
	0.00*/		
Link24/	Link20/ 0.00 /		Link22/ 0.00 /
	0.00 /		
Link33/	Link26/ 0.00*/		Link31/ 0.00 /
	0.00 /		
Link37/	Link34/ 0.00 /		Link36/ 0.00*/
	0.00*/		
Link48/	Link42.1.1/ 0.00 /		Link41/ 0.00*/
	0.00 /		
235.1/	227.1/ 0.00 /		231.1/ 0.00 /
	0.00 /		
247.1/	239.1/ 0.00 /		243.1/ 0.00 /
	0.00 /		
W14/	251.1/ 0.00 /		255.1/ 0.00 /
	0.00 /		
W20/	W15/ 0.00 /		W17/ 0.00 /
	0.00 /		
W25/	W21/ 0.00 /		W24/ 0.00 /
	0.00 /		
	W27/ 0.00 /		FREE# 1/ 0.00 /
	0.00 /		
Link18/	Conduit/	Velocity	
	Link14/ 0.00 /		Link16/ 0.00 /
	0.00 /		

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Link24/	Link20/ 0.08 /	0.00 /	Link22/	-0.02 /
Link33/	Link26/ 0.02 /	0.02 /	Link31/	0.00 /
Link37/	Link34/ 0.05 /	0.00 /	Link36/	0.05 /
Link48/	Link42.1.1/ 0.00 /	0.04 /	Link41/	0.00 /
235.1/	227.1/ 0.00 /	0.00 /	231.1/	0.00 /
247.1/	239.1/ 0.00 /	0.00 /	243.1/	-0.01 /
	251.1/	0.29 /	255.1/	0.59 /

Conduit/ Width

Link18/	Link14/ 0.31 /	0.17 /	Link16/	0.04 /
Link24/	Link20/ 0.17 /	0.90 /	Link22/	0.63 /
Link33/	Link26/ 0.26 /	0.39 /	Link31/	0.22 /
Link37/	Link34/ 0.15 /	0.44 /	Link36/	0.09 /
Link48/	Link42.1.1/ 0.02 /	0.15 /	Link41/	0.44 /
235.1/	227.1/ 1.65 /	1.53 /	231.1/	2.14 /
247.1/	239.1/ 2.24 /	2.30 /	243.1/	1.30 /
	251.1/	0.98 /	255.1/	1.18 /

Junction/ EGL

Node15/	Node13/ 0.60 /	0.26 /	Node14/	0.30 /
Node19/	Node16/ 0.79 /	0.64 /	Node17/	0.44 /
Node22/	Node20/ 0.42 /	0.59 /	Node21/	0.53 /
Node25/	Node23/ 0.24 /	0.76 /	Node24/	0.34 /
Node28/	Node26/ 4.81 /	0.69 /	Node27/	0.58 /
Node35/	Node31/ 0.00 /	0.01 /	Node33/	0.00 /
Node41/	Node36/ 0.00 /	0.01 /	Node37/	0.01 /
Node39/	Node18.1.1/ 0.00 /	5.76 /	Node34.1.1/	6.72 /

Coupland_Exist100yr.out

Junction/ Freeboard			
	Node13/	17.00 /	Node14/ 17.00 /
Node15/	18.20 /		
	Node16/	18.20 /	Node17/ 19.25 /
Node19/	19.78 /		
	Node20/	19.78 /	Node21/ 19.78 /
Node22/	19.78 /		
	Node23/	19.79 /	Node24/ 19.79 /
Node25/	20.19 /		
	Node26/	21.14 /	Node27/ 21.20 /
Node28/	28.51 /		
	Node31/	28.51 /	Node33/ 28.54 /
Node35/	28.51 /		
	Node36/	30.97 /	Node37/ 31.53 /
Node41/	31.54 /		
	Node18.1.1/	19.25 /	Node34.1.1/ 16.96 /
Node39/	16.85 /		

Junction/ Max Volume			
	Node13/	32.60 /	Node14/ 32.83 /
Node15/	51.61 /		
	Node16/	51.82 /	Node17/ 62.56 /
Node19/	73.04 /		
	Node20/	69.17 /	Node21/ 68.03 /
Node22/	65.23 /		
	Node23/	69.01 /	Node24/ 62.39 /
Node25/	63.06 /		
	Node26/	59.73 /	Node27/ 67.61 /
Node28/	143.55 /		
	Node31/	143.93 /	Node33/ 142.79 /
Node35/	143.91 /		
	Node36/	173.27 /	Node37/ 179.39 /
Node41/	179.41 /		
	Node18.1.1/	129.15 /	Node34.1.1/ 113.76 /
Node39/	28.17 /		

Junction/Total Fldng			
	Node13/	0.00 /	Node14/ 0.00 /
Node15/	0.00 /		
	Node16/	0.00 /	Node17/ 0.00 /
Node19/	0.00 /		
	Node20/	0.00 /	Node21/ 0.00 /
Node22/	0.00 /		
	Node23/	0.00 /	Node24/ 0.00 /
Node25/	0.00 /		
	Node26/	0.00 /	Node27/ 0.00 /
Node28/	0.00 /		

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Node35/	Node31/ 0.00 /	0.00 /	Node33/	0.00 /
Node41/	Node36/ 0.00 /	0.00 /	Node37/	0.00 /
Node39/	Node18.1.1/ 0.00 /	0.00 /	Node34.1.1/	0.00 /

Conduit/ Cross Sectional Area

Link18/	Link14/ 0.08 /	0.03 /	Link16/	0.00 /
Link24/	Link20/ 0.02 /	0.16 /	Link22/	0.07 /
Link33/	Link26/ 0.14 /	0.11 /	Link31/	0.09 /
Link37/	Link34/ 0.07 /	0.17 /	Link36/	0.05 /
Link48/	Link42.1.1/ 0.01 /	0.08 /	Link41/	0.17 /
235.1/	227.1/ 0.36 /	0.28 /	231.1/	0.91 /
247.1/	239.1/ 1.18 /	1.28 /	243.1/	0.16 /
	251.1/ 0.01 /	0.01 /	255.1/	0.00 /

Conduit/ Final Volume

Link18/	Link14/ 19.76 /	1.95 /	Link16/	0.08 /
Link24/	Link20/ 5.91 /	18.79 /	Link22/	18.97 /
Link33/	Link26/ 26.46 /	4.17 /	Link31/	17.90 /
Link37/	Link34/ 50.49 /	8.20 /	Link36/	23.72 /
Link48/	Link42.1.1/ 0.35 /	1.65 /	Link41/	22.26 /
235.1/	227.1/ 12.00 /	9.34 /	231.1/	34.35 /
247.1/	239.1/ 28.32 /	42.51 /	243.1/	5.47 /
	251.1/ 0.27 /	0.27 /	255.1/	0.36 /

Conduit/ Hydraulic Radius

Link18/	Link14/ 0.03 /	0.01 /	Link16/	0.00 /
Link24/	Link20/ 0.02 /	0.06 /	Link22/	0.03 /
Link33/	Link26/ 0.01 /	0.03 /	Link31/	0.00 /

Coupland_Exist100yr.out

Link37/	Link34/ 0.01 /	0.04 /	Link36/	0.00 /
Link48/	Link42.1.1/ 0.00 /	0.01 /	Link41/	0.04 /
235.1/	227.1/ 0.20 /	0.17 /	231.1/	0.36 /
247.1/	239.1/ 0.41 /	0.43 /	243.1/	0.12 /
	251.1/ 0.01 /	0.01 /	255.1/	0.01 /

Conduit/ Upstream/ Downstream Elevation

Link14/	23.00/	21.80	Link16/	21.80/	20.75
Link18/	20.75/	20.22/	Link22/	20.21/	20.22
Link20/	20.22/	20.22	Link24/	20.21/	19.81/
Link24/	20.21/	19.81/	Link26/	18.86/	18.80
Link26/	18.86/	18.80	Link31/	11.49/	11.49
Link33/	11.49/	11.46/	Link33/	11.49/	11.46/
Link34/	23.00/	23.04	Link34/	23.00/	23.04
Link37/	9.03/	8.47/	Link37/	9.03/	8.47/
Link42.1.1/	8.47/	8.46	Link41/	23.15/	23.04
Link48/	11.49/	11.49/	Link48/	11.49/	11.49/
227.1/	23.00/	23.00	231.1/	21.80/	21.80
235.1/	20.75/	20.75/	235.1/	20.75/	20.75/
239.1/	20.22/	20.22	239.1/	20.22/	20.22
247.1/	20.21/	20.21/	247.1/	20.21/	20.21/
251.1/	19.81/	19.54	251.1/	19.81/	19.54
			255.1/	18.80/	16.27

=====

| Table E7 - Iteration Summary |

=====

Total number of time steps simulated.....	1728
Total number of passes in the simulation.....	168030
Total number of time steps during simulation....	87543
Ratio of actual # of time steps / NTCYC.....	50.661
Average number of iterations per time step.....	1.919
Average time step size(seconds).....	1.974
Smallest time step size(seconds).....	1.149
Largest time step size(seconds).....	100.000
Average minimum Conduit Courant time step (sec).	3.198
Average minimum implicit time step (sec).....	1.986
Average minimum junction time step (sec).....	1.986
Average Courant Factor Tf.....	1.986
Number of times omega reduced.....	0

=====

Table E8 - Junction Time Step Limitation Summary

```

*=====
| Not Convr = Number of times this junction did not |
|           converge during the simulation.         |
| Avg Convr = Average junction iterations.         |
| Conv err  = Mean convergence error.              |
| Omega Cng = Change of omega during iterations    |
| Max Itern = Maximum number of iterations         |
*=====
    
```

Junction		Not Convr	Avg Convr	Total Itt	Omega Cng	Max Itern	Ittrn >10
Ittrn >25	Ittrn >40						
879	Node13 420	118	3.05	266620	0	501	880
0	Node14 0	0	1.65	144252	0	14	1
1	Node15 1	0	1.56	136235	0	464	1
6	Node16 6	0	1.75	152783	0	498	8
1	Node17 1	0	1.97	172613	0	49	164
2	Node19 2	0	1.68	147193	0	69	12
3	Node20 2	0	1.93	169008	0	66	12
0	Node21 0	0	1.52	133342	0	18	5
1	Node22 0	0	1.55	135261	0	33	2
0	Node23 0	0	1.86	163187	0	20	7
1	Node24 0	0	1.88	164454	0	37	2
1	Node25 1	0	1.40	122540	0	42	4
0	Node26 0	0	1.82	158994	0	12	1
220	Node27 214	0	2.20	192171	0	335	251
220	Node28 212	0	2.56	223739	0	335	247
327	Node31 322	0	3.47	303584	0	500	340
0	Node33 0	0	1.64	143897	0	8	0
	Node35	0	4.02	351888	0	498	478

```

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469      457
         Node36      0      1.60      140135      0      5      0
0         0
         Node37      0      3.56      312055      0      500      4
4         4
         Node41     130     190.45  16672585      0      501     85072
84013    83115
         Node18.1.1    1      1.82      159363      0      501      12
1         1
         Node34.1.1   118     2.48      217329      0      501     835
831     335
         Node39      0      1.25      109461      0      5      0
0         0
Total number of iterations for all junctions.. 20892689

```

Minimum number of possible iterations..... 2101032

Efficiency of the simulation..... 9.94

Poor Efficiency

```

*=====
| Extran Efficiency is an indicator of the efficiency of |
| the simulation. Ideal efficiency is one iteration per |
| time step. Altering the underrelaxation parameter, |
| lowering the time step, increasing the flow and head |
| tolerance are good ways of improving the efficiency, |

```

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another is lowering the internal time step. The lower the efficiency generally the faster your model will run. If your efficiency is less than 1.5 then you may try increasing your time step so that your overall simulation is faster. Ideal efficiency would be around 2.0

Good Efficiency < 1.5 mean iterations
 Excellent Efficiency < 2.5 and > 1.5 mean iterations
 Good Efficiency < 4.0 and > 2.5 mean iterations
 Fair Efficiency < 7.5 and > 4.0 mean iterations
 Poor Efficiency > 7.5 mean iterations

Table E9 - JUNCTION SUMMARY STATISTICS

The Maximum area is only the area of the node, it does not include the area of the surrounding conduits

Maximum Freeboard node feet	Maximum Junction Area ft^2	Maximum Gutter Depth Name feet	Maximum Ground Width feet	Uppermost PipeCrown Gutter Elevation feet	Maximum Junction Gutter Elevation feet	Time of Occurrence Hr. Min.	Feet of Surcharge at Max Elevation	of
14.67	12.5660	Node13 0.00	40.00	27.86	25.33	16 32	0.00	
14.69	12.5660	Node14 0.00	40.00	27.82	25.31	16 32	0.00	
14.69	12.5660	Node15 0.00	40.00	26.32	25.31	16 32	0.00	
14.72	12.5660	Node16 0.00	40.00	26.62	25.28	16 32	0.00	
14.71	12.5660	Node17 0.00	40.00	25.51	25.29	16 32	0.00	
14.76	12.5660	Node19 0.00	40.00	24.52	25.24	16 33	0.72	
14.87	12.5660	Node20 0.00	40.00	25.17	25.13	16 33	0.00	
14.90	12.5660	Node21 0.00	40.00	24.71	25.10	16 34	0.39	
15.01	12.5660	Node22 0.00	40.00	25.50	24.99	16 34	0.00	

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Time	Node	Ratio of Max. to Design Flow	Maximum Water Elev at Pipe Ends (cfs)	Maximum Design Velocity Dwnstrm (ft/s)	Maximum Vertical Depth US DS (in)	Maximum Computed Flow (cfs)	Time of Occurrence (Hr. Min.)	Maximum Computed Velocity (ft/s)
15.06	Node23	0.00	40.00	0.00	25.52	24.94	16 34	0.00
15.17	Node24	0.00	40.00	0.00	26.28	24.83	16 35	0.00
15.41	Node25	0.00	40.00	0.00	25.91	24.59	16 36	0.00
16.40	Node26	0.00	40.00	0.00	25.24	23.60	16 41	0.00
16.40	Node27	0.00	40.00	0.00	24.61	23.60	16 41	0.00
17.11	Node28	0.00	40.00	0.00	29.44	22.89	18 28	0.00
17.07	Node31	0.00	40.00	0.00	27.84	22.93	18 26	0.00
17.18	Node33	0.00	40.00	0.00	29.43	22.82	18 30	0.00
17.06	Node35	0.00	40.00	0.00	27.82	22.94	18 26	0.00
17.19	Node36	0.00	40.00	0.00	28.05	22.81	18 31	0.00
17.26	Node37	0.00	40.00	0.00	28.40	22.74	18 34	0.00
17.26	Node41	0.00	40.00	0.00	28.40	22.74	18 34	0.00
14.73	Node18.1.1	0.00	40.00	0.00	25.57	25.27	16 33	0.00
14.63	Node34.1.1	0.00	40.00	0.00	27.10	25.37	16 32	0.00
14.61	Node39	0.00	40.00	0.00	27.97	25.39	16 31	0.00

```

*=====
|           Table E10 - CONDUIT SUMMARY STATISTICS           |
| Note: The peak flow may be less than the design flow       |
| and the conduit may still surcharge because of the         |
| downstream boundary conditions.                             |
| * denotes an open conduit that has been overtopped        |
| this is a potential source of severe errors                |
*=====
    
```

Time of Occurrence	Ratio of Max. to Design Flow	Maximum Water Elev at Pipe Ends (cfs)	Maximum Design Velocity Dwnstrm (ft/s)	Maximum Vertical Depth US DS (in)	Maximum Computed Flow (cfs)	Time of Occurrence (Hr. Min.)	Maximum Computed Velocity (ft/s)
--------------------	------------------------------	---------------------------------------	--	-----------------------------------	-----------------------------	-------------------------------	----------------------------------

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Min.	Flow	(ft)	(ft)						
		Link14	596.7483	7.6262	57.8400	34.9910	16	17	2.6326
15	44	0.0586	25.3128	25.3070	0.480	0.790			
		Link16	887.9019	11.3470	57.8400	33.5189	16	18	2.1635
14	7	0.0378	25.2834	25.2888	0.723	0.954			
		Link18	264.7415	3.3833	57.8412	57.1164	16	18	0.9032
16	17	0.2157	25.2679	25.2425	0.937	1.150 *			
		Link20	316.7276	3.6925	60.2410	106.0860	16	18	1.4492
16	15	0.3349	25.1342	25.1036	0.993	1.078 *			
		Link22	72.5977	0.5646	64.2000	-95.0081	16	18	-1.2073
16	14	-1.3087	24.9910	24.9415	0.901	0.896			
		Link24	267.1870	2.3676	73.3200	92.7460	16	34	2.2650
16	13	0.3471	24.8347	24.5884	0.763	0.784			
		Link26	1249.146	10.0844	76.6800	92.3808	16	35	3.7047
16	1	0.0740	23.6031	23.6001	0.744	0.842			
		Link31	22103.96	0.7876	196.3200	1380.803	17	0	2.2958
16	20	0.0625	22.9336	22.8937	0.700	0.698			
		Link33	29068.21	0.9626	215.6400	1448.417	16	49	2.6369
16	32	0.0498	22.8937	22.8234	0.636	0.632			
		Link34	500.4380	6.3954	57.8400	-36.2890	16	16	-1.7017
16	11	-0.0725	25.3731	25.3341	0.484	0.634			
		Link36	284979.0	9.2782	215.6400	1437.365	16	50	2.3816
16	20	0.0050	22.8234	22.8089	0.632	0.767			
		Link37	82357.80	2.9857	228.3600	1304.788	18	19	1.8482
16	25	0.0158	22.8089	22.7359	0.725	0.750			
		Link42.1.1	11938.34	0.0000	239.2800	1306.612	18	34	1.7296
16	49	0.1094	22.7359	22.7377	0.716	0.716			
		Link41	325.1504	4.1553	57.8400	10.2257	16	16	0.8220
16	11	0.0314	25.3917	25.3731	0.465	0.642			
		Link48	46955.91	1.7426	195.9600	1390.263	17	2	2.5433
16	20	0.0296	22.9421	22.9336	0.701	0.701			
		227.1	12.3112	2.5080	30.0000	11.2650	16	15	2.3833
16	13	0.9150	25.3341	25.3128	1.038	1.045			
		231.1	11.6038	2.3639	30.0000	15.0488	16	3	2.9531
16	3	1.2969	25.3070	25.2834	1.643	1.649			
		235.1	26.5994	5.4188	30.0000	-11.5382	16	18	-2.3373
16	18	-0.4338	25.2888	25.2679	1.936	1.983			
		239.1	32.6114	6.6435	30.0000	-39.0236	16	1	-7.9102
16	1	-1.1966	25.2425	25.1342	2.213	2.282			
		243.1	21.2473	4.3285	30.0000	-45.8427	16	9	-9.3035
16	9	-2.1576	25.1036	24.9910	1.981	1.984			
		247.1	54.3058	11.0631	30.0000	-40.4310	16	9	-8.2071
16	9	-0.7445	24.9415	24.8347	2.029	2.154			
		251.1	26.1519	5.3276	30.0000	72.7687	16	20	14.7583
16	20	2.7825	24.5884	23.6031	1.915	1.625			
		255.1	95.0460	13.4463	36.0000	82.8367	16	29	11.6755

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16	29	0.8715	23.6001	22.8937	1.600	2.208			
			W14	Undefnd	Undefnd	Undefnd	24.8887	16	16
			W15	Undefnd	Undefnd	Undefnd	24.0696	16	16
			W17	Undefnd	Undefnd	Undefnd	23.7078	16	17
			W20	Undefnd	Undefnd	Undefnd	82.4096	16	18
			W21	Undefnd	Undefnd	Undefnd	76.6053	16	21
			W24	Undefnd	Undefnd	Undefnd	65.2679	16	33
			W25	Undefnd	Undefnd	Undefnd	41.1171	16	36
			W27	Undefnd	Undefnd	Undefnd	15.6023	16	41
			FREE# 1	Undefnd	Undefnd	Undefnd	1306.128	18	34

```

*-----*
| Table E11. Area assumptions used in the analysis |
| Subcritical and Critical flow assumptions from |
| Subroutine Head. See Figure 17-1 in the |
| manual for further information. |
*-----*
  
```

Maximum X-Sect Area(ft^2)	Maximum Conduit Vel*D Name (ft^2/s)	Duration of Dry Flow(min)	Duration of Sub- Critical Flow(min)	Durat. of Upstream Critical Flow(min)	Durat. of Downstream Critical Flow(min)	Maximum Hydraulic Radius-m
29.871	Link14 6.484	156.88	2714.34	0.00	8.78	1.123
53.662	Link16 3.555	97.87	2782.13	0.00	0.00	1.533
88.155	Link18 4.284	67.03	2812.97	0.00	0.00	1.956
92.894	Link20 6.894	62.03	2817.97	0.00	0.00	2.215
103.940	Link22 4.772	83.19	2755.75	41.06	0.00	2.414
59.828	Link24 7.915	122.93	1469.05	0.00	1288.02	1.707
78.293	Link26 8.936	124.60	2755.40	0.00	0.00	2.210
1200.583	Link31 23.617	40.14	2839.86	0.00	0.00	5.940
956.334	Link33 27.477	40.28	2839.72	0.00	0.00	6.136
22.053	Link34 3.869	236.78	1886.50	756.72	0.00	1.197

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2937.529	Link36	41.11	2838.89	0.00	0.00	5.773
	26.002					
757.700	Link37	41.11	2838.89	0.00	0.00	7.060
	24.887					
767.509	Link42.1.1	41.11	2838.89	0.00	0.00	7.185
	24.295					
21.660	Link41	8.33	2822.75	0.00	48.91	1.049
	1.897					
1098.819	Link48	40.14	2839.86	0.00	0.00	6.089
	25.949					
5.007	227.1	76.81	2803.19	0.00	0.00	0.761
	5.546					
5.146	231.1	86.96	2793.04	0.00	0.00	0.761
	8.543					
5.132	235.1	61.81	2818.19	0.00	0.00	0.760
	10.884					
5.084	239.1	25.83	2851.06	3.11	0.00	0.758
	33.279					
5.126	243.1	77.25	2795.14	7.61	0.00	0.760
	36.341					
5.033	247.1	113.15	2766.85	0.00	0.00	0.756
	31.984					
5.128	251.1	124.54	302.21	0.00	2453.25	0.760
	52.446					
7.261	255.1	128.83	727.06	0.00	2024.10	0.896
	58.667					

=====

| Table E12. Mean Conduit Flow Information |

=====

Mean	Mean	Mean	Mean	Total	Mean	Low	Mean
Hydraulic	Conduit	Conduit	Flow	Flow	Percent	Flow	Froude
Radius	Cross	Name	(cfs)	(ft^3)	Change	Weightng	Number
	Area	Roughness					
-----	-----	-----	-----	-----	-----	-----	-----
0.246	Link14	1.927	332940.898	0.000	0.981	0.320	
	1.689	0.040					
0.306	Link16	1.926	332785.716	0.000	0.990	0.331	
	3.761	0.040					
0.550	Link18	3.292	568902.673	0.000	0.995	0.075	
	9.119	0.040					
0.761	Link20	6.359	1098764.452	0.000	0.996	0.055	
	13.899	0.040					
0.706	Link22	-6.363	-1099482.956	0.000	0.992	0.058	
	15.948	0.040					

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	Link24	6.370	1100753.229	0.000	0.985	0.197
0.576	7.467	0.040				
	Link26	6.363	1099464.383	0.000	0.985	0.265
0.559	10.371	0.040				
	Link31	255.988	44234752.198	0.001	0.999	0.123
2.571	255.137	0.033				
	Link33	262.399	45342496.468	0.001	0.999	0.178
2.447	225.365	0.033				
	Link34	-1.928	-333185.768	0.000	0.968	0.077
0.489	4.541	0.040				
	Link36	262.506	45360988.920	0.001	0.999	0.186
2.714	263.505	0.033				
	Link37	262.779	45408283.964	0.000	0.999	0.090
3.473	253.196	0.032				
	Link42.1.1	263.002	45446682.617	0.006	0.999	0.074
3.694	273.067	0.032				
	Link41	0.569	98373.277	0.000	1.000	0.076
0.250	1.661	0.040				
	Link48	256.000	44236867.875	0.001	0.999	0.145
2.546	229.945	0.033				
	227.1	1.114	192453.066	0.000	0.993	0.147
0.390	1.294	0.015				
	231.1	1.454	251287.031	0.000	0.992	0.095
0.508	2.111	0.015				
	235.1	-1.435	-247965.408	0.000	0.996	0.061
0.538	2.615	0.013				
	239.1	-4.414	-762684.618	0.000	1.000	0.135
0.636	3.661	0.015				
	243.1	-4.528	-782485.729	0.000	0.993	0.186
0.529	2.674	0.015				
	247.1	-4.510	-779291.309	0.000	0.987	0.153
0.625	3.473	0.013				
	251.1	5.830	1007439.335	0.000	0.985	0.781
0.338	1.535	0.015				
	255.1	6.215	1073998.238	0.000	0.984	1.436
0.310	1.798	0.013				
	W14	0.813	140502.293			
	W15	0.473	81649.578			
	W17	0.584	100850.890			
	W20	1.944	335969.227			
	W21	1.832	316574.072			
	W24	1.856	320764.262			
	W25	0.540	93386.308			
	W27	0.146	25278.023			
	FREE# 1	263.089	45461777.918			

=====

| Table E13. Channel losses(H), headwater depth (HW), tailwater |

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| depth (TW), critical and normal depth (Yc and Yn). |
 | Use this section for culvert comparisons |
 =====

TW	Conduit	Maximum	Head	Friction	Critical	Normal	HW
Elevat	Name	Flow	Loss	Loss	Depth	Depth	Elevat
25.063	Link14	34.968	0.000	0.235	1.558	1.622	25.112
	Max Flow						
25.042	Link16	33.334	0.000	0.009	1.528	1.373	25.032
	Max Flow						
24.969	Link18	57.075	0.000	0.061	1.897	2.645	25.016
	Max Flow						
24.747	Link20	106.033	0.000	0.060	2.210	3.219	24.795
	Max Flow						
20.223	Link22	-0.001	0.000	-0.008	0.001	0.021	20.212
	Max Flow						
24.588	Link24	92.725	0.000	0.252	2.562	4.450	24.835
	Max Flow						
23.583	Link26	92.343	0.000	0.017	2.330	2.508	23.586
	Max Flow						
22.501	Link31	1379.908	0.000	0.051	4.403	12.565	22.553
	Max Flow						
22.212	Link33	1446.092	0.000	0.051	4.909	13.143	22.264
	Max Flow						
23.040	Link34	0.000	0.000	0.000	0.000	0.000	23.000
	Max Flow						
22.106	Link36	1437.225	0.000	0.070	4.895	5.753	22.212
	Max Flow						
22.729	Link37	1304.770	0.000	0.082	5.560	9.231	22.804
	Max Flow						
22.730	Link42.1.1	1305.290	0.000	0.002	5.417	14.272	22.731
	Max Flow						
25.229	Link41	10.197	0.000	0.050	0.950	1.280	25.266
	Max Flow						
22.503	Link48	1389.004	0.000	0.010	4.824	11.904	22.517
	Max Flow						
25.027	227.1	11.264	0.000	0.029	1.123	1.881	25.055
	Max Flow						
24.102	231.1	14.709	0.000	0.059	1.292	2.500	24.163
	Max Flow						
20.751	235.1	0.000	0.000	0.000	0.000	0.000	20.751
	Max Flow						
20.223	239.1	0.000	0.000	0.000	0.000	0.000	20.223
	Max Flow						

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20.223	Max Flow	243.1	-0.001	0.000	0.000	0.001	0.002	20.223
20.212	Max Flow	247.1	-0.002	0.000	0.000	0.002	0.001	20.212
22.040	Max Flow	251.1	72.634	0.000	1.990	3.037	2.500	24.045
21.622	Max Flow	255.1	82.673	0.000	1.900	2.786	2.165	23.517

```

*=====
| Table E13a. CULVERT ANALYSIS CLASSIFICATION,
| and the time the culvert was in a particular
| classification during the simulation. The time is
| in minutes. The Dynamic Wave Equation is used for
| all conduit analysis but the culvert flow classification
| condition is based on the HW and TW depths.
*=====
  
```

		Mild Slope Critical D	Mild Slope TW Control	Steep Slope TW Insignf	Slug Flow Outlet/	Mild Slope TW > D	Mild Slope TW <= D
Outlet Control	Conduit Inlet Name Control Configuration	Outlet Inlet Control	Outlet Control	Entrance Control	Entrance Control	Outlet Control	Outlet Control
0.000	Link14	1.667	2728.333	150.000	0.000	0.000	0.000
0.000	0.000 None						
388.333	Link16	0.000	1368.333	720.000	403.333	0.000	0.000
0.000	0.000 None						
0.000	Link18	0.000	2775.000	66.667	0.000	38.333	0.000
0.000	0.000 None						
0.000	Link20	0.000	2798.333	61.667	0.000	20.000	0.000
0.000	0.000 None						
0.000	Link22	0.000	2798.333	81.667	0.000	0.000	0.000
0.000	0.000 None						
0.000	Link24	766.667	1991.667	121.667	0.000	0.000	0.000
0.000	0.000 None						
0.000	Link26	1.667	2755.000	123.333	0.000	0.000	0.000
0.000	0.000 None						
0.000	Link31	0.000	2840.000	40.000	0.000	0.000	0.000
0.000	0.000 None						
0.000	Link33	0.000	2840.000	40.000	0.000	0.000	0.000
0.000	0.000 None						
0.000	Link34	0.000	2670.000	76.667	133.333	0.000	0.000
0.000	0.000 None						

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0.000	Link36	0.000	2840.000	40.000	0.000	0.000	0.000
0.000	0.000 None						
0.000	Link37	0.000	2840.000	40.000	0.000	0.000	0.000
0.000	0.000 None						
0.000	Link42.1.1	0.000	2840.000	0.000	40.000	0.000	0.000
0.000	0.000 None						
0.000	Link41	33.333	2838.333	8.333	0.000	0.000	0.000
0.000	0.000 None						
0.000	Link48	0.000	2840.000	40.000	0.000	0.000	0.000
0.000	0.000 None						
0.000	227.1	0.000	2781.667	76.667	0.000	21.667	0.000
0.000	0.000 None						
0.000	231.1	0.000	2596.667	86.667	0.000	196.667	0.000
0.000	0.000 None						
0.000	235.1	0.000	2340.000	61.667	183.333	83.333	211.667
0.000	0.000 None						
0.000	239.1	0.000	0.000	25.000	2416.667	30.000	408.333
0.000	0.000 None						
0.000	243.1	0.000	2461.667	76.667	0.000	341.667	0.000
0.000	0.000 None						
1.667	247.1	0.000	0.000	111.667	2423.333	0.000	343.333
1.667	0.000 None						
6.667	251.1	1153.333	1345.000	123.333	0.000	248.333	3.333
6.667	0.000 None						
106.667	255.1	0.000	0.000	2403.333	121.667	0.000	248.333
106.667	0.000 None						

```

*=====*
| Kinematic Wave Approximations |
| Time in Minutes for Each Condition |
*=====*
    
```

Conduit Name	Duration of Normal Flow	Slope Criteria	Super-Critical	Roll Waves
Link14	2565.44	2783.27	0.14	0.00
Link16	2366.53	2782.13	0.00	0.00
Link18	1293.96	2813.04	0.00	0.00
Link20	9.78	2814.13	0.07	0.00
Link22	0.00	0.00	0.00	0.00
Link24	0.02	260.78	0.06	0.00
Link26	1127.53	2753.56	0.23	0.00
Link31	0.22	35.22	0.00	0.00
Link33	0.00	0.00	0.00	0.00
Link34	0.00	0.00	0.00	0.00
Link36	795.39	2837.08	0.69	0.00
Link37	17.27	2716.47	0.00	0.00
Link42.1.1	79.92	121.86	0.00	0.00

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Link41	1514.74	2834.96	12.50	0.00
Link48	4.63	689.69	0.00	0.00
227.1	0.00	2641.95	0.58	0.00
231.1	0.09	2778.58	0.80	0.00
235.1	0.00	163.83	0.00	0.00
239.1	0.00	3.82	0.00	0.00
243.1	0.00	0.00	0.00	0.00
247.1	0.00	0.00	0.00	0.00
251.1	0.08	149.96	19.93	0.00
255.1	172.58	725.90	2292.79	0.00

=====

| Table E14 - Natural Channel Overbank Flow Information |

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		<---- Maximum Velocity ----->			<----- Maximum Flow ----->			
<----- Maximum Area ----->		<--- Max. Storage Volume --->						
Left	Center	Right	Left	Center	Right	Left	Center	Right
Area	Area	Area	Velocity	Velocity	Velocity	Flow	Maximum	Flow
	Conduit Name	Area	Area	Area	Area	Area	Depth	Flow
1.233	Link14	0.354	1.207	0.000	0.436	34.555		0.000
28.633		0.000	84.297	1957.329	0.000	28.638		
5.983	Link16	0.377	0.659	0.341	2.255	31.087		0.177
47.156		0.519	136.703	1077.504	11.854	47.156		
12.046	Link18	0.390	0.609	0.593	4.697	43.516		8.903
71.407		15.007	2928.648	17361.240	3648.719	62.420		
11.110	Link20	0.750	1.248	0.913	8.337	90.896		6.853
72.840		7.505	1305.544	8559.449	881.930	69.435		
7.381	Link22	0.500	0.951	0.804	3.693	89.038		2.277
93.659		2.831	2084.308	26449.348	799.480	93.659		
7.336	Link24	0.734	1.673	0.978	5.383	86.810		0.554
51.896		0.567	2054.896	14537.632	158.712	51.896		
10.285	Link26	0.749	1.256	0.979	7.706	82.186		2.489
65.443		2.543	399.488	2541.798	98.782	65.443		
417.107	Link31	0.207	1.758	0.307	86.210	1244.379		50.214
707.828		163.710	100218.372	141339.176	29723.099	712.241		
0.000	Link33	0.000	2.143	0.300	0.000	1343.690		104.727
626.881		349.211	0.000	120774.977	67230.195	627.209		
0.000	Link34	0.000	1.649	0.000	0.000	36.289		0.000
22.008		0.000	0.000	1083.906	0.000	22.025		
1245.173	Link36	0.131	1.396	0.153	163.737	1150.636		122.992
824.316		802.394	612749.627	411688.111	411379.338	824.316		
702.658	Link37	0.195	1.545	0.050	137.157	1167.527		0.104
755.532		2.109	519945.662	563203.530	1577.013	757.700		
	Link42.1.1	0.074	1.685	0.062	14.059	1292.338		0.215

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190.953	767.085	3.452	3880.161	15349.368	69.459	767.509		
	Link41	0.000	0.472	0.000	0.000	10.226	0.000	
0.000	21.644	0.000	0.000	2890.505	0.000	21.650		
	Link48	0.167	1.992	0.346	58.879	1278.902	52.482	
352.368	642.059	151.707	13481.582	24565.195	5804.301	642.220		

=====

| Table E14a - Natural Channel Encroachment Information |

=====

<----- Existing Conveyance Condition -----> <-----									
Encroachment Conveyance Condition -----> <- % Volume --> <-- Encroachment Data -->									
Centre	Right	Total	Left	Centre	Right	Total	Left	Right	Left
Channel	Bank	Name	Bank	Channel	Bank	Reduction	Station	Station	Bank
Channel	Bank	Name	Bank	Channel	Bank	Left	Right	Incr.	Method
0.0000	1402.3	Link14	17.491	23.313	1384.8	0.0000	1402.3	0.0000	1384.8
								23.313	17.491
									None
17.062	3233.4	Link16	217.58	27.684	2998.8	17.062	3233.4	0.0000	2998.8
								27.684	217.58
									None
1225.2	7859.7	Link18	646.29	45.000	5988.2	1225.2	7859.7	-.00010	5988.2
								45.000	646.29
									None
466.66	7223.8	Link20	567.69	40.000	6189.5	466.66	7223.8	-.00010	6189.5
								40.000	567.69
									None
186.28	7773.3	Link22	302.16	40.106	7284.8	186.28	7773.3	0.0000	7284.8
								40.106	302.16
									None
22.084	3697.3	Link24	214.57	32.239	3460.6	22.084	3697.3	0.0000	3460.6
								32.239	214.57
									None
156.91	5823.0	Link26	485.70	30.497	5180.4	156.91	5823.0	0.0000	5180.4
								30.497	485.70
									None
		Link31	5929.2	3453.5	85583.6	5929.2	85583.6	4492.6	5492.7

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3453.5 94966.3 4492.6 5492.7 0.0000 0.0000 0.0000 None

Link33 0.0000 98266.9 7658.9 105926. 3449.1 4054.1 0.0000 98266.9
7658.9 105926. 3449.1 4054.1 0.0000 0.0000 0.0000 None

Link34 0.0000 946.61 0.0000 946.61 5.4145 22.192 0.0000 946.61
0.0000 946.61 5.4145 22.192 0.0000 0.0000 0.0000 None

Link3616822.7 118219. 12636.5 147678. 3325.4 5704.8 16822.7 118219.
12636.5 147678. 3325.4 5704.8 0.0000 0.0000 0.0000 None

Link3714713.9 125250. 11.206 139975. 4980.4 5358.0 14713.9 125250.
11.206 139975. 4980.4 5358.0 0.0000 0.0000 0.0000 None

Link42.1.1 1439.4 132314. 22.018 133775. 4943.2 5372.9 1439.4 132314.
22.018 133775. 4943.2 5372.9 0.0000 0.0000 0.0000 None

Link41 0.0000 926.07 0.0000 926.07 5.4985 22.127 0.0000 926.07
0.0000 926.07 5.4985 22.127 0.0000 0.0000 0.0000 None

Link48 4245.8 92222.5 3784.5 100253. 4399.5 5437.4 4245.8 92222.5
3784.5 100253. 4399.5 5437.4 0.0000 0.0000 0.0000 None

=====

| Table E14b - Floodplain Mapping |

=====

Conduit		Upstream	Downstream	Channel	Center	<----- Left Offsets	
----->		<----- Right Offsets		----->		<- Channel Widths->	
Bank	Natural	Encroach	Bank	Length	Station	Natural	Encroach
		WS Elev.	WS Elev.	Total	Encroach.		
	Link14	25.3128	25.3070	68.3600	15.0000	15.0000	15.0000
10.0000	8.3133	8.3133	10.0000	23.3133	23.3133		
	Link16	25.2834	25.2888	22.8500	15.0000	15.0000	15.0000

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10.0000	12.6842	12.6842	10.0000	27.6842	27.6842		
	Link18	25.2679	25.2425	243.1300	15.0000	15.0001	15.0001
10.0000	30.0001	30.0001	10.0000	45.0002	45.0002		
	Link20	25.1342	25.1036	117.5100	15.0000	15.0001	15.0001
10.0000	25.0001	25.0001	10.0000	40.0002	40.0002		
	Link22	24.9415	24.9910	282.4000	25.0000	25.0000	25.0000
20.0000	15.1058	15.1058	10.0000	40.1058	40.1058		
	Link24	24.8347	24.5884	280.1300	20.0000	20.0000	20.0000
10.0000	12.2392	12.2392	10.0000	32.2392	32.2392		
	Link26	23.6031	23.6001	38.8400	15.3500	15.3500	15.3500
9.7200	15.1470	15.1470	10.0700	30.4970	30.4970		
	Link31	22.9336	22.8937	199.6800	4765.9700	273.3669	273.3669
106.3600	726.7229	726.7229	69.3100	1000.0898	1000.0898		
	Link33	22.8937	22.8234	192.6600	3498.9200	49.7791	49.7791
70.7100	555.2097	555.2097	48.4200	604.9888	604.9888		
	Link34	25.3341	25.3731	49.2500	15.0000	9.5855	9.5855
10.0000	7.1923	7.1923	10.0000	16.7777	16.7777		
	Link36	22.8234	22.8089	499.4300	3687.5900	362.1960	362.1960
94.8600	2017.2100	2017.2100	53.4600	2379.4060	2379.4060		
	Link37	22.8089	22.7359	745.4400	5037.4200	56.9735	56.9735
110.9000	320.5635	320.5635	78.4400	377.5370	377.5370		
	Link42.1.1	22.7359	22.7377	20.0100	4995.7800	52.5571	52.5571
118.3100	377.1273	377.1273	64.8400	429.6844	429.6844		
	Link41	25.3917	25.3731	133.5500	15.0000	9.5015	9.5015

10.0000 7.1269 7.1269 10.0000 16.6284 16.6284

Link48 22.9421 22.9336 38.2600 4722.1000 322.6233 322.6233
 66.5800 715.3020 715.3020 48.4200 1037.9253 1037.9253

```

*=====
| Table E15 - SPREADSHEET INFO LIST |
| Conduit Flow and Junction Depth Information for use in |
| spreadsheets. The maximum values in this table are the |
| true maximum values because they sample every time step. |
| The values in the review results may only be the |
| maximum of a subset of all the time steps in the run. |
| Note: These flows are only the flows in a single barrel. |
*=====
    
```

Conduit Junction Name	Maximum Invert Elevation (ft)	Total Maximum Flow (ft ³)	Maximum Velocity (ft/s)	Maximum Volume (ft ³)	##
Link14	34.99105	332940.89822	2.63263	2041.62627	##
Node13	22.74000	25.33411			
Link16	33.51893	332785.71642	2.16347	1226.06080	##
Node14	22.70000	25.31281			
Link18	57.11638	568902.67303	0.90320	23938.60749	##
Node15	21.20000	25.30698			
Link20	106.08603	1098764.45240	1.44922	10746.92315	##
Node16	21.16000	25.28344			
Link22	-95.00812	-1099482.95572	1.20731	29333.13611	##
Node17	20.31000	25.28881			
Link24	92.74602	1100753.22938	2.26500	16751.24075	##
Node19	19.43000	25.24248			
Link26	92.38082	1099464.38275	3.70469	3040.06759	##
Node20	19.63000	25.13416			
Link31	1380.80291	44234752.19838	2.29583	271280.64712	##
Node21	19.69000	25.10359			
Link33	1448.41684	45342496.46750	2.63689	188005.17228	##
Node22	19.80000	24.99097			
Link34	-36.28897	-333185.76765	1.70170	1083.90583	##
Node23	19.45000	24.94151			
Link36	1437.36520	45360988.92032	2.38159	1435817.07616	##
Node24	19.87000	24.83466			

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Link37	1304.78812	45408283.96427	1.84822	1084726.20498	##
Node25	19.57000	24.58839			
Link42.1.1	1306.61156	45446682.61660	1.72958	19298.98805	##
Node26	18.85000	23.60314			
Link41	10.22570	98373.27703	0.82200	2890.50453	##
Node27	18.22000	23.60006			
Link48	1390.26255	44236867.87465	2.54332	43851.07849	##
Node28	11.47000	22.89371			
227.1	11.26502	192453.06604	2.38334	167.26428	##
Node31	11.48000	22.93356			
231.1	15.04877	251287.03091	2.95312	193.17875	##
Node33	11.46000	22.82344			
235.1	-11.53824	-247965.40825	2.33729	171.30433	##
Node35	11.49000	22.94211			
239.1	-39.02364	-762684.61794	7.91020	171.20521	##
Node36	9.02000	22.80886			
243.1	-45.84274	-782485.72932	9.30351	172.85026	##
Node37	8.46000	22.73587			
247.1	-40.43098	-779291.30931	8.20707	123.07216	##
Node41	8.46000	22.73766			
251.1	72.76868	1007439.33501	14.75826	247.20499	##
Node18.1.1	14.99000	25.26793			
255.1	82.83667	1073998.23821	11.67555	890.94487	##
Node34.1.1	16.32000	25.37314			
W14	24.88865	140502.29338	0.00000	0.00000	##
Node39	23.15000	25.39170			
W15	24.06962	81649.57796	0.00000	0.00000	##
W17	23.70782	100850.88967	0.00000	0.00000	##
W20	82.40964	335969.22685	0.00000	0.00000	##
W21	76.60531	316574.07191	0.00000	0.00000	##
W24	65.26786	320764.26239	0.00000	0.00000	##
W25	41.11706	93386.30837	0.00000	0.00000	##
W27	15.60234	25278.02309	0.00000	0.00000	##
FREE# 1	1306.12796	45461777.91837	0.00000	0.00000	##

=====

Table E15a - SPREADSHEET REACH LIST
Peak flow and Total Flow listed by Reach or those
conduits or diversions having the same
upstream and downstream nodes.

=====

Upstream Node	Downstream Node	Maximum Flow (cfs)	Total Flow (ft^3)
Node14	Node15	34.991	3.32941E+05
Node16	Node17	33.519	3.32786E+05

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Node18.1.1	Node19	57.116	5.68903E+05
Node20	Node21	106.09	1.09876E+06
Node23	Node22	95.008	1.09948E+06
Node24	Node25	92.746	1.10075E+06
Node26	Node27	92.381	1.09946E+06
Node31	Node28	1380.8	4.42348E+07
Node28	Node33	1448.4	4.53425E+07
Node13	Node34.1.1	36.289	3.33186E+05
Node33	Node36	1437.4	4.53610E+07
Node36	Node37	1304.8	4.54083E+07
Node37	Node41	1306.6	4.54467E+07
Node39	Node34.1.1	10.226	98373.
Node35	Node31	1390.3	4.42369E+07
Node13	Node14	11.265	1.92453E+05
Node15	Node16	15.049	2.51287E+05
Node18.1.1	Node17	11.538	2.47965E+05
Node20	Node19	39.024	7.62685E+05
Node22	Node21	45.843	7.82486E+05
Node24	Node23	40.431	7.79291E+05
Node25	Node26	72.769	1.00744E+06
Node27	Node28	82.837	1.07400E+06
Node13	Node14	24.889	1.40502E+05
Node15	Node16	24.070	81650.
Node17	Node18.1.1	23.708	1.00851E+05
Node19	Node20	82.410	3.35969E+05
Node21	Node22	76.605	3.16574E+05
Node23	Node24	65.268	3.20764E+05
Node25	Node26	41.117	93386.
Node27	Node28	15.602	25278.

```
#####
# Table E16. New Conduit Information Section #
# Conduit Invert (IE) Elevation and Conduit #
# Maximum Water Surface (WS) Elevations #
#####
```

Conduit Name		Upstream Node	Downstream Node	IE Up	IE Dn
WS Up	WS Dn	Conduit Type			
-----	-----	-----	-----	-----	-----
-----	-----	-----	-----	-----	-----
25.31	25.31	Natural	Node14	Node15	23.00 21.50
25.28	25.29	Natural	Node16	Node17	21.80 20.69
25.27	25.24	Natural	Node18.1.1	Node19	20.75 19.70
25.13	25.10	Natural	Node20	Node21	20.15 19.69

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24.94	Link22		Node23	Node22	20.17	20.15
24.99	Natural					
24.83	Link24		Node24	Node25	20.17	19.80
24.59	Natural					
23.60	Link26		Node26	Node27	18.85	18.22
23.60	Natural					
22.93	Link31		Node31	Node28	11.48	11.47
22.89	Natural					
22.89	Link33		Node28	Node33	11.47	11.46
22.82	Natural					
25.33	Link34		Node13	Node34.1.1	23.04	22.28
25.33	Natural					
22.82	Link36		Node33	Node36	11.46	9.020
22.81	Natural					
22.81	Link37		Node36	Node37	9.020	8.460
22.74	Natural					
22.74	Link42.1.1		Node37	Node41	8.460	8.460
22.74	Natural					
25.39	Link41		Node39	Node34.1.1	23.15	22.28
25.39	Natural					
22.94	Link48		Node35	Node31	11.49	11.48
22.94	Natural					
25.33	227.1		Node13	Node14	22.74	22.70
25.33	25.31	Circular				
25.31	231.1		Node15	Node16	21.20	21.16
25.31	25.28	Circular				
25.27	235.1		Node18.1.1	Node17	20.45	20.31
25.27	25.29	Circular				
25.13	239.1		Node20	Node19	19.71	19.43
25.13	25.24	Circular				
24.99	243.1		Node22	Node21	20.15	20.03
24.99	25.10	Circular				
24.83	247.1		Node24	Node23	19.87	19.45
24.83	24.94	Circular				
24.59	251.1		Node25	Node26	19.80	19.54
24.59	23.60	Circular				
23.60	255.1		Node27	Node28	18.80	16.27
23.60	22.89	Circular				

Table E18 - Junction Continuity Error. Division by Volume added 11/96

Continuity Error = Net Flow + Beginning Volume - Ending Volume

 Total Flow + (Beginning Volume + Ending Volume)/2

Net Flow = Node Inflow - Node Outflow

Total Flow = absolute (Inflow + Outflow)

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Intermediate column is a judgement on the node continuity error.

Excellent < 1 percent	Great 1 to 2 percent	Good 2 to 5 percent
Fair 5 to 10 percent	Poor 10 to 25 percent	Bad 25 to 50 percent
Terrible > 50 percent		

Net Flow Thru Node	Junction Total Flow Thru Node	<-----Continuity Error -----> Failed to Converge	% of Node	% of Inflow	Remaining Volume	Beginning Volume
-23.4428	666141.1271	Node13 -45.4797 118	-0.0068	0.0001	22.0369	0.0000
-134.9600	665896.2576	Node14 -147.0595 0	-0.0221	0.0003	12.0995	0.0000
-89.4255	665877.5071	Node15 -118.0645 0	-0.0177	0.0003	28.6390	0.0000
-47.1435	665722.3253	Node16 -73.1523 0	-0.0110	0.0002	26.0088	0.0000
-101.3976	697878.3813	Node17 -114.6514 0	-0.0164	0.0003	13.2537	0.0000
-419.3814	2196848.580	Node19 -479.8384 0	-0.0218	0.0011	60.4571	0.0000
-237.6429	2197418.297	Node20 -289.5067 0	-0.0132	0.0006	51.8638	0.0000
-368.4143	2197824.254	Node21 -404.3738 0	-0.0184	0.0009	35.9595	0.0000
-499.5636	2198542.757	Node22 -514.3750 0	-0.0234	0.0011	14.8114	0.0000

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Node23	-664.1891	-0.0302	0.0015	26.8676	0.0000
-637.3216 2199538.527	0				
Node24	-752.6816	-0.0342	0.0017	15.6592	0.0000
-737.0224 2200808.801	0				
Node25	-116.7843	-0.0053	0.0003	4.8787	0.0000
-111.9055 2201578.873	0				
Node26	1287.8782	0.0585	0.0028	7.3360	0.0000
1295.2142 2200290.026	0				
Node27	111.2936	0.0051	0.0002	14.5257	0.0000
125.8193 2198740.644	0				
Node28	-9482.0235	-0.0105	0.0209	21.1861	0.0000
-9460.8374 90676524.93	0				
Node31	-2622.1170	-0.0030	0.0058	13.0455	0.0000
-2609.0715 88471620.07	0				
Node33	-19802.9599	-0.0218	0.0437	27.8437	0.0000
-19775.1162 90703485.39	0				
Node35	-1486.5874	-0.0017	0.0033	0.5278	0.0000
-1486.0596 88474782.67	0				
Node36	-47950.9478	-0.0528	0.1058	46.4469	0.0000
-47904.5009 90769272.88	0				
Node37	-599.0732	-0.0007	0.0013	27.5826	0.0000
-571.4906 90854966.58	0				
Node41	-218.3243	-0.0002	0.0005	0.4675	0.0000
-217.8568 90908460.53	130				

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Node18.1.1	-325.3057	-0.0286	0.0007	113.5343	0.0000
-211.7715 1137766.917	1				
Node34.1.1	0.8259	0.0001	0.0000	135.5643	0.0000
136.3903 666513.8545	118				
Node39	-108.0259	-0.0549	0.0002	37.4189	0.0000
-70.6070 196677.6075	0				

The total continuity error was -84916. cubic feet
 The remaining total volume was 758.01 cubic feet
 Your mean node continuity error was Excellent
 Your worst node continuity error was Excellent

```

*=====
| Table E19 - Junction Inflow & Outflow Listing |
| Units are either ft^3 or m^3 |
| depending on the units in your model. |
*=====
    
```

Inflow through Outfall	RNF Layer Junction Inflow to Node	Constant Inflow from 2D Layer	User Inflow to Node from Node	Interface Inflow Evaporation to Node from Node	DWF Inflow Basin to Node Infil.
0.0000	Node17 16275.8683	0.0000 0.0000	0.0000 0.0000	0.0000 0.0000	0.0000 0.00
0.0000	Node19 529278.5281	0.0000 0.0000	0.0000 0.0000	0.0000 0.0000	0.0000 0.00
0.0000	Node35 0.0000	0.0000 0.0000	44.2379E+06 0.0000	0.0000 0.0000	0.0000 0.00
0.0000	Node41 0.0000	0.0000 0.0000	0.0000 45.4618E+06	0.0000 0.0000	0.0000 0.00

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0.0000	Node18.1.1	0.0000	0.0000	0.0000	0.0000
220041.4602		0.0000	0.0000	0.0000	0.00
0.0000	Node34.1.1	0.0000	0.0000	0.0000	0.0000
234947.8915		0.0000	0.0000	0.0000	0.00
0.0000	Node39	0.0000	0.0000	0.0000	0.0000
98301.6855		0.0000	0.0000	0.0000	0.00

```

*=====
| Table E20 - Junction Flooding and Volume Listing. |
| The maximum volume is the total volume |
| in the node including the volume in the |
| flooded storage area. This is the max |
| volume at any time. The volume in the |
| flooded storage area is the total volume |
| above the ground elevation, where the |
| flooded pond storage area starts. |
| The fourth column is instantaneous, the fifth is the |
| sum of the flooded volume over the entire simulation |
| Units are either ft^3 or m^3 depending on the units. |
*=====
  
```

2D cell	Junction Name	Out of 1D-System Surcharged Time (min)	Out of 1D-System Flooded Time(min)	Out of 1D-System (Flooded Volume)	Passed to 1D-System Maximum Volume	Passed to OR in Pond of
-----	-----	-----	-----	-----	-----	-----
-----	-----	-----	-----	-----	-----	-----
	Node13	0.000	0.000	0.000	32.6	0.000
	Node14	0.000	0.000	0.000	32.8	0.000
	Node15	0.000	0.000	0.000	51.6	0.000
	Node16	0.000	0.000	0.000	51.8	0.000
	Node17	0.000	0.000	0.000	62.6	0.000
	Node19	83.1	0.000	0.000	73.0	0.000
	Node20	0.000	0.000	0.000	69.2	0.000
	Node21	50.5	0.000	0.000	68.0	0.000
	Node22	0.000	0.000	0.000	65.2	0.000
	Node23	0.000	0.000	0.000	69.0	0.000
	Node24	0.000	0.000	0.000	62.4	0.000

Coupland_Exist100yr.out

Node25	0.000	0.000	0.000	63.1	0.000
Node26	0.000	0.000	0.000	59.7	0.000
Node27	0.000	0.000	0.000	67.6	0.000
Node28	0.000	0.000	0.000	144.	0.000
Node31	0.000	0.000	0.000	144.	0.000
Node33	0.000	0.000	0.000	143.	0.000
Node35	0.000	0.000	0.000	144.	0.000
Node36	0.000	0.000	0.000	173.	0.000
Node37	0.000	0.000	0.000	179.	0.000
Node41	0.000	0.000	0.000	179.	0.000
Node18.1.1	0.000	0.000	0.000	129.	0.000
Node34.1.1	0.000	0.000	0.000	114.	0.000
Node39	0.000	0.000	0.000	28.2	0.000

*=====
 | Simulation Specific Information |
 =====

Number of Input Conduits.....	23	Number of Simulated Conduits.....
32		
Number of Natural Channels.....	15	Number of Junctions.....
24		
Number of Storage Junctions.....	0	Number of Weirs.....
8		
Number of Orifices.....	0	Number of Pumps.....
0		
Number of Free Outfalls.....	1	Number of Tide Gate Outfalls.....
0		

*=====
 | Average % Change in Junction or Conduit is defined as: |
 | Conduit % Change ==> 100.0 (Q(n+1) - Q(n)) / Qfull |
 | Junction % Change ==> 100.0 (Y(n+1) - Y(n)) / Yfull |
 =====

The Conduit with the largest average change was.. Link42.1.1 with
 0.006 percent
 The Junction with the largest average change was. Node41 with
 0.063 percent
 The Conduit with the largest sinuosity was..... 251.1 with
 5.941

*=====
 | Table E21. Continuity balance at the end of the simulation |
 | Junction Inflow, Outflow or Street Flooding |
 | Error = Inflow + Initial Volume - Outflow - Final Volume |
 =====

Coupland_Exist100yr.out

Inflow Junction	Inflow Volume,ft^3	Average Inflow, cfs
Node17	16276.3670	0.0942
Node19	529292.0621	3.0630
Node35	44237914.7911	256.0065
Node18.1.1	220047.9463	1.2734
Node34.1.1	234954.8098	1.3597
Node39	98304.3305	0.5689
Node41-	45461777.9184	-263.0890

Outflow Junction	Outflow Volume,ft^3	Average Outflow, cfs
Node41	45461777.9184	263.0890

=====

| Initial system volume = 0.0000 Cu Ft |

| Total system inflow volume = 45.336725E+06 Cu Ft |

| Inflow + Initial volume = 45.336725E+06 Cu Ft |

=====

| Total system outflow = 45.461778E+06 Cu Ft |

| Volume left (Final volume) = 758.0146 Cu Ft |

| Evaporation = 0.0000 Cu Ft |

Coupland_Exist100yr.out

| Basin Infiltration = 0.0000 Cu Ft |

| Outflow + Final Volume = 45.462536E+06 Cu Ft |

=====

```
*=====*
| Total Model Continuity Error |
| Error in Continuity, Percent = -0.2775 |
| Error in Continuity, ft^3 = -125810.547 |
| + Error means a continuity loss, - a gain |
*=====*
```


Table E22. Numerical Model judgement section #
#####

Overall error was (minimum of Table E18 & E21) -0.1873 percent

Worst nodal error was in node Node36 with -0.0528 percent

Of the total inflow this loss was 0.1058 percent

Your overall continuity error was Excellent

Poor Efficiency

Efficiency of the simulation 9.94

Most Number of Non Convergences at one Node 130.

Total Number Non Convergences at all Nodes 367.

Total Number of Nodes with Non Convergences 4.

Table E23. New Basin Design Information #
Maximum Hydraulic Grade Line, #
Out Conduit Sizes and Maximum Flow

Coupland_Exist100yr.out

#####

- A) Resize d/s Pipes based on given HGL
- B) Resize Basin based on given HGL
- C) Resize d/s Pipes and Basin based on HGL and max discharge
- D) Resize d/s pipes based on given max discharge

Basin Name	Type	Max.HGL	Conduit	Depth	Width
Barrels	Max.Flow	(ft)		(ft)	(ft)
(ft^3/s)					

====> Hydraulic model simulation ended normally.
 ====> XP-SWMM Simulation ended normally.

====> Your input file was named : D:\cfa\2016\12024.Coupland_Paving_and Drainage\ENG\H&H\SWMM\Coupland_Exist100yr.DAT

====> Your output file was named : D:\cfa\2016\12024.Coupland_Paving_and Drainage\ENG\H&H\SWMM\Coupland_Exist100yr.out

```

*=====
|                SWMM Simulation Date and Time Summary                |
*=====
| Starting Date... July          17, 2017  Time...  13:38:57.294  |
| Ending Date...  July          17, 2017  Time...  13:39:30.394  |
| Elapsed Time...   0.53750 minutes or    32.25000 seconds  |
*=====

```

APPENDIX 3

Coupland_Prop5yr_NoImpact.out
Current Directory: C:\PROGRA~2\XPSOLU~1\XPSTOR~1.1
Engine Name: C:\PROGRA~2\XPSOLU~1\XPSTOR~1.1\SWMMEN~2.EXE

Input File : and_Paving_and Drainage\ENG\H&H\SWMM\Coupland_Prop5yr_NoImpact.XP

```
*=====*
```

```
|                                     |
```

```
|                xpswmm                |
```

```
|      Storm and Wastewater Management Model      |
```

```
|      Developed by XP Solutions Inc.              |
```

```
|=====|
```

```
| Last Update       : October, 2015              |
```

```
| Interface Version : 2016                        |
```

```
| Engine Version    : 12.0                        |
```

```
| Data File Version : 12.62                       |
```

```
|                                     |
```

```
*=====*
```

Engine Name: C:\PROGRA~2\XPSOLU~1\XPSTOR~1.1\SWMMEN~2.EXE

```
*=====*
```

```
|      Input and Output file names by Layer      |
```

```
*=====*
```

Input File to Layer # 1 JOT.US

Output File to Layer # 1 JOT.US

Input File to Layer # 2 JOT.US

Output File to Layer # 2 JOT.US

```

=====
Configuration Parameters
Configuration Parameters, both those that are hardwired
and those added to the simulation are listed below.
Configuration Parameters that start with a $ are set in
the engine as defaults. The remaining in UPPERCASE
have been added to the simulation in the Configuration->
Configuration Parameters dialog or as Engine Defaults in
the SWMXP.INI file.

Consult the Help File for the specific meaning/purpose
of any particular parameter.

Note:
The second column denotes the value of the parameter.
=====

```

\$powerstation	0.0000	1	2
\$perv	0.0000	0	4
\$oldegg	0.0000	0	7
\$as	0.0000	0	11
\$noflat	0.0000	0	21
\$oldomega	0.0000	0	24
\$oldvol	0.0000	1	28
\$implicit	0.0000	1	29
\$oldhot	0.0000	1	31
\$oldscs	0.0000	0	33
\$flood	0.0000	1	40
\$nokeys	0.0000	0	42
\$pzero	0.0000	0	55
\$oldvol2	0.0000	2	59
\$storage2	0.0000	3	62
\$oldhot1	0.0000	1	63
\$pumpwt	0.0000	1	70
\$ecloss	0.0000	1	77
\$exout	0.0000	0	97
\$spatial = 0.90	0.9000	5	124
\$djref = -1.0	-0.1000	3	143
\$weirlen = 50	50.0000	1	153
\$oldbnd	0.0000	1	154
\$nogrelev	0.0000	1	161
\$ncmid	0.0000	0	164
\$new_n1_97	0.0000	2	290
SCSIADDEPTH=ON	0.0000	1	293
\$best97	0.0000	1	294

Coupland_Prop5yr_NoImpact.out

\$newbound	0.0000	1	295
\$q_tol = 0.01	0.0001	1	316
\$new_storage	0.0000	1	322
\$old_iteration	0.0000	1	333
MINLEN=10	10.0000	1	346
\$review_elevation	0.0000	1	383
\$use_half_volume	0.0000	1	385
VERT_WALLS=ON	0.0000	1	389
\$min_ts = 1.0	1.0000	1	407
\$design_restart = on	0.0000	1	412
\$zero_value=1.e-05	0.0000	1	415
SUBCATCHMENT_RES=ON	0.0000	1	419
\$relax_depth = on	0.0000	1	427
\$saveallpts = on	0.0000	1	434
\$channel_geometry=1	0.0000	1	456

```

*=====
| All object names are less than 20 characters. |
| No name substitutions required! |
*=====

```

```

*=====
| Parameter Values on the Tapes Common Block. These are the |
| values read from the data file and dynamically allocated |
| by the model for this simulation. |
*=====

```

Number of Subcatchments in the Runoff Block (NW)....	5
Number of Channel/Pipes in the Runoff Block (NG)....	0
Runoff Water quality constituents (NRQ).....	0
Runoff Land Uses per Subcatchment (NLU).....	0
Number of Elements in the Transport Block (NET).....	0
Number of Storage Junctions in Transport (NTSE).....	0
Number of Input Hydrographs in Transport (NTH).....	0
Number of Elements in the Extran Block (NEE).....	39
Number of Groundwater Subcatchments in Runoff (NGW).	0
Number of Interface locations for all Blocks (NIE)..	39
Number of Pumps in Extran (NEP).....	0
Number of Orifices in Extran (NEO).....	1
Number of Tide Gates/Free Outfalls in Extran (NTG)..	1
Number of Extran Weirs (NEW).....	9
Number of scs hydrograph points.....	3457
Number of Extran printout locations (NPO).....	0
Number of Tide elements in Extran (NTE).....	1
Number of Natural channels (NNC).....	15
Number of Storage junctions in Extran (NVSE).....	0
Number of Time history data points in Extran(NTVAL).	0

Coupland_Prop5yr_NoImpact.out

Number of Variable storage elements in Extran (NVST)	0
Number of Input Hydrographs in Extran (NEH).....	1
Number of Particle sizes in Transport Block (NPS)...	0
Number of User defined conduits (NHW).....	5
Number of Connecting conduits in Extran (NECC).....	20
Number of Upstream elements in Transport (NTCC).....	10
Number of Storage/treatment plants (NSTU).....	1
Number of Values for R1 lines in Transport (NR1)...	0
Number of Nodes to be allowed for (NNOD).....	39
Number of Plugs in a Storage Treatment Unit.....	1

```
#####
#   Entry made to the Runoff Layer(Block) of SWMM   #
#   Last Updated June, 2014 by XP Solutions         #
```

```
*=====*
```

RUNOFF TABLES IN THE OUTPUT FILE.	
These are the more important tables in the output file.	
You can use your editor to find the table numbers,	
for example: search for Table R3 to check continuity.	
This output file can be imported into a Word Processor	
and printed on US letter or A4 paper using portrait	
mode, courier font, a size of 8 pt. and margins of 0.75	
Table R1	- Physical Hydrology Data
Table R2	- Infiltration data
Table R3	- Raingage and Infiltration Database Names
Table R4	- Groundwater Data
Table R5	- Continuity Check for Surface Water
Table R6	- Continuity Check for Channels/Pipes
Table R7	- Continuity Check for Subsurface Water
Table R8	- Infiltration/Inflow Continuity Check
Table R9	- Summary Statistics for Subcatchments
Table R10	- Sensitivity analysis for Subcatchments

```
*=====*
```

A1

```
#####
#   RUNOFF JOB CONTROL   #
#####
```

Snowmelt parameter - ISNOW.....	0
Number of rain gages - NRGAG.....	1
Quality is not simulated - KWALTY.....	0

Coupland_Prop5yr_NoImpact.out

```

Default evaporation rate used - IVAP..... 0
Hour of day at start of storm - NHR..... 0
Minute of hour at start of storm - NMN..... 0
Time TZERO at start of storm (hours)..... 0.000
Use U.S. Customary units for most I/O - METRIC... 0
Runoff input print control... 0
Runoff graph plot control.... 0
Runoff output print control.. 0
Limit number of groundwater convergence messages to 10000

Print headers every 50 lines - NOHEAD (0=yes, 1=no) 0

Print land use load percentages -LANDUPR (0=no, 1=yes) 0
Month, day, year of start of storm is: 1/ 1/2016
Wet time step length (seconds)..... 60.0
Dry time step length (seconds)..... 86400.0
Wet/Dry time step length (seconds)... 60.0
Simulation length is..... 48.0 Hours

```

```

If Horton infiltration model is being used
A mixture of infiltration options may be used in
XP-SWMM as a watershed specific option.
Rate for regeneration of infiltration = REGEN * DECAY
Decay is read in for each subcatchment
REGEN = ..... 0.01000

```

```

Raingage #..... 1
KTYPE - Rainfall input type..... 0
NHISTO - Total number of rainfall values.. 899
KINC - Rainfall values(pairs) per line.. 10
KPRINT - Print rainfall(0-Yes,1-No)..... 0
KTIME - Precipitation time units
0 --> Minutes 1 --> Hours..... 0
KPREP - Precipitation unit type
0 --> Intensity 1 --> Volume..... 1
KTHIS - Variable rainfall intervals
0 --> No, >= 1 --> Yes..... 0
THISTO - Rainfall time interval..... 5.00
TZRAIN - Starting time(KTIME units)..... 0.00

```

```

#####
# Rainfall input summary from Runoff #
#####

```

Total rainfall for gage # 1 is 6.4200 inches

Coupland_Prop5yr_NoImpact.out

```
#####
#           Data Group F1           #
# Evaporation Rate (in/day) #
#####
```

```
JAN.  FEB.  MAR.  APR.  MAY   JUN.  JUL.  AUG.  SEP.  OCT.  NOV  DEC.
-----  -----  -----  -----  -----  -----  -----  -----  -----  -----  -----  -----
0.100  0.100  0.100  0.100  0.100  0.100  0.100  0.100  0.100  0.100  0.100  0.100
```

```
#####
# Table R1.  S U B C A T C H M E N T  D A T A  #
#           Physical Hydrology Data           #
#####
```

Deprs					Deprs Prcnt			Per-	
"n"	"n"	Storage	Strge	Deten	Channel	Width	Area	cent	Slope
Number	Name	or inlet	(ft)	(ac)	Imperv	ft/ft			
1	Node39#1	Node39	16.000	2.2700	50.00	0.002			
2	Node34.1.1#1	Node34.1.1	44.300	5.2000	67.00	0.002			
3	Node18.1.1#1	Node18.1.1	41.600	4.8700	67.00	0.002			
4	Node17#1	Node17	3.4000	.36000	67.00	0.002			
5	Node19#1	Node19	76.500	12.240	50.00	0.002			

```
#####
#####
#           Table R2.  SUBCATCHMENT  DATA
#
#           Infiltration or Time of Concentration Data
#
#
# Infiltration Type           Infl #1(#5)           Infl #2(#6)           Infl #3(#7)
#           Infl #4(#8) #
# SCS           ->   Comp CN           Time Conc           Shape Factor
```

Coupland_Prop5yr_NoImpact.out

```

Depth or Fraction #
# SBUH          ->  Comp CN          Time Conc          N/A
          N/A #
# Green Ampt    ->  Suction          Hydr Cond          Initial MD
          N/A #
# Horton        ->  Max Rate          Min Rate          Decay Rate (1/sec)
Max. Infiltr. Volume #
# Proportional  ->  Constant          N/A          N/A
          N/A #
# Initial/Cont Loss ->  Initial          Continuing          N/A
          N/A #
# Initial/Proportional ->  Initial          Constant          N/A
          N/A #
# Laurenson Parameters ->  B Value          Pervious "n"          Impervious Cont
          Exponent #
# Rational Formula ->  Tc Method          Flow Path Length          Flow Path Slope
Roughness or Retardance #
#
#              (#1 - #4 is Impervious Data / #5 - #8 is Pervious
Data)          #
#              Rational Formula Tc Method: 1 = Constant
#              #
#              2 = Friend's Equation
#              #
#              3 = Kinematic Wave
#              #
#              4 = Alameda Method
#              #
#              5 = Izzard's Formula
#              #
#              6 = Kerby's Equation
#              #
#              7 = Kirpich's Equation
#              #
#              8 = Bransby Williams Equation
#              #
#              9 = Federal Aviation Authority
Equation          #

```


#####

Infl	Subcatchment	Infl	Infl	Infl	Infl	Infl	
Number	Infl	Infl	# 1	# 2	# 3	# 4	# 5
6	# 7	# 8					#
1	Node39#1		12.450	0.024	0.385		
2	Node34.1.1#1		12.450	0.024	0.385		

Coupland_Prop5yr_NoImpact.out

3	Node18.1.1#1	12.450	0.024	0.385
4	Node17#1	12.450	0.024	0.385
5	Node19#1	12.450	0.024	0.385

```
#####
# Table R3. SUBCATCHMENT DATA #
# Rainfall and Infiltration Database Names #
#####
```

Subcatchment Number	Name	Gage No	Infiltration Type	Routing Type
1	Node39#1	1	Green Ampt	Non-linear reservoir
2	Node34.1.1#1	1	Green Ampt	Non-linear reservoir
3	Node18.1.1#1	1	Green Ampt	Non-linear reservoir
4	Node17#1	1	Green Ampt	Non-linear reservoir
5	Node19#1	1	Green Ampt	Non-linear reservoir

```
Total Number of Subcatchments... 5
Total Tributary Area (acres).... 24.94
Impervious Area (acres)..... 14.24
Pervious Area (acres)..... 10.70
Total Width (feet)..... 181.80
Impervious Area (%)..... 57.11
```

```
#####
# SUBCATCHMENT DATA #
# Default, Ratio values for subcatchment data #
# Used with the calibrate node in the runoff. #
# 1 - width 2 - area 3 - impervious % #
# 4 - slope 5 - imp "n" 6 - perv "n" #
# 7 - imp ds 8 - perv ds 9 - 1st infil #
#10 - 2nd infil 11 - 3rd infil #
#####
```

Column	1	2	3	4	5	6	7
8	9	10	11				
Default	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
0.0000	0.0000	0.0000	0.0000				
Ratio	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
1.0000	1.0000	1.0000	1.0000				

```
*****
* Arrangement of Subcatchments and Channel/Pipes *
*****
```

Coupland_Prop5yr_NoImpact.out

```

Inlet
Node39          No Tributary Channel/Pipes
                Tributary Subareas..... Node39#1
Node34.1.1     No Tributary Channel/Pipes
                Tributary Subareas..... Node34.1.1#1
Node18.1.1     No Tributary Channel/Pipes
                Tributary Subareas..... Node18.1.1#1
Node17          No Tributary Channel/Pipes
                Tributary Subareas..... Node17#1
Node19          No Tributary Channel/Pipes
                Tributary Subareas..... Node19#1

```

```

*****
* Hydrographs will be stored for the following 5 INLETS *
*****
Node39          Node34.1.1          Node18.1.1
Node17          Node19

```

```

*****
* Quality Simulation not included in this run *
*****

```

```

*****
* Precipitation Interface File Summary *
* Number of precipitation station... 1 *
*****

```

```

Location Station Number
-----
          1.          1

```

XXX End of Header Section XXX

```

#####
# Entry made to the HYDRAULIC Layer of XP-SWMM #
# Last Updated in June, 2014 by XP Solutions #

```

```

#####
# Entry made to the Runoff Layer(Block) of SWMM #
# Last Updated June, 2014 by XP Solutions #

```

=====

Coupland_Prop5yr_NoImpact.out

RUNOFF TABLES IN THE OUTPUT FILE.

These are the more important tables in the output file. You can use your editor to find the table numbers, for example: search for Table R3 to check continuity. This output file can be imported into a Word Processor and printed on US letter or A4 paper using portrait mode, courier font, a size of 8 pt. and margins of 0.75

- Table R1 - Physical Hydrology Data
Table R2 - Infiltration data
Table R3 - Raingage and Infiltration Database Names
Table R4 - Groundwater Data
Table R5 - Continuity Check for Surface Water
Table R6 - Continuity Check for Channels/Pipes
Table R7 - Continuity Check for Subsurface Water
Table R8 - Infiltration/Inflow Continuity Check
Table R9 - Summary Statistics for Subcatchments
Table R10 - Sensitivity anlysis for Subcatchments

=====

A1

#####
RUNOFF JOB CONTROL
#####

Snowmelt parameter - ISNOW..... 0
Number of rain gages - NRGAG..... 1
Quality is not simulated - KWALTY..... 0
Default evaporation rate used - IVAP..... 0
Hour of day at start of storm - NHR..... 0
Minute of hour at start of storm - NMN..... 0
Time TZERO at start of storm (hours)..... 0.000
Use U.S. Customary units for most I/O - METRIC... 0
Runoff input print control... 0
Runoff graph plot control.... 0
Runoff output print control.. 0
Limit number of groundwater convergence messages to 10000
Print headers every 50 lines - NOHEAD (0=yes, 1=no) 0
Print land use load percentages -LANDUPR (0=no, 1=yes) 0
Month, day, year of start of storm is: 1/ 1/2016
Wet time step length (seconds)..... 60.0
Dry time step length (seconds)..... 86400.0
Wet/Dry time step length (seconds)... 60.0

Simulation length is.....

48.0 Hours

If Horton infiltration model is being used

A mixture of infiltration options may be used in XP-SWMM as a watershed specific option.

Rate for regeneration of infiltration = REGEN * DECAY

Decay is read in for each subcatchment

REGEN = 0.01000

Raingage #..... 1
 KTYPE - Rainfall input type..... 0
 NHISTO - Total number of rainfall values.. 899
 KINC - Rainfall values(pairs) per line.. 10
 KPRINT - Print rainfall(0-Yes,1-No)..... 0
 KTIME - Precipitation time units
 0 --> Minutes 1 --> Hours..... 0
 KPREP - Precipitation unit type
 0 --> Intensity 1 --> Volume..... 1
 KTHIS - Variable rainfall intervals
 0 --> No, >= 1 --> Yes..... 0
 THISTO - Rainfall time interval..... 5.00
 TZRAIN - Starting time(KTIME units)..... 0.00

 # Rainfall input summary from Runoff #
 #####

Total rainfall for gage # 1 is 6.4200 inches

 # Data Group F1 #
 # Evaporation Rate (in/day) #
 #####

JAN.	FEB.	MAR.	APR.	MAY	JUN.	JUL.	AUG.	SEP.	OCT.	NOV	DEC.
0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.100

 # Table R1. S U B C A T C H M E N T D A T A #
 # Physical Hydrology Data #
 #####

Deprs Deprs Prcnt

Coupland_Prop5yr_NoImpact.out

							Per-		
-sion -sion Zero							cent	Slope	
"n"	"n"	Subcatchment	Channel	Width	Area	cent	Slope		
Number	Storage	Strge Deten	or inlet	(ft)	(ac)	Imperv	ft/ft		
Imprv	Perv	Imprv	Perv	-tion					
1		Node39#1	Node39	16.000	2.2700	50.00	0.002		
0.014	0.030	0.000	0.000	25.00					
2		Node34.1.1#1	Node34.1.1	44.300	5.2000	67.00	0.002		
0.014	0.030	0.000	0.000	25.00					
3		Node18.1.1#1	Node18.1.1	41.600	4.8700	67.00	0.002		
0.014	0.030	0.000	0.000	25.00					
4		Node17#1	Node17	3.4000	.36000	67.00	0.002		
0.014	0.030	0.000	0.000	25.00					
5		Node19#1	Node19	76.500	12.240	50.00	0.002		
0.014	0.030	0.000	0.000	25.00					

#####

```

# Table R2. SUBCATCHMENT DATA
#
# Infiltration or Time of Concentration Data
#
#
# Infiltration Type Infl #1(#5) Infl #2(#6) Infl #3(#7)
# Infl #4(#8) #
# SCS -> Comp CN Time Conc Shape Factor
# SBUH -> Comp CN Time Conc N/A
# Green Ampt N/A # -> Suction Hydr Cond Initial MD
# Horton N/A # -> Max Rate Min Rate Decay Rate (1/sec)
# Proportional -> Constant N/A N/A
# Initial/Cont Loss -> Initial Continuing N/A
# Initial/Proportional -> Initial Constant N/A
# Laurenson Parameters -> B Value Pervious "n" Impervious Cont
# Exponent #
# Rational Formula -> Tc Method Flow Path Length Flow Path Slope
# Roughness or Retardance #
    
```

Coupland_Prop5yr_NoImpact.out

(#1 - #4 is Impervious Data / #5 - #8 is Pervious

```

#
Data)      #
#          # Rational Formula Tc Method: 1 = Constant
#          #
#          # 2 = Friend's Equation
#          # 3 = Kinematic Wave
#          # 4 = Alameda Method
#          # 5 = Izzard's Formula
#          # 6 = Kerby's Equation
#          # 7 = Kirpich's Equation
#          # 8 = Bransby Williams Equation
#          # 9 = Federal Aviation Authority
Equation   #

```


#####

Subcatchment	Infl	Infl	Infl	Infl	Infl			
Infl	Infl	Infl	# 1	# 2	# 3	# 4	# 5	#
Number	Name							
6	# 7	# 8						
1	Node39#1		12.450	0.024	0.385			
2	Node34.1.1#1		12.450	0.024	0.385			
3	Node18.1.1#1		12.450	0.024	0.385			
4	Node17#1		12.450	0.024	0.385			
5	Node19#1		12.450	0.024	0.385			

Table R3. SUBCATCHMENT DATA #
Rainfall and Infiltration Database Names #
#####

Subcatchment	Gage	Infiltration	Routing
Number	No	Type	Type
1	1	Green Ampt	Non-linear reservoir
2	1	Green Ampt	Non-linear reservoir
3	1	Green Ampt	Non-linear reservoir
4	1	Green Ampt	Non-linear reservoir

5 Node19#1 1 Green Ampt Non-linear reservoir

```

Total Number of Subcatchments...      5
Total Tributary Area (acres)....      24.94
Impervious Area (acres).....          14.24
Pervious Area (acres).....           10.70
Total Width (feet).....              181.80
Impervious Area (%).....              57.11

```

```

#####
#           S U B C A T C H M E N T   D A T A           #
#   Default, Ratio values for subcatchment data         #
#   Used with the calibrate node in the runoff.         #
# 1 - width      2 - area      3 - impervious %         #
# 4 - slope      5 - imp "n"   6 - perv "n"           #
# 7 - imp ds     8 - perv ds   9 - 1st infil          #
#10 - 2nd infil                11 - 3rd infil         #
#####

```

Column	1	2	3	4	5	6	7
8	9	10	11				
Default	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
0.0000	0.0000	0.0000	0.0000				
Ratio	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
1.0000	1.0000	1.0000	1.0000				

```

*****
*   Arrangement of Subcatchments and Channel/Pipes   *
*****

```

```

      Inlet
Node39          No Tributary Channel/Pipes
                Tributary Subareas..... Node39#1
Node34.1.1     No Tributary Channel/Pipes
                Tributary Subareas..... Node34.1.1#1
Node18.1.1     No Tributary Channel/Pipes
                Tributary Subareas..... Node18.1.1#1
Node17          No Tributary Channel/Pipes
                Tributary Subareas..... Node17#1
Node19          No Tributary Channel/Pipes
                Tributary Subareas..... Node19#1

```

```

*****
* Hydrographs will be stored for the following 5 INLETS *
*****

```

Node39
Node17

Node34.1.1
Node19

Node18.1.1

* Quality Simulation not included in this run *

* Precipitation Interface File Summary *
* Number of precipitation station.... 1 *

Location Station Number

1. 1

A1

| HYDRAULICS TABLES IN THE OUTPUT FILE |
| These are the more important tables in the output file. |
| You can use your editor to find the table numbers, |
| for example: search for Table E20 to check continuity. |
| This output file can be imported into a Word Processor |
| and printed on US letter or A4 paper using portrait |
| mode, courier font, a size of 8 pt. and margins of 0.75 |
| Table E1 - Basic Conduit Data |
| Table E2 - Conduit Factor Data |
| Table E3a - Junction Data |
| Table E3b - Junction Data |
| Table E4 - Conduit Connectivity Data |
| Table E4a - Dry Weather Flow Data |
| Table E4b - Real Time Control Data |
| Table E5 - Junction Time Step Limitation Summary |
| Table E5a - Conduit Explicit Condition Summary |
| Table E6 - Final Model Condition |
| Table E7 - Iteration Summary |
| Table E8 - Junction Time Step Limitation Summary |

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	Table E9	- Junction Summary Statistics	
	Table E10	- Conduit Summary Statistics	
	Table E11	- Area assumptions used in the analysis	
	Table E12	- Mean conduit information	
	Table E13	- Channel losses(H) and culvert info	
	Table E13a	- Culvert Analysis Classification	
	Table E14	- Natural Channel Overbank Flow Information	
	Table E14a	- Natural Channel Encroachment Information	
	Table E14b	- Floodplain Mapping	
	Table E15	- Spreadsheet Info List	
	Table E15a	- Spreadsheet Reach List	
	Table E16	- New Conduit Output Section	
	Table E17	- Pump Operation	
	Table E18	- Junction Continuity Error	
	Table E19	- Junction Inflow & Outflow Listing	
	Table E20	- Junction Flooding and Volume List	
	Table E21	- Continuity balance at simulation end	
	Table E22	- Model Judgement Section	

=====

Time Control from Hydraulics Job Control

Year.....	2014 Month.....	1
Day.....	1 Hour.....	0
Minute.....	0 Second.....	0

Control information for simulation

Integration cycles.....	960
Length of integration step is.....	180.00 seconds
Simulation length.....	48.00 hours
Do not create equiv. pipes(NEQUAL).	0
Use U.S. customary units for I/O...	0
Printing starts in cycle.....	1
Intermediate printout intervals of.	500 cycles
Intermediate printout intervals of.	1500.00 minutes
Summary printout intervals of.....	500 cycles
Summary printout time interval of..	1500.00 minutes
Hot start file parameter (REDO)....	0
Initial time.....	0.00 hours

Iteration variables: Flow Tolerance.	0.00010
Head Tolerance.	0.00050
Minimum depth (m or ft).....	0.00001
Underrelaxation parameter.....	0.85000
Time weighting parameter.....	0.85000
Conduit roughness factor.....	1.00000

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Flow adjustment factor..... 1.00000
 Initial Condition Smoothing..... 0
 Courant Time Step Factor..... 1.00000
 Default Expansion/Contraction K. 0.00000
 Default Entrance/Exit K..... 0.00000
 Routing Method..... Dynamic Wave
 Default surface area of junctions... 12.57 square feet.
 Minimum Junction/Conduit Depth..... 0.00001 feet.
 Ponding Area Coefficient..... 5000.00
 Ponding Area Exponent..... 1.0000
 Minimum Orifice Length..... 1000.00 feet.
 NJSW input hydrograph junctions..... 1
 or user defined hydrographs....

Natural Cross-Section information for Channel Link14

=====

Cross-Section ID (from X1 card) : 1.0 Channel sequence number : 1

Left Overbank Length : 68.4 ft Maximum Elevation :
 25.09 ft.
 Main Channel Length : 68.4 ft Maximum Depth :
 4.82 ft.
 Right Overbank Length : 68.4 ft Maximum Section Area :
 78.2500 ft^2 Maximum hydraulic radius :
 1.63 ft.
 Manning N : 0.040 to Station 5.0 Max topwidth :
 45.00 ft.
 " " : 0.040 in main Channel Maximum Wetted Perimeter :
 4.80E+01 ft
 " " : 0.015 Beyond station 25.0 Max left bank area :
 9.80 ft^2 Max right bank area :
 6.02 ft^2
 Allowable Encroachment Depth : 0.00 ft Max center channel area :
 62.4250 ft^2

Natural Cross-Section information for Channel Link16

=====

Cross-Section ID (from X1 card) : 2.0 Channel sequence number : 2

Left Overbank Length : 22.9 ft Maximum Elevation :
 25.09 ft.
 Main Channel Length : 22.9 ft Maximum Depth :
 4.82 ft.
 Right Overbank Length : 22.9 ft Maximum Section Area :
 78.2500 ft^2 Maximum hydraulic radius :

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1.63 ft.
Manning N : 0.040 to Station 5.0 Max topwidth :
45.00 ft.
" " : 0.040 in main Channel Maximum Wetted Perimeter :
4.80E+01 ft
" " : 0.015 Beyond station 25.0 Max left bank area :
9.80 ft^2
Max right bank area :
6.02 ft^2
Allowable Encroachment Depth : 0.00 ft Max center channel area :
62.4250 ft^2

Natural Cross-Section information for Channel Link18

=====

Cross-Section ID (from X1 card) : 3.0 Channel sequence number : 3

Left Overbank Length : 243.1 ft Maximum Elevation :
25.09 ft.
Main Channel Length : 243.1 ft Maximum Depth :
4.82 ft.
Right Overbank Length : 243.1 ft Maximum Section Area :
78.2500 ft^2
Maximum hydraulic radius :
1.63 ft.
Manning N : 0.040 to Station 5.0 Max topwidth :
45.00 ft.
" " : 0.040 in main Channel Maximum Wetted Perimeter :
4.80E+01 ft
" " : 0.015 Beyond station 25.0 Max left bank area :
9.80 ft^2
Max right bank area :
6.02 ft^2
Allowable Encroachment Depth : 0.00 ft Max center channel area :
62.4250 ft^2

Natural Cross-Section information for Channel Link20

=====

Cross-Section ID (from X1 card) : 4.0 Channel sequence number : 4

Left Overbank Length : 117.5 ft Maximum Elevation :
25.20 ft.
Main Channel Length : 117.5 ft Maximum Depth :
5.02 ft.
Right Overbank Length : 117.5 ft Maximum Section Area :
85.7750 ft^2
Maximum hydraulic radius :
2.00 ft.
Manning N : 0.040 to Station 5.0 Max topwidth :

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40.00 ft.
 " " : 0.040 in main Channel Maximum Wetted Perimeter :
 4.28E+01 ft
 " " : 0.015 Beyond station 25.0 Max left bank area :
 10.40 ft^2
 Max right bank area :
 5.38 ft^2
 Allowable Encroachment Depth : 0.00 ft Max center channel area :
 70.0000 ft^2

Natural Cross-Section information for Channel Link22

=====

Cross-Section ID (from X1 card) : 5.0 Channel sequence number : 5

Left Overbank Length : 282.4 ft Maximum Elevation :
 25.00 ft.
 Main Channel Length : 282.4 ft Maximum Depth :
 5.35 ft.
 Right Overbank Length : 282.4 ft Maximum Section Area :
 128.5750 ft^2
 Maximum hydraulic radius :
 2.43 ft.
 Manning N : 0.040 to Station 5.0 Max topwidth :
 50.00 ft.
 " " : 0.040 in main Channel Maximum Wetted Perimeter :
 5.30E+01 ft
 " " : 0.015 Beyond station 35.0 Max left bank area :
 10.10 ft^2
 Max right bank area :
 8.50 ft^2
 Allowable Encroachment Depth : 0.00 ft Max center channel area :
 109.9750 ft^2

Natural Cross-Section information for Channel Link24

=====

Cross-Section ID (from X1 card) : 6.0 Channel sequence number : 6

Left Overbank Length : 280.1 ft Maximum Elevation :
 25.00 ft.
 Main Channel Length : 280.1 ft Maximum Depth :
 6.11 ft.
 Right Overbank Length : 280.1 ft Maximum Section Area :
 112.8500 ft^2
 Maximum hydraulic radius :
 2.32 ft.
 Manning N : 0.040 to Station 10.0 Max topwidth :
 45.00 ft.
 " " : 0.040 in main Channel Maximum Wetted Perimeter :

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4.86E+01 ft
 " " : 0.015 Beyond station 30.0 Max left bank area :
 21.17 ft^2
 Max right bank area :
 12.10 ft^2
 Allowable Encroachment Depth : 0.00 ft Max center channel area :
 79.5750 ft^2

Natural Cross-Section information for Channel Link26

=====

Cross-Section ID (from X1 card) : 7.0 Channel sequence number : 7

Left Overbank Length : 38.8 ft Maximum Elevation :
 25.00 ft.
 Main Channel Length : 38.8 ft Maximum Depth :
 6.39 ft.
 Right Overbank Length : 38.8 ft Maximum Section Area :
 123.8687 ft^2
 Maximum hydraulic radius :
 3.11 ft.
 Manning N : 0.040 to Station 5.6 Max topwidth :
 35.57 ft.
 " " : 0.040 in main Channel Maximum Wetted Perimeter :
 3.98E+01 ft
 " " : 0.015 Beyond station 25.4 Max left bank area :
 17.71 ft^2
 Max right bank area :
 14.63 ft^2
 Allowable Encroachment Depth : 0.00 ft Max center channel area :
 91.5279 ft^2

Natural Cross-Section information for Channel Link31

=====

Cross-Section ID (from X1 card) : 8.0 Channel sequence number : 8

Left Overbank Length : 240.3 ft Maximum Elevation :
 27.85 ft.
 Main Channel Length : 199.7 ft Maximum Depth :
 16.36 ft.
 Right Overbank Length : 181.6 ft Maximum Section Area :
 28065.25 ft^2
 Maximum hydraulic radius :
 3.71 ft.
 Manning N : 0.070 to Station 4659.6 Max topwidth :
 7554.14 ft.
 " " : 0.032 in main Channel Maximum Wetted Perimeter :
 7.56E+03 ft
 " " : 0.070 Beyond station 4835.3 Max left bank area :
 Max right bank area :
 Max center channel area :

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19000.27 ft^2

Max right bank area :

7493.03 ft^2

Allowable Encroachment Depth : 0.00 ft

Max center channel area :

1571.950 ft^2

Natural Cross-Section information for Channel Link33

=====

Cross-Section ID (from X1 card) : 9.0 Channel sequence number : 9

Left Overbank Length : 169.1 ft Maximum Elevation :
29.46 ft.

Main Channel Length : 192.7 ft Maximum Depth :
17.97 ft.

Right Overbank Length : 192.5 ft Maximum Section Area :
30196.69 ft^2

Maximum hydraulic radius :
4.88 ft.

Manning N : 0.070 to Station 3428.2 Max topwidth :
6181.63 ft.

" " : 0.032 in main Channel Maximum Wetted Perimeter :
6.19E+03 ft

" " : 0.070 Beyond station 3547.3 Max left bank area :
17628.50 ft^2

Max right bank area :

11171.67 ft^2

Allowable Encroachment Depth : 0.00 ft

Max center channel area :

1396.517 ft^2

Natural Cross-Section information for Channel Link34

=====

Cross-Section ID (from X1 card) : 10.0 Channel sequence number : 10

Left Overbank Length : 49.2 ft Maximum Elevation :
25.09 ft.

Main Channel Length : 49.2 ft Maximum Depth :
4.82 ft.

Right Overbank Length : 49.2 ft Maximum Section Area :
78.2500 ft^2

Maximum hydraulic radius :
1.63 ft.

Manning N : 0.040 to Station 5.0 Max topwidth :
45.00 ft.

" " : 0.040 in main Channel Maximum Wetted Perimeter :
4.80E+01 ft

" " : 0.015 Beyond station 25.0 Max left bank area :
9.80 ft^2

Max right bank area :

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6.02 ft²
Allowable Encroachment Depth : 0.00 ft Max center channel area :
62.4250 ft²

Natural Cross-Section information for Channel Link36

=====

Cross-Section ID (from X1 card) : 11.0 Channel sequence number : 11

Left Overbank Length : 492.1 ft Maximum Elevation :
29.46 ft.
Main Channel Length : 499.4 ft Maximum Depth :
17.97 ft.
Right Overbank Length : 512.7 ft Maximum Section Area :
30714.99 ft² Maximum hydraulic radius :
4.83 ft.
Manning N : 0.070 to Station 3592.7 Max topwidth :
6305.50 ft.
" " : 0.032 in main Channel Maximum Wetted Perimeter :
6.36E+03 ft
" " : 0.070 Beyond station 3741.1 Max left bank area :
18443.26 ft² Max right bank area :
10717.92 ft²
Allowable Encroachment Depth : 0.00 ft Max center channel area :
1553.814 ft²

Natural Cross-Section information for Channel Link37

=====

Cross-Section ID (from X1 card) : 12.0 Channel sequence number : 12

Left Overbank Length : 740.0 ft Maximum Elevation :
28.05 ft.
Main Channel Length : 745.4 ft Maximum Depth :
19.03 ft.
Right Overbank Length : 747.9 ft Maximum Section Area :
27584.49 ft² Maximum hydraulic radius :
3.59 ft.
Manning N : 0.070 to Station 4926.5 Max topwidth :
7672.71 ft.
" " : 0.032 in main Channel Maximum Wetted Perimeter :
7.68E+03 ft
" " : 0.070 Beyond station 5115.9 Max left bank area :
20807.75 ft² Max right bank area :
5154.22 ft²
Allowable Encroachment Depth : 0.00 ft Max center channel area :

1622.518 ft^2

Natural Cross-Section information for Channel Link42.1.1

=====

Cross-Section ID (from X1 card) : 13.0 Channel sequence number : 13

Left Overbank Length	:	20.3 ft	Maximum Elevation	:	
28.40 ft.					
Main Channel Length	:	20.0 ft	Maximum Depth	:	
19.94 ft.					
Right Overbank Length	:	20.1 ft	Maximum Section Area	:	
31373.45 ft^2			Maximum hydraulic radius	:	
4.17 ft.					
Manning N	:	0.070 to Station	4877.5	Max topwidth	:
7515.52 ft.					
" "	:	0.032 in main Channel		Maximum Wetted Perimeter	:
7.52E+03 ft					
" "	:	0.070 Beyond station	5060.6	Max left bank area	:
22248.55 ft^2				Max right bank area	:
7383.12 ft^2				Max center channel area	:
Allowable Encroachment Depth	:	0.00 ft			
1741.771 ft^2					

Natural Cross-Section information for Channel Link41

=====

Cross-Section ID (from X1 card) : 14.0 Channel sequence number : 14

Left Overbank Length	:	133.6 ft	Maximum Elevation	:	
25.09 ft.					
Main Channel Length	:	133.6 ft	Maximum Depth	:	
4.82 ft.					
Right Overbank Length	:	133.6 ft	Maximum Section Area	:	
78.2500 ft^2			Maximum hydraulic radius	:	
1.63 ft.					
Manning N	:	0.040 to Station	5.0	Max topwidth	:
45.00 ft.					
" "	:	0.040 in main Channel		Maximum Wetted Perimeter	:
4.80E+01 ft					
" "	:	0.015 Beyond station	25.0	Max left bank area	:
9.80 ft^2				Max right bank area	:
6.02 ft^2				Max center channel area	:
Allowable Encroachment Depth	:	0.00 ft			
62.4250 ft^2					

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 Natural Cross-Section information for Channel Link48
 =====

Cross-Section ID (from X1 card) : 15.0 Channel sequence number : 15

Left Overbank Length : 38.3 ft	Maximum Elevation :	
27.82 ft.		
Main Channel Length : 38.3 ft	Maximum Depth :	
16.33 ft.		
Right Overbank Length : 38.3 ft	Maximum Section Area :	
26945.91 ft^2	Maximum hydraulic radius :	
3.54 ft.		
Manning N : 0.070 to Station 4655.5	Max topwidth :	
7614.88 ft.		
" " : 0.032 in main Channel	Maximum Wetted Perimeter :	
7.62E+03 ft		
" " : 0.070 Beyond station 4770.5	Max left bank area :	
18294.32 ft^2		
	Max right bank area :	
7448.66 ft^2		
Allowable Encroachment Depth : 0.00 ft	Max center channel area :	
1202.931 ft^2		

=====

Table E1 - Conduit Data

=====

Inp Depth Num (ft)	Trapezoid Side Slopes	Hazen Conduit Williams Name c-factor	Length (ft)	Conduit Class	Area (ft^2)	Manning Coef.	Max Width (ft)
1		Link14	68.3600	Natural	78.2500	0.0400	45.0000
4.8200							
2		Link16	22.8500	Natural	78.2500	0.0400	45.0000
4.8200							
3		Link18	243.1300	Natural	78.2500	0.0400	45.0000
4.8200							
4		Link20	117.5100	Natural	85.7750	0.0400	40.0000
5.0200							
5		Link22	282.4000	Natural	128.5750	0.0400	50.0000
5.3500							
6		Link24	280.1300	Natural	112.8500	0.0400	45.0000
6.1100							
7		Link26	38.8400	Natural	123.8687	0.0400	35.5700

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6.3900						
8	Link31	199.6800	Natural	28065.247	0.0320	7554.1400
16.3600						
9	Link33	192.6600	Natural	30196.693	0.0320	6181.6300
17.9700						
10	Link34	49.2500	Natural	78.2500	0.0400	45.0000
4.8200						
11	Link36	499.4300	Natural	30714.993	0.0320	6305.5000
17.9700						
12	Link37	745.4400	Natural	27584.486	0.0320	7672.7100
19.0300						
13	Link42.1.1	20.0100	Natural	31373.446	0.0320	7515.5200
19.9400						
14	Link38.1	1092.9300	Circular	9.6211	0.0130	3.5000
3.5000						
15	Link46.1	50.0000	Circular	9.6211	0.0130	3.5000
3.5000						
16	Link45.1	82.5300	Circular	9.6211	0.0130	3.5000
3.5000						
17	Link39.1	254.5400	Circular	4.9087	0.0130	2.5000
2.5000						
18	Link41	133.5500	Natural	78.2500	0.0400	45.0000
4.8200						
19	Link48	38.2600	Natural	26945.911	0.0320	7614.8800
16.3300						
20	227.1	33.3500	Circular	4.9087	0.0150	2.5000
2.5000						
21	231.1	37.5400	Circular	4.9087	0.0150	2.5000
2.5000						
22	235.1	33.2900	Circular	4.9087	0.0130	2.5000
2.5000						
23	239.1	33.2700	Circular	4.9087	0.0150	2.5000
2.5000						
24	243.1	33.5900	Circular	4.9087	0.0150	2.5000
2.5000						
25	247.1	23.9600	Circular	4.9087	0.0130	2.5000
2.5000						
26	251.1	48.0400	Circular	4.9087	0.0150	2.5000
2.5000						
27	255.1	124.5900	Circular	7.0686	0.0130	3.0000
3.0000						
28	324.1	43.0000	Circular	19.6350	0.0130	5.0000
5.0000						
Total length of all conduits				4822.1300	feet	

=====

| If there are messages about (sqrt(g*d)*dt/dx), or |

| the sqrt(wave celerity)*time step/conduit length |

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```
| in the output file all it means is that the      |
| program will lower the internal time step to    |
| satisfy this condition (explicit condition).    |
| You control the actual internal time step by    |
| using the minimum courant time step factor in the |
| HYDRAULICS job control. The message put in words |
| states that the smallest conduit with the fastest |
| velocity will control the time step selection.  |
| You have further control by using the modify    |
| conduit option in the HYDRAULICS Job Control.  |
|=====*
```

Conduit Name	Courant Ratio	
Link14 step/conduit length)	19.70	====> Warning ! (sqrt(wave celerity)*time
Link16 step/conduit length)	58.95	====> Warning ! (sqrt(wave celerity)*time
Link18 step/conduit length)	5.54	====> Warning ! (sqrt(wave celerity)*time
Link20 step/conduit length)	12.73	====> Warning ! (sqrt(wave celerity)*time
Link22 step/conduit length)	5.80	====> Warning ! (sqrt(wave celerity)*time
Link24 step/conduit length)	5.77	====> Warning ! (sqrt(wave celerity)*time
Link26 step/conduit length)	49.07	====> Warning ! (sqrt(wave celerity)*time
Link31 step/conduit length)	9.86	====> Warning ! (sqrt(wave celerity)*time
Link33 step/conduit length)	11.16	====> Warning ! (sqrt(wave celerity)*time
Link34 step/conduit length)	27.35	====> Warning ! (sqrt(wave celerity)*time
Link36 step/conduit length)	4.29	====> Warning ! (sqrt(wave celerity)*time
Link37 step/conduit length)	2.17	====> Warning ! (sqrt(wave celerity)*time
Link42.1.1 step/conduit length)	76.40	====> Warning ! (sqrt(wave celerity)*time
Link38.1 step/conduit length)	1.75	====> Warning ! (sqrt(wave celerity)*time
Link46.1 step/conduit length)	38.22	====> Warning ! (sqrt(wave celerity)*time
Link45.1 step/conduit length)	23.15	====> Warning ! (sqrt(wave celerity)*time

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Link39.1	6.34	====> Warning ! (sqrt(wave celerity)*time
step/conduit length)		
Link41	10.09	====> Warning ! (sqrt(wave celerity)*time
step/conduit length)		
Link48	50.22	====> Warning ! (sqrt(wave celerity)*time
step/conduit length)		
227.1	48.43	====> Warning ! (sqrt(wave celerity)*time
step/conduit length)		
231.1	43.02	====> Warning ! (sqrt(wave celerity)*time
step/conduit length)		
235.1	48.51	====> Warning ! (sqrt(wave celerity)*time
step/conduit length)		
239.1	48.54	====> Warning ! (sqrt(wave celerity)*time
step/conduit length)		
243.1	48.08	====> Warning ! (sqrt(wave celerity)*time
step/conduit length)		
247.1	67.40	====> Warning ! (sqrt(wave celerity)*time
step/conduit length)		
251.1	33.62	====> Warning ! (sqrt(wave celerity)*time
step/conduit length)		
255.1	14.20	====> Warning ! (sqrt(wave celerity)*time
step/conduit length)		
324.1	53.11	====> Warning ! (sqrt(wave celerity)*time
step/conduit length)		

```

*=====
| Conduit Volume |
*=====

```

Full pipe or full open conduit volume
Input full depth volume..... 4.9122E+07 cubic feet

====> Warning !! The upstream and downstream junctions for the following conduits
have been reversed to correspond to the positive flow and
decreasing
slope convention. A negative flow in the output thus means
the flow was from your original upstream junction to your original
downstream junction. Any initial flow has been multiplied by -1.

1. Conduit #...Link22 has been changed.
2. Conduit #...Link34 has been changed.
3. Conduit #...235.1 has been changed.
4. Conduit #...239.1 has been changed.
5. Conduit #...243.1 has been changed.
6. Conduit #...247.1 has been changed.

```

*=====

```

Table E3a - Junction Data

Inp Interface Num (%)	Junction Name	Ground Elevation	Crown Elevation	Invert Elevation	Qinst cfs	Initial Depth-ft	Flow
1	Node13	40.0000	27.8600	22.7400	0.0000	0.0000	
100.0000							
2	Node14	40.0000	27.8200	22.7000	0.0000	0.0000	
100.0000							
3	Node15	40.0000	26.3200	21.2000	0.0000	0.0000	
100.0000							
4	Node16	40.0000	26.6200	21.1600	0.0000	0.0000	
100.0000							
5	Node17	40.0000	25.5100	20.3100	0.0000	0.0000	
100.0000							
6	Node18	40.0000	25.5700	20.4500	0.0000	0.0000	
100.0000							
7	Node19	40.0000	24.5200	19.4300	0.0000	0.0000	
100.0000							
8	Node20	40.0000	25.1700	19.6300	0.0000	0.0000	
100.0000							
9	Node21	40.0000	24.7100	19.6900	0.0000	0.0000	
100.0000							
10	Node22	40.0000	25.5000	19.8000	0.0000	0.0000	
100.0000							
11	Node23	40.0000	25.5200	19.4500	0.0000	0.0000	
100.0000							
12	Node24	40.0000	26.2800	19.8700	0.0000	0.0000	
100.0000							
13	Node25	40.0000	25.9100	19.5700	0.0000	0.0000	
100.0000							
14	Node26	40.0000	25.2400	18.8500	0.0000	0.0000	
100.0000							
15	Node27	40.0000	24.6100	18.2200	0.0000	0.0000	
100.0000							
16	Node28	40.0000	29.4400	11.4700	0.0000	0.0000	
100.0000							
17	Node31	40.0000	27.8400	11.4800	0.0000	0.0000	
100.0000							
18	Node33	40.0000	29.4300	11.4600	0.0000	0.0000	
100.0000							
19	Node34	40.0000	27.1000	22.2800	0.0000	0.0000	
100.0000							
20	Node35	40.0000	27.8200	11.4900	0.0000	0.0000	

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100.0000	21	Node36	40.0000	28.0500	9.0200	0.0000	0.0000
100.0000	22	Node37	40.0000	28.4000	8.4600	0.0000	0.0000
100.0000	23	Node41	40.0000	28.4000	8.4600	0.0000	0.0000
100.0000	24	Link42.1	40.0000	17.5100	12.5100	0.0000	0.0000
100.0000	25	Node23.1.1	40.0000	18.4200	8.0000	0.0000	0.0000
100.0000	26	Node19.1.1	40.0000	18.4200	8.0000	0.0000	0.0000
100.0000	27	Node18.1.1	40.0000	18.4900	14.9900	0.0000	0.0000
100.0000	28	Node34.1.1	40.0000	18.8200	16.3200	0.0000	0.0000
100.0000	29	Node39	40.0000	27.9700	23.1500	0.0000	0.0000
100.0000	30	Node40	40.0000	19.2700	12.5100	0.0000	0.0000

=====

| Table E3b - Junction Data |

=====

Inp Maximum Num Capacity	Junction Pavement Name Shape Slope	X Coord.	Y Coord.	Type of Manhole	Type of Inlet
1	0 Node13 0.00	0.0000	0.0000	No Ponding	Normal
2	0 Node14 0.00	0.0000	0.0000	No Ponding	Normal
3	0 Node15 0.00	0.0000	0.0000	No Ponding	Normal
4	0 Node16 0.00	0.0000	0.0000	No Ponding	Normal
5	0 Node17 0.00	0.0000	0.0000	No Ponding	Normal
6	0 Node18 0.00	0.0000	0.0000	No Ponding	Normal
7	0 Node19 0.00	0.0000	0.0000	No Ponding	Normal
8	Node20	0.0000	0.0000	No Ponding	Normal

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	0	0.00				
9		Node21	0.0000	0.0000	No Ponding	Normal
	0	0.00				
10		Node22	0.0000	0.0000	No Ponding	Normal
	0	0.00				
11		Node23	0.0000	0.0000	No Ponding	Normal
	0	0.00				
12		Node24	0.0000	0.0000	No Ponding	Normal
	0	0.00				
13		Node25	0.0000	0.0000	No Ponding	Normal
	0	0.00				
14		Node26	0.0000	0.0000	No Ponding	Normal
	0	0.00				
15		Node27	0.0000	0.0000	No Ponding	Normal
	0	0.00				
16		Node28	0.0000	0.0000	No Ponding	Normal
	0	0.00				
17		Node31	0.0000	0.0000	No Ponding	Normal
	0	0.00				
18		Node33	0.0000	0.0000	No Ponding	Normal
	0	0.00				
19		Node34	0.0000	0.0000	No Ponding	Normal
	0	0.00				
20		Node35	0.0000	0.0000	No Ponding	Normal
	0	0.00				
21		Node36	0.0000	0.0000	No Ponding	Normal
	0	0.00				
22		Node37	0.0000	0.0000	No Ponding	Normal
	0	0.00				
23		Node41	0.0000	0.0000	No Ponding	Normal
	0	0.00				
24		Link42.1	0.0000	0.0000	No Ponding	Normal
	0	0.00				
25		Node23.1.1	0.0000	0.0000	No Ponding	Normal
	0	0.00				
26		Node19.1.1	0.0000	0.0000	No Ponding	Normal
	0	0.00				
27		Node18.1.1	0.0000	0.0000	No Ponding	Normal
	0	0.00				
28		Node34.1.1	0.0000	0.0000	No Ponding	Normal
	0	0.00				
29		Node39	0.0000	0.0000	No Ponding	Normal
	0	0.00				
30		Node40	0.0000	0.0000	No Ponding	Normal
	0	0.00				

=====

Table E4 - Conduit Connectivity

=====

Input Upstream Number Elevation	Downstream Elevation	Conduit Name	Upstream Node	Downstream Node
1 23.0000	21.5000	Link14 No Design	Node14	Node15
2 21.8000	20.6900	Link16 No Design	Node16	Node17
3 20.7500	19.7000	Link18 No Design	Node18	Node19
4 20.1500	19.6900	Link20 No Design	Node20	Node21
5 20.1700	20.1500	Link22 No Design	Node23	Node22
6 20.1700	19.8000	Link24 No Design	Node24	Node25
7 18.8500	18.2200	Link26 No Design	Node26	Node27
8 11.4800	11.4700	Link31 No Design	Node31	Node28
9 11.4700	11.4600	Link33 No Design	Node28	Node33
10 23.0400	22.2800	Link34 No Design	Node13	Node34
11 11.4600	9.0200	Link36 No Design	Node33	Node36
12 9.0200	8.4600	Link37 No Design	Node36	Node37
13 8.4600	8.4600	Link42.1.1 No Design	Node37	Node41
14 14.9200	14.0100	Link38.1 No Design	Node23.1.1	Link42.1
15 8.0000	8.0000	Link46.1 No Design	Node19.1.1	Node23.1.1
16 14.9900	14.9200	Link45.1 No Design	Node18.1.1	Node19.1.1
17 16.3200	15.9900	Link39.1 No Design	Node34.1.1	Node18.1.1
18 23.1500	22.2800	Link41 No Design	Node39	Node34
19 11.4900	11.4800	Link48 No Design	Node35	Node31
20		227.1	Node13	Node14

Coupland_Prop5yr_NoImpact.out

22.7400	22.7000	No Design		
21		231.1	Node15	Node16
21.2000	21.1600	No Design		
22		235.1	Node18	Node17
20.4500	20.3100	No Design		
23		239.1	Node20	Node19
19.7100	19.4300	No Design		
24		243.1	Node22	Node21
20.1500	20.0300	No Design		
25		247.1	Node24	Node23
19.8700	19.4500	No Design		
26		251.1	Node25	Node26
19.8000	19.5400	No Design		
27		255.1	Node27	Node40
18.8000	16.2700	No Design		
28		324.1	Node40	Node28
12.5100	12.4900	No Design		

```

*=====
|           Orifice Data           3           |
*=====
    
```

Depth (ft)	Conduit Discharge Name Coefficient	From Height Above Junction (ft)	To Junction	Type	Area (ft2)
5.00	Restrictor.1 0.670	Link42.1 0.000	Node40	Circ Side	2.84

```

====> EQUIVALENT PIPE INFORMATION FOR ORIFICE
CONDUIT NAME..... 1
Upstream node..... Restrictor.1
Downstream node..... Link42.1
PIPE DIAMETER..... Node40
PIPE LENGTH..... 1.90
MANNINGS ROUGHNESS..... 2815.84
INVERT ELEVATION AT UPSTREAM END..... 0.0032
INVERT ELEVATION AT DOWNSTREAM END... 12.5100
                                           12.5000
    
```

Note: For a Bottom-outlet orifice the invert elevation of the downstream node will be adjusted to accomodate the equivalent conduit. Conduit grades are not affected.

Coupland_Prop5yr_NoImpact.out

```

*=====
|                               |
|               Weir Data      |
|                               |
*=====
  
```

Weir Top(ft)	Weir Length(ft)	Weir Discharge Coefficient	From Weir Junction Power	To Junction	Type	Crest Height(ft)
17.26	33.35	2.6700	Node13 1.5000	Node14	1	0.91
18.80	37.54	2.6700	Node15 1.5000	Node16	1	2.99
19.69	33.29	2.6700	Node17 1.5000	Node18	1	3.17
20.57	33.27	2.6700	Node19 1.5000	Node20	1	4.45
20.31	33.59	2.6700	Node21 1.5000	Node22	1	4.12
20.55	23.96	2.6700	Node23 1.5000	Node24	1	3.76
20.43	48.04	2.6700	Node25 1.5000	Node26	1	4.55
21.78	124.59	2.6700	Node27 1.5000	Node40	1	5.25
27.49	43.00	2.6700	Node40 1.5000	Node28	1	9.76

```

*=====
|               **WARNING**      |
| Having weirs in series can occasionally |
| lead to large continuity errors for short |
| duration simulations. Please check your |
| continuity errors and make adjustments to |
| your model as required.              |
*=====
  
```

```

*=====
|   FREE OUTFALL DATA (DATA GROUP I1)   |
|   BOUNDARY CONDITION ON DATA GROUP J1 |
*=====
  
```

Outfall at Junction....Node41 has boundary condition number...

1

Coupland_Prop5yr_NoImpact.out

```

*=====
|           Weir Outfall Data           |
| Boundary Condition on data group J1   |
*=====
  
```

```

*=====
| INTERNAL CONNECTIVITY INFORMATION      |
*=====
  
```

CONDUIT	JUNCTION	JUNCTION
Restrictor.1	Link42.1	Node40
W14	Node13	Node14
W15	Node15	Node16
W17	Node17	Node18
W20	Node19	Node20
W21	Node21	Node22
W24	Node23	Node24
W25	Node25	Node26
W27	Node27	Node40
W42	Node40	Node28
FREE# 1	Node41	BOUNDARY

```

*=====
| Boundary Condition Information          |
| Data Groups J1-J4                     |
*=====
  
```

BC NUMBER.. 1 has no control water surface.

