

# Appendix D

## Run-on and Run-off Control System Plan

Omaha Public Power District  
Nebraska City Generating Station  
NC2 Ash Disposal Area

*January 2019*



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# Table of Contents

Professional Engineer Certification .....	ii
1 Introduction .....	1
1.1 Purpose .....	1
1.2 Facility Background.....	1
2 Run-On Control System .....	2
3 Run-Off Control System.....	3

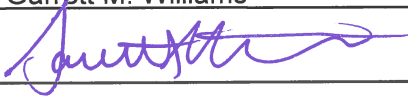
## Attachments

Attachment D-1	Stormwater Run-On Calculations
Attachment D-2	Stormwater Run-Off Calculations and Figure
Attachment D-3	Interior Collection Channel Calculations
Attachment D-4	NPDES Letter



# Professional Engineer Certification

"I hereby certify that this Run-on and Run-off Control System Plan for the CCR landfill known as the NC2 Ash Disposal Area at the Nebraska City Generating Station, owned and operated by the Omaha Public Power District, meets the requirements of the Coal Combustion Residual Rule 40 CFR 257.81. I am a duly licensed independent Professional Engineer under the laws of the State of Nebraska."

Print Name: Garrett M. Williams  
Signature:   
Date: 11/15/19  
License #: E-15124



My license renewal date is December 31<sup>st</sup>, 2020.

# 1 Introduction

## 1.1 Purpose

On April 17, 2015 the U.S. Environmental Protection Agency (EPA) published the final rule for the regulation and management of coal combustion residuals (CCR) under the Resource Conservation and Recovery Act (RCRA). 40 CFR 257.81 requires that an owner or operator of a CCR landfill must prepare an initial run-on and run-off control system plan. The run-on and run-off control system plan will be revised no later than April 16, 2020, in accordance with 40 CFR 257.81(c)(4). The plan must document how the control systems have been designed and constructed to meet the applicable requirements of the CCR rule, supported by appropriate engineering calculations. In accordance with the CCR rule 40 CFR 257.81, the intent of stormwater management is to design, construct, operate, and maintain:

- A run-on control system to prevent flow onto the active portion of the CCR unit during the peak discharge from a 24-hour, 25-year storm; and
- A run-off control system from the active portion of the CCR unit to collect and control at least the water volume resulting from a 24-hour, 25-year storm. Run-off from the active portion of the CCR unit must be handled in accordance with the surface water requirements under 40 CFR 257.3-3.

## 1.2 Facility Background

OPPD has a two-unit (Unit 1 and Unit 2) fossil fuel-fired generating plant at the Nebraska City Station (Station) located 5.5 miles southeast of Nebraska City, Nebraska, along the west shore of the Missouri River. This Station has two (2) existing CCR landfills that are permitted under the current Nebraska Department of Environmental Quality (NDEQ) Title 132 regulations for fossil fuel combustion ash disposal area; the NC1 Ash Disposal Area and NC2 Ash Disposal Area. This run-on and run-off control system plan is for the NC2 Ash Disposal Area (NDEQ Permit No. NE0204421, Facility ID 58343). Under the CCR rule, the NC2 Ash Disposal Area is an existing CCR landfill since it has and will receive CCR both before and after October 19, 2015 – the effective date of the CCR rule.

The NC2 Ash Disposal Area is an existing CCR landfill with a composite liner and leachate collection system, containing approximately 40.7 acres permitted disposal area. Cell 1 (approximately 14.4 acres) began accepting CCR in July 2009. Notification to the NDEQ and construction on NC2 Ash Disposal Area Cells 2 and 3 began prior to October 19, 2015.

The NDEQ Title 132 permit for the NC2 Ash Disposal Area also includes descriptions, calculations and figures of run-on and run-off control system features. This plan checks, expands and confirms compliance with the CCR rule for run-on and run-off controls from the active areas of the NC2 Ash Disposal Area.

## 2 Run-On Control System

The run-on control system for the NC2 Ash Disposal Area consists of perimeter berm roads, ditches and grading sloped away from the CCR landfill to prevent storm water run-on. As shown on the drawing in Attachment D-2, run-on to the NC2 Ash Disposal Area is prevented on the east, south and west sides by constructed berms and roadways. Along the north side, potential run-on would come from the railroad loop embankment. Perimeter ditches intercept, divert and prevent potential storm water run-on to the NC2 Ash Disposal Area. Calculations confirming the ditch and culvert capacities are included in Attachment D-1.

### 3 Run-Off Control System

The run-off control system for the NC2 Ash Disposal Area consists of interior collection channels, culverts and leachate retention pond. When ash elevations in the Cell(s) reach the perimeter road berms elevation, an interior perimeter drainage ditch within the disposal area, appropriately sized, will be constructed at the edge of the CCR landfill to collect and control the storm water run-off from the active portions of the NC2 Ash Disposal Area. These temporary interior channels will be constructed within the CCR disposal area footprint and will be graded to gravity drain storm water run-off through constructed culverts to the leachate retention pond. The CCR fill within the NC2 Ash Disposal Area has been and will be graded to facilitate surface water run-off towards the interior channels.

The side-slopes of the Cell(s) are planned to be constructed no steeper than 3 horizontal to 1 vertical grade. Run-off from the NC2 Ash Disposal Area side-slopes will be conveyed via an interior collection channel that will direct the water to the discharge point. Storm water will be generated from two sub-basin areas as shown in the drawing in Attachment D-2. Sub-basin 1 will generally consist of the stormwater runoff from the north side-slope that is captured by the interior northern perimeter channel. Sub-basin 2 will generally consist of the stormwater runoff from the west side-slope, also collected in an interior perimeter channel. Sub-basin 1 will be directed into the Sub-basin 2 perimeter channel. Storm water collected in the interior perimeter channels eventually flows south into the leachate pond via three 24-inch HDPE culverts. The three HDPE culverts are approximately 46-feet in length and have an inlet invert elevation of 917.0 ft.

The remainder of the surface runoff consists of runoff from the Cells, and the eastern and southern side-slopes. The runoff from these areas will flow generally in the southern direction and will discharge into the leachate pond via three additional 24-inch HDPE culverts.

The contributing volume of runoff was modeled for a 25-year, 24-hour storm event. The Rainfall depths were obtained from NOAA Atlas 14. The results of the hydrologic modeling, with a sub-basin schematic, are found in Attachment D-2.

The interior collection channels were also sized to convey runoff for a 25-year, 24-hour storm event. The north collection channel was sized to convey runoff from Sub-basin 1 and the west collection channel was sized to contain runoff from both Sub-basin 1 and Sub-basin 2. Both channels will have bottom width of 2-feet, be graded at minimum slope of 0.5% and have a depth of 2.5-feet. The bottom width and depth of the channel will be consistent along the length of both channels. The channel side-slope towards the interior of the cell will be 1.5 horizontal to 1 vertical up to the intersection with the CCR fill side-slope of 3 horizontal to 1 vertical. The channel side-slope towards the outer perimeter of the cell is planned to be constructed at 3 horizontal to 1 vertical.

The south collection channel was sized to convey runoff from Sub-basin 3a, Sub-basin 4a and Sub-basin 4b to multiple culverts which drain to the leachate pond. The channel will have bottom

width of 2-feet, graded to a minimum 0.5% slope and depth of 3 feet. The area in front of the culvert inlets have a constructed pad to facilitate clean-out of settled CCR sediment.


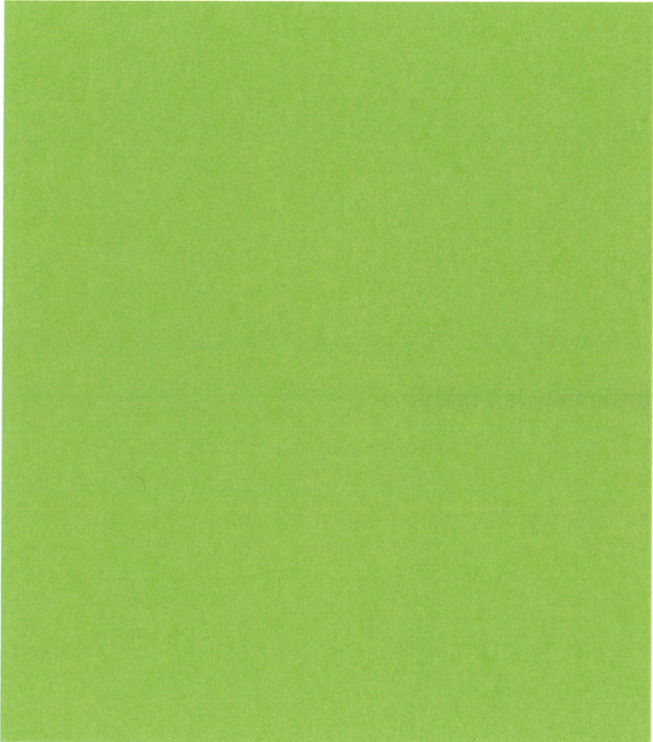
Calculations checking the capacity of the interior channels are included in Attachment D-3.

The leachate retention pond located south of Cell 3 was constructed as part of Cells 2 and 3 liner construction. This leachate retention pond is sized to adequately contain surface water run-off, leachate, and storm water from the 25-year, 24-hour storm event. The leachate retention pond has a capacity of approximately 735,000 cubic feet. In order to contain run-off for the 25-year, 24-hour storm event and provide 1-foot of freeboard, the pond water surface elevation must be maintained at 912.2 feet or lower. The pond has a bottom elevation of 911.0 feet with 1-foot of riprap and a top elevation of 919.0 feet. The pond has side-slopes at a 3 horizontal to 1 vertical grade.


Contact water generated from the 25-year, 24-hour storm (and lesser storms) will be collected, controlled and conveyed to the leachate retention pond for management in accordance with existing surface water requirements of the Station's National Pollution Discharge Elimination System (NPDES) permit. A copy of the NPDES notice of intent and NDEQ approval letter is contained in Attachment D-4.

Calculations, figures and management of stormwater run-off from the active portion of the NC2 Ash Disposal Area are contained in Attachments D-2 and D-3 of this plan.





Attachment D-1  
Stormwater Run-On  
Calculations



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# Culvert Report

## North Culvert

Invert Elev Dn (ft)	= 923.11
Pipe Length (ft)	= 84.13
Slope (%)	= -2.51
Invert Elev Up (ft)	= 921.00
Rise (in)	= 30.0
Shape	= Circular
Span (in)	= 30.0
No. Barrels	= 2
n-Value	= 0.012
Culvert Type	= Circular Concrete
Culvert Entrance	= Square edge w/headwall (C)
Coeff. K,M,c,Y,k	= 0.0098, 2, 0.0398, 0.67, 0.5

### Calculations

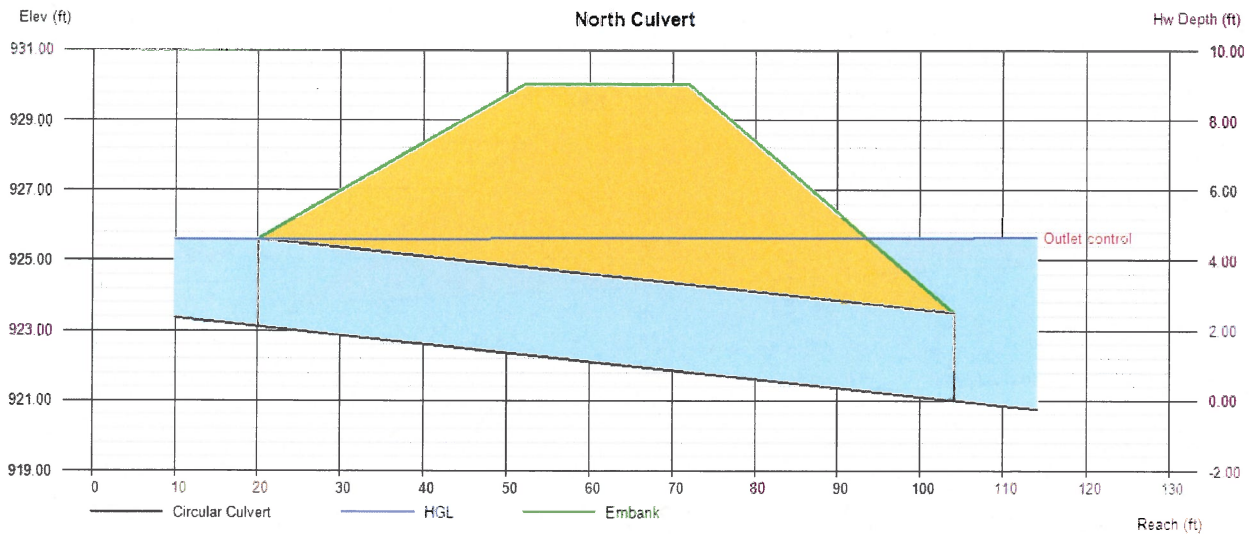
Qmin (cfs)	= 0.00
Qmax (cfs)	= 15.00
Tailwater Elev (ft)	= Normal

### Highlighted

Qtotal (cfs)	= 13.00
Qpipe (cfs)	= 13.00
Qovertop (cfs)	= 0.00
Veloc Dn (ft/s)	= 1.32
Veloc Up (ft/s)	= 1.32
HGL Dn (ft)	= 925.61
HGL Up (ft)	= 925.63
Hw Elev (ft)	= 925.67
Hw/D (ft)	= 1.87
Flow Regime	= Outlet Control

### Embankment

Top Elevation (ft)	= 930.00
Top Width (ft)	= 20.00
Crest Width (ft)	= 40.00



# Culvert Report

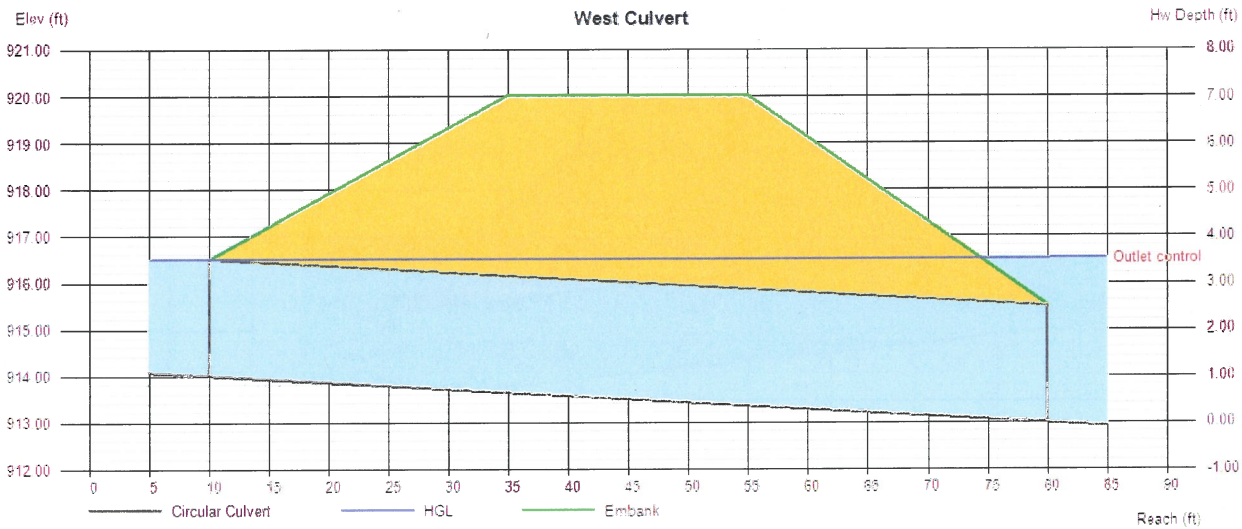
## West Culvert



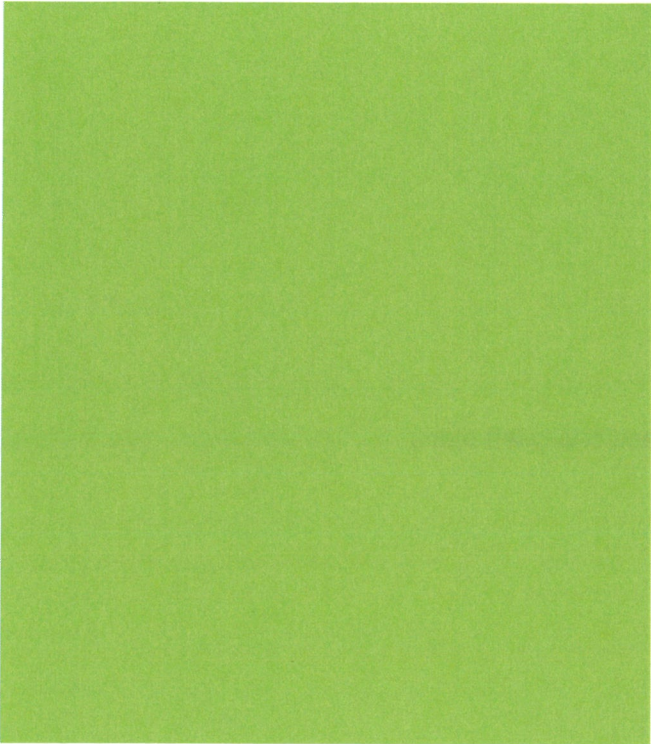
Invert Elev Dn (ft)	= 914.00
Pipe Length (ft)	= 70.00
Slope (%)	= -1.43
Invert Elev Up (ft)	= 913.00
Rise (in)	= 30.0
Shape	= Circular
Span (in)	= 30.0
No. Barrels	= 2
n-Value	= 0.012
Culvert Type	= Circular Concrete
Culvert Entrance	= Square edge w/headwall (C)
Coeff. K,M,c,Y,k	= 0.0098, 2, 0.0398, 0.67, 0.5

<b>Embankment</b>	
Top Elevation (ft)	= 920.00
Top Width (ft)	= 20.00
Crest Width (ft)	= 50.00

<b>Calculations</b>	
Qmin (cfs)	= 0.00
Qmax (cfs)	= 15.00
Tailwater Elev (ft)	= Normal

