

PRELIMINARY DRAINAGE REPORT

Plan #	_____
Case #	7-PP-2022
Q-S #	_____
☒ Accepted	
☐ Corrections	
N. Baronas	9/20/2022
Reviewed By	Date

Signature at Stagecoach Pass

Scottsdale, Arizona

Prepared for:

Shea Homes
8800 N Gainey Center Drive, Suite 350
Scottsdale, Arizona 85258

Prepared by:

Kimley-Horn and Associates
1001 West Southern Avenue, Suite 131
Mesa, Arizona 85210

291065007
August 2022

PRELIMINARY DRAINAGE REPORT

SIGNATURE AT STAGECOACH PASS
SCOTTSDALE, ARIZONA

AUGUST 2022

Prepared By:



Zachary Schmidt

Kimley»Horn

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INTRODUCTION

PURPOSE

This Preliminary Drainage Report (PDR) for the proposed Stagecoach Pass development (Site) has been prepared to meet the drainage requirements outlined in Chapter 4 of the City of Scottsdale Design Standards and Policies Manual (DS&PM). The Site is currently zoned R1-70 and R1-190.

The main purposes of this report are the following:

- Illustrate compliance with the DS&PM
- Establish drainage parameters and criteria for planning and zoning.
- Provide a preliminary hydrologic analysis for the development of the Site that meets pre- vs post-project condition requirements.
- Develop base flood elevations for the washes traversing the Site to establish pad elevations.

PROJECT SIZE AND DESCRIPTION

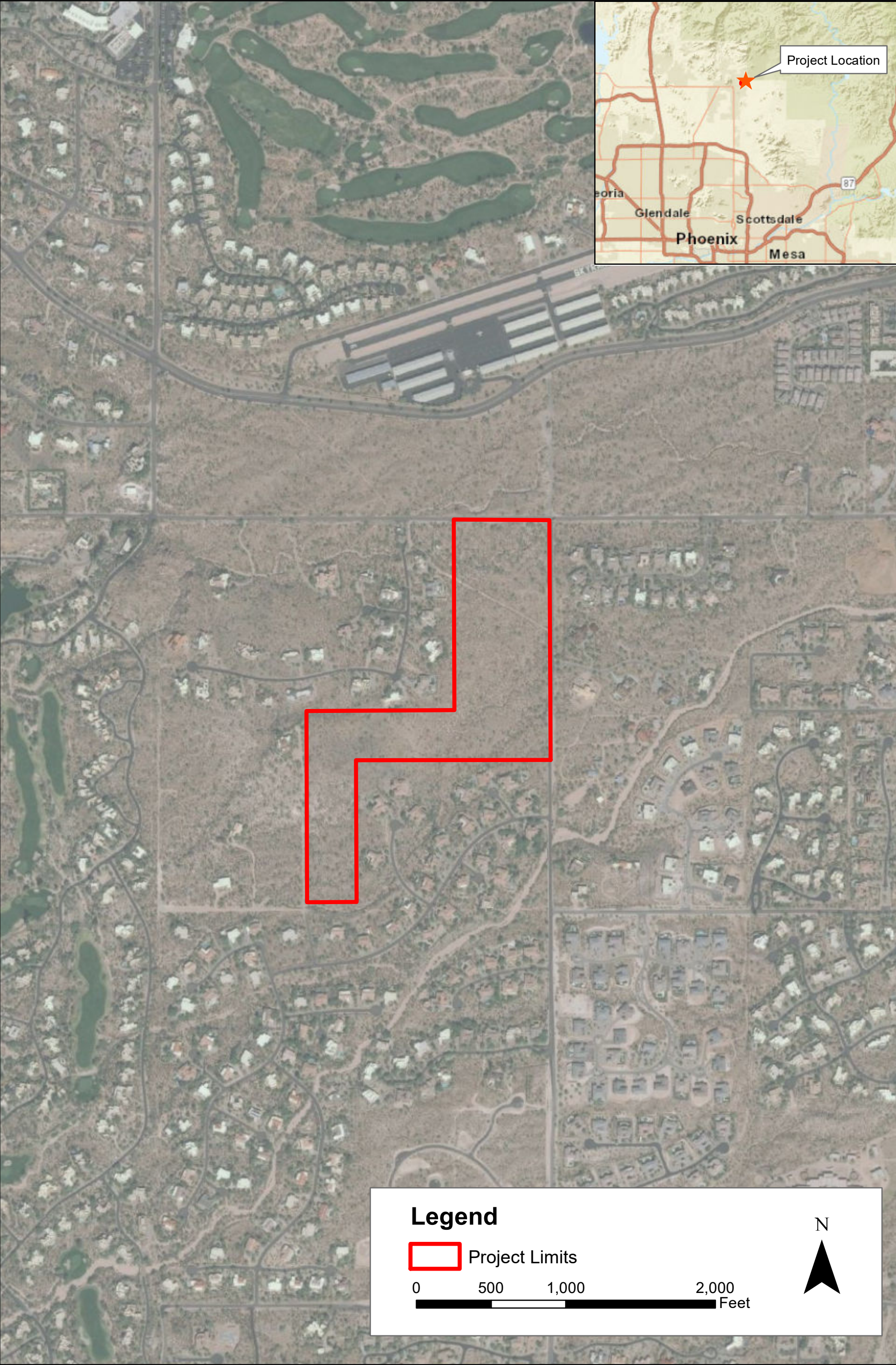
The Site is bounded on the west by Mule Train Road, East Stagecoach Pass to the north, North Windmill Road to the east and Sand Flower subdivision to the south. It lies within a portion of Section 1, Township 5 North, Range 4 East of the Gila and Salt River Principal Meridian. The Site is located within the City of Scottsdale (City) and falls under the City's Environmentally Sensitive Land Overlay (ESLO). The Site consists of 15 lots in the approximately 30-acre Site. Lots 1- 13 are zoned R1-70 and lots 14-15 are zoned R1-190. See **Figure 1** and **Figure 2** for the Location and Aerial Maps. The Site is undeveloped natural desert, characterized by braided washes and rock features of varying sizes. Undeveloped desert is also characterized by native desert grasses and brush.

FLOOD INSURANCE RATE MAP (FIRM)

The development is located within two flood zone as shown on Flood Insurance Rate Map (FIRM) panel number 04013C0892M and 04013C0884L, dated July 7, 2021 and October 16, 2013, respectively. The project limits are within Zone X, which is defined by FEMA as follows:

"Areas of 0.2% annual flood chance, 500-year flood; areas of 1% annual flood chance with average depths of less than 1 foot or with drainage areas 1 square mile; and areas protected by levees from 1% annual chance flood."

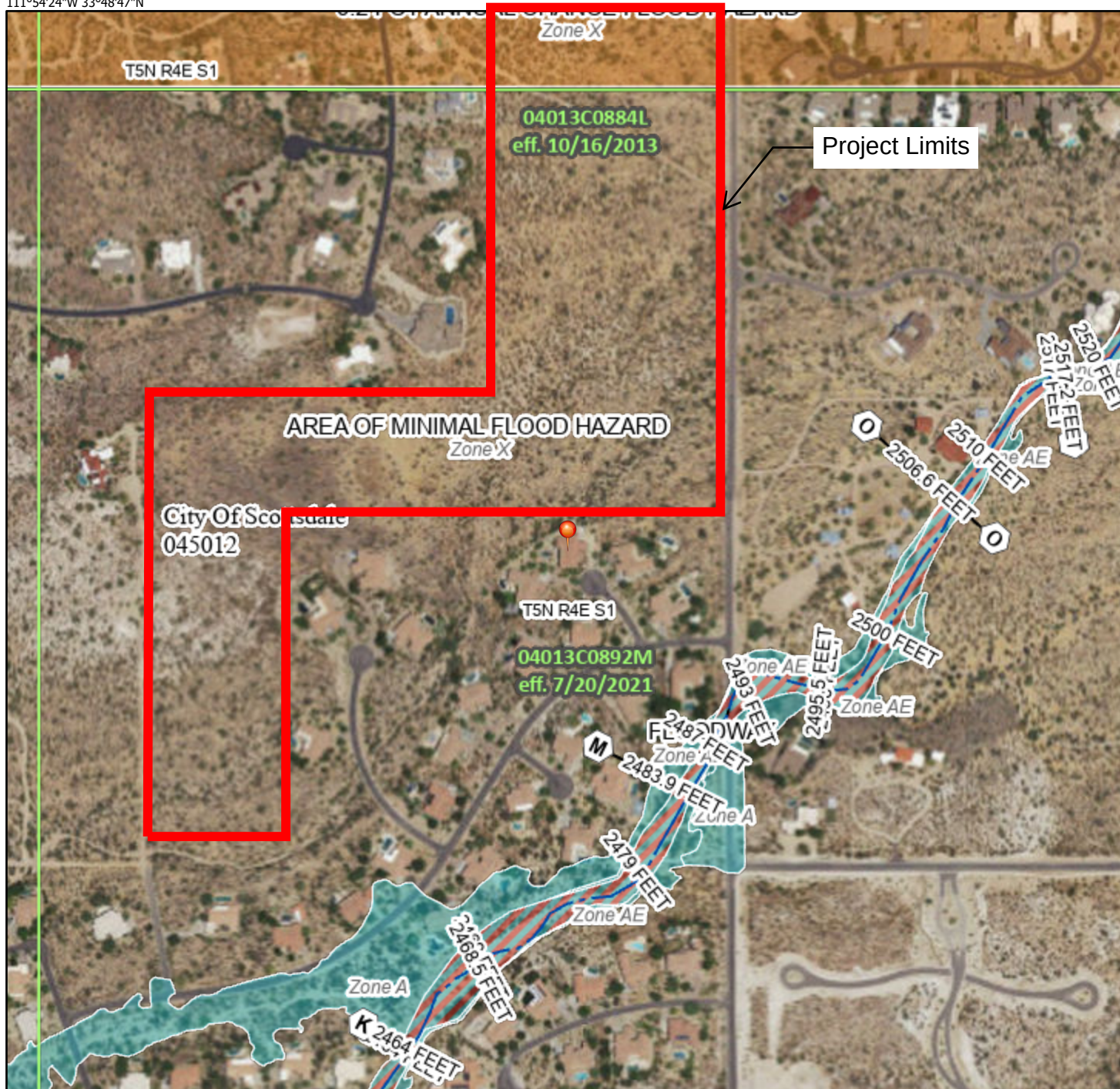
Refer to **Figure 3** for the Floodplain Map.



National Flood Hazard Layer FIRMette Figure 3



111°54'24"W 33°48'47"N



0 250 500 1,000 1,500 2,000 Feet 1:6,000

Basemap: USGS National Map: Orthoimagery: Data refreshed October, 2020

Legend

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

SPECIAL FLOOD HAZARD AREAS		Without Base Flood Elevation (BFE) Zone A, V, A99
		With BFE or Depth Zone AE, AO, AH, VE, AR
		Regulatory Floodway
OTHER AREAS OF FLOOD HAZARD		0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile Zone X
		Future Conditions 1% Annual Chance Flood Hazard Zone X
		Area with Reduced Flood Risk due to Levee. See Notes. Zone X
		Area with Flood Risk due to Levee Zone D
OTHER AREAS		NO SCREEN Area of Minimal Flood Hazard Zone X
		Effective LOMRs
GENERAL STRUCTURES		Area of Undetermined Flood Hazard Zone D
		Channel, Culvert, or Storm Sewer
		Levee, Dike, or Floodwall
OTHER FEATURES		20.2 Cross Sections with 1% Annual Chance Water Surface Elevation
		17.5 Cross Sections with 1% Annual Chance Water Surface Elevation
		Coastal Transect
		Base Flood Elevation Line (BFE)
		Limit of Study
		Jurisdiction Boundary
MAP PANELS		Coastal Transect Baseline
		Profile Baseline
		Hydrographic Feature
		Digital Data Available
		No Digital Data Available
		Unmapped



The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.

This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 3/10/2022 at 1:21 PM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used for regulatory purposes.

DESCRIPTION OF EXISTING DRAINAGE CONDITIONS AND CHARACTERISTICS

EXISTING SITE CONDITIONS

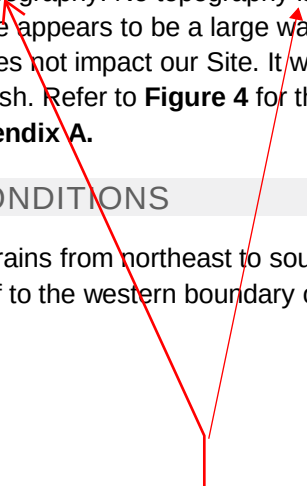
The Site is characterized by undeveloped desert rangeland, featuring several braided washes passing runoff. In general, the site slopes from the northeast to southwest. The site falls within the City of Scottsdale Environmentally Sensitive Lands (ESL) and is subject to the design criteria of the Environmentally Sensitive Lands Ordinance (ELSO). Specifically, the site is categorized as Upper Desert Landform of ESL. Per the DS&PM “The ESL zoning district requires that a percentage of each property be permanently preserved as Natural Area Open Space (NAOS) and that specific environmental features must be protected, including vegetation, desert washes, mountain ridges and peaks, to assure appropriate development.”.

EXISTING OFFSITE DRAINAGE CONDITIONS

Offsite runoff impacts the Site from the northeast. Braided washes and detention basins from the adjacent development convey runoff to the Site. The runoff is conveyed toward North Windmill Road where it is conveyed under the roads with existing culverts. Sub-basins for the existing conditions hydrologic model were delineated using City quarter section topography. No topography is available north of Stagecoach Pass Road as it is in outside of the City. There appears to be a large wash north of Stagecoach Pass Road that convey runoff to the west which does not impact our Site. It was assumed that all area north of Stagecoach Pass Road contributes to this wash. Refer to **Figure 4** for the Existing Conditions Hydrology Map. Hydrologic results can be found in **Appendix A**.

EXISTING ONSITE DRAINAGE CONDITIONS

The Site is currently undeveloped. The Site drains from northeast to southwest in the existing washes. The washes carry the offsite and onsite runoff to the western boundary of the Site.



This topography seems inadequate.

PROPOSED PRELIMINARY DRAINAGE PLAN

PROPOSED ONSITE DRAINAGE PLAN

The proposed development consists of 15 single-family residential units to be constructed in a single phase. The lowest finished floor of the proposed units will be elevated a minimum of 1 foot above adjacent water surfaces or basin high water elevation. Most lots will drain to the onsite street system and runoff will be conveyed by the streets to proposed detention basins throughout the development. Due to grading challenges and roof height restrictions, some lots cannot drain to the street system and will have rear yard discharge to the existing washes crossing through the Site. Post-project hydrologic models reflect these conditions. Lots that discharge to existing washes through the rear yard does increase the runoff in smaller storm events. The amount of runoff from these lots is negligible compared to the amount of runoff being conveyed in the washes during the 100-year event.

Four (4) detention basins are located throughout the Site to capture, store and release runoff from the proposed roadway infrastructure and individual lots. The detention basins are three (3) feet deep. Each detention basin has a 6-inch orifice plate on it. The orifice plate is elevated 6-inches above the bottom of the basins. Each basin also has an overflow weir six (6) inches below the top of the basin. The orifice and overflow weirs are used to control post-project peak discharges at a level equal to or less than the pre-development conditions. Each of the detention basins discharges into the existing washes on the Site.

If the basin depth is 3' and the overflow weir is 6" below the top of basin, these basins are overflowing in the 100-yr storm. The basins need more freeboard.

Detention Basin	Volume [ac-ft]	2-yr Max Depth [ft]	10-yr Max Depth [ft]	100-yr Max Depth [ft]
S50	0.73	0.56	1.10	2.00
S55	0.26	2.04	2.63	2.94
S60	0.25	1.18	1.87	2.65
S65	0.32	0.49	0.89	1.65

The revised land uses, proposed grading and the detention basins are included with the proposed hydrologic model. Onsite sub-basin boundaries were delineated from the project topography and the proposed overall grading concept. Refer to **Figure 5** for the Proposed Conditions Hydrology Map. Refer to **Appendix B** for proposed conditions hydrology input and output.

PROPOSED OFFSITE DRAINAGE PLAN

Offsite runoff impacts the site from the east. There is one (1) significant wash that passes through the Site. The offsite will be conveyed through the Site and will discharge at their historic locations along the western boundary of the site. Eight (8) new culverts will be constructed at locations where the new roadway improvements or lot improvements will cross the existing washes. Refer to **Figure 5** for the Proposed Conditions Hydrology Map.

PROPOSED ONSITE HYDROLOGY

Onsite runoff from the proposed development maintains post-development flows at or below pre-development conditions at the historical discharge locations for the three design storms (2-year, 10-year, and 100-year) with the exception of CP20. Due to height restriction requirements, lot 6 and 7 have rear drain and cause slight increase in the wash downstream. A summary of pre- and post-development peak discharges is provided in **Table 1**. Detention basins are proposed at key locations onsite to attenuate peak

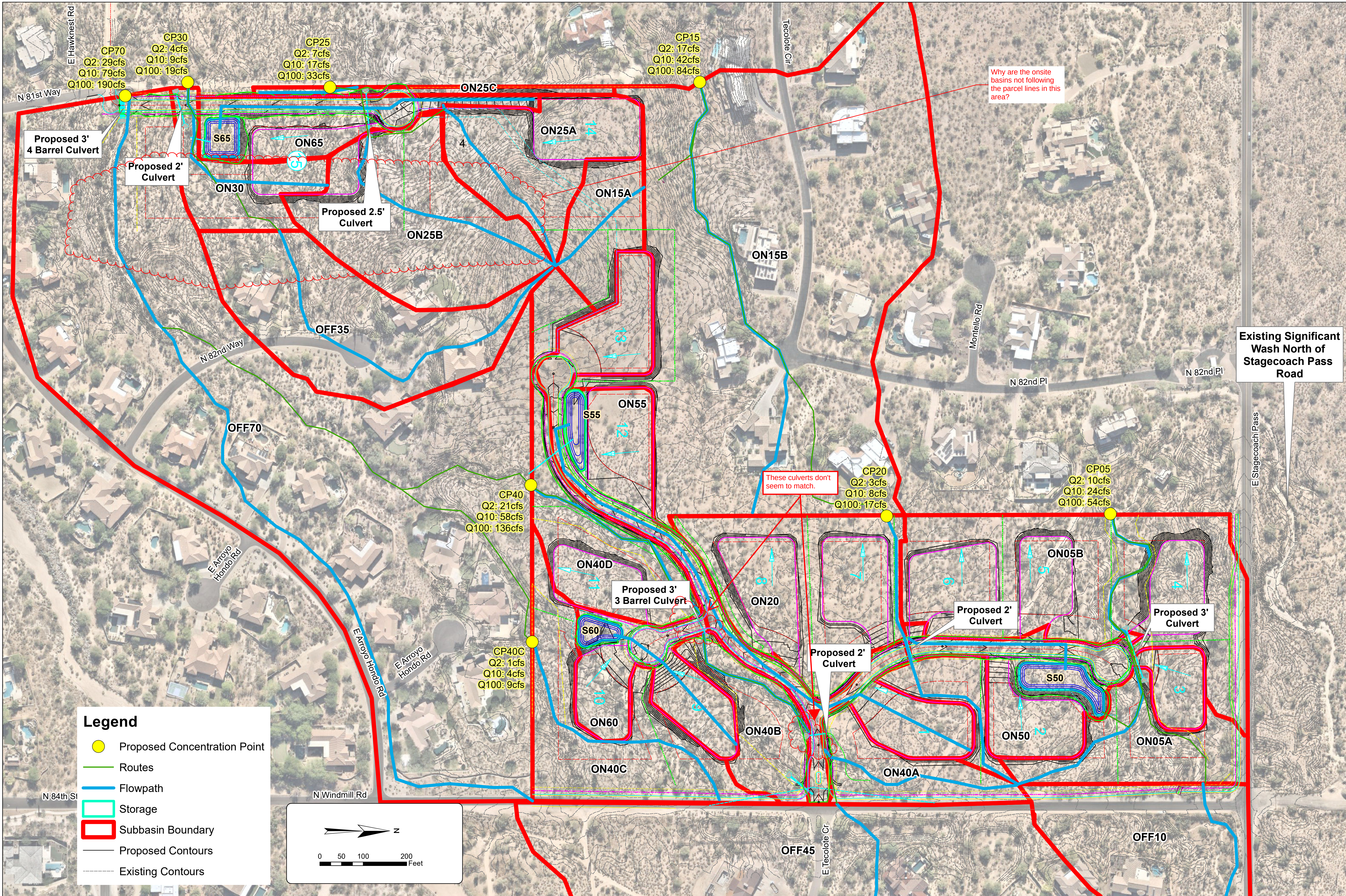
discharge from onsite runoff. The basins utilize bleed-off pipes with orifice plates with the intent to control post-development runoff exiting the development, with a weir spillway for larger storm events. The total drain time for each basin is less than 36 hours. Refer to **Appendix B** for the detailed hydrologic model results. Additionally, the Site will be subject to first flush criteria per the revised Stormwater and Floodplain Management Ordinance, Chapter 37 of Scottsdale Revised Code. The total detention volume provided for the surface basin will meet or exceed the first flush requirement for stormwater quality purposes.

Table 1 Pre- Versus Post-Development Runoff Summary

Concentration Point		Q ₂ [cfs]		Q ₁₀ [cfs]		Q ₁₀₀ [cfs]	
Pre	Post	Pre	Post	Pre	Post	Pre	Post
CP05	CP05	9	10	27	24	67	54
CP20	CP20	2	3	5	8	12	17
CP25	CP25	7	7	18	17	35	33
CP30	CP30	4	4	9	9	19	19
CP40	CP40	21	21	59	58	136	136
CP40C	CP40C	2	1	5	4	12	9
CP70	CP70	28	29	81	79	193	190

PROPOSED ONSITE HYDRAULICS

Onsite runoff will be conveyed in the local streets, swales, storm drains, and culverts to the detention basins. Per the DS&PM, all interior streets will be designed to convey the peak discharge from the 10-year storm event at or below the top of curb elevation. Additionally, the streets will convey the 100-year runoff and maintain a maximum flow depth of eight inches above the gutter flow line. A catch basin with storm drain or scupper will capture pavement runoff and outfall to the proposed, adjacent detention basins. The catch basin and storm drain will be designed per the DS&PM and FCDMC's Drainage Policies and Standards. Detailed catch basin and street capacity analysis is beyond the scope of this preliminary drainage report and will be completed as part of the final design.



DATA ANALYSIS METHODS

HYDROLOGY

The U.S. Army Corps of Engineers HEC-1 hydrologic computer program was used to determine the 2-, 10-, and 100-year peak discharges for offsite and onsite flows. HEC-1 models were prepared for both the pre- and post-project conditions. The Drainage Design Management System for Windows (DDMSW) program was used to develop the hydrologic parameters for the offsite and onsite drainage areas. Green and Ampt rainfall loss parameters were estimated using DDMSW, City parameters, and the Flood Control District of Maricopa County (FCDMC) Drainage Design Manual – Hydrology (Hydrology Manual). Time of concentration calculations were using DDMSW. Values that show non-default values or out-of-range results are due to the NMN parameter selected for the HEC-1 model. Due to the varying sub-basin sizes, the selected NMN parameter will not meet the time of concentration requirements specified in the Hydrology Manual for each sub-basin. The HEC-1 models were run with varying NMN parameters to confirm that the hydrograph shape and peaks were valid. The HEC-1 models were prepared using the Clark Unit Hydrograph. Rainfall depths were estimated for the site from the National Oceanic and Atmospheric Administration Atlas 14 (NOAA 14).

One soil type was identified for the offsite and onsite sub-basins using the web soil survey from the National Resource Conservation Service (NRCS) STATSGO soil survey. **Table 2** is a summary of the parameters.

Table 2: ADMS Soil Parameters

Map Unit ID	Soil Unit Description	XKSAT [in/hr]	Rock Outcrop [%]
33	Eba very gravelly loam, 1 to 8 percent slopes	0.23	0
61	Gran-Wickenburg complex, 1 to 10 percent slopes	0.15	0

There's 2 soil types in Table 2.

Land use parameters were established for the existing and proposed HEC-1 models. The FCDMC standard land use parameters were used as a basis for the parameters. Vegetation cover was set based on a review of aerial photography of the existing drainage area, taking a typical coverage of a specific land use. Vegetation cover of developed land was not modified from the default values shown in the Hydrology Manual. Vegetation cover is for pervious areas only. RTIMP represents the effective impervious area which is hydraulically connected. RTIMP values for developed land used are based on conservative estimates of connected impervious areas on a typical lot and roadway within the specific land use. See **Table 3** below for a summary of Land Use Parameters. Land use maps for the existing and proposed development conditions are provided in **Appendix A and Appendix B**.

Table 3: Land Use Parameters

Land Use Code	Description	IA	RTIMP	Vegetation Cover
NDR	Undeveloped Desert Rangeland, little topographic relief, slopes < 5%	0.35	0	0
120 (R1-70 and R1-190)	Estate Residential (1/5 to 1 du per acre)	0.30	5	30
130 (R1-43)	Large Lot Residential – Single Family (1 to 2 du per acre)	0.30	15	50

The SL, SS, and ST cards in HEC-1 were used for the detention basin outlet structures. The stage storage curve for each detention basin was input into the HEC-1 model. Refer to **Appendix B** for the stage storage tables for each detention basin. Routing reaches were modelled using the normal depth method.

HYDRAULICS

A two-dimensional hydraulic analysis of the significant wash was prepared using the Army Corps of Engineers HEC-RAS version 6.0.0 for the 100-year storm event. Project topography was used to generate the existing terrain. The proposed terrain was generated based on preliminary proposed grading design. A mesh with 10-foot grid cells was used for the Site. Smaller grid sizes were applied using breaklines where needed, such as at wash flowlines, wash banks, near culverts, and along lots. A global Manning's n of 0.05 was used in both existing and proposed conditions. Hydrographs from the HEC-1 models were used as inflow data. Downstream boundary conditions were set to normal depth based off existing slope. New culverts were added to the model for the proposed conditions. The results of the hydraulic modelling were used to establish base flood elevations (BFE) for the wash and determine proposed pad elevations. Refer to **Appendix C** for the results of the hydraulic modeling for the proposed condition.

Seven (7) proposed culverts are placed throughout the Site. These culverts are placed in wash locations with historical flow. The culverts will convey the runoff under the proposed roadway. The culverts will be sized to convey the 100-year peak discharges. Culverts were sized using FHWA nomograph. Culvert sizing is preliminary and could be adjusted during final design. See **Table 4** for summary of culvert information.

Table 4: Proposed Culvert Information

Culvert	Diameter [ft]	Slope [ft/ft]	Q ₂ [cfs]	Q ₁₀ [cfs]	Q ₁₀₀ [cfs]	Head Water Depth [ft]
ON05A	3	0.02	7	18	42	3.4
ON20	2	0.01	3	8	17	2.5
ON25B	2.5	0.03	7	16	31	3.2
ON30	2	0.02	4	9	19	2.8
ON40A	2	0.05	1	2	3	0.8
ON40B	3 (3 barrels)	0.05	20	55	122	3.2
OFF70	3 (4 barrels)	0.03	29	79	190	3.8

STORMWATER STORAGE METHOD

Stormwater runoff generated by the Site is routed to proposed detention basins located adjacent to the roadway tract and outside of the building envelopes on-lot for the development. These detention basins will be located within a designated drainage easement and will attenuate the peak flows leaving the property. The existing property is a part of the ESLO. Based on City ordinances, a waiver will need to be obtained for any volume less than the 100-year, 2-hour volume. However, there is no waiver fee associated with the volumes that do not result in an increase in downstream runoff. Refer to **Appendix A** and **Appendix B** for the pre- and post-development hydrologic model results.