```

*=====
| XP Note Field Summary                  |
*=====
  
```

```

*=====
| Conduit Convergence Criteria          |
*=====
  
```

Conduit Name	Full Flow	Conduit Slope
Link14	596.7483	0.0219

Coupland_Prop5yr_NoImpact.out

Link16	887.9019	0.0486
Link18	264.7415	0.0043
Link20	316.7276	0.0039
Link22	72.5977	0.0001
Link24	267.1870	0.0013
Link26	1249.1460	0.0162
Link31	22103.9553	0.0001
Link33	29068.2089	0.0001
Link34	500.4380	0.0154
Link36	284978.9849	0.0049
Link37	82357.7976	0.0008
Link42.1.1	11938.3421	0.0000
Link38.1	29.0312	0.0008
Link46.1	3.1816	0.0000
Link45.1	29.3011	0.0008
Link39.1	14.7688	0.0013
Link41	325.1504	0.0065
Link48	46955.9126	0.0003
227.1	12.3112	0.0012
231.1	11.6038	0.0011
235.1	26.5994	0.0042
239.1	32.6114	0.0084
243.1	21.2473	0.0036
247.1	54.3058	0.0175

Coupland_Prop5yr_NoImpact.out

251.1	26.1519	0.0054
255.1	95.0460	0.0203
324.1	56.1685	0.0005
Restrictor.1	21.0133	0.0000

```

*=====
|   Initial Model Condition   |
| Initial Time =      0.05 hours |
*=====
  
```

Junction / Depth / Elevation	====>	"*" Junction is Surcharged.
Node13/ 0.00 / 22.74		Node14/ 0.00 / 22.70
Node15/ 0.00 / 21.20		
Node16/ 0.00 / 21.16		Node17/ 0.00 / 20.31
Node18/ 0.00 / 20.45		
Node19/ 0.00 / 19.43		Node20/ 0.00 / 19.63
Node21/ 0.00 / 19.69		
Node22/ 0.00 / 19.80		Node23/ 0.00 / 19.45
Node24/ 0.00 / 19.87		
Node25/ 0.00 / 19.57		Node26/ 0.00 / 18.85
Node27/ 0.00 / 18.22		
Node28/ 0.00 / 11.47		Node31/ 0.00 / 11.48
Node33/ 0.00 / 11.46		
Node34/ 0.00 / 22.28		Node35/ 0.00 / 11.49
Node36/ 0.00 / 9.02		
Node37/ 0.00 / 8.46		Node41/ 0.00 / 8.46
Link42.1/ 0.00 / 12.51		
Node23.1.1/ 0.00 / 8.00		Node19.1.1/ 0.00 / 8.00
Node18.1.1/ 0.00 / 14.99		
Node34.1.1/ 0.00 / 16.32		Node39/ 0.00 / 23.15
Node40/ 0.00 / 12.50		

Conduit/	FLOW	====>	"*" Conduit uses the normal flow option.
Link14/	0.00		Link16/ 0.00
Link18/	0.00		
	Link20/	0.00	Link22/ 0.00
Link24/	0.00		
	Link26/	0.00	Link31/ 0.00
Link33/	0.00		
	Link34/	0.00	Link36/ 0.00
Link37/	0.00		
	Link42.1.1/	0.00	Link38.1/ 0.00
Link46.1/	0.00		

Coupland_Prop5yr_NoImpact.out

Link41/	Link45.1/ 0.00	0.00	Link39.1/	0.00
231.1/	Link48/ 0.00	0.00	227.1/	0.00
243.1/	235.1/ 0.00	0.00	239.1/	0.00
255.1/	247.1/ 0.00	0.00	251.1/	0.00
W14/	324.1/ 0.00	0.00	Restrictor.1/	0.00
W20/	W15/ 0.00	0.00	W17/	0.00
W25/	W21/ 0.00	0.00	W24/	0.00
FREE# 1/	W27/ 0.00	0.00	W42/	0.00

	Conduit/	Velocity		
Link18/	Link14/ 0.00	0.00	Link16/	0.00
Link24/	Link20/ 0.00	0.00	Link22/	0.00
Link33/	Link26/ 0.00	0.00	Link31/	0.00
Link37/	Link34/ 0.00	0.00	Link36/	0.00
Link46.1/	Link42.1.1/ 0.00	0.00	Link38.1/	0.00
Link41/	Link45.1/ 0.00	0.00	Link39.1/	0.00
231.1/	Link48/ 0.00	0.00	227.1/	0.00
243.1/	235.1/ 0.00	0.00	239.1/	0.00
255.1/	247.1/ 0.00	0.00	251.1/	0.00
	324.1/ 0.00	0.00	Restrictor.1/	0.00

	Conduit/	Cross Sectional Area		
Link18/	Link14/ 0.00	0.00	Link16/	0.00
Link24/	Link20/ 0.00	0.00	Link22/	0.00
Link33/	Link26/ 0.00	0.00	Link31/	0.00
Link37/	Link34/ 0.00	0.00	Link36/	0.00
	Link42.1.1/ 0.00	0.00	Link38.1/	0.00

Coupland_Prop5yr_NoImpact.out

Link46.1/	0.00			
	Link45.1/	0.00	Link39.1/	0.00
Link41/	0.00			
	Link48/	0.00	227.1/	0.00
231.1/	0.00			
	235.1/	0.00	239.1/	0.00
243.1/	0.00			
	247.1/	0.00	251.1/	0.00
255.1/	0.00			
	324.1/	0.00	Restrictor.1/	0.00

Conduit/ Hydraulic Radius

	Link14/	0.00	Link16/	0.00
Link18/	0.00			
	Link20/	0.00	Link22/	0.00
Link24/	0.00			
	Link26/	0.00	Link31/	0.00
Link33/	0.00			
	Link34/	0.00	Link36/	0.00
Link37/	0.00			
	Link42.1.1/	0.00	Link38.1/	0.00
Link46.1/	0.00			
	Link45.1/	0.00	Link39.1/	0.00
Link41/	0.00			
	Link48/	0.00	227.1/	0.00
231.1/	0.00			
	235.1/	0.00	239.1/	0.00
243.1/	0.00			
	247.1/	0.00	251.1/	0.00
255.1/	0.00			
	324.1/	0.00	Restrictor.1/	0.00

Conduit/ Upstream/ Downstream Elevation

	Link14/	21.20/	21.20	Link16/	20.31/	20.31
Link18/	19.43/	19.43				
	Link20/	19.69/	19.69	Link22/	19.80/	19.80
Link24/	19.57/	19.57				
	Link26/	18.22/	18.22	Link31/	11.47/	11.47
Link33/	11.46/	11.46				
	Link34/	22.28/	22.28	Link36/	9.02/	9.02
Link37/	8.46/	8.46				
	Link42.1.1/	8.46/	8.46	Link38.1/	12.51/	12.51
Link46.1/	8.00/	8.00				
	Link45.1/	8.00/	8.00	Link39.1/	14.99/	14.99
Link41/	22.28/	22.28				
	Link48/	11.48/	11.48	227.1/	22.70/	22.70
231.1/	21.16/	21.16				
	235.1/	20.31/	20.31	239.1/	19.43/	19.43

Coupland_Prop5yr_NoImpact.out

243.1/	19.69/	19.69			
247.1/	19.45/	19.45		251.1/	18.85/ 18.85
255.1/	12.50/	12.50			
324.1/	11.47/	11.47		Restrictor.1/	12.50/ 12.50

Important Information

Start time of user hydrographs was... 0.000000000000000E+000
 Start time of the simulation was..... 0.000000000000000E+000
 Found a match between user hydrograph and simulation start time.

=====

==> System inflows (data group K3) at 0.00 hours (Junction / Inflow,cfs)

Node35 / 0.00E+00
 #####

==> System inflows (data group K3) at 0.05 hours (Junction / Inflow,cfs)

Node35 / 0.00E+00
 #####

==> System inflows (data group K3) at 0.10 hours (Junction / Inflow,cfs)

Node35 / 0.00E+00
 #####

==> System inflows (data group K3) at 0.20 hours (Junction / Inflow,cfs)

Node35 / 0.00E+00
 #####

==> System inflows (data group K3) at 0.25 hours (Junction / Inflow,cfs)

Node35 / 0.00E+00
 #####

==> System inflows (data group K3) at 0.35 hours (Junction / Inflow,cfs)

Node35 / 0.00E+00
 #####

==> System inflows (data group K3) at 0.45 hours (Junction / Inflow,cfs)

Node35 / 0.00E+00
 #####

==> System inflows (data group K3) at 0.50 hours (Junction / Inflow,cfs)

Node35 / 0.00E+00

Coupland_Prop5yr_NoImpact.out

==> System inflows (data group K3) at 0.60 hours (Junction / Inflow,cfs)

Node35 / 0.00E+00

==> System inflows (data group K3) at 0.70 hours (Junction / Inflow,cfs)

Node35 / 0.00E+00

==> System inflows (data group K3) at 0.80 hours (Junction / Inflow,cfs)

Node35 / 0.00E+00

==> System inflows (data group K3) at 0.85 hours (Junction / Inflow,cfs)

Node35 / 0.00E+00

==> System inflows (data group K3) at 0.95 hours (Junction / Inflow,cfs)

Node35 / 0.00E+00

==> System inflows (data group K3) at 1.05 hours (Junction / Inflow,cfs)

Node35 / 0.00E+00

==> System inflows (data group K3) at 1.10 hours (Junction / Inflow,cfs)

Node35 / 0.00E+00

==> System inflows (data group K3) at 1.20 hours (Junction / Inflow,cfs)

Node35 / 0.00E+00

==> System inflows (data group K3) at 1.30 hours (Junction / Inflow,cfs)

Node35 / 0.00E+00

==> System inflows (data group K3) at 1.35 hours (Junction / Inflow,cfs)

Coupland_Prop5yr_NoImpact.out

Node35 / 0.00E+00

==> System inflows (data group K3) at 1.45 hours (Junction / Inflow,cfs)

Node35 / 0.00E+00

==> System inflows (data group K3) at 1.50 hours (Junction / Inflow,cfs)

Node35 / 1.00E-01

==> System inflows (data group K3) at 1.60 hours (Junction / Inflow,cfs)

Node35 / 2.00E-01

==> System inflows (data group K3) at 1.70 hours (Junction / Inflow,cfs)

Node35 / 5.00E-01

==> System inflows (data group K3) at 1.75 hours (Junction / Inflow,cfs)

Node35 / 7.00E-01

==> System inflows (data group K3) at 1.85 hours (Junction / Inflow,cfs)

Node35 / 1.00E+00

==> System inflows (data group K3) at 1.95 hours (Junction / Inflow,cfs)

Node35 / 1.30E+00

==> System inflows (data group K3) at 2.05 hours (Junction / Inflow,cfs)

Node35 / 1.60E+00

==> System inflows (data group K3) at 2.10 hours (Junction / Inflow,cfs)

Node35 / 1.80E+00
#####

Coupland_Prop5yr_NoImpact.out

====> System inflows (data group K3) at 2.20 hours (Junction / Inflow,cfs)

Node35 / 2.10E+00

====> System inflows (data group K3) at 2.30 hours (Junction / Inflow,cfs)

Node35 / 2.40E+00

====> System inflows (data group K3) at 2.35 hours (Junction / Inflow,cfs)

Node35 / 2.60E+00

====> System inflows (data group K3) at 2.45 hours (Junction / Inflow,cfs)

Node35 / 2.90E+00

====> System inflows (data group K3) at 2.50 hours (Junction / Inflow,cfs)

Node35 / 3.10E+00

====> System inflows (data group K3) at 2.60 hours (Junction / Inflow,cfs)

Node35 / 3.40E+00

====> System inflows (data group K3) at 2.70 hours (Junction / Inflow,cfs)

Node35 / 3.60E+00

====> System inflows (data group K3) at 2.75 hours (Junction / Inflow,cfs)

Node35 / 3.90E+00

====> System inflows (data group K3) at 2.85 hours (Junction / Inflow,cfs)

Node35 / 4.10E+00

====> System inflows (data group K3) at 2.95 hours (Junction / Inflow,cfs)

Coupland_Prop5yr_NoImpact.out

Node35 / 4.30E+00

==> System inflows (data group K3) at 3.00 hours (Junction / Inflow,cfs)

Node35 / 4.60E+00

==> System inflows (data group K3) at 3.10 hours (Junction / Inflow,cfs)

Node35 / 4.80E+00

==> System inflows (data group K3) at 3.20 hours (Junction / Inflow,cfs)

Node35 / 5.00E+00

==> System inflows (data group K3) at 3.25 hours (Junction / Inflow,cfs)

Node35 / 5.20E+00

==> System inflows (data group K3) at 3.35 hours (Junction / Inflow,cfs)

Node35 / 5.50E+00

==> System inflows (data group K3) at 3.45 hours (Junction / Inflow,cfs)

Node35 / 5.70E+00

==> System inflows (data group K3) at 3.50 hours (Junction / Inflow,cfs)

Node35 / 5.90E+00

==> System inflows (data group K3) at 3.60 hours (Junction / Inflow,cfs)

Node35 / 6.10E+00

==> System inflows (data group K3) at 3.70 hours (Junction / Inflow,cfs)

Node35 / 6.30E+00

#####

==> System inflows (data group K3) at 3.75 hours (Junction / Inflow,cfs)

Node35 / 6.50E+00

#####

==> System inflows (data group K3) at 3.85 hours (Junction / Inflow,cfs)

Node35 / 6.70E+00

#####

==> System inflows (data group K3) at 3.95 hours (Junction / Inflow,cfs)

Node35 / 6.90E+00

#####

==> System inflows (data group K3) at 4.00 hours (Junction / Inflow,cfs)

Node35 / 7.10E+00

#####

==> System inflows (data group K3) at 4.10 hours (Junction / Inflow,cfs)

Node35 / 7.30E+00

#####

==> System inflows (data group K3) at 4.20 hours (Junction / Inflow,cfs)

Node35 / 7.50E+00

#####

==> System inflows (data group K3) at 4.25 hours (Junction / Inflow,cfs)

Node35 / 7.60E+00

#####

==> System inflows (data group K3) at 4.35 hours (Junction / Inflow,cfs)

Node35 / 7.80E+00

#####

==> System inflows (data group K3) at 4.45 hours (Junction / Inflow,cfs)

Node35 / 8.00E+00

#####

==> System inflows (data group K3) at 4.50 hours (Junction / Inflow,cfs)

Node35 / 8.20E+00

Coupland_Prop5yr_NoImpact.out

==> System inflows (data group K3) at 4.60 hours (Junction / Inflow,cfs)

Node35 / 8.40E+00

==> System inflows (data group K3) at 4.70 hours (Junction / Inflow,cfs)

Node35 / 8.50E+00

==> System inflows (data group K3) at 4.75 hours (Junction / Inflow,cfs)

Node35 / 8.70E+00

==> System inflows (data group K3) at 4.85 hours (Junction / Inflow,cfs)

Node35 / 8.90E+00

==> System inflows (data group K3) at 4.95 hours (Junction / Inflow,cfs)

Node35 / 9.00E+00

==> System inflows (data group K3) at 5.00 hours (Junction / Inflow,cfs)

Node35 / 9.20E+00

==> System inflows (data group K3) at 5.10 hours (Junction / Inflow,cfs)

Node35 / 9.40E+00

==> System inflows (data group K3) at 5.20 hours (Junction / Inflow,cfs)

Node35 / 9.50E+00

==> System inflows (data group K3) at 5.25 hours (Junction / Inflow,cfs)

Node35 / 9.70E+00

==> System inflows (data group K3) at 5.35 hours (Junction / Inflow,cfs)

Coupland_Prop5yr_NoImpact.out

Node35 / 9.90E+00

==> System inflows (data group K3) at 5.45 hours (Junction / Inflow,cfs)

Node35 / 1.00E+01

==> System inflows (data group K3) at 5.50 hours (Junction / Inflow,cfs)

Node35 / 1.02E+01

==> System inflows (data group K3) at 5.60 hours (Junction / Inflow,cfs)

Node35 / 1.03E+01

==> System inflows (data group K3) at 5.70 hours (Junction / Inflow,cfs)

Node35 / 1.05E+01

==> System inflows (data group K3) at 5.75 hours (Junction / Inflow,cfs)

Node35 / 1.06E+01

==> System inflows (data group K3) at 5.85 hours (Junction / Inflow,cfs)

Node35 / 1.08E+01

==> System inflows (data group K3) at 5.95 hours (Junction / Inflow,cfs)

Node35 / 1.09E+01

==> System inflows (data group K3) at 6.00 hours (Junction / Inflow,cfs)

Node35 / 1.10E+01

==> System inflows (data group K3) at 6.10 hours (Junction / Inflow,cfs)

Node35 / 1.12E+01
#####

Coupland_Prop5yr_NoImpact.out

====> System inflows (data group K3) at 6.20 hours (Junction / Inflow,cfs)

Node35 / 1.13E+01

====> System inflows (data group K3) at 6.25 hours (Junction / Inflow,cfs)

Node35 / 1.15E+01

====> System inflows (data group K3) at 6.35 hours (Junction / Inflow,cfs)

Node35 / 1.16E+01

====> System inflows (data group K3) at 6.45 hours (Junction / Inflow,cfs)

Node35 / 1.17E+01

====> System inflows (data group K3) at 6.50 hours (Junction / Inflow,cfs)

Node35 / 1.19E+01

====> System inflows (data group K3) at 6.60 hours (Junction / Inflow,cfs)

Node35 / 1.20E+01

====> System inflows (data group K3) at 6.70 hours (Junction / Inflow,cfs)

Node35 / 1.21E+01

====> System inflows (data group K3) at 6.75 hours (Junction / Inflow,cfs)

Node35 / 1.23E+01

====> System inflows (data group K3) at 6.85 hours (Junction / Inflow,cfs)

Node35 / 1.24E+01

====> System inflows (data group K3) at 6.95 hours (Junction / Inflow,cfs)

Coupland_Prop5yr_NoImpact.out

Node35 / 1.25E+01

==> System inflows (data group K3) at 7.00 hours (Junction / Inflow,cfs)

Node35 / 1.27E+01

==> System inflows (data group K3) at 7.10 hours (Junction / Inflow,cfs)

Node35 / 1.28E+01

==> System inflows (data group K3) at 7.20 hours (Junction / Inflow,cfs)

Node35 / 1.29E+01

==> System inflows (data group K3) at 7.25 hours (Junction / Inflow,cfs)

Node35 / 1.30E+01

==> System inflows (data group K3) at 7.35 hours (Junction / Inflow,cfs)

Node35 / 1.32E+01

==> System inflows (data group K3) at 7.45 hours (Junction / Inflow,cfs)

Node35 / 1.33E+01

==> System inflows (data group K3) at 7.50 hours (Junction / Inflow,cfs)

Node35 / 1.34E+01

==> System inflows (data group K3) at 7.60 hours (Junction / Inflow,cfs)

Node35 / 1.35E+01

==> System inflows (data group K3) at 7.70 hours (Junction / Inflow,cfs)

Node35 / 1.36E+01

#####

==> System inflows (data group K3) at 7.75 hours (Junction / Inflow,cfs)

Node35 / 1.38E+01

#####

==> System inflows (data group K3) at 7.85 hours (Junction / Inflow,cfs)

Node35 / 1.39E+01

#####

==> System inflows (data group K3) at 7.95 hours (Junction / Inflow,cfs)

Node35 / 1.40E+01

#####

==> System inflows (data group K3) at 8.00 hours (Junction / Inflow,cfs)

Node35 / 1.41E+01

#####

==> System inflows (data group K3) at 8.10 hours (Junction / Inflow,cfs)

Node35 / 1.42E+01

#####

==> System inflows (data group K3) at 8.20 hours (Junction / Inflow,cfs)

Node35 / 1.43E+01

#####

==> System inflows (data group K3) at 8.25 hours (Junction / Inflow,cfs)

Node35 / 1.45E+01

#####

==> System inflows (data group K3) at 8.35 hours (Junction / Inflow,cfs)

Node35 / 1.46E+01

#####

==> System inflows (data group K3) at 8.45 hours (Junction / Inflow,cfs)

Node35 / 1.47E+01

#####

==> System inflows (data group K3) at 8.50 hours (Junction / Inflow,cfs)

Node35 / 1.48E+01

Coupland_Prop5yr_NoImpact.out

==> System inflows (data group K3) at 8.60 hours (Junction / Inflow,cfs)

Node35 / 1.49E+01

==> System inflows (data group K3) at 8.70 hours (Junction / Inflow,cfs)

Node35 / 1.50E+01

==> System inflows (data group K3) at 8.75 hours (Junction / Inflow,cfs)

Node35 / 1.52E+01

==> System inflows (data group K3) at 8.85 hours (Junction / Inflow,cfs)

Node35 / 1.53E+01

==> System inflows (data group K3) at 8.95 hours (Junction / Inflow,cfs)

Node35 / 1.54E+01

==> System inflows (data group K3) at 9.00 hours (Junction / Inflow,cfs)

Node35 / 1.55E+01

==> System inflows (data group K3) at 9.10 hours (Junction / Inflow,cfs)

Node35 / 1.57E+01

==> System inflows (data group K3) at 9.20 hours (Junction / Inflow,cfs)

Node35 / 1.58E+01

==> System inflows (data group K3) at 9.25 hours (Junction / Inflow,cfs)

Node35 / 1.59E+01

==> System inflows (data group K3) at 9.35 hours (Junction / Inflow,cfs)

Coupland_Prop5yr_NoImpact.out

Node35 / 1.60E+01

==> System inflows (data group K3) at 9.45 hours (Junction / Inflow,cfs)

Node35 / 1.62E+01

==> System inflows (data group K3) at 9.50 hours (Junction / Inflow,cfs)

Node35 / 1.63E+01

==> System inflows (data group K3) at 9.60 hours (Junction / Inflow,cfs)

Node35 / 1.64E+01

==> System inflows (data group K3) at 9.70 hours (Junction / Inflow,cfs)

Node35 / 1.66E+01

==> System inflows (data group K3) at 9.75 hours (Junction / Inflow,cfs)

Node35 / 1.67E+01

==> System inflows (data group K3) at 9.85 hours (Junction / Inflow,cfs)

Node35 / 1.68E+01

==> System inflows (data group K3) at 9.95 hours (Junction / Inflow,cfs)

Node35 / 1.70E+01

==> System inflows (data group K3) at 10.00 hours (Junction / Inflow,cfs)

Node35 / 1.71E+01

==> System inflows (data group K3) at 10.10 hours (Junction / Inflow,cfs)

Node35 / 1.73E+01
#####

Coupland_Prop5yr_NoImpact.out

====> System inflows (data group K3) at 10.20 hours (Junction / Inflow,cfs)

Node35 / 1.74E+01

====> System inflows (data group K3) at 10.25 hours (Junction / Inflow,cfs)

Node35 / 1.75E+01

====> System inflows (data group K3) at 10.35 hours (Junction / Inflow,cfs)

Node35 / 1.77E+01

====> System inflows (data group K3) at 10.45 hours (Junction / Inflow,cfs)

Node35 / 1.78E+01

====> System inflows (data group K3) at 10.50 hours (Junction / Inflow,cfs)

Node35 / 1.80E+01

====> System inflows (data group K3) at 10.60 hours (Junction / Inflow,cfs)

Node35 / 1.81E+01

====> System inflows (data group K3) at 10.70 hours (Junction / Inflow,cfs)

Node35 / 1.83E+01

====> System inflows (data group K3) at 10.75 hours (Junction / Inflow,cfs)

Node35 / 1.84E+01

====> System inflows (data group K3) at 10.85 hours (Junction / Inflow,cfs)

Node35 / 1.86E+01

====> System inflows (data group K3) at 10.95 hours (Junction / Inflow,cfs)

Coupland_Prop5yr_NoImpact.out

Node35 / 1.88E+01

==> System inflows (data group K3) at 11.00 hours (Junction / Inflow,cfs)

Node35 / 1.89E+01

==> System inflows (data group K3) at 11.10 hours (Junction / Inflow,cfs)

Node35 / 1.91E+01

==> System inflows (data group K3) at 11.20 hours (Junction / Inflow,cfs)

Node35 / 1.93E+01

==> System inflows (data group K3) at 11.25 hours (Junction / Inflow,cfs)

Node35 / 1.94E+01

==> System inflows (data group K3) at 11.35 hours (Junction / Inflow,cfs)

Node35 / 1.96E+01

==> System inflows (data group K3) at 11.45 hours (Junction / Inflow,cfs)

Node35 / 1.98E+01

==> System inflows (data group K3) at 11.50 hours (Junction / Inflow,cfs)

Node35 / 2.00E+01

==> System inflows (data group K3) at 11.60 hours (Junction / Inflow,cfs)

Node35 / 2.02E+01

==> System inflows (data group K3) at 11.70 hours (Junction / Inflow,cfs)

Node35 / 2.04E+01

#####

==> System inflows (data group K3) at 11.75 hours (Junction / Inflow,cfs)

Node35 / 2.06E+01

#####

==> System inflows (data group K3) at 11.85 hours (Junction / Inflow,cfs)

Node35 / 2.08E+01

#####

==> System inflows (data group K3) at 11.95 hours (Junction / Inflow,cfs)

Node35 / 2.11E+01

#####

==> System inflows (data group K3) at 12.00 hours (Junction / Inflow,cfs)

Node35 / 2.14E+01

#####

==> System inflows (data group K3) at 12.10 hours (Junction / Inflow,cfs)

Node35 / 2.18E+01

#####

==> System inflows (data group K3) at 12.20 hours (Junction / Inflow,cfs)

Node35 / 2.22E+01

#####

==> System inflows (data group K3) at 12.25 hours (Junction / Inflow,cfs)

Node35 / 2.27E+01

#####

==> System inflows (data group K3) at 12.35 hours (Junction / Inflow,cfs)

Node35 / 2.33E+01

#####

==> System inflows (data group K3) at 12.45 hours (Junction / Inflow,cfs)

Node35 / 2.39E+01

#####

==> System inflows (data group K3) at 12.50 hours (Junction / Inflow,cfs)

Node35 / 2.46E+01

Coupland_Prop5yr_NoImpact.out

==> System inflows (data group K3) at 12.60 hours (Junction / Inflow,cfs)

Node35 / 2.53E+01

==> System inflows (data group K3) at 12.70 hours (Junction / Inflow,cfs)

Node35 / 2.61E+01

==> System inflows (data group K3) at 12.75 hours (Junction / Inflow,cfs)

Node35 / 2.70E+01

==> System inflows (data group K3) at 12.85 hours (Junction / Inflow,cfs)

Node35 / 2.79E+01

==> System inflows (data group K3) at 12.95 hours (Junction / Inflow,cfs)

Node35 / 2.89E+01

==> System inflows (data group K3) at 13.00 hours (Junction / Inflow,cfs)

Node35 / 3.00E+01

==> System inflows (data group K3) at 13.10 hours (Junction / Inflow,cfs)

Node35 / 3.13E+01

==> System inflows (data group K3) at 13.20 hours (Junction / Inflow,cfs)

Node35 / 3.29E+01

==> System inflows (data group K3) at 13.25 hours (Junction / Inflow,cfs)

Node35 / 3.48E+01

==> System inflows (data group K3) at 13.35 hours (Junction / Inflow,cfs)

Coupland_Prop5yr_NoImpact.out

Node35 / 3.69E+01

==> System inflows (data group K3) at 13.45 hours (Junction / Inflow,cfs)

Node35 / 3.92E+01

==> System inflows (data group K3) at 13.50 hours (Junction / Inflow,cfs)

Node35 / 4.16E+01

==> System inflows (data group K3) at 13.60 hours (Junction / Inflow,cfs)

Node35 / 4.40E+01

==> System inflows (data group K3) at 13.70 hours (Junction / Inflow,cfs)

Node35 / 4.66E+01

==> System inflows (data group K3) at 13.75 hours (Junction / Inflow,cfs)

Node35 / 4.92E+01

==> System inflows (data group K3) at 13.85 hours (Junction / Inflow,cfs)

Node35 / 5.19E+01

==> System inflows (data group K3) at 13.95 hours (Junction / Inflow,cfs)

Node35 / 5.47E+01

==> System inflows (data group K3) at 14.00 hours (Junction / Inflow,cfs)

Node35 / 5.76E+01

==> System inflows (data group K3) at 14.10 hours (Junction / Inflow,cfs)

Node35 / 6.06E+01
#####

Coupland_Prop5yr_NoImpact.out

====> System inflows (data group K3) at 14.20 hours (Junction / Inflow,cfs)

Node35 / 6.37E+01

====> System inflows (data group K3) at 14.25 hours (Junction / Inflow,cfs)

Node35 / 6.70E+01

====> System inflows (data group K3) at 14.35 hours (Junction / Inflow,cfs)

Node35 / 7.04E+01

====> System inflows (data group K3) at 14.45 hours (Junction / Inflow,cfs)

Node35 / 7.40E+01

====> System inflows (data group K3) at 14.50 hours (Junction / Inflow,cfs)

Node35 / 7.76E+01

====> System inflows (data group K3) at 14.60 hours (Junction / Inflow,cfs)

Node35 / 8.14E+01

====> System inflows (data group K3) at 14.70 hours (Junction / Inflow,cfs)

Node35 / 8.52E+01

====> System inflows (data group K3) at 14.75 hours (Junction / Inflow,cfs)

Node35 / 8.90E+01

====> System inflows (data group K3) at 14.85 hours (Junction / Inflow,cfs)

Node35 / 9.29E+01

====> System inflows (data group K3) at 14.95 hours (Junction / Inflow,cfs)

Coupland_Prop5yr_NoImpact.out

Node35 / 9.70E+01

==> System inflows (data group K3) at 15.00 hours (Junction / Inflow,cfs)

Node35 / 1.02E+02

==> System inflows (data group K3) at 15.10 hours (Junction / Inflow,cfs)

Node35 / 1.06E+02

==> System inflows (data group K3) at 15.20 hours (Junction / Inflow,cfs)

Node35 / 1.12E+02

==> System inflows (data group K3) at 15.25 hours (Junction / Inflow,cfs)

Node35 / 1.18E+02

==> System inflows (data group K3) at 15.35 hours (Junction / Inflow,cfs)

Node35 / 1.24E+02

==> System inflows (data group K3) at 15.45 hours (Junction / Inflow,cfs)

Node35 / 1.31E+02

==> System inflows (data group K3) at 15.50 hours (Junction / Inflow,cfs)

Node35 / 1.39E+02

==> System inflows (data group K3) at 15.60 hours (Junction / Inflow,cfs)

Node35 / 1.49E+02

==> System inflows (data group K3) at 15.70 hours (Junction / Inflow,cfs)

Node35 / 1.61E+02

#####

==> System inflows (data group K3) at 15.75 hours (Junction / Inflow,cfs)

Node35 / 1.76E+02

#####

==> System inflows (data group K3) at 15.85 hours (Junction / Inflow,cfs)

Node35 / 1.95E+02

#####

==> System inflows (data group K3) at 15.95 hours (Junction / Inflow,cfs)

Node35 / 2.23E+02

#####

==> System inflows (data group K3) at 16.00 hours (Junction / Inflow,cfs)

Node35 / 2.68E+02

#####

==> System inflows (data group K3) at 16.10 hours (Junction / Inflow,cfs)

Node35 / 3.36E+02

#####

==> System inflows (data group K3) at 16.20 hours (Junction / Inflow,cfs)

Node35 / 4.17E+02

#####

==> System inflows (data group K3) at 16.25 hours (Junction / Inflow,cfs)

Node35 / 4.97E+02

#####

==> System inflows (data group K3) at 16.35 hours (Junction / Inflow,cfs)

Node35 / 5.61E+02

#####

==> System inflows (data group K3) at 16.45 hours (Junction / Inflow,cfs)

Node35 / 6.00E+02

#####

==> System inflows (data group K3) at 16.50 hours (Junction / Inflow,cfs)

Node35 / 6.19E+02

Coupland_Prop5yr_NoImpact.out

==> System inflows (data group K3) at 16.60 hours (Junction / Inflow,cfs)

Node35 / 6.29E+02

==> System inflows (data group K3) at 16.70 hours (Junction / Inflow,cfs)

Node35 / 6.34E+02

==> System inflows (data group K3) at 16.75 hours (Junction / Inflow,cfs)

Node35 / 6.36E+02

==> System inflows (data group K3) at 16.85 hours (Junction / Inflow,cfs)

Node35 / 6.36E+02

==> System inflows (data group K3) at 16.95 hours (Junction / Inflow,cfs)

Node35 / 6.35E+02

==> System inflows (data group K3) at 17.00 hours (Junction / Inflow,cfs)

Node35 / 6.32E+02

==> System inflows (data group K3) at 17.10 hours (Junction / Inflow,cfs)

Node35 / 6.29E+02

==> System inflows (data group K3) at 17.20 hours (Junction / Inflow,cfs)

Node35 / 6.26E+02

==> System inflows (data group K3) at 17.25 hours (Junction / Inflow,cfs)

Node35 / 6.21E+02

==> System inflows (data group K3) at 17.35 hours (Junction / Inflow,cfs)

Coupland_Prop5yr_NoImpact.out

Node35 / 6.16E+02

==> System inflows (data group K3) at 17.45 hours (Junction / Inflow,cfs)

Node35 / 6.11E+02

==> System inflows (data group K3) at 17.50 hours (Junction / Inflow,cfs)

Node35 / 6.06E+02

==> System inflows (data group K3) at 17.60 hours (Junction / Inflow,cfs)

Node35 / 6.00E+02

==> System inflows (data group K3) at 17.70 hours (Junction / Inflow,cfs)

Node35 / 5.95E+02

==> System inflows (data group K3) at 17.75 hours (Junction / Inflow,cfs)

Node35 / 5.90E+02

==> System inflows (data group K3) at 17.85 hours (Junction / Inflow,cfs)

Node35 / 5.84E+02

==> System inflows (data group K3) at 17.95 hours (Junction / Inflow,cfs)

Node35 / 5.78E+02

==> System inflows (data group K3) at 18.00 hours (Junction / Inflow,cfs)

Node35 / 5.73E+02

==> System inflows (data group K3) at 18.10 hours (Junction / Inflow,cfs)

Node35 / 5.67E+02
#####

Coupland_Prop5yr_NoImpact.out

====> System inflows (data group K3) at 18.20 hours (Junction / Inflow,cfs)

Node35 / 5.61E+02

====> System inflows (data group K3) at 18.25 hours (Junction / Inflow,cfs)

Node35 / 5.55E+02

====> System inflows (data group K3) at 18.35 hours (Junction / Inflow,cfs)

Node35 / 5.49E+02

====> System inflows (data group K3) at 18.45 hours (Junction / Inflow,cfs)

Node35 / 5.43E+02

====> System inflows (data group K3) at 18.55 hours (Junction / Inflow,cfs)

Node35 / 5.37E+02

====> System inflows (data group K3) at 18.60 hours (Junction / Inflow,cfs)

Node35 / 5.31E+02

====> System inflows (data group K3) at 18.70 hours (Junction / Inflow,cfs)

Node35 / 5.25E+02

====> System inflows (data group K3) at 18.80 hours (Junction / Inflow,cfs)

Node35 / 5.19E+02

====> System inflows (data group K3) at 18.85 hours (Junction / Inflow,cfs)

Node35 / 5.13E+02

====> System inflows (data group K3) at 18.95 hours (Junction / Inflow,cfs)

Coupland_Prop5yr_NoImpact.out

Node35 / 5.07E+02

==> System inflows (data group K3) at 19.05 hours (Junction / Inflow,cfs)

Node35 / 5.01E+02

==> System inflows (data group K3) at 19.10 hours (Junction / Inflow,cfs)

Node35 / 4.95E+02

==> System inflows (data group K3) at 19.20 hours (Junction / Inflow,cfs)

Node35 / 4.89E+02

==> System inflows (data group K3) at 19.30 hours (Junction / Inflow,cfs)

Node35 / 4.82E+02

==> System inflows (data group K3) at 19.35 hours (Junction / Inflow,cfs)

Node35 / 4.75E+02

==> System inflows (data group K3) at 19.45 hours (Junction / Inflow,cfs)

Node35 / 4.69E+02

==> System inflows (data group K3) at 19.55 hours (Junction / Inflow,cfs)

Node35 / 4.62E+02

==> System inflows (data group K3) at 19.60 hours (Junction / Inflow,cfs)

Node35 / 4.56E+02

==> System inflows (data group K3) at 19.70 hours (Junction / Inflow,cfs)

Node35 / 4.49E+02

#####

==> System inflows (data group K3) at 19.80 hours (Junction / Inflow,cfs)

Node35 / 4.43E+02

#####

==> System inflows (data group K3) at 19.85 hours (Junction / Inflow,cfs)

Node35 / 4.36E+02

#####

==> System inflows (data group K3) at 19.95 hours (Junction / Inflow,cfs)

Node35 / 4.30E+02

#####

==> System inflows (data group K3) at 20.05 hours (Junction / Inflow,cfs)

Node35 / 4.24E+02

#####

==> System inflows (data group K3) at 20.10 hours (Junction / Inflow,cfs)

Node35 / 4.18E+02

#####

==> System inflows (data group K3) at 20.20 hours (Junction / Inflow,cfs)

Node35 / 4.12E+02

#####

==> System inflows (data group K3) at 20.30 hours (Junction / Inflow,cfs)

Node35 / 4.05E+02

#####

==> System inflows (data group K3) at 20.35 hours (Junction / Inflow,cfs)

Node35 / 4.00E+02

#####

==> System inflows (data group K3) at 20.45 hours (Junction / Inflow,cfs)

Node35 / 3.94E+02

#####

==> System inflows (data group K3) at 20.55 hours (Junction / Inflow,cfs)

Node35 / 3.88E+02

Coupland_Prop5yr_NoImpact.out

==> System inflows (data group K3) at 20.60 hours (Junction / Inflow,cfs)

Node35 / 3.82E+02

==> System inflows (data group K3) at 20.70 hours (Junction / Inflow,cfs)

Node35 / 3.76E+02

==> System inflows (data group K3) at 20.80 hours (Junction / Inflow,cfs)

Node35 / 3.71E+02

==> System inflows (data group K3) at 20.85 hours (Junction / Inflow,cfs)

Node35 / 3.65E+02

==> System inflows (data group K3) at 20.95 hours (Junction / Inflow,cfs)

Node35 / 3.60E+02

==> System inflows (data group K3) at 21.05 hours (Junction / Inflow,cfs)

Node35 / 3.54E+02

==> System inflows (data group K3) at 21.10 hours (Junction / Inflow,cfs)

Node35 / 3.49E+02

==> System inflows (data group K3) at 21.20 hours (Junction / Inflow,cfs)

Node35 / 3.44E+02

==> System inflows (data group K3) at 21.30 hours (Junction / Inflow,cfs)

Node35 / 3.39E+02

==> System inflows (data group K3) at 21.35 hours (Junction / Inflow,cfs)

Coupland_Prop5yr_NoImpact.out

Node35 / 3.34E+02

==> System inflows (data group K3) at 21.45 hours (Junction / Inflow,cfs)

Node35 / 3.29E+02

==> System inflows (data group K3) at 21.55 hours (Junction / Inflow,cfs)

Node35 / 3.24E+02

==> System inflows (data group K3) at 21.60 hours (Junction / Inflow,cfs)

Node35 / 3.19E+02

==> System inflows (data group K3) at 21.70 hours (Junction / Inflow,cfs)

Node35 / 3.14E+02

==> System inflows (data group K3) at 21.80 hours (Junction / Inflow,cfs)

Node35 / 3.09E+02

==> System inflows (data group K3) at 21.85 hours (Junction / Inflow,cfs)

Node35 / 3.04E+02

==> System inflows (data group K3) at 21.95 hours (Junction / Inflow,cfs)

Node35 / 3.00E+02

==> System inflows (data group K3) at 22.05 hours (Junction / Inflow,cfs)

Node35 / 2.95E+02

==> System inflows (data group K3) at 22.10 hours (Junction / Inflow,cfs)

Node35 / 2.91E+02
#####

Coupland_Prop5yr_NoImpact.out

====> System inflows (data group K3) at 22.20 hours (Junction / Inflow,cfs)

Node35 / 2.86E+02

====> System inflows (data group K3) at 22.30 hours (Junction / Inflow,cfs)

Node35 / 2.82E+02

====> System inflows (data group K3) at 22.35 hours (Junction / Inflow,cfs)

Node35 / 2.78E+02

====> System inflows (data group K3) at 22.45 hours (Junction / Inflow,cfs)

Node35 / 2.73E+02

====> System inflows (data group K3) at 22.55 hours (Junction / Inflow,cfs)

Node35 / 2.69E+02

====> System inflows (data group K3) at 22.60 hours (Junction / Inflow,cfs)

Node35 / 2.65E+02

====> System inflows (data group K3) at 22.70 hours (Junction / Inflow,cfs)

Node35 / 2.61E+02

====> System inflows (data group K3) at 22.80 hours (Junction / Inflow,cfs)

Node35 / 2.57E+02

====> System inflows (data group K3) at 22.85 hours (Junction / Inflow,cfs)

Node35 / 2.53E+02

====> System inflows (data group K3) at 22.95 hours (Junction / Inflow,cfs)

Coupland_Prop5yr_NoImpact.out

Node35 / 2.49E+02

==> System inflows (data group K3) at 23.05 hours (Junction / Inflow,cfs)

Node35 / 2.45E+02

==> System inflows (data group K3) at 23.10 hours (Junction / Inflow,cfs)

Node35 / 2.42E+02

==> System inflows (data group K3) at 23.20 hours (Junction / Inflow,cfs)

Node35 / 2.38E+02

==> System inflows (data group K3) at 23.30 hours (Junction / Inflow,cfs)

Node35 / 2.34E+02

==> System inflows (data group K3) at 23.35 hours (Junction / Inflow,cfs)

Node35 / 2.31E+02

==> System inflows (data group K3) at 23.45 hours (Junction / Inflow,cfs)

Node35 / 2.27E+02

==> System inflows (data group K3) at 23.55 hours (Junction / Inflow,cfs)

Node35 / 2.24E+02

==> System inflows (data group K3) at 23.60 hours (Junction / Inflow,cfs)

Node35 / 2.20E+02

==> System inflows (data group K3) at 23.70 hours (Junction / Inflow,cfs)

Node35 / 2.17E+02

#####

==> System inflows (data group K3) at 23.75 hours (Junction / Inflow,cfs)

Node35 / 2.14E+02

#####

==> System inflows (data group K3) at 23.85 hours (Junction / Inflow,cfs)

Node35 / 2.10E+02

#####

==> System inflows (data group K3) at 23.95 hours (Junction / Inflow,cfs)

Node35 / 2.07E+02

#####

==> System inflows (data group K3) at 24.00 hours (Junction / Inflow,cfs)

Node35 / 2.04E+02

#####

==> System inflows (data group K3) at 24.10 hours (Junction / Inflow,cfs)

Node35 / 2.00E+02

#####

==> System inflows (data group K3) at 24.20 hours (Junction / Inflow,cfs)

Node35 / 1.97E+02

#####

==> System inflows (data group K3) at 24.25 hours (Junction / Inflow,cfs)

Node35 / 1.94E+02

#####

==> System inflows (data group K3) at 24.35 hours (Junction / Inflow,cfs)

Node35 / 1.90E+02

#####

==> System inflows (data group K3) at 24.45 hours (Junction / Inflow,cfs)

Node35 / 1.86E+02

#####

==> System inflows (data group K3) at 24.50 hours (Junction / Inflow,cfs)

Node35 / 1.83E+02

Coupland_Prop5yr_NoImpact.out

 #####
 ==> System inflows (data group K3) at 24.60 hours (Junction / Inflow,cfs)

Node35 / 1.80E+02
 #####
 #####
 ==> System inflows (data group K3) at 24.70 hours (Junction / Inflow,cfs)

Node35 / 1.76E+02
 #####
 #####
 ==> System inflows (data group K3) at 24.75 hours (Junction / Inflow,cfs)

Node35 / 1.73E+02
 #####
 #####
 ==> System inflows (data group K3) at 24.85 hours (Junction / Inflow,cfs)

Node35 / 1.70E+02
 #####
 #####
 ==> System inflows (data group K3) at 24.95 hours (Junction / Inflow,cfs)

Node35 / 1.66E+02
 #####
 #####
 ==> System inflows (data group K3) at 25.00 hours (Junction / Inflow,cfs)

Node35 / 1.63E+02
 #####

Cycle 500 Time 25 Hrs - 0.00 Min

Junction / Depth / Elevation ==> "*" Junction is Surcharged.
 Node13/ 0.46 / 23.20 Node14/ 0.50 / 23.20
 Node15/ 0.76 / 21.96
 Node16/ 0.80 / 21.96 Node17/ 0.80 / 21.11
 Node18/ 0.66 / 21.11
 Node19/ 1.64 / 21.07 Node20/ 1.44 / 21.07
 Node21/ 1.36 / 21.05
 Node22/ 1.25 / 21.05 Node23/ 1.55 / 21.00
 Node24/ 1.13 / 21.00
 Node25/ 0.58 / 20.15 Node26/ 0.49 / 19.34
 Node27/ 0.81 / 19.03
 Node28/ 3.71 / 15.18 Node31/ 3.77 / 15.25
 Node33/ 3.59 / 15.05
 Node34/ 0.92 / 23.20 Node35/ 3.78 / 15.27

Coupland_Prop5yr_NoImpact.out

Node36/	5.88 /	14.90			
Node37/	6.33 /	14.79		Node41/	6.33 / 14.79
Link42.1/	2.67 /	15.18			
Node23.1.1/	7.36 /	15.36		Node19.1.1/	7.36 / 15.36
Node18.1.1/	0.40 /	15.39			
Node34.1.1/	0.26 /	16.58		Node39/	0.24 / 23.39
Node40/	2.68 /	15.18			

	Conduit/	FLOW	====>	"*"	Conduit uses the normal flow option.
Link18/	Link14/	0.13*		Link16/	0.13*
	0.18			Link20/	0.94
Link26/	Link22/	-1.03		Link24/	1.12
	1.12			Link31/	167.31
Link36/	Link33/	170.67		Link34/	-0.13
	173.40			Link37/	179.40
Link46.1/	Link42.1.1/	182.89		Link38.1/	0.69
	0.57			Link45.1/	0.56
Link48/	Link39.1/	0.29		Link41/	0.12*
	166.52			227.1/	0.13
239.1/	231.1/	0.13		235.1/	-0.16
	-0.92			243.1/	-0.97
255.1/	247.1/	-1.08		251.1/	1.12
	1.13			324.1/	2.07
Restrictor.1/		0.92		W14/	0.00
W15/	0.00			W17/	0.00
	W20/	0.00		W21/	0.00
W24/	0.00			W25/	0.00
	W27/	0.00		W42/	0.00
FREE# 1/	182.88				

 ==> System inflows (data group K3) at 25.10 hours (Junction / Inflow,cfs)

Node35 / 1.60E+02
 #####
 #####
 ==> System inflows (data group K3) at 25.20 hours (Junction / Inflow,cfs)

Node35 / 1.57E+02
 #####
 #####
 ==> System inflows (data group K3) at 25.25 hours (Junction / Inflow,cfs)

Node35 / 1.54E+02
 #####
 #####
 ==> System inflows (data group K3) at 25.35 hours (Junction / Inflow,cfs)

Node35 / 1.51E+02

Coupland_Prop5yr_NoImpact.out

==> System inflows (data group K3) at 25.45 hours (Junction / Inflow,cfs)

Node35 / 1.48E+02

==> System inflows (data group K3) at 25.50 hours (Junction / Inflow,cfs)

Node35 / 1.46E+02

==> System inflows (data group K3) at 25.60 hours (Junction / Inflow,cfs)

Node35 / 1.43E+02

==> System inflows (data group K3) at 25.70 hours (Junction / Inflow,cfs)

Node35 / 1.40E+02

==> System inflows (data group K3) at 25.75 hours (Junction / Inflow,cfs)

Node35 / 1.38E+02

==> System inflows (data group K3) at 25.85 hours (Junction / Inflow,cfs)

Node35 / 1.35E+02

==> System inflows (data group K3) at 25.95 hours (Junction / Inflow,cfs)

Node35 / 1.32E+02

==> System inflows (data group K3) at 26.00 hours (Junction / Inflow,cfs)

Node35 / 1.30E+02

==> System inflows (data group K3) at 26.10 hours (Junction / Inflow,cfs)

Node35 / 1.28E+02

==> System inflows (data group K3) at 26.20 hours (Junction / Inflow,cfs)

Coupland_Prop5yr_NoImpact.out

Node35 / 1.25E+02

==> System inflows (data group K3) at 26.25 hours (Junction / Inflow,cfs)

Node35 / 1.23E+02

==> System inflows (data group K3) at 26.35 hours (Junction / Inflow,cfs)

Node35 / 1.21E+02

==> System inflows (data group K3) at 26.45 hours (Junction / Inflow,cfs)

Node35 / 1.18E+02

==> System inflows (data group K3) at 26.50 hours (Junction / Inflow,cfs)

Node35 / 1.16E+02

==> System inflows (data group K3) at 26.60 hours (Junction / Inflow,cfs)

Node35 / 1.14E+02

==> System inflows (data group K3) at 26.70 hours (Junction / Inflow,cfs)

Node35 / 1.12E+02

==> System inflows (data group K3) at 26.75 hours (Junction / Inflow,cfs)

Node35 / 1.10E+02

==> System inflows (data group K3) at 26.85 hours (Junction / Inflow,cfs)

Node35 / 1.08E+02

==> System inflows (data group K3) at 26.95 hours (Junction / Inflow,cfs)

Node35 / 1.06E+02
#####

Coupland_Prop5yr_NoImpact.out

====> System inflows (data group K3) at 27.00 hours (Junction / Inflow,cfs)

Node35 / 1.04E+02

====> System inflows (data group K3) at 27.10 hours (Junction / Inflow,cfs)

Node35 / 1.02E+02

====> System inflows (data group K3) at 27.20 hours (Junction / Inflow,cfs)

Node35 / 9.97E+01

====> System inflows (data group K3) at 27.25 hours (Junction / Inflow,cfs)

Node35 / 9.79E+01

====> System inflows (data group K3) at 27.35 hours (Junction / Inflow,cfs)

Node35 / 9.60E+01

====> System inflows (data group K3) at 27.45 hours (Junction / Inflow,cfs)

Node35 / 9.42E+01

====> System inflows (data group K3) at 27.50 hours (Junction / Inflow,cfs)

Node35 / 9.25E+01

====> System inflows (data group K3) at 27.60 hours (Junction / Inflow,cfs)

Node35 / 9.07E+01

====> System inflows (data group K3) at 27.70 hours (Junction / Inflow,cfs)

Node35 / 8.90E+01

====> System inflows (data group K3) at 27.75 hours (Junction / Inflow,cfs)

Coupland_Prop5yr_NoImpact.out

Node35 / 8.73E+01

==> System inflows (data group K3) at 27.85 hours (Junction / Inflow,cfs)

Node35 / 8.57E+01

==> System inflows (data group K3) at 27.95 hours (Junction / Inflow,cfs)

Node35 / 8.41E+01

==> System inflows (data group K3) at 28.00 hours (Junction / Inflow,cfs)

Node35 / 8.25E+01

==> System inflows (data group K3) at 28.10 hours (Junction / Inflow,cfs)

Node35 / 8.10E+01

==> System inflows (data group K3) at 28.20 hours (Junction / Inflow,cfs)

Node35 / 7.94E+01

==> System inflows (data group K3) at 28.25 hours (Junction / Inflow,cfs)

Node35 / 7.80E+01

==> System inflows (data group K3) at 28.35 hours (Junction / Inflow,cfs)

Node35 / 7.65E+01

==> System inflows (data group K3) at 28.45 hours (Junction / Inflow,cfs)

Node35 / 7.51E+01

==> System inflows (data group K3) at 28.50 hours (Junction / Inflow,cfs)

Node35 / 7.36E+01

#####

==> System inflows (data group K3) at 28.60 hours (Junction / Inflow,cfs)

Node35 / 7.23E+01

#####

==> System inflows (data group K3) at 28.70 hours (Junction / Inflow,cfs)

Node35 / 7.09E+01

#####

==> System inflows (data group K3) at 28.75 hours (Junction / Inflow,cfs)

Node35 / 6.96E+01

#####

==> System inflows (data group K3) at 28.85 hours (Junction / Inflow,cfs)

Node35 / 6.83E+01

#####

==> System inflows (data group K3) at 28.95 hours (Junction / Inflow,cfs)

Node35 / 6.70E+01

#####

==> System inflows (data group K3) at 29.00 hours (Junction / Inflow,cfs)

Node35 / 6.57E+01

#####

==> System inflows (data group K3) at 29.10 hours (Junction / Inflow,cfs)

Node35 / 6.45E+01

#####

==> System inflows (data group K3) at 29.20 hours (Junction / Inflow,cfs)

Node35 / 6.33E+01

#####

==> System inflows (data group K3) at 29.25 hours (Junction / Inflow,cfs)

Node35 / 6.21E+01

#####

==> System inflows (data group K3) at 29.35 hours (Junction / Inflow,cfs)

Node35 / 6.09E+01

Coupland_Prop5yr_NoImpact.out

==> System inflows (data group K3) at 29.45 hours (Junction / Inflow,cfs)

Node35 / 5.98E+01

==> System inflows (data group K3) at 29.50 hours (Junction / Inflow,cfs)

Node35 / 5.87E+01

==> System inflows (data group K3) at 29.60 hours (Junction / Inflow,cfs)

Node35 / 5.76E+01

==> System inflows (data group K3) at 29.70 hours (Junction / Inflow,cfs)

Node35 / 5.65E+01

==> System inflows (data group K3) at 29.75 hours (Junction / Inflow,cfs)

Node35 / 5.54E+01

==> System inflows (data group K3) at 29.85 hours (Junction / Inflow,cfs)

Node35 / 5.44E+01

==> System inflows (data group K3) at 29.95 hours (Junction / Inflow,cfs)

Node35 / 5.33E+01

==> System inflows (data group K3) at 30.00 hours (Junction / Inflow,cfs)

Node35 / 5.23E+01

==> System inflows (data group K3) at 30.10 hours (Junction / Inflow,cfs)

Node35 / 5.14E+01

==> System inflows (data group K3) at 30.20 hours (Junction / Inflow,cfs)

Coupland_Prop5yr_NoImpact.out

Node35 / 5.04E+01

==> System inflows (data group K3) at 30.25 hours (Junction / Inflow,cfs)

Node35 / 4.94E+01

==> System inflows (data group K3) at 30.35 hours (Junction / Inflow,cfs)

Node35 / 4.85E+01

==> System inflows (data group K3) at 30.45 hours (Junction / Inflow,cfs)

Node35 / 4.76E+01

==> System inflows (data group K3) at 30.50 hours (Junction / Inflow,cfs)

Node35 / 4.67E+01

==> System inflows (data group K3) at 30.60 hours (Junction / Inflow,cfs)

Node35 / 4.58E+01

==> System inflows (data group K3) at 30.70 hours (Junction / Inflow,cfs)

Node35 / 4.50E+01

==> System inflows (data group K3) at 30.75 hours (Junction / Inflow,cfs)

Node35 / 4.41E+01

==> System inflows (data group K3) at 30.85 hours (Junction / Inflow,cfs)

Node35 / 4.33E+01

==> System inflows (data group K3) at 30.95 hours (Junction / Inflow,cfs)

Node35 / 4.25E+01
#####

Coupland_Prop5yr_NoImpact.out

====> System inflows (data group K3) at 31.00 hours (Junction / Inflow,cfs)

Node35 / 4.17E+01

====> System inflows (data group K3) at 31.10 hours (Junction / Inflow,cfs)

Node35 / 4.09E+01

====> System inflows (data group K3) at 31.20 hours (Junction / Inflow,cfs)

Node35 / 4.01E+01

====> System inflows (data group K3) at 31.25 hours (Junction / Inflow,cfs)

Node35 / 3.94E+01

====> System inflows (data group K3) at 31.35 hours (Junction / Inflow,cfs)

Node35 / 3.86E+01

====> System inflows (data group K3) at 31.45 hours (Junction / Inflow,cfs)

Node35 / 3.79E+01

====> System inflows (data group K3) at 31.50 hours (Junction / Inflow,cfs)

Node35 / 3.72E+01

====> System inflows (data group K3) at 31.60 hours (Junction / Inflow,cfs)

Node35 / 3.65E+01

====> System inflows (data group K3) at 31.70 hours (Junction / Inflow,cfs)

Node35 / 3.58E+01

====> System inflows (data group K3) at 31.75 hours (Junction / Inflow,cfs)

Coupland_Prop5yr_NoImpact.out

Node35 / 3.51E+01

==> System inflows (data group K3) at 31.85 hours (Junction / Inflow,cfs)

Node35 / 3.45E+01

==> System inflows (data group K3) at 31.95 hours (Junction / Inflow,cfs)

Node35 / 3.38E+01

==> System inflows (data group K3) at 32.00 hours (Junction / Inflow,cfs)

Node35 / 3.32E+01

==> System inflows (data group K3) at 32.10 hours (Junction / Inflow,cfs)

Node35 / 3.26E+01

==> System inflows (data group K3) at 32.20 hours (Junction / Inflow,cfs)

Node35 / 3.20E+01

==> System inflows (data group K3) at 32.25 hours (Junction / Inflow,cfs)

Node35 / 3.13E+01

==> System inflows (data group K3) at 32.35 hours (Junction / Inflow,cfs)

Node35 / 3.08E+01

==> System inflows (data group K3) at 32.45 hours (Junction / Inflow,cfs)

Node35 / 3.02E+01

==> System inflows (data group K3) at 32.50 hours (Junction / Inflow,cfs)

Node35 / 2.96E+01

#####

==> System inflows (data group K3) at 32.60 hours (Junction / Inflow,cfs)

Node35 / 2.91E+01

#####

==> System inflows (data group K3) at 32.70 hours (Junction / Inflow,cfs)

Node35 / 2.85E+01

#####

==> System inflows (data group K3) at 32.75 hours (Junction / Inflow,cfs)

Node35 / 2.80E+01

#####

==> System inflows (data group K3) at 32.85 hours (Junction / Inflow,cfs)

Node35 / 2.74E+01

#####

==> System inflows (data group K3) at 32.95 hours (Junction / Inflow,cfs)

Node35 / 2.69E+01

#####

==> System inflows (data group K3) at 33.00 hours (Junction / Inflow,cfs)

Node35 / 2.64E+01

#####

==> System inflows (data group K3) at 33.10 hours (Junction / Inflow,cfs)

Node35 / 2.59E+01

#####

==> System inflows (data group K3) at 33.20 hours (Junction / Inflow,cfs)

Node35 / 2.54E+01

#####

==> System inflows (data group K3) at 33.25 hours (Junction / Inflow,cfs)

Node35 / 2.50E+01

#####

==> System inflows (data group K3) at 33.35 hours (Junction / Inflow,cfs)

Node35 / 2.45E+01

Coupland_Prop5yr_NoImpact.out

==> System inflows (data group K3) at 33.45 hours (Junction / Inflow,cfs)

Node35 / 2.40E+01

==> System inflows (data group K3) at 33.50 hours (Junction / Inflow,cfs)

Node35 / 2.36E+01

==> System inflows (data group K3) at 33.60 hours (Junction / Inflow,cfs)

Node35 / 2.31E+01

==> System inflows (data group K3) at 33.70 hours (Junction / Inflow,cfs)

Node35 / 2.27E+01

==> System inflows (data group K3) at 33.75 hours (Junction / Inflow,cfs)

Node35 / 2.23E+01

==> System inflows (data group K3) at 33.85 hours (Junction / Inflow,cfs)

Node35 / 2.18E+01

==> System inflows (data group K3) at 33.95 hours (Junction / Inflow,cfs)

Node35 / 2.14E+01

==> System inflows (data group K3) at 34.00 hours (Junction / Inflow,cfs)

Node35 / 2.10E+01

==> System inflows (data group K3) at 34.10 hours (Junction / Inflow,cfs)

Node35 / 2.06E+01

==> System inflows (data group K3) at 34.20 hours (Junction / Inflow,cfs)

Coupland_Prop5yr_NoImpact.out

Node35 / 2.02E+01

==> System inflows (data group K3) at 34.25 hours (Junction / Inflow,cfs)

Node35 / 1.99E+01

==> System inflows (data group K3) at 34.35 hours (Junction / Inflow,cfs)

Node35 / 1.95E+01

==> System inflows (data group K3) at 34.45 hours (Junction / Inflow,cfs)

Node35 / 1.91E+01

==> System inflows (data group K3) at 34.50 hours (Junction / Inflow,cfs)

Node35 / 1.87E+01

==> System inflows (data group K3) at 34.60 hours (Junction / Inflow,cfs)

Node35 / 1.84E+01

==> System inflows (data group K3) at 34.70 hours (Junction / Inflow,cfs)

Node35 / 1.80E+01

==> System inflows (data group K3) at 34.75 hours (Junction / Inflow,cfs)

Node35 / 1.77E+01

==> System inflows (data group K3) at 34.85 hours (Junction / Inflow,cfs)

Node35 / 1.74E+01

==> System inflows (data group K3) at 34.95 hours (Junction / Inflow,cfs)

Node35 / 1.70E+01
#####

Coupland_Prop5yr_NoImpact.out

====> System inflows (data group K3) at 35.00 hours (Junction / Inflow,cfs)

Node35 / 1.67E+01

====> System inflows (data group K3) at 35.10 hours (Junction / Inflow,cfs)

Node35 / 1.64E+01

====> System inflows (data group K3) at 35.20 hours (Junction / Inflow,cfs)

Node35 / 1.61E+01

====> System inflows (data group K3) at 35.25 hours (Junction / Inflow,cfs)

Node35 / 1.58E+01

====> System inflows (data group K3) at 35.35 hours (Junction / Inflow,cfs)

Node35 / 1.55E+01

====> System inflows (data group K3) at 35.45 hours (Junction / Inflow,cfs)

Node35 / 1.52E+01

====> System inflows (data group K3) at 35.50 hours (Junction / Inflow,cfs)

Node35 / 1.49E+01

====> System inflows (data group K3) at 35.60 hours (Junction / Inflow,cfs)

Node35 / 1.46E+01

====> System inflows (data group K3) at 35.70 hours (Junction / Inflow,cfs)

Node35 / 1.43E+01

====> System inflows (data group K3) at 35.75 hours (Junction / Inflow,cfs)

Coupland_Prop5yr_NoImpact.out

Node35 / 1.41E+01

==> System inflows (data group K3) at 35.85 hours (Junction / Inflow,cfs)

Node35 / 1.38E+01

==> System inflows (data group K3) at 35.95 hours (Junction / Inflow,cfs)

Node35 / 1.35E+01

==> System inflows (data group K3) at 36.00 hours (Junction / Inflow,cfs)

Node35 / 1.33E+01

==> System inflows (data group K3) at 36.10 hours (Junction / Inflow,cfs)

Node35 / 1.30E+01

==> System inflows (data group K3) at 36.20 hours (Junction / Inflow,cfs)

Node35 / 1.28E+01

==> System inflows (data group K3) at 36.25 hours (Junction / Inflow,cfs)

Node35 / 1.25E+01

==> System inflows (data group K3) at 36.35 hours (Junction / Inflow,cfs)

Node35 / 1.23E+01

==> System inflows (data group K3) at 36.45 hours (Junction / Inflow,cfs)

Node35 / 1.20E+01

==> System inflows (data group K3) at 36.50 hours (Junction / Inflow,cfs)

Node35 / 1.18E+01

#####

==> System inflows (data group K3) at 36.60 hours (Junction / Inflow,cfs)

Node35 / 1.16E+01

#####

==> System inflows (data group K3) at 36.70 hours (Junction / Inflow,cfs)

Node35 / 1.13E+01

#####

==> System inflows (data group K3) at 36.75 hours (Junction / Inflow,cfs)

Node35 / 1.11E+01

#####

==> System inflows (data group K3) at 36.85 hours (Junction / Inflow,cfs)

Node35 / 1.09E+01

#####

==> System inflows (data group K3) at 36.95 hours (Junction / Inflow,cfs)

Node35 / 1.07E+01

#####

==> System inflows (data group K3) at 37.00 hours (Junction / Inflow,cfs)

Node35 / 1.05E+01

#####

==> System inflows (data group K3) at 37.10 hours (Junction / Inflow,cfs)

Node35 / 1.02E+01

#####

==> System inflows (data group K3) at 37.20 hours (Junction / Inflow,cfs)

Node35 / 1.00E+01

#####

==> System inflows (data group K3) at 37.25 hours (Junction / Inflow,cfs)

Node35 / 9.80E+00

#####

==> System inflows (data group K3) at 37.35 hours (Junction / Inflow,cfs)

Node35 / 9.60E+00

Coupland_Prop5yr_NoImpact.out

==> System inflows (data group K3) at 37.45 hours (Junction / Inflow,cfs)

Node35 / 9.40E+00

==> System inflows (data group K3) at 37.50 hours (Junction / Inflow,cfs)

Node35 / 9.20E+00

==> System inflows (data group K3) at 37.60 hours (Junction / Inflow,cfs)

Node35 / 9.00E+00

==> System inflows (data group K3) at 37.70 hours (Junction / Inflow,cfs)

Node35 / 8.80E+00

==> System inflows (data group K3) at 37.75 hours (Junction / Inflow,cfs)

Node35 / 8.60E+00

==> System inflows (data group K3) at 37.85 hours (Junction / Inflow,cfs)

Node35 / 8.50E+00

==> System inflows (data group K3) at 37.95 hours (Junction / Inflow,cfs)

Node35 / 8.30E+00

==> System inflows (data group K3) at 38.00 hours (Junction / Inflow,cfs)

Node35 / 8.10E+00

==> System inflows (data group K3) at 38.10 hours (Junction / Inflow,cfs)

Node35 / 7.90E+00

==> System inflows (data group K3) at 38.20 hours (Junction / Inflow,cfs)

Coupland_Prop5yr_NoImpact.out

Node35 / 7.70E+00

==> System inflows (data group K3) at 38.25 hours (Junction / Inflow,cfs)

Node35 / 7.60E+00

==> System inflows (data group K3) at 38.35 hours (Junction / Inflow,cfs)

Node35 / 7.40E+00

==> System inflows (data group K3) at 38.45 hours (Junction / Inflow,cfs)

Node35 / 7.20E+00

==> System inflows (data group K3) at 38.50 hours (Junction / Inflow,cfs)

Node35 / 7.10E+00

==> System inflows (data group K3) at 38.60 hours (Junction / Inflow,cfs)

Node35 / 6.90E+00

==> System inflows (data group K3) at 38.70 hours (Junction / Inflow,cfs)

Node35 / 6.70E+00

==> System inflows (data group K3) at 38.75 hours (Junction / Inflow,cfs)

Node35 / 6.50E+00

==> System inflows (data group K3) at 38.85 hours (Junction / Inflow,cfs)

Node35 / 6.40E+00

==> System inflows (data group K3) at 38.95 hours (Junction / Inflow,cfs)

Node35 / 6.20E+00
#####

Coupland_Prop5yr_NoImpact.out

==> System inflows (data group K3) at 39.00 hours (Junction / Inflow,cfs)

Node35 / 6.00E+00

==> System inflows (data group K3) at 39.10 hours (Junction / Inflow,cfs)

Node35 / 5.80E+00

==> System inflows (data group K3) at 39.20 hours (Junction / Inflow,cfs)

Node35 / 5.60E+00

==> System inflows (data group K3) at 39.25 hours (Junction / Inflow,cfs)

Node35 / 5.40E+00

==> System inflows (data group K3) at 39.35 hours (Junction / Inflow,cfs)

Node35 / 5.10E+00

==> System inflows (data group K3) at 39.45 hours (Junction / Inflow,cfs)

Node35 / 4.80E+00

==> System inflows (data group K3) at 39.50 hours (Junction / Inflow,cfs)

Node35 / 4.30E+00

==> System inflows (data group K3) at 39.60 hours (Junction / Inflow,cfs)

Node35 / 3.30E+00

==> System inflows (data group K3) at 39.70 hours (Junction / Inflow,cfs)

Node35 / 3.00E+00

==> System inflows (data group K3) at 39.75 hours (Junction / Inflow,cfs)

Coupland_Prop5yr_NoImpact.out

Node35 / 2.70E+00

==> System inflows (data group K3) at 39.85 hours (Junction / Inflow,cfs)

Node35 / 2.50E+00

==> System inflows (data group K3) at 39.95 hours (Junction / Inflow,cfs)

Node35 / 2.40E+00

==> System inflows (data group K3) at 40.00 hours (Junction / Inflow,cfs)

Node35 / 2.20E+00

==> System inflows (data group K3) at 40.10 hours (Junction / Inflow,cfs)

Node35 / 2.10E+00

==> System inflows (data group K3) at 40.20 hours (Junction / Inflow,cfs)

Node35 / 2.00E+00

==> System inflows (data group K3) at 40.25 hours (Junction / Inflow,cfs)

Node35 / 2.00E+00

==> System inflows (data group K3) at 40.35 hours (Junction / Inflow,cfs)

Node35 / 1.90E+00

==> System inflows (data group K3) at 40.45 hours (Junction / Inflow,cfs)

Node35 / 1.80E+00

==> System inflows (data group K3) at 40.50 hours (Junction / Inflow,cfs)

Node35 / 1.70E+00

#####

==> System inflows (data group K3) at 40.60 hours (Junction / Inflow,cfs)

Node35 / 1.60E+00

#####

==> System inflows (data group K3) at 40.70 hours (Junction / Inflow,cfs)

Node35 / 1.60E+00

#####

==> System inflows (data group K3) at 40.75 hours (Junction / Inflow,cfs)

Node35 / 1.50E+00

#####

==> System inflows (data group K3) at 40.85 hours (Junction / Inflow,cfs)

Node35 / 1.50E+00

#####

==> System inflows (data group K3) at 40.95 hours (Junction / Inflow,cfs)

Node35 / 1.40E+00

#####

==> System inflows (data group K3) at 41.00 hours (Junction / Inflow,cfs)

Node35 / 1.30E+00

#####

==> System inflows (data group K3) at 41.10 hours (Junction / Inflow,cfs)

Node35 / 1.30E+00

#####

==> System inflows (data group K3) at 41.20 hours (Junction / Inflow,cfs)

Node35 / 1.20E+00

#####

==> System inflows (data group K3) at 41.25 hours (Junction / Inflow,cfs)

Node35 / 1.20E+00

#####

==> System inflows (data group K3) at 41.35 hours (Junction / Inflow,cfs)

Node35 / 1.10E+00

Coupland_Prop5yr_NoImpact.out

==> System inflows (data group K3) at 41.45 hours (Junction / Inflow,cfs)

Node35 / 1.10E+00

==> System inflows (data group K3) at 41.50 hours (Junction / Inflow,cfs)

Node35 / 1.10E+00

==> System inflows (data group K3) at 41.60 hours (Junction / Inflow,cfs)

Node35 / 1.00E+00

==> System inflows (data group K3) at 41.70 hours (Junction / Inflow,cfs)

Node35 / 1.00E+00

==> System inflows (data group K3) at 41.75 hours (Junction / Inflow,cfs)

Node35 / 9.00E-01

==> System inflows (data group K3) at 41.85 hours (Junction / Inflow,cfs)

Node35 / 9.00E-01

==> System inflows (data group K3) at 41.95 hours (Junction / Inflow,cfs)

Node35 / 9.00E-01

==> System inflows (data group K3) at 42.00 hours (Junction / Inflow,cfs)

Node35 / 8.00E-01

==> System inflows (data group K3) at 42.10 hours (Junction / Inflow,cfs)

Node35 / 8.00E-01

==> System inflows (data group K3) at 42.20 hours (Junction / Inflow,cfs)

Coupland_Prop5yr_NoImpact.out

Node35 / 8.00E-01

==> System inflows (data group K3) at 42.25 hours (Junction / Inflow,cfs)

Node35 / 7.00E-01

==> System inflows (data group K3) at 42.35 hours (Junction / Inflow,cfs)

Node35 / 7.00E-01

==> System inflows (data group K3) at 42.45 hours (Junction / Inflow,cfs)

Node35 / 7.00E-01

==> System inflows (data group K3) at 42.50 hours (Junction / Inflow,cfs)

Node35 / 6.00E-01

==> System inflows (data group K3) at 42.60 hours (Junction / Inflow,cfs)

Node35 / 6.00E-01

==> System inflows (data group K3) at 42.70 hours (Junction / Inflow,cfs)

Node35 / 6.00E-01

==> System inflows (data group K3) at 42.75 hours (Junction / Inflow,cfs)

Node35 / 6.00E-01

==> System inflows (data group K3) at 42.85 hours (Junction / Inflow,cfs)

Node35 / 5.00E-01

==> System inflows (data group K3) at 42.95 hours (Junction / Inflow,cfs)

Node35 / 5.00E-01
#####

Coupland_Prop5yr_NoImpact.out

====> System inflows (data group K3) at 43.00 hours (Junction / Inflow,cfs)

Node35 / 5.00E-01

====> System inflows (data group K3) at 43.10 hours (Junction / Inflow,cfs)

Node35 / 5.00E-01

====> System inflows (data group K3) at 43.20 hours (Junction / Inflow,cfs)

Node35 / 5.00E-01

====> System inflows (data group K3) at 43.25 hours (Junction / Inflow,cfs)

Node35 / 4.00E-01

====> System inflows (data group K3) at 43.35 hours (Junction / Inflow,cfs)

Node35 / 4.00E-01

====> System inflows (data group K3) at 43.45 hours (Junction / Inflow,cfs)

Node35 / 4.00E-01

====> System inflows (data group K3) at 43.50 hours (Junction / Inflow,cfs)

Node35 / 4.00E-01

====> System inflows (data group K3) at 43.60 hours (Junction / Inflow,cfs)

Node35 / 4.00E-01

====> System inflows (data group K3) at 43.70 hours (Junction / Inflow,cfs)

Node35 / 4.00E-01

====> System inflows (data group K3) at 43.75 hours (Junction / Inflow,cfs)

Coupland_Prop5yr_NoImpact.out

Node35 / 3.00E-01

==> System inflows (data group K3) at 43.85 hours (Junction / Inflow,cfs)

Node35 / 3.00E-01

==> System inflows (data group K3) at 43.95 hours (Junction / Inflow,cfs)

Node35 / 3.00E-01

==> System inflows (data group K3) at 44.00 hours (Junction / Inflow,cfs)

Node35 / 3.00E-01

==> System inflows (data group K3) at 44.10 hours (Junction / Inflow,cfs)

Node35 / 3.00E-01

==> System inflows (data group K3) at 44.20 hours (Junction / Inflow,cfs)

Node35 / 3.00E-01

==> System inflows (data group K3) at 44.25 hours (Junction / Inflow,cfs)

Node35 / 3.00E-01

==> System inflows (data group K3) at 44.35 hours (Junction / Inflow,cfs)

Node35 / 3.00E-01

==> System inflows (data group K3) at 44.45 hours (Junction / Inflow,cfs)

Node35 / 2.00E-01

==> System inflows (data group K3) at 44.50 hours (Junction / Inflow,cfs)

Node35 / 2.00E-01

#####

==> System inflows (data group K3) at 44.60 hours (Junction / Inflow,cfs)

Node35 / 2.00E-01

==> System inflows (data group K3) at 44.70 hours (Junction / Inflow,cfs)

Node35 / 2.00E-01

==> System inflows (data group K3) at 44.75 hours (Junction / Inflow,cfs)

Node35 / 2.00E-01

==> System inflows (data group K3) at 44.85 hours (Junction / Inflow,cfs)

Node35 / 2.00E-01

==> System inflows (data group K3) at 44.95 hours (Junction / Inflow,cfs)

Node35 / 2.00E-01

==> System inflows (data group K3) at 45.00 hours (Junction / Inflow,cfs)

Node35 / 2.00E-01

==> System inflows (data group K3) at 45.10 hours (Junction / Inflow,cfs)

Node35 / 2.00E-01

==> System inflows (data group K3) at 45.20 hours (Junction / Inflow,cfs)

Node35 / 2.00E-01

==> System inflows (data group K3) at 45.25 hours (Junction / Inflow,cfs)

Node35 / 1.00E-01

==> System inflows (data group K3) at 45.35 hours (Junction / Inflow,cfs)

Node35 / 1.00E-01

Coupland_Prop5yr_NoImpact.out

==> System inflows (data group K3) at 45.45 hours (Junction / Inflow,cfs)

Node35 / 1.00E-01

==> System inflows (data group K3) at 45.50 hours (Junction / Inflow,cfs)

Node35 / 1.00E-01

==> System inflows (data group K3) at 45.60 hours (Junction / Inflow,cfs)

Node35 / 1.00E-01

==> System inflows (data group K3) at 45.70 hours (Junction / Inflow,cfs)

Node35 / 1.00E-01

==> System inflows (data group K3) at 45.75 hours (Junction / Inflow,cfs)

Node35 / 1.00E-01

==> System inflows (data group K3) at 45.85 hours (Junction / Inflow,cfs)

Node35 / 1.00E-01

==> System inflows (data group K3) at 45.95 hours (Junction / Inflow,cfs)

Node35 / 1.00E-01

==> System inflows (data group K3) at 46.00 hours (Junction / Inflow,cfs)

Node35 / 1.00E-01

==> System inflows (data group K3) at 46.10 hours (Junction / Inflow,cfs)

Node35 / 1.00E-01

==> System inflows (data group K3) at 46.20 hours (Junction / Inflow,cfs)

Coupland_Prop5yr_NoImpact.out

Node35 / 1.00E-01

==> System inflows (data group K3) at 46.25 hours (Junction / Inflow,cfs)

Node35 / 1.00E-01

==> System inflows (data group K3) at 46.35 hours (Junction / Inflow,cfs)

Node35 / 1.00E-01

==> System inflows (data group K3) at 46.45 hours (Junction / Inflow,cfs)

Node35 / 1.00E-01

==> System inflows (data group K3) at 46.50 hours (Junction / Inflow,cfs)

Node35 / 0.00E+00

==> System inflows (data group K3) at 46.60 hours (Junction / Inflow,cfs)

Node35 / 0.00E+00

==> System inflows (data group K3) at 46.70 hours (Junction / Inflow,cfs)

Node35 / 0.00E+00

==> System inflows (data group K3) at 46.75 hours (Junction / Inflow,cfs)

Node35 / 0.00E+00

==> System inflows (data group K3) at 46.85 hours (Junction / Inflow,cfs)

Node35 / 0.00E+00

==> System inflows (data group K3) at 46.95 hours (Junction / Inflow,cfs)

Node35 / 0.00E+00
#####

Coupland_Prop5yr_NoImpact.out

====> System inflows (data group K3) at 47.00 hours (Junction / Inflow,cfs)

Node35 / 0.00E+00

====> System inflows (data group K3) at 47.10 hours (Junction / Inflow,cfs)

Node35 / 0.00E+00

====> System inflows (data group K3) at 47.20 hours (Junction / Inflow,cfs)

Node35 / 0.00E+00

====> System inflows (data group K3) at 47.25 hours (Junction / Inflow,cfs)

Node35 / 0.00E+00

====> System inflows (data group K3) at 47.35 hours (Junction / Inflow,cfs)

Node35 / 0.00E+00

====> System inflows (data group K3) at 47.45 hours (Junction / Inflow,cfs)

Node35 / 0.00E+00

====> System inflows (data group K3) at 47.50 hours (Junction / Inflow,cfs)

Node35 / 0.00E+00

====> System inflows (data group K3) at 47.60 hours (Junction / Inflow,cfs)

Node35 / 0.00E+00

====> System inflows (data group K3) at 47.70 hours (Junction / Inflow,cfs)

Node35 / 0.00E+00

====> System inflows (data group K3) at 47.75 hours (Junction / Inflow,cfs)

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Node35 / 0.00E+00
 #####
 #####
 ==> System inflows (data group K3) at 47.85 hours (Junction / Inflow,cfs)

Node35 / 0.00E+00
 #####
 #####
 ==> System inflows (data group K3) at 47.95 hours (Junction / Inflow,cfs)

Node35 / 0.00E+00
 #####
 #####
 ==> System inflows (data group K3) at 48.00 hours (Junction / Inflow,cfs)

Node35 / 0.00E+00
 #####

```

*=====
| Table E5 - Junction Time Limitation Summary |
|           (0.10 or 0.25)* Depth * Area     |
| Time step = -----                        |
|                               Sum of Flow   |
*=====
| The time this junction was the limiting junction |
|           is listed in the third column.         |
*=====
  
```

Junction	Time(.10)	Time(.25)	Time(sec)
Node13	249.21	623.03	1800.0
Node14	241.93	604.82	0.0
Node15	156.39	390.96	48240.0
Node16	155.32	388.31	360.0
Node17	142.20	355.49	0.0
Node18	150.39	375.97	0.0
Node19	64.09	160.23	0.0
Node20	153.96	384.90	1620.0
Node21	87.80	219.50	0.0
Node22	50.55	126.37	180.0
Node23	94.20	235.51	0.0
Node24	173.28	433.20	0.0
Node25	30.14	75.35	180.0
Node26	229.81	574.53	0.0
Node27	31.20	78.00	180.0
Node28	49.96	124.90	360.0
Node31	86.81	217.02	0.0

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Node33	101.83	254.56	0.0
Node34	240.49	601.23	0.0
Node35	50.81	127.02	91800.0
Node36	67.81	169.53	0.0
Node37	179.64	449.09	0.0
Node41	1800.00	1800.00	0.0
Link42.1	2.82	7.05	900.0
Node23.1.1	1.27	3.16	2880.0
Node19.1.1	1.05	2.63	23580.0
Node18.1.1	4.96	12.39	0.0
Node34.1.1	5.60	13.99	720.0
Node39	137.81	344.54	0.0
Node40	48.54	121.36	0.0

The junction requiring the smallest time step was...Node35

```

*=====
|
| Table E5a - Conduit Explicit Condition Summary
| Courant = Conduit Length
| Time step = -----
|              Velocity + sqrt(g*depth)
|
| Conduit Implicit Condition Summary
| Courant = Conduit Length
| Time step = -----
|              Velocity
|
*=====

```

The 3rd column is the Explicit time step times the minimum courant time step factor

Minimum Conduit Time Step in seconds in the 4th column in the list. Maximum possible is 10 * maximum time step

The 5th column is the maximum change at any time step during the simulation. The 6th column is the wobble value which is an indicator of the flow stability.

You should use this section to find those conduits that are slowing your model down. Use modify conduits to alter the length of the slow conduits to make your simulation faster, or change the conduit name to "CHME?????" where ????? are any characters, this will

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| lengthen the conduit based on the model time step, |
 | not the value listed in modify conduits. |
 =====

Wobble	Conduit Type of Soln	Time(exp)	Expl*Cmin	Time(imp)	Time(min)	Max Qchange
-----	-----	-----	-----	-----	-----	-----
0.016	Normal Soln Link14	11.49	11.49	29.83	21.0	0.008
0.017	Normal Soln Link16	4.02	4.02	13.59	0.0	-0.007
0.044	Normal Soln Link18	36.83	36.83	890.28	0.0	0.007
0.171	Normal Soln Link20	15.07	15.07	108.14	0.0	0.055
0.717	Normal Soln Link22	38.28	38.28	334.05	0.0	-0.042
0.191	Normal Soln Link24	34.11	34.11	141.13	0.0	0.034
0.041	Normal Soln Link26	4.47	4.47	10.63	0.0	0.031
0.061	Normal Soln Link31	14.21	14.21	84.44	0.0	0.528
0.048	Normal Soln Link33	13.52	13.52	68.75	0.0	0.501
0.020	Normal Soln Link34	8.69	8.69	65.26	0.0	-0.010
0.005	Normal Soln Link36	34.84	34.84	199.96	0.0	0.459
0.016	Normal Soln Link37	49.80	49.80	471.54	0.0	0.395
0.494	Normal Soln Link42.1.1	1.31	1.31	13.60	2436.0	2.777
2.437	Normal Soln Link38.1	59.12	59.12	409.16	0.0	-0.111
141.950	Normal Soln Link46.1	2.07	2.07	20.21	348.0	3.672
5.267	Normal Soln Link45.1	4.54	4.54	24.91	6.0	-1.292
3.441	Normal Soln Link39.1	14.87	14.87	69.96	0.0	0.067
0.030	Normal Soln Link41	23.84	23.84	98.22	0.0	0.013
0.039	Normal Soln Link48	2.70	2.70	14.27	0.0	0.531
0.709	Normal Soln 227.1	4.53	4.53	17.77	0.0	0.008

		Coupland_Prop5yr_NoImpact.out					
		231.1	4.10	4.10	30.91	0.0	0.006
1.225	Normal Soln						
		235.1	3.12	3.12	32.37	0.0	-0.008
0.840	Normal Soln						
		239.1	2.03	2.03	6.12	69.0	-0.058
1.728	Normal Soln						
		243.1	2.26	2.26	6.59	0.0	-0.053
2.514	Normal Soln						
		247.1	1.55	1.55	4.63	0.0	0.034
1.011	Normal Soln						
		251.1	3.34	3.34	7.17	0.0	0.032
1.953	Normal Soln						
		255.1	7.06	7.06	11.66	0.0	0.033
0.537	Normal Soln						
		324.1	2.62	2.62	17.76	0.0	0.141
2.653	Normal Soln						
	Restrictor.1	107.34	107.34	312.25	0.0	0.117	
2.916	Normal Soln						

The conduit with the smallest time step limitation was..Link42.1.1

The conduit with the largest wobble was.....Link46.1

The conduit with the largest flow change in any

consecutive time step.....Link46.1

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* End of time step D0-loop in Runoff *

Final Date (Mo/Day/Year) = 1/ 2/2016
 Total number of time steps = 2878
 Final Julian Date = 2016002
 Final time of day = 86280. seconds.
 Final time of day = 23.97 hours.
 Final running time = 47.9667 hours.
 Final running time = 1.9986 days.

 * Extrapolation Summary for Watersheds *
 * Explains the number of time steps and iterations *
 * used in the solution of the subcatchments. *
 * # Steps ==> Total Number of Extrapolated Steps *
 * # Calls ==> Total Number of OVERLND Calls *

Subcatchment	# Steps	# Calls	Subcatchment	# Steps	# Calls
Node39#1	16860	5620	Node34.1.1#1	16962	5654
Node18.1.1#1	16947	5649			
Node17#1	16590	5530	Node19#1	17319	5773

 # Rainfall input summary from Runoff Continuity Check #
 #####

Total rainfall read for gage # 1 is 6.4200 in
 Total rainfall duration for gage # 1 is 1440.00 minutes

 * Table R5. CONTINUITY CHECK FOR SURFACE WATER *
 * Any continuity error can be fixed by lowering the *
 * wet and transition time step. The transition time *
 * should not be much greater than the wet time step. *

	cubic feet	Inches over Total Basin
Total Precipitation (Rain plus Snow)	5.812167E+05	6.420
Total Infiltration	1.021485E+05	1.128
Total Evaporation	1.290268E+04	0.143
Surface Runoff from Watersheds	4.661761E+05	5.149
Total Water remaining in Surface Storage	0.000000E+00	0.000

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Infiltration over the Pervious Area...	1.021485E+05	2.631

Infiltration + Evaporation + Surface Runoff + Snow removal + Water remaining in Surface Storage + Water remaining in Snow Cover.....	5.812273E+05	6.420
Total Precipitation + Initial Storage.	5.812167E+05	6.420

The error in continuity is calculated as

```

*****
* Precipitation + Initial Snow Cover *
*   - Infiltration - *
*Evaporation - Snow removal - *
*Surface Runoff from Watersheds - *
*Water in Surface Storage - *
*Water remaining in Snow Cover *
*-----*
* Precipitation + Initial Snow Cover *
*****
Percent Continuity Error.....
    
```

-0.0018

```

*****
* Table R6. Continuity Check for Channel/Pipes *
*   You should have zero continuity error *
*   if you are not using runoff hydraulics *
*****
    
```

Inches

over

cubic feet

Total

Basin

Initial Channel/Pipe Storage.....	0.000000E+00	0.000
Final Channel/Pipe Storage.....	0.000000E+00	0.000
Surface Runoff from Watersheds.....	4.661761E+05	5.149
Groundwater Subsurface Inflow or Diversion..	0.000000E+00	0.000
Evaporation Loss from Channels.....	0.000000E+00	0.000
Groundwater Flow Diverted Out of Network....	0.000000E+00	0.000
Channel/Pipe/Inlet Outflow.....	4.661761E+05	5.149
Initial Storage + Inflow.....	4.661761E+05	5.149
Final Storage + Outflow + Diverted GW.....	4.661761E+05	5.149

```

*****
* Final Storage + Outflow + Evaporation - *
* Watershed Runoff - Groundwater Inflow - *
*   Initial Channel/Pipe Storage *
*   ----- *
* Final Storage + Outflow + Evaporation *
*****
    
```

Percent Continuity Error.....

0.0000

 # Table R9. Summary Statistics for Subcatchments #
 #####

Note: Total Runoff Depth includes pervious & impervious areas.

Pervious and Impervious Runoff Depth is only the runoff from those two areas.

For catchments receiving redirected flow, this flow will only be shown if the flow is not

directed directly to the outlet. Flow that is getting redirected is also listed with the original subcatchment.

Subcatchment.....	Node39#1	Node34.1.1#1
Node18.1.1#1 Node17#1	Node19#1	
Area (acres).....	2.27000	5.20000
4.87000 0.36000	12.24000	
Percent Impervious.....	50.00000	67.00000
67.00000 67.00000	50.00000	
Total Rainfall (in)....	6.42000	6.42000
6.42000 6.42000	6.42000	
Max Intensity (in/hr)..	9.24000	9.24000
9.24000 9.24000	9.24000	

Pervious Area

Total Runoff Depth (in)	3.65959	3.75618
3.75650 3.76797	3.63354	
Peak Runoff Rate (cfs).	1.80331	3.91214
3.66948 0.28693	8.98773	

Total Impervious Area

Total Runoff Depth (in)	6.25962	6.25568
6.25579 6.25962	6.25501	
Peak Runoff Rate (cfs).	3.05034	8.92003
8.36466 0.64821	15.54117	

Impervious Area with depression storage

Total Runoff Depth (in)	4.69472	4.69176
4.69184 4.69472	4.69125	
Peak Runoff Rate (cfs).	2.28775	6.69003
6.27350 0.48616	11.65588	

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Impervious Area without depression storage

```

-----
Total Runoff Depth (in)          1.56491          1.56392
1.56395          1.56491          1.56375
Peak Runoff Rate (cfs).         0.76258          2.23001
2.09117          0.16205          3.88529
    
```

Total Area

```

-----
Total Runoff Depth (in)          4.95961          5.43085
5.43102          5.43737          4.94427
Peak Runoff Rate (cfs).         4.80738          12.83217
12.03415          0.93514          24.23384
    
```

Rational Formula

```

-----
Pervious Tc. (mins)....         0.00000          0.00000
0.00000          0.00000          0.00000
Perv. Intensity (in/hr)         0.00000          0.00000
0.00000          0.00000          0.00000
Pervious C .....              0.00000          0.00000
0.00000          0.00000          0.00000
Impervious Tc. (mins)..         0.00000          0.00000
0.00000          0.00000          0.00000
Imp. Intensity (in/hr).         0.00000          0.00000
0.00000          0.00000          0.00000
Impervious C .....              0.00000          0.00000
0.00000          0.00000          0.00000
Partial Area (Ha).....          0.00000          0.00000
0.00000          0.00000          0.00000
Partial Area Tc.....           0.00000          0.00000
0.00000          0.00000          0.00000
Partial Area Intensity.         0.00000          0.00000
0.00000          0.00000          0.00000
    
```

==> Runoff simulation ended normally.

```

*=====*
| Table E6. Final Model Condition |
| This table is used for steady state |
| flow comparison and is the information |
| saved to the hot-restart file. |
| Final Time = 48.050 hours |
*=====*
    
```

```

Junction / Depth / Elevation   ==> "*" Junction is Surcharged.
Node13/ 0.26 / 23.00/          Node14/ 0.30 / 23.00/
Node15/ 0.60 / 21.80/
    
```

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Node16/	0.64 /	21.80/	Node17/	0.44 /	20.75/
Node18/	0.30 /	20.75/			
Node19/	0.78 /	20.21/	Node20/	0.58 /	20.21/
Node21/	0.52 /	20.21/			
Node22/	0.41 /	20.21/	Node23/	0.75 /	20.20/
Node24/	0.33 /	20.20/			
Node25/	0.24 /	19.81/	Node26/	0.01 /	18.86/
Node27/	0.58 /	18.80/			
Node28/	0.02 /	11.49/	Node31/	0.01 /	11.49/
Node33/	0.00 /	11.46/			
Node34/	0.76 /	23.04/	Node35/	0.00 /	11.49/
Node36/	0.01 /	9.03/			
Node37/	0.01 /	8.47/	Node41/	0.00 /	8.46/
Link42.1/	0.03 /	12.54/			
Node23.1.1/	6.92 /	14.92/	Node19.1.1/	6.92 /	14.92/
Node18.1.1/	0.00 /	14.99/			
Node34.1.1/	0.00 /	16.32/	Node39/	0.00 /	23.15/
Node40/	0.02 /	12.52/			

	Conduit/	Flow	====> "*" Conduit uses the normal flow option.
Link18/	Link14/	0.00*/	Link16/ 0.00*/
	Link20/	0.00 /	Link22/ 0.00 /
Link24/	Link26/	0.00*/	Link31/ 0.00 /
	Link34/	0.00 /	Link36/ 0.00*/
Link33/	Link42.1.1/	0.00 /	Link38.1/ 0.00 /
	Link45.1/	0.00 /	Link39.1/ 0.00 /
Link46.1/	Link48/	0.00 /	227.1/ 0.00 /
	235.1/	0.00 /	239.1/ 0.00 /
Link41/	247.1/	0.00 /	251.1/ 0.00 /
	324.1/	0.00 /	Restrictor.1/ 0.00 /
231.1/	W15/	0.00 /	W17/ 0.00 /
	W21/	0.00 /	W24/ 0.00 /
243.1/	W27/	0.00 /	W42/ 0.00 /
	0.00 /		
255.1/			
W14/			
W20/			
W25/			
FREE# 1/			

Conduit/ Velocity

Coupland_Prop5yr_NoImpact.out

Link18/	Link14/ 0.00 /	0.00 /	Link16/	0.00 /
Link24/	Link20/ 0.06 /	0.00 /	Link22/	-0.02 /
Link33/	Link26/ 0.02 /	0.01 /	Link31/	0.00 /
Link37/	Link34/ 0.05 /	0.00 /	Link36/	0.06 /
Link46.1/	Link42.1.1/ 0.00 /	0.04 /	Link38.1/	0.00 /
Link41/	Link45.1/ 0.00 /	0.00 /	Link39.1/	0.00 /
231.1/	Link48/ 0.00 /	0.00 /	227.1/	0.00 /
243.1/	235.1/ -0.01 /	0.00 /	239.1/	0.00 /
255.1/	247.1/ 0.56 /	0.00 /	251.1/	0.27 /
	324.1/ 0.17 /	0.17 /	Restrictor.1/	0.07 /

Conduit/ Width

Link18/	Link14/ 0.30 /	0.17 /	Link16/	0.04 /
Link24/	Link20/ 0.14 /	0.81 /	Link22/	0.53 /
Link33/	Link26/ 0.27 /	0.38 /	Link31/	0.19 /
Link37/	Link34/ 0.13 /	0.44 /	Link36/	0.09 /
Link46.1/	Link42.1.1/ 0.02 /	0.13 /	Link38.1/	1.37 /
Link41/	Link45.1/ 0.44 /	1.37 /	Link39.1/	0.98 /
231.1/	Link48/ 2.14 /	0.01 /	227.1/	1.61 /
243.1/	235.1/ 1.26 /	1.65 /	239.1/	2.29 /
255.1/	247.1/ 1.18 /	2.23 /	251.1/	0.98 /
	324.1/ 1.96 /	1.96 /	Restrictor.1/	0.74 /

Junction/ EGL

Node15/	Node13/ 0.60 /	0.26 /	Node14/	0.30 /
Node18/	Node16/ 0.30 /	0.64 /	Node17/	0.44 /
Node21/	Node19/ 0.52 /	0.78 /	Node20/	0.58 /

Coupland_Prop5yr_NoImpact.out

Node24/	Node22/	0.41 /	Node23/	0.75 /
	0.33 /			
Node27/	Node25/	0.24 /	Node26/	0.69 /
	0.58 /			
Node33/	Node28/	1.02 /	Node31/	0.01 /
	0.00 /			
Node36/	Node34/	0.76 /	Node35/	0.00 /
	0.01 /			
Link42.1/	Node37/	0.01 /	Node41/	0.00 /
	0.03 /			
Node18.1.1/	Node23.1.1/	6.92 /	Node19.1.1/	6.92 /
	1.00 /			
Node40/	Node34.1.1/	0.00 /	Node39/	0.00 /
	3.78 /			

Junction/ Freeboard

Node15/	Node13/	17.00 /	Node14/	17.00 /
	18.20 /			
Node18/	Node16/	18.20 /	Node17/	19.25 /
	19.25 /			
Node21/	Node19/	19.79 /	Node20/	19.79 /
	19.79 /			
Node24/	Node22/	19.79 /	Node23/	19.80 /
	19.80 /			
Node27/	Node25/	20.19 /	Node26/	21.14 /
	21.20 /			
Node33/	Node28/	28.51 /	Node31/	28.51 /
	28.54 /			
Node36/	Node34/	16.96 /	Node35/	28.51 /
	30.97 /			
Link42.1/	Node37/	31.53 /	Node41/	31.54 /
	27.46 /			
Node18.1.1/	Node23.1.1/	25.08 /	Node19.1.1/	25.08 /
	25.01 /			
Node40/	Node34.1.1/	23.68 /	Node39/	16.85 /
	27.48 /			

Junction/ Max Volume

Node15/	Node13/	12.99 /	Node14/	13.35 /
	25.28 /			
Node18/	Node16/	25.72 /	Node17/	36.50 /
	34.68 /			
Node21/	Node19/	47.40 /	Node20/	42.68 /
	41.48 /			
Node24/	Node22/	38.06 /	Node23/	41.23 /
	34.80 /			
Node27/	Node25/	25.80 /	Node26/	19.85 /
	22.27 /			

Coupland_Prop5yr_NoImpact.out

Node33/	Node28/ 96.20 /	96.70 /	Node31/	97.06 /
Node36/	Node34/ 126.17 /	19.40 /	Node35/	97.05 /
Link42.1/	Node37/ 120.64 /	132.16 /	Node41/	132.14 /
Node18.1.1/	Node23.1.1/ 97.23 /	183.62 /	Node19.1.1/	184.18 /
Node40/	Node34.1.1/ 83.81 /	84.70 /	Node39/	13.15 /

Junction/Total Fldng

Node15/	Node13/ 0.00 /	0.00 /	Node14/	0.00 /
Node18/	Node16/ 0.00 /	0.00 /	Node17/	0.00 /
Node21/	Node19/ 0.00 /	0.00 /	Node20/	0.00 /
Node24/	Node22/ 0.00 /	0.00 /	Node23/	0.00 /
Node27/	Node25/ 0.00 /	0.00 /	Node26/	0.00 /
Node33/	Node28/ 0.00 /	0.00 /	Node31/	0.00 /
Node36/	Node34/ 0.00 /	0.00 /	Node35/	0.00 /
Link42.1/	Node37/ 0.00 /	0.00 /	Node41/	0.00 /
Node18.1.1/	Node23.1.1/ 0.00 /	0.00 /	Node19.1.1/	0.00 /
Node40/	Node34.1.1/ 0.00 /	0.00 /	Node39/	0.00 /

Conduit/ Cross Sectional Area

Link18/	Link14/ 0.08 /	0.03 /	Link16/	0.00 /
Link24/	Link20/ 0.02 /	0.15 /	Link22/	0.06 /
Link33/	Link26/ 0.14 /	0.11 /	Link31/	0.08 /
Link37/	Link34/ 0.06 /	0.17 /	Link36/	0.05 /
Link46.1/	Link42.1.1/ 9.68 /	0.07 /	Link38.1/	0.00 /
Link41/	Link45.1/ 0.17 /	0.00 /	Link39.1/	0.00 /
231.1/	Link48/ 0.91 /	0.01 /	227.1/	0.33 /

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243.1/	235.1/ 0.15 /	0.36 /	239.1/	1.25 /
255.1/	247.1/ 0.00 /	1.16 /	251.1/	0.00 /
	324.1/	0.02 /	Restrictor.1/	0.01 /
	Conduit/ Final Volume			
Link18/	Link14/ 18.98 /	1.95 /	Link16/	0.08 /
Link24/	Link20/ 4.64 /	17.41 /	Link22/	16.01 /
Link33/	Link26/ 27.59 /	4.08 /	Link31/	15.80 /
Link37/	Link34/ 44.96 /	8.20 /	Link36/	23.56 /
Link46.1/	Link42.1.1/ 484.04 /	1.50 /	Link38.1/	0.01 /
Link41/	Link45.1/ 22.26 /	0.00 /	Link39.1/	0.00 /
231.1/	Link48/ 34.35 /	0.21 /	227.1/	10.93 /
243.1/	235.1/ 5.05 /	11.98 /	239.1/	41.66 /
255.1/	247.1/ 0.25 /	27.84 /	251.1/	0.19 /
	324.1/	0.66 /	Restrictor.1/	36.45 /
	Conduit/ Hydraulic Radius			
Link18/	Link14/ 0.02 /	0.01 /	Link16/	0.00 /
Link24/	Link20/ 0.01 /	0.05 /	Link22/	0.03 /
Link33/	Link26/ 0.01 /	0.03 /	Link31/	0.00 /
Link37/	Link34/ 0.01 /	0.04 /	Link36/	0.00 /
Link46.1/	Link42.1.1/ 0.88 /	0.01 /	Link38.1/	0.00 /
Link41/	Link45.1/ 0.04 /	0.01 /	Link39.1/	0.01 /
231.1/	Link48/ 0.36 /	0.00 /	227.1/	0.19 /
243.1/	235.1/ 0.11 /	0.20 /	239.1/	0.43 /
255.1/	247.1/ 0.01 /	0.41 /	251.1/	0.01 /
	324.1/	0.02 /	Restrictor.1/	0.02 /

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Conduit/	Upstream/	Downstream	Elevation			
Link14/	23.00/	21.80		Link16/	21.80/	20.75
Link18/	20.75/	20.21/				
Link20/	20.21/	20.21		Link22/	20.20/	20.21
Link24/	20.20/	19.81/				
Link26/	18.86/	18.80		Link31/	11.49/	11.49
Link33/	11.49/	11.46/				
Link34/	23.00/	23.04		Link36/	11.46/	9.03
Link37/	9.03/	8.47/				
Link42.1.1/	8.47/	8.46		Link38.1/	12.54/	12.54
Link46.1/	14.92/	14.92/				
Link45.1/	14.99/	14.92		Link39.1/	16.32/	15.99
Link41/	23.15/	23.04/				
Link48/	11.49/	11.49		227.1/	23.00/	23.00
231.1/	21.80/	21.80/				
235.1/	20.75/	20.75		239.1/	20.21/	20.21
243.1/	20.21/	20.21/				
247.1/	20.20/	20.20		251.1/	19.81/	19.54
255.1/	18.80/	16.27/				
324.1/	12.52/	12.49		Restrictor.1/	12.54/	12.52

=====

| Table E7 - Iteration Summary |

=====

Total number of time steps simulated.....	960
Total number of passes in the simulation.....	179092
Total number of time steps during simulation....	71626
Ratio of actual # of time steps / NTCYC.....	74.610
Average number of iterations per time step.....	2.500
Average time step size(seconds).....	2.413
Smallest time step size(seconds).....	1.053
Largest time step size(seconds).....	180.000
Average minimum Conduit Courant time step (sec).	4.202
Average minimum implicit time step (sec).....	2.414
Average minimum junction time step (sec).....	2.414
Average Courant Factor Tf.....	2.414
Number of times omega reduced.....	0

=====

| Table E8 - Junction Time Step Limitation Summary |

=====

| Not Convr = Number of times this junction did not |

| converge during the simulation. |

| Avg Convr = Average junction iterations. |

| Conv err = Mean convergence error. |

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Omega Cng = Change of omega during iterations

Max Itern = Maximum number of iterations

=====

Ittrn >25	Ittrn >40	Junction	Not Convr	Avg Convr	Total Itt	Omega Cng	Max Itern	Ittrn >10
775	705	Node13	65	2.49	178646	0	501	778
1	1	Node14	0	1.22	87427	0	61	2
0	0	Node15	0	1.21	86619	0	6	0
0	0	Node16	0	1.28	91887	0	11	1
0	0	Node17	0	1.51	108157	0	12	9
0	0	Node18	0	1.56	111430	0	13	6
3	2	Node19	0	1.62	115780	0	94	77
2	1	Node20	0	1.86	133020	0	89	4
0	0	Node21	0	1.43	102716	0	8	0
0	0	Node22	0	1.47	105379	0	13	1
1	1	Node23	0	1.82	130260	0	122	5
0	0	Node24	0	1.82	130130	0	19	7
0	0	Node25	0	1.30	93119	0	11	6
0	0	Node26	0	1.54	110017	0	5	0
1	1	Node27	1	1.27	90869	0	501	1
0	0	Node28	0	2.44	174896	0	6	0
118	113	Node31	0	2.65	189513	0	499	122
0	0	Node33	0	1.71	122263	0	5	0
710	637	Node34	64	2.35	168461	0	501	711
127	121	Node35	0	2.61	186738	0	490	131
		Node36	0	1.71	122522	0	6	0

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0	0						
	Node37	3	3.72	266588	0	501	22
22	21						
	Node41	161	196.79	14095511	0	501	67312
67049	66883						
	Link42.1	27	2.25	161211	0	501	133
133	133						
	Node23.1.1	34	3.04	218061	0	501	588
151	92						
	Node19.1.1	31	3.40	243436	0	501	2126
326	116						
	Node18.1.1	0	1.71	122661	0	21	1
0	0						
	Node34.1.1	0	1.29	92298	0	13	3
0	0						
	Node39	0	1.16	82831	0	5	0
0	0						
	Node40	40	3.08	220264	0	501	96
94	94						
Total number of iterations for all junctions..		18142710					

Minimum number of possible iterations..... 2148780

Efficiency of the simulation..... 8.44

Poor Efficiency

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```

*=====
| Extran Efficiency is an indicator of the efficiency of |
| the simulation. Ideal efficiency is one iteration per |
| time step. Altering the underrelaxation parameter, |
| lowering the time step, increasing the flow and head |
| tolerance are good ways of improving the efficiency, |
| another is lowering the internal time step. The lower the |
| efficiency generally the faster your model will run. |
| If your efficiency is less than 1.5 then you may try |
| increasing your time step so that your overall simulation |
| is faster. Ideal efficiency would be around 2.0 |
|
| Good Efficiency < 1.5 mean iterations |
| Excellent Efficiency < 2.5 and > 1.5 mean iterations |
| Good Efficiency < 4.0 and > 2.5 mean iterations |
| Fair Efficiency < 7.5 and > 4.0 mean iterations |
| Poor Efficiency > 7.5 mean iterations |
*=====
  
```

```

*=====
| Table E9 - JUNCTION SUMMARY STATISTICS |
| The Maximum area is only the area of the node, it |
| does not include the area of the surrounding conduits |
*=====
  
```

Freeboard node feet	Maximum Junction Area ft^2	Maximum Junction Depth Name feet	Maximum Gutter Elevation Width feet	Uppermost Maximum PipeCrown Gutter Elevation Velocity feet ft/s	Maximum Junction Elevation feet	Time of Occurence Hr. Min.	Feet of Surcharge at Max Elevation	of
16.23	12.5660	Node13 0.00	40.00 0.00	27.86 0.00	23.77	16 24	0.00	
16.24	12.5660	Node14 0.00	40.00 0.00	27.82 0.00	23.76	16 24	0.00	
16.79	12.5660	Node15 0.00	40.00 0.00	26.32 0.00	23.21	16 34	0.00	
16.79	12.5660	Node16 0.00	40.00 0.00	26.62 0.00	23.21	16 34	0.00	
16.79	12.5660	Node17 0.00	40.00 0.00	25.51 0.00	23.21	16 34	0.00	
16.79	12.5660	Node18 0.00	40.00 0.00	25.57 0.00	23.21	16 34	0.00	

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	Node19	40.00	24.52	23.20	16	34	0.00
16.80	12.5660	0.00	0.00	0.00			
	Node20	40.00	25.17	23.03	16	35	0.00
16.97	12.5660	0.00	0.00	0.00			
	Node21	40.00	24.71	22.99	16	35	0.00
17.01	12.5660	0.00	0.00	0.00			
	Node22	40.00	25.50	22.83	16	37	0.00
17.17	12.5660	0.00	0.00	0.00			
	Node23	40.00	25.52	22.73	16	38	0.00
17.27	12.5660	0.00	0.00	0.00			
	Node24	40.00	26.28	22.64	16	38	0.00
17.36	12.5660	0.00	0.00	0.00			
	Node25	40.00	25.91	21.62	16	39	0.00
18.38	12.5660	0.00	0.00	0.00			
	Node26	40.00	25.24	20.43	16	42	0.00
19.57	12.5660	0.00	0.00	0.00			
	Node27	40.00	24.61	19.99	16	52	0.00
20.01	12.5660	0.00	0.00	0.00			
	Node28	40.00	29.44	19.17	17	14	0.00
20.83	12.5660	0.00	0.00	0.00			
	Node31	40.00	27.84	19.20	17	14	0.00
20.80	12.5660	0.00	0.00	0.00			
	Node33	40.00	29.43	19.12	17	14	0.00
20.88	12.5660	0.00	0.00	0.00			
	Node34	40.00	27.10	23.82	16	23	0.00
16.18	12.5660	0.00	0.00	0.00			
	Node35	40.00	27.82	19.21	17	14	0.00
20.79	12.5660	0.00	0.00	0.00			
	Node36	40.00	28.05	19.06	17	14	0.00
20.94	12.5660	0.00	0.00	0.00			
	Node37	40.00	28.40	18.98	17	15	0.00
21.02	12.5660	0.00	0.00	0.00			
	Node41	40.00	28.40	18.98	17	14	0.00
21.02	12.5660	0.00	0.00	0.00			
	Link42.1	40.00	17.51	22.11	16	20	4.60
17.89	12.5660	0.00	0.00	0.00			
	Node23.1.1	40.00	18.42	22.61	16	20	4.19
17.39	12.5660	0.00	0.00	0.00			
	Node19.1.1	40.00	18.42	22.66	16	20	4.24
17.34	12.5660	0.00	0.00	0.00			
	Node18.1.1	40.00	18.49	22.73	16	20	4.24
17.27	12.5660	0.00	0.00	0.00			
	Node34.1.1	40.00	18.82	23.06	16	20	4.24
16.94	12.5660	0.00	0.00	0.00			
	Node39	40.00	27.97	24.20	16	20	0.00
15.80	12.5660	0.00	0.00	0.00			
	Node40	40.00	19.27	19.17	17	14	0.00
20.83	12.5660	0.00	0.00	0.00			

```

*=====
|           Table E10 - CONDUIT SUMMARY STATISTICS           |
| Note: The peak flow may be less than the design flow       |
| and the conduit may still surcharge because of the         |
| downstream boundary conditions.                             |
| * denotes an open conduit that has been overtopped        |
| this is a potential source of severe errors                |
*=====
    
```

Time of Occurrence	Ratio of Max. to Design Flow	Conduit Name	Maximum Water Elev at Pipe Upstream (ft)	Design Flow (cfs)	Conduit Velocity Dwnstrm (ft/s)	Maximum Ratio Design Vertical US DS Depth (in)	Maximum Computed Flow (cfs)	Time of Occurrence Hr. Min.	Maximum Computed Velocity (ft/s)	Hr.
16 14	0.0078	Link14	23.7626	596.7483	23.2122	0.158	0.355	16 24	2.2916	
16 11	0.0051	Link16	23.2069	887.9019	23.2145	0.292	0.524	16 26	1.7811	
17 40	0.0192	Link18	23.2099	264.7415	23.2024	0.510	0.727	16 38	0.2875	
16 13	0.0835	Link20	23.0262	316.7276	22.9908	0.573	0.658	16 28	1.0919	
16 19	-0.3546	Link22	22.8287	72.5977	22.7308	0.497	0.482	16 34	-0.8483	
16 37	0.0956	Link24	22.6391	267.1870	21.6229	0.404	0.298	16 38	1.9854	
16 32	0.0204	Link26	20.4299	1249.146	19.9925	0.247	0.277	16 39	3.6538	
16 18	0.0287	Link31	19.2044	22103.96	19.1654	0.472	0.470	16 56	2.3658	
16 21	0.0229	Link33	19.1654	29068.21	19.1159	0.428	0.426	16 53	2.8027	
16 18	-0.0094	Link34	23.8242	500.4380	23.7737	0.163	0.310	16 21	-0.7551	
16 18	0.0023	Link36	19.1159	284979.0	19.0607	0.426	0.559	17 2	2.5002	
16 32	0.0079	Link37	19.0607	82357.80	18.9776	0.528	0.553	17 11	1.5848	
17 15	0.0548	Link42.1.1	18.9776	11938.34	18.9757	0.527	0.527	17 15	1.4715	
		Link38.1	29.0312	29.0312	3.0174	42.0000	27.5001	16 22	2.8452	