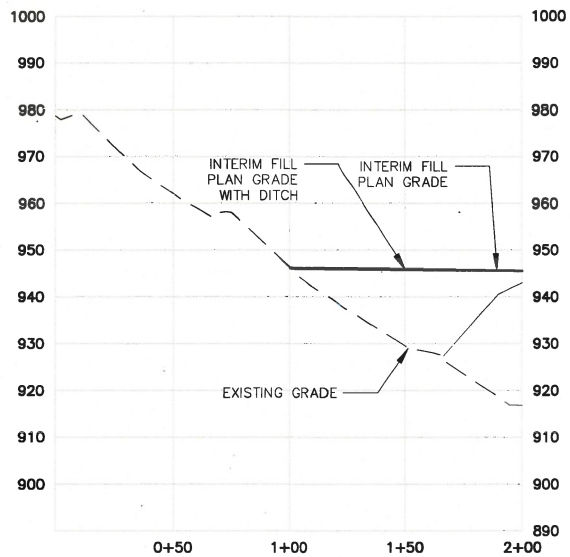
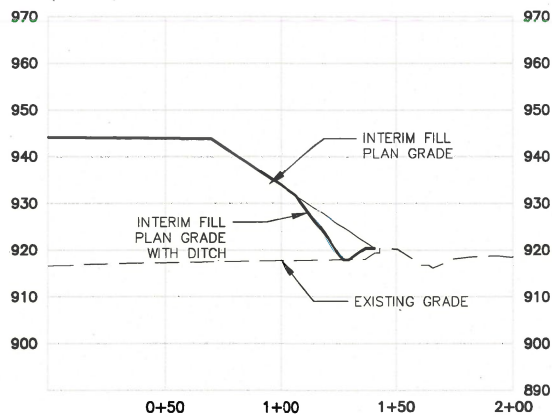
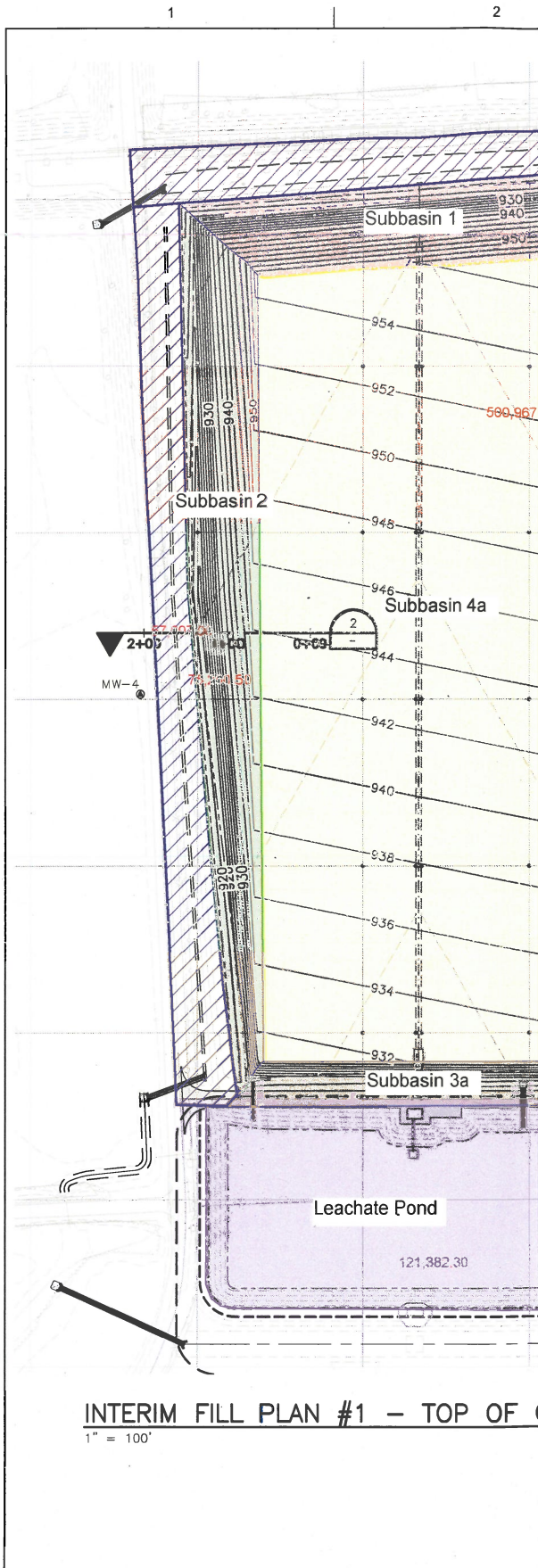
<b>Highlighted</b>	
Qtotal (cfs)	= 10.00
Qpipe (cfs)	= 10.00
Qovertop (cfs)	= 0.00
Veloc Dn (ft/s)	= 1.02
Veloc Up (ft/s)	= 1.02
HGL Dn (ft)	= 916.50
HGL Up (ft)	= 916.51
Hw Elev (ft)	= 916.53
Hw/D (ft)	= 1.41
Flow Regime	= Outlet Control





Attachment D-2  
Stormwater Run-Off  
Calculations and Figure

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0	
ISSUE	DATE

**CELLS 2 AND 3 LINER  
INTERIM FILL PLAN #1  
PLAN AND CROSS-SECTIONS**



FILENAME #IA.3 Plan.dwg  
SCALE AS SHOWN

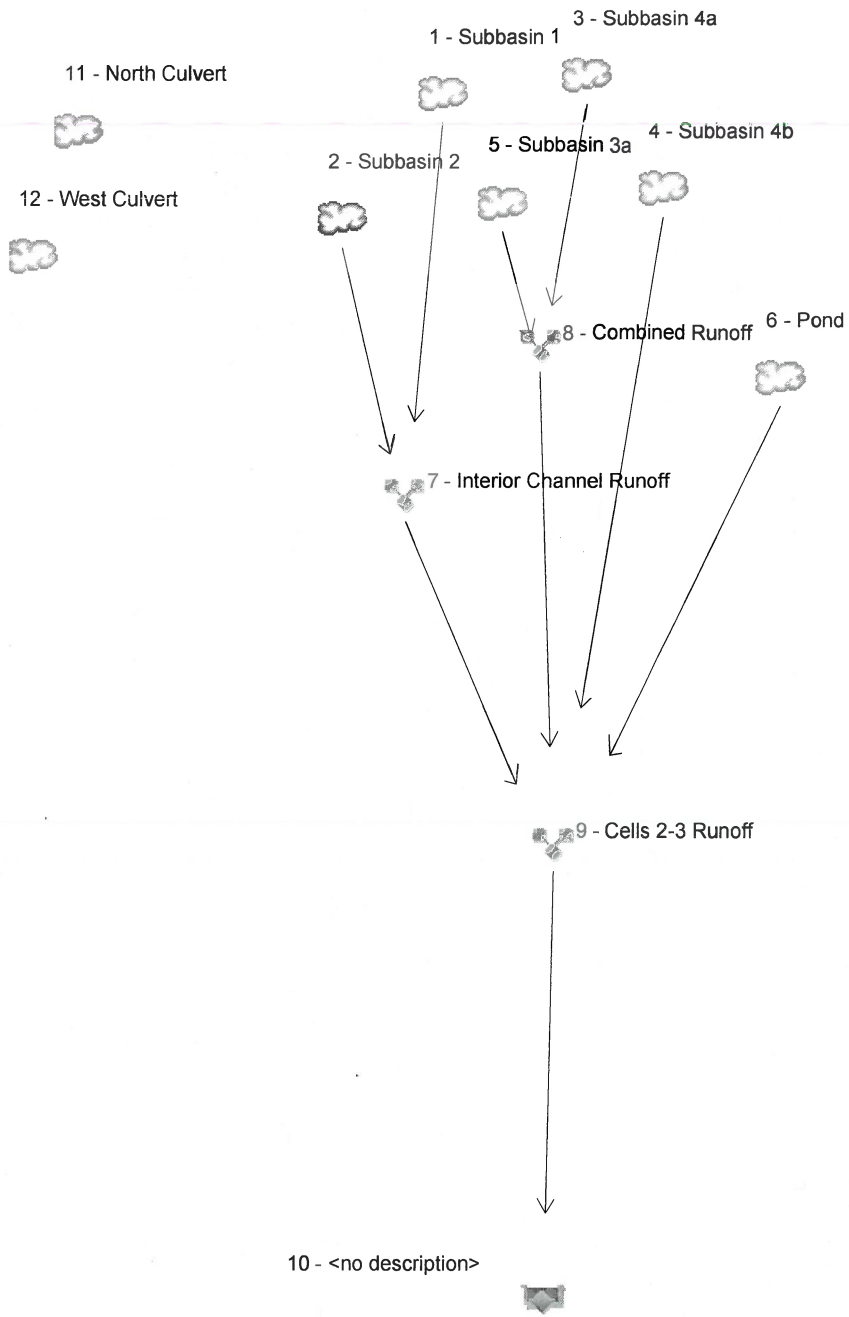
SHEET





# Watershed Model Schematic

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2014 by Autodesk, Inc. v10.3

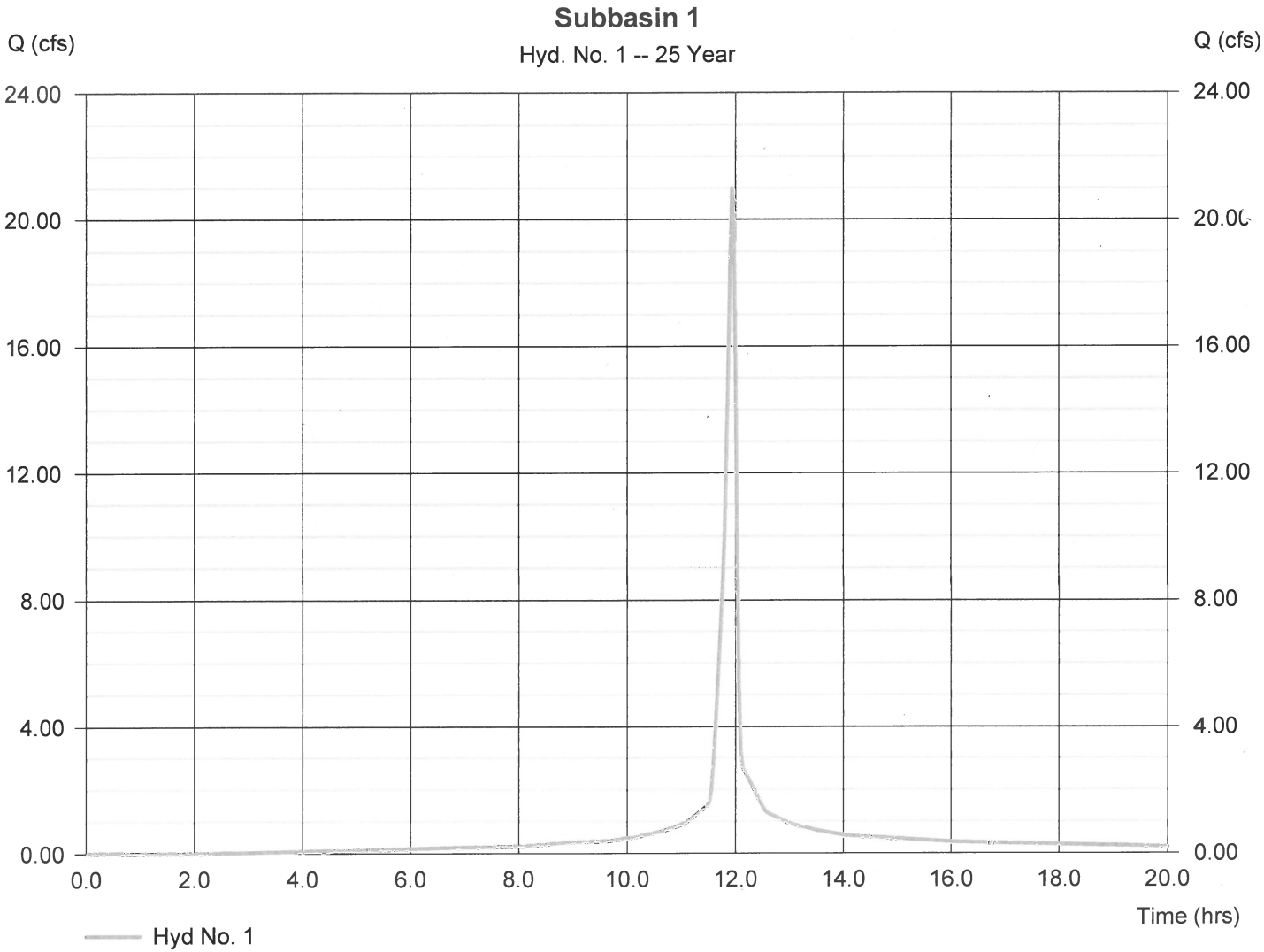


# Hydrograph Report

## Hyd. No. 1

### Subbasin 1

Hydrograph type	= SCS Runoff	Peak discharge	= 21.00 cfs
Storm frequency	= 25 yrs	Time to peak	= 11.93 hrs
Time interval	= 2 min	Hyd. volume	= 47,093 cuft
Drainage area	= 2.660 ac	Curve number	= 93
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 5.00 min
Total precip.	= 6.02 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484

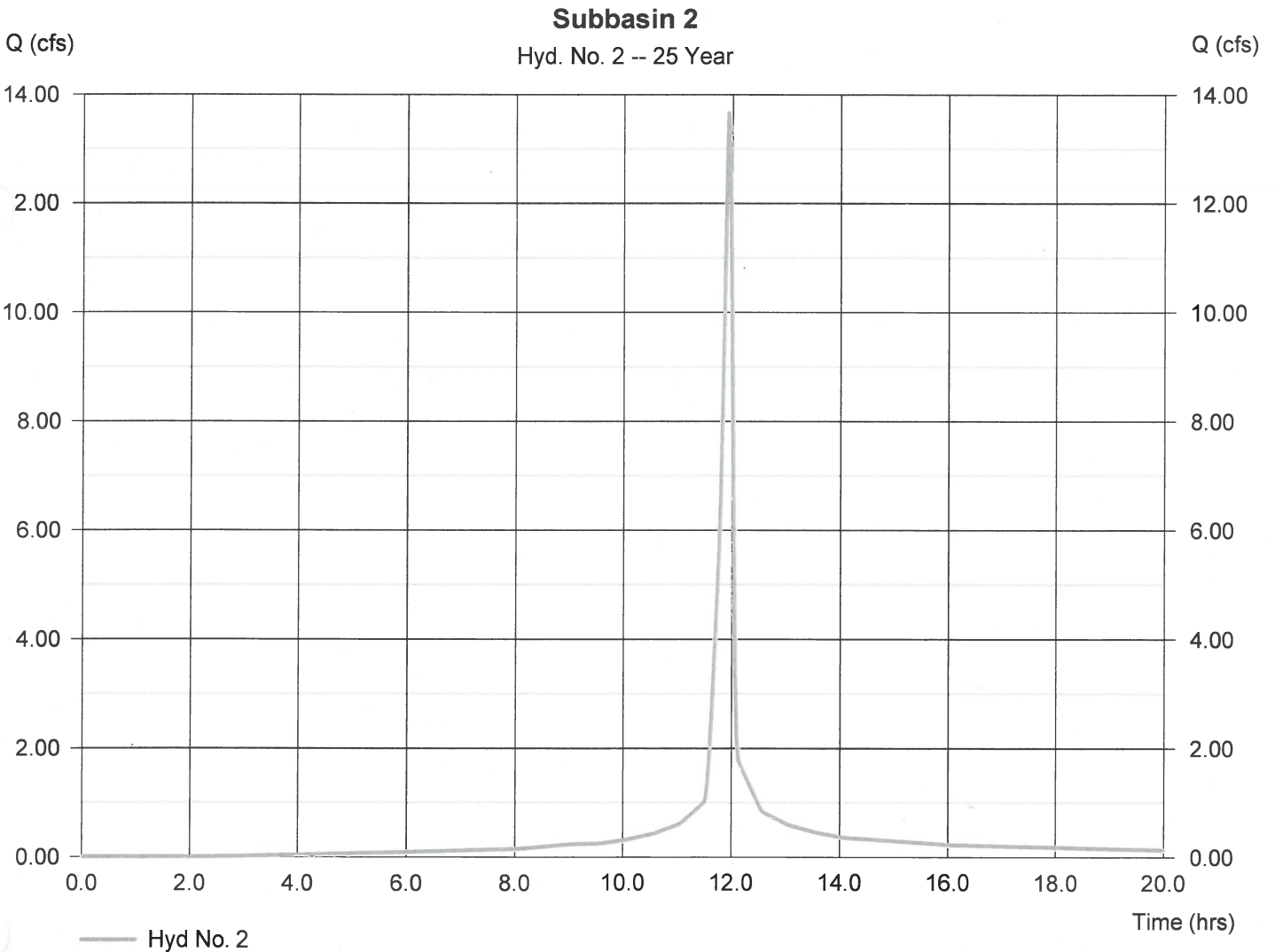


# Hydrograph Report

## Hyd. No. 2

### Subbasin 2

Hydrograph type	= SCS Runoff	Peak discharge	= 13.66 cfs
Storm frequency	= 25 yrs	Time to peak	= 11.93 hrs
Time interval	= 2 min	Hyd. volume	= 30,628 cuft
Drainage area	= 1.730 ac	Curve number	= 93
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 5.00 min
Total precip.	= 6.02 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484



# Hydrograph Report

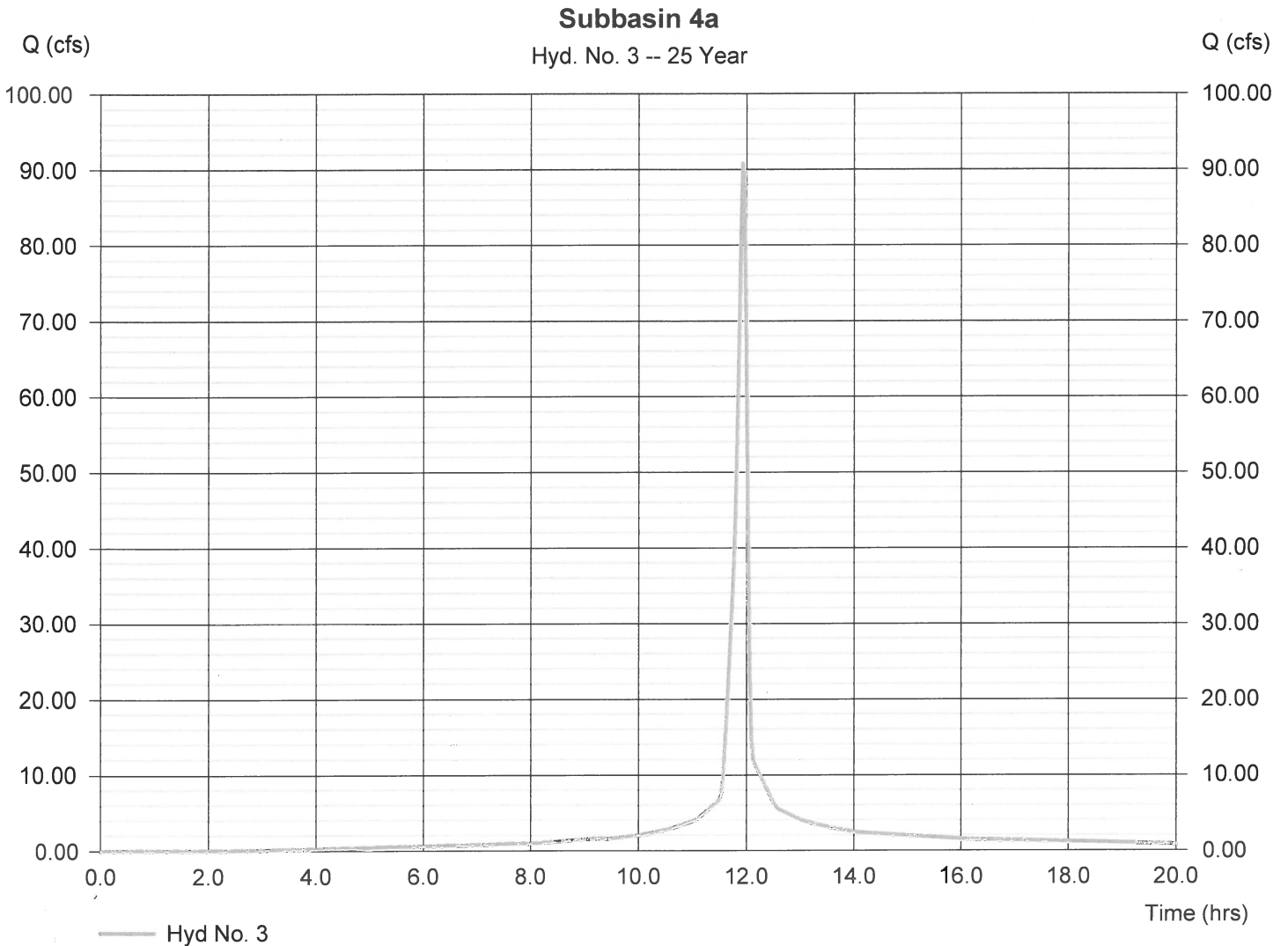
Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2014 by Autodesk, Inc. v10.3

