

## **APPENDIX C**

### **STORMWATER MANAGEMENT REPORT**

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# STORMWATER MANAGEMENT REPORT

## NEW MEADOWLANDS STADIUM

*Prepared For Applicant and Owner:*

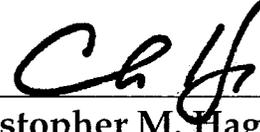
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17 October 2006

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## **INTRODUCTION**

This report presents an evaluation of stormwater runoff associated with the proposed New Meadowlands Stadium project. The subject site is within New Jersey Sports and Exposition Authority (NJSEA) Meadowlands Complex. The proposed project includes participation from the NJSEA and the New Meadowlands Stadium Company.

The report assesses the stormwater runoff generated by the NJDEP 2-, 10-, 25- and 100-year storm event to meet the New Jersey Department of Environmental Protection's (NJDEP) requirements for a Waterfront Development Permit. The stormwater evaluation was conducted using the United States Natural Resource Conservation Service (NRCS) Technical Release No. 55 (TR-55) and the Rational Method.

The proposed development will result in a decrease in impervious area, resulting in a reduction in stormwater runoff. In addition, over 7-acres of existing pavement will be converted to roof and/or structural slab with artificial turf.

The existing NJSEA lagoon system will continue to provide the appropriate stormwater quality and quantity control for the for the NJSEA property, including the project site. The NJSEA property currently operates under an existing NPDES permit for lagoon discharge. The site is exempt from the NJDEP's recharge requirements because the existing site conditions and high groundwater table.

The existing conditions, proposed development, stormwater methodologies, and analysis results are presented herein. All elevations cited in this report are referenced to NGVD 29.

## **PROJECT DESCRIPTION**

### **Site Description**

The New Meadowlands Stadium Project will redevelop portions of the West Site of the Meadowlands Sports Complex (West Site) that is located in the Borough of East Rutherford, Bergen County, New Jersey (Figure 1). The Meadowland Sports Complex is located within a special state planning area called the Hackensack Meadowlands District (HMD) that is overseen by the New Jersey Meadowlands Commission (NJMC). The Meadowlands Sports Complex property is located to the northwest of the Hackensack River and is generally bounded by Paterson Plank Road on the northeast, the New Jersey Turnpike on the east, Route 3 on the south, and Berry's Creek on the west. Route 120 bisects the Sports Complex property.

The Meadowlands Sports Complex is one of the largest sports and entertainment venues in the entire country. It consists of Giants Stadium, the Meadowlands Racetrack, the Continental Airlines

Arena, and ancillary buildings, parking areas and pedestrian walkways. The East Site of the Meadowlands Sports Complex (East Site), located east of Route 120, currently contains Continental Airlines Area, while the West Site, located west of Route 120, includes the existing Giants Stadium and practice facilities and the Meadowlands Racetrack.

A Project Study Area has been defined for the Stadium Project. The Project Study Area contains those areas on the West Site of the Meadowlands Sports Complex where construction activities for the Stadium Project will be performed, making the total Project Study Area approximately 270 acres in total size. As described further below, the construction activities range from replacement of the existing stadium and training facilities, construction of new structures, installation of new below-grade infrastructure, and resurfacing of parking and roadway areas (Figure 2).

The NJSEA property, including the Project Site, is surrounded by an earthen berm with an elevation of approximately el 10. Stormwater within the berm area is managed by a complex system of pipes, pumps, and lagoons. The 100-year flood elevation is indicated as el. 8.4-8.6 NGVD on FEMA Flood Insurance Study, Bergen County, New Jersey (all jurisdictions), revised September 30, 2005, and as indicated el. 8.0-9.0 NGVD illustrated per FEMA FIRM'S map number 34003C0254G and map number 34003C0262G, revised September 30, 2005. (Figure 3.)

## **Project Description**

The New Meadowlands Stadium Project (Stadium Project) will redevelop portions of the West Site (West Site) of the Meadowlands Sports Complex located in East Rutherford, New Jersey. The Stadium Project will provide a new stadium to replace the existing Giants Stadium, construct a new Giants Training Facility to replace the existing training facilities, and construct additional ancillary development adjacent to the new stadium to support stadium activities. The Stadium Project also includes the reconfiguration and repaving of the existing parking areas and internal roadway network located on the West Site of the Meadowlands Sports Complex.

The new stadium is the anchor of the Stadium Project and will provide a modern environment to attend professional sporting and entertainment events. The new stadium will include team and other stores, a hall of fame, sponsored areas, premium program areas and club lounges that can also serve as banquet/conference/dining facilities similar to other uses found in modern stadiums. The new stadium will be built just to the northeast of the existing stadium and will act as a hub of the site with program elements radiating from its core. The new stadium will be approximately 170 feet tall from grade to the top seating row, and contain approximately 82,500 seats including suites, club seats and general admission seats. The new stadium will have a building footprint of approximately 700,000 square feet and provide approximately 2,125,000 square feet of gross building area (GBA). Approximately 285,000 square feet of Gross Leasable Area (GLA) will be provided within the new stadium. The existing stadium will be demolished once the new stadium is constructed and operational.

To the south of the new stadium will be the ancillary development. The ancillary development will be constructed after the new stadium is operational and is dependent on market demand. The ancillary development will include uses that are compatible with the development and operation of a new stadium and may include uses such as broadcast facilities; sponsored areas; sports medicine, health and fitness clinics and facilities; stores and restaurants. The ancillary development supports the operation of the new stadium. The future NJ Transit rail alignment will bisect the ancillary development area into two separate but linked areas (i.e., pods) that have a total of approximately 617,000 square feet GBA (approximately 520,000 square feet of GLA).

The Stadium Project also includes the construction of a new Giants training facility on approximately 20 acres located in the southwest corner of the project site. This new facility will replace the existing training facilities and offices that are currently located in and adjacent to Giants Stadium. The new facility, including a future expansion, will be approximately 400,000 square feet GBA (approximately 360,000 square feet of GLA plus 10% of non-leasable service area) and consist of an indoor practice facility, three full-sized outdoor practice fields, a training center with offices and at-grade parking. The indoor practice facility consists of approximately 100,000 GLA of enclosed space for football training. An additional 260,000 GLS of office and training program space is anticipated within multi-level structures up to three stories in height.

The parking and internal roadway network areas to the west of the new stadium will be reconfigured to radiate parking areas around the stadium, stadium plaza and ancillary development. New curbing, sidewalks, lighting and landscaping, and supplemental drainage and utility improvements are proposed to improve the existing parking lots. The Stadium Project also includes the future development of tailgating areas that can accommodate game/event related merchandising, food and beverage operations, restroom facilities, as well as provide a gathering place for media and entertainment opportunities in conjunction with games/events. Each tailgating structure will have a GBA of approximately 5,000 square feet. Two future tailgate zones are contemplated at this time, for a total of 10,000 square feet GBA.

## **DESIGN APPROACH / METHODOLOGY**

### **Stormwater Runoff Analysis**

The stormwater runoff for this study was determined in accordance with the United States Natural Resource Conservation Service (NRCS) Technical Release No. 55 (TR-55) manual. The guidelines and methodologies in this manual meet the NJDEP stormwater calculation requirements presented in Section 7:8-5.6 of the New Jersey Administrative Code (N.J.A.C.). The NRCS TR-55 methodology was chosen for the stormwater runoff analysis in lieu of other accepted hydrologic methods, such as the Rational Method, because the NRCS method has the ability to develop total stormwater runoff volumes.

The existing site and proposed site conditions were evaluated using the 24-hour, Type III SCS storm distribution for the NJDEP 2-, 10-, 25-, and 100-year return periods. A 6-minute minimum inlet time for each sub-area, and curve numbers (CN) of 98 and 77 were selected for impervious areas and pervious (grassed) areas, respectively, in accordance with the TR-55 manual and the stormwater management report for Meadowlands Xanadu. The total rainfall depths for the SCS Type III 24-hour storm events were determined according to the site's geographic location and the Natural Resource Conservation Service's (NRCS) September 2004 revised New Jersey 24-hour rainfall data; see Attachment A.

### **Stormwater Conveyance Analysis**

The proposed stormwater conveyance systems for this study were analyzed and designed using the Rational Method. A 25-year design storm and intensity-duration-frequency (IDF) curves, Attachment B, developed for East Rutherford, New Jersey were used to size and evaluate the proposed pipe networks as required by the NJMC. A runoff coefficient of 0.95 was assigned to impervious (paved) areas, and a runoff coefficient of 0.30 was assigned to pervious (grassed) areas. Proposed pipes and existing pipes to remain were evaluated based on pipe capacity. A tailwater elevation of -9.0 was used for all lagoons based on the Lagoon System Operation Manual (Attachment C.) Because many of the existing pipes will remain, and the lagoons provide significant tailwater depths at the outfalls, many of the existing and proposed pipes will operate under a "surcharged" condition, which is consistent with the existing system.

### **SITE HYDROLOGY ANALYSIS**

A hydrologic analysis, using the SCS Method and a Type III 24-hour storm distribution for the NJDEP, 2-, 10-, 25-, and 100-year return periods, was performed for the existing and proposed drainage areas. Runoff hydrographs were generated based on land cover, slope, and time of concentration. A summary of these analyses are presented in the following sections. Existing and proposed curve number calculations are presented in Appendix A. Existing and proposed stormwater runoff hydrographs are presented in Appendix B.

#### **Existing**

The site's existing topography generally slopes from the stadium area to the surrounding lagoons. The existing site drainage is divided into five main sub-areas (Figure 4). Drainage Area 2 (EX-DA-2) is located west of the existing stadium and drains to Lagoon 2 near the far west of the site. Drainage Area 3 (EX-DA-3) is located south of the existing stadium and drains to Lagoon 3 near Stadium Club Road. Drainage Area 4 (EX-DA-4) is located north of the existing stadium and drains to Lagoon 4 (EX-DA-4) within the Meadowlands Race Track. Drainage Areas 5 and 6 are located east of the existing stadium and drain offsite to the Radio Tower Site and Cedar Ditch, respectively. Characteristics of these sub-areas are summarized below:

- EX-DA-2 – Drainage area EX-DA-2 is a 107.93-acre drainage area that consists mainly of an existing parking lot, existing training facility, and a portion of the existing Giants Stadium. Area EX-DA-2 discharges to Lagoon 2 (Figure 4). The curve number for drainage area EX-DA-2 is 94. See Appendix A for existing curve number calculations and Table A below for a summary.

<b>TABLE – A</b>				
<b>EXISTING DRAINAGE AREA EX-DA-2 LAND COVERAGE</b>				
Impervious Area CN=98 (Acres)	Roof Area CN=98 (Acres)	Pervious Area CN=77 (Acres)	<b>TOTAL AREA (Acres)</b>	<b>Composite Curve Number (CN Value)</b>
89.83	0	18.10	<b>107.93</b>	<b>94</b>

*Note: Impervious area is defined as pavement and hardscape (excludes roofs and main stadium field.)*

- EX-DA-3 – Drainage area EX-DA-3 is separated into two sub-areas, both discharging in Lagoon 3. The first area is a 73.99-acre drainage area located on the project site that consists mainly of an existing parking lot and a large portion of the existing Giants Stadium. The curve number for this portion of drainage area EX-DA-3 is 94. The second area is a 51-acre drainage area located on the Meadowlands Xanadu project site that consists of the existing Continental Arena and paved parking areas located within the site’s existing peripheral roadway. According to the Meadowlands Xanadu Stormwater Report, the curve number for this portion of drainage area EX-DA-3 is 97. Table B below provides a summary of area EX-DA-3.

<b>TABLE – B</b>					
<b>EXISTING DRAINAGE AREA EX-DA-3 LAND COVERAGE</b>					
Portion of EX-DA-3	Impervious Area CN=98 (Acres)	Roof Area CN=98 (Acres)	Pervious Area CN=77 (Acres)	<b>TOTAL AREA (Acres)</b>	<b>Composite Curve Number (CN Value)</b>
Project Site	50.71	10.19	13.09	<b>73.99</b>	<b>94</b>
Xanadu	44.9	3.6	2.5	<b>51</b>	<b>97</b>
Total	95.61	13.79	15.59	<b>124.99</b>	-

*Note: Impervious area is defined as pavement and hardscape (excludes roofs and main stadium field.)*

- EX-DA-4 – Drainage area EX-DA-4 is a 242.30-acre area that consists of an existing parking lot and the Meadowlands Race Track. Area EX-DA-4 discharges into Lagoon 4. The curve number for drainage area EX-DA-3 is 94. Table C below provides a summary of area EX-DA-4.

<b>TABLE – C</b>				
<b>EXISTING DRAINAGE AREA EX-DA-4 LAND COVERAGE</b>				
Impervious Area CN=98 (Acres)	Roof Area CN=98 (Acres)	Pervious Area CN=77 (Acres)	<b>TOTAL AREA (Acres)</b>	<b>Composite Curve Number (CN Value)</b>
186.53	13.99	41.78	<b>242.30</b>	<b>94</b>

Note: Impervious area is defined as pavement and hardscape (excludes roofs and main stadium field.)

- EX-DA-5 – Drainage area EX-DA-5 is a 6.08-acre drainage area that consists of an on-site parking lot (120 South lot). Area EX-DA-5 discharges off-site to the Radio Tower site via a discharge pipe with Route 120. The curve number for drainage area EX-DA-3 is 83. Table D below provides a summary for EX-DA-5.

<b>TABLE – D</b>				
<b>EXISTING DRAINAGE AREA EX-DA-5 LAND COVERAGE</b>				
Impervious Area CN=98 (Acres)	Roof Area CN=98 (Acres)	Pervious Area CN=77 (Acres)	<b>TOTAL AREA (Acres)</b>	<b>Composite Curve Number (CN Value)</b>
1.67	0	4.41	<b>6.08</b>	<b>83</b>

Note: Impervious area is defined as pavement and hardscape (excludes roofs and main stadium field.)

- EX-DA-6 – Drainage area EX-DA-6 is a 3.80-acre drainage area that consists of an existing NJSEA parking lot that will be converted to a NJ Transit parking lot. EX-DA-6 currently drains off-site to the Cedar Ditch, but we understand that NJ Transit is considering draining the lot to Lagoon 3. For planning purposes, we have taken the conservative approach and assumed that this “off-site” lot will drain on-site to Lagoon 3. However, this transit lot is not within the scope of this project. The curve number for drainage area EX-DA-6 is 85. Table E below provides a summary of EX-DA-6.

<b>TABLE – E</b>				
<b>EXISTING DRAINAGE AREA EX-DA-6 LAND COVERAGE</b>				
Impervious Area CN=98 (Acres)	Roof Area CN=98 (Acres)	Pervious Area CN=77 (Acres)	<b>TOTAL AREA (Acres)</b>	<b>Composite Curve Number (CN Value)</b>
1.36	0	2.44	<b>3.80</b>	<b>85</b>

Note: Impervious area is defined as pavement and hardscape (excludes roofs and main stadium field.)

The existing on-site and off-site drainage sub-areas discharge to five different locations:

- Discharge Point 1 – Discharges stormwater runoff from EX-DA-2 directly to Lagoon 2.
- Discharge Point 2 – Discharges stormwater runoff from EX-DA-3 to Lagoon 3.
- Discharge Point 3 – Discharges stormwater from runoff EX-DA-4 to Lagoon 4.
- Discharge Point 4 – Discharges stormwater runoff from Lot 120 South off-site to the Radio Tower site.
- Discharge Point 5 – Discharges stormwater runoff from the New Jersey Transit Lot off-site to the Cedar Ditch.

A summary of the existing drainage area characteristics and peak flows are summarized below. Hydrographs are provided in Appendix B.

<b>TABLE – F</b>						
<b>EXISTING DRAINAGE AREA PEAK FLOWS</b>						
	<b>Area (Ac)</b>	<b>CN</b>	<b>2-year, 24-hr Storm Event (cfs)</b>	<b>10-year,24-hr Storm Event (cfs)</b>	<b>25-year,24-hr Storm Event (cfs)</b>	<b>100-year,24-hr Storm Event (cfs)</b>
Discharge Point 1 (To Lagoon 2)	107.93	94	199.02	323.47	405.53	548.06
Discharge Point 2 (To Lagoon 3)*	124.99	94	268.81	430.36	537.11	722.84
Discharge Point 3 (To Lagoon 4)	242.30	94	506.50	822.53	1030.89	1392.82
Total Drainage Area to Lagoon	475.22	—	—	—	—	—
Discharge Point 4 (To Radio Tower Site)	6.08	83	10.01	19.33	25.68	36.82
Discharge Point 5 (To Cedar Ditch)	3.80	85	6.84	12.74	16.72	23.67
Total Drainage Area Offsite	9.88	—	—	—	—	—
<b>Total</b>	<b>485.10</b>	<b>—</b>	<b>976.89</b>	<b>1584.56</b>	<b>1986.16</b>	<b>2684.10</b>

*Note: Total peak flows are taken from the sum of the hydrographs (Appendix B).*

*\* Includes Xanadu flows.*

## **Proposed**

The proposed drainage area analyzed for this study consists of three proposed sub-areas (PR-DA-2, PR-DA-3, and PR-DA-4) as illustrated in Figure 5 – Proposed Drainage Area Plan. PR-DA-2 and PR-DA-4 are nearly identical to the existing drainage areas EX-DA-2 and EX-DA-4, respectively. PR-DA-

3 is a compilation of the three existing drainage areas EX-DA-3, EX-DA-5 and EX-DA-6. By including the existing drainage areas EX-DA-5 and EX-DA6 (which both flow off-site under the existing condition) into PR-DA-3 (which discharges to Lagoon 3), two uncontrolled off-site discharges are eliminated. The inclusion of EX-DA-5 into the lagoon system is proposed as part of the Stadium Project, and the inclusion of EX-DA-6 into the lagoon system is part of the NJ Transit project. The proposed drainage areas consist of parking lots and access drives, roadways, the New Meadowlands Stadium, New Giants Training Facility, the existing Meadowlands Race Track and pervious areas (Appendix A). A summary of the drainage areas is presented below:

- PR-DA-2 – Drainage area PR-DA-2 is a 107.41-acre drainage area that consists mainly of a parking lot and the proposed Giants Training Facility. Area PR-DA-2 discharges to Lagoon 2. The curve number for drainage area EX-DA-2 is 93. Table G below provides a summary of area PR-DA-2.

<b>TABLE – G</b>				
<b>PROPOSED DRAINAGE AREA PA-DA-2 LAND COVERAGE</b>				
Impervious Area CN=98 (Acres)	Roof Area CN=98 (Acres)	Pervious Area CN=77 (Acres)	<b>TOTAL AREA (Acres)</b>	<b>Composite Curve Number (CN Value)</b>
80.11	3.68	23.62	<b>107.41</b>	<b>93</b>

*Note: Impervious area is defined as pavement and hardscape (excludes roofs and main stadium field.)*

- PR-DA-3 – Area PR-DA-3 is a 133.46-acre drainage area that is separated into two sub-areas. The first sub-area is an 87.96 acre drainage area within the project site that consists mainly of a parking lot and will include both the existing transit lot and 120-South lot. The curve number for this portion of the drainage area is 95. The second sub-area is a 45.5-acre drainage area located on the Meadowlands Xanadu project site that consists of the existing Continental Arena, proposed hotel development, proposed roadway areas, and isolated landscaped areas. According to the Meadowlands Xanadu Stormwater Report, the curve number for this portion of drainage area EX-DA-3 is 94. Both sub-areas discharge to Lagoon 3. Table H below provides a summary of PR-DA-3.

<b>TABLE – H</b>					
<b>PROPOSED DRAINAGE AREA PA-DA-3 LAND COVERAGE</b>					
Portion of EX-DA-3	Impervious Area CN=98 (Acres)	Roof Area CN=98 (Acres)	Pervious Area CN=77 (Acres)	<b>TOTAL AREA (Acres)</b>	<b>Composite Curve Number (CN Value)</b>
Project Site	72.55	1.76	13.65	<b>87.96</b>	<b>95</b>
Xanadu	32.3	4.7	8.5	<b>45.5</b>	<b>94</b>
Total	104.85	6.46	22.15	<b>133.46</b>	-

*Note: Impervious area is defined as pavement and hardscape (excludes roofs and main stadium field.)*

- PR-DA-4 – Area PR-DA-4 is a 238.73 acre drainage area that consists of a parking lot, the proposed New Meadowlands Stadium, and the existing Meadowlands Race Track. PR-DA-4 discharges to Lagoon 3. The curve number for drainage area EX-DA-4 is 94. Table I provides a summary of area PR-DA-4.

<b>TABLE – I</b>				
<b>PROPOSED DRAINAGE AREA PA-DA-4 LAND COVERAGE</b>				
<b>Impervious Area CN=98 (Acres)</b>	<b>Roof Area CN=98 (Acres)</b>	<b>Pervious Area CN=77 (Acres)</b>	<b>TOTAL AREA (Acres)</b>	<b>Composite Curve Number (CN Value)</b>
170.19	25.46	43.08	<b>238.73</b>	<b>94</b>

*Note: Impervious area is defined as pavement and hardscape (excludes roofs and main stadium field.)*

The proposed on-site and off-site drainage sub-areas discharge to three different locations:

- Discharge Point 1 – Discharges stormwater runoff from PR-DA-2 directly to Lagoon 2.
- Discharge Point 2 – Discharges stormwater runoff from PR-DA-3 directly to Lagoon 3.
- Discharge Point 3 – Discharges stormwater runoff from PR-DA-4 directly to Lagoon 4.

The proposed site stormwater runoff was evaluated using the United States Natural Resource Conservation Service (NRCS) Technical Release No. 55 (TR-55) manual and a 24-hour Type III SCS storm distribution for the NJDEP 2-, 10-, 25-, and 100-year return periods.

The peak discharge for each drainage area is summarized in the table below. Hydrographs are provided in Appendix B.

	<b>Area (Ac)</b>	<b>CN</b>	<b>2-year, 24-hr Storm Event (cfs)</b>	<b>10-year, 24-hr Storm Event (cfs)</b>	<b>25-year, 24-hr Storm Event (cfs)</b>	<b>100-year, 24-hr Storm Event (cfs)</b>
Discharge Point 1 (To Lagoon 2)	107.41	93	192.42	317.00	399.13	541.64
Discharge Point 2 (To Lagoon 3)	133.46	95	312.76	504.23	630.55	850.16
Discharge Point 3 (To Lagoon 4)	238.73	94	499.03	810.40	1015.70	1372.29
Total Area to Lagoon	479.60	—	—	—	—	—
Total Area to Off-site	0.00	—	—	—	—	—
Total*	479.60	—	971.58	1578.95	1979.50	2675.30

*Note: Existing Total Discharges 4 and 5 are being directed to Lagoon 3 for the proposed condition. Proposed discharges for these areas (Transit lot and lot 120 South) are included in Discharge 2. Discharge 2 includes flows from the Meadowlands Xanadu site. Total peak flows are taken from the sum of the hydrographs (Appendix B).*

The proposed project will result in a net reduction of stormwater runoff from the site. Table K below provides a summary of flows:

	<b>2-year, 24-hr Storm Event (cfs)</b>	<b>10-year, 24-hr Storm Event (cfs)</b>	<b>25-year, 24-hr Storm Event (cfs)</b>	<b>100-year, 24-hr Storm Event (cfs)</b>
Existing	976.89	1584.56	1986.16	2684.10
Proposed	971.58	1578.95	1979.50	2675.30
Net Change	-5.31	-5.61	-6.66	-8.80

## **STORMWATER CONVEYANCE ANALYSIS OVERVIEW**

The proposed stormwater conveyance systems have been analyzed using the Rational Method for a 10-year rainfall intensity. The analysis includes the proposed conveyance systems as well as the portions of the existing conveyance system that will remain within the project site.

Rainfall intensities were taken from intensity-duration-frequency curves developed for East Rutherford and used in the Xanadu Management Report (Appendix B).

The starting water surface elevation for each conveyance system was selected based on the crown of the pipe in the respective lagoons. Starting water surface elevations of approx -el. -7.42, el -7.18, el -4.91, and el -1.50 were used for conveyance system 1, conveyance system 2, conveyance system 3, and conveyance system 4, respectively. A six minute inlet time was assumed for each sub-area for the purposes of calculating time of concentration. The inlet time was calculated using a time of concentration nomograph with an average flow length of 150 ft and average slope of one percent which is representative of typical existing conditions on site (Attachment D). A runoff coefficient of 0.95 was used for impervious (pavement) areas and a runoff coefficient of 0.30 was used for pervious and landscaped areas; see Appendix C for a summary of the conveyance system design parameters.

### **Proposed Conveyance System**

Throughout the site, several existing conveyance systems transport stormwater to each lagoon. Only four of these conveyance systems have been modified for the project site and are discussed below. Proposed conveyance systems 1 and 2 discharge to Lagoon 2. Proposed conveyance system 3 discharges to Lagoon 3, and proposed conveyance system 4 discharges to Lagoon 4.

A grading and drainage plan is provided in Figure 6. Catch basin drainage areas are provided in Figure 7. Runoff coefficients are provided in Appendix C. Stormwater conveyance calculations are provided in Appendix D.

#### Proposed Conveyance System 1

Proposed Conveyance System 1 collects runoff from the existing parking area west of the proposed New Meadowlands Stadium and a portion of the proposed Giants Stadium facility. The collected runoff is directed to an existing 54-inch reinforced concrete pipe that conveys flow to Lagoon 2 of the existing NJSEA stormwater lagoon system. T

The proposed sub-areas for each catch basin are shown in Figure 7. The runoff discharged by this conveyance system maintains existing drainage patterns and will not increase flows from the pre- to post- re-development conditions.

#### Proposed Conveyance System 2

Proposed Conveyance System 2 collects runoff from the existing parking area southwest of the proposed New Meadowlands Stadium and a large portion of the proposed Giants Stadium facility. The collected runoff is directed to an existing 54-inch reinforced concrete pipe that conveys flow to Lagoon 2 of the existing NJSEA stormwater lagoon system.

The proposed sub-areas for each catch basin are shown in Figure 7. The runoff discharged by this conveyance system maintains existing drainage patterns and will not increase flows from the pre- to

post- re-development conditions.

### Proposed Conveyance System 3

Conveyance System 3 collects runoff mainly from the parking lot located south of the proposed New Meadowlands Stadium and a portion of the proposed stadium roof drains. The runoff collected by this system is conveyed to an existing 54-inch reinforced concrete pipe that discharges stormwater to Lagoon 3.

The runoff discharged by this conveyance system maintains existing drainage patterns and increases flows from the pre- to post- re-development conditions to Lagoon 3. However, because of the interconnection of the lagoon system, this increase to Lagoon 3 is equalized by flows to Lagoons 2 and 4 (Table K)

### Proposed Conveyance System 4

Conveyance System 4 primarily drains the New Meadowlands Stadium, the stadium plaza, and the surrounding parking lots. Conveyance System 4 discharges to an existing 54-inch reinforced concrete pipe whose outfall is located at the south end of Lagoon 4, located inside the Meadowlands Racetrack.

The runoff discharged by this conveyance system maintains existing drainage patterns and will not increase flows from the pre- to post- re-development conditions.

## **WATER QUALITY**

The stormwater discharges from the existing NJSEA lagoon system are regulated under the New Jersey Pollutant Discharge Elimination System (NJPDDES) rules. The requirements to reduce stormwater discharges of total suspended solids (TSS), under the NJDEP Stage II Stormwater rules, do not apply to any stormwater discharge regulated under a numeric effluent limitation for TSS imposed under the NJPDDES rules.

NJSEA's existing stormwater management lagoon system provides unique water quality measures to the overall NJSEA Sports Complex as a function of its unconventional design. The system consists of four large detention basins, referred to as Lagoons 1 through 4. Three of the basins (Lagoons 2, 3 and 4) are interconnected with large diameter equalizer piping (98" to 108" diameter) that allows the three basins to act in unison for storage capacity during stormwater events. The three basins are not directly connected to the discharge point at Berry's Creek. Rather, the three basins are connected to a fourth basin (Lagoon 1) by a pump station that houses ten Archimedes screw pumps. When appropriate, stormwater is pumped from Lagoon 2 to Lagoon 1. Lagoon 1 then discharges to Berry's Creek by gravity. The pump station is operated on a stormwater event-by-event basis. Depending on the intensity of the anticipated storm, Lagoons 2, 3 and 4 are pumped down to a level to provide storage capacity for the incoming flows. Appendix G contains

documentation provided by NJSEA on the operating parameters of the pump station. It should be noted that unlike conventional stormwater management detention basin designs, this unique system allows for longer detention times as a function of the timing of the actual rainfall events that occur, resulting in improved water quality. The existing lagoon system discharge is governed by an existing NJPDES permit (No. NJ0023345) and has a discharge limit of 40 mg/l maximum for TSS. The NJSEA monitors the discharge and reports to NJDEP monthly and is in good standing with the NJDEP monitoring requirements.

**Water Quality at Each Discharge Point**

Water quality for each of the three drainage discharge points and their contributing drainage areas for the proposed Stadium Site is discussed below:

- Discharge Point 1 – Drainage Area PR-DA-2 drains to an existing 54-inch diameter reinforced concrete pipe that is located west of the proposed Giants Training Facility. This 54-inch pipe discharges flow to the Lagoon 2. As noted above, the lagoon system ultimate discharge to Berry’s Creek is governed by an existing NJPDES permit (No. NJ0023345) and has a discharge limit of 40 mg/l maximum for TSS.

The proposed redevelopment will result in a reduction of both the drainage area and net impervious area contributing to this discharge point. As a result, the post-development contributing flows to this drainage point will be less than the pre-development conditions. Table L below summarizes these net reductions:

<b>TABLE – L</b>			
<b>DRAINAGE AREA PR-DA-2</b>			
<b>Pre vs. Post Development Impervious and Roof Area Comparison</b>			
	Pre-Development Area (Acres)	Post-Development Area (Acres)	Net Change (Acres)
Total Drainage Area	107.93	107.41	-0.52
Impervious At-grade Area (excluding roof area)	89.83	80.11	-9.72
Roof Area / Field on Structural Slab	0	3.68	+3.68

- Discharge Point 2 – Drainage Area PR-DA-3 drains to an existing 54-inch diameter reinforced concrete pipe that is located near the southeast corner of project site. This 54-inch pipe discharges flow to the existing Lagoon 3. As noted above, the lagoon system ultimate discharge to Berry’s Creek is governed by an existing NJPDES permit (No. NJ0023345) and has a discharge limit of 40 mg/l maximum for TSS.

The proposed redevelopment will result in a small increase in the drainage area and net impervious area contributing to this discharge point. As a result, the post-development contributing flows to this drainage point will be higher than the pre-development conditions. However, since the water level in each of these lagoons is controlled by an equalizer pipe, and the other areas have a net decrease, the total release from the lagoon system will remain consistent with the required outflow. Table M below summarizes these net changes:

<b>TABLE – M</b>			
<b>DRAINAGE AREA PR-DA-3</b>			
<b>Pre vs. Post Development Impervious and Roof Area Comparison</b>			
	Pre-Development Area (Acres)	Post-Development Area (Acres)	Net Change (Acres)
Total Drainage Area	83.87*	87.96	+4.09
Impervious At-grade Area (excluding roof area)	53.74*	72.55	+18.81
Roof Area / Field on Structural Slab	10.19*	1.76	-8.43

*\*Note: Existing Drainage Areas EX-DA4 and EX-DA5 are being included in Area PR-DA-3 for the proposed condition. Proposed values for these areas (Transit lot and lot 120 South) are included in the Pre-Development area totals.*

Discharge Point 3 – Drainage Area PR-DA-4 drains to an existing 54-inch diameter reinforced concrete culvert that is located beneath the Meadowlands Racetrack north of the proposed New Meadowlands Stadium. This 54-inch pipe discharges flow to the existing Lagoon 4. As noted above, the lagoon system ultimate discharge to Berry’s Creek is governed by an existing NJPDES permit (No. NJ0023345) and has a discharge limit of 40 mg/l maximum for TSS.

The proposed redevelopment will result in a reduction of both the drainage area and net impervious area contributing to this discharge point. As a result, the post-development contributing flows to this drainage point will be less than the pre-development conditions. Table N below summarizes these net reductions:

<b>TABLE – N</b>			
<b>DRAINAGE AREA PR-DA-4</b>			
<b>Pre vs. Post Development Impervious and Roof Area Comparison</b>			
	Pre-Development Area (Acres)	Post-Development Area (Acres)	Net Change (Acres)
Total Drainage Area	242.30	238.73	-3.57
Impervious At-grade Area (excluding roof area)	186.53	170.19	-16.34
Roof Area / Field on Structural Slab	13.99	25.46	+11.47

## Overall

The proposed Stadium development will result in improved water quality due to the reduction in at grade impervious surfaces (parking lot, sidewalks) and increase in roof areas as shown in Table O below:

<b>TABLE – O</b>			
<b>TOTAL DRAINAGE AREA</b>			
<b>Pre vs. Post Development Impervious and Roof Area Comparison</b>			
	Pre-Development Area (Acres)	Post-Development Area (Acres)	Net Change (Acres)
Total Drainage Area	434.10	434.10	0
Impervious At-grade Area (excluding roof area)	330.10	322.84	-7.26
Roof Area / Field on Structural Slab	24.18	30.91	+6.73

## CONCLUSION

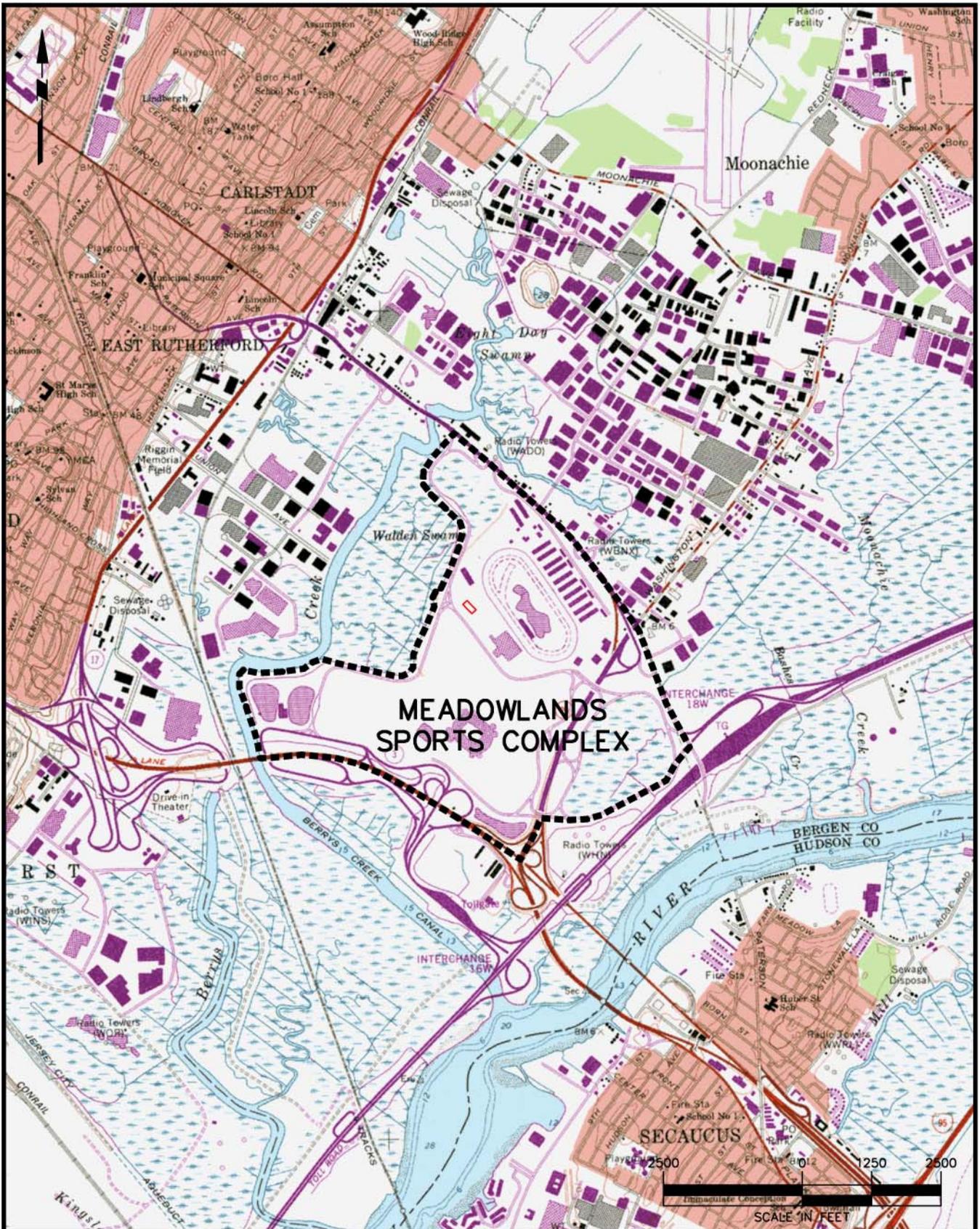
The proposed development will result in a decrease in impervious area, resulting in a reduction in stormwater runoff. In addition, over 7-acres of existing pavement will be converted to roof and/or structural slab with artificial turf.

The existing NJSEA lagoon system will continue to provide the appropriate stormwater quality and quantity control for the for the NJSEA property, including the project site. The NJSEA property currently operates under an existing NPDES permit for lagoon discharge. The site is exempt from the NJDEP's recharge requirements because the existing site conditions and high groundwater table.

The results of the hydrologic and hydraulic analysis indicate that the existing Lagoon system on-site has adequate capacity to manage stormwater runoff quantity and quality generated by the proposed redevelopment project.

Results of the hydraulic analysis for the proposed stormwater conveyance systems associated with the redevelopment project site indicate that the proposed stormwater drainage system has been designed to convey a 10-year storm event in the "surcharged" condition, consistent with the existing condition.

## **FIGURES**



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Project

**NEW MEADOWLANDS STADIUM  
 USGS SITE LOCATION MAP**

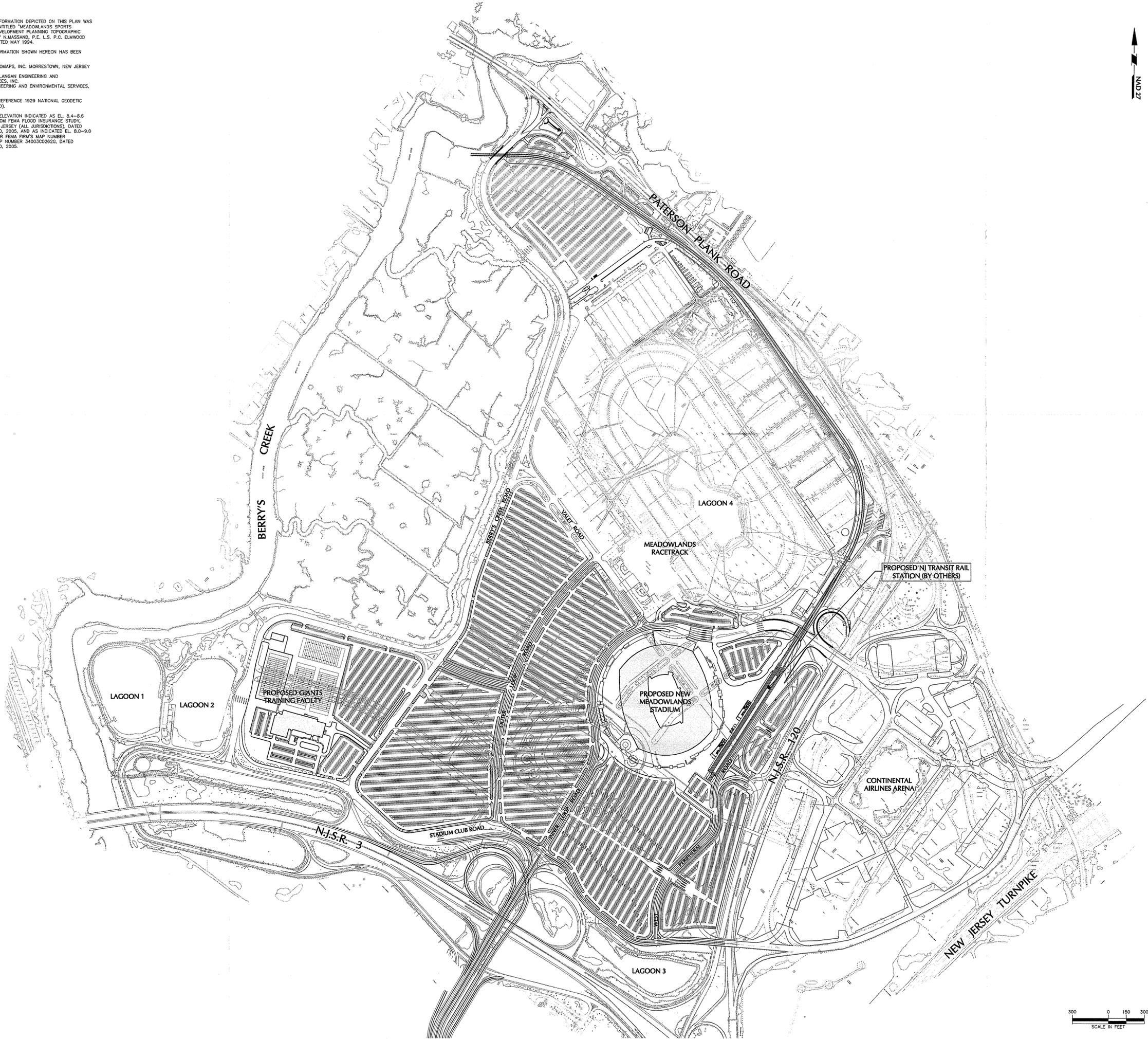
BERGEN COUNTY

NJ

Project No. 4508560	Date 8/04/06	Scale 1"=2500'	Dwg. No. FIGURE 1
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Filename: S:\Users\j050566\OneDrive\Work\Projects\2006\08\_23 - Lundaas Submission\2006\_08\_23 - Storm Report Site Plan.dwg Date: 10/17/2006 Time: 10:21 User: j050566 Style Table: Langan.dwg Layout: EWINGCOLE

- NOTES**
- BOUNDARY LINE INFORMATION DEPICTED ON THIS PLAN WAS TAKEN FROM PLANS ENTITLED "MEADOWLANDS SPORTS COMPLEX PHASE III DEVELOPMENT PLANNING TOPOGRAPHIC SURVEY" PREPARED BY H.MASSANO, P.E. L.S., P.C. ELMWOOD PARK, NEW JERSEY DATED MAY 1994.
  - PLANIMETRICS INFORMATION SHOWN HEREON HAS BEEN OBTAINED FROM:  
AERIAL SURVEY BY PROMAPS, INC. MORRESTOWN, NEW JERSEY  
GROUND SURVEYS BY LANGAN ENGINEERING AND ENVIRONMENTAL SERVICES, INC.  
BY LANGAN AND ENGINEERING AND ENVIRONMENTAL SERVICES, INC. COMPLETED.
  - VERTICAL DATUM REFERENCE 1929 NATIONAL GEODETIC VERTICAL DATUM (NGVD).
  - 100-YEAR FLOOD ELEVATION INDICATED AS EL. 8.4-8.6 NGVD, REFERENCED FROM FEMA FLOOD INSURANCE STUDY, BERGEN COUNTY, NEW JERSEY (ALL JURISDICTIONS), DATED REVISED SEPTEMBER 30, 2005, AND AS INDICATED EL. 8.0-9.0 NGVD, ILLUSTRATED PER FEMA FORM'S MAP NUMBER 34003C0254G AND MAP NUMBER 34003C0262G, DATED REVISED SEPTEMBER 30, 2005.



  
 CHRISTOPHER HAZEL 17 OCTOBER 2006  
 N.J. PROFESSIONAL ENGINEER LICENSE NO. 0E42846

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**THE NEW  
 MEADOWLANDS  
 STADIUM & ANCILLARY  
 COMPONENTS**

**REVISIONS**

NO	DESCRIPTION	DATE
1	SWM REPORT	10/17/06

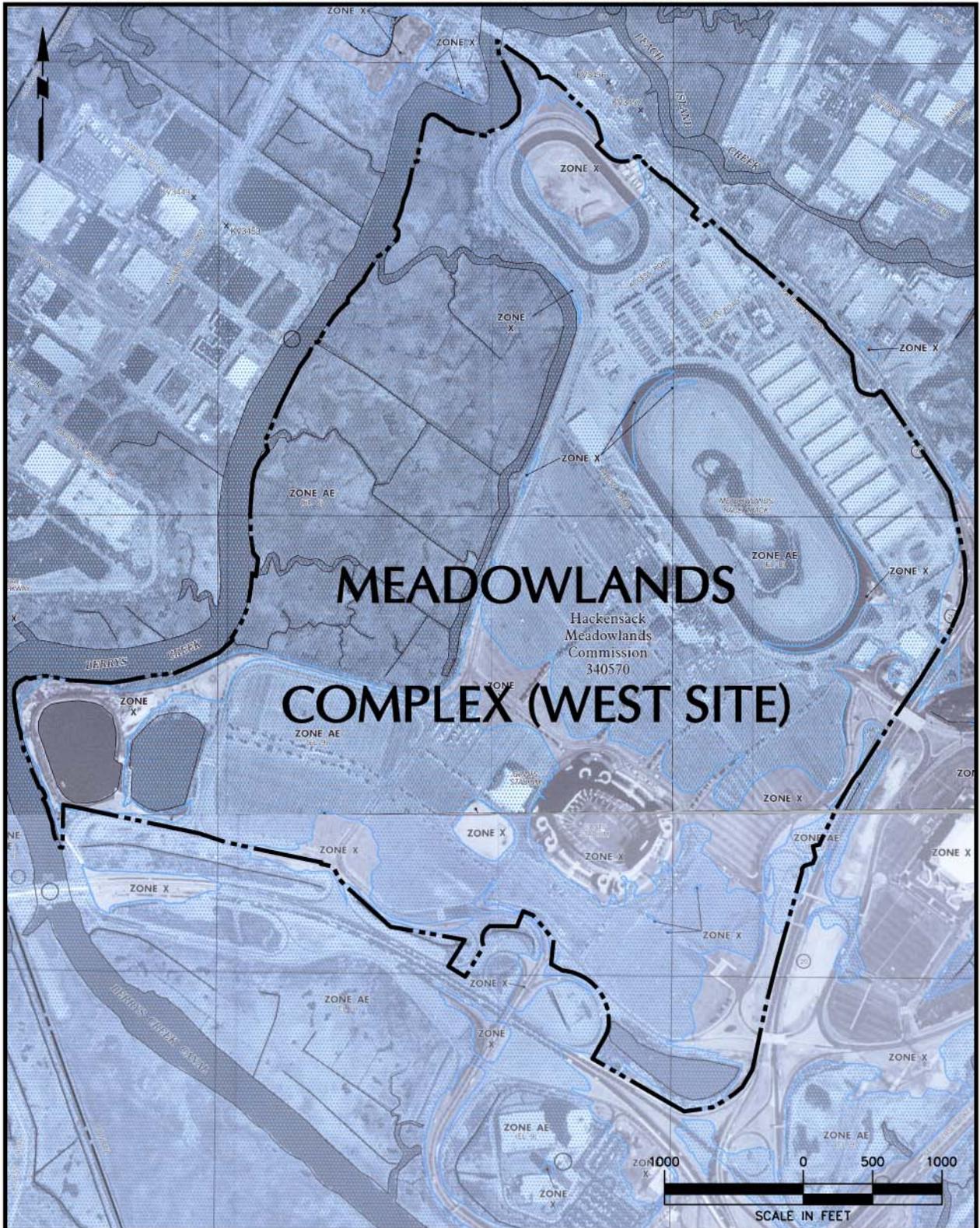
**KEY PLAN**  
  
 Architects  
 Engineers  
 Interior Designers  
 Planners  
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**THIRTEENTH ARCHITECTURE**  
 2020 BALTIMORE  
 KANSAS CITY, MO  
 64108

**OVERALL  
 SITE PLAN**

scale 1"=300'  
 date \_\_\_\_\_  
 drawn by JFL  
 project no 25556

**FIGURE-2**  
 drawing no.



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Project

**FEMA FIRM -  
 MEADOWLANDS COMPLEX**

BERGEN COUNTY

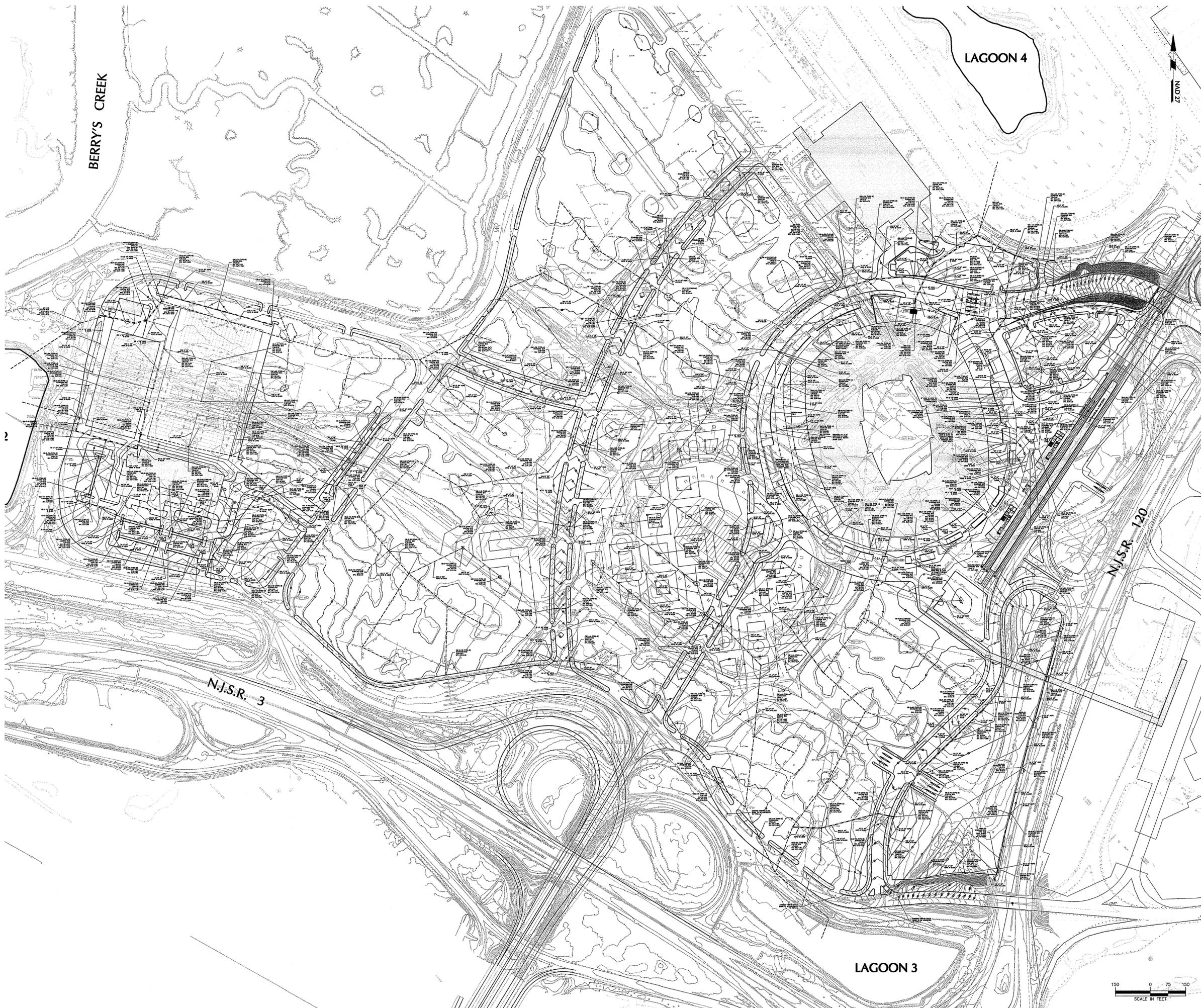
NJ

Project No. 4508560	Date 9/22/06	Scale 1"=1000'	Dwg. No. FIGURE 3
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Filename: S:\Data\4505560\Drawn\Sheet File Archive\2005 10 00 - Land Use Submission\2005 09 23 - Grading and Drainage.dwg Date: 10/17/2006 Time: 9:52 User: mscapone Style Table: Langan.dwg Layout: ENR0002



**Chf**

CHRISTOPHER HAGER 17 OCTOBER 2006  
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**THE NEW  
MEADOWLANDS  
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COMPONENTS**

REVISIONS

NO	DESCRIPTION	DATE
1	SWM REPORT	10/17/06

KEY PLAN

**EwingCole**  
Architects  
Engineers  
Interior Designers  
Planners

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**360** THIRTEENTH ARCHITECTURE  
2020 BALTIMORE  
KANSAS CITY, MO  
64108

**GRADING AND  
DRAINAGE PLAN**

scale 1"=150'  
date  
drawn by JFL  
project no 25556

**FIGURE-6**  
drawing no.

Filename: S:\data\408560\Code Data - 408560\Draw Sheet File Archive\2006 10 00 - CB Drainage Submittal\2006 09 23 - CB Drainage Area.dwg Date: 10/17/2006 Time: 8:58 User: kmcgovern Style Table: landscape Layout: ERM0002



**Chf**

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NJ Certificate of Authorization No. 24542799400

**THE NEW  
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STADIUM & ANCILLARY  
COMPONENTS**

REVISIONS

NO	DESCRIPTION	DATE
1	SWM REPORT	10/17/06

KEY PLAN

**EwingCole**  
Architects  
Engineers  
Interior Designers  
Planners

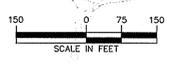
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2020 BALTIMORE  
KANSAS CITY, MO  
64108

**CATCH BASIN  
DRAINAGE AREA  
PLAN**

scale 1"=150'  
date  
drawn by JFL  
project no 25556

**FIGURE-7**  
drawing no.



**APPENDIX A**

**EXISTING AND PROPOSED  
CURVE NUMBER CALCULATIONS**

**New Meadowlands Stadium Existing Drainage Conditions**  
**Project No. 4508560/4508570**

**Existing Drainage Areas**

Area	Designation	Drainage Areas			
		Total (acres)	Pervious (acres)	Impervious (acres)	
				Roof/Field on Structural Slab	Other
Lagoon 2	EX-DA-2	107.93	18.10	0.00	89.83
Lagoon 3	EX-DA-3	73.99	13.09	10.19	50.71
Lagoon 4	EX-DA-4	242.30	41.78	13.99	186.53
120 South Lot	EX-DA-5	6.08	4.41	0.00	1.67
Transit Lot	EX-DA-6	3.80	2.44	0.00	1.36
<b>Total</b>		<b>434.10</b>	<b>79.82</b>	<b>24.18</b>	<b>330.10</b>

**Curve Numbers**

Impervious CN = 98

Pervious CN = 77

Area	Designation	Composite CN
Lagoon 2	EX-DA-2	94
Lagoon 3	EX-DA-3	94
Lagoon 4	EX-DA-4	94
120 South Lot	EX-DA-5	83
Transit Lot	EX-DA-6	85

**Time of Concentration**

Lagoon	Longest L (ft)	tc (min)
Lagoon 2	3700	25.9
Lagoon 3	2762	18.7
Lagoon 4	2852	17.9 *
120 South Lot	996	10.2
Transit Lot	1094	10.6

\* The longest pipe run and average velocity (Lot Y) was used because the analyzed system to Lagoon 4 does not result in the longest time of concentration.

**New Meadowlands Stadium Proposed Drainage Conditions  
Project No. 4508560/4508570**

**Proposed Drainage Areas**

Area	Designation	Drainage Areas			
		Total (acres)	Pervious (acres)	Impervious (acres)	
				Roof/Field on Structural Slab	Other
Lagoon 2	PR-DA-2	107.41	23.62	3.68	80.11
Lagoon 3	PR-DA-3	87.96	13.65	1.76	72.55
Lagoon 4	PR-DA-4	238.73	43.08	25.46	170.19
120 South Lot			Included in Lagoon 3		
Transit Lot			Included in Lagoon 3		
<b>Total</b>		<b>434.10</b>	<b>80.35</b>	<b>30.91</b>	<b>322.84</b>

**Curve Numbers**

Impervious CN = 98

Pervious CN = 77

Area	Designation	Composite CN
Lagoon 2	PR-DA-2	93
Lagoon 3	PR-DA-3	95
Lagoon 4	PR-DA-4	94

**Time of Concentration**

Area	Designation	Longest L (ft)	tc (min)
Lagoon 2	PR-DA-2	3770	25.9
Lagoon 3	PR-DA-3	2718	18.7
Lagoon 4	PR-DA-4	2852	17.9

\* The longest pipe run and average velocity (Lot Y) was used because the analyzed system to Lagoon 4 does not result in the longest time of concentration.