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16	22	0.9473	22.6128	22.1104	2.198	2.314						
		Link46.1	3.1816	0.0000	42.0000	27.9270	16	22	2.8534			
16	22	8.7778	22.6568	22.6130	4.188	4.175						
		Link45.1	29.3011	3.0455	42.0000	26.5686	16	22	3.3311			
16	11	0.9067	22.7275	22.6565	2.211	2.210						
		Link39.1	14.7688	3.0087	30.0000	13.2826	16	22	3.7562			
16	12	0.8994	23.0605	22.7274	2.696	2.695						
		Link41	325.1504	4.1553	57.8400	4.7798	16	18	1.3638			
16	15	0.0147	24.1961	23.8242	0.217	0.320						
		Link48	46955.91	1.7426	195.9600	638.2748	16	51	2.6821			
16	17	0.0136	19.2130	19.2044	0.473	0.473						
		227.1	12.3112	2.5080	30.0000	3.1585	16	12	1.8916			
16	12	0.2566	23.7737	23.7626	0.413	0.425						
		231.1	11.6038	2.3639	30.0000	4.5451	16	25	1.2463			
16	11	0.3917	23.2122	23.2069	0.805	0.819						
		235.1	26.5994	5.4188	30.0000	-5.2901	16	26	-1.0293			
16	26	-0.1989	23.2145	23.2099	1.106	1.160						
		239.1	32.6114	6.6435	30.0000	-26.7527	16	26	-5.4338			
16	27	-0.8203	23.2024	23.0262	1.397	1.438						
		243.1	21.2473	4.3285	30.0000	-26.1267	16	30	-5.1024			
16	31	-1.2296	22.9908	22.8287	1.136	1.119						
		247.1	54.3058	11.0631	30.0000	-25.5648	16	37	-5.1761			
16	37	-0.4708	22.7308	22.6391	1.144	1.276						
		251.1	26.1519	5.3276	30.0000	25.5371	16	39	6.7014			
16	39	0.9765	21.6229	21.2615	0.729	0.689						
		255.1	95.0460	13.4463	36.0000	25.4726	16	38	10.6952			
16	23	0.2680	19.9925	19.1699	0.398	0.967						
		324.1	56.1685	2.8606	60.0000	47.8956	16	22	2.5197			
16	22	0.8527	19.1699	19.1654	1.332	1.335						
		Restrictor.1	21.0133	0.5377	22.8001	28.0510	16	22	9.7087			
16	22	1.3349	22.1104	19.1699	5.053	3.510						
		W14	Undefnd	Undefnd	Undefnd	2.1637	16	23				
		W15	Undefnd	Undefnd	Undefnd	0.0000	0	0				
		W17	Undefnd	Undefnd	Undefnd	0.0000	0	0				
		W20	Undefnd	Undefnd	Undefnd	0.0000	0	0				
		W21	Undefnd	Undefnd	Undefnd	0.0000	0	0				
		W24	Undefnd	Undefnd	Undefnd	0.0000	0	0				
		W25	Undefnd	Undefnd	Undefnd	0.0000	0	0				
		W27	Undefnd	Undefnd	Undefnd	0.0000	0	0				
		W42	Undefnd	Undefnd	Undefnd	0.0000	0	0				
		FREE# 1	Undefnd	Undefnd	Undefnd	653.7168	17	14				

=====

| Table E11. Area assumptions used in the analysis |

| Subcritical and Critical flow assumptions from |

| Subroutine Head. See Figure 17-1 in the |

| manual for further information. |

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=====

Maximum X-Sect Area(ft^2)	Maximum Conduit Vel*D Name (ft^2/s)	Duration of Dry Flow(min)	Duration of Sub- Critical Flow(min)	Durat. of Upstream Critical Flow(min)	Durat. of Downstream Critical Flow(min)	Maximum Hydraulic Radius-m
4.567	Link14 2.453	176.34	2689.13	0.00	14.53	0.401
11.573	Link16 1.748	145.91	2734.09	0.00	0.00	0.713
27.815	Link18 0.771	107.70	2772.30	0.00	0.00	1.163
32.850	Link20 2.893	51.44	2828.56	0.00	0.00	1.394
30.750	Link22 2.120	78.77	2742.44	58.79	0.00	1.302
10.272	Link24 4.259	136.09	1261.91	0.00	1482.00	1.089
7.787	Link26 5.952	138.33	2741.67	0.00	0.00	0.751
354.345	Link31 14.236	90.09	2789.91	0.00	0.00	4.523
324.215	Link33 16.350	90.56	2789.44	0.00	0.00	4.505
3.896	Link34 0.850	297.51	1461.90	1120.60	0.00	0.690
410.750	Link36 17.389	91.13	2788.88	0.00	0.00	4.621
433.645	Link37 16.048	91.13	2788.88	0.00	0.00	5.356
444.272	Link42.1.1 15.473	92.44	2787.56	0.00	0.00	5.635
9.913	Link38.1 19.459	356.13	716.17	0.00	1807.70	1.050
10.083	Link46.1 35.984	9.00	2871.00	0.00	0.00	1.065
10.085	Link45.1 19.123	9.00	2497.65	0.00	373.35	1.065
5.134	Link39.1 16.602	9.00	400.67	0.00	2470.33	0.760
4.887	Link41 1.746	15.00	2865.00	0.00	0.00	0.517
	Link48	131.56	2748.44	0.00	0.00	4.524

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327.445	15.868	227.1	107.33	2772.68	0.00	0.00	0.549
1.952	1.742	231.1	124.47	2755.53	0.00	0.00	0.761
4.266	2.167	235.1	56.56	2823.44	0.00	0.00	0.760
5.131	2.861	239.1	25.50	2851.24	3.26	0.00	0.758
5.080	19.039	243.1	71.60	2799.58	8.82	0.00	0.760
5.096	14.318	247.1	120.51	2759.49	0.00	0.00	0.756
5.021	15.635	251.1	138.33	0.00	0.00	2741.67	0.747
3.718	11.875	255.1	143.78	346.76	0.00	2389.46	0.665
4.569	15.706	324.1	145.91	1373.78	0.00	1360.31	1.521
20.584	13.221	Restrictor.1	125.90	2754.10	0.00	0.00	0.578
2.972	61.214						

=====

| Table E12. Mean Conduit Flow Information |

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Mean	Mean	Mean	Mean	Total	Mean	Low	Mean
Hydraulic	Conduit	Conduit	Flow	Flow	Percent	Flow	Froude
Radius	Area	Name	(cfs)	(ft^3)	Change	Weightng	Number
-----	-----	-----	-----	-----	-----	-----	-----
0.102	0.265	Link14	0.236	40778.737	0.000	0.973	0.251
0.101	0.401	Link16	0.236	40734.233	0.000	0.979	0.332
0.247	1.879	Link18	0.277	47864.804	0.000	0.989	0.039
0.446	4.506	Link20	1.549	267646.619	0.000	0.997	0.046
0.401	4.740	Link22	-1.549	-267707.507	0.000	0.994	0.054
0.328	1.880	Link24	1.549	267707.856	0.000	0.981	0.202
0.226	1.081	Link26	1.550	267793.735	0.000	0.981	0.282
		Link31	97.131	16784251.770	0.000	0.992	0.125

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1.743	95.249	0.032					
	Link33	99.849	17253888.469	0.000	0.992	0.202	
1.627	81.397	0.032					
	Link34	-0.236	-40775.887	0.000	0.947	0.039	
0.315	1.917	0.040					
	Link36	99.929	17267700.363	0.000	0.992	0.230	
1.618	84.854	0.032					
	Link37	100.110	17299053.128	0.000	0.992	0.092	
2.206	118.380	0.032					
	Link42.1.1	100.141	17304288.220	0.000	0.992	0.073	
2.412	133.125	0.032					
	Link38.1	1.139	196888.332	0.000	0.935	0.336	
0.361	2.368	0.013					
	Link46.1	1.146	197978.651	0.000	1.000	0.010	
0.872	9.626	0.013					
	Link45.1	1.149	198488.088	0.000	0.979	0.346	
0.356	2.283	0.013					
	Link39.1	0.592	102225.279	0.000	0.977	0.633	
0.224	0.947	0.013					
	Link41	0.237	40887.842	0.000	1.000	0.098	
0.148	0.564	0.040					
	Link48	97.124	16783012.784	0.000	0.982	0.150	
1.681	83.952	0.032					
	227.1	0.214	36932.474	0.000	0.989	0.069	
0.271	0.631	0.015					
	231.1	0.236	40762.957	0.000	0.985	0.033	
0.429	1.320	0.015					
	235.1	-0.277	-47828.939	0.000	0.997	0.025	
0.428	1.507	0.013					
	239.1	-1.549	-267659.203	0.000	1.000	0.066	
0.631	3.012	0.015					
	243.1	-1.549	-267700.577	0.000	0.995	0.110	
0.451	1.745	0.015					
	247.1	-1.550	-267785.785	0.000	0.986	0.076	
0.606	2.777	0.013					
	251.1	1.550	267790.936	0.000	0.981	0.819	
0.210	0.568	0.015					
	255.1	1.549	267696.532	0.000	0.979	1.765	
0.157	0.429	0.013					
	324.1	2.697	465977.552	0.000	0.979	0.299	
0.672	6.837	0.013					
	Restrictor.1	1.147	198138.708	0.000	0.984	0.142	
0.336	1.511	0.003					
	W14	0.022	3842.033				
	W15	0.000	0.000				
	W17	0.000	0.000				
	W20	0.000	0.000				
	W21	0.000	0.000				

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W24 0.000 0.000
W25 0.000 0.000
W27 0.000 0.000
W42 0.000 0.000
FREE# 1 100.132 17302852.589

```

*=====
| Table E13. Channel losses(H), headwater depth (HW), tailwater
| depth (TW), critical and normal depth (Yc and Yn).
| Use this section for culvert comparisons
|
*=====
    
```

TW Elevat	Conduit Name	Maximum Flow	Head Loss	Friction Loss	Critical Depth	Normal Depth	HW Elevat
23.087	Link14 Max Flow	4.663	0.000	0.737	0.686	0.761	23.763
23.161	Link16 Max Flow	4.493	0.000	0.013	0.676	0.638	23.151
23.184	Link18 Max Flow	5.071	0.000	0.010	0.712	1.061	23.192
22.963	Link20 Max Flow	26.376	0.000	0.046	1.243	1.820	23.001
20.212	Link22 Max Flow	-0.001	0.000	-0.006	0.001	0.014	20.203
21.623	Link24 Max Flow	25.541	0.000	0.714	1.522	2.738	22.639
19.940	Link26 Max Flow	25.529	0.000	0.540	1.384	1.546	20.426
19.060	Link31 Max Flow	633.287	0.000	0.042	2.962	10.438	19.103
19.006	Link33 Max Flow	665.513	0.000	0.054	3.487	11.880	19.060
23.040	Link34 Max Flow	0.000	0.000	0.000	0.000	0.000	23.000
19.016	Link36 Max Flow	659.068	0.000	0.115	3.470	4.210	19.074
18.975	Link37 Max Flow	654.245	0.000	0.090	4.170	7.096	19.059
18.976	Link42.1.1 Max Flow	653.694	0.000	0.002	4.038	10.516	18.978
19.054	Link38.1 Max Flow	25.753	0.000	0.713	1.562	2.567	19.529
22.530	Link46.1 Max Flow	24.281	0.000	0.028	1.514	3.500	22.558

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22.559	Max Flow	Link45.1	24.303	0.000	0.047	1.515	2.434	22.606
22.603	Max Flow	Link39.1	12.529	0.000	0.233	1.188	1.769	22.850
23.805	Max Flow	Link41	4.765	0.000	0.434	0.693	0.966	24.193
19.053	Max Flow	Link48	635.821	0.000	0.010	3.412	7.534	19.063
23.633	Max Flow	227.1	3.097	0.000	0.030	0.575	0.854	23.663
23.151	Max Flow	231.1	4.532	0.000	0.007	0.701	1.085	23.157
20.751	Max Flow	235.1	0.002	0.000	0.000	0.002	0.002	20.751
20.212	Max Flow	239.1	0.000	0.000	0.000	0.000	0.000	20.212
20.212	Max Flow	243.1	-0.001	0.000	0.000	0.001	0.001	20.212
20.203	Max Flow	247.1	-0.001	0.000	0.000	0.001	0.001	20.203
21.261	Max Flow	251.1	25.536	0.000	0.324	1.721	1.998	21.623
18.514	Max Flow	255.1	25.470	0.000	1.426	1.627	1.060	19.940
17.288	Max Flow	324.1	46.829	0.000	0.012	1.912	3.490	17.297
17.297	Max Flow	Restrictor.1	25.951	0.000	2.813	1.758	1.900	19.054

=====

| Table E13a. CULVERT ANALYSIS CLASSIFICATION, |
 | and the time the culvert was in a particular |
 | classification during the simulation. The time is |
 | in minutes. The Dynamic Wave Equation is used for |
 | all conduit analysis but the culvert flow classification |
 | condition is based on the HW and TW depths. |

=====

		Mild Slope Critical D	Mild Slope TW Control	Steep Slope TW Insignf	Slug Flow Outlet/	Mild Slope TW > D	Mild Slope TW <= D
Outlet	Conduit Inlet	Outlet Inlet	Outlet Control	Entrance Control	Entrance Control	Outlet Control	Outlet Control
Control	Control Configuration						

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0.000	Link14	6.000	2709.000	165.000	0.000	0.000	0.000
0.000	0.000 None						
93.000	Link16	0.000	2328.000	363.000	96.000	0.000	0.000
0.000	0.000 None						
0.000	Link18	0.000	2775.000	105.000	0.000	0.000	0.000
0.000	0.000 None						
0.000	Link20	0.000	2829.000	51.000	0.000	0.000	0.000
0.000	0.000 None						
0.000	Link22	0.000	2802.000	78.000	0.000	0.000	0.000
0.000	0.000 None						
0.000	Link24	801.000	1944.000	135.000	0.000	0.000	0.000
0.000	0.000 None						
0.000	Link26	0.000	2742.000	138.000	0.000	0.000	0.000
0.000	0.000 None						
0.000	Link31	0.000	2790.000	90.000	0.000	0.000	0.000
0.000	0.000 None						
0.000	Link33	0.000	2790.000	90.000	0.000	0.000	0.000
0.000	0.000 None						
0.000	Link34	0.000	2589.000	105.000	186.000	0.000	0.000
0.000	0.000 None						
0.000	Link36	0.000	2790.000	90.000	0.000	0.000	0.000
0.000	0.000 None						
0.000	Link37	0.000	2790.000	90.000	0.000	0.000	0.000
0.000	0.000 None						
0.000	Link42.1.1	0.000	2790.000	0.000	90.000	0.000	0.000
0.000	0.000 None						
0.000	Link38.1	816.000	1452.000	357.000	0.000	255.000	0.000
0.000	0.000 None						
0.000	Link46.1	6.000	102.000	0.000	9.000	2763.000	0.000
0.000	0.000 None						
0.000	Link45.1	33.000	2583.000	99.000	0.000	165.000	0.000
0.000	0.000 None						
0.000	Link39.1	930.000	1680.000	111.000	0.000	159.000	0.000
0.000	0.000 None						
0.000	Link41	3.000	2862.000	15.000	0.000	0.000	0.000
0.000	0.000 None						
0.000	Link48	0.000	2748.000	132.000	0.000	0.000	0.000
0.000	0.000 None						
0.000	227.1	3.000	2772.000	105.000	0.000	0.000	0.000
0.000	0.000 None						
0.000	231.1	0.000	2757.000	123.000	0.000	0.000	0.000
0.000	0.000 None						
0.000	235.1	0.000	2763.000	54.000	27.000	0.000	36.000
0.000	0.000 None						
0.000	239.1	0.000	0.000	24.000	2757.000	0.000	99.000
0.000	0.000 None						
0.000	243.1	0.000	2754.000	69.000	0.000	57.000	0.000
0.000	0.000 None						

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0.000	247.1	0.000	0.000	120.000	2706.000	0.000	54.000
0.000	0.000 None						
0.000	251.1	1212.000	1530.000	138.000	0.000	0.000	0.000
0.000	0.000 None						
87.000	255.1	0.000	0.000	2793.000	0.000	0.000	0.000
0.000	0.000 None						
0.000	324.1	777.000	1713.000	144.000	0.000	246.000	0.000
0.000	0.000 None						
0.000	Restrictor.1	9.000	2073.000	123.000	0.000	675.000	0.000
0.000	0.000 None						

```

*=====
| Kinematic Wave Approximations |
| Time in Minutes for Each Condition |
*=====
    
```

Conduit Name	Duration of Normal Flow	Slope Criteria	Super-Critical	Roll Waves
Link14	2738.51	2738.56	0.00	0.00
Link16	2646.06	2734.09	0.00	0.00
Link18	1483.77	2772.30	0.00	0.00
Link20	16.19	2824.11	0.22	0.00
Link22	0.00	0.00	0.00	0.00
Link24	0.00	0.00	0.05	0.00
Link26	1152.64	2739.55	0.16	0.00
Link31	0.22	84.80	0.00	0.00
Link33	0.00	0.00	0.00	0.00
Link34	0.00	0.00	0.00	0.00
Link36	1419.50	2786.44	0.00	0.00
Link37	25.58	2570.85	0.00	0.00
Link42.1.1	2.09	2.09	0.00	0.00
Link38.1	94.78	684.80	227.86	0.00
Link46.1	0.23	802.63	0.00	0.00
Link45.1	398.16	2443.03	261.56	0.00
Link39.1	0.03	384.18	14.00	0.00
Link41	2317.60	2851.24	18.35	0.00
Link48	1.75	538.72	0.00	0.00
227.1	0.00	2587.47	0.74	0.00
231.1	0.00	2750.13	0.00	0.00
235.1	0.00	256.32	0.00	0.00
239.1	0.00	0.00	0.00	0.00
243.1	0.00	0.00	0.00	0.00
247.1	0.00	0.29	0.00	0.00
251.1	0.00	0.00	0.33	0.00
255.1	200.70	346.34	2736.22	0.00
324.1	0.08	1239.94	1.69	0.00
Restrictor.1	0.37	542.49	0.00	0.00

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=====

| Table E14 - Natural Channel Overbank Flow Information |

=====

		<---- Maximum Velocity ----->				<----- Maximum Flow ----->		
<----- Maximum Area ----->		<---- Max. Storage Volume ---->						
Left	Center	Right	Left	Center	Right	Left	Center	Right
Area	Area	Area	Area	Area	Area	Maximum Flow	Flow	Flow
		Conduit	Left	Center	Right	Depth	Flow	Flow
		Name	Velocity	Velocity	Velocity	Flow	Flow	Flow
		Area	Area	Area	Area	Area	Area	Area
	Link14	0.000	1.028	0.000	0.000	4.665	0.000	0.000
0.000	4.540	0.000	0.000	310.355	0.000	4.567	0.000	0.000
	Link16	0.000	0.389	0.000	0.000	4.495	0.000	0.000
0.000	11.544	0.000	0.000	263.791	0.000	11.573	0.000	0.000
	Link18	0.042	0.187	0.000	0.033	5.045	0.000	0.000
0.788	27.015	0.000	191.623	6568.084	0.000	27.027	0.000	0.000
	Link20	0.188	0.821	0.000	0.148	26.288	0.000	0.000
0.788	32.000	0.000	92.646	3760.341	0.000	32.013	0.000	0.000
	Link22	0.000	0.838	0.000	0.000	25.740	0.000	0.000
0.000	30.712	0.000	0.000	8673.191	0.000	30.750	0.000	0.000
	Link24	0.000	2.492	0.000	0.000	25.549	0.000	0.000
0.000	10.252	0.000	0.000	2871.898	0.000	10.272	0.000	0.000
	Link26	0.000	3.298	0.000	0.000	25.531	0.000	0.000
0.000	7.742	0.000	0.000	300.699	0.000	7.787	0.000	0.000
	Link31	0.000	1.783	0.183	0.000	631.304	2.014	0.000
0.000	354.075	11.018	0.000	70701.623	2000.350	354.345	0.000	0.000
	Link33	0.000	2.026	0.327	0.000	656.373	9.640	0.000
0.000	323.896	29.482	0.000	62401.815	5675.831	324.215	0.000	0.000
	Link34	0.000	1.212	0.000	0.000	4.716	0.000	0.000
0.000	3.892	0.000	0.000	191.702	0.000	3.896	0.000	0.000
	Link36	0.000	1.606	0.000	0.000	659.123	0.000	0.000
0.000	410.433	0.000	0.000	204982.351	0.000	410.750	0.000	0.000
	Link37	0.000	1.510	0.000	0.000	654.299	0.000	0.000
0.000	433.258	0.000	0.000	322968.048	0.000	433.645	0.000	0.000
	Link42.1.1	0.000	1.472	0.000	0.000	653.791	0.000	0.000
0.000	444.021	0.000	0.000	8884.857	0.000	444.272	0.000	0.000
	Link41	0.000	0.982	0.000	0.000	4.780	0.000	0.000
0.000	4.867	0.000	0.000	649.971	0.000	4.887	0.000	0.000
	Link48	0.000	1.947	0.170	0.000	637.320	0.955	0.000
0.000	327.270	5.604	0.000	12521.368	214.393	327.445	0.000	0.000

=====

| Table E14a - Natural Channel Encroachment Information |

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<----- Existing Conveyance Condition -----> <-----									
Encroachment Conveyance Condition -----> <- % Volume --> <-- Encroachment Data -->									
Centre	Right	Total	Left	Centre	Right	Total	Left	Right	Left
Channel	Bank	Name	Bank	Channel	Bank	Reduction	Station	Station	Bank
Channel	Bank	Station	Station	Left	Right	Incr.	Method		
0.0000	119.06	10.919	18.142	0.0000	0.0000	0.0000	None		
Link14	0.0000	119.06	0.0000	119.06	10.919	18.142	0.0000	119.06	0.0000
0.0000	408.08	8.2348	19.997	0.0000	0.0000	0.0000	None		
Link16	0.0000	408.08	0.0000	408.08	8.2348	19.997	0.0000	408.08	0.0000
0.0000	1277.6	0.0000	23.047	0.0000	0.0000	0.0000	None		
Link18	8.3905	1269.2	0.0000	1277.6	0.0000	23.047	8.3905	1269.2	0.0000
0.0000	1674.8	0.6674	23.361	0.0000	0.0000	0.0000	None		
Link20	9.3834	1665.5	0.0000	1674.8	0.6674	23.361	9.3834	1665.5	0.0000
0.0000	1344.4	8.9132	32.253	0.0000	0.0000	0.0000	None		
Link22	0.0000	1344.4	0.0000	1344.4	8.9132	32.253	0.0000	1344.4	0.0000
0.0000	376.03	15.566	25.083	0.0000	0.0000	0.0000	None		
Link24	0.0000	376.03	0.0000	376.03	15.566	25.083	0.0000	376.03	0.0000
0.0000	244.75	10.755	20.036	0.0000	0.0000	0.0000	None		
Link26	0.0000	244.75	0.0000	244.75	10.755	20.036	0.0000	244.75	0.0000
143.35	45076.9	4744.1	5178.0	0.0000	0.0000	0.0000	None		
Link31	0.0000	44933.5	143.35	45076.9	4744.1	5178.0	0.0000	44933.5	0.0000
601.82	41577.0	3465.6	3736.3	0.0000	0.0000	0.0000	None		
Link33	0.0000	40975.2	601.82	41577.0	3465.6	3736.3	0.0000	40975.2	0.0000
0.0000	96.972	11.221	17.910	0.0000	0.0000	0.0000	None		
Link34	0.0000	96.972	0.0000	96.972	11.221	17.910	0.0000	96.972	0.0000

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Link36 0.0000 57115.9 0.0000 57115.9 3651.2 3727.9 0.0000 57115.9
 0.0000 57115.9 3651.2 3727.9 0.0000 0.0000 0.0000 None

Link37 0.0000 62394.7 0.0000 62394.7 5001.1 5077.3 0.0000 62394.7
 0.0000 62394.7 5001.1 5077.3 0.0000 0.0000 0.0000 None

Link42.1.1 0.0000 65295.6 0.0000 65295.6 4959.2 5034.4 0.0000 65295.6
 0.0000 65295.6 4959.2 5034.4 0.0000 0.0000 0.0000 None

Link41 0.0000 130.62 0.0000 130.62 10.774 18.254 0.0000 130.62
 0.0000 130.62 10.774 18.254 0.0000 0.0000 0.0000 None

Link48 0.0000 41578.1 62.286 41640.4 4688.7 5156.0 0.0000 41578.1
 62.286 41640.4 4688.7 5156.0 0.0000 0.0000 0.0000 None

=====

| Table E14b - Floodplain Mapping |

=====

		Conduit	Upstream	Downstream	Channel	Center	<----- Left Offsets	
		Right Offsets		<- Channel Widths->				
Bank	Natural	Encroach	WS Elev.	WS Elev.	Length	Station	Natural	Encroach
				Bank	Total	Encroach.		
10.0000	3.1425	3.1425	23.7626	23.2122	68.3600	15.0000	4.0811	4.0811
				10.0000	7.2236	7.2236		
10.0000	4.9974	4.9974	23.2069	23.2145	22.8500	15.0000	6.7652	6.7652
				10.0000	11.7625	11.7625		
10.0000	8.0468	8.0468	23.2099	23.2024	243.1300	15.0000	15.0000	15.0000
				10.0000	23.0468	23.0468		
10.0000	8.3607	8.3607	23.0262	22.9908	117.5100	15.0000	14.3326	14.3326
				10.0000	22.6933	22.6933		

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20.0000	Link22	22.7308	22.8287	282.4000	25.0000	16.0868	16.0868
		7.2527	7.2527	10.0000	23.3395	23.3395	
10.0000	Link24	22.6391	21.6229	280.1300	20.0000	4.4337	4.4337
		5.0828	5.0828	10.0000	9.5164	9.5164	
9.7200	Link26	20.4299	19.9925	38.8400	15.3500	4.5951	4.5951
		4.6857	4.6857	10.0700	9.2808	9.2808	
106.3600	Link31	19.2044	19.1654	199.6800	4765.9700	21.8415	21.8415
		411.9837	411.9837	69.3100	433.8252	433.8252	
70.7100	Link33	19.1654	19.1159	192.6600	3498.9200	33.3183	33.3183
		237.3775	237.3775	48.4200	270.6958	270.6958	
10.0000	Link34	23.7737	23.8242	49.2500	15.0000	3.7789	3.7789
		2.9097	2.9097	10.0000	6.6886	6.6886	
94.8600	Link36	19.1159	19.0607	499.4300	3687.5900	36.3819	36.3819
		40.3441	40.3441	53.4600	76.7260	76.7260	
110.9000	Link37	19.0607	18.9776	745.4400	5037.4200	36.3123	36.3123
		39.8382	39.8382	78.4400	76.1505	76.1505	
118.3100	Link42.1.1	18.9776	18.9757	20.0100	4995.7800	36.5522	36.5522
		38.6564	38.6564	64.8400	75.2086	75.2086	
10.0000	Link41	24.1961	23.8242	133.5500	15.0000	4.2255	4.2255
		3.2536	3.2536	10.0000	7.4791	7.4791	
66.5800	Link48	19.2130	19.2044	38.2600	4722.1000	33.4432	33.4432
		433.8893	433.8893	48.4200	467.3325	467.3325	

=====

| Table E15 - SPREADSHEET INFO LIST |

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| Conduit Flow and Junction Depth Information for use in |
 | spreadsheets. The maximum values in this table are the |
 | true maximum values because they sample every time step. |
 | The values in the review results may only be the |
 | maximum of a subset of all the time steps in the run. |
 | Note: These flows are only the flows in a single barrel. |

=====

Conduit Junction Name Name	Maximum Invert Flow Elevation (cfs) (ft)	Total Maximum Flow Elevation (ft^3) (ft)	Maximum Velocity (ft/s)	Maximum Volume (ft^3)	##
-----	-----	-----	-----	-----	##
Link14	4.66500	40778.73705	2.29163	310.35500	##
Node13	22.74000	23.77367			
Link16	4.49526	40734.23322	1.78109	263.79092	##
Node14	22.70000	23.76262			
Link18	5.07787	47864.80416	0.28754	6759.70648	##
Node15	21.20000	23.21216			
Link20	26.43581	267646.61882	1.09193	3852.98766	##
Node16	21.16000	23.20692			
Link22	-25.74006	-267707.50656	0.84832	8673.19118	##
Node17	20.31000	23.21450			
Link24	25.54916	267707.85593	1.98539	2871.89807	##
Node18	20.45000	23.20986			
Link26	25.53125	267793.73543	3.65376	300.69852	##
Node19	19.43000	23.20239			
Link31	633.31767	16784251.76974	2.36581	72701.97289	##
Node20	19.63000	23.02618			
Link33	666.01353	17253888.46862	2.80269	68077.64578	##
Node21	19.69000	22.99083			
Link34	-4.71572	-40775.88732	0.75508	191.70155	##
Node22	19.80000	22.82866			
Link36	659.12324	17267700.36252	2.50023	204982.35058	##
Node23	19.45000	22.73085			
Link37	654.29947	17299053.12769	1.58477	322968.04776	##
Node24	19.87000	22.63907			
Link42.1.1	653.79127	17304288.22047	1.47151	8884.85676	##
Node25	19.57000	21.62290			
Link38.1	27.50007	196888.33236	2.84515	10887.85157	##
Node26	18.85000	20.42991			
Link46.1	27.92702	197978.65085	2.85338	502.71040	##
Node27	18.22000	19.99254			
Link45.1	26.56863	198488.08799	3.33114	832.39550	##
Node28	11.47000	19.16540			

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Link39.1	13.28259	102225.27898	3.75616	1309.83935	##
Node31	11.48000	19.20439			
Link41	4.77982	40887.84198	1.36377	649.97128	##
Node33	11.46000	19.11586			
Link48	638.27479	16783012.78390	2.68212	12735.76059	##
Node34	22.28000	23.82420			
227.1	3.15851	36932.47415	1.89165	65.09728	##
Node35	11.49000	19.21299			
231.1	4.54507	40762.95684	1.24628	160.04331	##
Node36	9.02000	19.06068			
235.1	-5.29008	-47828.93935	1.02928	171.30670	##
Node37	8.46000	18.97760			
239.1	-26.75269	-267659.20316	5.43376	171.19719	##
Node41	8.46000	18.97569			
243.1	-26.12669	-267700.57713	5.10241	172.83001	##
Link42.1	12.51000	22.11044			
247.1	-25.56476	-267785.78513	5.17605	123.07744	##
Node23.1.1	8.00000	22.61299			
251.1	25.53710	267790.93639	6.70140	178.61483	##
Node19.1.1	8.00000	22.65650			
255.1	25.47256	267696.53225	10.69522	569.17534	##
Node18.1.1	14.99000	22.72736			
324.1	47.89559	465977.55153	2.51967	885.10300	##
Node34.1.1	16.32000	23.06051			
Restrictor.1	28.05099	198138.70833	9.70875	8369.49070	##
Node39	23.15000	24.19614			
W14	2.16370	3842.03268	0.00000	0.00000	##
Node40	12.50000	19.16991			
W15	0.00000	0.00000	0.00000	0.00000	##
W17	0.00000	0.00000	0.00000	0.00000	##
W20	0.00000	0.00000	0.00000	0.00000	##
W21	0.00000	0.00000	0.00000	0.00000	##
W24	0.00000	0.00000	0.00000	0.00000	##
W25	0.00000	0.00000	0.00000	0.00000	##
W27	0.00000	0.00000	0.00000	0.00000	##
W42	0.00000	0.00000	0.00000	0.00000	##
FREE# 1	653.71684	17302852.58942	0.00000	0.00000	##

```

*=====
| Table E15a - SPREADSHEET REACH LIST |
| Peak flow and Total Flow listed by Reach or those |
| conduits or diversions having the same |
| upstream and downstream nodes. |
*=====

```

Upstream Node	Downstream Node	Maximum Flow (cfs)	Total Flow (ft^3)
------------------	--------------------	--------------------------	-------------------------

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Node14	Node15	4.6650	40779.
Node16	Node17	4.4953	40734.
Node18	Node19	5.0779	47865.
Node20	Node21	26.436	2.67647E+05
Node23	Node22	25.740	2.67708E+05
Node24	Node25	25.549	2.67708E+05
Node26	Node27	25.531	2.67794E+05
Node31	Node28	633.32	1.67843E+07
Node28	Node33	666.01	1.72539E+07
Node13	Node34	4.7157	40776.
Node33	Node36	659.12	1.72677E+07
Node36	Node37	654.30	1.72991E+07
Node37	Node41	653.79	1.73043E+07
Node23.1.1	Link42.1	27.500	1.96888E+05
Node19.1.1	Node23.1.1	27.927	1.97979E+05
Node18.1.1	Node19.1.1	26.569	1.98488E+05
Node34.1.1	Node18.1.1	13.283	1.02225E+05
Node39	Node34	4.7798	40888.
Node35	Node31	638.27	1.67830E+07
Node13	Node14	3.1585	36932.
Node15	Node16	4.5451	40763.
Node18	Node17	5.2901	47829.
Node20	Node19	26.753	2.67659E+05
Node22	Node21	26.127	2.67701E+05
Node24	Node23	25.565	2.67786E+05
Node25	Node26	25.537	2.67791E+05
Node27	Node40	25.473	2.67697E+05
Node40	Node28	47.896	4.65978E+05
Link42.1	Node40	28.051	1.98139E+05
Node13	Node14	2.1637	3842.0

 # Table E16. New Conduit Information Section #
 # Conduit Invert (IE) Elevation and Conduit #
 # Maximum Water Surface (WS) Elevations #
 #####

WS Up	Conduit Name WS Dn	Conduit Type	Upstream Node	Downstream Node	IE Up	IE Dn
23.76	Link14 23.21	Natural	Node14	Node15	23.00	21.50
23.21	Link16 23.21	Natural	Node16	Node17	21.80	20.69
23.21	Link18 23.20	Natural	Node18	Node19	20.75	19.70

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23.03	Link20		Node20	Node21	20.15	19.69
22.99	22.99	Natural				
22.73	Link22		Node23	Node22	20.17	20.15
22.83	22.83	Natural				
22.64	Link24		Node24	Node25	20.17	19.80
21.62	21.62	Natural				
20.43	Link26		Node26	Node27	18.85	18.22
19.99	19.99	Natural				
19.20	Link31		Node31	Node28	11.48	11.47
19.17	19.17	Natural				
19.17	Link33		Node28	Node33	11.47	11.46
19.12	19.12	Natural				
23.77	Link34		Node13	Node34	23.04	22.28
23.82	23.82	Natural				
19.12	Link36		Node33	Node36	11.46	9.020
19.06	19.06	Natural				
19.06	Link37		Node36	Node37	9.020	8.460
18.98	18.98	Natural				
18.98	Link42.1.1		Node37	Node41	8.460	8.460
22.61	22.11	Natural				
22.61	Link38.1		Node23.1.1	Link42.1	14.92	14.01
22.66	22.61	Circular				
22.73	Link46.1		Node19.1.1	Node23.1.1	8.000	8.000
22.73	22.66	Circular				
23.06	Link45.1		Node18.1.1	Node19.1.1	14.99	14.92
22.73	22.66	Circular				
23.06	Link39.1		Node34.1.1	Node18.1.1	16.32	15.99
22.73	22.73	Circular				
24.20	Link41		Node39	Node34	23.15	22.28
23.82	23.82	Natural				
19.21	Link48		Node35	Node31	11.49	11.48
19.20	19.20	Natural				
23.77	227.1		Node13	Node14	22.74	22.70
23.77	23.76	Circular				
23.21	231.1		Node15	Node16	21.20	21.16
23.21	23.21	Circular				
23.21	235.1		Node18	Node17	20.45	20.31
23.21	23.21	Circular				
23.03	239.1		Node20	Node19	19.71	19.43
23.03	23.20	Circular				
22.83	243.1		Node22	Node21	20.15	20.03
22.83	22.99	Circular				
22.64	247.1		Node24	Node23	19.87	19.45
22.64	22.73	Circular				
21.62	251.1		Node25	Node26	19.80	19.54
21.62	21.26	Circular				
19.99	255.1		Node27	Node40	18.80	16.27
19.99	19.17	Circular				

	324.1		Node40	Node28	12.51	12.49
19.17	19.17	Circular				
	Restrictor.1		Link42.1	Node40	12.51	12.50
22.11	19.17	Circ Orif				

```

*-----*
| Table E18 - Junction Continuity Error.  Division by Volume added 11/96 |
| Continuity Error = Net Flow + Beginning Volume - Ending Volume |
| ----- |
| Total Flow + (Beginning Volume + Ending Volume)/2 |
| |
| Net Flow = Node Inflow - Node Outflow |
| Total Flow = absolute (Inflow + Outflow) |
| Intermediate column is a judgement on the node continuity error. |
| |
| Excellent < 1 percent      Great 1 to 2 percent  Good 2 to 5 percent |
| Fair 5 to 10 percent      Poor 10 to 25 percent  Bad 25 to 50 percent |
| Terrible > 50 percent |
*-----*
    
```

Net Flow	Junction Total Flow	<-----Continuity Error ----->	Remaining	Beginning		
Thru Node	Thru Node	Failed to Converge	Volume	Volume		
		Volume				
		% of Node				
		% of Inflow				
-2.8944	Node13 81550.3941	-24.9355 65	-0.0306	0.0001	22.0411	0.0000
-9.0565	Node14 81553.2439	-21.1596 0	-0.0259	0.0001	12.1030	0.0000
12.3527	Node15 81541.6939	-16.2858 0	-0.0200	0.0001	28.6385	0.0000
22.5709	Node16 81497.1901	-3.4366 0	-0.0042	0.0000	26.0075	0.0000
2.1482	Node17 95667.8579	-11.0907 0	-0.0116	0.0001	13.2389	0.0000
	Node18	-85.9612	-0.0898	0.0005	43.5206	0.0000

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-42.4405	95693.7435	0				
	Node19	-225.7332	-0.0422	0.0013	58.5162	0.0000
-167.2171	535183.2279	0				
	Node20	-72.9721	-0.0136	0.0004	49.8577	0.0000
-23.1144	535305.8220	0				
	Node21	-107.8827	-0.0202	0.0006	34.1900	0.0000
-73.6927	535347.1960	0				
	Node22	-28.7427	-0.0054	0.0002	13.1261	0.0000
-15.6166	535408.0837	0				
	Node23	-120.5132	-0.0225	0.0007	25.1568	0.0000
-95.3564	535493.2917	0				
	Node24	40.7040	0.0076	0.0002	14.9081	0.0000
55.6121	535493.6411	0				
	Node25	-96.8234	-0.0181	0.0006	4.4124	0.0000
-92.4110	535498.7923	0				
	Node26	-17.5192	-0.0033	0.0001	7.1574	0.0000
-10.3618	535584.6718	0				
	Node27	74.3958	0.0139	0.0004	14.3599	0.0000
88.7558	535490.2677	1				
	Node28	-4281.5508	-0.0124	0.0248	21.1748	0.0000
-4260.3760	34504117.79	0				
	Node31	-2919.4631	-0.0087	0.0169	12.4544	0.0000
-2907.0087	33567264.55	0				
	Node33	-14775.2211	-0.0428	0.0857	26.8797	0.0000

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-14748.3414 34521588.83

0

Node34 49.1126 0.0601 0.0003 60.6515 0.0000
 109.7641 81663.7293 64

Node35 -593.2961 -0.0018 0.0034 0.3581 0.0000
 -592.9380 33566261.09 0

Node36 -32095.9342 -0.0929 0.1861 42.3854 0.0000
 -32053.5487 34566753.49 0

Node37 -6446.0091 -0.0186 0.0374 24.7699 0.0000
 -6421.2392 34603341.35 3

Node41 -72.1123 -0.0002 0.0004 0.4128 0.0000
 -71.6996 34607140.81 161

Link42.1 -1258.0832 -0.3185 0.0073 17.5784 0.0000
 -1240.5049 395027.0407 27

Node23.1.1 609.1248 0.1542 0.0035 328.9267 0.0000
 938.0515 394866.9832 34

Node19.1.1 26.3954 0.0067 0.0002 328.9224 0.0000
 355.3178 396466.7388 31

Node18.1.1 -286.5661 -0.0722 0.0017 0.0018 0.0000
 -286.5643 396712.6514 0

Node34.1.1 268.9074 0.1313 0.0016 0.0015 0.0000
 268.9089 204726.3401 0

Node39 -62.9180 -0.0769 0.0004 37.3991 0.0000
 -25.5189 81751.2079 0

Node40 -248.3384 -0.0267 0.0014 17.7642 0.0000

-230.5742 931812.7921

The total continuity error was -62804. cubic feet
 The remaining total volume was 1286.9 cubic feet
 Your mean node continuity error was Excellent
 Your worst node continuity error was Excellent

```

*=====
| Table E19 - Junction Inflow & Outflow Listing |
| Units are either ft^3 or m^3 |
| depending on the units in your model. |
*=====
    
```

Inflow through Outfall	RNF Layer Junction Inflow to Node	Constant Inflow from 2D Layer to Node	User Inflow to Node from Node	Interface Inflow Evaporation to Node from Node	DWF Inflow Basin to Node Infil.
0.0000	Node17 7104.0233	0.0000 0.0000	0.0000 0.0000	0.0000 0.0000	0.0000 0.00
0.0000	Node19 219642.8966	0.0000 0.0000	0.0000 0.0000	0.0000 0.0000	0.0000 0.00
0.0000	Node35 0.0000	0.0000 0.0000	16.7832E+06 0.0000	0.0000 0.0000	0.0000 0.00
0.0000	Node41 0.0000	0.0000 0.0000	0.0000 17.3029E+06	0.0000 0.0000	0.0000 0.00
0.0000	Node18.1.1 95990.8599	0.0000 0.0000	0.0000 0.0000	0.0000 0.0000	0.0000 0.00
0.0000	Node34.1.1 102492.0805	0.0000 0.0000	0.0000 0.0000	0.0000 0.0000	0.0000 0.00
0.0000	Node39 40860.0865	0.0000 0.0000	0.0000 0.0000	0.0000 0.0000	0.0000 0.00

```

*=====
| Table E20 - Junction Flooding and Volume Listing. |
|           The maximum volume is the total volume |
|           in the node including the volume in the |
|           flooded storage area. This is the max  |
|           volume at any time. The volume in the  |
|           flooded storage area is the total volume|
|           above the ground elevation, where the  |
|           flooded pond storage area starts.      |
| The fourth column is instantaneous, the fifth is the|
| sum of the flooded volume over the entire simulation|
| Units are either ft^3 or m^3 depending on the units. |
*=====
    
```

2D cell	Junction Name	Surcharged Time (min)	Flooded Time(min)	Out of 1D-System (Flooded Volume)	Maximum Volume	Passed to OR in Pond of
	Node13	0.000	0.000	0.000	13.0	0.000
	Node14	0.000	0.000	0.000	13.4	0.000
	Node15	0.000	0.000	0.000	25.3	0.000
	Node16	0.000	0.000	0.000	25.7	0.000
	Node17	0.000	0.000	0.000	36.5	0.000
	Node18	0.000	0.000	0.000	34.7	0.000
	Node19	0.000	0.000	0.000	47.4	0.000
	Node20	0.000	0.000	0.000	42.7	0.000
	Node21	0.000	0.000	0.000	41.5	0.000
	Node22	0.000	0.000	0.000	38.1	0.000
	Node23	0.000	0.000	0.000	41.2	0.000
	Node24	0.000	0.000	0.000	34.8	0.000
	Node25	0.000	0.000	0.000	25.8	0.000
	Node26	0.000	0.000	0.000	19.9	0.000
	Node27	0.000	0.000	0.000	22.3	0.000
	Node28	0.000	0.000	0.000	96.7	0.000
	Node31	0.000	0.000	0.000	97.1	0.000
	Node33	0.000	0.000	0.000	96.2	0.000
	Node34	0.000	0.000	0.000	19.4	0.000
	Node35	0.000	0.000	0.000	97.0	0.000
	Node36	0.000	0.000	0.000	126.	0.000

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Node37	0.000	0.000	0.000	132.	0.000
Node41	0.000	0.000	0.000	132.	0.000
Link42.1	255.	0.000	0.000	121.	0.000
Node23.1.1	164.	0.000	0.000	184.	0.000
Node19.1.1	164.	0.000	0.000	184.	0.000
Node18.1.1	157.	0.000	0.000	97.2	0.000
Node34.1.1	124.	0.000	0.000	84.7	0.000
Node39	0.000	0.000	0.000	13.1	0.000
Node40	0.000	0.000	0.000	83.8	0.000

*=====
 | Simulation Specific Information |
 =====

Number of Input Conduits..... 39	28	Number of Simulated Conduits.....
Number of Natural Channels..... 30	15	Number of Junctions.....
Number of Storage Junctions..... 9	0	Number of Weirs.....
Number of Orifices..... 0	1	Number of Pumps.....
Number of Free Outfalls..... 0	1	Number of Tide Gate Outfalls.....

*=====
 | Average % Change in Junction or Conduit is defined as: |
 | Conduit % Change ==> 100.0 (Q(n+1) - Q(n)) / Qfull |
 | Junction % Change ==> 100.0 (Y(n+1) - Y(n)) / Yfull |
 =====

The Conduit with the largest average change was.. Link42.1.1 with
 0.000 percent
 The Junction with the largest average change was. Node23.1.1 with
 0.077 percent
 The Conduit with the largest sinuosity was..... Link46.1 with
 141.950

*=====
 | Table E21. Continuity balance at the end of the simulation |
 | Junction Inflow, Outflow or Street Flooding |
 | Error = Inflow + Initial Volume - Outflow - Final Volume |
 =====

Inflow Junction	Inflow Volume,ft^3	Average Inflow, cfs
-----	-----	-----

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Node17	7104.6853	0.0411
Node19	219659.2206	1.2712
Node35	16783248.3029	97.1253
Node18.1.1	95999.2844	0.5556
Node34.1.1	102501.0611	0.5932
Node39	40863.3659	0.2365
Node41	-17302852.5894	-100.1322

Outflow Junction	Outflow Volume,ft^3	Average Outflow, cfs
-----	-----	-----
Node41	17302852.5894	100.1322

=====

| Initial system volume = 0.0000 Cu Ft |

| Total system inflow volume = 17.249297E+06 Cu Ft |

| Inflow + Initial volume = 17.249297E+06 Cu Ft |

=====

| Total system outflow = 17.302853E+06 Cu Ft |

| Volume left (Final volume) = 1286.9151 Cu Ft |

| Evaporation = 0.0000 Cu Ft |

| Basin Infiltration = 0.0000 Cu Ft |

| Outflow + Final Volume = 17.304140E+06 Cu Ft |

=====

```
*=====*
| Total Model Continuity Error |
| Error in Continuity, Percent = -0.3179 |
| Error in Continuity, ft^3 = -54842.384 |
| + Error means a continuity loss, - a gain |
*=====*
```


Table E22. Numerical Model judgement section #
#####

Overall error was (minimum of Table E18 & E21) -0.3179 percent

Worst nodal error was in node Node36 with -0.0929 percent

Of the total inflow this loss was 0.1861 percent

Your overall continuity error was Excellent

Poor Efficiency

Efficiency of the simulation 8.44

Most Number of Non Convergences at one Node 161.

Total Number Non Convergences at all Nodes 426.

Total Number of Nodes with Non Convergences 9.

```
#####  
# Table E23. New Basin Design Information #  
# Maximum Hydraulic Grade Line, #  
# Out Conduit Sizes and Maximum Flow #  
#####
```

- A) Resize d/s Pipes based on given HGL
- B) Resize Basin based on given HGL

Coupland_Prop5yr_NoImpact.out

- C) Resize d/s Pipes and Basin based on HGL and max discharge
- D) Resize d/s pipes based on given max discharge

Basin Name	Type	Max.HGL	Conduit	Depth	Width
Barrels	Max.Flow	(ft)		(ft)	(ft)
(ft ³ /s)					

====> Hydraulic model simulation ended normally.
 ====> XP-SWMM Simulation ended normally.

====> Your input file was named : D:\cfa\2016\12024.Coupland_Paving_and Drainage\ENG\H&H\SWMM\Coupland_Prop5yr_NoImpact.DAT

====> Your output file was named : D:\cfa\2016\12024.Coupland_Paving_and Drainage\ENG\H&H\SWMM\Coupland_Prop5yr_NoImpact.out

```

*=====
|                SWMM Simulation Date and Time Summary                |
*=====
| Starting Date... July          17, 2017  Time...  16:31:45.646  |
| Ending Date...  July          17, 2017  Time...  16:32:13.128  |
| Elapsed Time...   0.44948 minutes or    26.96875 seconds  |
*=====

```

Coupland_Prop10yr_NoImpact.out
Current Directory: C:\PROGRA~2\XPSOLU~1\XPSTOR~1.1
Engine Name: C:\PROGRA~2\XPSOLU~1\XPSTOR~1.1\SWMMEN~2.EXE

Input File : nd_Paving_and Drainage\ENG\H&H\SWMM\Coupland_Prop10yr_NoImpact.XP

```
*=====*
```

```
|                                     |
```

```
|                xpswmm                |
```

```
|      Storm and Wastewater Management Model      |
```

```
|      Developed by XP Solutions Inc.              |
```

```
|=====|
```

```
| Last Update       : October, 2015              |
```

```
| Interface Version : 2016                        |
```

```
| Engine Version    : 12.0                        |
```

```
| Data File Version : 12.62                       |
```

```
|                                     |
```

```
*=====*
```

Engine Name: C:\PROGRA~2\XPSOLU~1\XPSTOR~1.1\SWMMEN~2.EXE

```
*=====*
```

```
|      Input and Output file names by Layer      |
```

```
*=====*
```

Input File to Layer # 1 JOT.US

Output File to Layer # 1 JOT.US

Input File to Layer # 2 JOT.US

Output File to Layer # 2 JOT.US

```

=====
Configuration Parameters
Configuration Parameters, both those that are hardwired
and those added to the simulation are listed below.
Configuration Parameters that start with a $ are set in
the engine as defaults. The remaining in UPPERCASE
have been added to the simulation in the Configuration->
Configuration Parameters dialog or as Engine Defaults in
the SWMXP.INI file.

Consult the Help File for the specific meaning/purpose
of any particular parameter.

Note:
The second column denotes the value of the parameter.
=====

```

\$powerstation	0.0000	1	2
\$perv	0.0000	0	4
\$oldegg	0.0000	0	7
\$as	0.0000	0	11
\$noflat	0.0000	0	21
\$oldomega	0.0000	0	24
\$oldvol	0.0000	1	28
\$implicit	0.0000	1	29
\$oldhot	0.0000	1	31
\$oldscs	0.0000	0	33
\$flood	0.0000	1	40
\$nokeys	0.0000	0	42
\$pzero	0.0000	0	55
\$oldvol2	0.0000	2	59
\$storage2	0.0000	3	62
\$oldhot1	0.0000	1	63
\$pumpwt	0.0000	1	70
\$ecloss	0.0000	1	77
\$exout	0.0000	0	97
\$spatial = 0.90	0.9000	5	124
\$djref = -1.0	-0.1000	3	143
\$weirlen = 50	50.0000	1	153
\$oldbnd	0.0000	1	154
\$nogrelev	0.0000	1	161
\$ncmid	0.0000	0	164
\$new_n1_97	0.0000	2	290
SCSIADDEPTH=ON	0.0000	1	293
\$best97	0.0000	1	294

Coupland_Prop10yr_NoImpact.out

\$newbound	0.0000	1	295
\$q_tol = 0.01	0.0001	1	316
\$new_storage	0.0000	1	322
\$old_iteration	0.0000	1	333
MINLEN=10	10.0000	1	346
\$review_elevation	0.0000	1	383
\$use_half_volume	0.0000	1	385
VERT_WALLS=ON	0.0000	1	389
\$min_ts = 1.0	1.0000	1	407
\$design_restart = on	0.0000	1	412
\$zero_value=1.e-05	0.0000	1	415
SUBCATCHMENT_RES=ON	0.0000	1	419
\$relax_depth = on	0.0000	1	427
\$saveallpts = on	0.0000	1	434
\$channel_geometry=1	0.0000	1	456

```

*=====
|   All object names are less than 20 characters.   |
|   No name substitutions required!                 |
*=====
    
```

```

*=====
| Parameter Values on the Tapes Common Block. These are the |
| values read from the data file and dynamically allocated |
| by the model for this simulation.                       |
*=====
    
```

Number of Subcatchments in the Runoff Block (NW)....	5
Number of Channel/Pipes in the Runoff Block (NG)....	0
Runoff Water quality constituents (NRQ).....	0
Runoff Land Uses per Subcatchment (NLU).....	0
Number of Elements in the Transport Block (NET).....	0
Number of Storage Junctions in Transport (NTSE).....	0
Number of Input Hydrographs in Transport (NTH).....	0
Number of Elements in the Extran Block (NEE).....	39
Number of Groundwater Subcatchments in Runoff (NGW).	0
Number of Interface locations for all Blocks (NIE)..	39
Number of Pumps in Extran (NEP).....	0
Number of Orifices in Extran (NEO).....	1
Number of Tide Gates/Free Outfalls in Extran (NTG)..	1
Number of Extran Weirs (NEW).....	9
Number of scs hydrograph points.....	3457
Number of Extran printout locations (NPO).....	0
Number of Tide elements in Extran (NTE).....	1
Number of Natural channels (NNC).....	15
Number of Storage junctions in Extran (NVSE).....	0
Number of Time history data points in Extran(NTVAL).	0

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Number of Variable storage elements in Extran (NVST)	0
Number of Input Hydrographs in Extran (NEH).....	1
Number of Particle sizes in Transport Block (NPS)...	0
Number of User defined conduits (NHW).....	5
Number of Connecting conduits in Extran (NECC).....	20
Number of Upstream elements in Transport (NTCC).....	10
Number of Storage/treatment plants (NSTU).....	1
Number of Values for R1 lines in Transport (NR1)...	0
Number of Nodes to be allowed for (NNOD).....	39
Number of Plugs in a Storage Treatment Unit.....	1

```
#####
#   Entry made to the Runoff Layer(Block) of SWMM   #
#   Last Updated June, 2014 by XP Solutions         #
```

```
*=====*
```

RUNOFF TABLES IN THE OUTPUT FILE.	
These are the more important tables in the output file.	
You can use your editor to find the table numbers,	
for example: search for Table R3 to check continuity.	
This output file can be imported into a Word Processor	
and printed on US letter or A4 paper using portrait	
mode, courier font, a size of 8 pt. and margins of 0.75	
Table R1	- Physical Hydrology Data
Table R2	- Infiltration data
Table R3	- Raingage and Infiltration Database Names
Table R4	- Groundwater Data
Table R5	- Continuity Check for Surface Water
Table R6	- Continuity Check for Channels/Pipes
Table R7	- Continuity Check for Subsurface Water
Table R8	- Infiltration/Inflow Continuity Check
Table R9	- Summary Statistics for Subcatchments
Table R10	- Sensitivity anlysis for Subcatchments

```
*=====*
```

A1

```
#####
#   RUNOFF JOB CONTROL   #
#####
```

Snowmelt parameter - ISNOW.....	0
Number of rain gages - NRGAG.....	1
Quality is not simulated - KWALTY.....	0

Coupland_Prop10yr_NoImpact.out

```

Default evaporation rate used - IVAP..... 0
Hour of day at start of storm - NHR..... 0
Minute of hour at start of storm - NMN..... 0
Time TZERO at start of storm (hours)..... 0.000
Use U.S. Customary units for most I/O - METRIC... 0
Runoff input print control... 0
Runoff graph plot control.... 0
Runoff output print control.. 0
Limit number of groundwater convergence messages to 10000

Print headers every 50 lines - NOHEAD (0=yes, 1=no) 0

Print land use load percentages -LANDUPR (0=no, 1=yes) 0
Month, day, year of start of storm is: 1/ 1/2016
Wet time step length (seconds)..... 60.0
Dry time step length (seconds)..... 86400.0
Wet/Dry time step length (seconds)... 60.0
Simulation length is..... 48.0 Hours

```

```

If Horton infiltration model is being used
A mixture of infiltration options may be used in
XP-SWMM as a watershed specific option.
Rate for regeneration of infiltration = REGEN * DECAY
Decay is read in for each subcatchment
REGEN = ..... 0.01000

```

```

Raingage #..... 1
KTYPE - Rainfall input type..... 0
NHISTO - Total number of rainfall values.. 898
KINC - Rainfall values(pairs) per line.. 10
KPRINT - Print rainfall(0-Yes,1-No)..... 0
KTIME - Precipitation time units
0 --> Minutes 1 --> Hours..... 0
KPREP - Precipitation unit type
0 --> Intensity 1 --> Volume..... 1
KTHIS - Variable rainfall intervals
0 --> No, >= 1 --> Yes..... 0
THISTO - Rainfall time interval..... 5.00
TZRAIN - Starting time(KTIME units)..... 0.00

```

```

#####
# Rainfall input summary from Runoff #
#####

```

Total rainfall for gage # 1 is 7.7600 inches

Coupland_Prop10yr_NoImpact.out

 # Data Group F1 #
 # Evaporation Rate (in/day) #
 #####

JAN.	FEB.	MAR.	APR.	MAY	JUN.	JUL.	AUG.	SEP.	OCT.	NOV	DEC.
0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.100

 # Table R1. S U B C A T C H M E N T D A T A #
 # Physical Hydrology Data #
 #####

"n" Number	Subcatchment "n"	Deprs	Deprs	Prct	Channel or inlet	Width (ft)	Area (ac)	Per-cent	Slope
1	Node34.1.1#1	0.014	0.030	0.000	Node34.1.1	44.300	5.2000	67.00	0.002
2	Node18.1.1#1	0.014	0.030	0.000	Node18.1.1	41.600	4.8700	67.00	0.002
3	Node39#1	0.014	0.030	0.000	Node39	16.000	2.2700	50.00	0.002
4	Node17#1	0.014	0.030	0.000	Node17	3.4000	.36000	67.00	0.002
5	Node19#1	0.014	0.030	0.000	Node19	76.500	12.240	50.00	0.002

 # Table R2. SUBCATCHMENT DATA #
 # Infiltration or Time of Concentration Data #
 # #
 # Infiltration Type Infl #1(#5) Infl #2(#6) Infl #3(#7)
 Infl #4(#8) #
 # SCS -> Comp CN Time Conc Shape Factor

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```

Depth or Fraction #
# SBUH          ->  Comp CN          Time Conc          N/A
          N/A #
# Green Ampt    ->  Suction          Hydr Cond          Initial MD
          N/A #
# Horton        ->  Max Rate          Min Rate          Decay Rate (1/sec)
Max. Infiltr. Volume #
# Proportional ->  Constant          N/A          N/A
          N/A #
# Initial/Cont Loss ->  Initial          Continuing          N/A
          N/A #
# Initial/Proportional ->  Initial          Constant          N/A
          N/A #
# Laurenson Parameters ->  B Value          Pervious "n"          Impervious Cont
          Exponent #
# Rational Formula ->  Tc Method          Flow Path Length          Flow Path Slope
Roughness or Retardance #
#
#              (#1 - #4 is Impervious Data / #5 - #8 is Pervious
Data)          #
#              Rational Formula Tc Method: 1 = Constant
#              #
#              2 = Friend's Equation
#              #
#              3 = Kinematic Wave
#              #
#              4 = Alameda Method
#              #
#              5 = Izzard's Formula
#              #
#              6 = Kerby's Equation
#              #
#              7 = Kirpich's Equation
#              #
#              8 = Bransby Williams Equation
#              #
#              9 = Federal Aviation Authority
Equation          #

```


#####

Infl	Subcatchment	Infl	Infl	Infl	Infl	Infl	
Number	Infl	Infl	# 1	# 2	# 3	# 4	# 5
6	# 7	# 8					#
1	Node34.1.1#1		12.450	0.024	0.385		
2	Node18.1.1#1		12.450	0.024	0.385		

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3	Node39#1	12.450	0.024	0.385
4	Node17#1	12.450	0.024	0.385
5	Node19#1	12.450	0.024	0.385

```
#####
# Table R3. SUBCATCHMENT DATA #
# Rainfall and Infiltration Database Names #
#####
```

Subcatchment Number	Name	Gage No	Infiltration Type	Routing Type
1	Node34.1.1#1	1	Green Ampt	Non-linear reservoir
2	Node18.1.1#1	1	Green Ampt	Non-linear reservoir
3	Node39#1	1	Green Ampt	Non-linear reservoir
4	Node17#1	1	Green Ampt	Non-linear reservoir
5	Node19#1	1	Green Ampt	Non-linear reservoir

```
Total Number of Subcatchments... 5
Total Tributary Area (acres).... 24.94
Impervious Area (acres)..... 14.24
Pervious Area (acres)..... 10.70
Total Width (feet)..... 181.80
Impervious Area (%)..... 57.11
```

```
#####
# SUBCATCHMENT DATA #
# Default, Ratio values for subcatchment data #
# Used with the calibrate node in the runoff. #
# 1 - width 2 - area 3 - impervious % #
# 4 - slope 5 - imp "n" 6 - perv "n" #
# 7 - imp ds 8 - perv ds 9 - 1st infil #
#10 - 2nd infil 11 - 3rd infil #
#####
```

Column	1	2	3	4	5	6	7
8	9	10	11				
Default	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
0.0000	0.0000	0.0000	0.0000				
Ratio	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
1.0000	1.0000	1.0000	1.0000				

```
*****
* Arrangement of Subcatchments and Channel/Pipes *
*****
```

Coupland_Prop10yr_NoImpact.out

```

Inlet
Node34.1.1      No Tributary Channel/Pipes
                 Tributary Subareas..... Node34.1.1#1
Node18.1.1      No Tributary Channel/Pipes
                 Tributary Subareas..... Node18.1.1#1
Node39          No Tributary Channel/Pipes
                 Tributary Subareas..... Node39#1
Node17          No Tributary Channel/Pipes
                 Tributary Subareas..... Node17#1
Node19          No Tributary Channel/Pipes
                 Tributary Subareas..... Node19#1

```

```

*****
* Hydrographs will be stored for the following 5 INLETS *
*****
Node34.1.1      Node18.1.1      Node39
Node17          Node19

```

```

*****
* Quality Simulation not included in this run *
*****

```

```

*****
* Precipitation Interface File Summary *
* Number of precipitation station... 1 *
*****

```

```

Location Station Number
-----
          1.          1

```

XXX End of Header Section XXX

```

#####
# Entry made to the HYDRAULIC Layer of XP-SWMM #
# Last Updated in June, 2014 by XP Solutions #

```

```

#####
# Entry made to the Runoff Layer(Block) of SWMM #
# Last Updated June, 2014 by XP Solutions #

```

=====

Coupland_Prop10yr_NoImpact.out

RUNOFF TABLES IN THE OUTPUT FILE.

These are the more important tables in the output file. You can use your editor to find the table numbers, for example: search for Table R3 to check continuity. This output file can be imported into a Word Processor and printed on US letter or A4 paper using portrait mode, courier font, a size of 8 pt. and margins of 0.75

- Table R1 - Physical Hydrology Data
- Table R2 - Infiltration data
- Table R3 - Raingage and Infiltration Database Names
- Table R4 - Groundwater Data
- Table R5 - Continuity Check for Surface Water
- Table R6 - Continuity Check for Channels/Pipes
- Table R7 - Continuity Check for Subsurface Water
- Table R8 - Infiltration/Inflow Continuity Check
- Table R9 - Summary Statistics for Subcatchments
- Table R10 - Sensitivity anlysis for Subcatchments

=====

A1

 # RUNOFF JOB CONTROL #
 #####

Snowmelt parameter - ISNOW.....	0
Number of rain gages - NRGAG.....	1
Quality is not simulated - KWALTY.....	0
Default evaporation rate used - IVAP.....	0
Hour of day at start of storm - NHR.....	0
Minute of hour at start of storm - NMN.....	0
Time TZERO at start of storm (hours).....	0.000
Use U.S. Customary units for most I/O - METRIC...	0
Runoff input print control...	0
Runoff graph plot control....	0
Runoff output print control..	0
Limit number of groundwater convergence messages to	10000
Print headers every 50 lines - NOHEAD (0=yes, 1=no)	0
Print land use load percentages -LANDUPR (0=no, 1=yes)	0
Month, day, year of start of storm is:	1/ 1/2016
Wet time step length (seconds).....	60.0
Dry time step length (seconds).....	86400.0
Wet/Dry time step length (seconds)...	60.0

Simulation length is.....

48.0 Hours

If Horton infiltration model is being used

A mixture of infiltration options may be used in XP-SWMM as a watershed specific option.

Rate for regeneration of infiltration = REGEN * DECAY

Decay is read in for each subcatchment

REGEN = 0.01000

Raingage #..... 1
 KTYPE - Rainfall input type..... 0
 NHISTO - Total number of rainfall values.. 898
 KINC - Rainfall values(pairs) per line.. 10
 KPRINT - Print rainfall(0-Yes,1-No)..... 0
 KTIME - Precipitation time units
 0 --> Minutes 1 --> Hours..... 0
 KPREP - Precipitation unit type
 0 --> Intensity 1 --> Volume..... 1
 KTHIS - Variable rainfall intervals
 0 --> No, >= 1 --> Yes..... 0
 THISTO - Rainfall time interval..... 5.00
 TZRAIN - Starting time(KTIME units)..... 0.00

 # Rainfall input summary from Runoff #
 #####

Total rainfall for gage # 1 is 7.7600 inches

 # Data Group F1 #
 # Evaporation Rate (in/day) #
 #####

JAN.	FEB.	MAR.	APR.	MAY	JUN.	JUL.	AUG.	SEP.	OCT.	NOV	DEC.
0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.100

 # Table R1. S U B C A T C H M E N T D A T A #
 # Physical Hydrology Data #
 #####

Deprs Deprs Prcnt

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							Per-		
-sion -sion Zero							cent	Slope	
"n"	"n"	Subcatchment	Channel	Width	Area	cent	Slope		
Number	Storage	Strge Deten	or inlet	(ft)	(ac)	Imperv	ft/ft		
Imprv	Perv	Imprv	Perv	-tion					
1	Node34.1.1#1	Node34.1.1	44.300	5.2000	67.00	0.002			
0.014	0.030	0.000	0.000	25.00					
2	Node18.1.1#1	Node18.1.1	41.600	4.8700	67.00	0.002			
0.014	0.030	0.000	0.000	25.00					
3	Node39#1	Node39	16.000	2.2700	50.00	0.002			
0.014	0.030	0.000	0.000	25.00					
4	Node17#1	Node17	3.4000	.36000	67.00	0.002			
0.014	0.030	0.000	0.000	25.00					
5	Node19#1	Node19	76.500	12.240	50.00	0.002			
0.014	0.030	0.000	0.000	25.00					

#####

```

# Table R2. SUBCATCHMENT DATA
#
# Infiltration or Time of Concentration Data
#
#
# Infiltration Type Infl #1(#5) Infl #2(#6) Infl #3(#7)
# Infl #4(#8) #
# SCS -> Comp CN Time Conc Shape Factor
# SBUH -> Comp CN Time Conc N/A
# Green Ampt N/A # -> Suction Hydr Cond Initial MD
# Horton N/A # -> Max Rate Min Rate Decay Rate (1/sec)
# Proportional -> Constant N/A N/A
# Initial/Cont Loss -> Initial Continuing N/A
# Initial/Proportional -> Initial Constant N/A
# Laurenson Parameters -> B Value Pervious "n" Impervious Cont
# Exponent #
# Rational Formula -> Tc Method Flow Path Length Flow Path Slope
# Roughness or Retardance #
    
```

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(#1 - #4 is Impervious Data / #5 - #8 is Pervious

```
#
Data)      #
#          # Rational Formula Tc Method: 1 = Constant
#          #
#          # 2 = Friend's Equation
#          #
#          # 3 = Kinematic Wave
#          #
#          # 4 = Alameda Method
#          #
#          # 5 = Izzard's Formula
#          #
#          # 6 = Kerby's Equation
#          #
#          # 7 = Kirpich's Equation
#          #
#          # 8 = Bransby Williams Equation
#          #
#          # 9 = Federal Aviation Authority
Equation   #
```


#####

Subcatchment	Infl	Infl	Infl	Infl	Infl			
Infl	Infl	Infl	# 1	# 2	# 3	# 4	# 5	#
Number	Name							
6	# 7	# 8						
1	Node34.1.1#1		12.450	0.024	0.385			
2	Node18.1.1#1		12.450	0.024	0.385			
3	Node39#1		12.450	0.024	0.385			
4	Node17#1		12.450	0.024	0.385			
5	Node19#1		12.450	0.024	0.385			

Table R3. SUBCATCHMENT DATA #
Rainfall and Infiltration Database Names #
#####

Subcatchment	Gage	Infiltration	Routing
Number	No	Type	Type
1	1	Green Ampt	Non-linear reservoir
2	1	Green Ampt	Non-linear reservoir
3	1	Green Ampt	Non-linear reservoir
4	1	Green Ampt	Non-linear reservoir

5 Node19#1 1 Green Ampt Non-linear reservoir

Total Number of Subcatchments... 5
 Total Tributary Area (acres)... 24.94
 Impervious Area (acres)..... 14.24
 Pervious Area (acres)..... 10.70
 Total Width (feet)..... 181.80
 Impervious Area (%)..... 57.11

```
#####
#           S U B C A T C H M E N T   D A T A           #
#   Default, Ratio values for subcatchment data       #
#   Used with the calibrate node in the runoff.       #
# 1 - width      2 - area      3 - impervious %       #
# 4 - slope      5 - imp "n"   6 - perv "n"          #
# 7 - imp ds     8 - perv ds   9 - 1st infil         #
#10 - 2nd infil          11 - 3rd infil              #
#####
```

Column	1	2	3	4	5	6	7
8	9	10	11				
Default	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
0.0000	0.0000	0.0000	0.0000				
Ratio	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
1.0000	1.0000	1.0000	1.0000				

```
*****
*   Arrangement of Subcatchments and Channel/Pipes   *
*****
```

```

Inlet
Node34.1.1      No Tributary Channel/Pipes
                 Tributary Subareas..... Node34.1.1#1
Node18.1.1      No Tributary Channel/Pipes
                 Tributary Subareas..... Node18.1.1#1
Node39          No Tributary Channel/Pipes
                 Tributary Subareas..... Node39#1
Node17          No Tributary Channel/Pipes
                 Tributary Subareas..... Node17#1
Node19          No Tributary Channel/Pipes
                 Tributary Subareas..... Node19#1
```

```
*****
* Hydrographs will be stored for the following 5 INLETS *
*****
```

Node34.1.1
Node17

Node18.1.1
Node19

Node39

* Quality Simulation not included in this run *

* Precipitation Interface File Summary *
* Number of precipitation station.... 1 *

Location Station Number

1. 1

A1

| HYDRAULICS TABLES IN THE OUTPUT FILE |
| These are the more important tables in the output file. |
| You can use your editor to find the table numbers, |
| for example: search for Table E20 to check continuity. |
| This output file can be imported into a Word Processor |
| and printed on US letter or A4 paper using portrait |
| mode, courier font, a size of 8 pt. and margins of 0.75 |
| Table E1 - Basic Conduit Data |
| Table E2 - Conduit Factor Data |
| Table E3a - Junction Data |
| Table E3b - Junction Data |
| Table E4 - Conduit Connectivity Data |
| Table E4a - Dry Weather Flow Data |
| Table E4b - Real Time Control Data |
| Table E5 - Junction Time Step Limitation Summary |
| Table E5a - Conduit Explicit Condition Summary |
| Table E6 - Final Model Condition |
| Table E7 - Iteration Summary |
| Table E8 - Junction Time Step Limitation Summary |

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	Table E9	- Junction Summary Statistics	
	Table E10	- Conduit Summary Statistics	
	Table E11	- Area assumptions used in the analysis	
	Table E12	- Mean conduit information	
	Table E13	- Channel losses(H) and culvert info	
	Table E13a	- Culvert Analysis Classification	
	Table E14	- Natural Channel Overbank Flow Information	
	Table E14a	- Natural Channel Encroachment Information	
	Table E14b	- Floodplain Mapping	
	Table E15	- Spreadsheet Info List	
	Table E15a	- Spreadsheet Reach List	
	Table E16	- New Conduit Output Section	
	Table E17	- Pump Operation	
	Table E18	- Junction Continuity Error	
	Table E19	- Junction Inflow & Outflow Listing	
	Table E20	- Junction Flooding and Volume List	
	Table E21	- Continuity balance at simulation end	
	Table E22	- Model Judgement Section	

=====

Time Control from Hydraulics Job Control

Year.....	2014 Month.....	1
Day.....	1 Hour.....	0
Minute.....	0 Second.....	0

Control information for simulation

Integration cycles.....	960
Length of integration step is.....	180.00 seconds
Simulation length.....	48.00 hours
Do not create equiv. pipes(NEQUAL).	0
Use U.S. customary units for I/O...	0
Printing starts in cycle.....	1
Intermediate printout intervals of.	500 cycles
Intermediate printout intervals of.	1500.00 minutes
Summary printout intervals of.....	500 cycles
Summary printout time interval of..	1500.00 minutes
Hot start file parameter (REDO)....	0
Initial time.....	0.00 hours

Iteration variables: Flow Tolerance.	0.00010
Head Tolerance.	0.00050
Minimum depth (m or ft).....	0.00001
Underrelaxation parameter.....	0.85000
Time weighting parameter.....	0.85000
Conduit roughness factor.....	1.00000

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Flow adjustment factor..... 1.00000
 Initial Condition Smoothing..... 0
 Courant Time Step Factor..... 1.00000
 Default Expansion/Contraction K. 0.00000
 Default Entrance/Exit K..... 0.00000
 Routing Method..... Dynamic Wave
 Default surface area of junctions... 12.57 square feet.
 Minimum Junction/Conduit Depth..... 0.00001 feet.
 Ponding Area Coefficient..... 5000.00
 Ponding Area Exponent..... 1.0000
 Minimum Orifice Length..... 1000.00 feet.
 NJSW input hydrograph junctions..... 1
 or user defined hydrographs....

Natural Cross-Section information for Channel Link14

=====

Cross-Section ID (from X1 card) : 1.0 Channel sequence number : 1

Left Overbank Length : 68.4 ft Maximum Elevation :
 25.09 ft.
 Main Channel Length : 68.4 ft Maximum Depth :
 4.82 ft.
 Right Overbank Length : 68.4 ft Maximum Section Area :
 78.2500 ft^2 Maximum hydraulic radius :
 1.63 ft.
 Manning N : 0.040 to Station 5.0 Max topwidth :
 45.00 ft.
 " " : 0.040 in main Channel Maximum Wetted Perimeter :
 4.80E+01 ft
 " " : 0.015 Beyond station 25.0 Max left bank area :
 9.80 ft^2 Max right bank area :
 6.02 ft^2 Max center channel area :
 Allowable Encroachment Depth : 0.00 ft
 62.4250 ft^2

Natural Cross-Section information for Channel Link16

=====

Cross-Section ID (from X1 card) : 2.0 Channel sequence number : 2

Left Overbank Length : 22.9 ft Maximum Elevation :
 25.09 ft.
 Main Channel Length : 22.9 ft Maximum Depth :
 4.82 ft.
 Right Overbank Length : 22.9 ft Maximum Section Area :
 78.2500 ft^2 Maximum hydraulic radius :

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1.63 ft.
Manning N : 0.040 to Station 5.0 Max topwidth :
45.00 ft.
" " : 0.040 in main Channel Maximum Wetted Perimeter :
4.80E+01 ft
" " : 0.015 Beyond station 25.0 Max left bank area :
9.80 ft^2
Max right bank area :
6.02 ft^2
Allowable Encroachment Depth : 0.00 ft Max center channel area :
62.4250 ft^2

Natural Cross-Section information for Channel Link18

=====

Cross-Section ID (from X1 card) : 3.0 Channel sequence number : 3

Left Overbank Length : 243.1 ft Maximum Elevation :
25.09 ft.
Main Channel Length : 243.1 ft Maximum Depth :
4.82 ft.
Right Overbank Length : 243.1 ft Maximum Section Area :
78.2500 ft^2
Maximum hydraulic radius :
1.63 ft.
Manning N : 0.040 to Station 5.0 Max topwidth :
45.00 ft.
" " : 0.040 in main Channel Maximum Wetted Perimeter :
4.80E+01 ft
" " : 0.015 Beyond station 25.0 Max left bank area :
9.80 ft^2
Max right bank area :
6.02 ft^2
Allowable Encroachment Depth : 0.00 ft Max center channel area :
62.4250 ft^2

Natural Cross-Section information for Channel Link20

=====

Cross-Section ID (from X1 card) : 4.0 Channel sequence number : 4

Left Overbank Length : 117.5 ft Maximum Elevation :
25.20 ft.
Main Channel Length : 117.5 ft Maximum Depth :
5.02 ft.
Right Overbank Length : 117.5 ft Maximum Section Area :
85.7750 ft^2
Maximum hydraulic radius :
2.00 ft.
Manning N : 0.040 to Station 5.0 Max topwidth :

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40.00 ft.
 " " : 0.040 in main Channel Maximum Wetted Perimeter :
 4.28E+01 ft
 " " : 0.015 Beyond station 25.0 Max left bank area :
 10.40 ft^2
 Max right bank area :
 5.38 ft^2
 Allowable Encroachment Depth : 0.00 ft Max center channel area :
 70.0000 ft^2

Natural Cross-Section information for Channel Link22

=====

Cross-Section ID (from X1 card) : 5.0 Channel sequence number : 5

Left Overbank Length : 282.4 ft Maximum Elevation :
 25.00 ft.
 Main Channel Length : 282.4 ft Maximum Depth :
 5.35 ft.
 Right Overbank Length : 282.4 ft Maximum Section Area :
 128.5750 ft^2
 Maximum hydraulic radius :
 2.43 ft.
 Manning N : 0.040 to Station 5.0 Max topwidth :
 50.00 ft.
 " " : 0.040 in main Channel Maximum Wetted Perimeter :
 5.30E+01 ft
 " " : 0.015 Beyond station 35.0 Max left bank area :
 10.10 ft^2
 Max right bank area :
 8.50 ft^2
 Allowable Encroachment Depth : 0.00 ft Max center channel area :
 109.9750 ft^2

Natural Cross-Section information for Channel Link24

=====

Cross-Section ID (from X1 card) : 6.0 Channel sequence number : 6

Left Overbank Length : 280.1 ft Maximum Elevation :
 25.00 ft.
 Main Channel Length : 280.1 ft Maximum Depth :
 6.11 ft.
 Right Overbank Length : 280.1 ft Maximum Section Area :
 112.8500 ft^2
 Maximum hydraulic radius :
 2.32 ft.
 Manning N : 0.040 to Station 10.0 Max topwidth :
 45.00 ft.
 " " : 0.040 in main Channel Maximum Wetted Perimeter :

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4.86E+01 ft
" " : 0.015 Beyond station 30.0 Max left bank area :
21.17 ft^2
Max right bank area :
12.10 ft^2
Allowable Encroachment Depth : 0.00 ft Max center channel area :
79.5750 ft^2

Natural Cross-Section information for Channel Link26

=====

Cross-Section ID (from X1 card) : 7.0 Channel sequence number : 7

Left Overbank Length : 38.8 ft Maximum Elevation :
25.00 ft.
Main Channel Length : 38.8 ft Maximum Depth :
6.39 ft.
Right Overbank Length : 38.8 ft Maximum Section Area :
123.8687 ft^2
Maximum hydraulic radius :
3.11 ft.
Manning N : 0.040 to Station 5.6 Max topwidth :
35.57 ft.
" " : 0.040 in main Channel Maximum Wetted Perimeter :
3.98E+01 ft
" " : 0.015 Beyond station 25.4 Max left bank area :
17.71 ft^2
Max right bank area :
14.63 ft^2
Allowable Encroachment Depth : 0.00 ft Max center channel area :
91.5279 ft^2

Natural Cross-Section information for Channel Link31

=====

Cross-Section ID (from X1 card) : 8.0 Channel sequence number : 8

Left Overbank Length : 240.3 ft Maximum Elevation :
27.85 ft.
Main Channel Length : 199.7 ft Maximum Depth :
16.36 ft.
Right Overbank Length : 181.6 ft Maximum Section Area :
28065.25 ft^2
Maximum hydraulic radius :
3.71 ft.
Manning N : 0.070 to Station 4659.6 Max topwidth :
7554.14 ft.
" " : 0.032 in main Channel Maximum Wetted Perimeter :
7.56E+03 ft
" " : 0.070 Beyond station 4835.3 Max left bank area :
Max right bank area :
Max center channel area :

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19000.27 ft^2

Max right bank area :

7493.03 ft^2

Allowable Encroachment Depth : 0.00 ft

Max center channel area :

1571.950 ft^2

Natural Cross-Section information for Channel Link33

=====

Cross-Section ID (from X1 card) : 9.0 Channel sequence number : 9

Left Overbank Length : 169.1 ft Maximum Elevation :
29.46 ft.

Main Channel Length : 192.7 ft Maximum Depth :
17.97 ft.

Right Overbank Length : 192.5 ft Maximum Section Area :
30196.69 ft^2

Maximum hydraulic radius :
4.88 ft.

Manning N : 0.070 to Station 3428.2 Max topwidth :
6181.63 ft.

" " : 0.032 in main Channel Maximum Wetted Perimeter :
6.19E+03 ft

" " : 0.070 Beyond station 3547.3 Max left bank area :
17628.50 ft^2

Max right bank area :

11171.67 ft^2

Allowable Encroachment Depth : 0.00 ft

Max center channel area :

1396.517 ft^2

Natural Cross-Section information for Channel Link34

=====

Cross-Section ID (from X1 card) : 10.0 Channel sequence number : 10

Left Overbank Length : 49.2 ft Maximum Elevation :
25.09 ft.

Main Channel Length : 49.2 ft Maximum Depth :
4.82 ft.

Right Overbank Length : 49.2 ft Maximum Section Area :
78.2500 ft^2

Maximum hydraulic radius :
1.63 ft.

Manning N : 0.040 to Station 5.0 Max topwidth :
45.00 ft.

" " : 0.040 in main Channel Maximum Wetted Perimeter :
4.80E+01 ft

" " : 0.015 Beyond station 25.0 Max left bank area :
9.80 ft^2

Max right bank area :

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6.02 ft²
 Allowable Encroachment Depth : 0.00 ft Max center channel area :
 62.4250 ft²

Natural Cross-Section information for Channel Link36

=====

Cross-Section ID (from X1 card) : 11.0 Channel sequence number : 11

Left Overbank Length : 492.1 ft Maximum Elevation :
 29.46 ft.
 Main Channel Length : 499.4 ft Maximum Depth :
 17.97 ft.
 Right Overbank Length : 512.7 ft Maximum Section Area :
 30714.99 ft² Maximum hydraulic radius :
 4.83 ft.
 Manning N : 0.070 to Station 3592.7 Max topwidth :
 6305.50 ft.
 " " : 0.032 in main Channel Maximum Wetted Perimeter :
 6.36E+03 ft
 " " : 0.070 Beyond station 3741.1 Max left bank area :
 18443.26 ft² Max right bank area :
 10717.92 ft²
 Allowable Encroachment Depth : 0.00 ft Max center channel area :
 1553.814 ft²

Natural Cross-Section information for Channel Link37

=====

Cross-Section ID (from X1 card) : 12.0 Channel sequence number : 12

Left Overbank Length : 740.0 ft Maximum Elevation :
 28.05 ft.
 Main Channel Length : 745.4 ft Maximum Depth :
 19.03 ft.
 Right Overbank Length : 747.9 ft Maximum Section Area :
 27584.49 ft² Maximum hydraulic radius :
 3.59 ft.
 Manning N : 0.070 to Station 4926.5 Max topwidth :
 7672.71 ft.
 " " : 0.032 in main Channel Maximum Wetted Perimeter :
 7.68E+03 ft
 " " : 0.070 Beyond station 5115.9 Max left bank area :
 20807.75 ft² Max right bank area :
 5154.22 ft²
 Allowable Encroachment Depth : 0.00 ft Max center channel area :

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1622.518 ft^2

Natural Cross-Section information for Channel Link42.1.1

=====

Cross-Section ID (from X1 card) : 13.0 Channel sequence number : 13

Left Overbank Length : 20.3 ft Maximum Elevation :
28.40 ft.
Main Channel Length : 20.0 ft Maximum Depth :
19.94 ft.
Right Overbank Length : 20.1 ft Maximum Section Area :
31373.45 ft^2 Maximum hydraulic radius :
4.17 ft.
Manning N : 0.070 to Station 4877.5 Max topwidth :
7515.52 ft.
" " : 0.032 in main Channel Maximum Wetted Perimeter :
7.52E+03 ft
" " : 0.070 Beyond station 5060.6 Max left bank area :
22248.55 ft^2 Max right bank area :
7383.12 ft^2
Allowable Encroachment Depth : 0.00 ft Max center channel area :
1741.771 ft^2

Natural Cross-Section information for Channel Link41

=====

Cross-Section ID (from X1 card) : 14.0 Channel sequence number : 14

Left Overbank Length : 133.6 ft Maximum Elevation :
25.09 ft.
Main Channel Length : 133.6 ft Maximum Depth :
4.82 ft.
Right Overbank Length : 133.6 ft Maximum Section Area :
78.2500 ft^2 Maximum hydraulic radius :
1.63 ft.
Manning N : 0.040 to Station 5.0 Max topwidth :
45.00 ft.
" " : 0.040 in main Channel Maximum Wetted Perimeter :
4.80E+01 ft
" " : 0.015 Beyond station 25.0 Max left bank area :
9.80 ft^2 Max right bank area :
6.02 ft^2
Allowable Encroachment Depth : 0.00 ft Max center channel area :
62.4250 ft^2

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 Natural Cross-Section information for Channel Link48

=====

Cross-Section ID (from X1 card) : 15.0 Channel sequence number : 15

Left Overbank Length : 38.3 ft	Maximum Elevation :	
27.82 ft.		
Main Channel Length : 38.3 ft	Maximum Depth :	
16.33 ft.		
Right Overbank Length : 38.3 ft	Maximum Section Area :	
26945.91 ft^2	Maximum hydraulic radius :	
3.54 ft.		
Manning N : 0.070 to Station 4655.5	Max topwidth :	
7614.88 ft.		
" " : 0.032 in main Channel	Maximum Wetted Perimeter :	
7.62E+03 ft		
" " : 0.070 Beyond station 4770.5	Max left bank area :	
18294.32 ft^2		
	Max right bank area :	
7448.66 ft^2		
Allowable Encroachment Depth : 0.00 ft	Max center channel area :	
1202.931 ft^2		

=====

Table E1 - Conduit Data

=====

Inp Depth Num (ft)	Trapezoid Side Slopes	Hazen Conduit Williams Name c-factor	Length (ft)	Conduit Class	Area (ft^2)	Manning Coef.	Max Width (ft)
1		Link14	68.3600	Natural	78.2500	0.0400	45.0000
4.8200							
2		Link16	22.8500	Natural	78.2500	0.0400	45.0000
4.8200							
3		Link18	243.1300	Natural	78.2500	0.0400	45.0000
4.8200							
4		Link20	117.5100	Natural	85.7750	0.0400	40.0000
5.0200							
5		Link22	282.4000	Natural	128.5750	0.0400	50.0000
5.3500							
6		Link24	280.1300	Natural	112.8500	0.0400	45.0000
6.1100							
7		Link26	38.8400	Natural	123.8687	0.0400	35.5700

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6.3900						
8	Link31	199.6800	Natural	28065.247	0.0320	7554.1400
16.3600						
9	Link33	192.6600	Natural	30196.693	0.0320	6181.6300
17.9700						
10	Link34	49.2500	Natural	78.2500	0.0400	45.0000
4.8200						
11	Link36	499.4300	Natural	30714.993	0.0320	6305.5000
17.9700						
12	Link37	745.4400	Natural	27584.486	0.0320	7672.7100
19.0300						
13	Link42.1.1	20.0100	Natural	31373.446	0.0320	7515.5200
19.9400						
14	Link38.1	1092.9300	Circular	9.6211	0.0130	3.5000
3.5000						
15	Link46.1	50.0000	Circular	9.6211	0.0130	3.5000
3.5000						
16	Link45.1	82.5300	Circular	9.6211	0.0130	3.5000
3.5000						
17	Link39.1	254.5400	Circular	4.9087	0.0130	2.5000
2.5000						
18	Link41	133.5500	Natural	78.2500	0.0400	45.0000
4.8200						
19	Link48	38.2600	Natural	26945.911	0.0320	7614.8800
16.3300						
20	227.1	33.3500	Circular	4.9087	0.0150	2.5000
2.5000						
21	231.1	37.5400	Circular	4.9087	0.0150	2.5000
2.5000						
22	235.1	33.2900	Circular	4.9087	0.0130	2.5000
2.5000						
23	239.1	33.2700	Circular	4.9087	0.0150	2.5000
2.5000						
24	243.1	33.5900	Circular	4.9087	0.0150	2.5000
2.5000						
25	247.1	23.9600	Circular	4.9087	0.0130	2.5000
2.5000						
26	251.1	48.0400	Circular	4.9087	0.0150	2.5000
2.5000						
27	255.1	124.5900	Circular	7.0686	0.0130	3.0000
3.0000						
28	324.1	43.0000	Circular	19.6350	0.0130	5.0000
5.0000						
Total length of all conduits				4822.1300	feet	

=====

| If there are messages about (sqrt(g*d)*dt/dx), or |

| the sqrt(wave celerity)*time step/conduit length |

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```

| in the output file all it means is that the
| program will lower the internal time step to
| satisfy this condition (explicit condition).
| You control the actual internal time step by
| using the minimum courant time step factor in the
| HYDRAULICS job control. The message put in words
| states that the smallest conduit with the fastest
| velocity will control the time step selection.
| You have further control by using the modify
| conduit option in the HYDRAULICS Job Control.
|
|=====

```

Conduit Name	Courant Ratio	
Link14 step/conduit length)	19.70	====> Warning ! (sqrt(wave celerity)*time
Link16 step/conduit length)	58.95	====> Warning ! (sqrt(wave celerity)*time
Link18 step/conduit length)	5.54	====> Warning ! (sqrt(wave celerity)*time
Link20 step/conduit length)	12.73	====> Warning ! (sqrt(wave celerity)*time
Link22 step/conduit length)	5.80	====> Warning ! (sqrt(wave celerity)*time
Link24 step/conduit length)	5.77	====> Warning ! (sqrt(wave celerity)*time
Link26 step/conduit length)	49.07	====> Warning ! (sqrt(wave celerity)*time
Link31 step/conduit length)	9.86	====> Warning ! (sqrt(wave celerity)*time
Link33 step/conduit length)	11.16	====> Warning ! (sqrt(wave celerity)*time
Link34 step/conduit length)	27.35	====> Warning ! (sqrt(wave celerity)*time
Link36 step/conduit length)	4.29	====> Warning ! (sqrt(wave celerity)*time
Link37 step/conduit length)	2.17	====> Warning ! (sqrt(wave celerity)*time
Link42.1.1 step/conduit length)	76.40	====> Warning ! (sqrt(wave celerity)*time
Link38.1 step/conduit length)	1.75	====> Warning ! (sqrt(wave celerity)*time
Link46.1 step/conduit length)	38.22	====> Warning ! (sqrt(wave celerity)*time
Link45.1 step/conduit length)	23.15	====> Warning ! (sqrt(wave celerity)*time

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Link39.1 step/conduit length)	6.34	====> Warning ! (sqrt(wave celerity)*time
Link41 step/conduit length)	10.09	====> Warning ! (sqrt(wave celerity)*time
Link48 step/conduit length)	50.22	====> Warning ! (sqrt(wave celerity)*time
227.1 step/conduit length)	48.43	====> Warning ! (sqrt(wave celerity)*time
231.1 step/conduit length)	43.02	====> Warning ! (sqrt(wave celerity)*time
235.1 step/conduit length)	48.51	====> Warning ! (sqrt(wave celerity)*time
239.1 step/conduit length)	48.54	====> Warning ! (sqrt(wave celerity)*time
243.1 step/conduit length)	48.08	====> Warning ! (sqrt(wave celerity)*time
247.1 step/conduit length)	67.40	====> Warning ! (sqrt(wave celerity)*time
251.1 step/conduit length)	33.62	====> Warning ! (sqrt(wave celerity)*time
255.1 step/conduit length)	14.20	====> Warning ! (sqrt(wave celerity)*time
324.1 step/conduit length)	53.11	====> Warning ! (sqrt(wave celerity)*time

```
*=====*
```

Conduit Volume

```
*=====*
```

Full pipe or full open conduit volume
Input full depth volume..... 4.9122E+07 cubic feet

====> Warning !! The upstream and downstream junctions for the following conduits
have been reversed to correspond to the positive flow and
decreasing
slope convention. A negative flow in the output thus means
the flow was from your original upstream junction to your original
downstream junction. Any initial flow has been multiplied by -1.

1. Conduit #...Link22 has been changed.
2. Conduit #...Link34 has been changed.
3. Conduit #...235.1 has been changed.
4. Conduit #...239.1 has been changed.
5. Conduit #...243.1 has been changed.
6. Conduit #...247.1 has been changed.

```
*=====*
```

Table E3a - Junction Data

Inp Interface Num (%)	Junction Name	Ground Elevation	Crown Elevation	Invert Elevation	Qinst cfs	Initial Depth-ft	Flow
1	Node13	40.0000	27.8600	22.7400	0.0000	0.0000	
100.0000							
2	Node14	40.0000	27.8200	22.7000	0.0000	0.0000	
100.0000							
3	Node15	40.0000	26.3200	21.2000	0.0000	0.0000	
100.0000							
4	Node16	40.0000	26.6200	21.1600	0.0000	0.0000	
100.0000							
5	Node17	40.0000	25.5100	20.3100	0.0000	0.0000	
100.0000							
6	Node18	40.0000	25.5700	20.4500	0.0000	0.0000	
100.0000							
7	Node19	40.0000	24.5200	19.4300	0.0000	0.0000	
100.0000							
8	Node20	40.0000	25.1700	19.6300	0.0000	0.0000	
100.0000							
9	Node21	40.0000	24.7100	19.6900	0.0000	0.0000	
100.0000							
10	Node22	40.0000	25.5000	19.8000	0.0000	0.0000	
100.0000							
11	Node23	40.0000	25.5200	19.4500	0.0000	0.0000	
100.0000							
12	Node24	40.0000	26.2800	19.8700	0.0000	0.0000	
100.0000							
13	Node25	40.0000	25.9100	19.5700	0.0000	0.0000	
100.0000							
14	Node26	40.0000	25.2400	18.8500	0.0000	0.0000	
100.0000							
15	Node27	40.0000	24.6100	18.2200	0.0000	0.0000	
100.0000							
16	Node28	40.0000	29.4400	11.4700	0.0000	0.0000	
100.0000							
17	Node31	40.0000	27.8400	11.4800	0.0000	0.0000	
100.0000							
18	Node33	40.0000	29.4300	11.4600	0.0000	0.0000	
100.0000							
19	Node34	40.0000	27.1000	22.2800	0.0000	0.0000	
100.0000							
20	Node35	40.0000	27.8200	11.4900	0.0000	0.0000	

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100.0000	21	Node36	40.0000	28.0500	9.0200	0.0000	0.0000
100.0000	22	Node37	40.0000	28.4000	8.4600	0.0000	0.0000
100.0000	23	Node41	40.0000	28.4000	8.4600	0.0000	0.0000
100.0000	24	Link42.1	40.0000	17.5100	12.5100	0.0000	0.0000
100.0000	25	Node23.1.1	40.0000	18.4200	8.0000	0.0000	0.0000
100.0000	26	Node19.1.1	40.0000	18.4200	8.0000	0.0000	0.0000
100.0000	27	Node18.1.1	40.0000	18.4900	14.9900	0.0000	0.0000
100.0000	28	Node34.1.1	40.0000	18.8200	16.3200	0.0000	0.0000
100.0000	29	Node39	40.0000	27.9700	23.1500	0.0000	0.0000
100.0000	30	Node40	40.0000	19.2700	12.5100	0.0000	0.0000

=====

| Table E3b - Junction Data |

=====

Inp Maximum Num Capacity	Junction Pavement Name Shape Slope	X Coord.	Y Coord.	Type of Manhole	Type of Inlet
1	0 Node13 0.00	0.0000	0.0000	No Ponding	Normal
2	0 Node14 0.00	0.0000	0.0000	No Ponding	Normal
3	0 Node15 0.00	0.0000	0.0000	No Ponding	Normal
4	0 Node16 0.00	0.0000	0.0000	No Ponding	Normal
5	0 Node17 0.00	0.0000	0.0000	No Ponding	Normal
6	0 Node18 0.00	0.0000	0.0000	No Ponding	Normal
7	0 Node19 0.00	0.0000	0.0000	No Ponding	Normal
8	Node20	0.0000	0.0000	No Ponding	Normal

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	0	0.00				
9		Node21	0.0000	0.0000	No Ponding	Normal
	0	0.00				
10		Node22	0.0000	0.0000	No Ponding	Normal
	0	0.00				
11		Node23	0.0000	0.0000	No Ponding	Normal
	0	0.00				
12		Node24	0.0000	0.0000	No Ponding	Normal
	0	0.00				
13		Node25	0.0000	0.0000	No Ponding	Normal
	0	0.00				
14		Node26	0.0000	0.0000	No Ponding	Normal
	0	0.00				
15		Node27	0.0000	0.0000	No Ponding	Normal
	0	0.00				
16		Node28	0.0000	0.0000	No Ponding	Normal
	0	0.00				
17		Node31	0.0000	0.0000	No Ponding	Normal
	0	0.00				
18		Node33	0.0000	0.0000	No Ponding	Normal
	0	0.00				
19		Node34	0.0000	0.0000	No Ponding	Normal
	0	0.00				
20		Node35	0.0000	0.0000	No Ponding	Normal
	0	0.00				
21		Node36	0.0000	0.0000	No Ponding	Normal
	0	0.00				
22		Node37	0.0000	0.0000	No Ponding	Normal
	0	0.00				
23		Node41	0.0000	0.0000	No Ponding	Normal
	0	0.00				
24		Link42.1	0.0000	0.0000	No Ponding	Normal
	0	0.00				
25		Node23.1.1	0.0000	0.0000	No Ponding	Normal
	0	0.00				
26		Node19.1.1	0.0000	0.0000	No Ponding	Normal
	0	0.00				
27		Node18.1.1	0.0000	0.0000	No Ponding	Normal
	0	0.00				
28		Node34.1.1	0.0000	0.0000	No Ponding	Normal
	0	0.00				
29		Node39	0.0000	0.0000	No Ponding	Normal
	0	0.00				
30		Node40	0.0000	0.0000	No Ponding	Normal
	0	0.00				

=====

Table E4 - Conduit Connectivity

=====

Input		Conduit	Upstream	Downstream
Upstream	Downstream	Name	Node	Node
Number	Elevation			
Elevation	Elevation			
=====	=====	=====	=====	=====
=====	=====			
1		Link14	Node14	Node15
23.0000	21.5000	No Design		
2		Link16	Node16	Node17
21.8000	20.6900	No Design		
3		Link18	Node18	Node19
20.7500	19.7000	No Design		
4		Link20	Node20	Node21
20.1500	19.6900	No Design		
5		Link22	Node23	Node22
20.1700	20.1500	No Design		
6		Link24	Node24	Node25
20.1700	19.8000	No Design		
7		Link26	Node26	Node27
18.8500	18.2200	No Design		
8		Link31	Node31	Node28
11.4800	11.4700	No Design		
9		Link33	Node28	Node33
11.4700	11.4600	No Design		
10		Link34	Node13	Node34
23.0400	22.2800	No Design		
11		Link36	Node33	Node36
11.4600	9.0200	No Design		
12		Link37	Node36	Node37
9.0200	8.4600	No Design		
13		Link42.1.1	Node37	Node41
8.4600	8.4600	No Design		
14		Link38.1	Node23.1.1	Link42.1
14.9200	14.0100	No Design		
15		Link46.1	Node19.1.1	Node23.1.1
8.0000	8.0000	No Design		
16		Link45.1	Node18.1.1	Node19.1.1
14.9900	14.9200	No Design		
17		Link39.1	Node34.1.1	Node18.1.1
16.3200	15.9900	No Design		
18		Link41	Node39	Node34
23.1500	22.2800	No Design		
19		Link48	Node35	Node31
11.4900	11.4800	No Design		
20		227.1	Node13	Node14

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22.7400	22.7000	No Design		
21		231.1	Node15	Node16
21.2000	21.1600	No Design		
22		235.1	Node18	Node17
20.4500	20.3100	No Design		
23		239.1	Node20	Node19
19.7100	19.4300	No Design		
24		243.1	Node22	Node21
20.1500	20.0300	No Design		
25		247.1	Node24	Node23
19.8700	19.4500	No Design		
26		251.1	Node25	Node26
19.8000	19.5400	No Design		
27		255.1	Node27	Node40
18.8000	16.2700	No Design		
28		324.1	Node40	Node28
12.5100	12.4900	No Design		

```

*=====
|           Orifice Data           3           |
*=====
    
```

Depth (ft)	Conduit Discharge Name Coefficient	From Height Above Junction (ft)	To Junction Type	Area (ft2)
5.00	Restrictor.1 0.670	Link42.1 0.000	Node40 Circ Side	2.84

```

====> EQUIVALENT PIPE INFORMATION FOR ORIFICE
CONDUIT NAME..... 1
Upstream node..... Restrictor.1
Downstream node..... Link42.1
PIPE DIAMETER..... Node40
PIPE LENGTH..... 1.90
MANNINGS ROUGHNESS..... 2815.84
INVERT ELEVATION AT UPSTREAM END..... 0.0032
INVERT ELEVATION AT DOWNSTREAM END... 12.5100
                                           12.5000
    
```

Note: For a Bottom-outlet orifice the invert elevation of the downstream node will be adjusted to accomodate the equivalent conduit. Conduit grades are not affected.

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```
*=====*
```

```
| Weir Data |
```

```
*=====*
```

Weir	Weir Discharge	From Weir	To	Crest
Top(ft)	Length(ft) Coefficient	Junction Power	Junction Type	Height(ft)
17.26	33.35 2.6700	Node13 1.5000	Node14 1	0.91
18.80	37.54 2.6700	Node15 1.5000	Node16 1	2.99
19.69	33.29 2.6700	Node17 1.5000	Node18 1	3.17
20.57	33.27 2.6700	Node19 1.5000	Node20 1	4.45
20.31	33.59 2.6700	Node21 1.5000	Node22 1	4.12
20.55	23.96 2.6700	Node23 1.5000	Node24 1	3.76
20.43	48.04 2.6700	Node25 1.5000	Node26 1	4.55
21.78	124.59 2.6700	Node27 1.5000	Node40 1	5.25
27.49	43.00 2.6700	Node40 1.5000	Node28 1	9.76

```
*=====*
```

```
| **WARNING** |
```

```
| Having weirs in series can occasionally |
```

```
| lead to large continuity errors for short |
```

```
| duration simulations. Please check your |
```

```
| continuity errors and make adjustments to |
```

```
| your model as required. |
```

```
*=====*
```

```
*=====*
```

```
| FREE OUTFALL DATA (DATA GROUP I1) |
```

```
| BOUNDARY CONDITION ON DATA GROUP J1 |
```

```
*=====*
```

Outfall at Junction....Node41 has boundary condition number... 1

Coupland_Prop10yr_NoImpact.out

```

*=====
|           Weir Outfall Data           |
|           Boundary Condition on data group J1           |
*=====
    
```

```

*=====
|           INTERNAL CONNECTIVITY INFORMATION           |
*=====
    
```

CONDUIT	JUNCTION	JUNCTION
Restrictor.1	Link42.1	Node40
W14	Node13	Node14
W15	Node15	Node16
W17	Node17	Node18
W20	Node19	Node20
W21	Node21	Node22
W24	Node23	Node24
W25	Node25	Node26
W27	Node27	Node40
W42	Node40	Node28
FREE# 1	Node41	BOUNDARY

```

*=====
|           Boundary Condition Information           |
|           Data Groups J1-J4           |
*=====
    
```

BC NUMBER.. 1 has no control water surface.