Tuesday, 08 / 23 / 2016

## Hyd. No. 3

### Subbasin 4a

Hydrograph type	= SCS Runoff	Peak discharge	= 90.80 cfs
Storm frequency	= 25 yrs	Time to peak	= 11.93 hrs
Time interval	= 2 min	Hyd. volume	= 203,598 cuft
Drainage area	= 11.500 ac	Curve number	= 93
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 5.00 min
Total precip.	= 6.02 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484

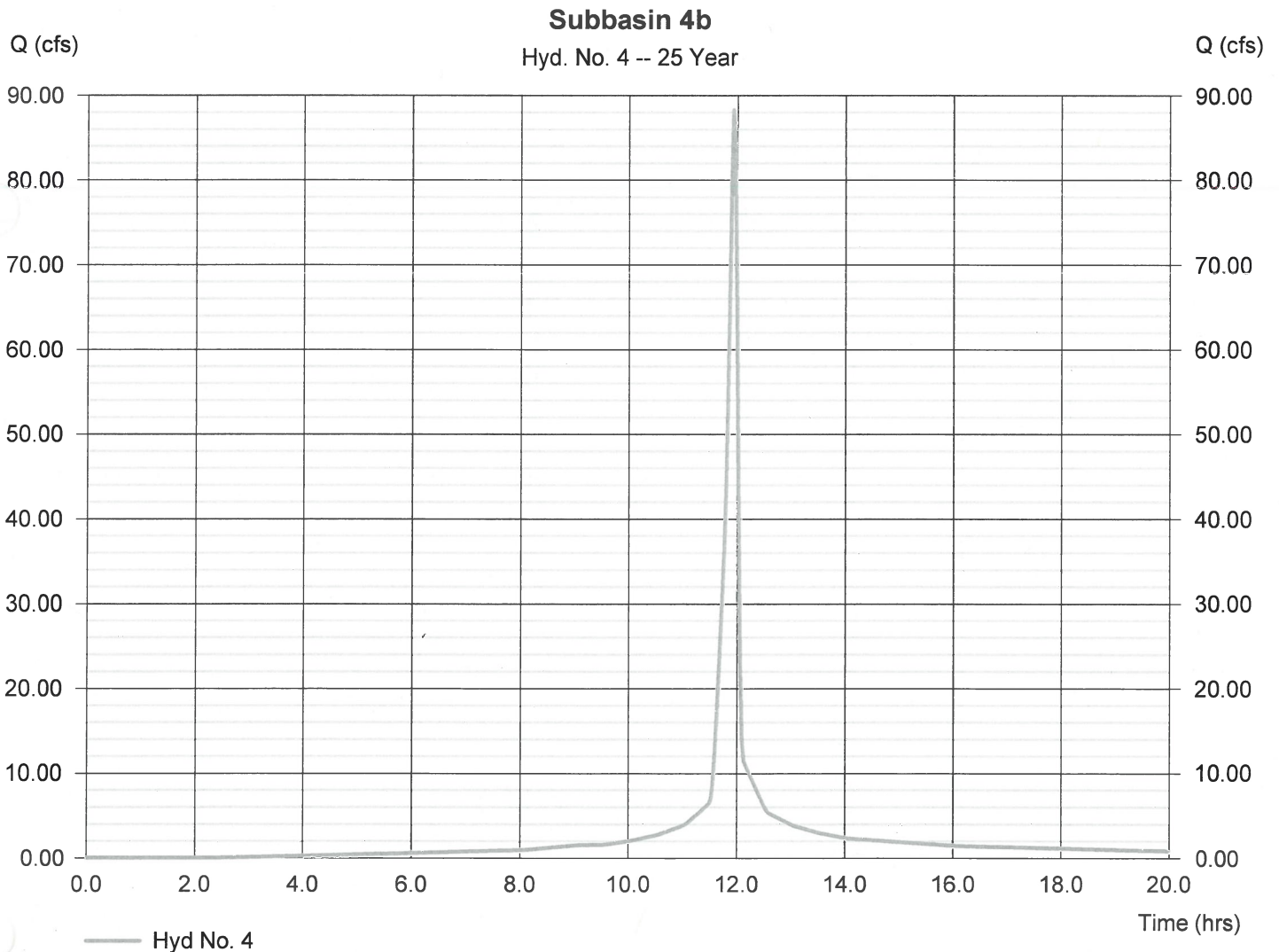


# Hydrograph Report

## Hyd. No. 4

### Subbasin 4b

Hydrograph type	= SCS Runoff	Peak discharge	= 88.27 cfs
Storm frequency	= 25 yrs	Time to peak	= 11.93 hrs
Time interval	= 2 min	Hyd. volume	= 197,932 cuft
Drainage area	= 11.180 ac	Curve number	= 93
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 5.00 min
Total precip.	= 6.02 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484



# Hydrograph Report

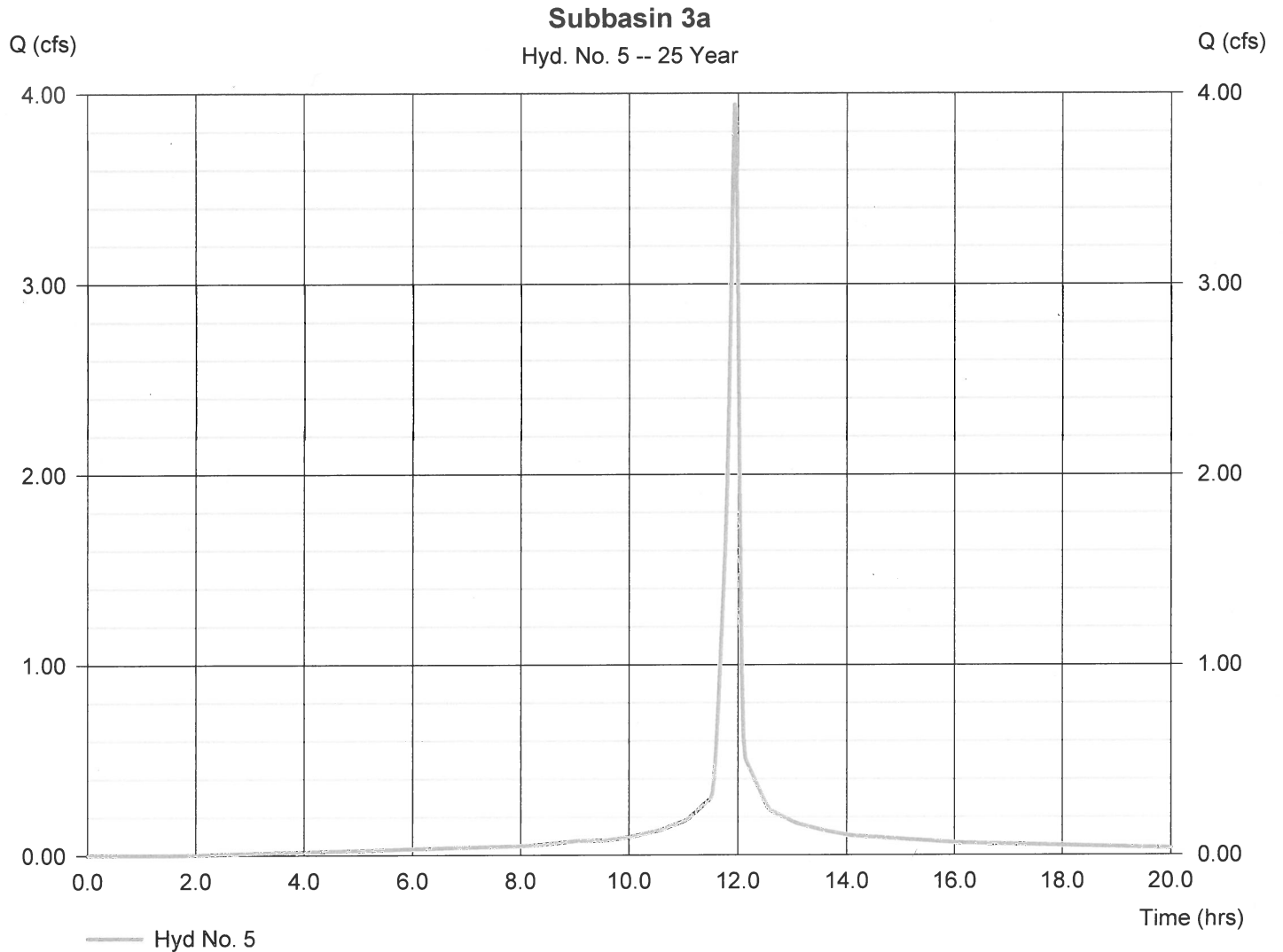
Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2014 by Autodesk, Inc. v10.3

Tuesday, 08 / 23 / 2016

## Hyd. No. 5

### Subbasin 3a

Hydrograph type	= SCS Runoff	Peak discharge	= 3.943 cfs
Storm frequency	= 25 yrs	Time to peak	= 11.93 hrs
Time interval	= 2 min	Hyd. volume	= 9,057 cuft
Drainage area	= 0.490 ac	Curve number	= 95
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 5.00 min
Total precip.	= 6.02 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484

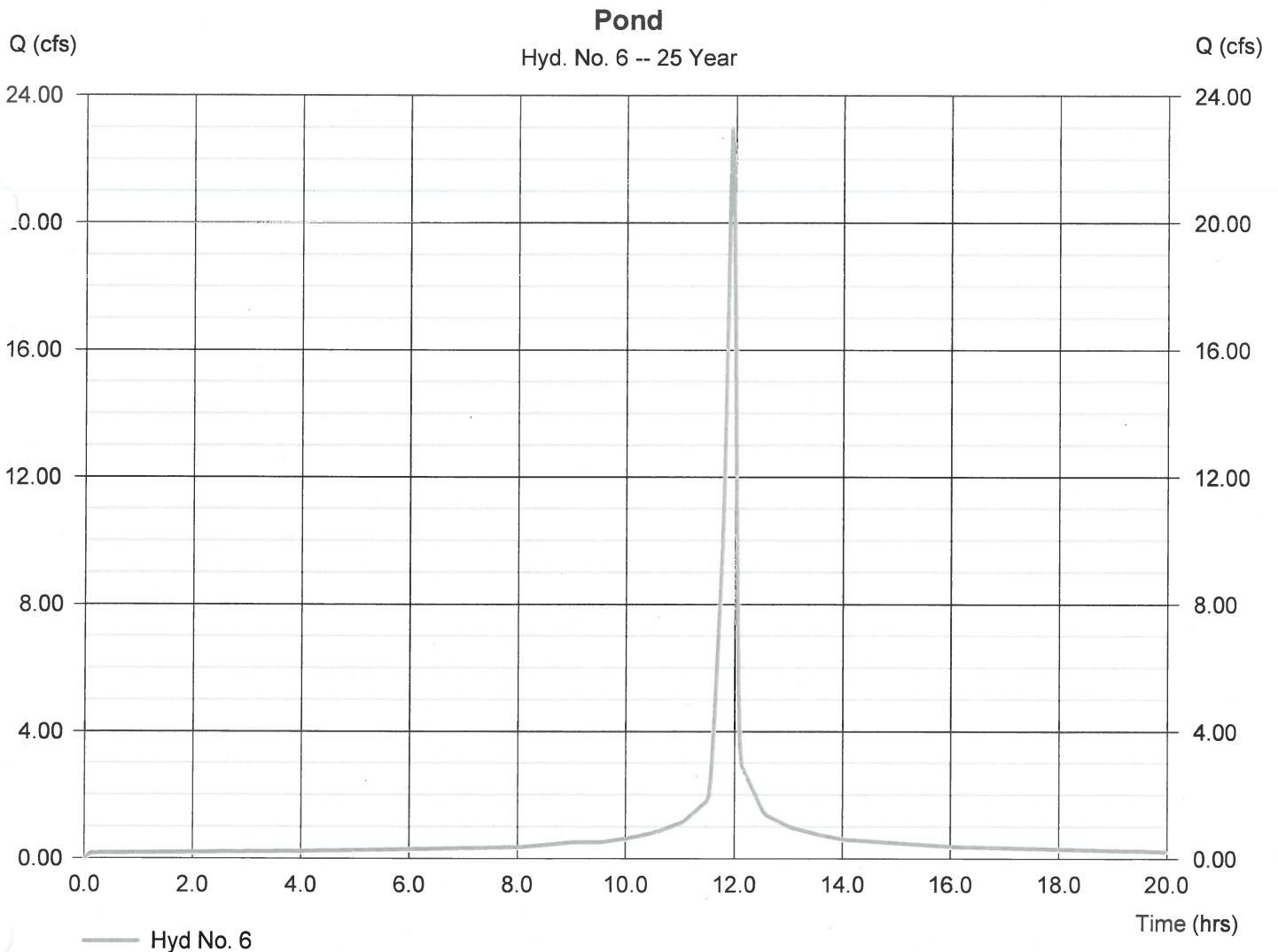


# Hydrograph Report

## Hyd. No. 6

Pond

Hydrograph type	= SCS Runoff	Peak discharge	= 22.95 cfs
Storm frequency	= 25 yrs	Time to peak	= 11.93 hrs
Time interval	= 2 min	Hyd. volume	= 57,158 cuft
Drainage area	= 2.790 ac	Curve number	= 100
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 5.00 min
Total precip.	= 6.02 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484



# Hydrograph Report

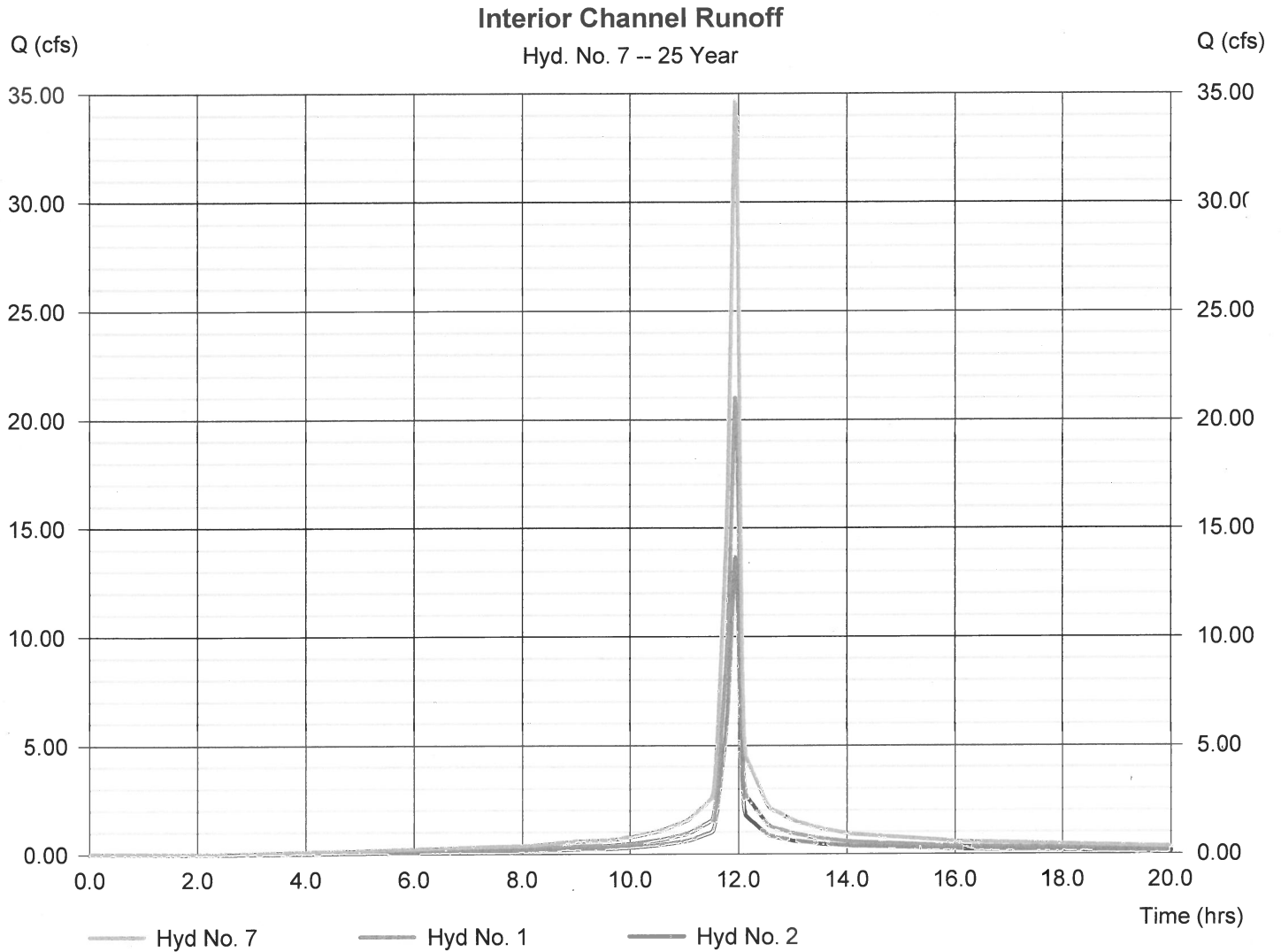
Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2014 by Autodesk, Inc. v10.3

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## Hyd. No. 7

### Interior Channel Runoff

Hydrograph type	= Combine	Peak discharge	= 34.66 cfs
Storm frequency	= 25 yrs	Time to peak	= 11.93 hrs
Time interval	= 2 min	Hyd. volume	= 77,721 cuft
Inflow hyds.	= 1, 2	Contrib. drain. area	= 4.390 ac