**APPENDIX B**

**STORMWATER RUNOFF HYDROGRAPHS (EXISTING AND  
PROPOSED 2, 10, 25 AND 100-YEAR STORM EVENTS)**

# Hydrograph Summary Report

i. j.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to peak (min)	Volume (cuft)	Inflow hyd(s)	Maximum elevation (ft)	Maximum storage (cuft)	Hydrograph description	
1	SCS Runoff	199.02	2	736	1,018,524	---	----	----	EX-DA-2 (Lagoon 2)	
2	SCS Runoff	154.67	2	732	709,319	---	----	----	EX-DA-3 (Lagoon 3)	
3	SCS Runoff	506.50	2	732	2,322,854	---	----	----	EX-DA-4 (Lagoon 4)	
4	SCS Runoff	10.01	2	728	38,502	---	----	----	EX-DA-5 (120 S Lot)	
5	SCS Runoff	6.84	2	728	26,221	---	----	----	EX-DA-6 (Transit Lot)	
7	SCS Runoff	114.14	2	732	547,213	---	----	----	XANADU EXISTING	
9	Combine	976.89	2	734	4,662,629	1, 2, 3, 4, 5, 7,	----	----	Total Existing	
12	SCS Runoff	192.42	2	736	975,620	---	----	----	PR-DA-2 (Lagoon 2)	
13	SCS Runoff	188.69	2	732	875,783	---	----	----	PR-DA-3 (Lagoon 3)	
14	SCS Runoff	499.03	2	732	2,288,630	---	----	----	PR-DA-4 (Lagoon 4)	
16	SCS Runoff	124.07	2	726	443,983	---	----	----	XANADU PROPOSED	
18	Combine	971.58	2	732	4,584,013	12, 13, 14, 16,	----	----	Total Proposed	
NMS - Hydgraph - 1.gpw					Return Period: 2 Year			Friday, Sep 22 2006, 10:20 AM		

# Multi-Hydrograph Plot

Hydraflow Hydrographs by Intelisolve

## Hyd. No. 1

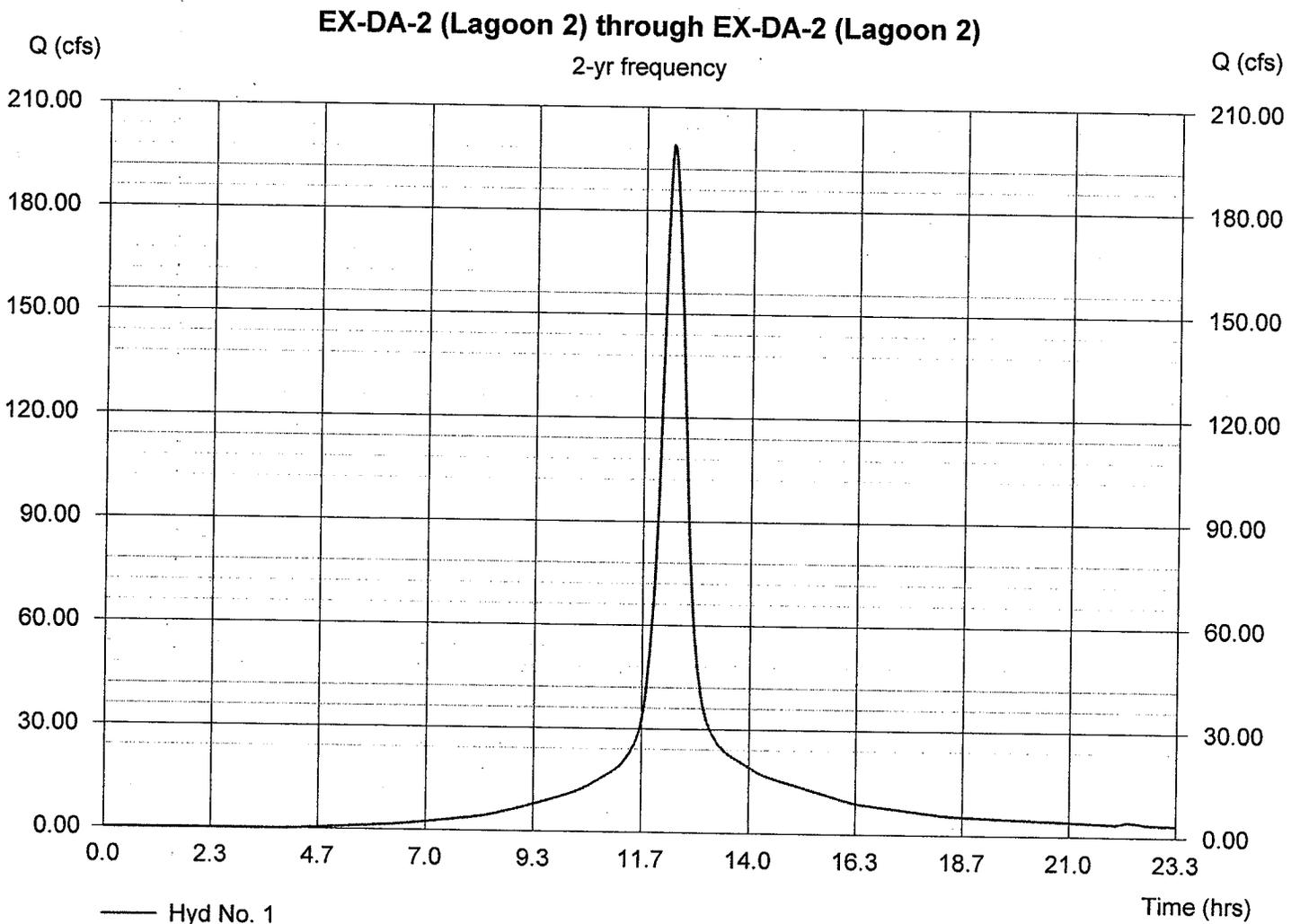
EX-DA-2 (Lagoon 2)

Hydrograph type = SCS Runoff  
Peak discharge = 199.02 cfs  
Time to peak = 12.27 hrs  
Hyd. Volume = 1,018,524 cuft

## Hyd. No. 1

EX-DA-2 (Lagoon 2)

Hydrograph type = SCS Runoff  
Peak discharge = 199.02 cfs  
Time to peak = 12.27 hrs  
Hyd. Volume = 1,018,524 cuft



# Multi-Hydrograph Plot

Hydraflow Hydrographs by Intelisolve

## Hyd. No. 2

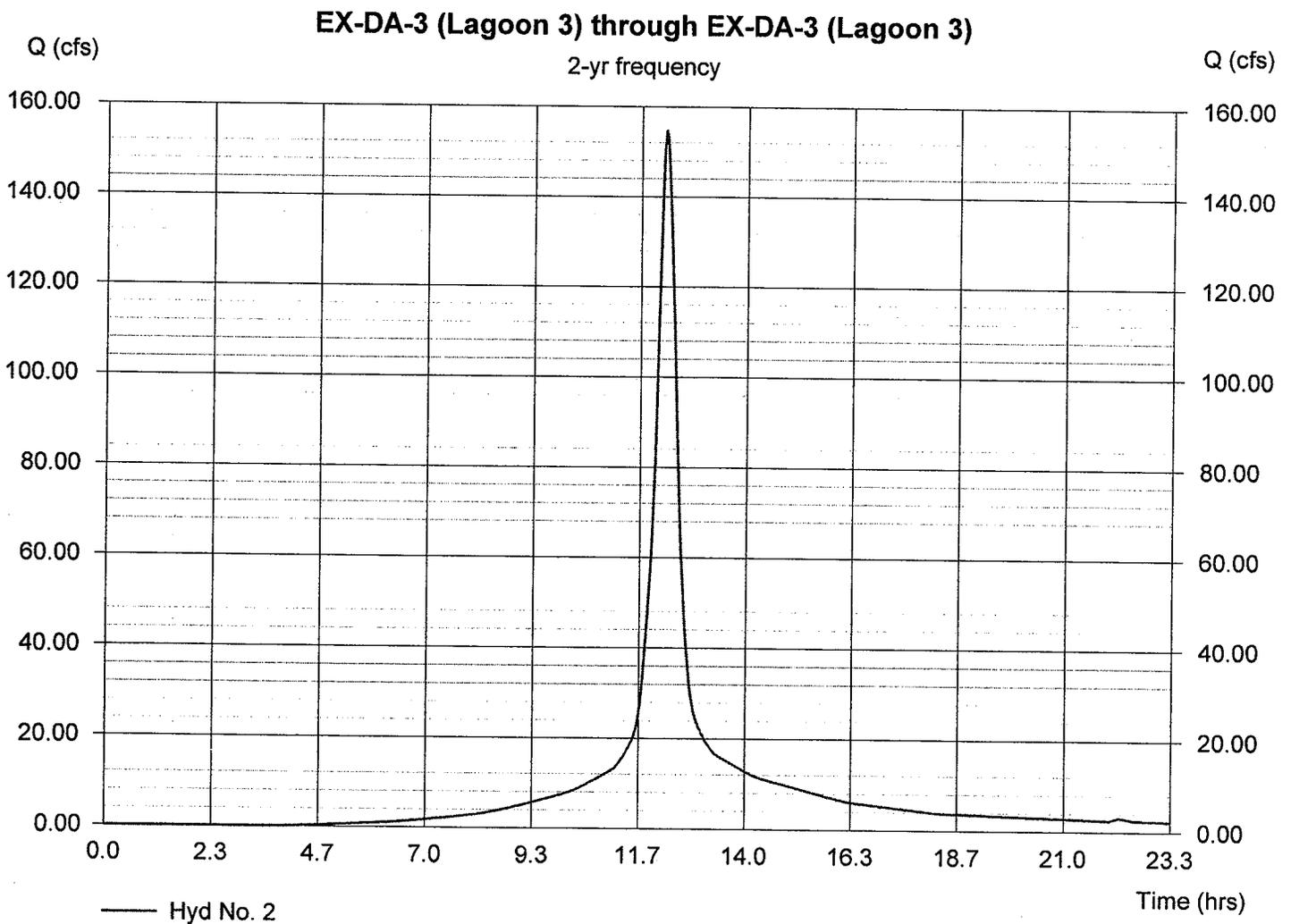
EX-DA-3 (Lagoon 3)

Hydrograph type = SCS Runoff  
Peak discharge = 154.67 cfs  
Time to peak = 12.20 hrs  
Hyd. Volume = 709,319 cuft

## Hyd. No. 2

EX-DA-3 (Lagoon 3)

Hydrograph type = SCS Runoff  
Peak discharge = 154.67 cfs  
Time to peak = 12.20 hrs  
Hyd. Volume = 709,319 cuft



# Multi-Hydrograph Plot

Hydraflow Hydrographs by Intelisolve

## Hyd. No. 3

EX-DA-4 (Lagoon 4)

Hydrograph type = SCS Runoff  
Peak discharge = 506.50 cfs  
Time to peak = 12.20 hrs  
Hyd. Volume = 2,322,854 cuft

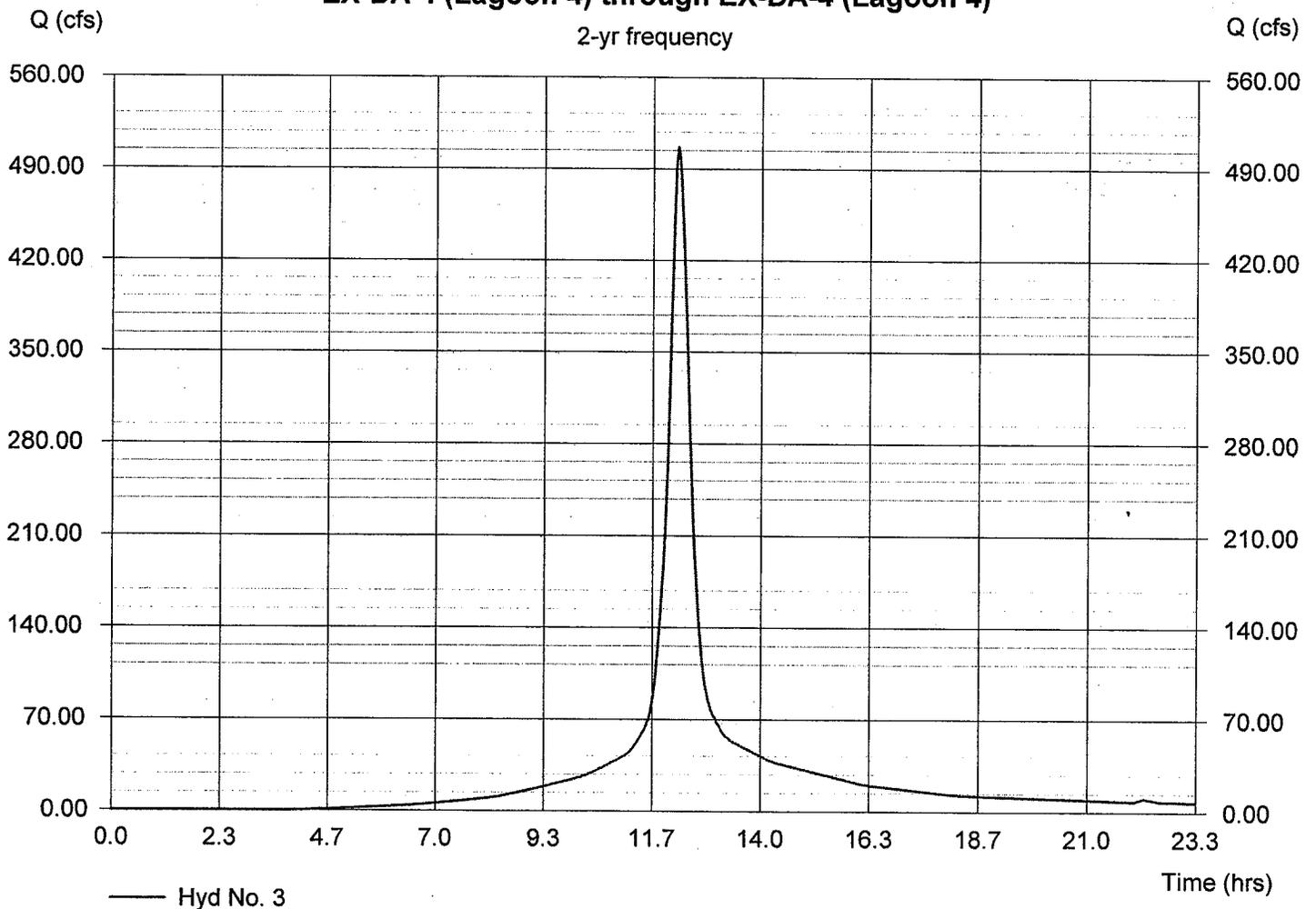
## Hyd. No. 3

EX-DA-4 (Lagoon 4)

Hydrograph type = SCS Runoff  
Peak discharge = 506.50 cfs  
Time to peak = 12.20 hrs  
Hyd. Volume = 2,322,854 cuft

### EX-DA-4 (Lagoon 4) through EX-DA-4 (Lagoon 4)

2-yr frequency



# Multi-Hydrograph Plot

Hydraflow Hydrographs by Intellisolve

## Hyd. No. 4

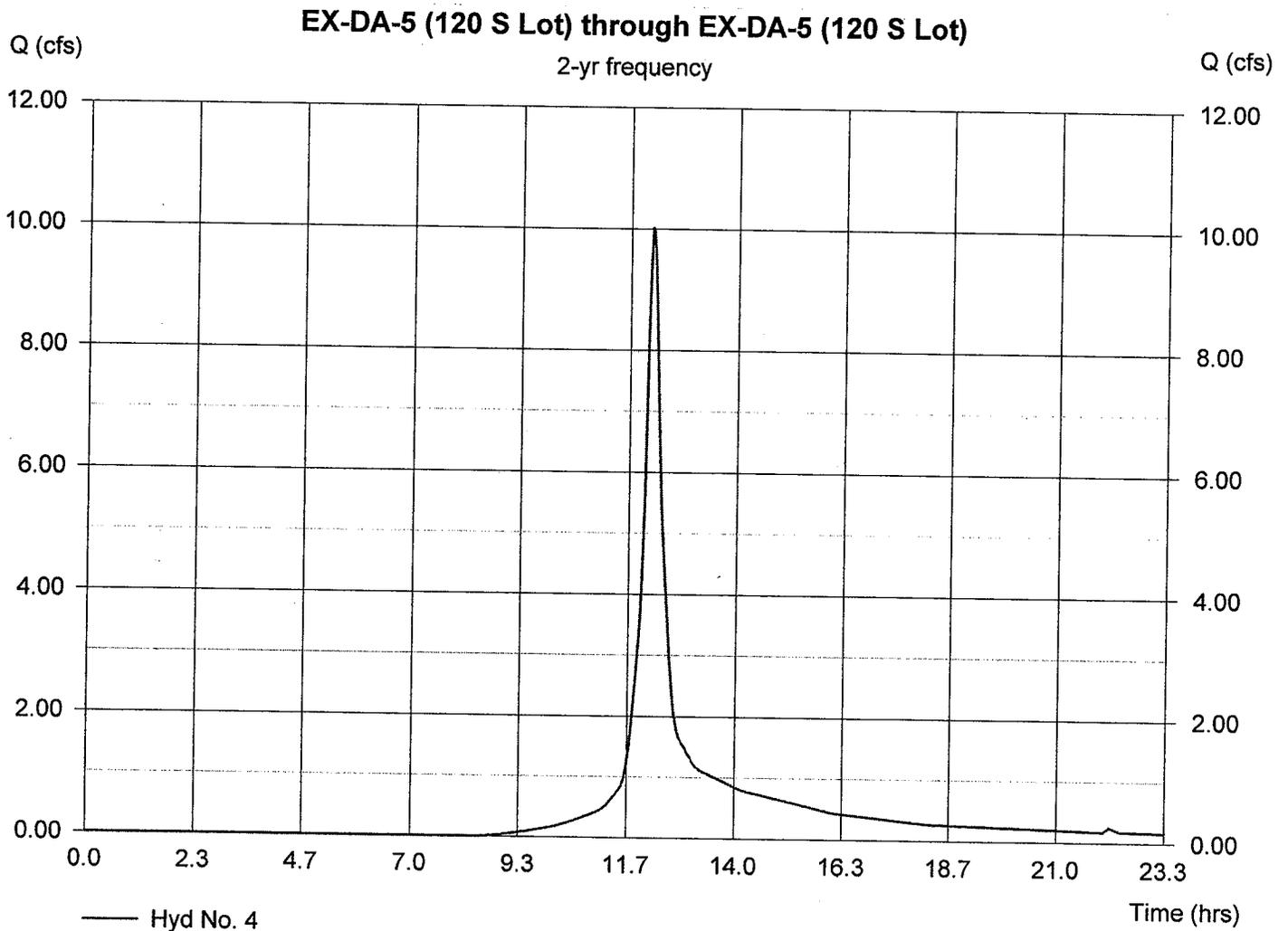
EX-DA-5 (120 S Lot)

Hydrograph type = SCS Runoff  
Peak discharge = 10.01 cfs  
Time to peak = 12.13 hrs  
Hyd. Volume = 38,502 cuft

## Hyd. No. 4

EX-DA-5 (120 S Lot)

Hydrograph type = SCS Runoff  
Peak discharge = 10.01 cfs  
Time to peak = 12.13 hrs  
Hyd. Volume = 38,502 cuft



# Multi-Hydrograph Plot

Hydraflow Hydrographs by Intelisolve

## Hyd. No. 5

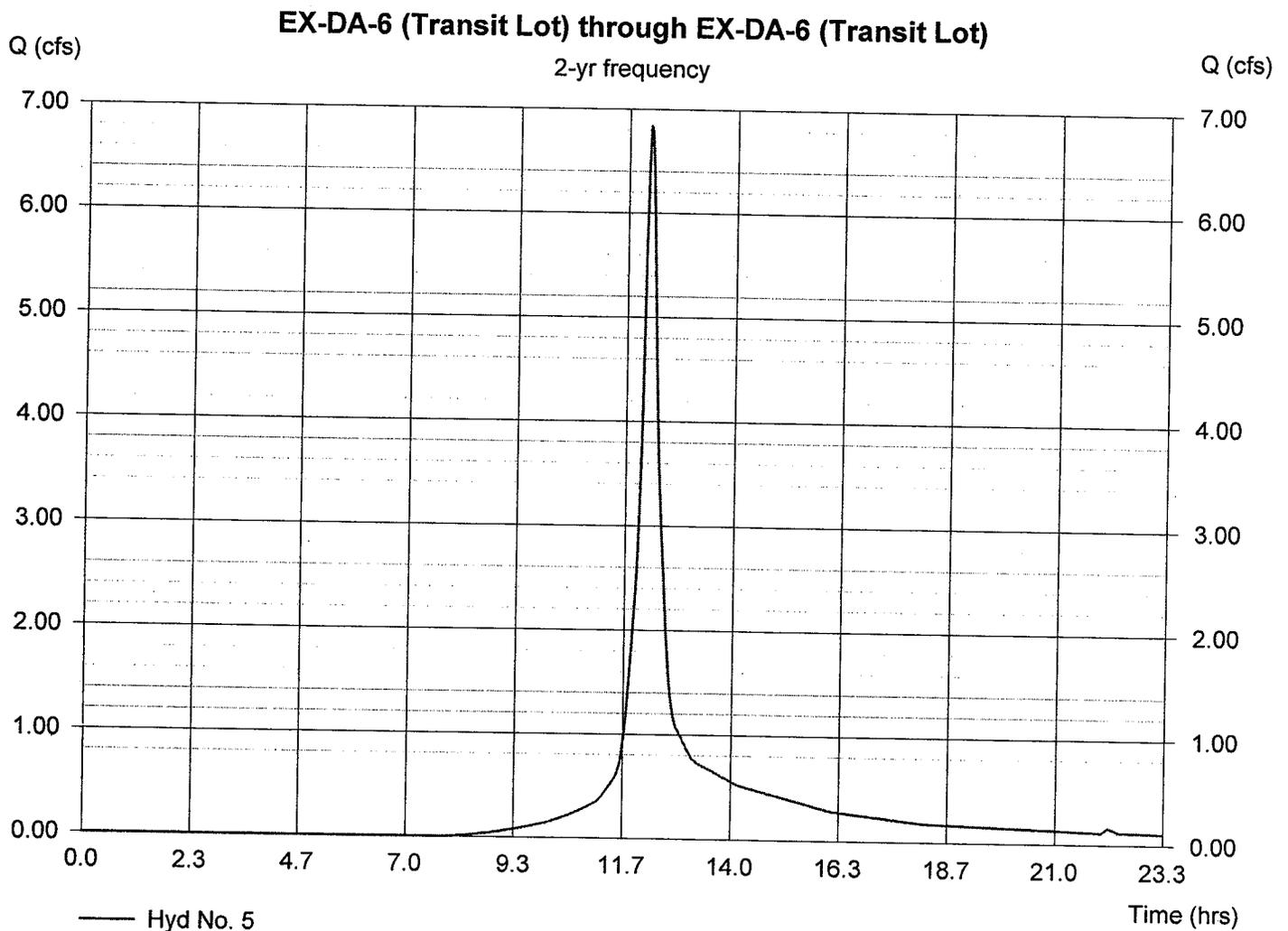
EX-DA-6 (Transit Lot)

Hydrograph type = SCS Runoff  
Peak discharge = 6.84 cfs  
Time to peak = 12.13 hrs  
Hyd. Volume = 26,221 cuft

## Hyd. No. 5

EX-DA-6 (Transit Lot)

Hydrograph type = SCS Runoff  
Peak discharge = 6.84 cfs  
Time to peak = 12.13 hrs  
Hyd. Volume = 26,221 cuft



# Multi-Hydrograph Plot

Hydraflow Hydrographs by Intelisolve

## Hyd. No. 7

XANADU EXISTING

Hydrograph type = SCS Runoff  
Peak discharge = 114.14 cfs  
Time to peak = 12.20 hrs  
Hyd. Volume = 547,213 cuft

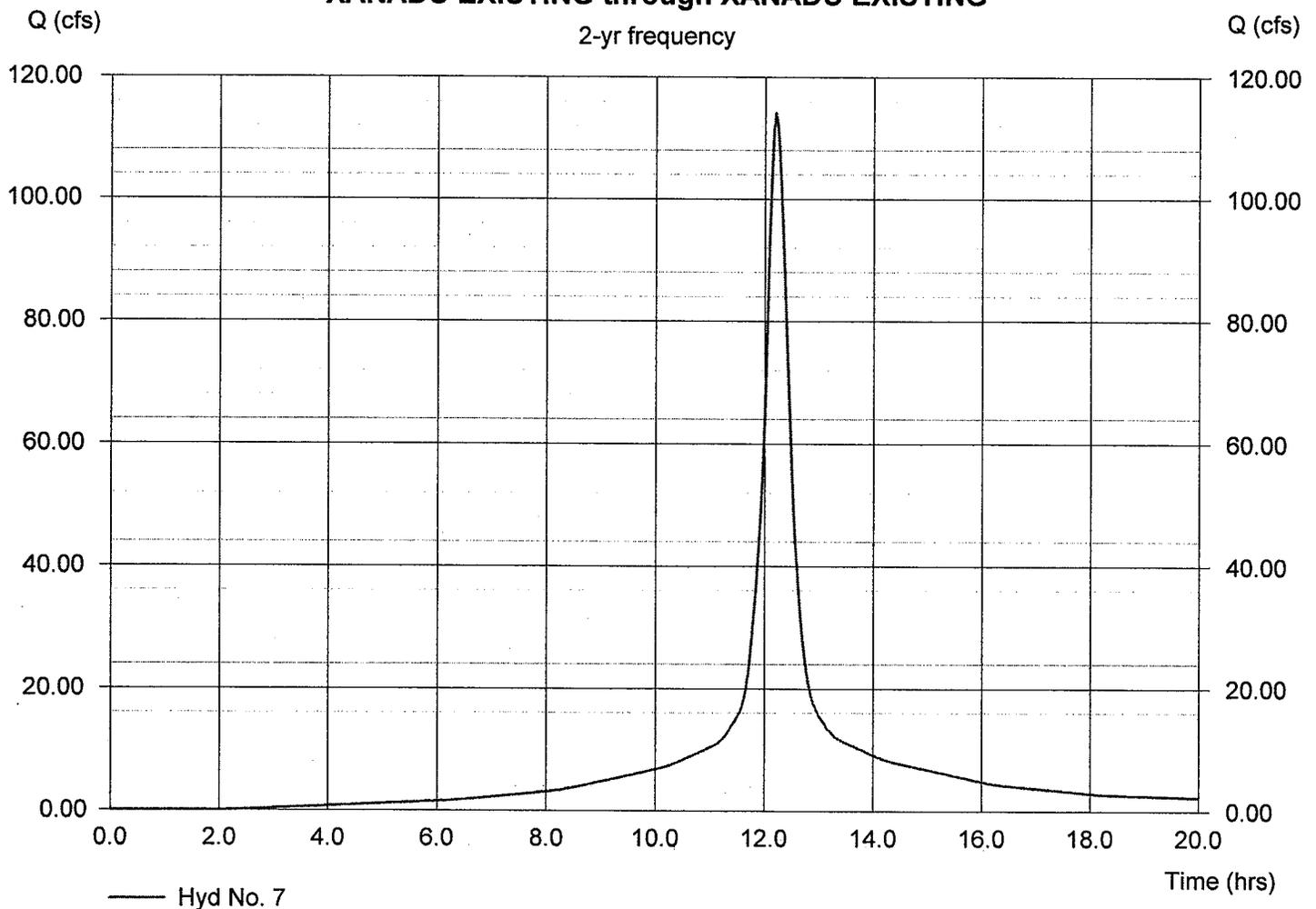
## Hyd. No. 7

XANADU EXISTING

Hydrograph type = SCS Runoff  
Peak discharge = 114.14 cfs  
Time to peak = 12.20 hrs  
Hyd. Volume = 547,213 cuft

### XANADU EXISTING through XANADU EXISTING

2-yr frequency



# Multi-Hydrograph Plot

Hydraflow Hydrographs by Intelisolve

## Hyd. No. 9

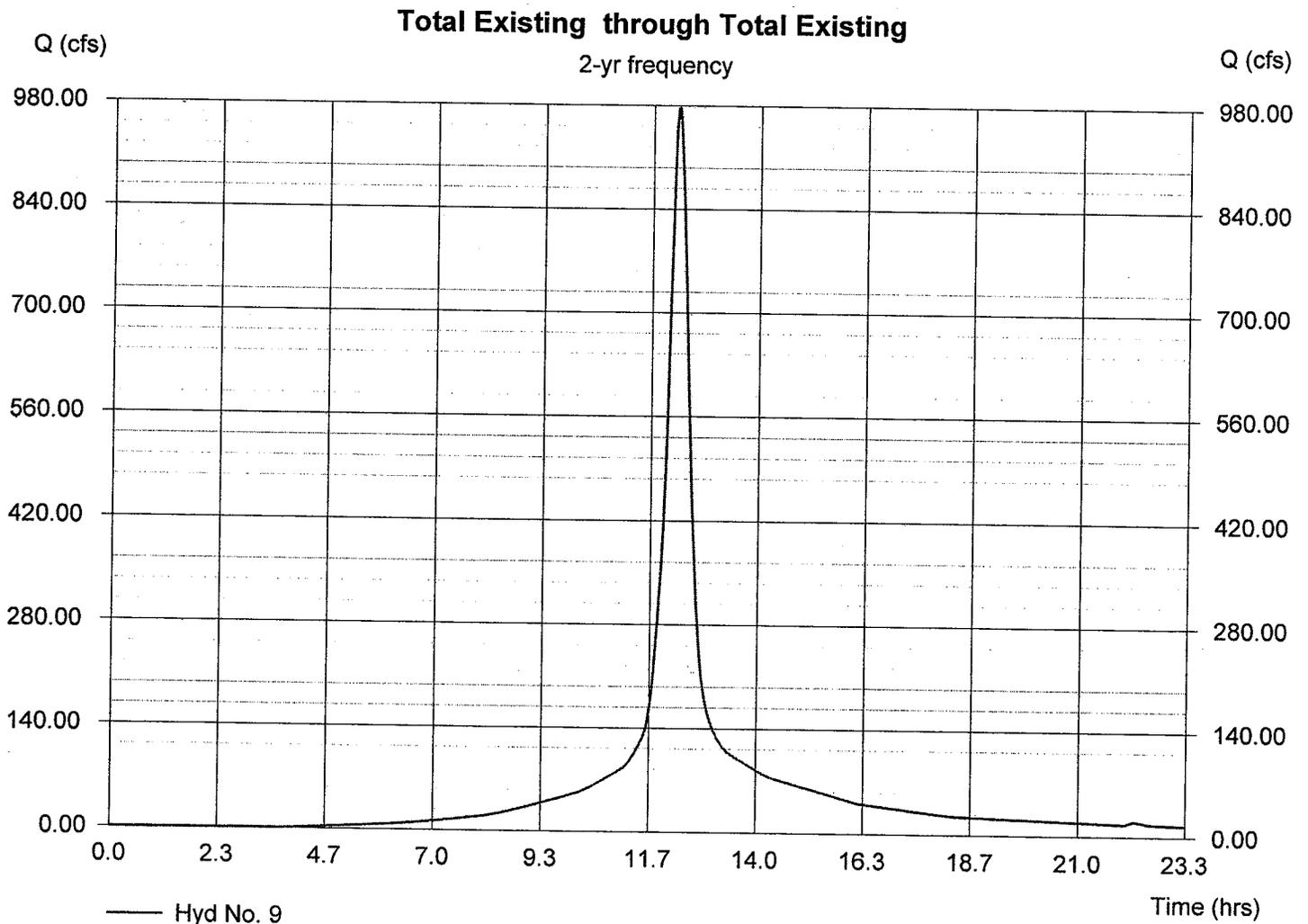
Total Existing

Hydrograph type = Combine  
Peak discharge = 976.89 cfs  
Time to peak = 12.23 hrs  
Hyd. Volume = 4,662,629 cuft

## Hyd. No. 9

Total Existing

Hydrograph type = Combine  
Peak discharge = 976.89 cfs  
Time to peak = 12.23 hrs  
Hyd. Volume = 4,662,629 cuft



# Multi-Hydrograph Plot

Hydraflow Hydrographs by Intelisolve

## Hyd. No. 12

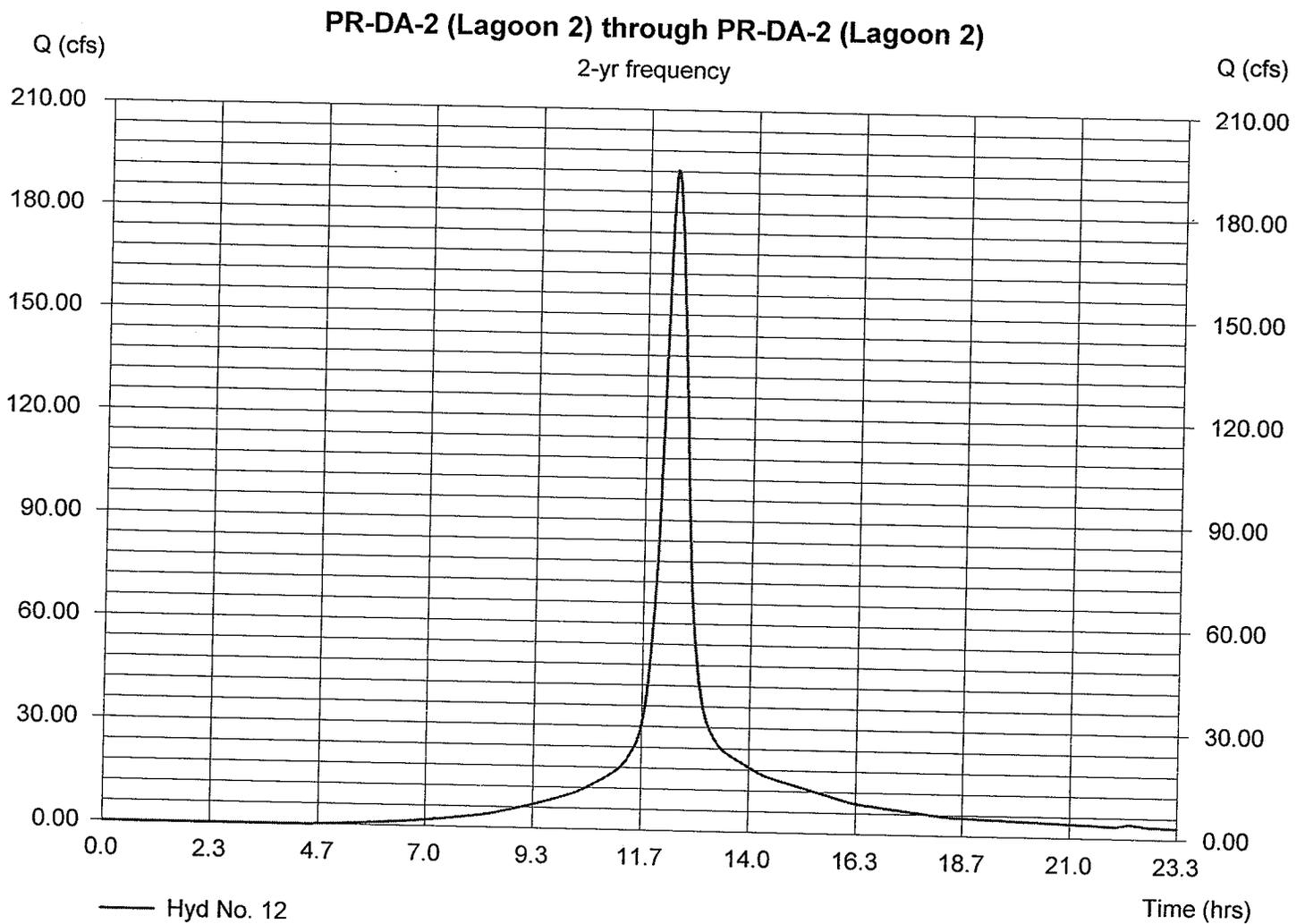
PR-DA-2 (Lagoon 2)

Hydrograph type = SCS Runoff  
Peak discharge = 192.42 cfs  
Time to peak = 12.27 hrs  
Hyd. Volume = 975,620 cuft

## Hyd. No. 12

PR-DA-2 (Lagoon 2)

Hydrograph type = SCS Runoff  
Peak discharge = 192.42 cfs  
Time to peak = 12.27 hrs  
Hyd. Volume = 975,620 cuft



# Multi-Hydrograph Plot

Hydraflow Hydrographs by Intelisolve

## Hyd. No. 13

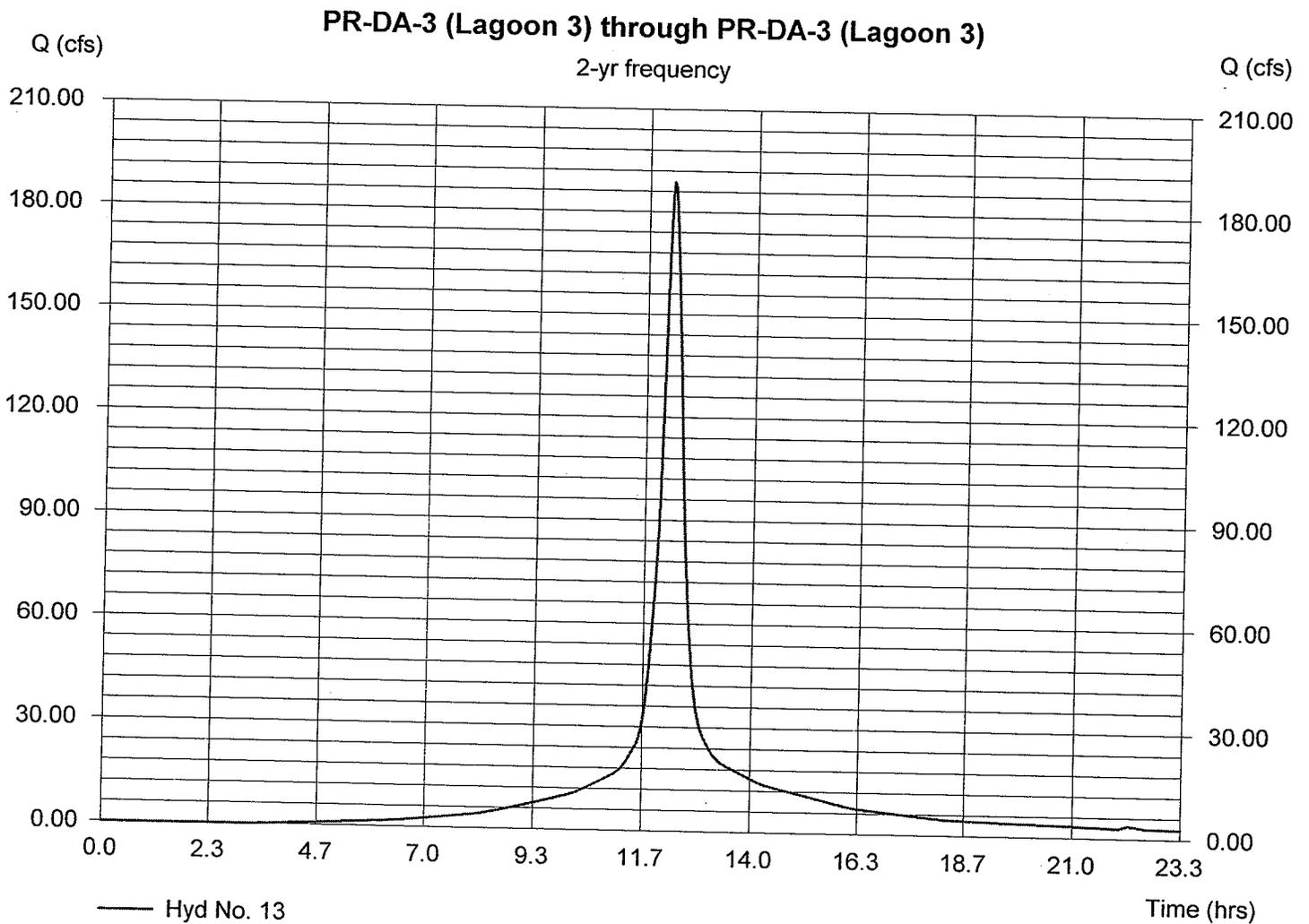
PR-DA-3 (Lagoon 3)

Hydrograph type = SCS Runoff  
Peak discharge = 188.69 cfs  
Time to peak = 12.20 hrs  
Hyd. Volume = 875,783 cuft

## Hyd. No. 13

PR-DA-3 (Lagoon 3)

Hydrograph type = SCS Runoff  
Peak discharge = 188.69 cfs  
Time to peak = 12.20 hrs  
Hyd. Volume = 875,783 cuft



# Multi-Hydrograph Plot

Hydraflow Hydrographs by Intelisolve

## Hyd. No. 14

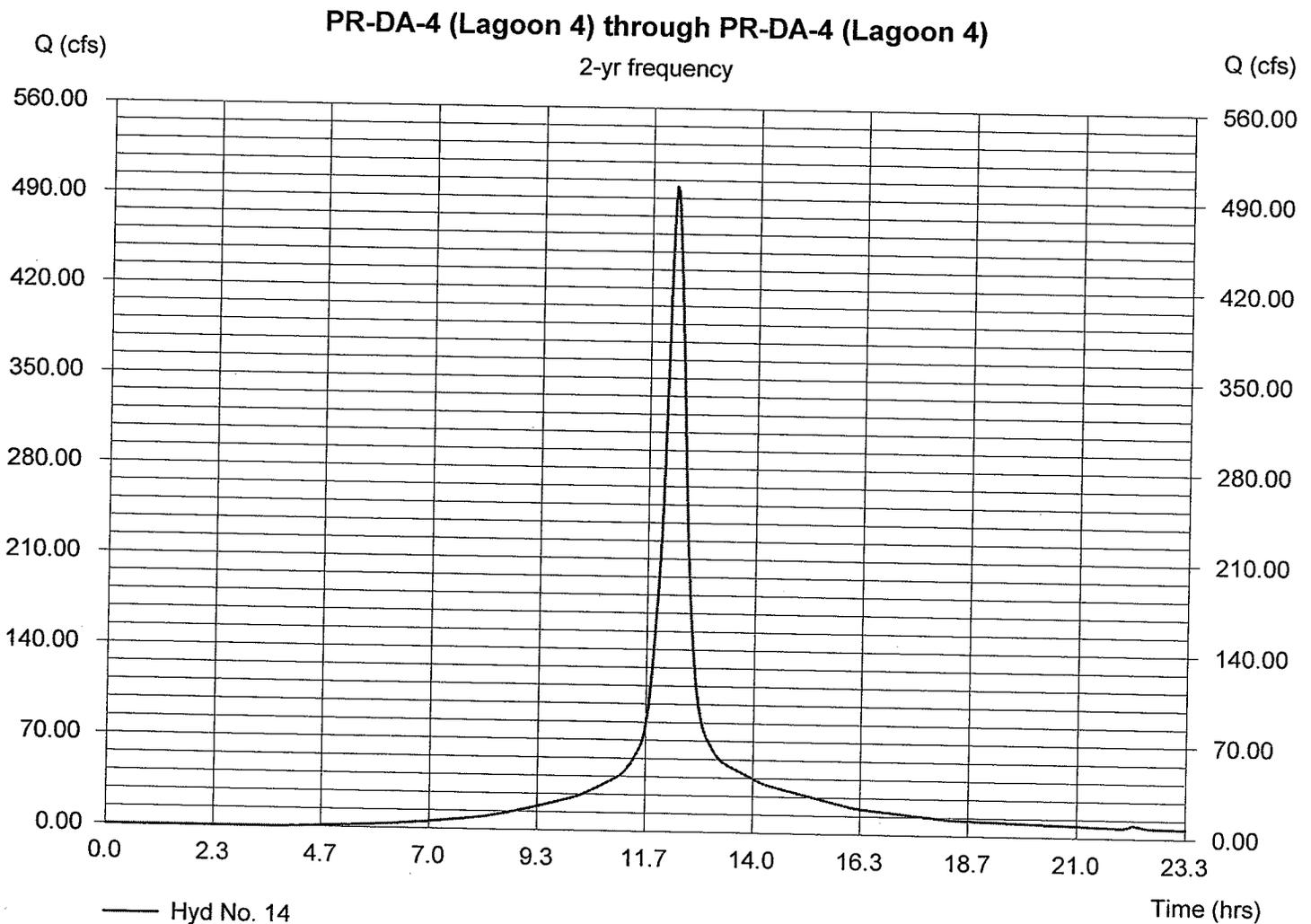
PR-DA-4 (Lagoon 4)

Hydrograph type = SCS Runoff  
Peak discharge = 499.03 cfs  
Time to peak = 12.20 hrs  
Hyd. Volume = 2,288,630 cuft

## Hyd. No. 14

PR-DA-4 (Lagoon 4)

Hydrograph type = SCS Runoff  
Peak discharge = 499.03 cfs  
Time to peak = 12.20 hrs  
Hyd. Volume = 2,288,630 cuft



# Multi-Hydrograph Plot

Hydraflow Hydrographs by Intelisolve

## Hyd. No. 16

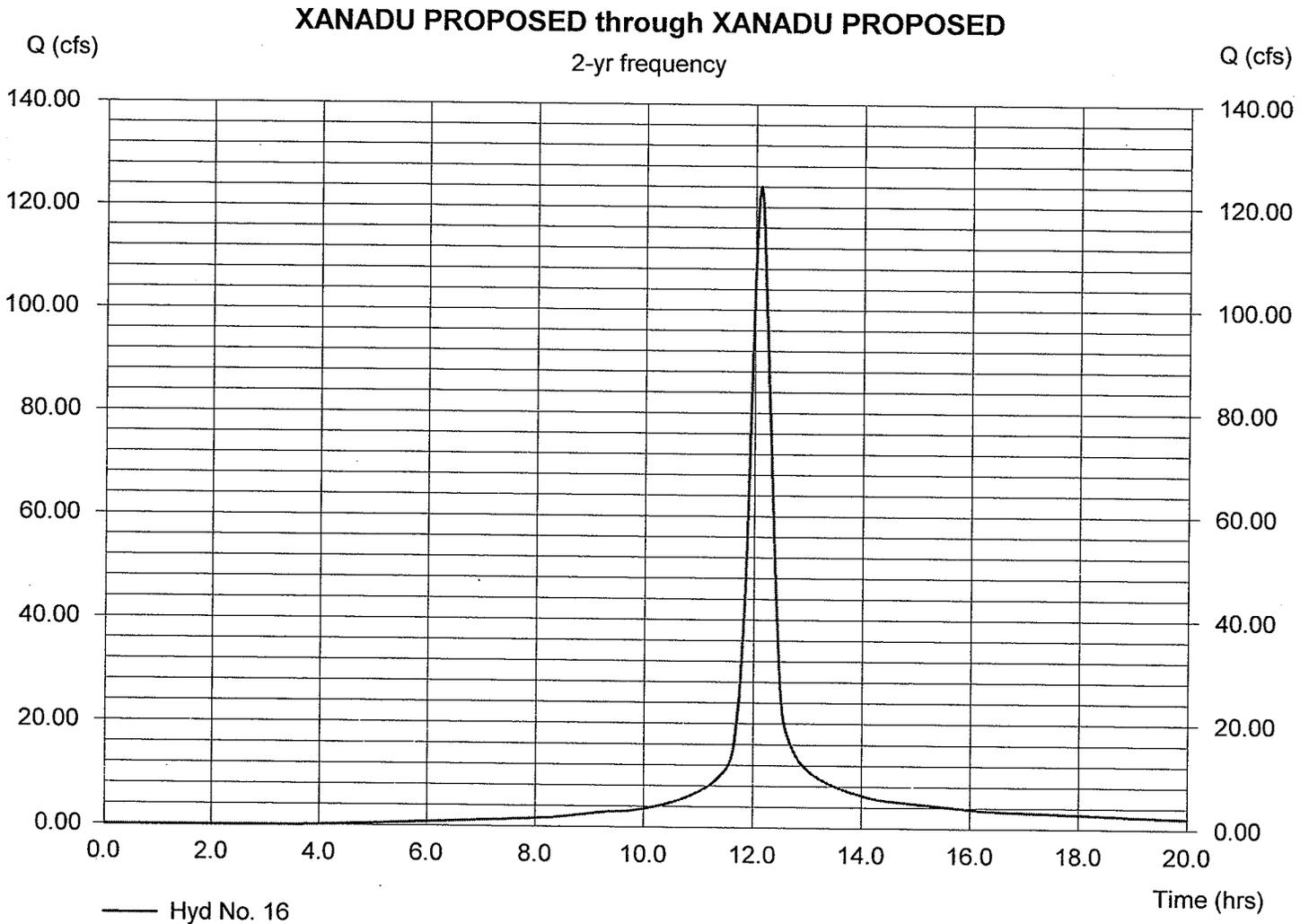
XANADU PROPOSED

Hydrograph type = SCS Runoff  
Peak discharge = 124.07 cfs  
Time to peak = 12.10 hrs  
Hyd. Volume = 443,983 cuft

## Hyd. No. 16

XANADU PROPOSED

Hydrograph type = SCS Runoff  
Peak discharge = 124.07 cfs  
Time to peak = 12.10 hrs  
Hyd. Volume = 443,983 cuft



# Multi-Hydrograph Plot

Hydraflow Hydrographs by Intelisolve

## Hyd. No. 18

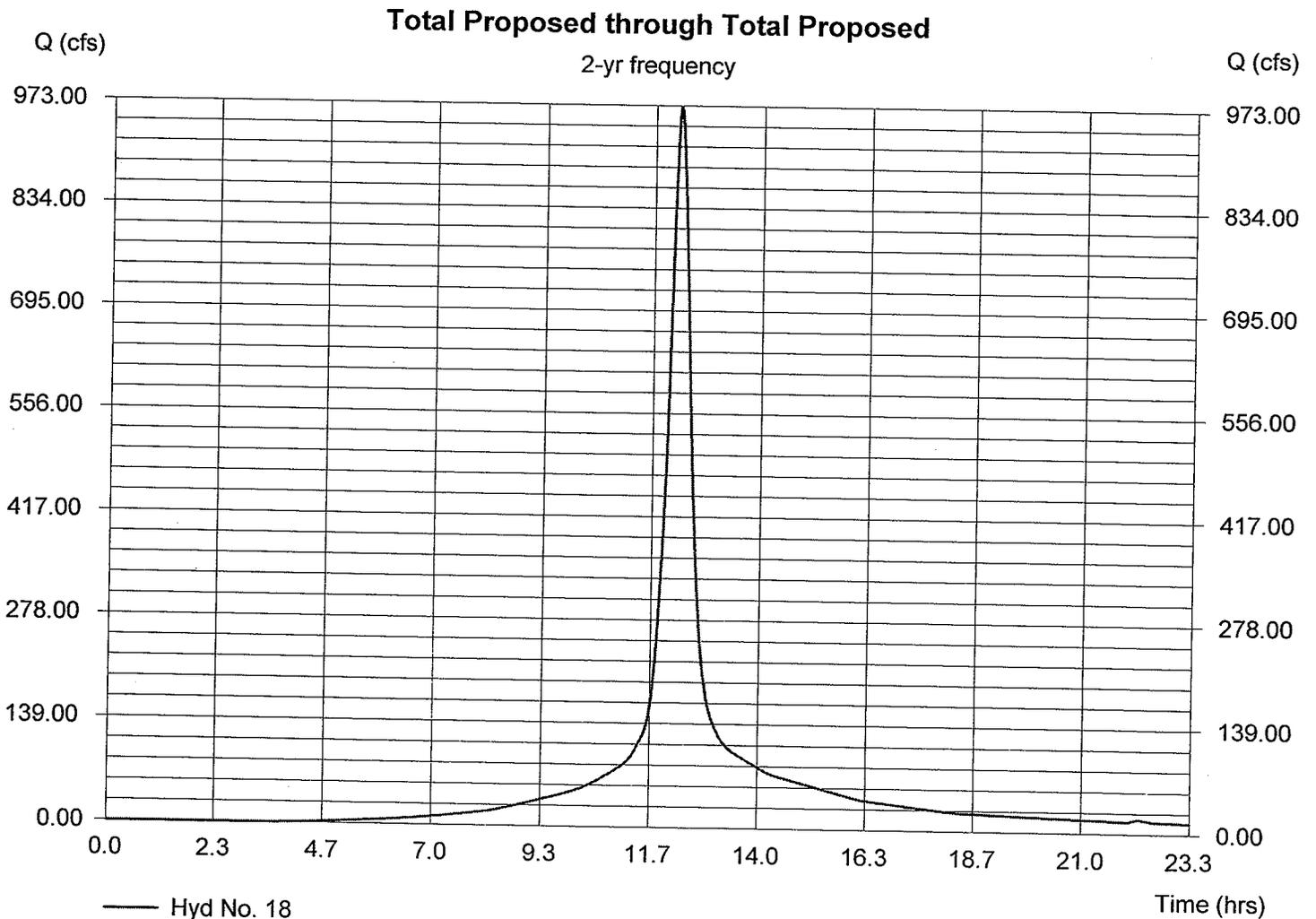
Total Proposed

Hydrograph type = Combine  
Peak discharge = 971.58 cfs  
Time to peak = 12.20 hrs  
Hyd. Volume = 4,584,013 cuft

## Hyd. No. 18

Total Proposed

Hydrograph type = Combine  
Peak discharge = 971.58 cfs  
Time to peak = 12.20 hrs  
Hyd. Volume = 4,584,013 cuft



# Hydrograph Summary Report

Hyd. o.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to peak (min)	Volume (cuft)	Inflow hyd(s)	Maximum elevation (ft)	Maximum storage (cuft)	Hydrograph description	
1	SCS Runoff	323.47	2	736	1,699,490	---	----	----	EX-DA-2 (Lagoon 2)	
2	SCS Runoff	251.17	2	732	1,183,556	---	----	----	EX-DA-3 (Lagoon 3)	
3	SCS Runoff	822.53	2	732	3,875,873	---	----	----	EX-DA-4 (Lagoon 4)	
4	SCS Runoff	19.33	2	728	74,305	---	----	----	EX-DA-5 (120 S Lot)	
5	SCS Runoff	12.74	2	728	49,227	---	----	----	EX-DA-6 (Transit Lot)	
7	SCS Runoff	179.19	2	732	878,766	---	----	----	XANADU EXISTING	
9	Combine	1584.56	2	732	7,761,218	1, 2, 3, 4, 5, 7, ---	----	----	Total Existing	
12	SCS Runoff	317.00	2	736	1,648,880	---	----	----	PR-DA-2 (Lagoon 2)	
13	SCS Runoff	302.63	2	732	1,442,764	---	----	----	PR-DA-3 (Lagoon 3)	
14	SCS Runoff	810.41	2	732	3,818,767	---	----	----	PR-DA-4 (Lagoon 4)	
16	SCS Runoff	201.60	2	726	740,822	---	----	----	XANADU PROPOSED	
18	Combine	1578.95	2	732	7,651,227	12, 13, 14, 16, ---	----	----	Total Proposed	
NMS - Hydrograph - 1.gpw					Return Period: 10 Year			Friday, Sep 22 2006, 10:20 AM		

# Multi-Hydrograph Plot

Hydraflow Hydrographs by Intelisolve

## Hyd. No. 1

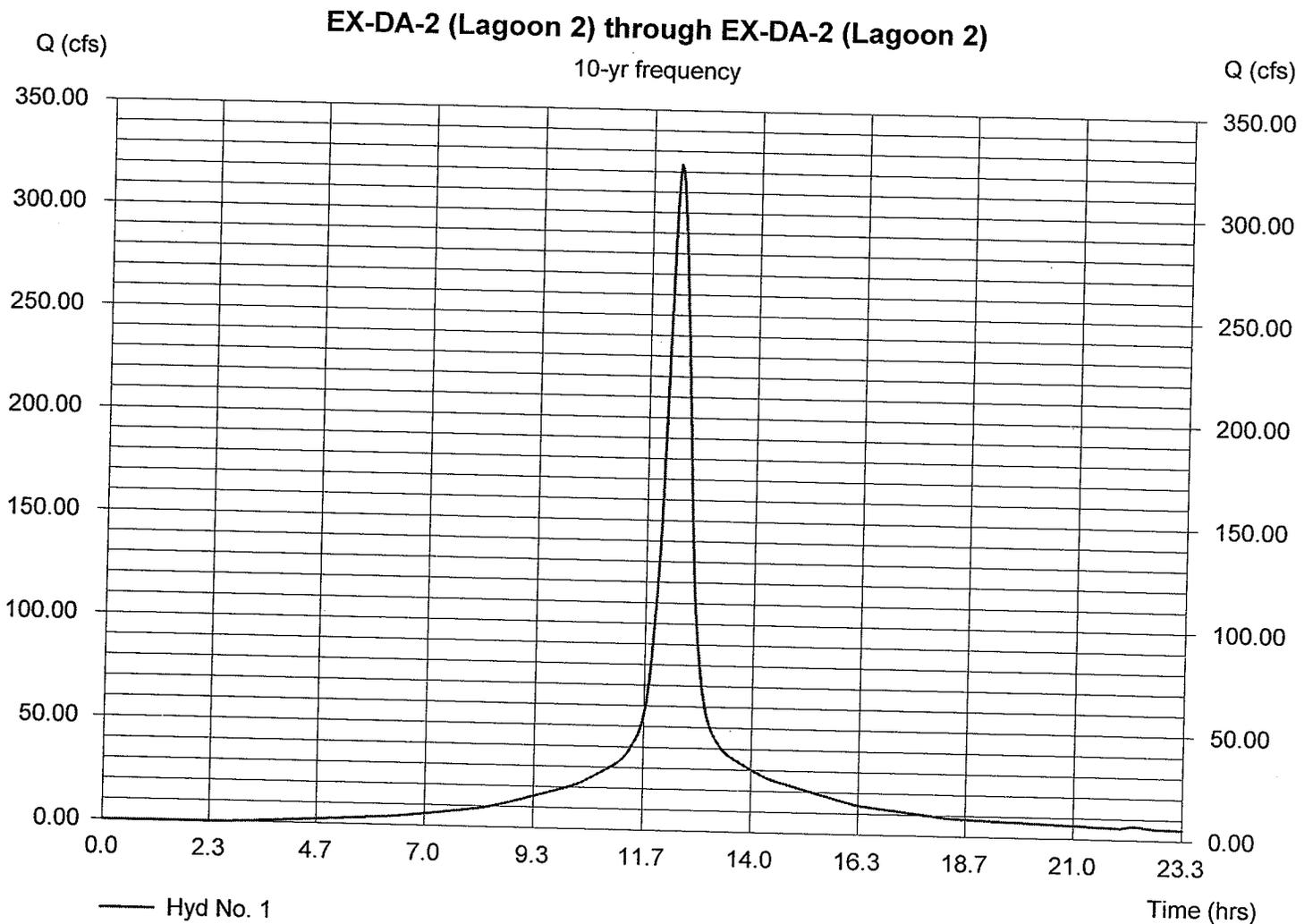
EX-DA-2 (Lagoon 2)

Hydrograph type = SCS Runoff  
Peak discharge = 323.47 cfs  
Time to peak = 12.27 hrs  
Hyd. Volume = 1,699,490 cuft

## Hyd. No. 1

EX-DA-2 (Lagoon 2)

Hydrograph type = SCS Runoff  
Peak discharge = 323.47 cfs  
Time to peak = 12.27 hrs  
Hyd. Volume = 1,699,490 cuft



# Multi-Hydrograph Plot

Hydraflow Hydrographs by Intelisolve

## Hyd. No. 2

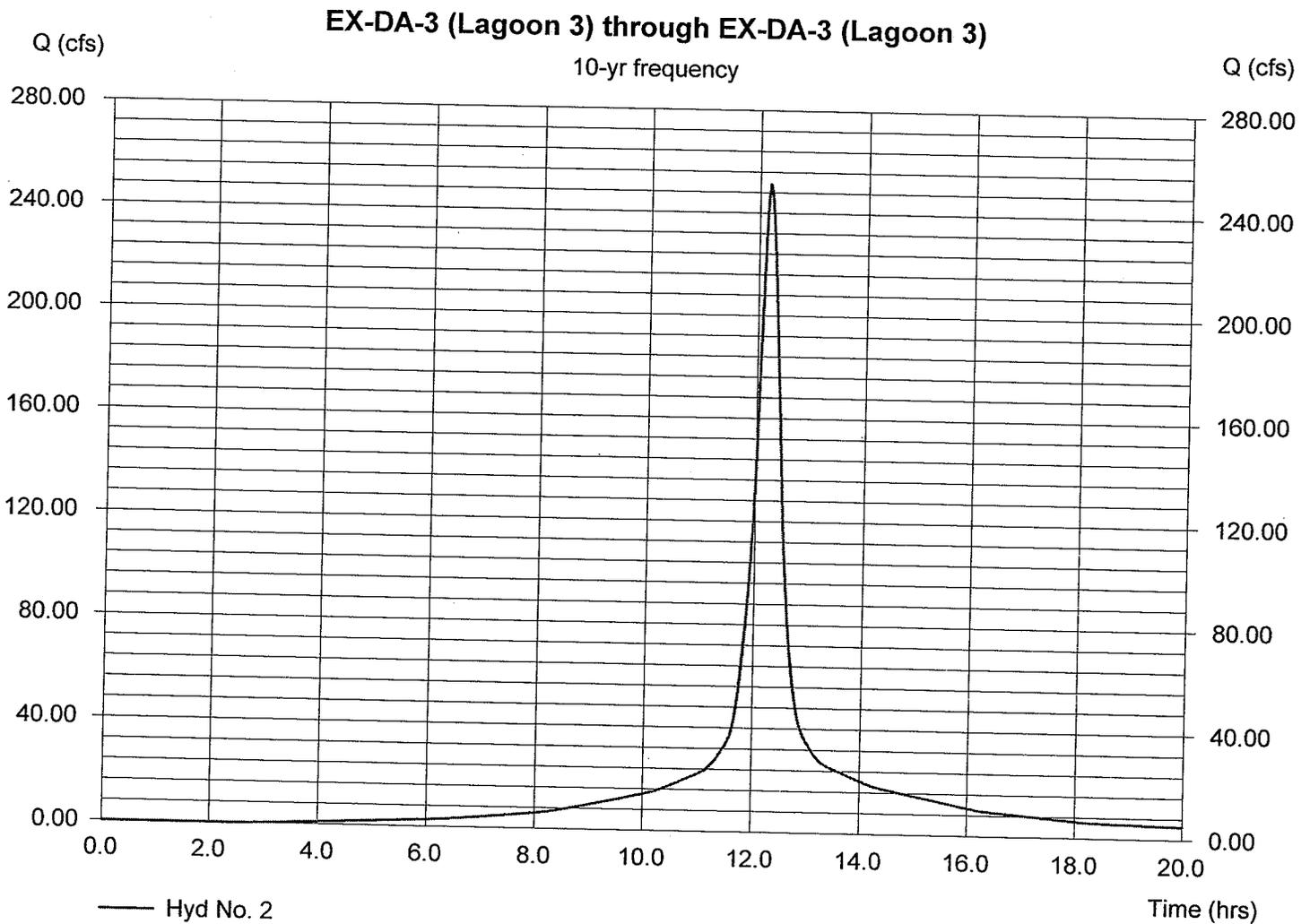
EX-DA-3 (Lagoon 3)