```

*=====
|           XP Note Field Summary           |
*=====
    
```

```

*=====
|           Conduit Convergence Criteria           |
*=====
    
```

Conduit Name	Full Flow	Conduit Slope
Link14	596.7483	0.0219

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Link16	887.9019	0.0486
Link18	264.7415	0.0043
Link20	316.7276	0.0039
Link22	72.5977	0.0001
Link24	267.1870	0.0013
Link26	1249.1460	0.0162
Link31	22103.9553	0.0001
Link33	29068.2089	0.0001
Link34	500.4380	0.0154
Link36	284978.9849	0.0049
Link37	82357.7976	0.0008
Link42.1.1	11938.3421	0.0000
Link38.1	29.0312	0.0008
Link46.1	3.1816	0.0000
Link45.1	29.3011	0.0008
Link39.1	14.7688	0.0013
Link41	325.1504	0.0065
Link48	46955.9126	0.0003
227.1	12.3112	0.0012
231.1	11.6038	0.0011
235.1	26.5994	0.0042
239.1	32.6114	0.0084
243.1	21.2473	0.0036
247.1	54.3058	0.0175

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251.1	26.1519	0.0054
255.1	95.0460	0.0203
324.1	56.1685	0.0005
Restrictor.1	21.0133	0.0000

```

*=====
|   Initial Model Condition   |
| Initial Time =      0.05 hours |
*=====
    
```

Junction /	Depth /	Elevation	====>	"*" Junction is Surcharged.
Node13/	0.00 /	22.74		Node14/ 0.00 / 22.70
Node15/	0.00 /	21.20		
Node16/	0.00 /	21.16		Node17/ 0.00 / 20.31
Node18/	0.00 /	20.45		
Node19/	0.00 /	19.43		Node20/ 0.00 / 19.63
Node21/	0.00 /	19.69		
Node22/	0.00 /	19.80		Node23/ 0.00 / 19.45
Node24/	0.00 /	19.87		
Node25/	0.00 /	19.57		Node26/ 0.00 / 18.85
Node27/	0.00 /	18.22		
Node28/	0.00 /	11.47		Node31/ 0.00 / 11.48
Node33/	0.00 /	11.46		
Node34/	0.00 /	22.28		Node35/ 0.00 / 11.49
Node36/	0.00 /	9.02		
Node37/	0.00 /	8.46		Node41/ 0.00 / 8.46
Link42.1/	0.00 /	12.51		
Node23.1.1/	0.00 /	8.00		Node19.1.1/ 0.00 / 8.00
Node18.1.1/	0.00 /	14.99		
Node34.1.1/	0.00 /	16.32		Node39/ 0.00 / 23.15
Node40/	0.00 /	12.50		

Conduit/	FLOW	====>	"*" Conduit uses the normal flow option.
Link14/	0.00		Link16/ 0.00
Link18/	0.00		
Link20/	0.00		Link22/ 0.00
Link24/	0.00		
Link26/	0.00		Link31/ 0.00
Link33/	0.00		
Link34/	0.00		Link36/ 0.00
Link37/	0.00		
Link42.1.1/	0.00		Link38.1/ 0.00
Link46.1/	0.00		

Coupland_Prop10yr_NoImpact.out

Link41/	Link45.1/ 0.00	0.00	Link39.1/ 0.00	0.00
231.1/	Link48/ 0.00	0.00	227.1/	0.00
243.1/	235.1/ 0.00	0.00	239.1/	0.00
255.1/	247.1/ 0.00	0.00	251.1/	0.00
W14/	324.1/ 0.00	0.00	Restrictor.1/	0.00
W20/	W15/ 0.00	0.00	W17/	0.00
W25/	W21/ 0.00	0.00	W24/	0.00
FREE# 1/	W27/ 0.00	0.00	W42/	0.00

	Conduit/	Velocity		
Link18/	Link14/ 0.00	0.00	Link16/	0.00
Link24/	Link20/ 0.00	0.00	Link22/	0.00
Link33/	Link26/ 0.00	0.00	Link31/	0.00
Link37/	Link34/ 0.00	0.00	Link36/	0.00
Link46.1/	Link42.1.1/ 0.00	0.00	Link38.1/	0.00
Link41/	Link45.1/ 0.00	0.00	Link39.1/	0.00
231.1/	Link48/ 0.00	0.00	227.1/	0.00
243.1/	235.1/ 0.00	0.00	239.1/	0.00
255.1/	247.1/ 0.00	0.00	251.1/	0.00
	324.1/ 0.00	0.00	Restrictor.1/	0.00

	Conduit/	Cross Sectional Area		
Link18/	Link14/ 0.00	0.00	Link16/	0.00
Link24/	Link20/ 0.00	0.00	Link22/	0.00
Link33/	Link26/ 0.00	0.00	Link31/	0.00
Link37/	Link34/ 0.00	0.00	Link36/	0.00
	Link42.1.1/ 0.00	0.00	Link38.1/	0.00

Coupland_Prop10yr_NoImpact.out

Link46.1/	0.00			
	Link45.1/	0.00	Link39.1/	0.00
Link41/	0.00			
	Link48/	0.00	227.1/	0.00
231.1/	0.00			
	235.1/	0.00	239.1/	0.00
243.1/	0.00			
	247.1/	0.00	251.1/	0.00
255.1/	0.00			
	324.1/	0.00	Restrictor.1/	0.00

Conduit/ Hydraulic Radius

Link18/	Link14/	0.00	Link16/	0.00
	Link20/	0.00	Link22/	0.00
Link24/	0.00			
	Link26/	0.00	Link31/	0.00
Link33/	0.00			
	Link34/	0.00	Link36/	0.00
Link37/	0.00			
	Link42.1.1/	0.00	Link38.1/	0.00
Link46.1/	0.00			
	Link45.1/	0.00	Link39.1/	0.00
Link41/	0.00			
	Link48/	0.00	227.1/	0.00
231.1/	0.00			
	235.1/	0.00	239.1/	0.00
243.1/	0.00			
	247.1/	0.00	251.1/	0.00
255.1/	0.00			
	324.1/	0.00	Restrictor.1/	0.00

Conduit/ Upstream/ Downstream Elevation

	Link14/	21.20/	21.20	Link16/	20.31/	20.31
Link18/	19.43/	19.43				
	Link20/	19.69/	19.69	Link22/	19.80/	19.80
Link24/	19.57/	19.57				
	Link26/	18.22/	18.22	Link31/	11.47/	11.47
Link33/	11.46/	11.46				
	Link34/	22.28/	22.28	Link36/	9.02/	9.02
Link37/	8.46/	8.46				
	Link42.1.1/	8.46/	8.46	Link38.1/	12.51/	12.51
Link46.1/	8.00/	8.00				
	Link45.1/	8.00/	8.00	Link39.1/	14.99/	14.99
Link41/	22.28/	22.28				
	Link48/	11.48/	11.48	227.1/	22.70/	22.70
231.1/	21.16/	21.16				
	235.1/	20.31/	20.31	239.1/	19.43/	19.43

Coupland_Prop10yr_NoImpact.out

243.1/ 19.69/ 19.69
247.1/ 19.45/ 19.45 251.1/ 18.85/ 18.85
255.1/ 12.50/ 12.50
324.1/ 11.47/ 11.47 Restrictor.1/ 12.50/ 12.50

Important Information

Start time of user hydrographs was... 0.000000000000000E+000
Start time of the simulation was..... 0.000000000000000E+000
Found a match between user hydrograph and simulation start time.

=====
==> System inflows (data group K3) at 0.00 hours (Junction / Inflow,cfs)

Node35 / 0.00E+00

==> System inflows (data group K3) at 0.05 hours (Junction / Inflow,cfs)

Node35 / 0.00E+00

==> System inflows (data group K3) at 0.10 hours (Junction / Inflow,cfs)

Node35 / 0.00E+00

==> System inflows (data group K3) at 0.20 hours (Junction / Inflow,cfs)

Node35 / 0.00E+00

==> System inflows (data group K3) at 0.25 hours (Junction / Inflow,cfs)

Node35 / 0.00E+00

==> System inflows (data group K3) at 0.35 hours (Junction / Inflow,cfs)

Node35 / 0.00E+00

==> System inflows (data group K3) at 0.45 hours (Junction / Inflow,cfs)

Node35 / 0.00E+00

==> System inflows (data group K3) at 0.50 hours (Junction / Inflow,cfs)

Node35 / 0.00E+00

Coupland_Prop10yr_NoImpact.out

==> System inflows (data group K3) at 0.60 hours (Junction / Inflow,cfs)

Node35 / 0.00E+00

==> System inflows (data group K3) at 0.70 hours (Junction / Inflow,cfs)

Node35 / 0.00E+00

==> System inflows (data group K3) at 0.80 hours (Junction / Inflow,cfs)

Node35 / 0.00E+00

==> System inflows (data group K3) at 0.85 hours (Junction / Inflow,cfs)

Node35 / 0.00E+00

==> System inflows (data group K3) at 0.95 hours (Junction / Inflow,cfs)

Node35 / 0.00E+00

==> System inflows (data group K3) at 1.05 hours (Junction / Inflow,cfs)

Node35 / 0.00E+00

==> System inflows (data group K3) at 1.10 hours (Junction / Inflow,cfs)

Node35 / 0.00E+00

==> System inflows (data group K3) at 1.20 hours (Junction / Inflow,cfs)

Node35 / 1.00E-01

==> System inflows (data group K3) at 1.30 hours (Junction / Inflow,cfs)

Node35 / 3.00E-01

==> System inflows (data group K3) at 1.35 hours (Junction / Inflow,cfs)

Coupland_Prop10yr_NoImpact.out

Node35 / 6.00E-01

==> System inflows (data group K3) at 1.45 hours (Junction / Inflow,cfs)

Node35 / 9.00E-01

==> System inflows (data group K3) at 1.50 hours (Junction / Inflow,cfs)

Node35 / 1.30E+00

==> System inflows (data group K3) at 1.60 hours (Junction / Inflow,cfs)

Node35 / 1.70E+00

==> System inflows (data group K3) at 1.70 hours (Junction / Inflow,cfs)

Node35 / 2.00E+00

==> System inflows (data group K3) at 1.80 hours (Junction / Inflow,cfs)

Node35 / 2.40E+00

==> System inflows (data group K3) at 1.85 hours (Junction / Inflow,cfs)

Node35 / 2.70E+00

==> System inflows (data group K3) at 1.95 hours (Junction / Inflow,cfs)

Node35 / 3.10E+00

==> System inflows (data group K3) at 2.05 hours (Junction / Inflow,cfs)

Node35 / 3.40E+00

==> System inflows (data group K3) at 2.10 hours (Junction / Inflow,cfs)

Node35 / 3.80E+00
#####

Coupland_Prop10yr_NoImpact.out

==> System inflows (data group K3) at 2.20 hours (Junction / Inflow,cfs)

Node35 / 4.10E+00

==> System inflows (data group K3) at 2.30 hours (Junction / Inflow,cfs)

Node35 / 4.40E+00

==> System inflows (data group K3) at 2.35 hours (Junction / Inflow,cfs)

Node35 / 4.70E+00

==> System inflows (data group K3) at 2.45 hours (Junction / Inflow,cfs)

Node35 / 5.00E+00

==> System inflows (data group K3) at 2.55 hours (Junction / Inflow,cfs)

Node35 / 5.30E+00

==> System inflows (data group K3) at 2.60 hours (Junction / Inflow,cfs)

Node35 / 5.60E+00

==> System inflows (data group K3) at 2.70 hours (Junction / Inflow,cfs)

Node35 / 5.90E+00

==> System inflows (data group K3) at 2.75 hours (Junction / Inflow,cfs)

Node35 / 6.20E+00

==> System inflows (data group K3) at 2.85 hours (Junction / Inflow,cfs)

Node35 / 6.50E+00

==> System inflows (data group K3) at 2.95 hours (Junction / Inflow,cfs)

Coupland_Prop10yr_NoImpact.out

Node35 / 6.80E+00

==> System inflows (data group K3) at 3.00 hours (Junction / Inflow,cfs)

Node35 / 7.10E+00

==> System inflows (data group K3) at 3.10 hours (Junction / Inflow,cfs)

Node35 / 7.40E+00

==> System inflows (data group K3) at 3.20 hours (Junction / Inflow,cfs)

Node35 / 7.70E+00

==> System inflows (data group K3) at 3.25 hours (Junction / Inflow,cfs)

Node35 / 7.90E+00

==> System inflows (data group K3) at 3.35 hours (Junction / Inflow,cfs)

Node35 / 8.20E+00

==> System inflows (data group K3) at 3.45 hours (Junction / Inflow,cfs)

Node35 / 8.50E+00

==> System inflows (data group K3) at 3.50 hours (Junction / Inflow,cfs)

Node35 / 8.70E+00

==> System inflows (data group K3) at 3.60 hours (Junction / Inflow,cfs)

Node35 / 9.00E+00

==> System inflows (data group K3) at 3.70 hours (Junction / Inflow,cfs)

Node35 / 9.20E+00

#####

Coupland_Prop10yr_NoImpact.out

==> System inflows (data group K3) at 3.75 hours (Junction / Inflow,cfs)

Node35 / 9.50E+00

#####

==> System inflows (data group K3) at 3.85 hours (Junction / Inflow,cfs)

Node35 / 9.70E+00

#####

==> System inflows (data group K3) at 3.95 hours (Junction / Inflow,cfs)

Node35 / 9.90E+00

#####

==> System inflows (data group K3) at 4.00 hours (Junction / Inflow,cfs)

Node35 / 1.02E+01

#####

==> System inflows (data group K3) at 4.10 hours (Junction / Inflow,cfs)

Node35 / 1.04E+01

#####

==> System inflows (data group K3) at 4.20 hours (Junction / Inflow,cfs)

Node35 / 1.07E+01

#####

==> System inflows (data group K3) at 4.25 hours (Junction / Inflow,cfs)

Node35 / 1.09E+01

#####

==> System inflows (data group K3) at 4.35 hours (Junction / Inflow,cfs)

Node35 / 1.11E+01

#####

==> System inflows (data group K3) at 4.45 hours (Junction / Inflow,cfs)

Node35 / 1.13E+01

#####

==> System inflows (data group K3) at 4.50 hours (Junction / Inflow,cfs)

Node35 / 1.15E+01

Coupland_Prop10yr_NoImpact.out

==> System inflows (data group K3) at 4.60 hours (Junction / Inflow,cfs)

Node35 / 1.18E+01

==> System inflows (data group K3) at 4.70 hours (Junction / Inflow,cfs)

Node35 / 1.20E+01

==> System inflows (data group K3) at 4.75 hours (Junction / Inflow,cfs)

Node35 / 1.22E+01

==> System inflows (data group K3) at 4.85 hours (Junction / Inflow,cfs)

Node35 / 1.24E+01

==> System inflows (data group K3) at 4.95 hours (Junction / Inflow,cfs)

Node35 / 1.26E+01

==> System inflows (data group K3) at 5.00 hours (Junction / Inflow,cfs)

Node35 / 1.28E+01

==> System inflows (data group K3) at 5.10 hours (Junction / Inflow,cfs)

Node35 / 1.30E+01

==> System inflows (data group K3) at 5.20 hours (Junction / Inflow,cfs)

Node35 / 1.32E+01

==> System inflows (data group K3) at 5.25 hours (Junction / Inflow,cfs)

Node35 / 1.34E+01

==> System inflows (data group K3) at 5.35 hours (Junction / Inflow,cfs)

Coupland_Prop10yr_NoImpact.out

Node35 / 1.36E+01

==> System inflows (data group K3) at 5.45 hours (Junction / Inflow,cfs)

Node35 / 1.38E+01

==> System inflows (data group K3) at 5.50 hours (Junction / Inflow,cfs)

Node35 / 1.40E+01

==> System inflows (data group K3) at 5.60 hours (Junction / Inflow,cfs)

Node35 / 1.42E+01

==> System inflows (data group K3) at 5.70 hours (Junction / Inflow,cfs)

Node35 / 1.44E+01

==> System inflows (data group K3) at 5.75 hours (Junction / Inflow,cfs)

Node35 / 1.45E+01

==> System inflows (data group K3) at 5.85 hours (Junction / Inflow,cfs)

Node35 / 1.47E+01

==> System inflows (data group K3) at 5.95 hours (Junction / Inflow,cfs)

Node35 / 1.49E+01

==> System inflows (data group K3) at 6.00 hours (Junction / Inflow,cfs)

Node35 / 1.51E+01

==> System inflows (data group K3) at 6.10 hours (Junction / Inflow,cfs)

Node35 / 1.53E+01
#####

Coupland_Prop10yr_NoImpact.out

==> System inflows (data group K3) at 6.20 hours (Junction / Inflow,cfs)

Node35 / 1.54E+01

==> System inflows (data group K3) at 6.25 hours (Junction / Inflow,cfs)

Node35 / 1.56E+01

==> System inflows (data group K3) at 6.35 hours (Junction / Inflow,cfs)

Node35 / 1.58E+01

==> System inflows (data group K3) at 6.45 hours (Junction / Inflow,cfs)

Node35 / 1.59E+01

==> System inflows (data group K3) at 6.50 hours (Junction / Inflow,cfs)

Node35 / 1.61E+01

==> System inflows (data group K3) at 6.60 hours (Junction / Inflow,cfs)

Node35 / 1.63E+01

==> System inflows (data group K3) at 6.70 hours (Junction / Inflow,cfs)

Node35 / 1.64E+01

==> System inflows (data group K3) at 6.75 hours (Junction / Inflow,cfs)

Node35 / 1.66E+01

==> System inflows (data group K3) at 6.85 hours (Junction / Inflow,cfs)

Node35 / 1.68E+01

==> System inflows (data group K3) at 6.95 hours (Junction / Inflow,cfs)

Coupland_Prop10yr_NoImpact.out

Node35 / 1.69E+01

==> System inflows (data group K3) at 7.00 hours (Junction / Inflow,cfs)

Node35 / 1.71E+01

==> System inflows (data group K3) at 7.10 hours (Junction / Inflow,cfs)

Node35 / 1.72E+01

==> System inflows (data group K3) at 7.20 hours (Junction / Inflow,cfs)

Node35 / 1.74E+01

==> System inflows (data group K3) at 7.30 hours (Junction / Inflow,cfs)

Node35 / 1.75E+01

==> System inflows (data group K3) at 7.35 hours (Junction / Inflow,cfs)

Node35 / 1.77E+01

==> System inflows (data group K3) at 7.45 hours (Junction / Inflow,cfs)

Node35 / 1.79E+01

==> System inflows (data group K3) at 7.55 hours (Junction / Inflow,cfs)

Node35 / 1.80E+01

==> System inflows (data group K3) at 7.60 hours (Junction / Inflow,cfs)

Node35 / 1.82E+01

==> System inflows (data group K3) at 7.70 hours (Junction / Inflow,cfs)

Node35 / 1.83E+01

#####

Coupland_Prop10yr_NoImpact.out

==> System inflows (data group K3) at 7.80 hours (Junction / Inflow,cfs)

Node35 / 1.85E+01

#####

==> System inflows (data group K3) at 7.85 hours (Junction / Inflow,cfs)

Node35 / 1.86E+01

#####

==> System inflows (data group K3) at 7.95 hours (Junction / Inflow,cfs)

Node35 / 1.87E+01

#####

==> System inflows (data group K3) at 8.05 hours (Junction / Inflow,cfs)

Node35 / 1.89E+01

#####

==> System inflows (data group K3) at 8.10 hours (Junction / Inflow,cfs)

Node35 / 1.90E+01

#####

==> System inflows (data group K3) at 8.20 hours (Junction / Inflow,cfs)

Node35 / 1.92E+01

#####

==> System inflows (data group K3) at 8.30 hours (Junction / Inflow,cfs)

Node35 / 1.93E+01

#####

==> System inflows (data group K3) at 8.35 hours (Junction / Inflow,cfs)

Node35 / 1.95E+01

#####

==> System inflows (data group K3) at 8.45 hours (Junction / Inflow,cfs)

Node35 / 1.96E+01

#####

==> System inflows (data group K3) at 8.55 hours (Junction / Inflow,cfs)

Node35 / 1.98E+01

Coupland_Prop10yr_NoImpact.out

==> System inflows (data group K3) at 8.60 hours (Junction / Inflow,cfs)

Node35 / 1.99E+01

==> System inflows (data group K3) at 8.70 hours (Junction / Inflow,cfs)

Node35 / 2.01E+01

==> System inflows (data group K3) at 8.80 hours (Junction / Inflow,cfs)

Node35 / 2.02E+01

==> System inflows (data group K3) at 8.85 hours (Junction / Inflow,cfs)

Node35 / 2.04E+01

==> System inflows (data group K3) at 8.95 hours (Junction / Inflow,cfs)

Node35 / 2.05E+01

==> System inflows (data group K3) at 9.05 hours (Junction / Inflow,cfs)

Node35 / 2.07E+01

==> System inflows (data group K3) at 9.10 hours (Junction / Inflow,cfs)

Node35 / 2.08E+01

==> System inflows (data group K3) at 9.20 hours (Junction / Inflow,cfs)

Node35 / 2.10E+01

==> System inflows (data group K3) at 9.30 hours (Junction / Inflow,cfs)

Node35 / 2.11E+01

==> System inflows (data group K3) at 9.35 hours (Junction / Inflow,cfs)

Coupland_Prop10yr_NoImpact.out

Node35 / 2.13E+01

==> System inflows (data group K3) at 9.45 hours (Junction / Inflow,cfs)

Node35 / 2.15E+01

==> System inflows (data group K3) at 9.55 hours (Junction / Inflow,cfs)

Node35 / 2.16E+01

==> System inflows (data group K3) at 9.60 hours (Junction / Inflow,cfs)

Node35 / 2.18E+01

==> System inflows (data group K3) at 9.70 hours (Junction / Inflow,cfs)

Node35 / 2.20E+01

==> System inflows (data group K3) at 9.80 hours (Junction / Inflow,cfs)

Node35 / 2.22E+01

==> System inflows (data group K3) at 9.85 hours (Junction / Inflow,cfs)

Node35 / 2.24E+01

==> System inflows (data group K3) at 9.95 hours (Junction / Inflow,cfs)

Node35 / 2.26E+01

==> System inflows (data group K3) at 10.05 hours (Junction / Inflow,cfs)

Node35 / 2.29E+01

==> System inflows (data group K3) at 10.10 hours (Junction / Inflow,cfs)

Node35 / 2.32E+01
#####

Coupland_Prop10yr_NoImpact.out

==> System inflows (data group K3) at 10.20 hours (Junction / Inflow,cfs)

Node35 / 2.35E+01

==> System inflows (data group K3) at 10.30 hours (Junction / Inflow,cfs)

Node35 / 2.38E+01

==> System inflows (data group K3) at 10.35 hours (Junction / Inflow,cfs)

Node35 / 2.42E+01

==> System inflows (data group K3) at 10.45 hours (Junction / Inflow,cfs)

Node35 / 2.45E+01

==> System inflows (data group K3) at 10.50 hours (Junction / Inflow,cfs)

Node35 / 2.49E+01

==> System inflows (data group K3) at 10.60 hours (Junction / Inflow,cfs)

Node35 / 2.54E+01

==> System inflows (data group K3) at 10.70 hours (Junction / Inflow,cfs)

Node35 / 2.59E+01

==> System inflows (data group K3) at 10.75 hours (Junction / Inflow,cfs)

Node35 / 2.64E+01

==> System inflows (data group K3) at 10.85 hours (Junction / Inflow,cfs)

Node35 / 2.70E+01

==> System inflows (data group K3) at 10.95 hours (Junction / Inflow,cfs)

Coupland_Prop10yr_NoImpact.out

Node35 / 2.76E+01

==> System inflows (data group K3) at 11.00 hours (Junction / Inflow,cfs)

Node35 / 2.83E+01

==> System inflows (data group K3) at 11.10 hours (Junction / Inflow,cfs)

Node35 / 2.90E+01

==> System inflows (data group K3) at 11.20 hours (Junction / Inflow,cfs)

Node35 / 2.97E+01

==> System inflows (data group K3) at 11.25 hours (Junction / Inflow,cfs)

Node35 / 3.05E+01

==> System inflows (data group K3) at 11.35 hours (Junction / Inflow,cfs)

Node35 / 3.14E+01

==> System inflows (data group K3) at 11.45 hours (Junction / Inflow,cfs)

Node35 / 3.22E+01

==> System inflows (data group K3) at 11.50 hours (Junction / Inflow,cfs)

Node35 / 3.32E+01

==> System inflows (data group K3) at 11.60 hours (Junction / Inflow,cfs)

Node35 / 3.41E+01

==> System inflows (data group K3) at 11.70 hours (Junction / Inflow,cfs)

Node35 / 3.51E+01

#####

Coupland_Prop10yr_NoImpact.out

==> System inflows (data group K3) at 11.75 hours (Junction / Inflow,cfs)

Node35 / 3.62E+01

#####

==> System inflows (data group K3) at 11.85 hours (Junction / Inflow,cfs)

Node35 / 3.72E+01

#####

==> System inflows (data group K3) at 11.95 hours (Junction / Inflow,cfs)

Node35 / 3.84E+01

#####

==> System inflows (data group K3) at 12.00 hours (Junction / Inflow,cfs)

Node35 / 3.95E+01

#####

==> System inflows (data group K3) at 12.10 hours (Junction / Inflow,cfs)

Node35 / 4.08E+01

#####

==> System inflows (data group K3) at 12.20 hours (Junction / Inflow,cfs)

Node35 / 4.20E+01

#####

==> System inflows (data group K3) at 12.25 hours (Junction / Inflow,cfs)

Node35 / 4.34E+01

#####

==> System inflows (data group K3) at 12.35 hours (Junction / Inflow,cfs)

Node35 / 4.47E+01

#####

==> System inflows (data group K3) at 12.45 hours (Junction / Inflow,cfs)

Node35 / 4.61E+01

#####

==> System inflows (data group K3) at 12.50 hours (Junction / Inflow,cfs)

Node35 / 4.76E+01

Coupland_Prop10yr_NoImpact.out

==> System inflows (data group K3) at 12.60 hours (Junction / Inflow,cfs)

Node35 / 4.91E+01

==> System inflows (data group K3) at 12.70 hours (Junction / Inflow,cfs)

Node35 / 5.07E+01

==> System inflows (data group K3) at 12.75 hours (Junction / Inflow,cfs)

Node35 / 5.23E+01

==> System inflows (data group K3) at 12.85 hours (Junction / Inflow,cfs)

Node35 / 5.40E+01

==> System inflows (data group K3) at 12.95 hours (Junction / Inflow,cfs)

Node35 / 5.57E+01

==> System inflows (data group K3) at 13.00 hours (Junction / Inflow,cfs)

Node35 / 5.76E+01

==> System inflows (data group K3) at 13.10 hours (Junction / Inflow,cfs)

Node35 / 5.97E+01

==> System inflows (data group K3) at 13.20 hours (Junction / Inflow,cfs)

Node35 / 6.22E+01

==> System inflows (data group K3) at 13.25 hours (Junction / Inflow,cfs)

Node35 / 6.50E+01

==> System inflows (data group K3) at 13.35 hours (Junction / Inflow,cfs)

Coupland_Prop10yr_NoImpact.out

Node35 / 6.81E+01

==> System inflows (data group K3) at 13.45 hours (Junction / Inflow,cfs)

Node35 / 7.13E+01

==> System inflows (data group K3) at 13.50 hours (Junction / Inflow,cfs)

Node35 / 7.47E+01

==> System inflows (data group K3) at 13.60 hours (Junction / Inflow,cfs)

Node35 / 7.81E+01

==> System inflows (data group K3) at 13.70 hours (Junction / Inflow,cfs)

Node35 / 8.17E+01

==> System inflows (data group K3) at 13.75 hours (Junction / Inflow,cfs)

Node35 / 8.53E+01

==> System inflows (data group K3) at 13.85 hours (Junction / Inflow,cfs)

Node35 / 8.90E+01

==> System inflows (data group K3) at 13.95 hours (Junction / Inflow,cfs)

Node35 / 9.28E+01

==> System inflows (data group K3) at 14.00 hours (Junction / Inflow,cfs)

Node35 / 9.68E+01

==> System inflows (data group K3) at 14.10 hours (Junction / Inflow,cfs)

Node35 / 1.01E+02
#####

Coupland_Prop10yr_NoImpact.out

====> System inflows (data group K3) at 14.20 hours (Junction / Inflow,cfs)

Node35 / 1.05E+02

====> System inflows (data group K3) at 14.25 hours (Junction / Inflow,cfs)

Node35 / 1.09E+02

====> System inflows (data group K3) at 14.35 hours (Junction / Inflow,cfs)

Node35 / 1.14E+02

====> System inflows (data group K3) at 14.45 hours (Junction / Inflow,cfs)

Node35 / 1.19E+02

====> System inflows (data group K3) at 14.50 hours (Junction / Inflow,cfs)

Node35 / 1.24E+02

====> System inflows (data group K3) at 14.60 hours (Junction / Inflow,cfs)

Node35 / 1.28E+02

====> System inflows (data group K3) at 14.70 hours (Junction / Inflow,cfs)

Node35 / 1.34E+02

====> System inflows (data group K3) at 14.75 hours (Junction / Inflow,cfs)

Node35 / 1.39E+02

====> System inflows (data group K3) at 14.85 hours (Junction / Inflow,cfs)

Node35 / 1.44E+02

====> System inflows (data group K3) at 14.95 hours (Junction / Inflow,cfs)

Coupland_Prop10yr_NoImpact.out

Node35 / 1.50E+02

==> System inflows (data group K3) at 15.00 hours (Junction / Inflow,cfs)

Node35 / 1.56E+02

==> System inflows (data group K3) at 15.10 hours (Junction / Inflow,cfs)

Node35 / 1.62E+02

==> System inflows (data group K3) at 15.20 hours (Junction / Inflow,cfs)

Node35 / 1.70E+02

==> System inflows (data group K3) at 15.25 hours (Junction / Inflow,cfs)

Node35 / 1.78E+02

==> System inflows (data group K3) at 15.35 hours (Junction / Inflow,cfs)

Node35 / 1.88E+02

==> System inflows (data group K3) at 15.45 hours (Junction / Inflow,cfs)

Node35 / 1.98E+02

==> System inflows (data group K3) at 15.50 hours (Junction / Inflow,cfs)

Node35 / 2.10E+02

==> System inflows (data group K3) at 15.60 hours (Junction / Inflow,cfs)

Node35 / 2.23E+02

==> System inflows (data group K3) at 15.70 hours (Junction / Inflow,cfs)

Node35 / 2.39E+02

#####

Coupland_Prop10yr_NoImpact.out

==> System inflows (data group K3) at 15.75 hours (Junction / Inflow,cfs)

Node35 / 2.59E+02

#####

==> System inflows (data group K3) at 15.85 hours (Junction / Inflow,cfs)

Node35 / 2.85E+02

#####

==> System inflows (data group K3) at 15.95 hours (Junction / Inflow,cfs)

Node35 / 3.22E+02

#####

==> System inflows (data group K3) at 16.05 hours (Junction / Inflow,cfs)

Node35 / 3.77E+02

#####

==> System inflows (data group K3) at 16.10 hours (Junction / Inflow,cfs)

Node35 / 4.51E+02

#####

==> System inflows (data group K3) at 16.20 hours (Junction / Inflow,cfs)

Node35 / 5.39E+02

#####

==> System inflows (data group K3) at 16.25 hours (Junction / Inflow,cfs)

Node35 / 6.27E+02

#####

==> System inflows (data group K3) at 16.35 hours (Junction / Inflow,cfs)

Node35 / 6.99E+02

#####

==> System inflows (data group K3) at 16.45 hours (Junction / Inflow,cfs)

Node35 / 7.49E+02

#####

==> System inflows (data group K3) at 16.55 hours (Junction / Inflow,cfs)

Node35 / 7.78E+02

Coupland_Prop10yr_NoImpact.out

==> System inflows (data group K3) at 16.60 hours (Junction / Inflow,cfs)

Node35 / 7.93E+02

==> System inflows (data group K3) at 16.70 hours (Junction / Inflow,cfs)

Node35 / 8.01E+02

==> System inflows (data group K3) at 16.75 hours (Junction / Inflow,cfs)

Node35 / 8.06E+02

==> System inflows (data group K3) at 16.85 hours (Junction / Inflow,cfs)

Node35 / 8.08E+02

==> System inflows (data group K3) at 16.95 hours (Junction / Inflow,cfs)

Node35 / 8.08E+02

==> System inflows (data group K3) at 17.00 hours (Junction / Inflow,cfs)

Node35 / 8.06E+02

==> System inflows (data group K3) at 17.10 hours (Junction / Inflow,cfs)

Node35 / 8.04E+02

==> System inflows (data group K3) at 17.20 hours (Junction / Inflow,cfs)

Node35 / 8.00E+02

==> System inflows (data group K3) at 17.25 hours (Junction / Inflow,cfs)

Node35 / 7.96E+02

==> System inflows (data group K3) at 17.35 hours (Junction / Inflow,cfs)

Coupland_Prop10yr_NoImpact.out

Node35 / 7.90E+02

==> System inflows (data group K3) at 17.45 hours (Junction / Inflow,cfs)

Node35 / 7.84E+02

==> System inflows (data group K3) at 17.50 hours (Junction / Inflow,cfs)

Node35 / 7.78E+02

==> System inflows (data group K3) at 17.60 hours (Junction / Inflow,cfs)

Node35 / 7.72E+02

==> System inflows (data group K3) at 17.70 hours (Junction / Inflow,cfs)

Node35 / 7.65E+02

==> System inflows (data group K3) at 17.75 hours (Junction / Inflow,cfs)

Node35 / 7.58E+02

==> System inflows (data group K3) at 17.85 hours (Junction / Inflow,cfs)

Node35 / 7.52E+02

==> System inflows (data group K3) at 17.95 hours (Junction / Inflow,cfs)

Node35 / 7.45E+02

==> System inflows (data group K3) at 18.00 hours (Junction / Inflow,cfs)

Node35 / 7.38E+02

==> System inflows (data group K3) at 18.10 hours (Junction / Inflow,cfs)

Node35 / 7.31E+02
#####

Coupland_Prop10yr_NoImpact.out

==> System inflows (data group K3) at 18.20 hours (Junction / Inflow,cfs)

Node35 / 7.24E+02

==> System inflows (data group K3) at 18.25 hours (Junction / Inflow,cfs)

Node35 / 7.16E+02

==> System inflows (data group K3) at 18.35 hours (Junction / Inflow,cfs)

Node35 / 7.09E+02

==> System inflows (data group K3) at 18.45 hours (Junction / Inflow,cfs)

Node35 / 7.02E+02

==> System inflows (data group K3) at 18.50 hours (Junction / Inflow,cfs)

Node35 / 6.94E+02

==> System inflows (data group K3) at 18.60 hours (Junction / Inflow,cfs)

Node35 / 6.87E+02

==> System inflows (data group K3) at 18.70 hours (Junction / Inflow,cfs)

Node35 / 6.80E+02

==> System inflows (data group K3) at 18.75 hours (Junction / Inflow,cfs)

Node35 / 6.72E+02

==> System inflows (data group K3) at 18.85 hours (Junction / Inflow,cfs)

Node35 / 6.65E+02

==> System inflows (data group K3) at 18.95 hours (Junction / Inflow,cfs)

Coupland_Prop10yr_NoImpact.out

Node35 / 6.57E+02

==> System inflows (data group K3) at 19.00 hours (Junction / Inflow,cfs)

Node35 / 6.50E+02

==> System inflows (data group K3) at 19.10 hours (Junction / Inflow,cfs)

Node35 / 6.42E+02

==> System inflows (data group K3) at 19.20 hours (Junction / Inflow,cfs)

Node35 / 6.34E+02

==> System inflows (data group K3) at 19.25 hours (Junction / Inflow,cfs)

Node35 / 6.26E+02

==> System inflows (data group K3) at 19.35 hours (Junction / Inflow,cfs)

Node35 / 6.18E+02

==> System inflows (data group K3) at 19.45 hours (Junction / Inflow,cfs)

Node35 / 6.10E+02

==> System inflows (data group K3) at 19.50 hours (Junction / Inflow,cfs)

Node35 / 6.01E+02

==> System inflows (data group K3) at 19.60 hours (Junction / Inflow,cfs)

Node35 / 5.93E+02

==> System inflows (data group K3) at 19.70 hours (Junction / Inflow,cfs)

Node35 / 5.85E+02

#####

Coupland_Prop10yr_NoImpact.out

==> System inflows (data group K3) at 19.75 hours (Junction / Inflow,cfs)

Node35 / 5.77E+02

#####

==> System inflows (data group K3) at 19.85 hours (Junction / Inflow,cfs)

Node35 / 5.69E+02

#####

==> System inflows (data group K3) at 19.95 hours (Junction / Inflow,cfs)

Node35 / 5.61E+02

#####

==> System inflows (data group K3) at 20.00 hours (Junction / Inflow,cfs)

Node35 / 5.54E+02

#####

==> System inflows (data group K3) at 20.10 hours (Junction / Inflow,cfs)

Node35 / 5.46E+02

#####

==> System inflows (data group K3) at 20.20 hours (Junction / Inflow,cfs)

Node35 / 5.38E+02

#####

==> System inflows (data group K3) at 20.30 hours (Junction / Inflow,cfs)

Node35 / 5.31E+02

#####

==> System inflows (data group K3) at 20.35 hours (Junction / Inflow,cfs)

Node35 / 5.23E+02

#####

==> System inflows (data group K3) at 20.45 hours (Junction / Inflow,cfs)

Node35 / 5.16E+02

#####

==> System inflows (data group K3) at 20.55 hours (Junction / Inflow,cfs)

Node35 / 5.09E+02

Coupland_Prop10yr_NoImpact.out

==> System inflows (data group K3) at 20.60 hours (Junction / Inflow,cfs)

Node35 / 5.02E+02

==> System inflows (data group K3) at 20.70 hours (Junction / Inflow,cfs)

Node35 / 4.94E+02

==> System inflows (data group K3) at 20.80 hours (Junction / Inflow,cfs)

Node35 / 4.88E+02

==> System inflows (data group K3) at 20.85 hours (Junction / Inflow,cfs)

Node35 / 4.81E+02

==> System inflows (data group K3) at 20.95 hours (Junction / Inflow,cfs)

Node35 / 4.74E+02

==> System inflows (data group K3) at 21.05 hours (Junction / Inflow,cfs)

Node35 / 4.67E+02

==> System inflows (data group K3) at 21.10 hours (Junction / Inflow,cfs)

Node35 / 4.60E+02

==> System inflows (data group K3) at 21.20 hours (Junction / Inflow,cfs)

Node35 / 4.54E+02

==> System inflows (data group K3) at 21.30 hours (Junction / Inflow,cfs)

Node35 / 4.47E+02

==> System inflows (data group K3) at 21.35 hours (Junction / Inflow,cfs)

Coupland_Prop10yr_NoImpact.out

Node35 / 4.41E+02

==> System inflows (data group K3) at 21.45 hours (Junction / Inflow,cfs)

Node35 / 4.35E+02

==> System inflows (data group K3) at 21.55 hours (Junction / Inflow,cfs)

Node35 / 4.28E+02

==> System inflows (data group K3) at 21.60 hours (Junction / Inflow,cfs)

Node35 / 4.22E+02

==> System inflows (data group K3) at 21.70 hours (Junction / Inflow,cfs)

Node35 / 4.16E+02

==> System inflows (data group K3) at 21.80 hours (Junction / Inflow,cfs)

Node35 / 4.10E+02

==> System inflows (data group K3) at 21.85 hours (Junction / Inflow,cfs)

Node35 / 4.04E+02

==> System inflows (data group K3) at 21.95 hours (Junction / Inflow,cfs)

Node35 / 3.99E+02

==> System inflows (data group K3) at 22.05 hours (Junction / Inflow,cfs)

Node35 / 3.93E+02

==> System inflows (data group K3) at 22.10 hours (Junction / Inflow,cfs)

Node35 / 3.87E+02
#####

Coupland_Prop10yr_NoImpact.out

==> System inflows (data group K3) at 22.20 hours (Junction / Inflow,cfs)

Node35 / 3.82E+02

==> System inflows (data group K3) at 22.30 hours (Junction / Inflow,cfs)

Node35 / 3.76E+02

==> System inflows (data group K3) at 22.35 hours (Junction / Inflow,cfs)

Node35 / 3.71E+02

==> System inflows (data group K3) at 22.45 hours (Junction / Inflow,cfs)

Node35 / 3.66E+02

==> System inflows (data group K3) at 22.55 hours (Junction / Inflow,cfs)

Node35 / 3.61E+02

==> System inflows (data group K3) at 22.60 hours (Junction / Inflow,cfs)

Node35 / 3.56E+02

==> System inflows (data group K3) at 22.70 hours (Junction / Inflow,cfs)

Node35 / 3.51E+02

==> System inflows (data group K3) at 22.80 hours (Junction / Inflow,cfs)

Node35 / 3.46E+02

==> System inflows (data group K3) at 22.85 hours (Junction / Inflow,cfs)

Node35 / 3.41E+02

==> System inflows (data group K3) at 22.95 hours (Junction / Inflow,cfs)

Coupland_Prop10yr_NoImpact.out

Node35 / 3.36E+02

==> System inflows (data group K3) at 23.05 hours (Junction / Inflow,cfs)

Node35 / 3.31E+02

==> System inflows (data group K3) at 23.10 hours (Junction / Inflow,cfs)

Node35 / 3.27E+02

==> System inflows (data group K3) at 23.20 hours (Junction / Inflow,cfs)

Node35 / 3.22E+02

==> System inflows (data group K3) at 23.30 hours (Junction / Inflow,cfs)

Node35 / 3.18E+02

==> System inflows (data group K3) at 23.35 hours (Junction / Inflow,cfs)

Node35 / 3.13E+02

==> System inflows (data group K3) at 23.45 hours (Junction / Inflow,cfs)

Node35 / 3.09E+02

==> System inflows (data group K3) at 23.55 hours (Junction / Inflow,cfs)

Node35 / 3.04E+02

==> System inflows (data group K3) at 23.60 hours (Junction / Inflow,cfs)

Node35 / 3.00E+02

==> System inflows (data group K3) at 23.70 hours (Junction / Inflow,cfs)

Node35 / 2.96E+02

#####

==> System inflows (data group K3) at 23.80 hours (Junction / Inflow,cfs)

Node35 / 2.92E+02

#####

==> System inflows (data group K3) at 23.85 hours (Junction / Inflow,cfs)

Node35 / 2.88E+02

#####

==> System inflows (data group K3) at 23.95 hours (Junction / Inflow,cfs)

Node35 / 2.84E+02

#####

==> System inflows (data group K3) at 24.05 hours (Junction / Inflow,cfs)

Node35 / 2.80E+02

#####

==> System inflows (data group K3) at 24.10 hours (Junction / Inflow,cfs)

Node35 / 2.75E+02

#####

==> System inflows (data group K3) at 24.20 hours (Junction / Inflow,cfs)

Node35 / 2.71E+02

#####

==> System inflows (data group K3) at 24.30 hours (Junction / Inflow,cfs)

Node35 / 2.66E+02

#####

==> System inflows (data group K3) at 24.35 hours (Junction / Inflow,cfs)

Node35 / 2.62E+02

#####

==> System inflows (data group K3) at 24.45 hours (Junction / Inflow,cfs)

Node35 / 2.57E+02

#####

==> System inflows (data group K3) at 24.55 hours (Junction / Inflow,cfs)

Node35 / 2.52E+02

Coupland_Prop10yr_NoImpact.out

 #####
 ==> System inflows (data group K3) at 24.60 hours (Junction / Inflow,cfs)

Node35 / 2.47E+02
 #####
 #####
 ==> System inflows (data group K3) at 24.70 hours (Junction / Inflow,cfs)

Node35 / 2.42E+02
 #####
 #####
 ==> System inflows (data group K3) at 24.80 hours (Junction / Inflow,cfs)

Node35 / 2.38E+02
 #####
 #####
 ==> System inflows (data group K3) at 24.85 hours (Junction / Inflow,cfs)

Node35 / 2.33E+02
 #####
 #####
 ==> System inflows (data group K3) at 24.95 hours (Junction / Inflow,cfs)

Node35 / 2.29E+02
 #####

Cycle 500 Time 25 Hrs - 0.00 Min

Junction / Depth / Elevation	====>	"*" Junction is Surcharged.
Node13/ 0.46 / 23.20		Node14/ 0.50 / 23.20
Node15/ 0.77 / 21.97		
Node16/ 0.81 / 21.97		Node17/ 0.83 / 21.14
Node18/ 0.69 / 21.14		
Node19/ 1.67 / 21.10		Node20/ 1.47 / 21.10
Node21/ 1.39 / 21.08		
Node22/ 1.28 / 21.08		Node23/ 1.57 / 21.02
Node24/ 1.15 / 21.02		
Node25/ 0.60 / 20.17		Node26/ 0.50 / 19.35
Node27/ 0.82 / 19.04		
Node28/ 4.47 / 15.94		Node31/ 4.52 / 16.00
Node33/ 4.39 / 15.85		
Node34/ 0.92 / 23.20		Node35/ 4.52 / 16.01
Node36/ 6.71 / 15.73		
Node37/ 7.17 / 15.63		Node41/ 7.17 / 15.63
Link42.1/ 3.44 / 15.95		
Node23.1.1/ 7.96 / 15.96		Node19.1.1/ 7.96 / 15.96
Node18.1.1/ 0.97 / 15.96		

Coupland_Prop10yr_NoImpact.out

Node34.1.1/ 0.26 / 16.58 Node39/ 0.24 / 23.39
Node40/ 3.44 / 15.94

Conduit/ FLOW ==> "*" Conduit uses the normal flow option.
Link14/ 0.14* Link16/ 0.15*
Link18/ 0.19 Link20/ 1.03
Link22/ -1.12 Link24/ 1.21
Link26/ 1.22 Link31/ 230.19
Link33/ 234.29 Link34/ -0.14
Link36/ 237.77 Link37/ 244.90
Link42.1.1/ 248.99 Link38.1/ 0.90
Link46.1/ 0.63 Link45.1/ 0.60
Link39.1/ 0.31 Link41/ 0.13*
Link48/ 229.15 227.1/ 0.14
231.1/ 0.14 235.1/ -0.17
239.1/ -1.00 243.1/ -1.06
247.1/ -1.17 251.1/ 1.22
255.1/ 1.23 324.1/ 2.46
Restrictor.1/ 1.21 W14/ 0.00
W15/ 0.00 W17/ 0.00 W21/ 0.00
W20/ 0.00 W25/ 0.00 W42/ 0.00
W24/ 0.00 W27/ 0.00
FREE# 1/ 249.05

==> System inflows (data group K3) at 25.05 hours (Junction / Inflow,cfs)

Node35 / 2.25E+02

==> System inflows (data group K3) at 25.10 hours (Junction / Inflow,cfs)

Node35 / 2.20E+02

==> System inflows (data group K3) at 25.20 hours (Junction / Inflow,cfs)

Node35 / 2.16E+02

==> System inflows (data group K3) at 25.25 hours (Junction / Inflow,cfs)

Node35 / 2.12E+02

==> System inflows (data group K3) at 25.35 hours (Junction / Inflow,cfs)

Node35 / 2.08E+02

Coupland_Prop10yr_NoImpact.out

==> System inflows (data group K3) at 25.45 hours (Junction / Inflow,cfs)

Node35 / 2.04E+02

==> System inflows (data group K3) at 25.50 hours (Junction / Inflow,cfs)

Node35 / 2.01E+02

==> System inflows (data group K3) at 25.60 hours (Junction / Inflow,cfs)

Node35 / 1.97E+02

==> System inflows (data group K3) at 25.70 hours (Junction / Inflow,cfs)

Node35 / 1.93E+02

==> System inflows (data group K3) at 25.75 hours (Junction / Inflow,cfs)

Node35 / 1.90E+02

==> System inflows (data group K3) at 25.85 hours (Junction / Inflow,cfs)

Node35 / 1.86E+02

==> System inflows (data group K3) at 25.95 hours (Junction / Inflow,cfs)

Node35 / 1.82E+02

==> System inflows (data group K3) at 26.00 hours (Junction / Inflow,cfs)

Node35 / 1.79E+02

==> System inflows (data group K3) at 26.10 hours (Junction / Inflow,cfs)

Node35 / 1.76E+02

==> System inflows (data group K3) at 26.20 hours (Junction / Inflow,cfs)

Coupland_Prop10yr_NoImpact.out

Node35 / 1.72E+02

==> System inflows (data group K3) at 26.25 hours (Junction / Inflow,cfs)

Node35 / 1.69E+02

==> System inflows (data group K3) at 26.35 hours (Junction / Inflow,cfs)

Node35 / 1.66E+02

==> System inflows (data group K3) at 26.45 hours (Junction / Inflow,cfs)

Node35 / 1.63E+02

==> System inflows (data group K3) at 26.50 hours (Junction / Inflow,cfs)

Node35 / 1.60E+02

==> System inflows (data group K3) at 26.60 hours (Junction / Inflow,cfs)

Node35 / 1.57E+02

==> System inflows (data group K3) at 26.70 hours (Junction / Inflow,cfs)

Node35 / 1.54E+02

==> System inflows (data group K3) at 26.75 hours (Junction / Inflow,cfs)

Node35 / 1.51E+02

==> System inflows (data group K3) at 26.85 hours (Junction / Inflow,cfs)

Node35 / 1.48E+02

==> System inflows (data group K3) at 26.95 hours (Junction / Inflow,cfs)

Node35 / 1.45E+02
#####

Coupland_Prop10yr_NoImpact.out

==> System inflows (data group K3) at 27.00 hours (Junction / Inflow,cfs)

Node35 / 1.43E+02

==> System inflows (data group K3) at 27.10 hours (Junction / Inflow,cfs)

Node35 / 1.40E+02

==> System inflows (data group K3) at 27.20 hours (Junction / Inflow,cfs)

Node35 / 1.37E+02

==> System inflows (data group K3) at 27.25 hours (Junction / Inflow,cfs)

Node35 / 1.35E+02

==> System inflows (data group K3) at 27.35 hours (Junction / Inflow,cfs)

Node35 / 1.32E+02

==> System inflows (data group K3) at 27.45 hours (Junction / Inflow,cfs)

Node35 / 1.30E+02

==> System inflows (data group K3) at 27.50 hours (Junction / Inflow,cfs)

Node35 / 1.27E+02

==> System inflows (data group K3) at 27.60 hours (Junction / Inflow,cfs)

Node35 / 1.25E+02

==> System inflows (data group K3) at 27.70 hours (Junction / Inflow,cfs)

Node35 / 1.22E+02

==> System inflows (data group K3) at 27.75 hours (Junction / Inflow,cfs)

Coupland_Prop10yr_NoImpact.out

Node35 / 1.20E+02

==> System inflows (data group K3) at 27.85 hours (Junction / Inflow,cfs)

Node35 / 1.18E+02

==> System inflows (data group K3) at 27.95 hours (Junction / Inflow,cfs)

Node35 / 1.16E+02

==> System inflows (data group K3) at 28.00 hours (Junction / Inflow,cfs)

Node35 / 1.14E+02

==> System inflows (data group K3) at 28.10 hours (Junction / Inflow,cfs)

Node35 / 1.11E+02

==> System inflows (data group K3) at 28.20 hours (Junction / Inflow,cfs)

Node35 / 1.09E+02

==> System inflows (data group K3) at 28.25 hours (Junction / Inflow,cfs)

Node35 / 1.07E+02

==> System inflows (data group K3) at 28.35 hours (Junction / Inflow,cfs)

Node35 / 1.05E+02

==> System inflows (data group K3) at 28.45 hours (Junction / Inflow,cfs)

Node35 / 1.03E+02

==> System inflows (data group K3) at 28.50 hours (Junction / Inflow,cfs)

Node35 / 1.01E+02

#####

Coupland_Prop10yr_NoImpact.out

==> System inflows (data group K3) at 28.60 hours (Junction / Inflow,cfs)

Node35 / 9.95E+01

#####

==> System inflows (data group K3) at 28.70 hours (Junction / Inflow,cfs)

Node35 / 9.76E+01

#####

==> System inflows (data group K3) at 28.75 hours (Junction / Inflow,cfs)

Node35 / 9.58E+01

#####

==> System inflows (data group K3) at 28.85 hours (Junction / Inflow,cfs)

Node35 / 9.40E+01

#####

==> System inflows (data group K3) at 28.95 hours (Junction / Inflow,cfs)

Node35 / 9.22E+01

#####

==> System inflows (data group K3) at 29.00 hours (Junction / Inflow,cfs)

Node35 / 9.05E+01

#####

==> System inflows (data group K3) at 29.10 hours (Junction / Inflow,cfs)

Node35 / 8.88E+01

#####

==> System inflows (data group K3) at 29.20 hours (Junction / Inflow,cfs)

Node35 / 8.71E+01

#####

==> System inflows (data group K3) at 29.25 hours (Junction / Inflow,cfs)

Node35 / 8.55E+01

#####

==> System inflows (data group K3) at 29.35 hours (Junction / Inflow,cfs)

Node35 / 8.39E+01

Coupland_Prop10yr_NoImpact.out

==> System inflows (data group K3) at 29.45 hours (Junction / Inflow,cfs)

Node35 / 8.23E+01

==> System inflows (data group K3) at 29.50 hours (Junction / Inflow,cfs)

Node35 / 8.07E+01

==> System inflows (data group K3) at 29.60 hours (Junction / Inflow,cfs)

Node35 / 7.92E+01

==> System inflows (data group K3) at 29.70 hours (Junction / Inflow,cfs)

Node35 / 7.77E+01

==> System inflows (data group K3) at 29.75 hours (Junction / Inflow,cfs)

Node35 / 7.63E+01

==> System inflows (data group K3) at 29.85 hours (Junction / Inflow,cfs)

Node35 / 7.48E+01

==> System inflows (data group K3) at 29.95 hours (Junction / Inflow,cfs)

Node35 / 7.34E+01

==> System inflows (data group K3) at 30.00 hours (Junction / Inflow,cfs)

Node35 / 7.20E+01

==> System inflows (data group K3) at 30.10 hours (Junction / Inflow,cfs)

Node35 / 7.07E+01

==> System inflows (data group K3) at 30.20 hours (Junction / Inflow,cfs)

Coupland_Prop10yr_NoImpact.out

Node35 / 6.94E+01

==> System inflows (data group K3) at 30.25 hours (Junction / Inflow,cfs)

Node35 / 6.81E+01

==> System inflows (data group K3) at 30.35 hours (Junction / Inflow,cfs)

Node35 / 6.68E+01

==> System inflows (data group K3) at 30.45 hours (Junction / Inflow,cfs)

Node35 / 6.55E+01

==> System inflows (data group K3) at 30.50 hours (Junction / Inflow,cfs)

Node35 / 6.43E+01

==> System inflows (data group K3) at 30.60 hours (Junction / Inflow,cfs)

Node35 / 6.31E+01

==> System inflows (data group K3) at 30.70 hours (Junction / Inflow,cfs)

Node35 / 6.19E+01

==> System inflows (data group K3) at 30.75 hours (Junction / Inflow,cfs)

Node35 / 6.07E+01

==> System inflows (data group K3) at 30.85 hours (Junction / Inflow,cfs)

Node35 / 5.96E+01

==> System inflows (data group K3) at 30.95 hours (Junction / Inflow,cfs)

Node35 / 5.85E+01
#####

Coupland_Prop10yr_NoImpact.out

==> System inflows (data group K3) at 31.00 hours (Junction / Inflow,cfs)

Node35 / 5.74E+01

==> System inflows (data group K3) at 31.10 hours (Junction / Inflow,cfs)

Node35 / 5.63E+01

==> System inflows (data group K3) at 31.20 hours (Junction / Inflow,cfs)

Node35 / 5.52E+01

==> System inflows (data group K3) at 31.25 hours (Junction / Inflow,cfs)

Node35 / 5.42E+01

==> System inflows (data group K3) at 31.35 hours (Junction / Inflow,cfs)

Node35 / 5.32E+01

==> System inflows (data group K3) at 31.45 hours (Junction / Inflow,cfs)

Node35 / 5.22E+01

==> System inflows (data group K3) at 31.50 hours (Junction / Inflow,cfs)

Node35 / 5.12E+01

==> System inflows (data group K3) at 31.60 hours (Junction / Inflow,cfs)

Node35 / 5.02E+01

==> System inflows (data group K3) at 31.70 hours (Junction / Inflow,cfs)

Node35 / 4.93E+01

==> System inflows (data group K3) at 31.75 hours (Junction / Inflow,cfs)

Coupland_Prop10yr_NoImpact.out

Node35 / 4.84E+01

==> System inflows (data group K3) at 31.85 hours (Junction / Inflow,cfs)

Node35 / 4.75E+01

==> System inflows (data group K3) at 31.95 hours (Junction / Inflow,cfs)

Node35 / 4.66E+01

==> System inflows (data group K3) at 32.00 hours (Junction / Inflow,cfs)

Node35 / 4.57E+01

==> System inflows (data group K3) at 32.10 hours (Junction / Inflow,cfs)

Node35 / 4.48E+01

==> System inflows (data group K3) at 32.20 hours (Junction / Inflow,cfs)

Node35 / 4.40E+01

==> System inflows (data group K3) at 32.25 hours (Junction / Inflow,cfs)

Node35 / 4.32E+01

==> System inflows (data group K3) at 32.35 hours (Junction / Inflow,cfs)

Node35 / 4.23E+01

==> System inflows (data group K3) at 32.45 hours (Junction / Inflow,cfs)

Node35 / 4.15E+01

==> System inflows (data group K3) at 32.50 hours (Junction / Inflow,cfs)

Node35 / 4.08E+01

#####

Coupland_Prop10yr_NoImpact.out

==> System inflows (data group K3) at 32.60 hours (Junction / Inflow,cfs)

Node35 / 4.00E+01

#####

==> System inflows (data group K3) at 32.70 hours (Junction / Inflow,cfs)

Node35 / 3.92E+01

#####

==> System inflows (data group K3) at 32.75 hours (Junction / Inflow,cfs)

Node35 / 3.85E+01

#####

==> System inflows (data group K3) at 32.85 hours (Junction / Inflow,cfs)

Node35 / 3.78E+01

#####

==> System inflows (data group K3) at 32.95 hours (Junction / Inflow,cfs)

Node35 / 3.71E+01

#####

==> System inflows (data group K3) at 33.00 hours (Junction / Inflow,cfs)

Node35 / 3.64E+01

#####

==> System inflows (data group K3) at 33.10 hours (Junction / Inflow,cfs)

Node35 / 3.57E+01

#####

==> System inflows (data group K3) at 33.20 hours (Junction / Inflow,cfs)

Node35 / 3.50E+01

#####

==> System inflows (data group K3) at 33.25 hours (Junction / Inflow,cfs)

Node35 / 3.43E+01

#####

==> System inflows (data group K3) at 33.35 hours (Junction / Inflow,cfs)

Node35 / 3.37E+01

Coupland_Prop10yr_NoImpact.out

==> System inflows (data group K3) at 33.45 hours (Junction / Inflow,cfs)

Node35 / 3.31E+01

==> System inflows (data group K3) at 33.50 hours (Junction / Inflow,cfs)

Node35 / 3.24E+01

==> System inflows (data group K3) at 33.60 hours (Junction / Inflow,cfs)

Node35 / 3.18E+01

==> System inflows (data group K3) at 33.70 hours (Junction / Inflow,cfs)

Node35 / 3.12E+01

==> System inflows (data group K3) at 33.75 hours (Junction / Inflow,cfs)

Node35 / 3.06E+01

==> System inflows (data group K3) at 33.85 hours (Junction / Inflow,cfs)

Node35 / 3.01E+01

==> System inflows (data group K3) at 33.95 hours (Junction / Inflow,cfs)

Node35 / 2.95E+01

==> System inflows (data group K3) at 34.00 hours (Junction / Inflow,cfs)

Node35 / 2.89E+01

==> System inflows (data group K3) at 34.10 hours (Junction / Inflow,cfs)

Node35 / 2.84E+01

==> System inflows (data group K3) at 34.20 hours (Junction / Inflow,cfs)

Coupland_Prop10yr_NoImpact.out

Node35 / 2.78E+01

==> System inflows (data group K3) at 34.25 hours (Junction / Inflow,cfs)

Node35 / 2.73E+01

==> System inflows (data group K3) at 34.35 hours (Junction / Inflow,cfs)

Node35 / 2.68E+01

==> System inflows (data group K3) at 34.45 hours (Junction / Inflow,cfs)

Node35 / 2.63E+01

==> System inflows (data group K3) at 34.50 hours (Junction / Inflow,cfs)

Node35 / 2.58E+01

==> System inflows (data group K3) at 34.60 hours (Junction / Inflow,cfs)

Node35 / 2.53E+01

==> System inflows (data group K3) at 34.70 hours (Junction / Inflow,cfs)

Node35 / 2.48E+01

==> System inflows (data group K3) at 34.75 hours (Junction / Inflow,cfs)

Node35 / 2.43E+01

==> System inflows (data group K3) at 34.85 hours (Junction / Inflow,cfs)

Node35 / 2.39E+01

==> System inflows (data group K3) at 34.95 hours (Junction / Inflow,cfs)

Node35 / 2.34E+01
#####

Coupland_Prop10yr_NoImpact.out

==> System inflows (data group K3) at 35.00 hours (Junction / Inflow,cfs)

Node35 / 2.30E+01

==> System inflows (data group K3) at 35.10 hours (Junction / Inflow,cfs)

Node35 / 2.25E+01

==> System inflows (data group K3) at 35.20 hours (Junction / Inflow,cfs)

Node35 / 2.21E+01

==> System inflows (data group K3) at 35.25 hours (Junction / Inflow,cfs)

Node35 / 2.17E+01

==> System inflows (data group K3) at 35.35 hours (Junction / Inflow,cfs)

Node35 / 2.13E+01

==> System inflows (data group K3) at 35.45 hours (Junction / Inflow,cfs)

Node35 / 2.09E+01

==> System inflows (data group K3) at 35.50 hours (Junction / Inflow,cfs)

Node35 / 2.05E+01

==> System inflows (data group K3) at 35.60 hours (Junction / Inflow,cfs)

Node35 / 2.01E+01

==> System inflows (data group K3) at 35.70 hours (Junction / Inflow,cfs)

Node35 / 1.97E+01

==> System inflows (data group K3) at 35.75 hours (Junction / Inflow,cfs)

Coupland_Prop10yr_NoImpact.out

Node35 / 1.93E+01

==> System inflows (data group K3) at 35.85 hours (Junction / Inflow,cfs)

Node35 / 1.89E+01

==> System inflows (data group K3) at 35.95 hours (Junction / Inflow,cfs)

Node35 / 1.86E+01

==> System inflows (data group K3) at 36.00 hours (Junction / Inflow,cfs)

Node35 / 1.82E+01

==> System inflows (data group K3) at 36.10 hours (Junction / Inflow,cfs)

Node35 / 1.78E+01

==> System inflows (data group K3) at 36.20 hours (Junction / Inflow,cfs)

Node35 / 1.75E+01

==> System inflows (data group K3) at 36.25 hours (Junction / Inflow,cfs)

Node35 / 1.72E+01

==> System inflows (data group K3) at 36.35 hours (Junction / Inflow,cfs)

Node35 / 1.68E+01

==> System inflows (data group K3) at 36.45 hours (Junction / Inflow,cfs)

Node35 / 1.65E+01

==> System inflows (data group K3) at 36.50 hours (Junction / Inflow,cfs)

Node35 / 1.62E+01

#####

Coupland_Prop10yr_NoImpact.out

==> System inflows (data group K3) at 36.60 hours (Junction / Inflow,cfs)

Node35 / 1.58E+01

#####

==> System inflows (data group K3) at 36.70 hours (Junction / Inflow,cfs)

Node35 / 1.55E+01

#####

==> System inflows (data group K3) at 36.75 hours (Junction / Inflow,cfs)

Node35 / 1.52E+01

#####

==> System inflows (data group K3) at 36.85 hours (Junction / Inflow,cfs)

Node35 / 1.49E+01

#####

==> System inflows (data group K3) at 36.95 hours (Junction / Inflow,cfs)

Node35 / 1.46E+01

#####

==> System inflows (data group K3) at 37.00 hours (Junction / Inflow,cfs)

Node35 / 1.43E+01

#####

==> System inflows (data group K3) at 37.10 hours (Junction / Inflow,cfs)

Node35 / 1.40E+01

#####

==> System inflows (data group K3) at 37.20 hours (Junction / Inflow,cfs)

Node35 / 1.37E+01

#####

==> System inflows (data group K3) at 37.25 hours (Junction / Inflow,cfs)

Node35 / 1.34E+01

#####

==> System inflows (data group K3) at 37.35 hours (Junction / Inflow,cfs)

Node35 / 1.31E+01

Coupland_Prop10yr_NoImpact.out

==> System inflows (data group K3) at 37.45 hours (Junction / Inflow,cfs)

Node35 / 1.29E+01

==> System inflows (data group K3) at 37.50 hours (Junction / Inflow,cfs)

Node35 / 1.26E+01

==> System inflows (data group K3) at 37.60 hours (Junction / Inflow,cfs)

Node35 / 1.23E+01

==> System inflows (data group K3) at 37.70 hours (Junction / Inflow,cfs)

Node35 / 1.21E+01

==> System inflows (data group K3) at 37.75 hours (Junction / Inflow,cfs)

Node35 / 1.18E+01

==> System inflows (data group K3) at 37.85 hours (Junction / Inflow,cfs)

Node35 / 1.16E+01

==> System inflows (data group K3) at 37.95 hours (Junction / Inflow,cfs)

Node35 / 1.13E+01

==> System inflows (data group K3) at 38.00 hours (Junction / Inflow,cfs)

Node35 / 1.11E+01

==> System inflows (data group K3) at 38.10 hours (Junction / Inflow,cfs)

Node35 / 1.08E+01

==> System inflows (data group K3) at 38.20 hours (Junction / Inflow,cfs)

Coupland_Prop10yr_NoImpact.out

Node35 / 1.06E+01

==> System inflows (data group K3) at 38.25 hours (Junction / Inflow,cfs)

Node35 / 1.03E+01

==> System inflows (data group K3) at 38.35 hours (Junction / Inflow,cfs)

Node35 / 1.01E+01

==> System inflows (data group K3) at 38.45 hours (Junction / Inflow,cfs)

Node35 / 9.90E+00

==> System inflows (data group K3) at 38.50 hours (Junction / Inflow,cfs)

Node35 / 9.60E+00

==> System inflows (data group K3) at 38.60 hours (Junction / Inflow,cfs)

Node35 / 9.40E+00

==> System inflows (data group K3) at 38.70 hours (Junction / Inflow,cfs)

Node35 / 9.20E+00

==> System inflows (data group K3) at 38.75 hours (Junction / Inflow,cfs)

Node35 / 8.90E+00

==> System inflows (data group K3) at 38.85 hours (Junction / Inflow,cfs)

Node35 / 8.70E+00

==> System inflows (data group K3) at 38.95 hours (Junction / Inflow,cfs)

Node35 / 8.40E+00
#####

Coupland_Prop10yr_NoImpact.out

==> System inflows (data group K3) at 39.00 hours (Junction / Inflow,cfs)

Node35 / 8.20E+00

==> System inflows (data group K3) at 39.10 hours (Junction / Inflow,cfs)

Node35 / 7.90E+00

==> System inflows (data group K3) at 39.20 hours (Junction / Inflow,cfs)

Node35 / 7.60E+00

==> System inflows (data group K3) at 39.25 hours (Junction / Inflow,cfs)

Node35 / 7.30E+00

==> System inflows (data group K3) at 39.35 hours (Junction / Inflow,cfs)

Node35 / 7.00E+00

==> System inflows (data group K3) at 39.45 hours (Junction / Inflow,cfs)

Node35 / 6.50E+00

==> System inflows (data group K3) at 39.50 hours (Junction / Inflow,cfs)

Node35 / 5.80E+00

==> System inflows (data group K3) at 39.60 hours (Junction / Inflow,cfs)

Node35 / 5.10E+00

==> System inflows (data group K3) at 39.70 hours (Junction / Inflow,cfs)

Node35 / 4.40E+00

==> System inflows (data group K3) at 39.75 hours (Junction / Inflow,cfs)

Coupland_Prop10yr_NoImpact.out

Node35 / 4.10E+00

==> System inflows (data group K3) at 39.85 hours (Junction / Inflow,cfs)

Node35 / 3.90E+00

==> System inflows (data group K3) at 39.95 hours (Junction / Inflow,cfs)

Node35 / 3.60E+00

==> System inflows (data group K3) at 40.00 hours (Junction / Inflow,cfs)

Node35 / 3.50E+00

==> System inflows (data group K3) at 40.10 hours (Junction / Inflow,cfs)

Node35 / 3.30E+00

==> System inflows (data group K3) at 40.20 hours (Junction / Inflow,cfs)

Node35 / 3.20E+00

==> System inflows (data group K3) at 40.25 hours (Junction / Inflow,cfs)

Node35 / 3.00E+00

==> System inflows (data group K3) at 40.35 hours (Junction / Inflow,cfs)

Node35 / 2.90E+00

==> System inflows (data group K3) at 40.45 hours (Junction / Inflow,cfs)

Node35 / 2.80E+00

==> System inflows (data group K3) at 40.50 hours (Junction / Inflow,cfs)

Node35 / 2.70E+00

#####

Coupland_Prop10yr_NoImpact.out

==> System inflows (data group K3) at 40.60 hours (Junction / Inflow,cfs)

Node35 / 2.60E+00

#####

==> System inflows (data group K3) at 40.70 hours (Junction / Inflow,cfs)

Node35 / 2.50E+00

#####

==> System inflows (data group K3) at 40.75 hours (Junction / Inflow,cfs)

Node35 / 2.40E+00

#####

==> System inflows (data group K3) at 40.85 hours (Junction / Inflow,cfs)

Node35 / 2.30E+00

#####

==> System inflows (data group K3) at 40.95 hours (Junction / Inflow,cfs)

Node35 / 2.20E+00

#####

==> System inflows (data group K3) at 41.00 hours (Junction / Inflow,cfs)

Node35 / 2.10E+00

#####

==> System inflows (data group K3) at 41.10 hours (Junction / Inflow,cfs)

Node35 / 2.00E+00

#####

==> System inflows (data group K3) at 41.20 hours (Junction / Inflow,cfs)

Node35 / 2.00E+00

#####

==> System inflows (data group K3) at 41.25 hours (Junction / Inflow,cfs)

Node35 / 1.90E+00

#####

==> System inflows (data group K3) at 41.35 hours (Junction / Inflow,cfs)

Node35 / 1.80E+00

Coupland_Prop10yr_NoImpact.out

==> System inflows (data group K3) at 41.45 hours (Junction / Inflow,cfs)

Node35 / 1.80E+00

==> System inflows (data group K3) at 41.50 hours (Junction / Inflow,cfs)

Node35 / 1.70E+00

==> System inflows (data group K3) at 41.60 hours (Junction / Inflow,cfs)

Node35 / 1.60E+00

==> System inflows (data group K3) at 41.70 hours (Junction / Inflow,cfs)

Node35 / 1.60E+00

==> System inflows (data group K3) at 41.75 hours (Junction / Inflow,cfs)

Node35 / 1.50E+00

==> System inflows (data group K3) at 41.85 hours (Junction / Inflow,cfs)

Node35 / 1.50E+00

==> System inflows (data group K3) at 41.95 hours (Junction / Inflow,cfs)

Node35 / 1.40E+00

==> System inflows (data group K3) at 42.00 hours (Junction / Inflow,cfs)

Node35 / 1.30E+00

==> System inflows (data group K3) at 42.10 hours (Junction / Inflow,cfs)

Node35 / 1.30E+00

==> System inflows (data group K3) at 42.20 hours (Junction / Inflow,cfs)

Coupland_Prop10yr_NoImpact.out

Node35 / 1.20E+00

==> System inflows (data group K3) at 42.25 hours (Junction / Inflow,cfs)

Node35 / 1.20E+00

==> System inflows (data group K3) at 42.35 hours (Junction / Inflow,cfs)

Node35 / 1.10E+00

==> System inflows (data group K3) at 42.45 hours (Junction / Inflow,cfs)

Node35 / 1.10E+00

==> System inflows (data group K3) at 42.50 hours (Junction / Inflow,cfs)

Node35 / 1.10E+00

==> System inflows (data group K3) at 42.60 hours (Junction / Inflow,cfs)

Node35 / 1.00E+00

==> System inflows (data group K3) at 42.70 hours (Junction / Inflow,cfs)

Node35 / 1.00E+00

==> System inflows (data group K3) at 42.75 hours (Junction / Inflow,cfs)

Node35 / 9.00E-01

==> System inflows (data group K3) at 42.85 hours (Junction / Inflow,cfs)

Node35 / 9.00E-01

==> System inflows (data group K3) at 42.95 hours (Junction / Inflow,cfs)

Node35 / 9.00E-01
#####

Coupland_Prop10yr_NoImpact.out

==> System inflows (data group K3) at 43.00 hours (Junction / Inflow,cfs)

Node35 / 8.00E-01

==> System inflows (data group K3) at 43.10 hours (Junction / Inflow,cfs)

Node35 / 8.00E-01

==> System inflows (data group K3) at 43.20 hours (Junction / Inflow,cfs)

Node35 / 8.00E-01

==> System inflows (data group K3) at 43.25 hours (Junction / Inflow,cfs)

Node35 / 8.00E-01

==> System inflows (data group K3) at 43.35 hours (Junction / Inflow,cfs)

Node35 / 7.00E-01

==> System inflows (data group K3) at 43.45 hours (Junction / Inflow,cfs)

Node35 / 7.00E-01

==> System inflows (data group K3) at 43.50 hours (Junction / Inflow,cfs)

Node35 / 7.00E-01

==> System inflows (data group K3) at 43.60 hours (Junction / Inflow,cfs)

Node35 / 7.00E-01

==> System inflows (data group K3) at 43.70 hours (Junction / Inflow,cfs)

Node35 / 6.00E-01

==> System inflows (data group K3) at 43.75 hours (Junction / Inflow,cfs)

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Node35 / 6.00E-01

==> System inflows (data group K3) at 43.85 hours (Junction / Inflow,cfs)

Node35 / 6.00E-01

==> System inflows (data group K3) at 43.95 hours (Junction / Inflow,cfs)

Node35 / 6.00E-01

==> System inflows (data group K3) at 44.00 hours (Junction / Inflow,cfs)

Node35 / 5.00E-01

==> System inflows (data group K3) at 44.10 hours (Junction / Inflow,cfs)

Node35 / 5.00E-01

==> System inflows (data group K3) at 44.20 hours (Junction / Inflow,cfs)

Node35 / 5.00E-01

==> System inflows (data group K3) at 44.25 hours (Junction / Inflow,cfs)

Node35 / 5.00E-01

==> System inflows (data group K3) at 44.35 hours (Junction / Inflow,cfs)

Node35 / 5.00E-01

==> System inflows (data group K3) at 44.45 hours (Junction / Inflow,cfs)

Node35 / 4.00E-01

==> System inflows (data group K3) at 44.50 hours (Junction / Inflow,cfs)

Node35 / 4.00E-01

#####

==> System inflows (data group K3) at 44.60 hours (Junction / Inflow,cfs)

Node35 / 4.00E-01

#####

==> System inflows (data group K3) at 44.70 hours (Junction / Inflow,cfs)

Node35 / 4.00E-01

#####

==> System inflows (data group K3) at 44.75 hours (Junction / Inflow,cfs)

Node35 / 4.00E-01

#####

==> System inflows (data group K3) at 44.85 hours (Junction / Inflow,cfs)

Node35 / 3.00E-01

#####

==> System inflows (data group K3) at 44.95 hours (Junction / Inflow,cfs)

Node35 / 3.00E-01

#####

==> System inflows (data group K3) at 45.00 hours (Junction / Inflow,cfs)

Node35 / 3.00E-01

#####

==> System inflows (data group K3) at 45.10 hours (Junction / Inflow,cfs)

Node35 / 3.00E-01

#####

==> System inflows (data group K3) at 45.20 hours (Junction / Inflow,cfs)

Node35 / 3.00E-01

#####

==> System inflows (data group K3) at 45.25 hours (Junction / Inflow,cfs)

Node35 / 3.00E-01

#####

==> System inflows (data group K3) at 45.35 hours (Junction / Inflow,cfs)

Node35 / 3.00E-01

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==> System inflows (data group K3) at 45.45 hours (Junction / Inflow,cfs)

Node35 / 2.00E-01

==> System inflows (data group K3) at 45.50 hours (Junction / Inflow,cfs)

Node35 / 2.00E-01

==> System inflows (data group K3) at 45.60 hours (Junction / Inflow,cfs)

Node35 / 2.00E-01

==> System inflows (data group K3) at 45.70 hours (Junction / Inflow,cfs)

Node35 / 2.00E-01

==> System inflows (data group K3) at 45.75 hours (Junction / Inflow,cfs)

Node35 / 2.00E-01

==> System inflows (data group K3) at 45.85 hours (Junction / Inflow,cfs)

Node35 / 2.00E-01

==> System inflows (data group K3) at 45.95 hours (Junction / Inflow,cfs)

Node35 / 2.00E-01

==> System inflows (data group K3) at 46.00 hours (Junction / Inflow,cfs)

Node35 / 2.00E-01

==> System inflows (data group K3) at 46.10 hours (Junction / Inflow,cfs)

Node35 / 1.00E-01

==> System inflows (data group K3) at 46.20 hours (Junction / Inflow,cfs)

Coupland_Prop10yr_NoImpact.out

Node35 / 1.00E-01

==> System inflows (data group K3) at 46.25 hours (Junction / Inflow,cfs)

Node35 / 1.00E-01

==> System inflows (data group K3) at 46.35 hours (Junction / Inflow,cfs)

Node35 / 1.00E-01

==> System inflows (data group K3) at 46.45 hours (Junction / Inflow,cfs)

Node35 / 1.00E-01

==> System inflows (data group K3) at 46.50 hours (Junction / Inflow,cfs)

Node35 / 1.00E-01

==> System inflows (data group K3) at 46.60 hours (Junction / Inflow,cfs)

Node35 / 1.00E-01

==> System inflows (data group K3) at 46.70 hours (Junction / Inflow,cfs)

Node35 / 1.00E-01

==> System inflows (data group K3) at 46.75 hours (Junction / Inflow,cfs)

Node35 / 1.00E-01

==> System inflows (data group K3) at 46.85 hours (Junction / Inflow,cfs)

Node35 / 1.00E-01

==> System inflows (data group K3) at 46.95 hours (Junction / Inflow,cfs)

Node35 / 1.00E-01
#####

Coupland_Prop10yr_NoImpact.out

====> System inflows (data group K3) at 47.00 hours (Junction / Inflow,cfs)

Node35 / 0.00E+00

====> System inflows (data group K3) at 47.10 hours (Junction / Inflow,cfs)

Node35 / 0.00E+00

====> System inflows (data group K3) at 47.20 hours (Junction / Inflow,cfs)

Node35 / 0.00E+00

====> System inflows (data group K3) at 47.25 hours (Junction / Inflow,cfs)

Node35 / 0.00E+00

====> System inflows (data group K3) at 47.35 hours (Junction / Inflow,cfs)

Node35 / 0.00E+00

====> System inflows (data group K3) at 47.45 hours (Junction / Inflow,cfs)

Node35 / 0.00E+00

====> System inflows (data group K3) at 47.50 hours (Junction / Inflow,cfs)

Node35 / 0.00E+00

====> System inflows (data group K3) at 47.60 hours (Junction / Inflow,cfs)

Node35 / 0.00E+00

====> System inflows (data group K3) at 47.70 hours (Junction / Inflow,cfs)

Node35 / 0.00E+00

====> System inflows (data group K3) at 47.75 hours (Junction / Inflow,cfs)

Coupland_Prop10yr_NoImpact.out

Node35 / 0.00E+00
 #####
 #####
 ==> System inflows (data group K3) at 47.85 hours (Junction / Inflow,cfs)

Node35 / 0.00E+00
 #####
 #####
 ==> System inflows (data group K3) at 47.95 hours (Junction / Inflow,cfs)

Node35 / 0.00E+00
 #####
 #####
 ==> System inflows (data group K3) at 48.00 hours (Junction / Inflow,cfs)

Node35 / 0.00E+00
 #####

```

*=====*
| Table E5 - Junction Time Limitation Summary |
|           (0.10 or 0.25)* Depth * Area     |
| Time step = -----                        |
|                               Sum of Flow   |
*=====*
| The time this junction was the limiting junction |
|           is listed in the third column.       |
*=====*
  
```

Junction	Time(.10)	Time(.25)	Time(sec)
Node13	254.97	637.41	1800.0
Node14	263.04	657.60	0.0
Node15	128.35	320.88	48060.0
Node16	143.24	358.10	540.0
Node17	104.27	260.66	0.0
Node18	87.58	218.95	0.0
Node19	77.12	192.80	0.0
Node20	102.30	255.76	1620.0
Node21	102.03	255.08	0.0
Node22	50.19	125.47	180.0
Node23	120.90	302.24	0.0
Node24	150.06	375.15	0.0
Node25	29.03	72.57	180.0
Node26	216.50	541.25	0.0
Node27	32.29	80.72	180.0
Node28	62.65	156.62	720.0
Node31	81.42	203.54	0.0

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Node33	110.36	275.91	0.0
Node34	240.49	601.23	0.0
Node35	44.15	110.38	74340.0
Node36	84.76	211.90	0.0
Node37	118.60	296.50	0.0
Node41	1800.00	1800.00	0.0
Link42.1	18.04	45.09	540.0
Node23.1.1	11.23	28.07	1980.0
Node19.1.1	1.02	2.54	25380.0
Node18.1.1	5.13	12.83	360.0
Node34.1.1	1.21	3.03	16560.0
Node39	228.15	570.39	0.0
Node40	46.56	116.39	360.0

The junction requiring the smallest time step was...Node35

```

*=====
|
| Table E5a - Conduit Explicit Condition Summary
| Courant = Conduit Length
| Time step = -----
|              Velocity + sqrt(g*depth)
|
| Conduit Implicit Condition Summary
| Courant = Conduit Length
| Time step = -----
|              Velocity
|
*=====
|
| The 3rd column is the Explicit time step times the
| minimum courant time step factor
|
| Minimum Conduit Time Step in seconds in the 4th column
| in the list. Maximum possible is 10 * maximum time step
|
| The 5th column is the maximum change at any time step
| during the simulation. The 6th column is the wobble
| value which is an indicator of the flow stability.
|
| You should use this section to find those conduits that
| are slowing your model down. Use modify conduits to
| alter the length of the slow conduits to make your
| simulation faster, or change the conduit name to
| "CHME?????" where ?????? are any characters, this will
|

```

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| lengthen the conduit based on the model time step, |
 | not the value listed in modify conduits. |
 =====

Wobble	Conduit Type of Soln	Time(exp)	Expl*Cmin	Time(imp)	Time(min)	Max Qchange
-----	-----	-----	-----	-----	-----	-----
0.020	Normal Link14 Soln	11.08	11.08	30.97	21.0	0.013
0.019	Normal Link16 Soln	3.80	3.80	14.20	0.0	-0.008
0.063	Normal Link18 Soln	35.39	35.39	895.19	0.0	-0.019
0.213	Normal Link20 Soln	14.80	14.80	111.55	0.0	0.034
0.885	Normal Link22 Soln	36.66	36.66	321.92	0.0	-0.030
0.237	Normal Link24 Soln	33.04	33.04	135.30	0.0	0.025
0.051	Normal Link26 Soln	4.37	4.37	10.57	0.0	0.026
0.078	Normal Link31 Soln	13.46	13.46	86.95	0.0	0.441
0.061	Normal Link33 Soln	12.72	12.72	71.14	0.0	0.632
0.025	Normal Link34 Soln	8.37	8.37	57.63	0.0	-0.008
0.006	Normal Link36 Soln	32.84	32.84	207.09	0.0	0.577
0.020	Normal Link37 Soln	46.98	46.98	447.49	0.0	0.407
0.610	Normal Link42.1.1 Soln	1.24	1.24	12.71	2496.0	2.246
3.122	Normal Link38.1 Soln	51.90	51.90	318.81	0.0	-0.076
175.123	Normal Link46.1 Soln	1.91	1.91	15.44	309.0	0.532
6.994	Normal Link45.1 Soln	3.96	3.96	26.58	6.0	1.264
5.526	Normal Link39.1 Soln	12.76	12.76	79.35	0.0	0.017
0.037	Normal Link41 Soln	22.76	22.76	91.08	0.0	0.009
0.056	Normal Link48 Soln	2.54	2.54	14.92	0.0	-3.416
0.740	Normal 227.1 Soln	4.53	4.53	18.35	0.0	0.006

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1.410	Normal Soln	231.1	3.74	3.74	30.42	0.0	0.006
0.899	Normal Soln	235.1	2.93	2.93	27.04	0.0	0.011
2.117	Normal Soln	239.1	1.82	1.82	4.98	48.0	-0.034
3.093	Normal Soln	243.1	1.99	1.99	5.15	0.0	-0.032
1.234	Normal Soln	247.1	1.40	1.40	3.74	0.0	-0.027
2.421	Normal Soln	251.1	3.10	3.10	6.57	0.0	0.026
0.681	Normal Soln	255.1	6.86	6.86	12.58	0.0	0.027
3.150	Normal Soln	324.1	2.38	2.38	15.10	0.0	0.242
3.391	Restrictor.1	98.48	98.48	246.83	0.0	0.223	

The conduit with the smallest time step limitation was..Link42.1.1

The conduit with the largest wobble was.....Link46.1

The conduit with the largest flow change in any

consecutive time step.....Link48

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* End of time step D0-loop in Runoff *

Final Date (Mo/Day/Year) = 1/ 2/2016
 Total number of time steps = 2878
 Final Julian Date = 2016002
 Final time of day = 86280. seconds.
 Final time of day = 23.97 hours.
 Final running time = 47.9667 hours.
 Final running time = 1.9986 days.

 * Extrapolation Summary for Watersheds *
 * Explains the number of time steps and iterations *
 * used in the solution of the subcatchments. *
 * # Steps ==> Total Number of Extrapolated Steps *
 * # Calls ==> Total Number of OVERLND Calls *

Subcatchment	# Steps	# Calls	Subcatchment	# Steps	# Calls
Node34.1.1#1	17001	5667	Node18.1.1#1	16995	5665
Node39#1	16914	5638			
Node17#1	16629	5543	Node19#1	17388	5796

 # Rainfall input summary from Runoff Continuity Check #
 #####

Total rainfall read for gage # 1 is 7.7600 in
 Total rainfall duration for gage # 1 is 1440.00 minutes

 * Table R5. CONTINUITY CHECK FOR SURFACE WATER *
 * Any continuity error can be fixed by lowering the *
 * wet and transition time step. The transition time *
 * should not be much greater than the wet time step. *

	cubic feet	Inches over Total Basin
Total Precipitation (Rain plus Snow)	7.025299E+05	7.760
Total Infiltration	1.026656E+05	1.134
Total Evaporation	1.294903E+04	0.143
Surface Runoff from Watersheds	5.869235E+05	6.483
Total Water remaining in Surface Storage	0.000000E+00	0.000

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Infiltration over the Pervious Area...	1.026656E+05	2.644

Infiltration + Evaporation + Surface Runoff + Snow removal + Water remaining in Surface Storage + Water remaining in Snow Cover.....	7.025381E+05	7.760
Total Precipitation + Initial Storage.	7.025299E+05	7.760

The error in continuity is calculated as

```

*****
* Precipitation + Initial Snow Cover *
*   - Infiltration - *
*Evaporation - Snow removal - *
*Surface Runoff from Watersheds - *
*Water in Surface Storage - *
*Water remaining in Snow Cover *
*-----*
* Precipitation + Initial Snow Cover *
*****
Percent Continuity Error.....
    
```

-0.0012

```

*****
* Table R6. Continuity Check for Channel/Pipes *
*   You should have zero continuity error *
*   if you are not using runoff hydraulics *
*****
    
```

Inches

over

cubic feet

Total

Basin

Initial Channel/Pipe Storage.....	0.000000E+00	0.000
Final Channel/Pipe Storage.....	0.000000E+00	0.000
Surface Runoff from Watersheds.....	5.869235E+05	6.483
Groundwater Subsurface Inflow or Diversion..	0.000000E+00	0.000
Evaporation Loss from Channels.....	0.000000E+00	0.000
Groundwater Flow Diverted Out of Network....	0.000000E+00	0.000
Channel/Pipe/Inlet Outflow.....	5.869235E+05	6.483
Initial Storage + Inflow.....	5.869235E+05	6.483
Final Storage + Outflow + Diverted GW.....	5.869235E+05	6.483

```

*****
* Final Storage + Outflow + Evaporation - *
* Watershed Runoff - Groundwater Inflow - *
*   Initial Channel/Pipe Storage *
*   ----- *
* Final Storage + Outflow + Evaporation *
*****
    
```

Percent Continuity Error..... 0.0000

 # Table R9. Summary Statistics for Subcatchments #
 #####

Note: Total Runoff Depth includes pervious & impervious areas.
 Pervious and Impervious Runoff Depth is only the runoff from those two areas.
 For catchments receiving redirected flow, this flow will only be shown if the flow is not directed directly to the outlet. Flow that is getting redirected is also listed with the original subcatchment.

Subcatchment.....	Node34.1.1#1	Node18.1.1#1
Node39#1	Node17#1	Node19#1
Area (acres).....	5.20000	4.87000
2.27000	0.36000	12.24000
Percent Impervious.....	67.00000	67.00000
50.00000	67.00000	50.00000
Total Rainfall (in)....	7.76000	7.76000
7.76000	7.76000	7.76000
Max Intensity (in/hr)..	5.88000	5.88000
5.88000	5.88000	5.88000
Pervious Area		

Total Runoff Depth (in)	5.08725	5.08760
4.98422	5.09996	4.95659
Peak Runoff Rate (cfs).	4.97647	4.66700
2.39870	0.36265	12.06413
Total Impervious Area		

Total Runoff Depth (in)	7.59539	7.59550
7.59937	7.59937	7.59471
Peak Runoff Rate (cfs).	10.99744	10.31188
3.74909	0.79671	19.17074
Impervious Area with depression storage		

Total Runoff Depth (in)	5.69655	5.69663
5.69953	5.69953	5.69603
Peak Runoff Rate (cfs).	8.24808	7.73391
2.81182	0.59753	14.37806

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Impervious Area without depression storage

```

-----
Total Runoff Depth (in)          1.89885          1.89888
1.89984          1.89984          1.89868
Peak Runoff Rate (cfs).         2.74936          2.57797
0.93727          0.19918          4.79269
    
```

Total Area

```

-----
Total Runoff Depth (in)          6.76771          6.76789
6.29180          6.77456          6.27565
Peak Runoff Rate (cfs).         15.97392         14.97888
6.08441          1.15936          30.83203
    
```

Rational Formula

```

-----
Pervious Tc. (mins)....         0.00000          0.00000
0.00000          0.00000          0.00000
Perv. Intensity (in/hr)         0.00000          0.00000
0.00000          0.00000          0.00000
Pervious C .....               0.00000          0.00000
0.00000          0.00000          0.00000
Impervious Tc. (mins)..         0.00000          0.00000
0.00000          0.00000          0.00000
Imp. Intensity (in/hr).         0.00000          0.00000
0.00000          0.00000          0.00000
Impervious C .....             0.00000          0.00000
0.00000          0.00000          0.00000
Partial Area (Ha).....          0.00000          0.00000
0.00000          0.00000          0.00000
Partial Area Tc.....           0.00000          0.00000
0.00000          0.00000          0.00000
Partial Area Intensity.         0.00000          0.00000
0.00000          0.00000          0.00000
    
```

==> Runoff simulation ended normally.

```

*=====*
| Table E6. Final Model Condition |
| This table is used for steady state |
| flow comparison and is the information |
| saved to the hot-restart file. |
| Final Time = 48.050 hours |
*=====*
    
```

```

Junction / Depth / Elevation   ==> "*" Junction is Surcharged.
Node13/ 0.26 / 23.00/          Node14/ 0.30 / 23.00/
Node15/ 0.60 / 21.80/
    
```

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Node16/	0.64 /	21.80/	Node17/	0.44 /	20.75/
Node18/	0.30 /	20.75/			
Node19/	0.78 /	20.21/	Node20/	0.58 /	20.21/
Node21/	0.52 /	20.21/			
Node22/	0.41 /	20.21/	Node23/	0.75 /	20.20/
Node24/	0.33 /	20.20/			
Node25/	0.24 /	19.81/	Node26/	0.01 /	18.86/
Node27/	0.58 /	18.80/			
Node28/	0.02 /	11.49/	Node31/	0.01 /	11.49/
Node33/	0.00 /	11.46/			
Node34/	0.76 /	23.04/	Node35/	0.00 /	11.49/
Node36/	0.01 /	9.03/			
Node37/	0.01 /	8.47/	Node41/	0.00 /	8.46/
Link42.1/	0.03 /	12.54/			
Node23.1.1/	6.91 /	14.91/	Node19.1.1/	6.91 /	14.91/
Node18.1.1/	0.00 /	14.99/			
Node34.1.1/	0.00 /	16.32/	Node39/	0.00 /	23.15/
Node40/	0.02 /	12.52/			

	Conduit/	Flow	====> "*" Conduit uses the normal flow option.
Link18/	Link14/	0.00*/	Link16/ 0.00*/
	Link20/	0.00 /	Link22/ 0.00 /
Link24/	Link26/	0.00*/	Link31/ 0.00 /
	Link34/	0.00 /	Link36/ 0.00*/
Link33/	Link42.1.1/	0.00 /	Link38.1/ 0.00 /
	Link45.1/	0.00*/	Link39.1/ 0.00 /
Link46.1/	Link48/	0.00 /	227.1/ 0.00 /
	235.1/	0.00 /	239.1/ 0.00 /
Link41/	247.1/	0.00 /	251.1/ 0.00 /
	324.1/	0.00 /	Restrictor.1/ 0.00 /
231.1/	W15/	0.00 /	W17/ 0.00 /
	W21/	0.00 /	W24/ 0.00 /
243.1/	W27/	0.00 /	W42/ 0.00 /
	0.00 /		
255.1/			
W14/			
W20/			
W25/			
FREE# 1/			

Conduit/ Velocity

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Link18/	Link14/ 0.00 /	0.00 /	Link16/	0.00 /
Link24/	Link20/ 0.06 /	0.00 /	Link22/	-0.02 /
Link33/	Link26/ 0.02 /	0.01 /	Link31/	0.00 /
Link37/	Link34/ 0.05 /	0.00 /	Link36/	0.06 /
Link46.1/	Link42.1.1/ 0.00 /	0.04 /	Link38.1/	0.00 /
Link41/	Link45.1/ 0.00 /	0.00 /	Link39.1/	0.00 /
231.1/	Link48/ 0.00 /	0.00 /	227.1/	0.00 /
243.1/	235.1/ -0.01 /	0.00 /	239.1/	0.00 /
255.1/	247.1/ 0.56 /	0.00 /	251.1/	0.27 /
	324.1/ 0.18 /	0.18 /	Restrictor.1/	0.08 /

Conduit/ Width

Link18/	Link14/ 0.30 /	0.17 /	Link16/	0.04 /
Link24/	Link20/ 0.14 /	0.81 /	Link22/	0.53 /
Link33/	Link26/ 0.29 /	0.38 /	Link31/	0.22 /
Link37/	Link34/ 0.14 /	0.44 /	Link36/	0.10 /
Link46.1/	Link42.1.1/ 0.02 /	0.14 /	Link38.1/	1.37 /
Link41/	Link45.1/ 0.44 /	1.37 /	Link39.1/	0.98 /
231.1/	Link48/ 2.18 /	0.01 /	227.1/	1.53 /
243.1/	235.1/ 1.26 /	1.65 /	239.1/	2.29 /
255.1/	247.1/ 1.18 /	2.23 /	251.1/	0.98 /
	324.1/ 1.96 /	1.96 /	Restrictor.1/	0.74 /

Junction/ EGL

Node15/	Node13/ 0.60 /	0.26 /	Node14/	0.30 /
Node18/	Node16/ 0.30 /	0.64 /	Node17/	0.44 /
Node21/	Node19/ 0.52 /	0.78 /	Node20/	0.58 /

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Node24/	Node22/	0.41 /	Node23/	0.75 /
	0.33 /			
Node27/	Node25/	0.24 /	Node26/	0.69 /
	0.58 /			
Node33/	Node28/	1.02 /	Node31/	0.01 /
	0.00 /			
Node36/	Node34/	0.76 /	Node35/	0.00 /
	0.01 /			
Link42.1/	Node37/	0.01 /	Node41/	0.00 /
	0.03 /			
Node18.1.1/	Node23.1.1/	6.91 /	Node19.1.1/	6.91 /
	1.00 /			
Node40/	Node34.1.1/	0.00 /	Node39/	0.00 /
	3.78 /			

Junction/ Freeboard

Node15/	Node13/	17.00 /	Node14/	17.00 /
	18.20 /			
Node18/	Node16/	18.20 /	Node17/	19.25 /
	19.25 /			
Node21/	Node19/	19.79 /	Node20/	19.79 /
	19.79 /			
Node24/	Node22/	19.79 /	Node23/	19.80 /
	19.80 /			
Node27/	Node25/	20.19 /	Node26/	21.14 /
	21.20 /			
Node33/	Node28/	28.51 /	Node31/	28.51 /
	28.54 /			
Node36/	Node34/	16.96 /	Node35/	28.51 /
	30.97 /			
Link42.1/	Node37/	31.53 /	Node41/	31.54 /
	27.46 /			
Node18.1.1/	Node23.1.1/	25.09 /	Node19.1.1/	25.09 /
	25.01 /			
Node40/	Node34.1.1/	23.68 /	Node39/	16.85 /
	27.48 /			

Junction/ Max Volume

Node15/	Node13/	13.98 /	Node14/	14.38 /
	30.97 /			
Node18/	Node16/	31.38 /	Node17/	42.10 /
	40.29 /			
Node21/	Node19/	53.03 /	Node20/	47.13 /
	45.98 /			
Node24/	Node22/	41.26 /	Node23/	44.50 /
	37.45 /			
Node27/	Node25/	29.00 /	Node26/	23.11 /
	28.05 /			

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Node33/	Node28/ 109.86 /	110.29 /	Node31/	110.60 /
Node36/	Node34/ 139.93 /	20.39 /	Node35/	110.57 /
Link42.1/	Node37/ 150.41 /	145.96 /	Node41/	145.93 /
Node18.1.1/	Node23.1.1/ 131.39 /	217.49 /	Node19.1.1/	218.18 /
Node40/	Node34.1.1/ 97.44 /	119.48 /	Node39/	14.36 /

Junction/Total Fldng

Node15/	Node13/ 0.00 /	0.00 /	Node14/	0.00 /
Node18/	Node16/ 0.00 /	0.00 /	Node17/	0.00 /
Node21/	Node19/ 0.00 /	0.00 /	Node20/	0.00 /
Node24/	Node22/ 0.00 /	0.00 /	Node23/	0.00 /
Node27/	Node25/ 0.00 /	0.00 /	Node26/	0.00 /
Node33/	Node28/ 0.00 /	0.00 /	Node31/	0.00 /
Node36/	Node34/ 0.00 /	0.00 /	Node35/	0.00 /
Link42.1/	Node37/ 0.00 /	0.00 /	Node41/	0.00 /
Node18.1.1/	Node23.1.1/ 0.00 /	0.00 /	Node19.1.1/	0.00 /
Node40/	Node34.1.1/ 0.00 /	0.00 /	Node39/	0.00 /

Conduit/ Cross Sectional Area

Link18/	Link14/ 0.08 /	0.03 /	Link16/	0.00 /
Link24/	Link20/ 0.02 /	0.15 /	Link22/	0.06 /
Link33/	Link26/ 0.15 /	0.11 /	Link31/	0.09 /
Link37/	Link34/ 0.07 /	0.17 /	Link36/	0.05 /
Link46.1/	Link42.1.1/ 9.68 /	0.08 /	Link38.1/	0.00 /
Link41/	Link45.1/ 0.17 /	0.00 /	Link39.1/	0.00 /
231.1/	Link48/ 0.99 /	0.01 /	227.1/	0.28 /

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243.1/	235.1/ 0.15 /	0.36 /	239.1/	1.25 /
255.1/	247.1/ 0.00 /	1.16 /	251.1/	0.00 /
	324.1/	0.02 /	Restrictor.1/	0.01 /
	Conduit/ Final Volume			
Link18/	Link14/ 19.02 /	1.96 /	Link16/	0.08 /
Link24/	Link20/ 4.68 /	17.45 /	Link22/	16.11 /
Link33/	Link26/ 29.23 /	4.08 /	Link31/	17.96 /
Link37/	Link34/ 49.31 /	8.20 /	Link36/	25.39 /
Link46.1/	Link42.1.1/ 484.04 /	1.59 /	Link38.1/	0.01 /
Link41/	Link45.1/ 22.26 /	0.00 /	Link39.1/	0.00 /
231.1/	Link48/ 36.98 /	0.25 /	227.1/	9.32 /
243.1/	235.1/ 5.06 /	11.99 /	239.1/	41.69 /
255.1/	247.1/ 0.25 /	27.85 /	251.1/	0.20 /
	324.1/	0.70 /	Restrictor.1/	40.00 /
	Conduit/ Hydraulic Radius			
Link18/	Link14/ 0.02 /	0.01 /	Link16/	0.00 /
Link24/	Link20/ 0.01 /	0.05 /	Link22/	0.03 /
Link33/	Link26/ 0.01 /	0.03 /	Link31/	0.00 /
Link37/	Link34/ 0.01 /	0.04 /	Link36/	0.00 /
Link46.1/	Link42.1.1/ 0.88 /	0.01 /	Link38.1/	0.00 /
Link41/	Link45.1/ 0.04 /	0.00 /	Link39.1/	0.01 /
231.1/	Link48/ 0.37 /	0.00 /	227.1/	0.17 /
243.1/	235.1/ 0.11 /	0.20 /	239.1/	0.43 /
255.1/	247.1/ 0.01 /	0.41 /	251.1/	0.01 /
	324.1/	0.02 /	Restrictor.1/	0.02 /

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Conduit/	Upstream/	Downstream	Elevation			
Link14/	23.00/	21.80		Link16/	21.80/	20.75
Link18/	20.75/	20.21/				
Link20/	20.21/	20.21		Link22/	20.20/	20.21
Link24/	20.20/	19.81/				
Link26/	18.86/	18.80		Link31/	11.49/	11.49
Link33/	11.49/	11.46/				
Link34/	23.00/	23.04		Link36/	11.46/	9.03
Link37/	9.03/	8.47/				
Link42.1.1/	8.47/	8.46		Link38.1/	12.54/	12.54
Link46.1/	14.91/	14.91/				
Link45.1/	14.91/	14.91		Link39.1/	16.32/	15.99
Link41/	23.15/	23.04/				
Link48/	11.49/	11.49		227.1/	23.00/	23.00
231.1/	21.80/	21.80/				
235.1/	20.75/	20.75		239.1/	20.21/	20.21
243.1/	20.21/	20.21/				
247.1/	20.20/	20.20		251.1/	19.81/	19.54
255.1/	18.80/	16.27/				
324.1/	12.52/	12.49		Restrictor.1/	12.54/	12.52

=====

| Table E7 - Iteration Summary |

=====

Total number of time steps simulated.....	960
Total number of passes in the simulation.....	210067
Total number of time steps during simulation....	75927
Ratio of actual # of time steps / NTCYC.....	79.091
Average number of iterations per time step.....	2.767
Average time step size(seconds).....	2.276
Smallest time step size(seconds).....	1.011
Largest time step size(seconds).....	180.000
Average minimum Conduit Courant time step (sec).	4.068
Average minimum implicit time step (sec).....	2.276
Average minimum junction time step (sec).....	2.276
Average Courant Factor Tf.....	2.276
Number of times omega reduced.....	0

=====

| Table E8 - Junction Time Step Limitation Summary |

=====

| Not Convr = Number of times this junction did not |

| converge during the simulation. |

| Avg Convr = Average junction iterations. |

| Conv err = Mean convergence error. |

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Omega Cng = Change of omega during iterations

Max Itern = Maximum number of iterations

=====

Ittrn >25	Ittrn >40	Junction	Not Convr	Avg Convr	Total Itt	Omega Cng	Max Itern	Ittrn >10
435	421	Node13	36	1.94	147174	0	501	451
0	0	Node14	0	1.25	94933	0	9	0
0	0	Node15	0	1.23	93422	0	6	0
0	0	Node16	0	1.31	99532	0	11	1
0	0	Node17	0	1.59	120683	0	18	13
1	0	Node18	0	1.61	122253	0	35	6
3	2	Node19	0	1.60	121726	0	94	77
2	1	Node20	0	1.87	142066	0	89	4
0	0	Node21	0	1.43	108920	0	5	0
0	0	Node22	0	1.47	111819	0	11	1
1	0	Node23	0	1.80	136747	0	25	3
1	1	Node24	0	1.79	135994	0	58	3
0	0	Node25	0	1.31	99573	0	6	0
0	0	Node26	0	1.56	118735	0	11	1
300	287	Node27	1	2.22	168274	0	501	323
0	0	Node28	0	2.52	191233	0	6	0
167	163	Node31	0	2.96	224705	0	500	170
0	0	Node33	0	1.70	128721	0	5	0
383	375	Node34	30	1.81	137450	0	501	414
77	73	Node35	0	2.26	171852	0	495	83
		Node36	0	1.68	127429	0	5	0

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0	0						
	Node37	0	3.59	272418	0	439	2
2	1						
	Node41	173	197.53	14997580	0	501	72597
72403	72272						
	Link42.1	24	1.82	138319	0	501	77
77	77						
	Node23.1.1	36	3.08	234130	0	501	428
172	120						
	Node19.1.1	33	3.93	298063	0	501	2519
465	262						
	Node18.1.1	3	2.30	174890	0	501	96
93	93						
	Node34.1.1	3	1.55	117627	0	501	42
40	39						
	Node39	0	1.16	88117	0	5	0
0	0						
	Node40	28	3.79	287905	0	501	365
338	328						
Total number of iterations for all junctions..		19412290					

Minimum number of possible iterations..... 2277810

Efficiency of the simulation..... 8.52

Poor Efficiency

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```

*=====
| Extran Efficiency is an indicator of the efficiency of |
| the simulation. Ideal efficiency is one iteration per |
| time step. Altering the underrelaxation parameter, |
| lowering the time step, increasing the flow and head |
| tolerance are good ways of improving the efficiency, |
| another is lowering the internal time step. The lower the |
| efficiency generally the faster your model will run. |
| If your efficiency is less than 1.5 then you may try |
| increasing your time step so that your overall simulation |
| is faster. Ideal efficiency would be around 2.0 |
|
| Good Efficiency < 1.5 mean iterations |
| Excellent Efficiency < 2.5 and > 1.5 mean iterations |
| Good Efficiency < 4.0 and > 2.5 mean iterations |
| Fair Efficiency < 7.5 and > 4.0 mean iterations |
| Poor Efficiency > 7.5 mean iterations |
*=====
    
```

```

*=====
| Table E9 - JUNCTION SUMMARY STATISTICS |
| The Maximum area is only the area of the node, it |
| does not include the area of the surrounding conduits |
*=====
    
```

Maximum Freeboard node feet	Maximum Junction Area ft^2	Maximum Junction Depth Name feet	Maximum Gutter Elevation Width feet	Uppermost Maximum PipeCrown Gutter Elevation Velocity feet ft/s	Maximum Junction Elevation feet	Time of Occurence Hr. Min.	Feet of Surcharge at Max Elevation	of
16.15	12.5660	Node13 0.00	40.00 0.00	27.86 0.00	23.85	16 33	0.00	
16.16	12.5660	Node14 0.00	40.00 0.00	27.82 0.00	23.84	16 33	0.00	
16.34	12.5660	Node15 0.00	40.00 0.00	26.32 0.00	23.66	16 35	0.00	
16.34	12.5660	Node16 0.00	40.00 0.00	26.62 0.00	23.66	16 36	0.00	
16.34	12.5660	Node17 0.00	40.00 0.00	25.51 0.00	23.66	16 35	0.00	
16.34	12.5660	Node18 0.00	40.00 0.00	25.57 0.00	23.66	16 35	0.00	

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	Node19	40.00	24.52	23.65	16	35	0.00
16.35	12.5660	0.00	0.00	0.00			
	Node20	40.00	25.17	23.38	16	37	0.00
16.62	12.5660	0.00	0.00	0.00			
	Node21	40.00	24.71	23.35	16	37	0.00
16.65	12.5660	0.00	0.00	0.00			
	Node22	40.00	25.50	23.08	16	39	0.00
16.92	12.5660	0.00	0.00	0.00			
	Node23	40.00	25.52	22.99	16	40	0.00
17.01	12.5660	0.00	0.00	0.00			
	Node24	40.00	26.28	22.85	16	40	0.00
17.15	12.5660	0.00	0.00	0.00			
	Node25	40.00	25.91	21.88	16	41	0.00
18.12	12.5660	0.00	0.00	0.00			
	Node26	40.00	25.24	20.69	16	43	0.00
19.31	12.5660	0.00	0.00	0.00			
	Node27	40.00	24.61	20.45	16	44	0.00
19.55	12.5660	0.00	0.00	0.00			
	Node28	40.00	29.44	20.25	17	15	0.00
19.75	12.5660	0.00	0.00	0.00			
	Node31	40.00	27.84	20.28	17	15	0.00
19.72	12.5660	0.00	0.00	0.00			
	Node33	40.00	29.43	20.20	17	15	0.00
19.80	12.5660	0.00	0.00	0.00			
	Node34	40.00	27.10	23.90	16	29	0.00
16.10	12.5660	0.00	0.00	0.00			
	Node35	40.00	27.82	20.29	17	15	0.00
19.71	12.5660	0.00	0.00	0.00			
	Node36	40.00	28.05	20.16	17	16	0.00
19.84	12.5660	0.00	0.00	0.00			
	Node37	40.00	28.40	20.08	17	16	0.00
19.92	12.5660	0.00	0.00	0.00			
	Node41	40.00	28.40	20.07	17	16	0.00
19.93	12.5660	0.00	0.00	0.00			
	Link42.1	40.00	17.51	24.48	16	15	6.97
15.52	12.5660	0.00	0.00	0.00			
	Node23.1.1	40.00	18.42	25.31	16	15	6.89
14.69	12.5660	0.00	0.00	0.00			
	Node19.1.1	40.00	18.42	25.36	16	15	6.94
14.64	12.5660	0.00	0.00	0.00			
	Node18.1.1	40.00	18.49	25.45	16	15	6.96
14.55	12.5660	0.00	0.00	0.00			
	Node34.1.1	40.00	18.82	25.83	16	15	7.01
14.17	12.5660	0.00	0.00	0.00			
	Node39	40.00	27.97	24.29	16	21	0.00
15.71	12.5660	0.00	0.00	0.00			
	Node40	40.00	19.27	20.25	17	15	0.98
19.75	12.5660	0.00	0.00	0.00			

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```

*=====
|           Table E10 - CONDUIT SUMMARY STATISTICS           |
| Note: The peak flow may be less than the design flow       |
| and the conduit may still surcharge because of the         |
| downstream boundary conditions.                             |
|                                                             |
| * denotes an open conduit that has been overtopped        |
| this is a potential source of severe errors                 |
|                                                             |
*=====
    
```

Time of Occurrence	Ratio of Max. to Design Flow	Conduit Name	Maximum Water Elev at Pipe Upstream (ft)	Maximum Water Design Flow (cfs)	Conduit Design Velocity (ft/s)	Maximum Vertical Ratio d/D	Maximum Computed Flow (cfs)	Time of Occurrence	Maximum Computed Velocity (ft/s)
Min.	Flow	(ft)	(ft)	(ft/s)	US	DS	(cfs)	Hr. Min.	(ft/s) Hr.
16	7	Link14	596.7483	23.8443	23.6647	0.175	57.8400	5.9089	16 24 2.2206
16	5	Link16	887.9019	23.6572	23.6606	0.385	57.8400	5.7518	16 23 1.6423
18	2	Link18	264.7415	23.6563	23.6501	0.603	57.8400	6.7368	16 47 0.2844
16	15	Link20	316.7276	23.3804	23.3493	0.644	60.2400	32.5674	16 28 1.0559
16	21	Link22	72.5977	23.0834	22.9915	0.545	64.2000	-31.8569	16 36 -0.8774
16	39	Link24	267.1870	22.8505	21.8778	0.439	73.3200	31.6649	16 40 2.0705
16	26	Link26	1249.146	20.6891	20.4525	0.288	76.6800	31.6114	16 41 3.6756
16	18	Link31	22103.96	20.2818	20.2466	0.538	196.3200	805.4022	17 1 2.2995
16	17	Link33	29068.21	20.2466	20.2029	0.488	215.6400	846.4542	17 58 2.7099
16	18	Link34	500.4380	23.9028	23.8528	0.179	57.8400	-5.9642	16 21 -0.8608
16	17	Link36	284979.0	20.2029	20.1553	0.487	215.6400	840.2450	17 4 2.4244
16	42	Link37	82357.80	20.1553	20.0751	0.585	228.3600	835.4655	17 12 1.6677
17	17	Link42.1.1	11938.34	20.0751	20.0732	0.583	239.2800	834.8681	17 16 1.5748
		Link38.1	29.0312	20.0751	20.0732	0.583	42.0000	33.4676	16 17 3.4508

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16	17	1.1528	25.3082	24.4791	2.968	2.991					
		Link46.1	3.1816	0.0000	42.0000	34.8514	16	17	3.5479		
16	17	10.9542	25.3628	25.3081	4.961	4.945					
		Link45.1	29.3011	3.0455	42.0000	33.9489	16	17	3.5001		
16	17	1.1586	25.4457	25.3629	2.987	2.984					
		Link39.1	14.7688	3.0087	30.0000	17.5950	16	18	3.5439		
16	18	1.1914	25.8279	25.4457	3.803	3.782					
		Link41	325.1504	4.1553	57.8400	6.0368	16	19	1.4721		
16	18	0.0186	24.2925	23.9028	0.237	0.337					
		Link48	46955.91	1.7426	195.9600	807.5228	17	59	2.5653		
16	18	0.0172	20.2894	20.2818	0.539	0.539					
		227.1	12.3112	2.5080	30.0000	3.0398	16	8	1.8323		
16	8	0.2469	23.8528	23.8443	0.445	0.458					
		231.1	11.6038	2.3639	30.0000	5.8321	16	23	1.2357		
16	23	0.5026	23.6647	23.6572	0.986	0.999					
		235.1	26.5994	5.4188	30.0000	-6.4268	16	23	-1.3028		
16	23	-0.2416	23.6606	23.6563	1.284	1.339					
		239.1	32.6114	6.6435	30.0000	-32.9557	16	26	-6.6868		
16	26	-1.0106	23.6501	23.3804	1.576	1.580					
		243.1	21.2473	4.3285	30.0000	-32.2469	16	32	-6.5264		
16	32	-1.5177	23.3493	23.0834	1.280	1.221					
		247.1	54.3058	11.0631	30.0000	-31.6806	16	39	-6.4130		
16	39	-0.5834	22.9915	22.8506	1.249	1.360					
		251.1	26.1519	5.3276	30.0000	31.6531	16	41	7.3158		
16	41	1.2104	21.8778	21.4557	0.831	0.766					
		255.1	95.0460	13.4463	36.0000	31.6073	16	43	9.9064		
16	18	0.3325	20.4525	20.2539	0.551	1.328					
		324.1	56.1685	2.8606	60.0000	56.0301	16	26	2.8482		
16	30	0.9975	20.2539	20.2466	1.549	1.551					
		Restrictor.1	21.0133	0.5377	22.8001	33.8746	16	17	11.6582		
16	17	1.6121	24.4791	20.2539	6.300	4.081					
		W14	Undefnd	Undefnd	Undefnd	3.1560	16	24			
		W15	Undefnd	Undefnd	Undefnd	0.0000	0	0			
		W17	Undefnd	Undefnd	Undefnd	1.3222	16	35			
		W20	Undefnd	Undefnd	Undefnd	0.0000	0	0			
		W21	Undefnd	Undefnd	Undefnd	0.0000	0	0			
		W24	Undefnd	Undefnd	Undefnd	0.0000	0	0			
		W25	Undefnd	Undefnd	Undefnd	0.0000	0	0			
		W27	Undefnd	Undefnd	Undefnd	0.0000	0	0			
		W42	Undefnd	Undefnd	Undefnd	0.0000	0	0			
		FREE# 1	Undefnd	Undefnd	Undefnd	834.8387	17	16			

=====

	Table E11. Area assumptions used in the analysis	
	Subcritical and Critical flow assumptions from	
	Subroutine Head. See Figure 17-1 in the	
	manual for further information.	

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Maximum X-Sect Area(ft^2)	Maximum Conduit Vel*D Name (ft^2/s)	Duration of Dry Flow(min)	Duration of Sub- Critical Flow(min)	Durat. of Upstream Critical Flow(min)	Durat. of Downstream Critical Flow(min)	Maximum Hydraulic Radius-m
6.992	Link14 2.822	171.71	2693.78	0.00	14.51	0.458
17.677	Link16 1.681	145.80	2734.20	0.00	0.00	0.890
37.285	Link18 0.876	107.49	2772.51	0.00	0.00	1.273
41.083	Link20 3.199	51.44	2828.56	0.00	0.00	1.482
37.072	Link22 2.403	78.77	2742.55	58.69	0.00	1.424
12.613	Link24 4.924	135.93	1289.80	0.00	1454.27	1.162
11.650	Link26 6.641	138.22	2741.78	0.00	0.00	0.878
440.582	Link31 16.363	69.10	2810.90	0.00	0.00	5.084
403.389	Link33 18.718	69.80	2810.20	0.00	0.00	5.140
4.440	Link34 1.030	295.38	1501.89	1082.73	0.00	0.724
498.385	Link36 19.923	70.60	2809.40	0.00	0.00	5.238
520.046	Link37 18.840	70.60	2809.40	0.00	0.00	6.003
530.107	Link42.1.1 18.288	71.80	2808.20	0.00	0.00	6.236
9.866	Link38.1 27.761	195.27	857.52	0.00	1827.21	1.048
10.086	Link46.1 48.166	9.00	2871.00	0.00	0.00	1.065
10.086	Link45.1 28.102	101.67	2611.92	0.00	166.41	1.065
5.135	Link39.1 25.512	9.00	512.93	0.00	2358.07	0.760
5.558	Link41 2.010	15.00	2865.00	0.00	0.00	0.561
	Link48	80.49	2799.51	0.00	0.00	5.155

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406.586	18.073	227.1	107.27	2772.73	0.00	0.00	0.579
2.151	1.705	231.1	124.25	2755.75	0.00	0.00	0.761
4.896	2.851	235.1	56.56	2823.44	0.00	0.00	0.760
5.132	3.831	239.1	25.50	2851.24	3.26	0.00	0.758
5.080	26.055	243.1	71.60	2799.46	8.94	0.00	0.760
5.101	20.303	247.1	120.43	2759.57	0.00	0.00	0.756
5.033	20.902	251.1	138.11	0.00	0.00	2741.89	0.760
4.196	14.608	255.1	143.56	458.73	0.00	2277.70	0.790
5.607	19.358	324.1	145.58	1576.54	0.00	1157.88	1.521
20.584	19.361	Restrictor.1	125.87	2754.13	0.00	0.00	0.578
2.972	81.613						

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| Table E12. Mean Conduit Flow Information |

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Mean	Mean	Mean	Mean	Total	Mean	Low	Mean
Hydraulic	Conduit	Conduit	Flow	Flow	Percent	Flow	Froude
Radius	Area	Name	(cfs)	(ft^3)	Change	Weightng	Number
-----	-----	-----	-----	-----	-----	-----	-----
0.112	0.326	Link14	0.300	51764.493	0.000	0.976	0.256
0.119	0.613	Link16	0.299	51731.597	0.000	0.980	0.326
0.275	2.445	Link18	0.351	60648.623	0.000	0.989	0.038
0.478	5.317	Link20	1.966	339687.087	0.000	0.997	0.047
0.432	5.603	Link22	-1.967	-339827.530	0.000	0.994	0.055
0.353	2.229	Link24	1.968	339997.552	0.000	0.983	0.205
0.246	1.323	Link26	1.968	340099.908	0.000	0.982	0.284
		Link31	129.970	22458838.045	0.000	0.995	0.127

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2.033	122.070	0.032					
	Link33	133.389	23049637.842	0.000	0.995	0.198	
1.920	106.036	0.032					
	Link34	-0.300	-51756.762	0.000	0.950	0.043	
0.326	2.042	0.040					
	Link36	133.479	23065087.754	0.000	0.995	0.220	
1.923	110.620	0.032					
	Link37	133.697	23102820.710	0.000	0.995	0.092	
2.539	148.943	0.032					
	Link42.1.1	133.733	23109024.145	0.000	0.995	0.073	
2.758	165.074	0.032					
	Link38.1	1.423	245879.304	0.000	0.970	0.365	
0.402	2.893	0.013					
	Link46.1	1.429	246923.364	0.000	1.000	0.012	
0.872	9.634	0.013					
	Link45.1	1.432	247446.504	0.000	0.980	0.256	
0.395	2.810	0.013					
	Link39.1	0.738	127610.694	0.000	0.979	0.602	
0.251	1.217	0.013					
	Link41	0.300	51867.253	0.000	1.000	0.102	
0.159	0.643	0.040					
	Link48	129.965	22457914.586	0.000	0.993	0.152	
1.973	108.683	0.032					
	227.1	0.256	44304.039	0.000	0.989	0.076	
0.279	0.671	0.015					
	231.1	0.300	51761.560	0.000	0.986	0.036	
0.436	1.397	0.015					
	235.1	-0.340	-58809.950	0.000	0.997	0.027	
0.441	1.628	0.013					
	239.1	-1.966	-339687.343	0.000	1.000	0.079	
0.632	3.100	0.015					
	243.1	-1.966	-339778.687	0.000	0.995	0.125	
0.462	1.863	0.015					
	247.1	-1.967	-339970.703	0.000	0.986	0.091	
0.609	2.871	0.013					
	251.1	1.968	340093.476	0.000	0.982	0.822	
0.229	0.669	0.015					
	255.1	1.968	340005.287	0.000	0.981	1.694	
0.180	0.574	0.013					
	324.1	3.397	586992.141	0.000	0.981	0.261	
0.737	7.936	0.013					
	Restrictor.1	1.429	246890.792	0.000	0.985	0.138	
0.355	1.666	0.003					
	W14	0.043	7454.308				
	W15	0.000	0.000				
	W17	0.010	1769.544				
	W20	0.000	0.000				
	W21	0.000	0.000				

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W24 0.000 0.000
W25 0.000 0.000
W27 0.000 0.000
W42 0.000 0.000
FREE# 1 133.723 23107250.441

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| Table E13. Channel losses(H), headwater depth (HW), tailwater |
| depth (TW), critical and normal depth (Yc and Yn). |
| Use this section for culvert comparisons |

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TW Elevat	Conduit Name	Maximum Flow	Head Loss	Friction Loss	Critical Depth	Normal Depth	HW Elevat
23.494	Link14 Max Flow	5.907	0.000	0.582	0.764	0.826	23.830
23.494	Link16 Max Flow	5.735	0.000	0.007	0.753	0.701	23.487
23.544	Link18 Max Flow	6.736	0.000	0.010	0.802	1.185	23.552
23.301	Link20 Max Flow	32.542	0.000	0.042	1.352	1.973	23.336
20.212	Link22 Max Flow	-0.001	0.000	-0.006	0.001	0.014	20.204
21.878	Link24 Max Flow	31.644	0.000	0.712	1.660	2.970	22.850
20.423	Link26 Max Flow	31.611	0.000	0.357	1.514	1.669	20.675
20.165	Link31 Max Flow	805.054	0.000	0.037	3.355	12.059	20.202
20.118	Link33 Max Flow	845.392	0.000	0.046	3.877	12.431	20.165
23.040	Link34 Max Flow	0.000	0.000	0.000	0.000	0.000	23.000
20.124	Link36 Max Flow	839.927	0.000	0.102	3.866	4.628	20.174
20.070	Link37 Max Flow	835.466	0.000	0.087	4.635	7.774	20.151
20.073	Link42.1.1 Max Flow	834.758	0.000	0.002	4.463	11.613	20.075
21.680	Link38.1 Max Flow	33.246	0.000	1.175	1.784	3.500	22.838
22.838	Link46.1 Max Flow	31.797	0.000	0.048	1.743	3.500	22.915

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22.915	Max Flow	Link45.1	30.132	0.000	0.073	1.695	2.971	23.211
22.561	Max Flow	Link39.1	15.517	0.000	0.357	1.328	2.189	22.906
23.897	Max Flow	Link41	6.026	0.000	0.444	0.771	1.048	24.292
20.202	Max Flow	Link48	807.464	0.000	0.008	3.808	8.351	20.210
23.645	Max Flow	227.1	3.034	0.000	0.028	0.569	0.845	23.671
23.487	Max Flow	231.1	5.825	0.000	0.009	0.798	1.253	23.494
20.751	Max Flow	235.1	0.002	0.000	0.000	0.002	0.002	20.751
20.212	Max Flow	239.1	0.000	0.000	0.000	0.000	0.000	20.212
20.212	Max Flow	243.1	-0.001	0.000	0.000	0.001	0.001	20.212
20.204	Max Flow	247.1	-0.001	0.000	0.000	0.001	0.001	20.204
21.456	Max Flow	251.1	31.653	0.000	0.378	1.916	2.500	21.878
19.824	Max Flow	255.1	31.556	0.000	0.695	1.821	1.190	20.451
18.881	Max Flow	324.1	56.007	0.000	0.020	2.100	4.090	18.901
17.638	Max Flow	Restrictor.1	33.089	0.000	4.502	2.036	1.900	21.680

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| Table E13a. CULVERT ANALYSIS CLASSIFICATION, |
 | and the time the culvert was in a particular |
 | classification during the simulation. The time is |
 | in minutes. The Dynamic Wave Equation is used for |
 | all conduit analysis but the culvert flow classification |
 | condition is based on the HW and TW depths. |

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		Mild Slope Critical D	Mild Slope TW Control	Steep Slope TW Insignf	Slug Flow Outlet/	Mild Slope TW > D	Mild Slope TW <= D
Outlet	Conduit Inlet	Outlet Inlet	Outlet Control	Entrance Control	Entrance Control	Outlet Control	Outlet Control
Control	Control Configuration						

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0.000	Link14	3.000	2694.000	183.000	0.000	0.000	0.000
0.000	0.000 None						
117.000	Link16	0.000	2214.000	423.000	126.000	0.000	0.000
0.000	0.000 None						
0.000	Link18	0.000	2775.000	105.000	0.000	0.000	0.000
0.000	0.000 None						
0.000	Link20	0.000	2829.000	51.000	0.000	0.000	0.000
0.000	0.000 None						
0.000	Link22	0.000	2802.000	78.000	0.000	0.000	0.000
0.000	0.000 None						
0.000	Link24	810.000	1935.000	135.000	0.000	0.000	0.000
0.000	0.000 None						
0.000	Link26	0.000	2742.000	138.000	0.000	0.000	0.000
0.000	0.000 None						
0.000	Link31	0.000	2811.000	69.000	0.000	0.000	0.000
0.000	0.000 None						
0.000	Link33	0.000	2811.000	69.000	0.000	0.000	0.000
0.000	0.000 None						
0.000	Link34	0.000	2604.000	105.000	171.000	0.000	0.000
0.000	0.000 None						
0.000	Link36	0.000	2811.000	69.000	0.000	0.000	0.000
0.000	0.000 None						
0.000	Link37	0.000	2811.000	69.000	0.000	0.000	0.000
0.000	0.000 None						
0.000	Link42.1.1	0.000	2811.000	0.000	69.000	0.000	0.000
0.000	0.000 None						
0.000	Link38.1	819.000	1515.000	192.000	0.000	354.000	0.000
0.000	0.000 None						
0.000	Link46.1	6.000	99.000	0.000	9.000	2766.000	0.000
0.000	0.000 None						
0.000	Link45.1	30.000	2484.000	102.000	0.000	264.000	0.000
0.000	0.000 None						
0.000	Link39.1	1098.000	1416.000	108.000	0.000	258.000	0.000
0.000	0.000 None						
0.000	Link41	3.000	2862.000	15.000	0.000	0.000	0.000
0.000	0.000 None						
0.000	Link48	0.000	2799.000	81.000	0.000	0.000	0.000
0.000	0.000 None						
0.000	227.1	3.000	2772.000	105.000	0.000	0.000	0.000
0.000	0.000 None						
0.000	231.1	0.000	2757.000	123.000	0.000	0.000	0.000
0.000	0.000 None						
0.000	235.1	0.000	2745.000	54.000	21.000	0.000	60.000
0.000	0.000 None						
0.000	239.1	0.000	0.000	24.000	2730.000	33.000	93.000
0.000	0.000 None						
0.000	243.1	0.000	2730.000	69.000	0.000	81.000	0.000
0.000	0.000 None						

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0.000	247.1	0.000	0.000	120.000	2682.000	0.000	78.000
0.000	0.000 None						
0.000	251.1	966.000	1776.000	138.000	0.000	0.000	0.000
0.000	0.000 None						
165.000	255.1	0.000	0.000	2670.000	45.000	0.000	0.000
0.000	0.000 None						
0.000	324.1	741.000	1647.000	144.000	0.000	348.000	0.000
0.000	0.000 None						
0.000	Restrictor.1	9.000	1941.000	123.000	0.000	804.000	3.000
0.000	0.000 None						

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*=====
| Kinematic Wave Approximations |
| Time in Minutes for Each Condition |
*=====
    
```