# Hydrograph Report

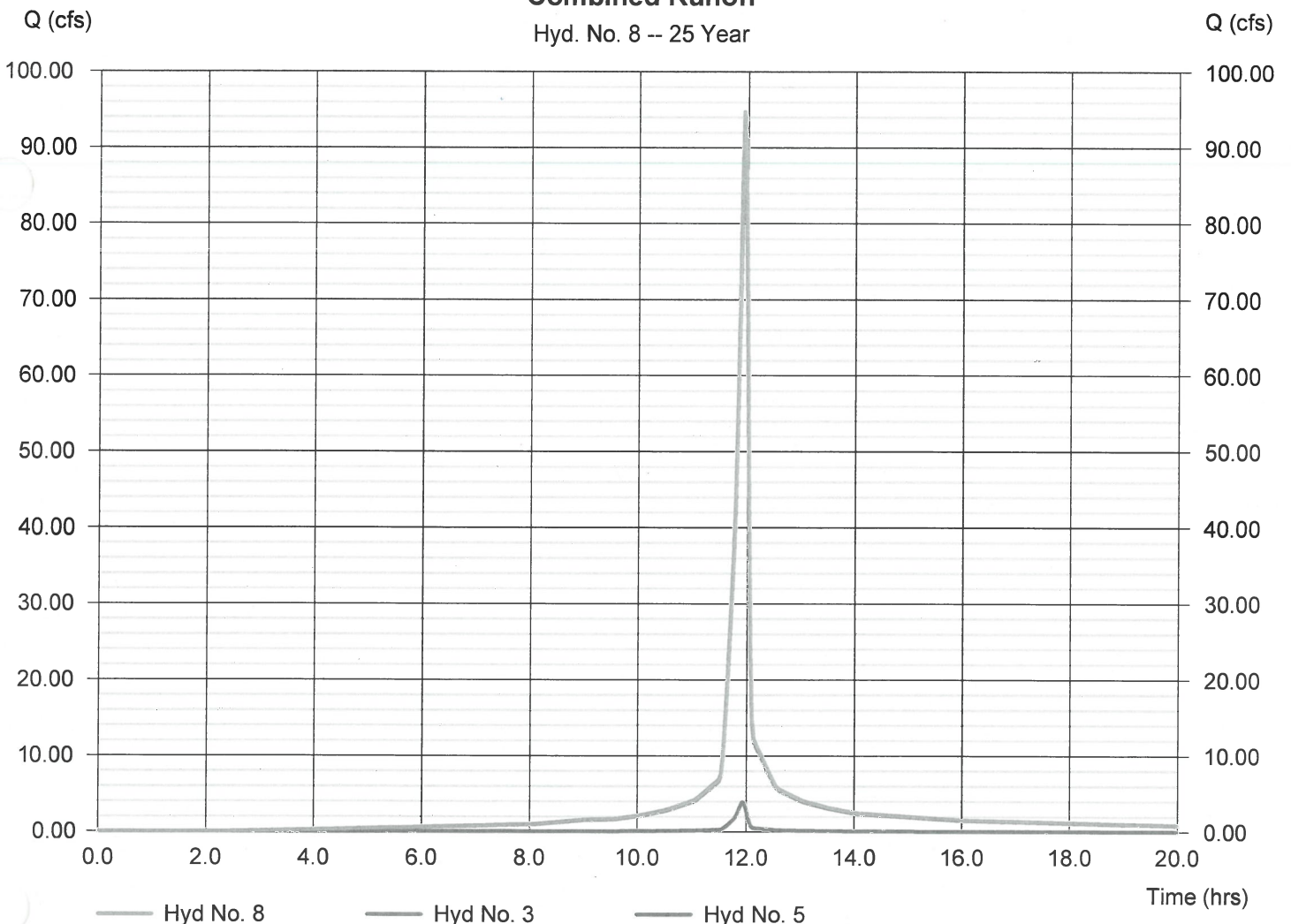
## Hyd. No. 8

### Combined Runoff

Hydrograph type	= Combine	Peak discharge	= 94.74 cfs
Storm frequency	= 25 yrs	Time to peak	= 11.93 hrs
Time interval	= 2 min	Hyd. volume	= 212,655 cuft
Inflow hyds.	= 3, 5	Contrib. drain. area	= 11.990 ac

### Combined Runoff

Hyd. No. 8 -- 25 Year



# Hydrograph Report

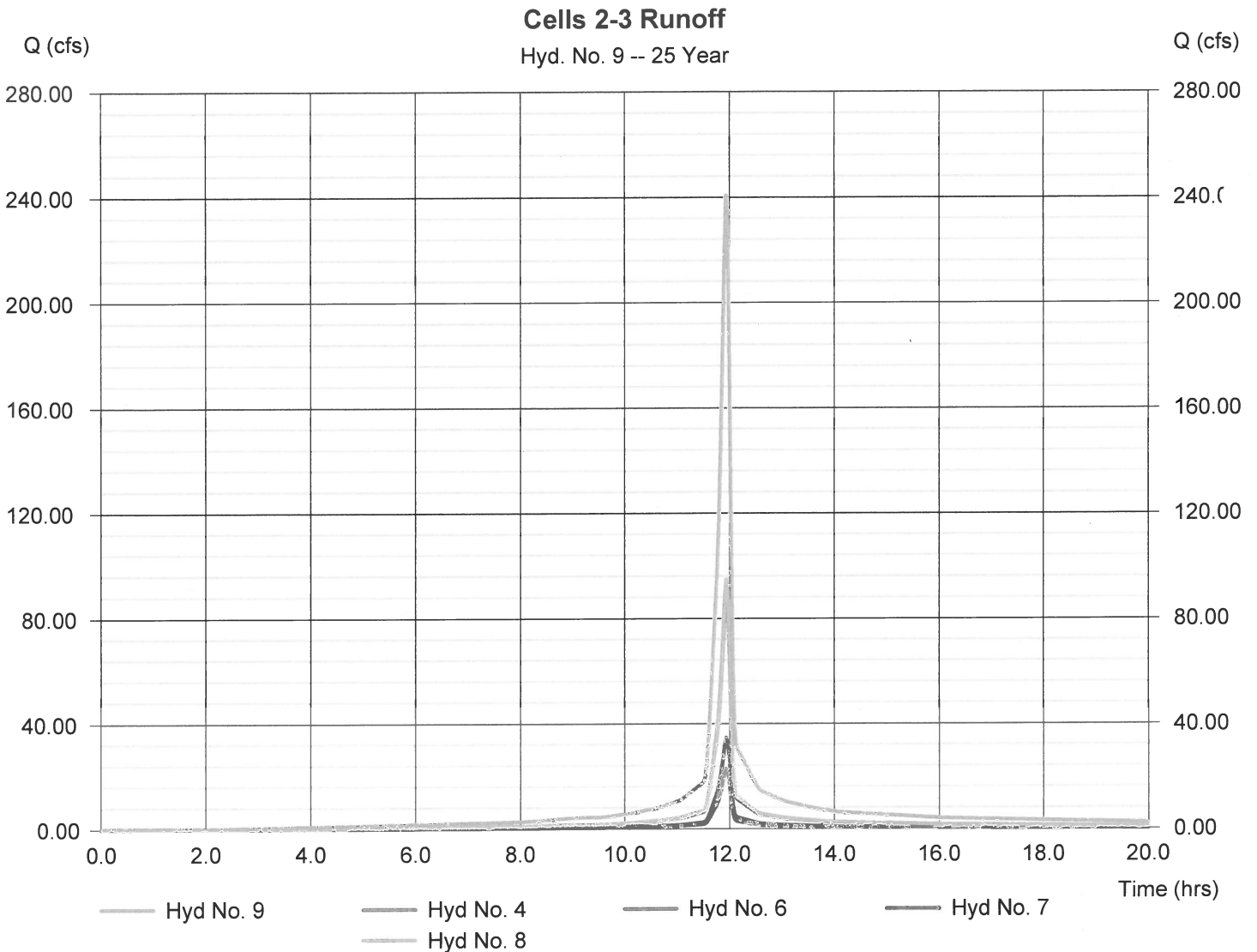
Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2014 by Autodesk, Inc. v10.3

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## Hyd. No. 9

### Cells 2-3 Runoff

Hydrograph type	= Combine	Peak discharge	= 240.63 cfs
Storm frequency	= 25 yrs	Time to peak	= 11.93 hrs
Time interval	= 2 min	Hyd. volume	= 545,467 cuft
Inflow hyds.	= 4, 6, 7, 8	Contrib. drain. area	= 13.970 ac



# Hydrograph Report

## Hyd. No. 10

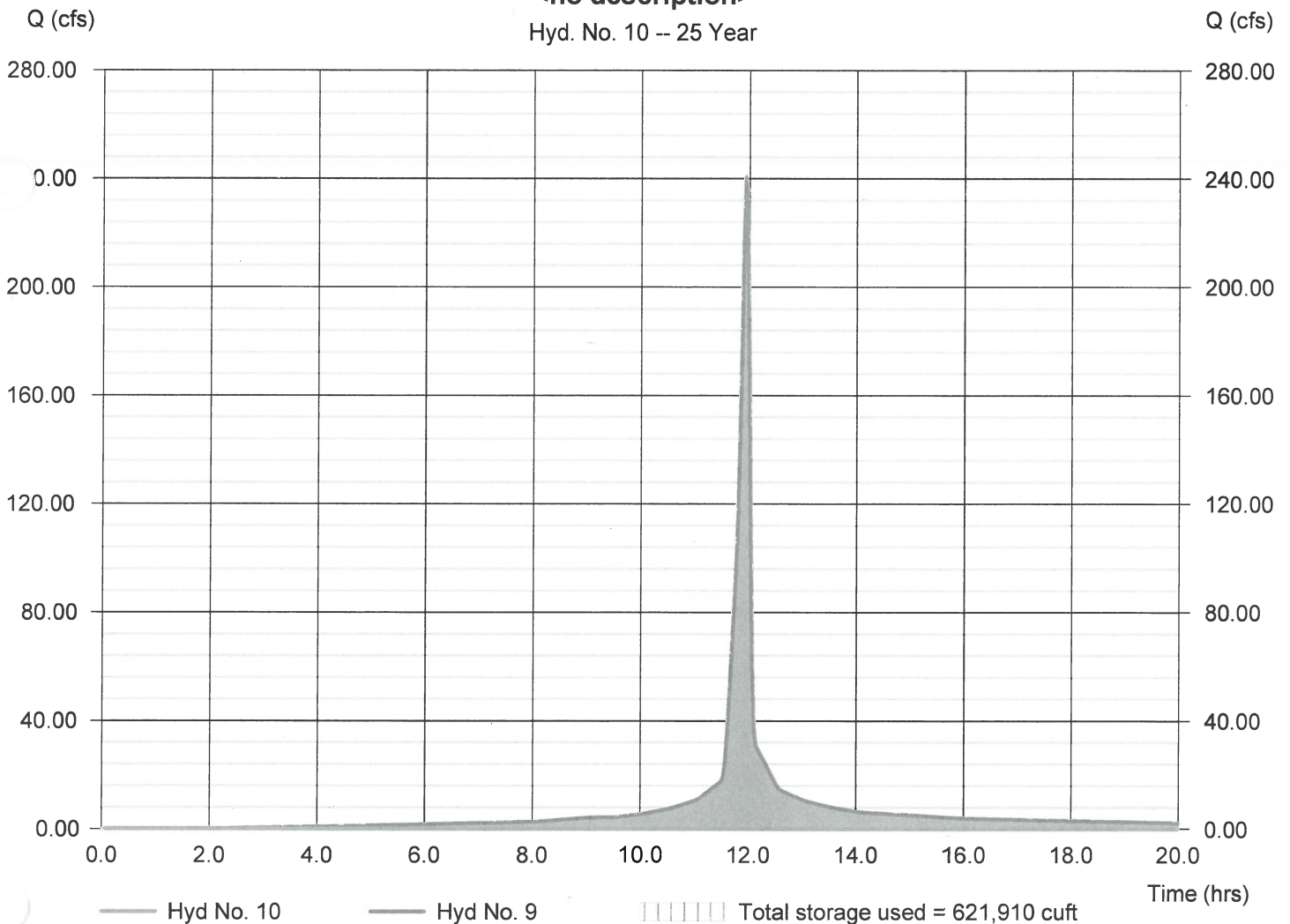
<no description>

Hydrograph type	= Reservoir	Peak discharge	= 0.000 cfs
Storm frequency	= 25 yrs	Time to peak	= n/a
Time interval	= 2 min	Hyd. volume	= 0 cuft
Inflow hyd. No.	= 9 - Cells 2-3 Runoff	Max. Elevation	= 917.95 ft
Reservoir name	= Permit West Pond	Max. Storage	= 621,910 cuft

Storage Indication method used. Wet pond routing start elevation = 912.20 ft.

### <no description>

Hyd. No. 10 -- 25 Year



# Pond Report

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Monday, 10 / 17 / 2016

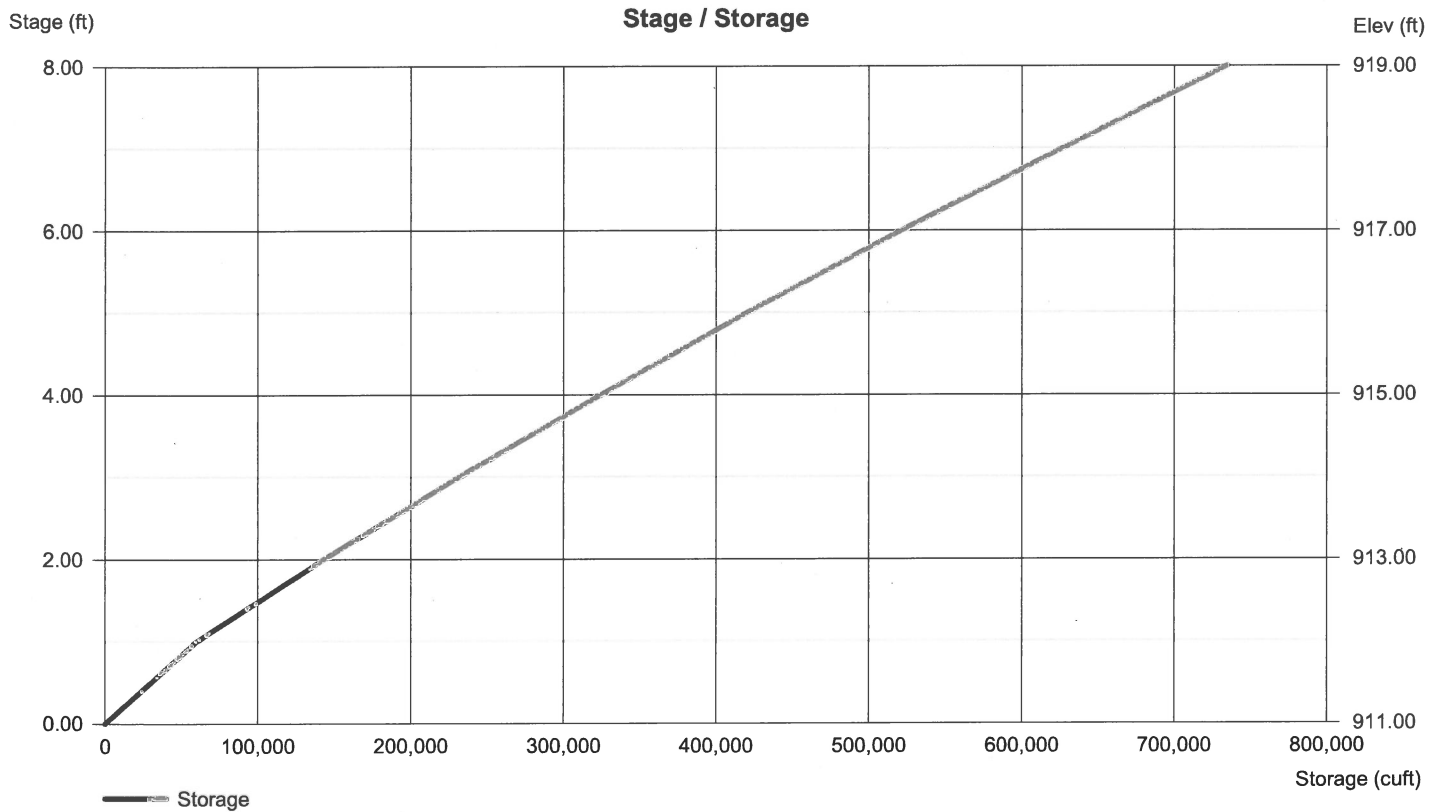
## Pond No. 1 - Permit West Pond

### Pond Data

**Contours** -User-defined contour areas. Conic method used for volume calculation. Begining Elevation = 911.00 ft

### Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (cuft)	Total storage (cuft)
0.00	911.00	40,000	0	0
1.00	912.00	81,891	59,702	59,702
2.00	913.00	85,549	83,705	143,407
3.00	914.00	91,523	88,510	231,917
4.00	915.00	93,969	92,734	324,651
5.00	916.00	98,132	96,033	420,685
6.00	917.00	103,814	100,950	521,634
7.00	918.00	107,626	105,704	627,338
8.00	919.00	107,626	107,615	734,953