Additionally, the basins have been sized to meet first flush requirements of the first half inch of runoff. The first flush volume required was calculated as follows:

$$V_r = C_w(P/12)A$$

Where:

- V_r = Volume required for first flush (ac-ft)
- C_w = Weighted Runoff Coefficient (1.0 for first flush)
- P = First Flush Precipitation depth (0.50 inches)
- A = Drainage Area

Each proposed detention basin exceeds the first flush volume required. First flush volume calculations and detention basin stage storage volume calculations are provided in **Appendix B**.

CONCLUSIONS

- Hydrologic models were prepared for the onsite and offsite areas for the pre- and post-development conditions. Onsite detention basins were sized to ensure that the post-development runoff exiting the Site is equal to or less than pre-development conditions. Additionally, the detention basins are sized to meet first flush requirements. Basins are designed to drain within 36 hours and are located within designated drainage easements proposed with the development.
- A significant wash crosses the proposed development. The proposed development will encroach on the wash. Hydraulic models for the proposed conditions were prepared to determine the BFEs. The BFEs were used to set the finished floor elevations for each lot.
- Onsite runoff will be conveyed through the local streets and discharge to the adjacent detention basins via scuppers or catch basins and storm drain. Detention basins attenuate runoff and then discharge to the adjacent washes where runoff is returned to the historic outfall location. Several lots discharge to the rear of the lot where grading challenges prevent front, roadway discharge. Runoff from these lots is conveyed in existing washes or proposed drainage swales. Culverts are proposed to convey stormwater flow under the proposed roads. The conveyance facilities will be sized during final design.

REFERENCES

City of Scottsdale, Design Standards and Policies Manual, January 2018.

City of Scottsdale, Stormwater and Floodplain Management Ordinance, Chapter 37, July 2016.

Federal Emergency Management Agency, Flood Insurance Rate Map Panel 04013C0892M, dated July 7, 2021

Federal Emergency Management Agency, Flood Insurance Rate Map Panel 04013C0884L, dated October 16, 2013

Flood Control District of Maricopa County, Drainage Design Manual – Hydrology, 2018.

Appendix A – Existing Conditions Hydrology

- Rainfall Input
- Soil Input
- Soil Exhibit
- Land Use Exhibit
- Land Use Input
- Sub Basins
- Routing
- Network
- Flow Summary (DDMSW Results)
- 2-Year HEC-1 Output
- 10-Year HEC-1 Output
- 100-Year HEC-1 Output

Flood Control District of Maricopa County
Drainage Design Management System
RAINFALL DATA
Project Reference: STAGECOACH WINDMILL

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ID	Method	Duration	2 Yr	5 Yr	10 Yr	25 Yr	50 Yr	100 Yr
DEFAULT	NOAA14	5 MIN	0.314	0.424	0.507	0.617	0.701	0.786
	NOAA14	10 MIN	0.479	0.645	0.772	0.939	1.067	1.196
	NOAA14	15 MIN	0.593	0.800	0.957	1.165	1.323	1.483
	NOAA14	30 MIN	0.799	1.077	1.288	1.568	1.782	1.997
	NOAA14	1 HOUR	0.989	1.333	1.594	1.941	2.205	2.472
	NOAA14	2 HOUR	1.139	1.511	1.799	2.187	2.483	2.790
	NOAA14	3 HOUR	1.212	1.579	1.870	2.276	2.598	2.932
	NOAA14	6 HOUR	1.416	1.796	2.099	2.519	2.849	3.191
	NOAA14	12 HOUR	1.696	2.126	2.469	2.934	3.292	3.660
	NOAA14	24 HOUR	1.915	2.517	3.012	3.720	4.309	4.940

Flood Control District of Maricopa County
 Drainage Design Management System
 SOILS

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Project Reference: STAGECOACH WINDMILL

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Area ID	Book Number	Map Unit	Soil ID	Area (sq mi)	Area (%)	XKSAT	Rock Percent (%)	Effective Rock (%)	Comments
Major Basin ID: 01									
OFF10	645	33	64533	0.027	100.00	0.230	-	100	
OFF35	645	33	64533	0.002	40.00	0.230	-	100	
	645	61	64561	0.004	60.00	0.150	-	100	
OFF45	645	33	64533	0.052	100.00	0.230	-	100	
OFF70	645	33	64533	0.030	94.60	0.230	-	100	
	645	61	64561	0.002	5.40	0.150	-	100	
ON05	645	33	64533	0.015	100.00	0.230	-	100	
ON15	645	33	64533	0.018	70.50	0.230	-	100	
	645	61	64561	0.007	29.50	0.150	-	100	
ON20	645	33	64533	0.006	100.00	0.230	-	100	
ON25	645	61	64561	0.012	100.00	0.150	-	100	
ON30	645	33	64533	0.002	84.00	0.230	-	100	
	645	61	64561	0.000	16.00	0.150	-	100	
ON40	645	33	64533	0.015	90.20	0.230	-	100	
	645	61	64561	0.002	9.80	0.150	-	100	
ON40C	645	33	64533	0.006	100.00	0.230	-	100	

[illegible]

[illegible]

Flood Control District of Maricopa County
Drainage Design Management System
LAND USE
Project Reference: STAGECOACH WINDMILL

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Sub Basin	Land Use Code	Area (sq mi)	Area (%)	Initial Loss (IA)	Percent Impervious (RTIMP)	Vegetation Cover (%)	DTHETA	Kb	Description
Major Basin ID: 01									
OFF10	120	0.0002	0.8	0.30	5	30.0	NORMAL	0.032	Estate Residential (1/5 du per acre to 1 du per acre)
	130	0.0148	55.6	0.30	15	50.0	NORMAL	0.032	Large Lot Residential - Single Family (1 du per acre to 2 du
	NDR	0.0116	43.6	0.35	0	0.0	DRY	0.063	Undeveloped Desert Rangeland, Little topographic relief, slopes < 5%
		0.0266	100.0						
OFF35	130	0.0053	88.3	0.30	15	50.0	NORMAL	0.036	Large Lot Residential - Single Family (1 du per acre to 2 du
	NDR	0.0007	11.7	0.35	0	0.0	DRY	0.072	Undeveloped Desert Rangeland, Little topographic relief, slopes < 5%
		0.0060	100.0						
OFF45	120	0.0255	49.0	0.30	5	30.0	NORMAL	0.030	Estate Residential (1/5 du per acre to 1 du per acre)
	130	0.0168	32.3	0.30	15	50.0	NORMAL	0.030	Large Lot Residential - Single Family (1 du per acre to 2 du
	NDR	0.0097	18.7	0.35	0	0.0	DRY	0.059	Undeveloped Desert Rangeland, Little topographic relief, slopes < 5%
		0.0520	100.0						
OFF70	130	0.0283	90.4	0.30	15	50.0	NORMAL	0.032	Large Lot Residential - Single Family (1 du per acre to 2 du
	NDR	0.0030	9.6	0.35	0	0.0	DRY	0.062	Undeveloped Desert Rangeland, Little topographic relief, slopes < 5%
		0.0313	100.0						
ON05	NDR	0.0154	100.0	0.35	0	0.0	DRY	0.066	Undeveloped Desert Rangeland, Little topographic relief, slopes < 5%
		0.0154	100.0						
ON15	120	0.0199	79.3	0.30	5	30.0	NORMAL	0.032	Estate Residential (1/5 du per acre to 1 du per acre)
	NDR	0.0052	20.7	0.35	0	0.0	DRY	0.063	Undeveloped Desert Rangeland, Little topographic relief, slopes < 5%
		0.0251	100.0						
ON20	NDR	0.0056	100.0	0.35	0	0.0	DRY	0.072	Undeveloped Desert Rangeland, Little topographic relief, slopes < 5%

* Non default value

(stLuDataCG.rpt)

Flood Control District of Maricopa County
Drainage Design Management System
LAND USE
Project Reference: STAGECOACH WINDMILL

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Sub Basin	Land Use Code	Area (sq mi)	Area (%)	Initial Loss (IA)	Percent Impervious (RTIMP)	Vegetation Cover (%)	DTHETA	Kb	Description
Major Basin ID: 01									
		0.0056	100.0						
ON25	130	0.0010	8.5	0.30	15	50.0	NORMAL	0.034	Large Lot Residential - Single Family (1 du per acre to 2 du
	NDR	0.0107	91.5	0.35	0	0.0	DRY	0.068	Undeveloped Desert Rangeland, Little topographic relief, slopes < 5%
		0.0117	100.0						
ON30	NDR	0.0025	100.0	0.35	0	0.0	DRY	0.079	Undeveloped Desert Rangeland, Little topographic relief, slopes < 5%
		0.0025	100.0						
ON40	120	0.0003	1.8	0.30	5	30.0	NORMAL	0.034	Estate Residential (1/5 du per acre to 1 du per acre)
	NDR	0.0160	98.2	0.35	0	0.0	DRY	0.066	Undeveloped Desert Rangeland, Little topographic relief, slopes < 5%
		0.0163	100.0						
ON40C	NDR	0.0060	100.0	0.35	0	0.0	DRY	0.072	Undeveloped Desert Rangeland, Little topographic relief, slopes < 5%
		0.0060	100.0						

* Non default value

(stLuDataCG.rpt)

Flood Control District of Maricopa County
Drainage Design Management System
SUB BASINS

Page 1

Project Reference: STAGECOACH WINDMILL

8/4/2022

Area ID	Sub Basin Parameters						Rainfall Losses					Return Period Parameters						
	Area (sq mi)	Length (mi)	Slope (ft/mi)	Adj Slope	Time-Area	Kb	IA (in)	DTHETA	PSIF (in)	XKSAT (in/hr)	RTIMP (%)		2 Yr	5 Yr	10 Yr	25 Yr	50 Yr	100 Yr
Major Basin ID: 01																		
ON05	0.015	0.18	124.3	124.3	URBAN	0.066	0.35	0.36	5.05	0.230		Tc (Hrs)	0.392*	0.312*	0.279*	0.245	0.225	0.208
												Vel (f/s)	0.67	0.85	0.95	1.08	1.17	1.27
												R (Hrs)	0.364	0.282	0.249	0.216	0.196	0.180
ON40C	0.006	0.12	65.0	65.0	URBAN	0.072	0.35	0.36	5.05	0.230		Tc (Hrs)	0.410*	0.326*	0.291*	0.256*	0.235	0.218
												Vel (f/s)	0.43	0.54	0.60	0.69	0.75	0.81
												R (Hrs)	0.466	0.361	0.319	0.277	0.251	0.231
OFF10	0.027	0.52	105.6	105.6	Urban	0.046	0.32	0.30	5.05	0.276	8	Tc (Hrs)	0.538*	0.443*	0.400*	0.356*	0.328*	0.305 *
												Vel (f/s)	1.42	1.72	1.91	2.14	2.33	2.50
												R (Hrs)	0.864	0.697	0.622	0.546	0.498	0.460
OFF35	0.006	0.18	247.2	238.1	Urban	0.041	0.31	0.27	5.58	0.246	13	Tc (Hrs)	0.217	0.184	0.167	0.149	0.137	0.129
												Vel (f/s)	1.22	1.43	1.58	1.77	1.93	2.05
												R (Hrs)	0.319	0.264	0.237	0.209	0.191	0.178
ON15	0.025	0.21	150.9	150.9	URBAN	0.039	0.31	0.27	5.34	0.233	4	Tc (Hrs)	0.274*	0.229	0.206	0.182	0.168	0.157
												Vel (f/s)	1.12	1.34	1.50	1.69	1.83	1.96
												R (Hrs)	0.207	0.169	0.151	0.131	0.120	0.111
OFF45	0.052	0.44	126.1	126.1	Urban	0.036	0.31	0.27	5.05	0.283	7	Tc (Hrs)	0.408*	0.338*	0.305*	0.271*	0.250*	0.233
												Vel (f/s)	1.58	1.91	2.12	2.38	2.58	2.77
												R (Hrs)	0.382	0.311	0.277	0.243	0.222	0.205
ON20	0.006	0.13	77.5	77.5	URBAN	0.072	0.35	0.36	5.05	0.230		Tc (Hrs)	0.404*	0.321*	0.287*	0.253*	0.231	0.214
												Vel (f/s)	0.47	0.59	0.66	0.75	0.83	0.89
												R (Hrs)	0.489	0.379	0.335	0.290	0.263	0.242
OFF70	0.031	0.41	105.7	105.7	Urban	0.035	0.30	0.26	5.05	0.313	14	Tc (Hrs)	0.395*	0.332*	0.301*	0.270*	0.249	0.233
												Vel (f/s)	1.52	1.81	2.00	2.23	2.41	2.58
												R (Hrs)	0.468	0.386	0.347	0.307	0.281	0.260
ON25	0.012	0.14	376.8	284.0	URBAN	0.065	0.35	0.39	6.00	0.150	1	Tc (Hrs)	0.248	0.204	0.183	0.160	0.147	0.137
												Vel (f/s)	0.83	1.01	1.12	1.28	1.40	1.50
												R (Hrs)	0.204	0.163	0.145	0.125	0.114	0.105

* Non default value or value out of range

(stSubBasCG.rpt)

Flood Control District of Maricopa County
 Drainage Design Management System
 SUB BASINS

Page 2

Project Reference: STAGECOACH WINDMILL

8/4/2022

Area ID	Sub Basin Parameters						Rainfall Losses					Return Period Parameters					
	Area (sq mi)	Length (mi)	Slope (ft/mi)	Adj Slope	Time-Area	Kb	IA (in)	DTHETA	PSIF (in)	XKSAT (in/hr)	RTIMP (%)	2 Yr	5 Yr	10 Yr	25 Yr	50 Yr	100 Yr
Major Basin ID: 01																	
ON30	0.002	0.07	183.1	183.1	URBAN	0.079	0.35	0.36	5.14	0.215		Tc (Hrs)	0.234	0.188	0.168	0.148	0.135
												Vel (f/s)	0.44	0.55	0.61	0.69	0.76
												R (Hrs)	0.304	0.238	0.210	0.182	0.165
ON40	0.016	0.24	53.9	53.9	URBAN	0.066	0.35	0.36	5.14	0.221		Tc (Hrs)	0.582*	0.465*	0.416*	0.366*	0.335*
												Vel (f/s)	0.60	0.76	0.85	0.96	1.05
												R (Hrs)	0.685	0.533	0.471	0.408	0.370

* Non default value or value out of range

(stSubBasCG.rpt)

Flood Control District of Maricopa County
Drainage Design Management System
HEC-1 ROUTING DATA
Project Reference: STAGECOACH WINDMILL

Page 1

8/4/2022

Route ID	LOB N	Chan N	ROB N	Length (ft)	Slope (ft/ft)	Max Elev (ft)	1.	2.	3.	4.	5.	6.	7.	8.
NORMAL DEPTH														
Major Basin 01														
R10	0.050	0.040	0.050	818.00	0.0195	-	X: -	40.00	41.00	95.00	108.00	120.00	140.00	165.00
	Return Period						Y: 2,504.00	2,500.00	2,500.00	2,448.00	2,498.00	2,500.00	2,500.00	2,504.00
	2 Yr	5 Yr	10 Yr	25 Yr	50 Yr	100 Yr								
NSTPS	0	0	0	0	0	0								
R20	0.050	0.040	0.050	810.00	0.0254	-	X: -	10.00	30.00	40.00	60.00	100.00	120.00	135.00
	Return Period						Y: 2,490.00	2,489.00	2,488.00	2,487.00	2,487.00	2,488.00	2,489.00	2,490.00
	2 Yr	5 Yr	10 Yr	25 Yr	50 Yr	100 Yr								
NSTPS	0	0	0	0	0	0								
R35	0.050	0.040	0.050	435.00	0.0230	-	X: -	5.00	20.00	25.00	30.00	60.00	100.00	115.00
	Return Period						Y: 2,460.00	2,459.00	2,458.00	2,457.00	2,457.00	2,458.00	2,459.00	2,460.00
	2 Yr	5 Yr	10 Yr	25 Yr	50 Yr	100 Yr								
NSTPS	0	0	0	0	0	0								
R40	0.050	0.040	0.050	1,586.00	0.0153	-	X: -	20.00	23.00	36.00	45.00	53.00	55.00	60.00
	Return Period						Y: 2,454.50	2,454.50	2,454.23	2,450.50	2,450.00	2,454.10	2,454.25	2,454.25
	2 Yr	5 Yr	10 Yr	25 Yr	50 Yr	100 Yr								
NSTPS	0	0	0	0	0	0								
R40C	0.050	0.040	0.050	1,769.00	0.0158	-	X: -	20.00	23.00	36.00	45.00	53.00	55.00	60.00
	Return Period						Y: 2,454.50	2,454.50	2,454.23	2,450.50	5,450.00	2,454.10	2,454.25	2,454.25
	2 Yr	5 Yr	10 Yr	25 Yr	50 Yr	100 Yr								
NSTPS	0	0	0	0	0	0								
R45	0.050	0.040	0.050	1,048.00	0.0191	-	X: -	12.00	24.00	28.00	38.00	42.00	56.00	75.00
	Return Period						Y: 2,500.00	2,499.00	2,498.00	2,497.00	2,497.00	2,498.00	2,499.00	2,500.00
	2 Yr	5 Yr	10 Yr	25 Yr	50 Yr	100 Yr								
NSTPS	0	0	0	0	0	0								

Flood Control District of Maricopa County
Drainage Design Management System
HEC-1 ROUTING DATA
Project Reference: STAGECOACH WINDMILL

Page 2

8/4/2022

Route ID	LOB N	Chan N	ROB N	Length (ft)	Slope (ft/ft)	Max Elev (ft)	1.	2.	3.	4.	5.	6.	7.	8.
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Flood Control District of Maricopa County
 Drainage Design Management System
 HEC-1 MODEL NETWORK
 Project Reference: STAGECOACH WINDMILL

Page 1

8/4/2022

Type	Model ID	Combine	Area	Route Type	Sort	Comments
Major Basin: 01						
Basin	OFF10	-			2	
Route	R10	-		NORMAL DEPTH	4	
Basin	ON05	-			6	
Combine	CP05	2			8	
Basin	ON20	-			10	
Route	R20	-		NORMAL DEPTH	12	
Basin	ON15	-			14	
Combine	CP15	2			16	
Basin	ON25	-			18	
Basin	OFF35	-			20	
Route	R35	-		NORMAL DEPTH	22	
Basin	ON30	-			24	
Combine	CP30	2			26	
Basin	OFF45	-			28	
Route	R45	-		NORMAL DEPTH	30	
Basin	ON40	-			32	
Combine	CP40	2			34	
Route	R40	-		NORMAL DEPTH	36	
Basin	ON40C	-			38	
Route	R40C	-		NORMAL DEPTH	40	
Basin	OFF70	-			42	
Combine	CP70	3			44	

Flood Control District of Maricopa County
Drainage Design Management System
HEC-1 FLOW SUMMARY
Project Reference: STAGECOACH WINDMILL

Page 1

8/4/2022

ID	Type	Area (sq mi)	Discharge cfs					
			2 Yr	5 Yr	10 Yr	25 Yr	50 Yr	100 Yr
Major Basin 01								
OFF10	Hydrograph	0.03	5		15			37
R10	Routed	0.03	5		14			36
ON05	Hydrograph	0.01	5		15			35
CP05	Combined	0.04	9		27			67
ON20	Hydrograph	0.01	2		5			12
R20	Routed	0.01	1		4			11
ON15	Hydrograph	0.03	15		36			72
CP15	Combined	0.03	16		39			80
ON25	Hydrograph	0.01	7		18			35
OFF35	Hydrograph	0.01	3		7			15
R35	Routed	0.01	3		7			14
ON30	Hydrograph		1		2			5
CP30	Combined	0.01	4		9			19
OFF45	Hydrograph	0.05	19		52			116
R45	Routed	0.05	18		49			111
ON40	Hydrograph	0.02	3		10			26
CP40	Combined	0.07	21		59			136
R40	Routed	0.07	18		53			127
ON40C	Hydrograph	0.01	2		5			12
R40C	Routed	0.01	2		5			12
OFF70	Hydrograph	0.03	11		28			62
CP70	Combined	0.11	28		81			193


```

1*****
*
* FLOOD HYDROGRAPH PACKAGE (HEC-1)
* JUN 1998
* VERSION 4.1
*
* RUN DATE 03AUG22 TIME 14:22:49
*
*****

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*****
*
* U.S. ARMY CORPS OF ENGINEERS
* HYDROLOGIC ENGINEERING CENTER
* 609 SECOND STREET
* DAVIS, CALIFORNIA 95616
* (916) 756-1104
*
*****

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X X XXXXXX XXXX X
X X X X X XX
X X X X X
XXXXXX XXXX X XXXXX X
X X X X X
X X X X X
X X XXXXXX XXXX XXX

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THIS PROGRAM REPLACES ALL PREVIOUS VERSIONS OF HEC-1 KNOWN AS HEC1 (JAN 73), HEC1GS, HEC1DB, AND HEC1KW.

THE DEFINITIONS OF VARIABLES -RTIMP- AND -RTIOR- HAVE CHANGED FROM THOSE USED WITH THE 1973-STYLE INPUT STRUCTURE.
 THE DEFINITION OF -AMSKK- ON RM-CARD WAS CHANGED WITH REVISIONS DATED 28 SEP 81. THIS IS THE FORTRAN77 VERSION
 NEW OPTIONS: DAMBREAK OUTFLOW SUBMERGENCE , SINGLE EVENT DAMAGE CALCULATION, DSS:WRITE STAGE FREQUENCY,
 DSS:READ TIME SERIES AT DESIRED CALCULATION INTERVAL LOSS RATE:GREEN AND AMPT INFILTRATION
 KINEMATIC WAVE: NEW FINITE DIFFERENCE ALGORITHM

1 HEC-1 INPUT PAGE 1

```

LINE ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

1 ID Flood Control District of Maricopa County
2 ID STAGECOACH WINDMILL - Ex Stagecoach Windmill
3 ID 2 YEAR
4 ID 6 Hour Storm
5 ID Unit Hydrograph: Clark
6 ID Storm: Single
7 ID 08/03/2022
  *DIAGRAM
8 IT 1 1JAN99 0 2000
9 IO 5
10 IN 15
  *

11 KK OFF10 BASIN
12 BA 0.027
13 PB 1.413
14 PC 0.000 0.008 0.016 0.025 0.033 0.041 0.050 0.058 0.066 0.074
15 PC 0.087 0.099 0.118 0.138 0.216 0.377 0.834 0.911 0.931 0.950
16 PC 0.962 0.972 0.983 0.991 1.000
17 LG 0.32 0.30 5.05 0.28 8
18 UC 0.538 0.864
19 UA 0 5.0 16.0 30.0 65.0 77.0 84.0 90.0 94.0 97.0
20 UA 100
  *

21 KK R10 ROUTE
22 RS 1 FLOW
23 RC 0.050 0.040 0.050 818 0.0195 0.00
24 RX 0.00 40.00 41.00 95.00 108.00 120.00 140.00 165.00
25 RY 2504.0 2500.00 2500.00 2448.00 2498.00 2500.00 2500.00 2504.00
  *

26 KK ON05 BASIN
27 BA 0.015
28 LG 0.35 0.36 5.05 0.23 0
29 UC 0.392 0.364
30 UA 0 5.0 16.0 30.0 65.0 77.0 84.0 90.0 94.0 97.0
31 UA 100
  *

32 KK CP05 COMBINE
33 HC 2
  *

34 KK ON20 BASIN
35 BA 0.006
36 LG 0.35 0.36 5.05 0.23 0
37 UC 0.404 0.489
38 UA 0 5.0 16.0 30.0 65.0 77.0 84.0 90.0 94.0 97.0
39 UA 100
  *

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1 HEC-1 INPUT PAGE 2

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LINE ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

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102	KK	ON40C	BASIN										
103	BA	0.006											
104	LG	0.35	0.36	5.05	0.23	0							
105	UC	0.410	0.466										
106	UA	0	5.0	16.0	30.0	65.0	77.0	84.0	90.0	94.0	97.0		
107	UA	100											
	*												

108	KK	R40C	ROUTE										
109	RS	1	FLOW										
110	RC	0.050	0.040	0.050	1769	0.0158	0.00						
111	RX	0.00	20.00	23.00	36.00	45.00	53.00	55.00	60.00				
112	RY	2454.5	2454.50	2454.23	2450.50	5450.00	2454.10	2454.25	2454.25				
	*												

1

HEC-1 INPUT

PAGE 4

LINE	ID	1	2	3	4	5	6	7	8	9	10
------	----	--------	--------	--------	--------	--------	--------	--------	--------	--------	---------

113	KK	OFF70	BASIN										
114	BA	0.031											
115	LG	0.30	0.26	5.05	0.31	14							
116	UC	0.395	0.468										
117	UA	0	5.0	16.0	30.0	65.0	77.0	84.0	90.0	94.0	97.0		
118	UA	100											
	*												

119	KK	CP70	COMBINE										
120	HC	3											
	*												
121	ZZ												

1

SCHEMATIC DIAGRAM OF STREAM NETWORK

INPUT
LINE

(V) ROUTING (--->) DIVERSION OR PUMP FLOW
(.) CONNECTOR (<---) RETURN OF DIVERTED OR PUMPED FLOW

11	OFF10												
	V												
21	V												
	R10												
	.												
26	.	ON05											
	.	.											
32	CP05												
	.												
34	.	ON20											
	V												
	V												
40	R20												
	.												
45	.	.	ON15										
	.	.	.										
51	.	CP15											
	.	.											
53	.	.	ON25										
	.	.	.										
59	.	.	.	OFF35									
	.	.	.	V									
65	.	.	.	V									
	.	.	.	R35									
	.	.	.	.									
70	.	.	.	.	ON30								
	.	.	.	.	.								
76	.	.	.	CP30									
	.	.	.	.									
78	.	.	.	.	OFF45								
	.	.	.	.	V								
	.	.	.	.	V								
84	.	.	.	.	R45								
	.	.	.	.	.								
89	.	.	.	.	.	ON40							
	.	.	.	.	.	.							
95	.	.	.	.	CP40								
	.	.	.	.	V								
	.	.	.	.	V								
97	.	.	.	.	R40								
	.	.	.	.	.								
	.	.	.	.	.								