Conduit Name	Duration of Normal Flow	Slope Criteria	Super-Critical	Roll Waves
Link14	2710.13	2738.62	0.06	0.00
Link16	2618.10	2734.20	0.00	0.00
Link18	1475.49	2772.59	0.00	0.00
Link20	16.19	2824.11	0.22	0.00
Link22	0.00	0.00	0.00	0.00
Link24	0.00	0.00	0.05	0.00
Link26	1275.98	2739.82	0.11	0.00
Link31	0.17	54.78	0.00	0.00
Link33	0.00	0.00	0.00	0.00
Link34	0.00	0.00	0.00	0.00
Link36	1182.64	2807.23	0.00	0.00
Link37	35.01	2623.98	0.00	0.00
Link42.1.1	1.88	1.88	0.00	0.00
Link38.1	110.97	806.25	268.98	0.00
Link46.1	0.22	647.30	0.00	0.00
Link45.1	602.15	2657.87	57.80	0.00
Link39.1	0.54	486.64	14.00	0.00
Link41	2221.20	2851.24	18.35	0.00
Link48	1.84	575.73	0.00	0.00
227.1	0.00	2587.15	0.73	0.00
231.1	0.00	2750.24	1.25	0.00
235.1	0.00	268.20	0.00	0.00
239.1	0.00	0.00	0.00	0.00
243.1	0.00	0.00	0.00	0.00
247.1	0.00	0.00	0.00	0.00
251.1	0.00	0.00	0.11	0.00
255.1	217.55	458.24	2537.89	0.00
324.1	0.04	1422.18	1.80	0.00
Restrictor.1	0.14	589.06	0.00	0.00

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| Table E14 - Natural Channel Overbank Flow Information |

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		<---- Maximum Velocity ----->				<----- Maximum Flow ----->		
		<----->		<--- Max. Storage Volume --->				
Maximum Area		Left	Center	Right	Left	Center	Right	
Left	Center	Right	Left	Center	Right	Maximum		
Area	Area	Area	Area	Area	Area	Flow	Flow	
Conduit		Velocity	Velocity	Velocity	Area	Depth	Flow	
Name		Area	Area	Area	Area	Depth	Flow	
	Link14	0.000	0.846	0.000	0.000	5.909	0.000	
0.000	6.983	0.000	0.000	477.367	0.000	6.992		
	Link16	0.000	0.326	0.000	0.000	5.752	0.000	
0.000	17.653	0.000	0.000	403.366	0.000	17.677		
	Link18	0.084	0.189	0.000	0.234	6.503	0.000	
2.791	34.483	0.000	678.514	8383.835	0.000	34.494		
	Link20	0.326	0.823	0.000	0.819	31.749	0.000	
2.514	38.563	0.000	295.427	4531.483	0.000	38.569		
	Link22	0.000	0.861	0.000	0.000	31.857	0.000	
0.000	37.021	0.000	0.000	10454.797	0.000	37.072		
	Link24	0.000	2.515	0.000	0.000	31.665	0.000	
0.000	12.590	0.000	0.000	3526.704	0.000	12.613		
	Link26	0.000	2.714	0.000	0.000	31.611	0.000	
0.000	11.649	0.000	0.000	452.437	0.000	11.650		
	Link31	0.000	1.800	0.335	0.000	792.429	12.973	
0.000	440.193	38.748	0.000	87897.716	7035.020	440.582		
	Link33	0.000	2.025	0.443	0.000	816.567	29.887	
0.000	403.167	67.477	0.000	77674.231	12990.641	403.389		
	Link34	0.000	1.351	0.000	0.000	5.964	0.000	
0.000	4.414	0.000	0.000	217.376	0.000	4.440		
	Link36	0.000	1.687	0.000	0.000	840.245	0.000	
0.000	498.196	0.000	0.000	248814.237	0.000	498.385		
	Link37	0.000	1.607	0.000	0.000	835.466	0.000	
0.000	519.981	0.000	0.000	387614.767	0.000	520.046		
	Link42.1.1	0.000	1.576	0.000	0.000	834.868	0.000	
0.000	529.698	0.000	0.000	10599.249	0.000	530.107		
	Link41	0.000	1.090	0.000	0.000	6.037	0.000	
0.000	5.541	0.000	0.000	739.958	0.000	5.558		
	Link48	0.089	1.965	0.316	0.032	798.268	9.222	
0.363	406.284	29.177	13.905	15544.444	1116.314	406.586		

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| Table E14a - Natural Channel Encroachment Information |

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<----- Existing Conveyance Condition -----> <----->												
Encroachment Conveyance Condition -----> <- % Volume --> <-- Encroachment Data -->												
Centre	Right	Total	Left	Centre	Right	Total	Left	Right	Left			
Channel	Bank	Name	Bank	Channel	Bank	Reduction	Station	Station	Bank			
			Station	Station		Left	Right	Incr.	Method			
0.0000	211.23	9.9272	18.897	0.0000	0.0000	0.0000	0.0000	0.0000	211.23			
				Link14	0.0000	211.23	0.0000	211.23	9.9272	18.897	0.0000	211.23
									None			
0.0000	708.96	6.4723	21.369	0.0000	0.0000	0.0000	0.0000	0.0000	708.96			
				Link16	0.0000	708.96	0.0000	708.96	6.4723	21.369	0.0000	708.96
									None			
0.0000	1891.8	0.0000	24.246	0.0000	0.0000	0.0000	0.0000	0.0000	1826.2			
				Link18	65.651	1826.2	0.0000	1891.8	0.0000	24.246	65.651	1826.2
									None			
0.0000	2256.8	0.0000	24.260	0.0000	0.0000	0.0000	0.0000	0.0000	2200.1			
				Link20	56.733	2200.1	0.0000	2256.8	0.0000	24.260	56.733	2200.1
									None			
0.0000	1723.2	7.2624	32.920	0.0000	0.0000	0.0000	0.0000	0.0000	1723.2			
				Link22	0.0000	1723.2	0.0000	1723.2	7.2624	32.920	0.0000	1723.2
									None			
0.0000	494.37	15.087	25.637	0.0000	0.0000	0.0000	0.0000	0.0000	494.37			
				Link24	0.0000	494.37	0.0000	494.37	15.087	25.637	0.0000	494.37
									None			
0.0000	416.54	9.3563	20.987	0.0000	0.0000	0.0000	0.0000	0.0000	416.54			
				Link26	0.0000	416.54	0.0000	416.54	9.3563	20.987	0.0000	416.54
									None			
988.88	61392.4	4740.5	5178.9	0.0000	0.0000	0.0000	0.0000	0.0000	60403.5			
				Link31	0.0000	60403.5	988.88	61392.4	4740.5	5178.9	0.0000	60403.5
									None			
2039.0	57748.1	3462.8	3740.6	0.0000	0.0000	0.0000	0.0000	0.0000	55709.1			
				Link33	0.0000	55709.1	2039.0	57748.1	3462.8	3740.6	0.0000	55709.1
									None			
0.0000	114.66	10.976	18.098	0.0000	0.0000	0.0000	0.0000	0.0000	114.66			
				Link34	0.0000	114.66	0.0000	114.66	10.976	18.098	0.0000	114.66
									None			

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Link36 0.0000 74784.3 0.0000 74784.3 3648.4 3731.3 0.0000 74784.3
 0.0000 74784.3 3648.4 3731.3 0.0000 0.0000 0.0000 None

Link37 0.0000 80805.2 0.0000 80805.2 4998.7 5080.0 0.0000 80805.2
 0.0000 80805.2 4998.7 5080.0 0.0000 0.0000 0.0000 None

Link42.1.1 0.0000 83341.2 0.0000 83341.2 4956.7 5037.6 0.0000 83341.2
 0.0000 83341.2 4956.7 5037.6 0.0000 0.0000 0.0000 None

Link41 0.0000 155.28 0.0000 155.28 10.491 18.472 0.0000 155.28
 0.0000 155.28 10.491 18.472 0.0000 0.0000 0.0000 None

Link48 2.2823 56311.5 650.56 56964.4 4685.9 5160.7 2.2823 56311.5
 650.56 56964.4 4685.9 5160.7 0.0000 0.0000 0.0000 None

=====

| Table E14b - Floodplain Mapping |

=====

		Conduit	Upstream	Downstream	Channel	Center	<----- Left Offsets	
		Right Offsets		<- Channel Widths->				
Bank	Natural	Encroach	WS Elev.	WS Elev.	Length	Station	Natural	Encroach
				Bank	Total	Encroach.		
10.0000	3.8973	3.8973	23.8443	23.6647	68.3600	15.0000	5.0728	5.0728
				10.0000	8.9701	8.9701		
10.0000	6.3689	6.3689	23.6572	23.6606	22.8500	15.0000	8.5277	8.5277
				10.0000	14.8966	14.8966		
10.0000	9.2460	9.2460	23.6563	23.6501	243.1300	15.0000	15.0000	15.0000
				10.0000	24.2460	24.2460		
10.0000	9.2598	9.2598	23.3804	23.3493	117.5100	15.0000	15.0000	15.0000
				10.0000	24.2598	24.2598		

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20.0000	Link22	22.9915	23.0834	282.4000	25.0000	17.7376	17.7376
		7.9199	7.9199	10.0000	25.6574	25.6574	
10.0000	Link24	22.8505	21.8778	280.1300	20.0000	4.9130	4.9130
		5.6375	5.6375	10.0000	10.5505	10.5505	
9.7200	Link26	20.6891	20.4525	38.8400	15.3500	5.9937	5.9937
		5.6368	5.6368	10.0700	11.6305	11.6305	
106.3600	Link31	20.2818	20.2466	199.6800	4765.9700	25.4508	25.4508
		412.9184	412.9184	69.3100	438.3692	438.3692	
70.7100	Link33	20.2466	20.2029	192.6600	3498.9200	36.1350	36.1350
		241.6940	241.6940	48.4200	277.8291	277.8291	
10.0000	Link34	23.8528	23.9028	49.2500	15.0000	4.0240	4.0240
		3.0985	3.0985	10.0000	7.1224	7.1224	
94.8600	Link36	20.2029	20.1553	499.4300	3687.5900	39.2379	39.2379
		43.7129	43.7129	53.4600	82.9508	82.9508	
110.9000	Link37	20.1553	20.0751	745.4400	5037.4200	38.7520	38.7520
		42.5508	42.5508	78.4400	81.3028	81.3028	
118.3100	Link42.1.1	20.0751	20.0732	20.0100	4995.7800	39.0720	39.0720
		41.8673	41.8673	64.8400	80.9393	80.9393	
10.0000	Link41	24.2925	23.9028	133.5500	15.0000	4.5085	4.5085
		3.4716	3.4716	10.0000	7.9801	7.9801	
66.5800	Link48	20.2894	20.2818	38.2600	4722.1000	36.2411	36.2411
		438.5613	438.5613	48.4200	474.8024	474.8024	

=====

| Table E15 - SPREADSHEET INFO LIST |

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| Conduit Flow and Junction Depth Information for use in |
 | spreadsheets. The maximum values in this table are the |
 | true maximum values because they sample every time step. |
 | The values in the review results may only be the |
 | maximum of a subset of all the time steps in the run. |
 | Note: These flows are only the flows in a single barrel. |

=====

Conduit Junction Name	Maximum Invert Elevation (ft)	Total Maximum Flow Elevation (ft)	Maximum Velocity (ft/s)	Maximum Volume (ft^3)	##
Link14	5.90892	51764.49267	2.22056	477.36720	##
Node13	22.74000	23.85277			
Link16	5.75175	51731.59700	1.64231	403.36599	##
Node14	22.70000	23.84427			
Link18	6.73680	60648.62326	0.28444	9062.34905	##
Node15	21.20000	23.66467			
Link20	32.56737	339687.08714	1.05594	4826.91089	##
Node16	21.16000	23.65722			
Link22	-31.85691	-339827.52997	0.87736	10454.79721	##
Node17	20.31000	23.66064			
Link24	31.66487	339997.55175	2.07051	3526.70358	##
Node18	20.45000	23.65627			
Link26	31.61136	340099.90790	3.67558	452.43684	##
Node19	19.43000	23.65006			
Link31	805.40222	22458838.04506	2.29950	94932.73539	##
Node20	19.63000	23.38044			
Link33	846.45415	23049637.84185	2.70987	90664.87179	##
Node21	19.69000	23.34928			
Link34	-5.96420	-51756.76159	0.86075	217.37582	##
Node22	19.80000	23.08342			
Link36	840.24496	23065087.75423	2.42445	248814.23745	##
Node23	19.45000	22.99151			
Link37	835.46554	23102820.71028	1.66774	387614.76663	##
Node24	19.87000	22.85055			
Link42.1.1	834.86805	23109024.14466	1.57484	10599.24927	##
Node25	19.57000	21.87783			
Link38.1	33.46760	245879.30363	3.45078	10903.07738	##
Node26	18.85000	20.68914			
Link46.1	34.85145	246923.36373	3.54794	503.65371	##
Node27	18.22000	20.45248			
Link45.1	33.94888	247446.50376	3.50011	832.40215	##
Node28	11.47000	20.24662			

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Link39.1	17.59501	127610.69423	3.54391	1309.81658	##
Node31	11.48000	20.28180			
Link41	6.03682	51867.25253	1.47209	739.95842	##
Node33	11.46000	20.20294			
Link48	807.52281	22457914.58600	2.56534	16674.66320	##
Node34	22.28000	23.90284			
227.1	3.03982	44304.03853	1.83235	71.72904	##
Node35	11.49000	20.28943			
231.1	5.83205	51761.55969	1.23573	183.80321	##
Node36	9.02000	20.15531			
235.1	-6.42678	-58809.94962	1.30279	171.29594	##
Node37	8.46000	20.07508			
239.1	-32.95572	-339687.34325	6.68676	171.20138	##
Node41	8.46000	20.07323			
243.1	-32.24689	-339778.68730	6.52640	172.79936	##
Link42.1	12.51000	24.48287			
247.1	-31.68064	-339970.70310	6.41295	123.07746	##
Node23.1.1	8.00000	25.30818			
251.1	31.65306	340093.47639	7.31579	201.57481	##
Node19.1.1	8.00000	25.36276			
255.1	31.60727	340005.28650	9.90644	745.50642	##
Node18.1.1	14.99000	25.44565			
324.1	56.03007	586992.14079	2.84822	885.08402	##
Node34.1.1	16.32000	25.82887			
Restrictor.1	33.87463	246890.79221	11.65825	8369.47162	##
Node39	23.15000	24.29250			
W14	3.15595	7454.30776	0.00000	0.00000	##
Node40	12.50000	20.25393			
W15	0.00000	0.00000	0.00000	0.00000	##
W17	1.32219	1769.54398	0.00000	0.00000	##
W20	0.00000	0.00000	0.00000	0.00000	##
W21	0.00000	0.00000	0.00000	0.00000	##
W24	0.00000	0.00000	0.00000	0.00000	##
W25	0.00000	0.00000	0.00000	0.00000	##
W27	0.00000	0.00000	0.00000	0.00000	##
W42	0.00000	0.00000	0.00000	0.00000	##
FREE# 1	834.83873	23107250.44146	0.00000	0.00000	##

```

*=====*
| Table E15a - SPREADSHEET REACH LIST |
| Peak flow and Total Flow listed by Reach or those |
| conduits or diversions having the same |
| upstream and downstream nodes. |
*=====*
    
```

Upstream Node	Downstream Node	Maximum Flow (cfs)	Total Flow (ft^3)
------------------	--------------------	--------------------------	-------------------------

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Node14	Node15	5.9089	51764.
Node16	Node17	5.7518	51732.
Node18	Node19	6.7368	60649.
Node20	Node21	32.567	3.39687E+05
Node23	Node22	31.857	3.39828E+05
Node24	Node25	31.665	3.39998E+05
Node26	Node27	31.611	3.40100E+05
Node31	Node28	805.40	2.24588E+07
Node28	Node33	846.45	2.30496E+07
Node13	Node34	5.9642	51757.
Node33	Node36	840.24	2.30651E+07
Node36	Node37	835.47	2.31028E+07
Node37	Node41	834.87	2.31090E+07
Node23.1.1	Link42.1	33.468	2.45879E+05
Node19.1.1	Node23.1.1	34.851	2.46923E+05
Node18.1.1	Node19.1.1	33.949	2.47447E+05
Node34.1.1	Node18.1.1	17.595	1.27611E+05
Node39	Node34	6.0368	51867.
Node35	Node31	807.52	2.24579E+07
Node13	Node14	3.0398	44304.
Node15	Node16	5.8321	51762.
Node18	Node17	6.4268	58810.
Node20	Node19	32.956	3.39687E+05
Node22	Node21	32.247	3.39779E+05
Node24	Node23	31.681	3.39971E+05
Node25	Node26	31.653	3.40093E+05
Node27	Node40	31.607	3.40005E+05
Node40	Node28	56.030	5.86992E+05
Link42.1	Node40	33.875	2.46891E+05
Node13	Node14	3.1560	7454.3
Node17	Node18	1.3222	1769.5

 # Table E16. New Conduit Information Section #
 # Conduit Invert (IE) Elevation and Conduit #
 # Maximum Water Surface (WS) Elevations #
 #####

WS Up	Conduit Name WS Dn	Conduit Type	Upstream Node	Downstream Node	IE Up	IE Dn
23.84	Link14 23.66	Natural	Node14	Node15	23.00	21.50
23.66	Link16 23.66	Natural	Node16	Node17	21.80	20.69
	Link18		Node18	Node19	20.75	19.70

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23.66	23.65	Natural				
	Link20		Node20	Node21	20.15	19.69
23.38	23.35	Natural				
	Link22		Node23	Node22	20.17	20.15
22.99	23.08	Natural				
	Link24		Node24	Node25	20.17	19.80
22.85	21.88	Natural				
	Link26		Node26	Node27	18.85	18.22
20.69	20.45	Natural				
	Link31		Node31	Node28	11.48	11.47
20.28	20.25	Natural				
	Link33		Node28	Node33	11.47	11.46
20.25	20.20	Natural				
	Link34		Node13	Node34	23.04	22.28
23.85	23.90	Natural				
	Link36		Node33	Node36	11.46	9.020
20.20	20.16	Natural				
	Link37		Node36	Node37	9.020	8.460
20.16	20.08	Natural				
	Link42.1.1		Node37	Node41	8.460	8.460
20.08	20.07	Natural				
	Link38.1		Node23.1.1	Link42.1	14.92	14.01
25.31	24.48	Circular				
	Link46.1		Node19.1.1	Node23.1.1	8.000	8.000
25.36	25.31	Circular				
	Link45.1		Node18.1.1	Node19.1.1	14.99	14.92
25.45	25.36	Circular				
	Link39.1		Node34.1.1	Node18.1.1	16.32	15.99
25.83	25.45	Circular				
	Link41		Node39	Node34	23.15	22.28
24.29	23.90	Natural				
	Link48		Node35	Node31	11.49	11.48
20.29	20.28	Natural				
	227.1		Node13	Node14	22.74	22.70
23.85	23.84	Circular				
	231.1		Node15	Node16	21.20	21.16
23.66	23.66	Circular				
	235.1		Node18	Node17	20.45	20.31
23.66	23.66	Circular				
	239.1		Node20	Node19	19.71	19.43
23.38	23.65	Circular				
	243.1		Node22	Node21	20.15	20.03
23.08	23.35	Circular				
	247.1		Node24	Node23	19.87	19.45
22.85	22.99	Circular				
	251.1		Node25	Node26	19.80	19.54
21.88	21.46	Circular				
	255.1		Node27	Node40	18.80	16.27

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20.45	20.25	Circular				
	324.1		Node40	Node28	12.51	12.49
20.25	20.25	Circular				
	Restrictor.1		Link42.1	Node40	12.51	12.50
24.48	20.25	Circ Orif				

```

*=====
| Table E18 - Junction Continuity Error. Division by Volume added 11/96 |
| Continuity Error = Net Flow + Beginning Volume - Ending Volume |
| ----- |
| Total Flow + (Beginning Volume + Ending Volume)/2 |
| |
| Net Flow = Node Inflow - Node Outflow |
| Total Flow = absolute (Inflow + Outflow) |
| Intermediate column is a judgement on the node continuity error. |
| |
| Excellent < 1 percent Great 1 to 2 percent Good 2 to 5 percent |
| Fair 5 to 10 percent Poor 10 to 25 percent Bad 25 to 50 percent |
| Terrible > 50 percent |
*=====

```

Net Flow	Junction Total Flow	<-----Continuity Error ----->	Remaining	Beginning		
Thru Node	Thru Node	Failed to Converge	Volume	Volume		
		Volume				
		% of Node				
		% of Inflow				
-1.7076	Node13 103515.1079	-23.7361 36	-0.0229	0.0001	22.0285	0.0000
-7.6285	Node14 103522.8390	-19.7946 0	-0.0191	0.0001	12.1661	0.0000
-0.3230	Node15 103526.0524	-29.0251 0	-0.0280	0.0001	28.7020	0.0000
20.8575	Node16 103493.1567	-5.1512 0	-0.0050	0.0000	26.0087	0.0000
-9.2471	Node17 121164.9150	-22.4984 0	-0.0186	0.0001	13.2513	0.0000

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-85.1206	121228.1169	Node18 -128.7597 0	-0.1062	0.0006	43.6392	0.0000
-216.7688	679190.5481	Node19 -275.4130 0	-0.0405	0.0012	58.6442	0.0000
-32.5098	679374.4304	Node20 -82.4341 0	-0.0121	0.0004	49.9244	0.0000
-111.6323	679465.7744	Node21 -145.8812 0	-0.0215	0.0006	34.2488	0.0000
-56.8493	679606.2173	Node22 -70.0299 0	-0.0103	0.0003	13.1805	0.0000
-160.6418	679798.2331	Node23 -185.8532 0	-0.0273	0.0008	25.2115	0.0000
-50.1216	679968.2548	Node24 -65.0531 0	-0.0096	0.0003	14.9316	0.0000
-106.2381	680091.0281	Node25 -110.6651 0	-0.0163	0.0005	4.4270	0.0000
-13.6604	680193.3843	Node26 -20.8237 0	-0.0031	0.0001	7.1632	0.0000
86.3003	680105.1944	Node27 71.9349 1	0.0106	0.0003	14.3653	0.0000
-4669.0280	46095468.03	Node28 -4691.8919 0	-0.0102	0.0204	22.8638	0.0000
-4110.4311	44916752.63	Node31 -4124.0750 0	-0.0092	0.0179	13.6439	0.0000

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-16330.7244	Node33	-16359.7845	-0.0355	0.0710	29.0601	0.0000
46114725.60		0				
109.6495	Node34	48.9969	0.0473	0.0002	60.6527	0.0000
103624.0141		30				
-970.1181	Node35	-970.5334	-0.0022	0.0042	0.4153	0.0000
44916625.72		0				
-38485.8246	Node36	-38531.8373	-0.0835	0.1672	46.0127	0.0000
46167908.46		0				
-7747.3783	Node37	-7774.1723	-0.0168	0.0337	26.7940	0.0000
46211844.85		0				
-57.4055	Node41	-57.8523	-0.0001	0.0003	0.4469	0.0000
46216274.59		173				
-1014.8589	Link42.1	-1033.7023	-0.2098	0.0045	18.8433	0.0000
492770.0958		24				
893.6704	Node23.1.1	564.8690	0.1146	0.0025	328.8014	0.0000
492802.6674		36				
366.9123	Node19.1.1	38.1157	0.0077	0.0002	328.7966	0.0000
494369.8675		33				
-213.6918	Node18.1.1	-213.6935	-0.0432	0.0009	0.0017	0.0000
494711.0582		3				
144.8539	Node34.1.1	144.8524	0.0567	0.0006	0.0015	0.0000
255368.9952		3				
-19.3532	Node39	-56.7535	-0.0547	0.0002	37.4003	0.0000
103716.3313		0				

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Node40 -179.1336 -0.0153 0.0008 19.0184 0.0000
 -160.1152 1173888.219 28

The total continuity error was -74310. cubic feet
 The remaining total volume was 1300.6 cubic feet
 Your mean node continuity error was Excellent
 Your worst node continuity error was Excellent

```

*=====*
| Table E19 - Junction Inflow & Outflow Listing |
| Units are either ft^3 or m^3 |
| depending on the units in your model. |
*=====*
    
```

Inflow through Outfall	RNF Layer Junction Name to Node	Constant Inflow from to Node 2D Layer	User Inflow Outflow to Node from Node	Interface Inflow Evaporation to Node from Node	DWF Inflow Basin to Node Infil.
0.0000	Node17 8853.1986	0.0000 0.0000	0.0000 0.0000	0.0000 0.0000	0.0000 0.00
0.0000	Node19 278838.7696	0.0000 0.0000	0.0000 0.0000	0.0000 0.0000	0.0000 0.00
0.0000	Node35 0.0000	0.0000 0.0000	22.4587E+06 0.0000	0.0000 0.0000	0.0000 0.00
0.0000	Node41 0.0000	0.0000 0.0000	0.0000 23.1073E+06	0.0000 0.0000	0.0000 0.00
0.0000	Node18.1.1 119645.8500	0.0000 0.0000	0.0000 0.0000	0.0000 0.0000	0.0000 0.00
0.0000	Node34.1.1 127749.7606	0.0000 0.0000	0.0000 0.0000	0.0000 0.0000	0.0000 0.00
	Node39	0.0000	0.0000	0.0000	0.0000

0.0000 51845.9232 0.0000 0.0000 0.0000 0.00

```

*=====
| Table E20 - Junction Flooding and Volume Listing. |
|           The maximum volume is the total volume |
|           in the node including the volume in the |
|           flooded storage area. This is the max  |
|           volume at any time. The volume in the  |
|           flooded storage area is the total volume|
|           above the ground elevation, where the  |
|           flooded pond storage area starts.      |
| The fourth column is instantaneous, the fifth is the |
| sum of the flooded volume over the entire simulation |
| Units are either ft^3 or m^3 depending on the units. |
*=====
    
```

2D cell	Junction Name	Surcharged Time (min)	Flooded Time(min)	Out of 1D-System (Flooded Volume)	Maximum Volume	Passed to OR in Pond of
	Node13	0.000	0.000	0.000	14.0	0.000
	Node14	0.000	0.000	0.000	14.4	0.000
	Node15	0.000	0.000	0.000	31.0	0.000
	Node16	0.000	0.000	0.000	31.4	0.000
	Node17	0.000	0.000	0.000	42.1	0.000
	Node18	0.000	0.000	0.000	40.3	0.000
	Node19	0.000	0.000	0.000	53.0	0.000
	Node20	0.000	0.000	0.000	47.1	0.000
	Node21	0.000	0.000	0.000	46.0	0.000
	Node22	0.000	0.000	0.000	41.3	0.000
	Node23	0.000	0.000	0.000	44.5	0.000
	Node24	0.000	0.000	0.000	37.5	0.000
	Node25	0.000	0.000	0.000	29.0	0.000
	Node26	0.000	0.000	0.000	23.1	0.000
	Node27	0.000	0.000	0.000	28.1	0.000
	Node28	0.000	0.000	0.000	110.	0.000
	Node31	0.000	0.000	0.000	111.	0.000
	Node33	0.000	0.000	0.000	110.	0.000
	Node34	0.000	0.000	0.000	20.4	0.000
	Node35	0.000	0.000	0.000	111.	0.000

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Node36	0.000	0.000	0.000	140.	0.000
Node37	0.000	0.000	0.000	146.	0.000
Node41	0.000	0.000	0.000	146.	0.000
Link42.1	354.	0.000	0.000	150.	0.000
Node23.1.1	264.	0.000	0.000	217.	0.000
Node19.1.1	264.	0.000	0.000	218.	0.000
Node18.1.1	258.	0.000	0.000	131.	0.000
Node34.1.1	228.	0.000	0.000	119.	0.000
Node39	0.000	0.000	0.000	14.4	0.000
Node40	160.	0.000	0.000	97.4	0.000

*=====
 | Simulation Specific Information |
 =====

Number of Input Conduits.....	28	Number of Simulated Conduits.....
39		
Number of Natural Channels.....	15	Number of Junctions.....
30		
Number of Storage Junctions.....	0	Number of Weirs.....
9		
Number of Orifices.....	1	Number of Pumps.....
0		
Number of Free Outfalls.....	1	Number of Tide Gate Outfalls.....
0		

*=====
 | Average % Change in Junction or Conduit is defined as: |
 | Conduit % Change ==> 100.0 (Q(n+1) - Q(n)) / Qfull |
 | Junction % Change ==> 100.0 (Y(n+1) - Y(n)) / Yfull |
 =====

The Conduit with the largest average change was.. Link42.1.1 with
 0.000 percent
 The Junction with the largest average change was. Node19.1.1 with
 0.085 percent
 The Conduit with the largest sinuosity was..... Link46.1 with
 175.123

*=====
 | Table E21. Continuity balance at the end of the simulation |
 | Junction Inflow, Outflow or Street Flooding |
 | Error = Inflow + Initial Volume - Outflow - Final Volume |
 =====

Inflow	Inflow	Average
Junction	Volume,ft^3	Inflow, cfs

Coupland_Prop10yr_NoImpact.out

Node	Outflow Junction	Outflow Volume, ft ³	Average Outflow, cfs
Node17		8853.8244	0.0512
Node19		278854.5815	1.6137
Node35		22458711.1317	129.9694
Node18.1.1		119653.8602	0.6924
Node34.1.1		127758.3009	0.7393
Node39		51849.0788	0.3001
Node41		-23107250.4415	-133.7225
Node41		23107250.4415	133.7225

=====

| Initial system volume = 0.0000 Cu Ft |

| Total system inflow volume = 23.045609E+06 Cu Ft |

| Inflow + Initial volume = 23.045609E+06 Cu Ft |

=====

| Total system outflow = 23.107250E+06 Cu Ft |

| Volume left (Final volume) = 1300.6449 Cu Ft |

| Evaporation = 0.0000 Cu Ft |

| Basin Infiltration = 0.0000 Cu Ft |

| Outflow + Final Volume = 23.108551E+06 Cu Ft |

=====

```
*=====*
| Total Model Continuity Error |
| Error in Continuity, Percent = -0.2731 |
| Error in Continuity, ft^3 = -62941.932 |
| + Error means a continuity loss, - a gain |
*=====*
```


Table E22. Numerical Model judgement section #
#####

Overall error was (minimum of Table E18 & E21) -0.2731 percent

Worst nodal error was in node Node36 with -0.0835 percent

Of the total inflow this loss was 0.1672 percent

Your overall continuity error was Excellent

Poor Efficiency

Efficiency of the simulation 8.52

Most Number of Non Convergences at one Node 173.

Total Number Non Convergences at all Nodes 367.

Total Number of Nodes with Non Convergences 10.

```
#####  
# Table E23. New Basin Design Information #  
# Maximum Hydraulic Grade Line, #  
# Out Conduit Sizes and Maximum Flow #  
#####
```

A) Resize d/s Pipes based on given HGL

Coupland_Prop10yr_NoImpact.out

- B) Resize Basin based on given HGL
- C) Resize d/s Pipes and Basin based on HGL and max discharge
- D) Resize d/s pipes based on given max discharge

Basin Name	Type	Max.HGL	Conduit	Depth	Width
Barrels	Max.Flow	(ft)		(ft)	(ft)
(ft ³ /s)					

==> Hydraulic model simulation ended normally.
==> XP-SWMM Simulation ended normally.

==> Your input file was named : D:\cfa\2016\12024.Coupland_Paving_and Drainage\ENG\H&H\SWMM\Coupland_Prop10yr_NoImpact.DAT

==> Your output file was named : D:\cfa\2016\12024.Coupland_Paving_and Drainage\ENG\H&H\SWMM\Coupland_Prop10yr_NoImpact.out

```
*=====*
```

SWMM Simulation Date and Time Summary			
Starting Date...	July	17, 2017	Time... 16:25:22.990
Ending Date...	July	17, 2017	Time... 16:25:52.573
Elapsed Time...	0.48516 minutes or		29.10938 seconds

```
*=====*
```

Coupland_Prop100yr_NoImpact.out
Current Directory: C:\PROGRA~2\XPSOLU~1\XPSTOR~1.1
Engine Name: C:\PROGRA~2\XPSOLU~1\XPSTOR~1.1\SWMMEN~2.EXE

Input File : d_Paving_and Drainage\ENG\H&H\SWMM\Coupland_Prop100yr_NoImpact.XP

```
*=====*
```

```
|                                     |
```

```
|               xpswmm               |
```

```
|      Storm and Wastewater Management Model      |
```

```
|      Developed by XP Solutions Inc.              |
```

```
|=====|
```

```
| Last Update       : October, 2015              |
```

```
| Interface Version : 2016                        |
```

```
| Engine Version    : 12.0                        |
```

```
| Data File Version : 12.62                       |
```

```
|                                     |
```

```
*=====*
```

Engine Name: C:\PROGRA~2\XPSOLU~1\XPSTOR~1.1\SWMMEN~2.EXE

```
*=====*
```

```
|      Input and Output file names by Layer      |
```

```
*=====*
```

Input File to Layer # 1 JOT.US

Output File to Layer # 1 JOT.US

Input File to Layer # 2 JOT.US

Output File to Layer # 2 JOT.US

```

=====
Configuration Parameters
Configuration Parameters, both those that are hardwired
and those added to the simulation are listed below.
Configuration Parameters that start with a $ are set in
the engine as defaults. The remaining in UPPERCASE
have been added to the simulation in the Configuration->
Configuration Parameters dialog or as Engine Defaults in
the SWMXP.INI file.

Consult the Help File for the specific meaning/purpose
of any particular parameter.

Note:
The second column denotes the value of the parameter.
=====

```

\$powerstation	0.0000	1	2
\$perv	0.0000	0	4
\$oldegg	0.0000	0	7
\$as	0.0000	0	11
\$noflat	0.0000	0	21
\$oldomega	0.0000	0	24
\$oldvol	0.0000	1	28
\$implicit	0.0000	1	29
\$oldhot	0.0000	1	31
\$oldscs	0.0000	0	33
\$flood	0.0000	1	40
\$nokeys	0.0000	0	42
\$pzero	0.0000	0	55
\$oldvol2	0.0000	2	59
\$storage2	0.0000	3	62
\$oldhot1	0.0000	1	63
\$pumpwt	0.0000	1	70
\$ecloss	0.0000	1	77
\$exout	0.0000	0	97
\$spatial = 0.90	0.9000	5	124
\$djref = -1.0	-0.1000	3	143
\$weirlen = 50	50.0000	1	153
\$oldbnd	0.0000	1	154
\$nogrelev	0.0000	1	161
\$ncmid	0.0000	0	164
\$new_n1_97	0.0000	2	290
SCSIADDEPTH=ON	0.0000	1	293
\$best97	0.0000	1	294

Coupland_Prop100yr_NoImpact.out

\$newbound	0.0000	1	295
\$q_tol = 0.01	0.0001	1	316
\$new_storage	0.0000	1	322
\$old_iteration	0.0000	1	333
MINLEN=10	10.0000	1	346
\$review_elevation	0.0000	1	383
\$use_half_volume	0.0000	1	385
VERT_WALLS=ON	0.0000	1	389
\$min_ts = 1.0	1.0000	1	407
\$design_restart = on	0.0000	1	412
\$zero_value=1.e-05	0.0000	1	415
SUBCATCHMENT_RES=ON	0.0000	1	419
\$relax_depth = on	0.0000	1	427
\$saveallpts = on	0.0000	1	434
\$channel_geometry=1	0.0000	1	456

```

*=====
| All object names are less than 20 characters. |
| No name substitutions required! |
*=====
  
```

```

*=====
| Parameter Values on the Tapes Common Block. These are the |
| values read from the data file and dynamically allocated |
| by the model for this simulation. |
*=====
  
```

Number of Subcatchments in the Runoff Block (NW)....	5
Number of Channel/Pipes in the Runoff Block (NG)....	0
Runoff Water quality constituents (NRQ).....	0
Runoff Land Uses per Subcatchment (NLU).....	0
Number of Elements in the Transport Block (NET).....	0
Number of Storage Junctions in Transport (NTSE).....	0
Number of Input Hydrographs in Transport (NTH).....	0
Number of Elements in the Extran Block (NEE).....	41
Number of Groundwater Subcatchments in Runoff (NGW).	0
Number of Interface locations for all Blocks (NIE)..	41
Number of Pumps in Extran (NEP).....	0
Number of Orifices in Extran (NEO).....	1
Number of Tide Gates/Free Outfalls in Extran (NTG)..	1
Number of Extran Weirs (NEW).....	11
Number of scs hydrograph points.....	3457
Number of Extran printout locations (NPO).....	0
Number of Tide elements in Extran (NTE).....	1
Number of Natural channels (NNC).....	15
Number of Storage junctions in Extran (NVSE).....	0
Number of Time history data points in Extran(NTVAL).	0

Coupland_Prop100yr_NoImpact.out

Number of Variable storage elements in Extran (NVST)	0
Number of Input Hydrographs in Extran (NEH).....	1
Number of Particle sizes in Transport Block (NPS)...	0
Number of User defined conduits (NHW).....	5
Number of Connecting conduits in Extran (NECC).....	20
Number of Upstream elements in Transport (NTCC).....	10
Number of Storage/treatment plants (NSTU).....	1
Number of Values for R1 lines in Transport (NR1)....	0
Number of Nodes to be allowed for (NNOD).....	41
Number of Plugs in a Storage Treatment Unit.....	1

```
#####
#   Entry made to the Runoff Layer(Block) of SWMM   #
#   Last Updated June, 2014 by XP Solutions         #
```

```
*=====*
```

RUNOFF TABLES IN THE OUTPUT FILE.	
These are the more important tables in the output file.	
You can use your editor to find the table numbers,	
for example: search for Table R3 to check continuity.	
This output file can be imported into a Word Processor	
and printed on US letter or A4 paper using portrait	
mode, courier font, a size of 8 pt. and margins of 0.75	
Table R1	- Physical Hydrology Data
Table R2	- Infiltration data
Table R3	- Raingage and Infiltration Database Names
Table R4	- Groundwater Data
Table R5	- Continuity Check for Surface Water
Table R6	- Continuity Check for Channels/Pipes
Table R7	- Continuity Check for Subsurface Water
Table R8	- Infiltration/Inflow Continuity Check
Table R9	- Summary Statistics for Subcatchments
Table R10	- Sensitivity analysis for Subcatchments

```
*=====*
```

A1

```
#####
#   RUNOFF JOB CONTROL   #
#####
```

Snowmelt parameter - ISNOW.....	0
Number of rain gages - NRGAG.....	1
Quality is not simulated - KWALTY.....	0

Coupland_Prop100yr_NoImpact.out

Default evaporation rate used - IVAP..... 0
Hour of day at start of storm - NHR..... 0
Minute of hour at start of storm - NMN..... 0
Time TZERO at start of storm (hours)..... 0.000
Use U.S. Customary units for most I/O - METRIC... 0
Runoff input print control... 0
Runoff graph plot control.... 0
Runoff output print control.. 0
Limit number of groundwater convergence messages to 10000

Print headers every 50 lines - NOHEAD (0=yes, 1=no) 0

Print land use load percentages -LANDUPR (0=no, 1=yes) 0
Month, day, year of start of storm is: 1/ 1/2016
Wet time step length (seconds)..... 60.0
Dry time step length (seconds)..... 86400.0
Wet/Dry time step length (seconds)... 60.0
Simulation length is..... 48.0 Hours

If Horton infiltration model is being used
A mixture of infiltration options may be used in
XP-SWMM as a watershed specific option.
Rate for regeneration of infiltration = REGEN * DECAY
Decay is read in for each subcatchment
REGEN = 0.01000

Raingage #..... 1
KTYPE - Rainfall input type..... 0
NHISTO - Total number of rainfall values.. 898
KINC - Rainfall values(pairs) per line.. 10
KPRINT - Print rainfall(0-Yes,1-No)..... 0
KTIME - Precipitation time units
0 --> Minutes 1 --> Hours..... 0
KPREP - Precipitation unit type
0 --> Intensity 1 --> Volume..... 1
KTHIS - Variable rainfall intervals
0 --> No, >= 1 --> Yes..... 0
THISTO - Rainfall time interval..... 5.00
TZRAIN - Starting time(KTIME units)..... 0.00

Rainfall input summary from Runoff #
#####

Total rainfall for gage # 1 is 13.5100 inches

Coupland_Prop100yr_NoImpact.out

```
#####
#           Data Group F1           #
# Evaporation Rate (in/day) #
#####
```

```
JAN.  FEB.  MAR.  APR.  MAY   JUN.  JUL.  AUG.  SEP.  OCT.  NOV  DEC.
-----  -----  -----  -----  -----  -----  -----  -----  -----  -----  -----  -----
0.100  0.100  0.100  0.100  0.100  0.100  0.100  0.100  0.100  0.100  0.100  0.100
```

```
#####
# Table R1.  S U B C A T C H M E N T  D A T A  #
#           Physical Hydrology Data           #
#####
```

Deprs					Deprs Prcnt			Per-	
"n"	"n"	Storage	Strge	Deten	Channel	Width	Area	cent	Slope
Number	Name	or inlet	(ft)	(ac)	Imperv	ft/ft			
1	Node39#1	Node39	16.000	2.2700	50.00	0.002			
0.014	0.030	0.000	0.000	25.00					
2	Node34.1.1#1	Node34.1.1	44.300	5.2000	67.00	0.002			
0.014	0.030	0.000	0.000	25.00					
3	Node18.1.1#1	Node18.1.1	41.600	4.8700	67.00	0.002			
0.014	0.030	0.000	0.000	25.00					
4	Node17#1	Node17	3.4000	.36000	67.00	0.002			
0.014	0.030	0.000	0.000	25.00					
5	Node19#1	Node19	76.500	12.240	50.00	0.002			
0.014	0.030	0.000	0.000	25.00					

```
#####
#####
#           Table R2.  SUBCATCHMENT  DATA
#
#           Infiltration or Time of Concentration Data
#
#
# Infiltration Type           Infl #1(#5)           Infl #2(#6)           Infl #3(#7)
#           Infl #4(#8) #
# SCS           ->   Comp CN           Time Conc           Shape Factor
```

Coupland_Prop100yr_NoImpact.out

```

Depth or Fraction #
# SBUH          ->  Comp CN          Time Conc          N/A
          N/A #
# Green Ampt    ->  Suction          Hydr Cond          Initial MD
          N/A #
# Horton        ->  Max Rate          Min Rate          Decay Rate (1/sec)
Max. Infilt. Volume #
# Proportional ->  Constant          N/A          N/A
          N/A #
# Initial/Cont Loss ->  Initial          Continuing          N/A
          N/A #
# Initial/Proportional ->  Initial          Constant          N/A
          N/A #
# Laurenson Parameters ->  B Value          Pervious "n"          Impervious Cont
          Exponent #
# Rational Formula ->  Tc Method          Flow Path Length          Flow Path Slope
Roughness or Retardance #
#
#              (#1 - #4 is Impervious Data / #5 - #8 is Pervious
Data)          #
#              Rational Formula Tc Method: 1 = Constant
#              #
#              2 = Friend's Equation
#              #
#              3 = Kinematic Wave
#              #
#              4 = Alameda Method
#              #
#              5 = Izzard's Formula
#              #
#              6 = Kerby's Equation
#              #
#              7 = Kirpich's Equation
#              #
#              8 = Bransby Williams Equation
#              #
#              9 = Federal Aviation Authority
Equation          #

```


#####

Infl	Subcatchment	Infl	Infl	Infl	Infl	Infl	
Number	Infl	Infl	# 1	# 2	# 3	# 4	# 5
6	# 7	# 8					#
1	Node39#1		12.450	0.024	0.385		
2	Node34.1.1#1		12.450	0.024	0.385		

Coupland_Prop100yr_NoImpact.out

3	Node18.1.1#1	12.450	0.024	0.385
4	Node17#1	12.450	0.024	0.385
5	Node19#1	12.450	0.024	0.385

```
#####
# Table R3. SUBCATCHMENT DATA #
# Rainfall and Infiltration Database Names #
#####
```

Subcatchment Number	Name	Gage No	Infiltration Type	Routing Type
1	Node39#1	1	Green Ampt	Non-linear reservoir
2	Node34.1.1#1	1	Green Ampt	Non-linear reservoir
3	Node18.1.1#1	1	Green Ampt	Non-linear reservoir
4	Node17#1	1	Green Ampt	Non-linear reservoir
5	Node19#1	1	Green Ampt	Non-linear reservoir

Total Number of Subcatchments... 5
 Total Tributary Area (acres).... 24.94
 Impervious Area (acres)..... 14.24
 Pervious Area (acres)..... 10.70
 Total Width (feet)..... 181.80
 Impervious Area (%)..... 57.11

```
#####
# SUBCATCHMENT DATA #
# Default, Ratio values for subcatchment data #
# Used with the calibrate node in the runoff. #
# 1 - width 2 - area 3 - impervious % #
# 4 - slope 5 - imp "n" 6 - perv "n" #
# 7 - imp ds 8 - perv ds 9 - 1st infil #
#10 - 2nd infil 11 - 3rd infil #
#####
```

Column	1	2	3	4	5	6	7
8	9	10	11				
Default	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
0.0000	0.0000	0.0000	0.0000				
Ratio	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
1.0000	1.0000	1.0000	1.0000				

```
*****
* Arrangement of Subcatchments and Channel/Pipes *
*****
```

```

Inlet
Node39          No Tributary Channel/Pipes
                Tributary Subareas..... Node39#1
Node34.1.1      No Tributary Channel/Pipes
                Tributary Subareas..... Node34.1.1#1
Node18.1.1      No Tributary Channel/Pipes
                Tributary Subareas..... Node18.1.1#1
Node17          No Tributary Channel/Pipes
                Tributary Subareas..... Node17#1
Node19          No Tributary Channel/Pipes
                Tributary Subareas..... Node19#1

```

```

*****
* Hydrographs will be stored for the following 5 INLETS *
*****
Node39          Node34.1.1          Node18.1.1
Node17          Node19

```

```

*****
* Quality Simulation not included in this run *
*****

```

```

*****
* Precipitation Interface File Summary *
* Number of precipitation station... 1 *
*****

```

```

Location Station Number
-----
          1.          1

```

XXX End of Header Section XXX

```

#####
# Entry made to the HYDRAULIC Layer of XP-SWMM #
# Last Updated in June, 2014 by XP Solutions #

```

```

#####
# Entry made to the Runoff Layer(Block) of SWMM #
# Last Updated June, 2014 by XP Solutions #

```

=====

Coupland_Prop100yr_NoImpact.out

RUNOFF TABLES IN THE OUTPUT FILE.

These are the more important tables in the output file. You can use your editor to find the table numbers, for example: search for Table R3 to check continuity. This output file can be imported into a Word Processor and printed on US letter or A4 paper using portrait mode, courier font, a size of 8 pt. and margins of 0.75

- Table R1 - Physical Hydrology Data
- Table R2 - Infiltration data
- Table R3 - Raingage and Infiltration Database Names
- Table R4 - Groundwater Data
- Table R5 - Continuity Check for Surface Water
- Table R6 - Continuity Check for Channels/Pipes
- Table R7 - Continuity Check for Subsurface Water
- Table R8 - Infiltration/Inflow Continuity Check
- Table R9 - Summary Statistics for Subcatchments
- Table R10 - Sensitivity anlysis for Subcatchments

=====

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RUNOFF JOB CONTROL #
#####

```

Snowmelt parameter - ISNOW..... 0
Number of rain gages - NRGAG..... 1
Quality is not simulated - KWALTY..... 0
Default evaporation rate used - IVAP..... 0
Hour of day at start of storm - NHR..... 0
Minute of hour at start of storm - NMN..... 0
Time TZERO at start of storm (hours)..... 0.000
Use U.S. Customary units for most I/O - METRIC... 0
Runoff input print control... 0
Runoff graph plot control.... 0
Runoff output print control.. 0
Limit number of groundwater convergence messages to 10000

Print headers every 50 lines - NOHEAD (0=yes, 1=no) 0

Print land use load percentages -LANDUPR (0=no, 1=yes) 0
Month, day, year of start of storm is: 1/ 1/2016
Wet time step length (seconds)..... 60.0
Dry time step length (seconds)..... 86400.0
Wet/Dry time step length (seconds)... 60.0

```

Simulation length is.....

48.0 Hours

If Horton infiltration model is being used

A mixture of infiltration options may be used in

XP-SWMM as a watershed specific option.

Rate for regeneration of infiltration = REGEN * DECAY

Decay is read in for each subcatchment

REGEN = 0.01000

```

Raingage #..... 1
KTYPE - Rainfall input type..... 0
NHISTO - Total number of rainfall values.. 898
KINC - Rainfall values(pairs) per line.. 10
KPRINT - Print rainfall(0-Yes,1-No)..... 0
KTIME - Precipitation time units
0 --> Minutes 1 --> Hours..... 0
KPREP - Precipitation unit type
0 --> Intensity 1 --> Volume..... 1
KTHIS - Variable rainfall intervals
0 --> No, >= 1 --> Yes..... 0
THISTO - Rainfall time interval..... 5.00
TZRAIN - Starting time(KTIME units)..... 0.00

```

```

#####
# Rainfall input summary from Runoff #
#####

```

Total rainfall for gage # 1 is 13.5100 inches

```

#####
# Data Group F1 #
# Evaporation Rate (in/day) #
#####

```

```

JAN. FEB. MAR. APR. MAY JUN. JUL. AUG. SEP. OCT. NOV DEC.
---- ---- ---- ---- ---- ---- ---- ---- ---- ---- ----
0.100 0.100 0.100 0.100 0.100 0.100 0.100 0.100 0.100 0.100 0.100 0.100

```

```

#####
# Table R1. S U B C A T C H M E N T D A T A #
# Physical Hydrology Data #
#####

```

Deprs Deprs Prcnt

Coupland_Prop100yr_NoImpact.out

					Per-				
-sion -sion Zero					cent	Slope			
"n"	"n"	Storage	Strge	Deten	Channel	Width	Area	cent	Slope
Number		Name		-tion	or inlet	(ft)	(ac)	Imperv	ft/ft
Imprv	Perv	Imprv	Perv						
1		Node39#1			Node39	16.000	2.2700	50.00	0.002
0.014	0.030	0.000	0.000	25.00					
2		Node34.1.1#1			Node34.1.1	44.300	5.2000	67.00	0.002
0.014	0.030	0.000	0.000	25.00					
3		Node18.1.1#1			Node18.1.1	41.600	4.8700	67.00	0.002
0.014	0.030	0.000	0.000	25.00					
4		Node17#1			Node17	3.4000	.36000	67.00	0.002
0.014	0.030	0.000	0.000	25.00					
5		Node19#1			Node19	76.500	12.240	50.00	0.002
0.014	0.030	0.000	0.000	25.00					

#####

Table R2. SUBCATCHMENT DATA

Infiltration or Time of Concentration Data

Infiltration Type Infl #1(#5) Infl #2(#6) Infl #3(#7)
Infl #4(#8) #
SCS -> Comp CN Time Conc Shape Factor
Depth or Fraction #
SBUH -> Comp CN Time Conc N/A
N/A #
Green Ampt -> Suction Hydr Cond Initial MD
N/A #
Horton -> Max Rate Min Rate Decay Rate (1/sec)
Max. Infilt. Volume #
Proportional -> Constant N/A N/A
N/A #
Initial/Cont Loss -> Initial Continuing N/A
N/A #
Initial/Proportional -> Initial Constant N/A
N/A #
Laurenson Parameters -> B Value Pervious "n" Impervious Cont
Exponent #
Rational Formula -> Tc Method Flow Path Length Flow Path Slope
Roughness or Retardance #

Coupland_Prop100yr_NoImpact.out

(#1 - #4 is Impervious Data / #5 - #8 is Pervious

```

#
Data)      #
#          # Rational Formula Tc Method: 1 = Constant
#          #
#          # 2 = Friend's Equation
#          #
#          # 3 = Kinematic Wave
#          #
#          # 4 = Alameda Method
#          #
#          # 5 = Izzard's Formula
#          #
#          # 6 = Kerby's Equation
#          #
#          # 7 = Kirpich's Equation
#          #
#          # 8 = Bransby Williams Equation
#          #
#          # 9 = Federal Aviation Authority
Equation   #
    
```


#####

Infl	Subcatchment	Infl	Infl	Infl	Infl	Infl	
Number	Infl	Name	# 1	# 2	# 3	# 4	# 5
6	# 7	# 8					
1	Node39#1		12.450	0.024	0.385		
2	Node34.1.1#1		12.450	0.024	0.385		
3	Node18.1.1#1		12.450	0.024	0.385		
4	Node17#1		12.450	0.024	0.385		
5	Node19#1		12.450	0.024	0.385		

Table R3. SUBCATCHMENT DATA #
Rainfall and Infiltration Database Names #
#####

Subcatchment	Gage	Infiltration	Routing
Number	No	Type	Type
1	1	Green Ampt	Non-linear reservoir
2	1	Green Ampt	Non-linear reservoir
3	1	Green Ampt	Non-linear reservoir
4	1	Green Ampt	Non-linear reservoir

5 Node19#1 1 Green Ampt Non-linear reservoir

Total Number of Subcatchments... 5
 Total Tributary Area (acres)... 24.94
 Impervious Area (acres)..... 14.24
 Pervious Area (acres)..... 10.70
 Total Width (feet)..... 181.80
 Impervious Area (%)..... 57.11

```
#####
#           S U B C A T C H M E N T   D A T A           #
#   Default, Ratio values for subcatchment data   #
#   Used with the calibrate node in the runoff.   #
# 1 - width      2 - area      3 - impervious %   #
# 4 - slope      5 - imp "n"    6 - perv "n"     #
# 7 - imp ds     8 - perv ds    9 - 1st infil    #
#10 - 2nd infil          11 - 3rd infil         #
#####
```

Column	1	2	3	4	5	6	7
8	9	10	11				
Default	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
0.0000	0.0000	0.0000	0.0000				
Ratio	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
1.0000	1.0000	1.0000	1.0000				

```
*****
*   Arrangement of Subcatchments and Channel/Pipes   *
*****
```

```

      Inlet
Node39          No Tributary Channel/Pipes
                Tributary Subareas..... Node39#1
Node34.1.1     No Tributary Channel/Pipes
                Tributary Subareas..... Node34.1.1#1
Node18.1.1     No Tributary Channel/Pipes
                Tributary Subareas..... Node18.1.1#1
Node17          No Tributary Channel/Pipes
                Tributary Subareas..... Node17#1
Node19          No Tributary Channel/Pipes
                Tributary Subareas..... Node19#1
```

```
*****
* Hydrographs will be stored for the following 5 INLETS *
*****
```

Node39
Node17

Node34.1.1
Node19

Node18.1.1

* Quality Simulation not included in this run *

* Precipitation Interface File Summary *
* Number of precipitation station.... 1 *

Location Station Number

1. 1

A1

| HYDRAULICS TABLES IN THE OUTPUT FILE |
| These are the more important tables in the output file. |
| You can use your editor to find the table numbers, |
| for example: search for Table E20 to check continuity. |
| This output file can be imported into a Word Processor |
| and printed on US letter or A4 paper using portrait |
| mode, courier font, a size of 8 pt. and margins of 0.75 |
| Table E1 - Basic Conduit Data |
| Table E2 - Conduit Factor Data |
| Table E3a - Junction Data |
| Table E3b - Junction Data |
| Table E4 - Conduit Connectivity Data |
| Table E4a - Dry Weather Flow Data |
| Table E4b - Real Time Control Data |
| Table E5 - Junction Time Step Limitation Summary |
| Table E5a - Conduit Explicit Condition Summary |
| Table E6 - Final Model Condition |
| Table E7 - Iteration Summary |
| Table E8 - Junction Time Step Limitation Summary |

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Table E9	- Junction Summary Statistics	
Table E10	- Conduit Summary Statistics	
Table E11	- Area assumptions used in the analysis	
Table E12	- Mean conduit information	
Table E13	- Channel losses(H) and culvert info	
Table E13a	- Culvert Analysis Classification	
Table E14	- Natural Channel Overbank Flow Information	
Table E14a	- Natural Channel Encroachment Information	
Table E14b	- Floodplain Mapping	
Table E15	- Spreadsheet Info List	
Table E15a	- Spreadsheet Reach List	
Table E16	- New Conduit Output Section	
Table E17	- Pump Operation	
Table E18	- Junction Continuity Error	
Table E19	- Junction Inflow & Outflow Listing	
Table E20	- Junction Flooding and Volume List	
Table E21	- Continuity balance at simulation end	
Table E22	- Model Judgement Section	

=====

Time Control from Hydraulics Job Control

Year.....	2014 Month.....	1
Day.....	1 Hour.....	0
Minute.....	0 Second.....	0

Control information for simulation

Integration cycles.....	960
Length of integration step is.....	180.00 seconds
Simulation length.....	48.00 hours
Do not create equiv. pipes(NEQUAL).	0
Use U.S. customary units for I/O...	0
Printing starts in cycle.....	1
Intermediate printout intervals of.	500 cycles
Intermediate printout intervals of.	1500.00 minutes
Summary printout intervals of.....	500 cycles
Summary printout time interval of..	1500.00 minutes
Hot start file parameter (REDO)....	0
Initial time.....	0.00 hours

Iteration variables: Flow Tolerance.	0.00010
Head Tolerance.	0.00050
Minimum depth (m or ft).....	0.00001
Underrelaxation parameter.....	0.85000
Time weighting parameter.....	0.85000
Conduit roughness factor.....	1.00000

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Flow adjustment factor..... 1.00000
 Initial Condition Smoothing..... 0
 Courant Time Step Factor..... 1.00000
 Default Expansion/Contraction K. 0.00000
 Default Entrance/Exit K..... 0.00000
 Routing Method..... Dynamic Wave
 Default surface area of junctions... 12.57 square feet.
 Minimum Junction/Conduit Depth..... 0.00001 feet.
 Ponding Area Coefficient..... 5000.00
 Ponding Area Exponent..... 1.0000
 Minimum Orifice Length..... 1000.00 feet.
 NJSW input hydrograph junctions..... 1
 or user defined hydrographs....

Natural Cross-Section information for Channel Link14

=====

Cross-Section ID (from X1 card) : 1.0 Channel sequence number : 1

Left Overbank Length : 68.4 ft Maximum Elevation :
 25.09 ft.
 Main Channel Length : 68.4 ft Maximum Depth :
 4.82 ft.
 Right Overbank Length : 68.4 ft Maximum Section Area :
 78.2500 ft^2 Maximum hydraulic radius :
 1.63 ft.
 Manning N : 0.040 to Station 5.0 Max topwidth :
 45.00 ft.
 " " : 0.040 in main Channel Maximum Wetted Perimeter :
 4.80E+01 ft
 " " : 0.015 Beyond station 25.0 Max left bank area :
 9.80 ft^2 Max right bank area :
 6.02 ft^2
 Allowable Encroachment Depth : 0.00 ft Max center channel area :
 62.4250 ft^2

Natural Cross-Section information for Channel Link16

=====

Cross-Section ID (from X1 card) : 2.0 Channel sequence number : 2

Left Overbank Length : 22.9 ft Maximum Elevation :
 25.09 ft.
 Main Channel Length : 22.9 ft Maximum Depth :
 4.82 ft.
 Right Overbank Length : 22.9 ft Maximum Section Area :
 78.2500 ft^2 Maximum hydraulic radius :

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1.63 ft.
Manning N : 0.040 to Station 5.0 Max topwidth :
45.00 ft.
" " : 0.040 in main Channel Maximum Wetted Perimeter :
4.80E+01 ft
" " : 0.015 Beyond station 25.0 Max left bank area :
9.80 ft^2
Max right bank area :
6.02 ft^2
Allowable Encroachment Depth : 0.00 ft Max center channel area :
62.4250 ft^2

Natural Cross-Section information for Channel Link18

=====

Cross-Section ID (from X1 card) : 3.0 Channel sequence number : 3

Left Overbank Length : 243.1 ft Maximum Elevation :
25.09 ft.
Main Channel Length : 243.1 ft Maximum Depth :
4.82 ft.
Right Overbank Length : 243.1 ft Maximum Section Area :
78.2500 ft^2
Maximum hydraulic radius :
1.63 ft.
Manning N : 0.040 to Station 5.0 Max topwidth :
45.00 ft.
" " : 0.040 in main Channel Maximum Wetted Perimeter :
4.80E+01 ft
" " : 0.015 Beyond station 25.0 Max left bank area :
9.80 ft^2
Max right bank area :
6.02 ft^2
Allowable Encroachment Depth : 0.00 ft Max center channel area :
62.4250 ft^2

Natural Cross-Section information for Channel Link20

=====

Cross-Section ID (from X1 card) : 4.0 Channel sequence number : 4

Left Overbank Length : 117.5 ft Maximum Elevation :
25.20 ft.
Main Channel Length : 117.5 ft Maximum Depth :
5.02 ft.
Right Overbank Length : 117.5 ft Maximum Section Area :
85.7750 ft^2
Maximum hydraulic radius :
2.00 ft.
Manning N : 0.040 to Station 5.0 Max topwidth :

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40.00 ft.
" " : 0.040 in main Channel Maximum Wetted Perimeter :
4.28E+01 ft
" " : 0.015 Beyond station 25.0 Max left bank area :
10.40 ft^2 Max right bank area :
5.38 ft^2
Allowable Encroachment Depth : 0.00 ft Max center channel area :
70.0000 ft^2

Natural Cross-Section information for Channel Link22

=====

Cross-Section ID (from X1 card) : 5.0 Channel sequence number : 5

Left Overbank Length : 282.4 ft Maximum Elevation :
25.00 ft.
Main Channel Length : 282.4 ft Maximum Depth :
5.35 ft.
Right Overbank Length : 282.4 ft Maximum Section Area :
128.5750 ft^2 Maximum hydraulic radius :
2.43 ft.
Manning N : 0.040 to Station 5.0 Max topwidth :
50.00 ft.
" " : 0.040 in main Channel Maximum Wetted Perimeter :
5.30E+01 ft
" " : 0.015 Beyond station 35.0 Max left bank area :
10.10 ft^2 Max right bank area :
8.50 ft^2
Allowable Encroachment Depth : 0.00 ft Max center channel area :
109.9750 ft^2

Natural Cross-Section information for Channel Link24

=====

Cross-Section ID (from X1 card) : 6.0 Channel sequence number : 6

Left Overbank Length : 280.1 ft Maximum Elevation :
25.00 ft.
Main Channel Length : 280.1 ft Maximum Depth :
6.11 ft.
Right Overbank Length : 280.1 ft Maximum Section Area :
112.8500 ft^2 Maximum hydraulic radius :
2.32 ft.
Manning N : 0.040 to Station 10.0 Max topwidth :
45.00 ft.
" " : 0.040 in main Channel Maximum Wetted Perimeter :

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4.86E+01 ft
 " " : 0.015 Beyond station 30.0 Max left bank area :
 21.17 ft^2
 Max right bank area :
 12.10 ft^2
 Allowable Encroachment Depth : 0.00 ft Max center channel area :
 79.5750 ft^2

Natural Cross-Section information for Channel Link26

=====

Cross-Section ID (from X1 card) : 7.0 Channel sequence number : 7

Left Overbank Length : 38.8 ft Maximum Elevation :
 25.00 ft.
 Main Channel Length : 38.8 ft Maximum Depth :
 6.39 ft.
 Right Overbank Length : 38.8 ft Maximum Section Area :
 123.8687 ft^2
 Maximum hydraulic radius :
 3.11 ft.
 Manning N : 0.040 to Station 5.6 Max topwidth :
 35.57 ft.
 " " : 0.040 in main Channel Maximum Wetted Perimeter :
 3.98E+01 ft
 " " : 0.015 Beyond station 25.4 Max left bank area :
 17.71 ft^2
 Max right bank area :
 14.63 ft^2
 Allowable Encroachment Depth : 0.00 ft Max center channel area :
 91.5279 ft^2

Natural Cross-Section information for Channel Link31

=====

Cross-Section ID (from X1 card) : 8.0 Channel sequence number : 8

Left Overbank Length : 240.3 ft Maximum Elevation :
 27.85 ft.
 Main Channel Length : 199.7 ft Maximum Depth :
 16.36 ft.
 Right Overbank Length : 181.6 ft Maximum Section Area :
 28065.25 ft^2
 Maximum hydraulic radius :
 3.71 ft.
 Manning N : 0.070 to Station 4659.6 Max topwidth :
 7554.14 ft.
 " " : 0.032 in main Channel Maximum Wetted Perimeter :
 7.56E+03 ft
 " " : 0.070 Beyond station 4835.3 Max left bank area :
 Max right bank area :
 Max center channel area :

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19000.27 ft^2

Max right bank area :

7493.03 ft^2

Allowable Encroachment Depth : 0.00 ft

Max center channel area :

1571.950 ft^2

Natural Cross-Section information for Channel Link33

=====

Cross-Section ID (from X1 card) : 9.0 Channel sequence number : 9

Left Overbank Length : 169.1 ft Maximum Elevation :
29.46 ft.

Main Channel Length : 192.7 ft Maximum Depth :
17.97 ft.

Right Overbank Length : 192.5 ft Maximum Section Area :
30196.69 ft^2

Maximum hydraulic radius :

4.88 ft.

Manning N : 0.070 to Station 3428.2 Max topwidth :

6181.63 ft.

" " : 0.032 in main Channel Maximum Wetted Perimeter :

6.19E+03 ft

" " : 0.070 Beyond station 3547.3 Max left bank area :

17628.50 ft^2

Max right bank area :

11171.67 ft^2

Allowable Encroachment Depth : 0.00 ft

Max center channel area :

1396.517 ft^2

Natural Cross-Section information for Channel Link34

=====

Cross-Section ID (from X1 card) : 10.0 Channel sequence number : 10

Left Overbank Length : 49.2 ft Maximum Elevation :
25.09 ft.

Main Channel Length : 49.2 ft Maximum Depth :
4.82 ft.

Right Overbank Length : 49.2 ft Maximum Section Area :
78.2500 ft^2

Maximum hydraulic radius :

1.63 ft.

Manning N : 0.040 to Station 5.0 Max topwidth :

45.00 ft.

" " : 0.040 in main Channel Maximum Wetted Perimeter :

4.80E+01 ft

" " : 0.015 Beyond station 25.0 Max left bank area :

9.80 ft^2

Max right bank area :

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6.02 ft²
Allowable Encroachment Depth : 0.00 ft Max center channel area :
62.4250 ft²

Natural Cross-Section information for Channel Link36

=====

Cross-Section ID (from X1 card) : 11.0 Channel sequence number : 11

Left Overbank Length : 492.1 ft Maximum Elevation :
29.46 ft.
Main Channel Length : 499.4 ft Maximum Depth :
17.97 ft.
Right Overbank Length : 512.7 ft Maximum Section Area :
30714.99 ft² Maximum hydraulic radius :
4.83 ft.
Manning N : 0.070 to Station 3592.7 Max topwidth :
6305.50 ft.
" " : 0.032 in main Channel Maximum Wetted Perimeter :
6.36E+03 ft
" " : 0.070 Beyond station 3741.1 Max left bank area :
18443.26 ft² Max right bank area :
10717.92 ft²
Allowable Encroachment Depth : 0.00 ft Max center channel area :
1553.814 ft²

Natural Cross-Section information for Channel Link37

=====

Cross-Section ID (from X1 card) : 12.0 Channel sequence number : 12

Left Overbank Length : 740.0 ft Maximum Elevation :
28.05 ft.
Main Channel Length : 745.4 ft Maximum Depth :
19.03 ft.
Right Overbank Length : 747.9 ft Maximum Section Area :
27584.49 ft² Maximum hydraulic radius :
3.59 ft.
Manning N : 0.070 to Station 4926.5 Max topwidth :
7672.71 ft.
" " : 0.032 in main Channel Maximum Wetted Perimeter :
7.68E+03 ft
" " : 0.070 Beyond station 5115.9 Max left bank area :
20807.75 ft² Max right bank area :
5154.22 ft²
Allowable Encroachment Depth : 0.00 ft Max center channel area :

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1622.518 ft^2

Natural Cross-Section information for Channel Link42.1.1

=====

Cross-Section ID (from X1 card) : 13.0 Channel sequence number : 13

Left Overbank Length : 20.3 ft Maximum Elevation :
28.40 ft.
Main Channel Length : 20.0 ft Maximum Depth :
19.94 ft.
Right Overbank Length : 20.1 ft Maximum Section Area :
31373.45 ft^2 Maximum hydraulic radius :
4.17 ft.
Manning N : 0.070 to Station 4877.5 Max topwidth :
7515.52 ft.
" " : 0.032 in main Channel Maximum Wetted Perimeter :
7.52E+03 ft
" " : 0.070 Beyond station 5060.6 Max left bank area :
22248.55 ft^2 Max right bank area :
7383.12 ft^2
Allowable Encroachment Depth : 0.00 ft Max center channel area :
1741.771 ft^2

Natural Cross-Section information for Channel Link41

=====

Cross-Section ID (from X1 card) : 14.0 Channel sequence number : 14

Left Overbank Length : 133.6 ft Maximum Elevation :
25.09 ft.
Main Channel Length : 133.6 ft Maximum Depth :
4.82 ft.
Right Overbank Length : 133.6 ft Maximum Section Area :
78.2500 ft^2 Maximum hydraulic radius :
1.63 ft.
Manning N : 0.040 to Station 5.0 Max topwidth :
45.00 ft.
" " : 0.040 in main Channel Maximum Wetted Perimeter :
4.80E+01 ft
" " : 0.015 Beyond station 25.0 Max left bank area :
9.80 ft^2 Max right bank area :
6.02 ft^2
Allowable Encroachment Depth : 0.00 ft Max center channel area :
62.4250 ft^2

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 Natural Cross-Section information for Channel Link48

=====

Cross-Section ID (from X1 card) : 15.0 Channel sequence number : 15

Left Overbank Length : 38.3 ft		Maximum Elevation :	
27.82 ft.			
Main Channel Length : 38.3 ft		Maximum Depth :	
16.33 ft.			
Right Overbank Length : 38.3 ft		Maximum Section Area :	
26945.91 ft^2		Maximum hydraulic radius :	
3.54 ft.			
Manning N : 0.070 to Station 4655.5		Max topwidth :	
7614.88 ft.			
" " : 0.032 in main Channel		Maximum Wetted Perimeter :	
7.62E+03 ft			
" " : 0.070 Beyond station 4770.5		Max left bank area :	
18294.32 ft^2		Max right bank area :	
7448.66 ft^2		Max center channel area :	
Allowable Encroachment Depth : 0.00 ft			
1202.931 ft^2			

=====

Table E1 - Conduit Data

=====

Inp Depth Num (ft)	Trapezoid Side Slopes	Hazen Conduit Williams Name c-factor	Length (ft)	Conduit Class	Area (ft^2)	Manning Coef.	Max Width (ft)

1		Link14	68.3600	Natural	78.2500	0.0400	45.0000
4.8200							
2		Link16	22.8500	Natural	78.2500	0.0400	45.0000
4.8200							
3		Link18	243.1300	Natural	78.2500	0.0400	45.0000
4.8200							
4		Link20	117.5100	Natural	85.7750	0.0400	40.0000
5.0200							
5		Link22	282.4000	Natural	128.5750	0.0400	50.0000
5.3500							
6		Link24	280.1300	Natural	112.8500	0.0400	45.0000
6.1100							
7		Link26	38.8400	Natural	123.8687	0.0400	35.5700

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6.3900						
8	Link31	199.6800	Natural	28065.247	0.0320	7554.1400
16.3600						
9	Link33	192.6600	Natural	30196.693	0.0320	6181.6300
17.9700						
10	Link34	49.2500	Natural	78.2500	0.0400	45.0000
4.8200						
11	Link36	499.4300	Natural	30714.993	0.0320	6305.5000
17.9700						
12	Link37	745.4400	Natural	27584.486	0.0320	7672.7100
19.0300						
13	Link42.1.1	20.0100	Natural	31373.446	0.0320	7515.5200
19.9400						
14	Link38.1	1092.9300	Circular	9.6211	0.0130	3.5000
3.5000						
15	Link46.1	50.0000	Circular	9.6211	0.0130	3.5000
3.5000						
16	Link45.1	82.5300	Circular	9.6211	0.0130	3.5000
3.5000						
17	Link39.1	254.5400	Circular	4.9087	0.0130	2.5000
2.5000						
18	Link41	133.5500	Natural	78.2500	0.0400	45.0000
4.8200						
19	Link48	38.2600	Natural	26945.911	0.0320	7614.8800
16.3300						
20	227.1	33.3500	Circular	4.9087	0.0150	2.5000
2.5000						
21	231.1	37.5400	Circular	4.9087	0.0150	2.5000
2.5000						
22	235.1	33.2900	Circular	4.9087	0.0130	2.5000
2.5000						
23	239.1	33.2700	Circular	4.9087	0.0150	2.5000
2.5000						
24	243.1	33.5900	Circular	4.9087	0.0150	2.5000
2.5000						
25	247.1	23.9600	Circular	4.9087	0.0130	2.5000
2.5000						
26	251.1	48.0400	Circular	4.9087	0.0150	2.5000
2.5000						
27	255.1	124.5900	Circular	7.0686	0.0130	3.0000
3.0000						
28	324.1	43.0000	Circular	19.6350	0.0130	5.0000
5.0000						
Total length of all conduits				4822.1300	feet	

=====

| If there are messages about (sqrt(g*d)*dt/dx), or |

| the sqrt(wave celerity)*time step/conduit length |

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```
| in the output file all it means is that the      |
| program will lower the internal time step to    |
| satisfy this condition (explicit condition).    |
| You control the actual internal time step by    |
| using the minimum courant time step factor in the |
| HYDRAULICS job control. The message put in words |
| states that the smallest conduit with the fastest |
| velocity will control the time step selection.  |
| You have further control by using the modify    |
| conduit option in the HYDRAULICS Job Control.  |
|=====*
```

Conduit Name	Courant Ratio	
Link14 step/conduit length)	19.70	====> Warning ! (sqrt(wave celerity)*time
Link16 step/conduit length)	58.95	====> Warning ! (sqrt(wave celerity)*time
Link18 step/conduit length)	5.54	====> Warning ! (sqrt(wave celerity)*time
Link20 step/conduit length)	12.73	====> Warning ! (sqrt(wave celerity)*time
Link22 step/conduit length)	5.80	====> Warning ! (sqrt(wave celerity)*time
Link24 step/conduit length)	5.77	====> Warning ! (sqrt(wave celerity)*time
Link26 step/conduit length)	49.07	====> Warning ! (sqrt(wave celerity)*time
Link31 step/conduit length)	9.86	====> Warning ! (sqrt(wave celerity)*time
Link33 step/conduit length)	11.16	====> Warning ! (sqrt(wave celerity)*time
Link34 step/conduit length)	27.35	====> Warning ! (sqrt(wave celerity)*time
Link36 step/conduit length)	4.29	====> Warning ! (sqrt(wave celerity)*time
Link37 step/conduit length)	2.17	====> Warning ! (sqrt(wave celerity)*time
Link42.1.1 step/conduit length)	76.40	====> Warning ! (sqrt(wave celerity)*time
Link38.1 step/conduit length)	1.75	====> Warning ! (sqrt(wave celerity)*time
Link46.1 step/conduit length)	38.22	====> Warning ! (sqrt(wave celerity)*time
Link45.1 step/conduit length)	23.15	====> Warning ! (sqrt(wave celerity)*time

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Link39.1 step/conduit length)	6.34	====> Warning ! (sqrt(wave celerity)*time
Link41 step/conduit length)	10.09	====> Warning ! (sqrt(wave celerity)*time
Link48 step/conduit length)	50.22	====> Warning ! (sqrt(wave celerity)*time
227.1 step/conduit length)	48.43	====> Warning ! (sqrt(wave celerity)*time
231.1 step/conduit length)	43.02	====> Warning ! (sqrt(wave celerity)*time
235.1 step/conduit length)	48.51	====> Warning ! (sqrt(wave celerity)*time
239.1 step/conduit length)	48.54	====> Warning ! (sqrt(wave celerity)*time
243.1 step/conduit length)	48.08	====> Warning ! (sqrt(wave celerity)*time
247.1 step/conduit length)	67.40	====> Warning ! (sqrt(wave celerity)*time
251.1 step/conduit length)	33.62	====> Warning ! (sqrt(wave celerity)*time
255.1 step/conduit length)	14.20	====> Warning ! (sqrt(wave celerity)*time
324.1 step/conduit length)	53.11	====> Warning ! (sqrt(wave celerity)*time

```
*=====*
```

Conduit Volume

```
*=====*
```

Full pipe or full open conduit volume
Input full depth volume..... 4.9122E+07 cubic feet

====> Warning !! The upstream and downstream junctions for the following conduits
have been reversed to correspond to the positive flow and
decreasing
slope convention. A negative flow in the output thus means
the flow was from your original upstream junction to your original
downstream junction. Any initial flow has been multiplied by -1.

1. Conduit #...Link22 has been changed.
2. Conduit #...Link34 has been changed.
3. Conduit #...235.1 has been changed.
4. Conduit #...239.1 has been changed.
5. Conduit #...243.1 has been changed.
6. Conduit #...247.1 has been changed.

```
*=====*
```

Table E3a - Junction Data

```

|-----*
|
|
|-----*

```

Inp Interface Num (%)	Junction Name	Ground Elevation	Crown Elevation	Invert Elevation	Qinst cfs	Initial Depth-ft	Flow
1	Node13	40.0000	27.8600	22.7400	0.0000	0.0000	
100.0000							
2	Node14	40.0000	27.8200	22.7000	0.0000	0.0000	
100.0000							
3	Node15	40.0000	26.3200	21.2000	0.0000	0.0000	
100.0000							
4	Node16	40.0000	26.6200	21.1600	0.0000	0.0000	
100.0000							
5	Node17	40.0000	25.5100	20.3100	0.0000	0.0000	
100.0000							
6	Node18	40.0000	25.5700	20.4500	0.0000	0.0000	
100.0000							
7	Node19	40.0000	24.5200	19.4300	0.0000	0.0000	
100.0000							
8	Node20	40.0000	25.1700	19.6300	0.0000	0.0000	
100.0000							
9	Node21	40.0000	24.7100	19.6900	0.0000	0.0000	
100.0000							
10	Node22	40.0000	25.5000	19.8000	0.0000	0.0000	
100.0000							
11	Node23	40.0000	25.5200	19.4500	0.0000	0.0000	
100.0000							
12	Node24	40.0000	26.2800	19.8700	0.0000	0.0000	
100.0000							
13	Node25	40.0000	25.9100	19.5700	0.0000	0.0000	
100.0000							
14	Node26	40.0000	25.2400	18.8500	0.0000	0.0000	
100.0000							
15	Node27	40.0000	24.6100	18.2200	0.0000	0.0000	
100.0000							
16	Node28	40.0000	29.4400	11.4700	0.0000	0.0000	
100.0000							
17	Node31	40.0000	27.8400	11.4800	0.0000	0.0000	
100.0000							
18	Node33	40.0000	29.4300	11.4600	0.0000	0.0000	
100.0000							
19	Node34	40.0000	27.1000	22.2800	0.0000	0.0000	
100.0000							
20	Node35	40.0000	27.8200	11.4900	0.0000	0.0000	

Coupland_Prop100yr_NoImpact.out

100.0000	21	Node36	40.0000	28.0500	9.0200	0.0000	0.0000
100.0000	22	Node37	40.0000	28.4000	8.4600	0.0000	0.0000
100.0000	23	Node41	40.0000	28.4000	8.4600	0.0000	0.0000
100.0000	24	Link42.1	40.0000	17.5100	12.5100	0.0000	0.0000
100.0000	25	Node23.1.1	40.0000	18.4200	8.0000	0.0000	0.0000
100.0000	26	Node19.1.1	40.0000	18.4200	8.0000	0.0000	0.0000
100.0000	27	Node18.1.1	40.0000	18.4900	14.9900	0.0000	0.0000
100.0000	28	Node34.1.1	40.0000	18.8200	16.3200	0.0000	0.0000
100.0000	29	Node39	40.0000	27.9700	23.1500	0.0000	0.0000
100.0000	30	Node40	40.0000	19.2700	12.5100	0.0000	0.0000

=====

| Table E3b - Junction Data |

=====

Inp Maximum Num Capacity	Junction Pavement Name Shape Slope	X Coord.	Y Coord.	Type of Manhole	Type of Inlet
1	0 Node13 0.00	0.0000	0.0000	No Ponding	Normal
2	0 Node14 0.00	0.0000	0.0000	No Ponding	Normal
3	0 Node15 0.00	0.0000	0.0000	No Ponding	Normal
4	0 Node16 0.00	0.0000	0.0000	No Ponding	Normal
5	0 Node17 0.00	0.0000	0.0000	No Ponding	Normal
6	0 Node18 0.00	0.0000	0.0000	No Ponding	Normal
7	0 Node19 0.00	0.0000	0.0000	No Ponding	Normal
8	Node20	0.0000	0.0000	No Ponding	Normal

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	0	0.00				
9		Node21	0.0000	0.0000	No Ponding	Normal
	0	0.00				
10		Node22	0.0000	0.0000	No Ponding	Normal
	0	0.00				
11		Node23	0.0000	0.0000	No Ponding	Normal
	0	0.00				
12		Node24	0.0000	0.0000	No Ponding	Normal
	0	0.00				
13		Node25	0.0000	0.0000	No Ponding	Normal
	0	0.00				
14		Node26	0.0000	0.0000	No Ponding	Normal
	0	0.00				
15		Node27	0.0000	0.0000	No Ponding	Normal
	0	0.00				
16		Node28	0.0000	0.0000	No Ponding	Normal
	0	0.00				
17		Node31	0.0000	0.0000	No Ponding	Normal
	0	0.00				
18		Node33	0.0000	0.0000	No Ponding	Normal
	0	0.00				
19		Node34	0.0000	0.0000	No Ponding	Normal
	0	0.00				
20		Node35	0.0000	0.0000	No Ponding	Normal
	0	0.00				
21		Node36	0.0000	0.0000	No Ponding	Normal
	0	0.00				
22		Node37	0.0000	0.0000	No Ponding	Normal
	0	0.00				
23		Node41	0.0000	0.0000	No Ponding	Normal
	0	0.00				
24		Link42.1	0.0000	0.0000	No Ponding	Normal
	0	0.00				
25		Node23.1.1	0.0000	0.0000	No Ponding	Normal
	0	0.00				
26		Node19.1.1	0.0000	0.0000	No Ponding	Normal
	0	0.00				
27		Node18.1.1	0.0000	0.0000	No Ponding	Normal
	0	0.00				
28		Node34.1.1	0.0000	0.0000	No Ponding	Normal
	0	0.00				
29		Node39	0.0000	0.0000	No Ponding	Normal
	0	0.00				
30		Node40	0.0000	0.0000	No Ponding	Normal
	0	0.00				

=====

Table E4 - Conduit Connectivity

=====

Input		Conduit	Upstream	Downstream
Upstream	Downstream	Name	Node	Node
Number	Elevation			
Elevation	Elevation			
=====	=====	=====	=====	=====
=====	=====			
1		Link14	Node14	Node15
23.0000	21.5000	No Design		
2		Link16	Node16	Node17
21.8000	20.6900	No Design		
3		Link18	Node18	Node19
20.7500	19.7000	No Design		
4		Link20	Node20	Node21
20.1500	19.6900	No Design		
5		Link22	Node23	Node22
20.1700	20.1500	No Design		
6		Link24	Node24	Node25
20.1700	19.8000	No Design		
7		Link26	Node26	Node27
18.8500	18.2200	No Design		
8		Link31	Node31	Node28
11.4800	11.4700	No Design		
9		Link33	Node28	Node33
11.4700	11.4600	No Design		
10		Link34	Node13	Node34
23.0400	22.2800	No Design		
11		Link36	Node33	Node36
11.4600	9.0200	No Design		
12		Link37	Node36	Node37
9.0200	8.4600	No Design		
13		Link42.1.1	Node37	Node41
8.4600	8.4600	No Design		
14		Link38.1	Node23.1.1	Link42.1
14.9200	14.0100	No Design		
15		Link46.1	Node19.1.1	Node23.1.1
8.0000	8.0000	No Design		
16		Link45.1	Node18.1.1	Node19.1.1
14.9900	14.9200	No Design		
17		Link39.1	Node34.1.1	Node18.1.1
16.3200	15.9900	No Design		
18		Link41	Node39	Node34
23.1500	22.2800	No Design		
19		Link48	Node35	Node31
11.4900	11.4800	No Design		
20		227.1	Node13	Node14

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22.7400	22.7000	No Design		
21		231.1	Node15	Node16
21.2000	21.1600	No Design		
22		235.1	Node18	Node17
20.4500	20.3100	No Design		
23		239.1	Node20	Node19
19.7100	19.4300	No Design		
24		243.1	Node22	Node21
20.1500	20.0300	No Design		
25		247.1	Node24	Node23
19.8700	19.4500	No Design		
26		251.1	Node25	Node26
19.8000	19.5400	No Design		
27		255.1	Node27	Node40
18.8000	16.2700	No Design		
28		324.1	Node40	Node28
12.5100	12.4900	No Design		

```

*=====
|           Orifice Data           3           |
*=====

```

Depth (ft)	Conduit Discharge Name Coefficient	From Height Above Junction (ft)	To Junction Type	Area (ft2)
5.00	Restrictor.1 0.670	Link42.1 0.000	Node40 Circ Side	2.84

```

====> EQUIVALENT PIPE INFORMATION FOR ORIFICE
CONDUIT NAME..... 1
Upstream node..... Restrictor.1
Downstream node..... Link42.1
PIPE DIAMETER..... Node40
PIPE LENGTH..... 1.90
MANNINGS ROUGHNESS..... 2815.84
INVERT ELEVATION AT UPSTREAM END..... 0.0032
INVERT ELEVATION AT DOWNSTREAM END... 12.5100

```

Note: For a Bottom-outlet orifice the invert elevation of the downstream node will be adjusted to accomodate the equivalent conduit. Conduit grades are not affected.

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```
*=====*
```

```
| Weir Data |
```

```
*=====*
```

Weir	Weir Discharge	From Weir	To	Crest
Top(ft)	Weir Name Length(ft) Coefficient	Junction Power	Junction Type	Height(ft)
17.26	W14 33.35 2.6700	Node13 1.5000	Node14 1	0.91
18.80	W15 37.54 2.6700	Node15 1.5000	Node16 1	2.99
19.69	W17 33.29 2.6700	Node17 1.5000	Node18 1	3.17
20.57	W20 33.27 2.6700	Node19 1.5000	Node20 1	4.45
20.31	W21 33.59 2.6700	Node21 1.5000	Node22 1	4.12
20.55	W24 23.96 2.6700	Node23 1.5000	Node24 1	3.76
20.43	W25 48.04 2.6700	Node25 1.5000	Node26 1	4.55
21.78	W27 124.59 2.6700	Node27 1.5000	Node40 1	5.25
27.49	W42 43.00 2.6700	Node40 1.5000	Node28 1	9.76
23.68	W34 5.00 2.6700	Node34.1.1 1.5000	Node34 1	5.96
25.01	W18 5.00 2.6700	Node18.1.1 1.5000	Node18 1	5.46

```
*=====*
```

```
| **WARNING** |
```

```
| Having weirs in series can occasionally |
```

```
| lead to large continuity errors for short |
```

```
| duration simulations. Please check your |
```

```
| continuity errors and make adjustments to |
```

```
| your model as required. |
```

```
*=====*
```

```
*=====*
```

```
| FREE OUTFALL DATA (DATA GROUP I1) |
```

```
| BOUNDARY CONDITION ON DATA GROUP J1 |
```

```
*=====*
```

Outfall at Junction....Node41 has boundary condition number...

1

```

*=====
|           Weir Outfall Data           |
| Boundary Condition on data group J1   |
*=====

```

```

*=====
| INTERNAL CONNECTIVITY INFORMATION     |
*=====

```

CONDUIT	JUNCTION	JUNCTION
Restrictor.1	Link42.1	Node40
W14	Node13	Node14
W15	Node15	Node16
W17	Node17	Node18
W20	Node19	Node20
W21	Node21	Node22
W24	Node23	Node24
W25	Node25	Node26
W27	Node27	Node40
W42	Node40	Node28
W34	Node34.1.1	Node34
W18	Node18.1.1	Node18
FREE# 1	Node41	BOUNDARY

```

*=====
| Boundary Condition Information         |
| Data Groups J1-J4                   |
*=====

```

BC NUMBER.. 1 has no control water surface.

```

*=====
| XP Note Field Summary                 |
*=====

```

```

*=====
| Conduit Convergence Criteria         |

```

Coupland_Prop100yr_NoImpact.out

=====

Conduit Name	Full Flow	Conduit Slope
Link14	596.7483	0.0219
Link16	887.9019	0.0486
Link18	264.7415	0.0043
Link20	316.7276	0.0039
Link22	72.5977	0.0001
Link24	267.1870	0.0013
Link26	1249.1460	0.0162
Link31	22103.9553	0.0001
Link33	29068.2089	0.0001
Link34	500.4380	0.0154
Link36	284978.9849	0.0049
Link37	82357.7976	0.0008
Link42.1.1	11938.3421	0.0000
Link38.1	29.0312	0.0008
Link46.1	3.1816	0.0000
Link45.1	29.3011	0.0008
Link39.1	14.7688	0.0013
Link41	325.1504	0.0065
Link48	46955.9126	0.0003
227.1	12.3112	0.0012
231.1	11.6038	0.0011
235.1	26.5994	0.0042

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239.1	32.6114	0.0084
243.1	21.2473	0.0036
247.1	54.3058	0.0175
251.1	26.1519	0.0054
255.1	95.0460	0.0203
324.1	56.1685	0.0005
Restrictor.1	21.0133	0.0000

```

*=====
|   Initial Model Condition   |
| Initial Time =      0.05 hours |
*=====

```

Junction /	Depth /	Elevation	====>	"*" Junction is Surcharged.
Node13/	0.00 /	22.74		Node14/ 0.00 / 22.70
Node15/	0.00 /	21.20		
Node16/	0.00 /	21.16		Node17/ 0.00 / 20.31
Node18/	0.00 /	20.45		
Node19/	0.00 /	19.43		Node20/ 0.00 / 19.63
Node21/	0.00 /	19.69		
Node22/	0.00 /	19.80		Node23/ 0.00 / 19.45
Node24/	0.00 /	19.87		
Node25/	0.00 /	19.57		Node26/ 0.00 / 18.85
Node27/	0.00 /	18.22		
Node28/	0.00 /	11.47		Node31/ 0.00 / 11.48
Node33/	0.00 /	11.46		
Node34/	0.00 /	22.28		Node35/ 0.00 / 11.49
Node36/	0.00 /	9.02		
Node37/	0.00 /	8.46		Node41/ 0.00 / 8.46
Link42.1/	0.00 /	12.51		
Node23.1.1/	0.00 /	8.00		Node19.1.1/ 0.00 / 8.00
Node18.1.1/	0.00 /	14.99		
Node34.1.1/	0.00 /	16.32		Node39/ 0.00 / 23.15
Node40/	0.00 /	12.50		

Conduit/	FLOW	====>	"*" Conduit uses the normal flow option.
Link14/	0.00		Link16/ 0.00
Link18/	0.00		
Link24/	0.00		Link22/ 0.00

Coupland_Prop100yr_NoImpact.out

Link33/	Link26/ 0.00	0.00	Link31/	0.00
Link37/	Link34/ 0.00	0.00	Link36/	0.00
Link46.1/	Link42.1.1/ 0.00	0.00	Link38.1/	0.00
Link41/	Link45.1/ 0.00	0.00	Link39.1/	0.00
231.1/	Link48/ 0.00	0.00	227.1/	0.00
243.1/	235.1/ 0.00	0.00	239.1/	0.00
255.1/	247.1/ 0.00	0.00	251.1/	0.00
W14/	324.1/ 0.00	0.00	Restrictor.1/	0.00
W20/	W15/ 0.00	0.00	W17/	0.00
W25/	W21/ 0.00	0.00	W24/	0.00
W34/	W27/ 0.00	0.00	W42/	0.00
	W18/ 0.00	0.00	FREE# 1/	0.00
	Conduit/ Link14/ 0.00	Velocity 0.00	Link16/	0.00
Link24/	Link20/ 0.00	0.00	Link22/	0.00
Link33/	Link26/ 0.00	0.00	Link31/	0.00
Link37/	Link34/ 0.00	0.00	Link36/	0.00
Link46.1/	Link42.1.1/ 0.00	0.00	Link38.1/	0.00
Link41/	Link45.1/ 0.00	0.00	Link39.1/	0.00
231.1/	Link48/ 0.00	0.00	227.1/	0.00
243.1/	235.1/ 0.00	0.00	239.1/	0.00
255.1/	247.1/ 0.00	0.00	251.1/	0.00
	324.1/ 0.00	0.00	Restrictor.1/	0.00
Link18/	Conduit/ Link14/ 0.00	Cross Sectional Area 0.00	Link16/	0.00

Coupland_Prop100yr_NoImpact.out

Link24/	Link20/ 0.00	0.00	Link22/	0.00
Link33/	Link26/ 0.00	0.00	Link31/	0.00
Link37/	Link34/ 0.00	0.00	Link36/	0.00
Link46.1/	Link42.1.1/ 0.00	0.00	Link38.1/	0.00
Link41/	Link45.1/ 0.00	0.00	Link39.1/	0.00
231.1/	Link48/ 0.00	0.00	227.1/	0.00
243.1/	235.1/ 0.00	0.00	239.1/	0.00
255.1/	247.1/ 0.00	0.00	251.1/	0.00
	324.1/ 0.00	0.00	Restrictor.1/	0.00

Conduit/ Hydraulic Radius

Link18/	Link14/ 0.00	0.00	Link16/	0.00
Link24/	Link20/ 0.00	0.00	Link22/	0.00
Link33/	Link26/ 0.00	0.00	Link31/	0.00
Link37/	Link34/ 0.00	0.00	Link36/	0.00
Link46.1/	Link42.1.1/ 0.00	0.00	Link38.1/	0.00
Link41/	Link45.1/ 0.00	0.00	Link39.1/	0.00
231.1/	Link48/ 0.00	0.00	227.1/	0.00
243.1/	235.1/ 0.00	0.00	239.1/	0.00
255.1/	247.1/ 0.00	0.00	251.1/	0.00
	324.1/ 0.00	0.00	Restrictor.1/	0.00

Conduit/ Upstream/ Downstream Elevation

Link14/	21.20/	21.20	Link16/	20.31/	20.31
Link18/	19.43/	19.43			
Link20/	19.69/	19.69	Link22/	19.80/	19.80
Link24/	19.57/	19.57			
Link26/	18.22/	18.22	Link31/	11.47/	11.47
Link33/	11.46/	11.46			
Link34/	22.28/	22.28	Link36/	9.02/	9.02
Link37/	8.46/	8.46			

```

Coupland_Prop100yr_NoImpact.out
Link42.1.1/ 8.46/ 8.46 Link38.1/ 12.51/ 12.51
Link46.1/ 8.00/ 8.00
Link45.1/ 8.00/ 8.00 Link39.1/ 14.99/ 14.99
Link41/ 22.28/ 22.28
Link48/ 11.48/ 11.48 227.1/ 22.70/ 22.70
231.1/ 21.16/ 21.16
235.1/ 20.31/ 20.31 239.1/ 19.43/ 19.43
243.1/ 19.69/ 19.69
247.1/ 19.45/ 19.45 251.1/ 18.85/ 18.85
255.1/ 12.50/ 12.50
324.1/ 11.47/ 11.47 Restrictor.1/ 12.50/ 12.50

```

Important Information

```

Start time of user hydrographs was... 0.000000000000000E+000
Start time of the simulation was..... 0.000000000000000E+000
Found a match between user hydrograph and simulation start time.