# Hydrograph Report

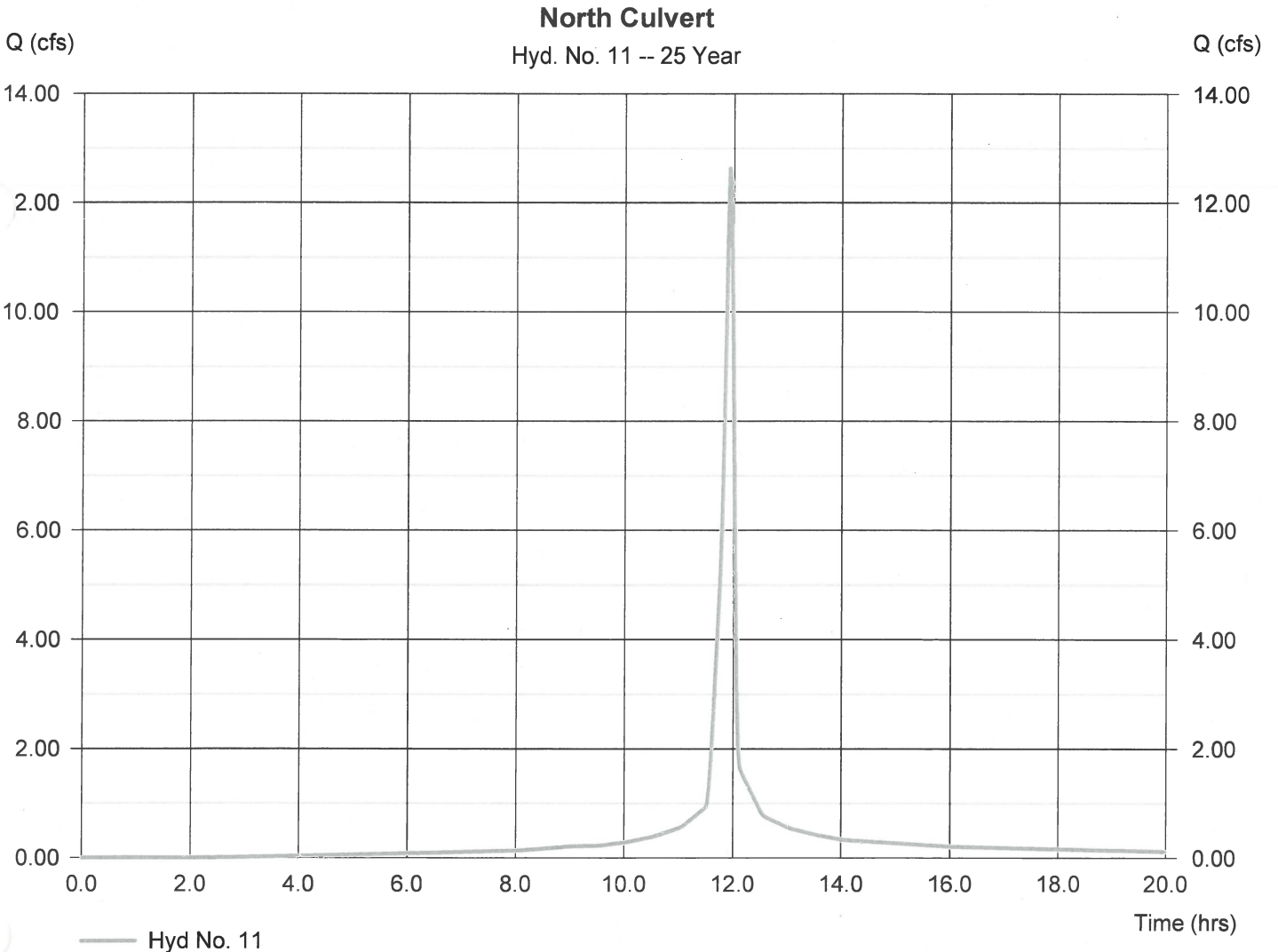
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## Hyd. No. 11

### North Culvert

Hydrograph type	= SCS Runoff	Peak discharge	= 12.63 cfs
Storm frequency	= 25 yrs	Time to peak	= 11.93 hrs
Time interval	= 2 min	Hyd. volume	= 28,327 cuft
Drainage area	= 1.600 ac	Curve number	= 93
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 5.00 min
Total precip.	= 6.02 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484



# Hydrograph Report

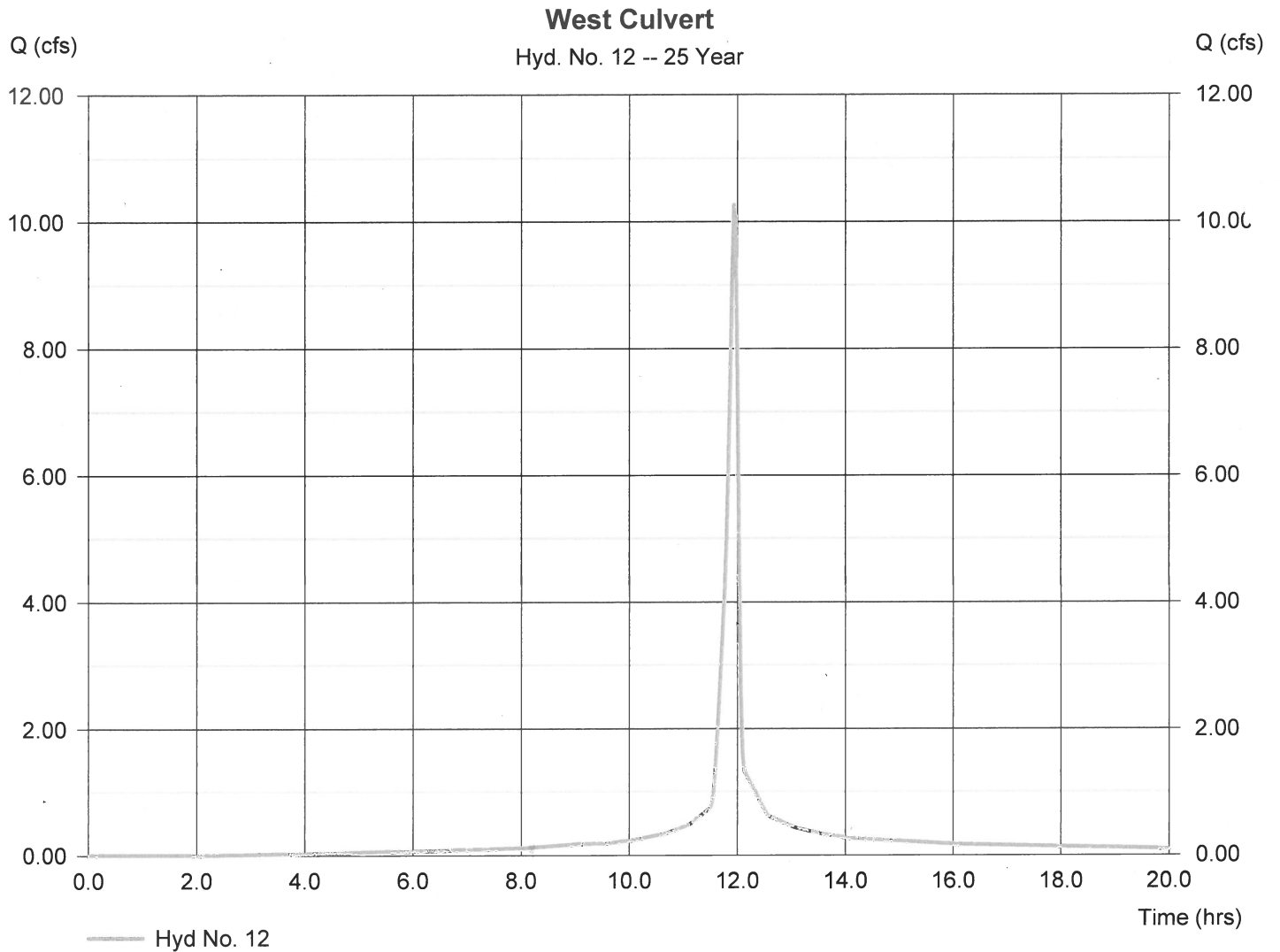
Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2014 by Autodesk, Inc. v10.3

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## Hyd. No. 12

### West Culvert

Hydrograph type	= SCS Runoff	Peak discharge	= 10.26 cfs
Storm frequency	= 25 yrs	Time to peak	= 11.93 hrs
Time interval	= 2 min	Hyd. volume	= 23,015 cuft
Drainage area	= 1.300 ac	Curve number	= 93
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 5.00 min
Total precip.	= 6.02 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484





**NOAA Atlas 14, Volume 8, Version 2**  
**Location name: Nebraska City, Nebraska, US\***  
**Latitude: 40.6188°, Longitude: -95.7842°**  
**Elevation: 931 ft\***  
 \* source: Google Maps



**POINT PRECIPITATION FREQUENCY ESTIMATES**

Sanja Perica, Deborah Martin, Sandra Pavlovic, Ishani Roy, Michael St. Laurent, Carl Trypaluk, Dale Unruh, Michael Yekta, Geoffrey Bonnin

NOAA, National Weather Service, Silver Spring, Maryland

[PF tabular](#) | [PF graphical](#) | [Maps & aeriels](#)

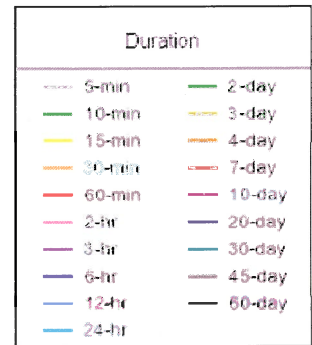
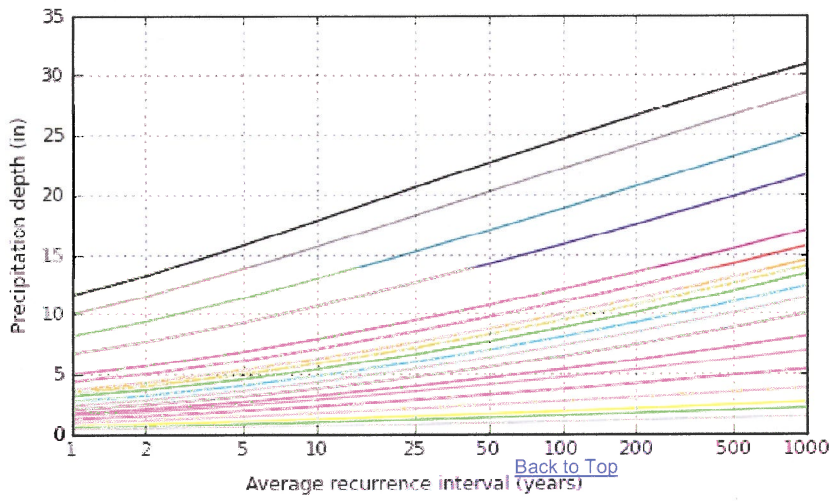
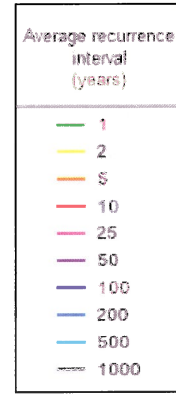
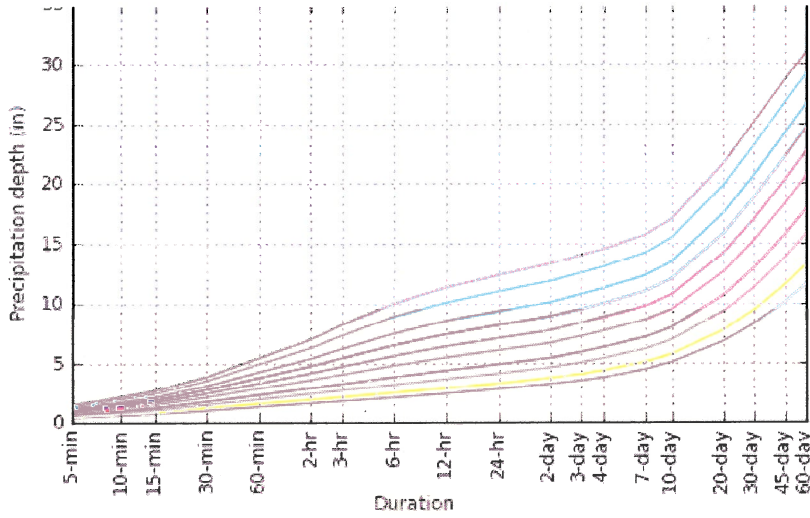
**PF tabular**

<b>PDS-based point precipitation frequency estimates with 90% confidence intervals (in inches)<sup>1</sup></b>										
Duration	Average recurrence interval (years)									
	1	2	5	10	25	50	100	200	500	1000
5-min	0.405 (0.324-0.517)	0.476 (0.381-0.608)	0.595 (0.475-0.761)	0.697 (0.553-0.893)	0.841 (0.647-1.10)	0.955 (0.717-1.25)	1.07 (0.779-1.43)	1.19 (0.832-1.61)	1.36 (0.911-1.85)	1.49 (0.971-2.04)
10-min	0.593 (0.475-0.757)	0.697 (0.558-0.890)	0.872 (0.696-1.12)	1.02 (0.810-1.31)	1.23 (0.947-1.61)	1.40 (1.05-1.84)	1.57 (1.14-2.09)	1.75 (1.22-2.35)	1.99 (1.33-2.71)	2.18 (1.42-2.99)
15-min	0.723 (0.579-0.923)	0.850 (0.681-1.09)	1.06 (0.848-1.36)	1.25 (0.988-1.60)	1.50 (1.16-1.96)	1.71 (1.28-2.24)	1.91 (1.39-2.54)	2.13 (1.49-2.87)	2.43 (1.63-3.31)	2.65 (1.73-3.64)
30-min	1.02 (0.820-1.31)	1.21 (0.968-1.55)	1.52 (1.21-1.94)	1.78 (1.42-2.29)	2.16 (1.66-2.82)	2.45 (1.84-3.22)	2.75 (2.00-3.66)	3.06 (2.14-4.12)	3.49 (2.34-4.75)	3.81 (2.49-5.23)
60-min	1.33 (1.06-1.69)	1.57 (1.25-2.00)	1.98 (1.58-2.53)	2.34 (1.85-2.99)	2.86 (2.21-3.75)	3.29 (2.47-4.33)	3.73 (2.72-4.98)	4.20 (2.94-5.67)	4.86 (3.26-6.64)	5.38 (3.51-7.38)
2-hr	1.63 (1.32-2.05)	1.92 (1.55-2.42)	2.43 (1.96-3.07)	2.89 (2.31-3.65)	3.56 (2.78-4.64)	4.12 (3.14-5.38)	4.71 (3.47-6.23)	5.34 (3.77-7.16)	6.23 (4.23-8.46)	6.94 (4.58-9.45)
3-hr	1.81 (1.47-2.26)	2.13 (1.73-2.66)	2.70 (2.19-3.38)	3.22 (2.60-4.04)	4.01 (3.16-5.20)	4.67 (3.58-6.08)	5.38 (3.99-7.09)	6.15 (4.37-8.21)	7.24 (4.95-9.81)	8.13 (5.39-11.0)
6-hr	2.12 (1.74-2.61)	2.48 (2.04-3.07)	3.16 (2.59-3.91)	3.78 (3.08-4.70)	4.75 (3.79-6.11)	5.57 (4.32-7.19)	6.46 (4.84-8.44)	7.43 (5.34-9.85)	8.83 (6.10-11.9)	9.97 (6.67-13.4)
12-hr	2.43 (2.02-2.96)	2.85 (2.37-3.48)	3.62 (3.00-4.43)	4.34 (3.57-5.31)	5.43 (4.38-6.91)	6.36 (4.99-8.12)	7.37 (5.58-9.53)	8.47 (6.15-11.1)	10.0 (7.01-13.4)	11.3 (7.66-15.1)
24-hr	2.78 (2.34-3.35)	3.24 (2.72-3.90)	4.07 (3.41-4.91)	4.84 (4.03-5.86)	6.02 (4.90-7.57)	7.03 (5.56-8.86)	8.11 (6.20-10.4)	9.29 (6.81-12.1)	11.0 (7.73-14.5)	12.4 (8.43-16.3)
2-day	3.21 (2.72-3.81)	3.69 (3.13-4.38)	4.57 (3.87-5.44)	5.39 (4.53-6.43)	6.63 (5.45-8.22)	7.69 (6.15-9.58)	8.83 (6.82-11.2)	10.1 (7.46-13.0)	11.9 (8.44-15.5)	13.3 (9.18-17.5)
3-day	3.48 (2.98-4.10)	4.03 (3.44-4.75)	5.00 (4.25-5.90)	5.88 (4.97-6.96)	7.19 (5.94-8.83)	8.30 (6.67-10.2)	9.47 (7.35-11.9)	10.7 (7.99-13.7)	12.5 (8.96-16.3)	14.0 (9.69-18.2)
4-day	3.72 (3.20-4.36)	4.31 (3.70-5.06)	5.35 (4.57-6.28)	6.27 (5.33-7.38)	7.63 (6.32-9.30)	8.76 (7.07-10.7)	9.96 (7.75-12.4)	11.2 (8.39-14.3)	13.0 (9.35-16.9)	14.5 (10.1-18.8)
7-day	4.40 (3.81-5.09)	5.02 (4.35-5.83)	6.12 (5.28-7.11)	7.10 (6.09-8.27)	8.54 (7.12-10.3)	9.72 (7.90-11.8)	11.0 (8.61-13.5)	12.3 (9.26-15.5)	14.2 (10.2-18.2)	15.7 (11.0-20.2)
10-day	5.01 (4.36-5.76)	5.69 (4.95-6.55)	6.87 (5.96-7.92)	7.91 (6.82-9.15)	9.45 (7.92-11.3)	10.7 (8.75-12.9)	12.0 (9.50-14.8)	13.5 (10.2-16.8)	15.4 (11.2-19.7)	17.0 (12.0-21.9)
20-day	6.74 (5.94-7.65)	7.69 (6.77-8.72)	9.28 (8.14-10.6)	10.7 (9.29-12.2)	12.6 (10.7-14.8)	14.2 (11.7-16.8)	15.8 (12.6-19.1)	17.5 (13.3-21.6)	19.8 (14.5-25.0)	21.6 (15.4-27.6)
30-day	8.19 (7.26-9.21)	9.36 (8.29-10.5)	11.3 (9.98-12.7)	12.9 (11.4-14.6)	15.2 (12.9-17.7)	17.0 (14.1-20.0)	18.8 (15.0-22.5)	20.6 (15.8-25.3)	23.1 (17.0-29.0)	25.0 (17.9-31.8)
45-day	10.0 (8.95-11.2)	11.4 (10.2-12.8)	13.8 (12.2-15.4)	15.7 (13.8-17.6)	18.2 (15.5-20.9)	20.2 (16.8-23.5)	22.1 (17.8-26.3)	24.1 (18.5-29.3)	26.7 (19.7-33.1)	28.6 (20.6-36.0)
60-day	11.6 (10.4-12.9)	13.2 (11.8-14.6)	15.8 (14.1-17.5)	17.8 (15.8-19.9)	20.6 (17.6-23.4)	22.6 (18.9-26.1)	24.6 (19.9-29.0)	26.6 (20.5-32.1)	29.1 (21.6-35.9)	30.9 (22.4-38.9)

<sup>1</sup> Precipitation frequency (PF) estimates in this table are based on frequency analysis of partial duration series (PDS). Numbers in parenthesis are PF estimates at lower and upper bounds of the 90% confidence interval. The probability that precipitation frequency estimates (for a given duration and average recurrence interval) will be greater than the upper bound (or less than the lower bound) is 5%. Estimates at upper bounds are not checked against probable maximum precipitation (PMP) estimates and may be higher than currently valid PMP values. Please refer to NOAA Atlas 14 document for more information.

