ATTACHMENT J: PRELIMINARY STORMWATER MANAGEMENT PLAN

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Westwood

Preliminary Stormwater Management Plan

Badger Mountain Solar

Douglas County, Washington

February 2020

Prepared For:

AVANGRID RENEWABLES

Westwood

Preliminary Stormwater Management Plan for

Badger Mountain Solar
Douglas County, WA

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Project Number: 0025965.00
Date: 2/24/2020

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INTRODUCTION

The proposed Badger Mountain Solar project site is located in Douglas County, Washington (Exhibit 1). The proposed site is approximately 1,434 acres, consisting primarily of row crops, surrounded by land of similar conditions.

The project site falls within the following Section, Township, & Range; S21 T23N R21E, S22 T23N R21E, S28 T23N R21E, S27 T23N R21E, S34 T23N R21E, S35 T23N R21E, AND S2 T22N R21E. A review of the site on google earth shows the existing site being used for small grain row crops with no irrigation systems. The project site is located in a sub-arid climate with minimal rainfall (less than 20 inches per year).

The proposed project will include approximately 1,391 acres of solar modules mounted above grade on a racking system and approximately 43 acres of gravel access roads, electrical equipment and a substation. The solar array will consist of tracker panels; 6.5 feet in width with 19.5 feet spacing between the panels. There are areas located within the project boundary that need to be avoided, these are shown in Exhibit 7.

Grading will be minimal and existing drainage patterns will be maintained. Grasses that can grow in this climate will be proposed below the array to provide water quality and water quantity benefits for all discharge locations. Temporary basins and erosion control measures will be implemented during construction to protect existing discharge locations. Permanent basins will be provided at each discharge location that has an increase in runoff due to the proposed development and in critical discharge locations.

DESIGN INFORMATION

Stormwater Management Requirements

Stormwater management for the Badger Mountain Solar project falls under the jurisdiction of the state of Washington and Douglas County. Washington requirements are taken from the Stormwater Management Manual for Eastern Washington (SWMMEW) and conversations with the state.

Solar Panel Considerations

In discussions with the WA Department of Ecology we were informed that solar panels are to be considered as pervious for the concerns of water quantity and quality. Various studies have also been reviewed to support this assumption.

Stormwater Quantity

SSWMMEW requires that proposed conditions peak runoff rates and volumes do not adversely affect downstream properties.

Construction Stormwater

BMPs will be designed to meet the requirements of the SWMMEW and NPDES.

Douglas County Stormwater

Douglas County does not have any solar specific stormwater management requirements at this time and are in the process of determining this while reviewing this project.

Topographic Data

The existing topographic information used in this analysis was downloaded from the NOAA online database and is 1-meter elevation data.

Floodplain Information

The project site is located primarily in areas designated as an area of minimal flood hazard, Zone C. Flood Zone C represents areas located outside of the 500-year flood event and have a minimal chance of flooding. The project is located in FEMA panel 5300360555A effective July 17, 1978.

EXISTING CONDITIONS

The existing site consists primarily of small grain row crops (Exhibit 4). The NRCS Soil Survey shows type B soils over a majority of the site with type C soils in existing swales and type D soils along the west ridgeline (Exhibit 3). Cover for the analysis was determined using the USDA 2013 Crop Data Layer. A review of aerial photos does not indicate an irrigation features within the project boundary. SWMMEW curve numbers to be used in the analysis (Appendix A).

Existing Curve Numbers			
Cover	**B**	**C**	**D**
Small Grain Row Crop	72	80	84
Pasture, Fair	69	79	84
Impervious	98	98	98

The site has a ridgeline located near the west property boundary, this splits the runoff from the site with some going to the west and the rest to the east.

The site has various swales that route water offsite. Runoff onsite flows over generally flat terrain (1%-5%) to steeper slopes (>6%) along existing swales that have generally flat slopes (1%-5%). The site has been divided into 18 drainage areas that represent each discharge location (Exhibit 6). Offsite drainage enters the site in a few locations, this is included in the analysis.

PROPOSED CONDITIONS

The planned use of the site will be a solar plant. The layout shows the plant consisting of approximately 1,391 acres of solar modules mounted above grade on a racking system and 43 acres of gravel access roads, electrical equipment and a substation. The solar modules will be located above grade and the finished ground conditions will be completely pervious by seeding with a low-maintenance climate specific grass seed mix. Solar sites landcover is normally modeled as meadow conditions, but fair condition pasture was chosen for the proposed landcover below the array to account for compaction from construction and the climate conditions.

During development, minor grading, and utility construction, the subsoils will be compacted as necessary for construction using typical excavation techniques. During final grade, reapplication of the preserved topsoil should be completed by a wide-pad dozer and other equipment to minimize compaction of the topsoil material. The operator(s) should restrict vehicle and equipment use to avoid soil compaction where feasible; or techniques such as ripping the soil for decompaction should be completed following topsoil placement and prior to reseeding or other restoration activity.

Proposed Curve Numbers			
Cover	**B**	**C**	**D**
Pasture, Fair	69	79	84
Impervious (Substation, Roadways, Inverters)	98	98	98

Minimal grading is proposed to meet the tolerances of the proposed solar array. Drainage patterns will remain the same from existing to proposed conditions.

CONSTRUCTION BMPS

Runoff from the site during construction will be greater than the existing and proposed conditions and will need to be addressed to provide protection from downstream properties. Before construction begins, the site will be pre-seeded to limit erosion and site runoff during construction. Construction BMPs are proposed at critical locations on site; areas with greater than 10 acres leaving the site at one location, steep slopes, and long flow paths. Silt fence, erosion control blankets, grade breaks, and sediment ponds are proposed in the critical areas previously listed. These measures will be designed as needed to provide protection during construction.

Sediment ponds will be provided at each discharge point with greater than 10 acres of runoff. Each pond requires a minimum depth of 3.5 feet, a length to width ratio of 3:1 to 6:1, and a pond riser outlet structure to provide treatment per the Washington requirements.

Care will be taken during the installation of the solar panels and impervious areas to minimize the total disturbed area on site. Panels are post driven and therefore have minimal disturbance. The cables running electricity will be trenched in and will have minimal disturbance on either side of the trench to allow for installation. The access roads are proposed at grade so minimal disturbance is anticipated on either side of the roadways.

STORMWATER MANAGEMENT

Water quantity and quality will be addressed through full dispersion and proposed basins.

Criteria	Allowed	Proposed
% Impervious	max 10%	3.0%
Ratio of Imp to Native Veg	< 15%	3.1%
Flow Path from Imp	> 100 ft	Provided by sheet flow to channels
Cover of Flow Path	Native Vegetation: small grain row crops	Climate specific grass mix

Climate specific grass mix is proposed below the solar array which will act similar to the existing cover conditions. Proposed grasses will act similar to the existing native vegetation and will allow for treatment using the Full Dispersion BMP. Per the SWMMEW, table 6.10, a minimum grass cover of 20% is required on site, 97% is proposed. Basins are proposed in critical locations to help meet runoff requirements and to protect downstream swales.

MODEL RESULTS

Stormwater quantity calculations for the site were prepared using the SCS method. The calculations were performed using the computer modeling software HydroCAD version 10.00-19. Time of concentrations were calculated within HydroCAD using the lag method.

The site was analyzed for the 10- and 100-year 24-hour rainfall events. The table below summarizes the SWMMEW rainfall values for the site (Appendix B).

SWMMEW Rainfall		
24-Hour Event	10-year	100-year
Depth (in)	2.0	3.0

With the conversion of row crops to climate specific grasses and minimal proposed impervious surface; runoff rates and volumes are reduced for all discharge locations with the exception of 3 locations (Appendix C). Basins will be designed at these locations to meet the runoff requirements. Proposed basins will also be proposed in critical locations to help protect the major swales that run through/discharge from the site. The following tables summarize the site runoff conditions without the additional basins.

Existing vs Proposed Rate Comparison				
Discharge Location	10-year 24-hour		100-year 24-hour	
	Existing (cfs)	Proposed (cfs)	Existing (cfs)	Proposed (cfs)
1S	33.11	47.64	87.57	111.66
2S	2.64	3.51	8.61	10.07
3S	32.29	24.81	85.43	71.87
4S	7.58	9.06	30.19	33.42
5S	19.30	14.10	62.31	51.22
6S	5.72	4.21	17.50	14.52
7S	8.23	6.24	22.77	19.11
8S	19.06	14.90	46.34	39.36
9S	59.68	47.98	168.36	146.31
10S	39.44	29.91	113.42	94.93
11S	13.17	11.43	38.38	35.04
12S	4.79	3.34	17.78	14.44
13S	7.72	4.63	26.26	19.37
14S	19.45	16.71	59.13	54.04
15S	21.25	15.37	68.96	57.00
16S	68.50	51.76	198.51	164.46
17S	11.59	10.10	31.80	29.20
18S	10.91	9.76	26.00	24.18

Existing vs Proposed Volume Comparison				
Discharge Location	10-year 24-hour		100-year 24-hour	
	Existing (cfs)	Proposed (cfs)	Existing (cfs)	Proposed (cfs)
1S	4.32	5.48	10.34	12.15
2S	0.17	0.21	0.47	0.53
3S	4.67	3.94	11.17	9.97
4S	1.22	1.35	3.65	3.90
5S	3.52	2.89	9.50	8.38
6S	0.82	0.68	2.13	1.88
7S	0.91	0.77	2.24	2.00
8S	2.03	1.73	4.60	4.13
9S	9.43	18.14	23.35	21.18
10S	9.05	7.52	23.04	20.40
11S	1.82	1.67	4.61	4.35
12S	0.69	0.56	1.98	1.73
13S	1.38	1.01	3.84	3.15
14S	3.38	3.08	8.82	8.30
15S	2.70	2.23	7.26	6.41
16S	12.59	10.48	31.94	28.31
17S	1.15	1.05	2.81	2.66
18S	0.80	0.74	1.82	1.73

CONCLUSIONS

The proposed project has been designed to meet or exceed the requirements of SWMMEW and Douglas County for stormwater control. The proposed site qualifies for full dispersion and reduces runoff rates and volumes from the site with the conversion of existing landcover to proposed grasses below the array and the addition of basins to treat and control runoff. Construction BMPs are provided for the site during construction to ensure no adverse effects downstream of the site.

REFERENCES

FEMA 2019. Flood Insurance Study, Douglas County Washington, Federal Emergency Management Agency.

USDA 1986. Urban Hydrology for Small Watersheds TR-55.

National Engineering Handbook, Part 630 Hydrology. Chapter 9 Hydrologic Soil-Cover Complexes. USDA. NRCS. 210-VI-NEH, July 2004

Web soil survey. Retrieved February 2020, from https://websoilsurvey.sc.egov.usda.gov/App/WebSoilSurvey.aspx

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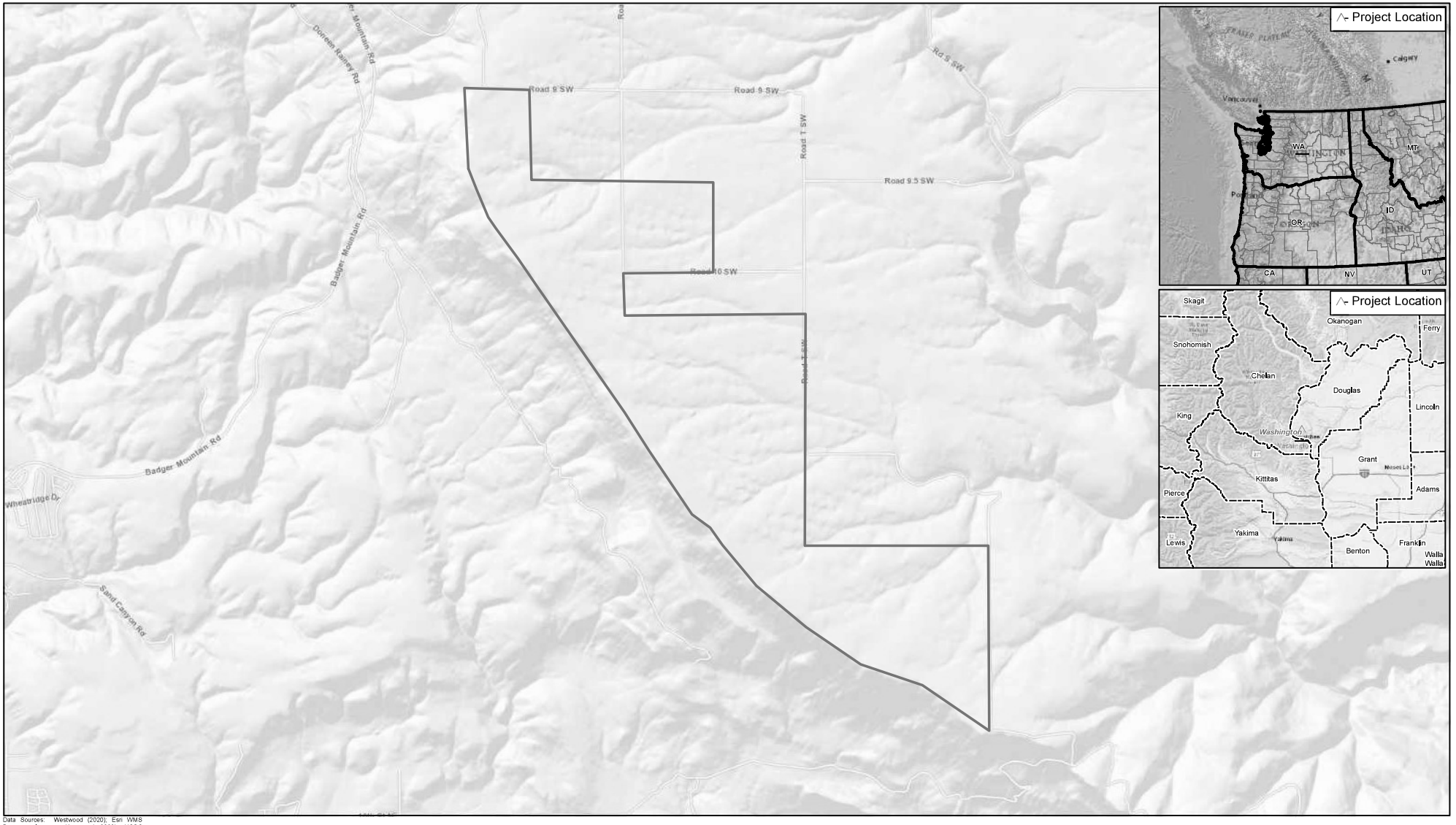
USDA 2013 Crop Data Layer, Landcover data, retrieved February 2020 from https://www.nass.usda.gov/Research_and_Science/Cropland/SARS1a.php

Exhibits



Data Sources: Westwood (2020); Esri WMS Basemap Imagery (Accessed 2020); USGS (2020); FEMA (2020); USDA (2020)