```

```

=====> System inflows (data group K3) at 0.00 hours ( Junction / Inflow,cfs )

```

```

Node35 / 0.00E+00
#####
====> System inflows (data group K3) at 0.05 hours ( Junction / Inflow,cfs )

```

```

Node35 / 0.00E+00
#####
====> System inflows (data group K3) at 0.10 hours ( Junction / Inflow,cfs )

```

```

Node35 / 0.00E+00
#####
====> System inflows (data group K3) at 0.20 hours ( Junction / Inflow,cfs )

```

```

Node35 / 0.00E+00
#####
====> System inflows (data group K3) at 0.25 hours ( Junction / Inflow,cfs )

```

```

Node35 / 0.00E+00
#####
====> System inflows (data group K3) at 0.35 hours ( Junction / Inflow,cfs )

```

```

Node35 / 0.00E+00
#####
====> System inflows (data group K3) at 0.45 hours ( Junction / Inflow,cfs )

```

Coupland_Prop100yr_NoImpact.out

Node35 / 0.00E+00

==> System inflows (data group K3) at 0.50 hours (Junction / Inflow,cfs)

Node35 / 0.00E+00

==> System inflows (data group K3) at 0.60 hours (Junction / Inflow,cfs)

Node35 / 0.00E+00

==> System inflows (data group K3) at 0.70 hours (Junction / Inflow,cfs)

Node35 / 1.00E-01

==> System inflows (data group K3) at 0.80 hours (Junction / Inflow,cfs)

Node35 / 3.00E-01

==> System inflows (data group K3) at 0.85 hours (Junction / Inflow,cfs)

Node35 / 7.00E-01

==> System inflows (data group K3) at 0.95 hours (Junction / Inflow,cfs)

Node35 / 1.20E+00

==> System inflows (data group K3) at 1.05 hours (Junction / Inflow,cfs)

Node35 / 1.80E+00

==> System inflows (data group K3) at 1.10 hours (Junction / Inflow,cfs)

Node35 / 2.50E+00

==> System inflows (data group K3) at 1.20 hours (Junction / Inflow,cfs)

Node35 / 3.10E+00
#####

Coupland_Prop100yr_NoImpact.out

==> System inflows (data group K3) at 1.30 hours (Junction / Inflow,cfs)

Node35 / 3.70E+00

==> System inflows (data group K3) at 1.35 hours (Junction / Inflow,cfs)

Node35 / 4.30E+00

==> System inflows (data group K3) at 1.45 hours (Junction / Inflow,cfs)

Node35 / 4.90E+00

==> System inflows (data group K3) at 1.55 hours (Junction / Inflow,cfs)

Node35 / 5.50E+00

==> System inflows (data group K3) at 1.60 hours (Junction / Inflow,cfs)

Node35 / 6.00E+00

==> System inflows (data group K3) at 1.70 hours (Junction / Inflow,cfs)

Node35 / 6.60E+00

==> System inflows (data group K3) at 1.80 hours (Junction / Inflow,cfs)

Node35 / 7.20E+00

==> System inflows (data group K3) at 1.85 hours (Junction / Inflow,cfs)

Node35 / 7.70E+00

==> System inflows (data group K3) at 1.95 hours (Junction / Inflow,cfs)

Node35 / 8.30E+00

==> System inflows (data group K3) at 2.05 hours (Junction / Inflow,cfs)

Coupland_Prop100yr_NoImpact.out

Node35 / 8.80E+00

==> System inflows (data group K3) at 2.10 hours (Junction / Inflow,cfs)

Node35 / 9.30E+00

==> System inflows (data group K3) at 2.20 hours (Junction / Inflow,cfs)

Node35 / 9.80E+00

==> System inflows (data group K3) at 2.30 hours (Junction / Inflow,cfs)

Node35 / 1.03E+01

==> System inflows (data group K3) at 2.35 hours (Junction / Inflow,cfs)

Node35 / 1.08E+01

==> System inflows (data group K3) at 2.45 hours (Junction / Inflow,cfs)

Node35 / 1.13E+01

==> System inflows (data group K3) at 2.50 hours (Junction / Inflow,cfs)

Node35 / 1.18E+01

==> System inflows (data group K3) at 2.60 hours (Junction / Inflow,cfs)

Node35 / 1.23E+01

==> System inflows (data group K3) at 2.70 hours (Junction / Inflow,cfs)

Node35 / 1.28E+01

==> System inflows (data group K3) at 2.75 hours (Junction / Inflow,cfs)

Node35 / 1.32E+01

#####

==> System inflows (data group K3) at 2.85 hours (Junction / Inflow,cfs)

Node35 / 1.37E+01

#####

==> System inflows (data group K3) at 2.95 hours (Junction / Inflow,cfs)

Node35 / 1.41E+01

#####

==> System inflows (data group K3) at 3.00 hours (Junction / Inflow,cfs)

Node35 / 1.46E+01

#####

==> System inflows (data group K3) at 3.10 hours (Junction / Inflow,cfs)

Node35 / 1.50E+01

#####

==> System inflows (data group K3) at 3.20 hours (Junction / Inflow,cfs)

Node35 / 1.54E+01

#####

==> System inflows (data group K3) at 3.25 hours (Junction / Inflow,cfs)

Node35 / 1.59E+01

#####

==> System inflows (data group K3) at 3.35 hours (Junction / Inflow,cfs)

Node35 / 1.63E+01

#####

==> System inflows (data group K3) at 3.45 hours (Junction / Inflow,cfs)

Node35 / 1.67E+01

#####

==> System inflows (data group K3) at 3.50 hours (Junction / Inflow,cfs)

Node35 / 1.71E+01

#####

==> System inflows (data group K3) at 3.60 hours (Junction / Inflow,cfs)

Node35 / 1.75E+01

Coupland_Prop100yr_NoImpact.out

==> System inflows (data group K3) at 3.70 hours (Junction / Inflow,cfs)

Node35 / 1.79E+01

==> System inflows (data group K3) at 3.75 hours (Junction / Inflow,cfs)

Node35 / 1.83E+01

==> System inflows (data group K3) at 3.85 hours (Junction / Inflow,cfs)

Node35 / 1.87E+01

==> System inflows (data group K3) at 3.95 hours (Junction / Inflow,cfs)

Node35 / 1.91E+01

==> System inflows (data group K3) at 4.05 hours (Junction / Inflow,cfs)

Node35 / 1.95E+01

==> System inflows (data group K3) at 4.10 hours (Junction / Inflow,cfs)

Node35 / 1.98E+01

==> System inflows (data group K3) at 4.20 hours (Junction / Inflow,cfs)

Node35 / 2.02E+01

==> System inflows (data group K3) at 4.30 hours (Junction / Inflow,cfs)

Node35 / 2.06E+01

==> System inflows (data group K3) at 4.35 hours (Junction / Inflow,cfs)

Node35 / 2.09E+01

==> System inflows (data group K3) at 4.45 hours (Junction / Inflow,cfs)

Coupland_Prop100yr_NoImpact.out

Node35 / 2.13E+01

==> System inflows (data group K3) at 4.55 hours (Junction / Inflow,cfs)

Node35 / 2.16E+01

==> System inflows (data group K3) at 4.60 hours (Junction / Inflow,cfs)

Node35 / 2.20E+01

==> System inflows (data group K3) at 4.70 hours (Junction / Inflow,cfs)

Node35 / 2.23E+01

==> System inflows (data group K3) at 4.80 hours (Junction / Inflow,cfs)

Node35 / 2.26E+01

==> System inflows (data group K3) at 4.85 hours (Junction / Inflow,cfs)

Node35 / 2.30E+01

==> System inflows (data group K3) at 4.95 hours (Junction / Inflow,cfs)

Node35 / 2.34E+01

==> System inflows (data group K3) at 5.05 hours (Junction / Inflow,cfs)

Node35 / 2.38E+01

==> System inflows (data group K3) at 5.10 hours (Junction / Inflow,cfs)

Node35 / 2.42E+01

==> System inflows (data group K3) at 5.20 hours (Junction / Inflow,cfs)

Node35 / 2.47E+01
#####

Coupland_Prop100yr_NoImpact.out

====> System inflows (data group K3) at 5.30 hours (Junction / Inflow,cfs)

Node35 / 2.53E+01

====> System inflows (data group K3) at 5.35 hours (Junction / Inflow,cfs)

Node35 / 2.59E+01

====> System inflows (data group K3) at 5.45 hours (Junction / Inflow,cfs)

Node35 / 2.65E+01

====> System inflows (data group K3) at 5.55 hours (Junction / Inflow,cfs)

Node35 / 2.72E+01

====> System inflows (data group K3) at 5.60 hours (Junction / Inflow,cfs)

Node35 / 2.79E+01

====> System inflows (data group K3) at 5.70 hours (Junction / Inflow,cfs)

Node35 / 2.87E+01

====> System inflows (data group K3) at 5.80 hours (Junction / Inflow,cfs)

Node35 / 2.95E+01

====> System inflows (data group K3) at 5.85 hours (Junction / Inflow,cfs)

Node35 / 3.03E+01

====> System inflows (data group K3) at 5.95 hours (Junction / Inflow,cfs)

Node35 / 3.11E+01

====> System inflows (data group K3) at 6.05 hours (Junction / Inflow,cfs)

Coupland_Prop100yr_NoImpact.out

Node35 / 3.20E+01

==> System inflows (data group K3) at 6.10 hours (Junction / Inflow,cfs)

Node35 / 3.29E+01

==> System inflows (data group K3) at 6.20 hours (Junction / Inflow,cfs)

Node35 / 3.38E+01

==> System inflows (data group K3) at 6.30 hours (Junction / Inflow,cfs)

Node35 / 3.48E+01

==> System inflows (data group K3) at 6.35 hours (Junction / Inflow,cfs)

Node35 / 3.58E+01

==> System inflows (data group K3) at 6.45 hours (Junction / Inflow,cfs)

Node35 / 3.68E+01

==> System inflows (data group K3) at 6.55 hours (Junction / Inflow,cfs)

Node35 / 3.78E+01

==> System inflows (data group K3) at 6.60 hours (Junction / Inflow,cfs)

Node35 / 3.88E+01

==> System inflows (data group K3) at 6.70 hours (Junction / Inflow,cfs)

Node35 / 3.98E+01

==> System inflows (data group K3) at 6.80 hours (Junction / Inflow,cfs)

Node35 / 4.09E+01

#####

==> System inflows (data group K3) at 6.85 hours (Junction / Inflow,cfs)

Node35 / 4.20E+01

#####

==> System inflows (data group K3) at 6.95 hours (Junction / Inflow,cfs)

Node35 / 4.31E+01

#####

==> System inflows (data group K3) at 7.05 hours (Junction / Inflow,cfs)

Node35 / 4.42E+01

#####

==> System inflows (data group K3) at 7.10 hours (Junction / Inflow,cfs)

Node35 / 4.53E+01

#####

==> System inflows (data group K3) at 7.20 hours (Junction / Inflow,cfs)

Node35 / 4.64E+01

#####

==> System inflows (data group K3) at 7.30 hours (Junction / Inflow,cfs)

Node35 / 4.76E+01

#####

==> System inflows (data group K3) at 7.35 hours (Junction / Inflow,cfs)

Node35 / 4.88E+01

#####

==> System inflows (data group K3) at 7.45 hours (Junction / Inflow,cfs)

Node35 / 4.99E+01

#####

==> System inflows (data group K3) at 7.55 hours (Junction / Inflow,cfs)

Node35 / 5.11E+01

#####

==> System inflows (data group K3) at 7.60 hours (Junction / Inflow,cfs)

Node35 / 5.23E+01

Coupland_Prop100yr_NoImpact.out

==> System inflows (data group K3) at 7.70 hours (Junction / Inflow,cfs)

Node35 / 5.35E+01

==> System inflows (data group K3) at 7.80 hours (Junction / Inflow,cfs)

Node35 / 5.47E+01

==> System inflows (data group K3) at 7.85 hours (Junction / Inflow,cfs)

Node35 / 5.59E+01

==> System inflows (data group K3) at 7.95 hours (Junction / Inflow,cfs)

Node35 / 5.71E+01

==> System inflows (data group K3) at 8.05 hours (Junction / Inflow,cfs)

Node35 / 5.83E+01

==> System inflows (data group K3) at 8.10 hours (Junction / Inflow,cfs)

Node35 / 5.96E+01

==> System inflows (data group K3) at 8.20 hours (Junction / Inflow,cfs)

Node35 / 6.08E+01

==> System inflows (data group K3) at 8.30 hours (Junction / Inflow,cfs)

Node35 / 6.21E+01

==> System inflows (data group K3) at 8.35 hours (Junction / Inflow,cfs)

Node35 / 6.34E+01

==> System inflows (data group K3) at 8.45 hours (Junction / Inflow,cfs)

Coupland_Prop100yr_NoImpact.out

Node35 / 6.47E+01

==> System inflows (data group K3) at 8.55 hours (Junction / Inflow,cfs)

Node35 / 6.60E+01

==> System inflows (data group K3) at 8.60 hours (Junction / Inflow,cfs)

Node35 / 6.73E+01

==> System inflows (data group K3) at 8.70 hours (Junction / Inflow,cfs)

Node35 / 6.87E+01

==> System inflows (data group K3) at 8.80 hours (Junction / Inflow,cfs)

Node35 / 7.01E+01

==> System inflows (data group K3) at 8.85 hours (Junction / Inflow,cfs)

Node35 / 7.15E+01

==> System inflows (data group K3) at 8.95 hours (Junction / Inflow,cfs)

Node35 / 7.29E+01

==> System inflows (data group K3) at 9.05 hours (Junction / Inflow,cfs)

Node35 / 7.44E+01

==> System inflows (data group K3) at 9.10 hours (Junction / Inflow,cfs)

Node35 / 7.58E+01

==> System inflows (data group K3) at 9.20 hours (Junction / Inflow,cfs)

Node35 / 7.73E+01
#####

Coupland_Prop100yr_NoImpact.out

====> System inflows (data group K3) at 9.30 hours (Junction / Inflow,cfs)

Node35 / 7.89E+01

====> System inflows (data group K3) at 9.35 hours (Junction / Inflow,cfs)

Node35 / 8.04E+01

====> System inflows (data group K3) at 9.45 hours (Junction / Inflow,cfs)

Node35 / 8.20E+01

====> System inflows (data group K3) at 9.55 hours (Junction / Inflow,cfs)

Node35 / 8.36E+01

====> System inflows (data group K3) at 9.60 hours (Junction / Inflow,cfs)

Node35 / 8.52E+01

====> System inflows (data group K3) at 9.70 hours (Junction / Inflow,cfs)

Node35 / 8.68E+01

====> System inflows (data group K3) at 9.80 hours (Junction / Inflow,cfs)

Node35 / 8.85E+01

====> System inflows (data group K3) at 9.85 hours (Junction / Inflow,cfs)

Node35 / 9.02E+01

====> System inflows (data group K3) at 9.95 hours (Junction / Inflow,cfs)

Node35 / 9.19E+01

====> System inflows (data group K3) at 10.05 hours (Junction / Inflow,cfs)

Coupland_Prop100yr_NoImpact.out

Node35 / 9.36E+01

==> System inflows (data group K3) at 10.10 hours (Junction / Inflow,cfs)

Node35 / 9.54E+01

==> System inflows (data group K3) at 10.20 hours (Junction / Inflow,cfs)

Node35 / 9.73E+01

==> System inflows (data group K3) at 10.30 hours (Junction / Inflow,cfs)

Node35 / 9.91E+01

==> System inflows (data group K3) at 10.35 hours (Junction / Inflow,cfs)

Node35 / 1.01E+02

==> System inflows (data group K3) at 10.45 hours (Junction / Inflow,cfs)

Node35 / 1.03E+02

==> System inflows (data group K3) at 10.55 hours (Junction / Inflow,cfs)

Node35 / 1.05E+02

==> System inflows (data group K3) at 10.60 hours (Junction / Inflow,cfs)

Node35 / 1.07E+02

==> System inflows (data group K3) at 10.70 hours (Junction / Inflow,cfs)

Node35 / 1.09E+02

==> System inflows (data group K3) at 10.80 hours (Junction / Inflow,cfs)

Node35 / 1.11E+02

#####

==> System inflows (data group K3) at 10.85 hours (Junction / Inflow,cfs)

Node35 / 1.13E+02

#####

==> System inflows (data group K3) at 10.95 hours (Junction / Inflow,cfs)

Node35 / 1.15E+02

#####

==> System inflows (data group K3) at 11.05 hours (Junction / Inflow,cfs)

Node35 / 1.18E+02

#####

==> System inflows (data group K3) at 11.10 hours (Junction / Inflow,cfs)

Node35 / 1.20E+02

#####

==> System inflows (data group K3) at 11.20 hours (Junction / Inflow,cfs)

Node35 / 1.22E+02

#####

==> System inflows (data group K3) at 11.30 hours (Junction / Inflow,cfs)

Node35 / 1.24E+02

#####

==> System inflows (data group K3) at 11.35 hours (Junction / Inflow,cfs)

Node35 / 1.27E+02

#####

==> System inflows (data group K3) at 11.45 hours (Junction / Inflow,cfs)

Node35 / 1.29E+02

#####

==> System inflows (data group K3) at 11.55 hours (Junction / Inflow,cfs)

Node35 / 1.32E+02

#####

==> System inflows (data group K3) at 11.60 hours (Junction / Inflow,cfs)

Node35 / 1.34E+02

Coupland_Prop100yr_NoImpact.out

==> System inflows (data group K3) at 11.70 hours (Junction / Inflow,cfs)

Node35 / 1.36E+02

==> System inflows (data group K3) at 11.80 hours (Junction / Inflow,cfs)

Node35 / 1.39E+02

==> System inflows (data group K3) at 11.85 hours (Junction / Inflow,cfs)

Node35 / 1.42E+02

==> System inflows (data group K3) at 11.95 hours (Junction / Inflow,cfs)

Node35 / 1.44E+02

==> System inflows (data group K3) at 12.05 hours (Junction / Inflow,cfs)

Node35 / 1.47E+02

==> System inflows (data group K3) at 12.10 hours (Junction / Inflow,cfs)

Node35 / 1.50E+02

==> System inflows (data group K3) at 12.20 hours (Junction / Inflow,cfs)

Node35 / 1.52E+02

==> System inflows (data group K3) at 12.30 hours (Junction / Inflow,cfs)

Node35 / 1.55E+02

==> System inflows (data group K3) at 12.35 hours (Junction / Inflow,cfs)

Node35 / 1.58E+02

==> System inflows (data group K3) at 12.45 hours (Junction / Inflow,cfs)

Coupland_Prop100yr_NoImpact.out

Node35 / 1.61E+02

==> System inflows (data group K3) at 12.55 hours (Junction / Inflow,cfs)

Node35 / 1.64E+02

==> System inflows (data group K3) at 12.60 hours (Junction / Inflow,cfs)

Node35 / 1.68E+02

==> System inflows (data group K3) at 12.70 hours (Junction / Inflow,cfs)

Node35 / 1.71E+02

==> System inflows (data group K3) at 12.80 hours (Junction / Inflow,cfs)

Node35 / 1.74E+02

==> System inflows (data group K3) at 12.85 hours (Junction / Inflow,cfs)

Node35 / 1.78E+02

==> System inflows (data group K3) at 12.95 hours (Junction / Inflow,cfs)

Node35 / 1.81E+02

==> System inflows (data group K3) at 13.05 hours (Junction / Inflow,cfs)

Node35 / 1.85E+02

==> System inflows (data group K3) at 13.10 hours (Junction / Inflow,cfs)

Node35 / 1.89E+02

==> System inflows (data group K3) at 13.20 hours (Junction / Inflow,cfs)

Node35 / 1.95E+02
#####

Coupland_Prop100yr_NoImpact.out

====> System inflows (data group K3) at 13.30 hours (Junction / Inflow,cfs)

Node35 / 2.02E+02

====> System inflows (data group K3) at 13.35 hours (Junction / Inflow,cfs)

Node35 / 2.09E+02

====> System inflows (data group K3) at 13.45 hours (Junction / Inflow,cfs)

Node35 / 2.18E+02

====> System inflows (data group K3) at 13.55 hours (Junction / Inflow,cfs)

Node35 / 2.26E+02

====> System inflows (data group K3) at 13.60 hours (Junction / Inflow,cfs)

Node35 / 2.34E+02

====> System inflows (data group K3) at 13.70 hours (Junction / Inflow,cfs)

Node35 / 2.43E+02

====> System inflows (data group K3) at 13.80 hours (Junction / Inflow,cfs)

Node35 / 2.51E+02

====> System inflows (data group K3) at 13.85 hours (Junction / Inflow,cfs)

Node35 / 2.60E+02

====> System inflows (data group K3) at 13.95 hours (Junction / Inflow,cfs)

Node35 / 2.69E+02

====> System inflows (data group K3) at 14.05 hours (Junction / Inflow,cfs)

Coupland_Prop100yr_NoImpact.out

Node35 / 2.78E+02

==> System inflows (data group K3) at 14.10 hours (Junction / Inflow,cfs)

Node35 / 2.87E+02

==> System inflows (data group K3) at 14.20 hours (Junction / Inflow,cfs)

Node35 / 2.97E+02

==> System inflows (data group K3) at 14.30 hours (Junction / Inflow,cfs)

Node35 / 3.06E+02

==> System inflows (data group K3) at 14.35 hours (Junction / Inflow,cfs)

Node35 / 3.16E+02

==> System inflows (data group K3) at 14.45 hours (Junction / Inflow,cfs)

Node35 / 3.27E+02

==> System inflows (data group K3) at 14.55 hours (Junction / Inflow,cfs)

Node35 / 3.37E+02

==> System inflows (data group K3) at 14.60 hours (Junction / Inflow,cfs)

Node35 / 3.48E+02

==> System inflows (data group K3) at 14.70 hours (Junction / Inflow,cfs)

Node35 / 3.60E+02

==> System inflows (data group K3) at 14.80 hours (Junction / Inflow,cfs)

Node35 / 3.72E+02

#####

==> System inflows (data group K3) at 14.85 hours (Junction / Inflow,cfs)

Node35 / 3.85E+02

#####

==> System inflows (data group K3) at 14.95 hours (Junction / Inflow,cfs)

Node35 / 3.98E+02

#####

==> System inflows (data group K3) at 15.05 hours (Junction / Inflow,cfs)

Node35 / 4.12E+02

#####

==> System inflows (data group K3) at 15.10 hours (Junction / Inflow,cfs)

Node35 / 4.27E+02

#####

==> System inflows (data group K3) at 15.20 hours (Junction / Inflow,cfs)

Node35 / 4.41E+02

#####

==> System inflows (data group K3) at 15.30 hours (Junction / Inflow,cfs)

Node35 / 4.57E+02

#####

==> System inflows (data group K3) at 15.35 hours (Junction / Inflow,cfs)

Node35 / 4.73E+02

#####

==> System inflows (data group K3) at 15.45 hours (Junction / Inflow,cfs)

Node35 / 4.90E+02

#####

==> System inflows (data group K3) at 15.55 hours (Junction / Inflow,cfs)

Node35 / 5.09E+02

#####

==> System inflows (data group K3) at 15.60 hours (Junction / Inflow,cfs)

Node35 / 5.31E+02

Coupland_Prop100yr_NoImpact.out

==> System inflows (data group K3) at 15.70 hours (Junction / Inflow,cfs)

Node35 / 5.56E+02

==> System inflows (data group K3) at 15.80 hours (Junction / Inflow,cfs)

Node35 / 5.86E+02

==> System inflows (data group K3) at 15.85 hours (Junction / Inflow,cfs)

Node35 / 6.26E+02

==> System inflows (data group K3) at 15.95 hours (Junction / Inflow,cfs)

Node35 / 6.79E+02

==> System inflows (data group K3) at 16.05 hours (Junction / Inflow,cfs)

Node35 / 7.59E+02

==> System inflows (data group K3) at 16.10 hours (Junction / Inflow,cfs)

Node35 / 8.71E+02

==> System inflows (data group K3) at 16.20 hours (Junction / Inflow,cfs)

Node35 / 1.00E+03

==> System inflows (data group K3) at 16.30 hours (Junction / Inflow,cfs)

Node35 / 1.13E+03

==> System inflows (data group K3) at 16.35 hours (Junction / Inflow,cfs)

Node35 / 1.23E+03

==> System inflows (data group K3) at 16.45 hours (Junction / Inflow,cfs)

Coupland_Prop100yr_NoImpact.out

Node35 / 1.30E+03

==> System inflows (data group K3) at 16.55 hours (Junction / Inflow,cfs)

Node35 / 1.33E+03

==> System inflows (data group K3) at 16.60 hours (Junction / Inflow,cfs)

Node35 / 1.36E+03

==> System inflows (data group K3) at 16.70 hours (Junction / Inflow,cfs)

Node35 / 1.37E+03

==> System inflows (data group K3) at 16.80 hours (Junction / Inflow,cfs)

Node35 / 1.38E+03

==> System inflows (data group K3) at 16.85 hours (Junction / Inflow,cfs)

Node35 / 1.38E+03

==> System inflows (data group K3) at 16.95 hours (Junction / Inflow,cfs)

Node35 / 1.38E+03

==> System inflows (data group K3) at 17.05 hours (Junction / Inflow,cfs)

Node35 / 1.38E+03

==> System inflows (data group K3) at 17.10 hours (Junction / Inflow,cfs)

Node35 / 1.38E+03

==> System inflows (data group K3) at 17.20 hours (Junction / Inflow,cfs)

Node35 / 1.38E+03
#####

Coupland_Prop100yr_NoImpact.out

====> System inflows (data group K3) at 17.30 hours (Junction / Inflow,cfs)

Node35 / 1.38E+03

====> System inflows (data group K3) at 17.35 hours (Junction / Inflow,cfs)

Node35 / 1.37E+03

====> System inflows (data group K3) at 17.45 hours (Junction / Inflow,cfs)

Node35 / 1.37E+03

====> System inflows (data group K3) at 17.55 hours (Junction / Inflow,cfs)

Node35 / 1.37E+03

====> System inflows (data group K3) at 17.60 hours (Junction / Inflow,cfs)

Node35 / 1.36E+03

====> System inflows (data group K3) at 17.70 hours (Junction / Inflow,cfs)

Node35 / 1.35E+03

====> System inflows (data group K3) at 17.80 hours (Junction / Inflow,cfs)

Node35 / 1.35E+03

====> System inflows (data group K3) at 17.85 hours (Junction / Inflow,cfs)

Node35 / 1.34E+03

====> System inflows (data group K3) at 17.95 hours (Junction / Inflow,cfs)

Node35 / 1.33E+03

====> System inflows (data group K3) at 18.05 hours (Junction / Inflow,cfs)

Coupland_Prop100yr_NoImpact.out

Node35 / 1.32E+03

==> System inflows (data group K3) at 18.10 hours (Junction / Inflow,cfs)

Node35 / 1.31E+03

==> System inflows (data group K3) at 18.20 hours (Junction / Inflow,cfs)

Node35 / 1.30E+03

==> System inflows (data group K3) at 18.25 hours (Junction / Inflow,cfs)

Node35 / 1.29E+03

==> System inflows (data group K3) at 18.35 hours (Junction / Inflow,cfs)

Node35 / 1.28E+03

==> System inflows (data group K3) at 18.45 hours (Junction / Inflow,cfs)

Node35 / 1.27E+03

==> System inflows (data group K3) at 18.50 hours (Junction / Inflow,cfs)

Node35 / 1.26E+03

==> System inflows (data group K3) at 18.60 hours (Junction / Inflow,cfs)

Node35 / 1.25E+03

==> System inflows (data group K3) at 18.70 hours (Junction / Inflow,cfs)

Node35 / 1.24E+03

==> System inflows (data group K3) at 18.75 hours (Junction / Inflow,cfs)

Node35 / 1.23E+03

#####

==> System inflows (data group K3) at 18.85 hours (Junction / Inflow,cfs)

Node35 / 1.22E+03

#####

==> System inflows (data group K3) at 18.95 hours (Junction / Inflow,cfs)

Node35 / 1.21E+03

#####

==> System inflows (data group K3) at 19.00 hours (Junction / Inflow,cfs)

Node35 / 1.20E+03

#####

==> System inflows (data group K3) at 19.10 hours (Junction / Inflow,cfs)

Node35 / 1.19E+03

#####

==> System inflows (data group K3) at 19.20 hours (Junction / Inflow,cfs)

Node35 / 1.18E+03

#####

==> System inflows (data group K3) at 19.25 hours (Junction / Inflow,cfs)

Node35 / 1.16E+03

#####

==> System inflows (data group K3) at 19.35 hours (Junction / Inflow,cfs)

Node35 / 1.15E+03

#####

==> System inflows (data group K3) at 19.45 hours (Junction / Inflow,cfs)

Node35 / 1.14E+03

#####

==> System inflows (data group K3) at 19.50 hours (Junction / Inflow,cfs)

Node35 / 1.12E+03

#####

==> System inflows (data group K3) at 19.60 hours (Junction / Inflow,cfs)

Node35 / 1.11E+03

Coupland_Prop100yr_NoImpact.out

==> System inflows (data group K3) at 19.70 hours (Junction / Inflow,cfs)

Node35 / 1.09E+03

==> System inflows (data group K3) at 19.75 hours (Junction / Inflow,cfs)

Node35 / 1.08E+03

==> System inflows (data group K3) at 19.85 hours (Junction / Inflow,cfs)

Node35 / 1.07E+03

==> System inflows (data group K3) at 19.95 hours (Junction / Inflow,cfs)

Node35 / 1.05E+03

==> System inflows (data group K3) at 20.00 hours (Junction / Inflow,cfs)

Node35 / 1.04E+03

==> System inflows (data group K3) at 20.10 hours (Junction / Inflow,cfs)

Node35 / 1.03E+03

==> System inflows (data group K3) at 20.20 hours (Junction / Inflow,cfs)

Node35 / 1.01E+03

==> System inflows (data group K3) at 20.25 hours (Junction / Inflow,cfs)

Node35 / 1.00E+03

==> System inflows (data group K3) at 20.35 hours (Junction / Inflow,cfs)

Node35 / 9.87E+02

==> System inflows (data group K3) at 20.45 hours (Junction / Inflow,cfs)

Coupland_Prop100yr_NoImpact.out

Node35 / 9.74E+02

==> System inflows (data group K3) at 20.55 hours (Junction / Inflow,cfs)

Node35 / 9.62E+02

==> System inflows (data group K3) at 20.60 hours (Junction / Inflow,cfs)

Node35 / 9.49E+02

==> System inflows (data group K3) at 20.70 hours (Junction / Inflow,cfs)

Node35 / 9.37E+02

==> System inflows (data group K3) at 20.80 hours (Junction / Inflow,cfs)

Node35 / 9.25E+02

==> System inflows (data group K3) at 20.85 hours (Junction / Inflow,cfs)

Node35 / 9.13E+02

==> System inflows (data group K3) at 20.95 hours (Junction / Inflow,cfs)

Node35 / 9.01E+02

==> System inflows (data group K3) at 21.05 hours (Junction / Inflow,cfs)

Node35 / 8.89E+02

==> System inflows (data group K3) at 21.10 hours (Junction / Inflow,cfs)

Node35 / 8.77E+02

==> System inflows (data group K3) at 21.20 hours (Junction / Inflow,cfs)

Node35 / 8.66E+02
#####

Coupland_Prop100yr_NoImpact.out

==> System inflows (data group K3) at 21.30 hours (Junction / Inflow,cfs)

Node35 / 8.55E+02

==> System inflows (data group K3) at 21.35 hours (Junction / Inflow,cfs)

Node35 / 8.44E+02

==> System inflows (data group K3) at 21.45 hours (Junction / Inflow,cfs)

Node35 / 8.32E+02

==> System inflows (data group K3) at 21.55 hours (Junction / Inflow,cfs)

Node35 / 8.22E+02

==> System inflows (data group K3) at 21.60 hours (Junction / Inflow,cfs)

Node35 / 8.11E+02

==> System inflows (data group K3) at 21.70 hours (Junction / Inflow,cfs)

Node35 / 8.00E+02

==> System inflows (data group K3) at 21.80 hours (Junction / Inflow,cfs)

Node35 / 7.90E+02

==> System inflows (data group K3) at 21.85 hours (Junction / Inflow,cfs)

Node35 / 7.80E+02

==> System inflows (data group K3) at 21.95 hours (Junction / Inflow,cfs)

Node35 / 7.69E+02

==> System inflows (data group K3) at 22.05 hours (Junction / Inflow,cfs)

Coupland_Prop100yr_NoImpact.out

Node35 / 7.59E+02

==> System inflows (data group K3) at 22.10 hours (Junction / Inflow,cfs)

Node35 / 7.49E+02

==> System inflows (data group K3) at 22.20 hours (Junction / Inflow,cfs)

Node35 / 7.40E+02

==> System inflows (data group K3) at 22.30 hours (Junction / Inflow,cfs)

Node35 / 7.30E+02

==> System inflows (data group K3) at 22.35 hours (Junction / Inflow,cfs)

Node35 / 7.20E+02

==> System inflows (data group K3) at 22.45 hours (Junction / Inflow,cfs)

Node35 / 7.11E+02

==> System inflows (data group K3) at 22.55 hours (Junction / Inflow,cfs)

Node35 / 7.01E+02

==> System inflows (data group K3) at 22.60 hours (Junction / Inflow,cfs)

Node35 / 6.92E+02

==> System inflows (data group K3) at 22.70 hours (Junction / Inflow,cfs)

Node35 / 6.83E+02

==> System inflows (data group K3) at 22.75 hours (Junction / Inflow,cfs)

Node35 / 6.74E+02

#####

==> System inflows (data group K3) at 22.85 hours (Junction / Inflow,cfs)

Node35 / 6.65E+02

#####

==> System inflows (data group K3) at 22.95 hours (Junction / Inflow,cfs)

Node35 / 6.57E+02

#####

==> System inflows (data group K3) at 23.00 hours (Junction / Inflow,cfs)

Node35 / 6.48E+02

#####

==> System inflows (data group K3) at 23.10 hours (Junction / Inflow,cfs)

Node35 / 6.40E+02

#####

==> System inflows (data group K3) at 23.20 hours (Junction / Inflow,cfs)

Node35 / 6.31E+02

#####

==> System inflows (data group K3) at 23.30 hours (Junction / Inflow,cfs)

Node35 / 6.23E+02

#####

==> System inflows (data group K3) at 23.35 hours (Junction / Inflow,cfs)

Node35 / 6.15E+02

#####

==> System inflows (data group K3) at 23.45 hours (Junction / Inflow,cfs)

Node35 / 6.07E+02

#####

==> System inflows (data group K3) at 23.55 hours (Junction / Inflow,cfs)

Node35 / 5.99E+02

#####

==> System inflows (data group K3) at 23.60 hours (Junction / Inflow,cfs)

Node35 / 5.91E+02

Coupland_Prop100yr_NoImpact.out

==> System inflows (data group K3) at 23.70 hours (Junction / Inflow,cfs)

Node35 / 5.84E+02

==> System inflows (data group K3) at 23.80 hours (Junction / Inflow,cfs)

Node35 / 5.76E+02

==> System inflows (data group K3) at 23.85 hours (Junction / Inflow,cfs)

Node35 / 5.68E+02

==> System inflows (data group K3) at 23.95 hours (Junction / Inflow,cfs)

Node35 / 5.61E+02

==> System inflows (data group K3) at 24.05 hours (Junction / Inflow,cfs)

Node35 / 5.54E+02

==> System inflows (data group K3) at 24.10 hours (Junction / Inflow,cfs)

Node35 / 5.46E+02

==> System inflows (data group K3) at 24.20 hours (Junction / Inflow,cfs)

Node35 / 5.38E+02

==> System inflows (data group K3) at 24.30 hours (Junction / Inflow,cfs)

Node35 / 5.28E+02

==> System inflows (data group K3) at 24.35 hours (Junction / Inflow,cfs)

Node35 / 5.19E+02

==> System inflows (data group K3) at 24.45 hours (Junction / Inflow,cfs)

Coupland_Prop100yr_NoImpact.out

Node35 / 5.09E+02

==> System inflows (data group K3) at 24.55 hours (Junction / Inflow,cfs)

Node35 / 5.00E+02

==> System inflows (data group K3) at 24.60 hours (Junction / Inflow,cfs)

Node35 / 4.90E+02

==> System inflows (data group K3) at 24.70 hours (Junction / Inflow,cfs)

Node35 / 4.81E+02

==> System inflows (data group K3) at 24.80 hours (Junction / Inflow,cfs)

Node35 / 4.72E+02

==> System inflows (data group K3) at 24.85 hours (Junction / Inflow,cfs)

Node35 / 4.63E+02

==> System inflows (data group K3) at 24.95 hours (Junction / Inflow,cfs)

Node35 / 4.54E+02
#####

Cycle 500 Time 25 Hrs - 0.00 Min

Junction /	Depth /	Elevation	==>	"*"	Junction is Surcharged.
Node13/	0.26 /	23.00		Node14/	0.30 / 23.00
Node15/	0.60 /	21.80			
Node16/	0.64 /	21.80		Node17/	0.22 / 20.53
Node18/	0.08 /	20.53			
Node19/	1.77 /	21.20		Node20/	1.57 / 21.20
Node21/	1.49 /	21.18			
Node22/	1.38 /	21.18		Node23/	1.67 / 21.12
Node24/	1.25 /	21.12			
Node25/	0.66 /	20.23		Node26/	0.56 / 19.41
Node27/	0.85 /	19.07			
Node28/	6.54 /	18.01		Node31/	6.58 / 18.06

Coupland_Prop100yr_NoImpact.out

Node33/	6.50 /	17.96			
Node34/	0.07 /	22.35		Node35/	6.58 / 18.07
Node36/	8.88 /	17.90			
Node37/	9.35 /	17.81		Node41/	9.35 / 17.81
Link42.1/	5.53*/	18.04			
Node23.1.1/	10.04*/	18.04		Node19.1.1/	10.04*/ 18.04
Node18.1.1/	3.05 /	18.04			
Node34.1.1/	1.72 /	18.04		Node39/	0.35 / 23.50
Node40/	5.51 /	18.01			

	Conduit/	FLOW	==> "*" Conduit uses the normal flow option.
Link18/	Link14/	0.00*	Link16/ 0.00
	Link22/	-1.51	Link24/ 1.64
Link26/	Link33/	463.82	Link31/ 456.65
	Link36/	470.00	Link34/ 0.00*
	Link42.1.1/	488.77	Link37/ 481.94
Link46.1/	Link39.1/	0.93	Link38.1/ 2.13
	Link48/	454.67	Link45.1/ 1.86
		231.1/ 0.00	Link41/ 0.27
239.1/		227.1/ 0.00	
		235.1/ -0.04	
		243.1/ -1.43	
		247.1/ -1.58	
255.1/		251.1/ 1.64	
		324.1/ 4.00	
	Restrictor.1/	2.30	W14/ 0.00
W15/	W20/	0.00	W17/ 0.00
	W24/	0.00	W21/ 0.00
	W27/	0.00	W25/ 0.00
W34/		-0.27	W42/ 0.00
	W18/	-0.28	
	FREE# 1/	488.78	

 ==> System inflows (data group K3) at 25.05 hours (Junction / Inflow,cfs)

Node35 / 4.46E+02
 #####
 #####
 ==> System inflows (data group K3) at 25.10 hours (Junction / Inflow,cfs)

Node35 / 4.38E+02
 #####
 #####
 ==> System inflows (data group K3) at 25.20 hours (Junction / Inflow,cfs)

Node35 / 4.29E+02
 #####
 #####

Coupland_Prop100yr_NoImpact.out

==> System inflows (data group K3) at 25.30 hours (Junction / Inflow,cfs)

Node35 / 4.21E+02

#####

==> System inflows (data group K3) at 25.35 hours (Junction / Inflow,cfs)

Node35 / 4.13E+02

#####

==> System inflows (data group K3) at 25.45 hours (Junction / Inflow,cfs)

Node35 / 4.06E+02

#####

==> System inflows (data group K3) at 25.55 hours (Junction / Inflow,cfs)

Node35 / 3.98E+02

#####

==> System inflows (data group K3) at 25.60 hours (Junction / Inflow,cfs)

Node35 / 3.90E+02

#####

==> System inflows (data group K3) at 25.70 hours (Junction / Inflow,cfs)

Node35 / 3.83E+02

#####

==> System inflows (data group K3) at 25.80 hours (Junction / Inflow,cfs)

Node35 / 3.76E+02

#####

==> System inflows (data group K3) at 25.85 hours (Junction / Inflow,cfs)

Node35 / 3.69E+02

#####

==> System inflows (data group K3) at 25.95 hours (Junction / Inflow,cfs)

Node35 / 3.62E+02

#####

==> System inflows (data group K3) at 26.05 hours (Junction / Inflow,cfs)

Node35 / 3.55E+02

Coupland_Prop100yr_NoImpact.out

==> System inflows (data group K3) at 26.10 hours (Junction / Inflow,cfs)

Node35 / 3.48E+02

==> System inflows (data group K3) at 26.20 hours (Junction / Inflow,cfs)

Node35 / 3.42E+02

==> System inflows (data group K3) at 26.30 hours (Junction / Inflow,cfs)

Node35 / 3.36E+02

==> System inflows (data group K3) at 26.35 hours (Junction / Inflow,cfs)

Node35 / 3.29E+02

==> System inflows (data group K3) at 26.45 hours (Junction / Inflow,cfs)

Node35 / 3.23E+02

==> System inflows (data group K3) at 26.55 hours (Junction / Inflow,cfs)

Node35 / 3.17E+02

==> System inflows (data group K3) at 26.60 hours (Junction / Inflow,cfs)

Node35 / 3.11E+02

==> System inflows (data group K3) at 26.70 hours (Junction / Inflow,cfs)

Node35 / 3.05E+02

==> System inflows (data group K3) at 26.80 hours (Junction / Inflow,cfs)

Node35 / 3.00E+02

==> System inflows (data group K3) at 26.85 hours (Junction / Inflow,cfs)

Coupland_Prop100yr_NoImpact.out

Node35 / 2.94E+02

==> System inflows (data group K3) at 26.95 hours (Junction / Inflow,cfs)

Node35 / 2.88E+02

==> System inflows (data group K3) at 27.05 hours (Junction / Inflow,cfs)

Node35 / 2.83E+02

==> System inflows (data group K3) at 27.10 hours (Junction / Inflow,cfs)

Node35 / 2.78E+02

==> System inflows (data group K3) at 27.20 hours (Junction / Inflow,cfs)

Node35 / 2.72E+02

==> System inflows (data group K3) at 27.30 hours (Junction / Inflow,cfs)

Node35 / 2.67E+02

==> System inflows (data group K3) at 27.35 hours (Junction / Inflow,cfs)

Node35 / 2.62E+02

==> System inflows (data group K3) at 27.45 hours (Junction / Inflow,cfs)

Node35 / 2.57E+02

==> System inflows (data group K3) at 27.55 hours (Junction / Inflow,cfs)

Node35 / 2.52E+02

==> System inflows (data group K3) at 27.60 hours (Junction / Inflow,cfs)

Node35 / 2.48E+02
#####

Coupland_Prop100yr_NoImpact.out

====> System inflows (data group K3) at 27.70 hours (Junction / Inflow,cfs)

Node35 / 2.43E+02

====> System inflows (data group K3) at 27.80 hours (Junction / Inflow,cfs)

Node35 / 2.39E+02

====> System inflows (data group K3) at 27.85 hours (Junction / Inflow,cfs)

Node35 / 2.34E+02

====> System inflows (data group K3) at 27.95 hours (Junction / Inflow,cfs)

Node35 / 2.30E+02

====> System inflows (data group K3) at 28.05 hours (Junction / Inflow,cfs)

Node35 / 2.25E+02

====> System inflows (data group K3) at 28.10 hours (Junction / Inflow,cfs)

Node35 / 2.21E+02

====> System inflows (data group K3) at 28.20 hours (Junction / Inflow,cfs)

Node35 / 2.17E+02

====> System inflows (data group K3) at 28.30 hours (Junction / Inflow,cfs)

Node35 / 2.13E+02

====> System inflows (data group K3) at 28.35 hours (Junction / Inflow,cfs)

Node35 / 2.09E+02

====> System inflows (data group K3) at 28.45 hours (Junction / Inflow,cfs)

Coupland_Prop100yr_NoImpact.out

Node35 / 2.05E+02

==> System inflows (data group K3) at 28.55 hours (Junction / Inflow,cfs)

Node35 / 2.01E+02

==> System inflows (data group K3) at 28.60 hours (Junction / Inflow,cfs)

Node35 / 1.97E+02

==> System inflows (data group K3) at 28.70 hours (Junction / Inflow,cfs)

Node35 / 1.94E+02

==> System inflows (data group K3) at 28.80 hours (Junction / Inflow,cfs)

Node35 / 1.90E+02

==> System inflows (data group K3) at 28.85 hours (Junction / Inflow,cfs)

Node35 / 1.86E+02

==> System inflows (data group K3) at 28.95 hours (Junction / Inflow,cfs)

Node35 / 1.83E+02

==> System inflows (data group K3) at 29.05 hours (Junction / Inflow,cfs)

Node35 / 1.80E+02

==> System inflows (data group K3) at 29.10 hours (Junction / Inflow,cfs)

Node35 / 1.76E+02

==> System inflows (data group K3) at 29.20 hours (Junction / Inflow,cfs)

Node35 / 1.73E+02

#####

Coupland_Prop100yr_NoImpact.out

==> System inflows (data group K3) at 29.25 hours (Junction / Inflow,cfs)

Node35 / 1.70E+02

#####

==> System inflows (data group K3) at 29.35 hours (Junction / Inflow,cfs)

Node35 / 1.66E+02

#####

==> System inflows (data group K3) at 29.45 hours (Junction / Inflow,cfs)

Node35 / 1.63E+02

#####

==> System inflows (data group K3) at 29.50 hours (Junction / Inflow,cfs)

Node35 / 1.60E+02

#####

==> System inflows (data group K3) at 29.60 hours (Junction / Inflow,cfs)

Node35 / 1.57E+02

#####

==> System inflows (data group K3) at 29.70 hours (Junction / Inflow,cfs)

Node35 / 1.54E+02

#####

==> System inflows (data group K3) at 29.75 hours (Junction / Inflow,cfs)

Node35 / 1.51E+02

#####

==> System inflows (data group K3) at 29.85 hours (Junction / Inflow,cfs)

Node35 / 1.48E+02

#####

==> System inflows (data group K3) at 29.95 hours (Junction / Inflow,cfs)

Node35 / 1.46E+02

#####

==> System inflows (data group K3) at 30.00 hours (Junction / Inflow,cfs)

Node35 / 1.43E+02

Coupland_Prop100yr_NoImpact.out

==> System inflows (data group K3) at 30.10 hours (Junction / Inflow,cfs)

Node35 / 1.40E+02

==> System inflows (data group K3) at 30.20 hours (Junction / Inflow,cfs)

Node35 / 1.38E+02

==> System inflows (data group K3) at 30.25 hours (Junction / Inflow,cfs)

Node35 / 1.35E+02

==> System inflows (data group K3) at 30.35 hours (Junction / Inflow,cfs)

Node35 / 1.32E+02

==> System inflows (data group K3) at 30.45 hours (Junction / Inflow,cfs)

Node35 / 1.30E+02

==> System inflows (data group K3) at 30.50 hours (Junction / Inflow,cfs)

Node35 / 1.28E+02

==> System inflows (data group K3) at 30.60 hours (Junction / Inflow,cfs)

Node35 / 1.25E+02

==> System inflows (data group K3) at 30.70 hours (Junction / Inflow,cfs)

Node35 / 1.23E+02

==> System inflows (data group K3) at 30.75 hours (Junction / Inflow,cfs)

Node35 / 1.20E+02

==> System inflows (data group K3) at 30.85 hours (Junction / Inflow,cfs)

Coupland_Prop100yr_NoImpact.out

Node35 / 1.18E+02

==> System inflows (data group K3) at 30.95 hours (Junction / Inflow,cfs)

Node35 / 1.16E+02

==> System inflows (data group K3) at 31.00 hours (Junction / Inflow,cfs)

Node35 / 1.14E+02

==> System inflows (data group K3) at 31.10 hours (Junction / Inflow,cfs)

Node35 / 1.12E+02

==> System inflows (data group K3) at 31.20 hours (Junction / Inflow,cfs)

Node35 / 1.10E+02

==> System inflows (data group K3) at 31.30 hours (Junction / Inflow,cfs)

Node35 / 1.07E+02

==> System inflows (data group K3) at 31.35 hours (Junction / Inflow,cfs)

Node35 / 1.05E+02

==> System inflows (data group K3) at 31.45 hours (Junction / Inflow,cfs)

Node35 / 1.03E+02

==> System inflows (data group K3) at 31.55 hours (Junction / Inflow,cfs)

Node35 / 1.02E+02

==> System inflows (data group K3) at 31.60 hours (Junction / Inflow,cfs)

Node35 / 9.96E+01
#####

Coupland_Prop100yr_NoImpact.out

==> System inflows (data group K3) at 31.70 hours (Junction / Inflow,cfs)

Node35 / 9.77E+01

==> System inflows (data group K3) at 31.75 hours (Junction / Inflow,cfs)

Node35 / 9.58E+01

==> System inflows (data group K3) at 31.85 hours (Junction / Inflow,cfs)

Node35 / 9.40E+01

==> System inflows (data group K3) at 31.95 hours (Junction / Inflow,cfs)

Node35 / 9.22E+01

==> System inflows (data group K3) at 32.00 hours (Junction / Inflow,cfs)

Node35 / 9.05E+01

==> System inflows (data group K3) at 32.10 hours (Junction / Inflow,cfs)

Node35 / 8.88E+01

==> System inflows (data group K3) at 32.20 hours (Junction / Inflow,cfs)

Node35 / 8.71E+01

==> System inflows (data group K3) at 32.25 hours (Junction / Inflow,cfs)

Node35 / 8.55E+01

==> System inflows (data group K3) at 32.35 hours (Junction / Inflow,cfs)

Node35 / 8.38E+01

==> System inflows (data group K3) at 32.45 hours (Junction / Inflow,cfs)

Coupland_Prop100yr_NoImpact.out

Node35 / 8.23E+01

==> System inflows (data group K3) at 32.50 hours (Junction / Inflow,cfs)

Node35 / 8.07E+01

==> System inflows (data group K3) at 32.60 hours (Junction / Inflow,cfs)

Node35 / 7.92E+01

==> System inflows (data group K3) at 32.70 hours (Junction / Inflow,cfs)

Node35 / 7.77E+01

==> System inflows (data group K3) at 32.75 hours (Junction / Inflow,cfs)

Node35 / 7.62E+01

==> System inflows (data group K3) at 32.85 hours (Junction / Inflow,cfs)

Node35 / 7.48E+01

==> System inflows (data group K3) at 32.95 hours (Junction / Inflow,cfs)

Node35 / 7.33E+01

==> System inflows (data group K3) at 33.00 hours (Junction / Inflow,cfs)

Node35 / 7.19E+01

==> System inflows (data group K3) at 33.10 hours (Junction / Inflow,cfs)

Node35 / 7.06E+01

==> System inflows (data group K3) at 33.20 hours (Junction / Inflow,cfs)

Node35 / 6.92E+01

#####

==> System inflows (data group K3) at 33.25 hours (Junction / Inflow,cfs)

Node35 / 6.79E+01

#####

==> System inflows (data group K3) at 33.35 hours (Junction / Inflow,cfs)

Node35 / 6.66E+01

#####

==> System inflows (data group K3) at 33.45 hours (Junction / Inflow,cfs)

Node35 / 6.54E+01

#####

==> System inflows (data group K3) at 33.50 hours (Junction / Inflow,cfs)

Node35 / 6.41E+01

#####

==> System inflows (data group K3) at 33.60 hours (Junction / Inflow,cfs)

Node35 / 6.29E+01

#####

==> System inflows (data group K3) at 33.70 hours (Junction / Inflow,cfs)

Node35 / 6.17E+01

#####

==> System inflows (data group K3) at 33.75 hours (Junction / Inflow,cfs)

Node35 / 6.05E+01

#####

==> System inflows (data group K3) at 33.85 hours (Junction / Inflow,cfs)

Node35 / 5.94E+01

#####

==> System inflows (data group K3) at 33.95 hours (Junction / Inflow,cfs)

Node35 / 5.82E+01

#####

==> System inflows (data group K3) at 34.00 hours (Junction / Inflow,cfs)

Node35 / 5.71E+01

Coupland_Prop100yr_NoImpact.out

==> System inflows (data group K3) at 34.10 hours (Junction / Inflow,cfs)

Node35 / 5.60E+01

==> System inflows (data group K3) at 34.20 hours (Junction / Inflow,cfs)

Node35 / 5.50E+01

==> System inflows (data group K3) at 34.25 hours (Junction / Inflow,cfs)

Node35 / 5.39E+01

==> System inflows (data group K3) at 34.35 hours (Junction / Inflow,cfs)

Node35 / 5.29E+01

==> System inflows (data group K3) at 34.45 hours (Junction / Inflow,cfs)

Node35 / 5.19E+01

==> System inflows (data group K3) at 34.50 hours (Junction / Inflow,cfs)

Node35 / 5.09E+01

==> System inflows (data group K3) at 34.60 hours (Junction / Inflow,cfs)

Node35 / 4.99E+01

==> System inflows (data group K3) at 34.70 hours (Junction / Inflow,cfs)

Node35 / 4.89E+01

==> System inflows (data group K3) at 34.75 hours (Junction / Inflow,cfs)

Node35 / 4.80E+01

==> System inflows (data group K3) at 34.85 hours (Junction / Inflow,cfs)

Coupland_Prop100yr_NoImpact.out

Node35 / 4.71E+01

==> System inflows (data group K3) at 34.95 hours (Junction / Inflow,cfs)

Node35 / 4.62E+01

==> System inflows (data group K3) at 35.00 hours (Junction / Inflow,cfs)

Node35 / 4.53E+01

==> System inflows (data group K3) at 35.10 hours (Junction / Inflow,cfs)

Node35 / 4.44E+01

==> System inflows (data group K3) at 35.20 hours (Junction / Inflow,cfs)

Node35 / 4.35E+01

==> System inflows (data group K3) at 35.25 hours (Junction / Inflow,cfs)

Node35 / 4.27E+01

==> System inflows (data group K3) at 35.35 hours (Junction / Inflow,cfs)

Node35 / 4.19E+01

==> System inflows (data group K3) at 35.45 hours (Junction / Inflow,cfs)

Node35 / 4.11E+01

==> System inflows (data group K3) at 35.50 hours (Junction / Inflow,cfs)

Node35 / 4.03E+01

==> System inflows (data group K3) at 35.60 hours (Junction / Inflow,cfs)

Node35 / 3.95E+01
#####

Coupland_Prop100yr_NoImpact.out

====> System inflows (data group K3) at 35.70 hours (Junction / Inflow,cfs)

Node35 / 3.87E+01

====> System inflows (data group K3) at 35.75 hours (Junction / Inflow,cfs)

Node35 / 3.79E+01

====> System inflows (data group K3) at 35.85 hours (Junction / Inflow,cfs)

Node35 / 3.72E+01

====> System inflows (data group K3) at 35.95 hours (Junction / Inflow,cfs)

Node35 / 3.65E+01

====> System inflows (data group K3) at 36.00 hours (Junction / Inflow,cfs)

Node35 / 3.58E+01

====> System inflows (data group K3) at 36.10 hours (Junction / Inflow,cfs)

Node35 / 3.51E+01

====> System inflows (data group K3) at 36.20 hours (Junction / Inflow,cfs)

Node35 / 3.44E+01

====> System inflows (data group K3) at 36.25 hours (Junction / Inflow,cfs)

Node35 / 3.37E+01

====> System inflows (data group K3) at 36.35 hours (Junction / Inflow,cfs)

Node35 / 3.30E+01

====> System inflows (data group K3) at 36.45 hours (Junction / Inflow,cfs)

Coupland_Prop100yr_NoImpact.out

Node35 / 3.24E+01

==> System inflows (data group K3) at 36.50 hours (Junction / Inflow,cfs)

Node35 / 3.17E+01

==> System inflows (data group K3) at 36.60 hours (Junction / Inflow,cfs)

Node35 / 3.11E+01

==> System inflows (data group K3) at 36.70 hours (Junction / Inflow,cfs)

Node35 / 3.04E+01

==> System inflows (data group K3) at 36.75 hours (Junction / Inflow,cfs)

Node35 / 2.98E+01

==> System inflows (data group K3) at 36.85 hours (Junction / Inflow,cfs)

Node35 / 2.92E+01

==> System inflows (data group K3) at 36.95 hours (Junction / Inflow,cfs)

Node35 / 2.86E+01

==> System inflows (data group K3) at 37.00 hours (Junction / Inflow,cfs)

Node35 / 2.80E+01

==> System inflows (data group K3) at 37.10 hours (Junction / Inflow,cfs)

Node35 / 2.74E+01

==> System inflows (data group K3) at 37.20 hours (Junction / Inflow,cfs)

Node35 / 2.68E+01

#####

==> System inflows (data group K3) at 37.25 hours (Junction / Inflow,cfs)

Node35 / 2.62E+01

#####

==> System inflows (data group K3) at 37.35 hours (Junction / Inflow,cfs)

Node35 / 2.57E+01

#####

==> System inflows (data group K3) at 37.45 hours (Junction / Inflow,cfs)

Node35 / 2.51E+01

#####

==> System inflows (data group K3) at 37.50 hours (Junction / Inflow,cfs)

Node35 / 2.46E+01

#####

==> System inflows (data group K3) at 37.60 hours (Junction / Inflow,cfs)

Node35 / 2.40E+01

#####

==> System inflows (data group K3) at 37.70 hours (Junction / Inflow,cfs)

Node35 / 2.35E+01

#####

==> System inflows (data group K3) at 37.75 hours (Junction / Inflow,cfs)

Node35 / 2.30E+01

#####

==> System inflows (data group K3) at 37.85 hours (Junction / Inflow,cfs)

Node35 / 2.25E+01

#####

==> System inflows (data group K3) at 37.95 hours (Junction / Inflow,cfs)

Node35 / 2.20E+01

#####

==> System inflows (data group K3) at 38.00 hours (Junction / Inflow,cfs)

Node35 / 2.15E+01

Coupland_Prop100yr_NoImpact.out

==> System inflows (data group K3) at 38.10 hours (Junction / Inflow,cfs)

Node35 / 2.10E+01

==> System inflows (data group K3) at 38.20 hours (Junction / Inflow,cfs)

Node35 / 2.05E+01

==> System inflows (data group K3) at 38.25 hours (Junction / Inflow,cfs)

Node35 / 2.00E+01

==> System inflows (data group K3) at 38.35 hours (Junction / Inflow,cfs)

Node35 / 1.95E+01

==> System inflows (data group K3) at 38.45 hours (Junction / Inflow,cfs)

Node35 / 1.90E+01

==> System inflows (data group K3) at 38.55 hours (Junction / Inflow,cfs)

Node35 / 1.86E+01

==> System inflows (data group K3) at 38.60 hours (Junction / Inflow,cfs)

Node35 / 1.81E+01

==> System inflows (data group K3) at 38.70 hours (Junction / Inflow,cfs)

Node35 / 1.77E+01

==> System inflows (data group K3) at 38.80 hours (Junction / Inflow,cfs)

Node35 / 1.72E+01

==> System inflows (data group K3) at 38.85 hours (Junction / Inflow,cfs)

Coupland_Prop100yr_NoImpact.out

Node35 / 1.67E+01

==> System inflows (data group K3) at 38.95 hours (Junction / Inflow,cfs)

Node35 / 1.63E+01

==> System inflows (data group K3) at 39.05 hours (Junction / Inflow,cfs)

Node35 / 1.58E+01

==> System inflows (data group K3) at 39.10 hours (Junction / Inflow,cfs)

Node35 / 1.53E+01

==> System inflows (data group K3) at 39.20 hours (Junction / Inflow,cfs)

Node35 / 1.48E+01

==> System inflows (data group K3) at 39.30 hours (Junction / Inflow,cfs)

Node35 / 1.43E+01

==> System inflows (data group K3) at 39.35 hours (Junction / Inflow,cfs)

Node35 / 1.37E+01

==> System inflows (data group K3) at 39.45 hours (Junction / Inflow,cfs)

Node35 / 1.29E+01

==> System inflows (data group K3) at 39.55 hours (Junction / Inflow,cfs)

Node35 / 1.20E+01

==> System inflows (data group K3) at 39.60 hours (Junction / Inflow,cfs)

Node35 / 1.04E+01
#####

Coupland_Prop100yr_NoImpact.out

====> System inflows (data group K3) at 39.70 hours (Junction / Inflow,cfs)

Node35 / 9.70E+00

====> System inflows (data group K3) at 39.80 hours (Junction / Inflow,cfs)

Node35 / 9.10E+00

====> System inflows (data group K3) at 39.85 hours (Junction / Inflow,cfs)

Node35 / 8.70E+00

====> System inflows (data group K3) at 39.95 hours (Junction / Inflow,cfs)

Node35 / 8.30E+00

====> System inflows (data group K3) at 40.05 hours (Junction / Inflow,cfs)

Node35 / 8.00E+00

====> System inflows (data group K3) at 40.10 hours (Junction / Inflow,cfs)

Node35 / 7.60E+00

====> System inflows (data group K3) at 40.20 hours (Junction / Inflow,cfs)

Node35 / 7.30E+00

====> System inflows (data group K3) at 40.30 hours (Junction / Inflow,cfs)

Node35 / 7.10E+00

====> System inflows (data group K3) at 40.35 hours (Junction / Inflow,cfs)

Node35 / 6.80E+00

====> System inflows (data group K3) at 40.45 hours (Junction / Inflow,cfs)

Coupland_Prop100yr_NoImpact.out

Node35 / 6.60E+00

==> System inflows (data group K3) at 40.55 hours (Junction / Inflow,cfs)

Node35 / 6.30E+00

==> System inflows (data group K3) at 40.60 hours (Junction / Inflow,cfs)

Node35 / 6.10E+00

==> System inflows (data group K3) at 40.70 hours (Junction / Inflow,cfs)

Node35 / 5.90E+00

==> System inflows (data group K3) at 40.80 hours (Junction / Inflow,cfs)

Node35 / 5.60E+00

==> System inflows (data group K3) at 40.85 hours (Junction / Inflow,cfs)

Node35 / 5.40E+00

==> System inflows (data group K3) at 40.95 hours (Junction / Inflow,cfs)

Node35 / 5.20E+00

==> System inflows (data group K3) at 41.05 hours (Junction / Inflow,cfs)

Node35 / 5.00E+00

==> System inflows (data group K3) at 41.10 hours (Junction / Inflow,cfs)

Node35 / 4.90E+00

==> System inflows (data group K3) at 41.20 hours (Junction / Inflow,cfs)

Node35 / 4.70E+00

#####

==> System inflows (data group K3) at 41.30 hours (Junction / Inflow,cfs)

Node35 / 4.50E+00

#####

==> System inflows (data group K3) at 41.35 hours (Junction / Inflow,cfs)

Node35 / 4.30E+00

#####

==> System inflows (data group K3) at 41.45 hours (Junction / Inflow,cfs)

Node35 / 4.20E+00

#####

==> System inflows (data group K3) at 41.50 hours (Junction / Inflow,cfs)

Node35 / 4.00E+00

#####

==> System inflows (data group K3) at 41.60 hours (Junction / Inflow,cfs)

Node35 / 3.90E+00

#####

==> System inflows (data group K3) at 41.70 hours (Junction / Inflow,cfs)

Node35 / 3.70E+00

#####

==> System inflows (data group K3) at 41.75 hours (Junction / Inflow,cfs)

Node35 / 3.60E+00

#####

==> System inflows (data group K3) at 41.85 hours (Junction / Inflow,cfs)

Node35 / 3.40E+00

#####

==> System inflows (data group K3) at 41.95 hours (Junction / Inflow,cfs)

Node35 / 3.30E+00

#####

==> System inflows (data group K3) at 42.00 hours (Junction / Inflow,cfs)

Node35 / 3.20E+00

Coupland_Prop100yr_NoImpact.out

==> System inflows (data group K3) at 42.10 hours (Junction / Inflow,cfs)

Node35 / 3.10E+00

==> System inflows (data group K3) at 42.20 hours (Junction / Inflow,cfs)

Node35 / 2.90E+00

==> System inflows (data group K3) at 42.25 hours (Junction / Inflow,cfs)

Node35 / 2.80E+00

==> System inflows (data group K3) at 42.35 hours (Junction / Inflow,cfs)

Node35 / 2.70E+00

==> System inflows (data group K3) at 42.45 hours (Junction / Inflow,cfs)

Node35 / 2.60E+00

==> System inflows (data group K3) at 42.50 hours (Junction / Inflow,cfs)

Node35 / 2.50E+00

==> System inflows (data group K3) at 42.60 hours (Junction / Inflow,cfs)

Node35 / 2.40E+00

==> System inflows (data group K3) at 42.70 hours (Junction / Inflow,cfs)

Node35 / 2.30E+00

==> System inflows (data group K3) at 42.75 hours (Junction / Inflow,cfs)

Node35 / 2.20E+00

==> System inflows (data group K3) at 42.85 hours (Junction / Inflow,cfs)

Coupland_Prop100yr_NoImpact.out

Node35 / 2.20E+00

==> System inflows (data group K3) at 42.95 hours (Junction / Inflow,cfs)

Node35 / 2.10E+00

==> System inflows (data group K3) at 43.00 hours (Junction / Inflow,cfs)

Node35 / 2.00E+00

==> System inflows (data group K3) at 43.10 hours (Junction / Inflow,cfs)

Node35 / 1.90E+00

==> System inflows (data group K3) at 43.20 hours (Junction / Inflow,cfs)

Node35 / 1.90E+00

==> System inflows (data group K3) at 43.25 hours (Junction / Inflow,cfs)

Node35 / 1.80E+00

==> System inflows (data group K3) at 43.35 hours (Junction / Inflow,cfs)

Node35 / 1.70E+00

==> System inflows (data group K3) at 43.45 hours (Junction / Inflow,cfs)

Node35 / 1.70E+00

==> System inflows (data group K3) at 43.50 hours (Junction / Inflow,cfs)

Node35 / 1.60E+00

==> System inflows (data group K3) at 43.60 hours (Junction / Inflow,cfs)

Node35 / 1.60E+00
#####

Coupland_Prop100yr_NoImpact.out

==> System inflows (data group K3) at 43.70 hours (Junction / Inflow,cfs)

Node35 / 1.50E+00

==> System inflows (data group K3) at 43.75 hours (Junction / Inflow,cfs)

Node35 / 1.40E+00

==> System inflows (data group K3) at 43.85 hours (Junction / Inflow,cfs)

Node35 / 1.40E+00

==> System inflows (data group K3) at 43.95 hours (Junction / Inflow,cfs)

Node35 / 1.30E+00

==> System inflows (data group K3) at 44.00 hours (Junction / Inflow,cfs)

Node35 / 1.30E+00

==> System inflows (data group K3) at 44.10 hours (Junction / Inflow,cfs)

Node35 / 1.20E+00

==> System inflows (data group K3) at 44.20 hours (Junction / Inflow,cfs)

Node35 / 1.20E+00

==> System inflows (data group K3) at 44.25 hours (Junction / Inflow,cfs)

Node35 / 1.10E+00

==> System inflows (data group K3) at 44.35 hours (Junction / Inflow,cfs)

Node35 / 1.10E+00

==> System inflows (data group K3) at 44.45 hours (Junction / Inflow,cfs)

Coupland_Prop100yr_NoImpact.out

Node35 / 1.00E+00

==> System inflows (data group K3) at 44.50 hours (Junction / Inflow,cfs)

Node35 / 1.00E+00

==> System inflows (data group K3) at 44.60 hours (Junction / Inflow,cfs)

Node35 / 1.00E+00

==> System inflows (data group K3) at 44.70 hours (Junction / Inflow,cfs)

Node35 / 9.00E-01

==> System inflows (data group K3) at 44.75 hours (Junction / Inflow,cfs)

Node35 / 9.00E-01

==> System inflows (data group K3) at 44.85 hours (Junction / Inflow,cfs)

Node35 / 8.00E-01

==> System inflows (data group K3) at 44.95 hours (Junction / Inflow,cfs)

Node35 / 8.00E-01

==> System inflows (data group K3) at 45.00 hours (Junction / Inflow,cfs)

Node35 / 8.00E-01

==> System inflows (data group K3) at 45.10 hours (Junction / Inflow,cfs)

Node35 / 7.00E-01

==> System inflows (data group K3) at 45.20 hours (Junction / Inflow,cfs)

Node35 / 7.00E-01

#####

==> System inflows (data group K3) at 45.25 hours (Junction / Inflow,cfs)

Node35 / 6.00E-01

#####

==> System inflows (data group K3) at 45.35 hours (Junction / Inflow,cfs)

Node35 / 6.00E-01

#####

==> System inflows (data group K3) at 45.45 hours (Junction / Inflow,cfs)

Node35 / 6.00E-01

#####

==> System inflows (data group K3) at 45.50 hours (Junction / Inflow,cfs)

Node35 / 6.00E-01

#####

==> System inflows (data group K3) at 45.60 hours (Junction / Inflow,cfs)

Node35 / 5.00E-01

#####

==> System inflows (data group K3) at 45.70 hours (Junction / Inflow,cfs)

Node35 / 5.00E-01

#####

==> System inflows (data group K3) at 45.75 hours (Junction / Inflow,cfs)

Node35 / 5.00E-01

#####

==> System inflows (data group K3) at 45.85 hours (Junction / Inflow,cfs)

Node35 / 4.00E-01

#####

==> System inflows (data group K3) at 45.95 hours (Junction / Inflow,cfs)

Node35 / 4.00E-01

#####

==> System inflows (data group K3) at 46.00 hours (Junction / Inflow,cfs)

Node35 / 4.00E-01

Coupland_Prop100yr_NoImpact.out

==> System inflows (data group K3) at 46.10 hours (Junction / Inflow,cfs)

Node35 / 4.00E-01

==> System inflows (data group K3) at 46.20 hours (Junction / Inflow,cfs)

Node35 / 3.00E-01

==> System inflows (data group K3) at 46.25 hours (Junction / Inflow,cfs)

Node35 / 3.00E-01

==> System inflows (data group K3) at 46.35 hours (Junction / Inflow,cfs)

Node35 / 3.00E-01

==> System inflows (data group K3) at 46.45 hours (Junction / Inflow,cfs)

Node35 / 3.00E-01

==> System inflows (data group K3) at 46.50 hours (Junction / Inflow,cfs)

Node35 / 2.00E-01

==> System inflows (data group K3) at 46.60 hours (Junction / Inflow,cfs)

Node35 / 2.00E-01

==> System inflows (data group K3) at 46.70 hours (Junction / Inflow,cfs)

Node35 / 2.00E-01

==> System inflows (data group K3) at 46.75 hours (Junction / Inflow,cfs)

Node35 / 2.00E-01

==> System inflows (data group K3) at 46.85 hours (Junction / Inflow,cfs)

Coupland_Prop100yr_NoImpact.out

Node35 / 1.00E-01

==> System inflows (data group K3) at 46.95 hours (Junction / Inflow,cfs)

Node35 / 1.00E-01

==> System inflows (data group K3) at 47.00 hours (Junction / Inflow,cfs)

Node35 / 1.00E-01

==> System inflows (data group K3) at 47.10 hours (Junction / Inflow,cfs)

Node35 / 1.00E-01

==> System inflows (data group K3) at 47.20 hours (Junction / Inflow,cfs)

Node35 / 1.00E-01

==> System inflows (data group K3) at 47.25 hours (Junction / Inflow,cfs)

Node35 / 1.00E-01

==> System inflows (data group K3) at 47.35 hours (Junction / Inflow,cfs)

Node35 / 0.00E+00

==> System inflows (data group K3) at 47.45 hours (Junction / Inflow,cfs)

Node35 / 0.00E+00

==> System inflows (data group K3) at 47.50 hours (Junction / Inflow,cfs)

Node35 / 0.00E+00

==> System inflows (data group K3) at 47.60 hours (Junction / Inflow,cfs)

Node35 / 0.00E+00
#####

Coupland_Prop100yr_NoImpact.out

 ==> System inflows (data group K3) at 47.70 hours (Junction / Inflow,cfs)

Node35 / 0.00E+00
 #####
 #####
 ==> System inflows (data group K3) at 47.75 hours (Junction / Inflow,cfs)

Node35 / 0.00E+00
 #####
 #####
 ==> System inflows (data group K3) at 47.85 hours (Junction / Inflow,cfs)

Node35 / 0.00E+00
 #####
 #####
 ==> System inflows (data group K3) at 47.95 hours (Junction / Inflow,cfs)

Node35 / 0.00E+00
 #####
 #####
 ==> System inflows (data group K3) at 48.00 hours (Junction / Inflow,cfs)

Node35 / 0.00E+00
 #####

```

*=====
| Table E5 - Junction Time Limitation Summary |
|           (0.10 or 0.25)* Depth * Area   |
| Time step = -----                      |
|                               Sum of Flow |
*=====
| The time this junction was the limiting junction |
|           is listed in the third column.         |
*=====
    
```

Junction	Time(.10)	Time(.25)	Time(sec)
Node13	33.79	84.48	1980.0
Node14	110.28	275.70	0.0
Node15	35.20	88.00	360.0
Node16	54.83	137.09	0.0
Node17	16.51	41.27	180.0
Node18	39.93	99.82	180.0
Node19	59.83	149.57	0.0
Node20	48.27	120.67	1620.0
Node21	71.46	178.65	0.0

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Node22	40.08	100.21	180.0
Node23	101.86	254.64	0.0
Node24	81.36	203.39	0.0
Node25	30.03	75.07	540.0
Node26	4.83	12.08	1980.0
Node27	7.36	18.39	45540.0
Node28	50.96	127.40	900.0
Node31	77.05	192.63	0.0
Node33	78.31	195.77	0.0
Node34	51.69	129.22	0.0
Node35	23.16	57.90	66420.0
Node36	71.14	177.85	0.0
Node37	218.72	546.80	0.0
Node41	1800.00	1800.00	0.0
Link42.1	2.61	6.52	5040.0
Node23.1.1	19.88	49.69	1620.0
Node19.1.1	3.70	9.26	22140.0
Node18.1.1	23.20	57.99	13500.0
Node34.1.1	12.13	30.33	9180.0
Node39	377.21	943.02	0.0
Node40	37.74	94.35	1440.0

The junction requiring the smallest time step was...Node35

```

*=====
| Table E5a - Conduit Explicit Condition Summary
| Courant = Conduit Length
| Time step = -----
|              Velocity + sqrt(g*depth)
|
| Conduit Implicit Condition Summary
| Courant = Conduit Length
| Time step = -----
|              Velocity
*=====

```

The 3rd column is the Explicit time step times the minimum courant time step factor

Minimum Conduit Time Step in seconds in the 4th column in the list. Maximum possible is 10 * maximum time step

The 5th column is the maximum change at any time step

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during the simulation. The 6th column is the wobble value which is an indicator of the flow stability.

You should use this section to find those conduits that are slowing your model down. Use modify conduits to alter the length of the slow conduits to make your simulation faster, or change the conduit name to "CHME?????" where ????? are any characters, this will lengthen the conduit based on the model time step, not the value listed in modify conduits.

Wobble	Conduit Type of Soln	Time(exp)	Expl*Cmin	Time(imp)	Time(min)	Max Qchange
0.077	Link14 Normal Soln	9.05	9.05	32.93	21.0	0.049
0.074	Link16 Normal Soln	3.13	3.13	29.41	0.0	-0.034
0.398	Link18 Normal Soln	29.10	29.10	288.72	0.0	0.045
0.568	Link20 Normal Soln	11.99	11.99	93.73	0.0	-0.155
2.198	Link22 Normal Soln	30.47	30.47	254.45	0.0	-0.121
0.516	Link24 Normal Soln	29.72	29.72	124.67	0.0	0.084
0.312	Link26 Normal Soln	4.16	4.16	12.38	0.0	0.367
0.176	Link31 Normal Soln	12.24	12.24	87.25	0.0	0.863
0.133	Link33 Normal Soln	11.45	11.45	73.44	0.0	0.984
0.095	Link34 Normal Soln	6.58	6.58	33.58	0.0	-0.084
0.012	Link36 Normal Soln	30.99	30.99	210.00	0.0	1.050
0.039	Link37 Normal Soln	43.22	43.22	404.87	0.0	0.481
3.345	Link42.1.1 Normal Soln	1.16	1.16	11.57	2643.0	9.384
4.854	Link38.1 Normal Soln	53.13	53.13	382.06	0.0	-0.095
107.487	Link46.1 Normal Soln	1.93	1.93	17.68	186.0	-0.900
5.267	Link45.1 Normal Soln	4.03	4.03	28.81	6.0	-0.076

		Coupland_Prop100yr_NoImpact.out					
	Link39.1	13.05	13.05	70.73	0.0	-0.113	
8.453	Normal Soln						
	Link41	20.66	20.66	73.60	0.0	0.019	
0.063	Normal Soln						
	Link48	2.29	2.29	15.10	0.0	10.849	
0.180	Normal Soln						
	227.1	3.29	3.29	16.69	0.0	0.018	
2.142	Normal Soln						
	231.1	3.02	3.02	17.58	0.0	-0.032	
4.246	Normal Soln						
	235.1	2.41	2.41	17.48	0.0	-0.256	
1.920	Normal Soln						
	239.1	1.58	1.58	3.84	18.0	0.132	
3.944	Normal Soln						
	243.1	1.57	1.57	3.38	0.0	-0.093	
6.382	Normal Soln						
	247.1	1.21	1.21	2.84	6.0	-0.054	
1.814	Normal Soln						
	251.1	2.03	2.03	4.05	0.0	0.080	
5.201	Normal Soln						
	255.1	5.67	5.67	15.21	0.0	0.331	
7.413	Normal Soln						
	324.1	1.98	1.98	10.40	0.0	1.090	
18.097	Normal Soln						
	Restrictor.1	99.10	99.10	295.96	0.0	0.062	
6.084	Normal Soln						

The conduit with the smallest time step limitation was..Link42.1.1

The conduit with the largest wobble was.....Link46.1

The conduit with the largest flow change in any

consecutive time step.....Link48

 * End of time step D0-loop in Runoff *

Final Date (Mo/Day/Year) = 1/ 2/2016
 Total number of time steps = 2878
 Final Julian Date = 2016002
 Final time of day = 86280. seconds.
 Final time of day = 23.97 hours.
 Final running time = 47.9667 hours.
 Final running time = 1.9986 days.

 * Extrapolation Summary for Watersheds *
 * Explains the number of time steps and iterations *
 * used in the solution of the subcatchments. *
 * # Steps ==> Total Number of Extrapolated Steps *
 * # Calls ==> Total Number of OVERLND Calls *

Subcatchment	# Steps	# Calls	Subcatchment	# Steps	# Calls
Node39#1	18633	6211	Node34.1.1#1	18690	6230
Node18.1.1#1	18678	6226			
Node17#1	18291	6097	Node19#1	19131	6377

 # Rainfall input summary from Runoff Continuity Check #
 #####

Total rainfall read for gage # 1 is 13.5100 in
 Total rainfall duration for gage # 1 is 1440.00 minutes

 * Table R5. CONTINUITY CHECK FOR SURFACE WATER *
 * Any continuity error can be fixed by lowering the *
 * wet and transition time step. The transition time *
 * should not be much greater than the wet time step. *

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	cubic feet	Inches over Total Basin
Total Precipitation (Rain plus Snow)	1.223090E+06	13.510
Total Infiltration	1.109543E+05	1.226
Total Evaporation	1.334229E+04	0.147
Surface Runoff from Watersheds	1.098811E+06	12.137
Total Water remaining in Surface Storage	0.000000E+00	0.000
Infiltration over the Pervious Area...	1.109543E+05	2.857

Infiltration + Evaporation + Surface Runoff + Snow removal + Water remaining in Surface Storage + Water remaining in Snow Cover.....	1.223108E+06	13.510
Total Precipitation + Initial Storage.	1.223090E+06	13.510

The error in continuity is calculated as

* Precipitation + Initial Snow Cover *	
* - Infiltration - *	
*Evaporation - Snow removal - *	
*Surface Runoff from Watersheds - *	
*Water in Surface Storage - *	
*Water remaining in Snow Cover *	

* Precipitation + Initial Snow Cover *	

Percent Continuity Error.....	-0.0015

* Table R6. Continuity Check for Channel/Pipes *
 * You should have zero continuity error *
 * if you are not using runoff hydraulics *

over Basin	cubic feet	Inches Total
Initial Channel/Pipe Storage.....	0.000000E+00	0.000
Final Channel/Pipe Storage.....	0.000000E+00	0.000
Surface Runoff from Watersheds.....	1.098811E+06	12.137
Groundwater Subsurface Inflow or Diversion..	0.000000E+00	0.000
Evaporation Loss from Channels.....	0.000000E+00	0.000
Groundwater Flow Diverted Out of Network....	0.000000E+00	0.000
Channel/Pipe/Inlet Outflow.....	1.098811E+06	12.137
Initial Storage + Inflow.....	1.098811E+06	12.137

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```
Final Storage + Outflow + Diverted GW.....      1.098811E+06      12.137
*****
* Final Storage + Outflow + Evaporation - *
* Watershed Runoff - Groundwater Inflow - *
*   Initial Channel/Pipe Storage         *
*   -----                             *
* Final Storage + Outflow + Evaporation *
*****
Percent Continuity Error.....                      0.0000
```

```
#####
# Table R9. Summary Statistics for Subcatchments #
#####
```

Note: Total Runoff Depth includes pervious & impervious areas.
Pervious and Impervious Runoff Depth is only the runoff from those two areas.

For catchments receiving redirected flow, this flow will only be shown if the flow is not directed directly to the outlet. Flow that is getting redirected is also listed with the original subcatchment.

Subcatchment.....	Node39#1	Node34.1.1#1
Node18.1.1#1 Node17#1	Node19#1	
Area (acres).....	2.27000	5.20000
4.87000 0.36000	12.24000	
Percent Impervious....	50.00000	67.00000
67.00000 67.00000	50.00000	
Total Rainfall (in)....	13.51000	13.51000
13.51000 13.51000	13.51000	
Max Intensity (in/hr)..	14.40000	14.40000
14.40000 14.40000	14.40000	

Pervious Area

Total Runoff Depth (in)	10.51244	10.62824
10.62865 10.64345	10.48268	
Peak Runoff Rate (cfs).	4.46281	8.79656
8.24872 0.63900	22.90707	

Total Impervious Area

Total Runoff Depth (in)	13.34617	13.34202
13.34213 13.34616	13.34131	
Peak Runoff Rate (cfs).	6.41619	18.80772
17.63543 1.36348	32.78414	

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Impervious Area with depression storage

Total Runoff Depth (in)		10.00962	10.00651
10.00660	10.00962	10.00598	
Peak Runoff Rate (cfs).		4.81214	14.10579
13.22657	1.02261	24.58810	

Impervious Area without depression storage

Total Runoff Depth (in)		3.33654	3.33550
3.33553	3.33654	3.33533	
Peak Runoff Rate (cfs).		1.60405	4.70193
4.40886	0.34087	8.19603	

Total Area

Total Runoff Depth (in)		11.92930	12.44647
12.44668	12.45427	11.91199	
Peak Runoff Rate (cfs).		10.72560	27.60428
25.88415	2.00248	54.59076	

Rational Formula

Pervious Tc. (mins)....		0.00000	0.00000
0.00000	0.00000	0.00000	
Perv. Intensity (in/hr)		0.00000	0.00000
0.00000	0.00000	0.00000	
Pervious C		0.00000	0.00000
0.00000	0.00000	0.00000	
Impervious Tc. (mins)..		0.00000	0.00000
0.00000	0.00000	0.00000	
Imp. Intensity (in/hr).		0.00000	0.00000
0.00000	0.00000	0.00000	
Impervious C		0.00000	0.00000
0.00000	0.00000	0.00000	
Partial Area (Ha).....		0.00000	0.00000
0.00000	0.00000	0.00000	
Partial Area Tc.....		0.00000	0.00000
0.00000	0.00000	0.00000	
Partial Area Intensity.		0.00000	0.00000
0.00000	0.00000	0.00000	

==> Runoff simulation ended normally.

=====

Table E6. Final Model Condition	
This table is used for steady state	

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flow comparison and is the information
 saved to the hot-restart file.
 Final Time = 48.050 hours

=====

Junction /	Depth /	Elevation	====>	"*" Junction is Surcharged.
Node13/	0.26 /	23.00/		Node14/ 0.30 / 23.00/
Node15/	0.60 /	21.80/		
Node16/	0.64 /	21.80/		Node17/ 0.14 / 20.45/
Node18/	0.00 /	20.45/		
Node19/	0.78 /	20.21/		Node20/ 0.58 / 20.21/
Node21/	0.52 /	20.21/		
Node22/	0.41 /	20.21/		Node23/ 0.75 / 20.20/
Node24/	0.33 /	20.20/		
Node25/	0.24 /	19.81/		Node26/ 0.01 / 18.86/
Node27/	0.58 /	18.80/		
Node28/	0.02 /	11.49/		Node31/ 0.01 / 11.49/
Node33/	0.01 /	11.47/		
Node34/	0.00 /	22.28/		Node35/ 0.00 / 11.49/
Node36/	0.02 /	9.04/		
Node37/	0.02 /	8.48/		Node41/ 0.00 / 8.46/
Link42.1/	0.03 /	12.54/		
Node23.1.1/	6.90 /	14.90/		Node19.1.1/ 6.90 / 14.90/
Node18.1.1/	0.00 /	14.99/		
Node34.1.1/	0.00 /	16.32/		Node39/ 0.00 / 23.15/
Node40/	0.02 /	12.52/		

Conduit/	Flow	====>	"*" Conduit uses the normal flow option.
Link14/	0.00*/		Link16/ 0.00 /
Link18/	0.00 /		
	Link20/ 0.00 /		Link22/ 0.00 /
Link24/	0.00 /		
	Link26/ 0.00*/		Link31/ 0.00 /
Link33/	0.00 /		
	Link34/ 0.00*/		Link36/ 0.00*/
Link37/	0.01*/		
	Link42.1.1/ 0.01 /		Link38.1/ 0.00 /
Link46.1/	0.00 /		
	Link45.1/ 0.00 /		Link39.1/ 0.00 /
Link41/	0.00 /		
	Link48/ 0.00 /		227.1/ 0.00 /
231.1/	0.00 /		
	235.1/ 0.00 /		239.1/ 0.00 /
243.1/	0.00 /		
	247.1/ 0.00 /		251.1/ 0.00 /
255.1/	0.00 /		
	324.1/ 0.00 /		Restrictor.1/ 0.00 /
W14/	0.00 /		

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W20/	W15/	0.00 /	W17/	0.00 /
	0.00 /			
W25/	W21/	0.00 /	W24/	0.00 /
	0.00 /			
W34/	W27/	0.00 /	W42/	0.00 /
	0.00 /			
	W18/	0.00 /	FREE# 1/	0.01 /

	Conduit/	Velocity		
Link18/	Link14/	0.00 /	Link16/	0.01 /
	0.00 /			
Link24/	Link20/	0.00 /	Link22/	-0.02 /
	0.07 /			
Link33/	Link26/	0.01 /	Link31/	0.00 /
	0.02 /			
Link37/	Link34/	0.00 /	Link36/	0.07 /
	0.06 /			
Link46.1/	Link42.1.1/	0.05 /	Link38.1/	0.00 /
	0.00 /			
Link41/	Link45.1/	0.11 /	Link39.1/	0.11 /
	0.00 /			
231.1/	Link48/	0.00 /	227.1/	0.00 /
	0.00 /			
243.1/	235.1/	0.00 /	239.1/	0.00 /
	-0.01 /			
255.1/	247.1/	0.00 /	251.1/	0.27 /
	0.56 /			
	324.1/	0.19 /	Restrictor.1/	0.09 /

	Conduit/	Width		
Link18/	Link14/	0.17 /	Link16/	0.00 /
	0.30 /			
Link24/	Link20/	0.82 /	Link22/	0.54 /
	0.14 /			
Link33/	Link26/	0.38 /	Link31/	0.32 /
	0.34 /			
Link37/	Link34/	0.00 /	Link36/	0.12 /
	0.19 /			
Link46.1/	Link42.1.1/	0.18 /	Link38.1/	1.37 /
	0.02 /			
Link41/	Link45.1/	1.37 /	Link39.1/	0.98 /
	0.00 /			
231.1/	Link48/	0.05 /	227.1/	1.53 /
	2.18 /			
243.1/	235.1/	1.12 /	239.1/	2.29 /
	1.26 /			
255.1/	247.1/	2.23 /	251.1/	0.98 /
	1.18 /			

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324.1/ 1.96 / Restrictor.1/ 0.74 /

Junction/ EGL

Node15/	Node13/	0.26 /	Node14/	0.30 /
	0.60 /			
Node18/	Node16/	0.64 /	Node17/	0.38 /
	0.00 /			
Node21/	Node19/	0.78 /	Node20/	0.58 /
	0.52 /			
Node24/	Node22/	0.41 /	Node23/	0.75 /
	0.33 /			
Node27/	Node25/	0.24 /	Node26/	0.69 /
	0.58 /			
Node33/	Node28/	1.02 /	Node31/	0.01 /
	0.01 /			
Node36/	Node34/	0.00 /	Node35/	0.00 /
	0.02 /			
Link42.1/	Node37/	0.02 /	Node41/	0.00 /
	0.03 /			
Node18.1.1/	Node23.1.1/	6.90 /	Node19.1.1/	6.92 /
	1.00 /			
Node40/	Node34.1.1/	0.00 /	Node39/	0.00 /
	3.78 /			

Junction/ Freeboard

Node15/	Node13/	17.00 /	Node14/	17.00 /
	18.20 /			
Node18/	Node16/	18.20 /	Node17/	19.55 /
	19.55 /			
Node21/	Node19/	19.79 /	Node20/	19.79 /
	19.79 /			
Node24/	Node22/	19.79 /	Node23/	19.80 /
	19.80 /			
Node27/	Node25/	20.19 /	Node26/	21.14 /
	21.20 /			
Node33/	Node28/	28.51 /	Node31/	28.51 /
	28.53 /			
Node36/	Node34/	17.72 /	Node35/	28.51 /
	30.96 /			
Link42.1/	Node37/	31.52 /	Node41/	31.54 /
	27.46 /			
Node18.1.1/	Node23.1.1/	25.10 /	Node19.1.1/	25.10 /
	25.01 /			
Node40/	Node34.1.1/	23.68 /	Node39/	16.85 /
	27.48 /			

Junction/ Max Volume

Node13/ 25.85 / Node14/ 26.14 /

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Node15/	44.64 /			
	Node16/	44.95 /	Node17/	55.69 /
Node18/	53.78 /			
	Node19/	66.48 /	Node20/	62.84 /
Node21/	61.85 /			
	Node22/	59.34 /	Node23/	63.31 /
Node24/	57.20 /			
	Node25/	58.53 /	Node26/	54.36 /
Node27/	62.26 /			
	Node28/	143.51 /	Node31/	143.89 /
Node33/	142.76 /			
	Node34/	32.36 /	Node35/	143.87 /
Node36/	173.23 /			
	Node37/	179.35 /	Node41/	179.37 /
Link42.1/	146.20 /			
	Node23.1.1/	209.60 /	Node19.1.1/	209.91 /
Node18.1.1/	122.60 /			
	Node34.1.1/	108.15 /	Node39/	22.46 /
Node40/	130.62 /			

Junction/Total Fldng

	Node13/	0.00 /	Node14/	0.00 /
Node15/	0.00 /			
	Node16/	0.00 /	Node17/	0.00 /
Node18/	0.00 /			
	Node19/	0.00 /	Node20/	0.00 /
Node21/	0.00 /			
	Node22/	0.00 /	Node23/	0.00 /
Node24/	0.00 /			
	Node25/	0.00 /	Node26/	0.00 /
Node27/	0.00 /			
	Node28/	0.00 /	Node31/	0.00 /
Node33/	0.00 /			
	Node34/	0.00 /	Node35/	0.00 /
Node36/	0.00 /			
	Node37/	0.00 /	Node41/	0.00 /
Link42.1/	0.00 /			
	Node23.1.1/	0.00 /	Node19.1.1/	0.00 /
Node18.1.1/	0.00 /			
	Node34.1.1/	0.00 /	Node39/	0.00 /
Node40/	0.00 /			

Conduit/ Cross Sectional Area

	Link14/	0.03 /	Link16/	0.00 /
Link18/	0.08 /			
	Link20/	0.15 /	Link22/	0.06 /
Link24/	0.02 /			
	Link26/	0.11 /	Link31/	0.13 /

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Link33/	0.18 /			
	Link34/	0.00 /	Link36/	0.06 /
Link37/	0.09 /			
	Link42.1.1/	0.10 /	Link38.1/	0.00 /
Link46.1/	9.68 /			
	Link45.1/	0.00 /	Link39.1/	0.00 /
Link41/	0.00 /			
	Link48/	0.02 /	227.1/	0.28 /
231.1/	0.99 /			
	235.1/	0.10 /	239.1/	1.26 /
243.1/	0.15 /			
	247.1/	1.16 /	251.1/	0.00 /
255.1/	0.00 /			
	324.1/	0.02 /	Restrictor.1/	0.02 /

Conduit/ Final Volume

	Link14/	1.96 /	Link16/	0.00 /
Link18/	18.99 /			
	Link20/	17.57 /	Link22/	16.36 /
Link24/	4.78 /			
	Link26/	4.09 /	Link31/	26.37 /
Link33/	34.65 /			
	Link34/	0.00 /	Link36/	31.88 /
Link37/	65.34 /			
	Link42.1.1/	2.03 /	Link38.1/	0.01 /
Link46.1/	484.03 /			
	Link45.1/	0.01 /	Link39.1/	0.01 /
Link41/	0.00 /			
	Link48/	0.84 /	227.1/	9.32 /
231.1/	36.98 /			
	235.1/	3.38 /	239.1/	41.76 /
243.1/	5.10 /			
	247.1/	27.89 /	251.1/	0.20 /
255.1/	0.26 /			
	324.1/	0.77 /	Restrictor.1/	44.21 /

Conduit/ Hydraulic Radius

	Link14/	0.01 /	Link16/	0.00 /
Link18/	0.02 /			
	Link20/	0.05 /	Link22/	0.03 /
Link24/	0.01 /			
	Link26/	0.03 /	Link31/	0.01 /
Link33/	0.01 /			
	Link34/	0.00 /	Link36/	0.00 /
Link37/	0.01 /			
	Link42.1.1/	0.01 /	Link38.1/	0.00 /
Link46.1/	0.88 /			
	Link45.1/	0.01 /	Link39.1/	0.01 /

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Link41/	0.00 /			
	Link48/	0.00 /	227.1/	0.17 /
231.1/	0.37 /			
	235.1/	0.08 /	239.1/	0.43 /
243.1/	0.11 /			
	247.1/	0.41 /	251.1/	0.01 /
255.1/	0.01 /			
	324.1/	0.02 /	Restrictor.1/	0.02 /

Conduit/ Upstream/ Downstream Elevation

Link14/	23.00/	21.80	Link16/	21.80/	20.69
Link18/	20.45/	20.21/	Link22/	20.20/	20.21
Link20/	20.21/	20.21	Link31/	11.49/	11.49
Link24/	20.20/	19.81/	Link36/	11.47/	9.04
Link26/	18.86/	18.80	Link38.1/	12.54/	12.54
Link33/	11.49/	11.47/	Link39.1/	16.32/	15.99
Link34/	22.28/	22.28	227.1/	23.00/	23.00
Link37/	9.04/	8.48/	239.1/	20.21/	20.21
Link42.1.1/	8.48/	8.46	251.1/	19.81/	19.54
Link46.1/	14.90/	14.90/	Restrictor.1/	12.54/	12.52
Link45.1/	14.99/	14.92			
Link41/	23.15/	22.28/			
Link48/	11.49/	11.49			
231.1/	21.80/	21.80/			
235.1/	20.45/	20.45			
243.1/	20.21/	20.21/			
247.1/	20.20/	20.20			
255.1/	18.80/	16.27/			
324.1/	12.52/	12.49			

=====

| Table E7 - Iteration Summary |

=====

Total number of time steps simulated.....	960
Total number of passes in the simulation.....	215697
Total number of time steps during simulation....	87642
Ratio of actual # of time steps / NTCYC.....	91.294
Average number of iterations per time step.....	2.461
Average time step size(seconds).....	1.972
Smallest time step size(seconds).....	1.154
Largest time step size(seconds).....	180.000
Average minimum Conduit Courant time step (sec).	3.760
Average minimum implicit time step (sec).....	1.970
Average minimum junction time step (sec).....	1.970
Average Courant Factor Tf.....	1.970
Number of times omega reduced.....	0

```

*=====
| Table E8 - Junction Time Step Limitation Summary |
*=====
| Not Convr = Number of times this junction did not |
|               converge during the simulation.      |
| Avg Convr = Average junction iterations.          |
| Conv err = Mean convergence error.                |
| Omega Cng = Change of omega during iterations     |
| Max Itern = Maximum number of iterations          |
*=====

```

Junction		Not Convr	Avg Convr	Total Itt	Omega Cng	Max Itern	Ittrn >10
Ittrn >25	Ittrn >40						
1	Node13 1	0	1.43	125008	0	291	81
1	Node14 1	0	1.54	135357	0	88	99
1	Node15 1	0	1.61	141039	0	68	6
23	Node16 11	0	1.78	155648	0	225	36
102	Node17 69	0	1.93	169074	0	210	357
298	Node18 195	0	2.23	195265	0	137	1347
4	Node19 3	0	1.85	162380	0	94	63
2	Node20 1	0	1.93	168754	0	89	4
1	Node21 0	0	1.57	137790	0	29	8
0	Node22 0	0	1.54	135158	0	11	2
1	Node23 1	0	1.88	164925	0	80	7
4	Node24 2	0	1.85	162084	0	328	10
25	Node25 24	1	1.56	136299	0	501	30
34	Node26 31	0	2.05	179315	0	497	55
132	Node27 118	0	2.03	178302	0	350	202
12	Node28 3	0	2.99	262226	0	481	229

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207	Node31	0	2.97	260276	0	500	216
	205						
0	Node33	0	1.68	147459	0	6	0
	0						
13	Node34	0	1.47	128418	0	123	74
	7						
352	Node35	0	3.47	304098	0	498	366
	344						
0	Node36	0	1.62	142037	0	5	0
	0						
23	Node37	4	3.67	321713	0	501	24
	23						
83823	Node41	154	191.02	16741025	0	501	84887
	83001						
562	Link42.1	255	4.46	390734	0	501	563
	560						
129	Node23.1.1	29	2.86	250752	0	501	367
	83						
250	Node19.1.1	0	2.78	243724	0	430	1915
	50						
244	Node18.1.1	0	2.76	241620	0	495	1899
	108						
18	Node34.1.1	0	1.83	160253	0	140	204
	11						
0	Node39	0	1.23	107398	0	5	0
	0						
241	Node40	35	3.94	344971	0	501	764
	228						
Total number of iterations for all junctions..		22393102					

Minimum number of possible iterations..... 2629260

Efficiency of the simulation..... 8.52

Poor Efficiency

```

*=====
| Extran Efficiency is an indicator of the efficiency of |
| the simulation. Ideal efficiency is one iteration per |
| time step. Altering the underrelaxation parameter, |
| lowering the time step, increasing the flow and head |
| tolerance are good ways of improving the efficiency, |
| another is lowering the internal time step. The lower the |
| efficiency generally the faster your model will run. |
| If your efficiency is less than 1.5 then you may try |
| increasing your time step so that your overall simulation |
| is faster. Ideal efficiency would be around 2.0 |
|
| Good Efficiency < 1.5 mean iterations |
| Excellent Efficiency < 2.5 and > 1.5 mean iterations |
| Good Efficiency < 4.0 and > 2.5 mean iterations |
| Fair Efficiency < 7.5 and > 4.0 mean iterations |
| Poor Efficiency > 7.5 mean iterations |
*=====
    
```

```

*=====
| Table E9 - JUNCTION SUMMARY STATISTICS |
| The Maximum area is only the area of the node, it |
| does not include the area of the surrounding conduits |
*=====
    
```

Maximum Freeboard node feet	Maximum Junction Area ft^2	Maximum Junction Depth Name feet	Maximum Ground Elevation feet	Uppermost Pipe Gutter Elevation feet	Maximum Junction Gutter Elevation feet	Maximum Junction Gutter Velocity ft/s	Time of Occurrence Hr. Min.	Feet of Surcharge at Max Elevation	of
15.20	12.5660	Node13	40.00	27.86	24.80	0.00	16 27	0.00	
		Node14	40.00	27.82	24.78	0.00	16 28	0.00	

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15.22	12.5660	0.00	0.00	0.00			
	Node15	40.00	26.32	24.75	16	39	0.00
15.25	12.5660	0.00	0.00	0.00			
	Node16	40.00	26.62	24.74	16	39	0.00
15.26	12.5660	0.00	0.00	0.00			
	Node17	40.00	25.51	24.74	16	39	0.00
15.26	12.5660	0.00	0.00	0.00			
	Node18	40.00	25.57	24.73	16	39	0.00
15.27	12.5660	0.00	0.00	0.00			
	Node19	40.00	24.52	24.72	16	39	0.20
15.28	12.5660	0.00	0.00	0.00			
	Node20	40.00	25.17	24.63	16	41	0.00
15.37	12.5660	0.00	0.00	0.00			
	Node21	40.00	24.71	24.61	16	41	0.00
15.39	12.5660	0.00	0.00	0.00			
	Node22	40.00	25.50	24.52	16	42	0.00
15.48	12.5660	0.00	0.00	0.00			
	Node23	40.00	25.52	24.49	16	43	0.00
15.51	12.5660	0.00	0.00	0.00			
	Node24	40.00	26.28	24.42	16	43	0.00
15.58	12.5660	0.00	0.00	0.00			
	Node25	40.00	25.91	24.23	16	45	0.00
15.77	12.5660	0.00	0.00	0.00			
	Node26	40.00	25.24	23.18	17	9	0.00
16.82	12.5660	0.00	0.00	0.00			
	Node27	40.00	24.61	23.17	17	9	0.00
16.83	12.5660	0.00	0.00	0.00			
	Node28	40.00	29.44	22.89	18	25	0.00
17.11	12.5660	0.00	0.00	0.00			
	Node31	40.00	27.84	22.93	18	24	0.00
17.07	12.5660	0.00	0.00	0.00			
	Node33	40.00	29.43	22.82	18	29	0.00
17.18	12.5660	0.00	0.00	0.00			
	Node34	40.00	27.10	24.86	16	26	0.00
15.14	12.5660	0.00	0.00	0.00			
	Node35	40.00	27.82	22.94	18	24	0.00
17.06	12.5660	0.00	0.00	0.00			
	Node36	40.00	28.05	22.81	18	29	0.00
17.19	12.5660	0.00	0.00	0.00			
	Node37	40.00	28.40	22.73	18	25	0.00
17.27	12.5660	0.00	0.00	0.00			
	Node41	40.00	28.40	22.73	18	25	0.00
17.27	12.5660	0.00	0.00	0.00			
	Link42.1	40.00	17.51	24.14	16	44	6.63
15.86	12.5660	0.00	0.00	0.00			
	Node23.1.1	40.00	18.42	24.68	16	39	6.26
15.32	12.5660	0.00	0.00	0.00			
	Node19.1.1	40.00	18.42	24.70	16	39	6.28

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15.30	12.5660	0.00	0.00	0.00				
	Node18.1.1	40.00	18.49	24.75	16	38	6.26	
15.25	12.5660	0.00	0.00	0.00				
	Node34.1.1	40.00	18.82	24.93	16	25	6.11	
15.07	12.5660	0.00	0.00	0.00				
	Node39	40.00	27.97	24.94	16	25	0.00	
15.06	12.5660	0.00	0.00	0.00				
	Node40	40.00	19.27	22.89	18	25	3.62	
17.11	12.5660	0.00	0.00	0.00				

```

*=====
| Table E10 - CONDUIT SUMMARY STATISTICS |
| Note: The peak flow may be less than the design flow |
| and the conduit may still surcharge because of the |
| downstream boundary conditions. |
| |
| * denotes an open conduit that has been overtopped |
| this is a potential source of severe errors |
| |
*=====
    
```

Time of Occurrence	Ratio of Max. Flow	Conduit Design Elev (ft)	Maximum Water Design Flow Upstream (cfs)	Conduit Design Velocity Dwnstrm (ft/s)	Conduit Maximum Design Vertical US Depth (in)	Maximum Computed Flow (cfs)	Time of Occurrence	Maximum Computed Velocity (ft/s)
Min.	Flow	Name (ft)	(cfs)	(ft/s)	US DS (in)	(cfs)	Hr. Min.	(ft/s) Hr.
16	15	Link14	596.7483	7.6262	57.8400	22.1304	16 24	2.0850
16	25	Link16	887.9019	11.3470	57.8400	21.6530	16 25	0.7825
15	23	Link18	264.7415	3.3833	57.8425	31.1512	16 25	-0.8501
16	23	Link20	316.7276	3.6925	60.2400	80.8294	16 24	1.2557
16	21	Link22	72.5977	0.5646	64.2000	-74.2364	16 25	-1.1105
16	21	Link24	267.1870	2.3676	73.3200	63.1610	16 25	2.2484
16	15	Link26	1249.146	10.0844	76.6800	58.3789	16 41	3.1400
16	21	Link31	22103.96	0.7876	196.3200	1380.709	17 4	2.2889
16	33	Link33	29068.21	0.9626	215.6400	1445.488	16 53	2.6242

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		Link34	500.4380	6.3954	57.8400	-22.8486	16	22	-1.5255
16	13	-0.0457	24.8552	24.7971	0.377	0.522			
		Link36	284979.0	9.2782	215.6400	1435.498	16	54	2.3799
16	20	0.0050	22.8209	22.8060	0.632	0.767			
		Link37	82357.80	2.9857	228.3600	1304.870	18	23	1.8482
16	25	0.0158	22.8060	22.7325	0.724	0.750			
		Link42.1.1	11938.34	0.0000	239.2800	1305.634	18	25	1.7297
16	50	0.1094	22.7325	22.7343	0.716	0.716			
		Link38.1	29.0312	3.0174	42.0000	27.8674	16	17	2.8655
16	17	0.9599	24.6800	24.1445	2.789	2.896			
		Link46.1	3.1816	0.0000	42.0000	27.9043	16	17	2.8338
16	17	8.7706	24.7047	24.6801	4.773	4.766			
		Link45.1	29.3011	3.0455	42.0000	27.9163	16	17	2.8704
16	17	0.9527	24.7468	24.7048	2.788	2.796			
		Link39.1	14.7688	3.0087	30.0000	18.1819	16	9	3.6572
16	9	1.2311	24.9264	24.7467	3.443	3.503			
		Link41	325.1504	4.1553	57.8400	10.1148	16	20	1.8383
16	5	0.0311	24.9373	24.8552	0.371	0.534			
		Link48	46955.91	1.7426	195.9600	1390.647	17	3	2.5339
16	21	0.0296	22.9393	22.9307	0.701	0.701			
		227.1	12.3112	2.5080	30.0000	8.5499	16	24	2.1282
16	9	0.6945	24.7971	24.7802	0.823	0.832			
		231.1	11.6038	2.3639	30.0000	11.7359	16	14	2.3067
16	14	1.0114	24.7528	24.7374	1.421	1.431			
		235.1	26.5994	5.4188	30.0000	-9.4141	16	26	-1.9087
16	26	-0.3539	24.7421	24.7298	1.717	1.768			
		239.1	32.6114	6.6435	30.0000	-45.3048	16	13	-9.1822
16	13	-1.3892	24.7206	24.6305	2.004	2.080			
		243.1	21.2473	4.3285	30.0000	-49.8658	16	16	-10.1229
16	16	-2.3469	24.6123	24.5222	1.785	1.797			
		247.1	54.3058	11.0631	30.0000	-42.0412	16	18	-8.5345
16	18	-0.7742	24.4881	24.4220	1.847	1.989			
		251.1	26.1519	5.3276	30.0000	58.5484	16	34	11.8767
16	34	2.2388	24.2281	23.1763	1.771	1.455			
		255.1	95.0460	13.4463	36.0000	58.0861	16	41	8.1931
16	41	0.6111	23.1750	22.8945	1.458	2.208			
		324.1	56.1685	2.8606	60.0000	81.6863	16	33	4.1375
16	33	1.4543	22.8945	22.8906	2.077	2.080			
		Restrictor.1	21.0133	0.5377	22.8001	27.8094	16	17	9.5274
16	16	1.3234	24.1445	22.8945	6.123	5.471			
		W14	Undefnd	Undefnd	Undefnd	14.1397	16	22	
		W15	Undefnd	Undefnd	Undefnd	13.1132	16	25	
		W17	Undefnd	Undefnd	Undefnd	13.9186	16	25	
		W20	Undefnd	Undefnd	Undefnd	54.6439	16	25	
		W21	Undefnd	Undefnd	Undefnd	48.3138	16	30	
		W24	Undefnd	Undefnd	Undefnd	40.0926	16	31	
		W25	Undefnd	Undefnd	Undefnd	4.5608	16	45	
		W27	Undefnd	Undefnd	Undefnd	0.0000	0	0	

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W42	Undefnd	Undefnd	Undefnd	9.4984	17	8
W34	Undefnd	Undefnd	Undefnd	13.3781	16	21
W18	Undefnd	Undefnd	Undefnd	13.3590	16	12
FREE# 1	Undefnd	Undefnd	Undefnd	1305.661	18	25

```

*=====
| Table E11. Area assumptions used in the analysis |
| Subcritical and Critical flow assumptions from |
| Subroutine Head. See Figure 17-1 in the |
| manual for further information. |
*=====
    
```

Maximum X-Sect Area(ft^2)	Maximum Conduit Vel*D Name (ft^2/s)	Duration of Dry Flow(min)	Duration of Sub- Critical Flow(min)	Durat. of Upstream Critical Flow(min)	Durat. of Downstream Critical Flow(min)	Maximum Hydraulic Radius-m
19.964	Link14 4.870	1257.73	1622.27	0.00	0.00	0.880
38.933	Link16 2.668	1123.63	355.84	7.47	1393.07	1.276
68.652	Link18 2.536	1344.87	327.24	1207.89	0.00	1.762
75.324	Link20 5.641	50.77	2829.23	0.00	0.00	2.161
85.911	Link22 4.128	78.07	2742.93	59.00	0.00	2.168
47.700	Link24 7.464	135.60	1444.21	0.00	1300.19	1.557
65.664	Link26 7.216	138.00	2742.00	0.00	0.00	2.008
1195.510	Link31 23.583	39.00	2841.00	0.00	0.00	5.940
954.548	Link33 27.328	39.14	2840.86	0.00	0.00	6.136
13.845	Link34 2.733	2668.25	201.56	10.19	0.00	1.141
2931.603	Link36 25.896	40.50	2839.50	0.00	0.00	5.773
757.347	Link37 24.863	40.50	2839.50	0.00	0.00	7.060
766.904	Link42.1.1 24.300	40.50	2839.50	0.00	0.00	7.185

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9.865	27.305	Link38.1	210.70	1236.58	0.00	1432.72	1.046
10.086	46.480	Link46.1	9.00	2871.00	0.00	0.00	1.065
10.085	27.299	Link45.1	9.00	2641.45	0.00	229.55	1.065
5.078	27.751	Link39.1	9.00	810.64	0.00	2060.36	0.759
14.035	2.483	Link41	15.00	2865.00	0.00	0.00	0.868
1094.734	25.944	Link48	39.00	2841.00	0.00	0.00	6.089
4.341	4.085	227.1	963.48	1916.52	0.00	0.00	0.761
5.146	6.503	231.1	952.56	1927.44	0.00	0.00	0.761
5.133	8.230	235.1	56.70	2823.30	0.00	0.00	0.760
5.092	38.104	239.1	25.50	2851.24	3.26	0.00	0.758
5.132	36.775	243.1	70.76	2800.24	9.00	0.00	0.760
5.033	31.363	247.1	119.89	2760.11	0.00	0.00	0.756
5.112	45.303	251.1	137.78	348.11	0.00	2394.11	0.760
7.261	41.770	255.1	143.20	750.63	0.13	1986.05	0.896
20.584	39.249	324.1	140.56	2009.14	0.00	730.30	1.521
2.972	91.634	Restrictor.1	116.65	2763.35	0.00	0.00	0.578

=====

| Table E12. Mean Conduit Flow Information |

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Mean Hydraulic Radius	Mean Conduit Area	Mean Conduit Roughness	Mean Flow (cfs)	Total Flow (ft^3)	Mean Percent Change	Low Flow Weightng	Mean Froude Number
0.069	0.600	0.040	0.435	75136.503	0.000	0.632	0.022
0.138	1.987	0.040	0.435	75125.589	0.000	0.647	0.250

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	Link18	0.320	55239.448	0.000	0.660	0.064
0.340	5.733	0.040				
	Link20	3.382	584365.345	0.000	0.998	0.045
0.599	9.411	0.040				
	Link22	-3.383	-584539.650	0.000	0.993	0.051
0.554	10.709	0.040				
	Link24	3.386	585142.722	0.000	0.983	0.182
0.459	4.960	0.040				
	Link26	3.384	584774.694	0.000	0.982	0.218
0.483	8.848	0.040				
	Link31	255.996	44236052.244	0.000	0.999	0.123
2.562	253.305	0.033				
	Link33	262.347	45333547.241	0.000	0.999	0.178
2.439	223.926	0.033				
	Link34	-0.435	-75120.296	0.000	0.123	0.011
0.090	1.009	0.040				
	Link36	262.459	45352910.630	0.000	0.999	0.186
2.702	261.815	0.033				
	Link37	262.708	45395897.121	0.000	0.999	0.090
3.457	251.932	0.032				
	Link42.1.1	262.920	45432626.811	0.001	0.999	0.074
3.678	271.708	0.032				
	Link38.1	2.965	512360.394	0.000	0.971	0.289
0.518	4.278	0.013				
	Link46.1	2.972	513646.287	0.000	1.000	0.022
0.872	9.660	0.013				
	Link45.1	2.976	514181.092	0.000	1.000	0.281
0.513	4.205	0.013				
	Link39.1	1.492	257820.700	0.000	1.000	0.512
0.338	1.957	0.013				
	Link41	0.569	98380.025	0.000	1.000	0.405
0.177	0.860	0.040				
	Link48	255.996	44236192.822	0.000	0.999	0.144
2.537	228.316	0.033				
	227.1	0.212	36590.504	0.000	0.706	0.021
0.169	0.451	0.015				
	231.1	0.269	46397.139	0.000	0.712	0.010
0.311	1.210	0.015				
	235.1	-0.316	-54531.358	0.000	0.997	0.100
0.226	1.051	0.013				
	239.1	-2.508	-433345.861	0.000	1.000	0.087
0.635	3.273	0.015				
	243.1	-2.607	-450442.230	0.000	0.994	0.132
0.478	2.145	0.015				
	247.1	-2.546	-440009.281	0.000	0.986	0.099
0.613	3.060	0.013				
	251.1	3.363	581131.418	0.000	0.982	0.744
0.268	1.197	0.015				

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	255.1	3.385	584964.109	0.000	0.981	1.386
0.270	1.677	0.013				
	324.1	6.107	1055246.505	0.000	0.982	0.181
0.907	10.694	0.013				
	Restrictor.1	2.969	512959.255	0.000	0.987	0.159
0.405	2.090	0.003				
	W14	0.225	38838.837			
	W15	0.166	28705.763			
	W17	0.213	36834.851			
	W20	0.875	151203.553			
	W21	0.776	134034.191			
	W24	0.840	145129.593			
	W25	0.023	4058.205			
	W27	0.000	0.000			
	W42	0.246	42564.650			
	W34	-0.134	-23101.313			
	W18	-0.209	-36120.545			
	FREE# 1	263.004	45447079.150			

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| Table E13. Channel losses(H), headwater depth (HW), tailwater |
 | depth (TW), critical and normal depth (Yc and Yn). |
 | Use this section for culvert comparisons |

=====

TW	Conduit	Maximum	Head	Friction	Critical	Normal	HW
Elevat	Name	Flow	Loss	Loss	Depth	Depth	Elevat
24.698	Link14	22.103	0.000	0.230	1.293	1.366	24.762
	Max Flow						
24.711	Link16	21.344	0.000	0.008	1.274	1.163	24.703
	Max Flow						
24.673	Link18	30.744	0.000	0.027	1.476	2.104	24.694
	Max Flow						
24.399	Link20	80.563	0.000	0.050	1.968	2.860	24.440
	Max Flow						
20.213	Link22	-0.001	0.000	-0.006	0.001	0.015	20.204
	Max Flow						
23.073	Link24	62.352	0.000	0.566	2.181	3.872	23.715
	Max Flow						
23.056	Link26	58.362	0.000	0.013	1.935	2.112	23.058
	Max Flow						
22.466	Link31	1380.180	0.000	0.051	4.403	12.565	22.517
	Max Flow						
	Link33	1444.076	0.000	0.050	4.906	13.158	22.327

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22.272	Max Flow							
	Link34	0.006	0.000	0.002	0.006	0.012	23.076	
23.073	Max Flow							
	Link36	1435.244	0.000	0.064	4.892	5.750	22.272	
22.175	Max Flow							
	Link37	1304.856	0.000	0.082	5.560	9.231	22.805	
22.729	Max Flow							
	Link42.1.1	1305.387	0.000	0.002	5.417	14.272	22.731	
22.733	Max Flow							
	Link38.1	27.823	0.000	0.818	1.625	2.748	24.418	
23.602	Max Flow							
	Link46.1	27.850	0.000	0.037	1.626	3.500	24.454	
24.416	Max Flow							
	Link45.1	27.862	0.000	0.062	1.627	2.728	24.515	
24.454	Max Flow							
	Link39.1	17.885	0.000	0.472	1.431	2.500	23.744	
23.266	Max Flow							
	Link41	10.109	0.000	0.129	0.946	1.275	24.898	
24.798	Max Flow							
	Link48	1390.007	0.000	0.010	4.826	11.905	22.488	
22.472	Max Flow							
	227.1	8.547	0.000	0.019	0.972	1.534	24.780	
24.761	Max Flow							
	231.1	10.777	0.000	0.033	1.099	1.906	24.240	
24.211	Max Flow							
	235.1	0.000	0.000	0.000	0.000	0.000	20.450	
20.450	Max Flow							
	239.1	0.000	0.000	0.000	0.000	0.000	20.213	
20.213	Max Flow							
	243.1	-0.001	0.000	0.000	0.001	0.001	20.213	
20.213	Max Flow							
	247.1	-0.001	0.000	0.000	0.001	0.001	20.204	
20.204	Max Flow							
	251.1	58.499	0.000	1.290	2.376	2.500	24.134	
22.843	Max Flow							
	255.1	58.079	0.000	0.939	2.464	1.694	23.056	
22.121	Max Flow							
	324.1	81.606	0.000	0.042	2.558	5.000	21.802	
21.761	Max Flow							
	Restrictor.1	27.778	0.000	3.131	1.783	1.900	23.602	
20.476	Max Flow							

=====

| Table E13a. CULVERT ANALYSIS CLASSIFICATION, |
 | and the time the culvert was in a particular |
 | classification during the simulation. The time is |
 | in minutes. The Dynamic Wave Equation is used for |
 | all conduit analysis but the culvert flow classification |

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| condition is based on the HW and TW depths. |
 =====

		Mild Slope Critical D	Mild Slope TW Control	Steep Slope TW Insignf	Slug Flow Outlet/	Mild Slope TW > D	Mild Slope TW <= D
Outlet Control	Conduit Inlet Name Control Configuration	Outlet Inlet Control	Outlet Control	Entrance Control	Entrance Control	Outlet Control	Outlet Control
0.000	Link14	0.000	1614.000	1266.000	0.000	0.000	0.000
0.000	0.000 None						
0.000	Link16	435.000	1116.000	1140.000	189.000	0.000	0.000
0.000	0.000 None						
0.000	Link18	0.000	1521.000	1344.000	0.000	15.000	0.000
0.000	0.000 None						
0.000	Link20	3.000	2829.000	48.000	0.000	0.000	0.000
0.000	0.000 None						
0.000	Link22	0.000	2802.000	78.000	0.000	0.000	0.000
0.000	0.000 None						
0.000	Link24	792.000	1953.000	135.000	0.000	0.000	0.000
0.000	0.000 None						
0.000	Link26	0.000	2742.000	138.000	0.000	0.000	0.000
0.000	0.000 None						
0.000	Link31	0.000	2841.000	39.000	0.000	0.000	0.000
0.000	0.000 None						
0.000	Link33	0.000	2841.000	39.000	0.000	0.000	0.000
0.000	0.000 None						
0.000	Link34	0.000	210.000	2670.000	0.000	0.000	0.000
0.000	0.000 None						
0.000	Link36	0.000	2841.000	39.000	0.000	0.000	0.000
0.000	0.000 None						
0.000	Link37	0.000	2841.000	39.000	0.000	0.000	0.000
0.000	0.000 None						
0.000	Link42.1.1	0.000	2841.000	0.000	39.000	0.000	0.000
0.000	0.000 None						
0.000	Link38.1	549.000	1476.000	210.000	0.000	645.000	0.000
0.000	0.000 None						
0.000	Link46.1	6.000	90.000	0.000	9.000	2775.000	0.000
0.000	0.000 None						
0.000	Link45.1	81.000	2235.000	9.000	0.000	555.000	0.000
0.000	0.000 None						
0.000	Link39.1	927.000	1398.000	9.000	0.000	546.000	0.000
0.000	0.000 None						
	Link41	1665.000	1200.000	15.000	0.000	0.000	0.000

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0.000	0.000 None						
	Link48	0.000	2841.000	39.000	0.000	0.000	0.000
0.000	0.000 None						
	227.1	0.000	1917.000	963.000	0.000	0.000	0.000
0.000	0.000 None						
	231.1	0.000	1818.000	951.000	0.000	111.000	0.000
0.000	0.000 None						
	235.1	0.000	2601.000	54.000	0.000	138.000	87.000
0.000	0.000 None						
	239.1	0.000	0.000	24.000	2580.000	15.000	261.000
0.000	0.000 None						
	243.1	0.000	2565.000	69.000	0.000	246.000	0.000
0.000	0.000 None						
	247.1	0.000	0.000	117.000	2511.000	0.000	252.000
0.000	0.000 None						
	251.1	1110.000	1389.000	135.000	0.000	246.000	0.000
0.000	0.000 None						
	255.1	0.000	0.000	2403.000	153.000	0.000	252.000
72.000	0.000 None						
	324.1	345.000	1773.000	138.000	0.000	624.000	0.000
0.000	0.000 None						
	Restrictor.1	30.000	1545.000	114.000	0.000	1191.000	0.000
0.000	0.000 None						

```

*=====
| Kinematic Wave Approximations |
| Time in Minutes for Each Condition |
*=====

```

Conduit Name	Duration of Normal Flow	Slope Criteria	Super-Critical	Roll Waves
Link14	1794.09	1913.54	0.00	0.00
Link16	62.83	344.90	396.04	0.00
Link18	0.00	253.26	0.00	0.00
Link20	16.21	2824.88	0.08	0.00
Link22	0.00	0.00	0.00	0.00
Link24	0.14	273.58	0.00	0.00
Link26	1132.72	2738.24	0.16	0.00
Link31	0.22	34.98	0.00	0.00
Link33	0.00	0.00	0.00	0.00
Link34	1713.31	1715.71	0.00	0.00
Link36	795.68	2837.77	0.68	0.00
Link37	9.17	2709.01	0.00	0.00
Link42.1.1	79.44	119.06	0.00	0.00
Link38.1	122.18	1170.67	212.65	0.00
Link46.1	0.10	785.01	0.00	0.00
Link45.1	447.08	2614.24	131.84	0.00

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Link39.1	0.15	773.70	14.00	0.00
Link41	0.91	221.23	18.88	0.00
Link48	5.02	690.90	0.00	0.00
227.1	0.04	1175.14	0.39	0.00
231.1	0.00	1155.99	0.00	0.00
235.1	0.00	5.73	0.00	0.00
239.1	0.00	0.00	0.00	0.00
243.1	0.00	0.00	0.00	0.00
247.1	0.00	0.00	0.00	0.00
251.1	0.10	259.79	28.53	0.00
255.1	317.61	735.53	2122.08	0.00
324.1	0.12	1784.51	4.29	0.00
Restrictor.1	0.26	656.94	0.00	0.00

=====

| Table E14 - Natural Channel Overbank Flow Information |

=====

		<---- Maximum Velocity ---->			<----- Maximum Flow ----->			
<----- Maximum Area ----->		<--- Max. Storage Volume --->						
Left	Center	Right	Left	Center	Right	Left	Center	Right
Area	Area	Area	Velocity	Velocity	Velocity	Flow	Flow	Flow
	Conduit Name					Depth		
0.000	Link14	0.000	1.110	0.000	0.000	22.130	0.000	
19.933	Link16	0.272	0.581	0.000	0.850	19.964	0.000	
3.131	Link18	0.292	0.484	0.335	2.480	27.701	0.970	
8.492	Link20	0.664	1.141	0.833	5.870	72.753	2.206	
8.840	Link22	0.429	0.895	0.599	2.179	71.466	0.591	
5.075	Link24	0.424	1.397	0.347	1.472	61.678	0.011	
3.467	Link26	0.538	0.943	0.555	4.231	53.687	0.461	
7.868	Link31	0.206	1.760	0.307	85.586	1244.983	50.140	
414.866	Link33	0.000	2.140	0.300	0.000	1341.134	104.354	
0.000	Link34	0.000	1.654	0.000	0.000	22.849	0.000	
0.000	Link36	0.131	1.395	0.153	163.066	1149.879	122.553	
1241.795		800.665611087.348411585.990410492.894				824.111		

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	Link37	0.195	1.547	0.049	136.684	1168.085	0.101
700.347	755.184	2.055518235	3759562944.693	1536.565	757.347		
	Link42.1.1	0.072	1.686	0.062	13.426	1292.004	0.205
185.388	766.454	3.324	3767.086	15336.736	66.879	766.904	
	Link41	0.000	0.722	0.000	0.000	10.115	0.000
0.000	14.005	0.000	0.000	1870.375	0.000	14.035	
	Link48	0.167	1.994	0.347	58.486	1279.692	52.469
350.020	641.730	151.368	13391.766	24552.593	5791.356	641.891	

=====

| Table E14a - Natural Channel Encroachment Information |

=====

		<----- Existing Conveyance Condition ----->					<-----			
Encroachment Conveyance Condition ----->		<- % Volume -->			<-- Encroachment Data -->					
Centre	Right	Total	Left	Centre	Right	Total	Left	Right	Left	
Channel	Bank	Name	Bank	Channel	Bank	Reduction	Station	Station	Bank	
			Station	Station		Left	Right	Incr.	Method	
0.0000	831.20	Link14	0.0000	831.20	0.0000	831.20	5.9030	21.812	0.0000	831.20
			21.812	0.0000	0.0000	0.0000	None			
0.0000	2009.0	Link16	78.867	1930.1	0.0000	2009.0	0.0000	24.449	78.867	1930.1
			24.449	0.0000	0.0000	0.0000	None			
144.92	4651.9	Link18	370.29	4136.6	144.92	4651.9	0.0000	33.008	370.29	4136.6
			33.008	0.0000	0.0000	0.0000	None			
150.34	5508.0	Link20	400.02	4957.7	150.34	5508.0	0.0000	31.030	400.02	4957.7
			31.030	0.0000	0.0000	0.0000	None			
46.186	5797.9	Link22	170.17	5581.5	46.186	5797.9	0.0000	37.969	170.17	5581.5
			37.969	0.0000	0.0000	0.0000	None			
0.4676	2707.8	Link24	63.100	2644.3	0.4676	2707.8	0.0000	30.528	63.100	2644.3
			30.528	0.0000	0.0000	0.0000	None			
35.268	4467.4	Link26	323.79	4108.3	35.268	4467.4	0.0000	28.321	323.79	4108.3
			28.321	0.0000	0.0000	0.0000	None			

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Link31 5885.8 85618.4 3448.1 94952.3 4494.3 5492.7 5885.8 85618.4
 3448.1 94952.3 4494.3 5492.7 0.0000 0.0000 0.0000 None

Link33 0.0000 98209.3 7641.7 105851. 3449.2 4053.9 0.0000 98209.3
 7641.7 105851. 3449.2 4053.9 0.0000 0.0000 0.0000 None

Link34 0.0000 515.10 0.0000 515.10 7.5292 20.546 0.0000 515.10
 0.0000 515.10 7.5292 20.546 0.0000 0.0000 0.0000 None

Link3616757.9 118170. 12594.5 147523. 3325.5 5704.8 16757.9 118170.
 12594.5 147523. 3325.5 5704.8 0.0000 0.0000 0.0000 None

Link3714653.6 125228. 10.820 139892. 4980.5 5357.9 14653.6 125228.
 10.820 139892. 4980.5 5357.9 0.0000 0.0000 0.0000 None

Link42.1.1 1373.8 132203. 20.935 133597. 4943.3 5372.7 1373.8 132203.
 20.935 133597. 4943.3 5372.7 0.0000 0.0000 0.0000 None

Link41 0.0000 524.21 0.0000 524.21 7.4740 20.589 0.0000 524.21
 0.0000 524.21 7.4740 20.589 0.0000 0.0000 0.0000 None

Link48 4211.5 92148.5 3778.2 100138. 4402.4 5437.3 4211.5 92148.5
 3778.2 100138. 4402.4 5437.3 0.0000 0.0000 0.0000 None

*=====
 | Table E14b - Floodplain Mapping |
 *=====

Conduit		Upstream	Downstream	Channel	Center	<----- Left Offsets	
----->		<----- Right Offsets		----->		<- Channel Widths->	
Bank	Natural	Encroach	Bank	Length	Station	Natural	Encroach
				Total	Encroach.		
10.0000	6.8120	6.8120	10.0000	68.3600	15.0000	9.0970	9.0970
				15.9090	15.9090		

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10.0000	Link16	24.7374	24.7421	22.8500	15.0000	15.0000	15.0000
	9.4495	9.4495	10.0000	24.4495	24.4495		
10.0000	Link18	24.7298	24.7206	243.1300	15.0000	15.0000	15.0000
	18.0084	18.0084	10.0000	33.0084	33.0084		
10.0000	Link20	24.6305	24.6123	117.5100	15.0000	15.0000	15.0000
	16.0300	16.0300	10.0000	31.0300	31.0300		
20.0000	Link22	24.4881	24.5222	282.4000	25.0000	25.0000	25.0000
	12.9690	12.9690	10.0000	37.9690	37.9690		
10.0000	Link24	24.4220	24.2281	280.1300	20.0000	20.0000	20.0000
	10.5275	10.5275	10.0000	30.5275	30.5275		
9.7200	Link26	23.1763	23.1750	38.8400	15.3500	15.3500	15.3500
	12.9707	12.9707	10.0700	28.3207	28.3207		
106.3600	Link31	22.9307	22.8906	199.6800	4765.9700	271.6434	271.6434
	726.6823	726.6823	69.3100	998.3256	998.3256		
70.7100	Link33	22.8906	22.8209	192.6600	3498.9200	49.7662	49.7662
	554.9306	554.9306	48.4200	604.6967	604.6967		
10.0000	Link34	24.7971	24.8552	49.2500	15.0000	7.4708	7.4708
	5.5461	5.5461	10.0000	13.0169	13.0169		
94.8600	Link36	22.8209	22.8060	499.4300	3687.5900	362.1253	362.1253
	2017.2100	2017.2100	53.4600	2379.3353	2379.3353		
110.9000	Link37	22.8060	22.7325	745.4400	5037.4200	56.8872	56.8872
	320.4471	320.4471	78.4400	377.3343	377.3343		
118.3100	Link42.1.1	22.7325	22.7343	20.0100	4995.7800	52.4911	52.4911
	376.9494	376.9494	64.8400	429.4405	429.4405		

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10.0000 Link41 24.9373 24.8552 133.5500 15.0000 7.5260 7.5260
 5.5891 5.5891 10.0000 13.1151 13.1151

66.5800 Link48 22.9393 22.9307 38.2600 4722.1000 319.7154 319.7154
 715.2120 715.2120 48.4200 1034.9274 1034.9274

```

*=====
|   Table E15 - SPREADSHEET INFO LIST   |
| Conduit Flow and Junction Depth Information for use in |
| spreadsheets. The maximum values in this table are the |
| true maximum values because they sample every time step. |
| The values in the review results may only be the |
| maximum of a subset of all the time steps in the run. |
| Note: These flows are only the flows in a single barrel. |
*=====
    
```

Conduit Junction Name	Maximum Invert Elevation (cfs) (ft)	Total Maximum Flow Elevation (ft ³) (ft)	Maximum Velocity (ft/s)	Maximum Volume (ft ³)	##
Link14	22.13044	75136.50276	2.08498	1362.59375	##
Node13	22.74000	24.79712			
Link16	21.65298	75125.58944	0.78246	889.52190	##
Node14	22.70000	24.78021			
Link18	31.15124	55239.44778	-0.85009	18287.68951	##
Node15	21.20000	24.75282			
Link20	80.82944	584365.34472	1.25573	8842.56646	##
Node16	21.16000	24.73736			
Link22	-74.23636	-584539.65004	1.11048	24255.20198	##
Node17	20.31000	24.74212			
Link24	63.16102	585142.72233	2.24844	13350.47694	##
Node18	20.45000	24.72978			
Link26	58.37888	584774.69431	3.13997	2549.50379	##
Node19	19.43000	24.72063			
Link31	1380.70879	44236052.24426	2.28886	270557.67516	##
Node20	19.63000	24.63048			
Link33	1445.48807	45333547.24143	2.62422	187772.56803	##
Node21	19.69000	24.61233			
Link34	-22.84862	-75120.29628	1.52546	680.50907	##

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Node22	19.80000	24.52223			
Link36	1435.49839	45352910.63048	2.37990	1433166.23280	##
Node23	19.45000	24.48811			
Link37	1304.87014	45395897.12141	1.84818	1082717.01731	##
Node24	19.87000	24.42204			
Link42.1.1	1305.63403	45432626.81053	1.72968	19170.70140	##
Node25	19.57000	24.22813			
Link38.1	27.86743	512360.39436	2.86547	10877.75575	##
Node26	18.85000	23.17626			
Link46.1	27.90427	513646.28689	2.83385	504.18654	##
Node27	18.22000	23.17498			
Link45.1	27.91626	514181.09211	2.87041	832.39712	##
Node28	11.47000	22.89061			
Link39.1	18.18195	257820.69976	3.65716	1309.54684	##
Node31	11.48000	22.93069			
Link41	10.11483	98380.02544	1.83834	1870.37498	##
Node33	11.46000	22.82092			
Link48	1390.64747	44236192.82226	2.53390	43735.71565	##
Node34	22.28000	24.85520			
227.1	8.54987	36590.50414	2.12823	144.73921	##
Node35	11.49000	22.93925			
231.1	11.73587	46397.13941	2.30670	193.16964	##
Node36	9.02000	22.80599			
235.1	-9.41414	-54531.35837	1.90869	171.30473	##
Node37	8.46000	22.73252			
239.1	-45.30479	-433345.86117	9.18222	171.20006	##
Node41	8.46000	22.73434			
243.1	-49.86576	-450442.22960	10.12291	172.84017	##
Link42.1	12.51000	24.14452			
247.1	-42.04117	-440009.28065	8.53449	123.07902	##
Node23.1.1	8.00000	24.68007			
251.1	58.54843	581131.41819	11.87669	247.19453	##
Node19.1.1	8.00000	24.70477			
255.1	58.08610	584964.10877	8.19311	887.44825	##
Node18.1.1	14.99000	24.74675			
324.1	81.68633	1055246.50495	4.13748	885.10299	##
Node34.1.1	16.32000	24.92643			
Restrictor.1	27.80942	512959.25549	9.52735	8369.47586	##
Node39	23.15000	24.93733			
W14	14.13970	38838.83691	0.00000	0.00000	##
Node40	12.50000	22.89447			
W15	13.11316	28705.76325	0.00000	0.00000	##
W17	13.91857	36834.85070	0.00000	0.00000	##
W20	54.64388	151203.55271	0.00000	0.00000	##
W21	48.31379	134034.19144	0.00000	0.00000	##
W24	40.09262	145129.59330	0.00000	0.00000	##
W25	4.56082	4058.20487	0.00000	0.00000	##
W27	0.00000	0.00000	0.00000	0.00000	##

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W42	9.49839	42564.65040	0.00000	0.00000	##
W34	13.37806	-23101.31252	0.00000	0.00000	##
W18	13.35899	-36120.54514	0.00000	0.00000	##
FREE# 1	1305.66121	45447079.14971	0.00000	0.00000	##

```

*=====
| Table E15a - SPREADSHEET REACH LIST |
| Peak flow and Total Flow listed by Reach or those |
| conduits or diversions having the same |
| upstream and downstream nodes. |
*=====
    
```

Upstream Node	Downstream Node	Maximum Flow (cfs)	Total Flow (ft^3)
Node14	Node15	22.130	75137.
Node16	Node17	21.653	75126.
Node18	Node19	31.151	55239.
Node20	Node21	80.829	5.84365E+05
Node23	Node22	74.236	5.84540E+05
Node24	Node25	63.161	5.85143E+05
Node26	Node27	58.379	5.84775E+05
Node31	Node28	1380.7	4.42361E+07
Node28	Node33	1445.5	4.53335E+07
Node13	Node34	22.849	75120.
Node33	Node36	1435.5	4.53529E+07
Node36	Node37	1304.9	4.53959E+07
Node37	Node41	1305.6	4.54326E+07
Node23.1.1	Link42.1	27.867	5.12360E+05
Node19.1.1	Node23.1.1	27.904	5.13646E+05
Node18.1.1	Node19.1.1	27.916	5.14181E+05
Node34.1.1	Node18.1.1	18.182	2.57821E+05
Node39	Node34	10.115	98380.
Node35	Node31	1390.6	4.42362E+07
Node13	Node14	8.5499	36591.
Node15	Node16	11.736	46397.
Node18	Node17	9.4141	54531.
Node20	Node19	45.305	4.33346E+05
Node22	Node21	49.866	4.50442E+05
Node24	Node23	42.041	4.40009E+05
Node25	Node26	58.548	5.81131E+05
Node27	Node40	58.086	5.84964E+05
Node40	Node28	81.686	1.05525E+06
Link42.1	Node40	27.809	5.12959E+05
Node13	Node14	14.140	38839.
Node15	Node16	13.113	28706.
Node17	Node18	13.919	36835.

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Node19	Node20	54.644	1.51204E+05
Node21	Node22	48.314	1.34034E+05
Node23	Node24	40.093	1.45130E+05
Node25	Node26	4.5608	4058.2
Node40	Node28	9.4984	42565.
Node34.1.1	Node34	13.378	-23101.
Node18.1.1	Node18	13.359	-36121.