Hydrograph type = SCS Runoff  
Peak discharge = 251.17 cfs  
Time to peak = 12.20 hrs  
Hyd. Volume = 1,183,556 cuft

## Hyd. No. 2

EX-DA-3 (Lagoon 3)

Hydrograph type = SCS Runoff  
Peak discharge = 251.17 cfs  
Time to peak = 12.20 hrs  
Hyd. Volume = 1,183,556 cuft



# Multi-Hydrograph Plot

Hydraflow Hydrographs by Intelisolve

## Hyd. No. 3

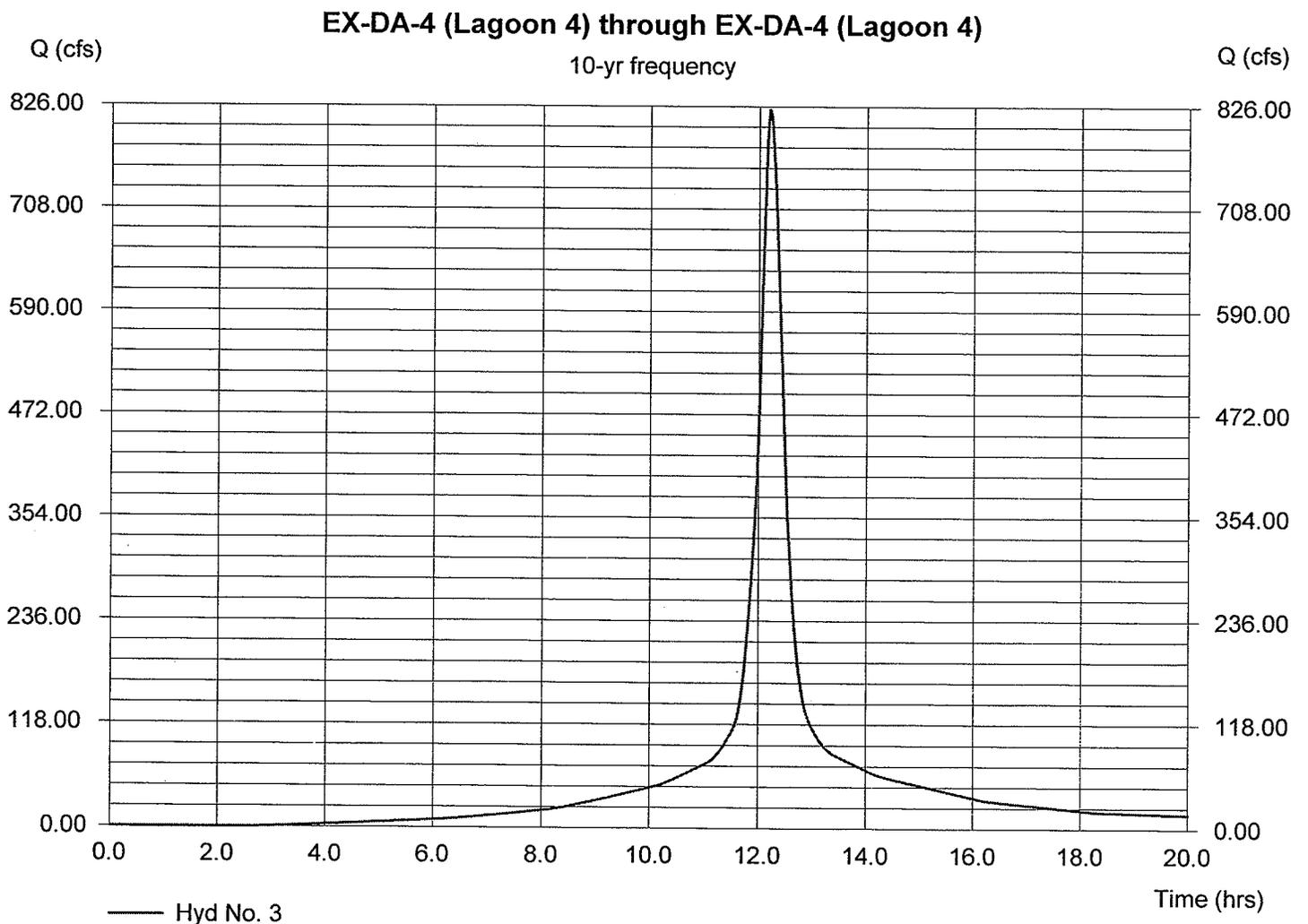
EX-DA-4 (Lagoon 4)

Hydrograph type = SCS Runoff  
Peak discharge = 822.53 cfs  
Time to peak = 12.20 hrs  
Hyd. Volume = 3,875,873 cuft

## Hyd. No. 3

EX-DA-4 (Lagoon 4)

Hydrograph type = SCS Runoff  
Peak discharge = 822.53 cfs  
Time to peak = 12.20 hrs  
Hyd. Volume = 3,875,873 cuft



# Multi-Hydrograph Plot

Hydraflow Hydrographs by Intelisolve

## Hyd. No. 4

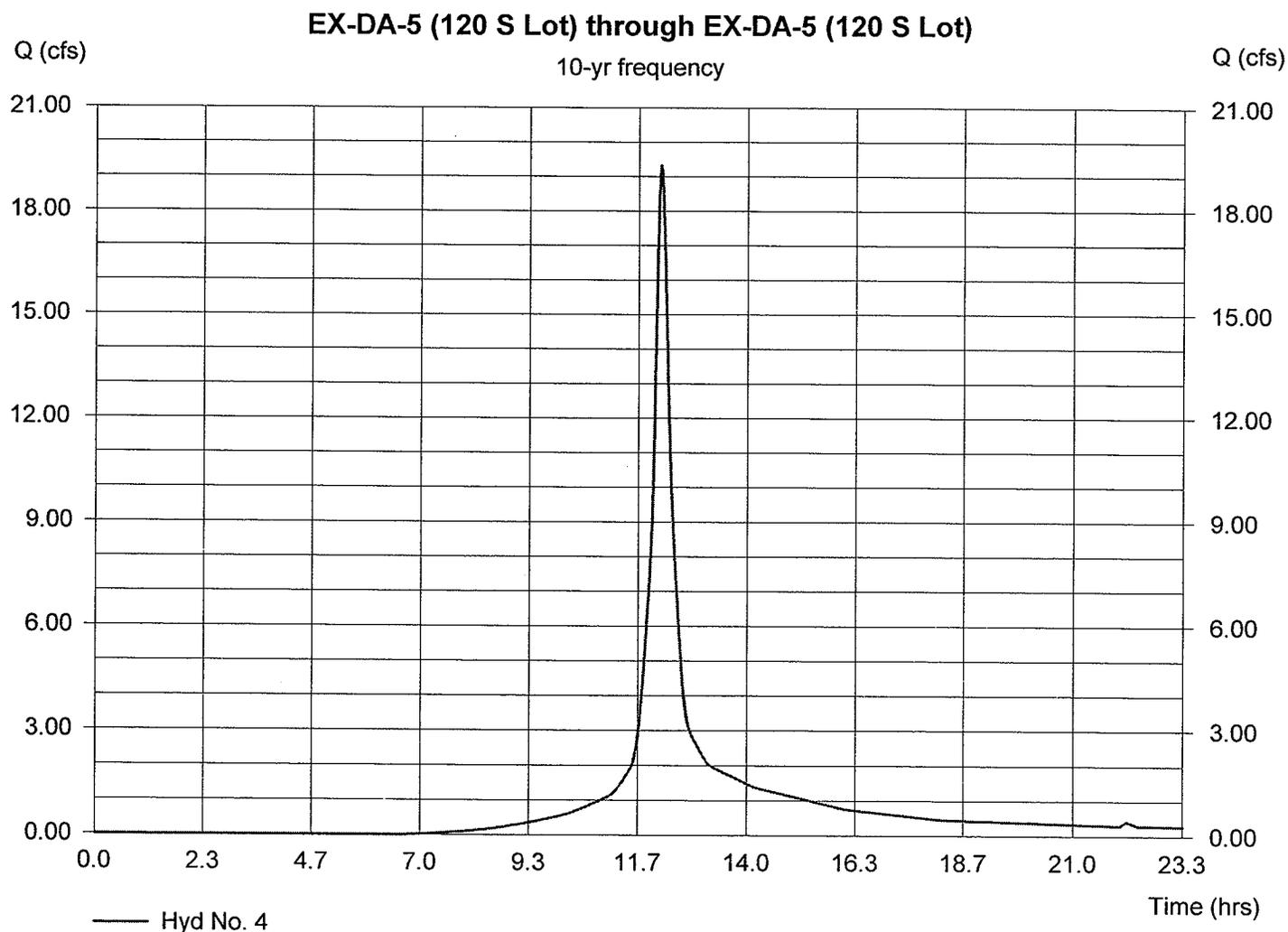
EX-DA-5 (120 S Lot)

Hydrograph type = SCS Runoff  
Peak discharge = 19.33 cfs  
Time to peak = 12.13 hrs  
Hyd. Volume = 74,305 cuft

## Hyd. No. 4

EX-DA-5 (120 S Lot)

Hydrograph type = SCS Runoff  
Peak discharge = 19.33 cfs  
Time to peak = 12.13 hrs  
Hyd. Volume = 74,305 cuft



# Multi-Hydrograph Plot

Hydraflow Hydrographs by Intelisolve

## Hyd. No. 5

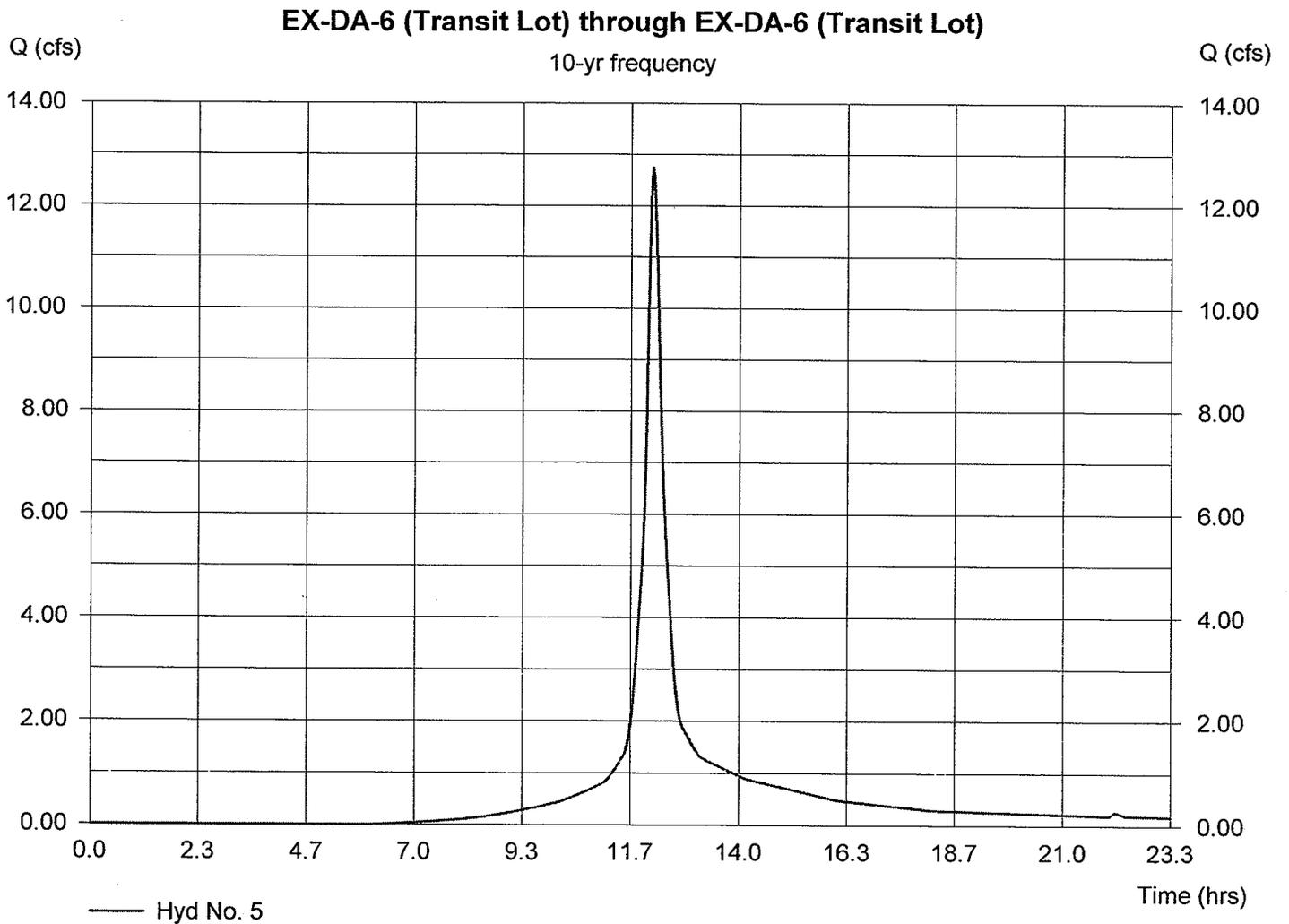
EX-DA-6 (Transit Lot)

Hydrograph type = SCS Runoff  
Peak discharge = 12.74 cfs  
Time to peak = 12.13 hrs  
Hyd. Volume = 49,227 cuft

## Hyd. No. 5

EX-DA-6 (Transit Lot)

Hydrograph type = SCS Runoff  
Peak discharge = 12.74 cfs  
Time to peak = 12.13 hrs  
Hyd. Volume = 49,227 cuft



# Multi-Hydrograph Plot

Hydraflow Hydrographs by Intelisolve

## Hyd. No. 7

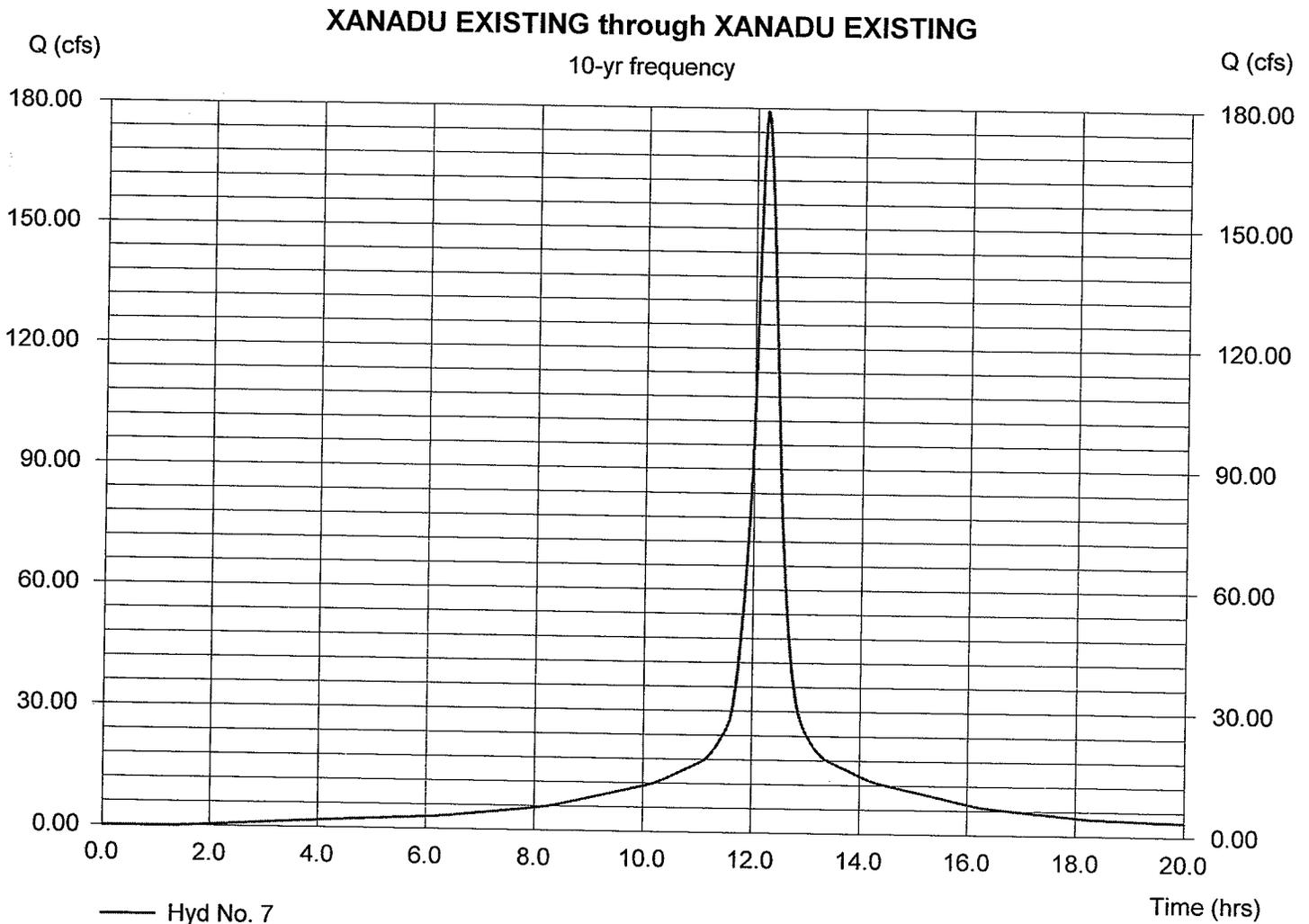
XANADU EXISTING

Hydrograph type = SCS Runoff  
Peak discharge = 179.19 cfs  
Time to peak = 12.20 hrs  
Hyd. Volume = 878,766 cuft

## Hyd. No. 7

XANADU EXISTING

Hydrograph type = SCS Runoff  
Peak discharge = 179.19 cfs  
Time to peak = 12.20 hrs  
Hyd. Volume = 878,766 cuft



# Multi-Hydrograph Plot

Hydraflow Hydrographs by Intelisolve

## Hyd. No. 9

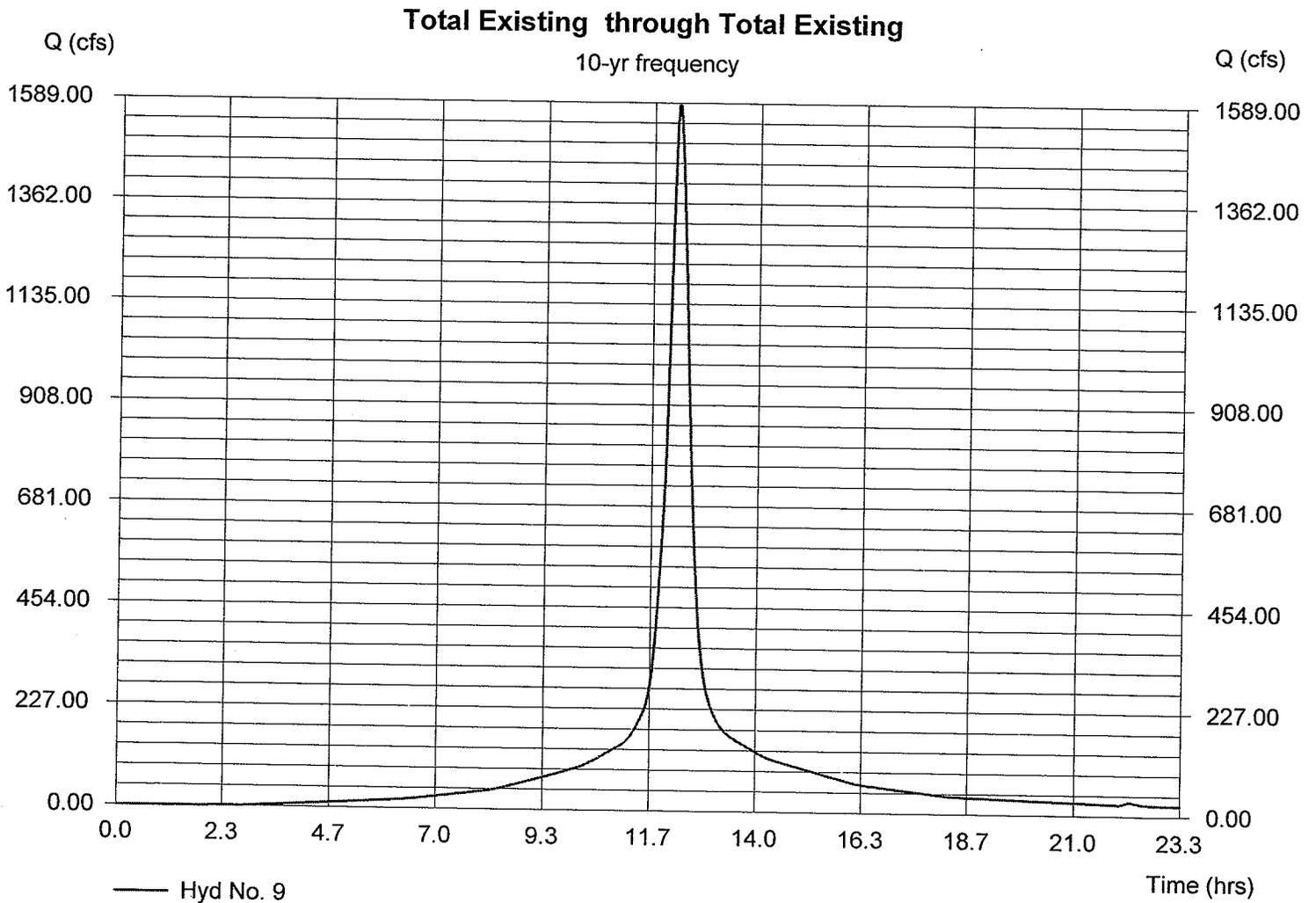
Total Existing

Hydrograph type = Combine  
Peak discharge = 1584.56 cfs  
Time to peak = 12.20 hrs  
Hyd. Volume = 7,761,218 cuft

## Hyd. No. 9

Total Existing

Hydrograph type = Combine  
Peak discharge = 1584.56 cfs  
Time to peak = 12.20 hrs  
Hyd. Volume = 7,761,218 cuft



# Multi-Hydrograph Plot

Hydraflow Hydrographs by Intelisolve

## Hyd. No. 12

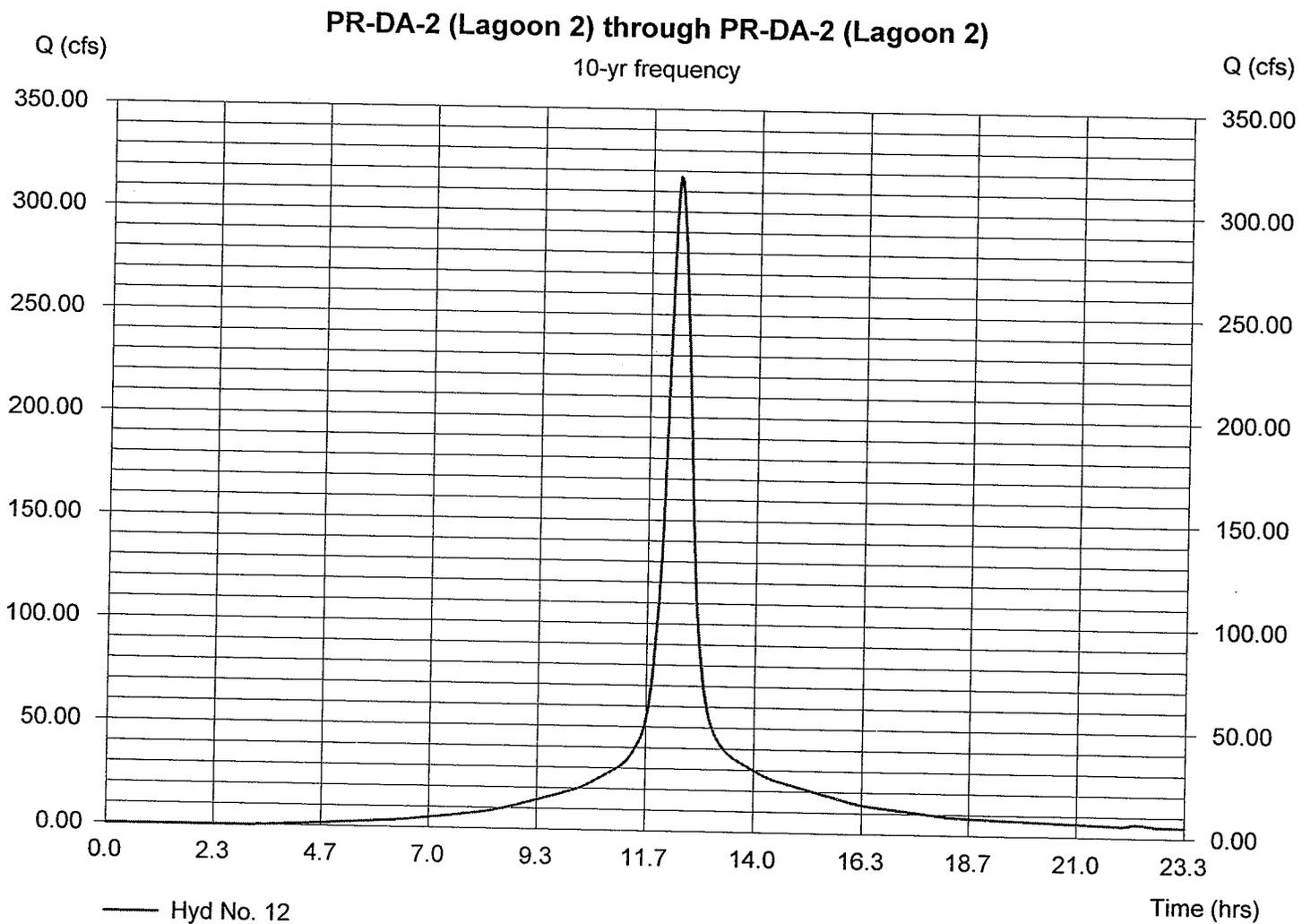
PR-DA-2 (Lagoon 2)

Hydrograph type = SCS Runoff  
Peak discharge = 317.00 cfs  
Time to peak = 12.27 hrs  
Hyd. Volume = 1,648,880 cuft

## Hyd. No. 12

PR-DA-2 (Lagoon 2)

Hydrograph type = SCS Runoff  
Peak discharge = 317.00 cfs  
Time to peak = 12.27 hrs  
Hyd. Volume = 1,648,880 cuft



# Multi-Hydrograph Plot

Hydraflow Hydrographs by Intelisolve

## Hyd. No. 13

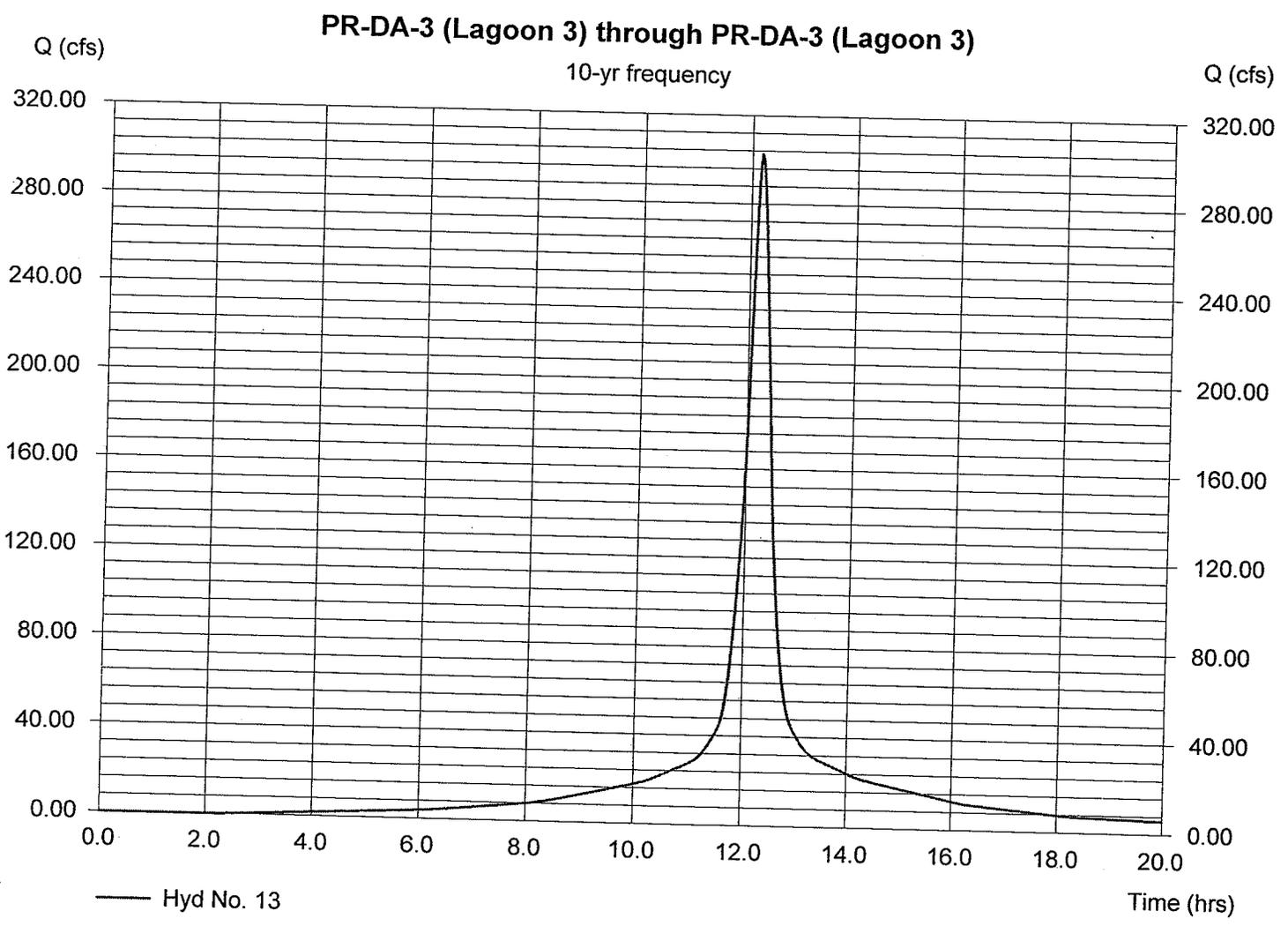
PR-DA-3 (Lagoon 3)

Hydrograph type = SCS Runoff  
Peak discharge = 302.63 cfs  
Time to peak = 12.20 hrs  
Hyd. Volume = 1,442,764 cuft

## Hyd. No. 13

PR-DA-3 (Lagoon 3)

Hydrograph type = SCS Runoff  
Peak discharge = 302.63 cfs  
Time to peak = 12.20 hrs  
Hyd. Volume = 1,442,764 cuft



# Multi-Hydrograph Plot

Hydraflow Hydrographs by Intelisolve

## Hyd. No. 14

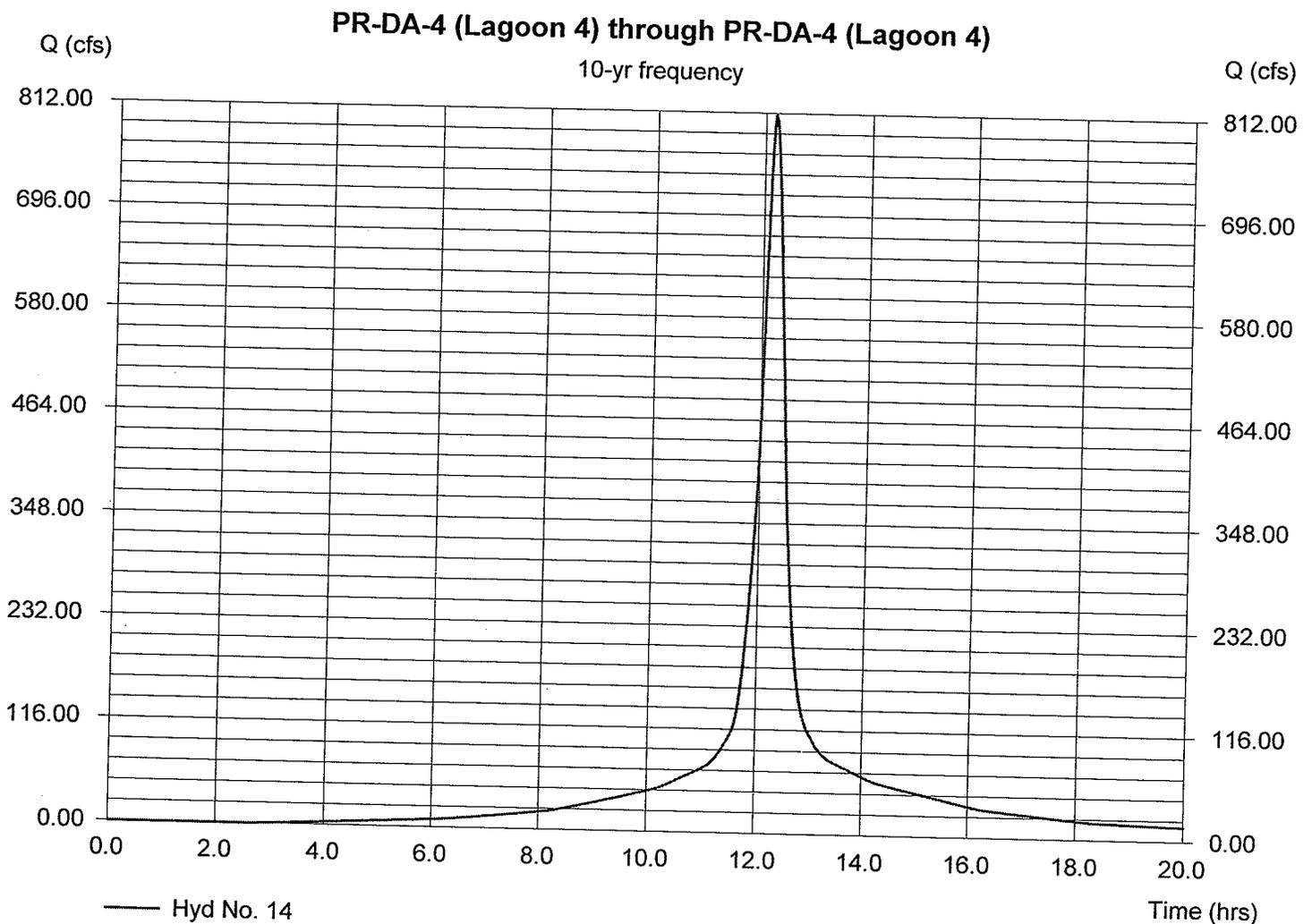
PR-DA-4 (Lagoon 4)

Hydrograph type = SCS Runoff  
Peak discharge = 810.41 cfs  
Time to peak = 12.20 hrs  
Hyd. Volume = 3,818,767 cuft

## Hyd. No. 14

PR-DA-4 (Lagoon 4)

Hydrograph type = SCS Runoff  
Peak discharge = 810.41 cfs  
Time to peak = 12.20 hrs  
Hyd. Volume = 3,818,767 cuft



# Multi-Hydrograph Plot

Hydraflow Hydrographs by Intelisolve

## Hyd. No. 16

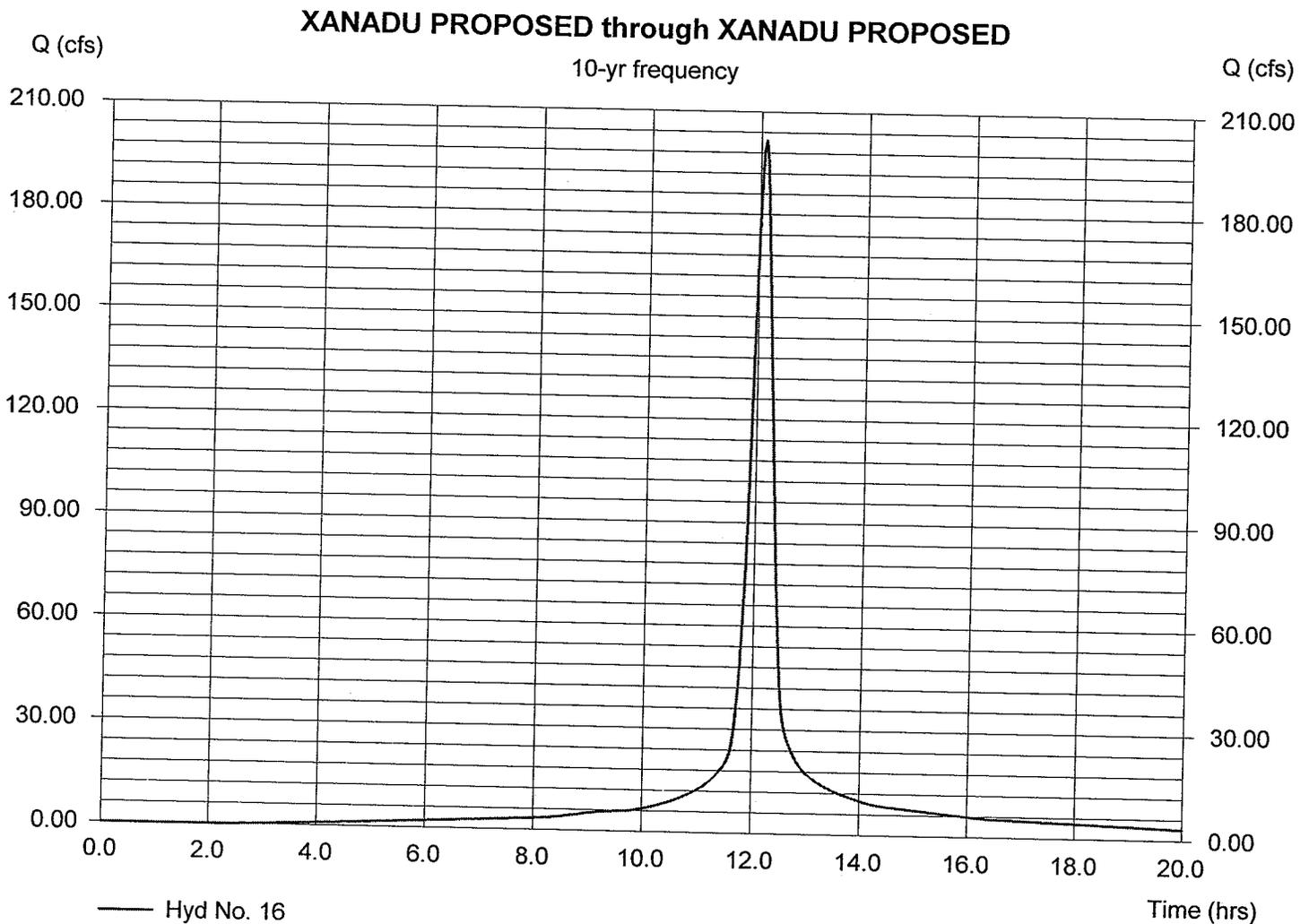
XANADU PROPOSED

Hydrograph type = SCS Runoff  
Peak discharge = 201.60 cfs  
Time to peak = 12.10 hrs  
Hyd. Volume = 740,822 cuft

## Hyd. No. 16

XANADU PROPOSED

Hydrograph type = SCS Runoff  
Peak discharge = 201.60 cfs  
Time to peak = 12.10 hrs  
Hyd. Volume = 740,822 cuft



# Multi-Hydrograph Plot

Hydraflow Hydrographs by Intelisolve

## Hyd. No. 18

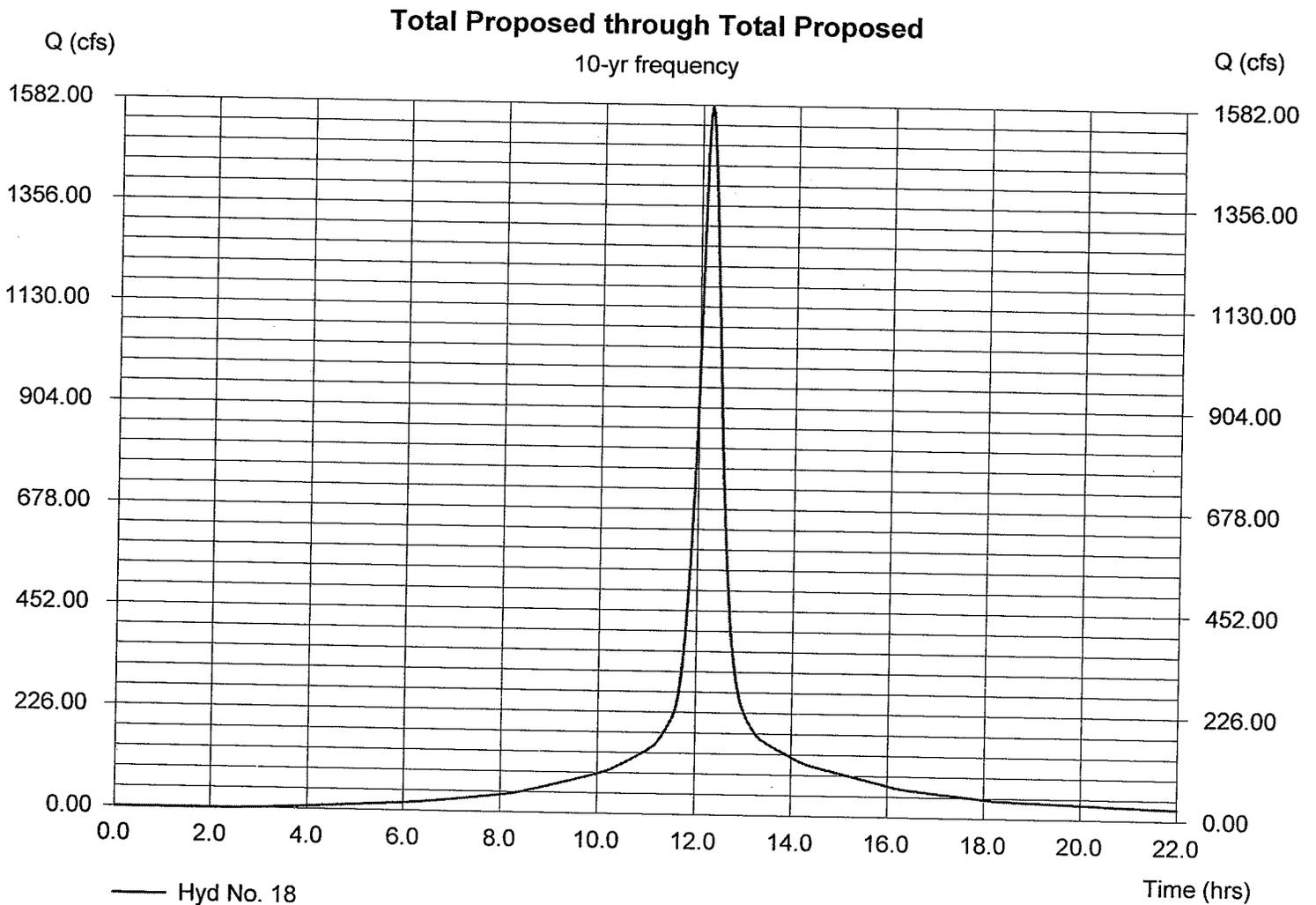
Total Proposed

Hydrograph type = Combine  
Peak discharge = 1578.95 cfs  
Time to peak = 12.20 hrs  
Hyd. Volume = 7,651,227 cuft

## Hyd. No. 18

Total Proposed

Hydrograph type = Combine  
Peak discharge = 1578.95 cfs  
Time to peak = 12.20 hrs  
Hyd. Volume = 7,651,227 cuft



# Hydrograph Summary Report

Hyd. o.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to peak (min)	Volume (cuft)	Inflow hyd(s)	Maximum elevation (ft)	Maximum storage (cuft)	Hydrograph description
1	SCS Runoff	405.53	2	736	2,157,354	---	---	---	EX-DA-2 (Lagoon 2)
2	SCS Runoff	314.80	2	732	1,502,421	---	---	---	EX-DA-3 (Lagoon 3)
3	SCS Runoff	1030.89	2	732	4,920,079	---	---	---	EX-DA-4 (Lagoon 4)
4	SCS Runoff	25.68	2	728	99,476	---	---	---	EX-DA-5 (120 S Lot)
5	SCS Runoff	16.72	2	728	65,239	---	---	---	EX-DA-6 (Transit Lot)
7	SCS Runoff	222.31	2	732	1,100,316	---	---	---	XANADU EXISTING
9	Combine	1986.16	2	732	9,844,882	1, 2, 3, 4, 5, 7,	---	---	Total Existing
12	SCS Runoff	399.13	2	736	2,102,819	---	---	---	PR-DA-2 (Lagoon 2)
13	SCS Runoff	377.82	2	732	1,823,058	---	---	---	PR-DA-3 (Lagoon 3)
14	SCS Runoff	1015.70	2	732	4,847,596	---	---	---	PR-DA-4 (Lagoon 4)
16	SCS Runoff	252.73	2	726	940,410	---	---	---	XANADU PROPOSED
18	Combine	1979.50	2	732	9,713,864	12, 13, 14, 16,	---	---	Total Proposed
NMS - Hydgraph - 1.gpw					Return Period: 25 Year		Friday, Sep 22 2006, 10:20 AM		

# Multi-Hydrograph Plot

Hydraflow Hydrographs by Intelisolve

## Hyd. No. 1

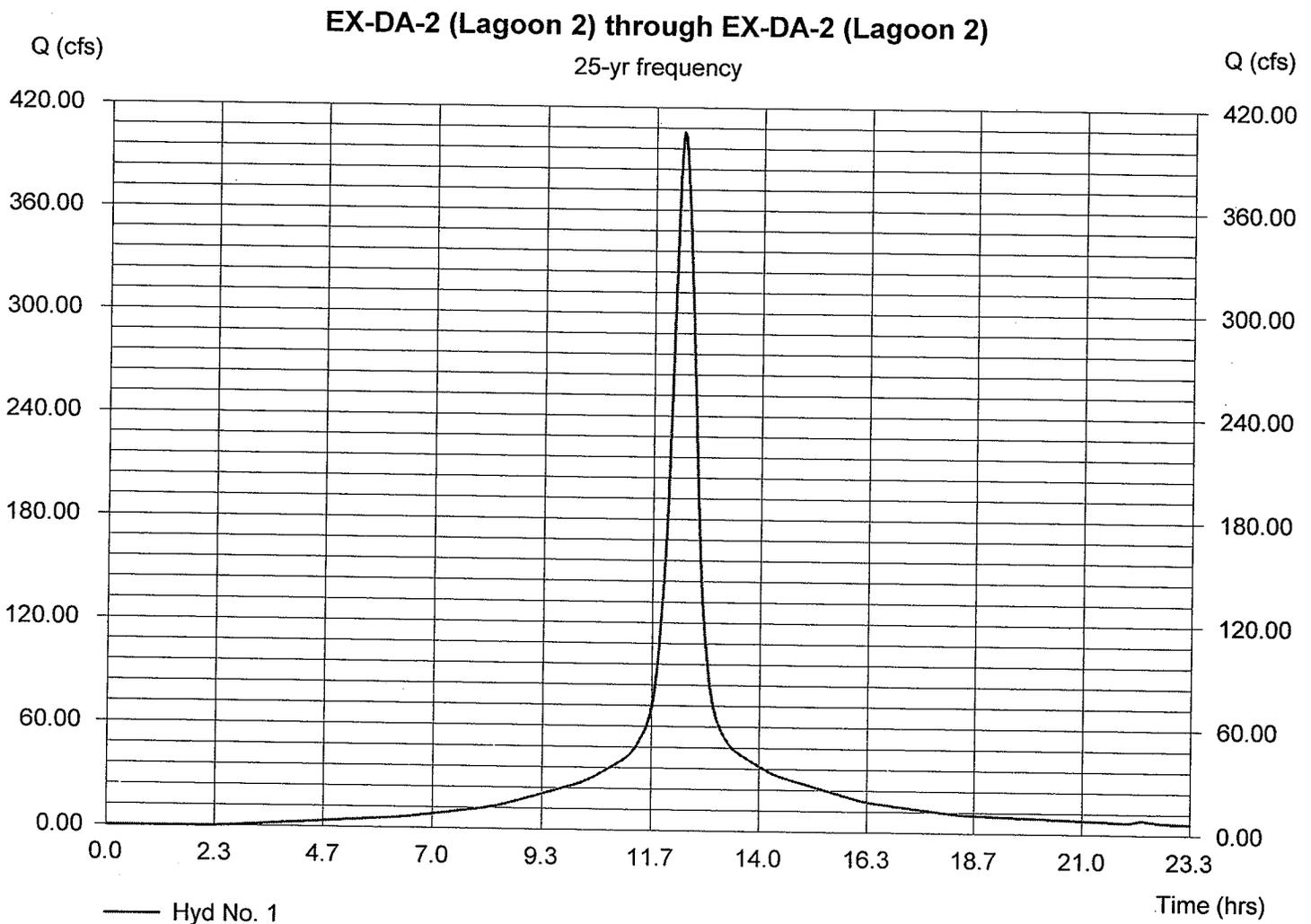
EX-DA-2 (Lagoon 2)

Hydrograph type = SCS Runoff  
Peak discharge = 405.53 cfs  
Time to peak = 12.27 hrs  
Hyd. Volume = 2,157,354 cuft

## Hyd. No. 1

EX-DA-2 (Lagoon 2)

Hydrograph type = SCS Runoff  
Peak discharge = 405.53 cfs  
Time to peak = 12.27 hrs  
Hyd. Volume = 2,157,354 cuft



# Multi-Hydrograph Plot

Hydraflow Hydrographs by Intelisolve

## Hyd. No. 2

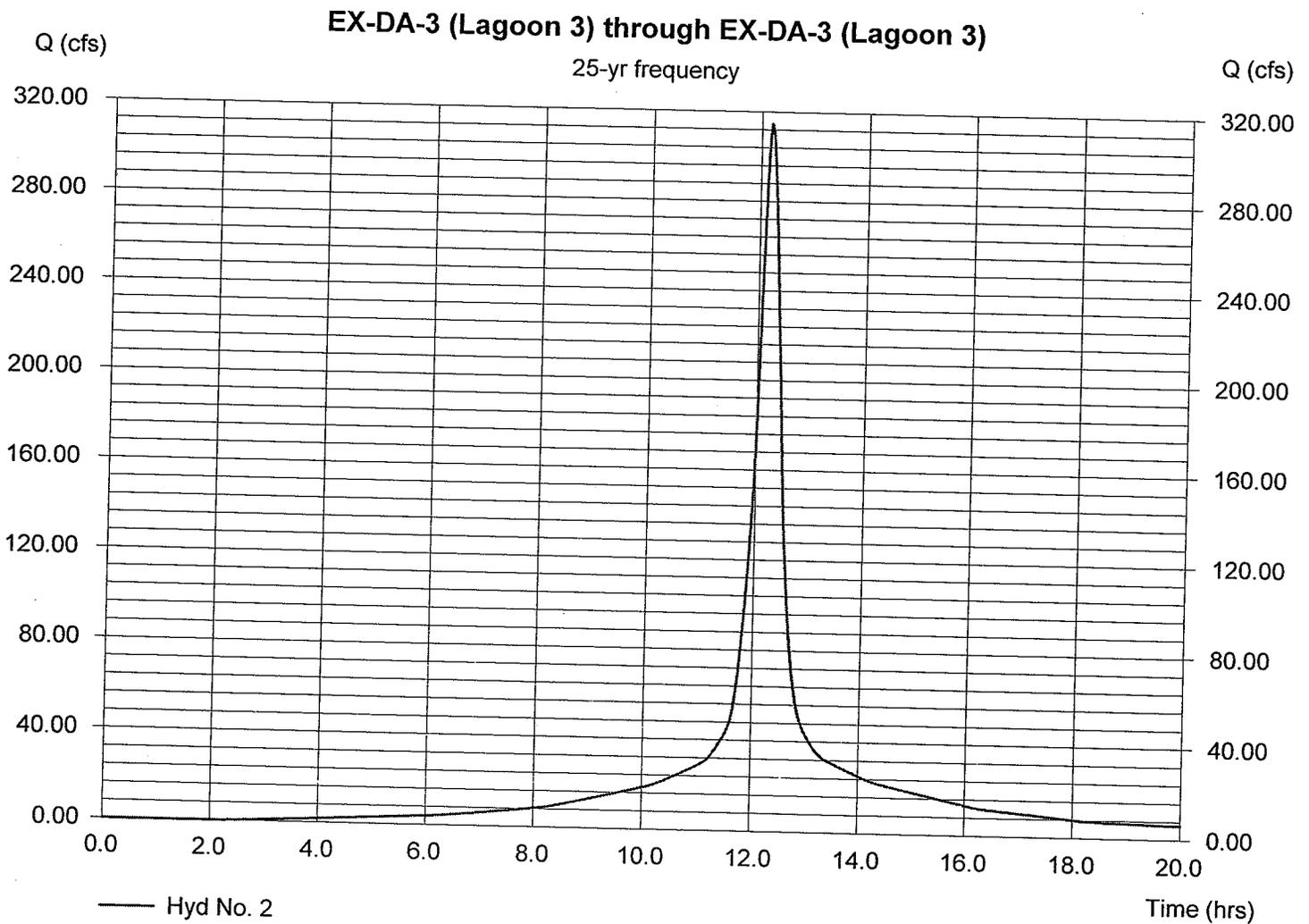
EX-DA-3 (Lagoon 3)

Hydrograph type = SCS Runoff  
Peak discharge = 314.80 cfs  
Time to peak = 12.20 hrs  
Hyd. Volume = 1,502,421 cuft

## Hyd. No. 2

EX-DA-3 (Lagoon 3)

Hydrograph type = SCS Runoff  
Peak discharge = 314.80 cfs  
Time to peak = 12.20 hrs  
Hyd. Volume = 1,502,421 cuft



# Multi-Hydrograph Plot

Hydraflow Hydrographs by Intelisolve

## Hyd. No. 3

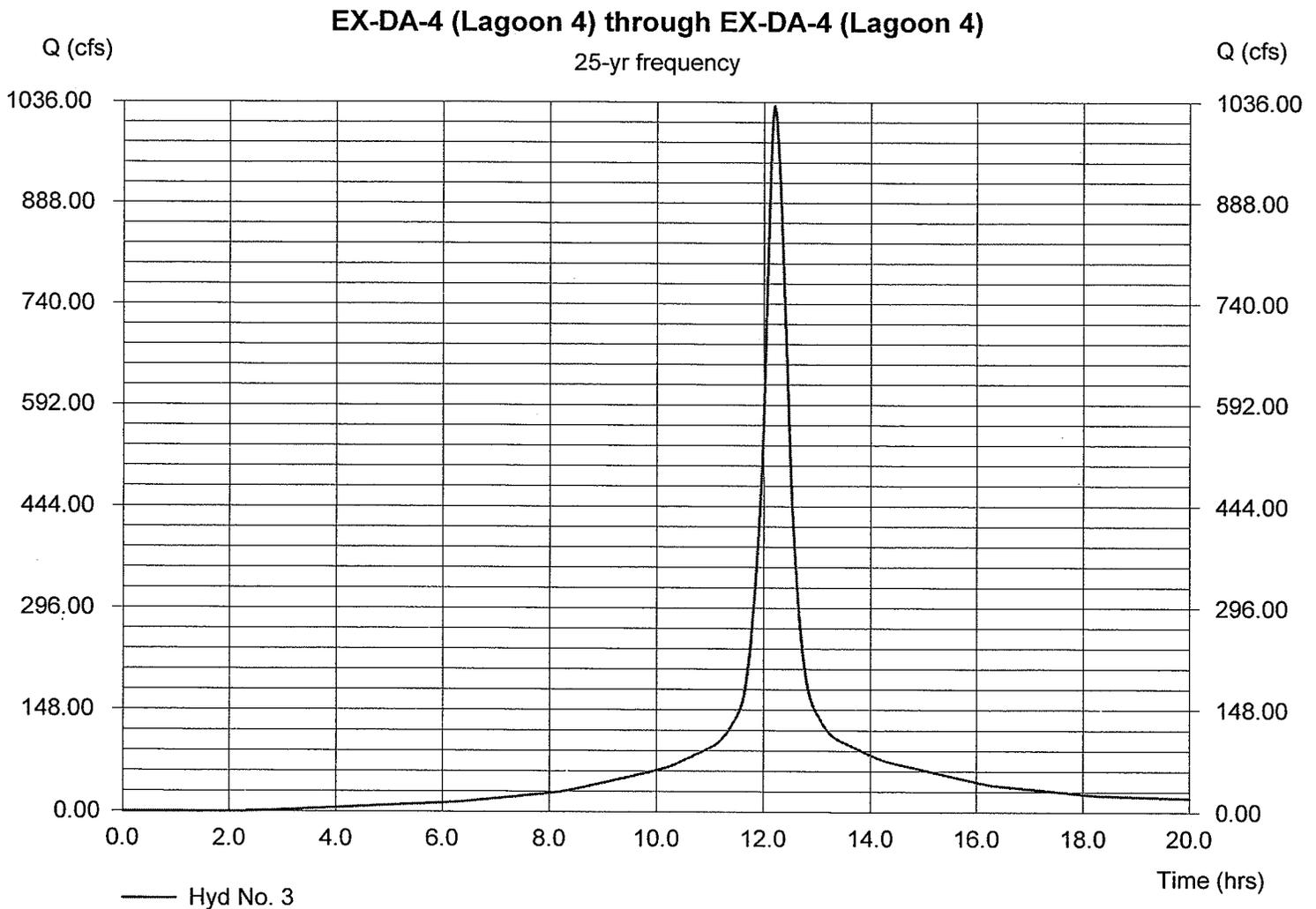
EX-DA-4 (Lagoon 4)

Hydrograph type = SCS Runoff  
Peak discharge = 1030.89 cfs  
Time to peak = 12.20 hrs  
Hyd. Volume = 4,920,079 cuft

## Hyd. No. 3

EX-DA-4 (Lagoon 4)

Hydrograph type = SCS Runoff  
Peak discharge = 1030.89 cfs  
Time to peak = 12.20 hrs  
Hyd. Volume = 4,920,079 cuft