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102      .      .      .      .      .      .      ON40C
      .      .      .      .      .      .      V
108      .      .      .      .      .      .      V
      .      .      .      .      .      .      R40C
113      .      .      .      .      .      .      .
      .      .      .      .      .      .      OFF70
119      .      .      .      .      .      .      .
      .      .      .      .      .      .      CP70.....

```

(***) RUNOFF ALSO COMPUTED AT THIS LOCATION

```

1*****
*
* FLOOD HYDROGRAPH PACKAGE (HEC-1) *
*   JUN 1998                      *
*   VERSION 4.1                   *
*
* RUN DATE 03AUG22 TIME 14:22:49 *
*
*****

```

```

*****
*
* U.S. ARMY CORPS OF ENGINEERS *
* HYDROLOGIC ENGINEERING CENTER *
*   609 SECOND STREET          *
*   DAVIS, CALIFORNIA 95616    *
*   (916) 756-1104             *
*
*****

```

Flood Control District of Maricopa County
 STAGECOACH WINDMILL - Ex Stagecoach Windmill
 2 YEAR
 6 Hour Storm
 Unit Hydrograph: Clark
 Storm: Single
 08/03/2022

```

9 IO      OUTPUT CONTROL VARIABLES
          IPRNT      5 PRINT CONTROL
          IPLOT      0 PLOT CONTROL
          QSCAL      0. HYDROGRAPH PLOT SCALE

```

```

IT      HYDROGRAPH TIME DATA
          NMIN      1 MINUTES IN COMPUTATION INTERVAL
          IDATE     1JAN99 STARTING DATE
          ITIME     0000 STARTING TIME
          NQ        2000 NUMBER OF HYDROGRAPH ORDINATES
          NDDATE    2JAN99 ENDING DATE
          NDTIME    0919 ENDING TIME
          ICENT     19 CENTURY MARK

```

```

          COMPUTATION INTERVAL 0.02 HOURS
          TOTAL TIME BASE     33.32 HOURS

```

```

ENGLISH UNITS
DRAINAGE AREA      SQUARE MILES
PRECIPITATION DEPTH INCHES
LENGTH, ELEVATION FEET
FLOW               CUBIC FEET PER SECOND
STORAGE VOLUME     ACRE-FEET
SURFACE AREA       ACRES
TEMPERATURE        DEGREES FAHRENHEIT

```

1

RUNOFF SUMMARY
 FLOW IN CUBIC FEET PER SECOND
 TIME IN HOURS, AREA IN SQUARE MILES

+	OPERATION	STATION	PEAK FLOW	TIME OF PEAK	AVERAGE FLOW FOR MAXIMUM PERIOD			BASIN AREA	MAXIMUM STAGE	TIME OF MAX STAGE
					6-HOUR	24-HOUR	72-HOUR			
+	HYDROGRAPH AT	OFF10	5.	4.30	1.	0.	0.	0.03		
+	ROUTED TO	R10	5.	4.37	1.	0.	0.	0.03	2448.60	4.37
+	HYDROGRAPH AT	ON05	5.	4.17	0.	0.	0.	0.01		
+	2 COMBINED AT	CP05	9.	4.25	2.	0.	0.	0.04		
+	HYDROGRAPH AT	ON20	2.	4.18	0.	0.	0.	0.01		
+	ROUTED TO	R20	1.	4.35	0.	0.	0.	0.01	2487.03	4.33
+	HYDROGRAPH AT	ON15	15.	4.10	1.	0.	0.	0.03		
+	2 COMBINED AT	CP15	16.	4.10	1.	0.	0.	0.03		

+	HYDROGRAPH AT	ON25	7.	4.08	0.	0.	0.	0.01		
+	HYDROGRAPH AT	OFF35	3.	4.08	0.	0.	0.	0.01		
+	ROUTED TO	R35	3.	4.15	0.	0.	0.	0.01	2457.19	4.13
+	HYDROGRAPH AT	ON30	1.	4.08	0.	0.	0.	0.00		
+	2 COMBINED AT	CP30	4.	4.13	0.	0.	0.	0.01		
+	HYDROGRAPH AT	OFF45	19.	4.17	2.	1.	0.	0.05		
+	ROUTED TO	R45	18.	4.25	2.	1.	0.	0.05	2497.50	4.25
+	HYDROGRAPH AT	ON40	3.	4.28	1.	0.	0.	0.02		
+	2 COMBINED AT	CP40	21.	4.25	3.	1.	0.	0.07		
+	ROUTED TO	R40	18.	4.40	3.	1.	0.	0.07	2450.83	4.38
+	HYDROGRAPH AT	ON40C	2.	4.18	0.	0.	0.	0.01		
+	ROUTED TO	R40C	2.	4.18	0.	0.	0.	0.01	2450.50	4.10
+	HYDROGRAPH AT	OFF70	11.	4.17	2.	0.	0.	0.03		
+	3 COMBINED AT	CP70	28.	4.33	4.	1.	1.	0.11		

*** NORMAL END OF HEC-1 ***


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1*****
*
* FLOOD HYDROGRAPH PACKAGE (HEC-1)
* JUN 1998
* VERSION 4.1
*
* RUN DATE 03AUG22 TIME 14:22:49
*
*****

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*****
*
* U.S. ARMY CORPS OF ENGINEERS
* HYDROLOGIC ENGINEERING CENTER
* 609 SECOND STREET
* DAVIS, CALIFORNIA 95616
* (916) 756-1104
*
*****

```

```

X X XXXXXX XXXX X
X X X X X XX
X X X X X X
XXXXXX XXXX X XXXXX X
X X X X X X
X X X X X X
X X XXXXXX XXXX XXX

```

THIS PROGRAM REPLACES ALL PREVIOUS VERSIONS OF HEC-1 KNOWN AS HEC1 (JAN 73), HEC1GS, HEC1DB, AND HEC1KW.

THE DEFINITIONS OF VARIABLES -RTIMP- AND -RTIOR- HAVE CHANGED FROM THOSE USED WITH THE 1973-STYLE INPUT STRUCTURE.
 THE DEFINITION OF -AMSKK- ON RM-CARD WAS CHANGED WITH REVISIONS DATED 28 SEP 81. THIS IS THE FORTRAN77 VERSION
 NEW OPTIONS: DAMBREAK OUTFLOW SUBMERGENCE , SINGLE EVENT DAMAGE CALCULATION, DSS:WRITE STAGE FREQUENCY,
 DSS:READ TIME SERIES AT DESIRED CALCULATION INTERVAL LOSS RATE:GREEN AND AMPT INFILTRATION
 KINEMATIC WAVE: NEW FINITE DIFFERENCE ALGORITHM

1 HEC-1 INPUT PAGE 1

```

LINE ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

1 ID Flood Control District of Maricopa County
2 ID STAGECOACH WINDMILL - Ex Stagecoach Windmill
3 ID 10 YEAR
4 ID 6 Hour Storm
5 ID Unit Hydrograph: Clark
6 ID Storm: Single
7 ID 08/03/2022
  *DIAGRAM
8 IT 1 1JAN99 0 2000
9 IO 5
10 IN 15
  *
  *

11 KK OFF10 BASIN
12 BA 0.027
13 PB 2.094
14 PC 0.000 0.008 0.016 0.025 0.033 0.041 0.050 0.058 0.066 0.074
15 PC 0.087 0.099 0.118 0.138 0.216 0.377 0.834 0.911 0.931 0.950
16 PC 0.962 0.972 0.983 0.991 1.000
17 LG 0.32 0.30 5.05 0.28 8
18 UC 0.400 0.622
19 UA 0 5.0 16.0 30.0 65.0 77.0 84.0 90.0 94.0 97.0
20 UA 100
  *

21 KK R10 ROUTE
22 RS 1 FLOW
23 RC 0.050 0.040 0.050 818 0.0195 0.00
24 RX 0.00 40.00 41.00 95.00 108.00 120.00 140.00 165.00
25 RY 2504.0 2500.00 2500.00 2448.00 2498.00 2500.00 2500.00 2504.00
  *

26 KK ON05 BASIN
27 BA 0.015
28 LG 0.35 0.36 5.05 0.23 0
29 UC 0.279 0.249
30 UA 0 5.0 16.0 30.0 65.0 77.0 84.0 90.0 94.0 97.0
31 UA 100
  *

32 KK CP05 COMBINE
33 HC 2
  *

34 KK ON20 BASIN
35 BA 0.006
36 LG 0.35 0.36 5.05 0.23 0
37 UC 0.287 0.335
38 UA 0 5.0 16.0 30.0 65.0 77.0 84.0 90.0 94.0 97.0
39 UA 100
  *

```

1 HEC-1 INPUT PAGE 2

```

LINE ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

```


102	KK	ON40C	BASIN										
103	BA	0.006											
104	LG	0.35	0.36	5.05	0.23	0							
105	UC	0.291	0.319										
106	UA	0	5.0	16.0	30.0	65.0	77.0	84.0	90.0	94.0	97.0		
107	UA	100											
	*												

108	KK	R40C	ROUTE										
109	RS	1	FLOW										
110	RC	0.050	0.040	0.050	1769	0.0158	0.00						
111	RX	0.00	20.00	23.00	36.00	45.00	53.00	55.00	60.00				
112	RY	2454.5	2454.50	2454.23	2450.50	5450.00	2454.10	2454.25	2454.25				
	*												

1

HEC-1 INPUT

PAGE 4

LINE	ID	1.....	2.....	3.....	4.....	5.....	6.....	7.....	8.....	9.....	10
------	----	-------------	--------	--------	--------	--------	--------	--------	--------	--------	----

113	KK	OFF70	BASIN										
114	BA	0.031											
115	LG	0.30	0.26	5.05	0.31	14							
116	UC	0.301	0.347										
117	UA	0	5.0	16.0	30.0	65.0	77.0	84.0	90.0	94.0	97.0		
118	UA	100											
	*												

119	KK	CP70	COMBINE										
120	HC	3											
	*												
121	ZZ												

1

SCHEMATIC DIAGRAM OF STREAM NETWORK

INPUT LINE	(V) ROUTING	(-->) DIVERSION OR PUMP FLOW
NO.	(.) CONNECTOR	(<---) RETURN OF DIVERTED OR PUMPED FLOW

11	OFF10												
	V												
21	V												
	R10												
	.												
26	.	ON05											
	.	.											
32	CP05.....												
	.												
34	.	ON20											
	V												
	V												
40	R20												
	.												
45	.	.	ON15										
	.	.	.										
51	.	CP15.....											
	.	.											
53	.	.	ON25										
	.	.	.										
59	.	.	.	OFF35									
	.	.	.	V									
65	.	.	.	V									
	.	.	.	R35									
	.	.	.	.									
70	.	.	.	.	ON30								
	.	.	.	.	.								
76	.	.	.	CP30.....									
	.	.	.	.									
78	.	.	.	.	OFF45								
	.	.	.	.	V								
	.	.	.	.	V								
84	.	.	.	.	R45								
	.	.	.	.	.								
89	.	.	.	.	.					ON40			
	.	.	.	.	.					.			
95	.	.	.	.	.	CP40.....							
	.	.	.	.	.	V							
	.	.	.	.	.	V							
97	.	.	.	.	R40								
	.	.	.	.	.								
	.	.	.	.	.								


```

102      .      .      .      .      .      .      ON40C
      .      .      .      .      .      .      V
108      .      .      .      .      .      .      V
      .      .      .      .      .      .      R40C
113      .      .      .      .      .      .      .
      .      .      .      .      .      .      OFF70
119      .      .      .      .      .      .      .
      .      .      .      .      .      .      CP70.....

```

(***) RUNOFF ALSO COMPUTED AT THIS LOCATION

```

1*****
*
* FLOOD HYDROGRAPH PACKAGE (HEC-1) *
*   JUN 1998                      *
*   VERSION 4.1                   *
*
* RUN DATE 03AUG22 TIME 14:22:49 *
*
*****

```

```

*****
*
* U.S. ARMY CORPS OF ENGINEERS *
* HYDROLOGIC ENGINEERING CENTER *
*   609 SECOND STREET          *
*   DAVIS, CALIFORNIA 95616    *
*   (916) 756-1104            *
*
*****

```

Flood Control District of Maricopa County
 STAGECOACH WINDMILL - Ex Stagecoach Windmill
 10 YEAR
 6 Hour Storm
 Unit Hydrograph: Clark
 Storm: Single
 08/03/2022

```

9 IO      OUTPUT CONTROL VARIABLES
          IPRNT      5 PRINT CONTROL
          IPLOT      0 PLOT CONTROL
          QSCAL      0. HYDROGRAPH PLOT SCALE

```

```

IT      HYDROGRAPH TIME DATA
          NMIN      1 MINUTES IN COMPUTATION INTERVAL
          IDATE     1JAN99 STARTING DATE
          ITIME     0000 STARTING TIME
          NQ        2000 NUMBER OF HYDROGRAPH ORDINATES
          NDDATE    2JAN99 ENDING DATE
          NDTIME    0919 ENDING TIME
          ICENT     19 CENTURY MARK

```

```

          COMPUTATION INTERVAL 0.02 HOURS
          TOTAL TIME BASE     33.32 HOURS

```

```

ENGLISH UNITS
DRAINAGE AREA      SQUARE MILES
PRECIPITATION DEPTH INCHES
LENGTH, ELEVATION FEET
FLOW               CUBIC FEET PER SECOND
STORAGE VOLUME     ACRE-FEET
SURFACE AREA       ACRES
TEMPERATURE        DEGREES FAHRENHEIT

```

1

RUNOFF SUMMARY
 FLOW IN CUBIC FEET PER SECOND
 TIME IN HOURS, AREA IN SQUARE MILES

+	OPERATION	STATION	PEAK FLOW	TIME OF PEAK	AVERAGE FLOW FOR MAXIMUM PERIOD			BASIN AREA	MAXIMUM STAGE	TIME OF MAX STAGE
					6-HOUR	24-HOUR	72-HOUR			
+	HYDROGRAPH AT	OFF10	15.	4.18	2.	1.	0.	0.03		
+	ROUTED TO	R10	14.	4.25	2.	1.	0.	0.03	2449.72	4.25
+	HYDROGRAPH AT	ON05	15.	4.10	1.	0.	0.	0.01		
+	2 COMBINED AT	CP05	27.	4.15	4.	1.	1.	0.04		
+	HYDROGRAPH AT	ON20	5.	4.10	0.	0.	0.	0.01		
+	ROUTED TO	R20	4.	4.25	0.	0.	0.	0.01	2487.11	4.25
+	HYDROGRAPH AT	ON15	36.	4.05	2.	1.	0.	0.03		
+	2 COMBINED AT	CP15	39.	4.07	3.	1.	0.	0.03		

+	HYDROGRAPH AT	ON25	18.	4.05	1.	0.	0.	0.01		
+	HYDROGRAPH AT	OFF35	7.	4.05	1.	0.	0.	0.01		
+	ROUTED TO	R35	7.	4.10	1.	0.	0.	0.01	2457.32	4.10
+	HYDROGRAPH AT	ON30	2.	4.05	0.	0.	0.	0.00		
+	2 COMBINED AT	CP30	9.	4.08	1.	0.	0.	0.01		
+	HYDROGRAPH AT	OFF45	52.	4.12	5.	1.	1.	0.05		
+	ROUTED TO	R45	49.	4.17	5.	1.	1.	0.05	2497.89	4.17
+	HYDROGRAPH AT	ON40	10.	4.17	1.	0.	0.	0.02		
+	2 COMBINED AT	CP40	59.	4.17	6.	1.	1.	0.07		
+	ROUTED TO	R40	53.	4.25	6.	1.	1.	0.07	2451.34	4.25
+	HYDROGRAPH AT	ON40C	5.	4.10	0.	0.	0.	0.01		
+	ROUTED TO	R40C	5.	4.12	0.	0.	0.	0.01	2450.50	4.05
+	HYDROGRAPH AT	OFF70	28.	4.12	3.	1.	1.	0.03		
+	3 COMBINED AT	CP70	81.	4.22	9.	2.	2.	0.11		

*** NORMAL END OF HEC-1 ***


```

1*****
*
* FLOOD HYDROGRAPH PACKAGE (HEC-1)
* JUN 1998
* VERSION 4.1
*
* RUN DATE 03AUG22 TIME 14:22:50
*
*****

```

```

*****
*
* U.S. ARMY CORPS OF ENGINEERS
* HYDROLOGIC ENGINEERING CENTER
* 609 SECOND STREET
* DAVIS, CALIFORNIA 95616
* (916) 756-1104
*
*****

```

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X X XXXXXX XXXX X
X X X X X XX
X X X X X
XXXXXX XXXX X XXXXX X
X X X X X
X X X X X
X X XXXXXX XXXX XXX

```

THIS PROGRAM REPLACES ALL PREVIOUS VERSIONS OF HEC-1 KNOWN AS HEC1 (JAN 73), HEC1GS, HEC1DB, AND HEC1KW.

THE DEFINITIONS OF VARIABLES -RTIMP- AND -RTIOR- HAVE CHANGED FROM THOSE USED WITH THE 1973-STYLE INPUT STRUCTURE. THE DEFINITION OF -AMSKK- ON RM-CARD WAS CHANGED WITH REVISIONS DATED 28 SEP 81. THIS IS THE FORTRAN77 VERSION
 NEW OPTIONS: DAMBREAK OUTFLOW SUBMERGENCE , SINGLE EVENT DAMAGE CALCULATION, DSS:WRITE STAGE FREQUENCY,
 DSS:READ TIME SERIES AT DESIRED CALCULATION INTERVAL LOSS RATE:GREEN AND AMPT INFILTRATION
 KINEMATIC WAVE: NEW FINITE DIFFERENCE ALGORITHM

1 HEC-1 INPUT PAGE 1

```

LINE ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

1 ID Flood Control District of Maricopa County
2 ID STAGECOACH WINDMILL - Ex Stagecoach Windmill
3 ID 100 YEAR
4 ID 6 Hour Storm
5 ID Unit Hydrograph: Clark
6 ID Storm: Single
7 ID 08/03/2022
  *DIAGRAM
8 IT 1 1JAN99 0 2000
9 IO 5
10 IN 15
  *

11 KK OFF10 BASIN
12 BA 0.027
13 PB 3.183
14 PC 0.000 0.008 0.016 0.025 0.033 0.041 0.050 0.058 0.066 0.074
15 PC 0.087 0.099 0.118 0.138 0.216 0.377 0.834 0.911 0.931 0.950
16 PC 0.962 0.972 0.983 0.991 1.000
17 LG 0.32 0.30 5.05 0.28 8
18 UC 0.305 0.460
19 UA 0 5.0 16.0 30.0 65.0 77.0 84.0 90.0 94.0 97.0
20 UA 100
  *

21 KK R10 ROUTE
22 RS 1 FLOW
23 RC 0.050 0.040 0.050 818 0.0195 0.00
24 RX 0.00 40.00 41.00 95.00 108.00 120.00 140.00 165.00
25 RY 2504.0 2500.00 2500.00 2448.00 2498.00 2500.00 2500.00 2504.00
  *

26 KK ON05 BASIN
27 BA 0.015
28 LG 0.35 0.36 5.05 0.23 0
29 UC 0.208 0.180
30 UA 0 5.0 16.0 30.0 65.0 77.0 84.0 90.0 94.0 97.0
31 UA 100
  *

32 KK CP05 COMBINE
33 HC 2
  *

34 KK ON20 BASIN
35 BA 0.006
36 LG 0.35 0.36 5.05 0.23 0
37 UC 0.214 0.242
38 UA 0 5.0 16.0 30.0 65.0 77.0 84.0 90.0 94.0 97.0
39 UA 100
  *

```

1 HEC-1 INPUT PAGE 2

```

LINE ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

```


102	KK	ON40C	BASIN										
103	BA	0.006											
104	LG	0.35	0.36	5.05	0.23	0							
105	UC	0.218	0.231										
106	UA	0	5.0	16.0	30.0	65.0	77.0	84.0	90.0	94.0	97.0		
107	UA	100											
	*												

108	KK	R40C	ROUTE										
109	RS	1	FLOW										
110	RC	0.050	0.040	0.050	1769	0.0158	0.00						
111	RX	0.00	20.00	23.00	36.00	45.00	53.00	55.00	60.00				
112	RY	2454.5	2454.50	2454.23	2450.50	5450.00	2454.10	2454.25	2454.25				
	*												

1

HEC-1 INPUT

PAGE 4

LINE	ID	1	2	3	4	5	6	7	8	9	10
------	----	--------	--------	--------	--------	--------	--------	--------	--------	--------	---------

113	KK	OFF70	BASIN										
114	BA	0.031											
115	LG	0.30	0.26	5.05	0.31	14							
116	UC	0.233	0.260										
117	UA	0	5.0	16.0	30.0	65.0	77.0	84.0	90.0	94.0	97.0		
118	UA	100											
	*												

119	KK	CP70	COMBINE										
120	HC	3											
	*												
121	ZZ												

1

SCHEMATIC DIAGRAM OF STREAM NETWORK

INPUT
LINE

(V) ROUTING (--->) DIVERSION OR PUMP FLOW
(.) CONNECTOR (<---) RETURN OF DIVERTED OR PUMPED FLOW

11	OFF10												
	V												
21	V												
	R10												
	.												
26	.	ON05											
	.	.											
32	CP05												
	.												
34	.	ON20											
	V												
	V												
40	R20												
	.												
45	.	.	ON15										
	.	.	.										
51	.	CP15											
	.	.											
53	.	.	ON25										
	.	.	.										
59	.	.	.	OFF35									
	.	.	.	V									
65	.	.	.	V									
	.	.	.	R35									
	.	.	.	.									
70	.	.	.	.	ON30								
	.	.	.	.	.								
76	.	.	.	CP30									
	.	.	.	.	.								
78	.	.	.	.	OFF45								
	.	.	.	.	V								
	.	.	.	.	V								
84	.	.	.	.	R45								
	.	.	.	.	.								
89	.	.	.	.	.	ON40							
	.	.	.	.	.	.							
95	.	.	.	.	CP40								
	.	.	.	.	V								
	.	.	.	.	V								
97	.	.	.	.	R40								
	.	.	.	.	.								
	.	.	.	.	.								


```

102      .      .      .      .      .      .      ON40C
      .      .      .      .      .      .      V
108      .      .      .      .      .      .      V
      .      .      .      .      .      .      R40C
113      .      .      .      .      .      .      .
      .      .      .      .      .      .      OFF70
119      .      .      .      .      .      .      .
      .      .      .      .      .      .      CP70.....

```

(***) RUNOFF ALSO COMPUTED AT THIS LOCATION

```

1*****
*
* FLOOD HYDROGRAPH PACKAGE (HEC-1) *
*   JUN 1998                      *
*   VERSION 4.1                   *
*
* RUN DATE 03AUG22 TIME 14:22:50 *
*
*****

```

```

*****
*
* U.S. ARMY CORPS OF ENGINEERS *
* HYDROLOGIC ENGINEERING CENTER *
*   609 SECOND STREET          *
* DAVIS, CALIFORNIA 95616      *
*   (916) 756-1104             *
*
*****

```

Flood Control District of Maricopa County
 STAGECOACH WINDMILL - Ex Stagecoach Windmill
 100 YEAR
 6 Hour Storm
 Unit Hydrograph: Clark
 Storm: Single
 08/03/2022

```

9 IO      OUTPUT CONTROL VARIABLES
          IPRNT      5 PRINT CONTROL
          IPLOT      0 PLOT CONTROL
          QSCAL      0. HYDROGRAPH PLOT SCALE

```

```

IT      HYDROGRAPH TIME DATA
          NMIN      1 MINUTES IN COMPUTATION INTERVAL
          IDATE     1JAN99 STARTING DATE
          ITIME     0000 STARTING TIME
          NQ        2000 NUMBER OF HYDROGRAPH ORDINATES
          NDDATE    2JAN99 ENDING DATE
          NDTIME    0919 ENDING TIME
          ICENT     19 CENTURY MARK

```