Badger Mountain Solar

Douglas County, Washington

Exhibit 1: Location Map

February 24, 2020

Legend

- Project Boundary
- County Boundary

± 0 0.5 Miles

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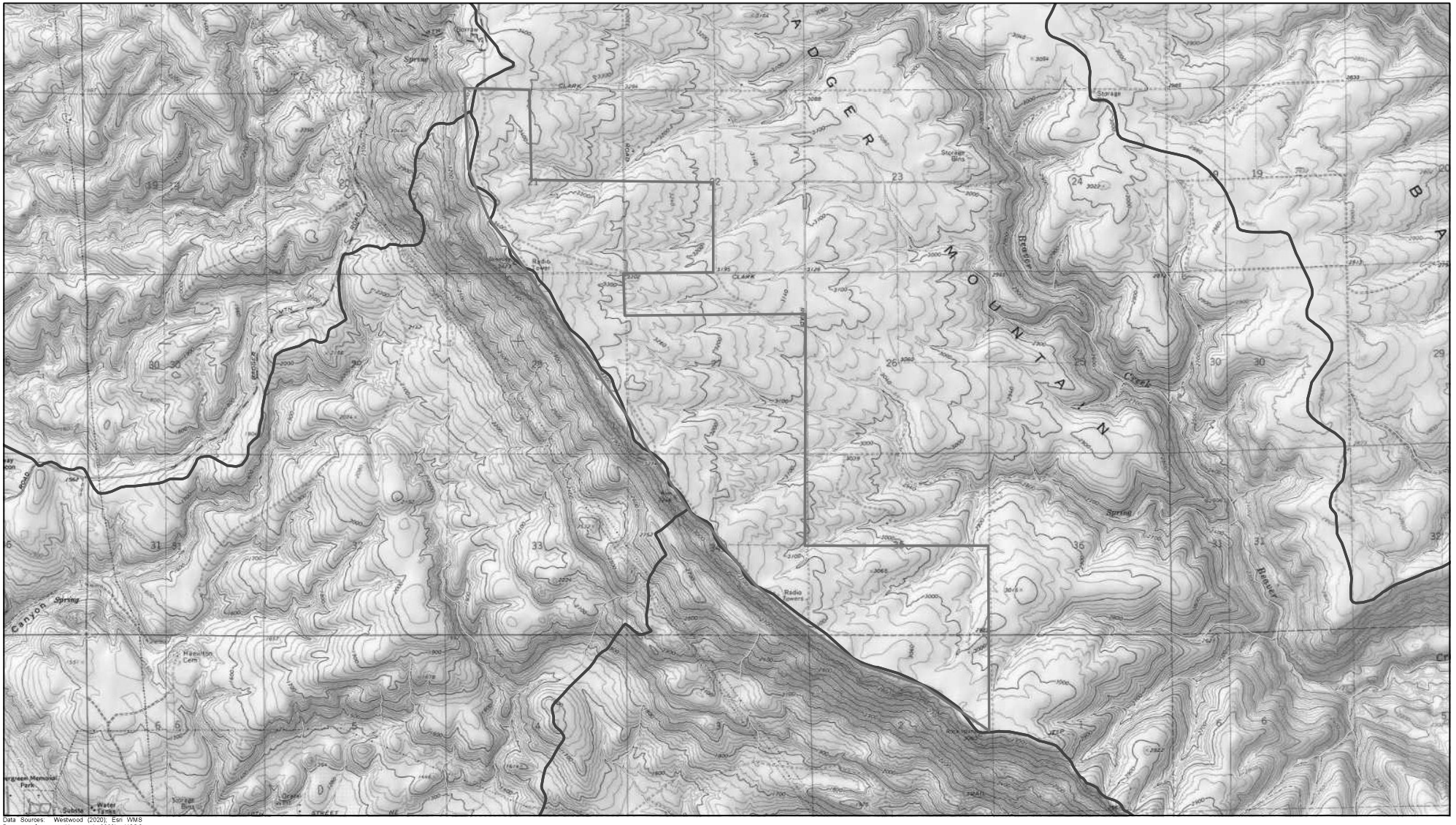

Data Sources: Westwood (2020); Esri WMS Basemap Imagery (Accessed 2020); USGS (2020); FEMA (2020); USDA (2020)

Legend

Project Boundary
County Boundary
NHD Flowline
HU-12 Boundary

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± 0 0.5 Miles

Badger Mountain Solar

Douglas County, Washington

Exhibit 2: Base Map

February 24, 2020

Data Sources: Westwood (2020); Esri WMS Basemap Imagery (Accessed 2020); USGS (2020); FEMA (2020); USDA (2020)

Legend

Project Boundary

County Boundary

Hydrologic Soils Group

A

B

B/D

C

D

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± 0 0.5 Miles

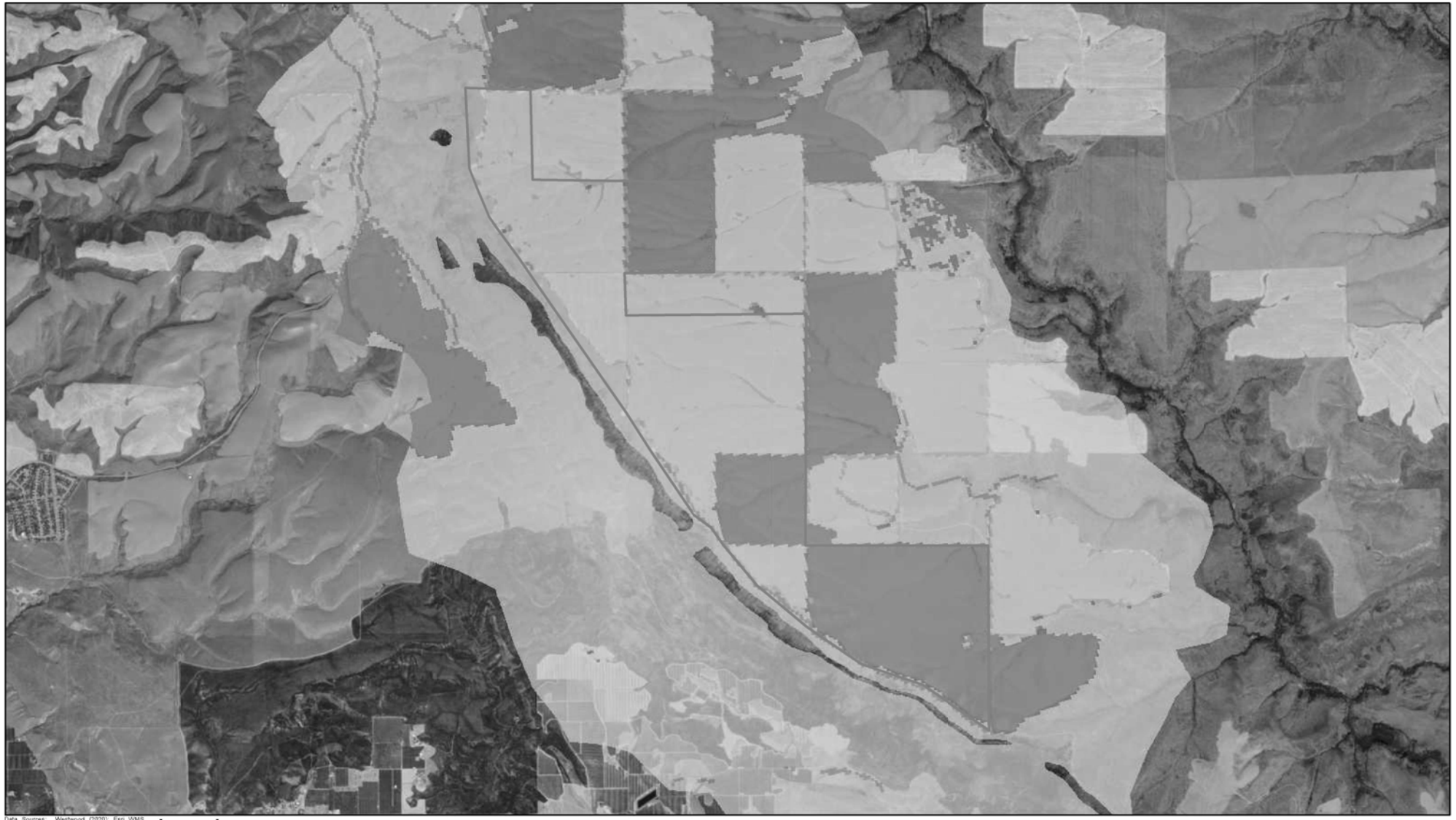
Badger Mountain Solar

Douglas County, Washington

Exhibit 3: Soils Map

February 24, 2020

Map Document: N:\0025965.00\GIS\Hydro Exhibits\Stormwater Management\Badger_Ex3_SoilsMap.mxd mxdcogsma 2/24/2020 10:35:02 AM



Data Sources: Westwood (2020); Esri WMS Basemap Imagery (Accessed 2020); USGS (2020); FEMA (2020); USDA (2020)

Legend

Project Boundary
County Boundary

Landcover

Cultivated
Developed
Fallow
Forested
Prairie/Pasture
Shrubland

± 0 0.5 Miles

Badger Mountain Solar

Douglas County, Washington

Exhibit 4: Soils Map

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Data Sources: Westwood (2020); Esri WMS Basemap Imagery (Accessed 2020); USGS (2020); FEMA (2020); USDA (2020)

Legend

- 1-meter Elevation Extents
- Project Boundary
- County Boundary

Curve Number

- 46
- 55
- 60 - 79
- 70 - 79
- 80 - 89
- 90 - 99

± 0 0.75 Miles

Badger Mountain Solar

Douglas County, Washington

Exhibit 5: Curve Number and Topographic Source Map

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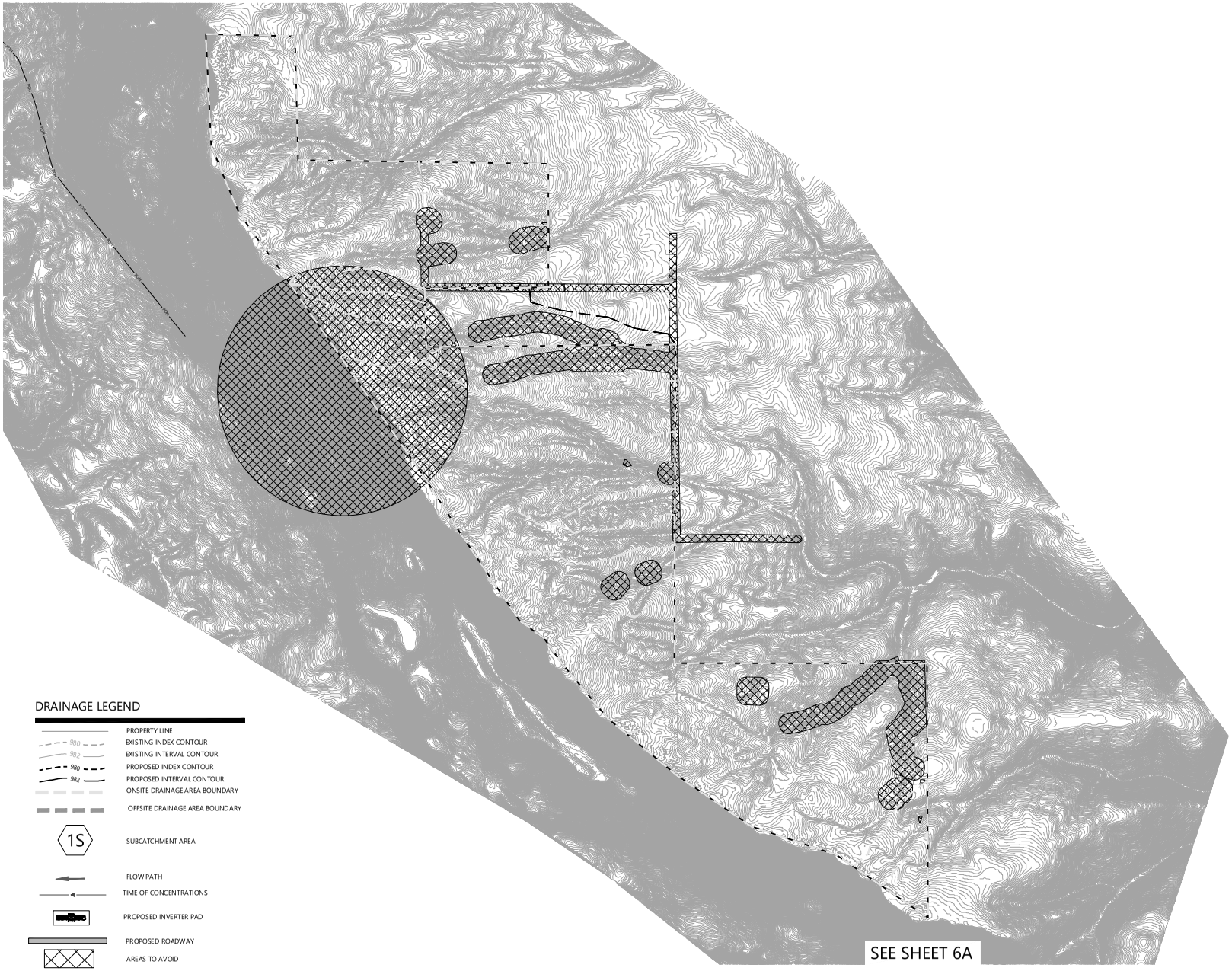

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#	DATE	COMMENT

0' 1000' 2000' 3000'