# Multi-Hydrograph Plot

Hydraflow Hydrographs by Intellisolve

## Hyd. No. 4

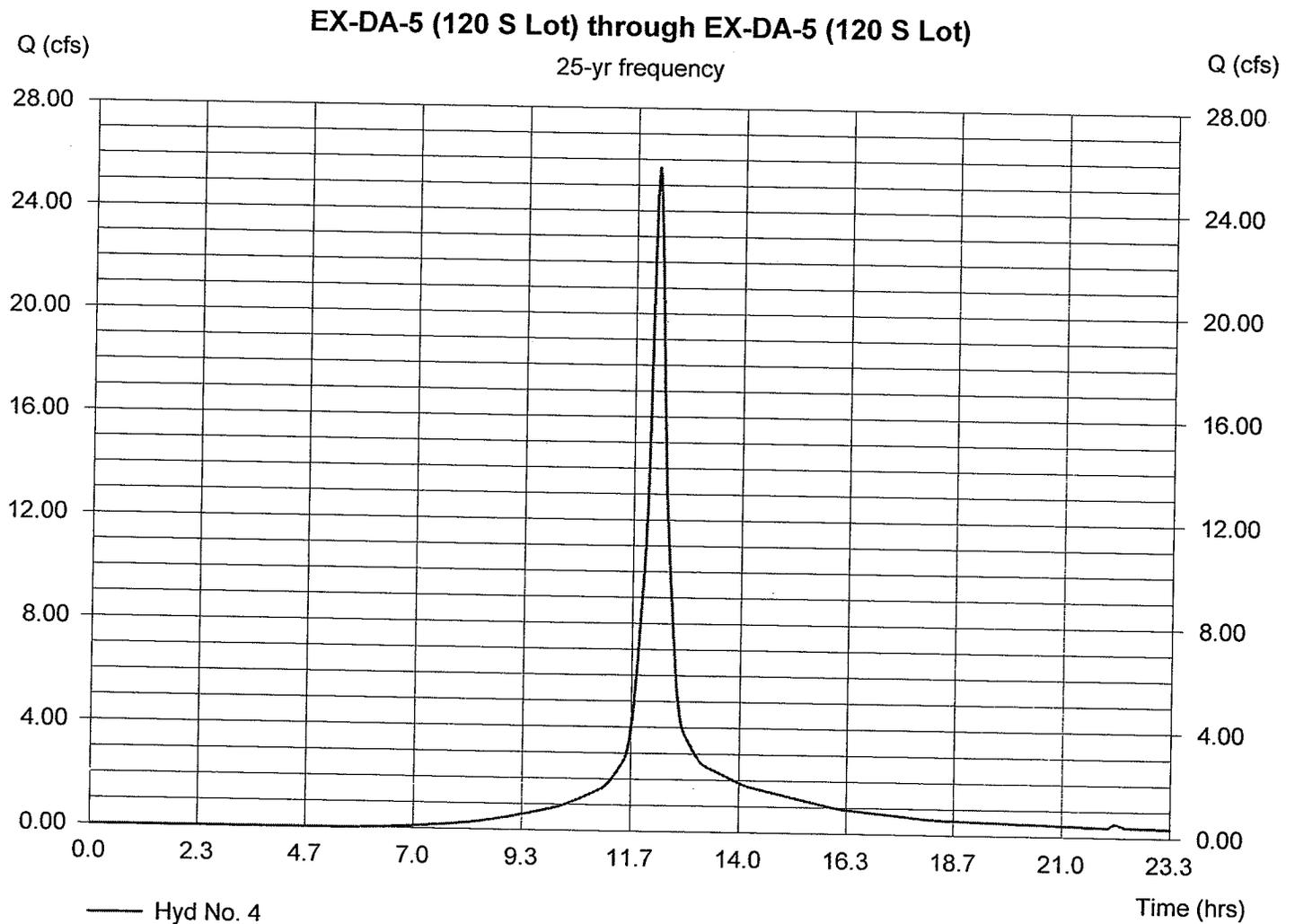
EX-DA-5 (120 S Lot)

Hydrograph type = SCS Runoff  
Peak discharge = 25.68 cfs  
Time to peak = 12.13 hrs  
Hyd. Volume = 99,476 cuft

## Hyd. No. 4

EX-DA-5 (120 S Lot)

Hydrograph type = SCS Runoff  
Peak discharge = 25.68 cfs  
Time to peak = 12.13 hrs  
Hyd. Volume = 99,476 cuft



# Multi-Hydrograph Plot

Hydraflow Hydrographs by Intelisolve

## Hyd. No. 5

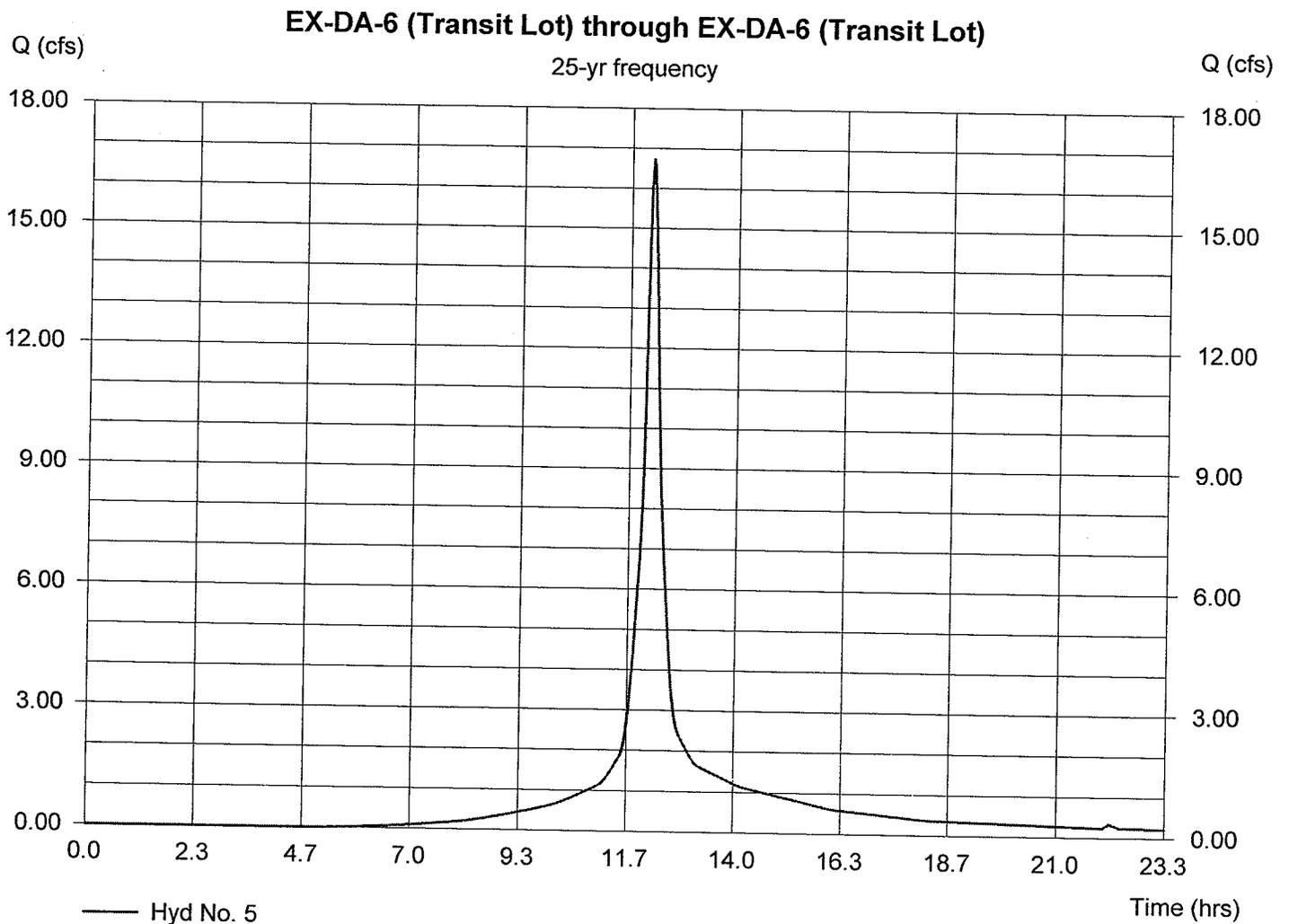
EX-DA-6 (Transit Lot)

Hydrograph type = SCS Runoff  
Peak discharge = 16.72 cfs  
Time to peak = 12.13 hrs  
Hyd. Volume = 65,239 cuft

## Hyd. No. 5

EX-DA-6 (Transit Lot)

Hydrograph type = SCS Runoff  
Peak discharge = 16.72 cfs  
Time to peak = 12.13 hrs  
Hyd. Volume = 65,239 cuft



# Multi-Hydrograph Plot

Hydraflow Hydrographs by Intelisolve

## Hyd. No. 7

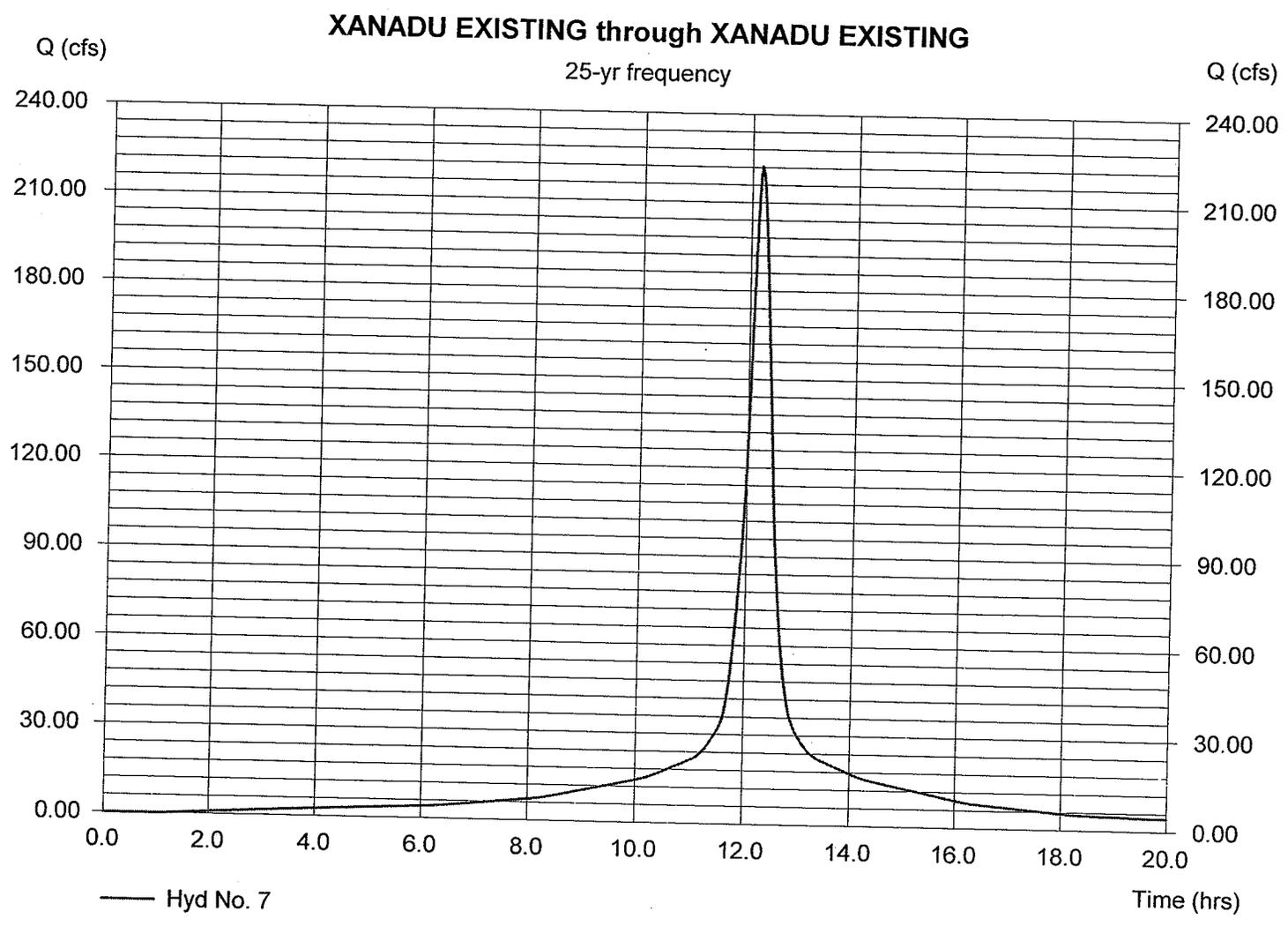
XANADU EXISTING

Hydrograph type = SCS Runoff  
Peak discharge = 222.31 cfs  
Time to peak = 12.20 hrs  
Hyd. Volume = 1,100,316 cuft

## Hyd. No. 7

XANADU EXISTING

Hydrograph type = SCS Runoff  
Peak discharge = 222.31 cfs  
Time to peak = 12.20 hrs  
Hyd. Volume = 1,100,316 cuft



# Multi-Hydrograph Plot

Hydraflow Hydrographs by Intelisolve

## Hyd. No. 9

Total Existing

Hydrograph type = Combine  
Peak discharge = 1986.16 cfs  
Time to peak = 12.20 hrs  
Hyd. Volume = 9,844,882 cuft

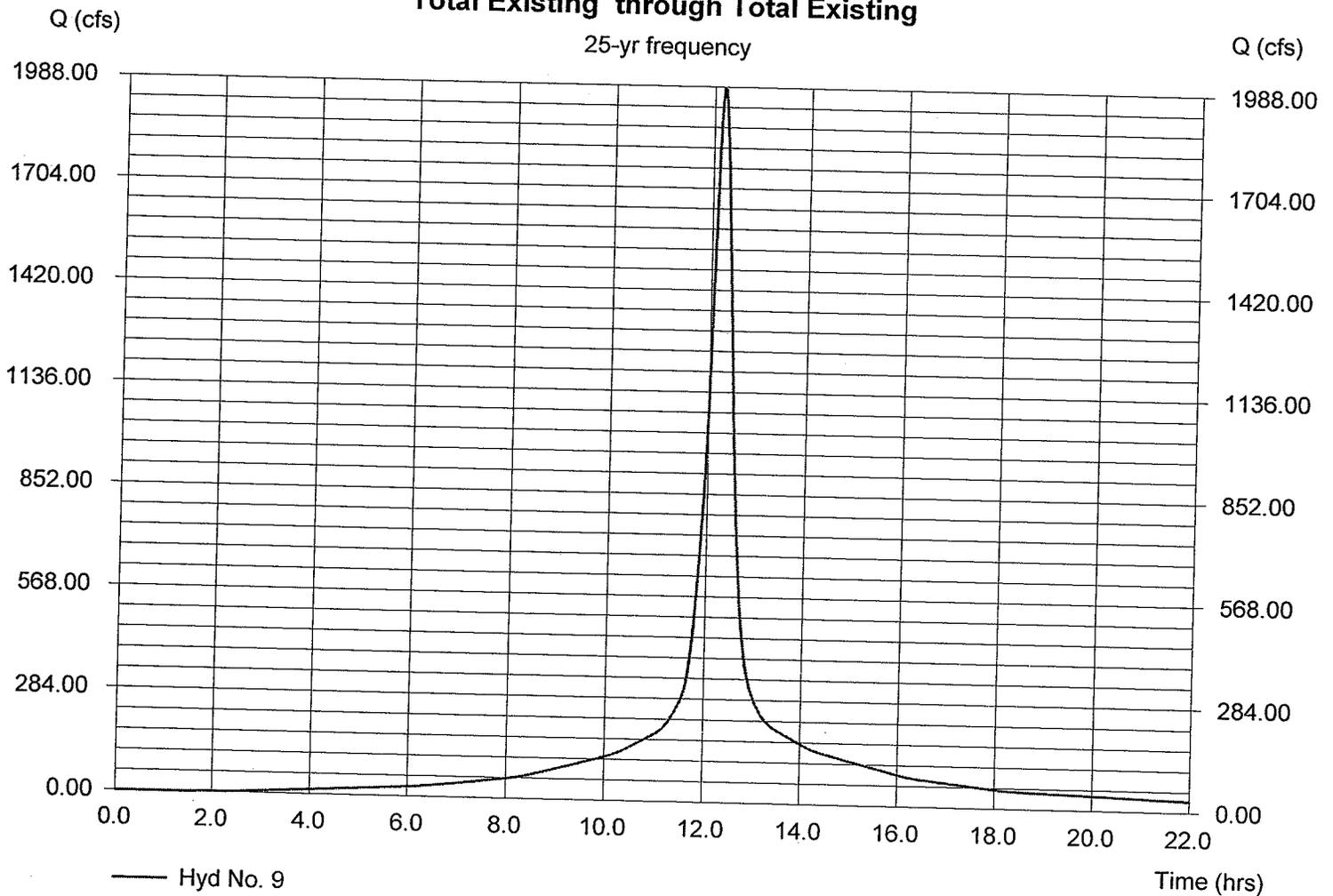
## Hyd. No. 9

Total Existing

Hydrograph type = Combine  
Peak discharge = 1986.16 cfs  
Time to peak = 12.20 hrs  
Hyd. Volume = 9,844,882 cuft

### Total Existing through Total Existing

25-yr frequency



# Multi-Hydrograph Plot

Hydraflow Hydrographs by Intelisolve

## Hyd. No. 12

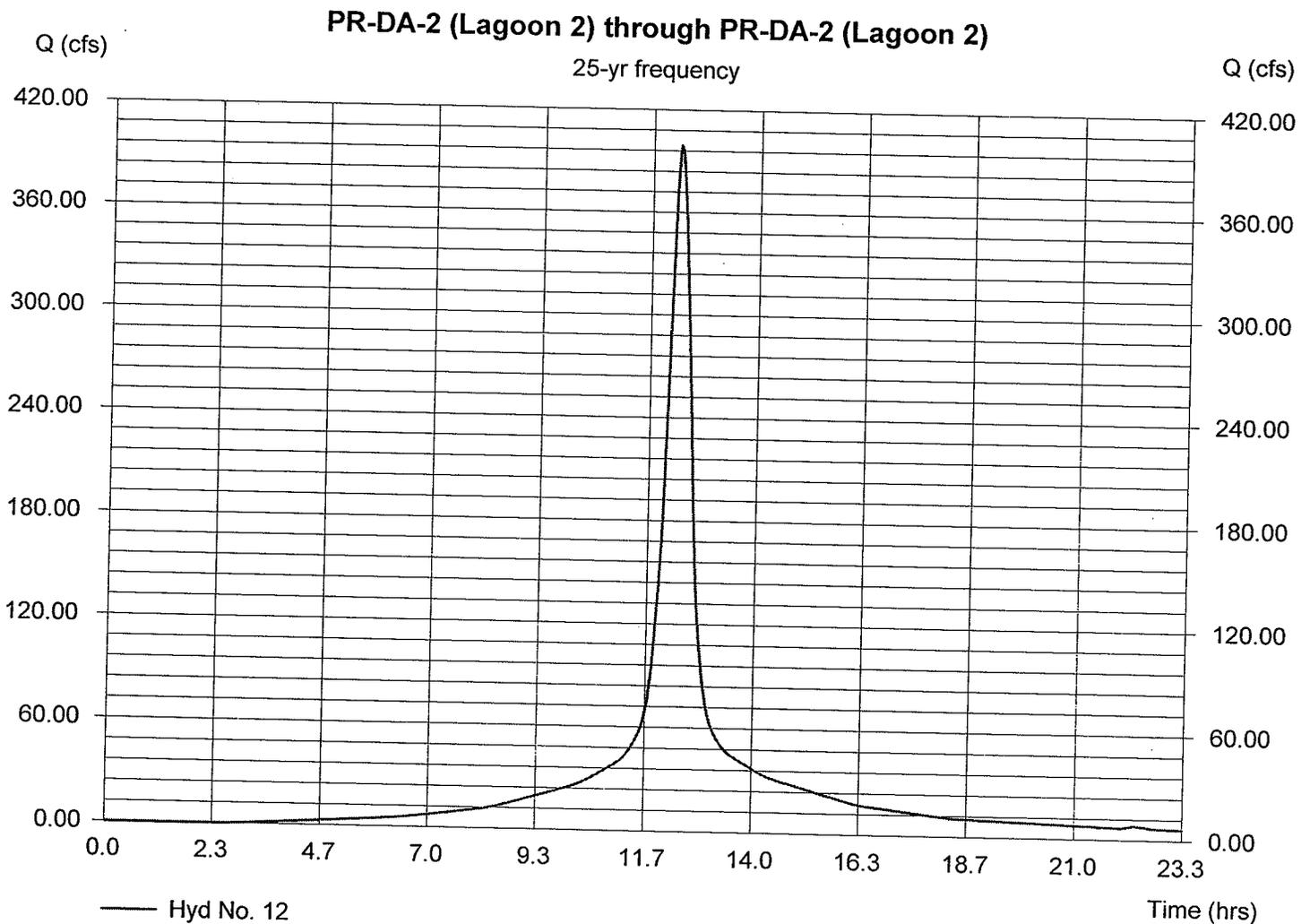
PR-DA-2 (Lagoon 2)

Hydrograph type = SCS Runoff  
Peak discharge = 399.13 cfs  
Time to peak = 12.27 hrs  
Hyd. Volume = 2,102,819 cuft

## Hyd. No. 12

PR-DA-2 (Lagoon 2)

Hydrograph type = SCS Runoff  
Peak discharge = 399.13 cfs  
Time to peak = 12.27 hrs  
Hyd. Volume = 2,102,819 cuft



# Multi-Hydrograph Plot

Hydraflow Hydrographs by Intelisolve

## Hyd. No. 13

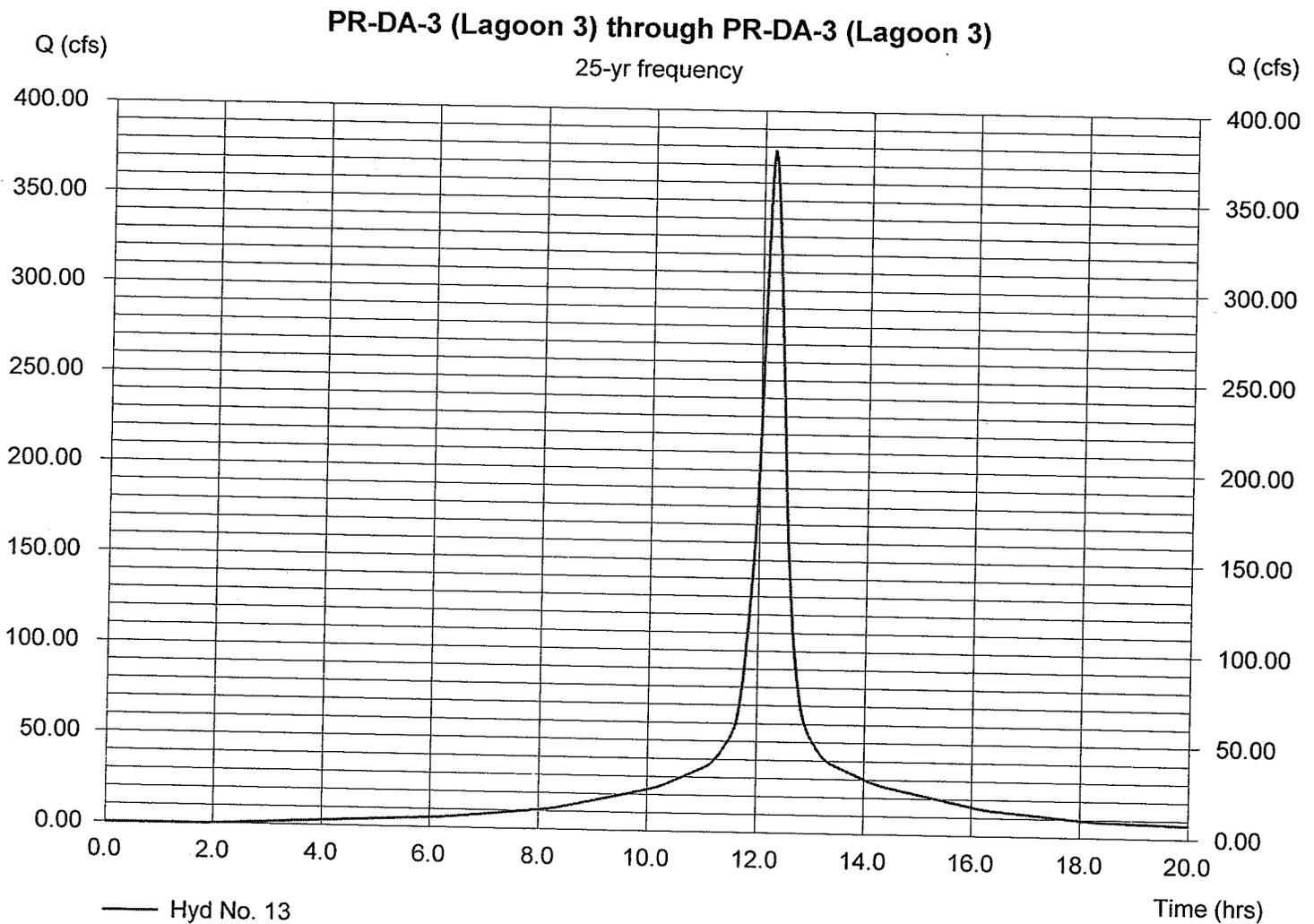
PR-DA-3 (Lagoon 3)

Hydrograph type = SCS Runoff  
Peak discharge = 377.82 cfs  
Time to peak = 12.20 hrs  
Hyd. Volume = 1,823,058 cuft

## Hyd. No. 13

PR-DA-3 (Lagoon 3)

Hydrograph type = SCS Runoff  
Peak discharge = 377.82 cfs  
Time to peak = 12.20 hrs  
Hyd. Volume = 1,823,058 cuft



# Multi-Hydrograph Plot

Hydraflow Hydrographs by Intelisolve

## Hyd. No. 14

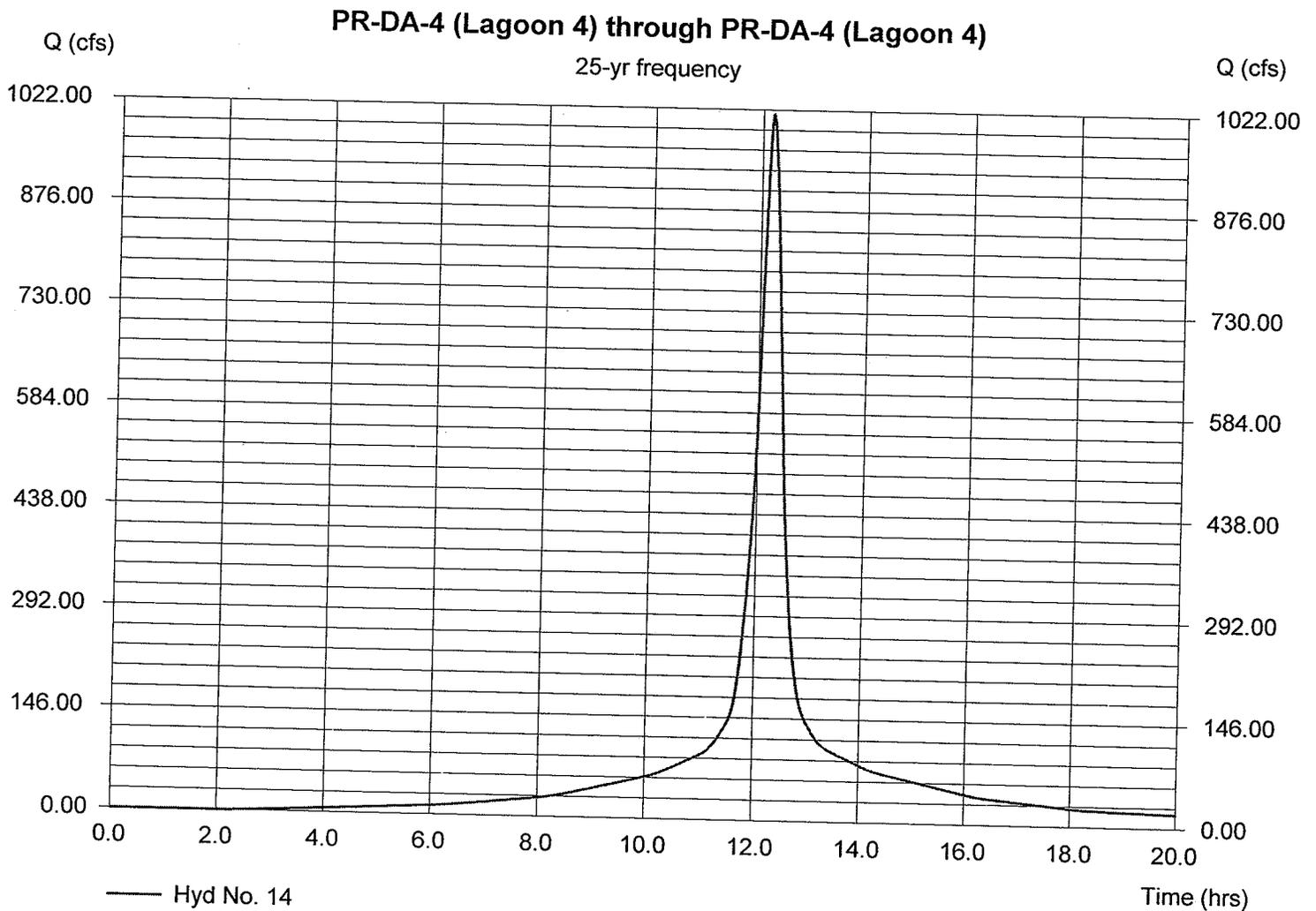
PR-DA-4 (Lagoon 4)

Hydrograph type = SCS Runoff  
Peak discharge = 1015.70 cfs  
Time to peak = 12.20 hrs  
Hyd. Volume = 4,847,596 cuft

## Hyd. No. 14

PR-DA-4 (Lagoon 4)

Hydrograph type = SCS Runoff  
Peak discharge = 1015.70 cfs  
Time to peak = 12.20 hrs  
Hyd. Volume = 4,847,596 cuft



# Multi-Hydrograph Plot

Hydraflow Hydrographs by Intelisolve

## Hyd. No. 16

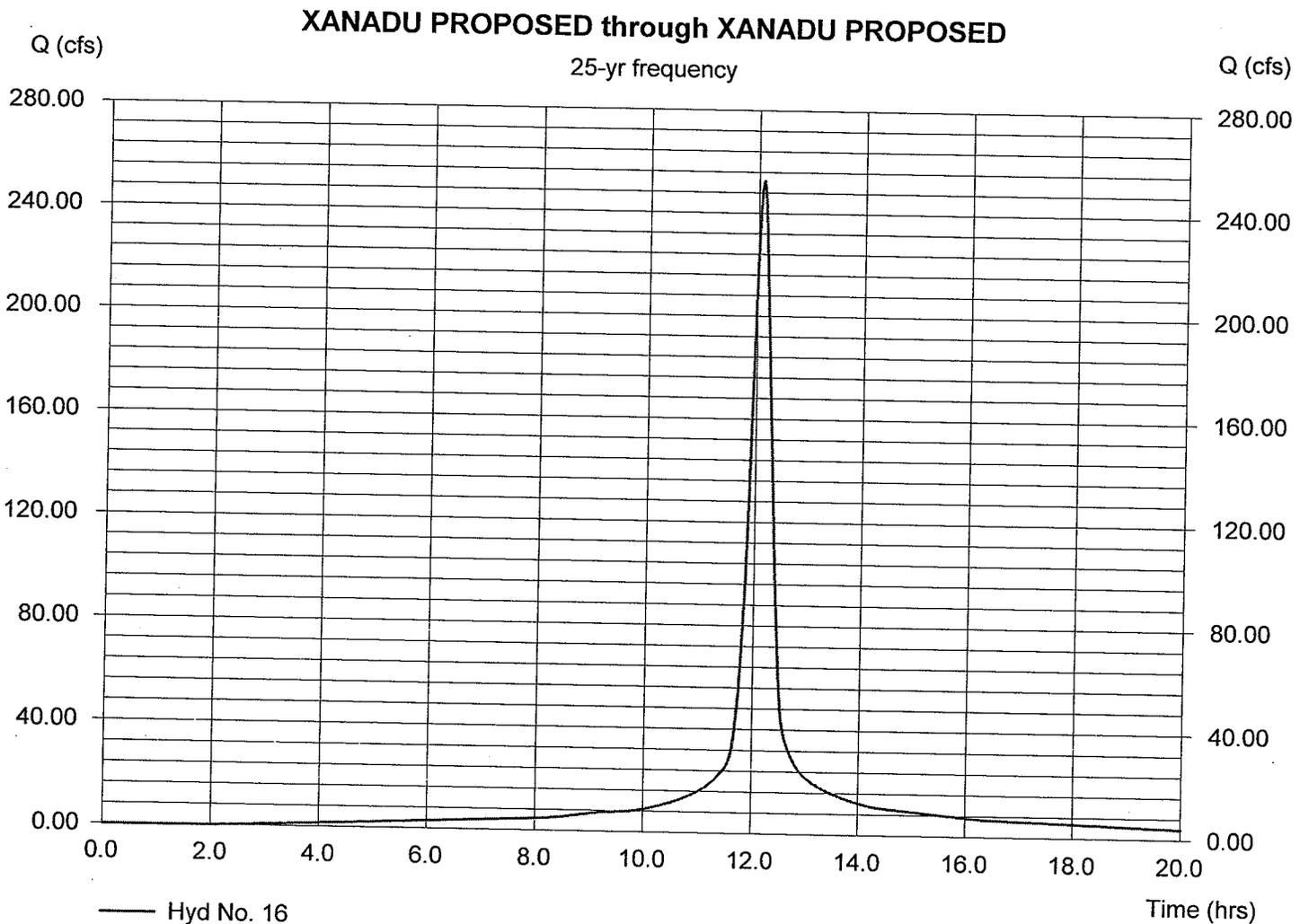
XANADU PROPOSED

Hydrograph type = SCS Runoff  
Peak discharge = 252.73 cfs  
Time to peak = 12.10 hrs  
Hyd. Volume = 940,410 cuft

## Hyd. No. 16

XANADU PROPOSED

Hydrograph type = SCS Runoff  
Peak discharge = 252.73 cfs  
Time to peak = 12.10 hrs  
Hyd. Volume = 940,410 cuft



# Multi-Hydrograph Plot

Hydraflow Hydrographs by Intelisolve

## Hyd. No. 18

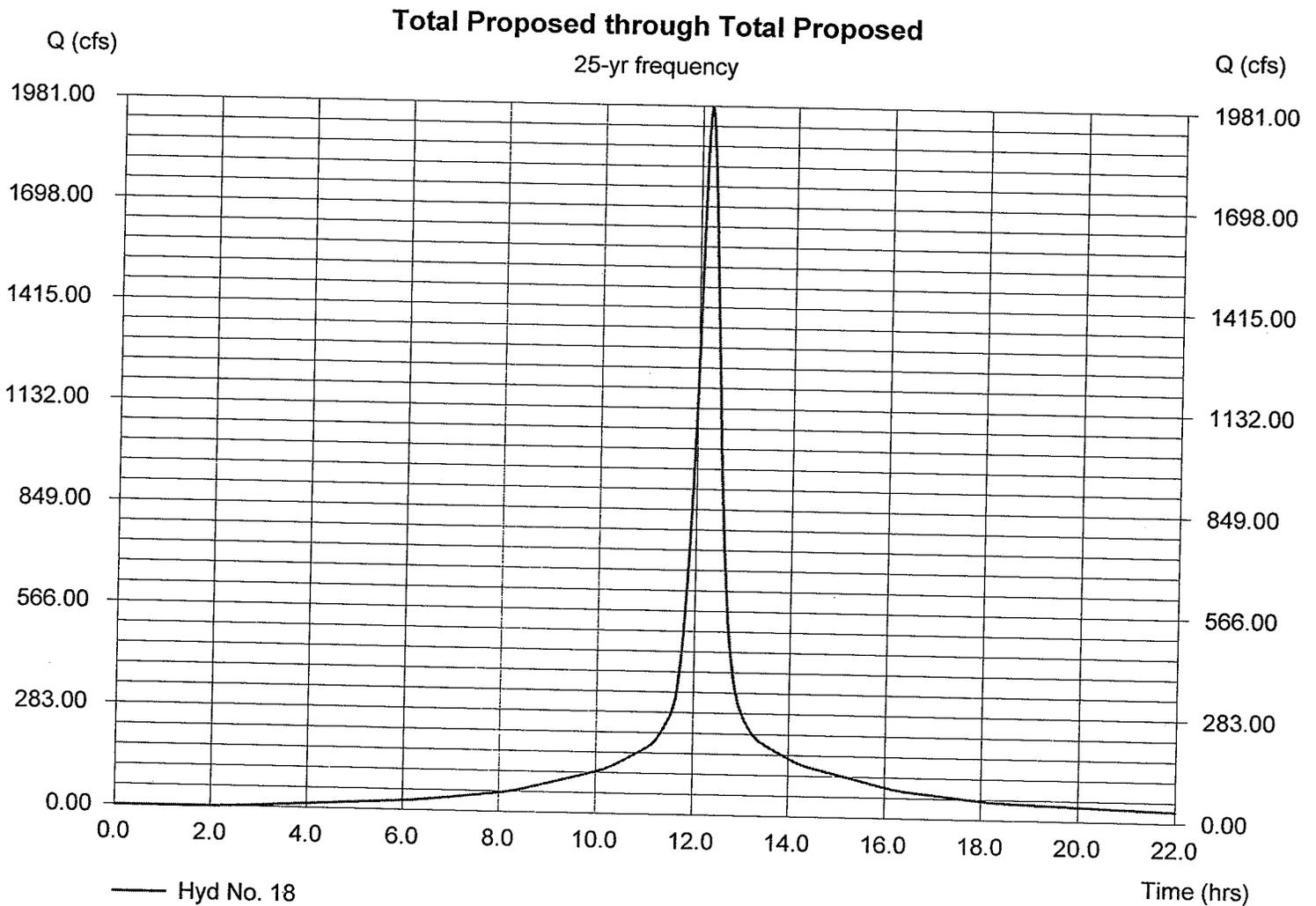
Total Proposed

Hydrograph type = Combine  
Peak discharge = 1979.50 cfs  
Time to peak = 12.20 hrs  
Hyd. Volume = 9,713,864 cuft

## Hyd. No. 18

Total Proposed

Hydrograph type = Combine  
Peak discharge = 1979.50 cfs  
Time to peak = 12.20 hrs  
Hyd. Volume = 9,713,864 cuft



# Hydrograph Summary Report

Hyd. lo.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to peak (min)	Volume (cuft)	Inflow hyd(s)	Maximum elevation (ft)	Maximum storage (cuft)	Hydrograph description	
1	SCS Runoff	548.06	2	736	2,961,811	---	---	---	EX-DA-2 (Lagoon 2)	
2	SCS Runoff	425.32	2	732	2,062,659	---	---	---	EX-DA-3 (Lagoon 3)	
3	SCS Runoff	1392.82	2	732	6,754,729	---	---	---	EX-DA-4 (Lagoon 4)	
4	SCS Runoff	36.82	2	728	144,756	---	---	---	EX-DA-5 (120 S Lot)	
5	SCS Runoff	23.67	2	728	93,882	---	---	---	EX-DA-6 (Transit Lot)	
7	SCS Runoff	297.52	2	732	1,488,432	---	---	---	XANADU EXISTING	
9	Combine	2684.10	2	732	13,506,260	1, 2, 3, 4, 5, 7,	---	---	Total Existing	
12	SCS Runoff	541.64	2	736	2,901,464	---	---	---	PR-DA-2 (Lagoon 2)	
13	SCS Runoff	508.61	2	732	2,490,443	---	---	---	PR-DA-3 (Lagoon 3)	
14	SCS Runoff	1372.29	2	732	6,655,207	---	---	---	PR-DA-4 (Lagoon 4)	
16	SCS Runoff	341.55	2	726	1,291,079	---	---	---	XANADU PROPOSED	
18	Combine	2675.30	2	732	13,338,190	12, 13, 14, 16,	---	---	Total Proposed	
NMS - Hydgraph - 1.gpw					Return Period: 100 Year		Friday, Sep 22 2006, 10:20 AM			

# Multi-Hydrograph Plot

Hydraflow Hydrographs by Intelisolve

## Hyd. No. 1

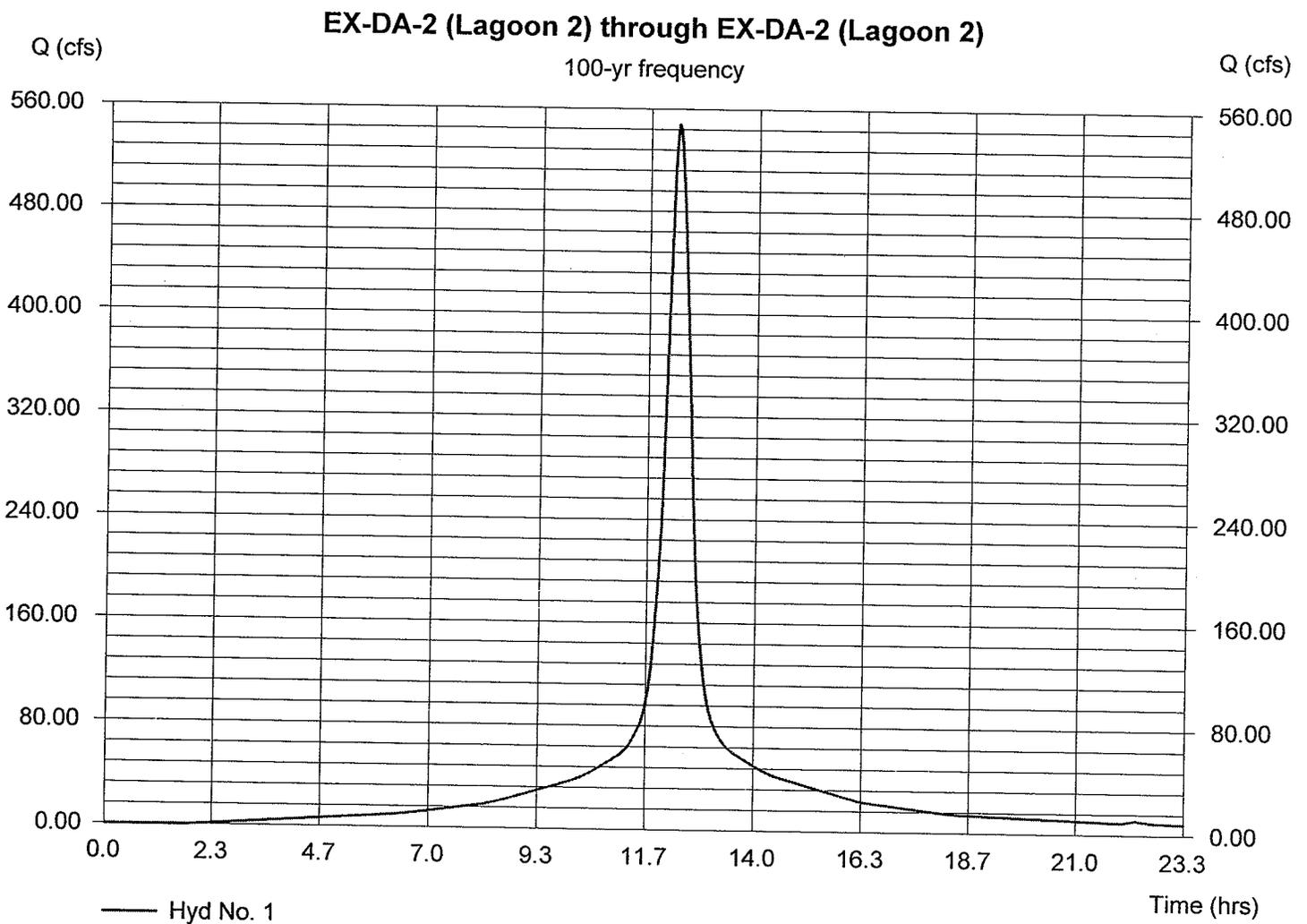
EX-DA-2 (Lagoon 2)

Hydrograph type = SCS Runoff  
Peak discharge = 548.06 cfs  
Time to peak = 12.27 hrs  
Hyd. Volume = 2,961,811 cuft

## Hyd. No. 1

EX-DA-2 (Lagoon 2)

Hydrograph type = SCS Runoff  
Peak discharge = 548.06 cfs  
Time to peak = 12.27 hrs  
Hyd. Volume = 2,961,811 cuft



# Multi-Hydrograph Plot

Hydraflow Hydrographs by Intelisolve

## Hyd. No. 2

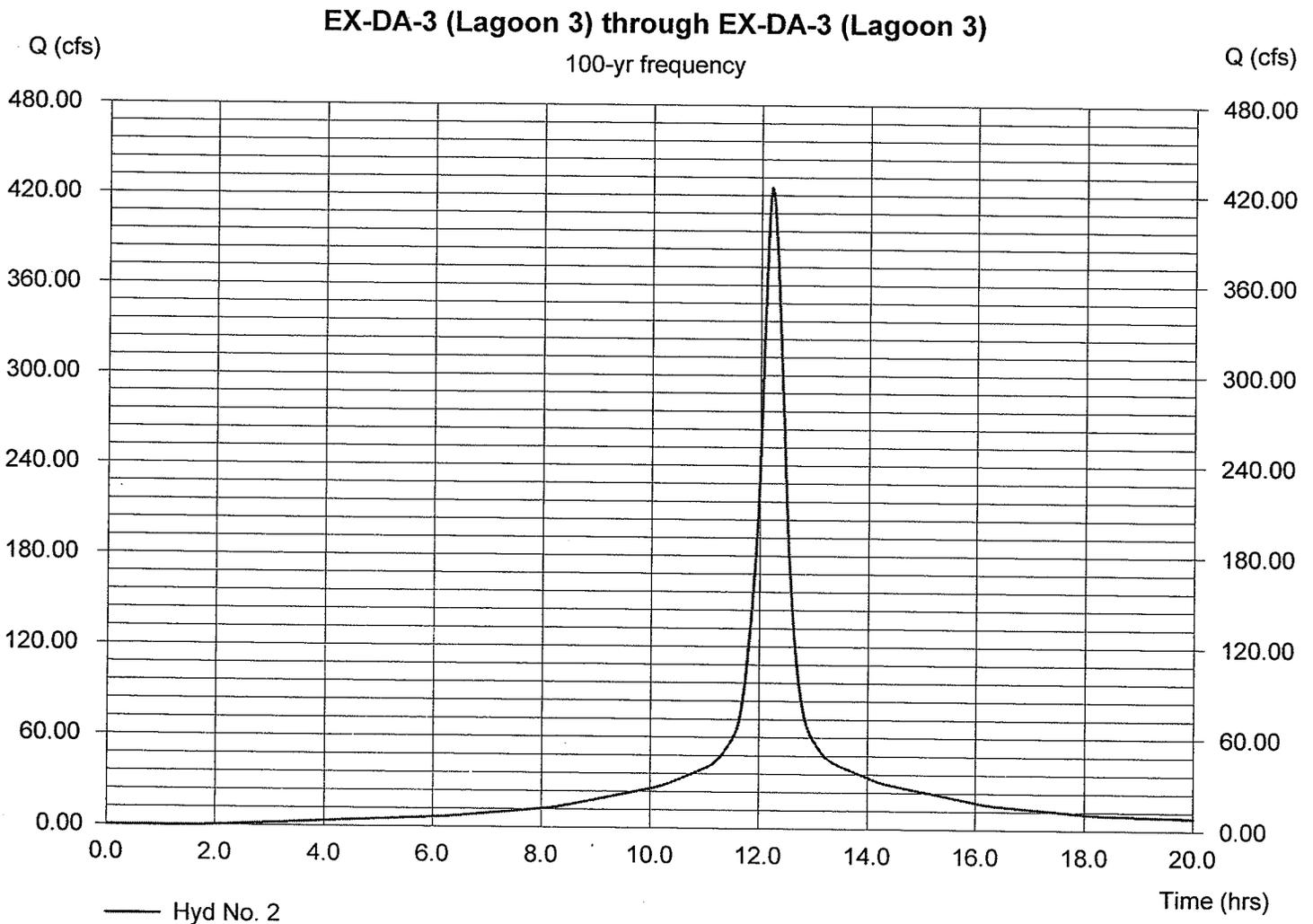
EX-DA-3 (Lagoon 3)

Hydrograph type = SCS Runoff  
Peak discharge = 425.32 cfs  
Time to peak = 12.20 hrs  
Hyd. Volume = 2,062,659 cuft

## Hyd. No. 2

EX-DA-3 (Lagoon 3)

Hydrograph type = SCS Runoff  
Peak discharge = 425.32 cfs  
Time to peak = 12.20 hrs  
Hyd. Volume = 2,062,659 cuft



# Multi-Hydrograph Plot

Hydraflow Hydrographs by Intelisolve

## Hyd. No. 3

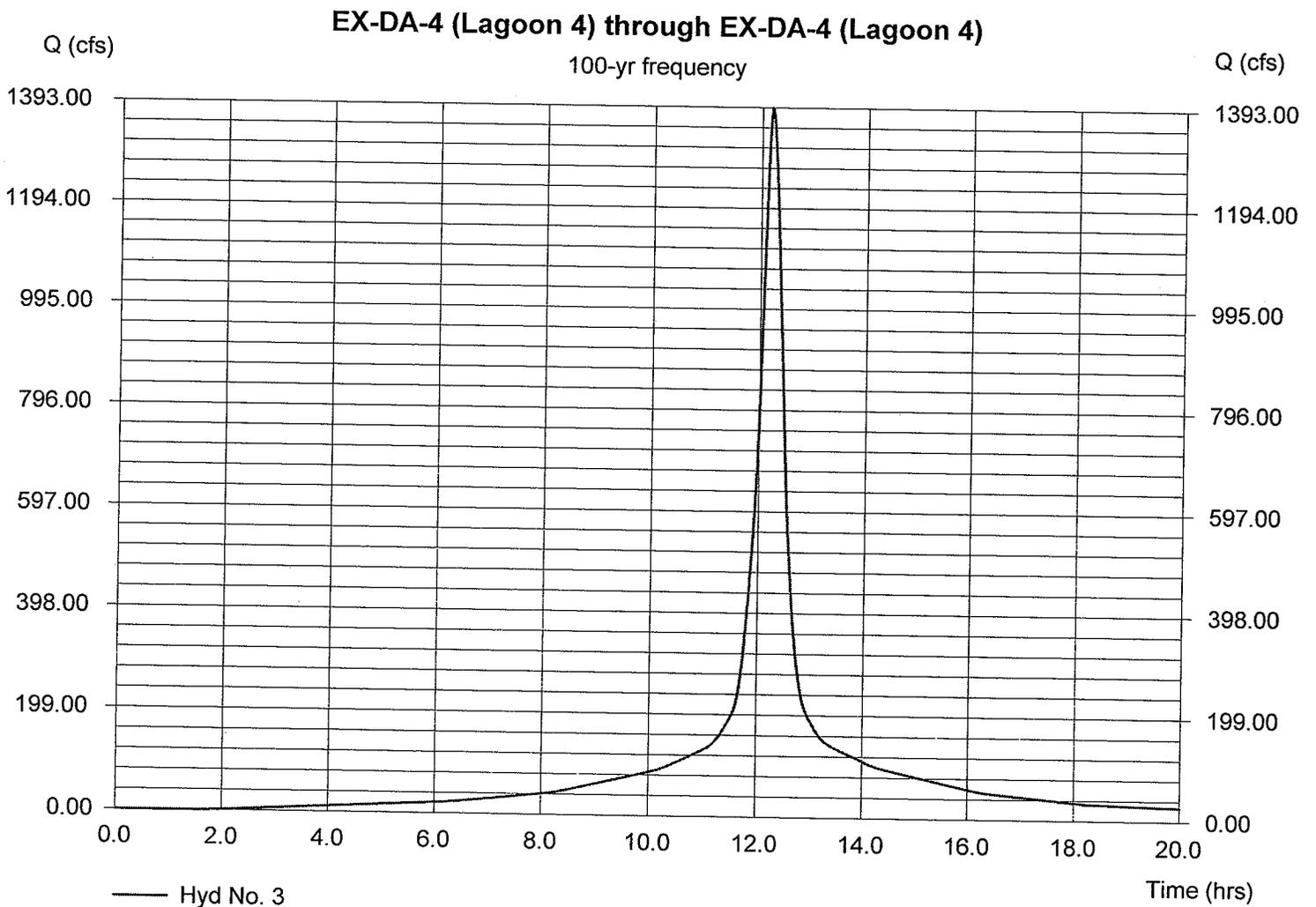
EX-DA-4 (Lagoon 4)

Hydrograph type = SCS Runoff  
Peak discharge = 1392.82 cfs  
Time to peak = 12.20 hrs  
Hyd. Volume = 6,754,729 cuft

## Hyd. No. 3

EX-DA-4 (Lagoon 4)

Hydrograph type = SCS Runoff  
Peak discharge = 1392.82 cfs  
Time to peak = 12.20 hrs  
Hyd. Volume = 6,754,729 cuft



# Multi-Hydrograph Plot

Hydraflow Hydrographs by Intelisolve

## Hyd. No. 4

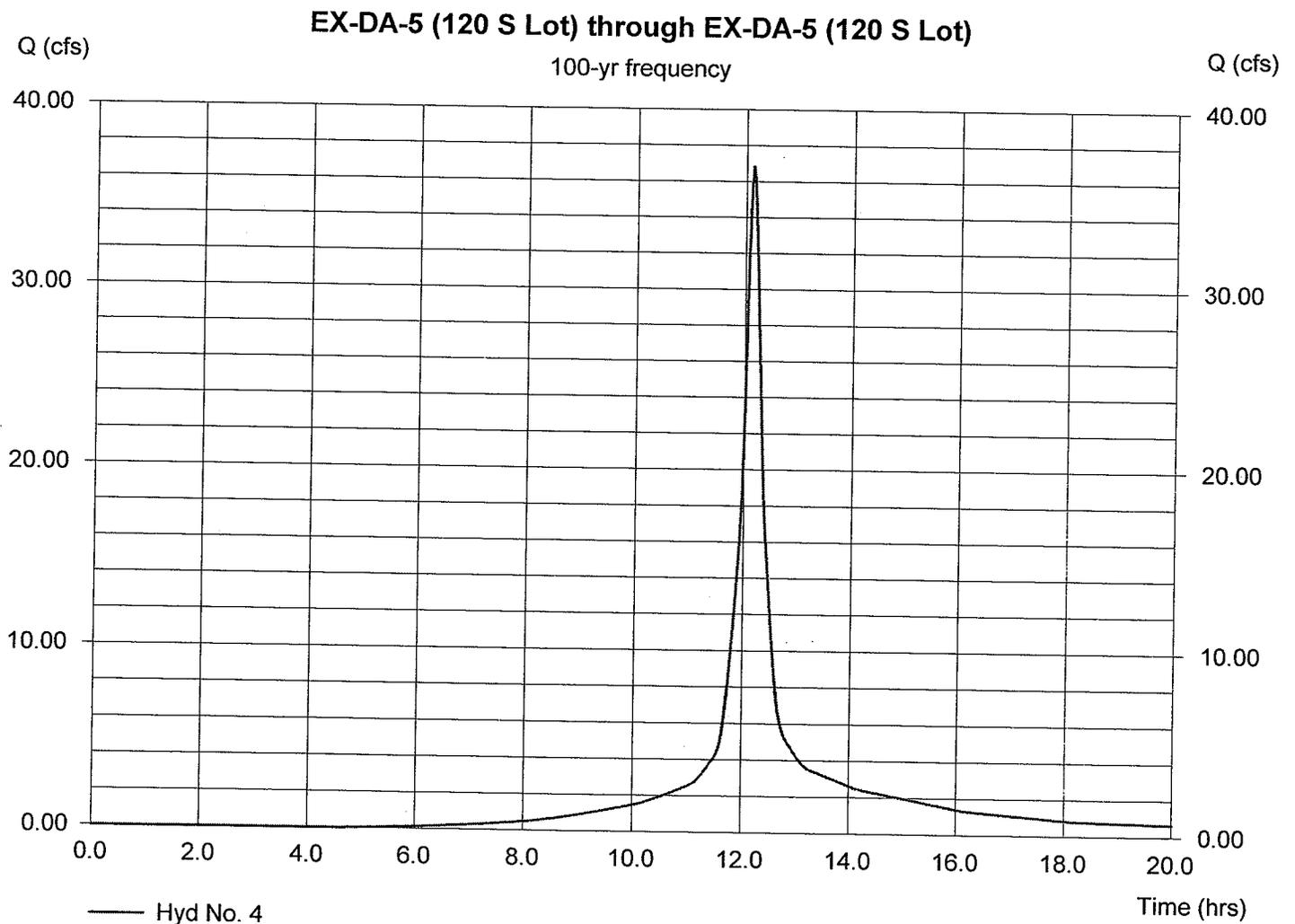
EX-DA-5 (120 S Lot)

Hydrograph type = SCS Runoff  
Peak discharge = 36.82 cfs  
Time to peak = 12.13 hrs  
Hyd. Volume = 144,756 cuft

## Hyd. No. 4

EX-DA-5 (120 S Lot)

Hydrograph type = SCS Runoff  
Peak discharge = 36.82 cfs  
Time to peak = 12.13 hrs  
Hyd. Volume = 144,756 cuft



# Multi-Hydrograph Plot

Hydraflow Hydrographs by Intelisolve

## Hyd. No. 5

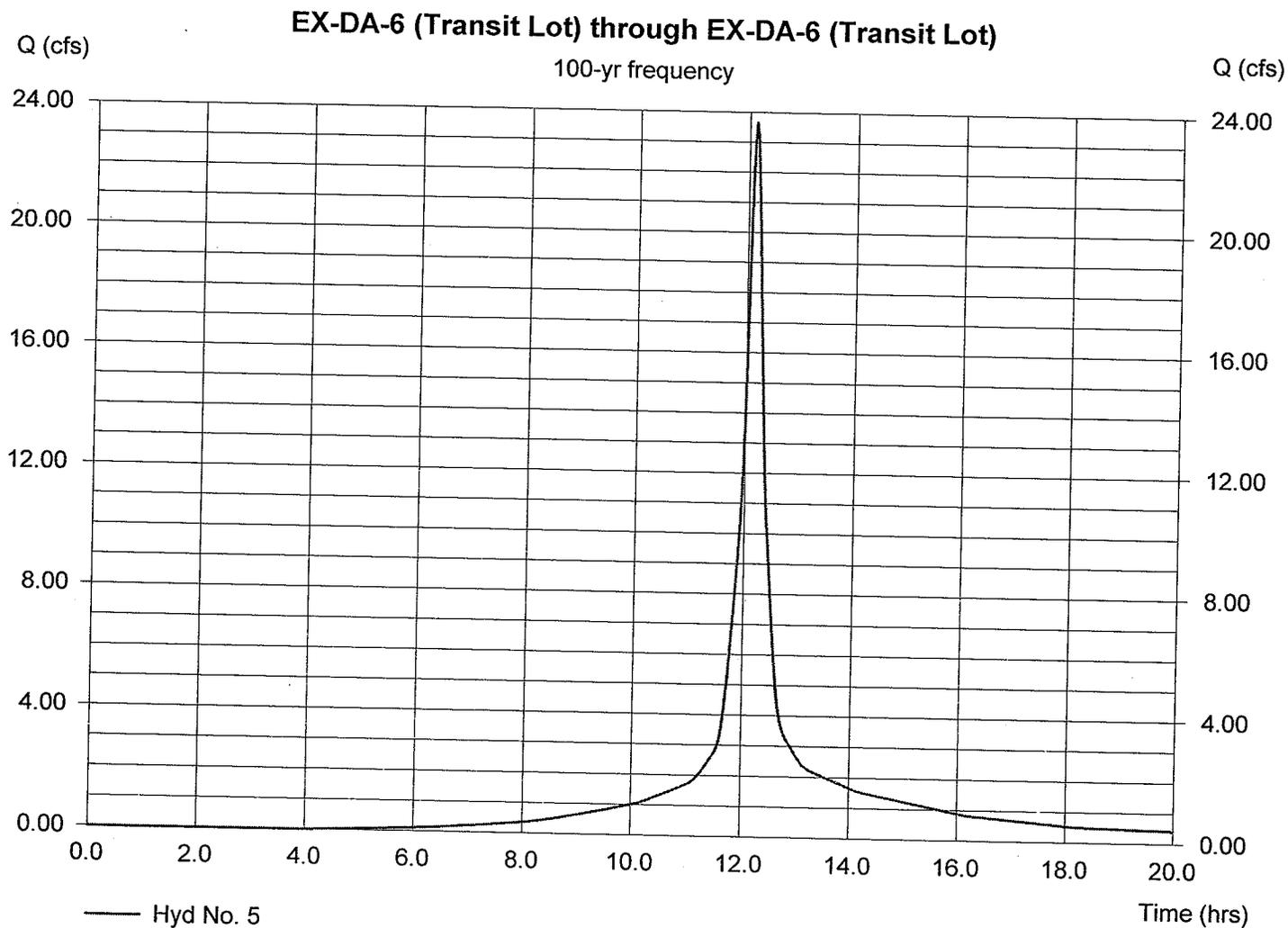
EX-DA-6 (Transit Lot)