```

          COMPUTATION INTERVAL 0.02 HOURS
          TOTAL TIME BASE      33.32 HOURS

```

```

ENGLISH UNITS
DRAINAGE AREA      SQUARE MILES
PRECIPITATION DEPTH INCHES
LENGTH, ELEVATION FEET
FLOW               CUBIC FEET PER SECOND
STORAGE VOLUME     ACRE-FEET
SURFACE AREA       ACRES
TEMPERATURE        DEGREES FAHRENHEIT

```

1

RUNOFF SUMMARY
 FLOW IN CUBIC FEET PER SECOND
 TIME IN HOURS, AREA IN SQUARE MILES

+	OPERATION	STATION	PEAK FLOW	TIME OF PEAK	AVERAGE FLOW FOR MAXIMUM PERIOD			BASIN AREA	MAXIMUM STAGE	TIME OF MAX STAGE
					6-HOUR	24-HOUR	72-HOUR			
+	HYDROGRAPH AT	OFF10	37.	4.12	5.	1.	1.	0.03		
+	ROUTED TO	R10	36.	4.15	5.	1.	1.	0.03	2451.21	4.15
+	HYDROGRAPH AT	ON05	35.	4.07	3.	1.	0.	0.01		
+	2 COMBINED AT	CP05	67.	4.10	7.	2.	1.	0.04		
+	HYDROGRAPH AT	ON20	12.	4.07	1.	0.	0.	0.01		
+	ROUTED TO	R20	11.	4.15	1.	0.	0.	0.01	2487.21	4.15
+	HYDROGRAPH AT	ON15	72.	4.03	5.	1.	1.	0.03		
+	2 COMBINED AT	CP15	80.	4.03	6.	1.	1.	0.03		

+	HYDROGRAPH AT	ON25	35.	4.02	2.	1.	0.	0.01		
+	HYDROGRAPH AT	OFF35	15.	4.03	1.	0.	0.	0.01		
+	ROUTED TO	R35	14.	4.07	1.	0.	0.	0.01	2457.45	4.07
+	HYDROGRAPH AT	ON30	5.	4.03	0.	0.	0.	0.00		
+	2 COMBINED AT	CP30	19.	4.05	1.	0.	0.	0.01		
+	HYDROGRAPH AT	OFF45	116.	4.07	9.	2.	2.	0.05		
+	ROUTED TO	R45	111.	4.10	9.	2.	2.	0.05	2498.33	4.10
+	HYDROGRAPH AT	ON40	26.	4.12	3.	1.	0.	0.02		
+	2 COMBINED AT	CP40	136.	4.10	12.	3.	2.	0.07		
+	ROUTED TO	R40	127.	4.17	12.	3.	2.	0.07	2452.00	4.17
+	HYDROGRAPH AT	ON40C	12.	4.07	1.	0.	0.	0.01		
+	ROUTED TO	R40C	12.	4.08	1.	0.	0.	0.01	2450.50	4.05
+	HYDROGRAPH AT	OFF70	62.	4.08	6.	1.	1.	0.03		
+	3 COMBINED AT	CP70	193.	4.13	19.	5.	3.	0.11		

*** NORMAL END OF HEC-1 ***

Appendix B – Proposed Conditions Hydrology

- Rainfall Input
- Soil Input
- Land Use Exhibit
- Land Use Input
- Sub Basins Table
- Storage
- Routing
- Network
- Flow Summary (DDMSW Results)
- First Flush Summary
- 2-Year HEC-1 Output
- 10-Year HEC-1 Output
- 100-Year HEC-1 Output

Flood Control District of Maricopa County
 Drainage Design Management System
 RAINFALL DATA
 Project Reference: STAGECOACH PR

Page 1

8/4/2022

ID	Method	Duration	2 Yr	5 Yr	10 Yr	25 Yr	50 Yr	100 Yr
DEFAULT	NOAA14	5 MIN	0.314	0.424	0.507	0.617	0.701	0.786
	NOAA14	10 MIN	0.479	0.645	0.772	0.939	1.067	1.196
	NOAA14	15 MIN	0.593	0.800	0.957	1.165	1.323	1.483
	NOAA14	30 MIN	0.799	1.077	1.288	1.568	1.782	1.997
	NOAA14	1 HOUR	0.989	1.333	1.594	1.941	2.205	2.472
	NOAA14	2 HOUR	1.139	1.511	1.799	2.187	2.483	2.790
	NOAA14	3 HOUR	1.212	1.579	1.870	2.276	2.598	2.932
	NOAA14	6 HOUR	1.416	1.796	2.099	2.519	2.849	3.191
	NOAA14	12 HOUR	1.696	2.126	2.469	2.934	3.292	3.660
	NOAA14	24 HOUR	1.915	2.517	3.012	3.720	4.309	4.940

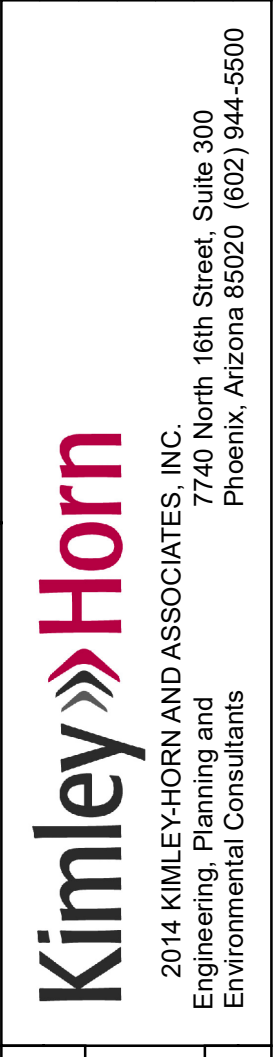
Flood Control District of Maricopa County
Drainage Design Management System
SOILS

Page 1

Project Reference: STAGECOACH PR

8/4/2022

Area ID	Book Number	Map Unit	Soil ID	Area (sq mi)	Area (%)	XKSAT	Rock Percent (%)	Effective Rock (%)	Comments
Major Basin ID: 01									
OFF10	645	33	64533	0.027	100.00	0.230	-	100	
OFF35	645	33	64533	0.002	40.00	0.230	-	100	
	645	61	64561	0.004	60.00	0.150	-	100	
OFF45	645	33	64533	0.052	100.00	0.230	-	100	
OFF70	645	33	64533	0.030	94.60	0.230	-	100	
	645	61	64561	0.002	5.40	0.150	-	100	
ON05A	645	33	64533	0.003	100.00	0.230	-	100	
ON05B	645	33	64533	0.009	100.00	0.230	-	100	
ON15A	645	61	64561	0.002	100.00	0.150	-	100	
ON15B	645	33	64533	0.018	77.80	0.230	-	100	
	645	61	64561	0.005	22.20	0.150	-	100	
ON20	645	33	64533	0.007	100.00	0.230	-	100	
ON25A	645	61	64561	0.004	100.00	0.150	-	100	
ON25B	645	61	64561	0.006	100.00	0.150	-	100	
ON25C	645	61	64561	0.001	100.00	0.150	-	100	
ON30	645	33	64533	0.001	70.00	0.230	-	100	
	645	61	64561	0.001	30.00	0.150	-	100	
ON40A	645	33	64533	0.002	100.00	0.230	-	100	
ON40B	645	33	64533	0.002	100.00	0.230	-	100	
ON40C	645	33	64533	0.004	100.00	0.230	-	100	
ON40D	645	33	64533	0.003	81.10	0.230	-	100	
	645	61	64561	0.001	18.90	0.150	-	100	
ON50	645	33	64533	0.004	100.00	0.230	-	100	
ON55	645	33	64533	0.006	82.10	0.230	-	100	
	645	61	64561	0.001	17.90	0.150	-	100	
ON60	645	33	64533	0.003	100.00	0.230	-	100	
ON65	645	33	64533	0.001	24.00	0.230	-	100	
	645	61	64561	0.002	76.00	0.150	-	100	



CITY OF SCOTTSDALE
SIGNATURE AT STAGE COACH PASS
PROPOSED HYDROLOGY
LANDUSE

PROJECT NO. 291065007
DRAWING NAME PROP LAND USE

Flood Control District of Maricopa County
Drainage Design Management System
LAND USE
Project Reference: STAGECOACH PR

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Sub Basin	Land Use Code	Area (sq mi)	Area (%)	Initial Loss (IA)	Percent Impervious (RTIMP)	Vegetation Cover (%)	DTHETA	Kb	Description
Major Basin ID: 01									
OFF10	120	0.0002	0.8	0.30	5	30.0	NORMAL	0.032	Estate Residential (1/5 du per acre to 1 du per acre)
	130	0.0148	55.6	0.30	15	50.0	NORMAL	0.032	Large Lot Residential - Single Family (1 du per acre to 2 du
	NDR	0.0116	43.6	0.35	0	0.0	DRY	0.063	Undeveloped Desert Rangeland, Little topographic relief, slopes < 5%
		0.0266	100.0						
OFF35	130	0.0053	88.3	0.30	15	50.0	NORMAL	0.036	Large Lot Residential - Single Family (1 du per acre to 2 du
	NDR	0.0007	11.7	0.35	0	0.0	DRY	0.072	Undeveloped Desert Rangeland, Little topographic relief, slopes < 5%
		0.0060	100.0						
OFF45	120	0.0256	49.3	0.30	5	30.0	NORMAL	0.030	Estate Residential (1/5 du per acre to 1 du per acre)
	130	0.0168	32.4	0.30	15	50.0	NORMAL	0.030	Large Lot Residential - Single Family (1 du per acre to 2 du
	NDR	0.0095	18.3	0.35	0	0.0	DRY	0.059	Undeveloped Desert Rangeland, Little topographic relief, slopes < 5%
		0.0519	100.0						
OFF70	130	0.0283	90.4	0.30	15	50.0	NORMAL	0.032	Large Lot Residential - Single Family (1 du per acre to 2 du
	NDR	0.0030	9.6	0.35	0	0.0	DRY	0.062	Undeveloped Desert Rangeland, Little topographic relief, slopes < 5%
		0.0313	100.0						
ON05A	120	0.0019	70.4	0.30	5	30.0	NORMAL	0.038	Estate Residential (1/5 du per acre to 1 du per acre)
	NDR	0.0008	29.6	0.35	0	0.0	DRY	0.076	Undeveloped Desert Rangeland, Little topographic relief, slopes < 5%
		0.0027	100.0						
ON05B	120	0.0076	87.4	0.30	5	30.0	NORMAL	0.035	Estate Residential (1/5 du per acre to 1 du per acre)
	NDR	0.0011	12.6	0.35	0	0.0	DRY	0.070	Undeveloped Desert Rangeland, Little topographic relief, slopes < 5%
		0.0087	100.0						
ON15A	120	0.0008	47.1	0.30	5	30.0	NORMAL	0.039	Estate Residential (1/5 du per acre to 1 du per acre)

* Non default value

(stLuDataCG.rpt)

Flood Control District of Maricopa County
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Sub Basin	Land Use Code	Area (sq mi)	Area (%)	Initial Loss (IA)	Percent Impervious (RTIMP)	Vegetation Cover (%)	DTHETA	Kb	Description
Major Basin ID: 01									
	NDR	0.0009	52.9	0.35	0	0.0	DRY	0.079	Undeveloped Desert Rangeland, Little topographic relief, slopes < 5%
		0.0017	100.0						
ON15B	120	0.0225	98.3	0.30	5	30.0	NORMAL	0.033	Estate Residential (1/5 du per acre to 1 du per acre)
	NDR	0.0004	1.7	0.35	0	0.0	DRY	0.064	Undeveloped Desert Rangeland, Little topographic relief, slopes < 5%
		0.0229	100.0						
ON20	120	0.0066	100.0	0.30	5	30.0	NORMAL	0.036	Estate Residential (1/5 du per acre to 1 du per acre)
		0.0066	100.0						
ON25A	120	0.0027	75.0	0.30	5	30.0	NORMAL	0.037	Estate Residential (1/5 du per acre to 1 du per acre)
	NDR	0.0009	25.0	0.35	0	0.0	DRY	0.074	Undeveloped Desert Rangeland, Little topographic relief, slopes < 5%
		0.0036	100.0						
ON25B	120	0.0007	12.5	0.30	5	30.0	NORMAL	0.036	Estate Residential (1/5 du per acre to 1 du per acre)
	130	0.0010	17.9	0.30	15	50.0	NORMAL	0.036	Large Lot Residential - Single Family (1 du per acre to 2 du
	NDR	0.0039	69.6	0.35	0	0.0	DRY	0.072	Undeveloped Desert Rangeland, Little topographic relief, slopes < 5%
		0.0056	100.0						
ON25C	120	0.0001	16.7	0.30	5	30.0	NORMAL	0.041	Estate Residential (1/5 du per acre to 1 du per acre)
	NDR	0.0005	83.3	0.35	0	0.0	DRY	0.083	Undeveloped Desert Rangeland, Little topographic relief, slopes < 5%
		0.0006	100.0						
ON30	120	0.0012	60.0	0.30	5	30.0	NORMAL	0.039	Estate Residential (1/5 du per acre to 1 du per acre)
	NDR	0.0008	40.0	0.35	0	0.0	DRY	0.079	Undeveloped Desert Rangeland, Little topographic relief, slopes < 5%
		0.0020	100.0						

* Non default value

(stLuDataCG.rpt)

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Sub Basin	Land Use Code	Area (sq mi)	Area (%)	Initial Loss (IA)	Percent Impervious (RTIMP)	Vegetation Cover (%)	DTHETA	Kb	Description
Major Basin ID: 01									
ON40A	120	0.0006	30.0	0.30	5	30.0	NORMAL	0.039	Estate Residential (1/5 du per acre to 1 du per acre)
	NDR	0.0014	70.0	0.35	0	0.0	DRY	0.079	Undeveloped Desert Rangeland, Little topographic relief, slopes < 5%
		0.0020	100.0						
ON40B	120	0.0018	90.0	0.30	5	30.0	NORMAL	0.039	Estate Residential (1/5 du per acre to 1 du per acre)
	NDR	0.0002	10.0	0.35	0	0.0	DRY	0.079	Undeveloped Desert Rangeland, Little topographic relief, slopes < 5%
		0.0020	100.0						
ON40C	120	0.0020	46.5	0.30	5	30.0	NORMAL	0.037	Estate Residential (1/5 du per acre to 1 du per acre)
	NDR	0.0023	53.5	0.35	0	0.0	DRY	0.074	Undeveloped Desert Rangeland, Little topographic relief, slopes < 5%
		0.0043	100.0						
ON40D	120	0.0035	92.1	0.30	5	30.0	NORMAL	0.037	Estate Residential (1/5 du per acre to 1 du per acre)
	NDR	0.0003	7.9	0.35	0	0.0	DRY	0.074	Undeveloped Desert Rangeland, Little topographic relief, slopes < 5%
		0.0038	100.0						
ON50	120	0.0039	100.0	0.30	5	30.0	NORMAL	0.037	Estate Residential (1/5 du per acre to 1 du per acre)
		0.0039	100.0						
ON55	120	0.0065	97.0	0.30	5	30.0	NORMAL	0.036	Estate Residential (1/5 du per acre to 1 du per acre)
	NDR	0.0002	3.0	0.35	0	0.0	DRY	0.071	Undeveloped Desert Rangeland, Little topographic relief, slopes < 5%
		0.0067	100.0						
ON60	120	0.0027	100.0	0.30	5	30.0	NORMAL	0.038	Estate Residential (1/5 du per acre to 1 du per acre)
		0.0027	100.0						
ON65	120	0.0025	100.0	0.30	5	30.0	NORMAL	0.038	Estate Residential (1/5 du per acre to 1 du per acre)

* Non default value

(stLuDataCG.rpt)

Sub Basin	Land Use Code	Area (sq mi)	Area (%)	Initial Loss (IA)	Percent Impervious (RTIMP)	Vegetation Cover (%)	DTHETA	Kb	Description
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Major Basin ID: 01

0.0025	100.0
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* Non default value

Flood Control District of Maricopa County
Drainage Design Management System
SUB BASINS

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Area ID	Sub Basin Parameters						Rainfall Losses						Return Period Parameters					
	Area (sq mi)	Length (mi)	Slope (ft/mi)	Adj Slope	Time-Area	Kb	IA (in)	DTHETA	PSIF (in)	XKSAT (in/hr)	RTIMP (%)		2 Yr	5 Yr	10 Yr	25 Yr	50 Yr	100 Yr
Major Basin ID: 01																		
ON05A	0.003	0.08	119.0	119.0	URBAN	0.049	0.31	0.28	5.05	0.258	4	Tc (Hrs)	0.209	0.173	0.156	0.138	0.127	0.118
												Vel (f/s)	0.56	0.68	0.75	0.85	0.92	0.99
												R (Hrs)	0.237	0.192	0.171	0.149	0.136	0.126
ON25C	0.001	0.04	116.3	116.3	URBAN	0.076	0.34	0.37	6.00	0.150	1	Tc (Hrs)	0.187	0.154	0.138	0.121	0.112	0.105
												Vel (f/s)	0.31	0.38	0.43	0.48	0.52	0.56
												R (Hrs)	0.225	0.182	0.161	0.139	0.127	0.118
ON20	0.007	0.15	60.0	60.0	URBAN	0.036	0.30	0.25	5.05	0.281	5	Tc (Hrs)	0.298*	0.248	0.224	0.198	0.183	0.170
												Vel (f/s)	0.74	0.89	0.98	1.11	1.20	1.29
												R (Hrs)	0.358	0.293	0.261	0.228	0.208	0.193
OFF10	0.027	0.54	102.6	102.6	Urban	0.046	0.32	0.30	5.05	0.276	8	Tc (Hrs)	0.554*	0.456*	0.412*	0.366*	0.337*	0.314 *
												Vel (f/s)	1.43	1.74	1.92	2.16	2.35	2.52
												R (Hrs)	0.919	0.741	0.661	0.580	0.529	0.489
ON05B	0.009	0.08	93.3	93.3	URBAN	0.040	0.31	0.26	5.05	0.271	4	Tc (Hrs)	0.203	0.168	0.151	0.134	0.123	0.115
												Vel (f/s)	0.58	0.70	0.78	0.88	0.95	1.02
												R (Hrs)	0.122	0.099	0.088	0.077	0.070	0.065
OFF35	0.006	0.18	247.2	238.1	Urban	0.041	0.31	0.27	5.58	0.246	13	Tc (Hrs)	0.217	0.184	0.167	0.149	0.137	0.129
												Vel (f/s)	1.22	1.43	1.58	1.77	1.93	2.05
												R (Hrs)	0.319	0.264	0.237	0.209	0.191	0.178
ON15A	0.002	0.05	403.8	289.2	URBAN	0.060	0.33	0.33	6.00	0.158	2	Tc (Hrs)	0.136	0.114	0.102	0.090	0.083	0.078
												Vel (f/s)	0.54	0.64	0.72	0.81	0.88	0.94
												R (Hrs)	0.127	0.104	0.092	0.080	0.073	0.068
OFF45	0.052	0.44	126.1	126.1	Urban	0.036	0.31	0.27	5.05	0.283	7	Tc (Hrs)	0.408*	0.338*	0.305*	0.271*	0.250*	0.233
												Vel (f/s)	1.58	1.91	2.12	2.38	2.58	2.77
												R (Hrs)	0.382	0.311	0.277	0.243	0.222	0.205
ON15B	0.023	0.21	152.4	152.4	URBAN	0.033	0.30	0.25	5.24	0.256	5	Tc (Hrs)	0.249	0.209	0.188	0.166	0.153	0.143
												Vel (f/s)	1.24	1.47	1.64	1.86	2.01	2.15
												R (Hrs)	0.195	0.160	0.143	0.124	0.114	0.106

* Non default value or value out of range

(stSubBasCG.rpt)

Flood Control District of Maricopa County
Drainage Design Management System
SUB BASINS

Project Reference: STAGECOACH PR

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Area ID	Sub Basin Parameters						Rainfall Losses					Return Period Parameters					
	Area (sq mi)	Length (mi)	Slope (ft/mi)	Adj Slope	Time-Area	Kb	IA (in)	DTHETA	PSIF (in)	XKSAT (in/hr)	RTIMP (%)	2 Yr	5 Yr	10 Yr	25 Yr	50 Yr	100 Yr
Major Basin ID: 01																	
OFF70	0.031	0.41	106.2	106.2	Urban	0.035	0.30	0.26	5.05	0.313	14	Tc (Hrs)	0.394*	0.331*	0.301*	0.269*	0.249
												Vel (f/s)	1.53	1.82	2.00	2.24	2.41
												R (Hrs)	0.468	0.385	0.346	0.306	0.280
ON30	0.002	0.10	126.3	126.3	URBAN	0.055	0.32	0.30	5.34	0.221	3	Tc (Hrs)	0.244	0.202	0.182	0.160	0.147
												Vel (f/s)	0.60	0.73	0.81	0.92	1.00
												R (Hrs)	0.423	0.343	0.305	0.265	0.241
ON25A	0.004	0.09	454.5	297.0	URBAN	0.047	0.31	0.29	6.00	0.171	4	Tc (Hrs)	0.156	0.131	0.118	0.104	0.096
												Vel (f/s)	0.85	1.01	1.12	1.27	1.38
												R (Hrs)	0.159	0.131	0.117	0.102	0.093
ON25B	0.006	0.11	386.0	285.8	URBAN	0.061	0.33	0.35	6.00	0.155	3	Tc (Hrs)	0.205	0.171	0.153	0.135	0.124
												Vel (f/s)	0.79	0.94	1.05	1.20	1.30
												R (Hrs)	0.201	0.164	0.146	0.126	0.116
ON40A	0.002	0.09	33.3	33.3	URBAN	0.067	0.34	0.33	5.05	0.230	2	Tc (Hrs)	0.402*	0.327*	0.293*	0.258*	0.237
												Vel (f/s)	0.33	0.40	0.45	0.51	0.56
												R (Hrs)	0.677	0.538	0.477	0.415	0.377
ON50	0.004	0.08	62.5	62.5	URBAN	0.037	0.30	0.25	5.05	0.281	5	Tc (Hrs)	0.218	0.182	0.164	0.145	0.134
												Vel (f/s)	0.54	0.64	0.72	0.81	0.88
												R (Hrs)	0.210	0.172	0.153	0.134	0.122
ON40B	0.002	0.07	115.9	115.9	URBAN	0.043	0.31	0.26	5.05	0.274	5	Tc (Hrs)	0.183	0.152	0.137	0.121	0.112
												Vel (f/s)	0.56	0.68	0.75	0.85	0.92
												R (Hrs)	0.231	0.188	0.168	0.147	0.134
ON40C	0.004	0.12	65.0	65.0	URBAN	0.057	0.33	0.31	5.05	0.239	2	Tc (Hrs)	0.344*	0.281*	0.252*	0.222	0.204
												Vel (f/s)	0.51	0.63	0.70	0.79	0.86
												R (Hrs)	0.482	0.386	0.342	0.298	0.271
ON40D	0.004	0.10	92.8	92.8	URBAN	0.040	0.30	0.26	5.24	0.256	5	Tc (Hrs)	0.223	0.186	0.168	0.148	0.137
												Vel (f/s)	0.66	0.79	0.87	0.99	1.07
												R (Hrs)	0.258	0.211	0.188	0.164	0.150

* Non default value or value out of range

(stSubBasCG.rpt)

Flood Control District of Maricopa County
Drainage Design Management System
SUB BASINS

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Project Reference: STAGECOACH PR

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Area ID	Sub Basin Parameters						Rainfall Losses					Return Period Parameters						
	Area (sq mi)	Length (mi)	Slope (ft/mi)	Adj Slope	Time-Area	Kb	IA (in)	DTHETA	PSIF (in)	XKSAT (in/hr)	RTIMP (%)		2 Yr	5 Yr	10 Yr	25 Yr	50 Yr	100 Yr
Major Basin ID: 01																		
ON55	0.007	0.25	78.7	78.7	URBAN	0.037	0.30	0.25	5.24	0.259	5	Tc (Hrs)	0.355*	0.297*	0.268*	0.237	0.218	0.204
												Vel (f/s)	1.03	1.23	1.37	1.55	1.68	1.80
												R (Hrs)	0.653	0.536	0.479	0.417	0.381	0.354
ON60	0.003	0.07	164.4	164.4	URBAN	0.038	0.30	0.25	5.05	0.281	5	Tc (Hrs)	0.153	0.128	0.115	0.102	0.094	0.088
												Vel (f/s)	0.67	0.80	0.89	1.01	1.09	1.17
												R (Hrs)	0.151	0.123	0.110	0.096	0.087	0.081
ON65	0.003	0.15	176.9	176.9	URBAN	0.038	0.30	0.25	5.71	0.204	5	Tc (Hrs)	0.210	0.177	0.160	0.141	0.131	0.123
												Vel (f/s)	1.05	1.24	1.38	1.56	1.68	1.79
												R (Hrs)	0.393	0.326	0.291	0.253	0.232	0.216

* Non default value or value out of range

(stSubBasCG.rpt)

Flood Control District of Maricopa County
Drainage Design Management System
HEC-1 ROUTING DATA
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Route ID	LOB N	Chan N	ROB N	Length (ft)	Slope (ft/ft)	Max Elev (ft)	1.	2.	3.	4.	5.	6.	7.	8.
NORMAL DEPTH														
Major Basin 01														
R05A	0.050	0.040	0.050	475.00	0.0250	-	X: -	40.00	41.00	95.00	108.00	120.00	140.00	165.00
	Return Period						Y: 2,504.00	2,500.00	2,500.00	2,498.00	2,498.00	2,500.00	2,500.00	2,504.00
	2 Yr	5 Yr	10 Yr	25 Yr	50 Yr	100 Yr								
NSTPS	0	0	0	0	0	0								
R0N40D	0.050	0.040	0.050	1,586.00	0.0153	-	X: -	20.00	23.00	36.00	45.00	53.00	55.00	60.00
	Return Period						Y: 2,454.50	2,454.50	2,454.23	2,450.50	2,450.00	2,454.10	2,454.25	2,454.25
	2 Yr	5 Yr	10 Yr	25 Yr	50 Yr	100 Yr								
NSTPS	0	0	0	0	0	0								
R10	0.050	0.040	0.050	818.00	0.0140	-	X: -	40.00	41.00	95.00	108.00	120.00	140.00	165.00
	Return Period						Y: 2,504.00	2,500.00	2,500.00	2,498.00	2,498.00	2,500.00	250.00	2,504.00
	2 Yr	5 Yr	10 Yr	25 Yr	50 Yr	100 Yr								
NSTPS	3	0	3	0	0	3								
R15A	0.050	0.040	0.050	275.00	0.0700	-	X: -	25.00	31.00	33.00	35.00	37.00	43.00	68.00
	Return Period						Y: 2,470.00	2,467.00	2,466.00	2,466.00	2,466.00	2,466.00	2,467.00	2,470.00
	2 Yr	5 Yr	10 Yr	25 Yr	50 Yr	100 Yr								
NSTPS	1	0	1	0	0	1								
R20	0.050	0.040	0.050	810.00	0.0254	-	X: -	10.00	30.00	40.00	60.00	1,002.40	120.00	135.00
	Return Period						Y: 2,490.00	2,489.00	2,488.00	2,487.00	2,487.00	2,488.00	2,489.00	2,490.00
	2 Yr	5 Yr	10 Yr	25 Yr	50 Yr	100 Yr								
NSTPS	1	0	1	0	0	1								
R25A	0.050	0.040	0.050	276.00	0.0300	-	X: -	8.00	18.00	30.00	42.00	51.00	60.00	70.00
	Return Period						Y: 2,460.00	2,459.00	2,458.00	2,457.00	2,457.00	2,458.00	2,459.00	2,460.00
	2 Yr	5 Yr	10 Yr	25 Yr	50 Yr	100 Yr								
NSTPS	0	0	0	0	0	0								

Flood Control District of Maricopa County
Drainage Design Management System
HEC-1 ROUTING DATA
Project Reference: STAGECOACH PR

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8/4/2022

Route ID	LOB N	Chan N	ROB N	Length (ft)	Slope (ft/ft)	Max Elev (ft)		1.	2.	3.	4.	5.	6.	7.	8.
R25B	0.050	0.040	0.050	172.00	0.0170	-	X:	-	8.00	18.00	30.00	42.00	51.00	60.00	70.00
	Return Period						Y:	2,460.00	2,459.00	2,458.00	2,457.00	2,457.00	2,458.00	2,459.00	2,460.00
NSTPS	2 Yr 0	5 Yr 0	10 Yr 0	25 Yr 0	50 Yr 0	100 Yr 0									
R35	0.050	0.040	0.050	435.00	0.0230	-	X:	-	5.00	20.00	25.00	30.00	60.00	100.00	115.00
	Return Period						Y:	2,460.00	2,459.00	2,458.00	2,457.00	2,457.00	2,458.00	2,459.00	2,460.00
NSTPS	2 Yr 3	5 Yr 0	10 Yr 2	25 Yr 0	50 Yr 0	100 Yr 2									
R40A	0.050	0.040	0.050	360.00	0.0220	-	X:	-	12.00	24.00	28.00	38.00	42.00	56.00	75.00
	Return Period						Y:	2,500.00	2,499.00	2,498.00	2,497.00	2,497.00	2,498.00	2,499.00	2,500.00
NSTPS	2 Yr 1	5 Yr 0	10 Yr 1	25 Yr 0	50 Yr 0	100 Yr 1									
R40B	0.050	0.040	0.050	502.00	0.0170	-	X:	-	12.00	24.00	28.00	38.00	42.00	56.00	75.00
	Return Period						Y:	2,500.00	2,499.00	2,498.00	2,497.00	2,497.00	2,498.00	2,499.00	2,500.00
NSTPS	2 Yr 2	5 Yr 0	10 Yr 2	25 Yr 0	50 Yr 0	100 Yr 1									
R45	0.050	0.040	0.050	130.00	0.0070	-	X:	-	12.00	24.00	28.00	38.00	42.00	56.00	75.00
	Return Period						Y:	2,500.00	2,499.00	2,498.00	2,497.00	2,497.00	2,498.00	2,499.00	2,500.00
NSTPS	2 Yr 1	5 Yr 0	10 Yr 1	25 Yr 0	50 Yr 0	100 Yr 1									
R50	0.050	0.040	0.050	696.00	0.0186	-	X:	-	40.00	41.00	95.00	108.00	120.00	140.00	165.00
	Return Period						Y:	2,504.00	2,500.00	2,500.00	2,498.00	2,498.00	2,500.00	2,500.00	2,504.00
NSTPS	2 Yr 0	5 Yr 0	10 Yr 0	25 Yr 0	50 Yr 0	100 Yr 0									
R55	0.050	0.040	0.050	250.00	0.0160	-	X:	-	3.00	5.00	42.00	54.00	94.00	100.00	103.00
	Return Period						Y:	2,487.95	2,487.98	2,488.00	2,482.34	2,482.11	2,486.93	2,487.07	2,487.13
NSTPS	2 Yr 0	5 Yr 0	10 Yr 0	25 Yr 0	50 Yr 0	100 Yr 0									

Flood Control District of Maricopa County
Drainage Design Management System
HEC-1 ROUTING DATA
Project Reference: STAGECOACH PR

Page 3

8/4/2022

Route ID	LOB N	Chan N	ROB N	Length (ft)	Slope (ft/ft)	Max Elev (ft)		1.	2.	3.	4.	5.	6.	7.	8.
R65	0.050	0.040	0.050	180.00	0.0150	-	X:	-	8.00	18.00	30.00	42.00	51.00	60.00	70.00
	Return Period						Y:	2,460.00	2,459.00	2,458.00	2,457.00	2,457.00	2,458.00	2,459.00	2,460.00
NSTPS	2 Yr 0	5 Yr 0	10 Yr 0	25 Yr 0	50 Yr 0	100 Yr 0									
RON40C	0.050	0.040	0.050	1,769.00	0.0158	-	X:	-	20.00	23.00	36.00	45.00	53.00	55.00	60.00
	Return Period						Y:	2,454.50	2,454.50	2,454.23	2,450.50	5,450.00	2,454.10	2,454.25	2,454.25
NSTPS	2 Yr 0	5 Yr 0	10 Yr 0	25 Yr 0	50 Yr 0	100 Yr 0									

Flood Control District of Maricopa County
 Drainage Design Management System
 HEC-1 MODEL NETWORK
 Project Reference: STAGECOACH PR

Page 1

8/4/2022

Type	Model ID	Combine	Area	Route Type	Sort	Comments
Major Basin: 01						
Basin	OFF10	-			10	
Route	R10	-		NORMAL DEPTH	20	
Basin	ON50	-			30	
Storage	S50	-			40	
Route	R50	-		NORMAL DEPTH	50	
Basin	ON05A	-			60	
Route	R05A	-		NORMAL DEPTH	70	
Basin	ON05B	-			80	
Combine	CP05	4			90	
Basin	OFF45	-			100	
Route	R45	-		NORMAL DEPTH	110	
Basin	ON40A	-			120	
Combine	CP40A	2			130	
Route	R40A	-		NORMAL DEPTH	140	
Basin	ON40B	-			150	
Combine	CP40B	2			160	
Route	R40B	-		NORMAL DEPTH	170	
Basin	ON40D	-			180	
Basin	ON55	-			190	
Storage	S55	-			192	
Combine	CP40	3			210	
Route	R0N40D	-		NORMAL DEPTH	220	
Basin	ON60	-			230	
Storage	S60	-			240	
Basin	ON40C	-			250	
Combine	CP40C	2			260	
Route	R0N40C	-		NORMAL DEPTH	270	
Basin	OFF70	-			280	
Combine	CP70	3			290	
Basin	ON20	-			300	
Route	R20	-		NORMAL DEPTH	310	
Basin	ON15B	-			320	
Basin	ON15A	-			330	
Route	R15A	-		NORMAL DEPTH	340	
Combine	CP15	3			350	
Basin	ON25A	-			360	
Route	R25A	-		NORMAL DEPTH	370	
Basin	ON25B	-			410	
Route	R25B	-		NORMAL DEPTH	420	
Basin	ON25C	-			430	
Combine	CP25	3			440	
Basin	OFF35	-			450	
Route	R35	-		NORMAL DEPTH	460	
Basin	ON65	-			461	
Storage	S65	-			462	
Route	R65	-		NORMAL DEPTH	462	
Basin	ON30	-			470	
Combine	CP30	3			480	

Flood Control District of Maricopa County
Drainage Design Management System
HEC-1 FLOW SUMMARY
Project Reference: STAGECOACH PR

Page 1

8/4/2022

ID	Type	Area (sq mi)	Discharge cfs					
			2 Yr	5 Yr	10 Yr	25 Yr	50 Yr	100 Yr
Major Basin 01								
OFF10	Hydrograph	0.03	5		14			35
R10	Routed	0.03	5		14			34
ON50	Hydrograph		2		6			12
S50	Routed							
R50	Routed							
ON05A	Hydrograph		2		4			8
R05A	Routed		1		4			8
ON05B	Hydrograph	0.01	7		16			29
CP05	Combined	0.04	10		24			54
OFF45	Hydrograph	0.05	19		52			116
R45	Routed	0.05	19		52			116
ON40A	Hydrograph				1			3
CP40A	Combined	0.05	19		53			119
R40A	Routed	0.05	19		53			118
ON40B	Hydrograph		1		3			6
CP40B	Combined	0.06	20		55			122
R40B	Routed	0.06	20		54			121
ON40D	Hydrograph		2		5			11
ON55	Hydrograph	0.01	2		5			12
S55	Routed	0.01			2			11
CP40	Combined	0.07	21		58			137
R0N40D	Routed	0.07	18		52			127
ON60	Hydrograph		2		5			9
S60	Routed							3
ON40C	Hydrograph		1		4			8
CP40C	Combined	0.01	1		4			10
RON40C	Routed	0.01	1		4			10
OFF70	Hydrograph	0.03	11		28			62
CP70	Combined	0.11	29		79			192
ON20	Hydrograph	0.01	3		8			17
R20	Routed	0.01	2		6			13
ON15B	Hydrograph	0.02	14		34			67
ON15A	Hydrograph		2		4			7
R15A	Routed		2		4			6
CP15	Combined	0.03	17		42			84
ON25A	Hydrograph		3		7			13
R25A	Routed		3		7			12
ON25B	Hydrograph	0.01	4		9			18
R25B	Routed	0.01	4		9			18
ON25C	Hydrograph		1		1			3
CP25	Combined	0.01	7		17			33
OFF35	Hydrograph	0.01	3		7			15
R35	Routed	0.01	3		7			15
ON65	Hydrograph		1		3			7
S65	Routed							
R65	Routed							
ON30	Hydrograph		1		2			5
CP30	Combined	0.01	4		9			19

General Project Information			
Project #	291065007		
Designed by	TWC	Date	Aug-22
Design Storm Event [yr]	First Flush		
Duration [hr]	2		

Subbasin	Area [ac]	Rational Coefficient	Volume Required [ac-ft]	Volume Provided [ac-ft]
S50	2.56	1.00	0.11	0.73
S55	4.48	1.00	0.19	0.26
S60	1.92	1.00	0.08	0.25
S65	1.92	1.00	0.08	0.32