Badger Mountain Solar

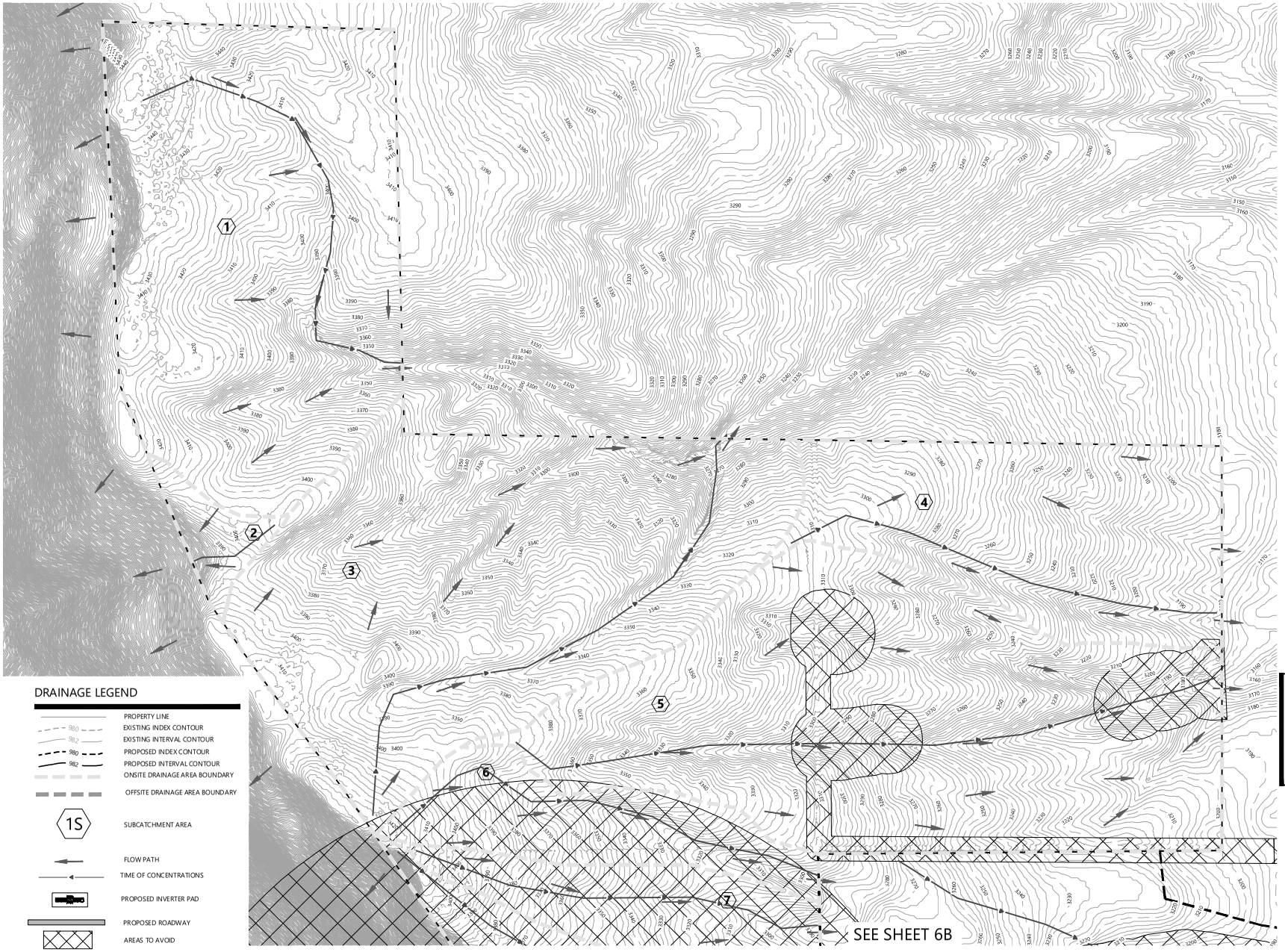
Douglas County, WA

Existing Drainage Map

NOT FOR CONSTRUCTION

DATE: 02/24/2020

SHEET: 6



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0 300 600 900

Badger Mountain Solar

Douglas County, WA

Existing Drainage Map

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DATE: 02/24/2020

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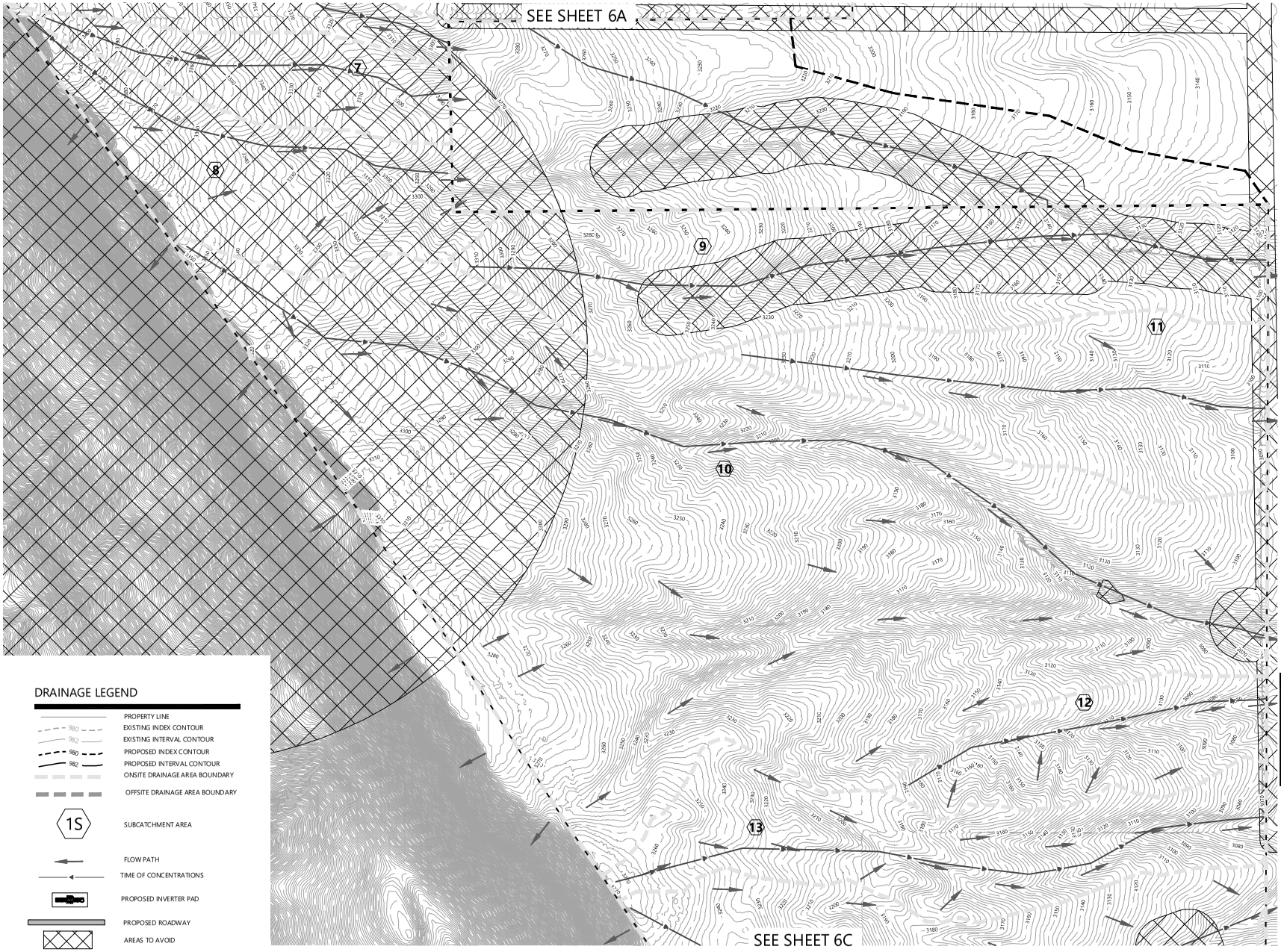

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Existing Drainage Map

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0' 300' 600' 900'

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Douglas County, WA

Existing Drainage Map

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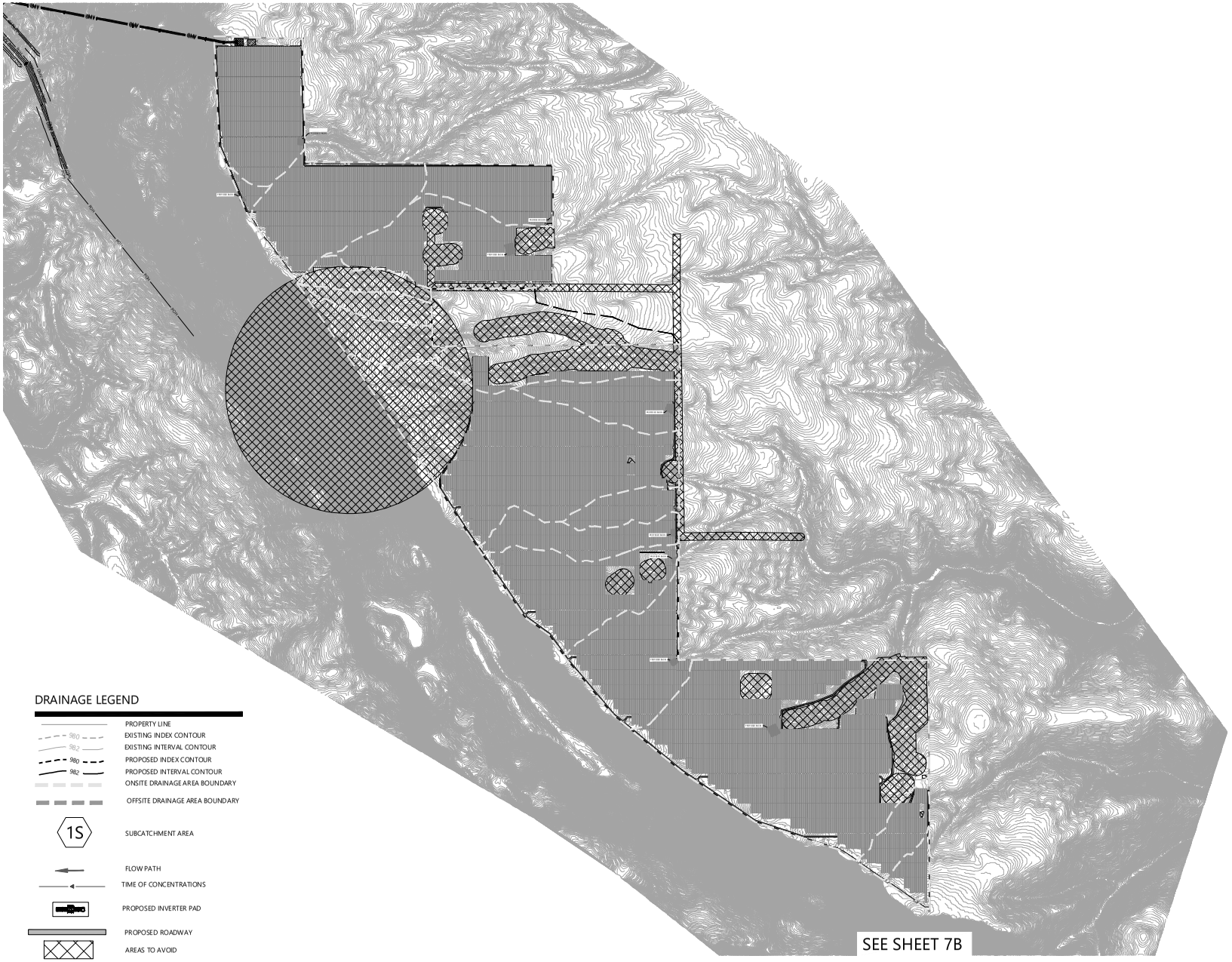

DRAINAGE LEGEND

- PROPERTY LINE
- EXISTING INDEX CONTOUR
- EXISTING INTERVAL CONTOUR
- PROPOSED INDEX CONTOUR
- PROPOSED INTERVAL CONTOUR
- ONSITE DRAINAGE AREA BOUNDARY
- OFFSITE DRAINAGE AREA BOUNDARY
- 1S — SUBCATCHMENT AREA
- FLOW PATH
- TIME OF CONCENTRATIONS
- PROPOSED INVERTER PAD
- PROPOSED ROADWAY
- AREAS TO AVOID

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0' 1000' 2000' 3000'

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Douglas County, WA

Proposed Drainage Map

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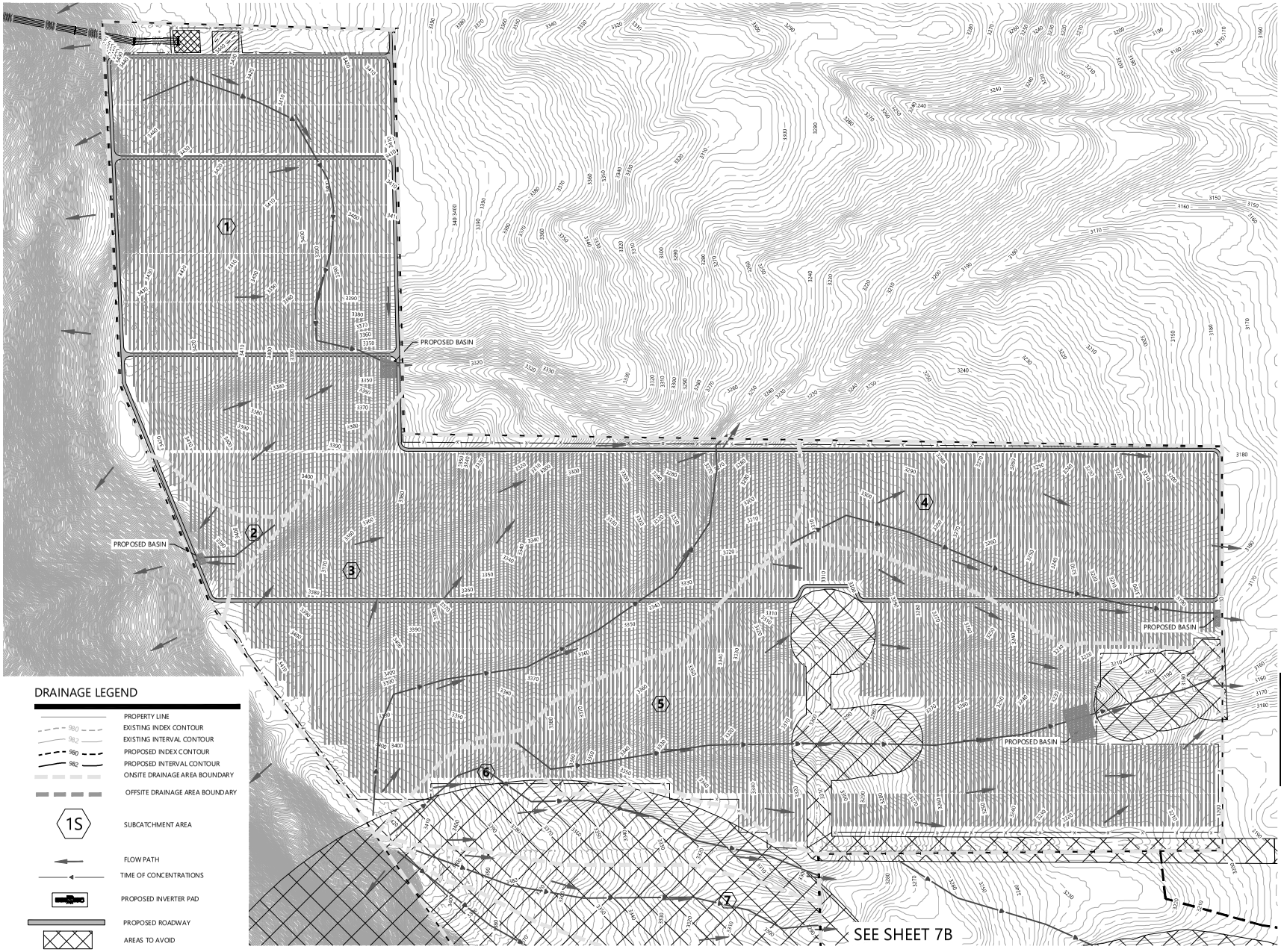