Hydrograph type = SCS Runoff  
Peak discharge = 23.67 cfs  
Time to peak = 12.13 hrs  
Hyd. Volume = 93,882 cuft

## Hyd. No. 5

EX-DA-6 (Transit Lot)

Hydrograph type = SCS Runoff  
Peak discharge = 23.67 cfs  
Time to peak = 12.13 hrs  
Hyd. Volume = 93,882 cuft



# Multi-Hydrograph Plot

Hydraflow Hydrographs by Intelisolve

## Hyd. No. 7

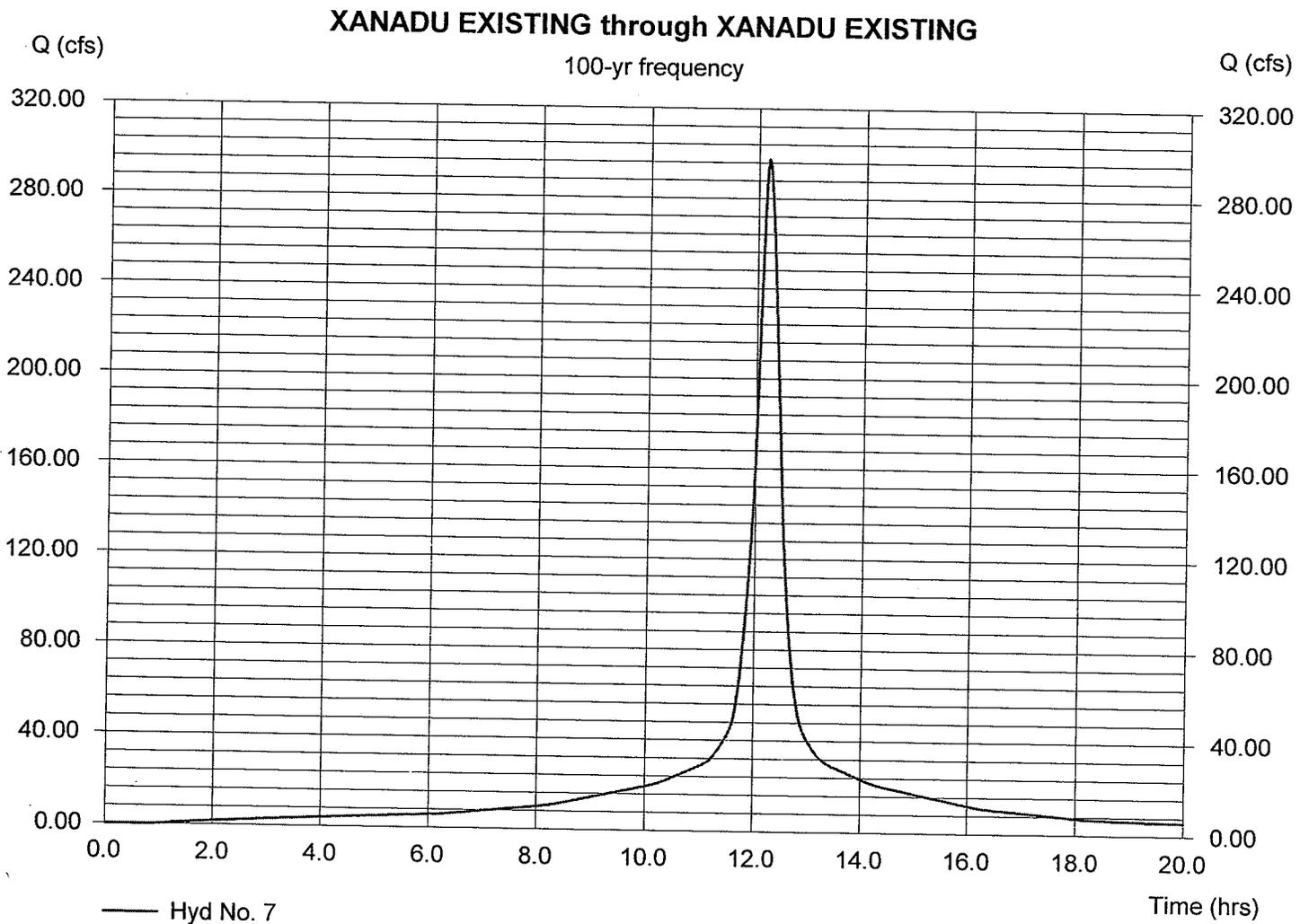
XANADU EXISTING

Hydrograph type = SCS Runoff  
Peak discharge = 297.52 cfs  
Time to peak = 12.20 hrs  
Hyd. Volume = 1,488,432 cuft

## Hyd. No. 7

XANADU EXISTING

Hydrograph type = SCS Runoff  
Peak discharge = 297.52 cfs  
Time to peak = 12.20 hrs  
Hyd. Volume = 1,488,432 cuft



# Multi-Hydrograph Plot

Hydraflow Hydrographs by Intelisolve

## Hyd. No. 9

Total Existing

Hydrograph type = Combine  
Peak discharge = 2684.10 cfs  
Time to peak = 12.20 hrs  
Hyd. Volume = 13,506,260 cuft

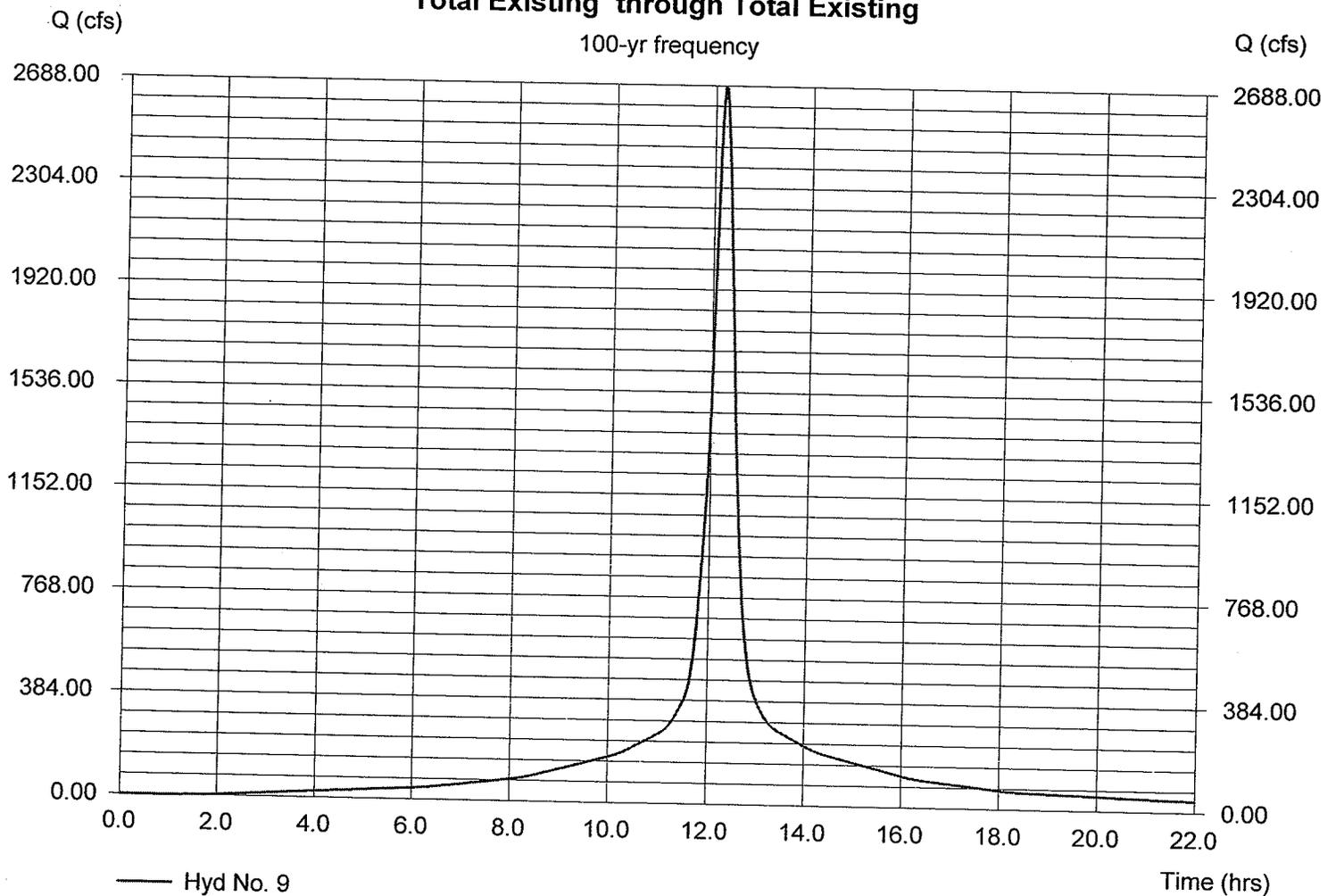
## Hyd. No. 9

Total Existing

Hydrograph type = Combine  
Peak discharge = 2684.10 cfs  
Time to peak = 12.20 hrs  
Hyd. Volume = 13,506,260 cuft

### Total Existing through Total Existing

100-yr frequency



# Multi-Hydrograph Plot

Hydraflow Hydrographs by Intelisolve

## Hyd. No. 12

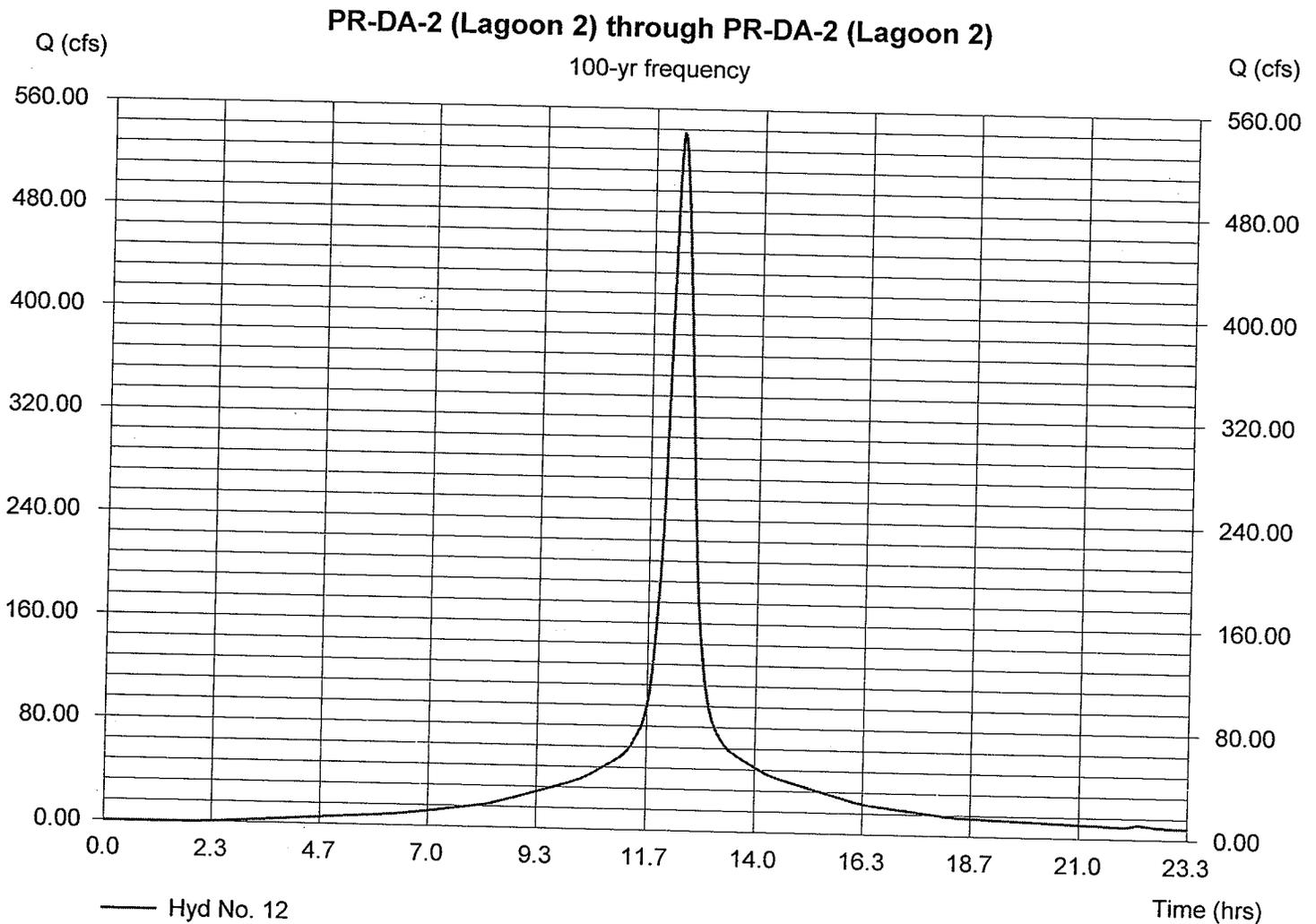
PR-DA-2 (Lagoon 2)

Hydrograph type = SCS Runoff  
Peak discharge = 541.64 cfs  
Time to peak = 12.27 hrs  
Hyd. Volume = 2,901,464 cuft

## Hyd. No. 12

PR-DA-2 (Lagoon 2)

Hydrograph type = SCS Runoff  
Peak discharge = 541.64 cfs  
Time to peak = 12.27 hrs  
Hyd. Volume = 2,901,464 cuft



# Multi-Hydrograph Plot

Hydraflow Hydrographs by Intelisolve

## Hyd. No. 13

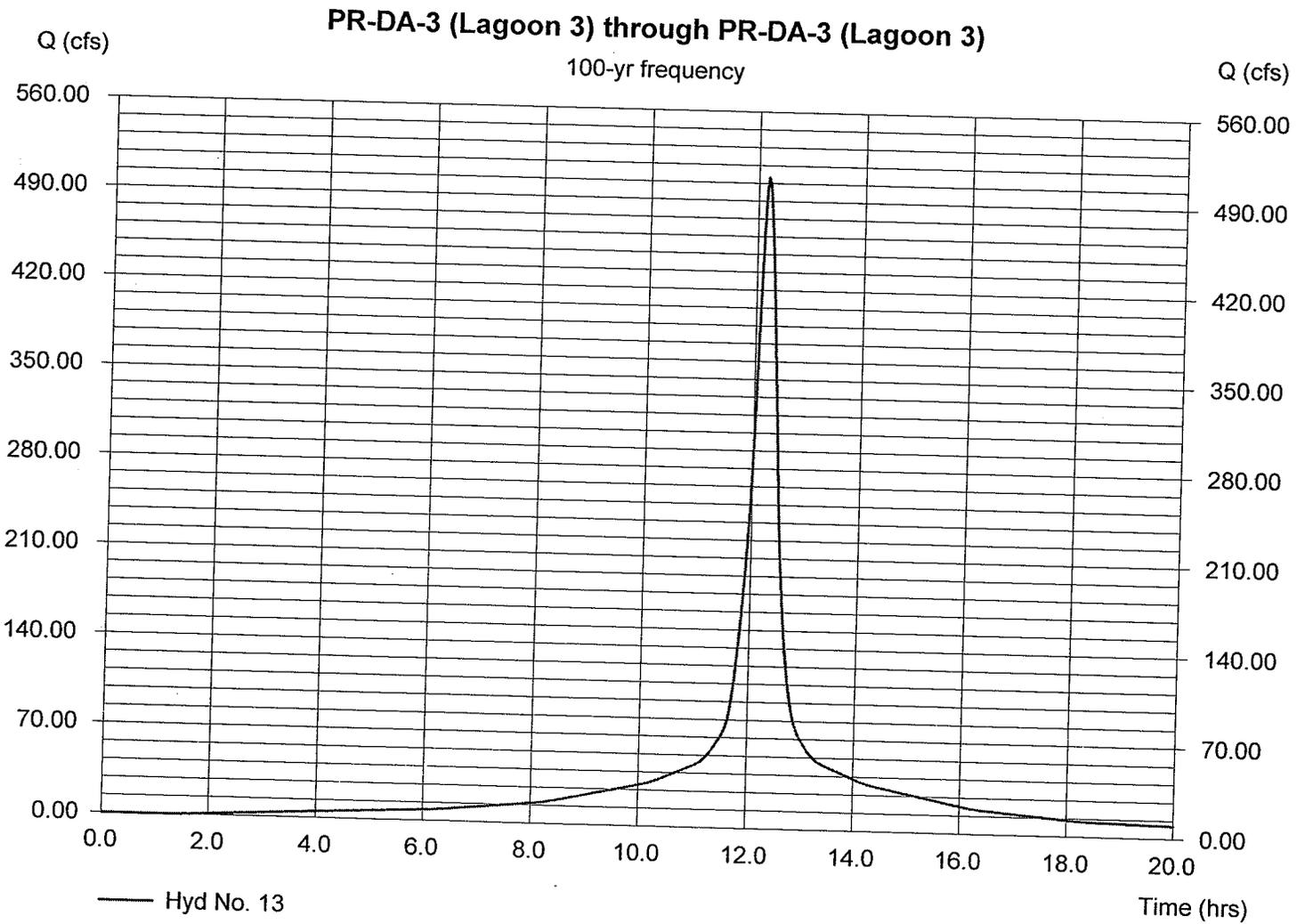
PR-DA-3 (Lagoon 3)

Hydrograph type = SCS Runoff  
Peak discharge = 508.61 cfs  
Time to peak = 12.20 hrs  
Hyd. Volume = 2,490,443 cuft

## Hyd. No. 13

PR-DA-3 (Lagoon 3)

Hydrograph type = SCS Runoff  
Peak discharge = 508.61 cfs  
Time to peak = 12.20 hrs  
Hyd. Volume = 2,490,443 cuft



# Multi-Hydrograph Plot

Hydraflow Hydrographs by Intelisolve

## Hyd. No. 14

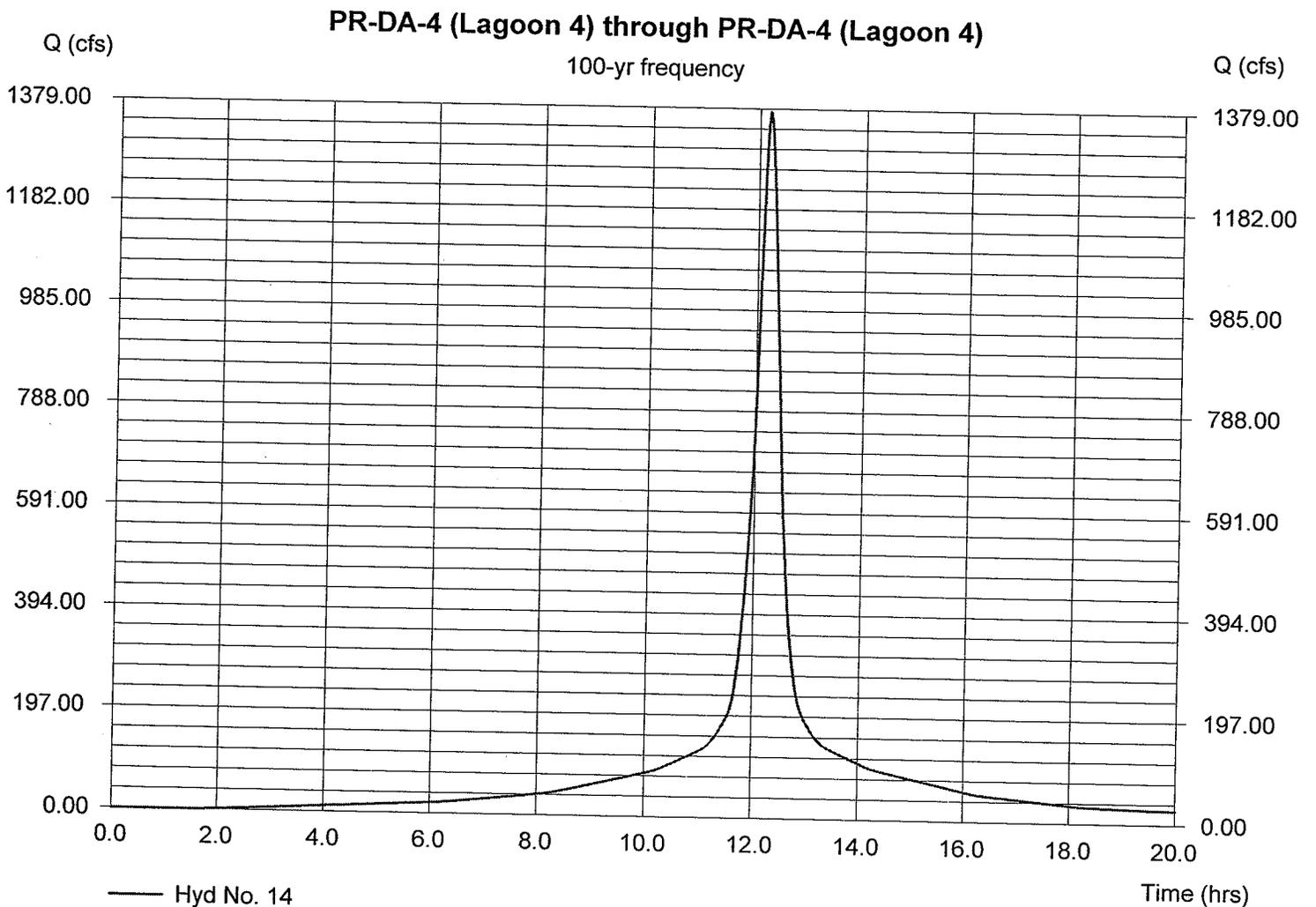
PR-DA-4 (Lagoon 4)

Hydrograph type = SCS Runoff  
Peak discharge = 1372.29 cfs  
Time to peak = 12.20 hrs  
Hyd. Volume = 6,655,207 cuft

## Hyd. No. 14

PR-DA-4 (Lagoon 4)

Hydrograph type = SCS Runoff  
Peak discharge = 1372.29 cfs  
Time to peak = 12.20 hrs  
Hyd. Volume = 6,655,207 cuft



# Multi-Hydrograph Plot

Hydraflow Hydrographs by Intelisolve

## Hyd. No. 16

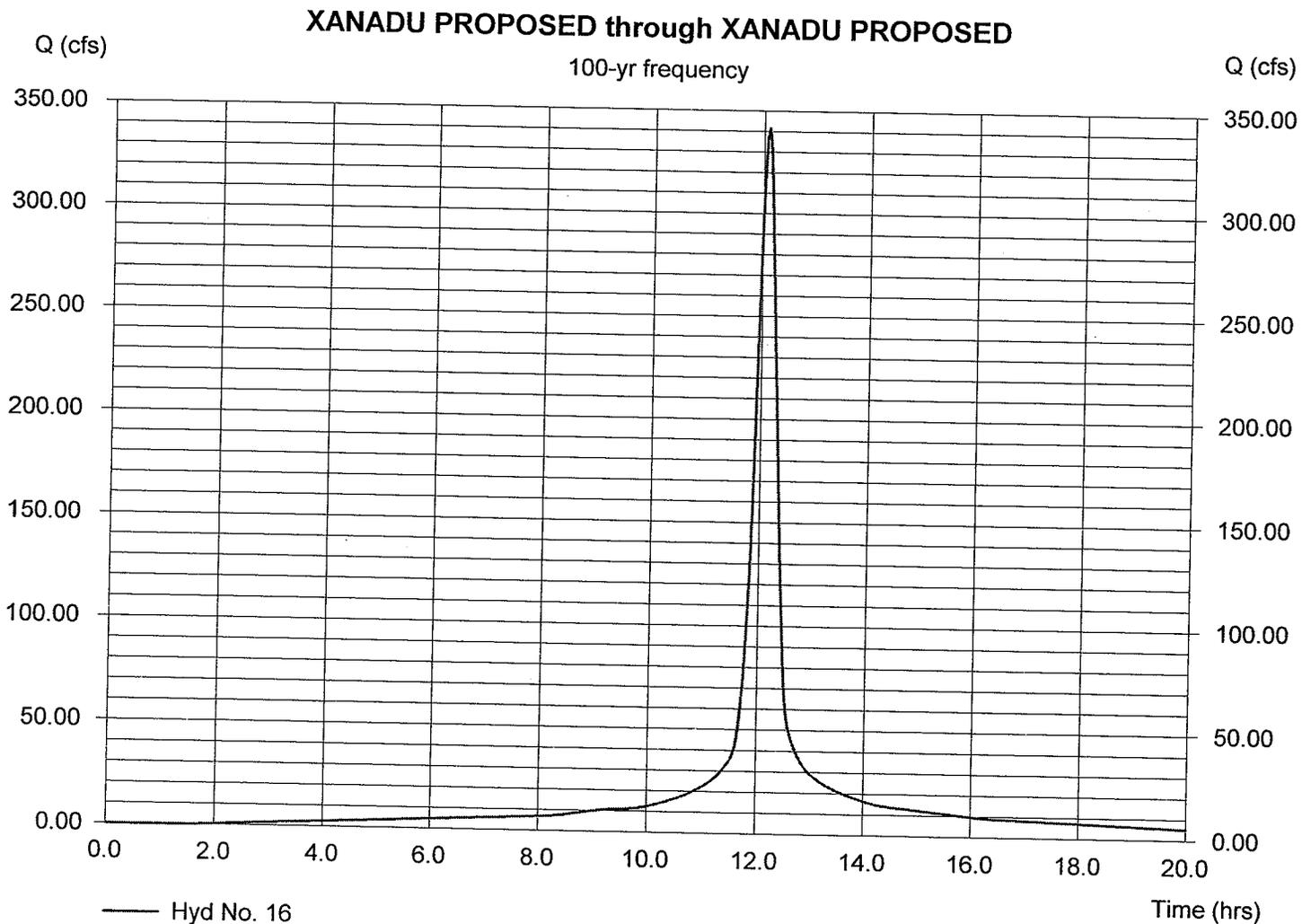
XANADU PROPOSED

Hydrograph type = SCS Runoff  
Peak discharge = 341.55 cfs  
Time to peak = 12.10 hrs  
Hyd. Volume = 1,291,079 cuft

## Hyd. No. 16

XANADU PROPOSED

Hydrograph type = SCS Runoff  
Peak discharge = 341.55 cfs  
Time to peak = 12.10 hrs  
Hyd. Volume = 1,291,079 cuft



# Multi-Hydrograph Plot

Hydraflow Hydrographs by Intelisolve

## Hyd. No. 18

Total Proposed

Hydrograph type = Combine  
Peak discharge = 2675.30 cfs  
Time to peak = 12.20 hrs  
Hyd. Volume = 13,338,190 cuft

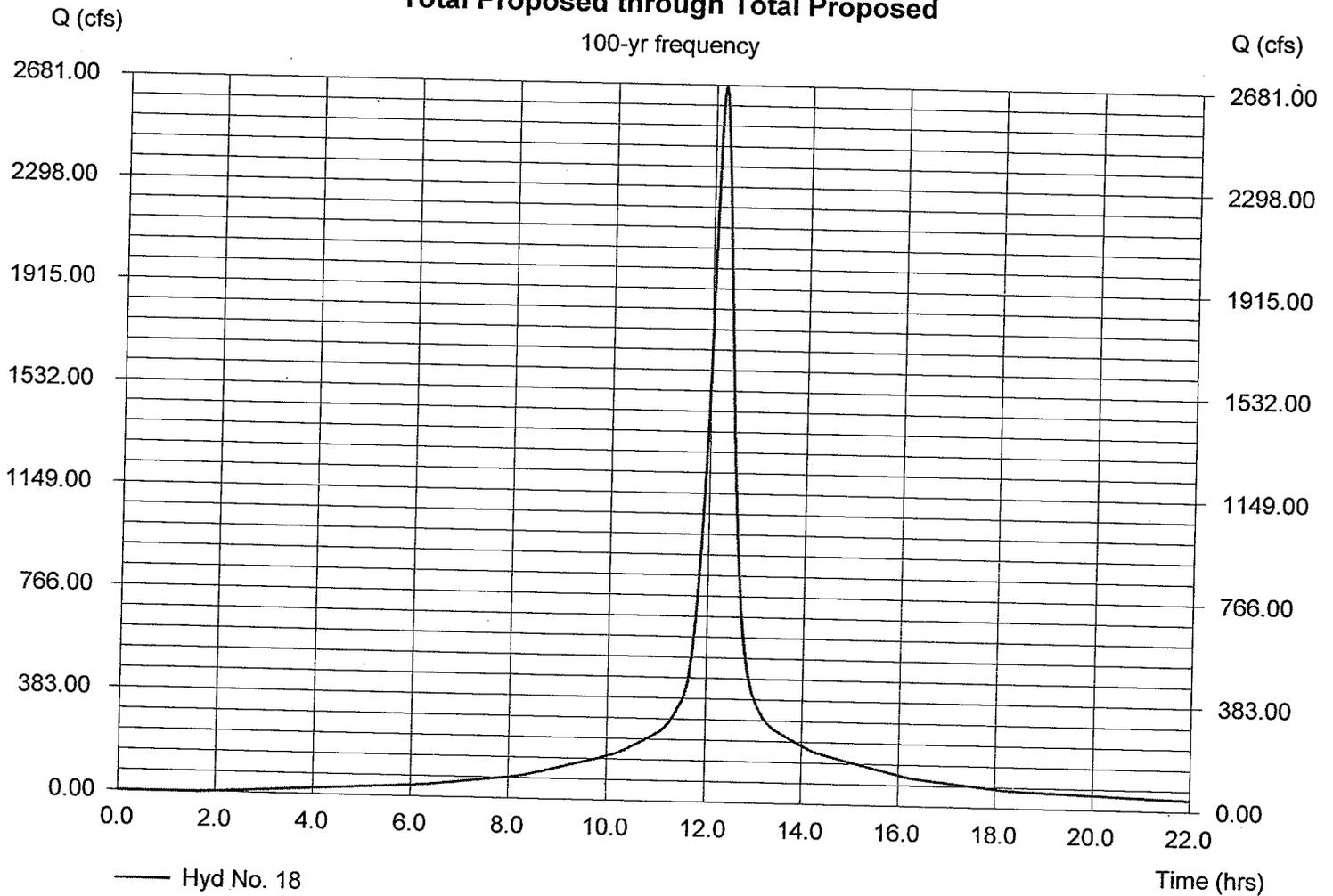
## Hyd. No. 18

Total Proposed

Hydrograph type = Combine  
Peak discharge = 2675.30 cfs  
Time to peak = 12.20 hrs  
Hyd. Volume = 13,338,190 cuft

### Total Proposed through Total Proposed

100-yr frequency



**APPENDIX C**

**PROPOSED STORMWATER RUNOFF COEFFICIENT  
CALCULATIONS**

**Project No. 4508560/4508570**  
**New Meadowlands Stadium Project**  
**Runoff Coefficient Calculations**

**Run 1**

**Impervious C = 0.95**  
**Pervious C = 0.3**

<b>CB #</b>	<b>Total Area (sf)</b>	<b>Perv Area (sf)</b>	<b>Imp Area (sf)</b>	<b>Weighted C</b>
1.01	0	0	0	N/A
1.02	11022	7493	3529	0.51
1.03	13117	0	13117	0.95
1.04	11541	9024	2517	0.44
1.05	28467	25096	3371	0.38
1.06	0	0	0	N/A
1.07	53978	0	53978	0.95
1.08	87043	0	87043	0.95
1.09	21937	2804	19133	0.87
1.10	0	0	0	N/A
1.11	0	0	0	N/A
1.12	83132	0	83132	0.95
1.13	16955	0	16955	0.95
1.14	9107	2778	6329	0.75
1.15	9443	1397	8046	0.85
1.16	36217	0	36217	0.95
1.17	63020	0	63020	0.95
1.18	0	0	0	N/A
1.19	33340	0	33340	0.95
1.20	44310	0	44310	0.95
1.30	16122	2413	13709	0.85
1.31	44564	0	44564	0.95
1.32	33394	3075	30319	0.89
1.33	18408	4415	13993	0.79
1.34	109150	56617	52533	0.61
1.35	68672	0	68672	0.95
1.40	91658	0	91658	0.95
1.50	0	0	0	N/A
1.51	74120	1125	72995	0.94
1.52	105029	0	105029	0.95
1.53	11524	2654	8870	0.80
1.54	10424	3033	7391	0.76
1.55	4946	1239	3707	0.79
1.56	16273	2796	13477	0.84
1.57	10378	3031	7347	0.76
1.58	54176	0	54176	0.95
1.59	4560	1406	3154	0.75
1.60	100495	3142	97353	0.93
1.61	7801	2428	5373	0.75
1.62	9233	2419	6814	0.78
1.70	93867	3518	90349	0.93
1.71	83184	0	83184	0.95

<b>CB #</b>	<b>Total Area (sf)</b>	<b>Perv Area (sf)</b>	<b>Imp Area (sf)</b>	<b>Weighted C</b>
1.72	14266	0	14266	0.95
1.73	25130	0	25130	0.95
1.74	56188	0	56188	0.95
1.75	12353	366	11987	0.93
1.76	13659	356	13303	0.93
1.77	20483	0	20483	0.95
1.80	16651	5766	10885	0.72
1.81	16125	5410	10715	0.73
1.82	18794	18794	0	0.30
1.83	27084	14602	12482	0.60
1.84	40152	40152	0	0.30
1.85	22734	22734	0	0.30
1.86	25098	13522	11576	0.60
1.87	19782	19782	0	0.30
1.88	11071	11071	0	0.30
1.90	22651	4914	17737	0.81
1.91	17860	5067	12793	0.77
1.92	22382	3371	19011	0.85
1.93	13939	0	13939	0.95
1.94	32670	0	32670	0.95

**Project No. 4508560/4508570**  
**New Meadowlands Stadium Project**  
**Runoff Coefficient Calculations**

Run 2

Impervious C = 0.95  
Pervious C = 0.3

acres

CB #	Total Area (sf)	Perv Area (sf)	Imp Area (sf)	Weighted C	
2.01	16183	4991	11192	0.75	0.37
2.02	0	0	0	N/A	0.00
2.03	18528	17098	1430	0.35	0.43
2.04	0	0	0	N/A	0.00
2.05	35631	17411	18220	0.63	0.82
2.06	40316	27320	12996	0.51	0.93
2.07	18931	14669	4262	0.45	0.43
2.08	53760	7848	45912	0.86	1.23
2.09	51560	3041	48519	0.91	1.18
2.10	7308	0	7308	0.95	0.17
2.11	23450	2842	20608	0.87	0.54
2.12	16875	4209	12666	0.79	0.39
2.13	92477	0	92477	0.95	2.12
2.14	85845	0	85845	0.95	1.97
2.15	60422	0	60422	0.95	1.39
2.16	0	0	0	N/A	0.00
2.17	99245	0	99245	0.95	2.28
2.18	12143	3286	8857	0.77	0.28
2.19	12281	2790	9491	0.80	0.28
2.20	21793	0	21793	0.95	0.50
2.30	17628	4373	13255	0.79	0.40
2.31	10828	3546	7282	0.74	0.25
2.32	7088	3226	3862	0.65	0.16
2.33	10394	1698	8696	0.84	0.24
2.34	24959	4219	20740	0.84	0.57
2.35	18243	7195	11048	0.69	0.42
2.36	12304	3702	8602	0.75	0.28
2.37	6012	2327	3685	0.70	0.14
2.38	4194	655	3539	0.85	0.10
2.39	8902	2202	6700	0.79	0.20
2.50	10861	1743	9118	0.85	0.25
2.51	6011	3509	2502	0.57	0.14
2.52	4842	2465	2377	0.62	0.11
2.53	5803	2750	3053	0.64	0.13
2.54	6833	3139	3694	0.65	0.16
2.55	4964	2045	2919	0.68	0.11
2.56	9715	1616	8099	0.84	0.22
2.57	9481	1723	7758	0.83	0.22
2.58	5601	493	5108	0.89	0.13
2.59	12724	2008	10716	0.85	0.29
2.60	6243	2502	3741	0.69	0.14
2.70	15698	8976	6722	0.58	0.36

CB #	Total Area (sf)	Perv Area (sf)	Imp Area (sf)	Weighted C
2.71	15600	9296	6304	0.56
2.72	35900	35900	0	0.30
2.73	5085	1004	4081	0.82
2.74	7350	1230	6120	0.84
2.75	5145	1145	4000	0.81
2.76	8996	1108	7888	0.87
2.77	12850	1230	11620	0.89
2.80	12884	4163	8721	0.74
2.81	12945	4078	8867	0.75
2.82	2735	1655	1080	0.56
2.83	27976	15774	12202	0.58
2.84	21436	2566	18870	0.87
2.85	11132	289	10843	0.93
2.90	13756	4427	9329	0.74
2.91	22441	12247	10194	0.60
2.92	18080	18080	0	0.30
2.93	9966	9966	0	0.30
2.94	2661	0	2661	0.95
2.95	6388	0	6388	0.95
2.96	7745	260	7485	0.93
2.97	14172	3390	10782	0.79
2.98	1587	0	1587	0.95
2.99	4361	0	4361	0.95
2.100	7080	0	7080	0.95
2.105	0	0	0	N/A
2.106	75589	0	75589	0.95
2.107	68709	0	68709	0.95
2.108	91836	0	91836	0.95
2.110	56439	0	56439	0.95
2.111	77909	0	77909	0.95
2.112	73376	0	73376	0.95
2.113	38813	0	38813	0.95
2.114	61556	0	61556	0.95
2.115	14496	0	14496	0.95
2.120	0	0	0	N/A
2.121	11855	0	11855	0.95
2.122	11524	3182	8342	0.77
2.123	11987	2345	9642	0.82
2.124	102539	0	102539	0.95

0.36  
0.82  
0.12  
0.17  
0.12  
0.21  
0.29  
0.30  
0.30  
0.06  
0.64  
0.49  
0.26  
0.32  
0.52  
0.42  
0.23  
0.06  
0.15  
0.18  
0.33  
0.04  
0.10  
0.16  
0.00  
1.74  
1.58  
2.11  
1.30  
1.79  
1.68  
0.89  
1.41  
0.33  
0.00  
0.27  
0.26  
0.28  
2.35

**Project No. 4508560/4508570**  
**New Meadowlands Stadium Project**  
**Runoff Coefficient Calculations**

**Run 3**

**Impervious C = 0.95**  
**Pervious C = 0.3**

<b>CB #</b>	<b>Total Area (sf)</b>	<b>Perv Area (sf)</b>	<b>Imp Area (sf)</b>	<b>Weighted C</b>
3.01	0	0	0	N/A
3.02	0	0	0	N/A
3.03	0	0	0	N/A
3.04	64798	0	64798	0.95
3.05	70555	0	70555	0.95
3.06	65862	0	65862	0.95
3.07	78582	0	78582	0.95
3.08	39461	0	39461	0.95
3.09	69805	3013	66792	0.92
3.10	41574	820	40754	0.94
3.11	23970	5335	18635	0.81
3.12	9705	2023	7682	0.81
3.13	29247	0	29247	0.95
3.14	44321	0	44321	0.95
3.15	39299	0	39299	0.95
3.20	55484	0	55484	0.95
3.21	44754	0	44754	0.95
3.22	0	0	0	N/A
3.23	44276	0	44276	0.95
3.24	23557	0	23557	0.95
3.25	10578	2583	7995	0.79
3.26	10464	2472	7992	0.80
3.27	0	0	0	N/A
3.28	42679	0	42679	0.95
3.29	39718	0	39718	0.95
3.30	40529	0	40529	0.95
3.40	0	0	0	N/A
3.41	67267	0	67267	0.95
3.42	10948	3058	7890	0.77
3.43	10379	2261	8118	0.81
3.44	36426	0	36426	0.95
3.45	91682	0	91682	0.95
3.46	5616	0	5616	0.95
3.47	5258	0	5258	0.95
3.48	16644	0	16644	0.95
3.49	10232	2067	8165	0.82
3.50	10044	2353	7691	0.80
3.51	38393	0	38393	0.95
3.60	66104	0	66104	0.95
3.61	53058	0	53058	0.95
3.62	42061	0	42061	0.95
3.63	47850	0	47850	0.95

<b>CB #</b>	<b>Total Area (sf)</b>	<b>Perv Area (sf)</b>	<b>Imp Area (sf)</b>	<b>Weighted C</b>
3.70	0	0	0	N/A
3.71	19381	5338	14043	0.77
3.72	25341	0	25341	0.95
3.73	56141	2902	53239	0.92
3.74	60326	1890	58436	0.93
3.75	41504	1891	39613	0.92
3.76	40449	2390	38059	0.91
3.77	68140	3891	64249	0.91
3.78	14716	1162	13554	0.90
3.79	34282	1813	32469	0.92
3.80	40428	7826	32602	0.82
3.81	28782	0	28782	0.95
3.82	22358	6029	16329	0.77
3.83	65637	0	65637	0.95
3.84	59371	9769	49602	0.84
3.90	34619	0	34619	0.95
3.91	46063	0	46063	0.95
3.92	31280	0	31280	0.95
3.100	73555	0	73555	0.95
3.101	57508	0	57508	0.95
3.102	68839	0	68839	0.95
3.110	23117	0	23117	0.95
3.111	42501	0	42501	0.95
3.112	35,644	4801	30843	0.86
3.113	23266	2935	20331	0.87
3.120	0	0	0	N/A
3.121	17567	1808	15759	0.88
3.122	10043	1338	8705	0.86
3.123	12340	0	12340	0.95
3.124	8448	0	8448	0.95
3.125	11699	0	11699	0.95
3.130	8848	0	8848	0.95
3.131	9470	820	8650	0.89
3.132	8847	0	8847	0.95
3.133	6638	710	5928	0.88

**Project No. 4508560/4508570**  
**New Meadowlands Stadium Project**  
**Runoff Coefficient Calculations**

**Run 4**

**Impervious C =** 0.95  
**Pervious C =** 0.3

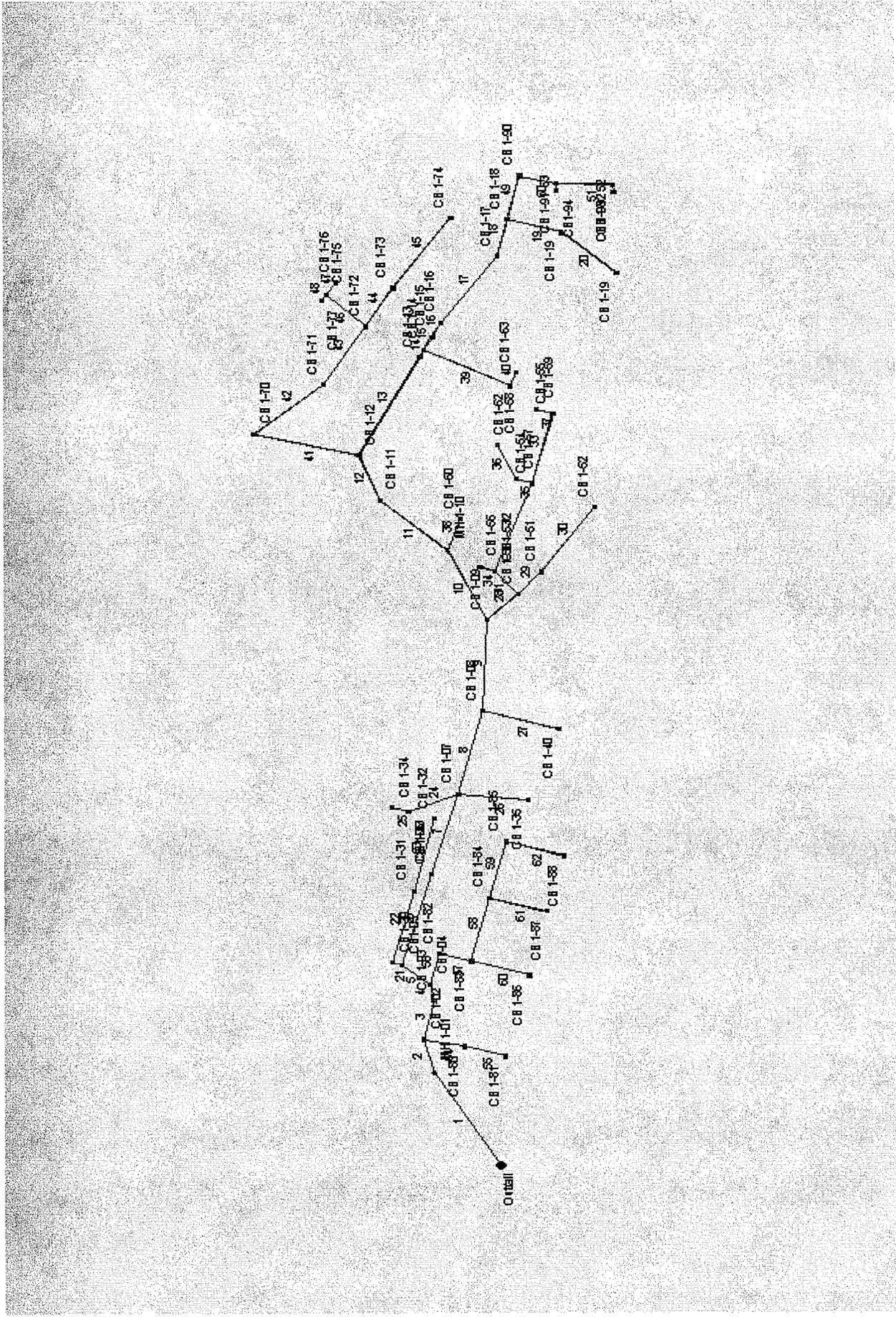
<b>CB #</b>	<b>Total Area (sf)</b>	<b>Perv Area (sf)</b>	<b>Imp Area (sf)</b>	<b>Weighted C</b>
4.01	0	0	0	N/A
4.02	41280	2926	38354	0.90
4.03	22700	3518	19182	0.85
4.04	9570	0	9570	0.95
4.05	6760	571	6189	0.90
4.06	0	0	0	N/A
4.07	13402	3511	9891	0.78
4.08	22970	4567	18403	0.82
4.09	9639	1291	8348	0.86
4.1	8848	1342	7506	0.85
4.11	7018	0	7018	0.95
4.12	7170	0	7170	0.95
4.13	8228	0	8228	0.95
4.14	11797	0	11797	0.95
4.15	15620	0	15620	0.95
4.16	11109	0	11109	0.95
4.17	0	0	0	N/A
4.18	30136	975	29161	0.93
4.2	0	0	0	N/A
4.21	10920	0	10920	0.95
4.22	10552	0	10552	0.95
4.23	6087	0	6087	0.95
4.24	5947	0	5947	0.95
4.25	7872	558	7314	0.90
4.26	9962	1587	8375	0.85
4.3	10456	2828	7628	0.77
4.31	18432	93	18339	0.95
4.32	8940	0	8940	0.95
4.33	17602	3343	14259	0.83
4.34	16875	2515	14360	0.85
4.35	0	0	0	N/A
4.36	0	0	0	N/A
4.37	7226	0	7226	0.95
4.38	7924	0	7924	0.95
4.39	10271	0	10271	0.95
4.4	7854	0	7854	0.95
4.41	13166	0	13166	0.95
4.5	3644	1983	1661	0.60
4.51	1831	0	1831	0.95
4.52	14190	14190	0	0.30
4.53	8880	8880	0	0.30
4.54	7235	0	7235	0.95

<b>CB #</b>	<b>Total Area (sf)</b>	<b>Perv Area (sf)</b>	<b>Imp Area (sf)</b>	<b>Weighted C</b>
4.55	9192	0	9192	0.95
4.56	8067	0	8067	0.95
4.6	6861	2544	4317	0.71
4.61	26353	2020	24333	0.90
4.62	22095	2018	20077	0.89
4.63	17623	635	16988	0.93
4.64	2137	0	2137	0.95
4.65	5326	0	5326	0.95
4.66	3267	0	3267	0.95
4.67	3270	0	3270	0.95
4.68	9872	0	9872	0.95
4.69	14213	1843	12370	0.87
4.7	3803	0	3803	0.95
4.71	2642	0	2642	0.95
4.72	3819	0	3819	0.95
4.73	1805	0	1805	0.95
4.74	4089	0	4089	0.95
4.8	7110	3739	3371	0.61
4.81	11346	7577	3769	0.52
4.82	11895	7397	4498	0.55
4.83	33221	2642	30579	0.90
4.84	21799	1510	20289	0.90
4.85	19442	1548	17894	0.90
4.86	8849	546	8303	0.91
4.87	7511	770	6741	0.88
4.88	18867	685	18182	0.93
4.9	17157	499	16658	0.93
4.91	12171	1250	10921	0.88

## **APPENDIX D**

### **STORMWATER CONVEYANCE CALCULATIONS (25-YEAR STORM)**

# Hydraulic Plan View



NMS Run 1

No. Lines: 62

10-17-2006

# Station Sewer Inventory Report

Line No.	Alignment			Flow Data				Physical Data						Line ID			
	Dnstr line No.	Line length (ft)	Defl angle (deg)	Junc type	Known Q (cfs)	Drng area (ac)	Runoff coeff (C)	Inlet time (min)	Invert EI Dn (ft)	Line slope (%)	Invert EI Up (ft)	Line size (in)	Line type		N value (n)	J-loss coeff (K)	Inlet/Rim EI (ft)
1	End	353.0	-32.9	MH	0.00	0.00	0.00	0.0	-11.92	0.51	-10.11	54	Cir	0.013	0.45	9.77	E-Outlet-MH 1.01
2	1	109.0	16.6	Grate	0.00	0.25	0.51	6.0	-10.11	0.39	-9.69	54	Cir	0.013	0.70	8.50	E-MH 1.01- CB 1.02
3	2	127.2	30.2	Grate	0.00	0.30	0.95	6.0	-9.69	0.39	-9.19	54	Cir	0.013	0.70	8.70	P-CB1.02-CB1.03
4	3	53.0	-26.2	Grate	0.00	0.26	0.44	6.0	-9.12	0.40	-8.91	54	Cir	0.013	0.70	7.80	P-CB 1.03-CB 1.04
5	4	103.5	-40.1	Grate	0.00	0.65	0.38	6.0	-8.91	0.39	-8.51	54	Cir	0.013	1.10	6.80	P-CB 1.04 -CB 1.05
6	5	299.2	69.4	Grate	0.00	0.00	0.00	6.0	-8.36	0.35	-7.32	54	Cir	0.013	1.25	7.00	E-CB 1.05-CB 1.06
7	6	267.0	0.0	Grate	0.00	1.24	0.95	6.0	-7.32	0.35	-6.39	54	Cir	0.013	0.50	4.93	E-CB 1.06-CB 1.07
8	7	274.5	-2.1	Grate	0.00	2.00	0.95	6.0	-6.39	0.34	-5.46	54	Cir	0.013	0.50	5.10	E-CB 1.07- CB 1.08
9	8	287.6	-12.2	Grate	0.00	0.50	0.87	6.0	-5.46	0.34	-4.47	48	Cir	0.013	0.70	8.00	E-CB 1.08-CB 1.09
10	9	246.1	-29.9	MH	0.00	0.00	0.00	0.0	-4.47	0.35	-3.62	48	Cir	0.013	0.45	8.60	E-CB 1.09-CB 1.10
11	10	255.4	-23.2	Grate	0.00	0.00	0.00	6.0	-3.62	0.34	-2.74	42	Cir	0.013	0.70	9.40	E-CB 1.10-CB 1.11
12	11	154.9	27.8	Grate	0.00	1.91	0.95	6.0	-2.74	0.40	-2.12	42	Cir	0.013	0.70	7.58	E-CB 1.10-CB1.12
13	12	357.5	52.2	Grate	0.00	0.39	0.95	6.0	-2.12	0.40	-0.69	42	Cir	0.013	1.10	8.35	P-CB 1.12-CB 1.13
14	13	26.9	-1.5	Grate	0.00	0.21	0.75	6.0	-0.69	0.41	-0.58	36	Cir	0.013	0.50	7.50	P-CB 1.13-CB 1.14
15	14	47.5	1.6	Grate	0.00	0.22	0.85	6.0	-0.58	0.40	-0.39	36	Cir	0.013	0.50	7.50	P-CB 1.14-CB 1.15
16	15	51.7	0.4	Grate	0.00	0.83	0.95	6.0	-0.39	0.41	-0.18	36	Cir	0.013	0.50	7.90	P-CB 1.14-CB 1.16
17	16	265.0	7.1	Grate	0.00	1.45	0.95	6.0	-0.18	0.40	0.88	36	Cir	0.013	0.50	7.40	P-CB 1.16-CB 1.17
18	17	121.3	-22.5	Grate	0.00	0.00	0.00	6.0	0.88	0.40	1.37	30	Cir	0.013	0.70	8.20	P-CB 1.17-CB 1.18
19	18	163.3	90.4	Grate	0.00	0.77	0.95	6.0	1.37	0.40	2.02	30	Cir	0.010	1.50	6.90	P-CB 1.18-CB1.19
20	19	204.5	24.0	Grate	0.00	1.02	0.95	6.0	2.02	0.40	2.84	24	Cir	0.010	0.70	6.90	P-CB 1.19-CB1.20
21	5	28.3	-23.0	Grate	0.00	0.37	0.85	6.0	-8.36	0.50	-8.22	30	Cir	0.010	0.70	5.30	P-CB 1.05- CB 1.30

NMS Run 1

Number of lines: 62

Date: 10-17-2006

# Station 1 Sewer Inventory Report

Line No.	Alignment			Flow Data				Physical Data							Line ID		
	Dnstr line No.	Line length (ft)	Defl angle (deg)	Junc type	Known Q (cfs)	Drng area (ac)	Runoff coeff (C)	Inlet time (min)	Invert EI Dn (ft)	Line slope (%)	Invert EI Up (ft)	Line size (in)	Line type	N value (n)		J-loss coeff (K)	Inlet/ Rim EI (ft)
22	21	236.1	90.8	Grate	0.00	1.02	0.95	6.0	-8.22	0.50	-7.04	30	Cir	0.010	1.50	5.50	P-CB 1.30-CB1.31
23	22	235.3	-0.2	Grate	0.00	0.77	0.89	6.0	-7.04	0.50	-5.86	30	Cir	0.010	0.50	5.00	P-CB 1.31-CB 1.32
24	7	154.5	-128.1	Grate	0.00	0.42	0.79	6.0	-1.33	1.51	1.00	18	Cir	0.013	1.50	5.92	E-CB 1.07-CB 1.33
25	24	48.1	37.1	Grate	0.00	2.51	0.61	6.0	1.00	1.04	1.50	15	Cir	0.013	1.10	5.92	E-CB 1.33- CB 1.34
26	7	203.5	78.0	Grate	0.00	1.58	0.95	6.0	-0.59	0.83	1.10	15	Cir	0.010	1.50	4.97	E-CB 1.07-CB 1.35
27	8	228.0	90.0	Grate	0.00	2.10	0.95	6.0	-1.28	1.00	1.01	15	Cir	0.013	1.50	4.90	E-CB 1.08-CB 1.40
28	9	122.0	44.4	Grate	0.00	0.00	0.00	6.0	0.15	1.07	1.45	36	Cir	0.022	1.10	7.90	P-CB 1.09- CB 1.50
29	28	98.8	-2.1	Grate	0.00	1.70	0.94	6.0	1.45	0.14	1.59	18	Cir	0.022	0.50	6.18	E-CB 1.50 -CB 1.51
30	29	254.2	-8.4	Grate	0.00	2.41	0.95	6.0	1.73	0.34	2.59	18	Cir	0.013	0.50	6.90	E-CB 1.51-CB 1.52
31	28	97.6	-90.0	Grate	0.00	0.26	0.80	6.0	1.45	0.50	1.94	24	Cir	0.010	1.50	8.00	P-CB 1.50 -CB 1.53
32	31	298.2	64.0	Grate	0.00	0.24	0.76	6.0	1.94	0.50	3.43	24	Cir	0.010	1.25	7.95	P-CB 1.53- CB 1.54
33	32	231.7	-5.7	Grate	0.00	0.11	0.79	6.0	3.43	0.50	4.59	18	Cir	0.010	0.50	10.00	P-CB 1.54- CB 1.55
34	31	46.1	-28.3	Grate	0.00	0.37	0.84	6.0	1.94	0.52	2.18	18	Cir	0.010	0.70	8.00	P-CB 1.53-CB 1.56
35	32	47.2	-91.6	Grate	0.00	0.24	0.76	6.0	3.43	0.51	3.67	24	Cir	0.010	1.50	7.95	P-CB1.54-CB1.57
36	35	121.5	43.7	Grate	0.00	1.24	0.95	6.0	3.67	0.50	4.28	18	Cir	0.010	1.10	8.38	P-CB1.57-CB1.58
37	33	48.4	-88.1	Grate	0.00	0.10	0.75	6.0	4.59	0.50	4.83	18	Cir	0.010	1.50	10.00	P-CB 1.55- CB 1.59
38	10	109.1	46.5	Grate	0.00	2.31	0.93	6.0	1.76	1.80	3.72	24	Cir	0.013	1.10	7.16	E-CB 1.10- CB 1.60
39	14	273.0	86.9	Grate	0.00	0.18	0.75	6.0	1.26	0.51	2.65	18	Cir	0.010	1.50	8.50	P-CB 1.14- CB 1.61
40	39	46.6	-90.0	Grate	0.00	0.21	0.78	6.0	2.65	0.49	2.88	18	Cir	0.010	1.50	8.50	P-CB 1.61 -CB 1.62
41	12	311.0	-54.5	Grate	0.00	2.15	0.93	6.0	-2.12	0.32	-1.12	30	Cir	0.013	1.25	7.10	E-CB 1.12- CB 1.70
42	41	256.1	129.4	Grate	0.00	1.91	0.95	6.0	-1.53	-0.23	-2.13	40	Cir	0.013	1.50	6.77	E-CB 1.70- CB 1.71
<b>NMS Run 1</b>																	
Number of lines: 62													Date: 10-17-2006				