```

1*****
*
* FLOOD HYDROGRAPH PACKAGE (HEC-1)
* JUN 1998
* VERSION 4.1
*
* RUN DATE 05AUG22 TIME 10:18:37
*
*****

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*****
*
* U.S. ARMY CORPS OF ENGINEERS
* HYDROLOGIC ENGINEERING CENTER
* 609 SECOND STREET
* DAVIS, CALIFORNIA 95616
* (916) 756-1104
*
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X X XXXXXX XXXX X
X X X X X XX
X X X X X X
XXXXXX XXXX X XXXXX X
X X X X X X
X X X X X X
X X XXXXXX XXXX XXX

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THIS PROGRAM REPLACES ALL PREVIOUS VERSIONS OF HEC-1 KNOWN AS HEC1 (JAN 73), HEC1GS, HEC1DB, AND HEC1KW.

THE DEFINITIONS OF VARIABLES -RTIMP- AND -RTIOR- HAVE CHANGED FROM THOSE USED WITH THE 1973-STYLE INPUT STRUCTURE.
 THE DEFINITION OF -AMSKK- ON RM-CARD WAS CHANGED WITH REVISIONS DATED 28 SEP 81. THIS IS THE FORTRAN77 VERSION
 NEW OPTIONS: DAMBREAK OUTFLOW SUBMERGENCE , SINGLE EVENT DAMAGE CALCULATION, DSS:WRITE STAGE FREQUENCY,
 DSS:READ TIME SERIES AT DESIRED CALCULATION INTERVAL LOSS RATE:GREEN AND AMPT INFILTRATION
 KINEMATIC WAVE: NEW FINITE DIFFERENCE ALGORITHM

1 HEC-1 INPUT PAGE 1

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LINE ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

1 ID Flood Control District of Maricopa County
2 ID STAGECOACH PR - Stagecoach Windmill Proposed
3 ID 2 YEAR
4 ID 6 Hour Storm
5 ID Unit Hydrograph: Clark
6 ID Storm: Single
7 ID 08/05/2022
  *DIAGRAM
8 IT 1 1JAN99 0 2000
9 IO 5
10 IN 15
  *

11 KK OFF10 BASIN
12 BA 0.027
13 PB 1.413
14 PC 0.000 0.008 0.016 0.025 0.033 0.041 0.050 0.058 0.066 0.074
15 PC 0.087 0.099 0.118 0.138 0.216 0.377 0.834 0.911 0.931 0.950
16 PC 0.962 0.972 0.983 0.991 1.000
17 LG 0.32 0.30 5.05 0.28 8
18 UC 0.554 0.919
19 UA 0 5.0 16.0 30.0 65.0 77.0 84.0 90.0 94.0 97.0
20 UA 100
  *

21 KK R10 ROUTE
22 RS 3 FLOW
23 RC 0.050 0.040 0.050 818 0.0140 0.00
24 RX 0.00 40.00 41.00 95.00 108.00 120.00 140.00 165.00
25 RY 2504.0 2500.00 2500.00 2498.00 2498.00 2500.00 250.00 2504.00
  *

26 KK ON50 BASIN
27 BA 0.004
28 LG 0.30 0.25 5.05 0.28 5
29 UC 0.218 0.210
30 UA 0 5.0 16.0 30.0 65.0 77.0 84.0 90.0 94.0 97.0
31 UA 100
  *

32 KK S50 STORAGE
33 KO
34 RS 1 STOR
35 SA 0.1 0.2 0.2 0.3
36 SE 1.00 2.00 3.00
37 SS 2.50 10.00 3.30 1.50
38 SL 2.50 0.20 0.60 0.50
39 ST 3.00 5.00 3.00 1.50
  *

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1 HEC-1 INPUT PAGE 2

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LINE ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

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103	LG	0.30	0.26	5.24	0.26	5					
104	UC	0.223	0.258								
105	UA	0	5.0	16.0	30.0	65.0	77.0	84.0	90.0	94.0	97.0
106	UA	100									
	*										
107	KK	ON55	BASIN								
108	BA	0.007									
109	LG	0.30	0.25	5.24	0.26	5					
110	UC	0.355	0.653								
111	UA	0	5.0	16.0	30.0	65.0	77.0	84.0	90.0	94.0	97.0
112	UA	100									
	*										

1

HEC-1 INPUT

PAGE 4

LINE	ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10
------	---

113	KK	S55	STORAGE								
114	KO										
115	RS	1	STOR								
116	SA		0.1	0.1	0.1						
117	SE		1.00	2.00	3.00						
118	SS	2.50	10.00	3.30	1.50						
119	SL	2.50	0.20	0.60	0.50						
120	ST	3.00	5.00	3.00	1.50						
	*										

121	KK	CP40	COMBINE								
122	HC	3									
	*										

123	KK	R0N40D	ROUTE								
124	RS	1	FLOW								
125	RC	0.050	0.040	0.050	1586	0.0153	0.00				
126	RX	0.00	20.00	23.00	36.00	45.00	53.00	55.00	60.00		
127	RY	2454.5	2454.50	2454.23	2450.50	2450.00	2454.10	2454.25	2454.25		
	*										

128	KK	ON60	BASIN								
129	BA	0.003									
130	LG	0.30	0.25	5.05	0.28	5					
131	UC	0.153	0.151								
132	UA	0	5.0	16.0	30.0	65.0	77.0	84.0	90.0	94.0	97.0
133	UA	100									
	*										

134	KK	S60	STORAGE								
135	KO										
136	RS	1	STOR								
137	SA		0.1	0.1	0.2						
138	SE		1.00	2.00	3.00						
139	SS	2.50	10.00	3.30	1.50						
140	SL	2.50	0.20	0.60	0.50						
141	ST	3.00	5.00	3.00	1.50						
	*										

142	KK	ON40C	BASIN								
143	BA	0.004									
144	LG	0.33	0.31	5.05	0.24	2					
145	UC	0.344	0.482								
146	UA	0	5.0	16.0	30.0	65.0	77.0	84.0	90.0	94.0	97.0
147	UA	100									
	*										

148	KK	CP40C	COMBINE								
149	HC	2									
	*										

1

HEC-1 INPUT

PAGE 5

LINE	ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10
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150	KK	R0N40C	ROUTE								
151	RS	1	FLOW								
152	RC	0.050	0.040	0.050	1769	0.0158	0.00				
153	RX	0.00	20.00	23.00	36.00	45.00	53.00	55.00	60.00		
154	RY	2454.5	2454.50	2454.23	2450.50	5450.00	2454.10	2454.25	2454.25		
	*										

155	KK	OFF70	BASIN								
156	BA	0.031									
157	LG	0.30	0.26	5.05	0.31	14					
158	UC	0.394	0.468								
159	UA	0	5.0	16.0	30.0	65.0	77.0	84.0	90.0	94.0	97.0
160	UA	100									
	*										

161	KK	CP70	COMBINE								
162	HC	3									
	*										

163	KK	ON20	BASIN								
-----	----	------	-------	--	--	--	--	--	--	--	--

[illegible]

PAGE 6

[illegible]

PAGE 7

223	KK	OFF35	BASIN
224	BA	0.006	

225	LG	0.31	0.27	5.58	0.25	13					
226	UC	0.217	0.319								
227	UA	0	5.0	16.0	30.0	65.0	77.0	84.0	90.0	94.0	97.0
228	UA	100									
	*										
229	KK	R35	ROUTE								
230	RS	3	FLOW								
231	RC	0.050	0.040	0.050	435	0.0230	0.00				
232	RX	0.00	5.00	20.00	25.00	30.00	60.00	100.00	115.00		
233	RY	2460.0	2459.00	2458.00	2457.00	2457.00	2458.00	2459.00	2460.00		
	*										
234	KK	ON65	BASIN								
235	BA	0.003									
236	LG	0.30	0.25	5.71	0.20	5					
237	UC	0.210	0.393								
238	UA	0	5.0	16.0	30.0	65.0	77.0	84.0	90.0	94.0	97.0
239	UA	100									
	*										
240	KK	S65	STORAGE								
241	KO										
242	RS	1	STOR								
243	SA	0.1	0.2	0.2	0.2						
244	SE		1.00	2.00	3.00						
245	SS	2.50	10.00	3.30	1.50						
246	SL	2.50	0.20	0.60	0.50						
247	ST	3.00	5.00	3.00	1.50						
	*										
248	KK	R65	ROUTE								
249	RS	1	FLOW								
250	RC	0.050	0.040	0.050	180	0.0150	0.00				
251	RX	0.00	8.00	18.00	30.00	42.00	51.00	60.00	70.00		
252	RY	2460.0	2459.00	2458.00	2457.00	2457.00	2458.00	2459.00	2460.00		
	*										
253	KK	ON30	BASIN								
254	BA	0.002									
255	LG	0.32	0.30	5.34	0.22	3					
256	UC	0.244	0.423								
257	UA	0	5.0	16.0	30.0	65.0	77.0	84.0	90.0	94.0	97.0
258	UA	100									
	*										

1 HEC-1 INPUT PAGE 8

LINE ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

259	KK	CP30	COMBINE
260	HC	3	
	*		
261	ZZ		

1 SCHEMATIC DIAGRAM OF STREAM NETWORK

INPUT LINE	(V) ROUTING	(--->) DIVERSION OR PUMP FLOW
NO.	(.) CONNECTOR	(<---) RETURN OF DIVERTED OR PUMPED FLOW
11	OFF10	
	V	
	V	
21	R10	
	.	
	.	
26	ON50	
	V	
	V	
32	S50	
	V	
	V	
40	R50	
	.	
	.	
45	ON05A	
	V	
	V	
51	R05A	
	.	
	.	
56	ON05B	
	.	
	.	
62	CP05.....	
	.	
	.	
64	OFF45	
	V	
	V	
70	R45	
	.	

75	.	.	ON40A	.
	.	.	.	.
81	.	CP40A.....	.	.
	.	V	.	.
	.	V	.	.
83	.	R40A	.	.
	.	.	.	.
88	.	.	ON40B	.
	.	.	.	.
94	.	CP40B.....	.	.
	.	V	.	.
	.	V	.	.
96	.	R40B	.	.
	.	.	.	.
101	.	.	ON40D	.
	.	.	.	.
107	.	.	.	ON55
	.	.	.	V
	.	.	.	V
113	.	.	.	S55
	.	.	.	.
121	.	CP40.....	.	.
	.	V	.	.
	.	V	.	.
123	.	R0N40D	.	.
	.	.	.	.
128	.	.	ON60	.
	.	.	V	.
	.	.	V	.
134	.	.	S60	.
	.	.	.	.
142	.	.	.	ON40C
	.	.	.	.
148	.	CP40C.....	.	.
	.	V	.	.
	.	V	.	.
150	.	R0N40C	.	.
	.	.	.	.
155	.	.	OFF70	.
	.	.	.	.
161	.	CP70.....	.	.
	.	.	.	.
163	.	.	ON20	.
	.	.	V	.
	.	.	V	.
169	.	.	R20	.
	.	.	.	.
174	.	.	ON15B	.
	.	.	.	.
180	.	.	.	ON15A
	.	.	.	V
	.	.	.	V
186	.	.	.	R15A
	.	.	.	.
	.	.	.	.
191	.	CP15.....	.	.
	.	.	.	.
193	.	.	ON25A	.
	.	.	V	.
	.	.	V	.
199	.	.	R25A	.
	.	.	.	.
204	.	.	.	ON25B
	.	.	.	V
	.	.	.	V
210	.	.	.	R25B
	.	.	.	.
	.	.	.	.
215	.	.	.	ON25C
	.	.	.	.
	.	.	.	.
221	.	.	CP25.....	.
	.	.	.	.
	.	.	.	.
223	.	.	.	OFF35
	.	.	.	V

229 V
R35
234 ON65
V
240 S65
V
248 R65
253 ON30
259 CP30.....

(***) RUNOFF ALSO COMPUTED AT THIS LOCATION

1*****
* FLOOD HYDROGRAPH PACKAGE (HEC-1) *
* JUN 1998 *
* VERSION 4.1 *
* RUN DATE 05AUG22 TIME 10:18:37 *

* U.S. ARMY CORPS OF ENGINEERS *
* HYDROLOGIC ENGINEERING CENTER *
* 609 SECOND STREET *
* DAVIS, CALIFORNIA 95616 *
* (916) 756-1104 *

Flood Control District of Maricopa County
STAGECOACH PR - Stagecoach Windmill Proposed
2 YEAR
6 Hour Storm
Unit Hydrograph: Clark
Storm: Single
08/05/2022

9 IO OUTPUT CONTROL VARIABLES
IPRNT 5 PRINT CONTROL
IPLOT 0 PLOT CONTROL
QSCAL 0. HYDROGRAPH PLOT SCALE

IT HYDROGRAPH TIME DATA
NMIN 1 MINUTES IN COMPUTATION INTERVAL
IDATE 1JAN99 STARTING DATE
ITIME 0000 STARTING TIME
NQ 2000 NUMBER OF HYDROGRAPH ORDINATES
NDDATE 2JAN99 ENDING DATE
NDTIME 0919 ENDING TIME
ICENT 19 CENTURY MARK

COMPUTATION INTERVAL 0.02 HOURS
TOTAL TIME BASE 33.32 HOURS

ENGLISH UNITS
DRAINAGE AREA SQUARE MILES
PRECIPITATION DEPTH INCHES
LENGTH, ELEVATION FEET
FLOW CUBIC FEET PER SECOND
STORAGE VOLUME ACRE-FEET
SURFACE AREA ACRES
TEMPERATURE DEGREES FAHRENHEIT

*** **

* S50 * STORAGE

33 KO OUTPUT CONTROL VARIABLES
IPRNT 5 PRINT CONTROL
IPLOT 0 PLOT CONTROL
QSCAL 0. HYDROGRAPH PLOT SCALE

*** **

* S55 * STORAGE

114 K0 OUTPUT CONTROL VARIABLES
 IPRNT 5 PRINT CONTROL
 IPLOT 0 PLOT CONTROL
 QSCAL 0. HYDROGRAPH PLOT SCALE

*** **

134 KK *****
 * *
 * S60 * STORAGE
 * *

135 K0 OUTPUT CONTROL VARIABLES
 IPRNT 5 PRINT CONTROL
 IPLOT 0 PLOT CONTROL
 QSCAL 0. HYDROGRAPH PLOT SCALE

*** **

240 KK *****
 * *
 * S65 * STORAGE
 * *

241 K0 OUTPUT CONTROL VARIABLES
 IPRNT 5 PRINT CONTROL
 IPLOT 0 PLOT CONTROL
 QSCAL 0. HYDROGRAPH PLOT SCALE

1

RUNOFF SUMMARY
 FLOW IN CUBIC FEET PER SECOND
 TIME IN HOURS, AREA IN SQUARE MILES

	OPERATION	STATION	PEAK FLOW	TIME OF PEAK	AVERAGE FLOW FOR MAXIMUM PERIOD			BASIN AREA	MAXIMUM STAGE	TIME OF MAX STAGE
					6-HOUR	24-HOUR	72-HOUR			
+	HYDROGRAPH AT									
+		OFF10	5.	4.32	1.	0.	0.	0.03		
+	ROUTED TO									
+		R10	5.	4.42	1.	0.	0.	0.03	251.62	4.42
+	HYDROGRAPH AT									
+		ON50	2.	4.07	0.	0.	0.	0.00		
+	ROUTED TO									
+		S50	0.	0.00	0.	0.	0.	0.00	0.56	7.20
+	ROUTED TO									
+		R50	0.	0.00	0.	0.	0.	0.00	2498.00	0.00
+	HYDROGRAPH AT									
+		ON05A	2.	4.07	0.	0.	0.	0.00		
+	ROUTED TO									
+		R05A	1.	4.13	0.	0.	0.	0.00	2498.04	4.12
+	HYDROGRAPH AT									
+		ON05B	7.	4.05	0.	0.	0.	0.01		
+	4 COMBINED AT									
+		CP05	10.	4.07	2.	0.	0.	0.04		
+	HYDROGRAPH AT									
+		OFF45	19.	4.17	2.	1.	0.	0.05		
+	ROUTED TO									
+		R45	19.	4.18	2.	1.	0.	0.05	2497.69	4.18
+	HYDROGRAPH AT									
+		ON40A	0.	4.20	0.	0.	0.	0.00		
+	2 COMBINED AT									
+		CP40A	19.	4.18	2.	1.	0.	0.05		
+	ROUTED TO									
+		R40A	19.	4.20	2.	1.	0.	0.05	2497.51	4.20

+	HYDROGRAPH AT	ON40B	1.	4.07	0.	0.	0.	0.00		
+	2 COMBINED AT	CP40B	20.	4.20	2.	1.	0.	0.06		
+	ROUTED TO	R40B	20.	4.23	2.	1.	0.	0.06	2497.55	4.23
+	HYDROGRAPH AT	ON40D	2.	4.08	0.	0.	0.	0.00		
+	HYDROGRAPH AT	ON55	2.	4.17	0.	0.	0.	0.01		
+	ROUTED TO	S55	0.	0.00	0.	0.	0.	0.01	2.04	9.52
+	3 COMBINED AT	CP40	21.	4.23	3.	1.	0.	0.07		
+	ROUTED TO	R0N40D	18.	4.35	3.	1.	0.	0.07	2450.83	4.35
+	HYDROGRAPH AT	ON60	2.	4.05	0.	0.	0.	0.00		
+	ROUTED TO	S60	0.	0.00	0.	0.	0.	0.00	1.18	6.85
+	HYDROGRAPH AT	ON40C	1.	4.15	0.	0.	0.	0.00		
+	2 COMBINED AT	CP40C	1.	4.15	0.	0.	0.	0.01		
+	ROUTED TO	R0N40C	1.	4.15	0.	0.	0.	0.01	2450.50	3.97
+	HYDROGRAPH AT	OFF70	11.	4.17	2.	0.	0.	0.03		
+	3 COMBINED AT	CP70	29.	4.32	4.	1.	1.	0.11		
+	HYDROGRAPH AT	ON20	3.	4.12	0.	0.	0.	0.01		
+	ROUTED TO	R20	2.	4.27	0.	0.	0.	0.01	2487.02	4.25
+	HYDROGRAPH AT	ON15B	14.	4.08	1.	0.	0.	0.02		
+	HYDROGRAPH AT	ON15A	2.	4.03	0.	0.	0.	0.00		
+	ROUTED TO	R15A	2.	4.05	0.	0.	0.	0.00	2466.07	4.05
+	3 COMBINED AT	CP15	17.	4.08	1.	0.	0.	0.03		
+	HYDROGRAPH AT	ON25A	3.	4.05	0.	0.	0.	0.00		
+	ROUTED TO	R25A	3.	4.08	0.	0.	0.	0.00	2457.12	4.08
+	HYDROGRAPH AT	ON25B	4.	4.07	0.	0.	0.	0.01		
+	ROUTED TO	R25B	4.	4.08	0.	0.	0.	0.01	2457.18	4.08
+	HYDROGRAPH AT	ON25C	1.	4.07	0.	0.	0.	0.00		
+	3 COMBINED AT	CP25	7.	4.08	0.	0.	0.	0.01		
+	HYDROGRAPH AT	OFF35	3.	4.08	0.	0.	0.	0.01		

+	ROUTED TO	R35	3.	4.13	0.	0.	0.	0.01		
+									2457.20	4.13
+	HYDROGRAPH AT	ON65	1.	4.08	0.	0.	0.	0.00		
+	ROUTED TO	S65	0.	0.00	0.	0.	0.	0.00		
+									0.49	8.15
+	ROUTED TO	R65	0.	0.00	0.	0.	0.	0.00		
+									2457.00	0.00
+	HYDROGRAPH AT	ON30	1.	4.10	0.	0.	0.	0.00		
+	3 COMBINED AT	CP30	4.	4.13	0.	0.	0.	0.01		
1	SUMMARY OF DAM OVERTOPPING/BREACH ANALYSIS FOR STATION S50 (PEAKS SHOWN ARE FOR INTERNAL TIME STEP USED DURING BREACH FORMATION)									

PLAN 1		INITIAL VALUE	SPILLWAY CREST	TOP OF DAM			
	ELEVATION	0.00	2.50	3.00			
	STORAGE	0.	0.	1.			
	OUTFLOW	0.	0.	12.			
	RATIO OF PMF	MAXIMUM RESERVOIR W.S.ELEV	MAXIMUM DEPTH OVER DAM	MAXIMUM STORAGE AC-FT	MAXIMUM OUTFLOW CFS	DURATION OVER TOP HOURS	TIME OF MAX OUTFLOW HOURS
	1.00	0.56	0.00	0.	0.	0.00	0.00
1	SUMMARY OF DAM OVERTOPPING/BREACH ANALYSIS FOR STATION S55 (PEAKS SHOWN ARE FOR INTERNAL TIME STEP USED DURING BREACH FORMATION)						

PLAN 1		INITIAL VALUE	SPILLWAY CREST	TOP OF DAM			
	ELEVATION	0.00	2.50	3.00			
	STORAGE	0.	0.	0.			
	OUTFLOW	0.	0.	12.			
	RATIO OF PMF	MAXIMUM RESERVOIR W.S.ELEV	MAXIMUM DEPTH OVER DAM	MAXIMUM STORAGE AC-FT	MAXIMUM OUTFLOW CFS	DURATION OVER TOP HOURS	TIME OF MAX OUTFLOW HOURS
	1.00	2.04	0.00	0.	0.	0.00	0.00
1	SUMMARY OF DAM OVERTOPPING/BREACH ANALYSIS FOR STATION S60 (PEAKS SHOWN ARE FOR INTERNAL TIME STEP USED DURING BREACH FORMATION)						

PLAN 1		INITIAL VALUE	SPILLWAY CREST	TOP OF DAM			
	ELEVATION	0.00	2.50	3.00			
	STORAGE	0.	0.	0.			
	OUTFLOW	0.	0.	12.			
	RATIO OF PMF	MAXIMUM RESERVOIR W.S.ELEV	MAXIMUM DEPTH OVER DAM	MAXIMUM STORAGE AC-FT	MAXIMUM OUTFLOW CFS	DURATION OVER TOP HOURS	TIME OF MAX OUTFLOW HOURS
	1.00	1.18	0.00	0.	0.	0.00	0.00
1	SUMMARY OF DAM OVERTOPPING/BREACH ANALYSIS FOR STATION S65 (PEAKS SHOWN ARE FOR INTERNAL TIME STEP USED DURING BREACH FORMATION)						

PLAN 1		INITIAL VALUE	SPILLWAY CREST	TOP OF DAM			
	ELEVATION	0.00	2.50	3.00			
	STORAGE	0.	0.	1.			
	OUTFLOW	0.	0.	12.			
	RATIO OF PMF	MAXIMUM RESERVOIR W.S.ELEV	MAXIMUM DEPTH OVER DAM	MAXIMUM STORAGE AC-FT	MAXIMUM OUTFLOW CFS	DURATION OVER TOP HOURS	TIME OF MAX OUTFLOW HOURS
	1.00	0.49	0.00	0.	0.	0.00	0.00

*** NORMAL END OF HEC-1 ***


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1*****
*
* FLOOD HYDROGRAPH PACKAGE (HEC-1)
* JUN 1998
* VERSION 4.1
*
* RUN DATE 05AUG22 TIME 10:18:39
*
*****

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*****
*
* U.S. ARMY CORPS OF ENGINEERS
* HYDROLOGIC ENGINEERING CENTER
* 609 SECOND STREET
* DAVIS, CALIFORNIA 95616
* (916) 756-1104
*
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X X XXXXXX XXXX X
X X X X X XX
X X X X X X
XXXXXX XXXX X XXXXX X
X X X X X X
X X X X X X
X X XXXXXX XXXX XXX

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THIS PROGRAM REPLACES ALL PREVIOUS VERSIONS OF HEC-1 KNOWN AS HEC1 (JAN 73), HEC1GS, HEC1DB, AND HEC1KW.