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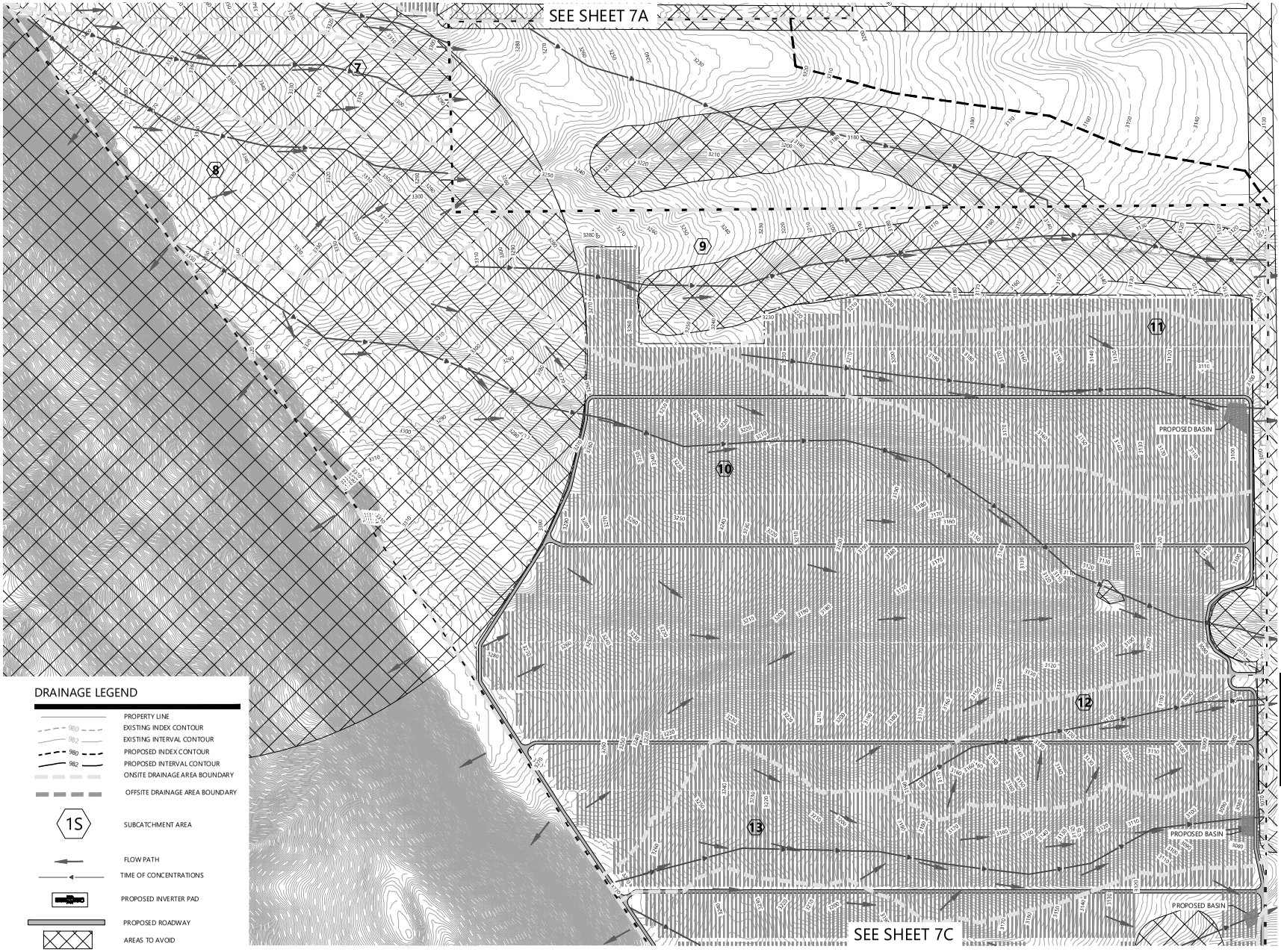

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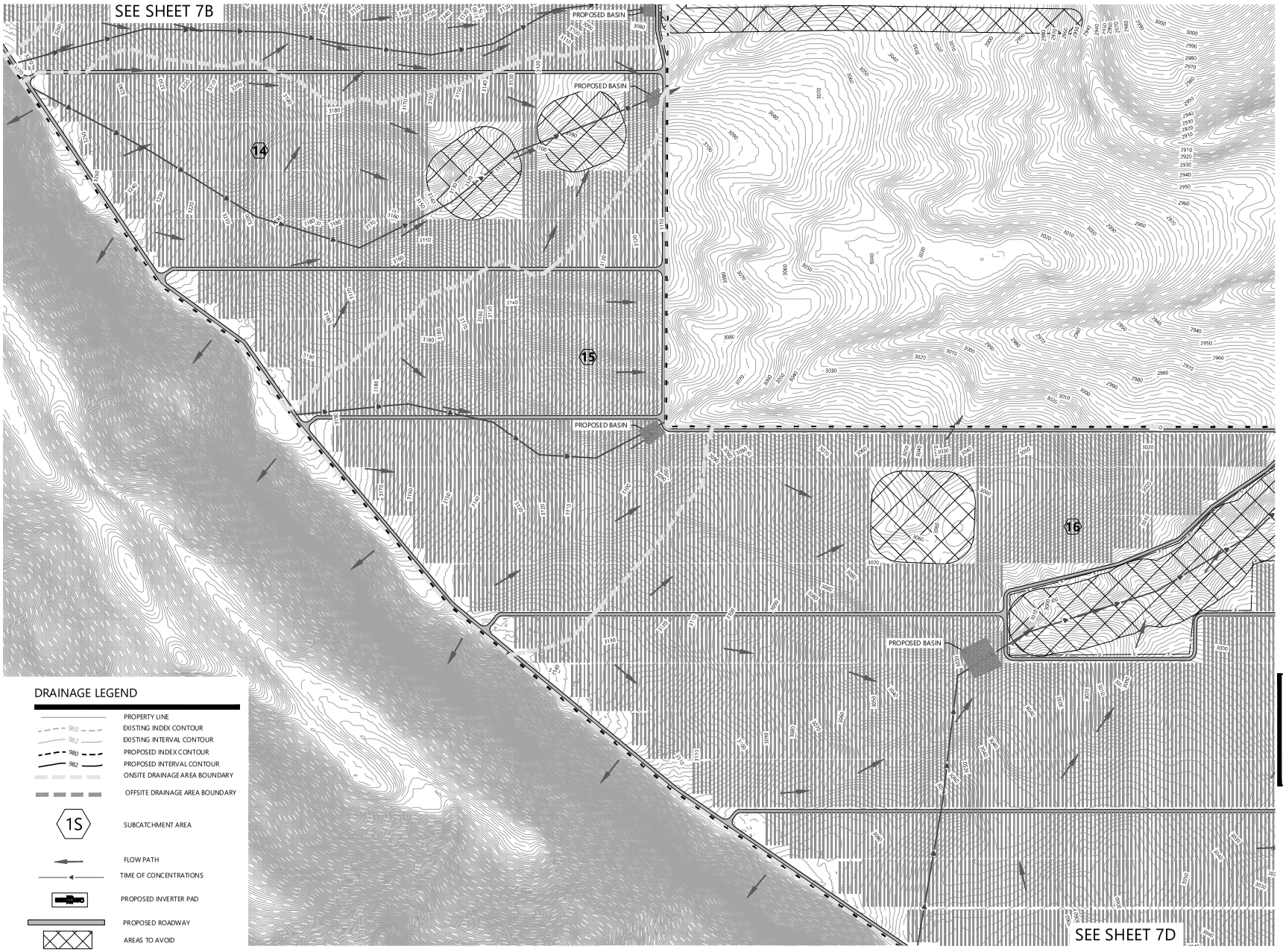

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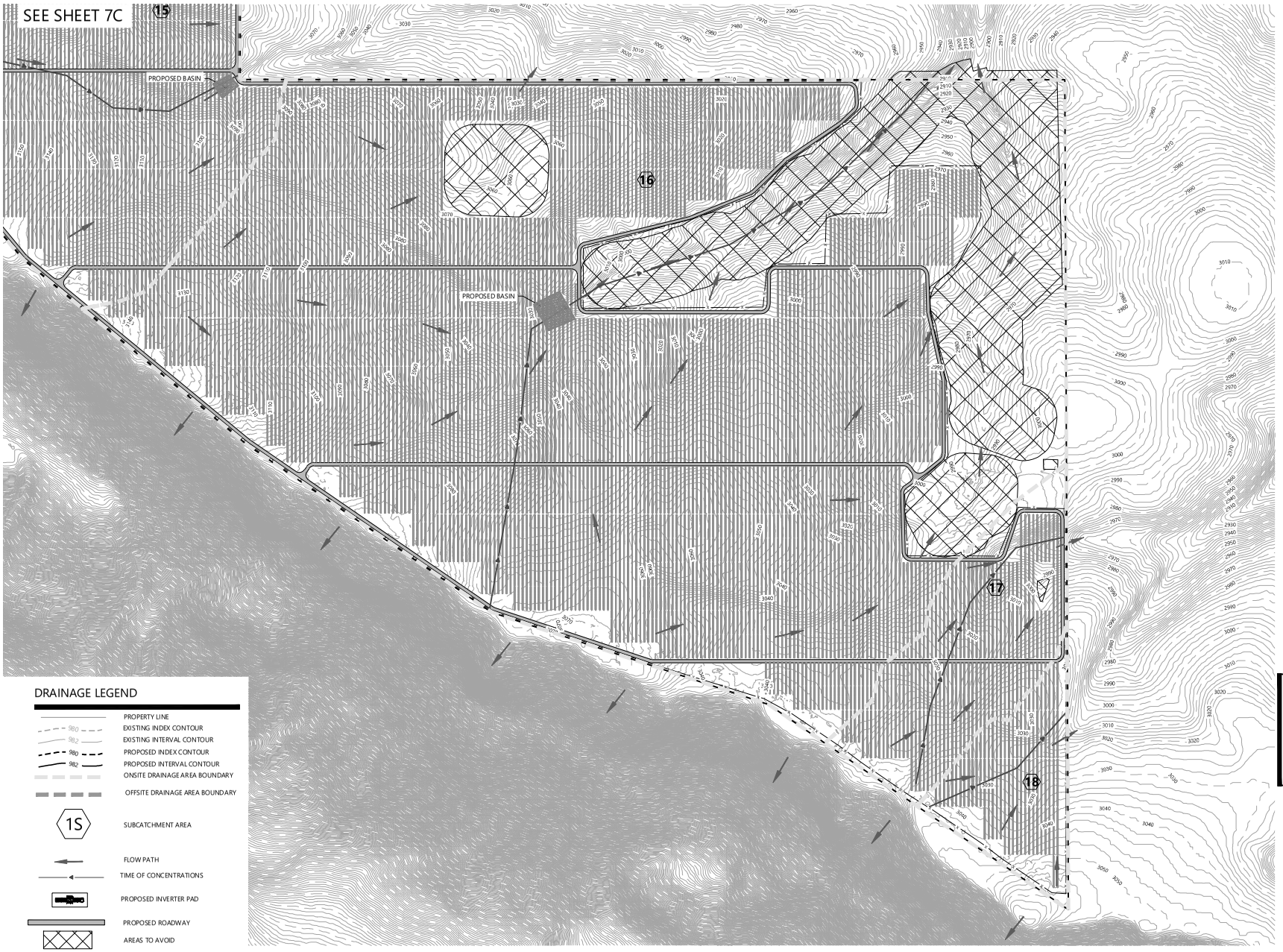

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Proposed Drainage Map

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Appendix A

SWMMEW

Curve Number Table

Cover type and hydrologic condition	CNs for hydrologic soil group			
	A	B	C	D
Open space (lawns, parks, golf courses, cemeteries, landscaping, etc.)[a]				
Poor condition (grass cover <50% of the area)	68	79	86	89
Fair condition (grass cover on 50% to 75% of the area)	49	69	79	84
Good condition (grass cover on >75% of the area)	39	61	74	80
Impervious areas				
Open water bodies: lakes, wetlands, ponds etc.	100	100	100	100
Paved parking lots, roofs, driveways, etc. (excluding right-of-way)	98	98	98	98
Permeable pavers and permeable interlocking concrete (assumed as 85% impervious and 15% lawn)				
Fair lawn condition (weighted average CNs)	95	96	97	97
Gravel (including right-of-way)	76	85	89	91
Dirt (including right-of-way)	72	82	87	89

[a]Composite CNs may be computed for other combinations of open space cover type.

[b]Actual CN is < 30; use CN = 30 for runoff computations.

[c]The indicated CNs were computed for areas with 50% woods and 50% grass (pasture) cover. Other combinations of conditions may be computed from the CNs for woods and pasture.

[d]CNs have not been developed for hydrologic soil group A.

Cover type and hydrologic condition	CNs for hydrologic soil group			
	A	B	C	D
Pasture, grassland, or range-continuous forage for grazing				
Poor condition (ground cover <50% or heavily grazed with no mulch)	68	79	86	89
Fair condition (ground cover 50% to 75% and not heavily grazed)	49	69	79	84
Good condition (ground cover >75% and lightly or only occasionally grazed)	39	61	74	80
Cultivated agricultural lands				
Row Crops (good) e.g., corn, sugar beets, soy beans	64	75	82	85
Small Grain (good) e.g., wheat, barley, flax	60	72	80	84
Meadow				
Continuous grass, protected from grazing and generally mowed for hay	30	58	71	78
Brush (brush-weed-grass mixture with brush the major element)				
Poor (<50% ground cover)	48	67	77	83
Fair (50% to 75% ground cover)				

[a]Composite CNs may be computed for other combinations of open space cover type.

[b]Actual CN is < 30; use CN = 30 for runoff computations.

[c]The indicated CNs were computed for areas with 50% woods and 50% grass (pasture) cover. Other combinations of conditions may be computed from the CNs for woods and pasture.

[d]CNs have not been developed for hydrologic soil group A.

Cover type and hydrologic condition	CNs for hydrologic soil group			
	A	B	C	D
	35	56	70	77
Good (>75% ground cover)	30[b]	48	65	73
Woods-grass combination (orchard or tree farm)[c]				
Poor	57	73	82	86
Fair	43	65	76	82
Good	32	58	72	79
Woods				
Poor (Forest litter, small trees, and brush destroyed by heavy grazing or regular burning)	45	66	77	83
Fair (Woods are grazed but not burned, and some forest litter covers the soil)	36	60	73	79
Good (Woods are protected from grazing, and litter and brush adequately cover the soil)	30	55	70	77
Herbaceous (mixture of grass, weeds, and low-growing brush, with brush the minor element)				

[a]Composite CNs may be computed for other combinations of open space cover type.