# Station Sewer Inventory Report

Line No.	Alignment				Flow Data				Physical Data							Line ID	
	Dnstr line No.	Line length (ft)	Defl angle (deg)	Junc type	Known Q (cfs)	Drng area (ac)	Runoff coeff (C)	Inlet time (min)	Invert EI Dn (ft)	Line slope (%)	Invert EI Up (ft)	Line size (in)	Line type	N value (n)	J-loss coeff (K)		Inlet/ Rim EI (ft)
43	42	218.5	-19.0	Grate	0.00	0.33	0.95	6.0	-1.46	0.57	-0.21	54	Cir	0.022	0.70	8.70	E-CB 1.71- CB 1.72
44	43	145.2	0.0	Grate	0.00	0.58	0.95	6.0	-0.21	0.43	0.41	24	Cir	0.022	0.50	6.76	E-CB 1.72- CB 1.73
45	44	278.7	3.6	Grate	0.00	1.29	0.95	6.0	1.87	-0.05	1.74	24	Cir	0.013	0.50	6.28	E-CB 1.73 -CB 1.74
46	43	153.2	-81.3	Grate	0.00	0.28	0.93	6.0	-0.21	0.49	0.54	24	Cir	0.010	1.50	5.50	P-CB 1.72- CB 1.75
47	46	46.6	85.4	Grate	0.00	0.31	0.93	6.0	0.54	0.49	0.77	18	Cir	0.010	1.50	5.50	P-CB 1.75- CB 1.76
48	46	22.6	-95.8	Grate	0.00	0.47	0.95	6.0	0.54	0.49	0.65	15	Cir	0.010	1.50	5.50	P-CB1.75-CB1.77
49	18	141.7	0.0	Grate	0.00	0.52	0.81	6.0	1.37	0.40	1.94	30	Cir	0.010	0.70	7.80	P-CB 1.18-CB 1.90
50	49	110.7	88.4	Grate	0.00	0.41	0.77	6.0	1.94	0.40	2.38	24	Cir	0.010	1.50	7.40	P-CB 1.90-CB 1.91
51	50	161.2	-12.4	Grate	0.00	0.51	0.85	6.0	2.38	0.30	2.86	18	Cir	0.010	0.70	6.50	P-CB 1.91-CB 1.92
52	51	22.9	82.3	Grate	0.00	0.32	0.95	6.0	2.86	0.31	2.93	18	Cir	0.010	1.50	6.50	P-CB 1.92-CB 1.93
53	50	21.1	81.5	Grate	0.00	0.75	0.95	6.0	2.92	0.38	3.00	18	Cir	0.010	1.50	6.50	P-CB 1.91-CB 1.94
54	2	122.0	116.6	Grate	0.00	0.38	0.72	6.0	1.20	0.50	1.81	18	Cir	0.010	1.50	8.30	P-CB 1.02-CB 1.80
55	54	122.4	4.8	Grate	0.00	0.37	0.73	6.0	1.81	0.50	2.42	18	Cir	0.010	0.50	8.30	P-CB 1.80-CB 1.81
56	4	100.4	28.4	Grate	0.00	0.43	0.30	6.0	-1.00	0.50	-0.50	18	Cir	0.010	0.70	7.50	P-CB 1.03-CB 1.82
57	56	94.7	88.1	Grate	0.00	0.62	0.60	6.0	-0.50	0.50	-0.03	18	Cir	0.010	1.50	7.90	P-CB 1.82-CB 1.83
58	57	208.9	-89.5	Grate	0.00	0.92	0.30	6.0	-0.03	0.50	1.01	18	Cir	0.010	1.50	6.70	P-CB 1.83-CB 1.84
59	58	183.3	0.3	Grate	0.00	0.52	0.30	6.0	1.01	0.50	1.93	18	Cir	0.010	0.50	6.70	P-CB 1.84-CB 1.85
60	57	174.1	0.8	Grate	0.00	0.58	0.60	6.0	1.50	0.50	2.37	18	Cir	0.010	0.50	7.90	P-CB 1.83-CB 1.86
61	58	172.1	90.0	Grate	0.00	0.45	0.30	6.0	1.50	0.50	2.36	18	Cir	0.010	1.50	6.70	P-CB 1.84-CB 1.87
62	59	175.0	90.0	Grate	0.00	0.25	0.30	6.0	1.93	0.50	2.81	18	Cir	0.010	1.50	6.70	P-CB 1.85-CB 1.88

NMS Run 1

Number of lines: 62

Date: 10-17-2006

# Stor Sewer Tabulation

Station Line	To Line	Len (ft)	Drng Area (ac)		Rnoff coeff (C)	Area x C		Tc (min)		Rain (l) (in/hr)	Total flow (cfs)	Cap full (cfs)	Vel (ft/s)	Pipe		Invert Elev (ft)		HGL Elev (ft)		Grnd / Rim Elev (ft)		Line ID
			Incr	Total		Inlet	Syst	Incr	Total					Size (in)	Slope (%)	Up	Dn	Up	Dn	Up	Dn	
1	End	353.0	0.00	44.49	0.00	0.00	37.69	0.0	21.3	4.5	168.1	140.8	11.26	54	0.51	-10.11	-11.92	-5.16	-8.20	9.77	9.77	E-Outfall-MH 1.0
2	1	109.0	0.25	44.49	0.51	0.13	37.69	6.0	21.1	4.5	168.9	122.1	10.62	54	0.39	-9.69	-10.11	-3.57	-4.38	8.50	9.77	E-MH 1.01-CB 1.
3	2	127.2	0.30	43.49	0.95	0.29	37.02	6.0	20.8	4.5	166.8	123.3	10.49	54	0.39	-9.19	-9.69	-1.39	-2.30	8.70	8.50	P-CB1.02-CB1.0
4	3	53.0	0.26	43.19	0.44	0.11	36.73	6.0	20.7	4.5	165.9	123.8	10.44	54	0.40	-8.91	-9.12	0.21	-0.17	7.80	8.70	P-CB 1.03-CB 1.
5	4	103.5	0.65	39.16	0.38	0.25	35.13	6.0	18.6	4.8	167.4	122.3	10.52	54	0.39	-8.51	-8.91	2.14	1.39	6.80	7.80	P-CB 1.04 -CB 1.
6	5	299.2	0.00	36.35	0.00	0.00	32.91	6.0	18.1	4.8	159.3	116.0	10.02	54	0.35	-7.32	-8.36	6.16	4.20	7.00	6.80	E-CB 1.05-CB 1.
7	6	267.0	1.24	36.35	0.95	1.18	32.91	6.0	17.6	4.9	161.5	116.1	10.15	54	0.35	-6.39	-7.32	9.91	8.11	4.93	7.00	E-CB 1.06-CB 1.
8	7	274.5	2.00	30.60	0.95	1.90	28.37	6.0	17.0	5.0	141.4	114.5	8.89	54	0.34	-5.46	-6.39	12.51	11.09	5.10	4.93	E-CB 1.07-CB 1.
9	8	287.6	0.50	26.50	0.87	0.44	24.48	6.0	16.5	5.1	123.8	84.29	9.85	48	0.34	-4.47	-5.46	15.26	13.12	8.00	5.10	E-CB 1.08-CB 1.
10	9	246.1	0.00	19.33	0.00	0.00	17.93	0.0	13.8	5.5	98.32	84.42	7.83	48	0.35	-3.62	-4.47	18.02	16.87	8.60	8.00	E-CB 1.09-CB 1.
11	10	255.4	0.00	17.02	0.00	0.00	15.78	6.0	13.3	5.6	87.95	59.05	9.14	42	0.34	-2.74	-3.62	20.41	18.45	9.40	8.60	E-CB 1.10-CB 1.
12	11	154.9	1.91	17.02	0.95	1.81	15.78	6.0	13.0	5.6	88.80	63.65	9.23	42	0.40	-2.12	-2.74	22.52	21.31	7.58	9.40	E-CB 1.10-CB1.1
13	12	357.5	0.39	7.79	0.95	0.37	7.07	6.0	10.9	6.0	42.68	63.63	4.44	42	0.40	-0.69	-2.12	25.11	24.47	8.35	7.58	P-CB 1.12-CB 1.
14	13	26.9	0.21	7.40	0.75	0.16	6.70	6.0	10.8	6.1	40.57	42.62	5.74	36	0.41	-0.58	-0.69	25.55	25.45	7.50	8.35	P-CB 1.13-CB 1.
15	14	47.5	0.22	6.80	0.85	0.19	6.24	6.0	10.1	6.2	38.79	42.19	5.49	36	0.40	-0.39	-0.58	26.01	25.85	7.50	7.50	P-CB 1.14-CB 1.
16	15	51.7	0.83	6.58	0.95	0.79	6.05	6.0	10.0	6.3	37.87	42.50	5.36	36	0.41	-0.18	-0.39	26.43	26.26	7.90	7.50	P-CB 1.14-CB 1.
17	16	265.0	1.45	5.75	0.95	1.38	5.26	6.0	9.0	6.5	34.15	42.18	4.83	36	0.40	0.88	-0.18	27.43	26.74	7.40	7.90	P-CB 1.16-CB 1.
18	17	121.3	0.00	4.30	0.00	0.00	3.89	6.0	8.6	6.6	25.61	26.06	5.22	30	0.40	1.37	0.88	28.09	27.61	8.20	7.40	P-CB 1.17-CB 1.
19	18	163.3	0.77	1.79	0.95	0.73	1.70	6.0	7.5	6.9	11.74	33.64	2.39	30	0.40	2.02	1.37	28.80	28.72	6.90	8.20	P-CB 1.18-CB1.1
20	19	204.5	1.02	1.02	0.95	0.97	0.97	6.0	6.0	7.4	7.15	18.62	2.28	24	0.40	2.84	2.02	29.06	28.94	6.90	6.90	P-CB 1.19-CB1.2
21	5	28.3	0.37	2.16	0.85	0.31	1.97	6.0	11.5	5.9	11.65	37.53	2.37	30	0.50	-8.22	-8.36	5.69	5.67	5.30	6.80	P-CB 1.05- CB 1.

NMS Run 1

Number of lines: 62

Run Date: 10-17-2006

NOTES: Intensity = 63.01 / (Inlet time + 10.40) ^ 0.77; Return period = 25 Yrs.

# Stor Sewer Tabulation

Station	Line	To Line	Len (ft)	Drng Area (ac)		Rnoff coeff (C)	Area x C		Tc (min)		Rain (l) (in/hr)	Total flow (cfs)	Cap full (cfs)	Vel (ft/s)	Pipe		Invert Elev (ft)		HGL Elev (ft)		Grnd / Rim Elev (ft)		Line ID
				Incr	Total		Inlet	Syst	Incr	Total					Inlet	Syst	Size (in)	Slope (%)	Up	Dn	Up	Dn	
22	21		236.1	1.02	1.79	0.95	0.97	1.65	6.0	9.8	6.3	10.41	37.69	2.12	30	0.50	-7.04	-8.22	5.85	5.76	5.50	5.30	P-CB 1.30-CB1.3
23	22		235.3	0.77	0.77	0.89	0.69	0.69	6.0	6.0	7.4	5.06	37.76	1.03	30	0.50	-5.86	-7.04	6.03	6.01	5.00	5.50	P-CB 1.31-CB 1.
24	7		154.5	0.42	2.93	0.79	0.33	1.86	6.0	6.1	7.4	13.70	12.90	7.75	18	1.51	1.00	-1.33	14.01	11.38	5.92	4.93	E-CB 1.07-CB 1.
25	24		48.1	2.51	2.51	0.61	1.53	1.53	6.0	6.0	7.4	11.30	6.59	9.21	15	1.04	1.50	1.00	16.89	15.41	5.92	5.92	E-CB 1.33- CB 1.
26	7		203.5	1.58	1.58	0.95	1.50	1.50	6.0	6.0	7.4	11.08	7.65	9.03	15	0.83	1.10	-0.59	14.60	11.05	4.97	4.93	E-CB 1.07-CB 1.
27	8		228.0	2.10	2.10	0.95	2.00	2.00	6.0	6.0	7.4	14.73	6.47	12.00	15	1.00	1.01	-1.28	24.99	13.12	4.90	5.10	E-CB 1.08-CB 1.
28	9		122.0	0.00	6.67	0.00	0.00	6.11	6.0	16.1	5.1	31.25	40.68	4.42	36	1.07	1.45	0.15	18.29	17.52	7.90	8.00	P-CB 1.09- CB 1.
29	28		98.8	1.70	4.11	0.94	1.60	3.89	6.0	6.4	7.2	28.12	2.34	15.92	18	0.14	1.59	1.45	38.92	18.62	6.18	7.90	E-CB 1.50 -CB 1.
30	29		254.2	2.41	2.41	0.95	2.29	2.29	6.0	6.0	7.4	16.90	6.11	9.57	18	0.34	2.59	1.73	50.00	43.41	6.90	6.18	E-CB 1.51-CB 1.
31	28		97.6	0.26	2.56	0.80	0.21	2.22	6.0	15.7	5.2	11.49	20.83	3.66	24	0.50	1.94	1.45	18.87	18.72	8.00	7.90	P-CB 1.50 -CB 1.
32	31		298.2	0.24	1.93	0.76	0.18	1.70	6.0	14.4	5.4	9.18	20.78	2.92	24	0.50	3.43	1.94	19.54	19.25	7.95	8.00	P-CB 1.53- CB 1.
33	32		231.7	0.11	0.21	0.79	0.09	0.16	6.0	8.6	6.6	1.07	9.66	0.60	18	0.50	4.59	3.43	19.85	19.84	10.00	7.95	P-CB 1.54- CB 1.
34	31		46.1	0.37	0.37	0.84	0.31	0.31	6.0	6.0	7.4	2.29	9.85	1.30	18	0.52	2.18	1.94	19.37	19.36	8.00	8.00	P-CB 1.53-CB 1.
35	32		47.2	0.24	1.48	0.76	0.18	1.36	6.0	6.4	7.2	9.86	20.98	3.14	24	0.51	3.67	3.43	19.76	19.71	7.95	7.95	P-CB 1.54-CB1.5
36	35		121.5	1.24	1.24	0.95	1.18	1.18	6.0	6.0	7.4	8.70	9.67	4.92	18	0.50	4.28	3.67	20.49	19.99	8.38	7.95	P-CB1.57-CB1.5
37	33		48.4	0.10	0.10	0.75	0.08	0.08	6.0	6.0	7.4	0.55	9.61	0.31	18	0.50	4.83	4.59	19.86	19.86	10.00	10.00	P-CB 1.55- CB 1.
38	10		109.1	2.31	2.31	0.93	2.15	2.15	6.0	6.0	7.4	15.86	30.31	5.05	24	1.80	3.72	1.76	19.54	19.01	7.16	8.60	E-CB 1.10- CB 1.
39	14		273.0	0.18	0.39	0.75	0.14	0.30	6.0	7.1	7.0	2.10	9.74	1.19	18	0.51	2.65	1.26	26.36	26.29	8.50	7.50	P-CB 1.14- CB 1.
40	39		46.6	0.21	0.21	0.78	0.16	0.16	6.0	6.0	7.4	1.21	9.59	0.68	18	0.49	2.88	2.65	26.41	26.41	8.50	8.50	P-CB 1.61 -CB 1.
41	12		311.0	2.15	7.32	0.93	2.00	6.90	6.0	12.3	5.7	39.65	23.26	8.08	30	0.32	-1.12	-2.12	26.67	23.76	7.10	7.58	E-CB 1.12- CB 1.
42	41		256.1	1.91	5.17	0.95	1.81	4.90	6.0	11.1	6.0	29.38	0.00	3.37	40	-0.23	-2.13	-1.53	29.06	28.77	6.77	7.10	E-CB 1.70- CB 1.

NMS Run 1 Number of lines: 62 Run Date: 10-17-2006

NOTES: Intensity = 63.01 / (Inlet time + 10.40) ^ 0.77; Return period = 25 Yrs.

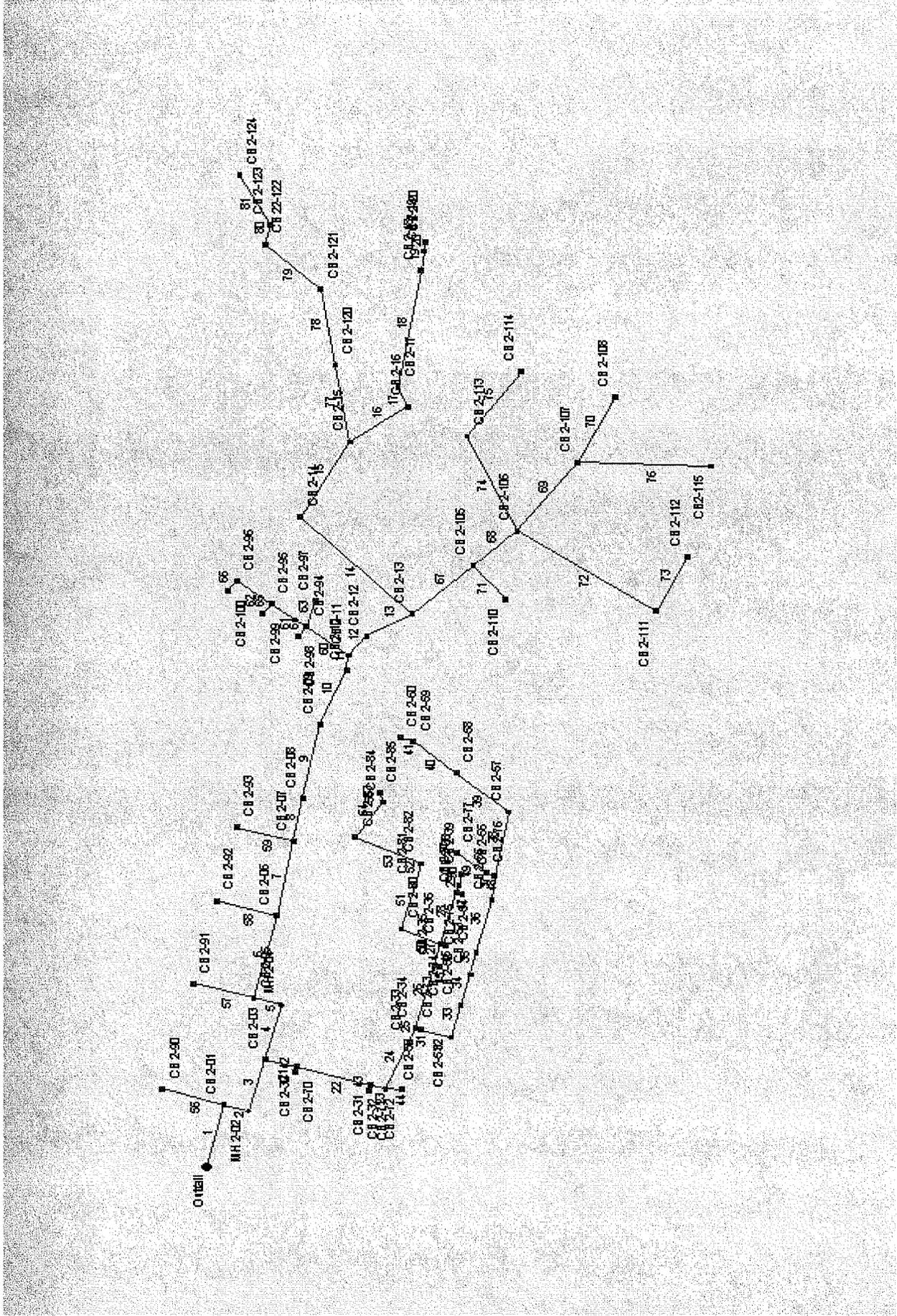
# Stor Sewer Tabulation

Station	Line	Len (ft)	Drng Area (ac)		Rnoff coeff (C)	Area x C		Tc		Rain (l) (in/hr)	Total flow (cfs)	Cap full (cfs)	Vel (ft/s)	Pipe		Invert Elev		HGL Elev		Grnd / Rim Elev		Line ID
			Incr	Total		Inlet (min)	Syst (min)	Incr	Total					Size (in)	Slope (%)	Up (ft)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	Dn (ft)	
43	42	218.5	0.33	3.26	0.95	0.31	3.09	6.0	8.2	6.7	20.65	87.90	1.30	54	0.57	-0.21	-1.46	29.54	29.47	8.70	6.77	E-CB 1.71-CB 1.
44	43	145.2	0.58	1.87	0.95	0.55	1.78	6.0	7.6	6.9	12.21	8.73	3.89	24	0.43	0.41	-0.21	30.77	29.56	6.76	8.70	E-CB 1.72-CB 1.
45	44	278.7	1.29	1.29	0.95	1.23	1.23	6.0	6.0	7.4	9.05	0.00	2.88	24	-0.05	1.74	1.87	31.44	30.99	6.28	6.76	E-CB 1.73-CB 1.
46	43	153.2	0.28	1.06	0.93	0.26	1.00	6.0	6.6	7.2	7.13	20.57	2.27	24	0.49	0.54	-0.21	29.65	29.56	5.50	8.70	P-CB 1.72-CB 1.
47	46	46.6	0.31	0.31	0.93	0.29	0.29	6.0	6.0	7.4	2.13	9.59	1.20	18	0.49	0.77	0.54	29.84	29.83	5.50	5.50	P-CB 1.75-CB 1.
48	46	22.6	0.47	0.47	0.95	0.45	0.45	6.0	6.0	7.4	3.30	5.85	2.69	15	0.49	0.65	0.54	29.80	29.77	5.50	5.50	P-CB1.75-CB1.7
49	18	141.7	0.52	2.51	0.81	0.42	2.19	6.0	7.6	6.9	15.00	33.82	3.06	30	0.40	1.94	1.37	28.77	28.66	7.80	8.20	P-CB 1.18-CB 1.
50	49	110.7	0.41	1.99	0.77	0.32	1.77	6.0	7.2	7.0	12.36	18.54	3.94	24	0.40	2.38	1.94	29.07	28.88	7.40	7.80	P-CB 1.90-CB 1.
51	50	161.2	0.51	0.83	0.85	0.43	0.74	6.0	6.3	7.3	5.37	7.45	3.04	18	0.30	2.86	2.38	29.78	29.53	6.50	7.40	P-CB 1.91-CB 1.
52	51	22.9	0.32	0.32	0.95	0.30	0.30	6.0	6.0	7.4	2.24	7.54	1.27	18	0.31	2.93	2.86	30.00	30.00	6.50	6.50	P-CB 1.92-CB 1.
53	50	21.1	0.75	0.75	0.95	0.71	0.71	6.0	6.0	7.4	5.26	8.41	2.98	18	0.38	3.00	2.92	29.57	29.54	6.50	7.40	P-CB 1.91-CB 1.
54	2	122.0	0.38	0.75	0.72	0.27	0.54	6.0	7.8	6.8	3.71	9.65	4.70	18	0.50	1.81	1.20	2.54	1.84	8.30	8.50	P-CB 1.02-CB 1.
55	54	122.4	0.37	0.37	0.73	0.27	0.27	6.0	6.0	7.4	1.99	9.64	2.54	18	0.50	2.42	1.81	2.96	2.81	8.30	8.30	P-CB 1.80-CB 1.
56	4	100.4	0.43	3.77	0.30	0.13	1.49	6.0	20.4	4.6	6.79	9.63	3.84	18	0.50	-0.50	-1.00	3.10	2.86	7.50	7.80	P-CB 1.03-CB 1.
57	56	94.7	0.62	3.34	0.60	0.37	1.36	6.0	20.1	4.6	6.25	9.62	3.54	18	0.50	-0.03	-0.50	3.50	3.30	7.90	7.50	P-CB 1.82-CB 1.
58	57	208.9	0.92	2.14	0.30	0.28	0.64	6.0	18.6	4.8	3.06	9.63	1.73	18	0.50	1.01	-0.03	4.04	3.94	6.70	7.90	P-CB 1.83-CB 1.
59	58	183.3	0.52	0.77	0.30	0.16	0.23	6.0	15.3	5.2	1.21	9.67	0.68	18	0.50	1.93	1.01	4.17	4.15	6.70	6.70	P-CB 1.84-CB 1.
60	57	174.1	0.58	0.58	0.60	0.35	0.35	6.0	6.0	7.4	2.57	9.65	1.45	18	0.50	2.37	1.50	4.01	3.95	7.90	7.90	P-CB 1.83-CB 1.
61	58	172.1	0.45	0.45	0.30	0.14	0.14	6.0	6.0	7.4	1.00	9.65	0.56	18	0.50	2.36	1.50	4.16	4.15	6.70	6.70	P-CB 1.84-CB 1.
62	59	175.0	0.25	0.25	0.30	0.08	0.08	6.0	6.0	7.4	0.55	9.68	0.32	18	0.50	2.81	1.93	4.18	4.18	6.70	6.70	P-CB 1.85-CB 1.

NMS Run 1 Number of lines: 62 Run Date: 10-17-2006

NOTES: Intensity = 63.01 / (Inlet time + 10.40) ^ 0.77; Return period = 25 Yrs.

# Hydraulic Plan View



4508560 Run 2

No. Lines: 81

10-17-2006

# Station Sewer Inventory Report

Line No.	Alignment			Flow Data			Physical Data							Line ID			
	Dnstr line No.	Line length (ft)	Defl angle (deg)	Junc type	Known Q (cfs)	Drng area (ac)	Runoff coeff (C)	Inlet time (min)	Invert El Dn (ft)	Line slope (%)	Invert El Up (ft)	Line size (in)	Line type		N value (n)	J-loss coeff (K)	Inlet/ Rim El (ft)
1	End	156.3	14.2	Grate	0.00	0.37	0.75	6.0	-11.68	2.53	-7.72	54	Cir	0.013	0.70	8.30	E-Outlet-CB 2-01
2	1	56.5	91.1	MH	0.00	0.00	0.00	0.0	-7.72	0.60	-7.38	54	Cir	0.010	1.00	8.50	P-CB 2.01-CB 2.02
3	2	131.3	-89.3	Grate	0.00	0.43	0.35	6.0	-7.38	0.60	-6.59	54	Cir	0.010	1.50	7.20	P-CB 2.02-CB 2.03
4	3	137.6	-0.3	MH	0.00	0.00	0.00	0.0	-6.59	0.60	-5.76	54	Cir	0.010	0.15	10.20	P-CB 2.03-CB 2.04
5	4	63.9	-90.1	Grate	0.00	0.82	0.63	6.0	-5.76	0.50	-5.44	54	Cir	0.010	1.50	7.90	P-CB 2.04-CB 2.05
6	5	205.1	88.6	Grate	0.00	0.93	0.51	6.0	-5.44	0.40	-4.61	54	Cir	0.013	1.50	6.70	E-CB 2.05-CB 2.06
7	6	185.1	-2.8	Grate	0.00	0.43	0.45	6.0	-4.61	0.38	-3.90	54	Cir	0.013	0.50	6.70	E-CB 2.06-CB 2.07
8	7	106.0	0.6	Grate	0.00	1.23	0.86	6.0	-3.90	0.36	-3.52	48	Cir	0.013	0.50	5.11	E-CB 2.07-CB 2.08
9	8	184.8	-0.2	Grate	0.00	1.18	0.91	6.0	-3.49	0.36	-2.82	48	Cir	0.013	0.50	5.59	E-CB 2.08-CB 2.09
10	9	143.9	12.3	Grate	0.00	0.17	0.95	6.0	-2.82	0.10	-2.68	48	Cir	0.013	0.70	6.50	E-CB 2.09-CB 2.10
11	10	35.7	-18.1	Grate	0.00	0.54	0.87	6.0	-2.68	0.56	-2.48	48	Cir	0.010	0.70	7.00	P-CB 2.10-CB 2.11
12	11	62.3	34.6	Grate	0.00	0.39	0.79	6.0	-2.48	0.74	-2.02	48	Cir	0.010	1.10	7.00	P-CB 2.11-CB 2.12
13	12	113.9	21.2	Grate	0.00	2.12	0.95	6.0	-2.02	-0.25	-2.31	48	Cir	0.013	0.70	6.11	E-CB 2.12-CB 2.13
14	13	341.7	-108.1	Grate	0.00	1.97	0.95	6.0	-1.64	0.35	-0.46	36	Cir	0.013	1.50	6.50	E-CB 2.13-CB 2.14
15	14	212.4	77.5	Grate	0.00	1.39	0.95	6.0	-0.46	0.38	0.35	30	Cir	0.013	1.50	6.54	E-CB 2.14-CB 2.15
16	15	154.5	24.9	Grate	0.00	0.00	0.00	6.0	0.33	0.36	0.89	30	Cir	0.013	0.70	6.60	E-CB 2.15-CB 2.16
17	16	50.8	-81.9	Grate	0.00	2.28	0.95	6.0	0.89	0.47	1.13	30	Cir	0.010	1.50	5.80	P-CB 2.16-CB 2.17
18	17	289.3	35.9	Grate	0.00	0.28	0.77	6.0	1.13	0.50	2.59	18	Cir	0.010	1.10	7.50	P-CB 2.17-CB 2.18
19	18	47.5	-2.3	Grate	0.00	0.28	0.80	6.0	2.59	0.51	2.83	18	Cir	0.010	0.50	7.50	P-CB 2.18-CB 2.19
20	19	21.7	-0.6	Grate	0.00	0.50	0.95	6.0	2.83	0.51	2.94	18	Cir	0.010	0.50	8.20	P-CB 2.19-CB 2.20
21	3	74.2	88.1	Grate	0.00	0.40	0.79	6.0	-6.00	0.62	-5.54	30	Cir	0.010	1.50	5.30	P-CB 2.03-CB 2.30

4508560 Run 2

Number of lines: 81

Date: 10-17-2006

# Stn Sewer Inventory Report

Line No.	Alignment			Flow Data			Physical Data						Line ID				
	Dnstr line No.	Line length (ft)	Defl angle (deg)	Junc type	Known Q (cfs)	Drrg area (ac)	Runoff coeff (C)	Inlet time (min)	Invert EI Dn (ft)	Line slope (%)	Invert EI Up (ft)	Line size (in)		Line type	N value (n)	J-loss coeff (K)	Inlet/ Rim EI (ft)
22	21	169.1	1.5	Grate	0.00	0.25	0.74	6.0	-5.54	0.49	-4.71	30	Cir	0.010	0.50	5.30	P-CB 2.30-CB 2.31
23	22	33.5	-0.5	Grate	0.00	0.16	0.65	6.0	-4.71	0.51	-4.54	30	Cir	0.010	0.50	5.30	P-CB 2.31-CB 2.32
24	23	126.6	-80.9	Grate	0.00	0.24	0.84	6.0	-4.54	0.51	-3.90	30	Cir	0.010	1.50	6.30	P-CB 2.32-CB 2.33
25	24	34.6	-0.6	Grate	0.00	0.57	0.84	6.0	-3.90	0.46	-3.74	30	Cir	0.010	0.50	6.00	P-CB 2.33-CB 2.34
26	25	158.3	-8.0	Grate	0.00	0.42	0.69	6.0	-2.75	0.50	-1.96	30	Cir	0.010	0.50	7.00	P-CB 2.34-CB 2.35
27	26	54.0	-0.3	Grate	0.00	0.28	0.75	6.0	-1.96	0.50	-1.69	24	Cir	0.010	0.50	7.00	P-CB 2.35-CB 2.36
28	27	131.0	0.2	Grate	0.00	0.14	0.70	6.0	-1.69	0.50	-1.03	18	Cir	0.010	0.50	7.50	P-CB 2.36-CB 2.37
29	28	18.4	0.9	Grate	0.00	0.10	0.85	6.0	-1.03	0.49	-0.94	18	Cir	0.010	0.50	7.00	P-CB 2.37-CB 2.38
30	29	26.2	-2.1	Grate	0.00	0.20	0.79	6.0	2.00	0.50	2.13	18	Cir	0.010	0.50	7.00	P-CB 2.38-CB 2.39
31	25	12.0	81.1	Grate	0.00	0.25	0.85	6.0	-3.00	0.50	-2.94	24	Cir	0.010	1.50	6.00	P-CB 2.34-CB 2.50
32	31	70.5	0.1	Grate	0.00	0.14	0.57	6.0	-2.94	0.50	-2.59	24	Cir	0.010	0.50	7.20	P-CB 2.50-CB 2.51
33	32	79.4	-89.5	Grate	0.00	0.11	0.62	6.0	-2.60	0.50	-2.20	24	Cir	0.010	1.50	7.20	P-CB 2.51-CB 2.52
34	33	78.7	0.3	Grate	0.00	0.13	0.64	6.0	-2.20	0.50	-1.81	24	Cir	0.010	0.50	7.20	P-CB 2.52-CB 2.53
35	34	56.6	-1.9	Grate	0.00	0.16	0.65	6.0	-1.74	0.35	-1.54	24	Cir	0.010	0.50	7.20	P-CB 2.53-CB 2.54
36	35	130.9	1.7	Grate	0.00	0.11	0.68	6.0	-1.54	0.50	-0.89	24	Cir	0.010	0.50	8.00	P-CB 2.54-CB 2.55
37	36	58.7	-10.3	Grate	0.00	0.22	0.84	6.0	-0.89	0.49	-0.60	24	Cir	0.010	0.50	8.00	P-CB 2.55-CB 2.56
38	37	158.2	6.5	Grate	0.00	0.22	0.83	6.0	-0.60	0.50	0.19	15	Cir	0.010	0.50	11.80	P-CB 2.56-CB 2.57
39	38	149.9	-62.5	Grate	0.00	0.13	0.89	6.0	0.19	0.50	0.94	15	Cir	0.010	1.25	10.80	P-CB 2.57-CB 2.58
40	39	121.7	0.1	Grate	0.00	0.29	0.85	6.0	0.94	0.50	1.55	15	Cir	0.010	0.50	7.50	P-CB 2.58-CB 2.59
41	40	30.7	-20.8	Grate	0.00	0.14	0.69	6.0	1.55	0.49	1.70	15	Cir	0.010	0.70	7.50	P-CB 2.59-CB 2.60
42	21	14.0	90.0	Grate	0.00	0.36	0.58	6.0	0.75	0.50	0.82	18	Cir	0.010	1.50	5.30	P-CB 2.30-CB 2.70

4508560 Run 2

Number of lines: 81

Date: 10-17-2006

# Stc n Sewer Inventory Report

Line No.	Alignment				Flow Data				Physical Data							Line ID	
	Dnstr line No.	Line length (ft)	Defl angle (deg)	Junc type	Known Q (cfs)	Dmg area (ac)	Runoff coeff (C)	Inlet time (min)	Invert EI Dn (ft)	Line slope (%)	Invert EI Up (ft)	Line size (In)	Line type	N value (n)	J-loss coeff (K)		Inlet/ Rim EI (ft)
43	22	12.8	90.0	Grate	0.00	0.36	0.56	6.0	0.75	0.47	0.81	18	Cir	0.010	1.50	5.30	P-CB 2.31-CB2.71
44	23	37.0	-14.1	Grate	0.00	0.82	0.30	6.0	1.50	0.51	1.69	18	Cir	0.010	0.70	6.55	P-CB 2.32-CB 2.72
45	26	12.6	90.4	Grate	0.00	0.12	0.82	6.0	1.50	0.48	1.56	18	Cir	0.010	1.50	6.60	P-CB 2.35-CB 2.73
46	27	12.6	89.5	Grate	0.00	0.17	0.84	6.0	1.50	0.48	1.56	18	Cir	0.010	1.50	6.60	P-CB 2.36-CB 2.74
47	28	12.7	88.0	Grate	0.00	0.12	0.81	6.0	1.50	0.47	1.56	18	Cir	0.010	1.50	7.10	P-CB 2.37-CB 2.75
48	37	19.5	-75.5	Grate	0.00	0.21	0.87	6.0	2.50	0.51	2.60	18	Cir	0.010	1.50	8.00	P-CB 2.57-CB 2.76
49	48	83.5	17.9	Grate	0.00	0.29	0.89	6.0	2.60	0.50	3.02	18	Cir	0.010	0.70	8.50	P-CB 2.76-CB 2.77
50	27	95.7	-82.3	Grate	0.00	0.30	0.74	6.0	-1.69	0.50	-1.21	24	Cir	0.010	1.50	9.00	P-CB 2.37-CB 2.80
51	50	111.0	82.6	Grate	0.00	0.30	0.75	6.0	-1.21	0.50	-0.66	18	Cir	0.010	1.50	9.20	P-CB 2.80-CB 2.81
52	51	54.2	-0.5	Grate	0.00	0.06	0.56	6.0	-0.66	0.50	-0.39	18	Cir	0.010	0.50	9.00	P-CB 2.81-CB 2.82
53	52	158.5	-81.4	Grate	0.00	0.64	0.58	6.0	-0.39	0.50	0.40	18	Cir	0.010	0.50	5.50	P-CB 2.82-CB 2.83
54	53	104.3	101.8	Grate	0.00	0.49	0.87	6.0	2.00	0.50	2.52	18	Cir	0.010	1.50	7.50	P-CB 2.83-CB 2.84
55	54	23.8	-50.0	Grate	0.00	0.26	0.93	6.0	2.52	0.50	2.64	18	Cir	0.010	1.10	7.50	P-CB 2.84-CB 2.85
56	1	141.6	-87.9	Grate	0.00	0.32	0.74	6.0	1.50	0.50	2.21	18	Cir	0.010	1.50	8.30	P-CB 2.01-CB 2.90
57	5	138.0	-1.1	Grate	0.00	0.52	0.60	6.0	1.50	0.50	2.19	18	Cir	0.010	0.50	7.90	P-CB 2.05-CB 2.91
58	6	138.3	-88.6	Grate	0.00	0.42	0.30	6.0	1.50	0.50	2.19	18	Cir	0.010	1.50	6.70	P-CB 2.06-CB 2.92
59	7	128.4	-86.1	Grate	0.00	0.23	0.30	6.0	1.50	0.50	2.14	18	Cir	0.010	1.50	6.70	P-CB 2.07-CB 2.93
60	11	115.5	-58.9	Grate	0.00	0.06	0.95	6.0	-1.00	0.50	-0.42	30	Cir	0.010	1.25	6.85	P-CB 2.11-CB 2.94
61	60	96.4	-1.5	Grate	0.00	0.15	0.95	6.0	-0.42	0.50	0.06	30	Cir	0.010	0.50	7.80	P-CB 2.94-CB 2.95
62	61	95.4	1.0	Grate	0.00	0.18	0.93	6.0	0.06	0.50	0.54	30	Cir	0.010	0.50	7.80	P-CB 2.95-CB 2.96
63	60	66.0	70.2	Grate	0.00	0.33	0.79	6.0	-0.42	0.50	-0.09	18	Cir	0.013	1.25	6.97	P-CB 2.94-CB 2.97
4508560 Run 2													Number of lines: 81			Date: 10-17-2006	

# Stc n Sewer Inventory Report

Line No.	Alignment			Flow Data			Physical Data							Line ID			
	Dnstr line No.	Line length (ft)	Defl angle (deg)	Junc type	Known Q (cfs)	Drng area (ac)	Runoff coeff (C)	Inlet time (min)	Invert EI Dn (ft)	Line slope (%)	Invert EI Up (ft)	Line size (in)	Line type		N value (n)	J-loss coeff (K)	Inlet/ Rim EI (ft)
64	60	31.1	-88.2	Grate	0.00	0.04	0.95	6.0	-0.42	0.51	-0.26	18	Cir	0.010	1.50	7.80	P-CB 2.94-CB 2.98
65	61	31.1	-88.7	Grate	0.00	0.10	0.95	6.0	0.06	0.51	0.22	18	Cir	0.010	1.50	6.55	P-CB 2.95-CB 2.99
66	62	31.2	-89.4	Grate	0.00	0.16	0.95	6.0	0.54	0.51	0.70	18	Cir	0.010	1.50	7.70	P-CB 2.96-CB 2.100
67	13	179.8	-12.8	Grate	0.00	0.00	0.00	6.0	-1.24	0.47	-0.40	36	Cir	0.013	0.70	8.00	E-CB 2.13-CB 2.105
68	67	128.3	0.0	Grate	0.00	1.74	0.95	6.0	-0.40	0.48	0.21	36	Cir	0.013	0.50	6.54	E-CB 2.105-CB 2.10
69	68	214.0	-9.9	Grate	0.00	1.58	0.95	6.0	0.27	0.00	0.26	36	Cir	0.013	0.50	6.23	E-CB 2.106-CB 2.10
70	69	179.3	-11.6	Grate	0.00	2.11	0.95	6.0	0.31	1.00	2.10	30	Cir	0.013	0.70	6.83	E-CB 2.107-CB 2.10
71	67	109.0	90.0	Grate	0.00	1.30	0.95	6.0	0.85	0.50	1.40	24	Cir	0.010	1.50	7.80	P-CB 2.105-CB 2.11
72	68	365.3	73.3	Grate	0.00	1.79	0.95	6.0	0.41	0.29	1.48	24	Cir	0.013	1.25	6.36	E-CB 2.105-CB 2.11
73	72	150.0	-94.9	Grate	0.00	1.68	0.95	6.0	1.66	0.71	2.73	18	Cir	0.013	1.50	5.38	E-CB 2.111-CB 2.11
74	68	254.9	-74.8	Grate	0.00	0.89	0.95	6.0	0.48	0.30	1.24	30	Cir	0.010	1.50	5.90	P-CB 2.105-CB 2.11
75	74	198.0	63.2	Grate	0.00	1.41	0.95	6.0	1.24	0.30	1.83	24	Cir	0.010	1.25	5.90	P-CB 2.113-CB 2.11
76	69	292.8	52.7	Grate	0.00	0.33	0.95	6.0	1.66	0.53	3.20	15	Cir	0.013	1.10	6.50	E-CB 2.107-CB 2.11
77	15	190.0	-41.2	Grate	0.00	0.00	0.00	6.0	0.35	0.30	0.92	30	Cir	0.013	1.10	8.20	P-CB 2.15-CB 2.120
78	77	186.9	0.0	Grate	0.00	0.27	0.95	6.0	0.92	0.30	1.48	30	Cir	0.010	0.50	9.50	P-CB 2.120-CB 2.12
79	78	164.0	-38.1	Grate	0.00	0.26	0.73	6.0	1.48	0.30	1.98	30	Cir	0.010	1.10	7.65	P-CB 2.121-CB 2.12
80	79	48.4	61.9	Grate	0.00	0.28	0.79	6.0	1.98	0.31	2.13	30	Cir	0.010	1.25	7.65	P-CB 2.122-CB 2.12
81	80	139.3	-43.4	Grate	0.00	2.35	0.95	6.0	2.13	0.30	2.55	30	Cir	0.010	1.10	7.10	P-CB 2.123-CB 2.12

4508560 Run 2

Number of lines: 81

Date: 10-17-2006

# Stor Sewer Tabulation

Station Line	Len (ft)	Drng Area (ac)		Rnoff coeff (C)	Area x C		Tc (min)		Rain (l) (in/hr)	Total flow (cfs)	Cap full (cfs)	Vel (ft/s)	Pipe		Invert Elev (ft)		HGL Elev (ft)		Grnd / Rim Elev (ft)		Line ID	
		Incr	Total		Inlet	Syst	Incr	Slope (%)					Up	Dn	Up	Dn	Up	Dn				
1	End	156.3	0.37	42.97	0.75	0.28	36.25	6.0	15.9	5.1	186.1	313.1	12.55	54	2.53	-7.72	-11.68	-3.77	-7.70	8.30	0.00	E-Outfall-CB 2-01
2	1	56.5	0.00	42.28	0.00	0.00	35.73	0.0	15.8	5.1	184.0	198.4	11.90	54	0.60	-7.38	-7.72	-3.28	-3.39	8.50	8.30	P-CB 2.01-CB 2.
3	2	131.3	0.43	42.28	0.35	0.15	35.73	6.0	15.6	5.2	185.2	198.3	11.65	54	0.60	-6.59	-7.38	-0.15	-0.84	7.20	8.50	P-CB 2.02-CB 2.
4	3	137.6	0.00	32.69	0.00	0.00	29.05	0.0	15.3	5.2	151.9	198.6	9.55	54	0.60	-5.76	-6.59	4.19	3.70	10.20	7.20	P-CB 2.03-CB 2.
5	4	63.9	0.82	32.69	0.63	0.52	29.05	6.0	15.2	5.2	152.5	180.9	9.59	54	0.50	-5.44	-5.76	4.63	4.40	7.90	10.20	P-CB 2.04-CB 2.
6	5	205.1	0.93	31.35	0.51	0.47	28.22	6.0	14.8	5.3	150.0	125.1	9.43	54	0.40	-4.61	-5.44	8.01	6.82	6.70	7.90	E-CB 2.05-CB 2.
7	6	185.1	0.43	30.00	0.45	0.19	27.62	6.0	14.4	5.4	148.5	121.8	9.34	54	0.38	-3.90	-4.61	11.17	10.11	6.70	6.70	E-CB 2.06-CB 2.
8	7	106.0	1.23	29.34	0.86	1.06	27.36	6.0	14.2	5.4	147.9	86.01	11.77	48	0.36	-3.52	-3.90	12.97	11.85	5.11	6.70	E-CB 2.07-CB 2.
9	8	184.8	1.18	28.11	0.91	1.07	26.30	6.0	13.9	5.5	143.5	86.49	11.42	48	0.36	-2.82	-3.49	16.02	14.17	5.59	5.11	E-CB 2.08-CB 2.
10	9	143.9	0.17	26.93	0.95	0.16	25.23	6.0	13.7	5.5	138.6	44.81	11.03	48	0.10	-2.68	-2.82	18.51	17.17	6.50	5.59	E-CB 2.09-CB 2.
11	10	35.7	0.54	26.76	0.87	0.47	25.07	6.0	13.7	5.5	138.0	139.7	10.98	48	0.56	-2.48	-2.68	20.04	19.85	7.00	6.50	P-CB 2.10-CB 2.
12	11	62.3	0.39	25.20	0.79	0.31	23.68	6.0	10.6	6.1	144.5	160.5	11.50	48	0.74	-2.02	-2.48	21.73	21.36	7.00	7.00	P-CB 2.11-CB 2.
13	12	113.9	2.12	24.81	0.95	2.01	23.38	6.0	10.4	6.1	143.7	0.00	11.43	48	-0.25	-2.31	-2.02	25.16	24.02	6.11	7.00	E-CB 2.12-CB 2.
14	13	341.7	1.97	9.86	0.95	1.87	9.17	6.0	9.7	6.3	58.00	39.19	8.21	36	0.35	-0.46	-1.64	30.15	27.56	6.50	6.11	E-CB 2.13-CB 2.
15	14	212.4	1.39	7.89	0.95	1.32	7.30	6.0	9.3	6.4	46.87	25.33	9.55	30	0.38	0.35	-0.46	34.49	31.72	6.54	6.50	E-CB 2.14-CB 2.
16	15	154.5	0.00	3.34	0.00	0.00	3.08	6.0	7.9	6.8	20.87	24.69	4.25	30	0.36	0.89	0.33	38.16	37.76	6.60	6.54	E-CB 2.15-CB 2.
17	16	50.8	2.28	3.34	0.95	2.17	3.08	6.0	7.7	6.8	21.05	36.64	4.29	30	0.47	1.13	0.89	38.43	38.35	5.80	6.60	P-CB 2.16-CB 2.
18	17	289.3	0.28	1.06	0.77	0.22	0.91	6.0	6.5	7.2	6.61	9.70	3.74	18	0.50	2.59	1.13	39.61	38.93	7.50	5.80	P-CB 2.17-CB 2.
19	18	47.5	0.28	0.78	0.80	0.22	0.70	6.0	6.2	7.3	5.12	9.71	2.90	18	0.51	2.83	2.59	40.00	39.94	7.50	7.50	P-CB 2.18-CB 2.
20	19	21.7	0.50	0.50	0.95	0.48	0.48	6.0	6.0	7.4	3.51	9.72	1.98	18	0.51	2.94	2.83	40.15	40.14	8.20	7.50	P-CB 2.19-CB 2.
21	3	74.2	0.40	9.16	0.79	0.32	6.53	6.0	13.3	5.6	36.32	41.97	7.40	30	0.62	-5.54	-6.00	4.61	4.27	5.30	7.20	P-CB 2.03-CB 2.

**4508560 Run 2** Number of lines: 81 Run Date: 10-17-2006

NOTES: Intensity = 63.01 / (Inlet time + 10.40) ^ 0.77; Return period = 25 Yrs.

# Stor Sewer Tabulation

Station Line	Len (ft)	Drng Area (ac)		Rnoff coeff (C)	Area x C		Tc (min)		Rain (l) (in/hr)	Total flow (cfs)	Cap full (cfs)	Vel (ft/s)	Pipe		Invert Elev (ft)		HGL Elev (ft)		Grnd / Rim Elev (ft)		Line ID
		Incr	Total		Inlet	Syst	Size (in)	Slope (%)					Up	Dn	Up	Dn	Up	Dn	Up	Dn	
22	21	169.1	0.25	8.40	0.74	0.19	6.01	6.0	12.9	5.6	33.86	6.90	30	0.49	-4.71	-5.54	6.68	6.00	5.30	5.30	P-CB 2.30-CB 2.
23	22	33.5	0.16	7.79	0.65	0.10	5.62	6.0	12.8	5.7	31.77	6.47	30	0.51	-4.54	-4.71	7.26	7.14	5.30	5.30	P-CB 2.31-CB 2.
24	23	126.6	0.24	6.81	0.84	0.20	5.27	6.0	12.5	5.7	30.14	6.14	30	0.51	-3.90	-4.54	8.06	7.65	5.30	5.30	P-CB 2.32-CB 2.
25	24	34.6	0.57	6.57	0.84	0.48	5.07	6.0	12.4	5.7	29.08	5.92	30	0.46	-3.74	-3.90	9.08	8.98	6.00	6.30	P-CB 2.33-CB 2.
26	25	158.3	0.42	3.60	0.69	0.29	2.70	6.0	9.0	6.5	17.56	3.58	30	0.50	-1.96	-2.75	9.87	9.70	7.00	6.00	P-CB 2.34-CB 2.
27	26	54.0	0.28	3.06	0.75	0.21	2.31	6.0	8.8	6.6	15.15	4.82	24	0.50	-1.69	-1.96	10.11	9.97	7.00	7.00	P-CB 2.35-CB 2.
28	27	131.0	0.14	0.56	0.70	0.10	0.44	6.0	7.0	7.1	3.10	1.75	18	0.50	-1.03	-1.69	10.68	10.61	7.50	7.00	P-CB 2.36-CB 2.
29	28	18.4	0.10	0.30	0.85	0.09	0.24	6.0	6.7	7.2	1.74	0.99	18	0.49	-0.94	-1.03	10.73	10.73	7.00	7.50	P-CB 2.37-CB 2.
30	29	26.2	0.20	0.20	0.79	0.16	0.16	6.0	6.0	7.4	1.17	0.66	18	0.50	2.13	2.00	10.75	10.75	7.00	7.00	P-CB 2.38-CB 2.
31	25	12.0	0.25	2.40	0.85	0.21	1.89	6.0	12.3	5.7	10.86	3.46	24	0.50	-2.94	-3.00	9.73	9.71	6.00	6.00	P-CB 2.34-CB 2.
32	31	70.5	0.14	2.15	0.57	0.08	1.68	6.0	12.0	5.8	9.77	3.11	24	0.50	-2.59	-2.94	10.12	10.04	7.20	6.00	P-CB 2.50-CB 2.
33	32	79.4	0.11	2.01	0.62	0.07	1.60	6.0	11.5	5.9	9.44	3.01	24	0.50	-2.20	-2.60	10.29	10.21	7.20	7.20	P-CB 2.51-CB 2.
34	33	78.7	0.13	1.90	0.64	0.08	1.53	6.0	11.1	6.0	9.18	2.92	24	0.50	-1.81	-2.20	10.58	10.51	7.20	7.20	P-CB 2.52-CB 2.
35	34	56.6	0.16	1.77	0.65	0.10	1.45	6.0	10.7	6.1	8.79	2.80	24	0.35	-1.54	-1.74	10.71	10.66	7.20	7.20	P-CB 2.53-CB 2.
36	35	130.9	0.11	1.61	0.68	0.07	1.34	6.0	9.9	6.3	8.40	2.67	24	0.50	-0.89	-1.54	10.89	10.78	8.00	7.20	P-CB 2.54-CB 2.
37	36	58.7	0.22	1.50	0.84	0.18	1.27	6.0	9.6	6.3	8.04	2.56	24	0.49	-0.60	-0.89	11.00	10.95	8.00	8.00	P-CB 2.55-CB 2.
38	37	158.2	0.22	0.78	0.83	0.18	0.64	6.0	8.8	6.5	4.19	3.42	15	0.50	0.19	-0.60	11.44	11.05	11.80	8.00	P-CB 2.56-CB 2.
39	38	149.9	0.13	0.56	0.89	0.12	0.46	6.0	7.9	6.8	3.12	2.54	15	0.50	0.94	0.19	11.82	11.61	10.80	11.80	P-CB 2.57-CB 2.
40	39	121.7	0.29	0.43	0.85	0.25	0.34	6.0	6.9	7.1	2.43	1.98	15	0.50	1.55	0.94	12.09	11.99	7.50	10.80	P-CB 2.58-CB 2.
41	40	30.7	0.14	0.14	0.69	0.10	0.10	6.0	6.0	7.4	0.71	0.58	15	0.49	1.70	1.55	12.18	12.18	7.50	7.50	P-CB 2.59-CB 2.
42	21	14.0	0.36	0.36	0.58	0.21	0.21	6.0	6.0	7.4	1.54	0.87	18	0.50	0.82	0.75	6.73	6.73	5.30	5.30	P-CB 2.30-CB 2.

**4508560 Run 2** Number of lines: 81 Run Date: 10-17-2006

NOTES: Intensity = 63.01 / (Inlet time + 10.40) ^ 0.77; Return period = 25 Yrs.

# Stor Sewer Tabulation

Station	Len (ft)	Drng Area (ac)		Rnoff coeff (C)	Area x C		Tc (min)		Rain (l) (in/hr)	Total flow (cfs)	Cap full (cfs)	Vel (ft/s)	Pipe		Invert Elev		HGL Elev		Grnd / Rim Elev		Line ID
		Incr	Total		Inlet	Syst	Size (in)	Slope (%)					Up (ft)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	Dn (ft)	
43	22	0.36	0.36	0.56	0.20	0.20	6.0	6.0	7.4	1.49	9.36	0.84	0.47	0.81	0.75	7.78	7.78	5.30	5.30	P-CB 2.31-CB2.7	
44	23	0.82	0.82	0.30	0.25	0.25	6.0	6.0	7.4	1.82	9.78	1.03	0.51	1.69	1.50	8.23	8.23	5.30	5.30	P-CB 2.32-CB 2.	
45	26	0.12	0.12	0.82	0.10	0.10	6.0	6.0	7.4	0.73	9.41	0.41	0.48	1.56	1.50	10.17	10.17	7.00	7.00	P-CB 2.35-CB 2.	
46	27	0.17	0.17	0.84	0.14	0.14	6.0	6.0	7.4	1.05	9.43	0.60	0.48	1.56	1.50	10.65	10.65	7.00	7.00	P-CB 2.36-CB 2.	
47	28	0.12	0.12	0.81	0.10	0.10	6.0	6.0	7.4	0.72	9.38	0.41	0.47	1.56	1.50	10.74	10.74	7.50	7.50	P-CB 2.37-CB 2.	
48	37	0.21	0.50	0.87	0.18	0.44	6.0	7.3	7.0	3.07	9.78	1.74	0.51	2.60	2.50	11.11	11.10	8.00	8.00	P-CB 2.57-CB 2.	
49	48	0.29	0.29	0.89	0.26	0.26	6.0	6.0	7.4	1.91	9.68	1.08	0.50	3.02	2.60	11.23	11.21	8.50	8.00	P-CB 2.76-CB 2.	
50	27	0.30	2.05	0.74	0.22	1.52	6.0	8.2	6.7	10.17	20.83	3.24	0.50	-1.21	-1.69	10.61	10.49	9.00	7.00	P-CB 2.37-CB 2.	
51	50	0.30	1.75	0.75	0.23	1.30	6.0	7.9	6.8	8.82	9.61	4.99	0.50	-0.66	-1.21	11.32	10.85	9.20	9.00	P-CB 2.80-CB 2.	
52	51	0.06	1.45	0.56	0.03	1.07	6.0	7.7	6.9	7.36	9.63	4.17	0.50	-0.39	-0.66	12.17	12.01	9.00	9.20	P-CB 2.81-CB 2.	
53	52	0.64	1.39	0.58	0.37	1.04	6.0	7.0	7.0	7.33	9.64	4.15	0.50	0.40	-0.39	12.77	12.31	9.00	9.00	P-CB 2.82-CB 2.	
54	53	0.49	0.75	0.87	0.43	0.67	6.0	6.4	7.3	4.84	9.64	2.74	0.50	2.52	2.00	13.18	13.05	5.50	5.50	P-CB 2.83-CB 2.	
55	54	0.26	0.26	0.93	0.24	0.24	6.0	6.0	7.4	1.79	9.69	1.01	0.50	2.64	2.52	13.46	13.46	7.50	7.50	P-CB 2.84-CB 2.	
56	1	0.32	0.32	0.74	0.24	0.24	6.0	6.0	7.4	1.75	9.67	3.74	0.50	2.21	1.50	2.71	1.93	8.30	8.30	P-CB 2.01-CB 2.	
57	5	0.52	0.52	0.60	0.31	0.31	6.0	6.0	7.4	2.30	9.65	1.30	0.50	2.19	1.50	8.21	8.18	7.90	7.90	P-CB 2.05-CB 2.	
58	6	0.42	0.42	0.30	0.13	0.13	6.0	6.0	7.4	0.93	9.64	0.53	0.50	2.19	1.50	11.47	11.47	6.70	6.70	P-CB 2.06-CB 2.	
59	7	0.23	0.23	0.30	0.07	0.07	6.0	6.0	7.4	0.51	9.64	0.29	0.50	2.14	1.50	13.20	13.20	6.70	6.70	P-CB 2.07-CB 2.	
60	11	0.06	1.02	0.95	0.06	0.91	6.0	12.2	5.8	5.28	37.78	1.08	0.50	-0.42	-1.00	23.22	23.21	7.00	7.00	P-CB 2.11-CB 2.	
61	60	0.15	0.59	0.95	0.14	0.56	6.0	10.2	6.2	3.46	37.62	0.70	0.50	0.06	-0.42	23.26	23.26	6.85	6.85	P-CB 2.94-CB 2.	
62	61	0.18	0.34	0.93	0.17	0.32	6.0	6.8	7.1	2.27	37.82	0.46	0.50	0.54	0.06	23.27	23.27	7.80	7.80	P-CB 2.95-CB 2.	
63	60	0.33	0.33	0.79	0.26	0.26	6.0	6.0	7.4	1.92	7.43	1.09	0.50	-0.09	-0.42	23.27	23.25	6.97	6.85	P-CB 2.94-CB 2.	

4508560 Run 2

Number of lines: 81

Run Date: 10-17-2006

NOTES: Intensity = 63.01 / (Inlet time + 10.40) ^ 0.77; Return period = 25 Yrs.