THE DEFINITIONS OF VARIABLES -RTIMP- AND -RTIOR- HAVE CHANGED FROM THOSE USED WITH THE 1973-STYLE INPUT STRUCTURE.
 THE DEFINITION OF -AMSKK- ON RM-CARD WAS CHANGED WITH REVISIONS DATED 28 SEP 81. THIS IS THE FORTRAN77 VERSION
 NEW OPTIONS: DAMBREAK OUTFLOW SUBMERGENCE , SINGLE EVENT DAMAGE CALCULATION, DSS:WRITE STAGE FREQUENCY,
 DSS:READ TIME SERIES AT DESIRED CALCULATION INTERVAL LOSS RATE:GREEN AND AMPT INFILTRATION
 KINEMATIC WAVE: NEW FINITE DIFFERENCE ALGORITHM

1 HEC-1 INPUT PAGE 1

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LINE ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

1 ID Flood Control District of Maricopa County
2 ID STAGECOACH PR - Stagecoach Windmill Proposed
3 ID 10 YEAR
4 ID 6 Hour Storm
5 ID Unit Hydrograph: Clark
6 ID Storm: Single
7 ID 08/05/2022
  *DIAGRAM
8 IT 1 1JAN99 0 2000
9 IO 5
10 IN 15
  *

11 KK OFF10 BASIN
12 BA 0.027
13 PB 2.094
14 PC 0.000 0.008 0.016 0.025 0.033 0.041 0.050 0.058 0.066 0.074
15 PC 0.087 0.099 0.118 0.138 0.216 0.377 0.834 0.911 0.931 0.950
16 PC 0.962 0.972 0.983 0.991 1.000
17 LG 0.32 0.30 5.05 0.28 8
18 UC 0.412 0.661
19 UA 0 5.0 16.0 30.0 65.0 77.0 84.0 90.0 94.0 97.0
20 UA 100
  *

21 KK R10 ROUTE
22 RS 3 FLOW
23 RC 0.050 0.040 0.050 818 0.0140 0.00
24 RX 0.00 40.00 41.00 95.00 108.00 120.00 140.00 165.00
25 RY 2504.0 2500.00 2500.00 2498.00 2498.00 2500.00 250.00 2504.00
  *

26 KK ON50 BASIN
27 BA 0.004
28 LG 0.30 0.25 5.05 0.28 5
29 UC 0.164 0.153
30 UA 0 5.0 16.0 30.0 65.0 77.0 84.0 90.0 94.0 97.0
31 UA 100
  *

32 KK S50 STORAGE
33 KO
34 RS 1 STOR
35 SA 0.1 0.2 0.2 0.3
36 SE 1.00 2.00 3.00
37 SS 2.50 10.00 3.30 1.50
38 SL 2.50 0.20 0.60 0.50
39 ST 3.00 5.00 3.00 1.50
  *

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1 HEC-1 INPUT PAGE 2

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LINE ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

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1

HEC-1 INPUT

PAGE 3

103	LG	0.30	0.26	5.24	0.26	5					
104	UC	0.168	0.188								
105	UA	0	5.0	16.0	30.0	65.0	77.0	84.0	90.0	94.0	97.0
106	UA	100									
	*										
107	KK	ON55	BASIN								
108	BA	0.007									
109	LG	0.30	0.25	5.24	0.26	5					
110	UC	0.268	0.479								
111	UA	0	5.0	16.0	30.0	65.0	77.0	84.0	90.0	94.0	97.0
112	UA	100									
	*										

1

HEC-1 INPUT

PAGE 4

LINE ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

113	KK	S55	STORAGE								
114	KO										
115	RS	1	STOR								
116	SA		0.1	0.1	0.1						
117	SE		1.00	2.00	3.00						
118	SS	2.50	10.00	3.30	1.50						
119	SL	2.50	0.20	0.60	0.50						
120	ST	3.00	5.00	3.00	1.50						
	*										

121	KK	CP40	COMBINE								
122	HC	3									
	*										

123	KK	R0N40D	ROUTE								
124	RS	1	FLOW								
125	RC	0.050	0.040	0.050	1586	0.0153	0.00				
126	RX	0.00	20.00	23.00	36.00	45.00	53.00	55.00	60.00		
127	RY	2454.5	2454.50	2454.23	2450.50	2450.00	2454.10	2454.25	2454.25		
	*										

128	KK	ON60	BASIN								
129	BA	0.003									
130	LG	0.30	0.25	5.05	0.28	5					
131	UC	0.115	0.110								
132	UA	0	5.0	16.0	30.0	65.0	77.0	84.0	90.0	94.0	97.0
133	UA	100									
	*										

134	KK	S60	STORAGE								
135	KO										
136	RS	1	STOR								
137	SA		0.1	0.1	0.2						
138	SE		1.00	2.00	3.00						
139	SS	2.50	10.00	3.30	1.50						
140	SL	2.50	0.20	0.60	0.50						
141	ST	3.00	5.00	3.00	1.50						
	*										

142	KK	ON40C	BASIN								
143	BA	0.004									
144	LG	0.33	0.31	5.05	0.24	2					
145	UC	0.252	0.342								
146	UA	0	5.0	16.0	30.0	65.0	77.0	84.0	90.0	94.0	97.0
147	UA	100									
	*										

148	KK	CP40C	COMBINE								
149	HC	2									
	*										

1

HEC-1 INPUT

PAGE 5

LINE ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

150	KK	R0N40C	ROUTE								
151	RS	1	FLOW								
152	RC	0.050	0.040	0.050	1769	0.0158	0.00				
153	RX	0.00	20.00	23.00	36.00	45.00	53.00	55.00	60.00		
154	RY	2454.5	2454.50	2454.23	2450.50	5450.00	2454.10	2454.25	2454.25		
	*										

155	KK	OFF70	BASIN								
156	BA	0.031									
157	LG	0.30	0.26	5.05	0.31	14					
158	UC	0.301	0.346								
159	UA	0	5.0	16.0	30.0	65.0	77.0	84.0	90.0	94.0	97.0
160	UA	100									
	*										

161	KK	CP70	COMBINE								
162	HC	3									
	*										

163	KK	ON20	BASIN								
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[illegible]

PAGE 6

[illegible]

PAGE 7

223	KK	OFF35	BASIN
224	BA	0.006	

225	LG	0.31	0.27	5.58	0.25	13					
226	UC	0.167	0.237								
227	UA	0	5.0	16.0	30.0	65.0	77.0	84.0	90.0	94.0	97.0
228	UA	100									
	*										
229	KK	R35	ROUTE								
230	RS	2	FLOW								
231	RC	0.050	0.040	0.050	435	0.0230	0.00				
232	RX	0.00	5.00	20.00	25.00	30.00	60.00	100.00	115.00		
233	RY	2460.0	2459.00	2458.00	2457.00	2457.00	2458.00	2459.00	2460.00		
	*										
234	KK	ON65	BASIN								
235	BA	0.003									
236	LG	0.30	0.25	5.71	0.20	5					
237	UC	0.160	0.291								
238	UA	0	5.0	16.0	30.0	65.0	77.0	84.0	90.0	94.0	97.0
239	UA	100									
	*										
240	KK	S65	STORAGE								
241	KO										
242	RS	1	STOR								
243	SA	0.1	0.2	0.2	0.2						
244	SE		1.00	2.00	3.00						
245	SS	2.50	10.00	3.30	1.50						
246	SL	2.50	0.20	0.60	0.50						
247	ST	3.00	5.00	3.00	1.50						
	*										
248	KK	R65	ROUTE								
249	RS	1	FLOW								
250	RC	0.050	0.040	0.050	180	0.0150	0.00				
251	RX	0.00	8.00	18.00	30.00	42.00	51.00	60.00	70.00		
252	RY	2460.0	2459.00	2458.00	2457.00	2457.00	2458.00	2459.00	2460.00		
	*										
253	KK	ON30	BASIN								
254	BA	0.002									
255	LG	0.32	0.30	5.34	0.22	3					
256	UC	0.182	0.305								
257	UA	0	5.0	16.0	30.0	65.0	77.0	84.0	90.0	94.0	97.0
258	UA	100									
	*										

1 HEC-1 INPUT PAGE 8

LINE ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

259	KK	CP30	COMBINE
260	HC	3	
	*		
261	ZZ		

1 SCHEMATIC DIAGRAM OF STREAM NETWORK

INPUT LINE	(V) ROUTING	(--->) DIVERSION OR PUMP FLOW
NO.	(.) CONNECTOR	(<---) RETURN OF DIVERTED OR PUMPED FLOW
11	OFF10	
	V	
	V	
21	R10	
	.	
	.	
26	ON50	
	V	
	V	
32	S50	
	V	
	V	
40	R50	
	.	
	.	
45	ON05A	
	V	
	V	
51	R05A	
	.	
	.	
56	ON05B	
	.	
	.	
62	CP05.....	
	.	
	.	
64	OFF45	
	V	
	V	
70	R45	
	.	

75	.	.	ON40A	.
	.	.	.	.
81	.	CP40A.....	.	.
	.	V	.	.
	.	V	.	.
83	.	R40A	.	.
	.	.	.	.
88	.	.	ON40B	.
	.	.	.	.
94	.	CP40B.....	.	.
	.	V	.	.
	.	V	.	.
96	.	R40B	.	.
	.	.	.	.
101	.	.	ON40D	.
	.	.	.	.
107	.	.	.	ON55
	.	.	.	V
	.	.	.	V
113	.	.	.	S55
	.	.	.	.
121	.	CP40.....	.	.
	.	V	.	.
	.	V	.	.
123	.	R0N40D	.	.
	.	.	.	.
128	.	.	ON60	.
	.	.	V	.
	.	.	V	.
134	.	.	S60	.
	.	.	.	.
142	.	.	.	ON40C
	.	.	.	.
148	.	CP40C.....	.	.
	.	V	.	.
	.	V	.	.
150	.	R0N40C	.	.
	.	.	.	.
155	.	.	OFF70	.
	.	.	.	.
161	.	CP70.....	.	.
	.	.	.	.
163	.	.	ON20	.
	.	.	V	.
	.	.	V	.
169	.	R20	.	.
	.	.	.	.
174	.	.	ON15B	.
	.	.	.	.
180	.	.	.	ON15A
	.	.	.	V
	.	.	.	V
186	.	.	.	R15A
	.	.	.	.
	.	.	.	.
191	.	CP15.....	.	.
	.	.	.	.
193	.	.	ON25A	.
	.	.	V	.
	.	.	V	.
199	.	R25A	.	.
	.	.	.	.
204	.	.	.	ON25B
	.	.	.	V
	.	.	.	V
210	.	.	.	R25B
	.	.	.	.
	.	.	.	.
215	.	.	.	ON25C
	.	.	.	.
	.	.	.	.
221	.	CP25.....	.	.
	.	.	.	.
	.	.	.	.
223	.	.	OFF35	.
	.	.	V	.

229 V
R35
234 ON65
V
240 S65
V
248 R65
253 ON30
259 CP30.....

(***) RUNOFF ALSO COMPUTED AT THIS LOCATION

1*****
*
* FLOOD HYDROGRAPH PACKAGE (HEC-1) *
* JUN 1998 *
* VERSION 4.1 *
* RUN DATE 05AUG22 TIME 10:18:39 *
*

*
* U.S. ARMY CORPS OF ENGINEERS *
* HYDROLOGIC ENGINEERING CENTER *
* 609 SECOND STREET *
* DAVIS, CALIFORNIA 95616 *
* (916) 756-1104 *

Flood Control District of Maricopa County
STAGECOACH PR - Stagecoach Windmill Proposed
10 YEAR
6 Hour Storm
Unit Hydrograph: Clark
Storm: Single
08/05/2022

9 IO OUTPUT CONTROL VARIABLES
IPRNT 5 PRINT CONTROL
IPLOT 0 PLOT CONTROL
QSCAL 0. HYDROGRAPH PLOT SCALE

IT HYDROGRAPH TIME DATA
NMIN 1 MINUTES IN COMPUTATION INTERVAL
IDATE 1JAN99 STARTING DATE
ITIME 0000 STARTING TIME
NQ 2000 NUMBER OF HYDROGRAPH ORDINATES
NDDATE 2JAN99 ENDING DATE
NDTIME 0919 ENDING TIME
ICENT 19 CENTURY MARK

COMPUTATION INTERVAL 0.02 HOURS
TOTAL TIME BASE 33.32 HOURS

ENGLISH UNITS
DRAINAGE AREA SQUARE MILES
PRECIPITATION DEPTH INCHES
LENGTH, ELEVATION FEET
FLOW CUBIC FEET PER SECOND
STORAGE VOLUME ACRE-FEET
SURFACE AREA ACRES
TEMPERATURE DEGREES FAHRENHEIT

*** ** ** ** **

*
32 KK * S50 * STORAGE
*

33 KO OUTPUT CONTROL VARIABLES
IPRNT 5 PRINT CONTROL
IPLOT 0 PLOT CONTROL
QSCAL 0. HYDROGRAPH PLOT SCALE

*** ** ** ** * **

*
113 KK * S55 * STORAGE
*

114 K0 OUTPUT CONTROL VARIABLES
 IPRNT 5 PRINT CONTROL
 IPLOT 0 PLOT CONTROL
 QSCAL 0. HYDROGRAPH PLOT SCALE

*** **

134 KK *****
 * *
 * S60 * STORAGE
 * *

135 K0 OUTPUT CONTROL VARIABLES
 IPRNT 5 PRINT CONTROL
 IPLOT 0 PLOT CONTROL
 QSCAL 0. HYDROGRAPH PLOT SCALE

*** **

240 KK *****
 * *
 * S65 * STORAGE
 * *

241 K0 OUTPUT CONTROL VARIABLES
 IPRNT 5 PRINT CONTROL
 IPLOT 0 PLOT CONTROL
 QSCAL 0. HYDROGRAPH PLOT SCALE

1

RUNOFF SUMMARY
 FLOW IN CUBIC FEET PER SECOND
 TIME IN HOURS, AREA IN SQUARE MILES

+	OPERATION	STATION	PEAK FLOW	TIME OF PEAK	AVERAGE FLOW FOR MAXIMUM PERIOD			BASIN AREA	MAXIMUM STAGE	TIME OF MAX STAGE
					6-HOUR	24-HOUR	72-HOUR			
+	HYDROGRAPH AT									
+		OFF10	14.	4.20	2.	1.	0.	0.03		
+	ROUTED TO									
+		R10	14.	4.30	2.	1.	0.	0.03	254.68	4.30
+	HYDROGRAPH AT									
+		ON50	6.	4.05	0.	0.	0.	0.00		
+	ROUTED TO									
+		S50	0.	0.00	0.	0.	0.	0.00	1.10	6.85
+	ROUTED TO									
+		R50	0.	0.00	0.	0.	0.	0.00	2498.00	0.00
+	HYDROGRAPH AT									
+		ON05A	4.	4.05	0.	0.	0.	0.00		
+	ROUTED TO									
+		R05A	4.	4.08	0.	0.	0.	0.00	2498.09	4.08
+	HYDROGRAPH AT									
+		ON05B	16.	4.02	1.	0.	0.	0.01		
+	4 COMBINED AT									
+		CP05	24.	4.05	3.	1.	1.	0.04		
+	HYDROGRAPH AT									
+		OFF45	52.	4.12	5.	1.	1.	0.05		
+	ROUTED TO									
+		R45	52.	4.12	5.	1.	1.	0.05	2498.18	4.12
+	HYDROGRAPH AT									
+		ON40A	1.	4.12	0.	0.	0.	0.00		
+	2 COMBINED AT									
+		CP40A	53.	4.12	5.	1.	1.	0.05		
+	ROUTED TO									
+		R40A	53.	4.13	5.	1.	1.	0.05	2497.89	4.13

+	HYDROGRAPH AT	ON40B	3.	4.03	0.	0.	0.	0.00		
+	2 COMBINED AT	CP40B	55.	4.13	5.	1.	1.	0.06		
+	ROUTED TO	R40B	54.	4.15	5.	1.	1.	0.06	2497.97	4.15
+	HYDROGRAPH AT	ON40D	5.	4.05	0.	0.	0.	0.00		
+	HYDROGRAPH AT	ON55	5.	4.12	1.	0.	0.	0.01		
+	ROUTED TO	S55	2.	4.65	0.	0.	0.	0.01	2.63	4.65
+	3 COMBINED AT	CP40	58.	4.15	6.	1.	1.	0.07		
+	ROUTED TO	R0N40D	52.	4.23	6.	1.	1.	0.07	2451.32	4.23
+	HYDROGRAPH AT	ON60	5.	4.02	0.	0.	0.	0.00		
+	ROUTED TO	S60	0.	0.00	0.	0.	0.	0.00	1.87	6.62
+	HYDROGRAPH AT	ON40C	4.	4.10	0.	0.	0.	0.00		
+	2 COMBINED AT	CP40C	4.	4.10	0.	0.	0.	0.01		
+	ROUTED TO	R0N40C	4.	4.10	0.	0.	0.	0.01	2450.50	4.03
+	HYDROGRAPH AT	OFF70	28.	4.12	3.	1.	1.	0.03		
+	3 COMBINED AT	CP70	79.	4.20	9.	2.	2.	0.11		
+	HYDROGRAPH AT	ON20	8.	4.08	1.	0.	0.	0.01		
+	ROUTED TO	R20	6.	4.20	1.	0.	0.	0.01	2487.05	4.18
+	HYDROGRAPH AT	ON15B	34.	4.05	2.	1.	0.	0.02		
+	HYDROGRAPH AT	ON15A	4.	4.02	0.	0.	0.	0.00		
+	ROUTED TO	R15A	4.	4.03	0.	0.	0.	0.00	2466.15	4.03
+	3 COMBINED AT	CP15	42.	4.05	3.	1.	1.	0.03		
+	HYDROGRAPH AT	ON25A	7.	4.02	0.	0.	0.	0.00		
+	ROUTED TO	R25A	7.	4.03	0.	0.	0.	0.00	2457.21	4.03
+	HYDROGRAPH AT	ON25B	9.	4.03	1.	0.	0.	0.01		
+	ROUTED TO	R25B	9.	4.05	1.	0.	0.	0.01	2457.30	4.05
+	HYDROGRAPH AT	ON25C	1.	4.03	0.	0.	0.	0.00		
+	3 COMBINED AT	CP25	17.	4.05	1.	0.	0.	0.01		
+	HYDROGRAPH AT	OFF35	7.	4.05	1.	0.	0.	0.01		

+	ROUTED TO	R35	7.	4.10	1.	0.	0.	0.01		
+									2457.33	4.10
+	HYDROGRAPH AT	ON65	3.	4.05	0.	0.	0.	0.00		
+	ROUTED TO	S65	0.	0.00	0.	0.	0.	0.00		
+									0.89	7.58
+	ROUTED TO	R65	0.	0.00	0.	0.	0.	0.00		
+									2457.00	0.00
+	HYDROGRAPH AT	ON30	2.	4.07	0.	0.	0.	0.00		
+	3 COMBINED AT	CP30	9.	4.08	1.	0.	0.	0.01		
1	SUMMARY OF DAM OVERTOPPING/BREACH ANALYSIS FOR STATION S50 (PEAKS SHOWN ARE FOR INTERNAL TIME STEP USED DURING BREACH FORMATION)									

PLAN 1		INITIAL VALUE	SPILLWAY CREST		TOP OF DAM			
	ELEVATION	0.00	2.50		3.00			
	STORAGE	0.	0.		1.			
	OUTFLOW	0.	0.		12.			
	RATIO OF PMF	MAXIMUM RESERVOIR W.S.ELEV	MAXIMUM DEPTH OVER DAM	MAXIMUM STORAGE AC-FT	MAXIMUM OUTFLOW CFS	DURATION OVER TOP HOURS	TIME OF MAX OUTFLOW HOURS	TIME OF FAILURE HOURS
1	1.00	1.10	0.00	0.	0.	0.00	0.00	0.00
	SUMMARY OF DAM OVERTOPPING/BREACH ANALYSIS FOR STATION S55 (PEAKS SHOWN ARE FOR INTERNAL TIME STEP USED DURING BREACH FORMATION)							

PLAN 1		INITIAL VALUE	SPILLWAY CREST		TOP OF DAM			
	ELEVATION	0.00	2.50		3.00			
	STORAGE	0.	0.		0.			
	OUTFLOW	0.	0.		12.			
	RATIO OF PMF	MAXIMUM RESERVOIR W.S.ELEV	MAXIMUM DEPTH OVER DAM	MAXIMUM STORAGE AC-FT	MAXIMUM OUTFLOW CFS	DURATION OVER TOP HOURS	TIME OF MAX OUTFLOW HOURS	TIME OF FAILURE HOURS
1	1.00	2.63	0.00	0.	2.	0.00	4.65	0.00
	SUMMARY OF DAM OVERTOPPING/BREACH ANALYSIS FOR STATION S60 (PEAKS SHOWN ARE FOR INTERNAL TIME STEP USED DURING BREACH FORMATION)							

PLAN 1		INITIAL VALUE	SPILLWAY CREST		TOP OF DAM			
	ELEVATION	0.00	2.50		3.00			
	STORAGE	0.	0.		0.			
	OUTFLOW	0.	0.		12.			
	RATIO OF PMF	MAXIMUM RESERVOIR W.S.ELEV	MAXIMUM DEPTH OVER DAM	MAXIMUM STORAGE AC-FT	MAXIMUM OUTFLOW CFS	DURATION OVER TOP HOURS	TIME OF MAX OUTFLOW HOURS	TIME OF FAILURE HOURS
1	1.00	1.87	0.00	0.	0.	0.00	0.00	0.00
	SUMMARY OF DAM OVERTOPPING/BREACH ANALYSIS FOR STATION S65 (PEAKS SHOWN ARE FOR INTERNAL TIME STEP USED DURING BREACH FORMATION)							

PLAN 1		INITIAL VALUE	SPILLWAY CREST		TOP OF DAM			
	ELEVATION	0.00	2.50		3.00			
	STORAGE	0.	0.		1.			
	OUTFLOW	0.	0.		12.			
	RATIO OF PMF	MAXIMUM RESERVOIR W.S.ELEV	MAXIMUM DEPTH OVER DAM	MAXIMUM STORAGE AC-FT	MAXIMUM OUTFLOW CFS	DURATION OVER TOP HOURS	TIME OF MAX OUTFLOW HOURS	TIME OF FAILURE HOURS
	1.00	0.89	0.00	0.	0.	0.00	0.00	0.00

*** NORMAL END OF HEC-1 ***


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1*****
*
* FLOOD HYDROGRAPH PACKAGE (HEC-1)
* JUN 1998
* VERSION 4.1
*
* RUN DATE 05AUG22 TIME 10:18:40
*
*****

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*****
*
* U.S. ARMY CORPS OF ENGINEERS
* HYDROLOGIC ENGINEERING CENTER
* 609 SECOND STREET
* DAVIS, CALIFORNIA 95616
* (916) 756-1104
*
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X X XXXXXX XXXX X
X X X X X XX
X X X X X X
XXXXXX XXXX X XXXXX X
X X X X X X
X X X X X X
X X XXXXXX XXXX XXX

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THIS PROGRAM REPLACES ALL PREVIOUS VERSIONS OF HEC-1 KNOWN AS HEC1 (JAN 73), HEC1GS, HEC1DB, AND HEC1KW.