[b]Actual CN is < 30; use CN = 30 for runoff computations.

[c]The indicated CNs were computed for areas with 50% woods and 50% grass (pasture) cover. Other combinations of conditions may be computed from the CNs for woods and pasture.

[d]CNs have not been developed for hydrologic soil group A.

Cover type and hydrologic condition	CNs for hydrologic soil group			
	A	B	C	D
Poor (<30% ground cover)	n/a[d]	80	87	93
Fair (30% to 70% ground cover)		71	81	89
Good (>70% ground cover)		62	74	85
Sagebrush with grass understory				
Poor (<30% ground cover)	n/a[d]	67	80	85
Fair (30% to 70% ground cover)		51	63	70
Good (>70% ground cover)		35	47	55

[a]Composite CNs may be computed for other combinations of open space cover type.

[b]Actual CN is < 30; use CN = 30 for runoff computations.

[c]The indicated CNs were computed for areas with 50% woods and 50% grass (pasture) cover. Other combinations of conditions may be computed from the CNs for woods and pasture.

[d]CNs have not been developed for hydrologic soil group A.

For more information: For a more detailed and complete description of land use curve numbers (CNs), see *Urban Hydrology for Small Watersheds* (USDA, 1986).

Antecedent Moisture Condition

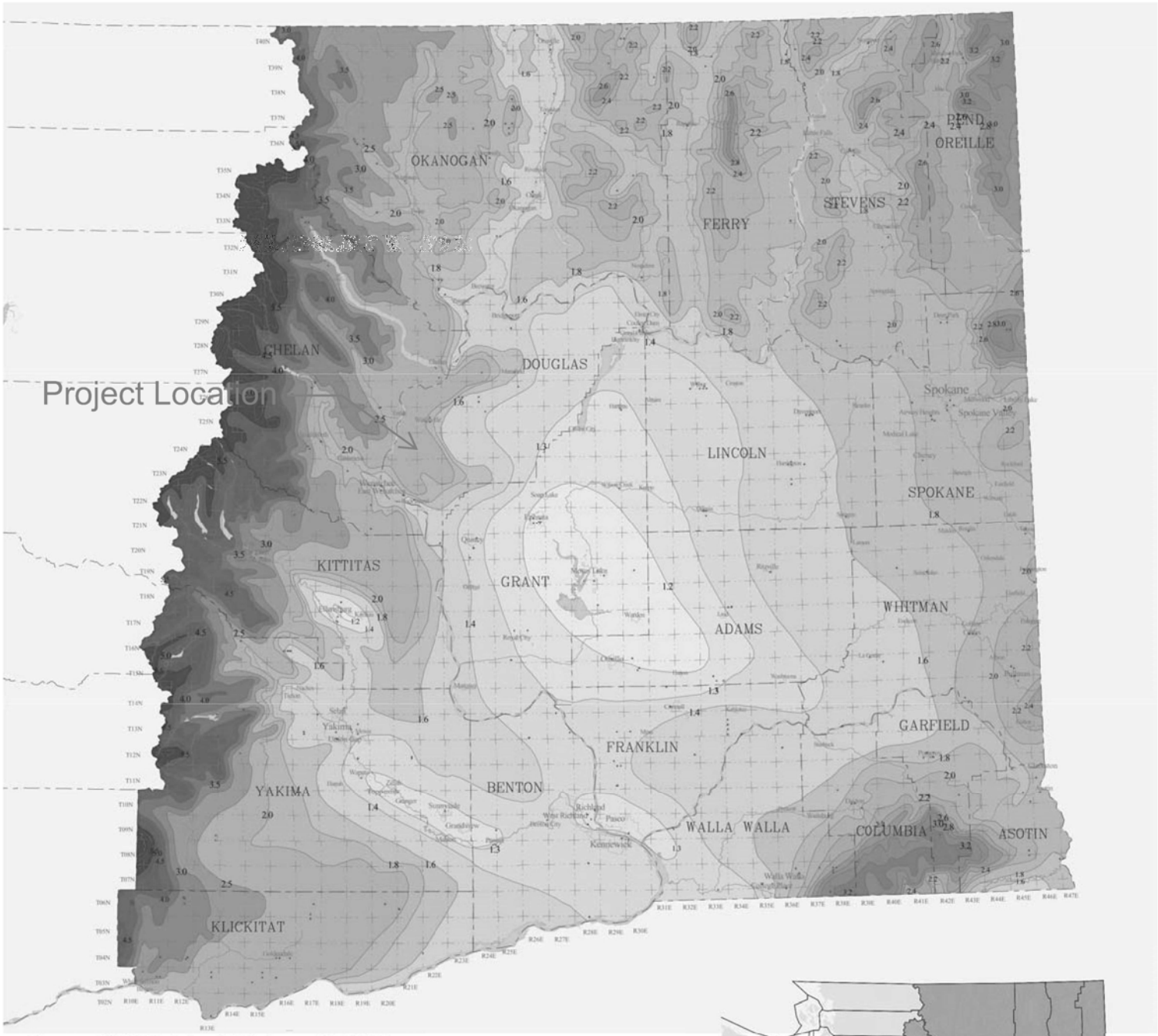
The moisture condition in a soil at the onset of a storm event, referred to as the antecedent moisture condition (AMC), has a significant effect on both the volume and rate of runoff. Recognizing that fact, the SCS developed three antecedent soil moisture conditions (I, II, and III), which are described as follows:

- **AMC I:** Soils are dry but not to wilting point.
- **AMC II:** Average conditions.

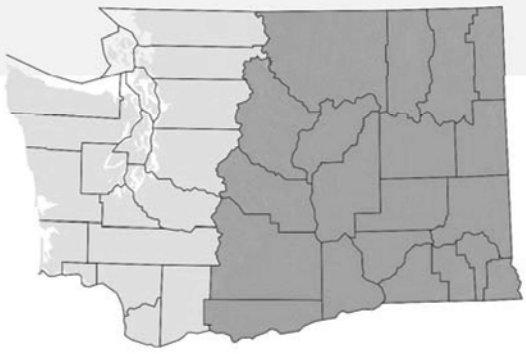
Appendix B

SWMMEW

Rainfall Maps



Source: NOAA Atlas 2, Volume IX, 1973
Precipitation in inches



County(2003, 1:24,000)
City(2003, 1:24,000)
Township/Range
Isopluvial(1973, 1:2,000,000)
NOAA/NWS Station(1931-1998)

Source: Miller et. al., 1973

DEPARTMENT OF
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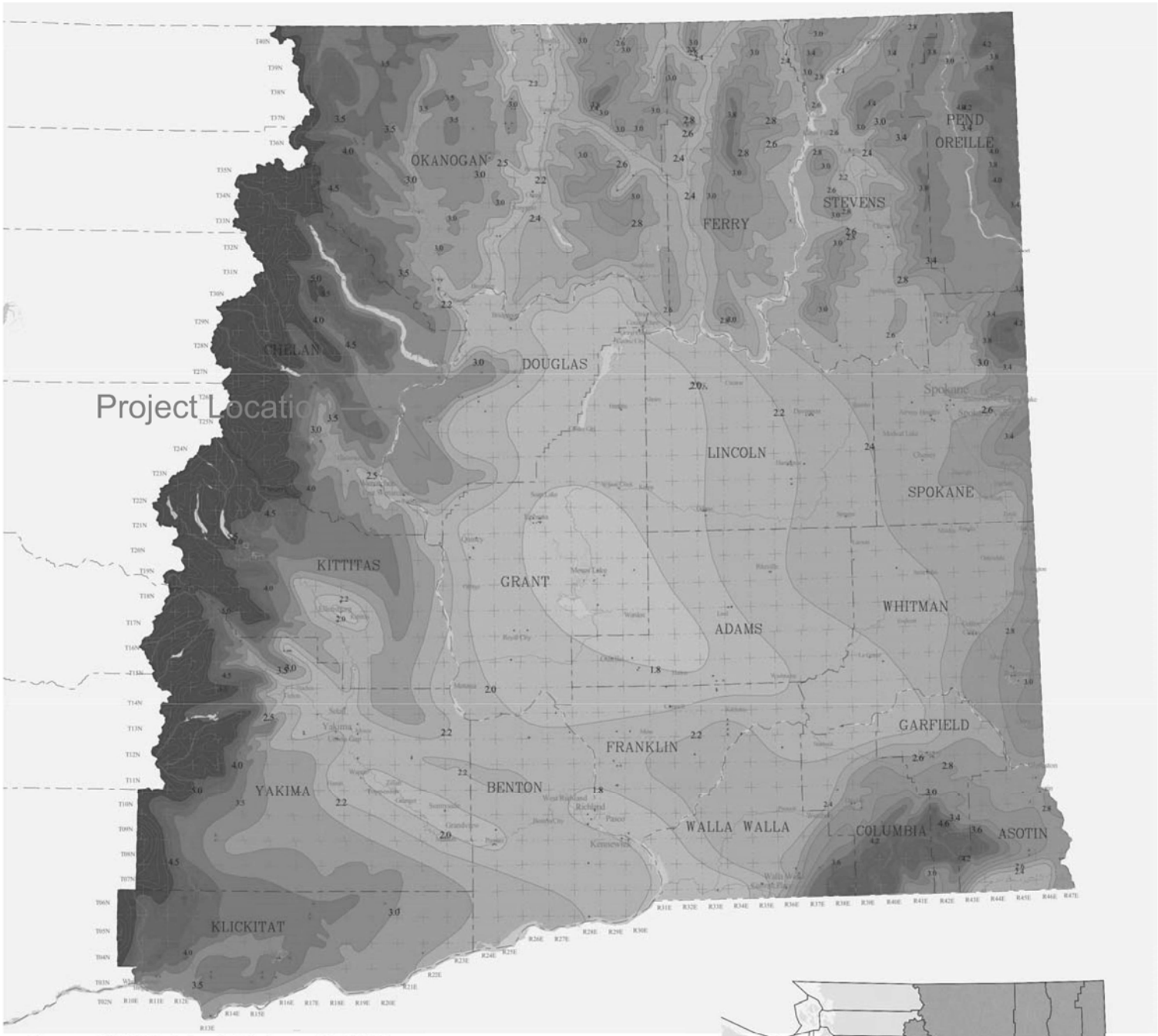
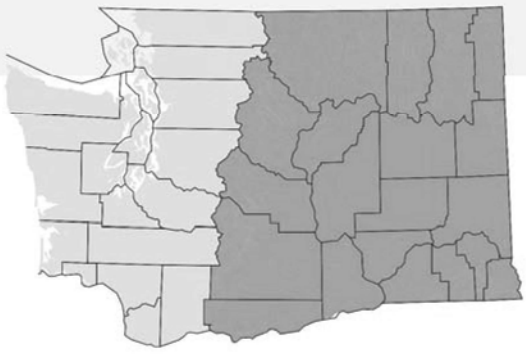
State of Washington

10-Year, 24-Hour Isopluvial Map

Revised March 2005



Source: NOAA Atlas 2, Volume IX, 1973
Precipitation in inches



County(2003, 1:24,000)
City(2003, 1:24,000)
Township/Range
Isopluvial(1973, 1:2,000,000)
NOAA/NWS Station(1931-1998)

Source: Miller et. al., 1973

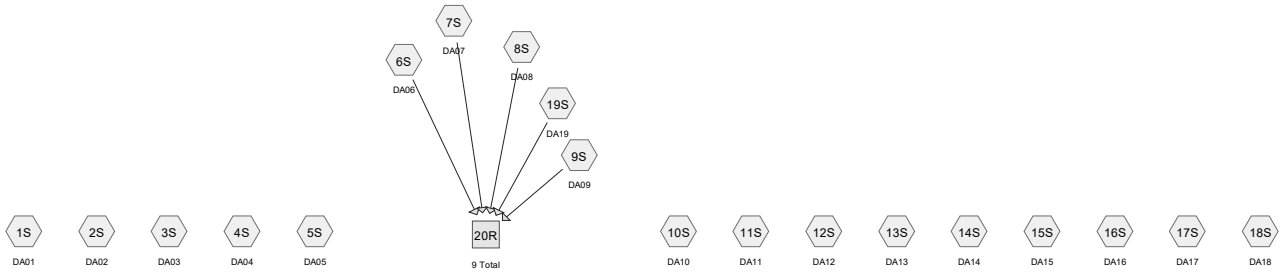
DEPARTMENT OF
ECOLOGY
State of Washington

100-Year, 24-Hour Isopluvial Map

Revised March 2005

Appendix C

HydroCAD Reports



Subcat Reach Pond Link

Routing Diagram for 0025965-Existing HydroCAD
Prepared by Westwood Professional Services, Printed 2/24/2020

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
59.720	69	Pasture Fair, HSG B (1S, 4S)
15.040	79	Pasture Fair, HSG C (4S)
18.840	84	Pasture Fair, HSG D (1S, 3S)
4.540	69	Pature Fair, HSG B (2S)
33.420	80	Row Crop HSG C (11S)
979.030	72	Row Crop, HSG B (1S, 5S, 6S, 7S, 8S, 9S, 10S, 12S, 13S, 14S, 15S, 16S, 17S, 18S, 19S)
588.330	80	Row Crop, HSG C (1S, 2S, 5S, 6S, 7S, 8S, 9S, 10S, 13S, 14S, 15S, 16S, 17S, 18S, 19S)
109.200	84	Row Crop, HSG D (6S, 7S, 8S, 9S, 10S, 13S, 14S, 15S, 16S, 17S, 18S, 19S)
28.010	72	Row Crop. HSG B (11S)
83.670	80	Row crop, HSG C (3S)
43.180	72	row crop, HSG B (3S)
1,962.980	**76**	**TOTAL AREA**

Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
0.000	HSG A	
1,114.480	HSG B	1S, 2S, 3S, 4S, 5S, 6S, 7S, 8S, 9S, 10S, 11S, 12S, 13S, 14S, 15S, 16S, 17S, 18S, 19S
720.460	HSG C	1S, 2S, 3S, 4S, 5S, 6S, 7S, 8S, 9S, 10S, 11S, 13S, 14S, 15S, 16S, 17S, 18S, 19S
128.040	HSG D	1S, 3S, 6S, 7S, 8S, 9S, 10S, 13S, 14S, 15S, 16S, 17S, 18S, 19S
0.000	Other	
1,962.980		**TOTAL AREA**

Ground Covers (all nodes)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
0.000	59.720	15.040	18.840	0.000	93.600	Pasture Fair	1S, 3S, 4S
0.000	4.540	0.000	0.000	0.000	4.540	Pature Fair	2S
0.000	979.030	621.750	109.200	0.000	1,709.980	Row Crop	1S, 2S, 5S, 6S, 7S, 8S, 9S, 10S, 11S, 12S, 13S, 14S, 15S, 16S, 17S, 18S, 19S
0.000	28.010	0.000	0.000	0.000	28.010	Row Crop.	11S
0.000	0.000	83.670	0.000	0.000	83.670	Row crop	3S
0.000	43.180	0.000	0.000	0.000	43.180	row crop	3S
0.000	**1,114.480**	**720.460**	**128.040**	**0.000**	**1,962.980**	**TOTAL AREA**	