# Stor Sewer Tabulation

Station	Line	To Line	Len (ft)	Drng Area (ac)		Rnoff coeff (C)	Area x C		Tc (min)		Rain (l) (in/hr)	Total flow (cfs)	Cap full (cfs)	Vel (ft/s)	Pipe		Invert Elev (ft)		HGL Elev (ft)		Grnd / Rim Elev (ft)		Line ID
				Incr	Total		Inlet	Syst	Incr	Total					Size (in)	Slope (%)	Up	Dn	Up	Dn	Up	Dn	
64	60		31.1	0.04	0.04	0.95	0.04	0.04	6.0	6.0	7.4	0.28	9.79	0.16	18	0.51	-0.26	23.26	23.26	7.80	6.85	P-CB 2.94-CB 2.	
65	61		31.1	0.10	0.10	0.95	0.10	0.10	6.0	6.0	7.4	0.70	9.79	0.40	18	0.51	0.22	23.27	23.27	6.55	7.80	P-CB 2.95-CB 2.	
66	62		31.2	0.16	0.16	0.95	0.15	0.15	6.0	6.0	7.4	1.12	9.78	0.64	18	0.51	0.70	23.27	23.27	7.70	7.80	P-CB 2.96-CB 2.	
67	13		179.8	0.00	12.83	0.00	0.00	12.19	6.0	9.8	6.3	76.77	45.58	10.86	36	0.47	-0.40	29.16	26.78	8.00	6.11	E-CB 2.13-CB 2.	
68	67		128.3	1.74	11.53	0.95	1.65	10.95	6.0	9.6	6.4	69.57	45.98	9.84	36	0.48	0.21	32.17	30.77	6.54	8.00	E-CB 2.105-CB 2	
69	68		214.0	1.58	4.02	0.95	1.50	3.82	6.0	8.6	6.6	25.20	0.00	3.57	36	0.00	0.26	34.53	34.23	6.23	6.54	E-CB 2.106-CB 2	
70	69		179.3	2.11	2.11	0.95	2.00	2.00	6.0	6.0	7.4	14.80	40.97	3.02	30	1.00	2.10	34.92	34.69	6.83	6.23	E-CB 2.107-CB 2	
71	67		109.0	1.30	1.24	0.95	1.24	1.24	6.0	6.0	7.4	9.12	20.89	2.90	24	0.50	1.40	32.25	32.15	7.80	8.00	P-CB 2.105-CB 2	
72	68		365.3	1.79	3.47	0.95	1.70	3.30	6.0	6.4	7.3	23.92	12.24	7.62	24	0.29	1.48	37.61	33.52	6.36	6.54	E-CB 2.105-CB 2	
73	72		150.0	1.68	1.68	0.95	1.60	1.60	6.0	6.0	7.4	11.78	8.87	6.67	18	0.71	2.73	40.84	38.95	5.38	6.36	E-CB 2.111-CB 2	
74	68		254.9	0.89	2.30	0.95	0.85	2.19	6.0	7.0	7.0	15.39	29.11	3.13	30	0.30	1.24	34.49	34.27	5.90	6.54	P-CB 2.105-CB 2	
75	74		198.0	1.41	1.34	0.95	1.34	1.34	6.0	6.0	7.4	9.89	16.05	3.15	24	0.30	1.83	34.94	34.72	5.90	5.90	P-CB 2.113-CB 2	
76	69		292.8	0.33	0.33	0.95	0.31	0.31	6.0	6.0	7.4	2.31	4.68	1.89	15	0.53	3.20	35.15	34.78	6.50	6.23	E-CB 2.107-CB 2	
77	15		190.0	0.00	3.16	0.00	0.00	2.90	6.0	8.4	6.6	19.25	22.46	3.92	30	0.30	0.92	38.22	37.80	8.20	6.54	P-CB 2.15-CB 2.	
78	77		186.9	0.27	3.16	0.95	0.26	2.90	6.0	7.6	6.9	19.90	29.19	4.05	30	0.30	1.48	38.74	38.48	9.50	8.20	P-CB 2.120-CB 2	
79	78		164.0	0.26	2.89	0.73	0.19	2.64	6.0	6.9	7.1	18.72	29.44	3.81	30	0.30	1.98	39.10	38.90	7.65	9.50	P-CB 2.121-CB 2	
80	79		48.4	0.28	2.63	0.79	0.22	2.45	6.0	6.7	7.2	17.55	29.67	3.58	30	0.31	2.13	39.43	39.38	7.65	7.65	P-CB 2.122-CB 2	
81	80		139.3	2.35	2.23	0.95	2.23	2.23	6.0	6.0	7.4	16.48	29.27	3.36	30	0.30	2.55	39.83	39.70	7.10	7.65	P-CB 2.123-CB 2	

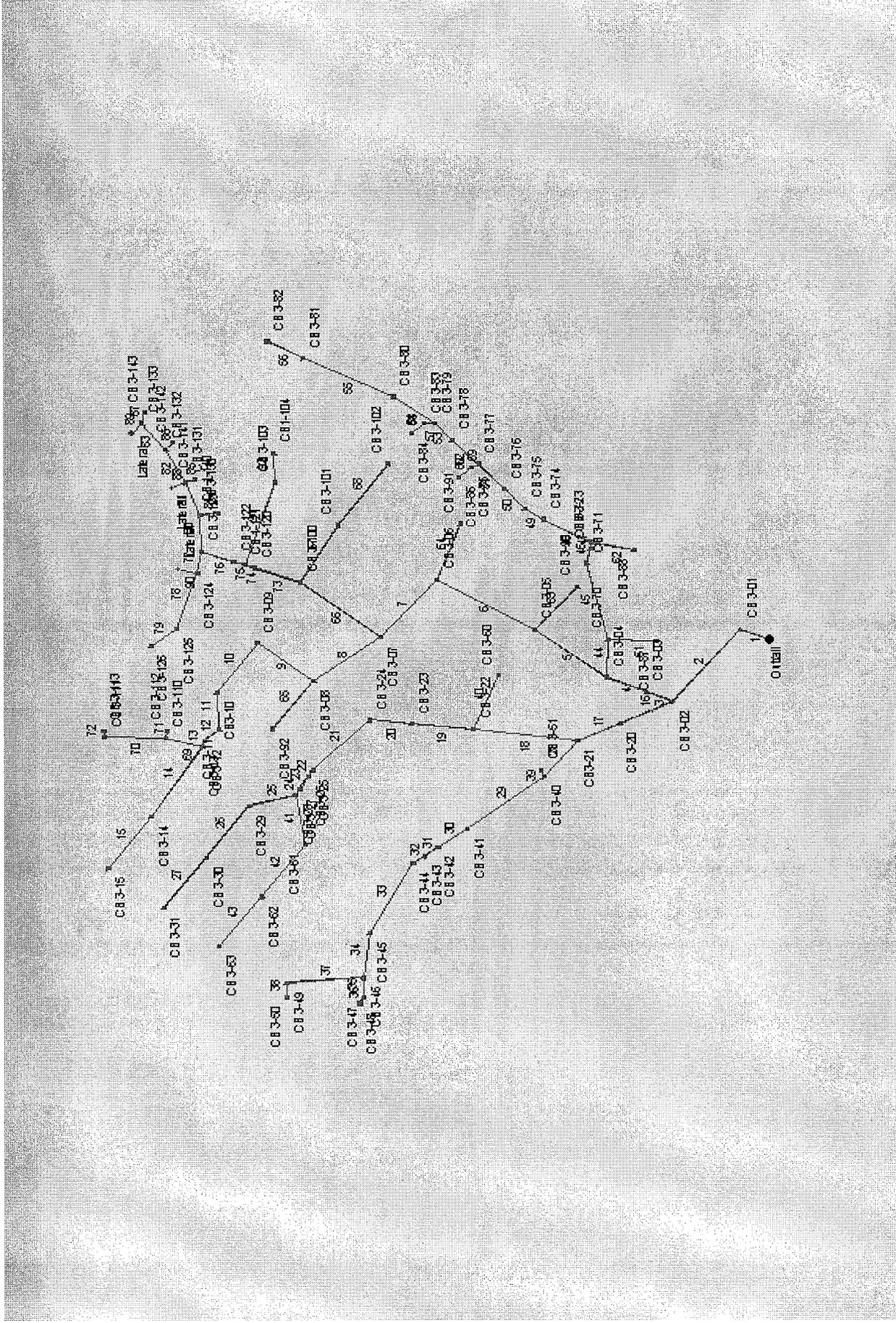
4508560 Run 2

Number of lines: 81

Run Date: 10-17-2006

NOTES: Intensity = 63.01 / (Inlet time + 10.40) ^ 0.77; Return period = 25 Yrs.

# Hydratflow Plan View



# Stc n Sewer Inventory Report

Line No.	Alignment				Flow Data				Physical Data						Line ID		
	Dnstr line No.	Line length (ft)	Defl angle (deg)	Junc type	Known Q (cfs)	Drng area (ac)	Runoff coeff (C)	Inlet time (min)	Invert EI Dn (ft)	Line slope (%)	Invert EI Up (ft)	Line size (in)	Line type	N value (n)		J-loss coeff (K)	Inlet/ Rim EI (ft)
1	End	88.6	-68.6	MH	0.00	0.00	0.00	0.0	-11.21	1.00	-10.32	54	Cir	0.013	1.25	5.95	E-Outfall-MH3.01
2	1	300.8	-70.9	MH	0.00	0.00	0.00	0.0	-10.32	1.79	-4.93	54	Cir	0.013	1.25	6.22	E-MH3.01-MH3.02
3	2	80.1	71.6	MH	0.00	0.00	0.00	0.0	-4.93	0.70	-4.37	54	Cir	0.013	1.25	5.80	E-MH3.02-CB3.03
4	3	124.2	0.0	Grate	0.00	1.49	0.95	6.0	-4.37	0.69	-3.51	54	Cir	0.013	0.50	4.32	E-MH3.03-CB3.04
5	4	256.4	14.3	Grate	0.00	1.62	0.95	6.0	-3.41	0.18	-2.96	54	Cir	0.013	0.70	5.39	E-CB3.04-CB3.05
6	5	322.5	-7.2	Grate	0.00	1.51	0.95	6.0	-2.96	0.47	-1.45	54	Cir	0.013	0.50	7.10	E-CB3.05-CB3.06
7	6	242.1	-77.0	Grate	0.00	1.80	0.95	6.0	-1.45	0.34	-0.62	54	Cir	0.013	1.50	7.30	E-CB3.06-CB3.07
8	7	241.2	12.0	Grate	0.00	0.91	0.95	6.0	-0.62	0.30	0.10	42	Cir	0.010	0.70	7.50	P-CB3.07-CB3.08
9	8	200.4	73.1	Grate	0.00	1.67	0.92	6.0	0.10	0.30	0.70	42	Cir	0.010	1.25	7.50	P-CB3.08-CB3.09
10	9	194.4	-90.8	Grate	0.00	0.89	0.94	6.0	0.70	0.30	1.28	36	Cir	0.010	1.50	7.50	P-CB3.09-CB3.10
11	10	117.4	-39.0	Grate	0.00	0.57	0.81	6.0	1.28	0.30	1.63	36	Cir	0.010	1.10	6.63	P-CB3.10-CB3.11
12	11	53.6	50.3	Grate	0.00	0.22	0.81	6.0	1.63	0.30	1.79	36	Cir	0.010	1.10	6.80	P-CB3.11-CB3.12
13	12	21.6	-25.4	Grate	0.00	0.67	0.95	6.0	1.79	0.28	1.85	36	Cir	0.010	0.70	6.85	P-CB3.12-CB3.13
14	13	265.5	11.4	Grate	0.00	0.98	0.95	6.0	1.85	0.30	2.65	24	Cir	0.010	0.70	6.80	P-CB3.13-CB3.14
15	14	204.7	3.2	Grate	0.00	1.25	0.95	6.0	2.65	0.30	3.26	24	Cir	0.010	0.50	6.90	P-CB3.14-CB3.15
16	2	166.2	25.0	MH	0.00	0.00	0.00	0.0	-4.24	0.47	-3.46	54	Cir	0.013	0.70	5.80	E-MH3.02-MH3.20
17	16	133.8	0.1	Grate	0.00	1.27	0.95	6.0	-3.40	0.99	-2.08	48	Cir	0.013	0.50	4.35	E-CB3.04-CB3.21
18	17	304.0	31.6	Grate	0.00	1.03	0.95	6.0	-2.08	0.39	-0.90	36	Cir	0.013	0.70	6.50	E-CB3.21-CB3.22
19	18	176.3	-1.8	Grate	0.00	0.00	0.00	6.0	-0.90	0.30	-0.37	36	Cir	0.010	0.50	8.50	P-CB3.22-CB3.23
20	19	120.6	0.0	Grate	0.00	1.02	0.95	6.0	-0.37	0.30	-0.01	36	Cir	0.010	0.50	7.50	P-CB3.23-CB3.24
21	20	229.0	-49.0	Grate	0.00	0.54	0.95	6.0	-0.01	0.30	0.68	36	Cir	0.010	1.10	7.10	P-CB3.24-CB3.25

Project File: NMS - Run 3 - 25 YR.stm

Number of lines: 92

Date: 10-17-2006

# Stc n Sewer Inventory Report

Line No.	Alignment				Flow Data				Physical Data							Line ID	
	Dnstr line No.	Line length (ft)	Defl angle (deg)	Junc type	Known Q (cfs)	Drng area (ac)	Runoff coeff (C)	Inlet time (min)	Invert EI Dn (ft)	Line slope (%)	Invert EI Up (ft)	Line size (in)	Line type	N value (n)	J-loss coeff (K)		Inlet/ Rlm EI (ft)
22	21	22.8	-15.3	Grate	0.00	0.24	0.79	6.0	0.68	0.31	0.75	36	Cir	0.010	0.70	6.70	P-CB3.25-CB3.26
23	22	48.0	0.2	Grate	0.00	0.24	0.79	6.0	0.75	0.29	0.89	36	Cir	0.010	0.50	6.70	P-CB3.26-CB3.27
24	23	22.5	-0.2	Grate	0.00	0.16	0.95	6.0	0.89	0.31	0.96	36	Cir	0.010	0.50	6.80	P-CB3.27-CB3.28
25	24	138.1	44.5	Grate	0.00	0.87	0.95	6.0	0.96	0.30	1.37	30	Cir	0.010	1.10	6.80	P-CB3.28-CB3.29
26	25	205.5	-38.5	Grate	0.00	0.91	0.95	6.0	1.37	0.30	1.99	30	Cir	0.010	1.10	6.90	P-CB3.29-CB3.30
27	26	200.0	1.0	Grate	0.00	0.88	0.95	6.0	1.99	0.30	2.59	24	Cir	0.010	0.50	6.90	P-CB3.30-CB3.31
28	17	150.0	-25.0	Grate	0.00	0.00	0.00	6.0	-2.65	0.36	-2.11	36	Cir	0.013	0.70	4.34	E-CB3.21-CB3.40
29	28	275.4	12.5	Grate	0.00	1.54	0.95	6.0	-2.11	0.31	-1.25	36	Cir	0.013	0.70	5.25	E-CB3.40-CB3.41
30	29	102.7	2.4	Grate	0.00	0.25	0.77	6.0	-1.10	0.38	-0.71	30	Cir	0.013	0.50	6.50	E-CB3.41-CB3.42
31	30	46.8	0.3	Grate	0.00	0.24	0.81	6.0	-0.71	0.38	-0.53	30	Cir	0.013	0.50	6.70	E-CB3.42-CB3.43
32	31	41.3	-1.0	Grate	0.00	0.84	0.95	6.0	-0.53	0.39	-0.37	30	Cir	0.013	0.50	5.83	E-CB3.43-CB3.44
33	32	253.2	-25.4	Grate	0.00	2.11	0.95	6.0	-0.27	0.20	0.23	24	Cir	0.013	0.70	6.10	E-CB3.44-CB3.45
34	33	142.5	-22.6	Grate	0.00	0.13	0.81	6.0	0.23	0.50	0.94	24	Cir	0.010	0.70	7.50	P-CB3.45-CB3.46
35	34	62.9	-7.5	Grate	0.00	0.12	0.80	6.0	0.94	0.49	1.25	24	Cir	0.010	0.50	7.50	P-CB3.46-CB3.47
36	35	22.9	35.6	Grate	0.00	0.38	0.95	6.0	1.25	0.48	1.36	24	Cir	0.010	1.10	7.50	P-CB3.47-CB3.48
37	34	222.1	79.2	Grate	0.00	0.23	0.80	6.0	0.94	0.50	2.05	24	Cir	0.010	1.50	7.50	P-CB3.48-CB3.49
38	37	47.3	-86.7	Grate	0.00	0.23	0.78	6.0	2.05	0.51	2.29	24	Cir	0.010	1.50	7.50	P-CB3.49-CB3.50
39	28	22.8	116.3	Grate	0.00	0.87	0.95	6.0	0.50	0.48	0.61	18	Cir	0.010	1.50	4.50	P-CB3.40-CB3.51
40	18	184.1	106.5	Grate	0.00	1.52	0.95	6.0	-0.65	1.19	1.54	15	Cir	0.013	1.50	5.14	E-CB3.21-CB3.60
41	24	159.2	-41.1	Grate	0.00	1.16	0.95	6.0	0.96	0.30	1.44	30	Cir	0.010	1.10	6.80	P-CB3.27-CB3.61
42	41	206.8	47.3	Grate	0.00	0.97	0.95	6.0	1.44	0.30	2.06	30	Cir	0.010	1.10	6.90	P-CB3.61-CB3.62

Project File: NMS - Run 3 - 25 YR.stm

Number of lines: 92

Date: 10-17-2006

# Stn Sewer Inventory Report

Line No.	Alignment			Flow Data				Physical Data						Line ID			
	Dnstr line No.	Line length (ft)	Defl angle (deg)	Junc type	Known Q (cfs)	Dmg area (ac)	Runoff coeff (C)	Inlet time (min)	Invert EI Dn (ft)	Line slope (%)	Invert EI Up (ft)	Line size (in)	Line type		N value (n)	J-loss coeff (K)	Inlet/ Rim EI (ft)
43	42	199.5	0.6	Grate	0.00	1.04	0.95	6.0	2.06	0.30	2.66	24	Cir	0.010	0.50	6.90	P-CB3.62-CB3.63
44	4	120.1	69.6	Grate	0.00	0.00	0.00	6.0	-5.68	0.30	-5.32	48	Cir	0.010	1.25	6.70	P-CB3.04-CB3.70
45	44	247.9	-15.9	Grate	0.00	0.48	0.77	6.0	-5.32	0.50	-4.08	42	Cir	0.010	0.70	8.50	P-CB3.70-CB3.71
46	45	48.0	27.5	Grate	0.00	0.43	0.78	6.0	-4.08	0.50	-3.84	42	Cir	0.010	0.70	8.50	P-CB3.71-CB3.72
47	46	21.4	-6.1	Grate	0.00	1.29	0.95	6.0	-3.84	0.51	-3.73	42	Cir	0.010	0.50	8.50	P-CB3.72-CB3.73
48	47	154.4	-69.5	Grate	0.00	0.14	0.95	6.0	-3.73	0.49	-2.97	36	Cir	0.010	1.25	9.80	P-CB3.73-CB3.74
49	48	65.6	4.3	Grate	0.00	0.12	0.95	6.0	-2.97	0.49	-2.65	36	Cir	0.010	0.50	9.80	P-CB3.74-CB3.75
50	49	84.0	15.8	Grate	0.00	1.39	0.95	6.0	-2.65	0.50	-2.23	36	Cir	0.010	0.70	9.50	P-CB3.75-CB3.76
51	50	109.0	-1.6	Grate	0.00	0.95	0.95	6.0	-2.23	0.50	-1.68	36	Cir	0.010	0.50	8.90	P-CB3.76-CB3.77
52	51	106.4	-1.1	Grate	0.00	0.93	0.95	6.0	-1.68	0.50	-1.15	30	Cir	0.010	0.50	8.20	P-CB3.77-CB3.78
53	52	71.6	1.7	Grate	0.00	1.56	0.95	6.0	-1.15	0.50	-0.79	30	Cir	0.010	0.50	8.00	P-CB3.78-CB3.79
54	53	147.5	-11.8	Grate	0.00	0.34	0.95	6.0	-0.79	0.50	-0.05	24	Cir	0.010	0.70	9.40	P-CB3.79-CB3.80
55	54	285.7	-9.7	Grate	0.00	0.79	0.95	6.0	-0.05	0.50	1.38	24	Cir	0.010	0.50	7.20	P-CB3.80-CB3.81
56	55	116.3	2.1	Grate	0.00	0.95	0.88	6.0	1.38	0.50	1.96	18	Cir	0.010	0.50	5.50	P-CB3.81-CB3.82
57	53	31.0	-45.9	Grate	0.00	0.37	0.75	6.0	1.96	0.52	2.12	30	Cir	0.010	1.10	7.90	P-CB3.79-CB3.83
58	57	48.8	-41.6	Grate	0.00	0.39	0.82	6.0	2.12	0.49	2.36	30	Cir	0.010	1.10	7.90	P-CB3.83-CB3.84
59	51	25.3	-74.5	Grate	0.00	0.25	0.78	6.0	2.00	0.51	2.13	18	Cir	0.010	1.25	8.50	P-CB3.77-CB3.85
60	59	45.9	-14.6	Grate	0.00	0.25	0.77	6.0	2.13	0.50	2.36	18	Cir	0.010	0.70	8.50	P-CB3.85-CB3.86
61	44	138.9	89.9	Grate	0.00	1.50	0.95	6.0	0.95	0.30	1.36	24	Cir	0.010	1.50	6.55	P-CB3.70-CB3.87
62	47	126.2	94.0	Grate	0.00	1.36	0.95	6.0	2.00	0.48	2.61	30	Cir	0.010	1.50	9.50	P-CB3.73-CB3.88
63	5	182.1	95.7	Grate	0.00	0.78	0.95	6.0	-2.57	3.18	3.22	12	Cir	0.013	1.50	7.70	E-CB3.05-CB3.90

# Stn Sewer Inventory Report

Line No.	Alignment			Flow Data				Physical Data						Line ID			
	Dnstr line No.	Line length (ft)	Defl angle (deg)	Junc type	Known Q (cfs)	Drng area (ac)	Runoff coeff (C)	Inlet time (min)	Invert EI Dn (ft)	Line slope (%)	Invert EI Up (ft)	Line size (in)	Line type		N value (n)	J-loss coeff (K)	Inlet/ Rim EI (ft)
64	6	189.5	81.6	Grate	0.00	1.06	0.95	6.0	1.68	1.20	3.95	12	Cir	0.013	1.50	7.18	E-CB3.06-CB3.91
65	8	191.6	-16.3	Grate	0.00	0.72	0.95	6.0	0.26	0.30	0.83	36	Cir	0.013	0.70	7.50	E-CB3.08-CB3.92
66	7	288.7	84.4	Grate	0.00	1.41	0.95	6.0	-0.62	0.21	-0.01	48	Cir	0.010	1.50	7.80	P-CB3.07-CB3.100
67	66	210.6	84.6	Grate	0.00	1.31	0.95	6.0	0.14	0.89	2.01	24	Cir	0.013	1.50	7.80	E-CB3.100-CB3.101
68	67	242.8	5.3	Grate	0.00	1.58	0.95	6.0	2.01	0.34	2.83	24	Cir	0.013	0.50	8.28	E-CB3.101-CB3.102
69	13	109.6	82.5	Grate	0.00	0.56	0.95	6.0	1.95	0.30	2.28	24	Cir	0.010	1.50	6.70	P-CB3.13-CB3.110
70	69	175.8	-14.0	Grate	0.00	0.98	0.95	6.0	2.28	0.30	2.81	24	Cir	0.010	0.70	6.70	P-CB3.110-CB3.111
71	69	23.0	87.4	Grate	0.00	0.49	0.88	6.0	2.28	0.30	2.35	15	Cir	0.010	1.50	6.50	P-CB3.110-CB3.112
72	70	20.9	81.8	Grate	0.00	0.39	0.90	6.0	2.81	0.33	2.88	15	Cir	0.010	1.50	6.70	P-CB3.111-CB3.113
73	66	136.4	-17.3	Grate	0.00	0.00	0.00	6.0	0.04	0.18	0.29	42	Cir	0.013	0.70	9.20	E-CB3.100-CB3.120
74	73	32.0	0.1	Grate	0.00	0.42	0.95	6.0	0.29	0.34	0.40	42	Cir	0.013	0.50	8.50	E-CB3.120-CB3.121
75	74	32.1	0.0	Grate	0.00	0.44	0.95	6.0	0.29	0.75	0.53	42	Cir	0.013	0.50	9.50	E-CB3.121-CB3.122
76	75	98.7	-1.0	Grate	0.00	0.08	0.83	6.0	2.50	0.50	2.99	42	Cir	0.010	0.50	10.10	P-CB3.122-CB3.123
77	76	69.4	-97.9	Grate	0.00	0.32	0.78	6.0	2.99	0.50	3.34	24	Cir	0.010	1.50	10.30	P-CB3.123-CB3.124
78	77	185.1	8.8	Grate	0.00	0.21	0.78	6.0	3.66	0.32	4.26	24	Cir	0.010	0.70	9.90	P-CB3.124-CB3.125
79	78	91.9	33.8	Grate	0.00	0.41	0.85	6.0	4.26	0.50	4.72	24	Cir	0.010	0.70	9.80	P-CB3.125-CB3.126
80	76	114.8	69.9	Grate	0.00	0.00	0.00	6.0	3.79	0.51	4.37	30	Cir	0.010	1.25	10.20	P-CB3.122-CB3.130
81	80	112.1	-20.9	Grate	0.00	0.00	0.00	6.0	4.37	0.50	4.93	30	Cir	0.010	0.70	10.50	P-CB3.130-CB3.131
82	81	122.0	-6.1	Grate	0.00	0.00	0.00	6.0	4.93	0.51	5.55	24	Cir	0.010	0.50	10.20	P-CB3.131-CB3.132
83	82	105.3	-10.6	Grate	0.00	0.00	0.00	6.0	5.55	0.51	6.09	24	Cir	0.010	0.70	10.40	P-CB3.132-CB3.133
84	80	52.4	83.5	Grate	0.00	0.61	0.90	6.0	4.74	0.50	5.00	15	Cir	0.010	1.50	9.70	P-CB3.130-CB3.140

Project File: NMS - Run 3 - 25 YR.stm

Number of lines: 92

Date: 10-17-2006

# Stn Sewer Inventory Report

Line No.	Alignment				Flow Data				Physical Data							Line ID	
	Dnstr line No.	Line length (ft)	Defl angle (deg)	Junc type	Known Q (cfs)	Drng area (ac)	Runoff coeff (C)	Inlet time (min)	Invert El Dn (ft)	Line slope (%)	Invert El Up (ft)	Line size (in)	Line type	N value (n)	J-loss coeff (K)		Inlet/ Rim El (ft)
85	81	30.5	90.4	Grate	0.00	0.81	0.92	6.0	4.93	0.49	5.08	15	Cir	0.010	1.50	9.70	P-CB3.131-CB3.141
86	82	32.0	78.7	Grate	0.00	0.45	0.90	6.0	5.55	0.50	5.71	12	Cir	0.010	1.50	9.60	P-CB3.132-CB3.142
87	83	35.0	51.7	Grate	0.00	0.38	0.88	6.0	6.09	0.51	6.27	12	Cir	0.010	1.10	9.80	P-CB3.133-CB3.143
88	81	44.8	-88.1	MH	6.55	0.00	0.00	6.0	6.10	2.01	7.00	12	Cir	0.010	1.50	11.00	LATERAL
89	83	44.0	-97.4	MH	11.88	0.00	0.00	6.0	6.09	2.07	7.00	15	Cir	0.010	1.50	11.00	LATERAL
90	77	58.4	92.7	MH	11.88	0.00	0.00	6.0	5.83	2.00	7.00	15	Cir	0.010	1.50	11.00	LATERAL
91	74	274.2	89.4	Grate	0.00	0.30	0.95	6.0	0.40	0.50	1.77	30	Cir	0.010	1.50	9.80	P-CB3.121-CB3.103
92	91	94.0	-21.1	Grate	0.00	1.01	0.95	6.0	1.77	0.51	2.25	30	Cir	0.010	0.70	8.60	P-CB3.103-CB3.104

Project File: NMS - Run 3 - 25 YR.sitm

Number of lines: 92

Date: 10-17-2006

# Station Sewer Tabulation

Station Line	To Line	Len (ft)	Drng Area (ac)		Rnoff coeff (C)	Area x C		Tc (min)		Rain (l) (in/hr)	Total flow (cfs)	Cap full (cfs)	Vel (ft/s)	Pipe		Invert Elev (ft)		HGL Elev (ft)		Grnd / Rim Elev (ft)		Line ID
			Incr	Total		Incr	Total	Inlet	Syst					Size (in)	Slope (%)	Up	Dn	Up	Dn	Up	Dn	
1	End	88.6	0.00	60.58	0.00	0.00	56.38	0.0	17.4	4.9	308.3	197.1	19.44	54	1.00	-10.32	-11.21	-4.68	-6.81	5.95	0.00	E-Outfall-MH3.01
2	1	300.8	0.00	60.58	0.00	0.00	56.38	0.0	17.1	5.0	310.5	263.2	19.53	54	1.79	-4.93	-10.32	10.12	2.62	6.22	5.95	E-MH3.01-MH3.0
3	2	80.1	0.00	41.79	0.00	0.00	38.79	0.0	14.0	5.5	241.8	164.4	15.20	54	0.70	-4.37	-4.93	21.08	19.87	5.80	6.22	E-MH3.02-CB3.0
4	3	124.2	1.49	41.79	0.95	1.42	38.79	6.0	13.8	5.5	242.8	163.7	15.27	54	0.69	-3.51	-4.37	27.46	25.57	4.32	5.80	E-MH3.03-CB3.0
5	4	256.4	1.62	26.81	0.95	1.54	25.00	6.0	13.4	5.6	169.3	82.40	10.64	54	0.18	-2.96	-3.41	33.04	31.14	5.39	4.32	E-CB3.04-CB3.0
6	5	322.5	1.51	24.41	0.95	1.43	22.72	6.0	12.8	5.7	159.0	134.6	10.00	54	0.47	-1.45	-2.96	36.59	34.48	7.10	5.39	E-CB3.05-CB3.0
7	6	242.1	1.80	21.84	0.95	1.71	20.28	6.0	12.3	5.8	147.0	115.1	9.24	54	0.34	-0.62	-1.45	38.94	37.59	7.30	7.10	E-CB3.06-CB3.0
8	7	241.2	0.91	10.30	0.95	0.86	9.56	6.0	10.5	6.1	58.69	71.46	6.10	42	0.30	0.10	-0.62	42.17	41.68	7.50	7.30	P-CB3.07-CB3.0
9	8	200.4	1.67	8.67	0.92	1.54	8.01	6.0	9.4	6.4	51.21	71.57	5.32	42	0.30	0.70	0.10	43.02	42.71	7.50	7.50	P-CB3.08-CB3.0
10	9	194.4	0.89	7.00	0.94	0.84	6.48	6.0	8.8	6.5	42.34	47.36	5.99	36	0.30	1.28	0.70	44.04	43.57	7.50	7.50	P-CB3.09-CB3.1
11	10	117.4	0.57	6.11	0.81	0.46	5.64	6.0	8.4	6.6	37.45	47.35	5.30	36	0.30	1.63	1.28	45.21	44.99	6.63	7.50	P-CB3.10-CB3.1
12	11	53.6	0.22	5.54	0.81	0.18	5.18	6.0	8.2	6.7	34.65	47.38	4.90	36	0.30	1.79	1.63	45.84	45.76	6.80	6.63	P-CB3.11-CB3.1
13	12	21.6	0.67	5.32	0.95	0.64	5.00	6.0	8.2	6.7	33.57	45.66	4.75	36	0.28	1.85	1.79	46.31	46.28	6.85	6.80	P-CB3.12-CB3.1
14	13	265.5	0.98	2.23	0.95	0.93	2.12	6.0	7.2	7.0	14.80	16.14	4.71	24	0.30	2.65	1.85	47.23	46.56	6.80	6.85	P-CB3.13-CB3.1
15	14	204.7	1.25	1.25	0.95	1.19	1.19	6.0	6.0	7.4	8.77	16.05	2.79	24	0.30	3.26	2.65	47.88	47.70	6.90	6.80	P-CB3.14-CB3.1
16	2	166.2	0.00	18.79	0.00	0.00	17.59	0.0	16.6	5.0	88.64	134.7	5.57	54	0.47	-3.46	-4.24	23.32	22.98	5.80	6.22	E-MH3.02-MH3.2
17	16	133.8	1.27	18.79	0.95	1.21	17.59	6.0	16.3	5.1	89.43	142.7	7.12	48	0.99	-2.08	-3.40	24.17	23.65	4.35	5.80	E-CB3.04-CB3.2
18	17	304.0	1.03	10.58	0.95	0.98	9.97	6.0	11.6	5.9	58.86	41.55	8.33	36	0.39	-0.90	-2.08	26.94	24.57	6.50	4.35	E-CB3.21-CB3.2
19	18	176.3	0.00	8.03	0.00	0.00	7.55	6.0	11.1	6.0	45.33	47.54	6.41	36	0.30	-0.37	-0.90	28.61	28.13	8.50	6.50	P-CB3.22-CB3.2
20	19	120.6	1.02	8.03	0.95	0.97	7.55	6.0	10.8	6.1	45.86	47.37	6.49	36	0.30	-0.01	-0.37	29.27	28.93	7.50	8.50	P-CB3.23-CB3.2
21	20	229.0	0.54	7.01	0.95	0.51	6.58	6.0	10.1	6.2	40.97	47.59	5.80	36	0.30	0.68	-0.01	30.24	29.73	7.10	7.50	P-CB3.24-CB3.2

Project File: NMS - Run 3 - 25 YR.stm

Number of lines: 92

Run Date: 10-17-2006

NOTES: Intensity = 63.01 / (Inlet time + 10.40) ^ 0.77; Return period = 25 Yrs.

# Sto | Sewer Tabulation

Station Line	Len (ft)	Drng Area (ac)		Rnoff coeff (C)	Area x C		Tc (min)		Rain (l) (in/hr)	Total flow (cfs)	Cap full (cfs)	Vel (ft/s)	Pipe		Invert Elev (ft)		HGL Elev (ft)		Grnd / Rim Elev (ft)		Line ID
		Incr	Total		Incr	Total	Inlet	Syst					Size (in)	Slope (%)	Up	Dn	Up	Dn	Up	Dn	
22	22.8	0.24	6.47	0.79	0.19	6.07	6.0	10.0	6.2	37.88	48.04	5.36	36	0.31	0.75	0.68	30.93	30.89	6.70	7.10	P-CB3.25-CB3.2
23	48.0	0.24	6.23	0.79	0.19	5.88	6.0	9.9	6.3	36.90	46.81	5.22	36	0.29	0.89	0.75	31.35	31.27	6.70	6.70	P-CB3.26-CB3.2
24	22.5	0.16	5.99	0.95	0.15	5.69	6.0	9.8	6.3	35.82	48.37	5.07	36	0.31	0.96	0.89	31.63	31.59	6.80	6.70	P-CB3.27-CB3.2
25	138.1	0.87	2.66	0.95	0.83	2.53	6.0	9.1	6.5	16.33	29.05	3.33	30	0.30	1.37	0.96	32.19	32.06	6.80	6.80	P-CB3.28-CB3.2
26	205.5	0.91	1.79	0.95	0.86	1.70	6.0	7.7	6.8	11.64	29.29	2.37	30	0.30	1.99	1.37	32.56	32.46	6.90	6.80	P-CB3.29-CB3.3
27	200.0	0.88	0.88	0.95	0.84	0.84	6.0	6.0	7.4	6.17	16.11	1.96	24	0.30	2.59	1.99	32.77	32.68	6.90	6.90	P-CB3.30-CB3.3
28	150.0	0.00	6.94	0.00	0.00	6.40	6.0	15.8	5.2	33.05	40.02	4.68	36	0.36	-2.11	-2.65	25.38	25.01	4.34	4.35	E-CB3.21-CB3.4
29	275.4	1.54	6.07	0.95	1.46	5.58	6.0	14.8	5.3	29.65	37.27	4.19	36	0.31	-1.25	-2.11	26.23	25.69	5.25	4.34	E-CB3.40-CB3.4
30	102.7	0.25	4.53	0.77	0.19	4.12	6.0	14.4	5.4	22.10	25.27	4.50	30	0.38	-0.71	-1.10	26.72	26.42	6.50	5.25	E-CB3.41-CB3.4
31	46.8	0.24	4.28	0.81	0.19	3.92	6.0	14.3	5.4	21.17	25.43	4.31	30	0.38	-0.53	-0.71	27.03	26.90	6.70	6.50	E-CB3.42-CB3.4
32	41.3	0.84	4.04	0.95	0.80	3.73	6.0	14.1	5.4	20.21	25.52	4.12	30	0.39	-0.37	-0.53	27.30	27.20	6.70	6.70	E-CB3.43-CB3.4
33	253.2	2.11	3.20	0.95	2.00	2.93	6.0	13.4	5.5	16.24	10.05	5.17	24	0.20	0.23	-0.27	28.74	27.43	6.10	5.83	E-CB3.44-CB3.4
34	142.5	0.13	1.09	0.81	0.11	0.93	6.0	12.3	5.8	5.33	20.75	1.70	24	0.50	0.94	0.23	29.45	29.40	7.50	6.10	P-CB3.45-CB3.4
35	62.9	0.12	0.50	0.80	0.10	0.46	6.0	6.4	7.2	3.31	20.64	1.05	24	0.49	1.25	0.94	29.51	29.50	7.50	7.50	P-CB3.46-CB3.4
36	22.9	0.38	0.38	0.95	0.36	0.36	6.0	6.0	7.4	2.67	20.38	0.85	24	0.48	1.36	1.25	29.53	29.53	7.50	7.50	P-CB3.47-CB3.4
37	222.1	0.23	0.46	0.80	0.18	0.36	6.0	7.9	6.8	2.47	20.79	0.79	24	0.50	2.05	0.94	29.53	29.51	7.50	7.50	P-CB3.48-CB3.4
38	47.3	0.23	0.23	0.78	0.18	0.18	6.0	6.0	7.4	1.32	20.96	0.42	24	0.51	2.29	2.05	29.55	29.55	7.50	7.50	P-CB3.49-CB3.5
39	22.8	0.87	0.87	0.95	0.83	0.83	6.0	6.0	7.4	6.10	9.49	3.45	18	0.48	0.61	0.50	25.82	25.77	4.50	4.34	P-CB3.40-CB3.5
40	184.1	1.52	1.52	0.95	1.44	1.44	6.0	6.0	7.4	10.66	7.04	8.69	15	1.19	1.54	-0.65	32.71	27.69	5.14	6.50	E-CB3.21-CB3.6
41	159.2	1.16	3.17	0.95	1.10	3.01	6.0	8.7	6.6	19.78	29.28	4.03	30	0.30	1.44	0.96	32.20	31.98	6.80	6.80	P-CB3.27-CB3.6
42	206.8	0.97	2.01	0.95	0.92	1.91	6.0	7.4	6.9	13.22	29.20	2.69	30	0.30	2.06	1.44	32.74	32.61	6.90	6.80	P-CB3.61-CB3.6

Project File: NMS - Run 3 - 25 YR.stm

Number of lines: 92

Run Date: 10-17-2006

NOTES: Intensity = 63.01 / (Inlet time + 10.40) ^ 0.77; Return period = 25 Yrs.

# Sto Sewer Tabulation

Station Line	Len (ft)	Dmg Area (ac)		Rnoff coeff (C)	Area x C		Tc (min)		Rain (l) (in/hr)	Total flow (cfs)	Cap full (cfs)	Vel (ft/s)	Pipe		Invert Elev (ft)		HGL Elev (ft)		Grnd / Rim Elev (ft)		Line ID
		Incr	Total		Incr	Total	Inlet	Syst					Size (in)	Slope (%)	Up	Dn	Up	Dn	Up	Dn	
43	42	199.5	1.04	0.95	0.99	0.99	6.0	6.0	7.4	7.29	16.12	2.32	24	0.30	2.66	2.06	33.02	32.89	6.90	6.90	P-CB3.62-CB3.6
44	4	120.1	0.00	0.00	12.38	0.00	6.0	11.0	6.0	74.44	102.3	5.92	48	0.30	-5.32	-5.68	32.55	32.35	6.70	4.32	P-CB3.04-CB3.7
45	44	247.9	0.48	0.77	10.95	0.37	6.0	10.4	6.2	67.49	92.50	7.02	42	0.50	-4.08	-5.32	33.89	33.23	8.50	6.70	P-CB3.70-CB3.7
46	45	48.0	0.43	0.78	10.58	0.34	6.0	10.2	6.2	65.53	92.48	6.81	42	0.50	-3.84	-4.08	34.59	34.47	8.50	8.50	P-CB3.71-CB3.7
47	46	21.4	1.29	0.95	10.25	1.23	6.0	10.2	6.2	63.60	93.68	6.61	42	0.51	-3.73	-3.84	35.19	35.13	8.50	8.50	P-CB3.72-CB3.7
48	47	154.4	0.14	0.95	7.73	0.13	6.0	9.8	6.3	48.73	60.83	6.89	36	0.49	-2.97	-3.73	36.01	35.53	9.80	8.50	P-CB3.73-CB3.7
49	48	65.6	0.12	0.95	7.60	0.11	6.0	9.6	6.3	48.21	60.56	6.82	36	0.49	-2.65	-2.97	37.16	36.95	9.80	9.80	P-CB3.74-CB3.7
50	49	84.0	1.39	0.95	7.48	1.32	6.0	9.4	6.4	47.90	61.30	6.78	36	0.50	-2.23	-2.65	37.78	37.53	9.50	9.80	P-CB3.75-CB3.7
51	50	109.0	0.95	0.95	6.16	0.90	6.0	9.0	6.5	39.98	61.59	5.66	36	0.50	-1.68	-2.23	38.73	38.50	8.90	9.50	P-CB3.76-CB3.7
52	51	106.4	0.93	0.95	4.87	0.88	6.0	8.7	6.6	31.98	37.63	6.51	30	0.50	-1.15	-1.68	39.36	38.98	8.20	8.90	P-CB3.77-CB3.7
53	52	71.6	1.56	0.95	3.99	1.48	6.0	8.5	6.6	26.42	37.81	5.38	30	0.50	-0.79	-1.15	40.08	39.90	8.00	8.20	P-CB3.78-CB3.7
54	53	147.5	0.34	0.95	1.91	0.32	6.0	7.9	6.8	12.97	20.82	4.13	24	0.50	-0.05	-0.79	40.78	40.49	9.40	8.00	P-CB3.79-CB3.8
55	54	285.7	0.79	0.95	1.59	0.75	6.0	6.6	7.2	11.42	20.80	3.64	24	0.50	1.38	-0.05	41.45	41.02	7.20	9.40	P-CB3.80-CB3.8
56	55	116.3	0.95	0.88	0.84	0.84	6.0	6.0	7.4	6.17	9.64	3.49	18	0.50	1.96	1.38	41.81	41.57	5.50	7.20	P-CB3.81-CB3.8
57	53	31.0	0.37	0.75	0.60	0.28	6.0	7.7	6.8	4.09	38.30	0.83	30	0.52	2.12	1.96	40.74	40.74	7.90	8.00	P-CB3.79-CB3.8
58	57	48.8	0.39	0.82	0.32	0.32	6.0	6.0	7.4	2.36	37.40	0.48	30	0.49	2.36	2.12	40.76	40.76	7.90	7.90	P-CB3.83-CB3.8
59	51	25.3	0.25	0.78	0.20	0.20	6.0	7.0	7.1	2.74	9.79	1.55	18	0.51	2.13	2.00	39.45	39.44	8.50	8.90	P-CB3.77-CB3.8
60	59	45.9	0.25	0.77	0.19	0.19	6.0	6.0	7.4	1.42	9.67	0.80	18	0.50	2.36	2.13	39.53	39.52	8.50	8.50	P-CB3.85-CB3.8
61	44	138.9	1.50	0.95	1.43	1.43	6.0	6.0	7.4	10.52	15.97	3.35	24	0.30	1.36	0.95	33.78	33.60	6.55	6.70	P-CB3.70-CB3.8
62	47	126.2	1.36	0.95	1.29	1.29	6.0	6.0	7.4	9.54	37.06	1.94	30	0.48	2.61	2.00	36.19	36.15	9.50	8.50	P-CB3.73-CB3.8
63	5	182.1	0.78	0.95	0.74	0.74	6.0	6.0	7.4	5.47	6.35	6.97	12	3.18	3.22	-2.57	39.58	35.28	7.70	5.39	E-CB3.05-CB3.9

Project File: NIMS - Run 3 - 25 YR.stm

Number of lines: 92

Run Date: 10-17-2006

NOTES: Intensity = 63.01 / (Inlet time + 10.40) ^ 0.77; Return period = 25 Yrs.

# Station Sewer Tabulation

Station Line	Len (ft)	Drng Area (ac)		Rnoff coeff (C)	Area x C		Tc (min)		Rain (l) (in/hr)	Total flow (cfs)	Cap full (cfs)	Vel (ft/s)	Pipe		Invert Elev (ft)		HGL Elev (ft)		Grnd / Rim Elev (ft)		Line ID	
		Incr	Total		Incr	Total	Inlet	Syst					Size (in)	Slope (%)	Up	Dn	Up	Dn	Up	Dn		Up
64	6	189.5	1.06	1.06	0.95	1.01	1.01	6.0	6.0	7.4	7.44	3.90	9.47	12	1.20	3.95	1.68	45.79	37.52	7.18	7.10	E-CB3.06-CB3.9
65	8	191.6	0.72	0.72	0.95	0.68	0.68	6.0	6.0	7.4	5.05	36.38	0.71	36	0.30	0.83	0.26	43.16	43.15	7.50	7.50	E-CB3.08-CB3.9
66	7	288.7	1.41	9.74	0.95	1.34	9.01	6.0	11.6	5.9	83.43	85.84	6.64	48	0.21	-0.01	-0.62	42.15	41.58	7.80	7.30	P-CB3.07-CB3.1
67	66	210.6	1.31	2.89	0.95	1.24	2.75	6.0	7.1	7.0	19.25	21.31	6.13	24	0.89	2.01	0.14	44.81	43.28	7.80	7.80	E-CB3.100-CB3.
68	67	242.8	1.58	1.58	0.95	1.50	1.50	6.0	6.0	7.4	11.08	13.15	3.53	24	0.34	2.83	2.01	46.66	46.08	8.28	7.80	E-CB3.101-CB3.
69	13	109.6	0.56	2.42	0.95	0.53	2.25	6.0	7.1	7.0	15.74	16.13	5.01	24	0.30	2.28	1.95	46.87	46.55	6.70	6.85	P-CB3.13-CB3.1
70	69	175.8	0.98	1.37	0.95	0.93	1.28	6.0	6.2	7.3	9.39	16.14	2.99	24	0.30	2.81	2.28	47.88	47.70	6.70	6.70	P-CB3.110-CB3.
71	69	23.0	0.49	0.49	0.88	0.43	0.43	6.0	6.0	7.4	3.18	4.63	2.59	15	0.30	2.35	2.28	47.77	47.74	6.50	6.70	P-CB3.110-CB3.
72	70	20.9	0.39	0.39	0.90	0.35	0.35	6.0	6.0	7.4	2.59	4.86	2.11	15	0.33	2.88	2.81	48.07	48.05	6.70	6.70	P-CB3.111-CB3.
73	66	136.4	0.00	5.44	0.00	0.00	4.92	6.0	11.2	6.0	59.71	43.07	6.21	42	0.18	0.29	0.04	43.75	43.27	9.20	7.80	E-CB3.100-CB3.
74	73	32.0	0.42	5.44	0.95	0.40	4.92	6.0	11.1	6.0	59.80	58.99	6.22	42	0.34	0.40	0.29	44.28	44.17	8.50	9.20	E-CB3.120-CB3.
75	74	32.1	0.44	3.71	0.95	0.42	3.28	6.0	11.0	6.0	50.03	86.94	5.20	42	0.75	0.53	0.29	44.84	44.76	9.50	8.50	E-CB3.121-CB3.
76	75	98.7	0.08	3.27	0.83	0.07	2.86	6.0	10.7	6.1	47.72	92.14	4.96	42	0.50	2.99	2.50	45.22	45.09	10.10	9.50	P-CB3.122-CB3.
77	76	69.4	0.32	0.94	0.78	0.25	0.76	6.0	10.5	6.1	16.55	20.88	5.27	24	0.50	3.34	2.99	45.63	45.41	10.30	10.10	P-CB3.123-CB3.
78	77	185.1	0.21	0.62	0.78	0.16	0.51	6.0	7.9	6.8	3.48	16.74	1.11	24	0.32	4.26	3.66	46.72	46.69	9.90	10.30	P-CB3.124-CB3.
79	78	91.9	0.41	0.41	0.85	0.35	0.35	6.0	6.0	7.4	2.57	20.80	0.82	24	0.50	4.72	4.26	46.75	46.74	9.80	9.90	P-CB3.125-CB3.
80	76	114.8	0.00	2.25	0.00	0.00	2.03	6.0	7.3	7.0	32.61	37.90	6.64	30	0.51	4.37	3.79	45.84	45.41	10.20	10.10	P-CB3.122-CB3.
81	80	112.1	0.00	1.64	0.00	0.00	1.48	6.0	6.9	7.1	28.93	37.69	5.89	30	0.50	4.93	4.37	47.18	46.85	10.50	10.20	P-CB3.130-CB3.
82	81	122.0	0.00	0.83	0.00	0.00	0.74	6.0	6.6	7.2	17.20	20.96	5.47	24	0.51	5.55	4.93	48.05	47.63	10.20	10.50	P-CB3.131-CB3.
83	82	105.3	0.00	0.38	0.00	0.00	0.33	6.0	6.2	7.3	14.33	21.06	4.56	24	0.51	6.09	5.55	48.67	48.42	10.40	10.20	P-CB3.132-CB3.
84	80	52.4	0.61	0.61	0.90	0.55	0.55	6.0	6.0	7.4	4.05	5.91	3.30	15	0.50	5.00	4.74	47.34	47.22	9.70	10.20	P-CB3.130-CB3.

Project File: NMS - Run 3 - 25 YR.stm

Number of lines: 92

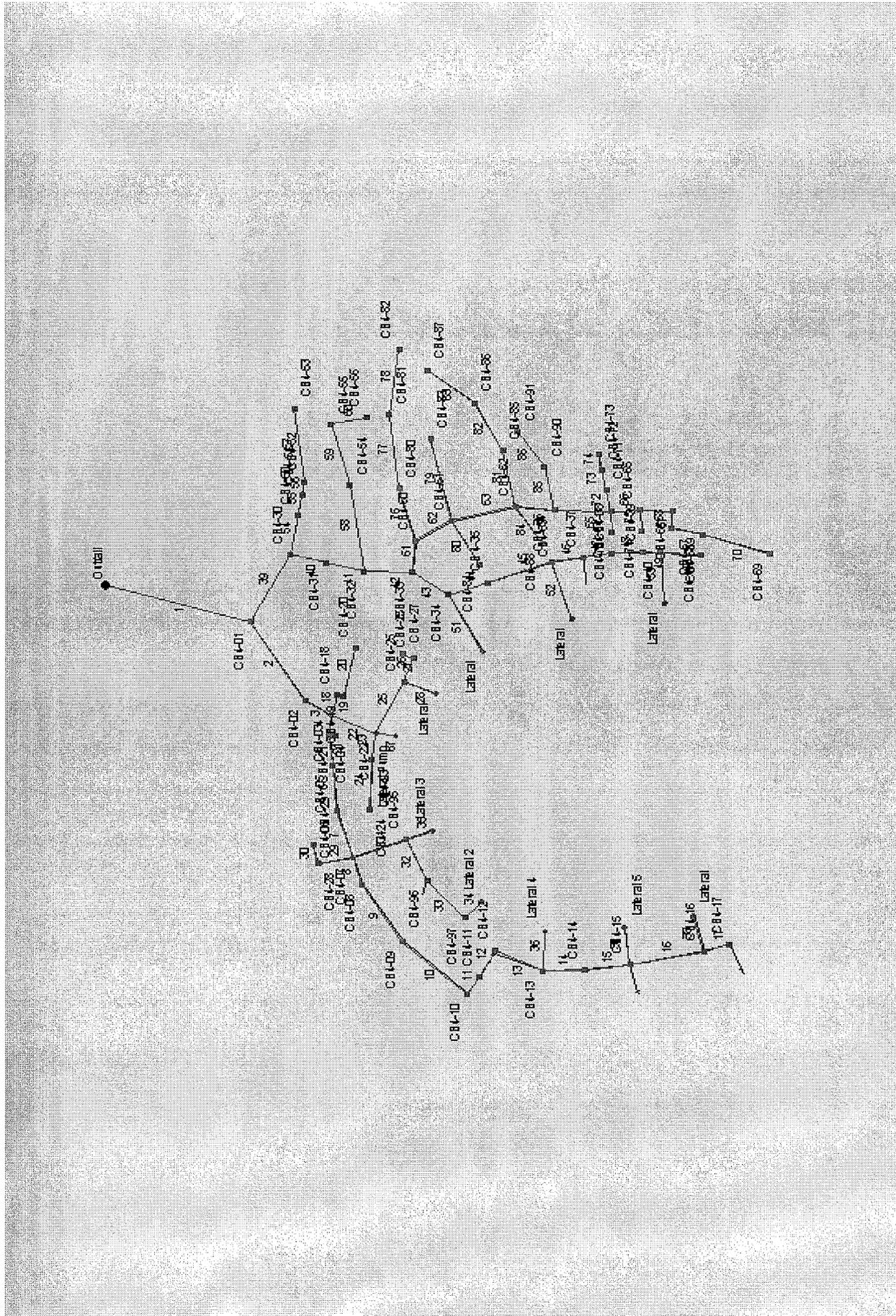
Run Date: 10-17-2006

NOTES: Intensity = 63.01 / (Inlet time + 10.40) ^ 0.77; Return period = 25 Yrs.

# Sto ) Sewer Tabulation

Station Line	Len (ft)	Drng Area (ac)		Rnoff coeff (C)	Area x C		Tc (min)		Rain (l) (in/hr)	Total flow (cfs)	Cap full (cfs)	Vel (ft/s)	Pipe		Invert Elev (ft)		HGL Elev (ft)		Grnd / Rim Elev (ft)		Line ID
		Incr	Total		Incr	Total	Inlet	Syst					Size (in)	Slope (%)	Up	Dn	Up	Dn	Up	Dn	
85	30.5	0.81	0.81	0.92	0.75	0.75	6.0	6.0	7.4	5.50	5.88	4.48	15	0.49	5.08	4.93	47.91	47.78	9.70	10.50	P-CB3.131-CB3.
86	32.0	0.45	0.45	0.90	0.41	0.41	6.0	6.0	7.4	2.99	3.28	3.81	12	0.50	5.71	5.55	48.65	48.52	9.60	10.20	P-CB3.132-CB3.
87	35.0	0.38	0.38	0.88	0.33	0.33	6.0	6.0	7.4	2.47	3.32	3.14	12	0.51	6.27	6.09	49.17	49.07	9.80	10.40	P-CB3.133-CB3.
88	44.8	0.00	0.00	0.00	0.00	0.00	6.0	6.0	0.0	6.55	6.56	8.34	12	2.01	7.00	6.10	48.45	47.56	11.00	10.50	LATERAL
89	44.0	0.00	0.00	0.00	0.00	0.00	6.0	6.0	0.0	11.88	12.07	9.68	15	2.07	7.00	6.09	49.78	48.90	11.00	10.40	LATERAL
90	58.4	0.00	0.00	0.00	0.00	0.00	6.0	6.0	0.0	11.88	11.89	9.68	15	2.00	7.00	5.83	47.45	46.28	11.00	10.30	LATERAL
91	274.2	0.30	1.31	0.95	0.29	1.24	6.0	7.1	7.0	8.75	37.68	1.78	30	0.50	1.77	0.40	45.21	45.13	9.80	8.50	P-CB3.121-CB3.
92	94.0	1.01	1.01	0.95	0.96	0.96	6.0	6.0	7.4	7.08	38.10	1.44	30	0.51	2.25	1.77	45.32	45.30	8.60	9.80	P-CB3.103-CB3.
Project File: NMS - Run 3 - 25 YR.stm													Number of lines: 92					Run Date: 10-17-2006			
NOTES: Intensity = 63.01 / (Inlet time + 10.40) ^ 0.77; Return period = 25 Yrs.																					