[Back to Top](#)

**PF graphical**



[Back to Top](#)

NOAA Atlas 14, Volume 8, Version 2

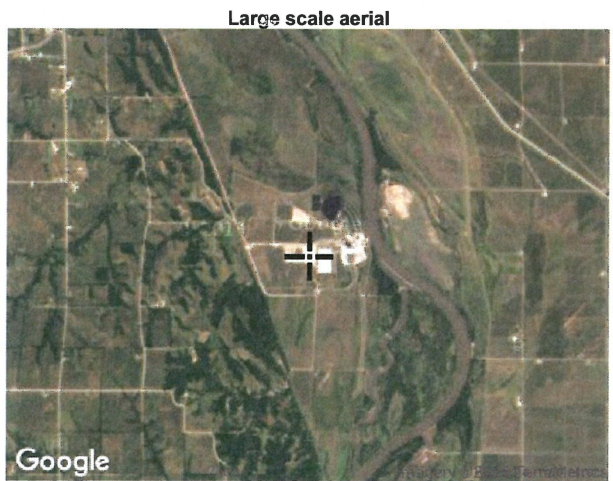
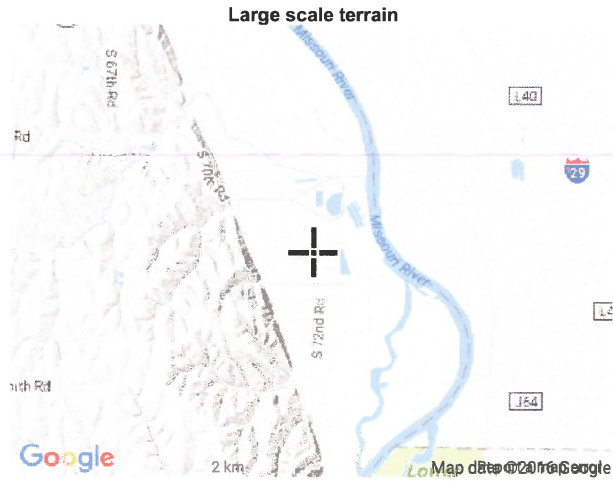
Maps & aerials

Created (GMT): Mon Aug 15 18:24:35 2016

Small scale terrain







[Back to Top](#)

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[US Department of Commerce](#)  
[National Oceanic and Atmospheric Administration](#)  
[National Weather Service](#)  
[National Water Center](#)  
1325 East West Highway  
Silver Spring, MD 20910

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Attachment D-3

Interior Collection Channel  
Calculations



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# Channel Report

## North Perimeter Ditch

### Trapezoidal

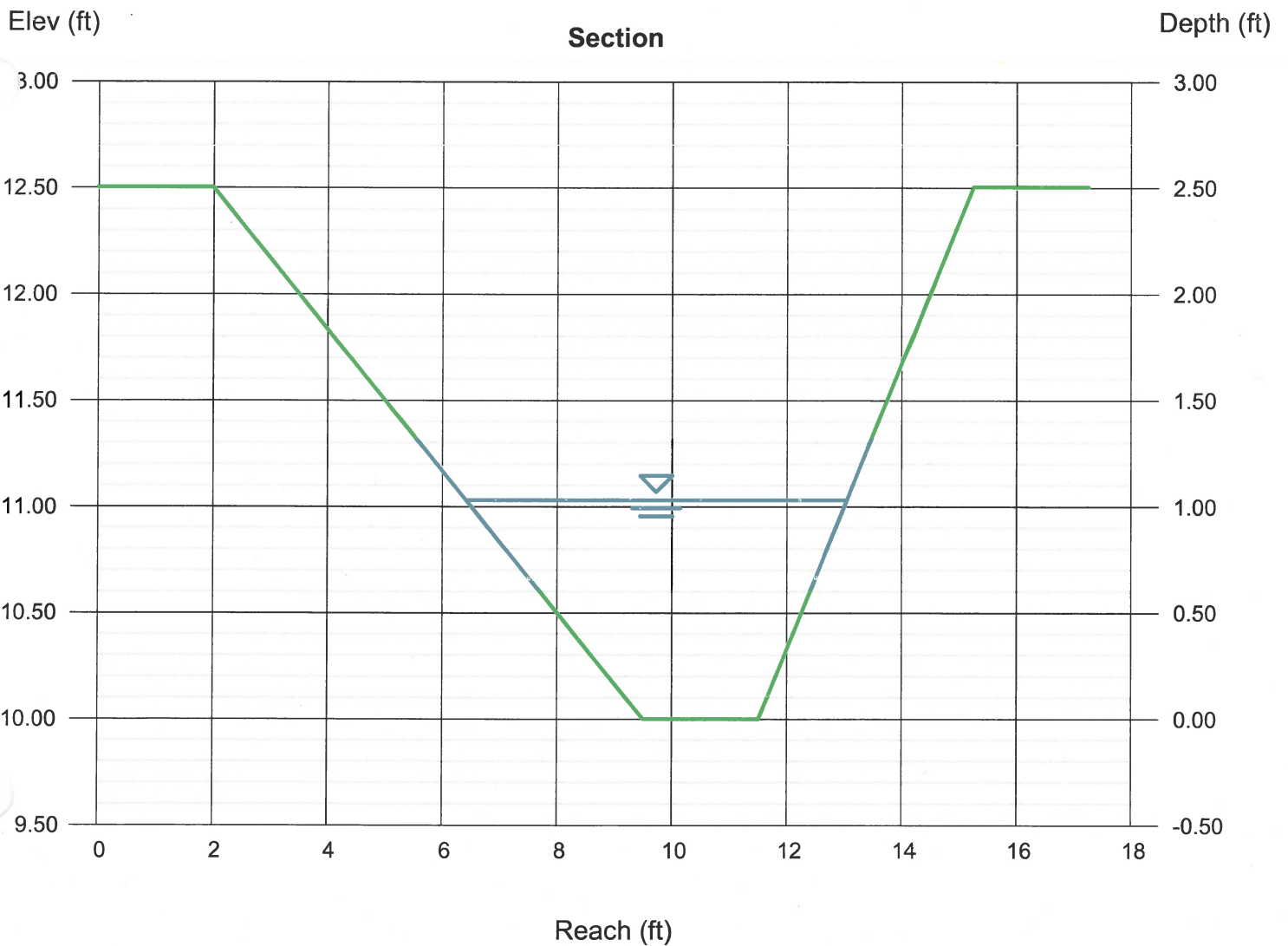
Bottom Width (ft) = 2.00  
Side Slopes (z:1) = 3.00, 1.50  
Total Depth (ft) = 2.50  
Invert Elev (ft) = 10.00  
Slope (%) = 0.50  
N-Value = 0.016

### Calculations

Compute by: Known Q  
Known Q (cfs) = 21.00

### Highlighted

Depth (ft) = 1.03  
Q (cfs) = 21.00  
Area (sqft) = 4.45  
Velocity (ft/s) = 4.72  
Wetted Perim (ft) = 7.11  
Crit Depth, Yc (ft) = 1.04  
Top Width (ft) = 6.63  
EGL (ft) = 1.38



# Channel Report

## West Perimeter Ditch

### Trapezoidal

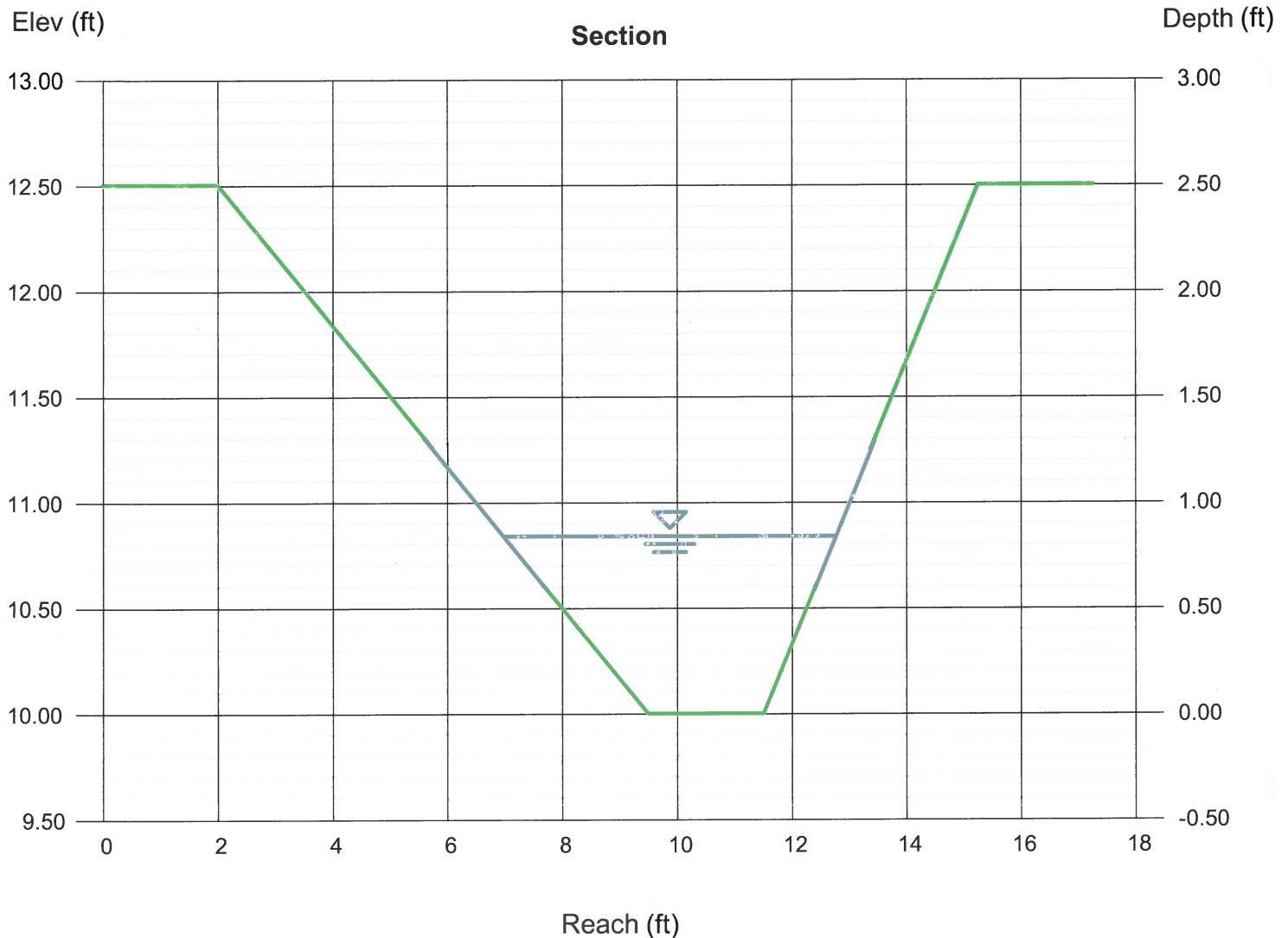
Bottom Width (ft) = 2.00  
Side Slopes (z:1) = 3.00, 1.50  
Total Depth (ft) = 2.50  
Invert Elev (ft) = 10.00  
Slope (%) = 0.50  
N-Value = 0.016

### Highlighted

Depth (ft) = 0.84  
Q (cfs) = 14.00  
Area (sqft) = 3.27  
Velocity (ft/s) = 4.28  
Wetted Perim (ft) = 6.17  
Crit Depth,  $Y_c$  (ft) = 0.85  
Top Width (ft) = 5.78  
EGL (ft) = 1.13

### Calculations

Compute by: Known Q  
Known Q (cfs) = 14.00



# Channel Report

## South Interior Channel

### Trapezoidal

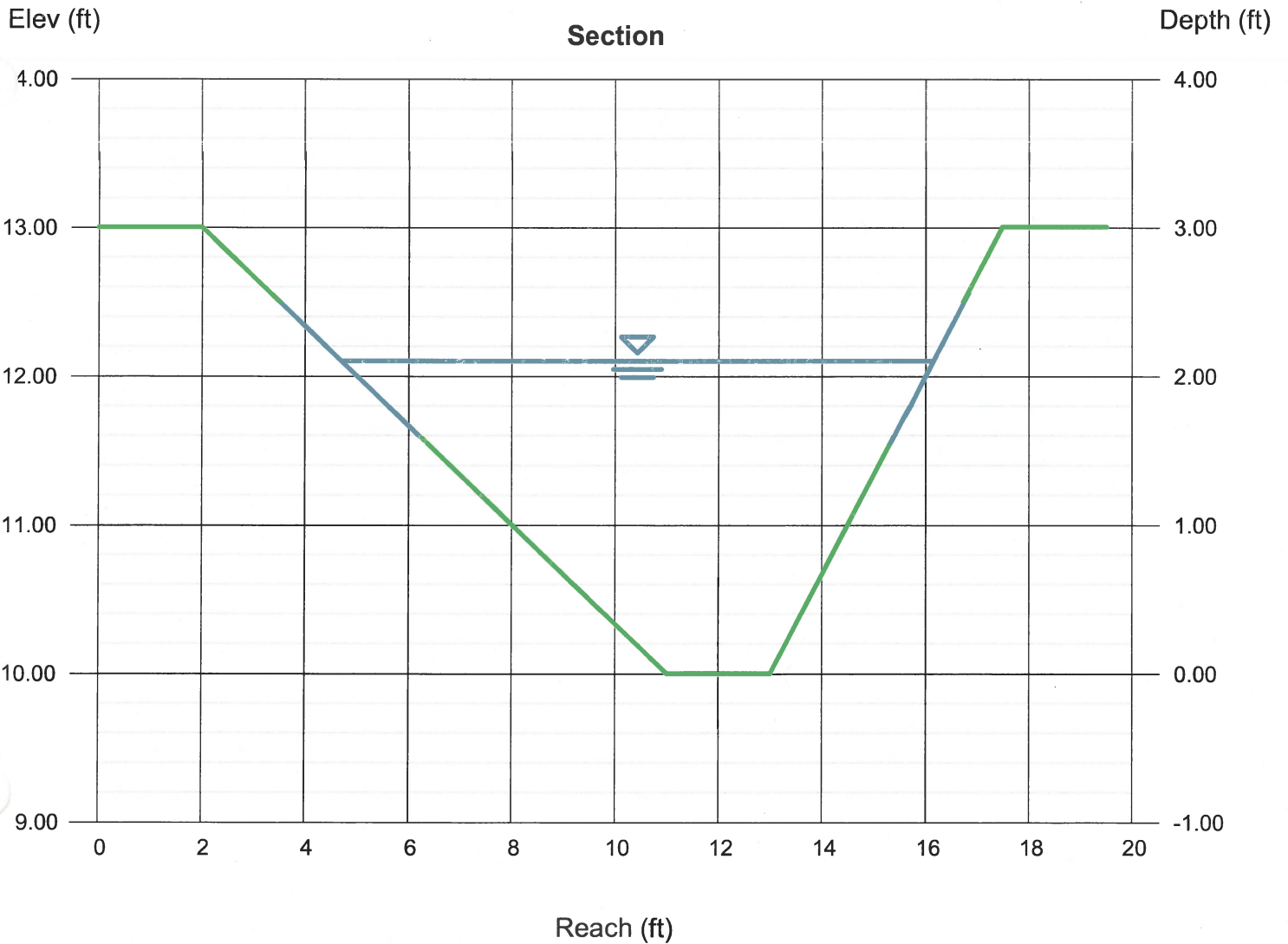
Bottom Width (ft) = 2.00  
Side Slopes (z:1) = 3.00, 1.50  
Total Depth (ft) = 3.00  
Invert Elev (ft) = 10.00  
Slope (%) = 0.50  
N-Value = 0.016

### Calculations

Compute by: Known Q  
Known Q (cfs) = 100.00

### Highlighted

Depth (ft) = 2.10  
Q (cfs) = 100.00  
Area (sqft) = 14.12  
Velocity (ft/s) = 7.08  
Wetted Perim (ft) = 12.43  
Crit Depth, Yc (ft) = 2.22  
Top Width (ft) = 11.45  
EGL (ft) = 2.88



# Culvert Report

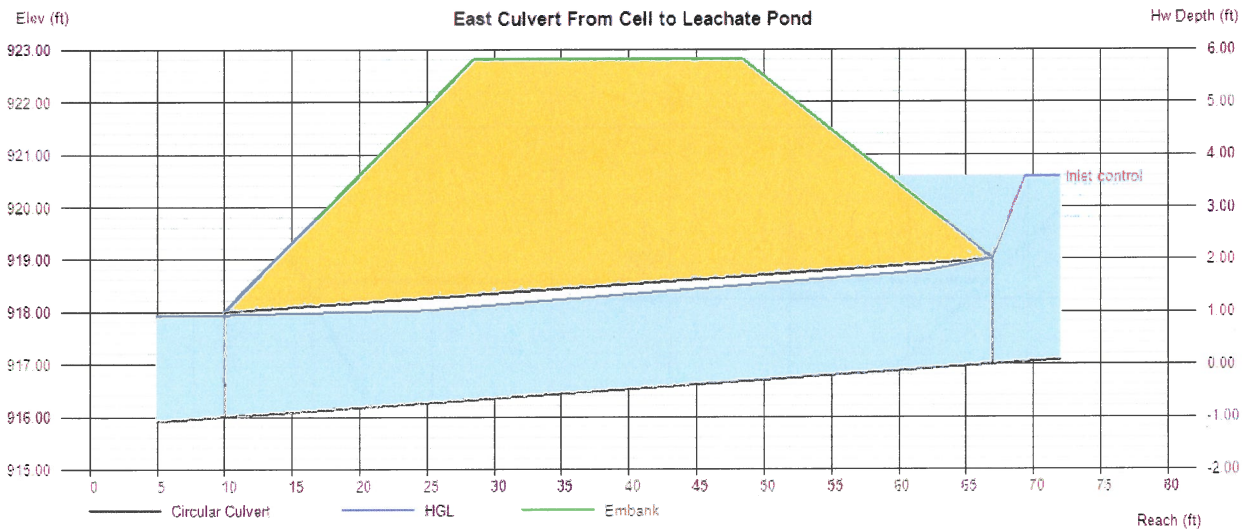
## East Culvert From Cell to Leachate Pond

Invert Elev Dn (ft)	= 916.00
Pipe Length (ft)	= 57.00
Slope (%)	= 1.75
Invert Elev Up (ft)	= 917.00
Rise (in)	= 24.0
Shape	= Circular
Span (in)	= 24.0
No. Barrels	= 3
n-Value	= 0.012
Culvert Type	= Circular Culvert
Culvert Entrance	= Smooth tapered inlet throat
Coeff. K,M,c,Y,k	= 0.534, 0.555, 0.0196, 0.9, 0.2

<b>Embankment</b>	
Top Elevation (ft)	= 922.80
Top Width (ft)	= 20.00
Crest Width (ft)	= 20.00

<b>Calculations</b>	
Qmin (cfs)	= 90.00
Qmax (cfs)	= 90.00
Tailwater Elev (ft)	= (dc+D)/2

<b>Highlighted</b>	
Qtotal (cfs)	= 90.00
Qpipe (cfs)	= 90.00
Qovertop (cfs)	= 0.00
Veloc Dn (ft/s)	= 9.65
Veloc Up (ft/s)	= 9.85
HGL Dn (ft)	= 917.93
HGL Up (ft)	= 918.86
Hw Elev (ft)	= 920.57
Hw/D (ft)	= 1.78
Flow Regime	= Inlet Control