Summary for Subcatchment 1S: DA01

Runoff = 33.11 cfs @ 12.48 hrs, Volume= 4.322 af, Depth> 0.42"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-yr Rainfall=2.00"

	Area (ac)	CN	Description
*	12.250	84	Pasture Fair, HSG D
*	8.820	69	Pasture Fair, HSG B
*	23.860	72	Row Crop, HSG B
*	78.100	80	Row Crop, HSG C
	123.030	78	Weighted Average
	123.030		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
44.4	3,080	0.0351	1.16		**Lag/CN Method,**

Summary for Subcatchment 2S: DA02

Runoff = 2.64 cfs @ 12.06 hrs, Volume= 0.170 af, Depth> 0.28"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-yr Rainfall=2.00"

	Area (ac)	CN	Description
*	4.540	69	Pature Fair, HSG B
*	2.840	80	Row Crop, HSG C
	7.380	73	Weighted Average
	7.380		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.8	615	0.0505	0.87		**Lag/CN Method,**

Summary for Subcatchment 3S: DA03

Runoff = 32.29 cfs @ 12.59 hrs, Volume= 4.668 af, Depth> 0.42"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-yr Rainfall=2.00"

	Area (ac)	CN	Description
*	43.180	72	row crop, HSG B
*	83.670	80	Row crop, HSG C
*	6.590	84	Pasture Fair, HSG D
	133.440	78	Weighted Average
	133.440		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
51.4	3,747	0.0358	1.22		**Lag/CN Method,**

Summary for Subcatchment 4S: DA04

Runoff = 7.58 cfs @ 12.50 hrs, Volume= 1.221 af, Depth> 0.22"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-yr Rainfall=2.00"

	Area (ac)	CN	Description
*	50.900	69	Pasture Fair, HSG B
*	15.040	79	Pasture Fair, HSG C
	65.940	71	Weighted Average
	65.940		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
40.7	2,882	0.0558	1.18		**Lag/CN Method,**

Summary for Subcatchment 5S: DA05

Runoff = 19.30 cfs @ 12.75 hrs, Volume= 3.523 af, Depth> 0.29"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-yr Rainfall=2.00"

	Area (ac)	CN	Description
*	102.050	72	Row Crop, HSG B
*	41.500	80	Row Crop, HSG C
	143.550	74	Weighted Average
	143.550		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
60.5	4,644	0.0459	1.28		**Lag/CN Method,**

Summary for Subcatchment 6S: DA06

Runoff = 5.72 cfs @ 12.51 hrs, Volume= 0.816 af, Depth> 0.33"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-yr Rainfall=2.00"

	Area (ac)	CN	Description
*	19.520	72	Row Crop, HSG B
*	9.370	80	Row Crop, HSG C
*	1.120	84	Row Crop, HSG D
	30.010	75	Weighted Average
	30.010		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
44.5	3,064	0.0412	1.15		**Lag/CN Method,**

Summary for Subcatchment 7S: DA07

Runoff = 8.23 cfs @ 12.34 hrs, Volume= 0.914 af, Depth> 0.39"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-yr Rainfall=2.00"

	Area (ac)	CN	Description
*	11.740	72	Row Crop, HSG B
*	14.480	80	Row Crop, HSG C
*	1.860	84	Row Crop, HSG D
	28.080	77	Weighted Average
	28.080		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
33.9	2,657	0.0504	1.31		**Lag/CN Method,**

Summary for Subcatchment 8S: DA08

Runoff = 19.06 cfs @ 12.34 hrs, Volume= 2.026 af, Depth> 0.50"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-yr Rainfall=2.00"

	Area (ac)	CN	Description
*	7.510	72	Row Crop, HSG B
*	32.150	80	Row Crop, HSG C
*	9.310	84	Row Crop, HSG D
	48.970	80	Weighted Average
	48.970		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
35.2	2,938	0.0456	1.39		**Lag/CN Method,**

Summary for Subcatchment 9S: DA09

Runoff = 14.89 cfs @ 12.81 hrs, Volume= 2.676 af, Depth> 0.35"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-yr Rainfall=2.00"

	Area (ac)	CN	Description
*	50.580	72	Row Crop, HSG B
*	37.890	80	Row Crop, HSG C
*	2.870	84	Row Crop, HSG D
	91.340	76	Weighted Average
	91.340		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
65.2	5,199	0.0422	1.33		**Lag/CN Method,**

Summary for Subcatchment 10S: DA10

Runoff = 39.44 cfs @ 13.23 hrs, Volume= 9.050 af, Depth> 0.34"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-yr Rainfall=2.00"

	Area (ac)	CN	Description
*	182.010	72	Row Crop, HSG B
*	105.400	80	Row Crop, HSG C
*	27.600	84	Row Crop, HSG D
	315.010	76	Weighted Average
	315.010		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
92.5	7,654	0.0390	1.38		**Lag/CN Method,**

Summary for Subcatchment 11S: DA11

Runoff = 13.17 cfs @ 12.50 hrs, Volume= 1.824 af, Depth> 0.36"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-yr Rainfall=2.00"

	Area (ac)	CN	Description
*	28.010	72	Row Crop. HSG B
*	33.420	80	Row Crop HSG C
	61.430	76	Weighted Average
	61.430		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
44.6	3,394	0.0456	1.27		**Lag/CN Method,**

Summary for Subcatchment 12S: DA12

Runoff = 4.79 cfs @ 12.43 hrs, Volume= 0.686 af, Depth> 0.25"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-yr Rainfall=2.00"

	Area (ac)	CN	Description
*	33.360	72	Row Crop, HSG B
	33.360		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
37.0	2,410	0.0480	1.08		**Lag/CN Method,**

Summary for Subcatchment 13S: DA13

Runoff = 7.72 cfs @ 12.70 hrs, Volume= 1.378 af, Depth> 0.27"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-yr Rainfall=2.00"

	Area (ac)	CN	Description
*	55.730	72	Row Crop, HSG B
*	3.870	80	Row Crop, HSG C
*	1.920	84	Row Crop, HSG D
	61.520	73	Weighted Average
	61.520		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
55.7	4,256	0.0498	1.27		**Lag/CN Method,**

Summary for Subcatchment 14S: DA14

Runoff = 19.45 cfs @ 12.74 hrs, Volume= 3.378 af, Depth> 0.32"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-yr Rainfall=2.00"

	Area (ac)	CN	Description
*	85.200	72	Row Crop, HSG B
*	23.930	80	Row Crop, HSG C
*	16.370	84	Row Crop, HSG D
	125.500	75	Weighted Average
	125.500		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
59.4	4,540	0.0434	1.27		**Lag/CN Method,**

Summary for Subcatchment 15S: DA15

Runoff = 21.25 cfs @ 12.39 hrs, Volume= 2.703 af, Depth> 0.30"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-yr Rainfall=2.00"

	Area (ac)	CN	Description
*	86.640	72	Row Crop, HSG B
*	18.910	80	Row Crop, HSG C
*	2.700	84	Row Crop, HSG D
	108.250	74	Weighted Average
	108.250		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
35.6	2,510	0.0497	1.18		**Lag/CN Method,**

Summary for Subcatchment 16S: DA16

Runoff = 68.50 cfs @ 12.82 hrs, Volume= 12.592 af, Depth> 0.35"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-yr Rainfall=2.00"

	Area (ac)	CN	Description
*	255.770	72	Row Crop, HSG B
*	142.700	80	Row Crop, HSG C
*	31.990	84	Row Crop, HSG D
	430.460	76	Weighted Average
	430.460		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
67.3	4,898	0.0360	1.21		**Lag/CN Method,**

Summary for Subcatchment 17S: DA17

Runoff = 11.59 cfs @ 12.27 hrs, Volume= 1.146 af, Depth> 0.39"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-yr Rainfall=2.00"

	Area (ac)	CN	Description
*	14.770	72	Row Crop, HSG B
*	16.740	80	Row Crop, HSG C
*	3.600	84	Row Crop, HSG D
	35.110	77	Weighted Average
	35.110		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
28.8	1,985	0.0437	1.15		**Lag/CN Method,**

Summary for Subcatchment 18S: DA18

Runoff = 10.91 cfs @ 12.15 hrs, Volume= 0.803 af, Depth> 0.50"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-yr Rainfall=2.00"

	Area (ac)	CN	Description
*	3.420	72	Row Crop, HSG B
*	10.730	80	Row Crop, HSG C
*	5.120	84	Row Crop, HSG D
	19.270	80	Weighted Average
	19.270		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
20.3	1,125	0.0296	0.92		**Lag/CN Method,**

Summary for Subcatchment 19S: DA19

Runoff = 20.20 cfs @ 12.57 hrs, Volume= 3.000 af, Depth> 0.36"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-yr Rainfall=2.00"

	Area (ac)	CN	Description
*	46.870	72	Row Crop, HSG B
*	49.720	80	Row Crop, HSG C
*	4.740	84	Row Crop, HSG D
	101.330	76	Weighted Average
	101.330		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
49.4	3,591	0.0408	1.21		**Lag/CN Method,**

Summary for Reach 20R: 9 Total

Inflow Area = 299.730 ac, 0.00% Impervious, Inflow Depth > 0.38" for 10-yr event
Inflow = 59.68 cfs @ 12.48 hrs, Volume= 9.431 af
Outflow = 59.68 cfs @ 12.48 hrs, Volume= 9.431 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Summary for Subcatchment 1S: DA01

Runoff = 87.52 cfs @ 12.45 hrs, Volume= 10.336 af, Depth> 1.01"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 100-yr Rainfall=3.00"

	Area (ac)	CN	Description
*	12.250	84	Pasture Fair, HSG D
*	8.820	69	Pasture Fair, HSG B
*	23.860	72	Row Crop, HSG B
*	78.100	80	Row Crop, HSG C
	123.030	78	Weighted Average
	123.030		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
44.4	3,080	0.0351	1.16		**Lag/CN Method,**

Summary for Subcatchment 2S: DA02

Runoff = 8.61 cfs @ 12.05 hrs, Volume= 0.471 af, Depth> 0.77"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 100-yr Rainfall=3.00"

	Area (ac)	CN	Description
*	4.540	69	Pature Fair, HSG B
*	2.840	80	Row Crop, HSG C
	7.380	73	Weighted Average
	7.380		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.8	615	0.0505	0.87		**Lag/CN Method,**

Summary for Subcatchment 3S: DA03

Runoff = 85.43 cfs @ 12.54 hrs, Volume= 11.173 af, Depth> 1.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 100-yr Rainfall=3.00"

	Area (ac)	CN	Description
*	43.180	72	row crop, HSG B
*	83.670	80	Row crop, HSG C
*	6.590	84	Pasture Fair, HSG D
	133.440	78	Weighted Average
	133.440		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
51.4	3,747	0.0358	1.22		**Lag/CN Method,**

Summary for Subcatchment 4S: DA04

Runoff = 30.19 cfs @ 12.43 hrs, Volume= 3.654 af, Depth> 0.67"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 100-yr Rainfall=3.00"

	Area (ac)	CN	Description
*	50.900	69	Pasture Fair, HSG B
*	15.040	79	Pasture Fair, HSG C
	65.940	71	Weighted Average
	65.940		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
40.7	2,882	0.0558	1.18		**Lag/CN Method,**

Summary for Subcatchment 5S: DA05

Runoff = 62.31 cfs @ 12.69 hrs, Volume= 9.500 af, Depth> 0.79"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 100-yr Rainfall=3.00"

	Area (ac)	CN	Description
*	102.050	72	Row Crop, HSG B
*	41.500	80	Row Crop, HSG C
	143.550	74	Weighted Average
	143.550		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
60.5	4,644	0.0459	1.28		**Lag/CN Method,**

Summary for Subcatchment 6S: DA06

Runoff = 17.50 cfs @ 12.46 hrs, Volume= 2.126 af, Depth> 0.85"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 100-yr Rainfall=3.00"

	Area (ac)	CN	Description
*	19.520	72	Row Crop, HSG B
*	9.370	80	Row Crop, HSG C
*	1.120	84	Row Crop, HSG D
	30.010	75	Weighted Average
	30.010		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
44.5	3,064	0.0412	1.15		**Lag/CN Method,**

Summary for Subcatchment 7S: DA07

Runoff = 22.77 cfs @ 12.31 hrs, Volume= 2.243 af, Depth> 0.96"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 100-yr Rainfall=3.00"

	Area (ac)	CN	Description
*	11.740	72	Row Crop, HSG B
*	14.480	80	Row Crop, HSG C
*	1.860	84	Row Crop, HSG D
	28.080	77	Weighted Average
	28.080		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
33.9	2,657	0.0504	1.31		**Lag/CN Method,**

Summary for Subcatchment 8S: DA08

Runoff = 46.34 cfs @ 12.32 hrs, Volume= 4.600 af, Depth> 1.13"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 100-yr Rainfall=3.00"

	Area (ac)	CN	Description
*	7.510	72	Row Crop, HSG B
*	32.150	80	Row Crop, HSG C
*	9.310	84	Row Crop, HSG D
	48.970	80	Weighted Average
	48.970		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
35.2	2,938	0.0456	1.39		**Lag/CN Method,**

Summary for Subcatchment 9S: DA09

Runoff = 42.99 cfs @ 12.74 hrs, Volume= 6.785 af, Depth> 0.89"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 100-yr Rainfall=3.00"

	Area (ac)	CN	Description
*	50.580	72	Row Crop, HSG B
*	37.890	80	Row Crop, HSG C
*	2.870	84	Row Crop, HSG D
	91.340	76	Weighted Average
	91.340		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
65.2	5,199	0.0422	1.33		**Lag/CN Method,**

Summary for Subcatchment 10S: DA10

Runoff = 113.42 cfs @ 13.09 hrs, Volume= 23.041 af, Depth> 0.88"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 100-yr Rainfall=3.00"

	Area (ac)	CN	Description
*	182.010	72	Row Crop, HSG B
*	105.400	80	Row Crop, HSG C
*	27.600	84	Row Crop, HSG D
	315.010	76	Weighted Average
	315.010		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
92.5	7,654	0.0390	1.38		**Lag/CN Method,**

Summary for Subcatchment 11S: DA11

Runoff = 38.38 cfs @ 12.46 hrs, Volume= 4.613 af, Depth> 0.90"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 100-yr Rainfall=3.00"

	Area (ac)	CN	Description
*	28.010	72	Row Crop. HSG B
*	33.420	80	Row Crop HSG C
	61.430	76	Weighted Average
	61.430		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
44.6	3,394	0.0456	1.27		**Lag/CN Method,**