THE DEFINITIONS OF VARIABLES -RTIMP- AND -RTIOR- HAVE CHANGED FROM THOSE USED WITH THE 1973-STYLE INPUT STRUCTURE. THE DEFINITION OF -AMSKK- ON RM-CARD WAS CHANGED WITH REVISIONS DATED 28 SEP 81. THIS IS THE FORTRAN77 VERSION
 NEW OPTIONS: DAMBREAK OUTFLOW SUBMERGENCE , SINGLE EVENT DAMAGE CALCULATION, DSS:WRITE STAGE FREQUENCY,
 DSS:READ TIME SERIES AT DESIRED CALCULATION INTERVAL LOSS RATE:GREEN AND AMPT INFILTRATION
 KINEMATIC WAVE: NEW FINITE DIFFERENCE ALGORITHM

1 HEC-1 INPUT PAGE 1

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LINE ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

1 ID Flood Control District of Maricopa County
2 ID STAGECOACH PR - Stagecoach Windmill Proposed
3 ID 100 YEAR
4 ID 6 Hour Storm
5 ID Unit Hydrograph: Clark
6 ID Storm: Single
7 ID 08/05/2022
  *DIAGRAM
8 IT 1 1JAN99 0 2000
9 IO 5
10 IN 15
  *

11 KK OFF10 BASIN
12 BA 0.027
13 PB 3.183
14 PC 0.000 0.008 0.016 0.025 0.033 0.041 0.050 0.058 0.066 0.074
15 PC 0.087 0.099 0.118 0.138 0.216 0.377 0.834 0.911 0.931 0.950
16 PC 0.962 0.972 0.983 0.991 1.000
17 LG 0.32 0.30 5.05 0.28 8
18 UC 0.314 0.489
19 UA 0 5.0 16.0 30.0 65.0 77.0 84.0 90.0 94.0 97.0
20 UA 100
  *

21 KK R10 ROUTE
22 RS 3 FLOW
23 RC 0.050 0.040 0.050 818 0.0140 0.00
24 RX 0.00 40.00 41.00 95.00 108.00 120.00 140.00 165.00
25 RY 2504.0 2500.00 2500.00 2498.00 2498.00 2500.00 250.00 2504.00
  *

26 KK ON50 BASIN
27 BA 0.004
28 LG 0.30 0.25 5.05 0.28 5
29 UC 0.125 0.113
30 UA 0 5.0 16.0 30.0 65.0 77.0 84.0 90.0 94.0 97.0
31 UA 100
  *

32 KK S50 STORAGE
33 KO
34 RS 1 STOR
35 SA 0.1 0.2 0.2 0.3
36 SE 1.00 2.00 3.00
37 SS 2.50 10.00 3.30 1.50
38 SL 2.50 0.20 0.60 0.50
39 ST 3.00 5.00 3.00 1.50
  *

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1 HEC-1 INPUT PAGE 2

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LINE ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

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1

HEC-1 INPUT

PAGE 3

103	LG	0.30	0.26	5.24	0.26	5					
104	UC	0.128	0.139								
105	UA	0	5.0	16.0	30.0	65.0	77.0	84.0	90.0	94.0	97.0
106	UA	100									
	*										
107	KK	ON55	BASIN								
108	BA	0.007									
109	LG	0.30	0.25	5.24	0.26	5					
110	UC	0.204	0.354								
111	UA	0	5.0	16.0	30.0	65.0	77.0	84.0	90.0	94.0	97.0
112	UA	100									
	*										

1

HEC-1 INPUT

PAGE 4

LINE	ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10
------	---

113	KK	S55 STORAGE									
114	KO										
115	RS	1	STOR								
116	SA		0.1	0.1	0.1						
117	SE		1.00	2.00	3.00						
118	SS	2.50	10.00	3.30	1.50						
119	SL	2.50	0.20	0.60	0.50						
120	ST	3.00	5.00	3.00	1.50						
	*										

121	KK	CP40 COMBINE									
122	HC	3									
	*										

123	KK	R0N40D	ROUTE								
124	RS	1	FLOW								
125	RC	0.050	0.040	0.050	1586	0.0153	0.00				
126	RX	0.00	20.00	23.00	36.00	45.00	53.00	55.00	60.00		
127	RY	2454.5	2454.50	2454.23	2450.50	2450.00	2454.10	2454.25	2454.25		
	*										

128	KK	ON60	BASIN								
129	BA	0.003									
130	LG	0.30	0.25	5.05	0.28	5					
131	UC	0.088	0.081								
132	UA	0	5.0	16.0	30.0	65.0	77.0	84.0	90.0	94.0	97.0
133	UA	100									
	*										

134	KK	S60 STORAGE									
135	KO										
136	RS	1	STOR								
137	SA		0.1	0.1	0.2						
138	SE		1.00	2.00	3.00						
139	SS	2.50	10.00	3.30	1.50						
140	SL	2.50	0.20	0.60	0.50						
141	ST	3.00	5.00	3.00	1.50						
	*										

142	KK	ON40C	BASIN								
143	BA	0.004									
144	LG	0.33	0.31	5.05	0.24	2					
145	UC	0.190	0.250								
146	UA	0	5.0	16.0	30.0	65.0	77.0	84.0	90.0	94.0	97.0
147	UA	100									
	*										

148	KK	CP40C COMBINE									
149	HC	2									
	*										

1

HEC-1 INPUT

PAGE 5

LINE	ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10
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150	KK	R0N40C	ROUTE								
151	RS	1	FLOW								
152	RC	0.050	0.040	0.050	1769	0.0158	0.00				
153	RX	0.00	20.00	23.00	36.00	45.00	53.00	55.00	60.00		
154	RY	2454.5	2454.50	2454.23	2450.50	5450.00	2454.10	2454.25	2454.25		
	*										

155	KK	OFF70	BASIN								
156	BA	0.031									
157	LG	0.30	0.26	5.05	0.31	14					
158	UC	0.232	0.260								
159	UA	0	5.0	16.0	30.0	65.0	77.0	84.0	90.0	94.0	97.0
160	UA	100									
	*										

161	KK	CP70 COMBINE									
162	HC	3									
	*										

163	KK	ON20	BASIN								
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[illegible]

PAGE 6

[illegible]

PAGE 7

223	KK	OFF35	BASIN
224	BA	0.006	

225	LG	0.31	0.27	5.58	0.25	13					
226	UC	0.129	0.178								
227	UA	0	5.0	16.0	30.0	65.0	77.0	84.0	90.0	94.0	97.0
228	UA	100									
	*										
229	KK	R35	ROUTE								
230	RS	2	FLOW								
231	RC	0.050	0.040	0.050	435	0.0230	0.00				
232	RX	0.00	5.00	20.00	25.00	30.00	60.00	100.00	115.00		
233	RY	2460.0	2459.00	2458.00	2457.00	2457.00	2458.00	2459.00	2460.00		
	*										
234	KK	ON65	BASIN								
235	BA	0.003									
236	LG	0.30	0.25	5.71	0.20	5					
237	UC	0.123	0.216								
238	UA	0	5.0	16.0	30.0	65.0	77.0	84.0	90.0	94.0	97.0
239	UA	100									
	*										
240	KK	S65	STORAGE								
241	KO										
242	RS	1	STOR								
243	SA	0.1	0.2	0.2	0.2						
244	SE		1.00	2.00	3.00						
245	SS	2.50	10.00	3.30	1.50						
246	SL	2.50	0.20	0.60	0.50						
247	ST	3.00	5.00	3.00	1.50						
	*										
248	KK	R65	ROUTE								
249	RS	1	FLOW								
250	RC	0.050	0.040	0.050	180	0.0150	0.00				
251	RX	0.00	8.00	18.00	30.00	42.00	51.00	60.00	70.00		
252	RY	2460.0	2459.00	2458.00	2457.00	2457.00	2458.00	2459.00	2460.00		
	*										
253	KK	ON30	BASIN								
254	BA	0.002									
255	LG	0.32	0.30	5.34	0.22	3					
256	UC	0.137	0.224								
257	UA	0	5.0	16.0	30.0	65.0	77.0	84.0	90.0	94.0	97.0
258	UA	100									
	*										

1 HEC-1 INPUT PAGE 8

LINE ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

259	KK	CP30	COMBINE
260	HC	3	
	*		
261	ZZ		

1 SCHEMATIC DIAGRAM OF STREAM NETWORK

INPUT LINE	(V) ROUTING	(--->) DIVERSION OR PUMP FLOW
NO.	(.) CONNECTOR	(<---) RETURN OF DIVERTED OR PUMPED FLOW
11	OFF10	
	V	
	V	
21	R10	
	.	
	.	
26	ON50	
	V	
	V	
32	S50	
	V	
	V	
40	R50	
	.	
	.	
45	ON05A	
	V	
	V	
51	R05A	
	.	
	.	
56	ON05B	
	.	
	.	
62	CP05.....	
	.	
	.	
64	OFF45	
	V	
	V	
70	R45	
	.	

75	.	.	ON40A	.	
	.	.	.	.	
81	.	CP40A.....	.	.	
	.	V	.	.	
	.	V	.	.	
83	.	R40A	.	.	
	.	.	.	.	
88	.	.	ON40B	.	
	.	.	.	.	
94	.	CP40B.....	.	.	
	.	V	.	.	
	.	V	.	.	
96	.	R40B	.	.	
	.	.	.	.	
101	.	.	ON40D	.	
	.	.	.	.	
107	.	.	.	ON55	
	.	.	.	V	
	.	.	.	V	
113	.	.	.	S55	
	.	.	.	.	
121	.	CP40.....	.	.	
	.	V	.	.	
	.	V	.	.	
123	.	R0N40D	.	.	
	.	.	.	.	
128	.	.	ON60	.	
	.	.	V	.	
	.	.	V	.	
134	.	.	S60	.	
	.	.	.	.	
142	.	.	.	ON40C	
	.	.	.	.	
148	.	.	CP40C.....	.	
	.	.	V	.	
	.	.	V	.	
150	.	.	R0N40C	.	
	.	.	.	.	
155	.	.	.	OFF70	
	.	.	.	.	
161	.	CP70.....	.	.	
	.	.	.	.	
163	.	.	ON20	.	
	.	.	V	.	
	.	.	V	.	
169	.	.	R20	.	
	.	.	.	.	
174	.	.	.	ON15B	
	.	.	.	.	
180	.	.	.	ON15A	
	.	.	.	V	
	.	.	.	V	
186	.	.	.	R15A	
	.	.	.	.	
	.	.	.	.	
191	.	.	CP15.....	.	
	.	.	.	.	
193	.	.	.	ON25A	
	.	.	.	V	
	.	.	.	V	
199	.	.	.	R25A	
	.	.	.	.	
204	.	.	.	ON25B	
	.	.	.	V	
	.	.	.	V	
210	.	.	.	R25B	
	.	.	.	.	
	.	.	.	.	
215	.	.	.	.	ON25C
	.	.	.	.	.
	.	.	.	.	.
221	.	.	.	CP25.....	.
	.	.	.	.	.
	.	.	.	.	.
223	.	.	.	.	OFF35
	.	.	.	.	V

229 V
R35
234 ON65
V
240 S65
V
248 R65
253 ON30
259 CP30.....

(***) RUNOFF ALSO COMPUTED AT THIS LOCATION

1*****
*
* FLOOD HYDROGRAPH PACKAGE (HEC-1) *
* JUN 1998 *
* VERSION 4.1 *
* RUN DATE 05AUG22 TIME 10:18:40 *

*
* U.S. ARMY CORPS OF ENGINEERS *
* HYDROLOGIC ENGINEERING CENTER *
* 609 SECOND STREET *
* DAVIS, CALIFORNIA 95616 *
* (916) 756-1104 *

Flood Control District of Maricopa County
STAGECOACH PR - Stagecoach Windmill Proposed
100 YEAR
6 Hour Storm
Unit Hydrograph: Clark
Storm: Single
08/05/2022

9 IO OUTPUT CONTROL VARIABLES
IPRNT 5 PRINT CONTROL
IPLOT 0 PLOT CONTROL
QSCAL 0. HYDROGRAPH PLOT SCALE

IT HYDROGRAPH TIME DATA
NMIN 1 MINUTES IN COMPUTATION INTERVAL
IDATE 1JAN99 STARTING DATE
ITIME 0000 STARTING TIME
NQ 2000 NUMBER OF HYDROGRAPH ORDINATES
NDDATE 2JAN99 ENDING DATE
NDTIME 0919 ENDING TIME
ICENT 19 CENTURY MARK

COMPUTATION INTERVAL 0.02 HOURS
TOTAL TIME BASE 33.32 HOURS

ENGLISH UNITS
DRAINAGE AREA SQUARE MILES
PRECIPITATION DEPTH INCHES
LENGTH, ELEVATION FEET
FLOW CUBIC FEET PER SECOND
STORAGE VOLUME ACRE-FEET
SURFACE AREA ACRES
TEMPERATURE DEGREES FAHRENHEIT

*** ** ** ** **

*
32 KK * S50 * STORAGE
*

33 KO OUTPUT CONTROL VARIABLES
IPRNT 5 PRINT CONTROL
IPLOT 0 PLOT CONTROL
QSCAL 0. HYDROGRAPH PLOT SCALE

*** ** ** **~

*
113 KK * S55 * STORAGE
*

114 K0 OUTPUT CONTROL VARIABLES
 IPRNT 5 PRINT CONTROL
 IPLOT 0 PLOT CONTROL
 QSCAL 0. HYDROGRAPH PLOT SCALE

*** **

134 KK *****
 * *
 * S60 * STORAGE
 * *

135 K0 OUTPUT CONTROL VARIABLES
 IPRNT 5 PRINT CONTROL
 IPLOT 0 PLOT CONTROL
 QSCAL 0. HYDROGRAPH PLOT SCALE

*** **

240 KK *****
 * *
 * S65 * STORAGE
 * *

241 K0 OUTPUT CONTROL VARIABLES
 IPRNT 5 PRINT CONTROL
 IPLOT 0 PLOT CONTROL
 QSCAL 0. HYDROGRAPH PLOT SCALE

1

RUNOFF SUMMARY
 FLOW IN CUBIC FEET PER SECOND
 TIME IN HOURS, AREA IN SQUARE MILES

	OPERATION	STATION	PEAK FLOW	TIME OF PEAK	AVERAGE FLOW FOR MAXIMUM PERIOD			BASIN AREA	MAXIMUM STAGE	TIME OF MAX STAGE
					6-HOUR	24-HOUR	72-HOUR			
+	HYDROGRAPH AT									
+		OFF10	35.	4.13	5.	1.	1.	0.03		
+	ROUTED TO									
+		R10	34.	4.23	5.	1.	1.	0.03	261.54	4.23
+	HYDROGRAPH AT									
+		ON50	12.	4.02	1.	0.	0.	0.00		
+	ROUTED TO									
+		S50	0.	0.00	0.	0.	0.	0.00	2.00	6.63
+	ROUTED TO									
+		R50	0.	0.00	0.	0.	0.	0.00	2498.00	0.00
+	HYDROGRAPH AT									
+		ON05A	8.	4.02	1.	0.	0.	0.00		
+	ROUTED TO									
+		R05A	8.	4.05	1.	0.	0.	0.00	2498.19	4.05
+	HYDROGRAPH AT									
+		ON05B	29.	4.00	2.	0.	0.	0.01		
+	4 COMBINED AT									
+		CP05	54.	4.03	7.	2.	1.	0.04		
+	HYDROGRAPH AT									
+		OFF45	116.	4.07	9.	2.	2.	0.05		
+	ROUTED TO									
+		R45	116.	4.08	9.	2.	2.	0.05	2498.71	4.08
+	HYDROGRAPH AT									
+		ON40A	3.	4.08	0.	0.	0.	0.00		
+	2 COMBINED AT									
+		CP40A	119.	4.08	10.	2.	2.	0.05		
+	ROUTED TO									
+		R40A	118.	4.10	10.	2.	2.	0.05	2498.32	4.10

+	HYDROGRAPH AT	ON40B	6.	4.02	0.	0.	0.	0.00		
+	2 COMBINED AT	CP40B	122.	4.08	10.	3.	2.	0.06		
+	ROUTED TO	R40B	121.	4.10	10.	3.	2.	0.06	2498.42	4.10
+	HYDROGRAPH AT	ON40D	11.	4.03	1.	0.	0.	0.00		
+	HYDROGRAPH AT	ON55	12.	4.07	1.	0.	0.	0.01		
+	ROUTED TO	S55	10.	4.18	1.	0.	0.	0.01	2.94	4.18
+	3 COMBINED AT	CP40	136.	4.12	12.	3.	2.	0.07		
+	ROUTED TO	R0N40D	126.	4.17	12.	3.	2.	0.07	2452.00	4.17
+	HYDROGRAPH AT	ON60	9.	4.00	1.	0.	0.	0.00		
+	ROUTED TO	S60	2.	4.18	0.	0.	0.	0.00	2.65	4.18
+	HYDROGRAPH AT	ON40C	8.	4.07	1.	0.	0.	0.00		
+	2 COMBINED AT	CP40C	9.	4.12	1.	0.	0.	0.01		
+	ROUTED TO	R0N40C	9.	4.12	1.	0.	0.	0.01	2450.50	4.08
+	HYDROGRAPH AT	OFF70	62.	4.08	6.	1.	1.	0.03		
+	3 COMBINED AT	CP70	190.	4.15	18.	5.	3.	0.11		
+	HYDROGRAPH AT	ON20	17.	4.05	1.	0.	0.	0.01		
+	ROUTED TO	R20	13.	4.15	1.	0.	0.	0.01	2487.11	4.13
+	HYDROGRAPH AT	ON15B	67.	4.02	4.	1.	1.	0.02		
+	HYDROGRAPH AT	ON15A	7.	4.00	0.	0.	0.	0.00		
+	ROUTED TO	R15A	6.	4.02	0.	0.	0.	0.00	2466.24	4.02
+	3 COMBINED AT	CP15	84.	4.03	6.	1.	1.	0.03		
+	HYDROGRAPH AT	ON25A	13.	4.02	1.	0.	0.	0.00		
+	ROUTED TO	R25A	12.	4.02	1.	0.	0.	0.00	2457.31	4.02
+	HYDROGRAPH AT	ON25B	18.	4.02	1.	0.	0.	0.01		
+	ROUTED TO	R25B	18.	4.03	1.	0.	0.	0.01	2457.44	4.03
+	HYDROGRAPH AT	ON25C	3.	4.02	0.	0.	0.	0.00		
+	3 COMBINED AT	CP25	33.	4.03	2.	1.	0.	0.01		
+	HYDROGRAPH AT	OFF35	15.	4.03	1.	0.	0.	0.01		

+	ROUTED TO	R35	15.	4.07	1.	0.	0.	0.01		
+									2457.46	4.07
+	HYDROGRAPH AT	ON65	7.	4.03	1.	0.	0.	0.00		
+	ROUTED TO	S65	0.	0.00	0.	0.	0.	0.00		
+									1.65	7.17
+	ROUTED TO	R65	0.	0.00	0.	0.	0.	0.00		
+									2457.00	0.00
+	HYDROGRAPH AT	ON30	5.	4.03	0.	0.	0.	0.00		
+	3 COMBINED AT	CP30	19.	4.05	2.	0.	0.	0.01		
1	SUMMARY OF DAM OVERTOPPING/BREACH ANALYSIS FOR STATION S50 (PEAKS SHOWN ARE FOR INTERNAL TIME STEP USED DURING BREACH FORMATION)									

PLAN 1		INITIAL VALUE	SPILLWAY CREST		TOP OF DAM			
	ELEVATION	0.00	2.50		3.00			
	STORAGE	0.	0.		1.			
	OUTFLOW	0.	0.		12.			
	RATIO OF PMF	MAXIMUM RESERVOIR W.S.ELEV	MAXIMUM DEPTH OVER DAM	MAXIMUM STORAGE AC-FT	MAXIMUM OUTFLOW CFS	DURATION OVER TOP HOURS	TIME OF MAX OUTFLOW HOURS	TIME OF FAILURE HOURS
1	1.00	2.00	0.00	0.	0.	0.00	0.00	0.00
	SUMMARY OF DAM OVERTOPPING/BREACH ANALYSIS FOR STATION S55 (PEAKS SHOWN ARE FOR INTERNAL TIME STEP USED DURING BREACH FORMATION)							

PLAN 1		INITIAL VALUE	SPILLWAY CREST		TOP OF DAM			
	ELEVATION	0.00	2.50		3.00			
	STORAGE	0.	0.		0.			
	OUTFLOW	0.	0.		12.			
	RATIO OF PMF	MAXIMUM RESERVOIR W.S.ELEV	MAXIMUM DEPTH OVER DAM	MAXIMUM STORAGE AC-FT	MAXIMUM OUTFLOW CFS	DURATION OVER TOP HOURS	TIME OF MAX OUTFLOW HOURS	TIME OF FAILURE HOURS
1	1.00	2.94	0.00	0.	10.	0.00	4.18	0.00
	SUMMARY OF DAM OVERTOPPING/BREACH ANALYSIS FOR STATION S60 (PEAKS SHOWN ARE FOR INTERNAL TIME STEP USED DURING BREACH FORMATION)							

PLAN 1		INITIAL VALUE	SPILLWAY CREST		TOP OF DAM			
	ELEVATION	0.00	2.50		3.00			
	STORAGE	0.	0.		0.			
	OUTFLOW	0.	0.		12.			
	RATIO OF PMF	MAXIMUM RESERVOIR W.S.ELEV	MAXIMUM DEPTH OVER DAM	MAXIMUM STORAGE AC-FT	MAXIMUM OUTFLOW CFS	DURATION OVER TOP HOURS	TIME OF MAX OUTFLOW HOURS	TIME OF FAILURE HOURS
1	1.00	2.65	0.00	0.	2.	0.00	4.18	0.00
	SUMMARY OF DAM OVERTOPPING/BREACH ANALYSIS FOR STATION S65 (PEAKS SHOWN ARE FOR INTERNAL TIME STEP USED DURING BREACH FORMATION)							

PLAN 1		INITIAL VALUE	SPILLWAY CREST		TOP OF DAM			
	ELEVATION	0.00	2.50		3.00			
	STORAGE	0.	0.		1.			
	OUTFLOW	0.	0.		12.			
	RATIO OF PMF	MAXIMUM RESERVOIR W.S.ELEV	MAXIMUM DEPTH OVER DAM	MAXIMUM STORAGE AC-FT	MAXIMUM OUTFLOW CFS	DURATION OVER TOP HOURS	TIME OF MAX OUTFLOW HOURS	TIME OF FAILURE HOURS
	1.00	1.65	0.00	0.	0.	0.00	0.00	0.00

*** NORMAL END OF HEC-1 ***

Appendix C – Proposed Hydraulics

- Proposed Depth Exhibit
- Proposed Terrain Exhibit
- Proposed Velocity Exhibit
- * Hydroflow Culvert Analysis

THIS DOCUMENT, TOGETHER WITH THE CONCEPTS AND DESIGNS PRESENTED HEREIN, AS AN INSTRUMENT OF SERVICE, IS INTENDED ONLY FOR THE SPECIFIC PURPOSE AND CLIENT FOR WHICH IT WAS PREPARED. REUSE OF AND IMPROPER RELIANCE ON THIS DOCUMENT WITHOUT WRITTEN AUTHORIZATION AND ADAPTATION BY KIMLEY-HORN AND ASSOCIATES, INC. SHALL BE WITHOUT LIABILITY TO KIMLEY-HORN AND ASSOCIATES, INC.

Legend

- Boundary Conditions

Maximum Depth

0 - 0.1
0.1 - 0.5
0.5 - 1
1 - 2
2 - 4

0 20 40 80 Feet

N

E Arroyo Hondo Rd

100 YR INFLOW (113 CFS)

Is this the 2' culvert?

EXIT

7 8 9 10 11 12

12

EXIT

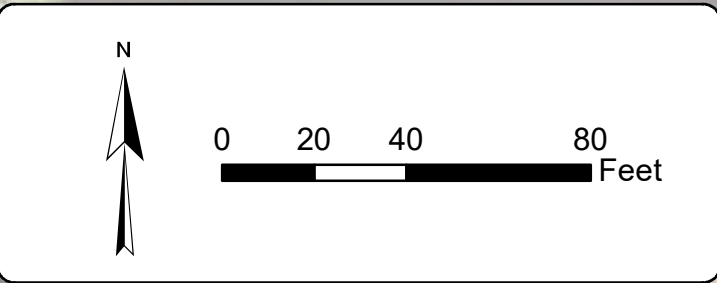
Legend

Boundary Conditions

Maximum Depth

0 - 0.1
0.1 - 0.5
0.5 - 1
1 - 2
2 - 4

E Arroyo Hondo Rd



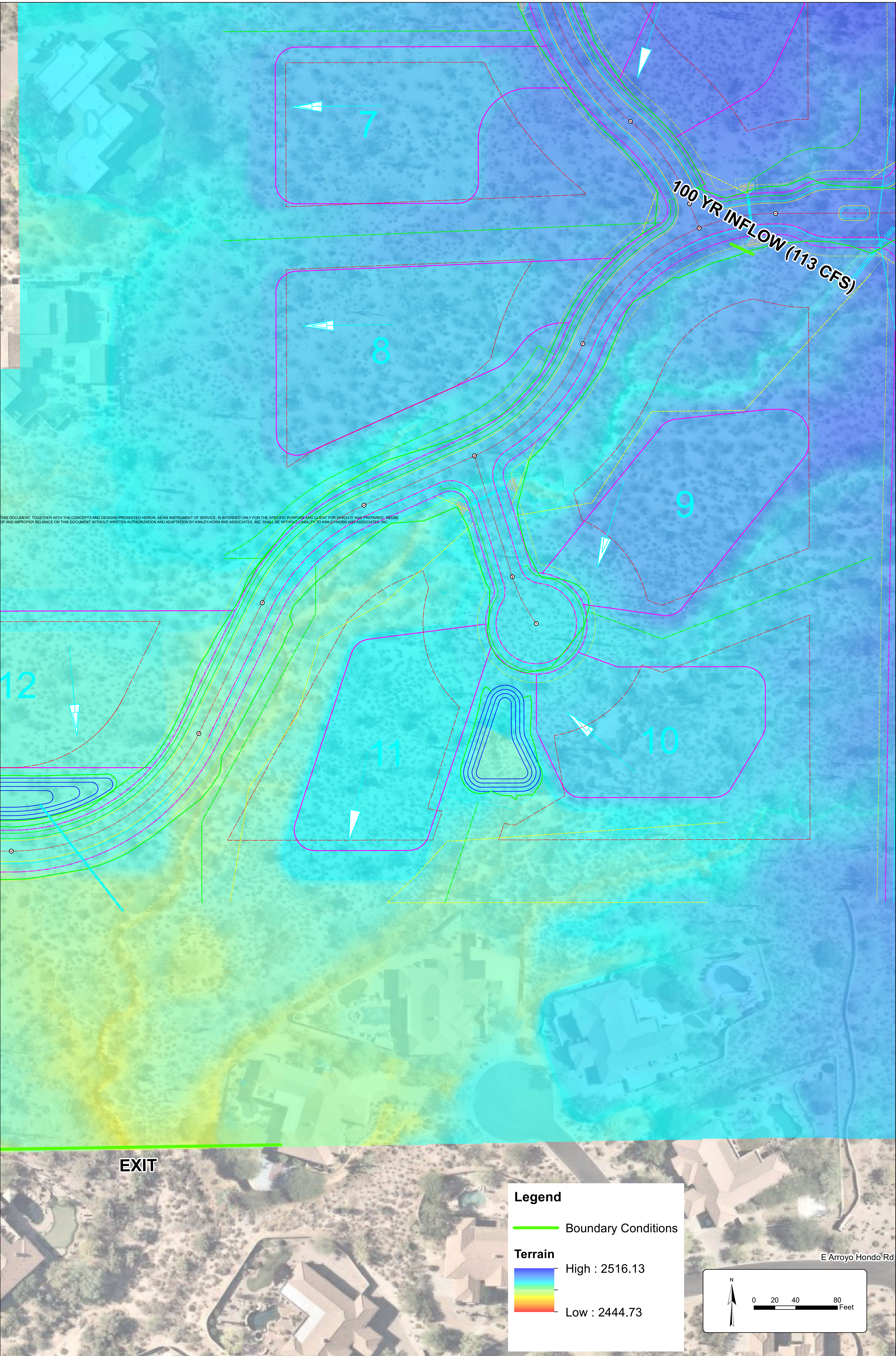
CITY OF SCOTTSDALE
SIGNATURE AT STAGECOACH PASS
PROPOSED MAX DEPTH

SCALE(H): 1"= BAR
SCALE(V): NONE
DESIGNED BY: AKM
DRAWN BY: AKM
CHECKED BY: ZRS
DATE: 03/2022

Kimley»»Horn

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Engineering, Planning and
Environmental Consultants

7740 North 16th Street, Suite 300
Phoenix, Arizona 85020 (602) 944-5500



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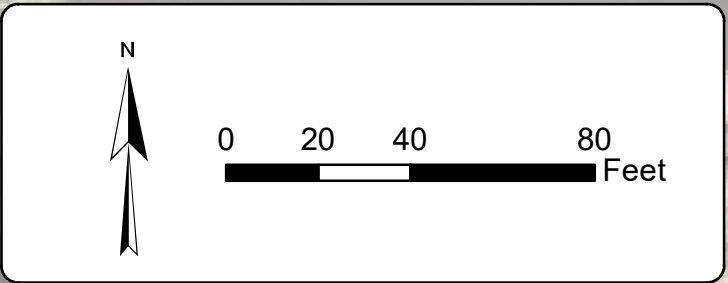
Legend

Boundary Conditions

Terrain

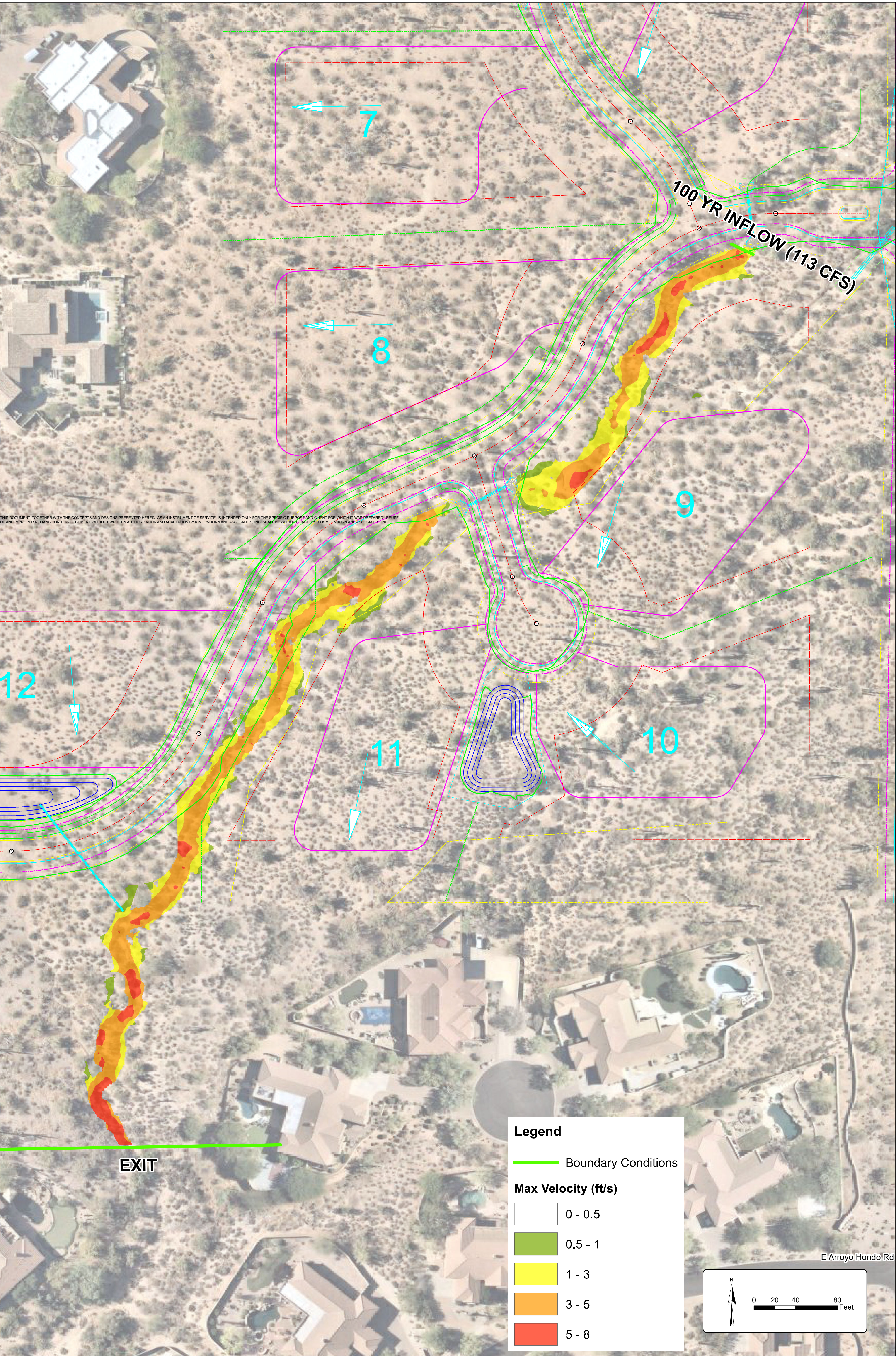
High : 2516.13

Low : 2444.73



E Arroyo Hondo Rd

PROJECT NO. 291065007	DRAWING NAME PROP VELOCITY	CITY OF SCOTTSDALE SIGNATURE AT STAGECOACH PASS PROPOSED TERRAIN	SCALE(H): 1"= BAR	Kimley»Horn © 2014 KIMLEY-HORN AND ASSOCIATES, INC. Engineering, Planning and Environmental Consultants	7740 North 16th Street, Suite 300 Phoenix, Arizona 85020 (602) 944-5500					
			SCALE(V): NONE							
			DESIGNED BY: AKM							
			DRAWN BY: AKM							
			CHECKED BY: ZRS							
			DATE: 08/2022							



THIS DOCUMENT, TOGETHER WITH THE CONCEPTS AND DESIGNS PRESENTED HEREIN, AS AN INSTRUMENT OF SERVICE, IS INTENDED ONLY FOR THE SPECIFIC PURPOSE AND CLIENT FOR WHICH IT WAS PREPARED. REUSE OF AND IMPROPER RELIANCE ON THIS DOCUMENT WITHOUT WRITTEN AUTHORIZATION AND ADAPTATION BY KIMLEY-HORN AND ASSOCIATES, INC. SHALL BE WITHOUT LIABILITY TO KIMLEY-HORN AND ASSOCIATES, INC.