# Culvert Report

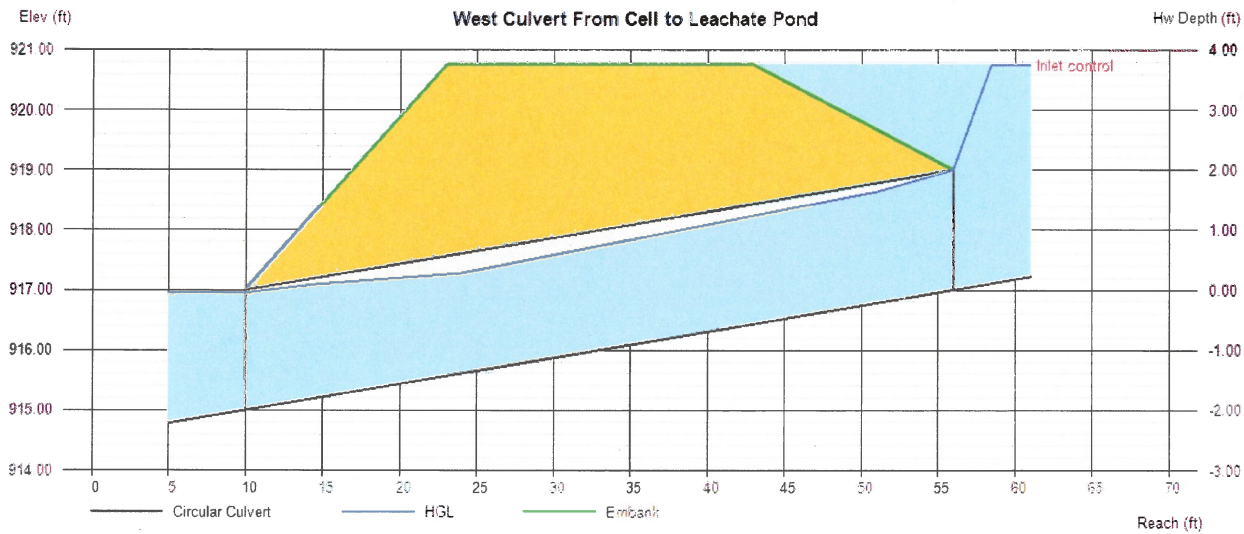
## West Culvert From Cell to Leachate Pond

Invert Elev Dn (ft)	= 915.00
Pipe Length (ft)	= 46.00
Slope (%)	= 4.35
Invert Elev Up (ft)	= 917.00
Rise (in)	= 24.0
Shape	= Circular
Span (in)	= 24.0
No. Barrels	= 3
n-Value	= 0.012
Culvert Type	= Circular Culvert
Culvert Entrance	= Smooth tapered inlet throat
Coeff. K,M,c,Y,k	= 0.534, 0.555, 0.0196, 0.9, 0.2

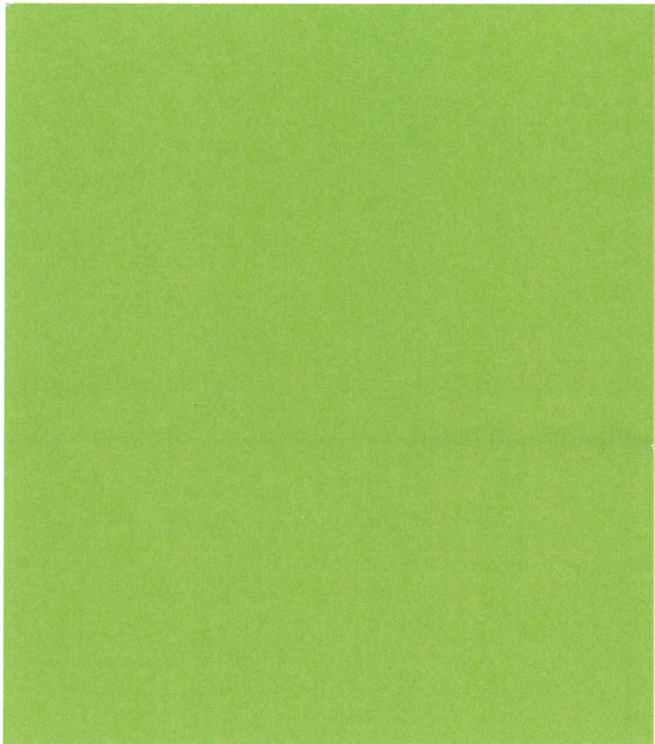
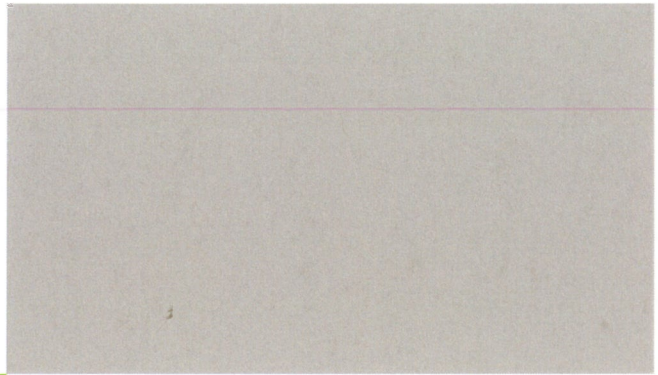
<b>Embankment</b>	
Top Elevation (ft)	= 920.75
Top Width (ft)	= 20.00
Crest Width (ft)	= 20.00

<b>Calculations</b>	
Qmin (cfs)	= 95.00
Qmax (cfs)	= 95.00
Tailwater Elev (ft)	= (dc+D)/2

<b>Highlighted</b>	
Qtotal (cfs)	= 95.00
Qpipe (cfs)	= 95.00
Qovertop (cfs)	= 0.00
Veloc Dn (ft/s)	= 10.16
Veloc Up (ft/s)	= 10.32
HGL Dn (ft)	= 916.94
HGL Up (ft)	= 918.89
Hw Elev (ft)	= 920.75
Hw/D (ft)	= 1.87
Flow Regime	= Inlet Control



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Attachment D-4  
NPDES Letter



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17-EA-035a

# NEBRASKA

Good Life. Great Environment.

DEPT. OF ENVIRONMENTAL QUALITY

MAR 02 2017

Mr. Jon Hansen  
Omaha Public Power District  
444 South 16th Street mall  
Omaha, NE 68102

RE: OPPD Nebraska City Station  
NDEQ ID: 58343  
Program ID: NER910676

**Subject: Industrial Storm Water Discharge Notification; Authorization Number NER910676**

Dear Mr. Hansen,

This letter is to acknowledge receipt of the Industrial Storm Water Notice of Intent (ISW-NOI) form on February 23, 2017 for Omaha Public Power District's OPPD Nebraska City Station facility located at 7264 L Road in Nebraska City, Nebraska. As of February 27, 2017, this facility has authorization to discharge storm water under the terms and conditions of the NPDES Industrial Storm Water General Permit NER910000. Authorization under the Nebraska ISW-GP NER910000 is valid until a new Industrial Storm Water General Permit is issued by the Department.

Please ensure that your Storm Water Pollution Prevention Plan is in compliance with all conditions of Section 5 of the General Permit. A copy of this authorization letter must be kept available at the facility.

If you have any question regarding your requirements according to the permit, please contact our office at (402) 471-4220.

Sincerely,



Jason Windhorst, Industrial Coordinator  
NPDES Permits and Compliance Unit  
Nebraska Department of Environmental Quality  
1200 "N" Street, Suite 400  
Lincoln, NE 68509-8922

Jim Macy, Director

Department of Environmental Quality

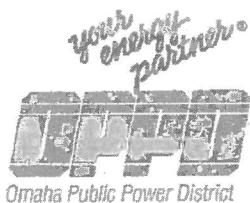
P.O. Box 68024

1200 N 8th Ave, Suite 400

Lincoln, Nebr. 68507-8922

OFFICE 402-471-4220 FAX 402-471-4202

deq.ne.gov



February 20, 2017  
17-EA-035

**Via Certified Mail**

9171 9690 0935 0074 5415 98

Jason Windhorst, NPDES Permit and Compliance  
Nebraska Department of Environmental Quality  
1200 "N" St.  
PO Box 98922  
Lincoln, NE 68509-8922

**Subject: Permit Renewal and Initial Notice of Intent (NOI) for Authorization to Discharge Under the NPDES General Permit for Storm Water Discharges Associated with Industrial Activity**  
Renewal Permits for Nebraska City Station, North Omaha Station, and Fort Calhoun Station, Initial NOI for Sarpy County Station, and Jones Street Station

Dear Mr. Cunningham:

In accordance with NPDES Permit number: NER9100000 for Stormwater Discharges from Industrial Activities to Water of the State of Nebraska, please find enclosed the completed Nebraska Department of Environmental Quality notice of intent for authorization to discharge under the NPDES general permit for storm water discharges associated with industrial activity.

If you have any questions regarding any of the enclosed, please contact me by telephone at (402) 636-2521 or via email at [pjfinigan@oppd.com](mailto:pjfinigan@oppd.com).

Sincerely,

A handwritten signature in black ink, appearing to read "P. J. Finigan", written over a circular stamp or mark.

Patrick J. Finigan  
Regulatory Affairs Administrator

Attachments:

Jason Windhorst  
17-EA-035  
February 20, 2017  
Page 2

---

Cc: B. Langel,

B. Lorence, B. Sojka, R. Veik, C. Zavadil, J. Glantz, M. Karel

English

Customer Service

USPS Mobile

Register / Sign In



# USPS Tracking®

Still Have Questions?

[Browse our FAQs](#)



Get Easy Tracking Updates  
Sign up for My USPS.

Tracking Number: 9171969009350074541598

Expected Delivery Day: Thursday, February 23, 2017

## Product & Tracking Information

Postal Product:  
First-Class Mail®

Features:  
Certified Mail™

## Available Actions

[Text Updates](#)

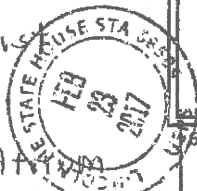
[Email Updates](#)

DATE & TIME	STATUS OF ITEM	LOCATION
February 23, 2017, 8:04 am	Delivered, PO Box	LINCOLN, NE 68509

Your item has been delivered and is available at a PO Box at 8:04 am on February 23, 2017 in LINCOLN, NE 68509.

February 22, 2017, 9:31 am	Available for Pickup	LINCOLN, NE 68509
February 22, 2017, 9:30 am	Arrived at Unit	LINCOLN, NE 68509
February 22, 2017, 3:39 am	Departed USPS Facility	LINCOLN, NE 68501
February 22, 2017, 2:18 am	Arrived at USPS Facility	LINCOLN, NE 68501
February 21, 2017, 11:01 pm	Arrived at USPS Facility	OMAHA, NE 68108
February 21, 2017, 9:46 pm	Accepted at USPS Origin Facility	OMAHA, NE 68102

SENDER: COMPLETE THIS SECTION	COMPLETE THIS SECTION ON DELIVERY
<ul style="list-style-type: none"> <li>Complete items 1, 2, and 3. Also complete item 4 if Restricted Delivery is desired</li> <li>Print your name and address on the reverse so that we can return the card to you</li> <li>Attach this card to the back of the mailpiece, or on the front if space permits.</li> </ul>	<p>A. Signature <i>Jason Johnson</i></p> <p>B. Received by (Printed Name) <i>Don Stephens</i></p> <p>C. Date of Delivery</p> <p>D. Is delivery address different from item 1? <input type="checkbox"/> Yes If YES, enter delivery address below <input type="checkbox"/> No</p>
<p>1 Article Addressed to:</p> <p>Jason Windhorse NDEQ 1200 W 5th Suite 400, The Atrium Lincoln, NE 68509</p>	<p>6 Service Type</p> <p><input checked="" type="checkbox"/> Certified Mail® <input type="checkbox"/> Priority Mail Express™</p> <p><input type="checkbox"/> Registered <input checked="" type="checkbox"/> Return Receipt for Merchandise</p> <p><input type="checkbox"/> Insured Mail <input type="checkbox"/> Collect on Delivery</p>
<p>2 Article No. (Transfer)</p> <p>9171 9690 0935 0074 5415 98</p>	<p>4 Restricted Delivery? (Extra Fee) <input type="checkbox"/> Yes</p>



ing Packages



PS Form 3811, July 2013

Domestic Return Receipt





Nebraska Department of Environmental Quality  
 Notice of Intent (NOI) for Authorization to Discharge Under the  
 NPDES General Permit for Storm Water Discharges Associated with  
 Industrial Activity (NPDES Permit No. NER910000)

Form Approved  
 05/04/2016

**A. Facility Operator Information**

1. Name: Omaha Public Power District

2. IRS Employer Identification Number (EIN): 47 - 60000369  
*(The only alternative to having the EIN on file with the Department is for the owner(s) or chief officer of the corporation to submit a United States Citizenship Attestation Form).*

3. Mailing Address: *(All correspondence will be mailed to this address)*  
 Street or P.O. Box: 444 South 16th Street Mall  
 City: Omaha State: NE Zip code: 68102  
 Phone: 402 - 636 - 2316 E-mail (optional): rjbaker@oppd.com

**B. Facility Information**

1. Facility Name: Nebraska City Station *(Renewal)*

2. Street / Location: 7264 L Road  
 City: Nebraska City County: Otoe  
 Zip code: 68410

3. Identify the coordinates of the main entrance to the facility from the public roadway:  
 Latitude: 40.6214 °N Longitude: -95.7779 °W  
*Use decimal degrees (Example: 40.812731, 96.703264)*

4. List the facility's Standard Industrial Classification (SIC) or Activity Code(s): 4911  
*Refer to Appendix D of the Industrial Storm Water General Permit (ISW-GP) for a list of industrial activities that are covered by the permit. See Instructions.*

5. Is this facility Portable and subject to relocation (as defined in Appendix A of the ISW-GP)?  
 YES It is expected to operate at this location for \_\_\_\_\_ months.  
 NO

6. Is your site presently inactive and unstaffed?  
 YES It is expected be inactive and unstaffed for \_\_\_\_\_ months.  
 NO

**C. For New or Expanded Dischargers Only**

1. Complete the Endangered and Threatened Species Checklist (ISW-GP Attachment 1) and include it with this form. *(Attach the one-page checklist only.)*

2. Under Part 1.1.4.5 of the ISW-GP, which Endangered Species Protection criterion applies to this facility?  
 Criterion A  Criterion B

3. According to Attachment 9 of the ISW-GP, this facility discharges to receiving waters that are designated as State Resource Water:  
 Class A  Class B  neither Class A nor Class B

**D. Discharge Information**

1. **Storm Water Pollution Prevention Plan (SWPPP):**  
 Provide the following information from the site's SWPPP. **DO NOT** attach the entire SWPPP. Attach or provide only the information requested here:

- a. Site Map as specified in Section 5.1.2 of the ISW-GP. (See instructions.)
- b. List of the pollutants exposed to storm water as specified in Section 5.1.3.2 of the ISW-GP.
- c. Does this site discharge storm water into a regulated municipal separate storm sewer system (MS4)?  
 YES, discharges to MS4 belonging to: \_\_\_\_\_  
 (See list of MS4s in ISW-GP Attachment 6):  
 The facility will submit a copy of this Notice of Intent to the MS4 identified above.  
 NO, does not discharge to a regulated MS4

d. **SWPPP Contact Person or Authorized Representative:**  
 Name: Russell Baker  
 Phone: 402 - 636 - 2316 Email: rjbaker@oppd.com


2. **Effluent Limitation Guidelines and Process Discharges**  
 Check all that apply:

- This facility has storm water discharges subject to federal effluent limitation guidelines. (See Table 1-1 of the ISW-GP.)
- This facility generates industrial process wastewater or wash water as described below:

Source of Discharge	Discharge Location
<i>EXAMPLE: Cooling Tower Water</i>	<i>EXAMPLE: Direct discharge to stream</i>
<i>EXAMPLE: Equipment Washwater</i>	<i>EXAMPLE: Discharge to Publicly Operated Treatment Works</i>
See attached document	

**E. Certification**

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

1. **Print Name:** Jon Hansen  
**Title:** V.P. Energy Production and Marketing  
**Signature:**  **Date:** 2/16/17  
*See Instructions to determine who may sign this Certification.*  
**E-mail:** \_\_\_\_\_ (optional)

2. **NOI Preparer (complete if NOI was prepared by someone other than the Certifying Official)**  
**Prepared by:** Patrick Finigan  
**Company/Affiliation:** OPP/Environmental Affairs Administrator  
**Phone:** 402 - 636 - 2521 **Ext.:** \_\_\_\_\_ **E-mail:** pjfinigan@oppd.com

**Instructions for Completing the Notice of Intent for Stormwater Discharges Associated with Industrial Activity under the Industrial Storm Water General Permit (ISW-GP)**

NOI Submittal Deadlines/Discharge Authorization Dates		
Category	NOI Deadline	Discharge Authorization Date <sup>1</sup>
<b>Existing Dischargers:</b> in operation and previously authorized for coverage under the ISW-GP (originally issued September 18, 1997)	No later than (January 1, 2017)	30 days after NDEQ receives a complete and accurate NOI. Your authorization under the ISW-GP is automatically continued until you have been granted coverage under this permit or an alternative permit, or coverage is otherwise terminated.
<b>New Dischargers or New Sources:</b> commencing discharging after issuance of this General Permit	A minimum of 30 days prior to commencing operation of the facility	30 days after NDEQ receives a complete and accurate NOI or upon notification of authorization from the NDEQ.
<b>Other Eligible Dischargers:</b> in operation prior to issuance of this General Permit but not covered under the previous General Permit or another NPDES permit.	Immediately, to minimize the time discharges from the facility will continue to be unauthorized	60 days after NDEQ receives a complete and accurate NOI.
<small><sup>1</sup> Based on a review of your NOI or other information, NDEQ may delay your authorization for further review, notify you that additional effluent limitations are necessary, or may deny coverage under this permit and require submission of an application for an individual NPDES permit, as detailed in ISW-GP Part 1.A. In these instances, NDEQ will notify you in writing of the delay or the request for submission of an individual NPDES permit application.</small>		

**Who Must File a Notice of Intent with NDEQ?**

Under section 402(p) of the Clean Water Act (CWA) and regulations at Title 119, Chapter 10 and 40 CFR Part 122, stormwater discharges associated with industrial activity are prohibited to waters of the State unless authorized under a National Pollutant Discharge Elimination System (NPDES) permit. You can obtain coverage under the ISW-GP by submitting a completed NOI if you operate a facility:

- that is located in a jurisdiction where NDEQ is the permitting authority (Generally, NDEQ is the permitting authority in the State of Nebraska, excluding certain Indian Country Lands as identified in the ISW-GP, Part 9),
- that discharges stormwater associated with industrial activities, identified in Appendix D of the ISW-GP,
- that meets the eligibility requirements in Part 1.1 of the permit,
- that develops a stormwater pollution prevention plan (SWPPP) in accordance with Part 5 of the ISW-GP; and
- that installs and implements control measures in accordance with Part 2 to meet non-numeric effluent limits.