```
#####
# Table E16. New Conduit Information Section #
# Conduit Invert (IE) Elevation and Conduit #
# Maximum Water Surface (WS) Elevations #
#####
```

Conduit Name		Upstream Node	Downstream Node	IE Up	IE Dn
WS Up	WS Dn				
24.78	Link14 24.75	Node14	Node15	23.00	21.50
24.74	Link16 24.74	Node16	Node17	21.80	20.69
24.73	Link18 24.72	Node18	Node19	20.75	19.70
24.63	Link20 24.61	Node20	Node21	20.15	19.69
24.49	Link22 24.52	Node23	Node22	20.17	20.15
24.42	Link24 24.23	Node24	Node25	20.17	19.80
23.18	Link26 23.17	Node26	Node27	18.85	18.22
22.93	Link31 22.89	Node31	Node28	11.48	11.47
22.89	Link33 22.82	Node28	Node33	11.47	11.46
24.80	Link34 24.86	Node13	Node34	23.04	22.28
22.82	Link36 22.81	Node33	Node36	11.46	9.020
22.81	Link37 22.73	Node36	Node37	9.020	8.460
22.73	Link42.1.1 22.73	Node37	Node41	8.460	8.460
24.68	Link38.1 24.14	Node23.1.1	Link42.1	14.92	14.01
24.70	Link46.1 24.68	Node19.1.1	Node23.1.1	8.000	8.000

Coupland_Prop100yr_NoImpact.out

24.75	Link45.1 24.70	Circular	Node18.1.1	Node19.1.1	14.99	14.92
24.93	Link39.1 24.75	Circular	Node34.1.1	Node18.1.1	16.32	15.99
24.94	Link41 24.86	Natural	Node39	Node34	23.15	22.28
22.94	Link48 22.93	Natural	Node35	Node31	11.49	11.48
24.80	227.1 24.78	Circular	Node13	Node14	22.74	22.70
24.75	231.1 24.74	Circular	Node15	Node16	21.20	21.16
24.73	235.1 24.74	Circular	Node18	Node17	20.45	20.31
24.63	239.1 24.72	Circular	Node20	Node19	19.71	19.43
24.52	243.1 24.61	Circular	Node22	Node21	20.15	20.03
24.42	247.1 24.49	Circular	Node24	Node23	19.87	19.45
24.23	251.1 23.18	Circular	Node25	Node26	19.80	19.54
23.17	255.1 22.89	Circular	Node27	Node40	18.80	16.27
22.89	324.1 22.89	Circular	Node40	Node28	12.51	12.49
24.14	Restrictor.1 22.89	Circ Orif	Link42.1	Node40	12.51	12.50

```

*=====
| Table E18 - Junction Continuity Error. Division by Volume added 11/96 |
| Continuity Error = Net Flow + Beginning Volume - Ending Volume |
| ----- |
| Total Flow + (Beginning Volume + Ending Volume)/2 |
| Net Flow = Node Inflow - Node Outflow |
| Total Flow = absolute (Inflow + Outflow) |
| Intermediate column is a judgement on the node continuity error. |
| Excellent < 1 percent Great 1 to 2 percent Good 2 to 5 percent |
| Fair 5 to 10 percent Poor 10 to 25 percent Bad 25 to 50 percent |
| Terrible > 50 percent |
*=====

```

Net Flow	Junction Total Flow Name	<-----Continuity Error -----> Failed to Volume	% of Node	% of Inflow	Remaining Volume	Beginning Volume
----------	--------------------------	---	-----------	-------------	------------------	------------------

Coupland_Prop100yr_NoImpact.out

Thru Node	Thru Node	Converge				
-229.3337	Node13 150549.6373	-237.6581 0	-0.1579	0.0005	8.3245	0.0000
-50.3931	Node14 150565.8438	-62.5672 0	-0.0416	0.0001	12.1740	0.0000
-0.5147	Node15 150239.4054	-29.2284 0	-0.0195	0.0001	28.7137	0.0000
24.3030	Node16 150228.4921	-1.5706 0	-0.0010	0.0000	25.8737	0.0000
28.6117	Node17 182765.1341	26.2156 0	0.0143	0.0001	2.3961	0.0000
-250.2241	Node18 182726.2020	-282.6306 0	-0.1547	0.0006	32.4065	0.0000
-117.5719	Node19 1169007.943	-175.7408 0	-0.0150	0.0004	58.1689	0.0000
139.7451	Node20 1168914.759	89.6537 0	0.0077	0.0002	50.0914	0.0000
-159.7643	Node21 1168841.766	-194.1607 0	-0.0166	0.0004	34.3963	0.0000
-68.2235	Node22 1169016.071	-81.5435 0	-0.0070	0.0002	13.3199	0.0000
-651.3731	Node23 1169678.524	-676.7258 0	-0.0579	0.0015	25.3527	0.0000
	Node24	-113.8956	-0.0097	0.0003	14.9933	0.0000

Coupland_Prop100yr_NoImpact.out
0

-98.9023 1170281.596

Node25 -89.1211 -0.0076 0.0002 4.4652 0.0000
-84.6559 1170332.345 1

Node26 387.7280 0.0331 0.0009 7.1782 0.0000
394.9062 1169964.317 0

Node27 -164.0307 -0.0140 0.0004 14.3791 0.0000
-149.6516 1169738.803 0

Node28 -488.0005 -0.0005 0.0011 28.8281 0.0000
-459.1724 90667410.64 0

Node31 -2032.1171 -0.0023 0.0045 18.2836 0.0000
-2013.8335 88472245.07 0

Node33 -19811.1381 -0.0218 0.0437 36.7973 0.0000
-19774.3408 90686457.87 0

Node34 153.0329 0.0778 0.0003 0.0011 0.0000
153.0341 196601.6342 0

Node35 -1439.4300 -0.0016 0.0032 0.9694 0.0000
-1438.4606 88474130.34 0

Node36 -43646.2367 -0.0481 0.0963 59.7527 0.0000
-43586.4840 90748807.75 0

Node37 -338.3394 -0.0004 0.0007 34.8019 0.0000
-303.5375 90828523.93 4

Node41 -223.2014 -0.0002 0.0005 0.6055 0.0000
-222.5959 90879705.96 154

Link42.1 -418.9538 -0.0409 0.0009 20.4351 0.0000

Coupland_Prop100yr_NoImpact.out
255

-398.5186 1025319.650

Node23.1.1 753.7181 0.0734 0.0017 328.7609 0.0000
1082.4790 1026006.681 29

Node19.1.1 28.6867 0.0028 0.0001 328.7531 0.0000
357.4398 1027827.379 0

Node18.1.1 -195.9058 -0.0191 0.0004 0.0084 0.0000
-195.8975 1028132.394 0

Node34.1.1 78.9216 0.0153 0.0002 0.0049 0.0000
78.9265 515836.4515 0

Node39 -91.9416 -0.0467 0.0002 0.0012 0.0000
-91.9404 196669.4436 0

Node40 175.7585 0.0080 0.0004 20.6068 0.0000
196.3653 2195734.520 35

The total continuity error was -69100. cubic feet
The remaining total volume was 1210.8 cubic feet
Your mean node continuity error was Excellent
Your worst node continuity error was Excellent

```

*=====
| Table E19 - Junction Inflow & Outflow Listing |
| Units are either ft^3 or m^3 |
| depending on the units in your model. |
*=====
    
```

Inflow through Outfall	RNF Layer Junction Inflow to Node	Constant Inflow from 2D Layer	User Inflow to Node from Node	Interface Inflow Evaporation to Node from Node	DWF Inflow Basin to Node Infil.
0.0000	Node17 16272.6619	0.0000 0.0000	0.0000 0.0000	0.0000 0.0000	0.0000 0.00

Coupland_Prop100yr_NoImpact.out

0.0000	Node19 529201.2353	0.0000	0.0000	0.0000	0.0000
		0.0000	0.0000	0.0000	0.00
0.0000	Node35 0.0000	0.0000	44.2379E+06	0.0000	0.0000
		0.0000	0.0000	0.0000	0.00
0.0000	Node41 0.0000	0.0000	0.0000	0.0000	0.0000
		0.0000	45.4471E+06	0.0000	0.00
0.0000	Node18.1.1 220001.3728	0.0000	0.0000	0.0000	0.0000
		0.0000	-0.0423	0.0000	0.00
0.0000	Node34.1.1 234905.1781	0.0000	0.0000	0.0000	0.0000
		0.0000	0.0000	0.0000	0.00
0.0000	Node39 98285.8987	0.0000	0.0000	0.0000	0.0000
		0.0000	0.0000	0.0000	0.00

```

*=====
| Table E20 - Junction Flooding and Volume Listing. |
|           The maximum volume is the total volume |
|           in the node including the volume in the |
|           flooded storage area. This is the max   |
|           volume at any time. The volume in the  |
|           flooded storage area is the total volume|
|           above the ground elevation, where the  |
|           flooded pond storage area starts.       |
| The fourth column is instantaneous, the fifth is the |
| sum of the flooded volume over the entire simulation |
| Units are either ft^3 or m^3 depending on the units. |
*=====
    
```

2D cell	Junction	Surcharged	Flooded	Out of 1D-System (Flooded Volume)	Passed to OR Maximum Volume	in Pond of
Volume Stored allowed Flood	Name	Time (min)	Time(min)			

Coupland_Prop100yr_NoImpact.out

1D-System

Node13	0.000	0.000	0.000	25.8	0.000
Node14	0.000	0.000	0.000	26.1	0.000
Node15	0.000	0.000	0.000	44.6	0.000
Node16	0.000	0.000	0.000	45.0	0.000
Node17	0.000	0.000	0.000	55.7	0.000
Node18	0.000	0.000	0.000	53.8	0.000
Node19	41.5	0.000	0.000	66.5	0.000
Node20	0.000	0.000	0.000	62.8	0.000
Node21	0.000	0.000	0.000	61.9	0.000
Node22	0.000	0.000	0.000	59.3	0.000
Node23	0.000	0.000	0.000	63.3	0.000
Node24	0.000	0.000	0.000	57.2	0.000
Node25	0.000	0.000	0.000	58.5	0.000
Node26	0.000	0.000	0.000	54.4	0.000
Node27	0.000	0.000	0.000	62.3	0.000
Node28	0.000	0.000	0.000	144.	0.000
Node31	0.000	0.000	0.000	144.	0.000
Node33	0.000	0.000	0.000	143.	0.000
Node34	0.000	0.000	0.000	32.4	0.000
Node35	0.000	0.000	0.000	144.	0.000
Node36	0.000	0.000	0.000	173.	0.000
Node37	0.000	0.000	0.000	179.	0.000
Node41	0.000	0.000	0.000	179.	0.000
Link42.1	643.	0.000	0.000	146.	0.000
Node23.1.1	554.	0.000	0.000	210.	0.000
Node19.1.1	555.	0.000	0.000	210.	0.000
Node18.1.1	547.	0.000	0.000	123.	0.000
Node34.1.1	515.	0.000	0.000	108.	0.000
Node39	0.000	0.000	0.000	22.5	0.000
Node40	425.	0.000	0.000	131.	0.000

=====

| Simulation Specific Information |

=====

Number of Input Conduits.....	28	Number of Simulated Conduits.....
41		
Number of Natural Channels.....	15	Number of Junctions.....
30		
Number of Storage Junctions.....	0	Number of Weirs.....
11		
Number of Orifices.....	1	Number of Pumps.....
0		
Number of Free Outfalls.....	1	Number of Tide Gate Outfalls.....
0		

Coupland_Prop100yr_NoImpact.out

```

*=====
| Average % Change in Junction or Conduit is defined as: |
| Conduit % Change ==> 100.0 ( Q(n+1) - Q(n) ) / Qfull |
| Junction % Change ==> 100.0 ( Y(n+1) - Y(n) ) / Yfull |
*=====

```

```

The Conduit with the largest average change was..           Link42.1.1 with
0.001 percent
The Junction with the largest average change was.           Node19.1.1 with
0.064 percent
The Conduit with the largest sinuosity was.....           Link46.1 with
107.487

```

```

*=====
| Table E21. Continuity balance at the end of the simulation |
|           Junction Inflow, Outflow or Street Flooding     |
| Error = Inflow + Initial Volume - Outflow - Final Volume |
*=====

```

Inflow Junction	Inflow Volume,ft ³	Average Inflow, cfs
Node17	16273.3356	0.0942
Node19	529219.0818	3.0626
Node35	44237937.5197	256.0066
Node18.1.1	220010.0574	1.2732
Node34.1.1	234914.4392	1.3595
Node39	98289.4181	0.5688
Node41	-45447079.1497	-263.0039

Outflow Junction	Outflow Volume,ft ³	Average Outflow, cfs
Node41	45447079.1497	263.0039

```

*=====

```

```

| Initial system volume           =           0.0000 Cu Ft |

```

```

| Total system inflow volume      = 45.336561E+06 Cu Ft |

```

Coupland_Prop100yr_NoImpact.out

| Inflow + Initial volume = 45.336561E+06 Cu Ft |

=====

| Total system outflow = 45.447079E+06 Cu Ft |

| Volume left (Final volume) = 1210.8435 Cu Ft |

| Evaporation = 0.0000 Cu Ft |

| Basin Infiltration = 0.0000 Cu Ft |

| Outflow + Final Volume = 45.448290E+06 Cu Ft |

=====

=====

| Total Model Continuity Error |
| Error in Continuity, Percent = -0.2464 |
| Error in Continuity, ft^3 = -111729.298 |
| + Error means a continuity loss, - a gain |
=====

Table E22. Numerical Model judgement section #
#####

Overall error was (minimum of Table E18 & E21) -0.1524 percent

Coupland_Prop100yr_NoImpact.out

Worst nodal error was in node Node36 with -0.0481 percent

Of the total inflow this loss was 0.0963 percent

Your overall continuity error was Excellent

Poor Efficiency

Efficiency of the simulation 8.52

Most Number of Non Convergences at one Node 255.

Coupland_Prop100yr_NoImpact.out
Total Number Non Convergences at all Nodes 478.

Total Number of Nodes with Non Convergences 6.

Table E23. New Basin Design Information #
Maximum Hydraulic Grade Line, #
Out Conduit Sizes and Maximum Flow #
#####

- A) Resize d/s Pipes based on given HGL
- B) Resize Basin based on given HGL
- C) Resize d/s Pipes and Basin based on HGL and max discharge
- D) Resize d/s pipes based on given max discharge

Basin Name	Type	Max.HGL	Conduit	Depth	Width
Barrels	Max.Flow	(ft)		(ft)	(ft)
(ft ³ /s)					

==> Hydraulic model simulation ended normally.
==> XP-SWMM Simulation ended normally.

==> Your input file was named : D:\cfa\2016\12024.Coupland_Paving_and
Drainage\ENG\H&H\SWMM\Coupland_Prop100yr_NoImpact.DAT

==> Your output file was named : D:\cfa\2016\12024.Coupland_Paving_and
Drainage\ENG\H&H\SWMM\Coupland_Prop100yr_NoImpact.out

Coupland_Prop100yr_NoImpact.out

```
*=====*
```

SWMM Simulation Date and Time Summary			
Starting Date...	July	17, 2017	Time... 15:34:20.549
Ending Date...	July	17, 2017	Time... 15:34:55.689
Elapsed Time...	0.57188 minutes or		34.31250 seconds