# Hydrarlow Plan View



# Sto 1 Sewer Inventory Report

Line No.	Alignment				Flow Data				Physical Data							Line ID	
	Dnstr line No.	Line length (ft)	Defl angle (deg)	Junc type	Known Q (cfs)	Drng area (ac)	Runoff coeff (C)	Inlet time (min)	Invert EI Dn (ft)	Line slope (%)	Invert EI Up (ft)	Line size (in)	Line type	N value (n)	J-loss coeff (K)		Inlet/ Rim EI (ft)
1	End	323.0	105.6	Grate	0.00	0.00	0.00	6.0	-6.00	0.71	-3.72	54	Cir	0.013	1.50	5.24	E-Outfall-CB4.01
2	1	220.5	41.9	Grate	0.00	0.58	0.88	6.0	-3.50	0.50	-2.40	54	Cir	0.013	1.10	4.32	E-CB4.01-CB4.02
3	2	63.7	-26.0	MH	0.00	0.00	0.00	0.0	-2.40	0.52	-2.07	54	Cir	0.013	0.45	4.70	E-CB4.02-CB4.03
4	3	49.9	62.7	Grate	0.00	0.33	0.84	6.0	-2.07	0.50	-1.82	48	Cir	0.010	1.25	5.00	P-CB4.03-CB4.04
5	4	70.9	-10.4	Grate	0.00	0.14	0.91	6.0	-1.82	0.35	-1.57	48	Cir	0.010	0.50	4.80	P-CB4.04-CB4.05
6	5	109.1	1.5	Grate	0.00	0.21	0.79	6.0	-1.57	0.49	-1.03	48	Cir	0.010	0.50	5.70	P-CB4.05-CB4.06
7	6	115.1	-12.7	MH	0.00	0.00	0.00	0.0	-1.03	0.50	-0.45	48	Cir	0.010	0.45	6.20	P-CB4.06-CB4.07
8	7	65.0	0.1	Grate	0.00	0.23	0.91	6.0	-0.45	0.49	-0.13	36	Cir	0.010	0.50	6.95	P-CB4.07-CB4.08
9	8	160.9	-15.3	Grate	0.00	0.39	0.89	6.0	-0.13	0.50	0.67	36	Cir	0.010	0.70	8.20	P-CB4.08-CB4.09
10	9	186.6	-15.6	Grate	0.00	0.19	0.85	6.0	0.67	0.50	1.60	36	Cir	0.010	0.70	8.20	P-CB4.09-CB4.10
11	10	47.6	-98.8	Grate	0.00	0.74	0.85	6.0	1.60	0.50	1.84	36	Cir	0.010	1.50	8.80	P-CB4.10-CB4.11
12	11	72.5	-4.5	Grate	0.00	0.00	0.00	6.0	1.84	0.50	2.20	30	Cir	0.010	0.50	9.90	P-CB4.11-CB4.12
13	12	111.5	87.2	Grate	0.00	0.00	0.00	6.0	2.96	0.50	3.52	30	Cir	0.010	1.50	9.55	P-CB4.12-CB4.13
14	13	89.7	-26.7	Grate	0.00	0.00	0.00	6.0	3.52	0.50	3.97	30	Cir	0.010	0.70	9.60	P-CB4.13-CB4.14
15	14	98.1	-6.8	Grate	0.00	0.89	0.83	6.0	3.97	0.46	4.42	30	Cir	0.010	0.50	9.70	P-CB4.14-CB4.15
16	15	160.6	-3.0	Grate	0.00	0.00	0.00	6.0	4.42	0.50	5.22	24	Cir	0.010	0.50	9.80	P-CB4.15-CB4.16
17	16	57.0	-7.8	Grate	0.00	0.80	0.88	6.0	5.22	0.51	5.51	18	Cir	0.010	0.50	9.80	P-CB4.16-CB4.17
18	3	48.6	-104.6	Grate	0.00	0.55	0.91	6.0	-0.15	0.51	0.10	18	Cir	0.010	1.50	4.10	P-CB4.03-CB4.18
19	18	13.2	86.3	Grate	0.00	0.53	0.93	6.0	0.10	0.53	0.17	18	Cir	0.010	1.50	4.10	P-CB4.18-CB4.19
20	19	116.2	-90.5	Grate	0.00	0.24	0.90	6.0	0.17	0.50	0.75	18	Cir	0.010	1.50	6.09	P-CB4.19-CB4.20
21	4	12.6	-87.3	Grate	0.00	0.29	0.93	6.0	0.15	0.48	0.21	18	Cir	0.010	1.50	4.10	P-CB4.04-CB4.21

Project File: NMS - Run 4 - 25 YR.stm

Number of lines: 87

Date: 10-17-2006

# Station Sewer Inventory Report

Line No.	Alignment				Flow Data				Physical Data						Line ID		
	Dnstr line No.	Line length (ft)	Defl angle (deg)	Junc type	Known Q (cfs)	Drng area (ac)	Runoff coeff (C)	Inlet time (min)	Invert EI Dn (ft)	Line slope (%)	Invert EI Up (ft)	Line size (in)	Line type	N value		J-loss coeff (K)	Inlet/ Rim EI (ft)
22	3	106.0	-6.9	MH	0.00	0.00	0.00	0.0	-2.07	0.50	-1.54	54	Cir	0.010	0.15	5.50	P-CB4.03-CB4.22
23	22	62.5	72.9	Grate	0.00	0.20	0.95	6.0	0.75	0.50	1.06	15	Cir	0.010	1.10	5.50	P-CB4.22-CB4.23
24	23	119.1	-5.0	Grate	0.00	0.24	0.95	6.0	1.06	0.50	1.66	15	Cir	0.010	0.50	5.50	P-CB4.23-CB4.24
25	22	136.1	-88.5	Grate	0.00	0.14	0.95	6.0	-0.18	0.50	0.50	24	Cir	0.010	1.50	5.90	P-CB4.22-CB4.25
26	25	57.9	-5.6	Grate	0.00	0.31	0.95	6.0	0.50	0.50	0.79	18	Cir	0.010	0.50	5.90	P-CB4.25-CB4.26
27	26	24.5	-86.1	Grate	0.00	0.56	0.93	6.0	0.79	0.53	0.92	18	Cir	0.010	1.50	6.07	P-CB4.26-CB4.27
28	25	73.7	86.0	MH	6.55	0.00	0.00	0.0	0.53	1.99	2.00	12	Cir	0.010	1.00	11.00	LATERAL
29	7	76.5	96.8	Grate	0.00	0.26	0.93	6.0	0.12	0.50	0.50	24	Cir	0.010	1.50	5.00	P-CB4.07-CB4.28
30	29	44.8	86.5	Grate	0.00	0.24	0.88	6.0	0.50	0.49	0.72	18	Cir	0.010	1.50	5.00	P-CB4.28-CB4.29
31	7	122.5	-93.2	Grate	0.00	0.25	0.77	6.0	2.12	0.98	3.32	24	Cir	0.010	1.50	9.20	P-CB4.07-CB4.95
32	31	107.6	86.2	Grate	0.00	0.26	0.78	6.0	4.88	0.50	5.42	24	Cir	0.010	1.50	9.90	P-CB4.95-CB4.96
33	32	118.5	-18.6	Grate	0.00	0.00	0.00	6.0	5.42	0.50	6.01	24	Cir	0.010	0.70	10.20	P-CB4.96-CB4.97
34	33	51.4	-92.7	MH	6.43	0.00	0.00	0.0	6.01	1.93	7.00	12	Cir	0.010	1.00	11.00	LATERAL
35	31	59.5	0.0	MH	11.88	0.00	0.00	0.0	5.81	2.00	7.00	15	Cir	0.010	0.15	11.00	LATERAL
36	13	94.4	-112.6	MH	6.55	0.00	0.00	0.0	5.11	2.00	7.00	12	Cir	0.010	1.00	11.00	LATERAL
37	15	87.7	-89.4	MH	4.02	0.00	0.00	0.0	5.25	2.00	7.00	10	Cir	0.010	1.00	11.00	LATERAL
38	16	89.1	-94.5	MH	11.86	0.00	0.00	0.0	5.22	2.00	7.00	15	Cir	0.010	1.00	11.00	LATERAL
39	1	181.3	-77.3	Grate	0.00	0.24	0.74	6.0	-3.50	0.50	-2.59	48	Cir	0.010	1.50	5.50	P-CB4.01-CB4.30
40	39	80.6	76.2	Grate	0.00	0.42	0.87	6.0	-2.59	0.50	-2.19	48	Cir	0.010	1.50	6.30	P-CB4.30-CB4.31
41	40	82.2	-1.0	Grate	0.00	0.26	0.90	6.0	-2.19	0.50	-1.78	48	Cir	0.010	0.50	7.90	P-CB4.31-CB4.32
42	41	104.4	-12.6	Grate	0.00	0.42	0.90	6.0	-1.78	0.50	-1.26	48	Cir	0.010	0.70	7.90	P-CB4.32-CB4.33

Project File: NMS - Run 4 - 25 YR.stm

Number of lines: 87

Date: 10-17-2006

# Stn Sewer Inventory Report

Line No.	Alignment			Flow Data				Physical Data						Line ID			
	Dnstr line No.	Line length (ft)	Defl angle (deg)	Junc type	Known Q (cfs)	Drng area (ac)	Runoff coeff (C)	Inlet time (min)	Invert EI Dn (ft)	Line slope (%)	Invert EI Up (ft)	Line size (in)	Line type		N value (n)	J-loss coeff (K)	Inlet/ Rim EI (ft)
43	42	94.6	34.1	Grate	0.00	0.66	0.95	6.0	-1.26	0.19	-1.08	42	Cir	0.010	1.10	8.00	P-CB4.33-CB4.34
44	43	88.7	-54.3	Grate	0.00	0.46	0.92	6.0	-0.74	0.51	-0.29	30	Cir	0.010	1.25	8.32	P-CB4.34-CB4.35
45	44	143.9	-0.6	Grate	0.00	0.27	0.95	6.0	-0.29	0.50	0.43	30	Cir	0.010	0.50	8.50	P-CB4.35-CB4.36
46	45	70.0	11.2	Grate	0.00	0.00	0.00	6.0	3.40	0.50	3.75	30	Cir	0.010	0.70	9.00	P-CB4.36-CB4.37
47	46	60.2	-1.8	Grate	0.00	0.16	0.95	6.0	3.75	0.50	4.05	24	Cir	0.010	0.50	9.30	P-CB4.37-CB4.38
48	47	69.0	8.4	Grate	0.00	0.09	0.95	6.0	4.05	0.51	4.40	24	Cir	0.010	0.50	9.50	P-CB4.38-CB4.39
49	48	37.7	3.8	Grate	0.00	0.26	0.95	6.0	4.40	0.50	4.59	24	Cir	0.010	0.50	9.75	P-CB4.39-CB4.40
50	49	85.7	1.6	Grate	0.00	0.44	0.95	6.0	5.60	0.50	6.03	15	Cir	0.010	0.50	9.60	P-CB4.40-CB4.41
51	43	152.7	26.7	MH	11.79	0.00	0.00	0.0	3.99	1.97	7.00	15	Cir	0.010	0.45	11.00	LATERAL
52	45	142.4	91.5	MH	8.81	0.00	0.00	0.0	0.43	1.10	2.00	15	Cir	0.010	1.00	11.00	LATERAL
53	49	121.5	84.7	MH	3.80	0.00	0.00	0.0	4.84	1.78	7.00	10	Cir	0.010	1.00	11.00	LATERAL
54	39	95.9	-18.4	Grate	0.00	0.08	0.60	6.0	-0.12	0.35	0.22	18	Cir	0.013	0.70	7.50	E-CB4.30-CB4.50
55	54	46.8	0.0	Grate	0.00	0.04	0.95	6.0	0.22	0.34	0.38	18	Cir	0.010	0.50	7.50	P-CB4.50-CB4.51
56	55	31.9	0.3	Grate	0.00	0.33	0.30	6.0	0.38	0.35	0.49	18	Cir	0.013	0.50	7.00	E-CB4.51-CB4.52
57	56	175.8	-17.6	Grate	0.00	0.20	0.33	6.0	0.49	0.34	1.09	18	Cir	0.013	0.70	5.50	E-CB4.52-CB4.53
58	41	206.0	-111.8	Grate	0.00	0.16	0.86	6.0	1.00	0.50	2.03	24	Cir	0.010	1.50	13.80	P-CB4.53-CB4.54
59	58	150.2	-7.4	Grate	0.00	0.36	0.95	6.0	2.03	0.50	2.78	24	Cir	0.010	0.50	21.50	P-CB4.54-CB4.55
60	59	77.2	95.0	Grate	0.00	0.33	0.95	6.0	2.78	0.51	3.17	24	Cir	0.010	1.50	21.60	P-CB4.55-CB4.56
61	42	74.5	-86.7	Grate	0.00	0.22	0.70	6.0	-1.26	0.50	-0.89	36	Cir	0.010	1.50	6.50	P-CB4.33-CB4.60
62	61	90.4	54.1	Grate	0.00	0.64	0.90	6.0	-0.89	0.50	-0.44	36	Cir	0.010	1.25	6.50	P-CB4.60-CB4.61
63	62	141.5	18.1	Grate	0.00	0.49	0.89	6.0	-0.44	0.50	0.27	30	Cir	0.010	0.70	6.80	P-CB4.61-CB4.62

Project File: NIMS - Run 4 - 25 YR.stm

Number of lines: 87

Date: 10-17-2006

# Station Sewer Inventory Report

Line No.	Alignment				Flow Data				Physical Data							Line ID	
	Dnstr line No.	Line length (ft)	Defl angle (deg)	Junc type	Known Q (cfs)	Drng area (ac)	Runoff coeff (C)	Inlet time (min)	Invert EI Dn (ft)	Line slope (%)	Invert EI Up (ft)	Line size (in)	Line type	N value (n)	J-loss coeff (K)		Inlet/ Rim EI (ft)
64	63	84.7	19.5	Grate	0.00	0.35	0.93	6.0	0.27	0.50	0.69	30	Cir	0.010	0.70	7.70	P-CB4.62-CB4.63
65	64	120.0	-4.4	Grate	0.00	0.06	0.95	6.0	0.69	0.50	1.29	24	Cir	0.010	0.50	10.00	P-CB4.63-CB4.64
66	65	63.5	-5.3	Grate	0.00	0.12	0.95	6.0	1.29	0.49	1.60	24	Cir	0.010	0.50	10.35	P-CB4.64-CB4.65
67	66	68.2	7.8	Grate	0.00	0.07	0.95	6.0	1.60	0.50	1.94	24	Cir	0.010	0.50	10.35	P-CB4.65-CB4.66
68	67	39.0	88.2	Grate	0.00	0.07	0.95	6.0	1.94	0.49	2.13	24	Cir	0.010	0.50	9.60	P-CB4.66-CB4.67
69	68	69.2	-79.7	Grate	0.00	0.20	0.95	6.0	2.13	0.51	2.48	15	Cir	0.010	1.50	9.60	P-CB4.67-CB4.68
70	69	150.1	4.9	Grate	0.00	0.09	0.95	6.0	2.48	0.50	3.23	15	Cir	0.010	0.50	10.30	P-CB4.68-CB4.69
71	65	47.8	86.0	Grate	0.00	0.06	0.95	6.0	2.00	0.50	2.24	15	Cir	0.010	1.50	9.40	P-CB4.69-CB4.70
72	65	51.3	-103.1	Grate	0.00	0.06	0.95	6.0	1.29	0.51	1.55	15	Cir	0.010	1.50	10.40	P-CB4.70-CB4.71
73	72	50.0	0.0	Grate	0.00	0.09	0.95	6.0	1.55	0.50	1.80	15	Cir	0.010	0.50	10.40	P-CB4.71-CB4.72
74	73	37.7	4.5	Grate	0.00	0.04	0.95	6.0	1.80	0.50	1.99	15	Cir	0.010	0.50	10.40	P-CB4.72-CB4.73
75	66	51.1	91.4	Grate	0.00	0.08	0.95	6.0	2.00	0.51	2.26	15	Cir	0.010	1.50	9.60	P-CB4.73-CB4.74
76	61	127.0	-19.9	Grate	0.00	0.00	0.00	6.0	-0.89	0.50	-0.26	18	Cir	0.010	0.70	8.90	P-CB4.60-CB4.80
77	76	175.9	8.6	Grate	0.00	0.38	0.95	6.0	-0.26	0.50	0.62	18	Cir	0.010	0.50	6.80	P-CB4.80-CB4.81
78	77	157.7	14.9	Grate	0.00	0.31	0.61	6.0	0.62	0.50	1.41	18	Cir	0.010	0.70	6.80	P-CB4.81-CB4.82
79	62	198.5	-71.0	Grate	0.00	0.77	0.90	6.0	0.50	0.50	1.49	18	Cir	0.010	1.25	6.50	P-CB4.62-CB4.83
80	62	122.2	91.4	Grate	0.00	0.07	0.82	6.0	1.00	0.50	1.61	18	Cir	0.010	1.50	8.20	P-CB4.62-CB4.84
81	63	136.0	-87.8	Grate	0.00	0.43	0.89	6.0	0.27	0.50	0.95	18	Cir	0.010	1.50	6.50	P-CB4.62-CB4.85
82	81	127.1	-16.6	Grate	0.00	0.26	0.91	6.0	0.95	0.50	1.59	18	Cir	0.010	0.70	7.70	P-CB4.85-CB4.86
83	82	128.0	-25.0	Grate	0.00	0.16	0.88	6.0	1.59	0.50	2.23	18	Cir	0.010	0.70	7.70	P-CB4.86-CB4.87
84	63	106.5	70.2	Grate	0.00	0.10	0.81	6.0	1.00	0.50	1.53	18	Cir	0.010	1.25	7.80	P-CB4.62-CB4.88

Project File: NMS - Run 4 - 25 YR.slm

Number of lines: 87

Date: 10-17-2006

# Station Sewer Inventory Report

Line No.	Alignment			Flow Data				Physical Data							Line ID		
	Dnstr line No.	Line length (ft)	Defl angle (deg)	Junc type	Known Q (cfs)	Drng area (ac)	Runoff coeff (C)	Inlet time (min)	Invert EI Dn (ft)	Line slope (%)	Invert EI Up (ft)	Line size (in)	Line type	N value (n)		J-loss coeff (K)	Inlet/Rim EI (ft)
85	64	104.7	-108.0	Grate	0.00	0.40	0.93	6.0	0.69	0.50	1.21	18	Cir	0.010	1.50	8.00	P-CB4.63-CB4.90
86	85	101.0	-22.3	Grate	0.00	0.17	0.87	6.0	1.21	0.50	1.72	18	Cir	0.010	0.70	7.90	P-CB4.90-CB4.91
87	22	43.1	-17.5	MH	60.50	0.00	0.00	0.0	-2.26	0.49	-2.05	36	Cir	0.010	0.45	11.00	LATERAL

Project File: NMS - Run 4 - 25 YR.stm

Number of lines: 87

Date: 10-17-2006

# Stoi Sewer Tabulation

Station	Line	To Line	Len (ft)	Drng Area (ac)		Rnoff coeff (C)	Area x C		Tc (min)		Rain (l) (in/hr)	Total flow (cfs)	Cap full (cfs)	Vel (ft/s)	Pipe		Invert Elev (ft)		HGL Elev (ft)		Grnd / Rim Elev (ft)		Line ID
				Incr	Total		Incr	Total	Inlet	Syst					Size (in)	Slope (%)	Up	Dn	Up	Dn	Up	Dn	
1	End		323.0	0.00	19.44	0.00	0.00	17.02	6.0	20.6	4.5	209.4	165.2	13.46	54	0.71	-3.72	-6.00	1.78	-1.90	5.24	0.00	E-Outfall-CB4.01
2	1		220.5	0.58	8.57	0.88	0.51	7.56	6.0	10.6	6.1	153.9	138.9	9.68	54	0.50	-2.40	-3.50	8.41	7.06	4.32	5.24	E-CB4.01-CB4.0
3	2		63.7	0.00	7.99	0.00	0.00	7.05	0.0	10.5	6.1	151.0	141.6	9.50	54	0.52	-2.07	-2.40	10.45	10.07	4.70	4.32	E-CB4.02-CB4.0
4	3		49.9	0.33	5.22	0.84	0.28	4.48	6.0	10.4	6.2	68.34	132.2	5.44	48	0.50	-1.82	-2.07	12.09	12.02	5.00	4.70	P-CB4.03-CB4.0
5	4		70.9	0.14	4.60	0.91	0.13	3.93	6.0	10.1	6.2	65.18	110.9	5.19	48	0.35	-1.57	-1.82	12.79	12.70	4.80	5.00	P-CB4.04-CB4.0
6	5		109.1	0.21	4.46	0.79	0.17	3.80	6.0	9.8	6.3	64.72	131.4	5.15	48	0.49	-1.03	-1.57	13.13	13.00	5.70	4.80	P-CB4.05-CB4.0
7	6		115.1	0.00	4.25	0.00	0.00	3.64	0.0	9.4	6.4	64.03	132.6	5.10	48	0.50	-0.45	-1.03	13.48	13.35	6.20	5.70	P-CB4.06-CB4.0
8	7		65.0	0.23	3.24	0.91	0.21	2.79	6.0	9.2	6.5	40.43	60.84	5.72	36	0.49	-0.13	-0.45	13.81	13.67	6.95	6.20	P-CB4.07-CB4.0
9	8		160.9	0.39	3.01	0.89	0.35	2.58	6.0	8.7	6.6	39.41	61.14	5.58	36	0.50	0.67	-0.13	14.42	14.09	8.20	6.95	P-CB4.08-CB4.0
10	9		186.6	0.19	2.62	0.85	0.16	2.23	6.0	8.0	6.7	37.50	61.22	5.31	36	0.50	1.60	0.67	15.15	14.80	8.20	8.20	P-CB4.09-CB4.1
11	10		47.6	0.74	2.43	0.85	0.63	2.07	6.0	7.9	6.8	36.50	61.56	5.16	36	0.50	1.84	1.60	15.57	15.48	8.80	8.20	P-CB4.10-CB4.1
12	11		72.5	0.00	1.69	0.00	0.00	1.44	6.0	7.7	6.8	32.31	37.56	6.58	30	0.50	2.20	1.84	16.45	16.19	9.90	8.80	P-CB4.11-CB4.1
13	12		111.5	0.00	1.69	0.00	0.00	1.44	6.0	7.4	6.9	32.43	37.78	6.61	30	0.50	3.52	2.96	17.20	16.79	9.55	9.90	P-CB4.12-CB4.1
14	13		89.7	0.00	1.69	0.00	0.00	1.44	6.0	7.1	7.0	26.00	37.76	5.30	30	0.50	3.97	3.52	18.68	18.46	9.60	9.55	P-CB4.13-CB4.1
15	14		98.1	0.89	1.69	0.83	0.74	1.44	6.0	6.8	7.1	26.14	36.11	5.33	30	0.46	4.42	3.97	19.22	18.98	9.70	9.60	P-CB4.14-CB4.1
16	15		160.6	0.00	0.80	0.00	0.00	0.70	6.0	6.3	7.3	16.98	20.75	5.41	24	0.50	5.22	4.42	19.98	19.44	9.80	9.70	P-CB4.15-CB4.1
17	16		57.0	0.80	0.80	0.88	0.70	0.70	6.0	6.0	7.4	5.20	9.74	2.94	18	0.51	5.51	5.22	20.61	20.52	9.80	9.80	P-CB4.16-CB4.1
18	3		48.6	0.55	1.32	0.91	0.50	1.21	6.0	8.2	6.7	8.10	9.79	4.58	18	0.51	0.10	-0.15	12.32	12.15	4.10	4.70	P-CB4.03-CB4.1
19	18		13.2	0.53	0.77	0.93	0.49	0.71	6.0	8.1	6.7	4.76	9.93	2.70	18	0.53	0.17	0.10	13.04	13.03	4.10	4.10	P-CB4.18-CB4.1
20	19		116.2	0.24	0.24	0.90	0.22	0.22	6.0	6.0	7.4	1.59	9.64	0.90	18	0.50	0.75	0.17	13.33	13.31	6.09	4.10	P-CB4.19-CB4.2
21	4		12.6	0.29	0.29	0.93	0.27	0.27	6.0	6.0	7.4	1.99	9.42	1.13	18	0.48	0.21	0.15	13.10	13.10	4.10	5.00	P-CB4.04-CB4.2

Project File: NMS - Run 4 - 25 YR.stm

Number of lines: 87

Run Date: 10-17-2006

NOTES: Intensity = 63.01 / (Inlet time + 10.40) ^ 0.77; Return period = 25 Yrs.

# Stoi Sewer Tabulation

Station Line	Len (ft)	Drng Area (ac)		Rnoff coeff (C)	Area x C		Tc (min)		Rain (l) (in/hr)	Total flow (cfs)	Cap full (cfs)	Vel (ft/s)	Pipe		Invert Elev (ft)		HGL Elev (ft)		Grnd / Rim Elev (ft)		Line ID	
		Incr	Total		Inlet	Syst	Incr	Total					Inlet	Syst	Size (in)	Slope (%)	Up	Dn	Up	Dn		Up
22	3	106.0	0.00	1.45	0.00	0.00	1.37	0.0	7.9	6.8	76.33	180.8	4.80	54	0.50	-1.54	-2.07	12.21	12.12	5.50	4.70	P-CB4.03-CB4.2
23	22	62.5	0.20	0.44	0.95	0.19	0.42	6.0	7.4	6.9	2.89	5.91	2.36	15	0.50	1.06	0.75	12.61	12.54	5.50	5.50	P-CB4.22-CB4.2
24	23	119.1	0.24	0.24	0.95	0.23	0.23	6.0	6.0	7.4	1.68	5.96	1.37	15	0.50	1.66	1.06	12.81	12.77	5.50	5.50	P-CB4.23-CB4.2
25	22	136.1	0.14	1.01	0.95	0.13	0.95	6.0	6.5	7.2	13.40	20.79	4.27	24	0.50	0.50	-0.18	12.63	12.34	5.90	5.50	P-CB4.22-CB4.2
26	25	57.9	0.31	0.87	0.95	0.29	0.82	6.0	6.2	7.3	5.97	9.66	3.38	18	0.50	0.79	0.50	13.27	13.16	5.90	5.90	P-CB4.25-CB4.2
27	26	24.5	0.56	0.56	0.93	0.52	0.52	6.0	6.0	7.4	3.85	9.94	2.18	18	0.53	0.92	0.79	13.48	13.46	6.07	5.90	P-CB4.26-CB4.2
28	25	73.7	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	6.55	6.54	8.34	12	1.99	2.00	0.53	14.53	13.05	11.00	5.90	LATERAL
29	7	76.5	0.26	0.50	0.93	0.24	0.45	6.0	6.8	7.1	3.22	20.72	1.02	24	0.50	0.50	0.12	14.06	14.05	5.00	6.20	P-CB4.07-CB4.2
30	29	44.8	0.24	0.24	0.88	0.21	0.21	6.0	6.0	7.4	1.56	9.57	0.88	18	0.49	0.72	0.50	14.10	14.09	5.00	5.00	P-CB4.28-CB4.2
31	7	122.5	0.25	0.51	0.77	0.19	0.40	6.0	7.7	6.9	21.02	29.10	6.69	24	0.98	3.32	2.12	14.29	13.67	9.20	6.20	P-CB4.07-CB4.9
32	31	107.6	0.26	0.26	0.78	0.20	0.20	6.0	7.0	7.1	7.86	20.83	2.50	24	0.50	5.42	4.88	16.01	15.94	9.90	9.20	P-CB4.95-CB4.9
33	32	118.5	0.00	0.00	0.00	0.00	0.00	6.0	6.0	0.0	6.43	20.74	2.05	24	0.50	6.01	5.42	16.25	16.19	10.20	9.90	P-CB4.96-CB4.9
34	33	51.4	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	6.43	6.43	8.19	12	1.93	7.00	6.01	17.28	16.29	11.00	10.20	LATERAL
35	31	59.5	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	11.88	11.88	9.68	15	2.00	7.00	5.81	16.53	15.34	11.00	9.20	LATERAL
36	13	94.4	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	6.55	6.55	8.34	12	2.00	7.00	5.11	20.11	18.22	11.00	9.55	LATERAL
37	15	87.7	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	4.02	4.02	7.37	10	2.00	7.00	5.25	21.19	19.44	11.00	9.70	LATERAL
38	16	89.1	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	11.86	11.86	9.67	15	2.00	7.00	5.22	21.98	20.20	11.00	9.80	LATERAL
39	1	181.3	0.24	10.87	0.74	0.18	9.45	6.0	20.1	4.6	67.83	132.3	5.40	48	0.50	-2.59	-3.50	8.30	8.07	5.50	5.24	P-CB4.01-CB4.3
40	39	80.6	0.42	9.98	0.87	0.37	9.03	6.0	18.1	4.8	68.01	131.5	5.41	48	0.50	-2.19	-2.59	9.09	8.98	6.30	5.50	P-CB4.30-CB4.3
41	40	82.2	0.26	9.56	0.90	0.23	8.66	6.0	17.9	4.9	66.51	131.9	5.29	48	0.50	-1.78	-2.19	9.90	9.79	7.90	6.30	P-CB4.31-CB4.3
42	41	104.4	0.42	8.45	0.90	0.38	7.63	6.0	17.6	4.9	61.84	131.8	4.92	48	0.50	-1.26	-1.78	10.29	10.18	7.90	7.90	P-CB4.32-CB4.3

Project File: NIMS - Run 4 - 25 YR.stm

Number of lines: 87

Run Date: 10-17-2006

NOTES: Intensity = 63.01 / (Inlet time + 10.40) ^ 0.77; Return period = 25 Yrs.

# Stoi Sewer Tabulation

Station Line	Len (ft)	Drng Area (ac)		Rnoff coeff (C)	Area x C		Tc (min)		Rain (l) (in/hr)	Total flow (cfs)	Cap full (cfs)	Vel (ft/s)	Pipe		Invert Elev (ft)		HGL Elev (ft)		Grnd / Rim Elev (ft)		Line ID
		Incr	Total		Incr	Total	Inlet	Syst					Size (in)	Slope (%)	Up	Dn	Up	Dn	Up	Dn	
43	42	94.6	0.66	2.34	0.95	0.63	2.21	6.0	9.0	6.5	38.76	57.05	4.03	42	0.19	-1.08	10.76	10.68	8.00	7.90	P-CB4.33-CB4.3
44	43	88.7	0.46	1.68	0.92	0.42	1.58	6.0	8.7	6.6	23.02	37.97	4.69	30	0.51	-0.29	11.20	11.04	8.32	8.00	P-CB4.34-CB4.3
45	44	143.9	0.27	1.22	0.95	0.26	1.16	6.0	8.1	6.7	20.42	37.71	4.16	30	0.50	0.43	11.92	11.70	8.50	8.32	P-CB4.35-CB4.3
46	45	70.0	0.00	0.95	0.00	0.00	0.90	6.0	7.5	6.9	10.03	37.71	2.04	30	0.50	3.75	12.28	12.25	9.00	8.50	P-CB4.36-CB4.3
47	46	60.2	0.16	0.95	0.95	0.15	0.90	6.0	7.2	7.0	10.11	20.76	3.22	24	0.50	4.05	12.40	12.32	9.30	9.00	P-CB4.37-CB4.3
48	47	69.0	0.09	0.79	0.95	0.09	0.75	6.0	6.8	7.1	9.14	20.95	2.91	24	0.51	4.40	12.57	12.51	9.50	9.30	P-CB4.38-CB4.3
49	48	37.7	0.26	0.70	0.95	0.25	0.67	6.0	6.6	7.2	8.58	20.89	2.73	24	0.50	4.59	12.69	12.65	9.75	9.50	P-CB4.39-CB4.4
50	49	85.7	0.44	0.44	0.95	0.42	0.42	6.0	6.0	7.4	3.09	5.95	2.52	15	0.50	6.03	12.88	12.76	9.60	9.75	P-CB4.40-CB4.4
51	43	152.7	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	11.79	11.79	9.61	15	1.97	7.00	14.05	11.04	11.00	8.00	LATERAL
52	45	142.4	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	8.81	8.82	7.18	15	1.10	2.00	13.62	12.05	11.00	8.50	LATERAL
53	49	121.5	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	3.80	3.80	6.97	10	1.78	7.00	14.91	12.74	11.00	9.75	LATERAL
54	39	95.9	0.08	0.65	0.60	0.05	0.25	6.0	18.4	4.8	1.20	6.25	0.68	18	0.35	0.22	9.44	9.43	7.50	5.50	E-CB4.30-CB4.5
55	54	46.8	0.04	0.57	0.95	0.04	0.20	6.0	17.4	4.9	1.00	7.98	0.57	18	0.34	0.38	9.45	9.45	7.50	7.50	P-CB4.50-CB4.5
56	55	31.9	0.33	0.53	0.30	0.10	0.17	6.0	16.6	5.0	0.83	6.17	0.47	18	0.35	0.49	9.46	9.46	7.00	7.50	E-CB4.51-CB4.5
57	56	175.8	0.20	0.20	0.33	0.07	0.07	6.0	6.0	7.4	0.49	6.14	0.28	18	0.34	1.09	9.47	9.46	5.50	7.00	E-CB4.52-CB4.5
58	41	206.0	0.16	0.85	0.86	0.14	0.79	6.0	9.4	6.4	5.07	20.79	1.61	24	0.50	2.03	10.57	10.51	13.80	7.90	P-CB4.53-CB4.5
59	58	150.2	0.36	0.69	0.95	0.34	0.66	6.0	7.7	6.8	4.48	20.78	1.43	24	0.50	2.78	10.68	10.64	21.50	13.80	P-CB4.54-CB4.5
60	59	77.2	0.33	0.33	0.95	0.31	0.31	6.0	6.0	7.4	2.31	20.90	0.74	24	0.51	3.17	10.72	10.72	21.60	21.50	P-CB4.55-CB4.5
61	42	74.5	0.22	5.69	0.70	0.15	5.05	6.0	17.3	4.9	24.95	61.12	3.53	36	0.50	-0.89	10.80	10.74	6.50	7.90	P-CB4.33-CB4.6
62	61	90.4	0.64	4.78	0.90	0.58	4.34	6.0	16.9	5.0	21.72	61.16	3.07	36	0.50	-0.44	11.19	11.14	6.50	6.50	P-CB4.60-CB4.6
63	62	141.5	0.49	3.30	0.89	0.44	3.02	6.0	16.2	5.1	15.35	37.76	3.13	30	0.50	0.27	11.49	11.38	6.80	6.50	P-CB4.61-CB4.6

Project File: NMS - Run 4 - 25 YR.stm

Number of lines: 87

Run Date: 10-17-2006

NOTES: Intensity = 63.01 / (Inlet time + 10.40) ^ 0.77; Return period = 25 Yrs.

# Sto Sewer Tabulation

Station Line	To Line	Len (ft)	Drng Area (ac)		Rnoff coeff (C)	Area x C		Tc (min)		Rain (l) (in/hr)	Total flow (cfs)	Cap full (cfs)	Vel (ft/s)	Pipe		Invert Elev (ft)		HGL Elev (ft)		Grnd / Rim Elev (ft)		Line ID
			Incr	Total		Incr	Total	Inlet	Syst					Size (in)	Slope (%)	Up	Dn	Up	Dn	Up	Dn	
64	63	84.7	0.35	1.86	0.93	0.33	1.74	6.0	15.6	5.2	9.01	37.54	1.84	30	0.50	0.69	0.27	11.72	11.70	7.70	6.80	P-CB4.62-CB4.6
65	64	120.0	0.06	0.94	0.95	0.06	0.89	6.0	14.6	5.4	4.78	20.79	1.52	24	0.50	1.29	0.69	11.81	11.78	10.00	7.70	P-CB4.63-CB4.6
66	65	63.5	0.12	0.63	0.95	0.11	0.60	6.0	13.7	5.5	3.29	20.54	1.05	24	0.49	1.60	1.29	11.85	11.85	10.35	10.00	P-CB4.64-CB4.6
67	66	68.2	0.07	0.43	0.95	0.07	0.41	6.0	12.5	5.7	2.34	20.76	0.74	24	0.50	1.94	1.60	11.87	11.87	10.35	10.35	P-CB4.65-CB4.6
68	67	39.0	0.07	0.36	0.95	0.07	0.34	6.0	11.6	5.9	2.02	20.54	0.64	24	0.49	2.13	1.94	11.88	11.88	9.60	10.35	P-CB4.66-CB4.6
69	68	69.2	0.20	0.29	0.95	0.19	0.28	6.0	10.9	6.1	1.67	5.97	1.36	15	0.51	2.48	2.13	11.91	11.89	9.60	9.60	P-CB4.67-CB4.6
70	69	150.1	0.09	0.09	0.95	0.09	0.09	6.0	6.0	7.4	0.63	5.93	0.51	15	0.50	3.23	2.48	11.99	11.98	10.30	9.60	P-CB4.68-CB4.6
71	65	47.8	0.06	0.06	0.95	0.06	0.06	6.0	6.0	7.4	0.42	5.95	0.34	15	0.50	2.24	2.00	11.86	11.86	9.40	10.00	P-CB4.69-CB4.7
72	65	51.3	0.06	0.19	0.95	0.06	0.18	6.0	9.9	6.3	1.13	5.98	0.92	15	0.51	1.55	1.29	11.86	11.85	10.40	10.00	P-CB4.70-CB4.7
73	72	50.0	0.09	0.13	0.95	0.09	0.12	6.0	8.7	6.6	0.81	5.94	0.66	15	0.50	1.80	1.55	11.89	11.88	10.40	10.40	P-CB4.71-CB4.7
74	73	37.7	0.04	0.04	0.95	0.04	0.04	6.0	6.0	7.4	0.28	5.96	0.23	15	0.50	1.99	1.80	11.90	11.90	10.40	10.40	P-CB4.72-CB4.7
75	66	51.1	0.08	0.08	0.95	0.08	0.08	6.0	6.0	7.4	0.56	5.99	0.46	15	0.51	2.26	2.00	11.88	11.88	9.60	10.35	P-CB4.73-CB4.7
76	61	127.0	0.00	0.69	0.00	0.00	0.55	6.0	10.7	6.1	3.35	9.62	1.90	18	0.50	-0.26	-0.89	11.30	11.23	8.90	6.50	P-CB4.60-CB4.8
77	76	175.9	0.38	0.69	0.95	0.36	0.55	6.0	9.3	6.4	3.53	9.66	2.00	18	0.50	0.62	-0.26	11.46	11.34	6.80	8.90	P-CB4.80-CB4.8
78	77	157.7	0.31	0.31	0.61	0.19	0.19	6.0	6.0	7.4	1.40	9.66	0.79	18	0.50	1.41	0.62	11.56	11.54	6.80	6.80	P-CB4.81-CB4.8
79	62	198.5	0.77	0.77	0.90	0.69	0.69	6.0	6.0	7.4	5.12	9.64	2.90	18	0.50	1.49	0.50	11.67	11.39	6.50	6.50	P-CB4.62-CB4.8
80	62	122.2	0.07	0.07	0.82	0.06	0.06	6.0	6.0	7.4	0.42	9.65	0.24	18	0.50	1.61	1.00	11.52	11.52	8.20	6.50	P-CB4.62-CB4.8
81	63	136.0	0.43	0.85	0.89	0.38	0.76	6.0	11.0	6.0	4.57	9.65	2.59	18	0.50	0.95	0.27	11.80	11.65	6.50	6.80	P-CB4.62-CB4.8
82	81	127.1	0.26	0.42	0.91	0.24	0.38	6.0	9.6	6.3	2.39	9.69	1.35	18	0.50	1.59	0.95	12.07	12.03	7.70	6.50	P-CB4.85-CB4.8
83	82	128.0	0.16	0.16	0.88	0.14	0.14	6.0	6.0	7.4	1.04	9.65	0.59	18	0.50	2.23	1.59	12.12	12.11	7.70	7.70	P-CB4.86-CB4.8
84	63	106.5	0.10	0.10	0.81	0.08	0.08	6.0	6.0	7.4	0.60	9.63	0.34	18	0.50	1.53	1.00	11.75	11.75	7.80	6.80	P-CB4.62-CB4.8

Project File: NMS - Run 4 - 25 YR.stm  
 Number of lines: 87  
 Run Date: 10-17-2006

NOTES: Intensity = 63.01 / (Inlet time + 10.40) ^ 0.77; Return period = 25 Yrs.

# Station : Sewer Tabulation

Station Line	To Line	Len (ft)	Drng Area (ac)		Rnoff coeff (C)	Area x C		Tc (min)		Rain (l) (in/hr)	Total flow (cfs)	Cap full (cfs)	Vel (ft/s)	Pipe		Invert Elev (ft)		HGL Elev (ft)		Grnd / Rim Elev (ft)		Line ID
			Incr	Total		Incr	Total	Inlet	Syst					Size (in)	Slope (%)	Up	Dn	Up	Dn	Up	Dn	
85	64	104.7	0.40	0.57	0.93	0.37	0.52	6.0	8.7	6.6	3.41	9.62	1.93	18	0.50	1.21	0.69	11.83	11.76	8.00	7.70	P-CB4.63-CB4.9
86	85	101.0	0.17	0.17	0.87	0.15	0.15	6.0	6.0	7.4	1.09	9.70	0.62	18	0.50	1.72	1.21	11.97	11.96	7.90	8.00	P-CB4.90-CB4.9
87	22	43.1	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	60.50	60.54	8.56	36	0.49	-2.05	-2.26	12.48	12.27	11.00	5.50	LATERAL
Project File: NMS - Run 4 - 25 YR.sfm														Number of lines: 87				Run Date: 10-17-2006				
NOTES: Intensity = 63.01 / (Inlet time + 10.40) ^ 0.77; Return period = 25 Yrs.																						

**ATTACHMENT A**

**SEPTEMBER 2004 NRCS  
NJ BULLETIN NJ210-4-1**

**NEW JERSEY 24 HOUR RAINFALL FREQUENCY DATA**

Rainfall amounts in Inches

County	1 year	2 year	5 year	10 year	25 year	50 year	100 year
Atlantic	2.8	3.3	4.3	5.2	6.5	7.6	8.9
Bergen	2.8	3.3	4.3	5.1	6.3	7.3	8.4
Burlington	2.8	3.4	4.3	5.2	6.4	7.6	8.8
Camden	2.8	3.3	4.3	5.1	6.3	7.3	8.5
Cape May	2.8	3.3	4.2	5.1	6.4	7.5	8.8
Cumberland	2.8	3.3	4.2	5.1	6.4	7.5	8.8
Essex	2.8	3.4	4.4	5.2	6.4	7.5	8.7
Gloucester	2.8	3.3	4.2	5.0	6.2	7.3	8.5
Hudson	2.7	3.3	4.2	5.0	6.2	7.2	8.3
Hunterdon	2.9	3.4	4.3	5.0	6.1	7.0	8.0
Mercer	2.8	3.3	4.2	5.0	6.2	7.2	8.3
Middlesex	2.8	3.3	4.3	5.1	6.4	7.4	8.6
Monmouth	2.9	3.4	4.4	5.2	6.5	7.7	8.9
Morris	3.0	3.5	4.5	5.2	6.3	7.3	8.3
Ocean	3.0	3.4	4.5	5.4	6.7	7.9	9.2
Passaic	3.0	3.5	4.4	5.3	6.5	7.5	8.7
Salem	2.8	3.3	4.2	5.0	6.2	7.3	8.5
Somerset	2.8	3.3	4.3	5.0	6.2	7.2	8.2
Sussex	2.7	3.2	4.0	4.7	5.7	6.6	7.6
Union	2.8	3.4	4.4	5.2	6.4	7.5	8.7
Warren	2.8	3.3	4.2	4.9	5.9	6.8	7.8

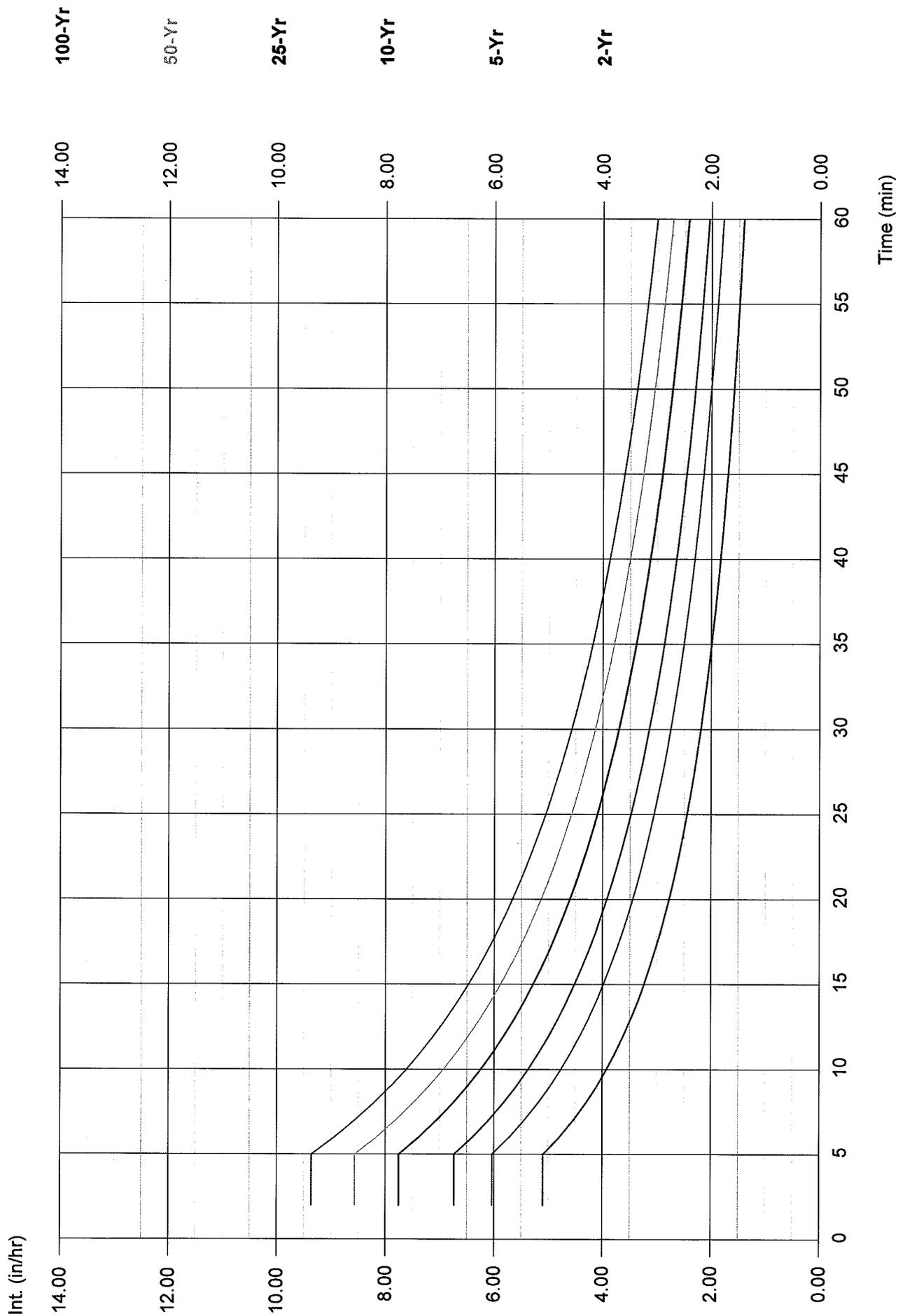
**ATTACHMENT B**

**IDF CURVE**

# Storr Sewer IDF Curves

IDF file: East Rutherford,

Jersey.IDF



## **ATTACHMENT C**

**Excerpt from Lagoon  
System Operation Manual**

## PUMP STATION AND LAGOON SYSTEM OPERATION

### 1. NORMAL CONDITION

- a. Position sluice gates as per chart instructions, "Sluice Gate Control Panel".
- b. Place mode selector switch in "NORMAL" position.

### 2. STORM CONDITION

- a. Position sluice gates as per chart instructions.
- b. Place mode selector switch to "storm" position.
- c. Draw down lagoons to desired elevation:

<u>Rainfall Forecast</u>	<u>Elevation</u>
6.0" in 24 hours	-9
4.8" in 24 hours	-7.5
4.1" in 24 hours	-6
2.8" in 24 hours	-2.5

- d. When desired elevation is reached, place mode selector switch to "OFF" position if rainfall has not begun. When rainfall begins, switch back to "NORMAL" position. When rain is tapering off, switch to "NORMAL" so that the lagoons may fill to the normal pool elevation.

### 3. GENERAL

- a. **Do not** draw down lagoons needlessly. The presence of water is necessary to the stability of the sub-soil on the entire site.
- b. **Do not** draw down Lagoon 2 without considering the water elevation in Lagoon 1. Maintain a maximum difference of 15 feet in elevation.
- c. Perform maintenance in accordance with operating and maintenance manuals.
- d. Alternate stand-by pumps.
- e. Discharge into Berry's Creek should be done on a limited basis, and only when required.
- f. The slide gates at the intake chambers must be kept open at all times, except for maintenance or repair.
- g. **Do not** dewater more than two (2) intake chambers simultaneously.

## STORM WATER MANAGEMENT SYSTEM

The storm water management system at the Meadowlands Sports Complex is composed of four (4) lagoons, a central junction chamber, a feedback chamber, an outfall structure, and the pump station (See Drawing G-1). In each lagoon, there is an intake structure with a chamber that allows the water to be drained into the equalizer lines. The entire system is interconnected with equalizing lines of varying sizes of 84, 96, and 108 inches in diameter. Sluice gates are used as controls and are located at the intake structures and the junction chamber. No more than two (2) intake chambers may be dewatered simultaneously. The sluice gates for all intake chambers must be kept open at all times, except during maintenance or repair. During normal operation, the sluice gates at the intake structures will be closed, and the sluice gates at the junction chamber will be open.

The pump station (See Drawing G-2) houses ten (10) screw pumps, six (6) of which operate at a rate of 100 CFS (cubic feet per second), and the remaining four (4) at 50 CFS. Eight (8) of the ten (10) pumps may operate simultaneously, while two (2) serve as standbys. The pumps are controlled manually and are used to move water from lagoon 2 to lagoon 1. Every time water is moved from any part of the structure, it must be recorded into the logbook located at the pump station.

### System Operations

- Sluice gates are opened when the water in lagoons 3 and 4 begin to rise and water is drained into lagoon 2.
- Once the water in lagoon 2 reaches the limit of elevation, lagoon 2 is drained into lagoon 1.
- Prior to draining lagoon 2, the water elevation in lagoon 1 must be decreased in order to properly accommodate the incoming water.
- Once the water in lagoon 1 reaches its limit of elevation, the sluice gates are opened and water is discharged into Berry's Creek.
- Discharge into Berry's Creek is limited to an as needed basis.

- The combination of the effective use of this system and the natural evaporation of water helps to limit the amount of water that is discharged into Berry's Creek to a small quantity.
- During the re-circulation process, water is transferred to lagoon 1, and then returned to the equalizer system via the feedback line.
- The re-circulation of water helps to retard the growth of algae and minimize the accumulation of ice in the lagoons.

### Emergency Power

Emergency Power is available at the pump station in the form of two (2) emergency generators. With both units operating, three (3) 100 CFS pumps can be used. With one unit, three (3) 50 CFS pumps can be used. These units are also capable of providing emergency power to the sluice-gates in the outfall structure. Fuel tanks for the emergency generators should always be kept full.

In preparation of precipitation, the lagoons are lowered as follows:

<u>Rainfall Forecast</u>	<u>Elevation</u>
6.0" in 24 hours	-9
4.8" in 24 hours	-7.5
4.1" in 24 hours	-6
2.8" in 24 hours	-2.5

In preparation for a severe storm, lagoons three and four are set to an elevation of -12 feet. After the storm, the lagoons are replenished to normal elevation.

## PUMP OPERATING SEQUENCE

A. Normal Operating Sequence. Under a normal operating sequence, the level in Lagoon 2 is at approximately +2 feet and continues as follows:

<u>Pump Selection</u>	<u>Starts at elevation</u>	<u>Stops at elevation</u>
(1) 50 CFS	+2 ft.	+1.75 ft.
(1) 50 CFS	+2.25 ft.	+1.75 ft.
(1) 50 CFS	+2.5 ft.	+1.75 ft.
(1) 100 CFS	+2.75 ft.	-2.5 ft.
Stop 3 - 50 CFS pumps at +2.75 ft.		
(1) 100 CFS	+3.0 ft.	+2.75 ft.
(1) 100 CFS	+3.25 ft.	+3.0 ft.
(1) 100 CFS	+3.5 ft.	+3.25 ft.
(1) 100 CFS	+3.75 ft.	+3.5 ft.
(1) 50 CFS (restart)	+4.0 ft.	+3.75 ft.
(1) 50 CFS (restart)	+4.25 ft.	+3.75 ft.
(1) 50 CFS (restart)	+4.50 ft.	+3.75 ft.

B. Storm Operating Sequence. Prior to a storm, the water level in Lagoon 1 is checked. If necessary, water is discharged into Berry's Creek. The water level in Lagoon 2 is then drawn down and maintained at a level of -12 feet. At this point, the following pump operating procedure can be used to maintain the water level:

<u>Pump Selection</u>		
(1) 50 CFS	-11.0 ft.	-12.0 ft.
(1) 50 CFS	-10.0 ft.	-12.0 ft.
(1) 50 CFS	-9.0 ft.	-12.0 ft.
(1) 100 CFS	-8.0 ft.	-9.0 ft.
Stop 3 - 50 CFS pumps at -8.0 ft.		
(1) 100 CFS	-7.0 ft.	-8.0 ft.
(1) 100 CFS	-6.0 ft.	-7.0 ft.
(1) 100 CFS	-5.0 ft.	-6.0 ft.
(1) 100 CFS	-4.0 ft.	-5.0 ft.
(1) 50 CFS (restart)	-3.0 ft.	-4.0 ft.
(1) 50 CFS (restart)	-2.0 ft.	-4.0 ft.
(1) 50 CFS (restart)	-1.0 ft.	-4.0 ft.

Water movement during Nor'easter of 1992 (December 11-12)\*

12-11-92 12:15 A.M. Lagoons 2, 3, and 4 were lowered 4'. 4' of water was discharged into Berry's Creek.

12-11-92 6:00 A.M. Lagoons 2, 3, and 4 were lowered 3'. 3' of water was discharged into Berry's Creek.

Water movement during Summer of 2000 (July 7 - August 29)\*

7-14-00 Lagoons 2, 3, and 4 were lowered 1.5'.  
7-14-00 Lagoons 2, 3, and 4 were lowered 1'.  
7-15-00 Lagoons 2, 3, and 4 were lowered 2.5'.  
7-15-00 Lagoons 2, 3, and 4 were lowered 1.5'. 3' of water was discharged into Berry's Creek.  
7-18-00 Lagoons 2, 3, and 4 were lowered 2'.  
7-23-00 Lagoons 2, 3, and 4 were lowered 4'.  
7-26-00 Lagoons 2, 3, and 4 were lowered 3'.  
7-26-00 Lagoons 2, 3, and 4 were lowered 4'. 4' of water was discharged into Berry's Creek.  
7-26-00 Lagoons 2, 3, and 4 were lowered 3'. 3' of water was discharged into Berry's Creek.  
7-27-00 Lagoons 2, 3, and 4 were lowered 2.5'. 3' of water was discharged into Berry's Creek.  
7-30-00 Lagoons 2, 3, and 4 were lowered 3'.  
7-30-00 Lagoons 2, 3, and 4 were lowered 2'.  
8-5-00 12' of water was discharged into Berry's Creek.

\*This information was obtained from the pump house logbook. It contains logs of all water movement since December 1, 1980.

## PROCEDURE FOR PUMP STATION OPERATION

The pump station is equipped with ten (10) screw pumps, six (6) of which are 100 CFS and four (4) 50 CFS. The four CFS pumps are located in the middle third of the screw pumps troughs. The pumps lift the storm water from Lagoon 2 to Lagoon 1 and from that point the water is discharged into Berry's Creek through the outfall structure.

Lagoons 2, 3, and 4 are interconnected by large equalizer lines with sluice gate control at the intake structures and junction chamber. Under normal conditions, the sluice gates at the intake structures will be closed and will only open when the water in the lagoons begins to rise. The sluice gates at the junction chamber will normally be open except when it is necessary to have different water elevations in the lagoons or during the re-circulating of water by the way of the feedback line. Manual control at the junction chamber is necessary for this operation. (This should only be during dry periods - gates at the junction chamber must be opened prior to or during a storm.)

Before a storm and before drawdown of Lagoons 2, 3, and 4, the water in Lagoon 1 should be drawn down some, depending on the severity of the expected storm. Elevation of the drawdown will be limited to the opposing tide elevation outside the flap gates. The sluice gates should remain open while pumping. They should then be closed just before pumping stops or allow enough time to replenish Lagoon 1. Discharge into Berry's Creek should be done on a limited basis and only when required.

The pump operation is handled manually. With the mode selection switch in "normal" position, the pumps will operate to handle a storm that occurs without any warning. However, if it appears as though the storm may continue and the water is rising, the procedures for "STORM" condition should be followed.

For a severe storm condition, the lagoons must be drawn down to -12 elevation. (See attached drawdown directions if a lesser drawdown is desired.) When the rain comes and the lagoons begin to fill, switch to storm mode. When the storm begins to taper off, switch to "NORMAL" operations so as to regain some of the water elevation in the lagoons.

The sluice gates and feedback line provide the capability of utilizing much of the storm runoff for non-potable water uses such as track watering and irrigation. Effective use of this system for these purposes together with evaporation should limit the average

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yearly discharge into Berry's Creek to a small quantity. The re-circulation of water will help to retard the growth of algae and minimize ice accumulation.

Emergency power is available at the pump station. With both emergency generators operating three (3) 100 CFS pumps may be operated. With one emergency generator operating, three (3) 50 CFS pumps may be operated. The emergency power is also connected to the sluice gates in the outfall structure for their operation under emergency conditions. Fuel tanks for the emergency generators should be kept full.

### SUMMARY

Normal Mode – The sluice gates at the junction chamber are open. The sluice gates in Lagoons 3 and 4 are closed.

Storm Mode – Drawdown Lagoon 1 if near capacity by opening sluice gates on outfall structure. These gates should remain open during pumping and when to close them will be determined by human decision and the elevation of the water in Lagoon 1.

Re-circulate Water – Pump water from equalizing system into Lagoon 1. Return to equalizing system via the feedback line. This can be done as a continuous operation by releasing enough water from Lagoon 1 to activate the pumps in "NORMAL" position.

Raise water elevation Lagoon 4 – Close sluice gate on 96" pipe at junction chamber on 108" and 84" pipe and open sluice gate on 96" line. Open sluice gate on feedback line at feedback chamber and junction chamber. Allow feedback to continue until desired elevation is reached.

Emergency Power – Emergency power is utilized automatically when power outage occurs. All of the controls at the pump station, including the outfall sluice gates, are connected to emergency power. Three (3) 100 CFS pumps will operate on full emergency power. Three (3) 50 CFS pumps will operate from only one generator.

## PUMP OPERATING SEQUENCE

A. Normal Operating Sequence. Under normal operating sequence, maintain the level in Lagoon 2 at approximately +2 feet elevation as follows:

<u>Pump Selection</u>	<u>Starts at elevation</u>	<u>Stops at elevation</u>
(1) 50 CFS	+2 ft.	+1.75 ft.
(1) 50 CFS	+2.25 ft.	+1.75 ft.
(1) 50 CFS	+2.5 ft.	+1.75 ft.
(1) 100 CFS	+2.75 ft.	+2.5 ft.
Stop 3 - 50 CFS pumps at +2.75 ft.		
(1) 100 CFS	+3.0 ft.	+2.75 ft.
(1) 100 CFS	+3.25 ft.	+3.0 ft.
(1) 100 CFS	+3.5 ft.	+3.25 ft.
(1) 100 CFS	+3.75 ft.	+3.5 ft.
(1) 50 CFS (restart)	+4.0 ft.	+3.75 ft.
(1) 50 CFS (restart)	+4.25 ft.	+3.75 ft.
(1) 50 CFS (restart)	+4.50 ft.	+3.75 ft.

B. Storm Operating Sequence. Prior to switching to "STORM" mode, the water level in Lagoon 1 shall be checked and discharged, if necessary.

Under storm operating sequence, the water level in Lagoon 2 is to be drawn down to elevation -12 ft. and maintained at that level. Start the three (3) 50 CFS pumps and the five (5) 100 CFS pumps until the level of -12 ft. is reached. At this level, all pumps shall stop and the storm condition mode will operate to maintain the -12 feet elevation as follows:

Pump Selection

(1) 50 CFS	-11.0 ft.	-12.0 ft.
(1) 50 CFS	-10.0 ft.	-12.0 ft.
(1) 50 CFS	-9.0 ft.	-12.0 ft.
(1) 100 CFS	-8.0 ft.	-9.0 ft.
Stop 3 - 50 CFS pumps at -8.0 ft.		
(1) 100 CFS	-7.0 ft.	-8.0 ft.
(1) 100 CFS	-6.0 ft.	-7.0 ft.
(1) 100 CFS	-5.0 ft.	-6.0 ft.
(1) 100 CFS	-4.0 ft.	-5.0 ft.
(1) 50 CFS (restart)	-3.0 ft.	-4.0 ft.
(1) 50 CFS (restart)	-2.0 ft.	-4.0 ft.
(1) 50 CFS (restart)	-1.0 ft.	-4.0 ft.

## GENERAL

- (1) It is not necessary to man the pump station before normal rainfall occurs. The advantage of drawdown is the storage capacity of the lagoons. The "NORMAL" mode should be used except when heavy rains are forecast and the lagoons are full.
- (2) Water should be re-circulated in the winter time to prevent excessive accumulation of ice. The ice will interfere with the operation of the float controls. Summer re-circulation will help retard the growth of algae.
- (3) Eight of the ten pumps will operate at one time. One 100 CFS and one 50 CFS are used as standbys. The pumps used as standbys should be alternated.
- (4) Maintenance shall be in accordance with operating and maintenance manuals.
- (5) No more than two (2) intake chambers may be dewatered simultaneously.
- (6) The sliding gates for all intake chambers must be kept open at all times, except for maintenance or repair.
- (7) Do not draw lagoon 2 without considering the water in lagoon 1. Maintain a maximum difference of 15' in elevation.

**ATTACHMENT D**

**Time of Concentration  
Nomograph**