One NOI must be submitted for each facility or site for which you are seeking permit coverage. You do not need to submit separate NOIs for each type of industrial activity present at your facility (co-located industrial activities), provided your SWPPP covers all activities.

**When to File the NOI Form**

Do not file your NOI until you have obtained and thoroughly read a copy of the ISW-GP. A copy of the ISW-GP is located on the NDEQ website. The ISW-GP describes procedures to ensure your eligibility, prepare your SWPPP, install and implement appropriate stormwater control measures, and complete the NOI form questions – all of which must be done before you sign the NOI certification statement attesting to the accuracy and completeness of your NOI. You will also need a copy of the ISW-GP once you have obtained coverage so that you can comply with the implementation requirements of the permit (electronic copy acceptable, should be readily available to facility staff).

**Where to File the NOI Form**

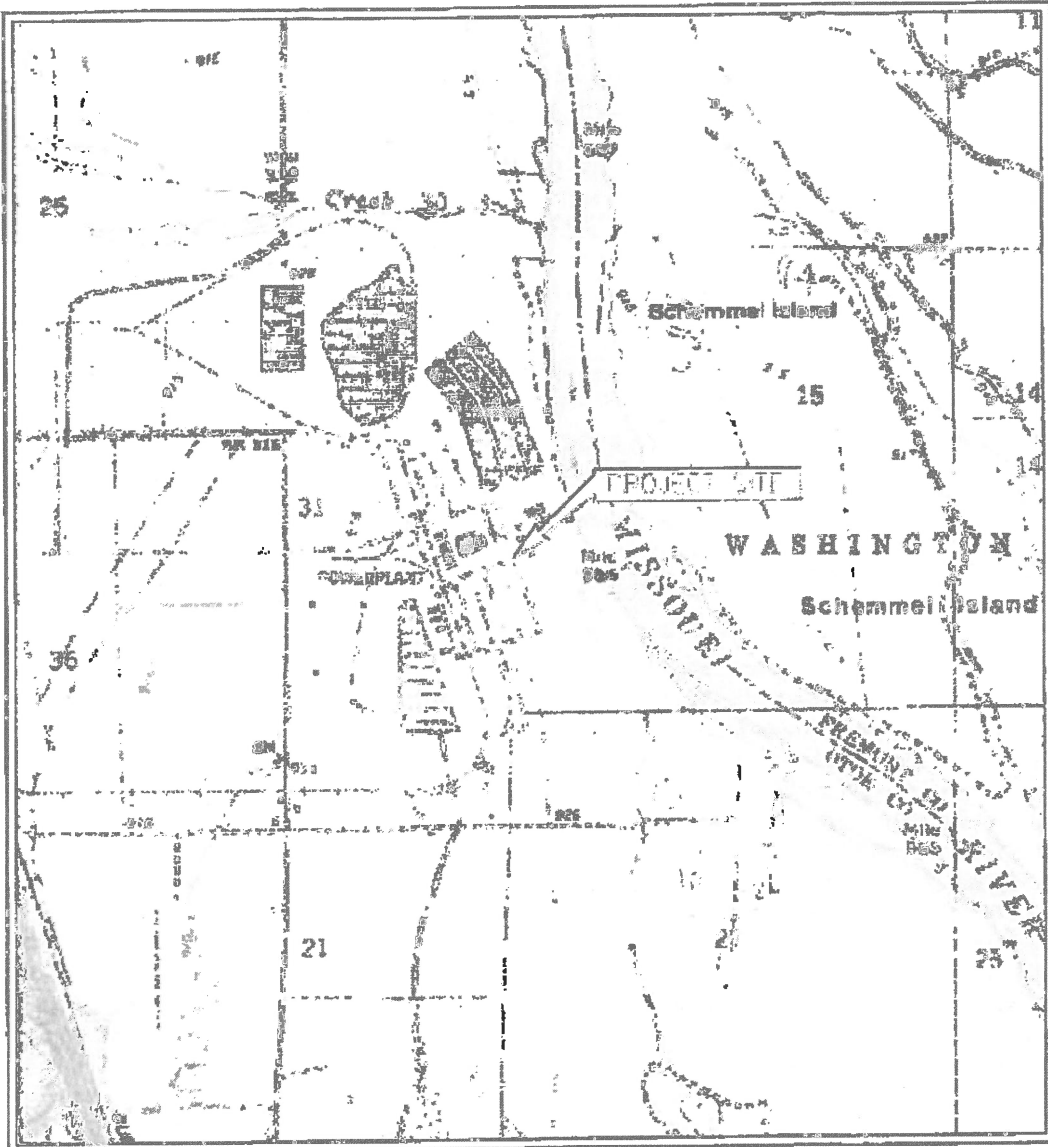
**Mail Address:**  
 NPDES Permits & Compliance Section  
 Nebraska Department of Environmental Quality  
 PO Box 98922  
 Lincoln, NE 68509-8922

**Location Address:**  
 NPDES Permits & Compliance Section  
 Nebraska Department of Environmental Quality  
 1200 'N' Street, The Atrium, Suite 400  
 Lincoln, NE 68508

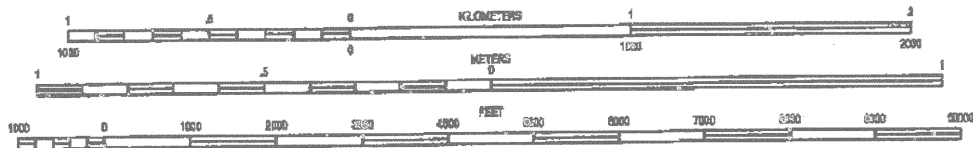
- When filing the NOI, please submit the original with a signature in ink – do NOT send copies or faxes.
- Your SWPPP does NOT need to be submitted for review unless specifically requested by NDEQ. You must keep a copy of your SWPPP on-site or otherwise make it available (i.e. electronic copy) to facility personnel responsible for implementing provisions of the permit.

If you have questions, please contact NPDES Program of the Nebraska Department of Environmental Quality (NDEQ) at (402) 471-4220.

UNITED STATES — DEPARTMENT OF THE INTERIOR — GEOLOGICAL SURVEY



SCALE 1:24 000



CONTOUR INTERVAL = FEET  
NATIONAL GEODETIC VERTICAL DATUM OF 1989

**NEBRASKA CITY & JULIAN, NEBRASKA  
QUADRANGLES  
1984  
7.5 MINUTE SERIES (TOPOGRAPHIC)**



Project Mgr: <b>RAG</b>	Project No. <b>05117144</b>	<b>TOPOGRAPHIC / LOCATION MAP NEBRASKA CITY STATION SWPPP OMAHA PUBLIC POWER DISTRICT 7264 L ROAD NEBRASKA CITY NEBRASKA</b>	FIG. No.
Drawn by: <b>PAI</b>	Date: <b>AS SHOWN</b>		<b>1</b>
Checked by: <b>RAG</b>	File No. <b>05117144C02</b>		
Approved by: <b>RAM</b>	Date: <b>12/5/11</b>		



**INDUSTRIAL ACTIVITIES**

- ① PLANT
- ② TRANSFORMER YARD
- ③ WATER TREATAGE STRUCTURES
- ④ COAL HANDLING AREA
- ⑤ WAREHOUSE
- ⑥ MINTION CO. TOWER
- ⑦ ASH HANDLING
- ⑧ COOLING TOWER AREA
- ⑨ SEE FIGURE 4
- ⑩ SEE FIGURE 4
- ⑪ PLANT OFFICE & PARKING
- ⑫ SWITCHYARD
- ⑬ MISCELLANEOUS STORAGE

**MATERIALS EXPOSED**

- ① COAL STOCKPILES
- ② BUCKET REEL RECLAIMER
- ③ CARTRIDGE BED
- ④ COAL HANDLING EQUIPMENT BUILDING
- ⑤ FUEL TANK

SEE FIGURE 2A FOR MORE DETAILS

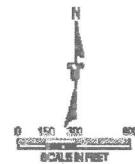


IMAGE SOURCE: GOOGLE MAPS, BARTHOLOMEW, 2002-2010

DATE	BY	REVISION

**INDUSTRIAL ACTIVITIES & EXPOSED MATERIALS**  
 NEBRASKA CITY STATION SWPPP  
**OMAHA PUBLIC POWER DISTRICT**  
 7284 L ROAD  
 NEBRASKA CITY NEBRASKA

DESIGNED BY	ENG
DRAWN BY	TUN
CHECKED BY	TCM
DATE	12-20-2010
SCALE	AS SHOWN
PROJECT	01011
SHEET NO.	0101101
TOTAL SHEETS	0101101
DATE PLOTTED	12/20/10
PLOTTED BY	TCM
SCALE	AS SHOWN
SHEET NO.	2
TOTAL SHEETS	2





**LEGEND**

- STORMWATER RETENTION POND
- COAL FLY ASH OFF-POND
- BOTTOM ASH POND
- SANITARY LAGOON
- PLANT RUN-OFF POND
- UNIT 1 LANDFILL BUILDINGS CATCH BASIN
- STORMWATER FLOW DIRECTION
- CONVEYANCE OUTLET/INLET
- WETLANDS
- WATERWAY
- NPDES PERMITTED OUTFALL
- NPDES PERMITTED OUTFALL
- NPDES PERMITTED OUTFALL
- NPDES PERMITTED OUTFALL
- STORMWATER RETENTION OUTFALL

- OUTFALL 001
- OUTFALL 002
- OUTFALL 003
- OUTFALL 004

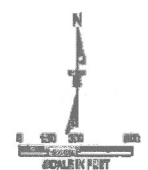


IMAGE SOURCE: ©2018 VIA GOOGLE EARTH PRO, 10/20/18

REV	DATE	BY	DESCRIPTION

**STORMWATER DRAINAGE & CONTROLS**  
 NEBRASKA CITY STATION SWPPP  
 OMAHA PUBLIC POWER DISTRICT  
 7284 L ROAD  
 NEBRASKA CITY NEBRASKA

DESIGNED BY	
CHECKED BY	
DATE	
SCALE	
PROJECT NO.	
DATE	
REVISION	

**Table C-1 - Industrial Activities, Pollutant Sources, and Pollutants for Steam Electric Power Generating Facilities<sup>1</sup>**

Activity	Pollutant Source	Pollutant
Above Ground Liquid Storage Tank	External corrosion and structural failure	Fuel, oil, heavy metals, ammonia, chlorine, sulfuric acid, sodium hydroxide, and other materials being stored
	Installation problems	
	Spills due to operator error	
	Failure of piping systems	
	Leaks or spills during pumping of liquids from barges, trucks, rail cars to a storage facility.	
Vehicle and Equipment Maintenance	Parts cleaning	Oil, heavy metals, chlorinated solvents, acid/alkaline wastes, ethylene glycol
	Spills of oil, degreasers, hydraulic fluids, transmission fluid, radiator fluids	Oil, arsenic, heavy metals, organics, chlorinated solvents, ethylene glycol
	Fluids replacement	Oil, arsenic, heavy metals, organics, fuel
	Spills and leaks during fuel delivery	Fuel, oil, heavy metals
Fueling Operations	Spills caused by "topping off" fuel tanks	Fuel, oil, heavy metals
	Leaking storage tanks	
	Allowing rainfall on the fuel area or storm water to run onto the fuel area	
	Fugitive dust emissions from coal handling	
Coal Handling Areas	Spills during delivery	Suspended solids, copper, iron, aluminum, nickel, and trace metals
	Off site tracking of coal dust	
	Spills during transfer of ash to landfills	
Ash Handling Areas, Ash Landfills	Offsite tracking of ash	Suspended solids, chromium, copper, iron, zinc, oil and grease, aluminum
	Discarded material	
Scrapyards, Refuse Sites		Fuel, oils, heavy metals

<sup>1</sup>Information Obtained from the Federal Register / Vol. 60, No. 189 / Friday, September 29, 1995



**Table C-2 -- Inventory of Significant Materials**

List all significant materials used, stored, handled, disposed, processed, or produced onsite. Assess and evaluate these materials for their potential to contribute pollutants to storm water runoff.

Description of Exposed Material or Activity	Name of Material	Location (as indicated on site map)	Quantity of Material Exposed	Why is Material Exposed to Storm Water? What conditions would cause contact with Storm Water?
Miscellaneous	Boiler Exhaust	Centrally located plant area	Amount not quantified	Boiler exhausts in stacks outside
	Chemical Storage	Near Water Plant and Cooling tower	Varies	Ferhy large quantities of chemicals, in secondary containment
	Cooling Towers	Southeast part of plant site	Varies	Drift from cooling tower
	Fuel Tanks	Ignition Oil tanks located east of water plant	250,000	Material is exposed if spilled
	Pallet Storage	near warehouse	Varies	Stored Outside
	Truck/Trailer Storage	West Parking Lot and In-Between Plant 1 and 2	Varies	Stored Outside
	Scrapper Storage	Near coal handling equipment area	Varies	Stored Outside
	Dozer Storage	Near coal handling equipment area	Varies	Stored Inside
	Bucket Wheel Reclaimer	Coal Handling Area	Varies	Stored Outside
	Fuel Tanks	Various locations	Varies	Material is exposed if spilled
	Oil/water Separators	Near Water Plant	Varies	Material is exposed if spilled
	Propane Tank	South of Bottom Ash Pond	-500	Not a stormwater pollutant due to propane's volatility
	Ammonia Tank	South of Unit 2	10,000	Material is exposed if spilled
	Unpaved Lots and Roads (gravel)	Throughout Site	Not Quantified	Outside

**Table C-3 - Significant Materials Exposed to Storm Water and Potential Pollutants**

Based on the material inventory, describe significant materials that were exposed to storm water during the past three years and/or are currently exposed. 'Significant materials' are defined to be raw materials, fuels, materials such as solvents, detergents and plastic pellets, finished materials such as metallic products, raw materials for food processing or production, hazardous substances designated under Section 107(14) of CERCLA, any chemical the facility is required to report pursuant to EPCRA Section 313, waste products such as ashes, slag, and sludge that have the potential to be released with storm water discharges, fertilizers and pesticides.

Description of Exposed Significant Materials	Location (as indicated on site map)	Potential Pollutants	Outfall / Storm Water Inlet
Fueling	Fuel Storage Area located at the site	Oil and grease	Sheet flow
Truck/Trailer Storage	Various locations	Oil and grease, metals	Sheet flow
Coal	Coal Handling Area	Suspended solids, copper, iron, aluminum, nickel, and trace metals	Sheet flow to coal pile runoff pond
Ash	Ash Handling Area and Ash Landfills	Suspended solids, chromium, copper, iron, zinc, oil and grease, aluminum	Sheet flow to ash ponds or leachate collection pond
Above Ground Liquid Storage Tanks	East of Water Plant	Fuel, oil, heavy metals, ammonia, chlorine, sulfuric acid, sodium hydroxide, and other materials being stored.	Sheet flow east to retention ditch
Refuse areas	Near Ash Handling area	Fuel, oils, heavy metals	Sheet flow to ash handling pond
Wooden Pallets on Ground	Near Warehouse	TSS	Sheet flow

**Omaha Public Power District (OPPD)**

**Nebraska City Station (NCS)**

**Additional Documentation for the Notice of Intent (NOI) for  
Authorization to Discharge Under the NPDES General Permit for  
Storm Water Discharges Associated with Industrial Activities  
(NPDES Permit No. NER910000)**

**D. Discharge Information**

**2. Effluent Limitation Guidelines and Process Discharges**

Check all that apply:

- ✓ This facility has storm water discharges subject to federal effluent limitation guidelines. (See Table 1-1 of the ISW-GP).
- ✓ This facility generates industrial process wastewater or wash water as described below:

<b>Source of Discharge</b>	<b>Discharge Location</b>
Pass-through cooling water	NPDES Permit # NE0111635 Outfall 001 - Discharge To the Missouri River
Unit 1 solids settling basin	NPDES Permit # NE0111635 Outfall L01 - Internal discharge
Process water pond water	NPDES Permit # NE0111635 Outfall 003 - Discharge to the Missouri River
Plant run-off pond	NPDES Permit # NE0111635 Outfall S01 - Discharge to the Missouri River
Sanitary lagoon final effluent	NPDES Permit # NE0111635 Outfall 007 - Discharge to the Missouri River
Coal pile runoff pond	NPDES Permit # NE0111635 Outfall C01 - Internal discharge to process water pond
Cooling tower discharge from Unit 2	NPDES Permit # NE0111635 Outfall 009- Discharge to the Missouri River

**THREATENED & ENDANGERED SPECIES GUIDANCE CHECKLIST**  
**For NPDES Industrial Storm Water General Permit #NER910000**  
**(For New or Expanded Dischargers)**

**Disclaimer:** This checklist was developed for guidance purposes only in an effort to assist Industrial Storm Water permit applicants to identify potential locations of threatened and endangered species that could be affected by storm water run-off from industrial sites. Completion of this checklist is not a requirement for permit authorization and is not intended to be used as a substitute for a professional environmental review. The use of this form does not relieve the permittee from further review or enforcement action by the Nebraska Department of Environmental Quality (NDEQ) or the Nebraska Game and Parks Commission (NGPC)

1. Does the action area drain to a stream of concern?  
*(See attached Stream and River Reaches of Concern for Nebraska Fish Species map.)*  Yes  No
  
2. Does the action area drain to rivers, streams, ponds, lakes or wetlands within the range of American burying beetle? *(See attached American Burying Beetle Distribution map.)*  Yes  No
  
3. Does the action area drain to a Salt Creek, Little Salt Creek, Rock Creek or saline wetlands in Lancaster or Saunders County?  Yes  No
  
4. Does the action area drain to Lodgepole Creek from Kimball to the Wyoming State line?  Yes  No
  
5. Does the action area drain to wetlands or wet meadows in the range of the western prairie fringed orchid or small white lady's slippers. *(These are both species of orchids. See attached Orchid Distribution map.)*  Yes  No
  
6. Does the action area drain to a river within the range of interior least tern or piping plover? *(See attached Tern & Plover Distribution map.)*  Yes  No
  
7. Does the action area drain to a river, stream, lake, pond, or wetland within the range of massasauga? *(See attached Massasauga Distribution map.)*  Yes  No
  
8. Does the action area drain to a river within the range of river otter? *(See attached River Otter Distribution map.)*  Yes  No
  
9. Does the action drain to wetlands or to the Republican, Platte, Loup, Middle Loup, North Loup, or Niobrara Rivers within the primary whooping crane migration corridor? *(See attached Primary Migration Corridor of Whooping Crane map.)*  Yes  No

If you answered "no" to all questions, a review by NGPC may not be needed (see disclaimer above). Include this form with your permit application.

If you answered "yes" to any of these questions, consultation with the Nebraska Game and Parks Commission may be necessary. Include this form with your permit application. Permit authorizations will vary from those identified in Table 1-2 depending on the additional time required to evaluate potential impacts.

All NOI submissions received from new or expanded dischargers without documentation relating to threatened and endangered species will be considered incomplete.

If you have questions, please call the Environmental Analyst Supervisor at (402) 471-5438.