```
*=====*
```



9900 Northwest Freeway
Houston, Texas 77092
713-684-4000
www.hcfc.org

December 4, 2017

Ms. Candyce Ward, P.E.
CobbFendley, Inc.
13430 Northwest Freeway, Ste. 1100
Houston, TX 77040
cward@cobbfendley.com

SENT VIA ELECTRONIC MAIL: NO HARD COPY TO FOLLOW

RE: Project No. 1707310121
Coupland Drive Paving and Drainage Improvements Drainage Impact Analysis
HCFCU Unit B106-00-00; Key Map 539-T; Pct. 2

Dear Ms. Ward:

The referenced report has been reviewed pursuant to the HCFCU Policy, Criteria, and Procedure Manual and Section 3.02 of the *"Regulations of Harris County, Texas for the Approval and Acceptance of Infrastructure."* The goals of the review are to provide technical support to the Harris County Floodplain Administrator and to apply HCFCU policy and criteria where appropriate.

This review addresses issues regarding hydraulic and hydrologic drainage design criteria only. Design criteria regarding the site layout of the proposed development and drainage facilities will be reviewed upon submittal of site plans.

Our understanding of the report is described below. Please see the response contained within the *"Hydrologic & Hydraulic Technical Review"* section.

HCFCU Jurisdiction

The project meets at least one of the following conditions; HCFCU criteria apply:

- The project directly affects HCFCU Infrastructure.
- The project proposes infrastructure to be maintained by HCFCU.
- The project is located within a watershed where HCFCU has a regional project adopted by Harris County Commissioners Court.
- A technical review has been requested by Harris County.

Submittal Information

Submitted Report

Coupland Drive Paving and Drainage
Improvements Drainage Impact Analysis
September 27, 2017

Consulting Engineer

CobbFendley
13430 Northwest Freeway, Ste. 1100
Houston, TX 77040
TBPE Registration No. F-274
Candyce Ward, P.E.
TX P.E. # 108949

Project Summary

This study was performed to analyze what impacts would result from the proposed storm sewer improvements along Coupland Drive on Big Island Slough (HCFCD Unit# B106-00-00) and the mitigation required to have no adverse impacts. B106-06-00 is a tributary to Armand Bayou (HCFCD Unit# B100-00-00) and is a FEMA studied stream.

The proposed storm sewer improvements include re-sloping Coupland Drive to drain towards inlets located in the back of the subdivision. The inlets will drain into proposed storm sewer ranging in size from 24" to 30" RCP. This storm sewer will then flow underneath the existing roadside ditch along L Street to a combined outfall with the existing roadside ditch to Big Island Slough. The proposed storm sewer underneath the existing ditch on L Street will be 42" RCP and the combined outfall will need to be a 60" RCP. These improvements will result in no net fill within the Big Island Slough 100-year floodplain. The proposed storm sewer was sized for the 5 year storm event, per the City of La Porte drainage criteria.

Detention Summary

No detention is considered in this analysis.

Floodplain Related Information

According to FEMA FIRM Panel No. 48201C0940M, dated January 6, 2017, the project area is generally located outside of the 1% exceedance floodplain (Unshaded Zone X).

Please also note that The City of La Porte is the Floodplain Administrator for the receiving waterways. All issues regarding local floodplain regulations must be coordinated through The City of La Porte.

Report Findings

The report states, "*The proposed storm sewer placement on Coupland Drive, with the use of a siphon and restrictor, will have no adverse impact to the outfall channel, Big Island Slough, or surrounding properties. This project will also result in no net fill to the floodplain for Big Island Slough.*"

Hydrologic & Hydraulic Technical Review

HCFCD offers the following:

The report includes statements that the project will cause no adverse impact to the receiving waterways in storm events up to and including the 100-year event. The documentation within the report generally supports the conclusions stated by the engineer. Based on the stated conclusions, HCFCD interposes no objection to the referenced report. Please note, this acceptance does not necessarily mean that the entire report, including all supporting data and calculations, has been completely checked and verified. However, the report is signed, dated, and sealed by a Professional Engineer licensed to practice in the State of Texas, which therefore conveys the licensed engineer's responsibility and accountability.

Additional HCFCD Criteria

Site plans must be submitted to HCFCD for review and signature.

All work proposed within existing and future HCFCD right-of-way must be designed and constructed in accordance with the HCFCD Policy, Criteria, and Procedure Manual.

December 4, 2017
Candyce Ward, P.E.
CobbFendley, Inc., Inc.

Page 3

Environmental Review & Permitting

The Harris County Flood Control District's Regulatory Compliance Department requires that proposed projects impacting regulated waters of the U.S. obtain and document the required U.S. Army Corps of Engineers permit(s) for any portions of the project located within any existing or proposed HCFCD right-of-way. The type of permit required (if any) must be stated on the site plans even if written permit authorization from the Corps of Engineers is not required. If written permit authorization is required, copies of approved Corps of Engineers permits must be submitted with the HCFCD Notification of Construction in Right-of-Way and submitted to the HCFCD Development Coordination and Inspection Department at least 48 hours prior to construction along with the 48-hour Pre-Construction Notification.

Thank you for coordinating this project with the Flood Control District. If you have any questions regarding the technical comments, please contact Mr. Robert Fanning, P.E. via email at *Robert.Fanning@hcfcd.org*. For any other questions, you may contact me at *dennis.miller@hcfcd.org*.

Sincerely,

Dennis Todd Miller, P.E.
Watershed Coordinator

DTM:RF:LC:ag

AGREEMENT FOR SERVICES

This Agreement entered into as of the _____ day of _____, A.D., by and between HDR Engineering, Inc. hereinafter referred to as the "Consultant", and the City of La Porte, Texas, hereinafter referred to as the "Client".

WITNESSETH

WHEREAS, the Client has requested various services of the Consultant with respect to engineering design and construction administration services associated with the construction of the proposed Coupland Drive Paving and Drainage Improvements (hereinafter referred to as the Project).

NOW, THEREFORE, Client and Consultant hereby agrees as follows:

1. Engagement of Consultant - Consultant hereby agrees to perform the services required under the scope of services related to the Project, and to provide Client with copies of the information, opinions, design calculations and contract documents made the basis of the scope of the services, which is set out in Attachment "A" and made a part of this contract. Consultant agrees to initiate services upon receipt of an executed copy of this Agreement. Consultant's services shall be performed with the professional skill and care ordinarily provided by competent engineers practicing in the same or similar locality and under the same or similar circumstances and professional license and as expeditiously as is prudent considering the ordinary professional skill and care of a competent engineer.
2. Availability of Information - Client agrees to provide Consultant with all available information pertinent to the Project. Client will also provide copies of reports, drawings, and other data, and will, at Consultant's request, provide written authorization to review Client's files relative to the Project which may be in possession of third parties. Consultant agrees to return all original documents to Client upon completion of the Project, but reserves the right to make and keep reproducible copies of all such material.

3. Access to Facilities - Client will provide access for the Consultant to enter the property and facilities of Client, as necessary for Consultant to perform services as required under the Project.

4. Construction Administration Services. Consultant's observation or monitoring portions of the work performed under construction contracts shall not relieve construction contractor(s) from responsibility for performing work in accordance with applicable contract documents. Consultant shall not control or have charge of, and shall not be responsible for, construction means, methods, techniques, sequences, procedures of construction, health or safety programs or precautions connected with the work and shall not manage, supervise, control or have charge of construction. Consultant shall not be responsible for the acts or omissions of construction contractor(s) or other parties on the project. The Client agrees to contractually require its construction contractor(s) to include Consultant as an additional insured on the construction contractor(s)' general liability insurance and include a waiver of subrogation endorsement under contractor's workers' compensation and employer's liability policy for the benefit of Consultant.

5. Indemnification. Consultant shall indemnify and hold harmless the Client against liability for damage to the extent caused by or resulting from an act of negligence, intentional tort or intellectual property infringement committed by the Consultant or any other party over which the Consultant exercises control.

6. Waiver of Consequential Damages. Neither Party to this Agreement shall be liable to the other Party for any special, incidental, indirect, or consequential damages (including but not limited to loss of profits or revenue; loss of use or opportunity; loss of good will; cost of substitute facilities, goods, or services; and/or cost of capital) arising out of, resulting from, or in any way related to the Project or the Agreement from any cause or causes, including but not limited to any such damages caused by the negligence, errors or omissions, strict liability or breach of contract, or warranty -- express or implied.

7. Instruments of Service - All documents prepared in accordance with this contract

including exhibits, field notes, laboratory data, original drawings, and specifications are the property of the Client after Consultant has been paid in full for same. The Consultant is given the right to use any of this data in connection with future engineering projects. The Consultant may retain copies or reproducible of any information prepared for this Project.

8. Determination of Fees - The fees for the scope of services as stated in Attachment "A" provided by Consultant under this agreement will be based on a Not-To-Exceed ("NTE") Amount of \$135,835.00 for design, bidding, and construction administration.

9. Payment and Fee Schedule - The Consultant will submit a monthly invoice for services rendered. Services will be invoiced on the basis of direct labor cost times a factor of 3.18 and direct cost plus 5%. Services will be performed up to the NTE Amount. Any services to be performed that are in excess of the NTE Amount will be additional services, which will only be performed with Client's written consent.

10. Terms of Payment - Payment of fees as determined under Paragraph 5 herein above shall be due and payable by Client within thirty (30) days following receipt of Consultant's monthly invoice.

11. Additional Services - Additional services beyond those described in the Scope of Services will be invoiced on the basis of direct labor cost times a factor of 3.18 and direct cost plus 5%.

12. Termination - The Client may terminate this contract for convenience at any time by giving seven (7) days' notice in writing to the Consultant. In that case, all finished or unfinished documents and other materials produced under this contract, shall become the Client's property after Consultant has been paid for same. If the contract is terminated by the Client in accordance with this provision, Consultant shall be paid for all services performed to the date of termination. Either party may terminate this contract upon seven days' written notice in the event of substantial failure by the other party to perform in accordance with the terms hereof through no fault of the terminating party. As a condition precedent to termination for cause, the defaulting party shall be

provided with an initial notice of default and a reasonable opportunity to cure, the duration of which shall be set forth in the notice of default.

13. Governing Law - This Agreement shall be deemed to have been made under, and shall be construed and interpreted in accordance with the laws of the State of Texas. The venue of any suit for enforcement or construction of this contract shall be in Harris County, Texas.

14. Dispute Resolution - The parties will attempt in good faith to resolve any controversy or claim arising out of or relating to this agreement promptly by negotiation between senior executives of the parties who have authority to settle the controversy.

The disputing party shall give the other party written notice of the dispute. Within ten days after receipt of said notice, the receiving party shall submit to the other a written response. The notice and response shall include (a) a statement of each party's position and a summary of the evidence and arguments supporting its position, and (b) the name and title of the executive who will represent that party. The executive shall meet at a mutually acceptable time and place within twenty days of the date of the disputing party's notice and thereafter as often as they reasonably deem necessary to exchange relevant information and to attempt to resolve the dispute.

If the controversy or claim has not been resolved within thirty days of the meeting of the senior executives, the parties shall endeavor to settle the dispute by mediation under the Construction Industry Mediation Rules of the American Arbitration Association.

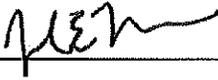
If the matter has not been resolved pursuant to the aforesaid mediation procedure within ninety days of the commencement of such procedure, (which period may be extended by mutual agreement), or if either party will not participate in such procedure, the controversy shall be settled by arbitration in accordance with American Arbitration Association Construction Industry Arbitration Rules by a sole arbitrator. The arbitration shall be governed by the United States Arbitration Act, 9 U.S.C & 1-16, and judgment upon award rendered by the Arbitrator may be entered by any court having jurisdiction thereof. The place of arbitration shall be Harris County. The arbitrator is not empowered to award damages in excess of actual damages, including punitive

damages.

ENTERED INTO AND AGREED by the parties hereto as the day and year first written.

WITNESSED:

HDR Engineering, INC.
Consultant



BY: 

David Weston
Vice President/Department Manager

CITY OF LA PORTE, TEXAS
Client

BY: _____
Don Pennell
Director of Public Works

CITY OF LA PORTE, TEXAS
Client

BY: _____
Corby Alexander
City Manager

WITNESSED:

CITY OF LA PORTE, TEXAS
Client

CITY SECRETARY

BY: _____
CITY ATTORNEY



ATTACHMENT "A"

March 27, 2018

Mr. Don Pennell
Director of Public Works
City of La Porte
2963 N 23rd Street
La Porte, TX 77571

Re: Proposal for Professional Engineering Services for
Coupland Drive Paving and Drainage Improvements
City of La Porte

Dear Mr. Pennell,

HDR Engineering, Inc. (HDR) is pleased to submit this proposal to perform engineering, bid, and construction phase services for the City's Coupland Drive Paving and Drainage Improvements (Coupland Project). This proposal is based on our understanding of the project as discussed in our previous meetings and conversations. For your convenience, this proposal consists of General Overview of the project, Project Understanding, Scope of Services, and Fee Schedule.

GENERAL OVERVIEW

HDR has been selected by the City of La Porte to perform the final design, bid, and construction phase services for the Coupland Project. This proposal provides a description of the engineering services to be provided to the City for this project. A Pre-Engineering Report and a Drainage Impact Analysis have been completed by Cobb, Fendley, & Associates, Inc. (Cobb Fendley). HDR will review the report and analysis and incorporate the information into the final design. The following is our understanding of the project:

PROJECT UNDERSTANDING

Coupland Drive is a residential subdivision with a depressed curb and gutter concrete street approximately 1,800 linear feet long with limited drainage and inlet capacity. The street is

experiencing heavy cracking. The City has performed maintenance (crack sealing) to extend its life expectancy of the paving section. The existing subdivision drainage consist of sheet flowing north towards an open ditch at the intersection of North L Street (L Street) and Coupland Drive. The drainage then is conveyed west in a roadside ditch along L Street approximately 1,500 linear feet to the outfall at Big Island Slough (HCFCF Unit# B106-00-00) for a total project length of 3,300 linear feet.

Cobb Fendley has performed the "Coupland Drive Paving and Drainage Improvements Pre-Engineering Report" (Pre-Engineering Report) dated 3/14/17. The report evaluated three different alternative drainage improvements. The report also identified a private pipe line corridor crossing L Street between Coupland Drive and Big Island Slough with five (5) different pipe lines ranging in sizes from 4.5" to 30" in diameter. The City selected Alternative #1- Option #1. This option will install an underground storm sewer to serve only the Coupland Drive Subdivision starting at the south side of the subdivision (both sides) and continue to Big Island Slough in a storm sewer under the existing road side ditch (road side ditch is to remain) on L Street. The required pipe sizes range in size from 24" to 42" RCP to convey a City five (5) year storm event. The report also indicates a 42" inverted siphon will be required for clearance under the pipe line corridor that crosses L Street.

The "Coupland Drive Paving and Drainage Improvements Drainage Impact Analysis" (Impact Analysis) dated 7/31/17 was performed by Cobb Fendley to verify no negative impacts to Big Island Slough would occur due the selected proposed drainage improvements. In the analysis it was determined that the pipe sizes and inverted siphon would be install per the Pre-Engineering Report. However to mitigate impacts to Big Island Slough for the proposed improvements, a 23" restrictor will be installed in the 42" proposed pipe at a proposed intake structure located at the Big Island Slough easement where it will combined flows from the open ditch and the proposed storm sewer and then be conveyed into Big Island Slough in a 60" RCP. This will allow the proposed system to perform to the City standard of a five year storm event and have no adverse impacts to Big Island Slough. The Impact Analysis was submitted to Harris County Flood Control (HCFCF). The City has received a letter of no objection dated December 4, 2017 from the HCFCF for the proposed improvements.

HDR is currently under contract with the City for the Lomax Lift Station Consolidation Project. A portion of this project is located within the same area as the proposed Coupland Project (1,500 linear Feet along L Street). HDR's Lomax Lift Station Consolidation Project contract includes geotechnical, survey, and SUE service that can be utilized for the Coupland Project, thus providing the City with substantial cost savings. Also, the work for both projects in this area will have to be closely coordinated on the construction sequencing to eliminate a duplication of efforts in construction providing costing saving to the City.

Because of the above mentioned reasons, the City has requested HDR to provide engineering services for the Coupland Project for the design, bid, and construction administration services.

SCOPE OF SERVICES

BASIC SERVICES

A. Basic Design Services

- Hold “kick-off” meeting with City staff to finalize the requirements for the project.
- Gather and review available historical information (record drawings, reports/studies, GIS data).
- Review previously completed Pre-Engineering Report by Cobb Fendley for proposed drainage improvements.
- Coordinate with the City staff during the design phase.
- Research and gather information on private utilities (i.e. gas, electrical, telephone, pipelines, etc.) along the project alignment.
- Coordinate with survey and geotechnical sub-consultants.
- Provide a drainage area map and prepare hydraulic calculations to verify existing drainage is in compliance of the City’s current drainage criteria.
- Prepare background drawings in CADD from information obtained during survey.
- Perform site visit to verify survey and identify any other information that would impact design and construction.
- Examine geotechnical information to determine potential soil conditions, ground water conditions, and potential impact on construction methodology and construction costs.
- Prepare 60% plan and profile drawings for the proposed improvements based on recommendations presented in the proposed reports and analysis from Cobb Fendley

- Develop typical cross sections, pavement cross sections, street grade lines, and street elevations.
- Prepare specifications.
- HDR will prepare standard traffic control details per the Texas Manual on Uniform Traffic Control Devices (TxMUTCD). HDR will not be responsible for the traffic control, detour, or phasing plan to be provided and implemented by the Contractor.
- Prepare drawings for the required Storm Water Pollution Prevention Plan (SWPPP), in accordance with the Texas National Pollutant Discharge Elimination System (TPDES) General Permit for Storm Water Discharge from construction sites.
- Design drainage structure and outfall to accommodate proposed outfall at Big Island Slough.
- Prepare the engineer's opinion of probable construction costs based on the 60% design plans
- Submit two (2) sets, one hard copy and one electronic copy, of 60% design plans and specifications for review by the City.
- Conduct a meeting with the City staff to discuss the contents of the 60% design plans and specifications and review comments provided by the City staff.
- Incorporate the City's 60% review comments.
- Prepare 90% design plans, details, and specifications for the proposed improvements.
- Update the engineer's opinion of probable construction costs to reflect 90% design.
- Submit two (2) sets, one hard copy and one electronic copy, of 90% design plans and specifications for review by the City.
- Prepare contract documents including plans, specifications, and bidding documents associated with the design of the project addressing any City comments from the 90% review in accordance with the design standards of the City.

- Prepare a final opinion of probable construction cost for the proposed improvements.
- Submit plans to private utility companies for approval and signatures.
- Provide an electronic copy (PDF format) of the final contract documents (plans and specifications) for the City's use in advertisement for bids.

B. Bid Phase Services

The City will enter into this phase after the acceptance of the Final Design Phase documents. HDR shall:

- Assist the City in obtaining bids for the project. The City's Procurement Department will advertise the project and will absorb all related advertising costs. HDR will coordinate with the City and will assist in developing the wording of the advertisement.
- HDR will post project plans and specifications on Civcast to generate interest for the project during the bidding process, provide information to and answer questions from potential bidders concerning the Project's construction documents and prepare addendums as necessary. The City will absorb costs associated to posting on Civcast.
- HDR will coordinate with the City's purchasing department so that all RFIs received on Civcast are posted on Public Purchase so that all information is conveyed to all potential bidders.
- Conduct a pre-bid conference for potential bidders, including the preparation of the meeting agenda and preparing a meeting minutes summary.
- Evaluate the bids and the qualifications of the apparent low bidder.
- Provide an excel spreadsheet of the bid form including prices submitted by the Contractor recommended for award.
- Prepare a letter of recommendation and advise the City as to the acceptability of the apparent low bidder.

C. Construction Administration Services

- Prepare pre-construction conference agenda.
- Hold a pre-construction meeting, document meeting, and issue minutes.
- Provide three (3) full-sized sets of construction drawings (1 for the City; 2 for the Contractor) including all modifications due to bid addenda.
- Review and respond accordingly to all submittals and request for information (RFI) as required by the contract specifications.
- Prepare change orders necessitated by field conditions for review and approval by the city prior to issuing to contractor.
- Visit the site at various stages of construction to observe the progress and quality of executed work and to determine in general if such work is proceeding in accordance with the Contract Documents. Full time site representation is not included as part of the Construction Administration tasks.
- HDR will not be responsible for the means, methods, techniques, sequences or procedures of construction selected by the Contractor(s). HDR's effort will be directed toward providing a greater degree of confidence for the City of La Porte that the completed work of Contractor(s) will conform to the Contract Documents, but HDR will not be responsible for the failure of Contractor(s) to perform the work in accordance with the Contract Documents. During site visits HDR will keep the City informed of the progress of the work, will endeavor to guard the City against defects and deficiencies in such work and may disapprove or reject work failing to conform to the Contract Documents.
- Conduct a final inspection of the Project and create a punch list to close out construction.
- Make a recommendation for Final Payment on the Project.
- HDR will prepare Record Drawings utilizing the as-built drawings provided by the Contractor.
- One (1) electronic copy of the Record drawings, scanned in PDF format, and delivered electronically to the City.

SPECIAL SERVICES

Special services are those services that are beyond the basic services provided for in the scope portion of this proposal.

A. Survey Services

- The Lomax Lift Station Consolidation Project includes approximately 1,500 linear feet of survey information on L Street that will be utilized for the design of the Coupland Drive Project, which will provide cost savings for the City for this project.
- Landtech, Inc will be performing the survey for the Lomax Lift Station Consolidation Project and will perform the survey for the required additional 1,800 linear feet in the Coupland Subdivision.
- One Call will be performed to identify all private utility companies' location in the field and collect in the survey.
- Survey will be perform on the same datum elevation as Lomax Lift Station Consolidation Project.
- Survey will provide a full topographic survey with 100 feet cross sections and all features along the right-of-way. All sizes, materials, and flow line elevations of all crossing sewers (sanitary and storm). All water valve shall be identified including a measure down to the top of the nut.

B. Geotechnical Investigation Services

- The Lomax Lift Station Consolidation Project includes approximately 1,500 linear feet of Geotechnical information on L Street that will be utilized for the design of the Coupland Drive Project, which will provide cost savings for the City for this project.
- Tolunay-Wong Engineers, Inc. will be performing the survey for the Lomax Lift Station Consolidation Project and will perform the geotechnical investigation services for the required two additional bores in the Coupland Subdivision for a total of 20 vertical feet.

The information provided in the geotechnical report will include boring logs and test data, ground water conditions, pavement design recommendations, structural fill requirements, and general earthwork recommendations.

C. Pipeline Investigation Services

- HDR will utilize information collected in the Lomax Lift Station Consolidation Project to identify location and depths of pipe lines located in the pipe line corridor along L Street. **NO Vacuum Excavation will be included in this project.** This is a cost savings to the City.

D. Drainage Review and Design Modeling

HDR drainage review team will include the provision of drainage design coordination services in connection with paving and drainage improvements in the Coupland Subdivision. Per direction by the City, the City will provide the previous Impact Analysis and associated models completed by Cobb Fendley dated 7/31/17 and HDR will use the provided information as the basis of the drainage design. The following scope of work is proposed in connection with that effort.

- ***Review Modeling Data.*** The drainage review team will review modeling data provided by Cobb Fendley to evaluate its general quality and to identify specific requirements associated with the paving and drainage improvements being designed by HDR.
- ***Update/Modify Original Model.*** The drainage review team will modify the model provided by Cobb Fendley if and as needed to reflect limited changes to the original drainage improvements identified in connection with the project. Modifications will be limited to simple adjustments deemed necessary to promote hydraulic efficiency, increase project cost-effectiveness, and improve constructability. HDR will notify the City if any serious errors or deficiencies are identified in the modeling data provided by Cobb Fendley. HDR can correct such errors or deficiencies as additional services if directed by the City.
- ***Evaluate Impact Mitigation Requirements & Provisions.*** We will evaluate measures included in the Cobb Fendley plan for mitigation of potential impacts related to drainage improvements and any potential impacts on flow rates, flood

elevations, and/or erosion potential along Big Island Slough. We will develop any additional recommendations as needed to ensure that potential impacts are adequately addressed.

- ***Prepare Drainage Report.*** Prepare a brief drainage report in memorandum format to summarize the results of our review and recommendations.

E. Environmental Review

- Perform a site inspection, evaluate, and determination if any environmental permitting or modification to existing permits (Nation Wide Permit) are required for a new efficient outfall to replace the existing outfall Condition at Big Island Slough.
- An environmental technical memorandum to document the results of data collection, analysis, and recommendations will be made available to the City as part of the overall project documentation.
- No costs have been included in this proposal for permit fees associated with the environmental portion of the project. The City shall pay all fees associated with the permitting or modification to the existing Nation Wide Permit. An estimated fee for this service is included in this proposal. Due to relatively high level of uncertainty with respect to the level of effort required to satisfy the regulatory process, the fee is subject to change. HDR will not exceed the estimate fee without authorization from the City under the Additional Services provisions of this proposal.

F. Coordination with Harris County

- The proposed gravity main of this project will encroached Harris County right-of-way along L Street and the outfall Big Island Slough, a Harris County Flood Control District ditch. HDR will coordinate any design criteria and construction methods for the improvements within Harris County right-of-way and provide draft documents during the final design phase for review and comment. Appropriate comments will be coordinated with Harris County, incorporated into the design, and resubmit for Harris County approval and permit. HDR will not exceed the estimate fee without authorization from the City under the Additional Services provisions of this proposal.

G. Reimbursable Expenses

- A budgetary amount will be allocated for typical reimbursable expenses such as reproduction, courier services, mileage, etc. The cost for plans and specifications for review sets and construction documents to be provided to the City and other review agencies will be included in this task at cost Plus 5%. Mileage will be charged at prevailing IRS rates.

ADDITIONAL SERVICES

- Additional Services shall only be performed when directed by the City to HDR. These services are not considered normal or customary engineering services.
- Services resulting from significant changes in the extent of the project or its design including but not limited to changes in size, complexity, the City's schedule, or character of construction or method of financing; and revising previously accepted studies, reports design documents or Contract Documents when such revisions are due to causes beyond HDR's control.
- Preparing documents for alternate bids outside of the original scope requested by the City or documents for out of sequence work.
- Preparing to serve or serving as a consultant or witness for the City in any litigation, public hearing or other legal or administrative proceeding involving the Project.
- HDR will endeavor to appraise the City of any potential additional or extended services that may result from the above listed items, prior to HDR's expenditure of time on such services. As previously noted, any such extended or additional services shall only be performed when directed by the City to HDR.

FEE SUMMARY

Basic Services

Basic Design Services - the lump sum amount of:	\$89,300
Bid Phase Services - the lump sum amount of:	\$4,900
<u>Construction Administration Services – the lump sum amount of:</u>	<u>\$15,700</u>
Total Basic Services:	\$109,900

Special Design Phase Services:

Surveying Services (subcontractor's cost plus 5%):	\$6,955
Geotechnical Services (subcontractor's cost plus 5%):	\$4,130
Drainage Review and Design Modeling (Hourly):	\$3,100
Environmental Review (Hourly):	\$5,500
Coordination with Harris County (Hourly):	\$3,750
<u>* Reimbursable (cost plus 5% or Mileage at IRS Rate):</u>	<u>\$2,500</u>
Total Special Design Phase Services:	\$25,935
Total Engineering Services (Basic and Special):	\$135,835

* At this time the magnitude of these tasks are not known. Therefore budgetary amounts are provided. These figures may increase or decrease depending upon actual work required. If an increase becomes necessary it can be accomplished by utilizing available funds from other line items that have under run, or funds from the miscellaneous special services line item or by contract amendment.

SCHEDULE

It is estimated that the schedule to accomplish the complete final design phase is 10 months from the date of authorization to proceed. As discussed, the project is anticipated to bid March 2019.

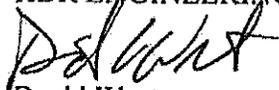
INVOICES

HDR will submit monthly invoices for all engineering work completed to invoice date. The invoices for lump sum work would be based on a percentage of completion of each phase applied to the lump sum fee and based on the appropriate fee cost for work from our sub-consultants. Reimbursable expenses will be charged at cost plus 5%. Time and materials charges and additional services beyond those described in the Scope of Services will be invoiced on the basis of direct labor costs times a factor of 3.18 and direct cost plus 5%. Mileage will be charged at prevailing IRS rates.

HDR appreciates the opportunity to submit this proposal and we look forward to continuing our work with the City.

Sincerely,

HDR ENGINEERING, INC.



David Weston

Vice President/Department Manager

CITY OF LA PORTE, TEXAS
EXHIBIT A - LEVEL OF EFFORT (LOE) FOR Coupland Drive Project

Item	Description / Task	Basic Services (HDR) - Estimated Manhours					Subtotal (hrs)
		Project Manager (hrs)	Project Engineer (hrs)	Engineer In Training (hrs)	CAD Operator (hrs)	Administrative Assistant (hrs)	
C	Bidding Phase						
1	Prepare Agenda, Attend Pre-Bid Meeting, Prepare Minutes	0.5	3.0	6.0			9.5
2	Prepare & Issue Addenda		2.0	4.0	2.0		8.0
3	Respond to Bidder Questions		2.0	4.0			6.0
4	Bid Opening		4.0				4.0
5	Bid Evaluation / Bid Tabulation		1.0			4.0	5.0
6	Reference Verification/Letter of Recommendation	0.5	1.0	1.0		6.0	8.5
	Subtotal Bidding Phase	1.0	13.0	15.0	2.0	10.0	41.0

CITY OF LA PORTE, TEXAS
EXHIBIT A - LEVEL OF EFFORT (LOE) FOR Coupland Drive Project

Item	Description / Task	Basic Services (HDR) - Estimated Manhours						Subtotal (hrs)
		Project Manager (hrs)	Project Engineer (hrs)	Engineer In Training (hrs)	CAD Operator (hrs)	Clerical (hrs)	Constr. Manager (hrs)	
D	Construction Phase Services:							
1	Prepare Agenda, Attend Pre-Construction Meeting, Meeting Minutes	0.5	4.0	8.0				12.5
2	Attend Scheduled Construction Progress Meetings/Field Visit		6.0	6.0				12.0
3	Submittals	0.5	2.0	6.0		12.0	4.0	24.5
4	RFI's/Change Orders	0.5	10.0	18.0		6.0		34.5
5	Substantial/Final Completion Walk-Through/Punch Lists		6.0	6.0				12.0
6	As-Built Drawings		1.0	2.0	8.0			11.0
7	Project Closeout	0.5	1.0	4.0		8.0		13.5
	Subtotal Phase III - Construction Phase Services	2.0	30.0	50.0	8.0	26.0	4.0	120.0

REQUEST FOR CITY COUNCIL AGENDA ITEM

Agenda Date Requested: <u>April 23, 2018</u>
Requested By: <u>Don Pennell</u>
Department: <u>Public Works</u>
Report: <input checked="" type="checkbox"/> Resolution: <input type="checkbox"/> Ordinance: <input type="checkbox"/>

<u>Appropriation</u>
Source of Funds: <u>PW0038</u>
Account Number: <u>003-7085-533-1100</u>
Amount Budgeted: <u>\$105,000</u>
Amount Requested: <u>\$83,000</u>
Budgeted Item: <u>Yes</u>

Exhibits: Proposal for Professional Engineering Services
Exhibits: _____
Exhibits: _____

SUMMARY & RECOMMENDATION

The last full update of the City's Water Master Plan is dated October 2009. Many system improvements have been made since that time. The 2018 budget includes \$105,000 in funding to update the City's Water Master Plan. The update is needed to measure the effectiveness of completed improvements, and identify additional improvements necessary, together with projected priorities and estimates.

A significant consideration to the update is that the 2009 model did not include the City's Industrial Districts. The Industrial Districts include an approximate additional 7,754 acres to the Plan model. Existing heavy industrial operations account for most of the additional acreage. Water service has since been extended to certain approved customers within these Industrial Districts on a case-by-case basis, and only for domestic usage, at a rate of 50 gallons per day per on-site employee; process water is not provided. The 2018 Water Master Plan Update will include the Industrial Districts

The firm of Jones Carter was selected through RFQ #18604 Professional Engineering Services 2018 Water Master Plan Update to provide a proposal for professional engineering services to update the City's Water Master Plan. Staff recommends to enter into a professional services contract with Jones Carter in the amount of \$83,000 to update the City's Water Master Plan.

Action Required by Council:

Authorize the City Manager to execute an agreement with Jones Carter to provide professional engineering services to perform Water Master Plan Update in the amount of \$83,000.

Approved for City Council Agenda

Corby D. Alexander, City Manager

Date

April 4, 2018

Mr. Don Pennell
Public Works Director
City of La Porte
2963 North 23rd Street
La Porte, Texas 77571

Re: Professional Engineering Services Proposal for
2018 Water Master Plan Update
City of La Porte

Dear Mr. Pennell:

Jones|Carter (JC) appreciates the opportunity to present this proposal to the City of La Porte (the City) for professional services in connection with the 2018 Water Master Plan Update project.

Project Understanding

JC understands the City desires to complete an analysis of its existing public water system infrastructure in order to evaluate its ability to serve the Industrial Districts under existing and future conditions. JC understands the City desires to update its 2009 Water Master Plan based on this analysis. Based on our understanding of your project and our familiarity with the City's water system, we offer the following scope of services for your consideration.

Scope of Work

SERVICES to be provided by JC include:

- 1) **Project Meetings and Coordination with City Staff** – This task includes the following items:
 - a) Project management including project organization, documentation, and regular status reporting to the City.
 - b) Four (4) meetings with City Staff to review the Master Plan Update scope, the computer model of the system, projected demands and desired scenario analysis, and the developed Capital Project List.
 - c) Presentation to City Council of the final Master Plan Update.

Mr. Don Pennell

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April 4, 2018

2) **Water System Model & Analysis** – This task includes the following items:

- a) Import and review the City-provided existing computer water model built in Water CAD into Bentley WaterGEMs. Review City-provided historical connection and water demand information for the last 36 months and compare to the existing model. Review existing water production and distribution facility size and location in the model. Information on current water plant facilities, including location, orientation, elevations, and operational settings will be based on data provided by the City.
- b) Review City-provided Industrial User Contracts and demand requests to assess, organize, and determine Future Demand Conditions for 2020, 2025, and 2030 Conditions.
- c) Generate Water Plant Capacity Analyses (review for compliance with 5TAC 290 rules and regulations) for Existing (2018), 2020, 2025, and 2030 Conditions, including assessing against desired Industrial Users demand needs.
- d) One day (8-hours) of field flow testing at select locations in the water system. JC will utilize a 4-inch hydrant flow diffuser with pressure gauge and other miscellaneous pressure recording equipment to confirm field conditions of the water system. This field testing will require the City to commit 1 staff member for the duration of these tests and provide the Elevated Storage Tank SCADA pressure recording data after completion of the test.
- e) Review the existing model versus data collected from the field flow testing to determine the model's accuracy. The model check will follow procedures, practices, and methodologies outlined in *AWWA M32 – Computer Modeling of Water Distribution Systems*. A technical memorandum will be generated from this flow testing and model check to present the estimated accuracy of the model prior to proceeding with further analysis utilizing the model.
Should the City desire, additional testing can be completed by JC to assist in increasing the accuracy of the existing model.
- f) Assess the Existing System utilizing the computer model for four (4) primary scenarios: Average Day Demand, Max Day Demand, Emergency Condition Demand (Fire Flow Simulation), and a low flow/emergency power scenario. Demand will be based on data provided by the City and TCEQ rules and requirements.
- g) Utilize the completed computer model to analyze the distribution system under various system improvement options, specifically to serve the Industrial Districts.
- h) Determine the scope of waterline infrastructure improvements necessary to meet the water needs of future development. Water Plant improvement projects will be limited to projects that increase capacity in order to meet TCEQ requirements based on the developed projected demand needs.
- i) The Deliverables for this task will include:
 - i) Provide a summary table of the future population, connection, and/or demand conditions and the respective improvement projects necessary for compliance with TCEQ minimum capacity requirements based on the completed Water Plant Capacity Analyses. This table will present the milestone demand or connection thresholds for these projects.

Mr. Don Pennell

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April 4, 2018

- ii) Provide 22x34 overall layouts of the output conditions (waterline velocities and system pressures) over the outlined conditions and scenarios.
 - iii) Provide a summary of the model results and determined improvement projects for review with the City.
- 3) **Water System Facility Auxiliary Power Evaluation** - This task includes the following items:
- a) Review the existing Auxiliary Power Conditions at each of the City's six (6) Water Plants and provide recommendations for further improvements necessary for compliance with §TAC 290 rules and regulations.
 - b) Provide primary system plan for emergency low flow condition and two backup scenarios based on existing and proposed auxiliary power capabilities.
- 4) **Cost Estimation** – This task includes the following items:
- a) Distribution System Improvement Cost Estimates – as identified from the Water System Analysis. Cost estimates will be limited to projects identified in the scope of this Master Plan Update and will not include system-wide pipe replacement projects, pipe rehabilitation projects, or other future potential expansion projects desired by the City outside of those identified for the purposes of serving the analyzed future conditions.
 - b) Facility Improvement Cost Estimates – as identified from the Water Plant Capacity Analysis and Water System Analysis. Cost Estimates will be limited to projects identified in the scope of this Master Plan Update and will not include Water Plant Rehabilitation, Recoating, or other future potential Improvement projects desired by the City outside of those identified to increase capacity for the purposes of serving the analyzed future conditions.
 - c) Electrical Improvements Cost Estimates – as identified from the Auxiliary Power Assessment and in correlation with any Facility Improvement Cost Estimates
 - d) Based on JC's understanding of the level of effort desired in determining costs for the Master Plan, Cost Estimates provided will be AACE Class 4 Cost Estimates. As promoted by the American Society of Civil Engineers (ASCE), an AACE Class 4 cost estimate is to be utilized for planning purposes such as Concept Studies or Feasibilities and includes a contingency range of 20% to 30%. Higher Class Estimates (3 to 1) can be provided for critical projects with additional engineering effort to reduce the level of unknowns, thereby decreasing the percentage of contingencies.
 - e) Cost Estimates provided will include Exhibits detailing the Scope of Work of each project, assumptions made, and other relevant items the City may need to know such as the potential need for easements or land acquisition.



Mr. Don Pennell
Page 4
April 4, 2018

- 5) **Master Plan Update** – This task includes the following items:
- a) Generate a final Master Plan Update Report that presents the City’s updated historical water production and demands, in-City and Industrial users demands over 2020, 2025, and 2030 as well as the necessary projects to serve these potential future users.
 - b) Develop, prioritize, and present a Capital Projects list, including brief project descriptions and estimated design and construction costs associated with these projects. The project list developed will not include Operational & Maintenance type projects such as Water Plant Rehabilitation, Water Plant Recoating, Pipe Replacement Projects, or other ongoing existing system improvement projects.
 - c) The Deliverable will consist of a final, signed and sealed Water Master Plan Update report to the City.

Proposed Fee

Compensation for SERVICES as described above will be on a LUMP SUM BASIS for each scope item. Should the City desire JC to provide additional services beyond this scope, these can be authorized on an HOURLY Basis, or cost plus 10% basis in accordance with the enclosed rate schedules. These schedules are subject to revision January 1st of each year.

<u>SERVICES</u>	<u>Estimated Fee</u>
1. Project Meetings & Coordination with City Staff	\$11,000
2. Water System Model & Analysis	\$27,000
3. Water System Facility Auxiliary Power Evaluation	\$9,000
4. Cost Estimation (Class 4 EOPCC)	\$10,000
5. Water Master Plan Update	<u>\$26,000</u>
TOTAL SERVICES	\$83,000

Project Schedule

JC will complete the scope of services defined herein according to the attached schedule. Note that durations on the schedule are in business days, commencing with receipt of written notice-to-proceed and after all data requested from the City is received.

Total project time (with all scope items) is anticipated to take approximately 105 (calendar) days from notice to proceed and receipt of data.

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Special Considerations

This proposal is based on the following special considerations:

1. This proposal shall be subject to the terms and conditions of the attached General Conditions of Agreement.
2. The City will provide the following data:
 - a) A layout of the current water distribution system, including pipe sizes and valve locations in an acceptable electronic format, such as WaterCAD, GIS, AutoCAD, or Microstation. The layout should also include any available topographic information to determine the elevation of various components. It is assumed the City's information will be provided on a single datum. Additional corrections and revisions to the existing water system layout after initial import and review by JC shall be cause for additional fees and an extension of time to complete the analysis.
 - b) Water demand data for the last 36 months in an electronic spreadsheet format, including daily surface water receipt and well production logs for each water plant, tabulated summary information regarding connections and water demand throughout the system on a daily or monthly basis.
 - c) Details of water production and distribution facilities, including record drawings, O&Ms, and recent testing data in regard to: facilities sizes, pumping capacities, elevations, and existing operational settings.
 - d) A defined layout of any proposed development including anticipated connections (or ESFCs) in and around the City's existing water system that the City desires to consider for analysis with population, connection, and demand projections for the years desired for analysis. Copies of the industrial users' contracts and/or demand requests desired for analysis. Changes to the development and demand projection information shall be cause for additional fees and an extension of time to complete the analysis.
 - e) City operational staff shall be present throughout any field-testing process. The City shall make available to JC SCADA data (operating levels and pressures) from each water plant or Elevated Storage Tank from the time during the field testing for calibration of the water model. If the City desires JC to provide additional staff to accommodate the field testing, or provide additional field testing to increase the accuracy of the model, it shall be cause for additional fees and an extension of time to complete the analysis.
3. This proposal does not include the following items: comprehensive planning such as zoning, population projections, development connection projections, or development impact other than that directly related to the water system infrastructure; additional water system analyses such as age analysis, surge analysis, operational efficiency analysis, flushing plan(s), or any other studies not explicitly defined in this proposal.



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- 4. Services requested by the City that are outside the scope of this proposal may be performed on an hourly rate basis in accordance with the enclosed Schedule of Hourly Rates upon authorization by the City. This schedule is subject to revision January 1st of each year. Reimbursable expenses including outside services not performed by JC personnel shall be provided in accordance with the enclosed Schedule of Reimbursable Expenses and be subject to revision on January 1st of each year. These services typically include reproduction, deliveries, permit fees and sub-consultants.
- 5. The proposed fees shall be considered in their entirety for the scope of services. Should the City wish to contract with JC for only a portion of the work, JC reserves the right to negotiate individual scope items on their own merits.
- 6. This proposal shall be valid for sixty (60) days from this date and may be extended upon approval by this office.

We thank you for the opportunity to submit this proposal and look forward to working with you on this project. An executed copy of this proposal will serve as our notice to proceed. Please return one (1) copy to our office. Should you have any questions, please call us at 713.777.5337 or email kkaspar@jonescarter.com.

Sincerely,

Gary P. Rabalais, P.E.
Vice President

Sincerely,

Kyle H. Kaspar, P.E.
Department Manager

APPROVED BY:

By: _____

Name: _____

Title: _____

KHK/bmr

V:\Opportunity Documents\PP100-1311-00 LaPorte 2018 Water Master Plan\Proposal\PROPOSAL La Porte Water Master Plan.docx
Enclosures

CITY OF LA PORTE - WATER MASTER PLAN UPDATE

ID	Task Name	Duration	Start	Finish	April 2018 4/8	May 2018 4/29	5/20	June 2018 6/10	July 2018 7/1	7/22
0	CITY OF LA PORTE	76 days	Tue 4/24/18	Tue 8/7/18						
1	1 WATER SYSTEM ANALYSIS & MASTER PLAN UPDATE	76 days	Tue 4/24/18	Tue 8/7/18						
2	1.1 Project Setup	3 days	Tue 4/24/18	Thu 4/26/18						
3	1.1.1 Notice to Proceed	1 day	Tue 4/24/18	Tue 4/24/18						
4	1.1.2 (QMP I.) Site Visit/Contract Scope Review Meeting with City Staff	1 day	Wed 4/25/18	Wed 4/25/18						
5	1.1.3 Prepare Budget, EFB, Schedule, QMP	1 day	Wed 4/25/18	Wed 4/25/18						
6	1.1.4 (QMP II.) (Internal) Kick Off Meeting	1 day	Thu 4/26/18	Thu 4/26/18						
7	1.2 Water System Model	25 days	Wed 4/25/18	Tue 5/29/18						
8	1.2.1 City Provided Data (to JC)	5 days	Wed 4/25/18	Tue 5/1/18						
9	1.2.2 Historical Data Organization & Assessment	1 day	Wed 5/2/18	Wed 5/2/18						
10	1.2.3 Import Provided Model	2 days	Wed 5/2/18	Thu 5/3/18						
11	1.2.4 (QMP III.) Topographic/Existing Conditions (Water System Layout in WaterGEMS) Review	1 day	Fri 5/4/18	Fri 5/4/18						
12	1.2.5 Field Testing	1 day	Mon 5/7/18	Mon 5/7/18						
13	1.2.6 Model Check	3 days	Tue 5/8/18	Thu 5/10/18						
14	1.2.7 Technical Memorandum on Model Accuracy	2 days	Fri 5/11/18	Mon 5/14/18						
15	1.2.8 Meeting with City Staff to Review Model	1 day	Tue 5/15/18	Tue 5/15/18						
16	1.2.9 Develop Projected Demands	5 days	Wed 5/2/18	Tue 5/8/18						
17	1.2.10 (QMP IV.) Conceptual Design Review	1 day	Wed 5/16/18	Wed 5/16/18						
18	1.2.11 Calculations (WP Capacity Analysis, WP Data Spreadsheet)	5 days	Thu 5/17/18	Wed 5/23/18						
19	1.2.12 Meeting with City Staff to Review Projected Demand, WP Capacity Analysis, and proposed Model Scenario Breakdown	1 day	Thu 5/24/18	Thu 5/24/18						
20	1.2.13 Build Model Scenarios	2 days	Fri 5/25/18	Mon 5/28/18						
21	1.2.14 (QMP V.) Pre-Production Review (Review Model Before Analysis)	1 day	Tue 5/29/18	Tue 5/29/18						
22	1.3 Water System Analysis	31 days	Wed 5/30/18	Wed 7/11/18						
23	1.3.1 Analyze Scenarios & Conditions	3 days	Wed 5/30/18	Fri 6/1/18						
24	1.3.2 (QMP VI.) Post-Production Review (Review Model After Analysis)	1 day	Mon 6/4/18	Mon 6/4/18						
25	1.3.3 Draft Summary of Results	5 days	Tue 6/5/18	Mon 6/11/18						
26	1.3.4 Draft CIP	3 days	Tue 6/12/18	Thu 6/14/18						
27	1.3.4.1 Develop Capital Projects List	3 days	Tue 6/12/18	Thu 6/14/18						
28	1.3.5 City Workshop to Discuss CIP	0 days	Thu 6/14/18	Thu 6/14/18						
29	1.3.6 Finalize Water System Analysis & CIP	19 days	Fri 6/15/18	Wed 7/11/18						
30	1.3.6.1 Review & Address City Comments	3 days	Fri 6/15/18	Tue 6/19/18						
31	1.3.6.2 Finalize Water Model	5 days	Wed 6/20/18	Tue 6/26/18						
32	1.3.6.3 Finalize CIP	3 days	Wed 6/27/18	Fri 6/29/18						
33	1.3.6.4 Draft Report of Analysis Results	3 days	Mon 7/2/18	Wed 7/4/18						
34	1.3.6.5 Quality Management Plan - Internal Review & F	5 days	Thu 7/5/18	Wed 7/11/18						
35	1.3.6.5.1 (QMP VII.a) In-House Peer Review	5 days	Thu 7/5/18	Wed 7/11/18						
36	1.4 Water System Facility Auxiliary Power Evaluation	8 days	Fri 6/15/18	Tue 6/26/18						
37	1.5 Cost Estimation	3 days	Mon 7/2/18	Wed 7/4/18						
38	1.6 Master Plan Completion	19 days	Thu 7/12/18	Tue 8/7/18						
39	1.6.1 Water System Master Plan Update Report	5 days	Thu 7/12/18	Wed 7/18/18						
40	1.6.2 (QMP VIII.) Pre-Finalization Review	2 days	Thu 7/19/18	Fri 7/20/18						
41	1.6.3 Finalize Exhibits, Attachments, and Appendices	7 days	Mon 7/23/18	Tue 7/31/18						
42	1.6.4 (QMP IX.) Completed Report Review	3 days	Wed 8/1/18	Fri 8/3/18						
43	1.6.5 Reproduction & Delivery	2 days	Mon 8/6/18	Tue 8/7/18						
44	1.7 Final Project Submittal	0 days	Tue 8/7/18	Tue 8/7/18						



Task		Summary		External Milestone		Inactive Summary		Manual Task		Manual Summary		Critical		Progress	
Split		Project Summary		Inactive Task		Manual Task		Manual Summary		Critical		Critical Split			
Milestone		External Tasks		Inactive Milestone		Duration-only		Start-only		Critical		Critical Split			

GENERAL CONDITIONS OF AGREEMENT
JONES & CARTER, INC.

AUTHORIZATION FOR WORK TO PROCEED

Signing of this PROPOSAL/AGREEMENT for services shall be authorization by the CLIENT for Jones & Carter, Inc. (J&C), to proceed with the work, unless stated otherwise in the AGREEMENT.

STANDARD OF PRACTICE

Services performed by J&C under this AGREEMENT will be conducted in a manner consistent with that level of care and skill ordinarily exercised by members of the engineering profession currently practicing in the same locality under similar conditions. No other representation, expressed or implied, and no warranty or guarantee is included or intended in this AGREEMENT, or in any report, opinion, document, etc., prepared by J&C.

BILLING AND PAYMENT

The CLIENT, recognizing that timely payment is a material part of the consideration of this AGREEMENT, shall pay J&C for services performed in accordance with the rates and charges set forth herein. Invoices shall be submitted by J&C on a monthly basis and the full amount shall be due and payable to J&C upon receipt. If the CLIENT objects to all or any portion of an invoice, the CLIENT shall notify J&C in writing within seven (7) calendar days of the invoice date and pay that portion of the invoice not in dispute.

The CLIENT shall pay an additional charge of 0.75% of the invoiced amount per month for any payment received by J&C more than thirty (30) days from receipt of the invoice, excepting any portion of the invoiced amount in dispute and resolved in favor of the CLIENT. Payment thereafter shall be first applied to accrued interest and then to the principal unpaid amount.

OWNERSHIP/REUSE OF DOCUMENTS

All documents, including original drawings, opinions of probable construction cost, specifications, field notes, and data provided or furnished by J&C pursuant to this AGREEMENT are instruments of service in respect to the Project and J&C shall retain ownership and property interest therein whether or not the project is completed. The CLIENT may make and retain copies for the use of the Project by the CLIENT and others; however, such documents are not intended or suitable for reuse by the CLIENT or others on extensions of the Project or on any other Project. Any such reuse without written approval or adaptation by J&C for the specific purpose intended shall be at the CLIENT'S sole risk and without liability to J&C, and the CLIENT shall indemnify and hold harmless J&C from all claims, damages, losses, and expenses including attorney's fees arising out of or resulting therefrom.

COST ESTIMATES

Cost estimates prepared by the engineer represent his best judgment as a design professional familiar with the construction industry. It is recognized, however, that the engineer has no control over the cost of labor, materials, or equipment; over the contractor's methods of determining bid prices; or over competitive bidding or market conditions. Accordingly, the engineer cannot and does not guarantee that bids will not vary from any cost estimate prepared by him.

INSURANCE

J&C agrees to maintain Workers' Compensation Insurance to cover all of its own personnel engaged in performing services for the CLIENT under this AGREEMENT.

LIMITATION OF LIABILITY

J&C agrees to carry out and perform the services herein agreed to in a professional and competent manner. The CLIENT agrees that J&C shall not be liable for error, omission, or breach of warranty (either expressed or implied) in the preparation of designs and drawings, preparation of surveys, designation and selection of materials and equipment for the project, or the performance of any other services in connection with any assignment for which specific authorization is given by CLIENT under this agreement, except to the extent that he fails to exercise the usual degree of care and judgment of an ordinarily prudent engineer in the same or similar circumstances or conditions.

Version 13-08-22

In order for the CLIENT to obtain the benefit of a fee which includes a lesser allowance for risk funding, the CLIENT agrees to limit J&C's liability arising from J&C's professional acts, errors or omissions, such that the total aggregate liability of J&C shall not exceed J&C's total fee for the services rendered on this project.

INDEMNIFICATION

J&C agrees, to the fullest extent permitted by law, to indemnify and hold the CLIENT harmless from any damage, liability, or cost (including reasonable attorney's fees and costs of defense) to the extent caused by J&C's negligent acts, errors, or omissions in the performance of professional services under this AGREEMENT including anyone for whom J&C is legally liable.

The CLIENT agrees, to the fullest extent permitted by law, to indemnify and hold J&C harmless from any damage, liability, or cost (including reasonable attorneys' fees and costs of defense) to the extent caused by the CLIENT'S negligent acts, errors, or omissions and those of his or her contractors, subcontractors or consultants, or anyone for whom the CLIENT is legally liable, and arising from the Project that is the subject of this AGREEMENT.

J&C is not obligated to indemnify the CLIENT in any manner whatsoever for the CLIENT'S own negligence.

CONSEQUENTIAL DAMAGES

The CLIENT shall not be liable to J&C and J&C shall not be liable to the CLIENT for any consequential damages incurred by either due to the fault of the other, regardless of the nature of this fault, or whether it was committed by the CLIENT or J&C employees, agents, or subcontractors. Consequential Damages include, but are not limited to, loss of use and loss of profit.

TERMINATION

This AGREEMENT may be terminated with or without cause at any time prior to completion of J&C's services either by the CLIENT or by J&C, upon seven (7) days written notice to the other at the address of record. Termination shall release each party from all obligation of this AGREEMENT except compensation payable to J&C for services rendered prior to Termination. Compensation payable at termination shall include payment for services rendered and costs incurred up to the termination date in accordance with J&C's currently effective hourly rate schedule and direct expense reimbursement policy.

SUCCESSORS AND ASSIGNS

CLIENT and J&C each binds himself, and his partners, successors, executors, administrators, and assigns to the other party of this AGREEMENT and to partners, successors, executors, administrators, and assigns of such other party in respect to all covenants of this AGREEMENT. Neither CLIENT nor J&C shall assign, sublet, or transfer his interest in this AGREEMENT, without written consent of the other. Nothing contained herein shall be construed as giving any rights or benefits hereunder to anyone other than the CLIENT and J&C.

SEVERABILITY

Any provision or part of the AGREEMENT held to be void or unenforceable under any law or regulation shall be deemed stricken and all remaining provisions shall continue to be valid and binding upon the CLIENT and J&C, who agree that the AGREEMENT shall be reformed to replace such stricken provision or part thereof with a valid and enforceable provision that comes as close as possible to expressing the intention of the stricken provision.

SPECIAL PROVISIONS

The amount of an excise, VAT, gross receipts, or sales tax that may be imposed shall be added to the compensation as stated in the proposal.

CONTROLLING LAW

This AGREEMENT shall be governed by the laws of the State of Texas.



SCHEDULE OF HOURLY RATES

Effective January 2018 - Subject to Annual Revision in January 2019

ENGINEERING PERSONNEL

Engineer I	\$ 88
Engineer II	\$ 94
Engineer III	\$107
Engineer IV	\$115
Engineer V	\$130
Engineer VI	\$145
Engineer VII	\$160
Sr. Project Engineer	\$175
Sr. Project Manager	\$200
Division Manager	\$210
Senior Manager/Regional Manager/Practice Leader	\$225
Corporate Manager	\$250

ELECTRICAL ENGINEERING PERSONNEL

Electrical Engineer I	\$ 94
Electrical Engineer II	\$105
Electrical Engineer III	\$120
Electrical Engineer IV	\$130
Electrical Engineer V	\$140
Electrical Engineer VI	\$155
Electrical Engineer VII	\$170
Sr. Electrical Project Engineer	\$190
Sr. Electrical Project Manager	\$220

CONSTRUCTION PERSONNEL (Includes Mileage)

Project Representative I	\$ 53
Project Representative II	\$ 60
Project Representative III	\$ 70
Project Representative IV	\$ 85
Project Representative V	\$ 95
Project Representative Coordinator	\$100
Project Representative I – Treatment Facilities	\$ 75
Project Representative II – Treatment Facilities	\$ 85
Project Representative III – Treatment Facilities	\$100
Project Representative IV – Treatment Facilities	\$110
Project Representative V – Treatment Facilities	\$125
Project Representative VI – Treatment Facilities	\$135
Project Representative VII – Treatment Facilities	\$150
Construction Manager I	\$ 88
Construction Manager II	\$ 94
Construction Manager III	\$107
Construction Manager IV	\$115
Construction Manager V	\$130
Construction Manager VI	\$145
Construction Manager VII	\$160

OFFICE PERSONNEL

Office Assistant	\$ 35
Engineer's Assistant I	\$ 45
Engineer's Assistant II	\$ 60
Engineer's Assistant III	\$ 75
Engineer's Assistant IV	\$ 86
Admin I	\$ 40
Admin II	\$ 50
Admin III	\$ 65
Admin IV	\$ 73
Admin V	\$ 85

Staff Assistant	\$ 90
Assistant Controller/ Chief Accountant	\$100
Corporate/Project Acct. I	\$ 70
Corporate/Project Acct. II	\$ 85

SURVEYING PERSONNEL

1-Person Field Crew	\$125
2-Person Field Crew	\$160
3-Person Field Crew	\$195
4-Person Field Crew	\$225
Scanner Equipment	\$100
Survey Technician I	\$ 60
Survey Technician II	\$ 75
Survey Technician III	\$ 95
Project Surveyor I	\$ 67
Project Surveyor II	\$ 80
Project Surveyor III	\$ 95
Project Surveyor IV	\$108
Chief of Survey Crews	\$100
Registered Prof. Land Surveyor	\$150
Survey Manager	\$175

DESIGNERS/DRAFTING PERSONNEL

CAD Operator I	\$ 44
CAD Operator II	\$ 52
CAD Operator III	\$ 62
CAD Operator IV	\$ 73
CAD Operator V	\$ 87
Designer I	\$ 84
Designer II	\$ 94
Designer III	\$100
Designer IV	\$110
Designer V	\$120
Designer VI	\$135
GIS Operator I	\$ 65
GIS Operator II	\$ 80
GIS Operator III	\$ 90
GIS Operator IV	\$110
GIS Operator V	\$125

PLANNING PERSONNEL

Planner I	\$ 75
Planner II	\$ 90
Planner III	\$105
Planner IV	\$120
Planner V	\$150



**LEVEL OF EFFORT
CITY OF LA PORTE
WATER MASTER PLAN UPDATE**

JC OPP No.

PP100 1311 00

JONES CARTER

		Division Manager	SR PROJ ENG	EVII	EIV	EII	ELEC ENG	Admin V	GIS V	GIS III	CAD III	Sub-Total Labor	Other Direct Costs	Total Compensation
		\$210.00	\$175.00	\$160.00	\$115.00	\$94.00	\$190.00	\$85.00	\$125.00	\$90.00	\$62.00			
ALL SERVICES														
Task 001 - Project Meetings & Coordination with City Staff														
1	Project Management (Reporting, Communication, Organization, etc.)	2	10	2				2				\$2,660	\$100	\$2,760
2	Meeting - Project Kickoff/Conceptual Design Review		5	5								\$1,675	\$150	\$1,825
3	Meeting - Review Model after Field Check for Accuracy & Correctness		5	5								\$1,675	\$150	\$1,825
4	Meeting - Review Projected Development Assumptions & Scenario Breakdown		5	5								\$1,675	\$150	\$1,825
5	Meeting/Workshop - Review Capital Project List & Prioritize		5	5								\$1,675	\$150	\$1,825
6	Present Final Master Plan to City (Council) via Powerpoint		2	2								\$670	\$200	\$870
Total Task 100												\$10,930		
Task 002 - Water System Model & Analysis														
7	Computer Model Setup			2	1	12			2	4	1	\$2,235		\$2,235
8	Review of Contracts and Requests to Determine Industrial Users' Demand Needs	1	2	8	2	10		4				\$3,350		\$3,350
9	Calculations (WP Capacity Analyses)		1	2	1	4	1					\$1,176		\$1,176
10	Field Testing of Water System			8		10		1				\$2,305	\$250	\$2,555
11	Model Check vs. Field Testing	1		2		6						\$1,094		\$1,094
12	Existing System Computer Model Analysis		2	6	2	10						\$2,480		\$2,480
13	Future System Computer Model Analysis (2020, 2025, & 2030) - Geographic expansion of Industrial Users Service, Iterations of Improvements to Analyze Performance		2	10	4	20						\$4,290		\$4,290
14	Model & Analysis Reviews (QMP Process)	6	4	4	4							\$3,060		\$3,060
15	Addressing comments from Reviews		2	4	1	8		2				\$2,027		\$2,027
16	Water System Analysis Report	2		4	2	12					2	\$2,542	\$150	\$2,692
17	Exhibits			2	1	3				10	2	\$1,741	\$250	\$1,991
Total Task 101												\$26,950		
Task 003 - Water System Facility Auxiliary Power Evaluation														
18	Auxiliary Power Assessment (w/o Site Visit)	1	1	4		6	11					\$3,679		\$3,679
19	System Plan for Emergency Low Flow Condition (Primary and Secondary)	1	2	6	2	15	8	2	1	2	1	\$5,217	\$100	\$5,317
Total Task 102												\$8,996		
Task 004 - Cost Estimation (Class 4 EOPCC)														
20	Facility Improvements Cost Estimation (Assumes 3-4 projects defined)	2	6	4	1	6	4			1	1	\$3,701		\$3,701
21	Electrical Improvements Cost Estimation (Assumes 2-3 project defined)	2	2			2	8			1	1	\$2,630		\$2,630
22	Distribution System Improvements Cost Estimation (Assumes 6-8 projects defined)	2		8	1	15				3	2	\$3,619		\$3,619
Total Task 103												\$9,950		
Task 005 - Water System Master Plan Update														
23	Analysis & Report of City Historical Information	1	1	4	2	6	2	2				\$2,369	\$50	\$2,419
24	Analysis & Report of City Development Projections	1		1	1	4		2				\$1,031	\$50	\$1,081
25	Determine Water Infrastructure Improvements (including additional WP Improvements (Booster Pump Additions) and Analysis of Water Authority Capacity	4	2	6	1	12	2			2	2	\$4,077		\$4,077
26	Develop Capital Project List	4		4	2	10	2					\$3,030		\$3,030
27	Prioritize Capital Project List	4		3			1					\$1,510		\$1,510
28	Master Plan Reviews (QMP Process)	6	2	8	2		2					\$3,500	\$50	\$3,550
29	Addressing comments from Reviews			4		8						\$1,392		\$1,392
30	Finalize Master Plan Report	2	1	4	2	10	4	6			2	\$3,799	\$500	\$4,299
31	Finalize Master Plan Exhibits	2		4	1	8		2	6	10	2	\$3,871	\$750	\$4,621
Total Task 104												\$25,979		
Estimated Project Hours Total		44	62	136	33	197	45	23	9	33	16	598		\$83,000

REQUEST FOR CITY COUNCIL AGENDA ITEM

Agenda Date Requested: <u>April 23, 2018</u>
Requested By: <u>Michael G. Dolby, CPA</u>
Department: <u>Finance</u>
Report: <u> </u> Resolution: <u> </u> Ordinance: <u> </u>

<u>Appropriation</u>	
Source of Funds:	_____
Account Number:	_____
Amount Budgeted:	_____
Amount Requested:	_____
Budgeted Item:	YES NO

Exhibits: Interlocal Agreement with NCTCOG

SUMMARY & RECOMMENDATION

The City of La Porte has been participating in an interlocal agreement with the North Central Council of Government since 2007. The agreement that city had with NCTCOG expired on September 30, 2017. The attached is a new agreement. This interlocal agreement allows the City of La Porte to participate in the shared actuarial services from Gabriel Roeder and Smith (GRS) for the annual OPEB valuations. GRS are the actuaries that provide actuarial services for TMRS and have approximately 600 OPEB clients and so they are very familiar with the information needed to perform the annual actuarial evaluations for the city. In fiscal year 2017, the City of La Porte paid \$9,805 for the actuarial study from GRS. The current year cost is anticipated to be \$2,400. A full actuarial valuation only has to be done every two years and on alternate years the financial information for disclosure in our annual CAFR needs to be determined. Obtaining the actuarial services under the interlocal agreement has allowed the cost for the valuation to remain consistent over the past ten years. The city has a complex matrix of insurance plans available and therefore lessens the availability of price quotes. The services performed by GRS are very specialized and it is beneficial for the city to participate in the shared service arrangement to be able to obtain professional quality services at a reasonable cost. In a survey conducted of area cities, all but one city were participating in the shared actuarial services with GRS. The one city which did not participate was Deer Park and they were planning to change to the shared services.

Action Required by Council:

Recommend that the Council receive and approve the interlocal agreement with North Central Texas Council of Governments.

Approved for City Council Agenda

Corby Alexander, City Manager

Date

MASTER INTERLOCAL PURCHASING AGREEMENT

THIS MASTER INTERLOCAL AGREEMENT (“ILA”), made and entered into pursuant to the Texas Interlocal Cooperation Act, Chapter 791, Texas Government Code (the “Act”), by and between the North Central Texas Council of Governments, hereinafter referred to as “NCTCOG,” having its principal place of business at 616 Six Flags Drive, Arlington, TX 76011, and _____, a local government, a state agency, or a non-profit corporation created and operated to provide one or more governmental functions and services, hereinafter referred to as “Participant,” having its principal place of business at _____

WHEREAS, NCTCOG is a regional planning commission and political subdivision of the State of Texas operating under Chapter 391, Texas Local Government Code; and

WHEREAS, pursuant to the Act, NCTCOG is authorized to contract with eligible entities to perform governmental functions and services, including the purchase of goods and services; and

WHEREAS, in reliance on such authority, NCTCOG has instituted a cooperative purchasing program under which it contracts with eligible entities under the Act; and

WHEREAS, Participant has represented that it is an eligible entity under the Act, that it is authorized to enter into this Agreement on _____ (Date), and that it desires to contract with NCTCOG on the terms set forth below;

NOW, THEREFORE, NCTCOG and the Participant do hereby agree as follows:

ARTICLE 1: LEGAL AUTHORITY

The Participant represents and warrants to NCTCOG that (1) it is eligible to contract with NCTCOG under the Act for the purposes recited herein because it is one of the following: a local government, as defined in the Act (a county, a municipality, a special district, or other political subdivision of the State of Texas or any other state, or a combination of two or more of those entities, a state agency (an agency of the State of Texas as defined in Section 771.002 of the Texas Government Code, or a similar agency of another state), or a non-profit corporation created and operated to provide one or more governmental functions and services, and (2) it possesses adequate legal authority to enter into this Agreement.

ARTICLE 2: SCOPE OF SERVICES

The Participant appoints NCTCOG its true and lawful purchasing agent for the purchase of certain products and services (“Products” or “Services”) through the **North Texas SHARE** program. Participant will access the Program through **www.NorthTexasSHARE.org**. All purchases under this Agreement shall comply with applicable Texas competitive bidding statutes as well as the specifications, contract terms and pricing applicable to such purchases. NCTCOG may also serve as a coordinating agent to administer the use of eligible Participant contracts to other participants of North Texas SHARE. The eligibility of such contracts will be determined by incorporation of coordinating agent authorization in Participant’s solicitation documents. Title to all products purchased under the North Texas SHARE program shall be held by Participant unless otherwise agreed. Nothing in this Agreement shall preclude the Participant from purchasing Products and/or Services offered in the North Texas SHARE program directly from the vendor/supplier.

ARTICLE 3: PAYMENTS

Upon delivery of goods or services purchased and presentation of a properly documented invoice, the Participant shall promptly, and in any case within thirty (30) days, pay the contracted provider the full amount of the invoice. All payments for goods or services will be made from current revenues available to the paying party. In no event shall NCTCOG have any financial liability to the Participant for any goods or services Participant purchases through the North Texas SHARE program.

ARTICLE 4: PERFORMANCE PERIOD

This Agreement shall be effective when signed by the last party whose signing makes the Agreement fully executed and will remain in full force and effect for one (1) year. This Agreement shall automatically renew for successive one-year terms unless sooner terminated in accordance with Article 6 below. Any modification of this Agreement must comply with the requirements of Article 5 below.

ARTICLE 5: CHANGES AND AMENDMENTS

This Agreement may be amended only by a written amendment executed by both parties, except that any alternations, additions, or deletions to the terms of this Agreement which are required by changes in Federal and State law or regulations are automatically incorporated into this Agreement without written amendment hereto and shall become effective on the date designated by such law or regulation. NCTCOG reserves the right from time to time to make changes in the scope of products and services offered through the North Texas SHARE program.

ARTICLE 6: TERMINATION PROCEDURES

NCTCOG or the Participant may cancel this Agreement for any reason and at any time upon thirty (30) days written notice by certified mail to the other party to this Agreement. The obligation of the Participant to pay for any Service and/or Products purchased under this Agreement, shall survive such cancellation, as well as any other Participant costs incurred prior to the effective date of the cancellation.

ARTICLE 7: APPLICABLE LAWS

NCTCOG and the Participant agree to conduct all activities under this Agreement in accordance with all applicable rules, regulations, and ordinances and laws in effect or promulgated during the term of this Agreement.

ARTICLE 8: DISPUTE RESOLUTION

The parties to this Agreement agree to the extent possible and not in contravention of any applicable state or federal law or procedure established for dispute resolution, to attempt to resolve any dispute between them regarding this Agreement informally through voluntary mediation, arbitration or any other local dispute mediation process before resorting to litigation.

ARTICLE 9: MISCELLANEOUS

- a. This Agreement has been made under and shall be governed by the laws of the State of Texas. Venue and jurisdiction of any suit or cause of action arising under, or in connection with, this Agreement shall lie exclusively in Tarrant County, Texas.
- b. The persons executing this Agreement hereby represent that they have authorization to sign on behalf of their respective entities.
- c. This Agreement and the rights and obligations contained herein may not be assigned by either party without the prior written approval of the other party to this Agreement.

REQUEST FOR CITY COUNCIL AGENDA ITEM

Agenda Date Requested: April 23, 2018

Requested By: Rosalyn Epting

Department: Parks & Recreation

Appropriation

Source of Funds: 015

Acct Number: 8080-552.11-00

Amount Budgeted: \$342,320 after shade

Amount Requested: N/A

Budgeted Item: YES NO

Report: X Resolution: Ordinance:

Exhibits: Bid Access Report

Exhibits: Bid from Hancock Pools

Exhibits: Hancock Pools Comments

SUMMARY & RECOMMENDATION

Sealed Bid #18008 for re-decking and re-plastering the Wave Pool was opened and publicly read on January 31, 2018. 24 vendors were notified and 39 vendors accessed the site with 22 downloading the documents. One vendor, Hancock Pool Services, responded. The bid totals were for the following:

Remove & Replace Pool Plaster	\$198,000
Remove & Replace Pool Deck	\$115,000
TOTAL BID	\$313,000

There was an optional bid for placing tile on the first 48" of the restroom walls. This was bid at \$20,520, which staff felt was high for this type of work.

In addition to the base bid, Hancock Pools noted the following:

Plaster Additive: At our smaller pools, we use a quartz based plaster for longevity. Adding quartz to this pool would increase the price by approximately \$25,000. There is a plaster additive we can use which will help with longevity. The additional plaster additive is \$8,240.

Back Wall: There has been some shifting in the back wall and cracks are visible on the white area that was going to receive the tiles. The wall is structurally sound, however due to the cracking and constant waves against this wall, it is unlikely that tiles will remain adhered for any length of time. It is suggested that we use Tuff Coat on this wall. Tuff Coat is a rubberized, non-skid coating that is long lasting. If we go with Tuff Coat, \$4,050 would be removed for the tile and \$2,678 would be added for the Tuff Coat.

Pool Lights: The current lighting under the water of the pool is dim and should be changed out. This would help greatly with seeing underwater during night rentals. This would replace all 10 existing light fixtures, conduit, transformers, necessary concrete work, and a bond loop for \$15,934.

Cracked Beam: Staff was unaware that the beam structure in the front of the pool is cracked. To the untrained eye, it looks like the deck is cracking; however, it was confirmed by more than one company that the beam is cracked, which causes deck cracking and the pool to remain unlevelled. Since the beam is the structure that supports the pool in that area, a deck coating will only be a temporary fix and cracking will soon reappear. In order to fix this, ninety-five (95) linear feet of the beam would be removed and the entry would be changed from an 8 inch step down to a zero depth beach entry. Tuff Coat would also be applied on 600 square feet and it would match the back wall. Removal of this beam and settling will also require repairs to the coping and installing 167 feet of channel drains. The beam removal to zero depth entry, replacing damaged coping, and Tuff Coating the perimeter would add \$22,871 to this project.

Pool Deck: There is an 800 square foot location that was not included in the original bid specification. With a new deck being placed, the bidding company worries about the drainage. The cost to remove the additional 800 square feet is \$8,034, and the adding 50 feet of 4" deck drain is \$824. The total for the deck removal and drains is an additional \$8,858.

Recommended Changes Would Include (also highlighted on attached exhibit with Hancock Pool’s Comments):

ORIGINAL BID	\$313,000
SUGGESTED CHANGES	
Plaster Additive	\$8,240
No Tile on back wall, and adding Tuff Coat (overall savings)	-\$4,050
Add Tuff Coat to back wall instead of tile	\$2,678
Pool Lighting	\$15,934
Remove cracked beam and Tuff Coat beach entry, install 167 feet of channel drains at beach entry, replaced damaged coping, tuff coat perimeter coping	\$22,871
Remove and replace 800 sq. ft. of deck not included in original bid, and install 50 feet of 4" deck drain	\$8,858
TOTAL SUGGESTED CHANGES	\$54,531
GRAND TOTAL	\$367,531

The budget approved for the entire Wave Pool Project is \$410,000, however \$342,320 remains after shade structures and cement pads were installed. With all of the noted changes listed above, we are \$25,211 over budget. This does not include any of the upgraded fixtures or painting of the restroom.

With the overall increase in construction costs since Hurricane Harvey and receiving only one bid, Staff feels that if we go out to bid as a package with the Northwest Pool Project, there is a possibility of getting better pricing due to the size of both projects combined.

Staff recommends rejection of bid #18008.

Action Required by Council:

Reject Bid #18008 for the re-plaster and re-deck of the Wave Pool.

Approved for City Council Agenda

Corby D. Alexander, City Manager

Date

Notifications and Access Report
Bid Number #18008 Wave Pool Renovations

NOTIFICATIONS:

Vendor Name	Reason	Vendor Name	Reason
Advanced Facility Maintenance	Bid Notification	LEMCO	Bid Notification
All Pro General Construction, Inc.	Bid Notification	MHB Construction, Inc.	Bid Notification
American Pavement Solutions	Bid Notification	Patak Construction, Inc.	Bid Notification
Aquatic Commercial Solutions, Inc	Bid Notification	Pool & Electrical Products, Inc.	Bid Notification
Baukus Electric	Bid Notification	Pritis Enterprises, LLC	Bid Notification
CDC News	Bid Notification	Recreonics, Inc.	Bid Notification
D Davila	Bid Notification	Royal Media Network Inc.	Bid Notification
DM Construction LLC	Bid Notification	RUBRO CONSTRUCTORS	Bid Notification
Frost Construction Co., Inc.	Bid Notification	Stone Castle Industries	Bid Notification
Glacier Pool Supplies & Spas	Bid Notification	Sweetwater Pools Inc.	Bid Notification
HDR Engineering, Inc.	Bid Notification	United Constructors of Texas	Bid Notification
Innovative Pools	Bid Notification		
Kwal - Howells, Inc.	Bid Notification		

ACCESS:

Vendor Name	Documents
Acme Inc	
Advanced Starlight International	#18008 Wave Pool Renovations.pdf <input type="checkbox"/>
American Pavement Solutions	
aztec remodeling & landscaping co	#18008 Wave Pool Renovations.pdf <input type="checkbox"/>
BidClerk	#18008 Wave Pool Renovations.pdf <input type="checkbox"/>
Bleyl Engineering	
CMD	#18008 Wave Pool Renovations.pdf <input type="checkbox"/>
CMS	
COARE	#18008 Wave Pool Renovations.pdf <input type="checkbox"/>
Comex Corporation	#18008 Wave Pool Renovations.pdf <input type="checkbox"/>
Commercial Chemical Products, Inc.	#18008 Wave Pool Renovations.pdf <input type="checkbox"/>
Construction Bid Source	#18008 Wave Pool Renovations.pdf <input type="checkbox"/>
Construction Software Technologies	
Dodge Data & Analytics	#18008 Wave Pool Renovations.pdf <input type="checkbox"/>
Grace Paving And Construction, Inc.	
Grand Cayon Minority Contractors Association and iSqFt Planroom Partnership	
Green Planet, Inc.	
Hahn Equipment Co., Inc.	
Hancock Pool Services	#18008 Wave Pool Renovations.pdf <input type="checkbox"/>
Harrison Pools	#18008 Wave Pool Renovations.pdf <input type="checkbox"/>
Hearn Company	#18008 Wave Pool Renovations.pdf <input type="checkbox"/>
Hunter Knepshield of Texas, Inc.	#18008 Wave Pool Renovations.pdf <input type="checkbox"/>
IMS	
JDR Management	#18008 Wave Pool Renovations.pdf <input type="checkbox"/>
Knorr Systems Inc.	#18008 Wave Pool Renovations.pdf <input type="checkbox"/>
L&L Supplies	#18008 Wave Pool Renovations.pdf <input type="checkbox"/>
McGraw-Hill Construction	
North America Procurement Council	#18008 Wave Pool Renovations.pdf <input type="checkbox"/>
Onvia	#18008 Wave Pool Renovations.pdf <input type="checkbox"/>
Perkens WS Corporation	#18008 Wave Pool Renovations.pdf <input type="checkbox"/>
Ramuc Pool Paint	#18008 Wave Pool Renovations.pdf <input type="checkbox"/>
Recreonics, Inc.	
Reed Construction Data	#18008 Wave Pool Renovations.pdf <input type="checkbox"/>
SO	#18008 Wave Pool Renovations.pdf <input type="checkbox"/>
Thompson Pump & Mfg Co	
TMG Contracting, LLC	
Tukmol General Contractor	
United Constructors of Texas	
Wayne Enterprises	



City of La Porte

Established 1892

Purchasing Department

Cherell Daeumer, Purchasing Manager

Exhibit A Pricing to Sealed Bid #18008 Wave Pool Renovations

NOTICE: Contractor solely responsible for obtaining all measurements and materials quantities to complete the job in accordance with specifications.

Base Bid

Item	Description	QTY	UoM	Lump Sum Bid Price	
Remove and Replace:					
1.	Wave Pool Plaster including perimeter, Back wall and racing lane tile, new return jets	1	LS	<u>\$ 198,000</u>	
2.	Wave Pool deck, remove and replace including New PVC valve covers and 4" schedule 80 threaded Female couplings for deck stanchions	1	LS	<u>\$ 115,000</u>	Total
					<u>\$313,000</u>

Option A

Item	Description	QTY	UoM	Lump Sum Bid Price
Remove and Replace:				
1.	Restroom tile on interior walls from floor, 48" high	1	LS	<u>\$ 20,520</u>

NOTE: Please itemize any other additional fees or charges. Any charges not included in this proposal will not be allowed. Attach additional sheet if necessary. The City of La Porte is exempt from taxes. **DO NOT INCLUDE TAX IN BID**

The undersigned certifies:

1. to comply with all instructions to bidders, attached specifications and other documents contained in this solicitation;
2. that they have not conspired with any other potential supplier in any manner to attempt to control competitive pricing;
3. that they are a duly qualified, capable and bondable business entity not in receivership or contemplating same, and has not filed for bankruptcy.
4. affirms that they will not discriminate against any employee or applicant as prohibited by law. Failure to comply may lead to termination of contract.

It is understood and agreed that the above described item, material, equipment and/or work shall carry the standard warranty of the manufacturer and be delivered on site in accordance with the attached specifications.

CONTINUED ON NEXT PAGE!

Exhibit A, #18008 Continued

METHOD OF PAYMENT:

City of La Porte payment terms is Net 30 (vendor paid within 30 days of satisfactory receipt of goods and an approved invoice)

Do you allow for payments using the City's Procurement Card Provider, CitiBank (this is the preferred payment method in many instances)? no If "yes", discount offered N/A %

Company Name: Hancock Pool Services

Authorized Signer: Pat Hancock

(Printed Name)

Telephone No: 281.583.7665

Authorized Signer: Pat Hancock

(Signature)

E-mail: hancockpool@aol.com



February 21, 2018

City of La Porte

RE: Sealed Bid #18008 Wave Pool Renovations

MS. Cherell Deaumer,

The following are comments concerning the job as noted by Hancock Pool Services.

Wave Pool Plaster:

The cost to add the plaster additive to the standard white plaster: **\$8,240**

The base bid price of \$198,000 will be **reduced by \$4,050 to reflect the change in not tiling** the raised back wall of the wave pool. The painted raised wall has shifted and has too many cracks in it to securely apply tile to it. If tile is applied to the wall, the tile will come loose and fall off. We have an option of applying a material called Tuff Coat to the raised back wall (225 linear feet). Tuff Coat is a rubberized, non-skid coating that is offered in 21 colors. It is ideal for pool decks and pool interiors, is long lasting, and withstands chemicals and weather elements over an extended period of time. The cost to apply Tuff Coat to the raised back wall, **instead of installing tile: \$2,678.**

The cost to replace all 10 existing light fixtures and replace them with 10 white LED light fixtures, including new conduit, complete LED light fixtures, transformers, necessary concrete work, a new bond loop and installation: **\$15,934**

Total Wave Pool Plaster Change Order #1: \$26,852

Adjusted Wave Pool Plaster Base Total: \$220,802

Wave Pool Deck:

Listed below is the cost for the beam repair. The existing beam has a lot of cracks in the main front section that is 95 linear feet. We will saw cut the top of the beam at an angle until we reach the steel. We will then apply Tuff Coat to the top of the beam and continue the Tuff Coat six (6) feet deep into the beach entry of the wave pool deck. This will entail eliminating the waterline tile in that portion of the beach entry, and instead providing a zero-entry into the pool. The cost for this beam repair, including

P.O. Box 670345
Houston, TX 77267

www.hancockpoolservices.com

Office: 281-583-7665
Fax: 281-999-6687

Tuff Coat application on 600 square feet of beach entry and two round raised cylinders in the pool, and necessary concrete work: \$10,753.

The cost to remove and replace 800 square feet of deck that is not included in the specified 9,000 square feet of decking, to ensure sufficient drainage: \$8,034

The cost to install 50 linear feet of 4" deck drains in the right-hand side of the pool deck (when facing the back wall of the pool) to ensure sufficient drainage: \$824. The deck drains are necessary for proper drainage.

The cost to install 167 linear feet of 4" NDS Channel drains in the front portion of the deck, before the beach entry of the wave pool, to ensure proper drainage: \$6,607. The deck drains are necessary for proper drainage.

The cost to remove 80 linear feet of damaged pool coping and replace 80 linear feet of pool coping, and relevel this portion of the pool as necessary to re-tile the pool per project specifications: \$1,803

The cost to apply Tuff Coat to all pool perimeter coping: \$3,708. This includes applying Tuff Coat to the new 80 linear feet of coping, and the remaining existing coping stones. This will provide the benefits mentioned in Tuff Coat before, as well as longevity for all coping stones and uniformity between the new and old coping stones. The existing coping looks very bad.

When the deck is removed damage may occur to the skimmers, coping, bonding loop, water lines, electrical lines, etc. Repairs to these will be billed at cost. Repairs to these will extend the project completion length.

The cost to add a Pentair TR140C sand filter to filter the fill water: \$3,399. This will be useful for the life of the pool plaster, helping the water quality. *Not needed, staff will have filter*

Total Wave Pool Deck Change Order #1: \$35,128 - \$3,399
Adjusted Wave Pool Deck Base Total: ~~\$150,128~~ \$146,729

The above quoted and referenced pricing is only valid if all work in the quote is completed during the project by Hancock Pool Services, Inc.

Pool plaster finishes may contain a certain amount of shading and/or color variation which should not be construed as a defect. Plaster is not guaranteed against discoloration or staining since such defects generally result from local water conditions, improper use of chemicals, or the absence of routine pool cleaning and maintenance. Hancock Pool Services, Inc. is not responsible for brushing or conditioning pool after time frame discussed. Contractor will repair or replace any defective component or warranted goods at no cost to Owner for the duration of the manufactures original warranty.

It is highly likely that this job will exceed 45 calendar days. Hancock Pool Services will need approximately 60 calendar days to complete all phases of this work, not including any change orders, the amount of time that it takes for the pool to fill after it is replastered, or bad weather days that will delay the project. We will complete this work before Memorial Day.

Hancock Pool Services, Inc. agrees that all work will be completed in a workmanlike manner according to standard industry practices but shall not be responsible for delay or failure to perform work when such delay or failure is due to reasons beyond its control (i.e. weather). Hancock Pool Services, Inc. is not responsible for any damages to existing sprinkler lines, cable/telephone lines, utility lines, or any sod/plants damaged during construction process. Any alterations or deviation from above specifications involving extra costs will be performed only upon a new revised proposal by the contractor.

Water and Electricity are necessary for our work and must be available on-site. Water (sprinklers) must be turned OFF during application.

The Owner is responsible for the set-up and monitoring of, and quality of the fill water. The owner is responsible for monitoring the fill water and setting up the process of fill water, including the quality of the fill water. It is important that the pool is filled within 30 hours. We will not be responsible or liable for excessive check cracking if the pool is not completely full 30-hours after completion of plaster. We will not be liable for any staining if the fill water is of poor quality. Owner is responsible for providing adequate hoses and water supply to achieve the 30-hour fill time. Once the owner notifies us that the pool is filled, we will begin the chemical start-up process. To achieve optimal results with the new pool finish, additional care is required for the first 28 days after water fill. Contractor will provide a plaster care form instructing how to care for the new plaster. Pool plaster finishes may contain a certain amount of shading and/or color variation which should not be construed as a defect. Plaster is not guaranteed against discoloration or staining since such defects generally result from local water conditions, improper use of chemicals, or the absence of routine pool cleaning and maintenance. Hancock Pool Services, Inc. is not responsible for brushing or conditioning pool after time frame specified in contract. Contractor will repair or replace any defective component or warranted goods at no cost to Owner for the duration of the manufacture's original warranty outlined in the terms of the contract for care of plaster.

Hancock Pool Services is responsible for completion of the work in compliance with the contract and for the quality of material and workmanship in accordance with standard specifications.

We will submit payment draws every two weeks, with a payment structure arranged prior to the start of the project.

Thank you for the opportunity to quote this work.

Sincerely,



P.O. Box 670345
Houston, TX 77267

www.hancockpoolservices.com

Office: 281-583-7665
Fax: 281-999-6687

Pat Hancock, Owner
Hancock Pool Services, Inc.
Buy Board Contract #533-17

P.O. Box 670345
Houston, TX 77267

www.hancockpoolservices.com

Office: 281-583-7665
Fax: 281-999-6687

REQUEST FOR CITY COUNCIL AGENDA ITEM

Agenda Date Requested <u>April 23, 2018</u>
Requested By: <u>Ryan Cramer, EDC</u>
Department: <u>Administration</u>
Report <u> </u> Resolution: <u> </u> Ordinance: <u> </u>

<u>Appropriation</u>
Source of Funds: <u>Contingency</u>
Account Number: <u>038-6030-565.90-50</u>
Amount Budgeted: <u>\$250,000</u>
Amount Requested: <u>\$96,558.79</u>
Budgeted Item: YES NO

Exhibit: Chapter 380 Agreement
Confirmed investment schedule
Certificates of Occupancy

SUMMARY & RECOMMENDATION

On March 27th, 2017, City Council entered into a Chapter 380 Agreement with Oakland Land and Development Inc. for the development of Sector 23. For the development the City agreed to reimburse up to \$362,457.94 the developer paid to abandon City right-of-way in exchange for \$12,000,000 of capital investment in buildings over 3,000 square feet in size. July 10th, 2017 Council approved the first payment of \$66,547.28 towards the \$362,457.94 total. Now the developer is seeking payment for the completion of 631 S. 14th Street (6,500 sq. ft.) and 1306 W. F Street (14,000 sq. ft.). Staff has been able to confirm \$3,153,727.24 in additional capital investment along with approved occupancy permits for both buildings. Based on percentage of completion (roughly 45%) of the \$12 million required capital investment, the developer is eligible for \$96,558.79 in reimbursement.

Action Required by Council:

Consider approval or other action regarding payment of \$96,558.79 to Oakland Land and Development Inc.

Approved for City Council Agenda

Corby D. Alexander, City Manager

Date

Exhibit A

STATE OF TEXAS §
 §
COUNTY OF HARRIS §

TEXAS LOCAL GOVERNMENT CODE CHAPTER 380 AGREEMENT FOR REIMBURSEMENT OF PAYMENT FOR CLOSURE OF STREET RIGHT-OF-WAY, BETWEEN OAKLAND LAND & DEVELOPMENT, INC., A MISSISSIPPI CORPORATION, AND THE CITY OF LA PORTE, TEXAS

This AGREEMENT is entered into by and between the City of La Porte, Texas, a Texas municipal corporation of Harris County, Texas (“CITY”), and Oakland Land & Development, Inc., a Mississippi Limited Liability Corporation (hereinafter called “DEVELOPER”). DEVELOPER and CITY may be referred to jointly herein as the “Parties” and individually as a “Party.”

WITNESSETH:

WHEREAS, Article III, Section 52-a of the Texas Constitution and Chapter 380 of the Texas Local Government Code provides statutory authority for a local government to establish and provide for the administration of one or more programs, for making loans and grants and providing personnel and services of the municipality, to promote state or local economic development and to stimulate business and commercial activity in the municipality;

WHEREAS, CITY has found that providing a program consisting of a grant of funds to DEVELOPER in exchange for DEVELOPER’S completion of the Project proposed by DEVELOPER will promote local economic development and stimulate business and commercial activity and create jobs within the CITY (hereafter referred to as “PROGRAM”); and

WHEREAS, the Project proposed by DEVELOPER will additionally benefit CITY by generating revenue from the assessment of ad valorem tax on personal property, inventory and real property; and

WHEREAS, CITY has determined that the PROGRAM will directly establish a public purpose and that all transactions involving the use of public funds and resources in the establishment and administration of the PROGRAM contain controls likely to ensure that the public purpose is accomplished; and

NOW THEREFORE, for the reasons stated in these Recitals, which are incorporated into and made part of this Agreement, and in consideration of the mutual covenants and obligations herein and other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, the Parties agree as follows:

Section 1. The Project.

1.1 DEVELOPER is planning to construct approximately twenty-two (22) office/industrial/warehouse buildings within a thirty (30) acre area in La Porte, between West G Street and West D Street and bordered to the west by South 15th Street and to the east by a drainage way (F216 Linear detention pond, including Blocks 866, 864, and 863), which project is more

Exhibit A

particularly described in Exhibit A (the "Project" herein) and the location of DEVELOPER'S tracts is more particularly described in Exhibit B (the "Property" herein). Construction of the said buildings is estimated to occur over a six (6) year period with a total minimum capital investment by DEVELOPER of at least \$12,000,000.00.

1.2 As a precondition to implementation of the Project, DEVELOPER determined that it was necessary to close, vacate and abandon portions of the existing rights-of-way within Sector 23 between West Main Street, SH 146, West Fairmont Parkway, and North 16th Street (the "Rights-of-Way" herein), which currently separates DEVELOPER'S tracts, in order to consolidate said tracts and thereafter construct street access along West F Street, 14th Street, and West E Street (see Exhibit C) to facilitate the construction and development of the proposed Project.

1.3 DEVELOPER completed applications and received approval of the City Council to close, vacate and abandon the Rights of Way pursuant to Chapter 62, Article II of CITY'S Code of Ordinances, more fully described in Exhibit D.

1.4. DEVELOPER has paid CITY \$362,457.94 for Rights of Way closure described in Section 1.3 above.

1.5 In exchange for development of the Project, and attainment of certain performance standards upon completion of the Project, as more fully described herein, DEVELOPER seeks CITY'S agreement to reimburse DEVELOPER for payment of fair market value as required under Chapter 62 of CITY'S Code of Ordinances, for construction of West F Street, 14th Street, and West E Street.

Section 2. CITY Obligations.

2.1 CITY agrees to reimburse DEVELOPER in an amount not to exceed the payment of fair market value received by CITY for closure of Rights-of-Way paid by DEVELOPER, as a grant in accordance with this Agreement and as allowed by Texas Local Government Code 380, as an inducement to DEVELOPER to complete the Project. However, as provided in Section 3 of this Agreement, CITY'S agreement to reimburse DEVELOPER is conditioned on DEVELOPER'S obligation to attain certain specified performance benchmarks in connection with the Project. The failure of DEVELOPER to satisfy the specified performance benchmarks shall provide CITY the right to forfeit such reimbursement and to be forever released from any obligation to make such reimbursement.

2.2 Payments to DEVELOPER shall occur in based on and in accordance with requirements outlined in Section 3 for completed construction of buildings within the Property, as described in Exhibit B. The DEVELOPER shall submit proof of Certificate of Occupancy and documentation of capital investment for each building as completed. The capital investment for each building relative to the total capital investment amount will determine the payment amount for each submitted reimbursement request.

- a. Individual reimbursement requests shall be pro-rated based on a total incentive amount not to exceed \$362,457.94.
- b. In no case will reimbursement be made if a copy of the Certificate of Occupancy and documentation of capital investment is not submitted to the CITY by March 27, 2023.
- c. In the case that proof of Certificate of Occupancy and documentation of capital investment are received on or before March 27, 2023, the CITY shall convene a meeting of

Exhibit A

the City Council for a date no later than forty-five (45) days after the receipt and final verification of submitted documentation by CITY from DEVELOPER. Upon verification of the completion of the aforementioned buildings, as reflected by a formal vote of the City Council that DEVELOPER has satisfied the requirements of this paragraph, CITY will then remit payment to DEVELOPER within a period not to exceed thirty (30) days.

Section 3. DEVELOPER Obligations.

3.1 As a condition for CITY's reimbursement of DEVELOPER'S payment of fair market value for closure of Rights-of-Way as a grant to induce completion of the Project, DEVELOPER promises to submit to CITY, and shall submit to CITY the following items, on or before the deadline indicated in Section 5:

- a) Proof of Certificate of Occupancy issued by CITY for each building situated on the Property, with such building(s) having a minimum building footprint of 3,000 square feet; and
- b) Documentation substantiating capital investment of each building by DEVELOPER for building construction and other related building improvements, which are necessary to develop the proposed Project, not to include street improvements identified in Section 1.5. The total capital investment for all buildings must be at least \$12,000,000.00.

3.2 DEVELOPER agrees that CITY will have the right to review the business records of DEVELOPER that relate to the Project and this Agreement in order to determine DEVELOPER'S compliance with the terms of this AGREEMENT. Such review shall occur at any reasonable time and upon thirty (30) days' prior notice to DEVELOPER. To the extent reasonably possible, DEVELOPER shall make all such records available in electronic form.

3.3 DEVELOPER shall not allow any portion of ad valorem taxes owed to CITY on the Property, or any other property owned by DEVELOPER and located within the City of La Porte, Texas to become delinquent beyond the date when due, and as such date may be extended to permit protest of valuation or any appeal; nor shall DEVELOPER fail to render for taxation any personal property, including inventory and equipment, owned by DEVELOPER and located within the City of La Porte, Texas.

3.4 DEVELOPER covenants and certifies that DEVELOPER does not and will not knowingly employ an undocumented worker as that term is defined by section 2264.01(4) of the Texas Government Code. In accordance with Section 2265.052 of the Texas Government Code, if DEVELOPER is convicted of a violation under 8 U.S.D. Section 1324a (f), DEVELOPER shall forfeit reimbursement from the CITY.

Section 4. Force Majeure.

It is expressly understood and agreed by the parties to this Agreement that if the performance of any obligations hereunder is delayed by reason of war, civil commotion, acts of God, inclement weather, governmental restrictions, regulations, or interferences, delays caused by the franchise utilities, fire or other casualty, court injunction, necessary condemnation proceedings, acts of the other party, its affiliates/related entities and/or their contractors, or any actions or inactions of third parties or other circumstances which are reasonably beyond the control of the party obligated or permitted under the

Exhibit A

terms of this Agreement to do or perform the same, regardless of whether any such circumstance is similar to any of those enumerated or not (“**Force Majeure**”), the party so obligated or permitted shall be excused from doing or performing the same during such period of delay, so that the time period applicable to such design or construction requirement shall be extended for a period of time equal to the period such party was delayed.

Section 5. Term. The term of this Agreement shall begin upon the execution hereof by both Parties and end either upon the complete performance of all obligations and conditions imposed upon DEVELOPER under this Agreement (unless sooner terminated in writing in accordance with this Agreement), or on March 27, 2023, whichever date occurs first.

Section 6. Indemnity.

DEVELOPER AGREES TO DEFEND, INDEMNIFY AND HOLD HARMLESS THE CITY AND ITS OFFICERS, AGENTS AND EMPLOYEES, AGAINST ANY AND ALL CLAIMS, LAWSUITS, JUDGMENTS, COSTS AND EXPENSES FOR PERSONAL INJURY (INCLUDING DEATH), PROPERTY DAMAGE OR OTHER HARM FOR WHICH RECOVERY OF DAMAGES IS SOUGHT THAT ARISE OUT OF OR ARE OCCASIONED BY DEVELOPER’S BREACH OF ANY OF THE TERMS OR PROVISIONS OF THIS AGREEMENT, OR BY ANY NEGLIGENT ACT OR OMISSION OF DEVELOPER, ITS OFFICERS, AGENTS, ASSOCIATES, OR EMPLOYEES, IN THE PERFORMANCE OF THIS AGREEMENT; EXCEPT THAT THE INDEMNITY PROVIDED FOR IN THIS PARAGRAPH SHALL NOT APPLY TO ANY LIABILITY RESULTING FROM THE SOLE NEGLIGENCE OF CITY OR ITS OFFICERS, AGENTS, EMPLOYEES OR SEPARATE CONTRACTORS, AND IN THE EVENT OF JOINT AND CONCURRENT NEGLIGENCE OF BOTH DEVELOPER AND CITY, RESPONSIBILITY, IF ANY, SHALL BE APPORTIONED COMPARATIVELY IN ACCORDANCE WITH THE LAWS OF THE STATE OF TEXAS, WITHOUT, HOWEVER, WAIVING ANY GOVERNMENTAL IMMUNITY AVAILABLE TO THE CITY UNDER TEXAS OR FEDERAL LAW. THE PROVISIONS OF THIS PARAGRAPH ARE SOLELY FOR THE BENEFIT OF THE PARTIES HERETO AND NOT INTENDED TO CREATE OR GRANT ANY RIGHTS, CONTRACTUAL OR OTHERWISE, TO ANY OTHER PERSON OR ENTITY.

Section 7. Termination.

Termination for Misrepresentation. Notwithstanding any provision for notice of default and any opportunity to cure provided for in this Agreement, CITY may terminate this Agreement immediately by providing written notice to DEVELOPER, if DEVELOPER, its officers or signatories to this Agreement misrepresented or misrepresents any material fact or information: 1) upon which CITY relied in entering into this Agreement; 2) upon which CITY relied in making reimbursement to DEVELOPER; or 3) which served as an inducement for CITY to make a grant to DEVELOPER.

Section 8. Personal Liability of Public Officials.

No employee or elected official of CITY shall be personally responsible for any liability arising under or related to this Agreement. Under no circumstances shall City’s actions or obligations

Exhibit A

hereunder be deemed to create any debt within the meaning of any constitutional or statutory provision.

Section 9. Venue and Governing Law.

This Agreement is performable in Harris County, Texas and venue of any action arising out of this Agreement shall be exclusively in Harris County. This Agreement shall be governed and construed in accordance with the laws of the State of Texas.

Section 10. Notices.

Any notice required by this Agreement shall be deemed to be properly served if deposited in the U.S. mail by certified letter, return receipt requested, addressed to the recipient at the recipient's address shown below, subject to the right of either party to designate a different address by notice given in the manner just described.

If intended for CITY, to:

City of La Porte, Texas
604 W. Fairmont Pkwy.
La Porte, Texas 77571
ATTN: City Manager

If intended for DEVELOPER, to:

Oakland Land & Development, Inc.
by: Jeff Burkhalter, Manager
PO Box 952
Natchez, MS 39121-0952

Section 11 Applicable Laws.

This Agreement is made subject to the provisions of the Charter and ordinances of CITY, as amended, and all applicable state and federal laws (collectively, the "Applicable Laws"), and violation of same shall constitute a default under this Agreement.

Section 12. Legal Construction.

In case any one or more of the provisions contained in this Agreement shall for any reason be held to be invalid, illegal, or unenforceable in any respect, such invalidity, illegality, or unenforceability shall not affect any other provision thereof and this Agreement shall be considered as if such invalid, illegal, or unenforceable provision had never been contained in this Agreement.

Section 13. Counterparts.

This Agreement may be executed in any number of counterparts, each of which shall be deemed an original and constitute one and the same instrument.

Exhibit A

Section 14. Captions.

The captions to the various clauses of this Agreement are for informational purposes only and shall not alter the substance of the terms and conditions of this Agreement.

Section 15. Successors and Assigns.

The terms and conditions of this Agreement are binding upon the successors and assigns of all parties hereto. This Agreement **SHALL NOT** be assigned by DEVELOPER to any other person or entity, without prior, written CITY approval. Written approval of the CITY shall be required for an assignment to an Affiliate of DEVELOPER, but in such case approval shall not be unreasonably withheld. "Affiliate of DEVELOPER," as used herein, is defined as a parent, sister, partner, joint venture, or subsidiary entity of DEVELOPER; any entity in which DEVELOPER is a major shareholder, owns an equity interest, or is a joint venture or partner (whether general or limited).

Section 16. Entire Agreement.

This Agreement embodies the complete agreement of the parties hereto regarding waiver of payment of the fair market value to close the Right-of-Way in connection with the Project, superseding all oral or written previous and contemporary agreements between the parties, and except as otherwise provided herein cannot be modified without written agreement of the parties to be attached to and made a part of this Agreement.

CITY OF LA PORTE, TEXAS

EXECUTED THIS 27th day of March,
2017, by CITY, signing by and through
its City Manager.



A handwritten signature in blue ink, appearing to be "A. [unclear]", written over a horizontal line.

Oakland Land & Development, Inc.

EXECUTED THIS 14th day of
March, 2017, by Jeff Burkhalter



A handwritten signature in blue ink, appearing to be "Jeff Burkhalter", written over a horizontal line.

631 1306 Construction MASTER INVOICE LIST

EXHIBIT B

		631 S 14th St		1306 W F St		Confirmed
1	42325 Follis Construction	\$	631.64	\$	1,360.47	\$ 1,992.11
2	42437 Follis Construction	\$	1,507.91	\$	1,507.92	\$ 3,015.83
3	42465 Follis Construction	\$	748.32	\$	748.34	\$ 1,496.66
4	42515 Follis Construction	\$	1,095.41	\$	1,095.42	\$ 2,190.83
5	42633 ACW Engineering	\$	189.83	\$	408.87	\$ 598.70
6	42633 EIC Surveying	\$	2,372.89	\$	5,110.82	\$ 7,483.71
7	42657 ACW Engineering	\$	1,560.00	\$	3,200.00	\$ 4,760.00
8	42657 Unitas Construction	\$	19,045.00	\$	40,910.00	\$ 59,955.00
9	42681 Coastal Testing	\$	553.70	\$	1,192.60	\$ 1,746.30
10	42703 ACW Engineering	\$	5,576.94	\$	12,011.86	\$ 17,588.80
11	42703 Unitas Construction	\$	69,711.72	\$	150,148.32	\$ 219,860.04
12	42762 EIC Surveying	\$	264.81	\$	570.38	\$ 835.19
13	42762 ACW Engineering	\$	2,935.23	\$	6,322.04	\$ 9,257.27
14	42762 Unitas Construction	\$	36,690.39	\$	79,025.47	\$ 115,715.86
15	42809 ACW Engineering	\$	2,831.03	\$	6,097.59	\$ 8,928.62
16	42780 Unitas Construction	\$	35,387.83	\$	76,219.93	\$ 111,607.76
17	42809 Dover & Fox	\$	23.00	\$	23.00	\$ 46.00
18	42815 ACW Engineering			\$	5,000.00	\$ 5,000.00
19	42821 ACW Engineering	\$	8,787.42	\$	18,999.06	\$ 27,786.48
20	42821 Unitas Construction	\$	109,842.81	\$	236,584.51	\$ 346,427.32
21	42830 ACW Engineering			\$	903.68	\$ 903.68
22	42851 ACW Engineering			\$	4,512.75	\$ 4,512.75
23	42838 ACW Engineering (Wire)	\$	110.00	\$	38,626.40	\$ 38,736.40
24	42851 Dynamic Plumbing			\$	17,560.00	\$ 17,560.00
25	42863 ACW Engineering	\$	918.00	\$	270.00	\$ 1,188.00
26	42863 Coastal Testing	\$	297.80	\$	641.40	\$ 939.20
27	42864 ACW Engineering			\$	3,300.75	\$ 3,300.75
28	42871 Dynamic Plumbing	\$	8,100.00			\$ 8,100.00
29	42871 Whirlwind			\$	151,890.99	\$ 151,890.99
30	42874 ACW Engineering	\$	519.55	\$	12,151.28	\$ 12,670.83
31	42874 Coastal Testing	\$	195.36	\$	420.78	\$ 616.14
32	42885 Bay Star Insulation			\$	9,357.51	\$ 9,357.51
33	42886 ACW Engineering			\$	748.60	\$ 748.60
34	42887 ACW Engineering	\$	11,172.26	\$	24,063.34	\$ 35,235.60
35	42887 Unitas Construction	\$	139,653.29	\$	300,791.70	\$ 440,444.99
36	42887 ACW Engineering			\$	10,800.00	\$ 10,800.00
37	42897 ACW Engineering			\$	362.04	\$ 362.04
38	42897 Independent Steel Erectors			\$	4,525.50	\$ 4,525.50
39	42905 ACW Engineering	\$	2,500.00	\$	14,086.23	\$ 16,586.23
40	42896 McCoy's			\$	2,351.07	\$ 2,351.07
41	42906 McCoy's			\$	10,173.85	\$ 10,173.85
42	42903 Joey's			\$	9,338.73	\$ 9,338.73
43	42905 Independent Steel Erectors			\$	15,839.25	\$ 15,839.25
44	42916 ACW Engineering	\$	4,092.44	\$	10,861.63	\$ 14,954.07

601, 631 1306 Construction MASTER INVOICE LIST

EXHIBIT B

45	42916 Independent Steel Erectors		\$	15,839.25	\$	15,839.25	
46	42916 Spring Overhead Door		\$	9,750.00	\$	9,750.00	
47	42916 Unitas Construction	\$	51,155.55	\$	110,181.18	\$	161,336.73
48	42922 McCoy's		\$	6,952.85	\$	6,952.85	
49	42922 Coastal Testing	\$	246.84	\$	531.66	\$	778.50
50	42926 Whirlwind	\$	78,531.75			\$	78,531.75
51	42931 Bay Star Insulation	\$	5,085.52			\$	5,085.52
52	42935 Meridian Brick		\$	2,268.75	\$	2,268.75	
53	42944 ACW Engineering	\$	589.43	\$	27,283.85	\$	27,873.28
54	42944 Dynamic Plumbing		\$	18,640.00	\$	18,640.00	
55	42944 Independent Steel Erectors	\$	2,282.40			\$	2,282.40
56	42944 Independent Steel Erectors		\$	6,788.25	\$	6,788.25	
57	42944 ACW Engineering	\$	5,209.25	\$	11,471.51	\$	16,680.76
58	42944 Unitas Construction	\$	65,115.66	\$	140,249.10	\$	205,364.76
59	42949 McCoy's		\$	8,266.94	\$	8,266.94	
60	42951 Meridian Brick	\$	2,334.22			\$	2,334.22
61	42955 Foundation Building (Sheetrock)		\$	8,981.76	\$	8,981.76	
62	42956 ACW Engineering	\$	7,016.86	\$	12,438.47	\$	19,455.33
63	42956 R.A. Weaver		\$	7,919.00	\$	7,919.00	
64	42956 Independent Steel Erectors	\$	6,844.80			\$	6,844.80
65	42956 Wayne Crouch Environmental	\$	554.88	\$	1,195.12	\$	1,750.00
66	42964 Foundation Building (Sheetrock)		\$	1,305.93	\$	1,305.93	
67	42965 Independent Steel Erectors	\$	6,844.80			\$	6,844.80
68	42965 ACW Engineering		\$	12,370.01	\$	12,370.01	
69	42970 ACW Engineering	\$	17,899.43	\$	11,005.84	\$	28,905.27
70	42970 Independent Steel Erectors	\$	4,563.00			\$	4,563.00
71	42970 Centerpoint Energy	\$	2,935.00			\$	2,935.00
72	42972 ACW Engineering	\$	5,885.60	\$	10,008.09	\$	15,893.69
73	42972 Joey's Glass		\$	9,338.73	\$	9,338.73	
74	42972 R.A. Weaver		\$	15,299.00	\$	15,299.00	
75	42976 McCoy's	\$	4,308.79	\$	9,337.53	\$	13,646.32
76	42984 Foundation Building (Sheetrock)		\$	6,425.72	\$	6,425.72	
77	42996 EZ Waste	\$	222.35	\$	222.34	\$	444.69
78	42998 ACW Engineering	\$	12,909.03			\$	12,909.03
79	42998 Joey's Glass	\$	10,895.36			\$	10,895.36
80	42998 Coastal Testing	\$	1,179.75	\$	1,179.75	\$	2,359.50
81	42998 Independent Steel Erectors	\$	1,141.20	\$	2,262.75	\$	3,403.95
82	42998 Pyramid Waterproofing		\$	808.63	\$	808.63	
83	43003 McCoy's	\$	12,420.97			\$	12,420.97
84	43007 Independent Steel Erectors	\$	1,140.80			\$	1,140.80
85	43008 Barber's Nursery	\$	2,304.96	\$	2,127.66	\$	4,432.62
86	43012 PPG		\$	2,896.69	\$	2,896.69	
87	43014 PPG		\$	849.83	\$	849.83	
88	43019 Gonzalez Landscaping		\$	6,000.00	\$	6,000.00	
89	43021 Spring Overhead Door	\$	4,800.00			\$	4,800.00
90	43022 Houston Grass		\$	1,953.91	\$	1,953.91	

601, 631 1306 Construction MASTER INVOICE LIST

EXHIBIT B

91	43022 Wayne's Landscaping		\$	2,251.60	\$	2,251.60	
92	43022 Pasadena Mulch		\$	2,240.78	\$	2,240.78	
93	43024 Foundation Building (Sheetrock)	\$	665.10		\$	665.10	
94	43025 ACW Engineering	\$	28,490.93	\$	10,509.13	\$	39,000.06
95	43025 Unitas Construction	\$	11,000.00		\$	11,000.00	
96	43025 Dynamic Plumbing	\$	12,300.00		\$	12,300.00	
97	43027 Foundation Building (Sheetrock)	\$	720.53		\$	720.53	
98	43027 EZ Waste	\$	289.90	\$	289.89	\$	579.79
99	43032 Foundation Building (Partitions)			\$	6,955.06	\$	6,955.06
100	43033 Home Depot			\$	3,664.48	\$	3,664.48
101	43034 R.A. Weaver	\$	12,140.00			\$	12,140.00
102	43034 Juan Pena			\$	18,395.05	\$	18,395.05
103	43034 Norm Highfill			\$	11,360.00	\$	11,360.00
104	43035 Foundation Building			\$	(623.53)	\$	(623.53)
105	43039 Eagle Traffic			\$	2,019.95	\$	2,019.95
106	43039 McCoy's	\$	313.20	\$	1,575.28	\$	1,888.48
107	43040 Foundation Building			\$	1,324.98	\$	1,324.98
108	43041 ACW Engineering	\$	17,312.00	\$	3,272.22	\$	20,584.22
109	43045 Randy Butts/Home Depot			\$	190.58	\$	190.58
110	43045 Sherwin Williams			\$	874.23	\$	874.23
111	43045 Home Depot			\$	91.15	\$	91.15
112	43048 Home Depot			\$	(459.13)	\$	(459.13)
113	43052 Jose Lopez	\$	11,812.00			\$	11,812.00
114	43052 ACW Engineering			\$	9,351.78	\$	9,351.78
115	43052 R.A. Weaver			\$	40,899.00	\$	40,899.00
116	43052 Stroud Interiors			\$	20,975.00	\$	20,975.00
117	43052 Jose Martinez			\$	9,550.00	\$	9,550.00
118	43055 Texas Outhouse	\$	60.94	\$	60.94	\$	121.88
119	43061 Dynamic Plumbing			\$	8,710.00	\$	8,710.00
120	43061 Norm Highfill			\$	19,085.00	\$	19,085.00
121	43066 Jose Luis Martinez	\$	4,600.00			\$	4,600.00
122	43069 Coastal Testing			\$	1,174.00	\$	1,174.00
123	43069 FBM			\$	595.37	\$	595.37
124	43070 Red's Safe and Lock			\$	885.00	\$	885.00
125	43075 Unitas Construction			\$	14,000.00	\$	14,000.00
126	43096 Joe Torres			\$	250.00	\$	250.00
127	43096 Sherwin Williams	\$	54.71			\$	54.71
128	43098 R.A. Weaver			\$	62,813.05	\$	62,813.05
129	43047 Red's Safe and Lock			\$	2,029.68	\$	2,029.68
130	43098 ACW Engineering	\$	971.20	\$	27,658.93	\$	28,630.13
131	43098 Barrett's			\$	44,600.00	\$	44,600.00
132	43098 Juan Pena	\$	1,299.00			\$	1,299.00
133	43098 ACW Engineering	\$	4,691.53			\$	4,691.53
134	43102 McCoy's	\$	4,745.33	\$	1,289.76	\$	6,035.09
135	43119 R.A. Weaver	\$	63,280.22			\$	63,280.22
136	43119 R.A. Weaver			\$	1,297.75	\$	1,297.75

601, 631 1306 Construction MASTER INVOICE LIST

EXHIBIT B

137	43119 ACW Engineering	\$	5,062.42			\$ 5,062.42
138	43126 Texas Outhouse	\$	60.94	\$	60.94	\$ 121.88
139	43129 Global Specialties Direct	\$	2,723.50			\$ 2,723.50
140	43129 Red's Safe and Lock	\$	906.59			\$ 906.59
141	43132 Sherwin Williams	\$	42.75			\$ 42.75
142	43132 Dynamic Plumbing	\$	5,170.00			\$ 5,170.00
143	43132 Barrett's	\$	26,890.00			\$ 26,890.00
144	43133 Jose Martinez	\$	6,050.00			\$ 6,050.00
145	43133 Norm Highfill	\$	16,776.00			\$ 16,776.00
146	43133 Stroud Interiors	\$	10,190.00			\$ 10,190.00
147	43133 ACW Engineering	\$	7,073.00	\$	4,050.00	\$ 11,123.00
148	43151 ACW Engineering	\$	5,095.24			\$ 5,095.24
149	43151 ACW Engineering			\$	5,675.33	\$ 5,675.33
		\$	1,042,519.81	\$	2,111,207.43	\$ 3,153,727.24

CITY OF LA PORTE
604 W FAIRMONT PARKWAY
LA PORTE, TEXAS
LA PORTE TX 77571

EXHIBIT C

C E R T I F I C A T E O F O C C U P A N C Y

P E R M A N E N T

Issue Date 2/07/18

Parcel Number 024-108-001-0001

Property Address 631 S FOURTEENTH ST
LA PORTE TX 77571

Subdivision Name LA PORTE

Legal Description LTS 1 THRU 16 BLK 827
LA PORTE

Property Zoning IND - LIGHT

Owner OAKLAND LAND & DEVELOPMENT LLC

Contractor ACW ENGINEERING & CONSTRUCTION
281 449-6300

Application number 17-00001076 000 000

Description of Work NEW, COMMERCIAL

Construction type WOOD FRAME

Occupancy type BUSINESS

Flood Zone

CL

Approved Mark Huber
Building Official 

VOID UNLESS SIGNED BY BUILDING OFFICIAL



CITY OF LA PORTE
604 W FAIRMONT PARKWAY
LA PORTE, TEXAS
LA PORTE TX 77571

CERTIFICATE OF OCCUPANCY
PERMANENT

Issue Date..... 11/22/2017

Parcel Number..... 024-109-028-0004

Property Address..... 1306 W. F Street

Subdivision Name..... La Porte

Legal Description..... Lts 1 Thru 16
Blk 828

Property Zoning..... LI (Light Industrial)

Owner..... Oakland Land & Development LLC

Contractor..... ACW Engineering & Construction

Application Number..... 17-0664

Description of Work New Commercial

Construction Type V

Occupancy Type..... F2

Flood Zone..... X

Approved..... Mark Huber 
Building Official

VOID UNLESS SIGNED BY BUILDING OFFICIAL

City of La Porte
DANGEROUS BUILDING INSPECTION FORM

DATE: 3/29/18

STREET ADDRESS: 9906 Rocky Hollow Rd

HCAD OWNER: Wendell Keith Adams; 16297 Dockbar Court; Friendswood TX 77546

DEED OWNER: Wendell Keith Adams; 9906 Rocky Hollow Rd; La Porte TX 77571

LEGAL: LT 14; Blk 40, Fairmont Park West, Sec. 4

OCCUPANCY TYPE: Residence ZONING R-1

NON-CONFORMING ISSUES: _____

FACILITIES AVAILABLE: WATER: 4 SEWER: 4
ELECTRICAL: 4 GAS: N

NO. OF DWELLING UNITS: 1

VACANT: YES OCCUPIED: _____

AS REQUIRED IN THE CITY'S CODE OF ORDINANCE, CHAPTER 82; ARTICLE VIII, THE BOARD OF INSPECTION MADE AN INSPECTION OF THE AFOREMENTIONED PROPERTY, AND DETERMINED THE BUILDING LOCATED THEREON, IN THEIR OPINION, IS IN FACT A DANGEROUS BUILDING, FOR THE FOLLOWING REASONS:

Sec. 82-473. Declaration of Public Nuisance and Hazard.

- A. Dangerous or Substandard Buildings or Structures.**
A building or structure shall be considered dangerous or substandard whenever it is determined by the Board, that any or all of the following is applicable:

1. A building that is vacant, and is not up to current building code standards. These vacant buildings can be either open to trespass or boarded up;

2. Whenever any portion thereof has been damaged by fire, earthquake, wind, flood, or by any other cause to such an extent that the structural strength or stability thereof is materially less than it was before such catastrophe and is less than the minimum requirements of the building code for new buildings of similar structure, purpose or location;

3. Whenever any portion or member or appurtenance thereof is likely to fail, or to become detached or dislodged, or to collapse and thereby injure persons or damage property;

4. Whenever the building or structure, or any portion thereof, because of (a) dilapidation, deterioration, or decay; (b) faulty construction; (c) the removal, movement or instability of any portion of the ground necessary for the purpose of supporting the building; (d) the deterioration, decay, or inadequacy of its foundation, or (e) any other cause, is likely to partially or completely collapse;

5. Whenever, for any reason, the building or structure, or any portion thereof, is manifestly unsafe for the purpose of which it is being used;

6. Whenever the building or structure has been so damaged by fire, wind, earthquake, or flood, or has become so dilapidated or deteriorated as to become (a) a public nuisance, (b) a harbor for vagrants, or as to (c) enable persons to resort thereto for the purpose of committing unlawful acts;

7. Whenever a building or structure, used or intended to be used for dwelling purposes, because of inadequate maintenance, dilapidation, decay, damage, faulty construction or arrangement, inadequate light, air, or sanitation facilities, or otherwise, is determined by the Board to be unsanitary, unfit for human habitation or in such a condition that is likely to cause sickness or disease;

_____ 8. Whenever any building or structure, because of obsolescence, dilapidated condition, deterioration, damage, inadequate exits, lack of sufficient fire-resistive construction, faulty electric wiring, gas connections, or heating apparatus or other cause, is determined by the Board to be a fire hazard;

B. Dangerous or substandard electrical, plumbing, or mechanical installations. A building or structure shall be considered dangerous or substandard whenever it is determined by the Board, that any or all of the following is applicable:

1. Whenever any protective or safety device specified in The Electrical Code and of this title is not provided or is inoperative, defective, dilapidated, or deteriorated so as to threaten to fail or function as originally intended;

2. Whenever any installation or any portion thereof because of (a) dilapidation, deterioration, or decay; (b) faulty construction; (c) obsolescence; (d) inadequate maintenance, which in relation to existing use constitutes a hazard to life, health, property or safety;

_____ 3. Whenever any installation or any portion thereof which is damaged by fire, wind, earthquake, flood or any other cause so as to constitute a potential hazard to life, health, property or safety;

4. Whenever any installation or any portion thereof was constructed, installed, altered or maintained in violation of the building code and/or fire code so as to constitute a potential hazard to life, health, property or safety.

FINDINGS AND CONCLUSIONS OF THE BOARD OF INSPECTION:

OPTION # : _____ (_____)

Maria P. [Signature] 4/13/18
 BUILDING OFFICIAL'S OFFICE DATE

[Signature] 4-03-18
 FIRE MARSHAL'S OFFICE DATE

[Signature] 4/13/18
 FIRE CHIEF'S OFFICE DATE

BUILDING EVALUATION CHECKLIST

A = Adequate D = Deficient N/A = Not Applicable

<u>I. STRUCTURAL</u>	<u>COMMENT / EXPLANATION</u>	
A. Foundation		
1. Slab	_____ A	_____
2. Pier & Beam		
a. Footings	_____ N/A	_____
b. Sills	_____	_____
c. Joists	_____	_____
B. Walls		
1. Exterior	_____ A	_____
2. Interior	_____ D	Holes in walls _____
C. Means of Egress		
1. Doors		
a. Interior	_____ D	Damage and missing _____
b. Exterior	_____ D	Back Door Damaged _____
2. Porches, Steps, Stairs	_____ A	_____
3. Windows	_____ D	Broken Glass and Damaged Window Frames _____

D. Roof

- 1. Rafters A _____
- 2. Deck, Shingles A _____

E. Ceilings

- 1. Joists A _____
- 2. Ceiling D Drywall missing and damaged

F. Floors

- D No Flooring in Bedroom and hallway areas

G. Other D House full of debris, junk, clutter, garage doors damaged

II. MEHCANICAL SYSTEMS

A. Electrical

- 1. Service Entrance & Panel D Dead front missing @ electrical panel board
- 2. Wiring D illegal wiring in panel board
- 3. Lights, Switches D covers missing
- 4. Outlets D covers missing
- 5. Other N/A _____

B. Plumbing

- 1. Fixtures
 - a. Sink A _____
 - b. Lavatories A _____
 - c. Water/Closets A _____
 - d. Shower A _____
 - e. Water Heater UNK Unable to inspect
- 2. Water Piping UNK Unable to inspect
- 3. Drain, Waste & Vent UNK Unable to inspect
- 4. Sewer/Septic tank N/A _____
- 5. Gas System N/A _____

C. Heating & A/C

- 1. Heating UNK Unable to inspect
- 2. Air Conditioning D Electrical wiring hanging out of unit. Protective cover missing on electrical

III. PROPERTY CONDITIONS

- 1. Accessory Structures N/A _____
- 2. Condition of Grounds A _____
- 3. Other D Wood Fence gate damaged

Comments: _____

Dangerous Structure

Possible Dangerous Structure

9906 Rocky Hollow



9906 Rocky Hollow

HCAD # 114-326-040-0014



9906 Rocky Hollow

HCAD # 114-326-040-0014



9906 Rocky Hollow

HCAD # 114-326-040-0014



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HCAD # 114-326-040-0014



9906 Rocky Hollow

HCAD # 114-326-040-0014



9906 Rocky Hollow

HCAD # 114-326-040-0014



REQUEST FOR CITY COUNCIL AGENDA ITEM

Agenda Date Requested: <u>April 23, 2018</u>
Requested By: <u>Ian Clowes, Richard Mancilla</u>
Department: <u>Planning and Development</u>
Report: <u> X </u> Resolution: <u> </u> Ordinance: <u> </u>

<u>Appropriations</u>	
Source of Funds:	<u>N/A</u>
Account Number:	<u>N/A</u>
Amount Budgeted:	<u>N/A</u>
Amount Requested:	<u>N/A</u>
Budgeted Item:	<u>N/A</u>

Exhibits: **Comprehensive Plan Update Draft**

SUMMARY & RECOMMENDATION

SUMMARY& RECOMMENDATION

The current City of La Porte Comprehensive Plan serves as the officially adopted guide for City policy decisions relating to the physical growth and development of La Porte through 2030, including discussion of opportunities and challenges, vision, goals, actions, policies, and strategies.

The budget for fiscal year 2017 included funding for a minor update to the City’s Comprehensive Plan 2030. The City contracted Kendig Keast Collaborative, who performed the 2012 update, to take on this task. The consultant, in collaboration with city staff, decided to focus the minor update on the implementation section of the current comprehensive plan. Staff looked at the 16 priorities previously compiled and updated the status. Finally, based on current trends and developments from the past 5 years, staff suggested a reorganization of the priority list.

The Planning and Zoning Commission held a workshop on March 22nd. At the workshop, the commission suggested some changes to the proposed new ranking of priorities. These suggestions have been incorporated into the final draft.

A public open house occurred on March 27th. Staff was present to introduce the proposed changes to the City Council and any interested citizens wishing to attend.

The Planning and Zoning Commission, at the April 19, 2018, regular meeting, held a public hearing to receive citizen input on the Final Draft Plan of the five year update to the Comprehensive Plan 2030, and recommended City Council to adopt the update as presented.

At this time, staff is seeking a formal ordinance approval from Council to adopt the update to the City's Comprehensive Plan 2030.

Action Required by Council:

1. Discuss proposed five-year update to the City of La Porte Comprehensive Plan 2030.

Approved for City Council Agenda

Corby D. Alexander, City Manager

Date

City of
LA PORTE
Texas

**2018 Comprehensive Plan
Five -Year Update**

Adopted 04.23.2018



Acknowledgments

Mayor and Council

- Louis R. Rigby, Mayor
- John P. Zemanek, At-Large A
- Dottie Kaminski, At-Large B
- Danny Earp, Council Person, District 1
- Chuck Engelken, Council Person, District 2
- Daryl Leonard, Council Person, District 3
- Kristin Martin, Council Person, District 4
- Jay Martin, Council Person, District 5
- Nancy Ojeda, Council Person, District 6

Planning and Zoning Commission

- Hal Lawler, Chairman
- Wyatt Smith, At-Large A
- Nick Barrera, At-Large B
- Trey Kendrick, District 1
- Richard Warren, District 2
- Helen LaCour, District 3
- Mark Follis, District 4
- Lou Ann Martin, District 5
- Christina Tschappat, District 6

City Staff

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- Kenith Adcox, Police Chief
- Rosalyn Epting, Director of Parks and Recreation
- Kristin Gauthier, Emergency Management
- Abrin Brooks, GIS Manager
- Lorenzo Wingate, City Engineer

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- Gary Mitchell, AICP, President
- Luis Nunez, Project Manager
- Meredith Dang, AICP, Senior Associate
- Janis Burall AICP, Senior Associate
- Hanna James, Graphic Designer





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- Conclusion 39



Executive Summary

The 2018 Comprehensive Plan Update and Progress Report is a 5-year update to the City of La Porte's 2012 Comprehensive Plan. This update provides guidance on moving forward with high priority action items identified in the 2012 plan, confirms new planning and study efforts and capital improvements completed since 2012, and through the Progress Report, provides an implementation status summary as well as a new prioritization of the 2012 implementation actions.

The 2018 Update and Progress Report were a City of La Porte Department led effort. City Department heads met in December 2017 to evaluate and prioritize the 2012 Plan's high priority implementation actions and provide feedback on the status of current and completed actions, projects, plans, and initiatives. The Plan Update process provided an opportunity for all departments to meet together to discuss the importance of the Comprehensive Plan for the City of La Porte and to weigh-in on future priorities. As this interim Plan Update did not revise the 2012 Comprehensive Plan's text, data, or other underlying items, the planning process did not include a full-scale public engagement effort.



Photo: December 2017 City Department Head Meeting

A major Plan amendment, such as occurred in 2012, should be undertaken with the aim of an adopted updated Comprehensive Plan in 2022, ten years after the last major update. Such an update should include extensive public engagement to ensure the updated vision, goals, and priorities reflect the desires of the community.

The results of the Comprehensive Plan Progress Report show that significant progress has been made by the City of La Porte toward implementation of the 2012 Plan's high priority action items, with 12 of the 16 items either completed or in progress. Of those items that have not yet been started the most common reason was staff vacancies in key positions. The Progress Report results include a re-prioritization of the high priority action items, based on Department Head input as well as Planning and Zoning Commission and a Public Open House held in March 2018.



Highest Priority Actions	2018 Rank
Infrastructure Improvements	1 (tie)
Drainage Improvements	1 (tie)
Neighborhood Improvement Program	2 (tie)
Strategic Downtown Improvements	2 (tie)
Public Safety Improvements	3
Business Retention and Expansion Program	4 (tie)
Business Incubator	4 (tie)
Safe Sidewalks Program	5
Strategic Corridors Program	6
Park and Trail System Improvements	7
Increasing Sustainability	8
Coordinated Tourism Strategy	9
Market Retail Analysis	10
Streamline Permitting	11

The La Porte 2030 Comprehensive Plan is a 20-year master plan intended to serve as an official public document, adopted by the City Council, to guide policy decisions relating to the physical and economic development of the community. In general, the plan indicates how the community desires to develop and redevelop over the course of the next twenty years. The original version of the comprehensive plan was adopted in 1984 after extensive community involvement. Since that time, City Council and staff have been implementing that plan as intended. Even good planning, however, needs to be updated. To ensure the plan continued to represent the future of the community envisioned in 2001, the plan recommended updates at a minimum of five-year intervals. In 2005, City staff evaluated the plan to update the goals and objectives, reflect progress and accomplishments, identify goals that required attention or deletion, and to recommend any additional goals that were needed to better achieve the 2001 community vision. In 2012, 10 years into the implementation of the plan, City Council approved a second revision to the plan. The 2012 revision is more comprehensive in nature and includes an updated community vision to ensure that the City is still moving towards a future that represents the desires, needs, and aspirations of the community.



2018 5-Year Comprehensive Plan Update

This update to the 2012 Comprehensive Plan is an opportunity to revisit the 2012 Plan and provide guidance on moving forward with high priority action items identified in the Plan. This update seeks to:

- confirm any new or revised goals, initiatives, policies, and strategic project priorities;
- confirm any planning or study efforts completed since the 2012 Plan,
- provide the status of initiatives since the 2012 Plan, with emphasis on those projects that still need to be completed
- identify completed projects and items accomplished, summarizing plan implementation progress and success.

This update is not intended to be a full revision of the plan and as such does not include revisions to the data and inputs of the 2012 plan. The update is intended to be an opportunity to bring the 2012 Comprehensive Plan back to the forefront for City Departments and staff, making them aware of the Plan, its contents, and its progress.

The five-year period from 2012-2017 did bring changes and significant happenings to the City of La Porte. The following pages present milestones, accomplishments, and highlight data for the five years (**2012-2017**) that have passed since the 2012 Comprehensive Plan.





CELEBRATING
125 Years!

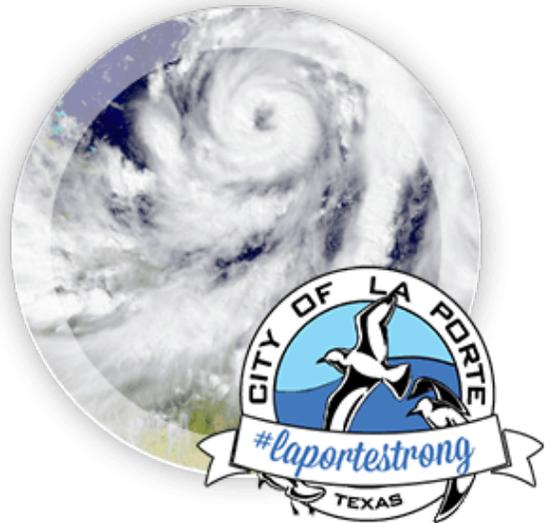
125

Birthday the City of La Porte celebrated in 2017 highlighting the rich history and heritage of the La Porte community. The 125th anniversary celebration events included a parade, a concert series featuring Clay Walker, a kid's rodeo, a gala, and more. The events garnered local and regional media coverage for the City.

471

Number of homes estimated damaged by Hurricane Harvey in La Porte in August 2017. The resilience of the La Porte community shone through during the aftermath of Harvey.

#LaPorteStrong.

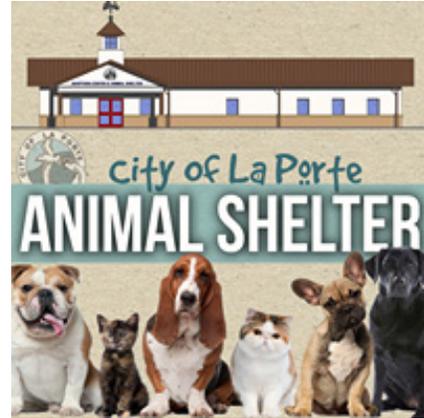


AFTER THE STORM
community resources



32

Number of dog runs at the new City of La Porte Animal shelter opened in 2014.



2

Number of new Splash Pads opened since 2012 (Northside and Fairmont Spray Parks).





\$10,091,771

Fiscal Year 2017 budget increase over the previous year, representing a 12% increase. A large portion of that increase is related to capital improvements.

10

City wide geocaches hidden at the newest La Porte street festival that debuted in October 2017 ‘The Search for Lafitte’s Gold’.



50%

Percent of the trail system envisioned in the City's Bicycle-Pedestrian Trail Mater Plan completed, including major east-west connector along Fairmont Parkway.



12

Number of top finalists in the 2016 'Tank of the Year' Awards that the La Porte Water Tower on Fairmont Parkway was honored in. The \$875,000 project depicts La Porte's 'Life. By the Bay.'

(Photo: Courtesy Of Themec Company, Inc.)

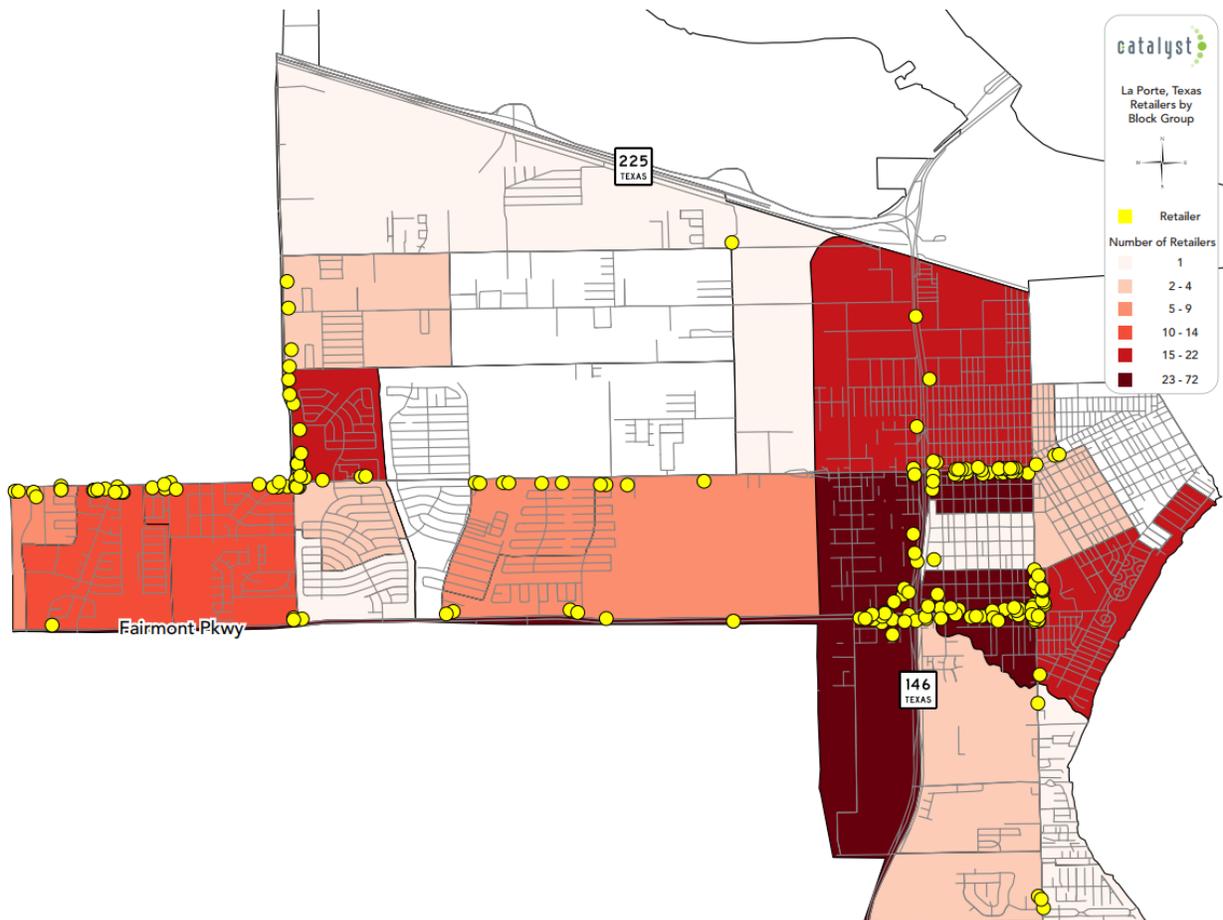


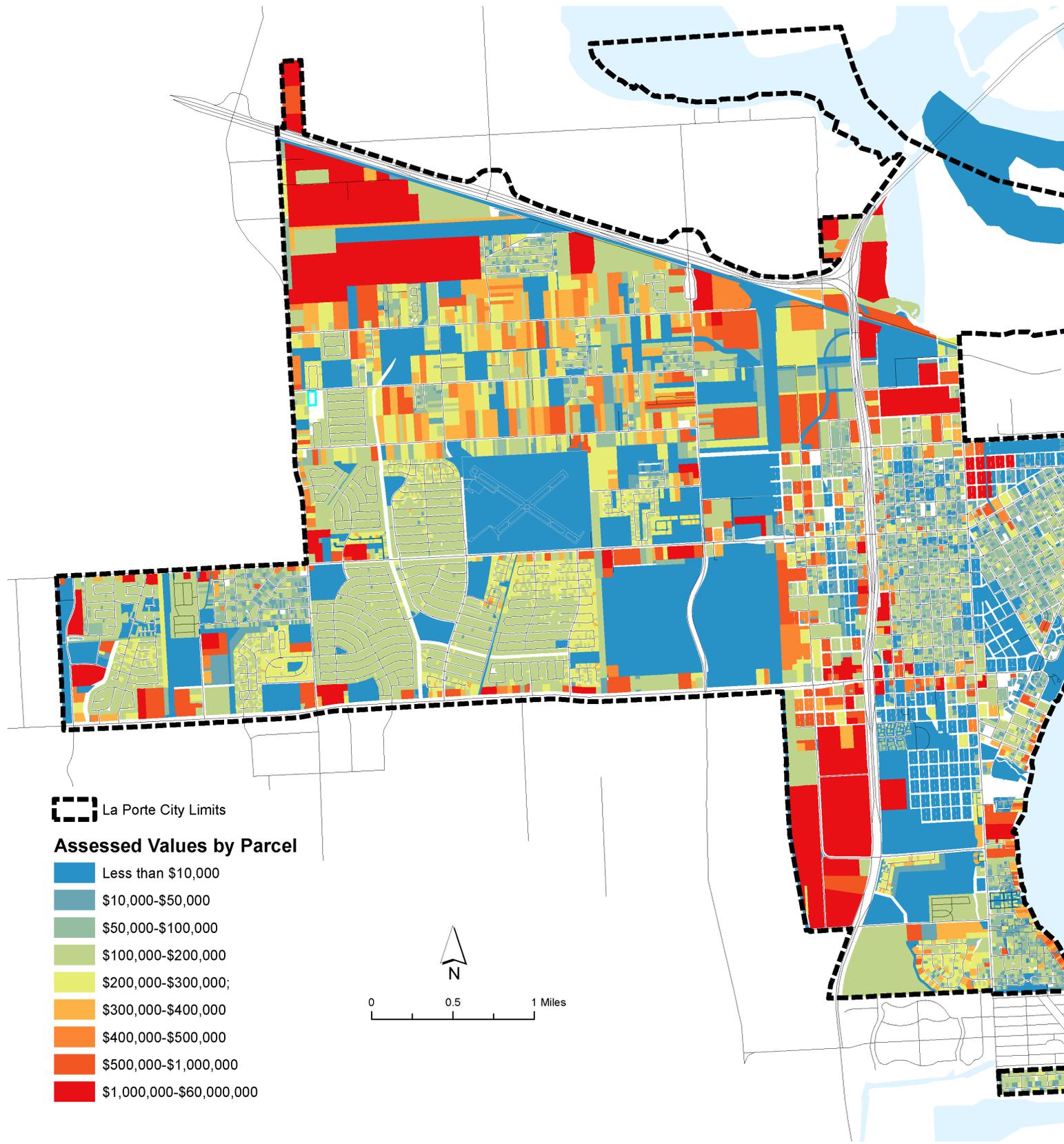
490,387

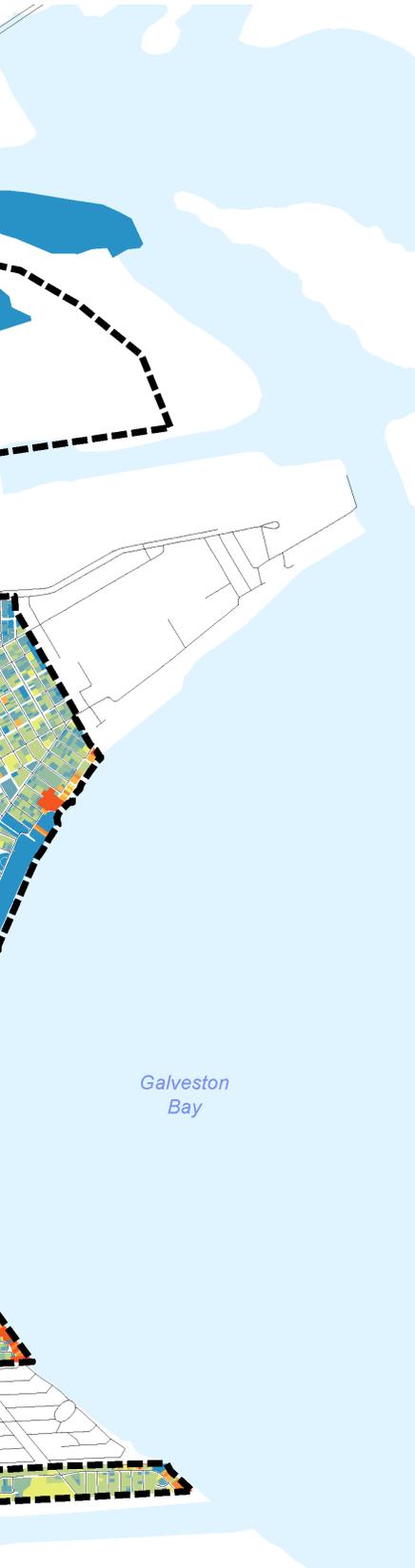
Square feet of estimated retail demand documented in the 2013 Retail Analysis and Merchandising Plan.

130

Number of new commercial permits issued from 2013-2017, representing a valuation of over \$183.5 million. During the same time period 309 residential permits were issued, representing a valuation of over \$55.5 million.







2018 Assessed Property Values

The map shows the assessed property values of parcels within the City of La Porte, current as of January 2018.

As can be seen on the map, there is a wide range of property values within the city, ranging from less than \$10,000 up to \$60,000,000.

The City tracks these values as they change over time and this information can be used to inform planning and economic development efforts.



HIGH PRIORITY IMPLEMENTATION ACTION STATUS SUMMARIES

The following action items were identified as high priorities for the City of La Porte in the 2012 Comprehensive Plan Update. As part of the 2018 5-year Comprehensive Plan Progress Report, City Departments met in December 2017 to evaluate progress towards achieving these high priority actions. The rankings were also evaluated by the Planning and Zoning Commission and through a Public Open House held in March 2018.

Highest Priority Actions	2012 Rank	2018 Rank	Overall Status
Streamlined Permitting Process	1	11	Complete
Public Safety Improvements	2	3	In progress
Neighborhood Improvement Program	3	2 (tie)	In progress
Business Retention and Expansion Program	4	4 (tie)	In progress
Park and Trail System Improvements	5	7	In progress
Market Retail Analysis	6	10	Complete
Infrastructure Improvements	7	1 (tie)	In progress
Unified Development Code/Modification of Regulatory Provisions	8	Remove	Not started
Downtown Master Plan	9	2 (tie)	Not started
Drainage Improvements	10	1 (tie)	In progress
Coordinated Tourism Strategy	11	9	Not started
Business Parks	12	Remove	Complete
Business Incubator	13	4 (tie)	Not started
Safe Sidewalks Program	14	5	In progress
Increasing Sustainability	15	8	In progress
Strategic Corridors Program	16	6	In progress

For each high priority action departments answered the following:

- o Has this action been achieved (or portions of this action)?
- o If yes, which components?
- o If no, what do you see as the main reasons why? (may include but not limited to: funding, lack of authority, political or public will, lack of time, don't know how to achieve)
- o Do you see this action being achieved in the next 5 years? If no, why not (may include but not limited to: no longer a priority, no funding, lack of political or public will) If yes, what is the timing for completion?

The results of this exercise are summarized in the charts beginning on page 20.



As part of the plan update, City Departments also identified plans that have been completed by the City of La Porte since 2012, or that are ongoing. The following plans/studies were identified:

- La Porte Municipal Airport Business Plan, completed 2017
- HazMat Commodity Flow Study and RMP
- Hazard Mitigation Plan
- Park and Recreation Master Plan (to begin in 2018)
- Design Guidelines for GC, NC, and BI Districts (2014)
- Northside Neighborhood Plan (2012 Update)
- West Lomax Area Sanitary Sewer Feasibility Study
- Citywide Street Condition Assessment
- Pine Bluff Drainage PER
- Coupland Drive Drainage Assessment
- N. 6th Street Drainage Assessment
- Update 2009 Water Master Plan (to begin in 2018)
- Airport Drainage Assessment
- F 101 Drainage Assessment

Initiatives – Capital Project Priorities Identified by City Departments:

- Expansion of fitness center
- Renovation of wave pool (2018)
- Renovation of Northwest Pool (2018)
- Sidewalks
- West Lomax Area – Sanitary Sewer Replacement and Lift Station Elimination - Design
- Annual Contracts – Asphalt Street Repairs – Concrete Street Repairs - Construction
- Pine Bluff - Street, Drainage and Utilities – Design and Construction
- Coupland Drive Drainage- Design and Construction
- Somerton Pavement and Waterline Replacement
- Hillridge Pump Station Construction



Evaluating Existing Studies for Impacts and Overlap to Comprehensive Plan

As plans and studies are completed by City Departments in the City of La Porte, such as those identified in December 2017 in the list above, they should be evaluated for any potential impacts to items in the Comprehensive Plan. As an example, the La Porte Municipal Airport Business Plan, completed in 2017, has the following relationship to Comprehensive Plan elements:

- o Recommends future master plans or airport land use compatibility studies.
- o Identifies area for improvement that overlap with comprehensive plan actions/priorities, including:
 - Drainage infrastructure improvements
 - Airport Capital Improvements
 - Economic Development: Analyzes the economic advantage the Airport provides the City of La Porte
 - Land development: Acres available for development to support aviation and other commercial uses.

The new high priority rankings for the City of La Porte to focus on in the upcoming years are as follows:

Highest Priority Actions	2018 Rank
Infrastructure Improvements	1 (tie)
Drainage Improvements	1 (tie)
Neighborhood Improvement Program	2 (tie)
Strategic Downtown Improvements	2 (tie)
Public Safety Improvements	3
Business Retention and Expansion Program	4 (tie)
Business Incubator	4 (tie)
Safe Sidewalks Program	5
Strategic Corridors Program	6
Park and Trail System Improvements	7
Increasing Sustainability	8
Coordinated Tourism Strategy	9
Market Retail Analysis	10
Streamline Permitting	11



The highest priority action item charts provide proposed implementation action steps for the City of La Porte to undertake to advance each item. There are five plan implementation methods, with the corresponding method identified for each action step.



PLAN IMPLEMENTATION METHODS

FIVE WAYS OF MOVING TOWARD ACTION

-  **Capital Investments**
-  **Programs and Initiatives**
-  **Regulations and Standards**
-  **Partnerships and Coordination**
-  **Targeted Planning / Studies**



Capital Investments

The City of La Porte uses a five-year Capital Improvement Program, or CIP, to identify and budget for “big ticket” project, especially those that must be phased and/or coordinated with other initiatives. This may include street infrastructure, water, wastewater, and drainage improvements; parks, trails, and recreation facility constructions, and upgrades; and, construction of public buildings. Anticipating and adequately budgeting for major capital projects will be essential to implementing the high priority actions identified in the Comprehensive Plan. Likewise, decisions regarding the prioritization of proposed capital improvements should reflect the direction and priorities of this plan.



Programs and Initiatives

Programs involve the routine activities of City departments and staff, as well as special projects and initiatives they may undertake. As part of Comprehensive Plan implementation, this method may include initiating new or adjusting existing City programs and activities, expanding community outreach efforts, or providing specialized training to accomplish a priority objective more promptly and/or effectively.



Regulations and Standards

Given that private investment decisions account for a vast majority of a city’s physical form, land development regulations and engineering standards are fundamental for plan implementation. Consequently, in La Porte, regulations and development criteria and technical engineering standards are the basic keys to ensuring that the form, character, and quality of development reflect the City’s planning objectives. These codes should advance the community’s desire for quality development outcomes while recognizing economic factors. They should not delay or interfere unnecessarily with appropriate new development or redevelopment that is consistent with plan principles and directives.





Partnerships and Coordination

Some community initiatives identified in this plan cannot be accomplished by La Porte on its own. They may require direct coordination, intergovernmental agreements, or funding support from other public entities or levels of government. Additionally, the unique role of potential private and non-profit partners to advance the community's action agenda should not be underestimated. This may occur through cooperative efforts, volunteer activities, and in-kind services (which can count toward the local match requirements for various grant opportunities), and from public/private financing of community improvements.



Targeted Planning/Studies

Various area of City governance require more detailed study and planning, especially as required to qualify for external funding opportunities. These studies involve targeted planning work at a “finer grain” level of detail than is appropriate for comprehensive planning purposes. As such, some parts of this plan will be implemented only after some additional planning or special studies clarify next steps and associated costs and considerations.



PROGRESS ICON LEGEND (IMPLEMENTATION STATUS)

Graphic Icon	Meaning
 <p><i>not yet started</i></p>	<p>0% not yet started</p>
 <p><i>begun</i></p>	<p>25% begun</p>
 <p><i>in progress</i></p>	<p>50% in progress</p>
 <p><i>almost complete</i></p>	<p>75% almost complete</p>
 <p><i>almost complete</i></p>	<p>100% complete</p>



HIGH PRIORITY IMPLEMENTATION ACTION STATUS SUMMARIES

Streamlined Permitting Process	Study existing development processes and regulations to determine a plan of action to resolve issues without compromising the integrity of the process or enforcement of established regulations. This also could include such things as fast-track permitting, assistance with demolition of structures, etc.
--------------------------------	--

Implementation Status	Priority Ranking 2012	Status Summary	Future Actions
	#1	<ul style="list-style-type: none"> Streamlined permitting process established. Baseline comparison of La Porte’s development review and permitting process with neighboring communities completed. Review time for different categories of permitting tracked. 	<ul style="list-style-type: none"> Continue to review permitting process to ensure it is resulting in desired outcomes.
	Priority Ranking 2018		
	#11		

Key implementation Department(s): Planning and Development

Types of future actions:  Regulations and standards and  Partnerships and coordination

Detailed components/action steps identified in 2012 Comprehensive Plan:	Completed or in progress? (Y/N)
Establish a “streamlined permitting process” for desirable developments.	Y
Develop a baseline comparison of La Porte’s development review and permitting process with neighboring communities (e.g., Deer Park, Pasadena, etc.).	Y
If no such baseline comparison already exists, then the City should begin tracking the review time for different categories of permitting.	Y
Develop a short- and long-term action plan to resolve issues that do not compromise the integrity of the process or conformity with established regulations. Relevant feedback from this analysis should be presented to the Planning and Zoning Commission and City Council.	N



HIGH PRIORITY IMPLEMENTATION ACTION STATUS SUMMARIES

Public Safety Improvements	Continue to support an excellent system of public safety services.
----------------------------	--

Implementation Status	Priority Ranking 2012	Status Summary	Future Actions
	#2	<ul style="list-style-type: none"> 3 new full-time officers added to Police Department in 2017. Police vehicles being rotated every 5 years. Training being conducted via emergency services district. New La Porte Animal Shelter and Adoption Center facility completed. 	<ul style="list-style-type: none"> Continue to review personnel needs including an additional DOT officer to address increased commercial motor vehicle traffic Conduct manpower study for Fire Department. Continue to provide high quality training opportunities for personnel. Update action steps based on new department priorities.
	Priority Ranking 2018		
	#3		

Key implementation Department(s): Police, Fire, EMS, OEM

Types of future actions:  Programs/Initiatives and  Targeted planning/studies

Detailed components/action steps identified in 2012 Comprehensive Plan:	Completed or in progress? (Y/N)
Periodically review the Police Department's personnel needs and hire additional staff to accommodate increased calls for service concurrent with population growth. This could include: a. Full-time law enforcement officers concurrent with population growth; b. One additional crime analyst; c. One additional jailer per shift; and d. One additional dispatcher per shift so that Fire/EMS Departments have a dedicated person taking and dispatching their calls.	Y
Periodically review the Fire Department's personnel needs and hire additional staff to accommodate increased calls for service concurrent with population growth. This could include conducting a manpower study specifically to determine whether or not a second full-time firefighter is warranted at each fire station.	Manpower study not yet conducted.
Provide adequate funding to expand the amount and quality of more cost-effective in-house training for patrol officers and other staff.	Y
Adequately fund training opportunities for fire personnel to improve personal skills and departmental capabilities. Utilize the new Fire Training Officer to expand cost-effective in-house training capabilities.	Y
Construct a new joint 6,000 square foot animal shelter that is sufficient to achieve certification requirements.	Y



Detailed components/action steps identified in 2012 Comprehensive Plan:	Completed or in progress? (Y/N)
Establish a formalized replacement and procurement program for vehicles and equipment to keep pace with state-of-the-art fire rescue technology and capabilities. At a minimum, this should include a replacement schedule as follows: Engines: 20 years; Ladder trucks: 25 years; Command vehicles: 10 years.	Y
Establish a formalized replacement and procurement program for vehicles and equipment to keep pace with state-of-the-art law enforcement technology and capabilities. This could include: Rotating cars every three years; Replacing laptops and software in patrol cars in a timely manner.	Y



HIGH PRIORITY IMPLEMENTATION ACTION STATUS SUMMARIES

Neighborhood Improvement Program	Develop a formalized neighborhood improvement program that ensures the quality of existing neighborhoods are maintained or improved over time.
----------------------------------	--

Implementation Status	Priority Ranking 2012	Status Summary	Future Actions
	#3	<ul style="list-style-type: none"> Northside Neighborhood Plan developed but not implemented. Targeted investment program not developed. Code enforcement program not changed. 	<ul style="list-style-type: none"> Explore funding/grant opportunities to implement Northside Neighborhood Plan. Examine if other older communities should have a neighborhood plan developed. Examine potential funding resources for community investments.
	Priority Ranking 2018		
	#2		

Key implementation Department(s): Planning and Development

Types of future Actions:  Targeted Planning/Studies,  Programs and Initiatives

Detailed components/action steps identified in 2012 Comprehensive Plan:	Completed or in progress?
Help older communities develop neighborhood plans, which may include elements that would normally be required for a housing grant submittal. Such a plan would highlight potential development/redevelopment sites, infrastructure improvements, increased buffering (to mitigate such things as noise from increased truck traffic), links to important off-site amenities, etc.	Y
Develop a target-area community investment program focused on all infrastructure improvements (e.g., sidewalk installation in addition to repair, driveway culvert cleaning and replacement, alley improvements, tree trimming, parking restrictions, shielded street lighting or other improved pedestrian lighting, added greenspace, improved public streetscape/ landscape areas, new signage, etc.) within at-risk neighborhoods. This would be an expansion of the current program that provides dedicated funding for sidewalk repair and maintenance.	A targeted program has not been developed due to lack of funding. Projects are completed as opportunities arise such as when a street is re-done sidewalks are put in
Develop a results-based code enforcement program to aid in code compliance (e.g., violations such as weeds, debris, and junk vehicles) rather than citing noncompliant property owners. A key element may be the cross-training of enforcement advocacy officers in conflict management/resolution or the creation of useful information packets listing sources of help for homeowners who are in violation of City codes.	N



HIGH PRIORITY IMPLEMENTATION ACTION STATUS SUMMARIES

Business Retention and Expansion Program	Improve efforts to maintain relationships with existing businesses in order to determine public/private strategies to overcome challenges or facilitate plans of expansion.
--	---

Implementation Status	Priority Ranking 2012	Status Summary	Future Actions
	#4	<ul style="list-style-type: none"> Shop, eat, stay, play local campaign is active. Visitlaportetx.com website provides up to date shopping/tourism guide. New local programs have been rolled out such as The Search for Lafitte’s Gold and The Airing of the Quilts. Façade grant program is active. 	<ul style="list-style-type: none"> Upon filling of staff vacancy, examine potential for re-establishing business retention and expansion program. Determine, through surveys or interviews, how the City can best support existing businesses and establish an action plan to address identified needs and challenges Continue to support local event programming and marketing and strengthen relationship between marketing efforts and economic development efforts.
Priority Ranking 2018			
#4			

Key implementation Department(s): Economic Development/EDC

Types of future actions:  Programs/Initiatives,  Partnerships and Coordination

Detailed components/action steps identified in 2012 Comprehensive Plan:	Completed or in progress?
Consider expanding the business retention and expansion program. A strong business retention and expansion program should include regular visits with local employers. These visits can include formal surveys or be informal interviews. However, they should establish a relationship with the employer and serve as a mechanism by which the Economic Development Coordinator can ascertain any major challenges or plans for expansion, and help to identify suppliers or customers who could benefit from relocating to La Porte.	N
In addition to site visits, the business retention and expansion program could be expanded to include such initiatives as shop local programs, advertising cooperatives, shopping guides, frequent shopper programs, small business seminars, etc.	Y

HIGH PRIORITY IMPLEMENTATION ACTION STATUS SUMMARIES

Park and Trail System Improvements		Improve the quality of existing parks and recreation areas.	
Implementation Status	Priority Ranking 2012	Status Summary	Future Actions
	#5	<ul style="list-style-type: none"> • Parks standards in progress as well as inventory and replacement schedule. • All parks have matching entry signs (2013 completion). • Fairmont and Lomax parking lots have been resurfaced. • Playground replacements (such as Seabreeze) have design themes. • New amenities include 2 new splash parks. • Expansion of the fitness center, pool upgrades and frisbee golf are planned. • Online registration system (RecTrac) is active. • Sens Trail and Park St. Trail in progress. 	<ul style="list-style-type: none"> • Update Parks and Recreation Master Plan (in the works for 2018). Consider also incorporating Trails into Master Plan. • Integrate park planning into any neighborhood plans. • Continue to evaluate potential funding sources for park improvements. • Continue to market high quality of parks and consider applying for H-GAC Parks and Natural Area awards.
	Priority Ranking 2018		
	#7		

Key implementation Department(s): Parks and Recreation

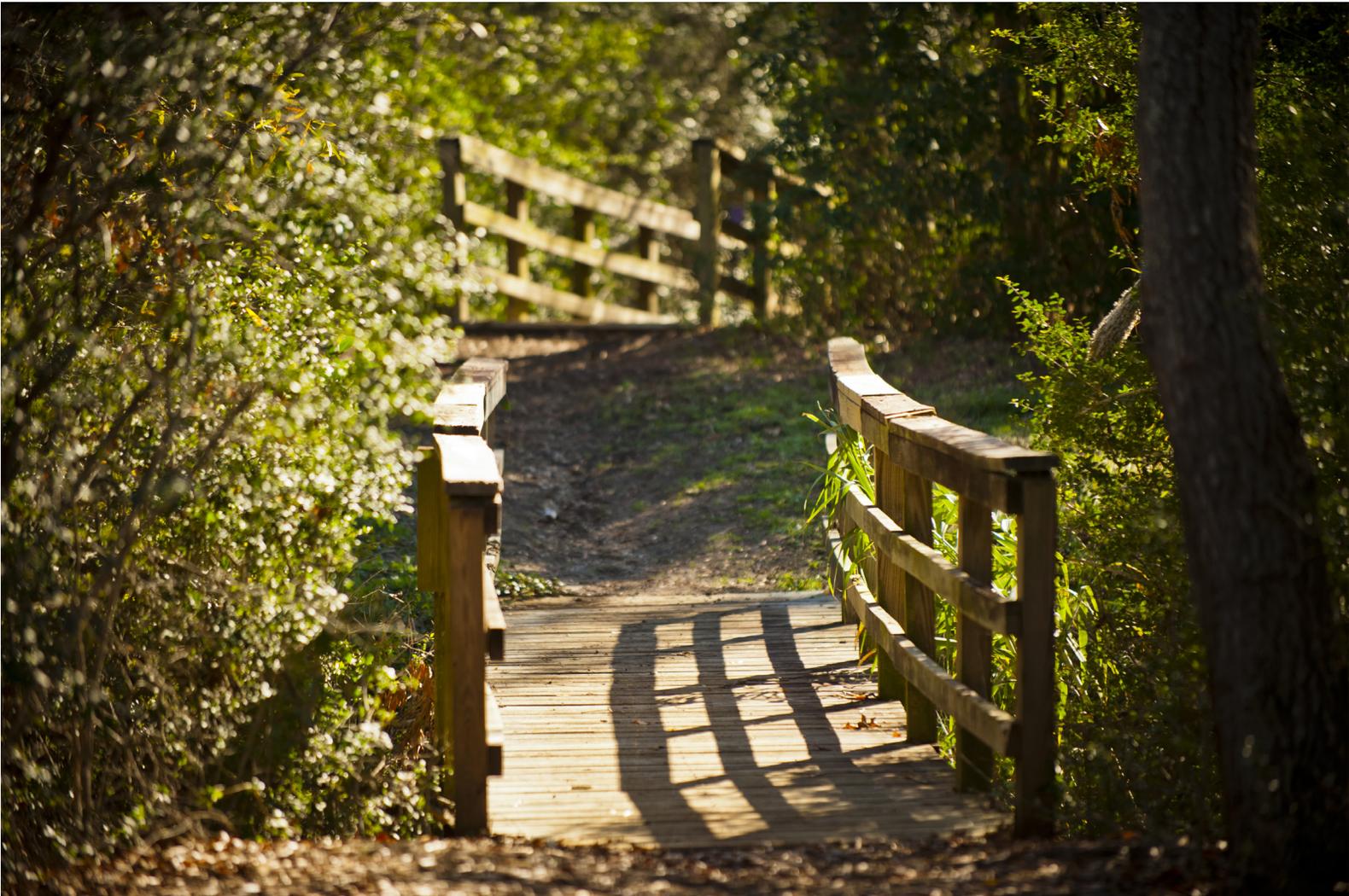
Types of Future Actions:  Capital Investments,  Targeted Planning/studies

Detailed components/action steps identified in 2012 Comprehensive Plan:	Completed or in progress?
Establish a formalized parks-to-standards program to ensure all parks are brought up to, and maintained in, an equivalent quality standard. This program should include a general maintenance and repair schedule.	Y
Establish a policy of master planning new/revitalized parks to develop a unique design theme for each park to broaden the types of facilities and activities that are available across the community and to better tie their identity to adjacent neighborhoods	Y
Evaluate opportunities to add new types of amenities that appeal to intergenerational and non-traditional users in existing and future parks	Y
Improve on-site and off-site accessibility to each park by developing a sidewalk improvement program to repair, replace, or install new sidewalks, crosswalks, and curb cuts	Y repairs are made as needed (no set schedule)
Consider providing on-line registration for any camps, lessons, workshops, or classes available through the City	Y



HIGH PRIORITY IMPLEMENTATION ACTION STATUS SUMMARIES

Detailed components/action steps identified in 2012 Comprehensive Plan:	Completed or in progress?
Continue to budget, or pursue additional outside funding, to construct the remaining trail segments as identified in the Bicycle and Pedestrian Trail Implementation Plan.	Y
Continue to proactively pursue additional park and recreation acquisition of property and/or protection of additional greenspace within the City limits.	N



HIGH PRIORITY IMPLEMENTATION ACTION STATUS SUMMARIES

Market Retail Analysis	Undertake a market retail analysis separately or in coordination with an update to the Economic Development Strategic Plan
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Implementation Status	Priority Ranking 2012	Status Summary	Future Actions
	#6	<ul style="list-style-type: none"> Retail Analysis and Merchandising Plan completed in 2013. The plan includes demographic analysis, retail analysis, and analysis of City's competition. Visit La Porte proactively markets La Porte via a variety of mediums. 	<ul style="list-style-type: none"> Utilize the completed market analysis to develop a coordinated economic development strategy. Utilize psychographics within analysis to further market La Porte to identified market segments. Revise implementation action to reflect market retail analysis completion.
	Priority Ranking 2018		
	#10		

Key implementation Department(s): Economic Development/EDC

Types of future actions:  Programs and Initiatives

Detailed components/action steps identified in 2012 Comprehensive Plan:	Completed or in progress?
Undertake a retail market analysis to help identify opportunities for future expansion of the City's retail space. The analysis should include a demographic analysis of La Porte's market segments, a sales gap analysis, and an analysis of the City's economic composition and competition.	Y
The outcome of this analysis should be to develop a coordinated economic development strategy comprised of four main elements: retail development, tourism, a convention center (consistent with the available space at the renovated Sylvan Beach Pavilion), and support for industry.	N
Proactively market La Porte to identified market segments identified in the report.	Y



HIGH PRIORITY IMPLEMENTATION ACTION STATUS SUMMARIES

Infrastructure Improvements	Continue to implement the recommendations in the City’s Water Master Plan, Water Conservation Plan, and Drought Contingency Plan.
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Implementation Status	Priority Ranking 2012	Status Summary	Future Actions
	#7	<ul style="list-style-type: none"> • GIS-based Utility Mapping Program is in progress but not yet complete. • Dead-end water mains have been eliminated in most instances. • The golf course and park use nearly 95% of discharge during summer months. 	<ul style="list-style-type: none"> • Complete Utility Mapping Program and utilize as a prioritization tool to identify areas with the greatest infrastructure needs. • Continue to eliminate dead-end water mains as additional funding becomes available. • Conduct WWTP feasibility study. • Consider adding examining security for public utilities and infrastructure as a priority action item.
	Priority Ranking 2018		
	#1		

Key implementation Department(s): Public Works

- Types of future actions:
-  Capital investments,
 -  Programs and initiatives,
 -  Targeted planning/studies

Detailed components/action steps identified in 2012 Comprehensive Plan:	Completed or in progress?
Complete the geographic information system (GIS) mapping database, i.e., Utility Mapping Program, by providing additional resources to capture and input the necessary data for a complete asset management program. This system should be utilized to maintain records on inflow and infiltration problems and main breaks, types and sizes of piping, dates of improvements and repairs, and other information relevant to an asset management system. Data should be used as a prioritization tool in the preparation of annual budgets and capital improvement programs.	Y in progress
Conduct a system-wide condition analysis of all utility infrastructure, i.e., storm sewer, water, and wastewater, to determine an appropriate short- and long-term plan of action to repair, rehabilitate, or replace existing utility infrastructure. Information should be entered into the Utility Mapping Program to identify targeted geographic areas with the greatest needs.	Y in progress
Identify and eliminate any dead-end water mains	Y
Conduct a feasibility study to determine if the wastewater treatment plant (WWTP) can be improved to increase the total available quantity of reuse water and to determine where additional public or private reuse opportunities in the City might be located.	N



Unified Development Code / Modification of Regulatory Provisions	Prepare a Unified Development Code (UDC) to ensure an effective transition from comprehensive plan to the implementing regulations.
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Implementation Status	Priority Ranking 2012	Status Summary	Future Actions
	#8	<ul style="list-style-type: none"> The development code was updated in 2015 and the zoning code was updated in 2014. Although these codes were updated they were not combined into a Unified Development Code (UDC). 	<ul style="list-style-type: none"> Assess potential advantages to going forward with a UDC. If a UDC is not desired, examine whether existing codes adequately address all provisions and if not develop supplemental provisions. Review legal precedents such as Reed v. Gilbert that may necessitate updates to ordinances (in this instance, sign ordinance). Updated 2015 development code should be made available online, replacing 1985 version currently on City website.
	Priority Ranking 2018		
	Not ranked		

Key implementation Department(s): Planning and Development

Types of future actions:  Regulations and standards

Detailed components/action steps identified in 2012 Comprehensive Plan:	Completed or in progress?
<ul style="list-style-type: none"> Prepare a Unified Development Code (UDC) to ensure an effective transition from comprehensive plan to the implementing regulations. Modified provisions should include, but not be limited to: <ul style="list-style-type: none"> building placement, design, and materials; parking lot, streetscape, and foundation landscaping; screening, lighting, and buffering; lot design and open space; street and pedestrian connectivity and access management; and, sidewalk design, placement, and amenities. 	N



HIGH PRIORITY IMPLEMENTATION ACTION STATUS SUMMARIES

Downtown Master Plan	Prepare a master plan for the Downtown area
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Implementation Status	Priority Ranking 2012	Status Summary	Future Actions
 <p><i>not yet started</i></p>	#9	<ul style="list-style-type: none"> The Downtown Master Plan has not progressed. 	<ul style="list-style-type: none"> Prior to launching a Downtown Master Plan effort, pre-engagement work with existing property and business owners in the potential study area needs to occur. This could include visioning sessions and working to address concerns. Examine potential for participating in Texas Main Street program and re-starting Main Street Coordinator Position. Seek funding for revitalization and pursue grant opportunities. Participate in H-GAC Bringing Back Main Street Roundtable Program.
	Priority Ranking 2018		
	#2		

Key implementation Department(s): Planning and Development, Economic Development

Types of future actions:  Partnerships and Coordination,  Targeted planning/studies

Detailed components/action steps identified in 2012 Comprehensive Plan:	Completed or in progress?
Prepare a master plan for the Downtown area, including Main Street and Sylvan Beach, the connections between, and the transition to adjacent areas. This includes: <ul style="list-style-type: none"> ○ setting a clear and collectively supported vision; ○ determination of implementation framework to guide new/reinvestment; and, ○ coordinating with previous work completed on marketing and branding. 	N



HIGH PRIORITY IMPLEMENTATION ACTION STATUS SUMMARIES

Drainage Improvements	Continue to implement the recommendations identified in the Citywide Drainage Study.
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Implementation Status	Priority Ranking 2012	Status Summary	Future Actions
	#10	<ul style="list-style-type: none"> The areas for improvement identified in the Drainage Study are continually evaluated and updated. Drainage projects and improvements are ongoing throughout the City. 	<ul style="list-style-type: none"> Evaluate how drainage infrastructure performed during Hurricane Harvey and update Drainage Study based on impacts. Continue to develop flood control projects as community enhancements. Continue to explore additional potential funding sources such as Pre-Disaster Mitigation, Hazard Mitigation Grant Program, and FEMA grants.
	Priority Ranking 2018		
	#1		

Key implementation Department(s): Public Works

Types of future actions:  Capital investments

Detailed components/action steps identified in 2012 Comprehensive Plan:	Completed or in progress?
Continue to implement the recommendations identified in the Citywide Drainage Study.	Y
Design and construct all future/redeveloped flood control and on-site drainage projects as community enhancements and/or recreational amenities;	
Encourage vegetative buffers along stream and other drainageways	



Coordinated Tourism Strategy		Develop a coordinated tourism strategy that goes beyond trying to attract visitors.	
Implementation Status	Priority Ranking 2012	Status Summary	Future Actions
 not yet started	#11	<ul style="list-style-type: none"> • La Porte is actively involved with the Heritage society, supporting their monthly events, funding any repairs and funding their docent. • The City recently added another small building next to the depot. • Multiple tourism ads are used in different mediums. • Multiple events are held to try to get ‘heads in beds’. 	<ul style="list-style-type: none"> • Utilize the Retail Analysis and Merchandising Plan as a starting point to develop a coordinated tourism plan. • Work to more closely tie marketing and economic development efforts. • Track impact of marketing efforts. • Consider developing ‘Tourism Taskforce’ composed of local businesses and other area partners.
	Priority Ranking 2018		
	#9		

Key implementation Department(s): Economic Development/EDC

Types of future actions:  Targeted planning/studies,  Partnerships and coordination

Detailed components/action steps identified in 2012 Comprehensive Plan:	Completed or in progress?
Develop a coordinated tourism strategy that goes beyond trying to attract visitors. Rather, the tourism strategy should be focused on capturing visitor’s dollars by local businesses, so that the full economic benefit can be realized by the City and area businesses.	N
In coordination with area partners (e.g., the La Porte Bay Area Heritage Society), the City should create a tourism plan that focuses on developing tourism “products” that attract visitors, a retail strategy that provides outlets for visitors to spend money, and a marketing plan that effectively targets those groups who are likely to come to La Porte.	N



HIGH PRIORITY IMPLEMENTATION ACTION STATUS SUMMARIES

Business Parks	Proactively zone and market areas for higher quality business parks for those areas identified on Map 2.6, Future Land Use Plan
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Implementation Status	Priority Ranking 2012	Status Summary	Future Actions
	#12	<ul style="list-style-type: none"> Design guidelines developed for Business Industrial along major corridors. 	<ul style="list-style-type: none"> Coordinate planning and development efforts with economic development and marketing efforts to ensure higher quality standards are achieved. Continue to evaluate developments to determine if modifications to new guidelines need to be made.
	Priority Ranking 2018		
	Remove from high priority		

Key implementation Department(s): Planning and Development and Economic Development/EDC

Types of future actions:  Partnerships and coordination,  Regulation and standards

Detailed components/action steps identified in 2012 Comprehensive Plan:	Completed or in progress?
Update the zoning and development codes to ensure higher quality standards are achieved for those uses that would be allowed in Business Park and Auto-Urban Industrial areas. Additionally, provisions need to be strengthened to improve compatibility between areas of differing character and to achieve better community livability (see <i>Chapter 2, Land Use and Development</i> , for additional information on needed regulatory improvements).	Y



HIGH PRIORITY IMPLEMENTATION ACTION STATUS SUMMARIES

Business Incubator	Establish a small business incubator site within the City in coordination with San Jacinto College Small Business Development Center (SJC SBDC). Priority consideration should be given to locating the site in Downtown or near San Jacinto College.
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Implementation Status	Priority Ranking 2012	Status Summary	Future Actions
	#13	<ul style="list-style-type: none"> Not yet started. 	<ul style="list-style-type: none"> New economic development staff should evaluate potential for moving forward with this priority and begin discussions with SJC SBDC. Consider re-starting small business workshops.
	Priority Ranking 2018		
	#4		

Key implementation Department(s): Economic Development/EDC

Types of future actions:  Partnerships and coordination,  Programs and initiatives

Detailed components/action steps identified in 2012 Comprehensive Plan:	Completed or in progress?
Consider becoming a member of the National Business Incubator Association (NBIA) and establishing a small business incubator site within the City in coordination with the San Jacinto College Small Business Development Center (SJC SBDC). Priority consideration should be given to already-owned property located in the Downtown area or in an area near San Jacinto College. The jointly sponsored incubator could include fully equipped office space at low cost (City provided) with initial and follow-along counseling at no cost (SJC SBDC provided) for entrepreneurs of small and emerging companies. Criteria would need to be developed for admission to the business incubator for start-up companies. In addition, the site could be cross-utilized as a temporary headquarters on a short term, temporary basis (i.e., one to three months) for new arrivals of established, major companies relocating to La Porte.	N



HIGH PRIORITY IMPLEMENTATION ACTION STATUS SUMMARIES

Safe Sidewalks Program	Prepare a safe sidewalks program to identify and correct unsafe and poorly maintained sidewalk segments at key locations throughout the community.
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Implementation Status	Priority Ranking 2012	Status Summary	Future Actions
	#14	<ul style="list-style-type: none"> Although not formalized in a Safe Sidewalks Program, annual sidewalk repairs are performed. A new sidewalk on Park St. is under construction in coordination with Harris County (partial funding from Harris County Safe Sidewalks Program). Sidewalks that are constructed undergo inspections. 	<ul style="list-style-type: none"> Utilize GIS mapping to map priority sidewalk investment areas. Work with GIS Dept. to create an App to track sidewalk repairs. Consider formalizing sidewalk repairs/construction into a formal Safe Sidewalks Program. Continue to pursue potential funding for sidewalks. Evaluate the potential for utilizing H-GAC's free Pedestrian Evaluation Tool to engage citizens in performing assessments of sidewalk conditions and educating about sidewalk maintenance.
	Priority Ranking 2018		
	#5		

Key implementation Department(s): Planning and Development and Public Works

Types of future actions:  Capital investments,  Programs and initiatives

Detailed components/action steps identified in 2012 Comprehensive Plan:	Completed or in progress?
Prepare a Safe Sidewalks Program to identify those locations where unsafe conditions and/or poorly maintained sidewalks exist particularly around, adjacent to, and leading to/away from schools; near and adjacent to public buildings and spaces; and other areas prone to heavy utilization of the sidewalks. Due to the significant costs of initial construction, maintenance of the existing sidewalk system should be a priority and should be adequately funded in the annual operating budget. Additional grant funding should also be pursued from such sources as Federal, State, private entities.	Y
In these priority areas, conduct regular inspections of safety conditions to ensure the walking surface is free from hazards and dangerous obstructions.	Y
Organize a public education program to notify the community of the Safe Sidewalks Program, the priority pedestrian areas, and the individual responsibilities for care and maintenance.	N



HIGH PRIORITY IMPLEMENTATION ACTION STATUS SUMMARIES

Increasing Sustainability | Determine a plan of action to improve the City's sustainability

Implementation Status	Priority Ranking 2012	Status Summary	Future Actions
	#15	<ul style="list-style-type: none"> The City is working toward water reduction targets with efforts such as utilizing greywater on Parks and Golf Course. A new water reduction target will be established in the updated WCP. New municipal projects such as the RFQ for new fitness center highlight desire for more sustainable municipal facilities. The City utilizes drought resistant landscaping for public improvement projects. 	<ul style="list-style-type: none"> Designate a City Sustainability point person who will work across departments to track and evaluate the City's sustainability efforts. Track metrics annually so the City can evaluate progress on components such as energy usage and water reduction. Evaluate potential for increasing recycling options. Survey neighboring cities with curbside recycling and evaluate costs and potential grant funding sources such as H-GAC's Solid Waste Grants program.
	Priority Ranking 2018		
	#8		

Key implementation Department(s): Economic Development/EDC, Parks and Recreation, Planning and Development, Public Works

Types of future actions:  Programs and initiatives,  Partnerships and coordination

Detailed components/action steps identified in 2012 Comprehensive Plan:	Complete or In Progress?
Reduce the City's energy usage	N
Reach the identified per capita water reduction targets	Y
Offer tax abatement incentives for private-sector development registered with LEED or other similar sustainable design and construction programs;	Y through Harris County
Pursue third-party certification (e.g., LEED-NC®) for design and construction of all new municipal projects;	Y
Utilize drought resistant landscaping for public improvement projects and provide incentives for private sector projects;	Y
Establish community drop-off recycling locations in each park in the short-term and curbside recycling in the long-term.	N



Strategic Corridors Program		Create a Strategic Corridors Program	
Implementation Status	Priority Ranking 2012	Status Summary	Future Actions
	#16	<ul style="list-style-type: none"> Although not formalized in a Strategic Corridors Program, corridor investments and improvements have been made, such as new Wharton Weems entry landscaping, design for sound wall and sidewalk on Spencer Highway and the S. Broadway Master Plan. 	<ul style="list-style-type: none"> Consider developing a corridor streetscape plan or corridor design standards to identify priority improvements for corridors. Evaluate potential for developing corridor overlays as part of zoning code. Coordinate with TxDOT to develop an Advance Funding Agreement (AFA) for TxDOT roadways which will establish standards for future improvements on TxDOT roadways.
	Priority Ranking 2018		
	#6		

Key implementation Department(s): Planning and Development, Public Works

Types of future actions:  Targeted planning/studies,  Regulation and standards.

Detailed components/action steps identified in 2012 Comprehensive Plan:	Complete or In Progress?
Create a Strategic Corridors Program by identifying strategic corridors within the community and direct aesthetic and infrastructure improvements along those corridors as a priority. Coordinate with the state and county, as necessary, for non-City roadways. As identified in Chapter 2, Map 2.2, Beautification Plan, primary corridors should include S.H. 225, Fairmont Parkway (in conjunction with the Harris County widening project), Underwood Road, and S.H. 146 frontage roads. Secondary corridor enhancements should be completed on Spencer Highway, Sens Road, San Jacinto Drive, and Broadway Street.	Y
A corridor streetscape plan should be prepared for these strategic corridors. The plans should include a detailed inventory and assessment of existing conditions, including land use and zoning, building footprints, numbers and locations of driveways and parking lots, numbers and locations of signs, trees, and vegetation, power poles and overhead lines, street cross sections and rights-of-way, sidewalks and pedestrian improvements, pervious and impervious surfaces, and general visual characteristics. The enhancement and design plans should include any regulatory recommendations and identified improvements and estimated costs. An implementation plan should identify priorities, funding options and sources, and a timeline.	N



Next Steps

Another major amendment such as occurred in 2012 should be undertaken in the 2020-2021 timeframe, with the aim of an adopted updated Comprehensive Plan by 2022, ten years after the last significant update. Such an update should include significant public engagement to ensure the updated vision, goals, and priorities reflect the desires of the community.

Utilizing the framework established by this Comprehensive Plan Progress Report, an annual evaluation of progress should be conducted, led by the Planning and Development Department.

The Annual Progress Report should include:

- 1)** Significant actions and accomplishments during the past year, including the status of implementation for each programmed task. A lead department should be identified for each implementation actions. Each identified lead department should coordinate with the Planning and Development Department to provide a single City-point of contact for the Annual Progress Report.
- 2)** Implementation constraints, including those encountered in administering the plan and its policies.
- 3)** Proposed amendments that have come forward during the course of the year, which may include revisions to the plan maps, or other recommendations, policies, or text changes.
- 4)** Recommendations for needed actions, programs, and procedures to be developed and implemented in the forthcoming year, including a recommendation of projects to be included in the CIP, programs and initiatives to be funded, and priority coordination needs with public and private implementation partners.
- 5)** Mid-to Long Range action list should be evaluated to determine if any of the actions should be moved to the high priority list for programming.





KENDIG KEAST
COLLABORATIVE

REQUEST FOR CITY COUNCIL AGENDA ITEM

Agenda Date Requested: <u>04-23-18</u>	<u>Budget</u> See Narrative
Requested By: <u>Kenith Adcox</u>	Source of Funds: _____
Department: <u>Police</u>	Account Number: _____
Report: _____ Resolution: _____ Ordinance: _____	Amount Budgeted: _____
Exhibits: <u>Interlocal Agreement with LPISD for SRO Sergeant Civil Service Ordinance 1285 (Revised Red-line) Civil Service Ordinance 1285 (Revised Clean)</u>	Amount Requested: <u>\$94,108.53</u>
	Budgeted Item: YES <u>NO</u>

SUMMARY & RECOMMENDATION

The La Porte Independent School District (LPISD) currently contracts 5 School Resource Officers (SRO’s) and 1 DARE Officer from the City of La Porte. These officers provide primary safety, security, and law enforcement services at each of La Porte’s Jr. High and High Schools. The District reimburses the City for the total cost of each of these officer’s salaries and benefits for the 9 months that school is in session. The officers are assigned back to the police department and are generally assigned to patrol duties during the summer months, which are the most active times for the police department due to the high number of youth that are out of school and often only loosely supervised.

Due to an ever increasing concern for school safety, highlighted by several recent high-profile events involving mass shootings and other violent events on school campuses throughout the nation, the District has made a formal request to the City relating to the LPISD and City of La Porte’s SRO Program. The request is to increase the School Resource Officer Program staffing by adding a “full-time” Sergeant position. Unlike the existing SRO’s, the requested Sergeant would be assigned to the school district year around. The District would reimburse the city for all of the Sergeant’s salary and benefits for the entire year, including any overtime incurred. Additionally, since the request would require the police department to hire an additional employee, the district has agreed to reimburse the City for the costs associated with the Sergeant’s uniforms and equipment as well as the purchase of a new police patrol vehicle to be used by the Sergeant.

Having a full-time Sergeant assigned to the program will provide direct oversight and on-campus supervision for each of the existing School Resource Officers, while providing an additional layer of security to our area schools. In addition to supervising all officers assigned to the schools, the Sergeant would handle all administrative responsibilities relating to the officers, including scheduling, leave requests, etc. He/she would be available to serve as a substitute SRO officer should a SRO be away from his/her campus for any reason, would approve all SRO reports, provide mobile campus patrol as he/she moves from campus to campus checking on individual fixed campus SRO’s, etc. Currently the SRO’s are assigned under the department’s Support Services Division supervisor for administrative purposes; however, not being on-campus and having numerous other departmental responsibilities, the Support Services Division sergeant is able to provide only limited oversight to the SRO’s.

The agreement would commence on May 1, 2018. The included Agreement has already been approved by the LPISD School Board. As with the existing SRO Agreement, this agreement would run for three years, ending the last day of the school year in 2021, with an option to extend the agreement for two years.

As mentioned above, the agreement includes salary and benefit figures for a Sergeant in the amount of \$114,980.48 for the first year with provisions to increase each year thereafter to keep pace with anticipated salary increases, as well as one-time cost of \$42,700.00 for a vehicle and computer equipment and \$3,500 for uniforms and a taser. As with previous agreements, the City would continue to have full use of this Sergeant should the need arise, i.e. weather emergencies.

The Police Department is recommending that Council approve this interlocal agreement with the La Porte Independent School District due to the substantial benefits the program provides to the La Porte community. The approval of this agreement will require a modification to the Civil Service Ordinance, adding an additional Sergeant. An amended Civil Service Ordinance, reflecting the additional Sergeant position, is also included here. Please note, the amended Civil Service Ordinance also includes the previously approved additional police officer positions that were approved during the City's 2017-2018 Budget. The Civil Service Ordinance had yet to be amended to reflect these approved positions.

While the actual cost to the city for the SRO Sergeant will be a net-zero, a budget amendment will be necessary to reflect the additional Sergeant's salary and benefits for the remainder of the current fiscal year (\$47,908.53), uniforms, and vehicle costs as well as the related reimbursements from the LPISD. If approved, staff will prepare an ordinance amending the fiscal year 2017-18 budget for future approval.

Action Required by Council:

Review and approve the Interlocal Agreement between the City of La Porte and the La Porte Independent School District as well as amending the City of La Porte's Civil Service Ordinance, by adding an additional sergeant's position to the Police Department's authorized staffing.

Approved for City Council Agenda

Corby Alexander, City Manager

Date

Attachment "A"

Sergeant

Year 1	SGT	
Wages	81,473.60	2080 hours *
FICA	6,232.73	7.65%
Health	10,422.00	10422 annually
Life	36.00	36 annually
TMRS	13,263.90	16.28%
Work/Comp	3,552.25	4.36%
	114,980.48	

Year 2	SGT	
Wages	83,470.40	2080 hours *
FICA	6,385.49	7.65%
Health	10,422.00	10422 annually
Life	36.00	36 annually
TMRS	13,588.98	16.28%
Work/Comp	3,639.31	4.36%
	117,542.18	

Year 3	SGT	
Wages	85,467.20	2080 hours *
FICA	6,538.24	7.65%
Health	10,422.00	10422 annually
Life	36.00	36 annually
TMRS	13,914.06	16.28%
Work/Comp	3,726.37	4.36%
	120,103.87	

AGREEMENT

STATE OF TEXAS §

COUNTY OF HARRIS §

WHEREAS, this Agreement is made and entered into by and between the LA PORTE INDEPENDENT SCHOOL DISTRICT, hereinafter called "DISTRICT", and the CITY OF LA PORTE, TEXAS, a Texas municipal corporation, hereinafter called "CITY".

WITNESETH:

WHEREAS, DISTRICT desires to have the Chief of Police of the City of La Porte, hereinafter called "CHIEF", authorize and direct one (1) CITY Patrol Sergeant, hereinafter called "PATROL SERGEANT", to devote his/her working time to the District Schools, and

WHEREAS, DISTRICT is willing to pay the CITY an agreed amount equal to the cost to the CITY for supplying the additional law enforcement services, including salary and benefits, as detailed in Exhibit A, so as to enable PATROL SERGEANT assigned by the CHIEF to provide those services;

NOW THEREFORE, in consideration of the mutual covenants, agreements, and benefits to both parties, it is AGREED as follows:

The CITY agrees to authorize the CHIEF to assign a PATROL SERGEANT to provide law enforcement services to DISTRICT by providing supervisory and administrative oversight to the existing school resource officers already assigned to, and paid for by, the DISTRICT. As used herein, the phrase "working time" means the usual or normal hours that the PATROL SERGEANT is required to work in any calendar year, including the time the PATROL SERGEANT spends investigating crimes, the time the PATROL SERGEANT spends patrolling, the time the PATROL SERGEANT spends doing administrative work required by his/her assignment, the time the PATROL SERGEANT is in court, leave time taken by the PATROL SERGEANT, the time the PATROL SERGEANT is in required training, the time the PATROL SERGEANT spends preparing reports and documents, the time the PATROL SERGEANT spends transporting persons arrested or detained, and the time spent in any and all activities related to performing law enforcement services for the DISTRICT shall be deemed working time. The items lists above are explanatory and the meaning for "working time" is not limited to said list.

II.

The DISTRICT agrees to pay to the CITY the sum of \$114,980.48 ("Base Amount") for assignment of one (1) PATROL SERGEANT to the DISTRICT, for the first year included in this agreement. The Base Amount is based on one (1) PATROL SERGEANT working eight (8) hours each day for a total of 2080 hours per year, and shall serve as the basis of compensation for the working time of PATROL SERGEANT. LPISD agrees that the PATROL SERGEANT is entitled to time off benefits such as sick time, vacation and holidays provided by CITY to its employees and that those hours are included in the above sum and will be paid by the LPISD. The DISTRICT agrees to pay the CITY for any additional hours above 2080 hours worked in a one-year period that the DISTRICT requires of the PATROL SERGEANT to provide law enforcement services to La Porte Schools in an amount equal to the pro-rata cost for additional hours calculated using the Base Amount for the contract year. Any additional hours to be performed by PATROL SERGEANT must be requested by the District and approved through the CHIEF or his designee.

The Base Amount shall remain consistent for the first year, except as otherwise provided in this agreement, but said Base Amount will increase to the sum of \$117,542.18 for school year two (2), and

further increase to \$120,103.87 for school year three (3), of this agreement. Said increases of the Base Amount shall include and incorporate the PATROL SERGEANT'S structured "step" pay raises for school year two (2) and school year three (3) under this agreement, as indicated in the salary schedule of payment attached as Exhibit A and incorporated by reference for all purposes.

As detailed below, the DISTRICT further agrees that the Base Amount, and/or the increases to the Base Amount for year two, and each year thereafter, as specified in the preceding paragraph and on Exhibit A to this agreement, may be increased by a factor equal to Consumer Price Index – Urban (CPI-U) increases or three (3) percent, whichever is greater. The CITY shall notify the DISTRICT of any increases at least thirty (30) days prior to the effective date of the proposed increase.

Starting with school year 2019-2020 the new contract amount will be calculated based on the previous year's total billing. The Base Amount will be increased by a factor equal to the Consumer Price Index. Such factor will be an arithmetic equation with the year of January 2019 of Consumer Price Index to all urban consumers being the numerator and the year January 2018 of the Consumer Price Index to all consumers will be the denominator for the school year 2019-2020. For the school year 2020-2021 the Base Amount will be billed amount from 2019-2020 increased by the Consumer Price Index for all urban customers for January 2020 being the numerator and Consumer Price Index for all consumers for January 2019 being the denominator. The resulting quotient, if greater than 3% will be multiplied by the base to arrive at the current billing amount. If the quotient is less than 3%, then 3% will be multiplied by the base amount to determine the amount to be billed.

In addition to costs calculated to reimburse the City for its payment of the PATROL SERGEANT's salary and benefits, the DISTRICT agrees to pay to the CITY the one-time sum of \$3500.00 to cover CITY'S expense for the cost of appropriately equipping a new PATROL SERGEANT, including but not limited to uniforms, protective vest, and taser. Additionally, DISTRICT agrees to pay to CITY a one-time sum of \$42,700.00 to cover CITY'S expense for the cost of purchasing an appropriately equipped marked patrol vehicle for the PATROL SERGEANT's use in providing services to DISTRICT under this agreement. It is agreed by DISTRICT and CITY that the aforementioned equipment and patrol vehicle once acquired by CITY will remain the property of CITY after termination of this agreement. The CITY agrees to issue the DISTRICT an invoice for these one-time costs and the DISTRICT agrees to pay the invoice within thirty (30) days of the date of such invoice. The City and the District agree to work cooperatively to identify and provide for any additional equipment necessary for the PATROL SERGEANT to provide the services pursuant to this contract prior to incurring such costs.

The CITY will provide to the DISTRICT an invoice, at the beginning of each semester, setting forth costs for providing these additional law enforcement services as established in this agreement, to the DISTRICT. The DISTRICT agrees to reimburse the CITY the cost as set forth in the invoice within thirty (30) days of the date of such invoices. If the DISTRICT, for any reason disputes any items in any invoices submitted by the CITY, the DISTRICT shall promptly notify the CITY of the dispute and request clarification and/or remedial action. The decision of the CITY regarding all disputes involving the cost for providing the PATROL SERGEANT shall be final. Payment shall be made to the City of La Porte, Attention: Finance Director, 604 West Fairmont Parkway, La Porte, Texas 77571. Invoices sent by the CITY shall be addressed to the La Porte Independent School District: Attention: David Drake, Business Office, 301 East Fairmont Parkway, La Porte, TX 77571. Either party hereto may change its address for the purposes of this agreement by giving written notice of such change in the manner provided for in this agreement.

III.

The term of this agreement shall be for each school year, as determined by the DISTRICT, commencing May 1, 2018, and ending on the final day of school in the year 2021, and shall include an option to extend this agreement for an additional two (2) years, with the same terms and conditions, upon

the express written approval of the CITY and the DISTRICT. In the event that this agreement is extended for an additional two (2) years, DISTRICT agrees that the PATROL SERGEANT position Base Amount for school years four (4) and five (5) will incorporate PATROL SERGEANT'S structured "step" pay raises in the amount established by CITY.

It is expressly understood and agreed that the period or term of this agreement may be terminated with or without notice by the CITY at any time after the DISTRICT has defaulted on any payment of any obligation hereunder. Further, it is expressly understood and agreed that the period or term of this agreement may be terminated by the CITY or DISTRICT for any reason with ninety (90) day written notice to the other party. Payments hereunder shall be pro-rated to effective date of cancellation.

Any notice permitted or required to be given in this section to the DISTRICT shall be given by registered or certified United States, mail, postage prepaid, return receipt requests, and addressed to the DISTRICT at 301 East Fairmont Parkway, La Porte, Texas 77571.

Any notice permitted or required to be given in this section to the CITY shall be given by registered or certified United States mail, postage prepaid, return receipt requested, and addressed to the CITY, Attention: City Manager, at 604 West Fairmont Parkway, La Porte, Texas 77571.

IV.

Operating with the La Porte Police Department's SRO Operating Procedures, it is expressly understood and agreed that any PATROL SERGEANT assigned to work at the DISTRICT shall be subject to the exclusive control, operational command, and supervision of the CHIEF and to the same extent as all other PATROL SERGEANTS, and shall have no duty or obligation to the DISTRICT other than those duties or obligations which the PATROL SERGEANT would have to the public generally, to enforce state laws and CITY ordinances, specifically, PATROL SERGEANT shall not be required to enforce DISTRICT rules and regulations. The CHIEF shall set the working times (hours and days) for the PATROL SERGEANT after consulting with a designated agent of the DISTRICT.

V.

It is expressly agreed and understood between the DISTRICT and the CITY, that if, in the opinion of the CHIEF, it is necessary to use the PATROL SERGEANT assigned to carry out this agreement for other duties due to an emergency, or other reasons as determined solely by the CHIEF, that the CHIEF may temporarily suspend the assignment of PATROL SERGEANT to comply with the agreement. It is, however understood by both the CITY and the DISTRICT that the DISTRICT will be credited on a pro-rata basis for the charges hereunder if a PATROL SERGEANT is temporarily assigned to other duties at the direction of the CHIEF.

VI.

Both parties mutually agree that the CITY is an independent contractor, and shall have exclusive control of performance hereunder, and that employees of the CITY are in no way to be considered employees of the DISTRICT.

VII.

Should any litigation be commended between the parties hereto concerning this agreement, or the rights and duties of either party in relation thereto, the party prevailing in such litigation shall be entitled, in addition to such other relief as may be granted, to a reasonable sum as and for its attorney's fees in such litigation. Nothing in the paragraph shall be construed so as to limit or waive the sovereign immunity of either the CITY or the DISTRICT.

VIII.

This agreement shall be construed under and in accordance with the laws of the State of Texas, and all obligations of the parties hereunder shall be performed in Harris County, Texas.

IX.

If any one or more of the provisions contained in this agreement shall for any reason be held to be invalid, illegal, or unenforceable in any respect, such invalidity, illegality, or unenforceability shall not affect any other provision thereof and this agreement shall be construed as if such invalid, illegal, or unenforceable provision had never been contained herein.

X.

This agreement constitutes the sole and only agreement of the parties hereto and supersedes any prior understanding of written or oral agreements between the parties respecting the subject matter within.

XI.

No amendment, modification, or alteration of the terms hereof shall be binding unless submitted in writing, dated subsequent to the date hereof, and duly executed by both parties.

XII.

Neither party to this agreement may assign their rights, duties, or interest without first obtaining written consent of the other party. Consent to one assignment shall not be deemed to be consent to any subsequent assignment. An assignment without the written agreement of both parties, or an assignment by operation of law, shall be void, and shall, at the option of either party, terminate this agreement.

IN WITNESS WHEREOF, the undersigned DISTRICT and CITY hereto execute this agreement effective on this _____ day of _____, 2018.

CITY OF LA PORTE, TEXAS

By: _____
Corby Alexander
City Manager

ATTEST:

By: _____
Patrice Fogarty
City Secretary

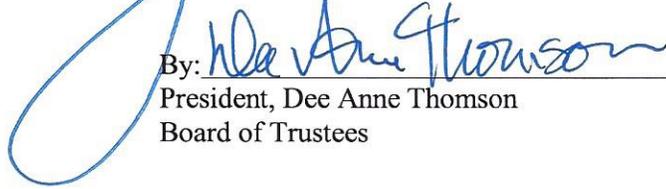
APPROVED:

By: _____
Clark T. Askins
Assistant City Attorney

LA PORTE INDEPENDENT
SCHOOL DISTRICT

By: 

Superintendent, Lloyd Graham

By: 

President, Dee Anne Thomson
Board of Trustees

ORDINANCE NO. _____

AN ORDINANCE AMENDING ORDINANCE NO. 1285, "AN ORDINANCE IMPLEMENTING POLICEMAN'S CIVIL SERVICE; ESTABLISHING CLASSIFICATIONS; NUMBER OF AUTHORIZED POSITIONS IN EACH CLASSIFICATION; ESTABLISHING PAY SCHEDULES"; CONTAINING A SEVERABILITY CLAUSE; CONTAINING A REPEALING CLAUSE; FINDING COMPLIANCE WITH THE OPEN MEETINGS LAW, AND PROVIDING AN EFFECTIVE DATE HEREOF.

BE IT ORDAINED BY THE CITY COUNCIL OF THE CITY OF LA PORTE:

Section 1. Section 3 of Ordinance 1285, as amended, is hereby amended and shall hereafter read as follows, to-wit:

"Section Three. There are hereby established the following number of authorized positions in each of the foregoing classifications, to-wit:

<u>Classification</u>	<u>Number of Authorized Positions</u>
Patrolmen	60
Sergeant	11
Lieutenant	5
Assistant Chief	2

Section 2. All ordinances or parts of ordinances inconsistent with the terms of this ordinance are hereby repealed; provided, however, that such repeal shall be only to the extent of such inconsistency and in all other respects this ordinance shall be cumulative of Ordinance No. 1285 and any amendments thereto.

Section 3. If any section, sentence, phrase, clause, or any part of any section, sentence, phrase, or clause, of this Ordinance shall, for any reason, be held invalid, such invalidity shall not affect the remaining portions of this Ordinance, it is hereby declared to be the intention of the City of La Porte Council to have passed each section, sentence, phrase, or clause, or part thereof, irrespective of the fact that any other section, sentence, phrase, or clause, or part thereof, may be declared invalid.

Section 4. The City Council officially finds, determines, recites and declares that a sufficient written notice of the date, hour, place and subject of this meeting of the City Council was

posted at a place convenient to the public at the City Hall of the City for the time required by law preceding this meeting, as required by the Open Meetings Law, Chapter 551, Texas Government Code; and that this meeting has been open to the public as required by law at all times during which this ordinance and the subject matter thereof has been discussed, considered and formally acted upon. The City Council further ratifies, approves and confirms such written notice and the contents and posting thereof.

Section 5. This Ordinance shall take effect upon its passage and approval, and it is so ordered.

PASSED AND APPROVED THIS THE _____ DAY OF _____, 2018.

CITY OF LA PORTE

By: _____

LOUIS RIGBY,
Mayor

ATTEST:

By: _____
PATRICE FOGARTY,
City Secretary

APPROVED:

By: Clark T. Askins
CLARK T. ASKINS
Assistant City Attorney

ORDINANCE NO. _____

AN ORDINANCE AMENDING ORDINANCE NO. 1285, “AN ORDINANCE IMPLEMENTING POLICEMAN’S CIVIL SERVICE; ESTABLISHING CLASSIFICATIONS; NUMBER OF AUTHORIZED POSITIONS IN EACH CLASSIFICATION; ESTABLISHING PAY SCHEDULES”; CONTAINING A SEVERABILITY CLAUSE; CONTAINING A REPEALING CLAUSE; FINDING COMPLIANCE WITH THE OPEN MEETINGS LAW, AND PROVIDING AN EFFECTIVE DATE HEREOF.

BE IT ORDAINED BY THE CITY COUNCIL OF THE CITY OF LA PORTE:

Section 1. Section 3 of Ordinance 1285, as amended, is hereby amended and shall hereafter read as follows, to-wit:

“Section Three. There are hereby established the following number of authorized positions in each of the foregoing classifications, to-wit:

<u>Classification</u>	<u>Number of Authorized Positions</u>
Patrolmen	57 60
Sergeant	40 11
Lieutenant	5
Assistant Chief	2

Section 2. All ordinances or parts of ordinances inconsistent with the terms of this ordinance are hereby repealed; provided, however, that such repeal shall be only to the extent of such inconsistency and in all other respects this ordinance shall be cumulative of Ordinance No. 1285 and any amendments thereto.

Section 3. If any section, sentence, phrase, clause, or any part of any section, sentence, phrase, or clause, of this Ordinance shall, for any reason, be held invalid, such invalidity shall not affect the remaining portions of this Ordinance, it is hereby declared to be the intention of the City of La Porte Council to have passed each section, sentence, phrase, or clause, or part thereof, irrespective of the fact that any other section, sentence, phrase, or clause, or part thereof, may be declared invalid.

Section 4. The City Council officially finds, determines, recites and declares that a sufficient written notice of the date, hour, place and subject of this meeting of the City Council was posted at a place convenient to the public at the City Hall of the City for the time required by law preceding this meeting, as required by the Open Meetings Law, Chapter 551, Texas Government Code; and that this meeting has been open to the public

as required by law at all times during which this ordinance and the subject matter thereof has been discussed, considered and formally acted upon. The City Council further ratifies, approves and confirms such written notice and the contents and posting thereof.

Section 5. This Ordinance shall take effect upon its passage and approval, and it is so ordered.

PASSED AND APPROVED THIS THE _____ DAY OF _____, 2018.

CITY OF LA PORTE

By: _____

LOUIS RIGBY,
Mayor

ATTEST:

By: _____
PATRICE FOGARTY,
City Secretary

APPROVED:

By: _____
CLARK T. ASKINS
Assistant City Attorney

LPEMS has responded to a total of 2080 calls for service YTD. 50 of those calls have been to neighboring cities as a mutual aid request with only 39 being actually fulfilled due to 11 being disregarded before LPEMS reached the incident location. In return, those neighbors were collectively called to La Porte for a mutual aid request a total of 10 times this year with only 7 actually arriving due to LPEMS disregarding them 5 times before they could arrive here due to LPEMS getting an ambulance back into service before they could arrive here.

Records indicate that not any of the 10 calls for a mutual aid request to La Porte were due to La Porte being out on a mutual aid request to a neighboring city. However, the data does show that one of the mutual aid requests to Baytown by La Porte was due to them having one of their units here in La Porte on a mutual aid request by us.

This issue is being brought to council due to staff recently receiving an inquiry concerning the current EMS response policy to mutual aid requests and would like to receive direction from Council on EMS mutual aid response recommendations.

Action Required by Council:

Discuss EMS response to mutual aid requests and provide staff with direction on possible revisions to response policy if deemed necessary.

Approved for City Council Agenda

Corby D. Alexander, City Manager

Date



Council Agenda Item April 23, 2018

9. ADMINISTRATIVE REPORTS

- Fiscal Affairs Committee Meeting, Monday, May 14, 2018
- Drainage and Flooding Committee Meeting, Monday, May 14, 2018
- City Council Meeting, Monday, May 14, 2018
- Planning and Zoning Commission Meeting, Thursday, May 17, 2018
- Zoning Board of Adjustment Meeting, Thursday, May 24, 2018

10. COUNCIL COMMENTS regarding matters appearing on the agenda; recognition of community members, city employees, and upcoming events; inquiry of staff regarding specific factual information or existing policies – Councilmembers J. Martin, K. Martin, Kaminski, Zemanek, Leonard, Engelken, Earp, Ojeda and Mayor Rigby

11. ADJOURN