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PROJECT NO. 291060507	DRAWING NAME PROP VELOCITY	CITY OF SCOTTSDALE SIGNATURE AT STAGECOACH PASS PROPOSED VELOCITY	SCALE(H): 1"= BAR SCALE(V): NONE		Kimley»Horn © 2014 KIMLEY-HORN AND ASSOCIATES, INC. Engineering, Planning and Environmental Consultants 7740 North 16th Street, Suite 300 Phoenix, Arizona 85020 (602) 944-5500					
			DESIGNED BY: AKM							
			DRAWN BY: AKM							
			CHECKED BY: ZRS							
			DATE: 08/2022							

Culvert Report

Hydraflow Express Extension for Autodesk® Civil 3D® by Autodesk, Inc.

Wednesday, Sep 21 2022

CULVERT ON-70

Invert Elev Dn (ft) = 2448.80
Pipe Length (ft) = 91.13
Slope (%) = 0.77
Invert Elev Up (ft) = 2449.50
Rise (in) = 36.0
Shape = Circular
Span (in) = 36.0
No. Barrels = 4
n-Value = 0.013
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

Embankment

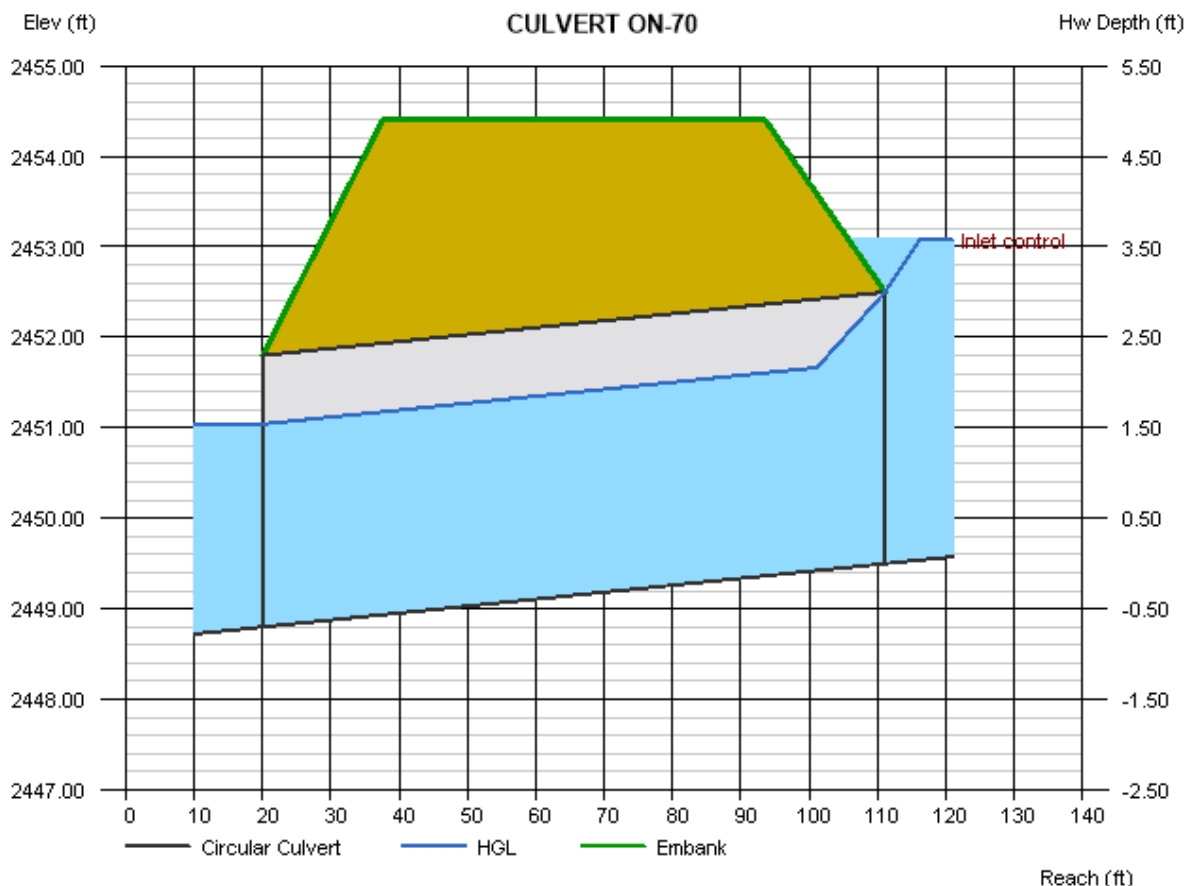
Top Elevation (ft) = 2454.40
Top Width (ft) = 56.04
Crest Width (ft) = 91.13

Calculations

Qmin (cfs) = 29.00
Qmax (cfs) = 190.00
Tailwater Elev (ft) = 0.00

Highlighted

Qtotal (cfs) = 190.00
Qpipe (cfs) = 190.00
Qovertop (cfs) = 0.00
Veloc Dn (ft/s) = 8.38
Veloc Up (ft/s) = 8.38
HGL Dn (ft) = 2451.04
HGL Up (ft) = 2451.74
Hw Elev (ft) = 2453.07
Hw/D (ft) = 1.19
Flow Regime = Inlet Control



Culvert Report

Hydraflow Express Extension for Autodesk® Civil 3D® by Autodesk, Inc.

Wednesday, Sep 21 2022

Culvert ON-20

Invert Elev Dn (ft) = 2499.30
Pipe Length (ft) = 66.69
Slope (%) = 1.50
Invert Elev Up (ft) = 2500.30
Rise (in) = 24.0
Shape = Circular
Span (in) = 24.0
No. Barrels = 1
n-Value = 0.013
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

Embankment

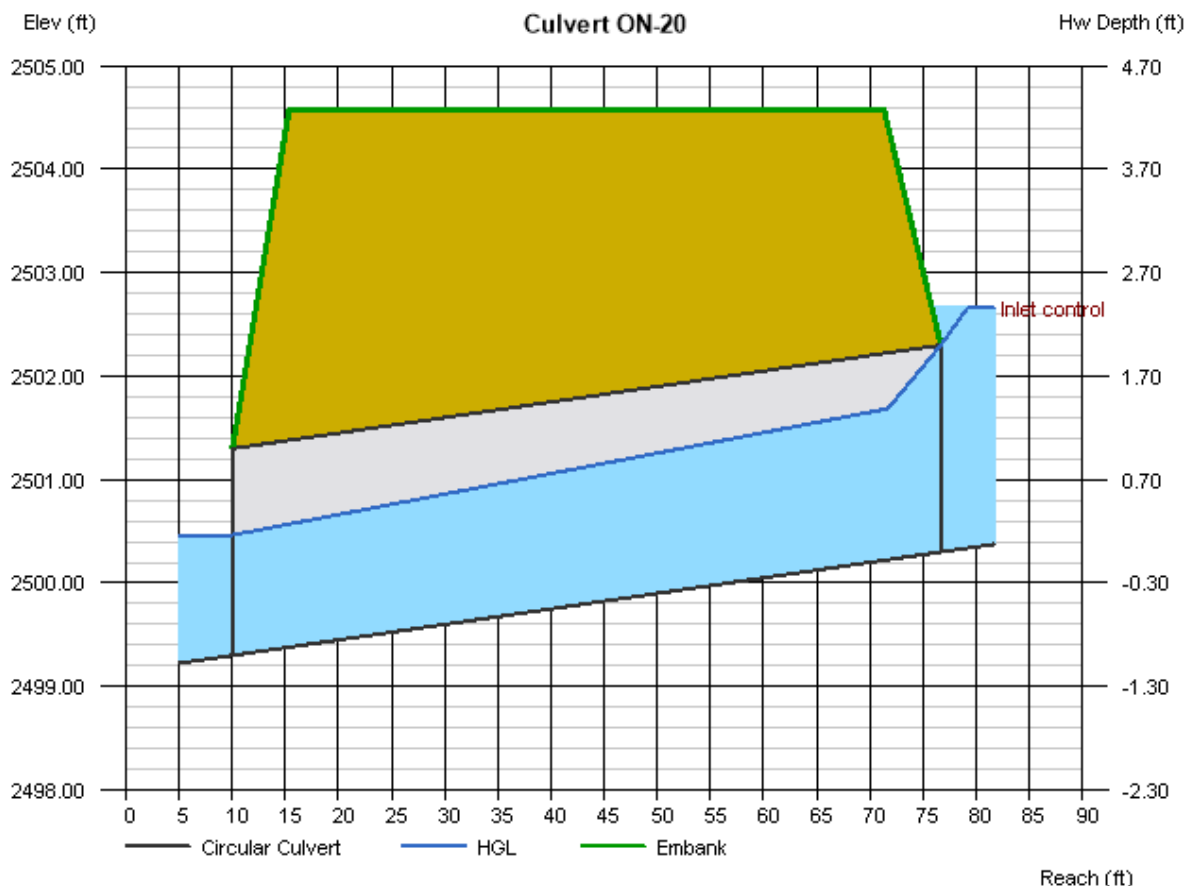
Top Elevation (ft) = 2504.57
Top Width (ft) = 56.00
Crest Width (ft) = 66.69

Calculations

Qmin (cfs) = 3.00
Qmax (cfs) = 17.00
Tailwater Elev (ft) = 0.00

Highlighted

Qtotal (cfs) = 17.00
Qpipe (cfs) = 17.00
Qovertop (cfs) = 0.00
Veloc Dn (ft/s) = 8.96
Veloc Up (ft/s) = 6.80
HGL Dn (ft) = 2500.46
HGL Up (ft) = 2501.79
Hw Elev (ft) = 2502.66
Hw/D (ft) = 1.18
Flow Regime = Inlet Control



Culvert Report

Hydraflow Express Extension for Autodesk® Civil 3D® by Autodesk, Inc.

Wednesday, Sep 21 2022

Culvert ON-25B

Invert Elev Dn (ft) = 2454.00
Pipe Length (ft) = 102.98
Slope (%) = 0.49
Invert Elev Up (ft) = 2454.50
Rise (in) = 30.0
Shape = Circular
Span (in) = 30.0
No. Barrels = 1
n-Value = 0.013
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

Embankment

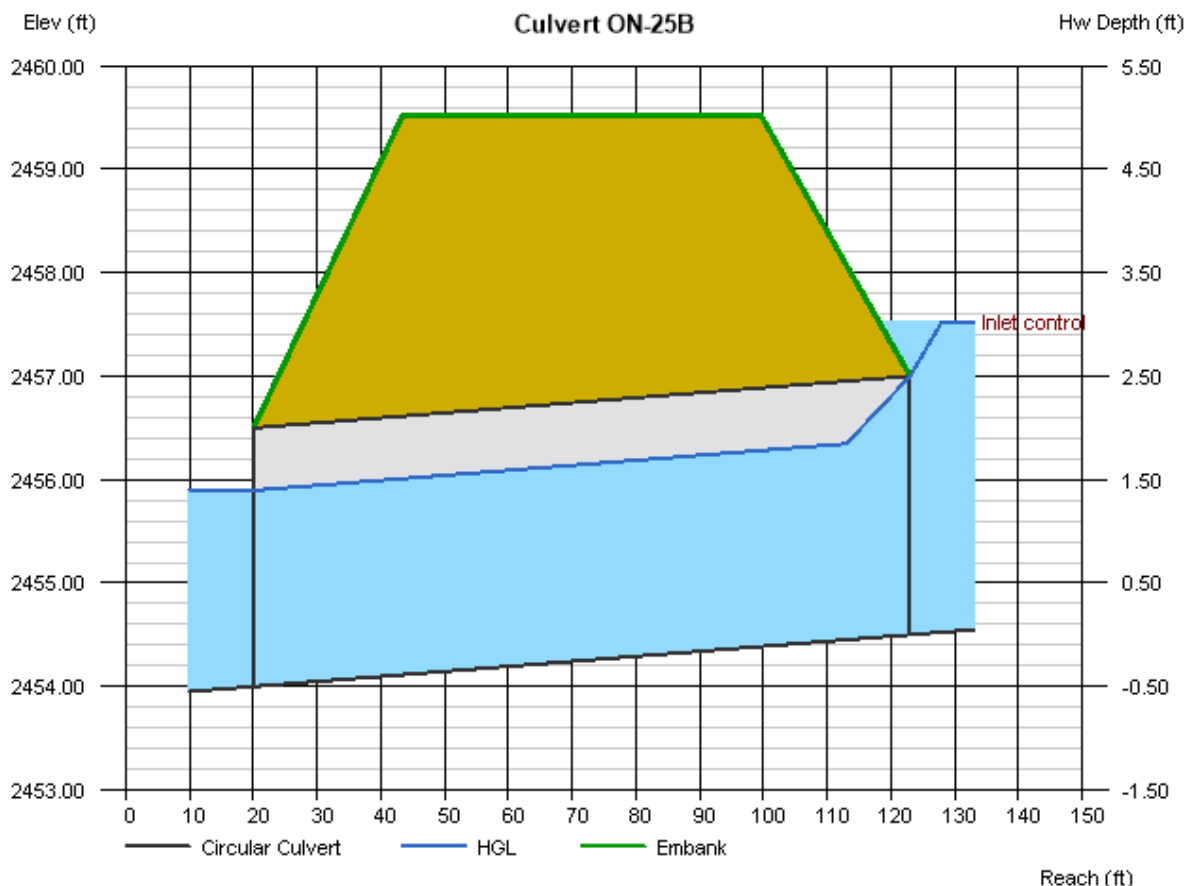
Top Elevation (ft) = 2459.52
Top Width (ft) = 56.18
Crest Width (ft) = 102.98

Calculations

Qmin (cfs) = 7.00
Qmax (cfs) = 31.00
Tailwater Elev (ft) = 0.00

Highlighted

Qtotal (cfs) = 31.00
Qpipe (cfs) = 31.00
Qovertop (cfs) = 0.00
Veloc Dn (ft/s) = 7.76
Veloc Up (ft/s) = 7.76
HGL Dn (ft) = 2455.90
HGL Up (ft) = 2456.40
Hw Elev (ft) = 2457.53
Hw/D (ft) = 1.21
Flow Regime = Inlet Control



Culvert Report

Hydraflow Express Extension for Autodesk® Civil 3D® by Autodesk, Inc.

Wednesday, Sep 21 2022

CULVERT ON-30

Invert Elev Dn (ft) = 2451.00
Pipe Length (ft) = 78.64
Slope (%) = 1.91
Invert Elev Up (ft) = 2452.50
Rise (in) = 24.0
Shape = Circular
Span (in) = 24.0
No. Barrels = 1
n-Value = 0.013
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

Embankment

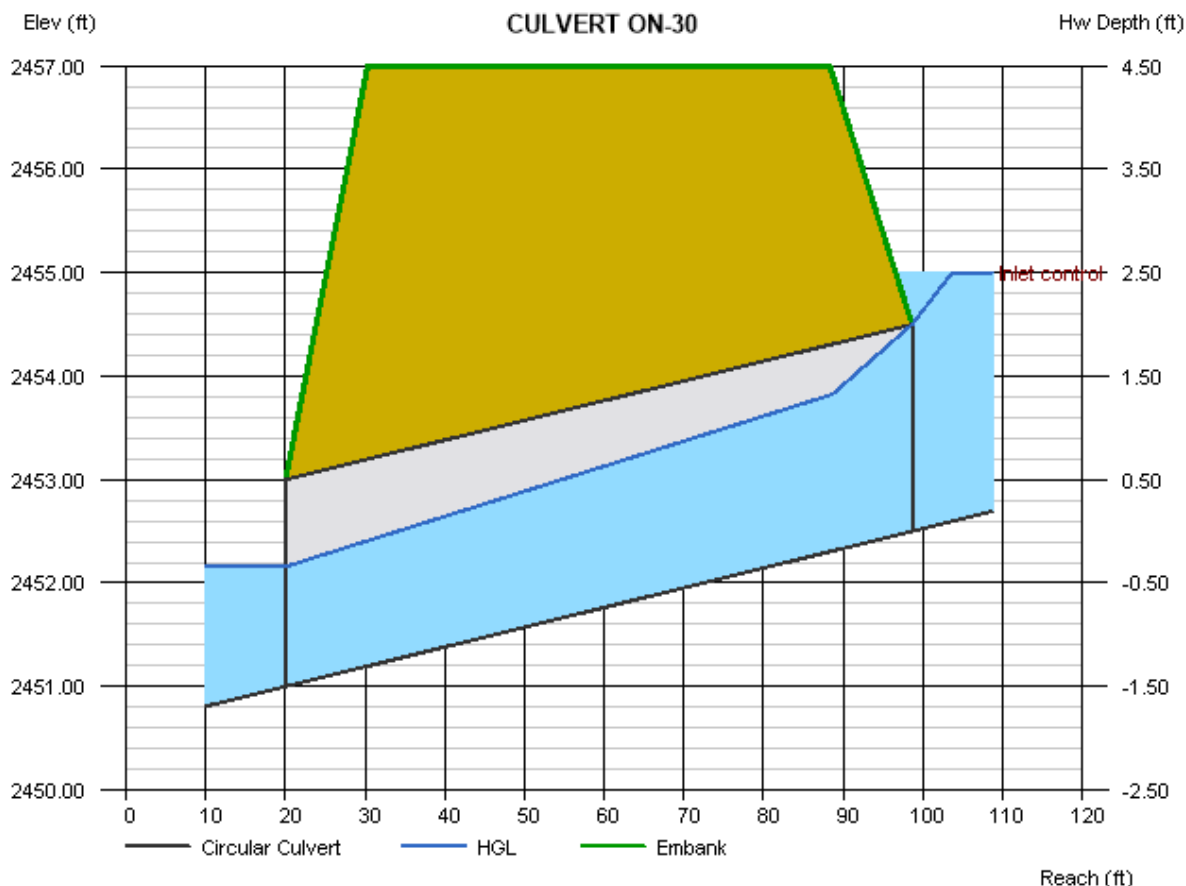
Top Elevation (ft) = 2456.99
Top Width (ft) = 58.04
Crest Width (ft) = 78.64

Calculations

Qmin (cfs) = 4.00
Qmax (cfs) = 19.00
Tailwater Elev (ft) = 0.00

Highlighted

Qtotal (cfs) = 19.00
Qpipe (cfs) = 19.00
Qovertop (cfs) = 0.00
Veloc Dn (ft/s) = 10.07
Veloc Up (ft/s) = 7.20
HGL Dn (ft) = 2452.16
HGL Up (ft) = 2454.07
Hw Elev (ft) = 2455.00
Hw/D (ft) = 1.25
Flow Regime = Inlet Control



Culvert Report

Hydraflow Express Extension for Autodesk® Civil 3D® by Autodesk, Inc.

Wednesday, Sep 21 2022

Culvert ON-40A

Invert Elev Dn (ft) = 2496.50
Pipe Length (ft) = 87.69
Slope (%) = 1.71
Invert Elev Up (ft) = 2498.00
Rise (in) = 24.0
Shape = Circular
Span (in) = 24.0
No. Barrels = 1
n-Value = 0.013
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

Embankment

Top Elevation (ft) = 2502.52
Top Width (ft) = 62.31
Crest Width (ft) = 87.69

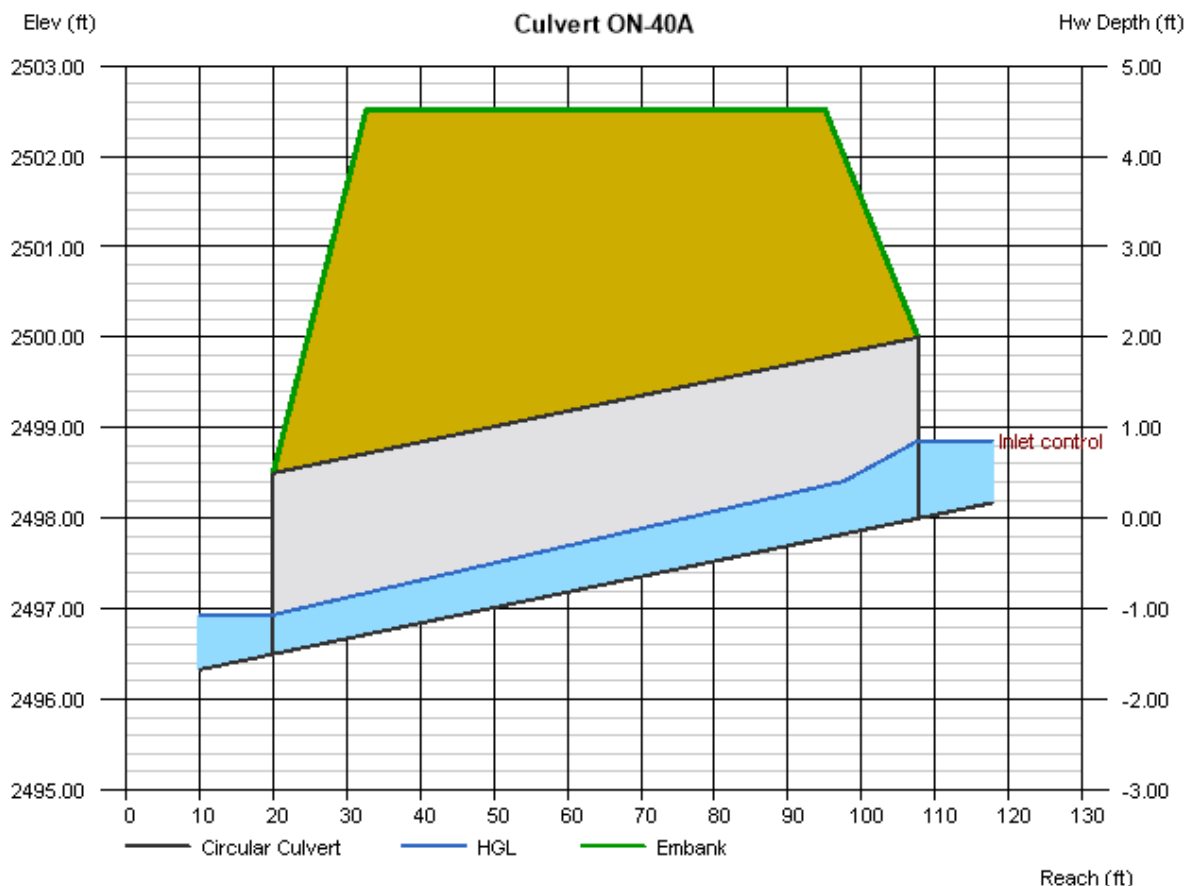
Calculations

Qmin (cfs) = 1.00
Qmax (cfs) = 3.00
Tailwater Elev (ft) = 0.00

Highlighted

Qtotal (cfs) = 3.00
Qpipe (cfs) = 3.00
Qovertop (cfs) = 0.00
Veloc Dn (ft/s) = 5.96
Veloc Up (ft/s) = 3.75
HGL Dn (ft) = 2496.94
HGL Up (ft) = 2498.60
Hw Elev (ft) = 2498.86
Hw/D (ft) = 0.43
Flow Regime = Inlet Control

The 2D analysis shows
113-cfs in this culvert.



Culvert Report

Hydraflow Express Extension for Autodesk® Civil 3D® by Autodesk, Inc.

Wednesday, Sep 21 2022

Culvert ON-40B

Invert Elev Dn (ft) = 2489.00
Pipe Length (ft) = 65.57
Slope (%) = 0.76
Invert Elev Up (ft) = 2489.50
Rise (in) = 36.0
Shape = Circular
Span (in) = 36.0
No. Barrels = 3
n-Value = 0.013
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

Embankment

Top Elevation (ft) = 2495.78
Top Width (ft) = 56.92
Crest Width (ft) = 65.57

Calculations

Qmin (cfs) = 20.00
Qmax (cfs) = 122.00
Tailwater Elev (ft) = 0.00

Highlighted

Qtotal (cfs) = 122.00
Qpipe (cfs) = 122.00
Qovertop (cfs) = 0.00
Veloc Dn (ft/s) = 8.78
Veloc Up (ft/s) = 7.80
HGL Dn (ft) = 2490.87
HGL Up (ft) = 2491.58
Hw Elev (ft) = 2492.84
Hw/D (ft) = 1.11
Flow Regime = Inlet Control