Summary for Subcatchment 12S: DA12

Runoff = 17.78 cfs @ 12.37 hrs, Volume= 1.976 af, Depth> 0.71"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 100-yr Rainfall=3.00"

	Area (ac)	CN	Description
*	33.360	72	Row Crop, HSG B
	33.360		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
37.0	2,410	0.0480	1.08		**Lag/CN Method,**

Summary for Subcatchment 13S: DA13

Runoff = 26.26 cfs @ 12.63 hrs, Volume= 3.840 af, Depth> 0.75"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 100-yr Rainfall=3.00"

	Area (ac)	CN	Description
*	55.730	72	Row Crop, HSG B
*	3.870	80	Row Crop, HSG C
*	1.920	84	Row Crop, HSG D
	61.520	73	Weighted Average
	61.520		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
55.7	4,256	0.0498	1.27		**Lag/CN Method,**

Summary for Subcatchment 14S: DA14

Runoff = 59.13 cfs @ 12.66 hrs, Volume= 8.822 af, Depth> 0.84"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 100-yr Rainfall=3.00"

	Area (ac)	CN	Description
*	85.200	72	Row Crop, HSG B
*	23.930	80	Row Crop, HSG C
*	16.370	84	Row Crop, HSG D
	125.500	75	Weighted Average
	125.500		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
59.4	4,540	0.0434	1.27		**Lag/CN Method,**

Summary for Subcatchment 15S: DA15

Runoff = 68.96 cfs @ 12.34 hrs, Volume= 7.260 af, Depth> 0.80"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 100-yr Rainfall=3.00"

	Area (ac)	CN	Description
*	86.640	72	Row Crop, HSG B
*	18.910	80	Row Crop, HSG C
*	2.700	84	Row Crop, HSG D
	108.250	74	Weighted Average
	108.250		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
35.6	2,510	0.0497	1.18		**Lag/CN Method,**

Summary for Subcatchment 16S: DA16

Runoff = 198.51 cfs @ 12.78 hrs, Volume= 31.939 af, Depth> 0.89"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 100-yr Rainfall=3.00"

	Area (ac)	CN	Description
*	255.770	72	Row Crop, HSG B
*	142.700	80	Row Crop, HSG C
*	31.990	84	Row Crop, HSG D
	430.460	76	Weighted Average
	430.460		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
67.3	4,898	0.0360	1.21		**Lag/CN Method,**

Summary for Subcatchment 17S: DA17

Runoff = 31.80 cfs @ 12.25 hrs, Volume= 2.811 af, Depth> 0.96"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 100-yr Rainfall=3.00"

	Area (ac)	CN	Description
*	14.770	72	Row Crop, HSG B
*	16.740	80	Row Crop, HSG C
*	3.600	84	Row Crop, HSG D
	35.110	77	Weighted Average
	35.110		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
28.8	1,985	0.0437	1.15		**Lag/CN Method,**

Summary for Subcatchment 18S: DA18

Runoff = 26.00 cfs @ 12.14 hrs, Volume= 1.822 af, Depth> 1.13"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 100-yr Rainfall=3.00"

	Area (ac)	CN	Description
*	3.420	72	Row Crop, HSG B
*	10.730	80	Row Crop, HSG C
*	5.120	84	Row Crop, HSG D
	19.270	80	Weighted Average
	19.270		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
20.3	1,125	0.0296	0.92		**Lag/CN Method,**

Summary for Subcatchment 19S: DA19

Runoff = 58.67 cfs @ 12.52 hrs, Volume= 7.590 af, Depth> 0.90"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 100-yr Rainfall=3.00"

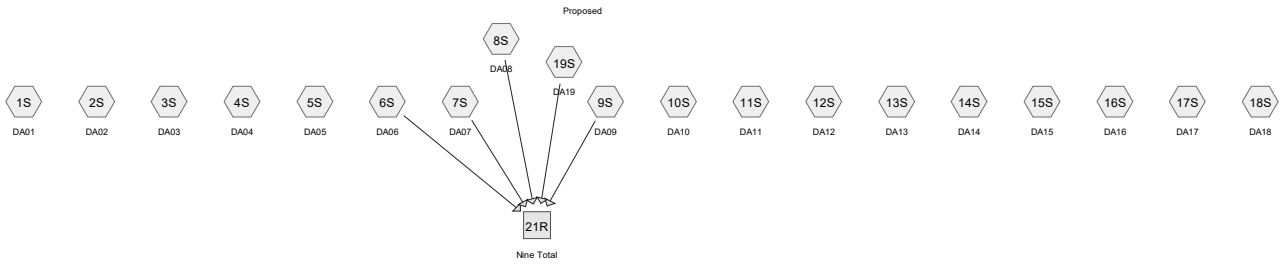
	Area (ac)	CN	Description
*	46.870	72	Row Crop, HSG B
*	49.720	80	Row Crop, HSG C
*	4.740	84	Row Crop, HSG D
	101.330	76	Weighted Average
	101.330		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
49.4	3,591	0.0408	1.21		**Lag/CN Method,**

Summary for Reach 20R: 9 Total

Inflow Area = 299.730 ac, 0.00% Impervious, Inflow Depth > 0.93" for 100-yr event
Inflow = 168.36 cfs @ 12.45 hrs, Volume= 23.345 af
Outflow = 168.36 cfs @ 12.45 hrs, Volume= 23.345 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs



Subcat Reach Pond Link

Routing Diagram for 0025965- Proposed HydroCAD
Prepared by Westwood Professional Services, Printed 2/24/2020

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
36.790	98	Impervious (2S, 3S, 4S, 5S, 10S, 11S, 12S, 13S, 14S, 15S, 16S, 17S, 18S)
6.220	98	Impervious Surface (1S)
32.150	79	Pastgure Fair, HSG C (8S)
28.010	69	Pasture Fair, HSG B (11S)
1,063.390	69	Pasture Fair, HSG B (1S, 2S, 3S, 4S, 5S, 6S, 7S, 8S, 9S, 10S, 12S, 13S, 14S, 15S, 16S, 17S, 18S, 19S)
72.960	84	Pasture Fair, HSG C (1S)
597.540	79	Pasture Fair, HSG C (2S, 3S, 4S, 5S, 6S, 7S, 9S, 10S, 11S, 13S, 14S, 15S, 16S, 17S, 18S, 19S)
98.620	84	Pasture Fair, HSG D (1S, 3S, 6S, 7S, 8S, 9S, 13S, 14S, 15S, 16S, 17S, 18S, 19S)
27.600	84	Row Crop, HSG D (10S)
1,963.280	**74**	**TOTAL AREA**

Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
0.000	HSG A	
1,091.400	HSG B	1S, 2S, 3S, 4S, 5S, 6S, 7S, 8S, 9S, 10S, 11S, 12S, 13S, 14S, 15S, 16S, 17S, 18S, 19S
702.650	HSG C	1S, 2S, 3S, 4S, 5S, 6S, 7S, 8S, 9S, 10S, 11S, 13S, 14S, 15S, 16S, 17S, 18S, 19S
126.220	HSG D	1S, 3S, 6S, 7S, 8S, 9S, 10S, 13S, 14S, 15S, 16S, 17S, 18S, 19S
43.010	Other	1S, 2S, 3S, 4S, 5S, 10S, 11S, 12S, 13S, 14S, 15S, 16S, 17S, 18S
1,963.280		**TOTAL AREA**

Ground Covers (all nodes)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
0.000	0.000	0.000	0.000	36.790	36.790	Impervious	2S, 3S, 4S, 5S, 10S, 11S, 12S, 13S, 14S, 15S, 16S, 17S, 18S
0.000	0.000	0.000	0.000	6.220	6.220	Impervious Surface	1S
0.000	0.000	32.150	0.000	0.000	32.150	Pastgure Fair	8S
0.000	1,091.400	670.500	98.620	0.000	1,860.520	Pasture Fair	1S, 2S, 3S, 4S, 5S, 6S, 7S, 8S, 9S, 10S, 11S, 12S, 13S, 14S, 15S, 16S, 17S, 18S, 19S
0.000	0.000	0.000	27.600	0.000	27.600	Row Crop	10S
0.000	**1,091.400**	**702.650**	**126.220**	**43.010**	**1,963.280**	**TOTAL AREA**	

Summary for Subcatchment 1S: DA01

Runoff = 47.64 cfs @ 12.41 hrs, Volume= 5.478 af, Depth> 0.53"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-yr Rainfall=2.00"

	Area (ac)	CN	Description
*	12.250	84	Pasture Fair, HSG D
*	7.740	69	Pasture Fair, HSG B
*	23.860	69	Pasture Fair, HSG B
*	72.960	84	Pasture Fair, HSG C
*	6.220	98	Impervious Surface
	123.030	81	Weighted Average
	116.810		94.94% Pervious Area
	6.220		5.06% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
40.4	3,080	0.0351	1.27		**Lag/CN Method,**

Summary for Subcatchment 2S: DA02

Runoff = 3.51 cfs @ 12.05 hrs, Volume= 0.205 af, Depth> 0.33"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-yr Rainfall=2.00"

	Area (ac)	CN	Description
*	4.030	69	Pasture Fair, HSG B
*	2.840	79	Pasture Fair, HSG C
*	0.510	98	Impervious
	7.380	75	Weighted Average
	6.870		93.09% Pervious Area
	0.510		6.91% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.1	615	0.0505	0.92		**Lag/CN Method,**

Summary for Subcatchment 3S: DA03

Runoff = 24.81 cfs @ 12.65 hrs, Volume= 3.937 af, Depth> 0.35"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-yr Rainfall=2.00"

	Area (ac)	CN	Description
*	42.250	69	Pasture Fair, HSG B
*	81.800	79	Pasture Fair, HSG C
*	6.590	84	Pasture Fair, HSG D
*	2.800	98	Impervious
	133.440	76	Weighted Average
	130.640		97.90% Pervious Area
	2.800		2.10% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
54.5	3,747	0.0358	1.15		**Lag/CN Method,**

Summary for Subcatchment 4S: DA04

Runoff = 9.06 cfs @ 12.47 hrs, Volume= 1.354 af, Depth> 0.25"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-yr Rainfall=2.00"

	Area (ac)	CN	Description
*	48.550	69	Pasture Fair, HSG B
*	15.040	79	Pasture Fair, HSG C
*	2.350	98	Impervious
	65.940	72	Weighted Average
	63.590		96.44% Pervious Area
	2.350		3.56% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
39.6	2,882	0.0558	1.21		**Lag/CN Method,**

Summary for Subcatchment 5S: DA05

Runoff = 14.10 cfs @ 12.84 hrs, Volume= 2.894 af, Depth> 0.24"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-yr Rainfall=2.00"

	Area (ac)	CN	Description
*	101.230	69	Pasture Fair, HSG B
*	41.500	79	Pasture Fair, HSG C
*	0.840	98	Impervious
	143.570	72	Weighted Average
	142.730		99.41% Pervious Area
	0.840		0.59% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
64.1	4,644	0.0458	1.21		**Lag/CN Method,**

Summary for Subcatchment 6S: DA06

Runoff = 4.21 cfs @ 12.57 hrs, Volume= 0.676 af, Depth> 0.27"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-yr Rainfall=2.00"

	Area (ac)	CN	Description
*	19.520	69	Pasture Fair, HSG B
*	9.370	79	Pasture Fair, HSG C
*	1.120	84	Pasture Fair, HSG D
	30.010	73	Weighted Average
	30.010		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
47.1	3,064	0.0412	1.08		**Lag/CN Method,**

Summary for Subcatchment 7S: DA07

Runoff = 6.24 cfs @ 12.38 hrs, Volume= 0.768 af, Depth> 0.33"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-yr Rainfall=2.00"

	Area (ac)	CN	Description
*	11.740	69	Pasture Fair, HSG B
*	14.480	79	Pasture Fair, HSG C
*	1.860	84	Pasture Fair, HSG D
	28.080	75	Weighted Average
	28.080		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
35.9	2,657	0.0504	1.23		**Lag/CN Method,**

Summary for Subcatchment 8S: DA08

Runoff = 14.90 cfs @ 12.38 hrs, Volume= 1.727 af, Depth> 0.42"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-yr Rainfall=2.00"

	Area (ac)	CN	Description
*	7.510	69	Pasture Fair, HSG B
*	32.150	79	Pastgure Fair, HSG C
*	9.310	84	Pasture Fair, HSG D
	48.970	78	Weighted Average
	48.970		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
37.5	2,938	0.0456	1.31		**Lag/CN Method,**

Summary for Subcatchment 9S: DA09

Runoff = 11.18 cfs @ 12.87 hrs, Volume= 2.228 af, Depth> 0.29"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-yr Rainfall=2.00"

	Area (ac)	CN	Description
*	50.580	69	Pasture Fair, HSG B
*	37.890	79	Pasture Fair, HSG C
*	2.870	84	Pasture Fair, HSG D
	91.340	74	Weighted Average
	91.340		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
69.1	5,199	0.0422	1.25		**Lag/CN Method,**

Summary for Subcatchment 10S: DA10

Runoff = 29.91 cfs @ 13.31 hrs, Volume= 7.518 af, Depth> 0.29"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-yr Rainfall=2.00"

	Area (ac)	CN	Description
*	178.780	69	Pasture Fair, HSG B
*	102.170	79	Pasture Fair, HSG C
*	27.600	84	Row Crop, HSG D
*	6.740	98	Impervious
	315.290	74	Weighted Average
	308.550		97.86% Pervious Area
	6.740		2.14% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
97.9	7,654	0.0390	1.30		**Lag/CN Method,**

Summary for Subcatchment 11S: DA11

Runoff = 11.43 cfs @ 12.52 hrs, Volume= 1.669 af, Depth> 0.33"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-yr Rainfall=2.00"

	Area (ac)	CN	Description
*	28.010	69	Pasture Fair, HSG B
*	31.950	79	Pasture Fair, HSG C
*	1.470	98	Impervious
	61.430	75	Weighted Average
	59.960		97.61% Pervious Area
	1.470		2.39% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
45.9	3,394	0.0456	1.23		**Lag/CN Method,**

Summary for Subcatchment 12S: DA12

Runoff = 3.34 cfs @ 12.48 hrs, Volume= 0.556 af, Depth> 0.20"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-yr Rainfall=2.00"

	Area (ac)	CN	Description
*	32.150	69	Pasture Fair, HSG B
*	1.210	98	Impervious
	33.360	70	Weighted Average
	32.150		96.37% Pervious Area
	1.210		3.63% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
39.1	2,410	0.0480	1.03		**Lag/CN Method,**

Summary for Subcatchment 13S: DA13

Runoff = 4.63 cfs @ 12.83 hrs, Volume= 1.007 af, Depth> 0.20"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-yr Rainfall=2.00"

	Area (ac)	CN	Description
*	55.080	69	Pasture Fair, HSG B
*	3.650	79	Pasture Fair, HSG C
*	1.920	84	Pasture Fair, HSG D
*	0.870	98	Impervious
	61.520	70	Weighted Average
	60.650		98.59% Pervious Area
	0.870		1.41% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
60.5	4,256	0.0498	1.17		**Lag/CN Method,**

Summary for Subcatchment 14S: DA14

Runoff = 16.71 cfs @ 12.76 hrs, Volume= 3.079 af, Depth> 0.29"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-yr Rainfall=2.00"

	Area (ac)	CN	Description
*	82.980	69	Pasture Fair, HSG B
*	22.470	79	Pasture Fair, HSG C
*	16.370	84	Pasture Fair, HSG D
*	3.680	98	Impervious
	125.500	74	Weighted Average
	121.820		97.07% Pervious Area
	3.680		2.93% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
61.1	4,540	0.0434	1.24		**Lag/CN Method,**

Summary for Subcatchment 15S: DA15

Runoff = 15.37 cfs @ 12.43 hrs, Volume= 2.226 af, Depth> 0.25"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-yr Rainfall=2.00"

	Area (ac)	CN	Description
*	83.950	69	Pasture Fair, HSG B
*	17.570	79	Pasture Fair, HSG C
*	2.700	84	Pasture Fair, HSG D
*	4.030	98	Impervious
	108.250	72	Weighted Average
	104.220		96.28% Pervious Area
	4.030		3.72% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
37.6	2,510	0.0497	1.11		**Lag/CN Method,**

Summary for Subcatchment 16S: DA16

Runoff = 51.76 cfs @ 12.92 hrs, Volume= 10.481 af, Depth> 0.29"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-yr Rainfall=2.00"

	Area (ac)	CN	Description
*	248.470	69	Pasture Fair, HSG B
*	140.880	79	Pasture Fair, HSG C
*	30.170	84	Pasture Fair, HSG D
*	10.940	98	Impervious
	430.460	74	Weighted Average
	419.520		97.46% Pervious Area
	10.940		2.54% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
71.3	4,898	0.0360	1.14		**Lag/CN Method,**

Summary for Subcatchment 17S: DA17

Runoff = 10.10 cfs @ 12.29 hrs, Volume= 1.052 af, Depth> 0.36"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-yr Rainfall=2.00"

	Area (ac)	CN	Description
*	14.770	69	Pasture Fair, HSG B
*	15.480	79	Pasture Fair, HSG C
*	3.600	84	Pasture Fair, HSG D
*	1.260	98	Impervious
	35.110	76	Weighted Average
	33.850		96.41% Pervious Area
	1.260		3.59% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
29.7	1,985	0.0437	1.11		**Lag/CN Method,**

Summary for Subcatchment 18S: DA18

Runoff = 9.76 cfs @ 12.16 hrs, Volume= 0.743 af, Depth> 0.46"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-yr Rainfall=2.00"

	Area (ac)	CN	Description
*	3.330	69	Pasture Fair, HSG B
*	10.730	79	Pasture Fair, HSG C
*	5.120	84	Pasture Fair, HSG D
*	0.090	98	Impervious
	19.270	79	Weighted Average
	19.180		99.53% Pervious Area
	0.090		0.47% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
20.9	1,125	0.0296	0.90		**Lag/CN Method,**

Summary for Subcatchment 19S: DA19

Runoff = 17.56 cfs @ 12.60 hrs, Volume= 2.744 af, Depth> 0.32"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-yr Rainfall=2.00"

	Area (ac)	CN	Description
*	46.870	69	Pasture Fair, HSG B
*	49.720	79	Pasture Fair, HSG C
*	4.740	84	Pasture Fair, HSG D
	101.330	75	Weighted Average
	101.330		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
50.8	3,591	0.0408	1.18		**Lag/CN Method,**

Summary for Reach 21R: Nine Total

Inflow Area = 299.730 ac, 0.00% Impervious, Inflow Depth > 0.33" for 10-yr event
Inflow = 47.98 cfs @ 12.53 hrs, Volume= 8.143 af
Outflow = 47.98 cfs @ 12.53 hrs, Volume= 8.143 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Summary for Subcatchment 1S: DA01

Runoff = 111.66 cfs @ 12.38 hrs, Volume= 12.149 af, Depth> 1.18"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 100-yr Rainfall=3.00"

	Area (ac)	CN	Description
*	12.250	84	Pasture Fair, HSG D
*	7.740	69	Pasture Fair, HSG B
*	23.860	69	Pasture Fair, HSG B
*	72.960	84	Pasture Fair, HSG C
*	6.220	98	Impervious Surface
	123.030	81	Weighted Average
	116.810		94.94% Pervious Area
	6.220		5.06% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
40.4	3,080	0.0351	1.27		**Lag/CN Method,**

Summary for Subcatchment 2S: DA02

Runoff = 10.07 cfs @ 12.04 hrs, Volume= 0.531 af, Depth> 0.86"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 100-yr Rainfall=3.00"

	Area (ac)	CN	Description
*	4.030	69	Pasture Fair, HSG B
*	2.840	79	Pasture Fair, HSG C
*	0.510	98	Impervious
	7.380	75	Weighted Average
	6.870		93.09% Pervious Area
	0.510		6.91% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.1	615	0.0505	0.92		**Lag/CN Method,**

Summary for Subcatchment 3S: DA03

Runoff = 71.87 cfs @ 12.59 hrs, Volume= 9.969 af, Depth> 0.90"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 100-yr Rainfall=3.00"

	Area (ac)	CN	Description
*	42.250	69	Pasture Fair, HSG B
*	81.800	79	Pasture Fair, HSG C
*	6.590	84	Pasture Fair, HSG D
*	2.800	98	Impervious
	133.440	76	Weighted Average
	130.640		97.90% Pervious Area
	2.800		2.10% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
54.5	3,747	0.0358	1.15		**Lag/CN Method,**

Summary for Subcatchment 4S: DA04

Runoff = 33.42 cfs @ 12.41 hrs, Volume= 3.900 af, Depth> 0.71"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 100-yr Rainfall=3.00"

	Area (ac)	CN	Description
*	48.550	69	Pasture Fair, HSG B
*	15.040	79	Pasture Fair, HSG C
*	2.350	98	Impervious
	65.940	72	Weighted Average
	63.590		96.44% Pervious Area
	2.350		3.56% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
39.6	2,882	0.0558	1.21		**Lag/CN Method,**

Summary for Subcatchment 5S: DA05

Runoff = 51.22 cfs @ 12.75 hrs, Volume= 8.373 af, Depth> 0.70"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 100-yr Rainfall=3.00"

	Area (ac)	CN	Description
*	101.230	69	Pasture Fair, HSG B
*	41.500	79	Pasture Fair, HSG C
*	0.840	98	Impervious
	143.570	72	Weighted Average
	142.730		99.41% Pervious Area
	0.840		0.59% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
64.1	4,644	0.0458	1.21		**Lag/CN Method,**

Summary for Subcatchment 6S: DA06

Runoff = 14.52 cfs @ 12.50 hrs, Volume= 1.882 af, Depth> 0.75"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 100-yr Rainfall=3.00"

	Area (ac)	CN	Description
*	19.520	69	Pasture Fair, HSG B
*	9.370	79	Pasture Fair, HSG C
*	1.120	84	Pasture Fair, HSG D
	30.010	73	Weighted Average
	30.010		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
47.1	3,064	0.0412	1.08		**Lag/CN Method,**

Summary for Subcatchment 7S: DA07

Runoff = 19.11 cfs @ 12.34 hrs, Volume= 1.998 af, Depth> 0.85"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 100-yr Rainfall=3.00"

	Area (ac)	CN	Description
*	11.740	69	Pasture Fair, HSG B
*	14.480	79	Pasture Fair, HSG C
*	1.860	84	Pasture Fair, HSG D
	28.080	75	Weighted Average
	28.080		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
35.9	2,657	0.0504	1.23		**Lag/CN Method,**

Summary for Subcatchment 8S: DA08

Runoff = 39.36 cfs @ 12.36 hrs, Volume= 4.128 af, Depth> 1.01"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 100-yr Rainfall=3.00"

	Area (ac)	CN	Description
*	7.510	69	Pasture Fair, HSG B
*	32.150	79	Pastgure Fair, HSG C
*	9.310	84	Pasture Fair, HSG D
	48.970	78	Weighted Average
	48.970		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
37.5	2,938	0.0456	1.31		**Lag/CN Method,**

Summary for Subcatchment 9S: DA09

Runoff = 35.90 cfs @ 12.81 hrs, Volume= 6.015 af, Depth> 0.79"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 100-yr Rainfall=3.00"

	Area (ac)	CN	Description
*	50.580	69	Pasture Fair, HSG B
*	37.890	79	Pasture Fair, HSG C
*	2.870	84	Pasture Fair, HSG D
	91.340	74	Weighted Average
	91.340		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
69.1	5,199	0.0422	1.25		**Lag/CN Method,**

Summary for Subcatchment 10S: DA10

Runoff = 94.93 cfs @ 13.17 hrs, Volume= 20.404 af, Depth> 0.78"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 100-yr Rainfall=3.00"

	Area (ac)	CN	Description
*	178.780	69	Pasture Fair, HSG B
*	102.170	79	Pasture Fair, HSG C
*	27.600	84	Row Crop, HSG D
*	6.740	98	Impervious
	315.290	74	Weighted Average
	308.550		97.86% Pervious Area
	6.740		2.14% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
97.9	7,654	0.0390	1.30		**Lag/CN Method,**

Summary for Subcatchment 11S: DA11

Runoff = 35.04 cfs @ 12.48 hrs, Volume= 4.349 af, Depth> 0.85"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 100-yr Rainfall=3.00"

	Area (ac)	CN	Description
*	28.010	69	Pasture Fair, HSG B
*	31.950	79	Pasture Fair, HSG C
*	1.470	98	Impervious
	61.430	75	Weighted Average
	59.960		97.61% Pervious Area
	1.470		2.39% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
45.9	3,394	0.0456	1.23		**Lag/CN Method,**

Summary for Subcatchment 12S: DA12

Runoff = 14.44 cfs @ 12.41 hrs, Volume= 1.732 af, Depth> 0.62"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 100-yr Rainfall=3.00"

	Area (ac)	CN	Description
*	32.150	69	Pasture Fair, HSG B
*	1.210	98	Impervious
	33.360	70	Weighted Average
	32.150		96.37% Pervious Area
	1.210		3.63% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
39.1	2,410	0.0480	1.03		**Lag/CN Method,**

Summary for Subcatchment 13S: DA13

Runoff = 19.37 cfs @ 12.71 hrs, Volume= 3.152 af, Depth> 0.61"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 100-yr Rainfall=3.00"

	Area (ac)	CN	Description
*	55.080	69	Pasture Fair, HSG B
*	3.650	79	Pasture Fair, HSG C
*	1.920	84	Pasture Fair, HSG D
*	0.870	98	Impervious
	61.520	70	Weighted Average
	60.650		98.59% Pervious Area
	0.870		1.41% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
60.5	4,256	0.0498	1.17		**Lag/CN Method,**

Summary for Subcatchment 14S: DA14

Runoff = 54.04 cfs @ 12.69 hrs, Volume= 8.302 af, Depth> 0.79"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 100-yr Rainfall=3.00"

	Area (ac)	CN	Description
*	82.980	69	Pasture Fair, HSG B
*	22.470	79	Pasture Fair, HSG C
*	16.370	84	Pasture Fair, HSG D
*	3.680	98	Impervious
	125.500	74	Weighted Average
	121.820		97.07% Pervious Area
	3.680		2.93% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
61.1	4,540	0.0434	1.24		**Lag/CN Method,**

Summary for Subcatchment 15S: DA15

Runoff = 57.00 cfs @ 12.38 hrs, Volume= 6.410 af, Depth> 0.71"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 100-yr Rainfall=3.00"

	Area (ac)	CN	Description
*	83.950	69	Pasture Fair, HSG B
*	17.570	79	Pasture Fair, HSG C
*	2.700	84	Pasture Fair, HSG D
*	4.030	98	Impervious
	108.250	72	Weighted Average
	104.220		96.28% Pervious Area
	4.030		3.72% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
37.6	2,510	0.0497	1.11		**Lag/CN Method,**

Summary for Subcatchment 16S: DA16

Runoff = 164.46 cfs @ 12.85 hrs, Volume= 28.311 af, Depth> 0.79"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 100-yr Rainfall=3.00"

	Area (ac)	CN	Description
*	248.470	69	Pasture Fair, HSG B
*	140.880	79	Pasture Fair, HSG C
*	30.170	84	Pasture Fair, HSG D
*	10.940	98	Impervious
	430.460	74	Weighted Average
	419.520		97.46% Pervious Area
	10.940		2.54% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
71.3	4,898	0.0360	1.14		**Lag/CN Method,**

Summary for Subcatchment 17S: DA17

Runoff = 29.20 cfs @ 12.26 hrs, Volume= 2.656 af, Depth> 0.91"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 100-yr Rainfall=3.00"

	Area (ac)	CN	Description
*	14.770	69	Pasture Fair, HSG B
*	15.480	79	Pasture Fair, HSG C
*	3.600	84	Pasture Fair, HSG D
*	1.260	98	Impervious
	35.110	76	Weighted Average
	33.850		96.41% Pervious Area
	1.260		3.59% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
29.7	1,985	0.0437	1.11		**Lag/CN Method,**

Summary for Subcatchment 18S: DA18

Runoff = 24.18 cfs @ 12.15 hrs, Volume= 1.727 af, Depth> 1.08"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 100-yr Rainfall=3.00"

	Area (ac)	CN	Description
*	3.330	69	Pasture Fair, HSG B
*	10.730	79	Pasture Fair, HSG C
*	5.120	84	Pasture Fair, HSG D
*	0.090	98	Impervious
	19.270	79	Weighted Average
	19.180		99.53% Pervious Area
	0.090		0.47% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
20.9	1,125	0.0296	0.90		**Lag/CN Method,**

Summary for Subcatchment 19S: DA19

Runoff = 53.65 cfs @ 12.55 hrs, Volume= 7.156 af, Depth> 0.85"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 100-yr Rainfall=3.00"

	Area (ac)	CN	Description
*	46.870	69	Pasture Fair, HSG B
*	49.720	79	Pasture Fair, HSG C
*	4.740	84	Pasture Fair, HSG D
	101.330	75	Weighted Average
	101.330		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
50.8	3,591	0.0408	1.18		**Lag/CN Method,**

Summary for Reach 21R: Nine Total

Inflow Area = 299.730 ac, 0.00% Impervious, Inflow Depth > 0.85" for 100-yr event
Inflow = 146.31 cfs @ 12.49 hrs, Volume= 21.179 af
Outflow = 146.31 cfs @ 12.49 hrs, Volume= 21.179 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs