Final Drainage Report (Updated)

I-17 / Pinnacle Peak Road TI & Happy Valley Road TI Roadway and Drainage Improvements

ADOT CONTRACT NO. 2016-016
PROJECT NO. 017 MA 216 H7383 01D
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Prepared For:

ADOT

Arizona Department of Transportation

Prepared By:

Andes Engineering

11811 North Tatum Boulevard, Suite 3031
Phoenix, Arizona 85028

In Association With:

HDR

3200 E. Camelback Rd, Suite#350
Phoenix, Arizona 85018

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Expires 03/31/2019

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Expires 03/31/2019

1.0 INTRODUCTION

1.1 PROJECT LOCATION

The traffic interchanges (TI) of Pinnacle Peak Road and Happy Valley Road with Interstate 17 (I-17) are located in the Arizona Department of Transportation's (ADOT) Central District within Maricopa County and the City of Phoenix. The project limits are the Scatter Wash North Branch crossing of I-17 to the south, and the northern end of the Happy Valley Road TI to the north. The 1.7-mile segment of I-17 traverses through developed areas of the City of Phoenix, beginning at I-17 median station 840+00 and ending at station 930+00. The project length is approximately 9,000'. The Pinnacle Peak Road TI is located at I-17 milepost 217.1 and the Happy Valley Road TI at milepost 218.0. Figure 1 shows the project location map.

The existing typical roadway section of I-17 between the two TIs includes three general purpose lanes plus auxiliary lanes and an HOV lane in the northbound and southbound directions of travel, separated by concrete barrier. Outside and inside shoulders are 12' wide.

A Northbound Frontage Road is continuous within the project limits. Southbound Frontage Roads exist south of Pinnacle Peak Road and north of Happy Valley Road. There is no southbound frontage road in between. A southbound bus ramp peels off from and returns to Happy Valley Road Ramp A.

1.2 PROJECT DESCRIPTION

Two separate Design Memoranda (DM) and Stage II design documents for the two TIs were completed by ADOT in January of 2016. The preferred alternative recommended in the Pinnacle Peak Road TI DM, and the alternative recommended for the Happy Valley Road TI by the final design team are the basis for final design of the project.

The TIs are being reconstructed to improve operations and roadway geometry, and meet ultimate roadway configuration for the I-17 corridor and the cross roads. The Pinnacle Peak Road TI is proposed to keep its current diamond configuration with revised ramp alignments. The Happy Valley Road TI configuration is proposed to change to a Divergent Diamond Interchange (DDI). Widening of the I-17 mainline is proposed at ramp merge locations. The locations of all roadway and drainage improvements included in this project accommodate the outside widening of the I-17 mainline to ultimate configuration.

1.3 PURPOSE OF DRAINAGE REPORT

This report includes a description of existing conditions and documents the procedures, methodologies, criteria and computations utilized in hydrologic and hydraulic analyses supporting the design of proposed drainage improvements for the project. Tables,

calculation sheets, and drawings are included in this report to provide the necessary detail.

1.4 DRAINAGE DESIGN CRITERIA

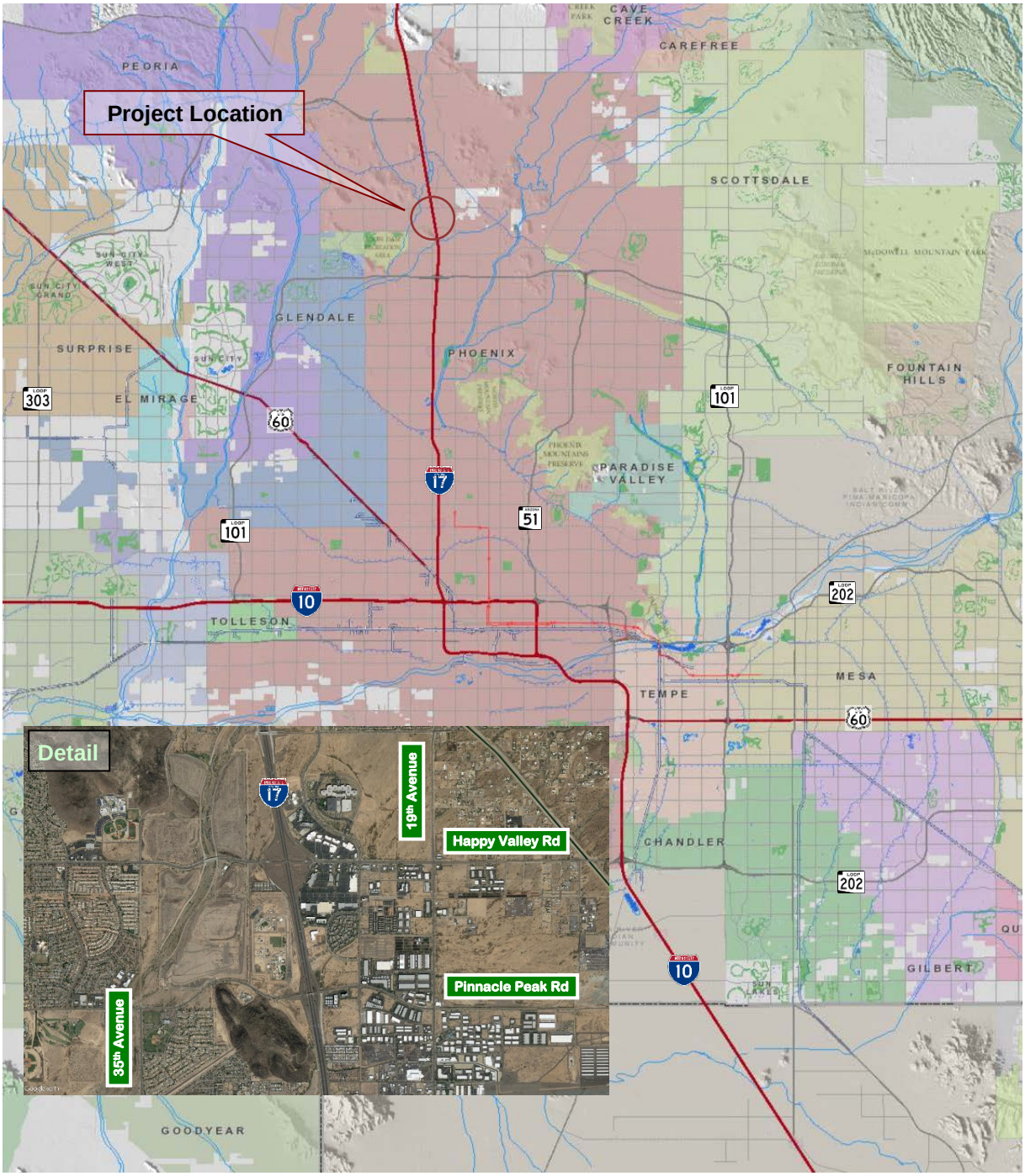
The evaluation of the new drainage improvements was conducted in accordance with the design criteria described in Chapter 600 – Highway Drainage Design, of the ADOT Roadway Engineering Group's Roadway Design Guidelines, May 2014 (RDG), including the following:

- Onsite hydrology shall be analyzed using the Rational Method for all pavement areas, using a runoff coefficient, "C", of 0.95 for pavement and impervious areas. A value of 0.70 shall be assigned to median and undeveloped roadside areas.
- Site-specific rainfall data shall be obtained from the NOAA14 web site.
- The spread criterion for the I-17 mainline is such that runoff is contained within the shoulder and one-half of the adjacent general-purpose lane for the 10-year storm event. Criteria for ramps and auxiliary lanes are included in table 603.2(c) of the Roadway Design Guidelines.
- The spread criterion for city streets and frontage roads is such that at least 12' of dry pavement in all directions of travel exist for the 10-year storm event, without curb overtopping.
- The allowable ponding depth on the roadway should not exceed the height of the curb for the 10-year storm.
- The Hydraulic Grade Line (HGL) for storm drain systems should be lower than 6" below the top of inlet grates for the 10-year storm event at non-depressed roadway segments, and for the 50-year storm event for depressed roadway segments.
- Retention basin capacity is calculated for the 100-year 2-hour precipitation event on the contributing watershed, as per Maricopa County Flood Control District (FCDMC) 2016 Drainage Policies and Standards. This criterion only applies to the proposed retention basin located on the south side of Pinnacle Peak Road at the west end of the project.

Design procedures follow guidelines presented in the ADOT Highway Drainage Design Manual, Hydrology, January 2014, and the ADOT Highway Drainage Design Manual, Hydraulics, January 2007. Hydraulics analyses of curb-and-gutter and catch basins for pavement drainage apply methodologies presented in the FHWA Urban Drainage Design Manual HEC-22, September 2009 (Revised 2013).

Gutter hydraulic and spread calculations account for a 1" overlay of rubberized asphalt to the lip of gutter, with a roughness coefficient (n) of 0.013 for the concrete gutter and 0.016 for asphalt pavement, as directed by ADOT's Roadway Drainage Design Section. A curb height of 4" (standard C-13.10 type E) is used for at-grade and elevated freeway segments.

Figure 1 – Project Location Map



I-17 / Pinnacle Peak Rd. TI & Happy Valley Rd. TI
Project No. 017 MA 218 H7383 01D
Federal Aid No. 017-A(248)A

2.0 EXISTING CONDITIONS

2.1 OFFSITE DRAINAGE

Offsite storm runoff approaches the I-17 corridor from the northeast and is intercepted by the Scatter Wash North Branch on the east side of the freeway corridor. The Scatter Wash North Branch is a natural stream that has been channelized by development. The wash channel flows south for about ½ miles along Norterra Parkway from the Happy Valley Road crossing. It turns southwest to the crossing of Pinnacle Peak Road in a 2-8'x7'x118' box culvert adjacent to the I-17 corridor. For about 0.35 miles south of Pinnacle Peak Road the wash flows adjacent to the I-17 northbound frontage road in a concrete-lined channel inside ADOT right-of-way, crossing I-17 to the west through two box culverts that split the flow, a 4-8'x7' and a 2-8'x7'. The Scatter Wash North Branch box culverts are the only offsite waterway crossings within the project limits. The Pinnacle Peak Road box culvert is the only offsite drainage feature being modified because of this project's improvements.

North-east Corner of I-17/Pinnacle Peak Road TI

The Scatter Wash North Branch approaches Pinnacle Peak Road from the north in an improved channel outside ADOT right-of-way. The Pinnacle Peak Road embankment causes ponding of wash flows on the parcel on the north-east quadrant of the I-17/Pinnacle Peak Road intersection. The parcel is bounded by the wash to the west, 23rd Avenue to the east, Pinnacle Peak Road to the south and the I-17 North Corporate Center to the north. The parcel was unimproved until the construction of the Avilla Deer Valley residential development in 2017.

Avilla Deer Valley site improvements include detached residential buildings, circulation roads and a new retention basin adjacent to the wash for storage/flow attenuation. The drainage report completed for design of the site includes hydrologic and hydraulic modeling and concludes that post-development stage-storage conditions for the site meet regulatory requirements by the City of Phoenix and ADOT.

Scatter Wash North Branch Hydrology

The Scatter Wash North Branch watershed upstream of the Pinnacle Peak Road crossing has an area of about six square miles and is comprised of a mix of undeveloped rangeland and commercial and residential development. The upper limits of the watershed extend north of Dynamite Boulevard and east of Central Avenue, with about a third of the area located upstream of the CAP Canal. The original hydrologic model of the watershed was created for the Scatter Wash Area Drainage Master Study (ADMS model) in 1994 and has been subsequently modified and updated for private development and public works projects. Computed peak flow values for each model vary as a result of updates in rainfall parameters, changes in modeling methodology, and the addition to the model of diversions, reservoir and conveyance routings.

The ADMS model was modified in 2007 for the design of the I-17, SR 101L to Jomax Road project. The modified ADMS model (SR 101L to Jomax model) was the basis for

design of the concrete-lined channel immediately downstream of the Pinnacle Peak Road box culvert, the box culverts crossing I-17 and the Scatter Wash basin and structures located on the west side of I-17. Updates to the model included reservoir and conveyance routings upstream of Pinnacle Peak Road that reflect the construction of private development improvements near Happy Valley Road and the ponding occurring at the northeast quadrant of the I-17/Pinnacle Peak Road TI.

Additional private development models were completed after the 101L to Jomax model and are included in the "Final Drainage Report for I-17 North Corporate Center" completed by Optimus Design Group in October 2007 (Optimus model), and the "Avilla Deer Valley Off-Site Drainage Report" completed by Eire & Associates in January 2017 (Avilla model). The table below summarizes hydrologic modeling results at the Scatter Wash North Branch crossing of Pinnacle Peak Road from the three sources:

Table 2.1 – Historic Hydrologic Modeling Results Summary

Model	Date	$Q_{100,24}$ Approaching NEC I-17/ PP (cfs)	$Q_{100,24}$ Crossing PP (cfs)	Water Surface Elevation at PP CBC Inlet (ft)
SR 101L to Jomax	June 2007	1,444	920	1419.88
Optimus	October 2007	1,444	921	1419.10
Avilla	January 2017	2,731	2,576	1420.07

The Optimus model modified the SR 101L to Jomax model by adding the conveyance and reservoir routings included in the I-17 North Corporate Center development, a commercial/residential development located north of Pinnacle Peak Road and west of 23rd Avenue. The Scatter Wash North Branch was channelized along 23rd Avenue and diagonally across the site towards the Pinnacle Peak Road box culvert as part of this project.

The Avilla model modified the ADMS model by adding a reservoir routing at the Avilla Deer Valley site only and does not include the conveyance and reservoir routings that exist at the I-17 North Corporate Center and the developed sites near Happy Valley Road that are included in the SR 101L to Jomax and Optimus models. The Avilla model includes increased ponding capacity at the site for the developed condition. The absence of existing reservoir routings in the model upstream of the Avilla site explain the higher computed peak flows reaching the Pinnacle Peak Road crossing. The minimum finished floor elevation of 1421.8' for the development is 2.7' higher than the Optimus model's 100-year 24-hour water surface elevation.

Additional description of the hydrology and development history of the Scatter Wash North Branch is included in the "Interstate 17 Final Design Memorandum – Stage II Design (30%)" prepared by WSP in January, 2016.

Pinnacle Peak Road Crossing

Hydraulic models of the Scatter Wash North Branch crossing of Pinnacle Peak Road completed for the Stage II Report and the roadway and private development projects show that flows of the magnitude of the 100-year event are conveyed through the existing 2-8'x7' box culvert and the overtopping of the road. Modeling in the Stage II report, after storage routing, calculated that the box culvert conveys 720 cfs during the 100-year flow event, and 203 cfs overtopping Pinnacle Peak Road near station 234+00. Headwater elevation at the box culvert inlet is 1,419.10'. Flows overtopping Pinnacle Peak Road are conveyed west by a channel on the south side of the road back to the concrete-lined channel immediately downstream of the box culvert. Hydrologic and hydraulic analyses of the existing condition are included in the Stage II Design Memorandum.

Pinnacle Peak Road South Side Channel

A riprap-lined channel constructed inside ADOT right-of-way along the south side of Pinnacle Peak Road flows west beginning near station 234+75 to the ADOT channel. The channel conveys offsite flows overtopping Pinnacle Peak Road and outflow from a City of Phoenix storm drain system from the east. The channel has a trapezoidal cross section and is 10' wide at the bottom with 2:1 side slopes. The design flow for the channel is 78 cfs. City of Phoenix design documentation for the channel is included in Appendix J.

Scatter Wash North Branch Concrete-Lined Channel

The concrete-lined channel downstream of the Pinnacle Peak Road box culvert was constructed as part of ADOT's I-17, SR 101L to Jomax Road project. The channel has a 6.5' deep trapezoidal cross section, is 35' wide at the bottom with 2:1 side slopes. The channel was designed for a flow of 2,495 cfs.

2.2 FLOODPLAINS

The project area is located within a Zone X in the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM). A Zone X is defined as an area of minimal flood hazard outside of a Special Flood Hazard Area with higher elevation than that of the 0.2-percent-annual-chance flood. The FEMA FlRM is included in Appendix B.

2.3 ONSITE DRAINAGE

Most of the pavement runoff from the freeway mainline is allowed to sheetflow into roadside ditches or detention basins located in the infield areas of both TIs. Ramp and frontage road runoff is collected in spillways and catch basins that connect to the freeway onsite drainage systems. Separate systems exist for the northbound and southbound halves of the corridor and are comprised of infield TI basins that are interconnected with pipes and open channels that collect all onsite runoff and convey flows south to outfalls at the Scatter Wash North Branch.

For the northbound lanes system, the Happy Valley Road basins outfall into a trunkline that runs south between the freeway mainline and the Northbound Frontage Road. Runoff from the frontage road is collected in catch basins with lateral connections to roadside inlets located along the freeway mainline trunkline. The trunkline is 36" in diameter at its outfall at the northeast basin of the Pinnacle Road TI. An 18" equalizing pipe conveys flows from the northeast to the southeast basin, and from there a 24" pipe takes the outflow to the Scatter Wash North Branch concrete-lined channel.

The southbound lanes system is similar in concept to the northbound lanes system. Instead of a trunkline, the southbound system uses an open channel located along the outside of the freeway mainline to convey flows south from the Happy Valley Road TI to a 36" pipe that crosses Pinnacle Peak Road Ramp C into the northwest infield detention basin. An 18" equalizing pipe conveys flows from the northwest to the southwest basin. The outfall from the southwest basin is a short trunkline that is 36" in diameter at its outfall into the 2-8'x7' Scatter Wash North Branch box culvert crossing I-17 at the south end of the project.

Onsite runoff from Happy Valley Road is collected in closed drain systems. West of I-17 the storm drain systems outfall onto the field located on the south side of the road without basins or channels to the south. East of I-17 the storm drain systems outfall into a channel located along the east side of the Northbound Frontage Road.

Pavement runoff along Pinnacle Peak Road sheetflows to roadside areas and is collected in concrete scuppers along curbed segments near the I-17 TI.

3.0 PROPOSED IMPROVEMENTS

3.1 OFFSITE SYSTEMS

Offsite drainage patterns are not impacted by the project improvements. Variation in onsite peak flows reaching the Scatter Wash North Branch will not affect the capacity or operation of the wash considering the significant differences in design frequency and times of concentration between the project onsite and Scatter Wash offsite hydrographs.

The Stage II report recommended a 38' upstream extension of the existing 2-8'x7'x118' box culvert crossing Pinnacle Peak Road. The inlet invert elevation would remain unchanged and inlet improvements would be required to maintain the operating headwater elevation. The existing structure would need structural reinforcement as required by the addition of new roadway embankment.

The final design team and the CMAR developer evaluated a replacement alternative during the development of Stage III plans. It was agreed that the replacement of the existing CBC with a 3-8'x6'x199' box culvert along the same alignment presented benefits to constructability, operation and life-cycle cost of the structure. The proposed new box culvert provides increased conveyance through the culvert structure, decreasing the

operating headwater elevation and therefore the frequency of overtopping of Pinnacle Peak Road by flows in excess of the culvert capacity.

The concrete-lined channel downstream is not adversely affected by the increased capacity of the CBC as in both, the existing and the proposed condition, all wash flows are conveyed to the downstream ADOT concrete-lined channel as roadway overtopping flows are returned by the channel on the south side of Pinnacle Peak Road to the CBC outlet.

The inlet invert elevation for the proposed box culvert is the same as that for the existing box culvert in order to preserve upstream hydraulic control and storage capacity for low flows. The headwater elevation for the design flow recommended in the Stage II report of 923 cfs is 0.81' lower in the proposed condition. The overtopping low point elevation at Pinnacle Peak Road has not been increased by the modification of roadway geometry.

Results of the HY-8 hydraulic analysis for the proposed box culvert are included in Appendix C.

100-year 24-hour HEC-1 Model for Scatter Wash North Branch

The 101L to Jomax HEC-1 model was modified for this project by replacing the stage-storage-discharge routing at station 317RR with updated SE, SV and SQ cards. The new stage-storage values were derived from the SV-SE cards in the Avilla HEC-1 developed model, as it includes the now existing conditions of the site upstream of the proposed new box culvert. The stage-discharge values are derived from the HY-8 model for the new box culvert.

It should be noted that the storage capacity that now exists at the routing upstream of Pinnacle Peak Road is greater than what was used in the SR 101L to Jomax model. This is a result of the improvements in the Avilla Deer Valley development. The proposed retaining wall along the new Pinnacle Peak Road embankment and the reconstruction of Pinnacle Peak Road Ramp D further west from its current location do not increase fill within the ponding area upstream of the box culvert.

The computed 100-year 24-hour peak flow at station 317RR for the modified HEC-1 model is 887 cfs. Relevant sheets of HEC-1 data and results are included in Appendix D.

3.2 ONSITE SYSTEMS

The proposed widening of the freeway mainline and the reconstruction of ramps and cross roads will require the construction of new systems of catch basins and storm drains, spillways and basins, following the same concept of detention and conveyance systems and outfall facilities as the existing condition. New catch basins and manholes are

required in order to meet design guidelines for spread, changes of direction, access for maintenance and spacing.

New curb-and-gutter and barrier separate pavement runoff from slope runoff for most of the project. Where feasible, pavement runoff is conveyed to detention or retention basins that provide first flush treatment. Retention basins are used where there are no available outfall drainage facilities.

3.2.1 Rainfall Data

New site specific rainfall data has been generated for this project, using the utility in the NOAA 14 web site.

The 10-year, 10-minute intensity value is 4.25 in/hr. Rainfall data tables and graphics are included in Appendix A.

3.2.2 Gutter and Inlet Hydrology and Hydraulics

Drainage area maps and gutter and inlet hydrologic and hydraulic calculations are included in Appendix E.

3.2.3 Proposed Improvements

Storm Drain Systems

Pavement runoff is collected in separate systems throughout the project. Runoff from the east half of the project, including the I-17 northbound lanes, Pinnacle Peak Road Ramps B and D, the Northbound Frontage Road, the Happy Valley Road Ramps B and D, and Happy Valley Road east of I-17 is collected in the system that uses the existing trunk line from the Happy Valley Road TI to the Pinnacle Peak Road TI.

Runoff from the west side of the project, including the I-17 southbound lanes, Pinnacle Peak Road Ramps A and C, the Southbound Frontage Roads south of Pinnacle Peak Road and north of Happy Valley Road, the Happy Valley Road Ramps A and C, and Happy Valley Road west of I-17 is collected in the system that uses the existing open channel from the Happy Valley Road TI to the Pinnacle Peak Road TI.

Runoff from Pinnacle Peak Road west of I-17 is conveyed to a new retention basin located on the south side of the road, at the west terminus of the project. Pavement runoff from segment east of I-17 will be conveyed to the Scatter Wash North Branch box culvert and channel.

Proposed storm drain improvements connect and outfall to existing systems and facilities. In some instances, the connection to existing systems creates constraints that control invert elevations and pipe sizes, resulting in lower that desired slopes and flow velocities. Such is the case for the storm drain system along Pinnacle Peak Road Ramp A. The proposed system connects upstream to the existing 24” storm drain that serves as the outfall for the Pinnacle Peal Road Ramp A basin, and outfalls to the existing 36” storm drains that flows to the Scatter Wash box culvert at the south end of the project. Although the hydraulic grade line is contained within the proposed pipe, slopes and velocities are below desired minimums. A reconstruction of the entire system, from the ramp basin to the outfall at Scatter Wash would be required to improve on this condition, significantly increasing the scope of drainage improvements and therefore construction cost.

StormCAD tables and profiles of new storm drain systems are included in Appendix F.

Ditches

Existing roadside ditches are being used to convey flows within sections of storm drain systems:

- Pinnacle Peak Road south channel: Begins at Pinnacle Peak Road sta 374+75 Rt flowing west to the concrete-lined channel at the outlet of the new box culvert at Pinnacle Peak Road sta 227+11 Rt. The existing ditch is being reconstructed to accommodate the new roadway embankment. The proposed cross section is trapezoidal, with a 10 ft-wide bottom and 2:1 side slopes. Depth to top of bank varies from 2’ upstream to 4’ at the downstream connection. The ditch collects flows from the existing City of Phoenix storm drain system for Pinnacle Peak Road

from the east and from proposed new catch basins along Pinnacle Peak Road east of I-17. The hydraulic computation sheet is included in Appendix J.

- I-17 Southbound Mainline ditch: Begins at the outfall of pipe 207 at I-17 Med sta 981+21 Lt flowing south to the inlet of pipe 322 at I-17 Med sta 876+00 Lt. Development of grading details for this ditch are currently underway, but it will closely resemble the existing v-ditch with 8:1 slopes and depth to top of bank of 3'. The ditch conveys flows from the Happy Valley Road Ramp A basin and collects runoff from Happy Valley Road Ramp A and the I-17 southbound mainline.

- Happy Valley Road Ramp B ditch: Begins at PP-HV-N Frontage Road sta 43+75 Rt flowing south to inlet 202 at PP-HV-N Frontage Road sta 36+78 Rt. This new ditch conveys flows from the Happy Valley Road Ramp B East basin to the I-17 Southbound storm drain system. The proposed cross section is trapezoidal, with an 8 ft-wide bottom and 4:1 side slopes. Depth to top of bank varies from 4' upstream to 2' at the downstream inlet.

- Happy Valley Road – Jomax Road Frontage Road ditch: Begins at the outfall of the proposed spillway into the existing roadside ditch at HV-JM Frontage Road sta 6+90 Lt flowing south-east to the inlet of pipe 638 at Happy Valley Road sta 170+58 Lt. It is an extension of the existing ditch from the north that allows the conveyance of flows across Happy Valley Road to the Happy Valley Road Ramp B East basin. The proposed cross section is trapezoidal, with a 5.5 ft-wide bottom and 4:1 side slopes. Depth to top of bank varies from 2' upstream to 4' at the downstream pipe inlet.

- Jomax Road – Happy Valley Road Frontage Road ditch: Begins at the outlet of pipe 426 at JM-HV Frontage Road sta 16+52 Lt flowing south to the Happy Valley Road Ramp C West basin at JM-HV Frontage Road sta 9+25 Lt. It is a v-ditch with 4:1 side slopes. Depth to top of bank varies from 2' upstream to 6' at the outfall.

Ditch calculations are included in Appendix H.

Post-Construction Water Quality Best Management Practices (BMP)

All existing onsite drainage systems within the project limits outfall to Scatter Wash. The drainage improvements proposed in this project will continue to outfall to Scatter Wash, maintaining historic drainage patterns. State water quality guidelines that apply to this project recommend the use of BMPs to treat pavement runoff where feasible. Retention of the first ½ inch (first-flush) of pavement runoff is the BMP recommended for this project.

New first-flush treatment retention basins are proposed at all quadrants of the Happy Valley Road TI and at the infield area between Pinnacle Peak Road Ramp A and the I-17 mainline. The Happy Valley Road TI and the I-17 southbound lanes north of the Pinnacle Peak Road Ramp A gore contribute flows to the basins.

Runoff from the I-17 northbound lanes and Frontage Road, from the Happy Valley Road Ramp B gore to the Pinnacle Peak Road underpass, is collected in the existing storm drain trunk line system along the outside of the freeway mainline. An extension of the existing trunk line is proposed to the south, beyond the Pinnacle Peak Road underpass and across Pinnacle Peak Road Ramp B to the Scatter Wash North Branch concrete-lined channel. Retention and structural water quality treatment BMPs for this system were evaluated during design but are not included in this project due to high construction and/or life cycle costs. Representatives of ADOT Project Management, Central District and Environmental Planning discussed the issue and agreed that low feasibility and the location of the project away from sensitive waterways justify the absence of water quality BMPs for this system.

Tables with basin design parameters and percolation test results are included in Appendix F.

4.0 REFERENCES

1. "Roadway Design Guidelines", ADOT, May 2014
2. "Highway Drainage Design Manual – Hydrology", ADOT, January 2014
3. "Highway Drainage Design Manual – Hydraulics", ADOT, January 2007
4. "Urban Drainage Design Manual - HEC-22", FHWA, September 2009
5. "ADOT Post-Construction Best Management Practices Manual for Water Quality", ADOT, September 2013
6. "Drainage Policies and Standards for Maricopa County, Arizona", FCDMC, June 2016
7. "Phoenix – Cordes Junction Highway (I-17), SR 101L to Jomax Road – Final Drainage Report" – Parsons, June 2007
8. "Final Drainage Report for I-17 North Corporate Center" - Optimus Design Group, October 2007
9. "Interstate 17 Final Design Memorandum – Stage II Design (30%) – I-17, Pinnacle Peak Road TI", ADOT - WSP/Parsons Brinckerhoff, January 2016
10. "Interstate 17 Final Design Memorandum – Stage II Design (30%) – I-17, Happy Valley Road TI", ADOT - WSP/Parsons Brinckerhoff, January 2016
11. "Avilla Deer Valley – Off-Site Drainage Report" – Erie & Associates, January 2017
12. "Pinnacle Peak Road from I17 to 19th Avenue – Drainage Report for 100% Design Submittal" – City of Phoenix- Wood, Patel & Associates, Inc., January 2005

APPENDIX A

RAINFALL DATA

I-17 / Pinnacle Peak Rd and Happy Valley Rd TIs

Rainfall Data

	Point Values (in)					
Duration	**2-Yr**	**5-Yr**	**10-Yr**	**25-Yr**	**50-Yr**	**100-Yr**
5 MIN	0.29	0.39	0.47	0.57	0.65	0.73
10 MIN	0.44	0.59	0.71	0.86	0.98	1.11
15 MIN	0.54	0.73	0.88	1.07	1.22	1.37
30 MIN	0.73	0.99	1.18	1.44	1.64	1.85
1 HOUR	0.90	1.22	1.46	1.78	2.03	2.28
2 HOUR	1.04	1.38	1.65	2.01	2.28	2.56
3 HOUR	1.08	1.42	1.68	2.05	2.34	2.63
6 HOUR	1.26	1.60	1.88	2.25	2.55	2.86
12 HOUR	1.43	1.80	2.09	2.49	2.79	3.11
24 HOUR	1.63	2.10	2.48	3.00	3.42	3.85

	Rainfall Intensity (in/hr)					
Duration	**2-Yr**	**5-Yr**	**10-Yr**	**25-Yr**	**50-Yr**	**100-Yr**
5 MIN	3.44	4.66	5.58	6.80	7.75	8.71
10 MIN	2.63	3.55	**4.25**	5.18	5.90	6.66
15 MIN	2.17	2.93	3.51	4.28	4.88	5.48
30 MIN	1.46	1.97	2.36	2.88	3.28	3.70
1 HOUR	0.90	1.22	1.46	1.78	2.03	2.28
2 HOUR	0.52	0.69	0.83	1.01	1.14	1.28
3 HOUR	0.36	0.47	0.56	0.68	0.78	0.88
6 HOUR	0.21	0.27	0.31	0.38	0.43	0.48
12 HOUR	0.12	0.15	0.17	0.21	0.23	0.26
24 HOUR	0.07	0.09	0.10	0.13	0.14	0.16

NOAA Atlas 14, Volume 1, Version 5
Location name: Phoenix, Arizona, USA*
Latitude: 33.7062°, Longitude: -112.116°
Elevation: 1429.24 ft**
* source: ESRI Maps
** source: USGS

POINT PRECIPITATION FREQUENCY ESTIMATES

Sanja Perica, Sarah Dietz, Sarah Heim, Lillian Hiner, Kazungu Maitaria, Deborah Martin, Sandra Pavlovic, Ishani Roy, Carl Trypaluk, Dale Unruh, Fenglin Yan, Michael Yekta, Tan Zhao, Geoffrey Bonnin, Daniel Brewer, Li-Chuan Chen, Tye Parzybok, John Yarchoan

NOAA, National Weather Service, Silver Spring, Maryland

PF_tabular | PF_graphical | Maps_&_aerials

PF tabular

PDS-based point precipitation frequency estimates with 90% confidence intervals (in inches)[1]

Duration	Average recurrence interval (years)									
	1	2	5	10	25	50	100	200	500	1000
5-min	**0.221** (0.182-0.273)	**0.287** (0.238-0.356)	**0.388** (0.317-0.479)	**0.465** (0.378-0.572)	**0.567** (0.454-0.696)	**0.646** (0.512-0.788)	**0.726** (0.565-0.882)	**0.807** (0.618-0.980)	**0.914** (0.684-1.11)	**0.998** (0.731-1.22)
10-min	**0.336** (0.277-0.415)	**0.438** (0.362-0.542)	**0.591** (0.483-0.729)	**0.709** (0.575-0.871)	**0.863** (0.692-1.06)	**0.984** (0.779-1.20)	**1.11** (0.861-1.34)	**1.23** (0.941-1.49)	**1.39** (1.04-1.69)	**1.52** (1.11-1.85)
15-min	**0.417** (0.344-0.514)	**0.543** (0.450-0.672)	**0.733** (0.599-0.903)	**0.878** (0.714-1.08)	**1.07** (0.858-1.31)	**1.22** (0.966-1.49)	**1.37** (1.07-1.67)	**1.52** (1.17-1.85)	**1.73** (1.29-2.10)	**1.88** (1.38-2.30)
30-min	**0.561** (0.463-0.693)	**0.731** (0.605-0.904)	**0.987** (0.807-1.22)	**1.18** (0.961-1.45)	**1.44** (1.16-1.77)	**1.64** (1.30-2.00)	**1.85** (1.44-2.24)	**2.05** (1.57-2.49)	**2.32** (1.74-2.82)	**2.54** (1.86-3.09)
60-min	**0.695** (0.573-0.858)	**0.904** (0.749-1.12)	**1.22** (0.999-1.51)	**1.46** (1.19-1.80)	**1.78** (1.43-2.19)	**2.03** (1.61-2.48)	**2.28** (1.78-2.78)	**2.54** (1.94-3.08)	**2.88** (2.15-3.50)	**3.14** (2.30-3.83)
2-hr	**0.807** (0.675-0.980)	**1.04** (0.869-1.27)	**1.38** (1.15-1.68)	**1.65** (1.35-1.99)	**2.01** (1.62-2.42)	**2.28** (1.82-2.73)	**2.56** (2.02-3.06)	**2.84** (2.20-3.39)	**3.22** (2.44-3.85)	**3.52** (2.62-4.22)
3-hr	**0.845** (0.705-1.03)	**1.08** (0.903-1.32)	**1.42** (1.18-1.73)	**1.68** (1.39-2.05)	**2.05** (1.67-2.47)	**2.34** (1.88-2.81)	**2.63** (2.08-3.17)	**2.95** (2.30-3.54)	**3.39** (2.56-4.07)	**3.75** (2.76-4.49)
6-hr	**0.995** (0.855-1.18)	**1.25** (1.08-1.49)	**1.60** (1.37-1.90)	**1.88** (1.59-2.21)	**2.25** (1.88-2.64)	**2.55** (2.09-2.98)	**2.86** (2.32-3.33)	**3.17** (2.53-3.70)	**3.60** (2.80-4.21)	**3.94** (2.99-4.61)
12-hr	**1.14** (0.981-1.34)	**1.43** (1.24-1.68)	**1.80** (1.55-2.11)	**2.09** (1.79-2.45)	**2.49** (2.10-2.91)	**2.79** (2.33-3.25)	**3.11** (2.55-3.62)	**3.42** (2.78-3.99)	**3.84** (3.05-4.50)	**4.17** (3.25-4.91)
24-hr	**1.29** (1.11-1.50)	**1.63** (1.41-1.90)	**2.10** (1.81-2.45)	**2.48** (2.12-2.88)	**3.00** (2.55-3.48)	**3.42** (2.88-3.96)	**3.85** (3.21-4.47)	**4.31** (3.55-4.99)	**4.93** (3.99-5.74)	**5.43** (4.34-6.35)
2-day	**1.36** (1.17-1.59)	**1.74** (1.49-2.03)	**2.27** (1.94-2.64)	**2.69** (2.29-3.12)	**3.28** (2.77-3.80)	**3.75** (3.14-4.34)	**4.24** (3.51-4.92)	**4.75** (3.89-5.53)	**5.46** (4.40-6.39)	**6.02** (4.78-7.09)
3-day	**1.44** (1.25-1.68)	**1.84** (1.59-2.15)	**2.42** (2.09-2.81)	**2.89** (2.48-3.35)	**3.56** (3.03-4.11)	**4.09** (3.45-4.72)	**4.65** (3.89-5.38)	**5.24** (4.34-6.08)	**6.08** (4.96-7.08)	**6.76** (5.44-7.91)
4-day	**1.52** (1.32-1.77)	**1.95** (1.69-2.27)	**2.58** (2.24-2.99)	**3.10** (2.67-3.58)	**3.83** (3.28-4.42)	**4.42** (3.76-5.10)	**5.06** (4.27-5.84)	**5.74** (4.79-6.64)	**6.70** (5.53-7.77)	**7.49** (6.10-8.73)
7-day	**1.72** (1.48-2.00)	**2.20** (1.90-2.56)	**2.91** (2.51-3.39)	**3.49** (3.00-4.05)	**4.32** (3.69-5.00)	**5.00** (4.23-5.78)	**5.71** (4.80-6.62)	**6.48** (5.40-7.53)	**7.58** (6.22-8.83)	**8.47** (6.87-9.92)
10-day	**1.87** (1.62-2.17)	**2.40** (2.08-2.78)	**3.17** (2.75-3.67)	**3.80** (3.28-4.38)	**4.69** (4.02-5.40)	**5.40** (4.60-6.22)	**6.17** (5.21-7.11)	**6.98** (5.85-8.06)	**8.12** (6.72-9.41)	**9.05** (7.39-10.5)
20-day	**2.30** (2.01-2.64)	**2.96** (2.59-3.40)	**3.92** (3.41-4.48)	**4.64** (4.03-5.31)	**5.63** (4.86-6.44)	**6.40** (5.50-7.31)	**7.18** (6.14-8.23)	**7.99** (6.79-9.17)	**9.08** (7.64-10.5)	**9.93** (8.28-11.5)
30-day	**2.70** (2.34-3.11)	**3.48** (3.02-4.01)	**4.59** (3.97-5.28)	**5.44** (4.70-6.25)	**6.59** (5.65-7.57)	**7.48** (6.39-8.59)	**8.39** (7.14-9.65)	**9.32** (7.88-10.7)	**10.6** (8.87-12.2)	**11.6** (9.61-13.4)
45-day	**3.16** (2.76-3.62)	**4.08** (3.56-4.67)	**5.38** (4.69-6.16)	**6.36** (5.52-7.27)	**7.66** (6.62-8.75)	**8.64** (7.44-9.88)	**9.65** (8.26-11.1)	**10.7** (9.08-12.2)	**12.0** (10.1-13.9)	**13.1** (10.9-15.1)
60-day	**3.51** (3.07-4.00)	**4.54** (3.98-5.16)	**5.98** (5.23-6.79)	**7.03** (6.14-7.99)	**8.42** (7.32-9.56)	**9.46** (8.19-10.8)	**10.5** (9.05-12.0)	**11.5** (9.89-13.2)	**12.9** (11.0-14.8)	**14.0** (11.8-16.1)

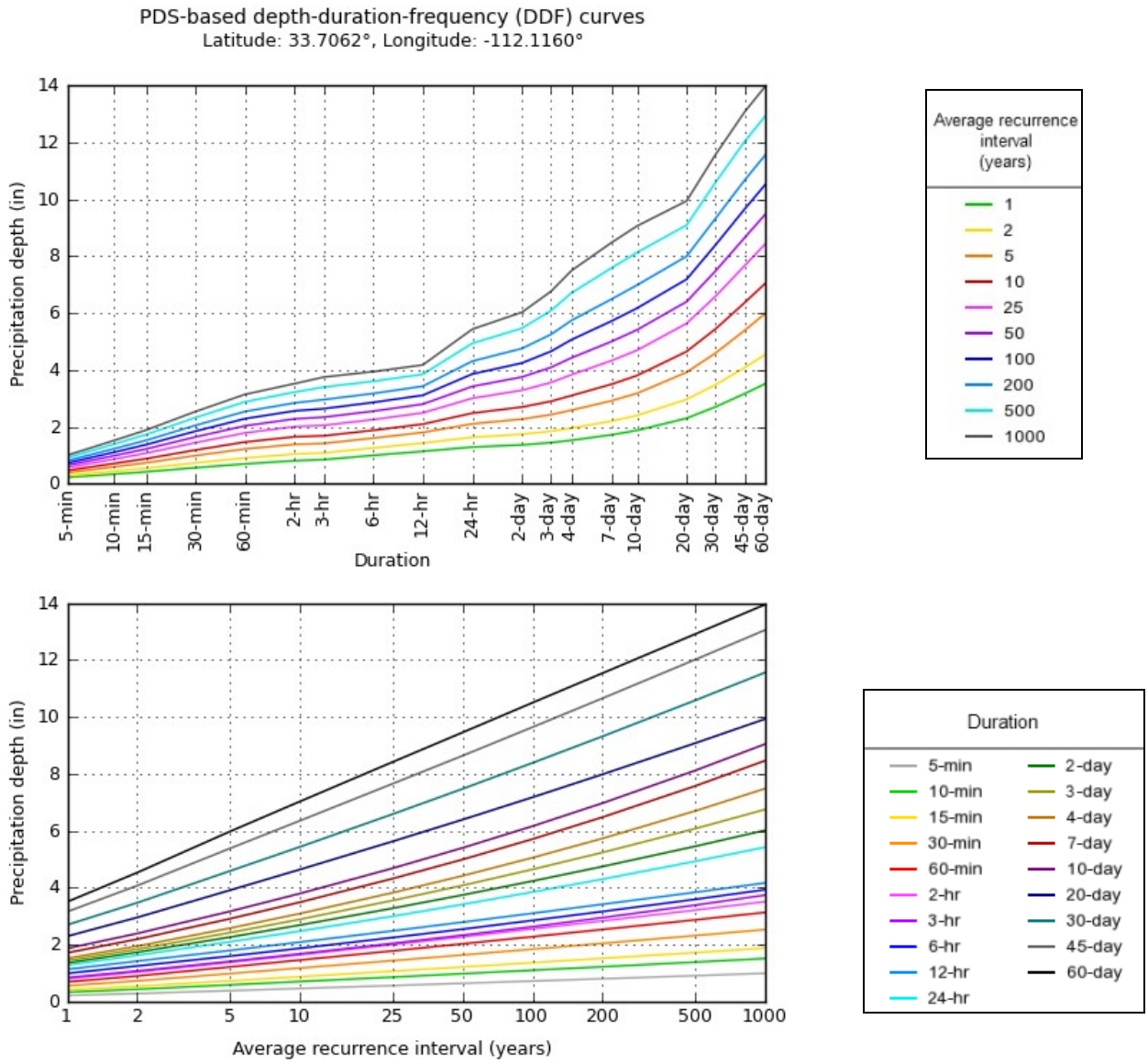
[1] Precipitation frequency (PF) estimates in this table are based on frequency analysis of partial duration series (PDS).

Numbers in parenthesis are PF estimates at lower and upper bounds of the 90% confidence interval. The probability that precipitation frequency estimates (for a given duration and average recurrence interval) will be greater than the upper bound (or less than the lower bound) is 5%. Estimates at upper bounds are not checked against probable maximum precipitation (PMP) estimates and may be higher than currently valid PMP values.

Please refer to NOAA Atlas 14 document for more information.

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PF graphical



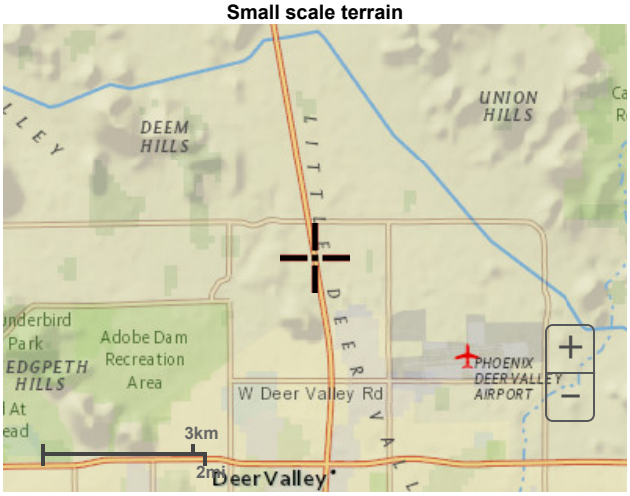
NOAA Atlas 14, Volume 1, Version 5

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Maps & aerials

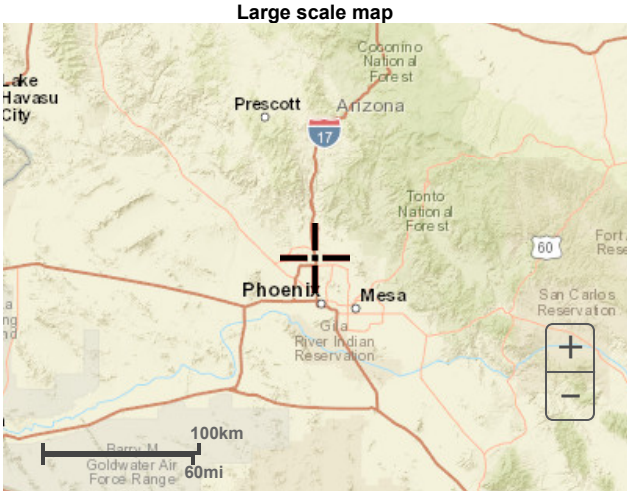
Small scale terrain



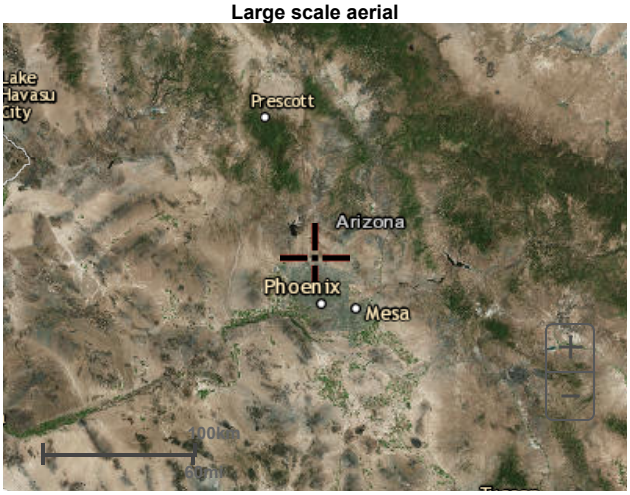
Large scale terrain



Large scale map



Large scale aerial



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US Department of Commerce
National Oceanic and Atmospheric Administration
National Weather Service
National Water Center
1325 East West Highway
Silver Spring, MD 20910
Questions?: HDSC.Questions@noaa.gov

Disclaimer

APPENDIX B

FEMA FLOODPLAIN MAP

sources of similar size. The **community map repository** should be consulted for possible updated or additional flood hazard information.

To obtain more detailed information in areas where **Base Flood Elevations** (BFEs) and/or **floodways** have been determined, users are encouraged to consult the Flood Profiles and Floodway Data and/or Summary of Stillwater Elevations tables contained within the Flood Insurance Study (FIS) report that accompanies this FIRM. Users should be aware that BFEs shown on the FIRM represent rounded whole-foot elevations. These BFEs are intended for flood insurance rating purposes only and should not be used as the sole source of flood elevation information. Accordingly, flood elevation data presented in the FIS report should be utilized in conjunction with the FIRM for purposes of construction and/or floodplain management.

Coastal Base Flood Elevations shown on this map apply only landward of 0.0' North American Vertical Datum of 1988 (NAVD 88). Users of this FIRM should be aware that coastal flood elevations are also provided in the Summary of Stillwater Elevations tables in the Flood Insurance Study report for this jurisdiction. Elevations shown in the Summary of Stillwater Elevations table should be used for construction and/or floodplain management purposes when they are higher than the elevations shown on this FIRM.

Boundaries of the **floodways** were computed at cross sections and interpolated between cross sections. The floodways were based on hydraulic considerations with regard to requirements of the National Flood Insurance Program. Floodway widths and other pertinent floodway data are provided in the Flood Insurance Study report for this jurisdiction.

Certain areas not in Special Flood Hazard Areas may be protected by **flood control structures**. Refer to Section 2.4 "Flood Protection Measures" of the Flood Insurance Study report for information on flood control structures for this jurisdiction.

The **projection** used in the preparation of this map was Arizona State Plane Central zone (FIPSZONE 0202). The **horizontal datum** was NAD 83 HARN, GRS1980 spheroid. Differences in datum, spheroid, projection or State Plane zones used in the production of FIRMs for adjacent jurisdictions may result in slight positional differences in map features across jurisdiction boundaries. These differences do not affect the accuracy of this FIRM.

Flood elevations on this map are referenced to the North American Vertical Datum of 1988 (NAVD 88). These flood elevations must be compared to structure and ground elevations referenced to the same **vertical datum**. Map users wishing to obtain flood elevations referenced to the National Geodetic Vertical Datum of 1929 (NGVD 29) may use the following Maricopa County website application: http://www.fcd.maricopa.gov/Maps/gismaps/apps/gdacs/application/index.cfm

This web tool allows users to obtain point-specific datum conversion values by zooming in and hovering over a VERTCON checkbox on the layers menu on the left side of the screen. The VERTCON grid referenced in this web application was also used to convert existing flood elevations from NGVD 29 to NAVD 88.

To obtain current elevation, description, and/or location information for National Geodetic Survey bench marks shown on this map, please contact the Information Services Branch of the National Geodetic Survey at (301) 713-3242, or visit its website at http://www.ngs.noaa.gov. To obtain information about Geodetic Densification and Cadastral Survey bench marks produced by the Maricopa County Department of Transportation, please visit the Flood Control District of Maricopa County website at: http://www.fcd.maricopa.gov/Maps/gismaps/apps/gdacs/application/index.cfm.

Base map information shown on this FIRM was derived from multiple sources. Aerial imagery was provided in digital format by the Maricopa County Department of Public Works, Flood Control District. The imagery is dated October 2009 to November 2009. Additional National Agricultural Imagery Program (NAIP) imagery was provided by the Arizona State Land Department (ALRIS) and is dated 2007. The coordinate system used for the production of the digital FIRM is State Plane Arizona Central NAD83 HARN, International Feet.

The **profile baseline** depicted on this map represents the hydraulic modeling baselines that match flood profiles in the FIS report. As a result of improved topographic data, the **profile baseline**, in some cases, may deviate significantly from the channel centerline or appear outside the SFHA.

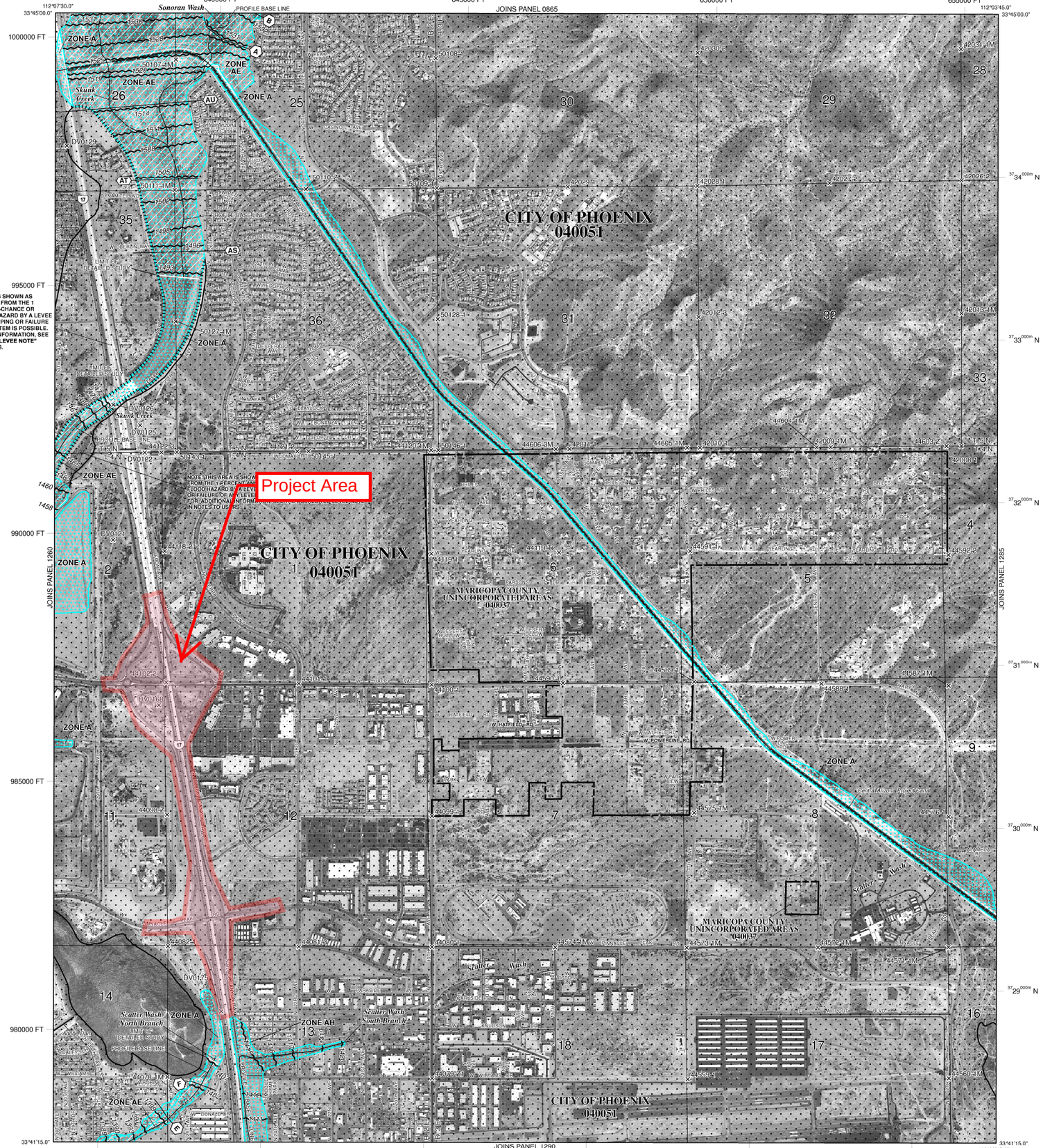
Corporate limits shown on this map are based on the best data available at the time of publication. Because changes due to annexations or de-annexations may have occurred after this map was published, map users should contact appropriate community officials to verify current corporate limit locations.

Please refer to the separately printed **Map Index** for an overview map of the county showing the layout of map panels; community map repository addresses; and a Listing of Communities table containing National Flood Insurance Program dates for each community as well as a listing of the panels on which each community is located.

For Information on available products associated with this FIRM, visit the **Map Service Center (MSC)** website at http://msc.fema.gov. Available products may include previously issued Letters of Map Change, a Flood Insurance Study Report, or digital versions of this map. Many of these products can be ordered or obtained directly from the website.

If you have **questions about this map,** how to order products, or the National Flood Insurance Program in general, please call the **FEMA Map Information eXchange (FMIX)** at **1-877-FEMA MAP** (1-877-336-2627) or visit the FEMA website at http://www.fema.gov/.

Accredited Levee Notes to Users: Check with your local community to obtain more information, such as the estimated level of protection provided (which may exceed the 1–percent–annual–chance level) and Emergency Action Plan, on the levee system(s) shown as providing protection for areas on this panel. To mitigate flood risk in residual risk areas, property owners and residents are encouraged to consider flood insurance and floodproofing or other protective measures. For more information on flood insurance, interested parties should visit the FEMA Website at http://www.fema.gov/business/nfip/index.shtm.



The 1% annual chance flood (100-year flood), also known as the base flood, is the flood that has a 1% chance of being equaled or exceeded in any given year. The Special Flood Hazard Area is the area subject to flooding by the 1% annual chance flood. Areas of Special Flood Hazard include Zones A, AE, AH, AO, AR, A99, V and VE. The Base Flood Elevation is the water-surface elevation of the 1% annual chance flood.

ZONE A	No Base Flood Elevations determined.
ZONE AE	Base Flood Elevations determined.
ZONE AH	Flood depths of 1 to 3 feet (usually areas of ponding); Base Flood Elevations determined.
ZONE AO	Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined. For areas of alluvial fan flooding, velocities also determined.
ZONE AR	Special Flood Hazard Area formerly protected from the 1% annual chance flood by a flood control system that was subsequently decertified. Zone AR indicates that the former flood control system is being restored to provide protection from the 1% annual chance or greater flood.
ZONE A99	Area to be protected from 1% annual chance flood by a Federal flood protection system under construction; no Base Flood Elevations determined.
ZONE V	Coastal flood zone with velocity hazard (wave action); no Base Flood Elevations determined.
ZONE VE	Coastal flood zone with velocity hazard (wave action); Base Flood Elevations determined.

FLOODWAY AREAS IN ZONE AE

The floodway is the channel of a stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 1% annual chance flood can be carried without substantial increases in flood heights.

OTHER FLOOD AREAS

ZONE X	Areas of 0.2% annual chance flood; areas of 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 1% annual chance flood.

OTHER AREAS

ZONE X	Areas determined to be outside the 0.2% annual chance floodplain.
ZONE D	Areas in which flood hazards are undetermined, but possible.

COASTAL BARRIER RESOURCES SYSTEM (CBRS) AREAS

OTHERWISE PROTECTED AREAS (OPAs)

CBRS areas and OPAs are normally located within or adjacent to Special Flood Hazard Areas.

- 1% annual chance floodplain boundary
- 0.2% annual chance floodplain boundary
- Floodway boundary
- Zone D boundary
- CBRS and OPA boundary
- Boundary dividing Special Flood Hazard Areas of different Base Flood Elevations, flood depths or flood velocities.
- 513 — Base Flood Elevation line and value; elevation in feet*
- (EL 987) — Base Flood Elevation value where uniform within zone; elevation in feet*

* Referenced to the North American Vertical Datum of 1988 (NAVD 88)

- A — A — Cross section line
- 23 — 23 — Transect line
- 97°07'30", 32°22'30" — Geographic coordinates referenced to the North American Datum of 1983 (NAD 83)
- 4275000mN — 1000-meter Universal Transverse Mercator grid ticks, zone 12
- 6000000 M — 5000-foot grid ticks: Arizona State Plane coordinate system, central zone (FIPSZONE 0202), Transverse Mercator
- DX5510 — Bench mark (see explanation in Notes to Users section of this FIRM panel)
- M1.5 — River Mile

MAP REPOSITORIES
Refer to Map Repositories list on Map Index

EFFECTIVE DATE OF COUNTYWIDE
FLOOD INSURANCE RATE MAP
April 15, 1988

EFFECTIVE DATE(S) OF REVISION(S) TO THIS PANEL
December 3, 1993 July 19, 2001 September 30, 2005
October 16, 2013 - to add special flood hazard areas, to change floodway, to add floodway, to add roads and road names, to advance suffix, to incorporate previously issued letters of map revision, to update corporate limits, to change base flood elevations, and to add base flood elevation.

For community map revision history prior to countywide mapping, refer to the Community Map History table located in the Flood Insurance Study report for this jurisdiction.

To determine if flood insurance is available in this community, contact your insurance agent or call the National Flood Insurance Program at 1-800-638-6620.

MAP SCALE 1" = 1000'
500 0 1000 2000 FEET
300 0 300 600 METERS

NFIP

NATIONAL FLOOD INSURANCE PROGRAM

PANEL 1280L

FIRM
FLOOD INSURANCE RATE MAP
MARICOPA COUNTY, ARIZONA AND INCORPORATED AREAS

PANEL 1280 OF 4425
(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
MARICOPA COUNTY	040037	1280	L
PHOENIX, CITY OF	040051	1280	L

Notice to User: The **Map Number** shown below should be used when placing map orders; the **Community Number** shown above should be used on insurance applications for the subject community.

MAP NUMBER
04013C1280L

MAP REVISED
OCTOBER 16, 2013

APPENDIX C

BOX CULVERT HYDRAULIC ANALYSIS

HY-8 Culvert Analysis Report
New Pinnacle Peak Road 3-8’x6’x199’ CBC

Crossing Discharge Data

Discharge Selection Method: Specify Minimum, Design, and Maximum Flow

Minimum Flow: 720 cfs

Design Flow: 923 cfs

Maximum Flow: 2500 cfs

Table 1 - Summary of Culvert Flows at Crossing: New Pinnacle Peak CBC

Headwater Elevation (ft)	Total Discharge (cfs)	3-8'x6'x199' Discharge (cfs)	Roadway Discharge (cfs)	Iterations
1417.39	720.00	720.00	0.00	1
1418.12	898.00	897.09	0.70	6
1418.20	923.00	917.15	5.21	8
1418.75	1254.00	1055.77	197.82	6
1418.93	1432.00	1102.41	328.94	6
1419.08	1610.00	1141.74	466.73	5
1419.22	1788.00	1176.34	610.57	5
1419.33	1966.00	1207.15	758.34	5
1419.44	2144.00	1234.48	907.88	4
1419.54	2322.00	1260.30	1060.62	4
1419.64	2500.00	1284.85	1214.49	4
1418.07	883.74	883.74	0.00	Overtopping

Rating Curve Plot for Crossing: New Pinnacle Peak CBC

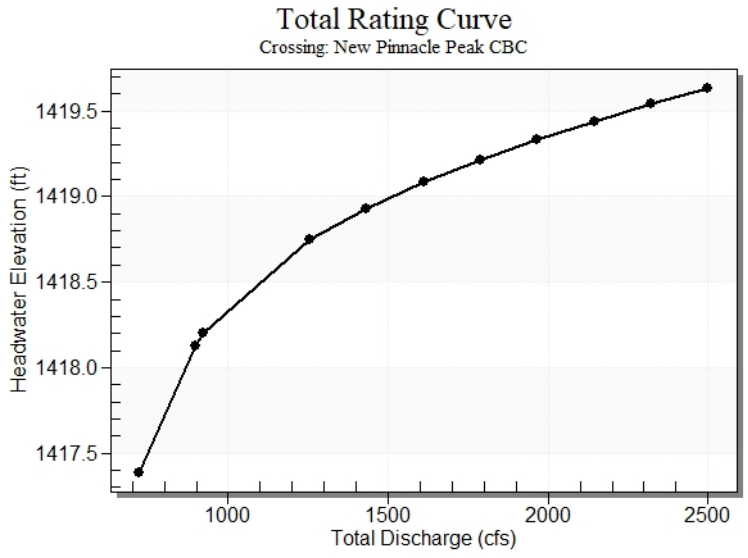


Table 2 - Culvert Summary Table: 3-8'x6'x199'

Total Discharge (cfs)	Culvert Discharge (cfs)	Headwater Elevation (ft)	Inlet Control Depth (ft)	Outlet Control Depth (ft)	Flow Type	Normal Depth (ft)	Critical Depth (ft)	Outlet Depth (ft)	Tailwater Depth (ft)	Outlet Velocity (ft/s)	Tailwater Velocity (ft/s)
720.00	720.00	1417.39	4.669	0.0*	1-S2n	1.513	3.035	1.679	1.569	17.868	10.891
898.00	897.09	1418.12	5.404	0.061	1-S2n	1.760	3.514	1.990	1.788	18.785	11.797
923.00	917.15	1418.20	5.484	0.157	1-S2n	1.787	3.566	2.023	1.817	18.887	11.915
254.00	1055.77	1418.75	6.029	0.837	5-S2n	1.968	3.917	2.258	2.177	19.480	13.289
1432.00	1102.41	1418.93	6.210	1.072	5-S2n	2.030	4.032	2.336	2.353	19.667	13.924
1610.00	1141.74	1419.08	6.362	1.274	5-S2n	2.081	4.127	2.402	2.520	19.809	14.505
1788.00	1176.34	1419.22	6.496	1.453	5-S2n	2.126	4.210	2.458	2.680	19.944	15.041
1966.00	1207.15	1419.33	6.615	1.615	5-S2n	2.167	4.283	2.509	2.833	20.047	15.540
2144.00	1234.48	1419.44	6.721	1.759	5-S2n	2.201	4.347	2.553	2.979	20.149	16.007
2322.00	1260.30	1419.54	6.821	1.897	5-S2n	2.232	4.408	2.595	3.121	20.234	16.447
2500.00	1284.85	1419.64	6.916	2.029	5-S2n	2.262	4.465	2.635	3.257	20.316	16.863

* Full Flow Headwater elevation is below inlet invert.

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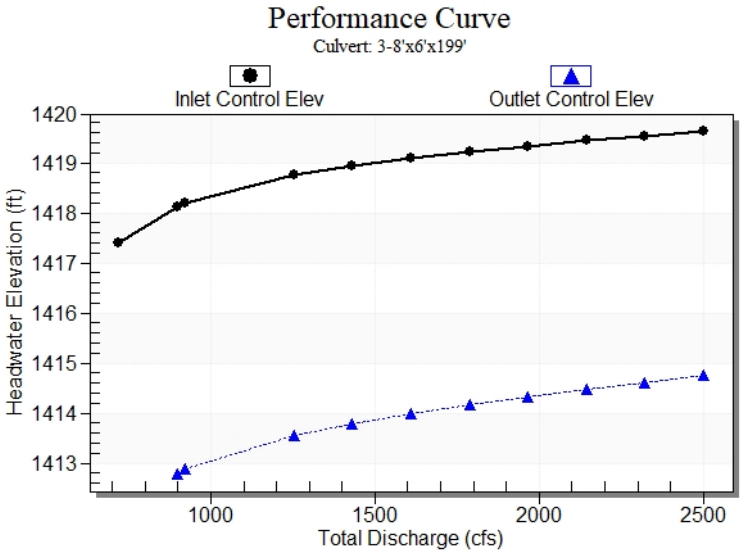
Straight Culvert

Inlet Elevation (invert): 1412.72 ft, Outlet Elevation (invert): 1408.30 ft

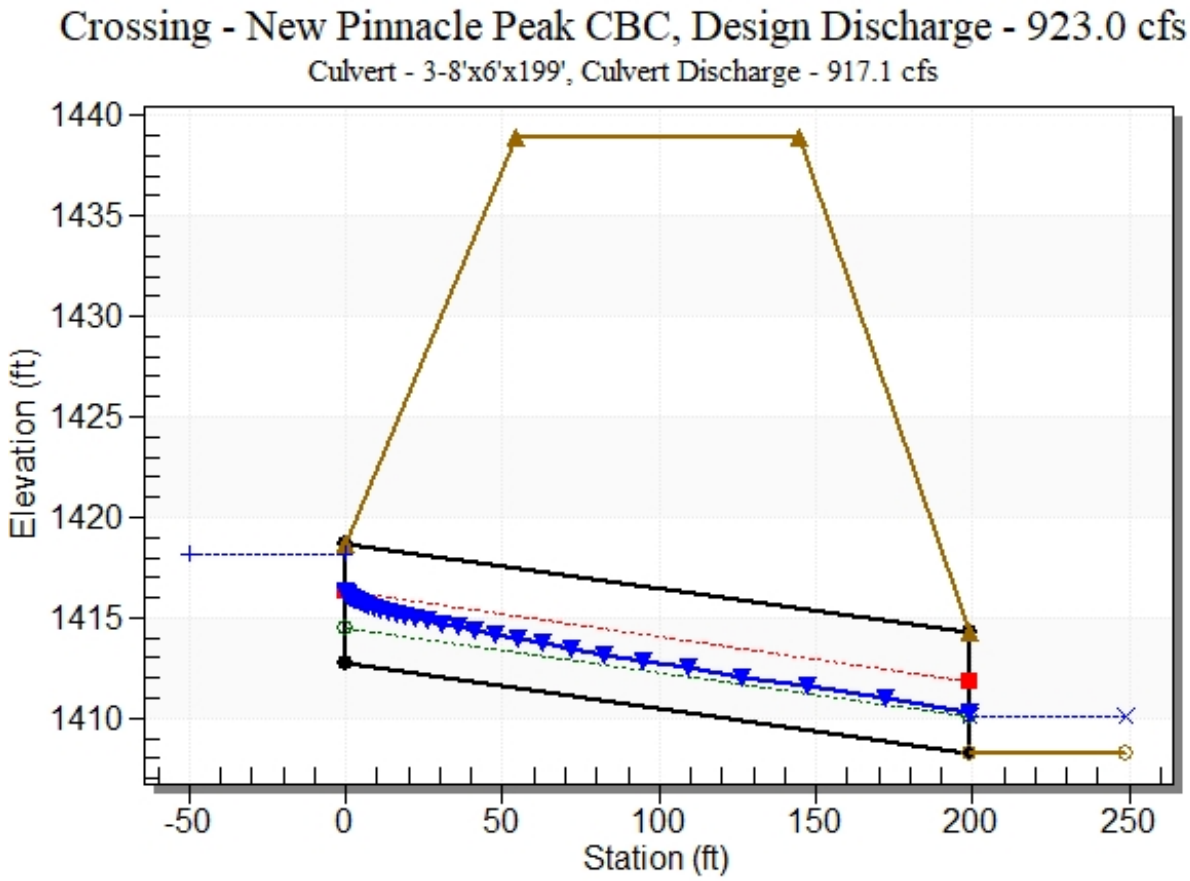
Culvert Length: 199.05 ft, Culvert Slope: 0.0222

****

Culvert Performance Curve Plot: 3-8'x6'x199'



Water Surface Profile Plot for Culvert: 3-8'x6'x199'



Site Data - 3-8'x6'x199'

Site Data Option: Culvert Invert Data
Inlet Station: 0.00 ft
Inlet Elevation: 1412.72 ft
Outlet Station: 199.00 ft
Outlet Elevation: 1408.30 ft
Number of Barrels: 3

Culvert Data Summary - 3-8'x6'x199'

Barrel Shape: Concrete Box
Barrel Span: 8.00 ft
Barrel Rise: 6.00 ft
Barrel Material: Concrete
Embedment: 0.00 in
Barrel Manning's n: 0.0120
Culvert Type: Straight
Inlet Configuration: 1.5:1 Bevel (90º) Headwall
Inlet Depression: NONE

Table 3 - Downstream Channel Rating Curve (Crossing: New Pinnacle Peak CBC)

Flow (cfs)	Water Surface Elev (ft)	Depth (ft)	Velocity (ft/s)	Shear (psf)	Froude Number
720.00	1409.87	1.57	10.89	0.55	1.59
898.00	1410.09	1.79	11.80	0.62	1.62
923.00	1410.12	1.82	11.91	0.63	1.62
1254.00	1410.48	2.18	13.29	0.76	1.67
1432.00	1410.65	2.35	13.92	0.82	1.68
1610.00	1410.82	2.52	14.51	0.88	1.70
1788.00	1410.98	2.68	15.04	0.94	1.71
1966.00	1411.13	2.83	15.54	0.99	1.73
2144.00	1411.28	2.98	16.01	1.04	1.74
2322.00	1411.42	3.12	16.45	1.09	1.75
2500.00	1411.56	3.26	16.86	1.14	1.76

Tailwater Channel Data - New Pinnacle Peak CBC

Tailwater Channel Option: Trapezoidal Channel

Bottom Width: 39.00 ft

Side Slope (H:V): 2.00 (_:1)

Channel Slope: 0.0056

Channel Manning's n: 0.0130

Channel Invert Elevation: 1408.30 ft

Roadway Data for Crossing: New Pinnacle Peak CBC

Roadway Profile Shape: Irregular Roadway Shape (coordinates)

Irregular Roadway Cross-Section:

Coord No.	Station (ft)	Elevation (ft)
0	0.00	1438.95
1	560.00	1422.46
2	570.00	1422.18
3	670.00	1419.81
4	770.00	1418.45
5	857.00	1418.07
6	870.00	1418.08
7	910.00	1418.20
8	970.00	1418.77
9	1070.00	1419.28

Roadway Surface: Paved

Roadway Top Width: 91.00 ft

HY-8 Culvert Analysis Report
Exst Pinnacle Peak Road 2-8’x7’x118’ CBC

Crossing Discharge Data

Discharge Selection Method: Specify Minimum, Design, and Maximum Flow

Minimum Flow: 720 cfs

Design Flow: 923 cfs

Maximum Flow: 2500 cfs

Table 1 - Summary of Culvert Flows at Crossing: Exst Pinnacle Peak CBC

Headwater Elevation (ft)	Total Discharge (cfs)	2-8'x7'x118' Discharge (cfs)	Roadway Discharge (cfs)	Iterations
1418.70	720.00	685.90	33.64	7
1418.98	898.00	735.19	161.97	7
1419.01	923.00	740.43	181.58	5
1419.32	1254.00	795.64	457.88	6
1419.44	1432.00	818.66	612.49	5
1419.56	1610.00	839.67	769.71	5
1419.66	1788.00	859.06	927.29	4
1419.76	1966.00	877.24	1088.00	4
1419.85	2144.00	894.25	1249.34	4
1419.94	2322.00	910.25	1409.63	3
1420.02	2500.00	925.85	1572.61	3
1418.42	637.31	637.31	0.00	Overtopping

Table 2 - Culvert Summary Table: 2-8'x7'x118'

Total Discharge (cfs)	Culvert Discharge (cfs)	Headwater Elevation (ft)	Inlet Control Depth (ft)	Outlet Control Depth (ft)	Flow Type	Normal Depth (ft)	Critical Depth (ft)	Outlet Depth (ft)	Tailwater Depth (ft)	Outlet Velocity (ft/s)	Tailwater Velocity (ft/s)
720.00	685.90	1418.70	5.983	4.114	1-S2n	3.355	3.850	3.449	1.569	12.431	10.891
898.00	735.19	1418.98	6.262	4.419	1-S2n	3.530	4.032	3.628	1.788	12.664	11.797
923.00	740.43	1419.01	6.292	4.451	1-S2n	3.549	4.052	3.647	1.817	12.689	11.915
1254.00	795.64	1419.32	6.598	4.799	1-S2n	3.746	4.251	3.844	2.177	12.936	13.289
1432.00	818.66	1419.44	6.724	4.946	1-S2n	3.827	4.332	3.925	2.353	13.035	13.924
1610.00	839.67	1419.56	6.839	5.080	1-S2n	3.899	4.406	3.999	2.520	13.124	14.505
1788.00	859.06	1419.66	6.944	5.206	1-S2n	3.966	4.474	4.066	2.680	13.204	15.041
1966.00	877.24	1419.76	7.043	5.324	5-S2n	4.028	4.536	4.129	2.833	13.278	15.540
2144.00	894.25	1419.85	7.134	5.435	5-S2n	4.087	4.595	4.188	2.979	13.346	16.007
2322.00	910.25	1419.94	7.221	5.540	5-S2n	4.141	4.650	4.243	3.121	13.409	16.447
2500.00	925.85	1420.02	7.305	5.643	5-S2n	4.195	4.703	4.296	3.257	13.470	16.863

****

Straight Culvert

Inlet Elevation (invert): 1412.72 ft, Outlet Elevation (invert): 1412.16 ft

Culvert Length: 118.00 ft, Culvert Slope: 0.0047

****

Site Data - 2-8'x7'x118'

Site Data Option: Culvert Invert Data
Inlet Station: 0.00 ft
Inlet Elevation: 1412.72 ft
Outlet Station: 118.00 ft
Outlet Elevation: 1412.16 ft
Number of Barrels: 2

Culvert Data Summary - 2-8'x7'x118'

Barrel Shape: Concrete Box
Barrel Span: 8.00 ft
Barrel Rise: 7.00 ft
Barrel Material: Concrete
Embedment: 0.00 in
Barrel Manning's n: 0.0120
Culvert Type: Straight
Inlet Configuration: 1.5:1 Bevel (90º) Headwall
Inlet Depression: NONE

Table 3 - Downstream Channel Rating Curve (Crossing: Exst Pinnacle Peak CBC)

Flow (cfs)	Water Surface Elev (ft)	Depth (ft)	Velocity (ft/s)	Shear (psf)	Froude Number
720.00	1413.73	1.57	10.89	0.55	1.59
898.00	1413.95	1.79	11.80	0.62	1.62
923.00	1413.98	1.82	11.91	0.63	1.62
1254.00	1414.34	2.18	13.29	0.76	1.67
1432.00	1414.51	2.35	13.92	0.82	1.68
1610.00	1414.68	2.52	14.51	0.88	1.70
1788.00	1414.84	2.68	15.04	0.94	1.71
1966.00	1414.99	2.83	15.54	0.99	1.73
2144.00	1415.14	2.98	16.01	1.04	1.74
2322.00	1415.28	3.12	16.45	1.09	1.75
2500.00	1415.42	3.26	16.86	1.14	1.76

Tailwater Channel Data - Exst Pinnacle Peak CBC

Tailwater Channel Option: Trapezoidal Channel
Bottom Width: 39.00 ft
Side Slope (H:V): 2.00 (_:1)
Channel Slope: 0.0056
Channel Manning's n: 0.0130
Channel Invert Elevation: 1412.16 ft

Roadway Data for Crossing: Exst Pinnacle Peak CBC

Roadway Profile Shape: Irregular Roadway Shape (coordinates)

Irregular Roadway Cross-Section:

Coord No.	Station (ft)	Elevation (ft)
0	0.00	1439.40
1	528.25	1423.65
2	600.00	1421.64
3	700.00	1419.72
4	800.00	1418.65
5	875.00	1418.42
6	900.00	1418.45
7	1000.00	1418.86
8	1100.00	1419.27

Roadway Surface: Paved

Roadway Top Width: 72.00 ft

HY-8 Culvert Analysis Report
New Pinnacle Peak Road 3-8’x6’x199’ CBC (Low Flows)

Crossing Discharge Data

Discharge Selection Method: Specify Minimum, Design, and Maximum Flow

Minimum Flow: 200 cfs

Design Flow: 700 cfs

Maximum Flow: 700 cfs

Table 1 - Summary of Culvert Flows at Crossing: New Pinnacle Peak CBC (Low Flows)

Headwater Elevation (ft)	Total Discharge (cfs)	3-8'x6'x199' Discharge (cfs)	Roadway Discharge (cfs)	Iterations
1414.70	200.00	200.00	0.00	1
1415.02	250.00	250.00	0.00	1
1415.31	300.00	300.00	0.00	1
1415.59	350.00	350.00	0.00	1
1415.86	400.00	400.00	0.00	1
1416.13	450.00	450.00	0.00	1
1416.38	500.00	500.00	0.00	1
1416.62	550.00	550.00	0.00	1
1416.85	600.00	600.00	0.00	1
1417.08	650.00	650.00	0.00	1
1417.30	700.00	700.00	0.00	1
1418.07	883.73	883.73	0.00	Overtopping

Rating Curve Plot for Crossing: New Pinnacle Peak CBC (Low Flows)

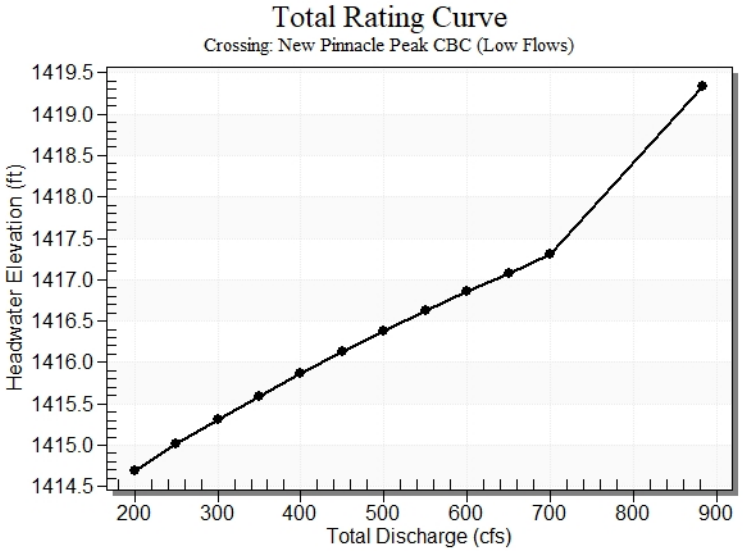


Table 2 - Culvert Summary Table: 3-8'x6'x199'

Total Discharge (cfs)	Culvert Discharge (cfs)	Headwater Elevation (ft)	Inlet Control Depth (ft)	Outlet Control Depth (ft)	Flow Type	Normal Depth (ft)	Critical Depth (ft)	Outlet Depth (ft)	Tailwater Depth (ft)	Outlet Velocity (ft/s)	Tailwater Velocity (ft/s)
200.00	200.00	1414.70	1.978	0.0*	1-S2n	0.643	1.292	0.685	0.732	12.174	6.749
250.00	250.00	1415.02	2.295	0.0*	1-S2n	0.738	1.499	0.789	0.837	13.210	7.347
300.00	300.00	1415.31	2.592	0.0*	1-S2n	0.832	1.693	0.889	0.933	14.069	7.872
350.00	350.00	1415.59	2.872	0.0*	1-S2n	0.927	1.876	0.984	1.022	14.824	8.341
400.00	400.00	1415.86	3.143	0.0*	1-S2n	1.021	2.051	1.087	1.107	15.335	8.769
450.00	450.00	1416.13	3.405	0.0*	1-S2n	1.110	2.218	1.181	1.187	15.875	9.162
500.00	500.00	1416.38	3.657	0.0*	1-S2n	1.185	2.380	1.276	1.264	16.332	9.527
550.00	550.00	1416.62	3.900	0.0*	1-S2n	1.260	2.536	1.371	1.337	16.714	9.868
600.00	600.00	1416.85	4.134	0.0*	1-S2n	1.334	2.687	1.463	1.408	17.083	10.189
650.00	650.00	1417.08	4.362	0.0*	1-S2n	1.409	2.835	1.554	1.477	17.426	10.493
700.00	700.00	1417.30	4.582	0.0*	1-S2n	1.484	2.978	1.644	1.543	17.742	10.780

* Full Flow Headwater elevation is below inlet invert.

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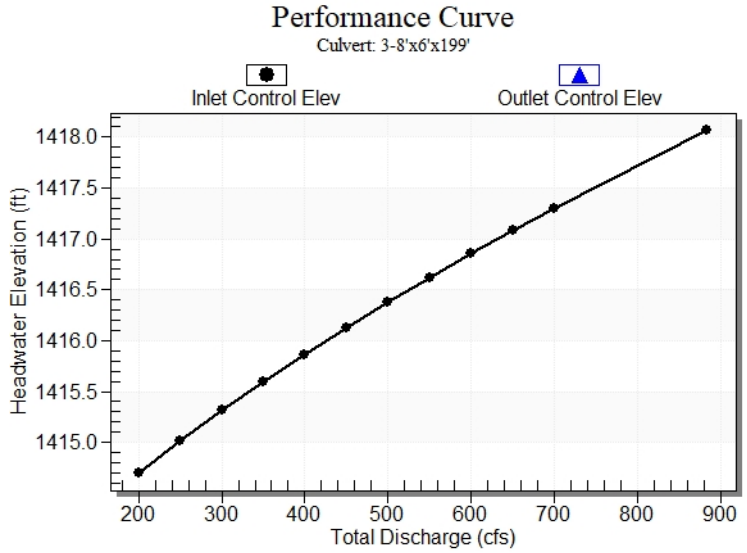
Straight Culvert

Inlet Elevation (invert): 1412.72 ft, Outlet Elevation (invert): 1408.30 ft

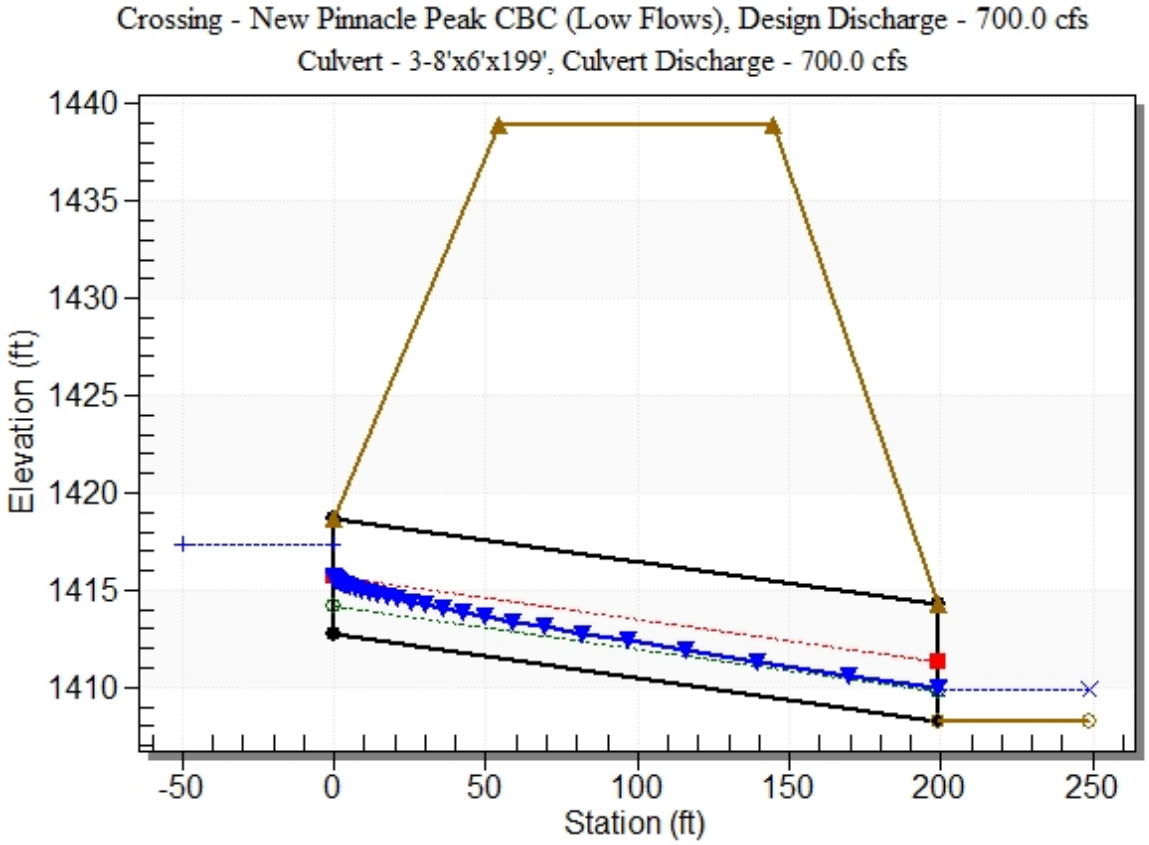
Culvert Length: 199.05 ft, Culvert Slope: 0.0222

****

Culvert Performance Curve Plot: 3-8'x6'x199'



Water Surface Profile Plot for Culvert: 3-8'x6'x199'



Site Data - 3-8'x6'x199'

Site Data Option: Culvert Invert Data
Inlet Station: 0.00 ft
Inlet Elevation: 1412.72 ft
Outlet Station: 199.00 ft
Outlet Elevation: 1408.30 ft
Number of Barrels: 3

Culvert Data Summary - 3-8'x6'x199'

Barrel Shape: Concrete Box
Barrel Span: 8.00 ft
Barrel Rise: 6.00 ft
Barrel Material: Concrete
Embedment: 0.00 in
Barrel Manning's n: 0.0120
Culvert Type: Straight
Inlet Configuration: 1.5:1 Bevel (90º) Headwall
Inlet Depression: NONE

Table 3 - Downstream Channel Rating Curve (Xing: New Pinnacle Peak CBC (Low Flows))

Flow (cfs)	Water Surface Elev (ft)	Depth (ft)	Velocity (ft/s)	Shear (psf)	Froude Number
200.00	1409.03	0.73	6.75	0.26	1.41
250.00	1409.14	0.84	7.35	0.29	1.44
300.00	1409.23	0.93	7.87	0.33	1.47
350.00	1409.32	1.02	8.34	0.36	1.49
400.00	1409.41	1.11	8.77	0.39	1.51
450.00	1409.49	1.19	9.16	0.41	1.52
500.00	1409.56	1.26	9.53	0.44	1.54
550.00	1409.64	1.34	9.87	0.47	1.55
600.00	1409.71	1.41	10.19	0.49	1.56
650.00	1409.78	1.48	10.49	0.52	1.57
700.00	1409.84	1.54	10.78	0.54	1.58

Tailwater Channel Data - New Pinnacle Peak CBC (Low Flows)

Tailwater Channel Option: Trapezoidal Channel

Bottom Width: 39.00 ft

Side Slope (H:V): 2.00 (_:1)

Channel Slope: 0.0056

Channel Manning's n: 0.0130

Channel Invert Elevation: 1408.30 ft

Roadway Data for Crossing: New Pinnacle Peak CBC (Low Flows)

Roadway Profile Shape: Irregular Roadway Shape (coordinates)

Irregular Roadway Cross-Section:

Coord No.	Station (ft)	Elevation (ft)
0	0.00	1438.95
1	560.00	1422.46
2	570.00	1422.18
3	670.00	1419.81
4	770.00	1418.45
5	857.00	1418.07
6	870.00	1418.08
7	910.00	1418.20
8	970.00	1418.77
9	1070.00	1419.28

Roadway Surface: Paved

Roadway Top Width: 91.00 ft

APPENDIX D

SCATTER WASH NORTH BRANCH HEC-1 MODELS

SR 101L TO JOMAX MODEL

2007

SR 101L to Jomax Model

SCATTER WASH HEC–1 DIAGRAM

Dynamite Road

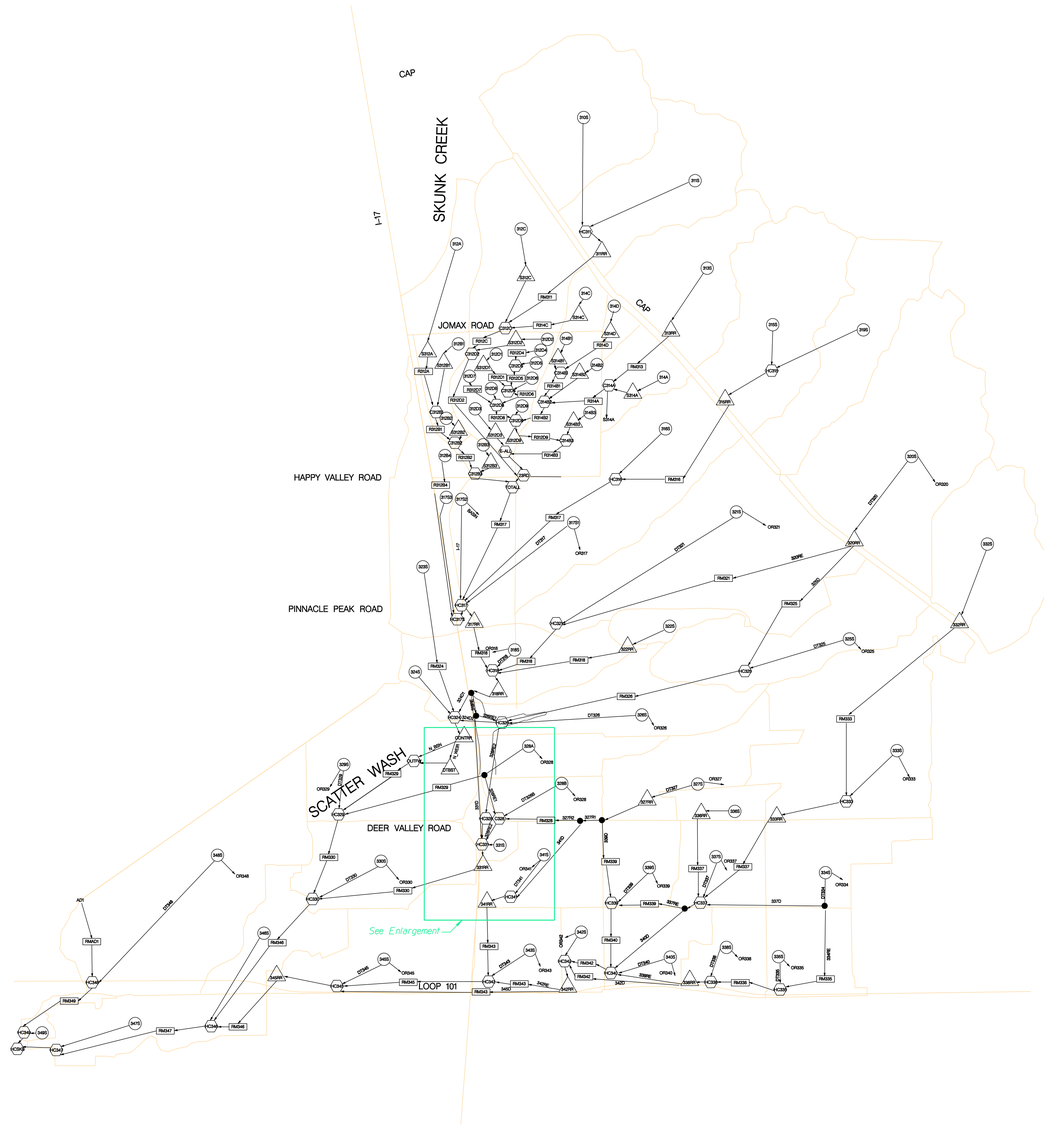
Jomax Road

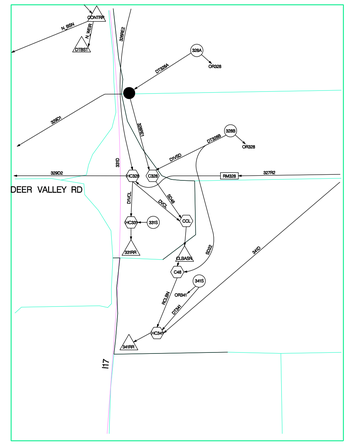
Happy Valley Road

Pinnacle Peak Road

Deer Valley Road

Loop 101





ENLARGEMENT

SCALE: 1" = 2000'

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1****************************************                                  ****************************************
 *                                      *                                  *                                      *
 *   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *                                  *    U.S. ARMY CORPS OF ENGINEERS      *
 *               JUN   1998             *                                  *    HYDROLOGIC ENGINEERING CENTER     *
 *            VERSION 4.1               *                                  *          609 SECOND STREET           *
 *                                      *                                  *       DAVIS, CALIFORNIA 95616        *
 *  RUN DATE   19APR18  TIME  08:54:26  *                                  *           (916) 756-1104             *
 *                                      *                                  *                                      *
 ****************************************                                  ****************************************

                                        X     X  XXXXXXX   XXXXX           X
                                        X     X  X        X     X         XX
                                        X     X  X        X               X
                                        XXXXXXX  XXXX     X        XXXXX  X
                                        X     X  X        X               X
                                        X     X  X        X     X         X
                                        X     X  XXXXXXX   XXXXX         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      THE FOLLOWING MODIFICATIONS WERE DONE TO THE HEC-1 FILE  (3-24-10)
            2       ID       RECIEVED POST DESIGN SURVEY FOR SCATTER WASH BASIN ON 03-22-10
            3       ID       BASIN VOLUME WAS REDUCED TO 51 AC-FT
            4       ID      1. UPDATED SE & SV FOR STORAGE ROUTE KK DTBSN
            5       ID
            6       ID
            7       ID     ************************************************************************
            8       ID     ************************************************************************
            9       ID        I-17 WIDENING, SR101L TO JOMAX ROAD
           10       ID        J2 PROJECT #:06.0121
           11       ID        100-YEAR, 24-HOUR STORM
           12       ID        FILE NAME: SW100807.DAT
           13       ID     THE FOLLOWING MODIFICATIONS WRE DONE TO THE HEC-1 FILE
           14       ID     1. SPLIT BASIN 317S2 INTO THREE BASINS.  NEW BASINS:
           15       ID        317S2 - VESTAR DEVELOPMENT
           16       ID        317S4 - RYAN COMPANIES PROPERTY
           17       ID        317S5 - TANG PROPERTIES
           18       ID     2. UPDATED RESERVIOR ROUTING FOR CARDS 317RR BASED ON NEW TOPO DATA
           19       ID
                    *
                    *DIAGRAM
           20       IT       4 10OCT92    1200    1000
           21       IO       5
                    *

           22       KK    312A
           23       KM    RUNOFF GENERATED ON SUB-BASIN 312A
           24       KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
           25       KM    L=       .9  Lca=       .4   S=   35.3  Kn= .038  LAG=  18.6
           26       KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
           27       BA    .162
           28       IN      30
           29       KM    RAINFALL DEPTH OF 4.00 WAS SPACIALLY REDUCED AS SHOWN BY THE PB RECORD
           30       KM    AN AREAL REDUCTION COEFFICIENT OF .913 WAS USED
           31       PB    3.65
           32       KM    THE FOLLOWING PC RECORD USED A 24-HOUR SCS TYPE II RAINFALL
           33       PC    .000    .005    .011    .016    .022    .028    .035    .041    .048    .056
           34       PC    .063    .071    .080    .089    .098    .109    .120    .133    .147    .163
           35       PC    .181    .204    .235    .283    .663    .735    .772    .799    .820    .838
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687          DI       0   10000
688          DQ       0   10000
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LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

689          KK  HC317B
690          KM   COMBINE HYDROGRAPHS FROM SUB-BASIN 317 WITH ROUTED FLOWS FROM 312,314 & 316
691          HC       2
             *

692          KK   317S5
693          KM   BASIN 317S5
694          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
695          KM    TANG PROPERTY
696          KM    L=       .29 Lca=       .15  S=   25.9  Kn= .020  LAG=   4.8
697          KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
698          BA    .019
699          LG     .10     .25    4.43     .25      90
700          UI      60     106      15       0       0       0       0       0       0       0
701          UI       0       0       0       0       0       0       0       0       0       0
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702          KK  HC317C
703          KO       1       2
704          KM    COMBINE HYDROGRAPHS FROM RYAN COMPANIES CHANNEL AND TANG PROPRTY
705          HC       3
             *

706          KK   317RR
707          KO       1       2
708          KM    ROUTE FLOW PINNACLE PEAK ROAD CULVERTS
709          KM   J2 RECEIVED UPDATED SURVEY INFO OF THE NE QUADRANT OF I-17/PINNACLE PEAK RD
710          KM   FROM PTG 11/29/06
711          KM   USED HY8 TO DETERMINE RATING CURVE.
712          RS       1    ELEV   12.95
             *  ************************************************************************
             *  J2 MODIFIED SV INPUT FROM NEW CONTOUR DATA FROM PTG 11/29/06
             *  ************************************************************************
713          SV       0    0.05    0.16    0.35    1.36    5.59   10.52   19.12   24.93   27.38
714          SV   33.83   37.26   41.99   45.64
715          SE   12.95   13.98   14.58   15.09   15.96   17.08   17.75    18.5   18.93   19.07
716          SE   19.37   19.53   19.75   19.92
717          SQ       0      50     100     150     250     400     500   620.8     794     892
718          SQ    1194    1396    1714    1984
             *

719          KK   RM318
720          KM   MUSKINGUM-CUNGE ROUTE FLOW FROM SUB-BASIN 317 THROUGH SUB-BASIN 318
721          KM           1) Reach Length = 1805 ft.
722          KM   J2 UPDATED CHANNEL LONGITUDINAL & SIDE SLOPE FROM 60% PLANS FEB 2007
723          RD
724          RC    .013    .013    .013    1805  0.0025
725          RX       0       6      12   23.44   63.40    76.4    78.4    88.4
726          RY    6.72    6.62     6.5     0.8     0.0     6.5     6.5     6.5
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LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

727          KK    318S
728          KM    RUNOFF GENERATED ON SUB-BASIN 318
729          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
730          KM    L=  1.15 mi. Lca=  0.44 mi.  S= 36 ft/mi.   Kn= .020  LAG= 11.25 min.
731          KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
732          BA    .345
733          LG    .100    .250    3.77    .334   78.25
734          UI    195.    596.   1090.    803.    410.    149.     52.     32.      0.      0.
             *

735          KK   DT318
736          KM   THROW AWAY 10-YR 2-HR RETENTION VOLUME:  1) 1.20 AC-FT FROM SUB-BASIN 318
737          KM                                             (Hydrograph identified as OR318)
738          KM                                           2) Balance of runoff continues on.
```

+	RM317	526.	12.20	142.	68.	25.	1.59
	HYDROGRAPH AT						
+	317S1	870.	12.07	122.	41.	15.	.55
	DIVERSION TO						
+	OR317	728.	12.07	55.	16.	6.	.55
	HYDROGRAPH AT						
+	DT317	870.	12.07	85.	24.	9.	.55
	HYDROGRAPH AT						
+	317S2	184.	12.00	27.	10.	3.	.10
	DIVERSION TO						
+	OR17S2	184.	12.67	25.	7.	3.	.10
	HYDROGRAPH AT						
+	DT17S2	22.	12.67	7.	3.	1.	.10
	4 COMBINED AT						
+	HC317A	1545.	12.07	596.	272.	101.	5.92
	ROUTED TO						
+	RM317	1313.	12.20	587.	270.	100.	5.92
	HYDROGRAPH AT						
+	312B4	94.	12.00	12.	4.	1.	.05
	ROUTED TO						
+	R312B4	94.	12.07	12.	4.	1.	.05
	HYDROGRAPH AT						
+	317S3	88.	12.00	10.	3.	1.	.05
	2 COMBINED AT						
+	HC317S	181.	12.00	22.	7.	2.	.10
	HYDROGRAPH AT						
+	317S4	212.	12.00	32.	11.	4.	.12
	DIVERSION TO						
+	OR317S	212.	16.00	32.	10.	3.	.12
	HYDROGRAPH AT						
+	DT317S	6.	16.00	4.	1.	0.	.12
	2 COMBINED AT						
+	HC317B	181.	12.00	23.	8.	3.	.22
	HYDROGRAPH AT						
+	317S5	33.	12.00	5.	2.	1.	.02
	3 COMBINED AT						
+	HC317C	1444.	12.20	608.	279.	104.	6.16
	ROUTED TO						
+	317RR	920.	12.47	601.	279.	104.	6.16
+						19.10	12.47
	ROUTED TO						
+	RM318	914.	12.53	601.	279.	104.	6.16
	HYDROGRAPH AT						
+	318S	583.	12.00	83.	29.	10.	.34
	DIVERSION TO						
+	OR318	8.	12.00	2.	1.	0.	.34
	HYDROGRAPH AT						
+	DT318	583.	12.00	83.	28.	10.	.34
	DIVERSION TO						
+	OR318	583.	12.13	62.	17.	6.	.34
	HYDROGRAPH AT						
+	DT318	358.	12.13	35.	11.	4.	.34

H7383 MODEL

NEW 3-8'x6' CBC AT PINNACLE PEAK ROAD

```
1****************************************                 ****************************************
 *                                      *                 *                                      *
 *   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *                 *    U.S. ARMY CORPS OF ENGINEERS      *
 *               JUN   1998             *                 *    HYDROLOGIC ENGINEERING CENTER     *
 *            VERSION 4.1               *                 *          609 SECOND STREET           *
 *                                      *                 *       DAVIS, CALIFORNIA 95616        *
 *  RUN DATE   27JUN18  TIME  10:16:34  *                 *          (916) 756-1104              *
 *                                      *                 *                                      *
 ****************************************                 ****************************************

                                        X     X  XXXXXXX   XXXXX           X
                                        X     X  X        X     X         XX
                                        X     X  X        X               X
                                        XXXXXXX  XXXX     X        XXXXX  X
                                        X     X  X        X               X
                                        X     X  X        X     X         X
                                        X     X  XXXXXXX   XXXXX         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

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

            1       ID      THE FOLLOWING MODIFICATIONS WERE DONE TO THE HEC-1 FILE  (4-19-18)
            2       ID
            3       ID     ************************************************************************
            4       ID     ************************************************************************
            5       ID        I-17 / PINNACLE PEAK RD TI & HAPPY VALLEY ROAD TI
            6       ID        ANDES PROJECT #:1606D
            7       ID        100-YEAR, 24-HOUR STORM
            8       ID        FILE NAME: H7383.DAT
            9       ID     THE FOLLOWING MODIFICATIONS WRE DONE TO THE HEC-1 FILE
           10       ID     1. UPDATED RESERVIOR ROUTING FOR CARD 317RR BASED ON DATA FROM
           11       ID    AVILLA-DEER VALLEY STAGE-STORAGE HEC-1 MODEL AND
           12       ID    HY-8 ANALYSIS OF NEW 3-8'x6'x199' CBC
           13       ID
           14       ID    ========================================================================
           15       ID
           16       ID      THE FOLLOWING MODIFICATIONS WERE DONE TO THE HEC-1 FILE  (3-24-10)
           17       ID       RECIEVED POST DESIGN SURVEY FOR SCATTER WASH BASIN ON 03-22-10
           18       ID       BASIN VOLUME WAS REDUCED TO 51 AC-FT
           19       ID      1. UPDATED SE & SV FOR STORAGE ROUTE KK DTBSN
           20       ID
           21       ID
           22       ID     ************************************************************************
           23       ID     ************************************************************************
           24       ID        I-17 WIDENING, SR101L TO JOMAX ROAD
           25       ID        J2 PROJECT #:06.0121
           26       ID        100-YEAR, 24-HOUR STORM
           27       ID        FILE NAME: SW100807.DAT
           28       ID     THE FOLLOWING MODIFICATIONS WRE DONE TO THE HEC-1 FILE
           29       ID     1. SPLIT BASIN 317S2 INTO THREE BASINS.  NEW BASINS:
           30       ID        317S2 - VESTAR DEVELOPMENT
           31       ID        317S4 - RYAN COMPANIES PROPERTY
           32       ID        317S5 - TANG PROPERTIES
           33       ID     2. UPDATED RESERVIOR ROUTING FOR CARDS 317RR BASED ON NEW TOPO DATA
           34       ID
                    *
                    *DIAGRAM
           35       IT       4 10OCT92    1200    1000
           36       IO       5
                    *
```

```
  37          KK    312A
  38          KM    RUNOFF GENERATED ON SUB-BASIN 312A
  39          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
  40          KM    L=       .9  Lca=       .4   S=   35.3  Kn= .038  LAG=  18.6
  41          KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
  42          BA    .162
  43          IN      30
  44          KM    RAINFALL DEPTH OF 4.00 WAS SPACIALLY REDUCED AS SHOWN BY THE PB RECORD
  45          KM    AN AREAL REDUCTION COEFFICIENT OF .913 WAS USED
  46          PB    3.65
  47          KM    THE FOLLOWING PC RECORD USED A 24-HOUR SCS TYPE II RAINFALL
  48          PC    .000    .005    .011    .016    .022    .028    .035    .041    .048    .056
  49          PC    .063    .071    .080    .089    .098    .109    .120    .133    .147    .163
  50          PC    .181    .204    .235    .283    .663    .735    .772    .799    .820    .838
  51          PC    .854    .868    .880    .891    .902    .912    .921    .929    .937    .945
1                                       HEC-1 INPUT                                          PAGE  2

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

  52          PC    .952    .959    .965    .972    .978    .984    .989    .995   1.000
  53          LG     .25     .28    8.28    .082   30.00
  54          UI     29.    110.    169.    240.    347.    249.    177.    115.     53.     36.
  55          UI     17.      9.      9.      0.      0.      0.      0.      0.      0.      0.
  56          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
              *

  57          KK   S312A
  58          KM    On-Site 100-Year 2-Hour Storm Retention Basin Vol=9.6 A-F
  59          KM    Basin Bleed-Off Pipe d = 30", Maximum Flow Qp = 40 cfs
  60          RS       1    ELEV      10
  61          SV       0     0.1     1.4     3.0     6.2     9.6    14.5    19.5
  62          SE      10      11    11.5    12.0    13.0    14.0    15.0    16.0
  63          SL      11    4.91     0.6     0.5
  64          SS    14.2      20     3.0     1.5
              *

  65          KK   R312A
  66          KM        Route S312A to 312B1 by 30" Pipe
  67          RD    2650   0.005   0.012            CIRC     2.5
              *

  68          KK   312B1
  69          KM   BASIN 312B1
  70          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
  71          KM    L=       .5  Lca=       .3   S=   32.1  Kn= .020  LAG=   7.2
  72          KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
  73          BA    .125
  74          LG     .10     .28    8.28    .082   80.00
  75          UI    178.    549.    365.     92.     19.      0.      0.      0.      0.      0.
  76          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
              *

  77          KK  S312B1
  78          KM    On-Site 100-Year 2-Hour Storm Retention Basin Routing
  79          KM    Basin Bleed-Off Pipe d = 18", Maximum Flow Qp = 15 cfs
  80          RS       1    ELEV      10
  81          SV       0     0.1     2.0     4.5     9.5    14.9    18.5    24.5
  82          SE      10      11    11.5    12.0    13.0    14.0    15.0    16.0
  83          SL      11    1.77     0.6     0.5
  84          SS    14.5      20     3.0     1.5
              *

  85          KK  C312B1
  86          KM        Combine 312A and 312B1
  87          HC       2
              *

  88          KK  R312B1
  89          KM        Route C312B1 to 312B2 by 36" Pipe
  90          RD     900   0.005   0.012            CIRC       3
              *
1                                       HEC-1 INPUT                                          PAGE  3

 LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10
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```
 91          KK   312B2
 92          KM   BASIN 312B2
 93          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
 94          KM    L=       .2  Lca=       .1   S=   33.3  Kn= .020  LAG=   3.1
 95          KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
 96          BA    .030
 97          LG     .10     .28    8.28    .082   80.00
 98          UI    212.     75.      0.      0.      0.      0.      0.      0.      0.      0.
 99          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
             *

100          KK  S312B2
101          KM    On-Site 100-Year 2-Hour Storm Retention Basin Routing
102          KM    Basin Bleed-Off Pipe d = 18", Maximum Flow Qp = 15 cfs
103          RS       1    ELEV      10
104          SV       0     0.1     0.4     1.1     2.3     3.6     5.5    11.5
105          SE      10      11    11.5    12.0    13.0    14.0    15.0    16.0
106          SL      11    1.77     0.6     0.5
107          SS    14.5      20     3.0     1.5
             *

108          KK  C312B2
109          KM       Combine 312B2 and R312B1
110          HC       2
             *

111          KK  R312B2
112          KM       Route C312B2 to 312B3 by 36" Pipe
113          RD    2250   0.003   0.012            CIRC       3
             *

114          KK   312B3
115          KM   BASIN 312B3
116          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
117          KM    L=       .5  Lca=       .2   S=   14.9  Kn= .020  LAG=   7.4
118          KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
119          BA    .075
120          LG     .10     .28    8.28    .082   80.00
121          UI    101.    316.    227.     62.     14.      0.      0.      0.      0.      0.
122          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
             *

123          KK  S312B3
124          KM    On-Site 100-Year 2-Hour Storm Retention Basin Routing
125          KM    Basin Bleed-Off Pipe d = 18", Maximum Flow Qp = 15 cfs
126          RS       1    ELEV      10
127          SV       0     0.1     1.2     2.6     5.8     8.9    11.5    14.5
128          SE      10      11    11.5    12.0    13.0    14.0    15.0    16.0
129          SL      11    1.77     0.6     0.5
130          SS      14     200     3.0     1.5
             *
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LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

131          KK  C312B3
132          KM       Combine 312B3 and R312B2
133          HC       2
             *

134          KK    310S
135          KM   RUNOFF GENERATED ON SUB-BASIN 310
136          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
137          KM    L= 1.36 mi.  Lca= 0.64 mi.  S= 282 ft/mi.  Kn= .039  LAG= 18.24 min.
138          KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
139          BA    .679
140          LG     .12    .191    8.60     .07   29.92
141          UI    125.    480.    732.   1066.   1466.   1028.    724.    443.    214.    137.
142          UI     55.     38.     38.      0.      0.      0.      0.      0.      0.      0.
             *

143          KK    311S
144          KM   RUNOFF GENERATED ON SUB-BASIN 311
145          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
146          KM    L= 1.52 mi.  Lca= 0.71 mi.  S=  260 ft/mi.  Kn= .040  LAG= 20.61 min.
147          KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
```

```
148          BA    .569
149          LG    .123   0.233    7.78    .105   22.38
150          UI     93.    300.    495.    660.   1031.    960.    700.    512.    325.    160.
151          UI    113.     62.     29.     29.     29.      0.      0.      0.      0.      0.
152          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
             *

153          KK   HC311
154          KM   COMBINE HYDROGRAPHS FROM SUB-BASINS 310 & 311
155          HC       2
             *

156          KK   311RR
157          KM   ROUTE FLOW THROUGH DETENTION BEHIND C.A.P. STRUCTURE NO. 1
158          RS       1    ELEV      12
159          SV       0     2.2    11.6    35.4    81.1   156.4
160          SE      12      14      16      18      20      22
161          SL   15.62    9.62     0.6     0.5
162          SS      20     200     3.0     1.5
             *

163          KK   RM311
164          KM   MUSKINGUM-CUNGE ROUTE IN CHANNEL FROM DETENTION THROUGH SUB-BASIN 312C
165          KM            1) Reach Length = 4600 ft.
166          RS       6    FLOW      -1
167          RC     .05     .04     .05    4600   .0095
168          RX       0     100     120     125     140     145     165     265
169          RY       4       2       1       0       0       1       2       4
             *
1                                        HEC-1 INPUT                                                PAGE  5

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


170          KK    314C
171          KM   RUNOFF GENERATED ON SUB-BASIN 316C
172          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
173          KM    L=       .3  Lca=       .2   S=   85.3  Kn= .038  LAG=  7.6
174          KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
175          BA    .061
176          LG     .25     .37    7.14     .14   30.00
177          UI     78.    247.    190.     56.     13.      0.      0.      0.      0.      0.
178          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
             *

179          KK   S314C
180          KM    On-Site 100-Year 2-Hour Storm Retention Basin Vol= 3.6 A-F
181          KM    Basin Bleed-Off Pipe d = 18", Maximum Flow Qp = 15 cfs
182          RS       1    ELEV      10
183          SV       0     0.1     0.5     1.1     2.3     3.6     5.5     8.5
184          SE      10      11    11.5    12.0    13.0    14.0    15.0    16.0
185          SL      11    1.77     0.6     0.5
186          SS    14.2      20     3.0     1.5
             *

187          KK   R314C
188          KM        Route 314C to 312C
189          RS       4    FLOW      -1
190          RC   0.030   0.030   0.030    3000   0.005
191          RX      10      14      18      30      38      50      54      58
192          RY       5       4       3       0       0       3       4       5
             *

193          KK    312C
194          KM   RUNOFF GENERATED ON SUB-BASIN 312C
195          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
196          KM    L=      1.1  Lca=       .6   S=   40.2  Kn= .038  LAG=  23.3
197          KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
198          BA   0.467
199          LG     .25     .28    8.28    .082   30.00
200          UI     67.    179.    329.    424.    572.    823.    634.    489.    369.    251.
201          UI    127.     97.     67.     22.     21.     21.     21.      0.      0.      0.
202          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
             *

203          KK   S312C
204          KM    On-Site 100-Year 2-Hour Storm Retention Basin Vol= 27.8 A-F
```

```
 205          KM    Basin Bleed-Off Pipe d = 42", Maximum Flow Qp = 85 cfs
 206          RS       1    ELEV      10
 207          SV       0     0.1     4.0     9.0    18.5    27.8    41.5    64.5
 208          SE      10      11    11.5    12.0    13.0    14.0    15.0    16.0
 209          SL      11    9.62     0.6     0.5
 210          SS    14.2      20     3.0     1.5
              *
1                                    HEC-1 INPUT                                          PAGE  6

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


 211          KK   C312C
 212          KM        Combine 316C, 312C and 311RR at 312C
 213          HC       3
              *

 214          KK   R312C
 215          KM        Route C312C1 to 312D2 by 60" Pipe
 216          RD    4300   0.005   0.012            CIRC       5
              *

 217          KK   312D2
 218          KM   BASIN 312D2
 219          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
 220          KM    L=       .8  Lca=       .4   S=   30.0  Kn= .020  LAG=   9.8
 221          KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
 222          BA    .105
 223          LG     .10     .28    8.28    .082   80.00
 224          UI     81.    236.    381.    210.     72.     23.     11.      0.      0.      0.
 225          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
              *

 226          KK  S312D2
 227          KM    On-Site 100-Year 2-Hour Storm Retention Basin Routing
 228          KM    Basin Bleed-Off Pipe d = 18", Maximum Flow Qp = 15 cfs
 229          RS       1    ELEV      10
 230          SV       0     0.1     1.8     3.7     8.0    12.5    15.5    24.5
 231          SE      10      11    11.5    12.0    13.0    14.0    15.0    16.0
 232          SL      11    1.77     0.6     0.5
 233          SS      14     200     3.0     1.5
              *

 234          KK  C312D2
 235          KM        Combine 312C and 312D2 at 312D2.
 236          HC       2
              *

 237          KK  R312D2
 238          KM        Route C312D2 to 312B3 by 54" Pipe
 239          RD     850   0.002   0.012            CIRC     4.5
              *

 240          KK   312D4
 241          KM   BASIN 312D4
 242          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
 243          KM    L=       .3  Lca=       .2   S=   64.3  Kn= .020  LAG=   3.9
 244          KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
 245          BA    .050
 246          LG     .10     .37    7.14     .14   80.00
 247          UI    244.    204.      0.      0.      0.      0.      0.      0.      0.      0.
 248          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
              *
1                                    HEC-1 INPUT                                          PAGE  7

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


 249          KK  R312D4
 250          KM        Route 312D4 to 312D5
 251          RD
 252          RC   0.025   0.025   0.025    1150   0.007
 253          RX      10      14      18      30      38      50      54      58
 254          RY       5       4       3       0       0       3       4       5
              *

 255          KK   312D5
```

```
256          KM   BASIN 312D5
257          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
258          KM    L=       .3  Lca=       .2   S=   44.1  Kn= .020  LAG=   4.7
259          KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
260          BA    .074
261          LG     .10     .28    8.28    .082   80.00
262          UI    244.    409.     55.      0.      0.      0.      0.      0.      0.      0.
263          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
             *

264          KK  C312D5
265          KM        Combine 312D5 and R312D4
266          HC       2
             *

267          KK  R312D5
268          KM        Route C312D5 to 312D6
269          RD
270          RC   0.025   0.025   0.025     900   0.005
271          RX      10      14      18      30      38      50      54      58
272          RY       5       4       3       0       0       3       4       5
             *

273          KK   312D6
274          KM   BASIN 312D6
275          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
276          KM    L=       .4  Lca=       .2   S=   36.1  Kn= .020  LAG=   4.9
277          KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
278          BA    .054
279          LG     .10     .28    8.28    .082   80.00
280          UI    163.    304.     49.      0.      0.      0.      0.      0.      0.      0.
281          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
             *

282          KK   312D1
283          KM   BASIN 312D1
284          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
285          KM    L=       .6  Lca=       .3   S=   48.4  Kn= .020  LAG=   7.6
286          KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
287          BA    .085
288          LG     .10     .28    8.28    .082   80.00
289          UI    109.    344.    265.     79.     18.      0.      0.      0.      0.      0.
290          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
             *
```



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

291          KK  S312D1
292          KM    On-Site 100-Year 2-Hour Storm Retention Basin Routing
293          KM    Basin Bleed-Off Pipe d = 18", Maximum Flow Qp = 15 cfs
294          RS       1    ELEV      10
295          SV       0     0.1     1.5     3.2     6.5    10.1    11.5    14.5
296          SE      10      11    11.5    12.0    13.0    14.0    15.0    16.0
297          SL      11    1.77     0.6     0.5
298          SS      14     200     3.0     1.5
             *

299          KK  R312D1
300          KM        Route 312D1 to 312D6
301          RD
302          RC   0.025   0.025   0.025    2150   0.006
303          RX      10      14      18      30      38      50      54      58
304          RY       5       4       3       0       0       3       4       5
             *

305          KK  C312D6
306          KM        Combine R312D5,312D6 and R312D1
307          HC       3
             *

308          KK  R312D6
309          KM        Route 312D6 to 312D8
310          RD
311          RC   0.030   0.030   0.030    1400   0.006
312          RX      10      14      18      30      38      50      54      58
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```
 313          RY       5       4       3       0       0       3       4       5
              *

 314          KK   312D7
 315          KM   BASIN 312D7
 316          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
 317          KM    L=       .3  Lca=       .2   S=   46.9  Kn= .020  LAG=   4.4
 318          KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
 319          BA    .050
 320          LG     .10     .37    7.14     .14   80.00
 321          UI    193.    259.     29.      0.      0.      0.      0.      0.      0.      0.
 322          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
              *

 323          KK  R312D7
 324          KM        Route 312D7 to 312D8
 325          RD
 326          RC   0.025   0.025   0.025     800   0.006
 327          RX      10      14      18      30      38      50      54      58
 328          RY       5       4       3       0       0       3       4       5
              *
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LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 329          KK   312D8
 330          KM   BASIN 312D8
 331          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
 332          KM    L=       .3  Lca=       .1   S=   34.6  Kn= .020  LAG=   3.8
 333          KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
 334          BA    .050
 335          LG     .10     .28    8.28    .082   80.00
 336          UI    266.    202.      0.      0.      0.      0.      0.      0.      0.      0.
 337          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
              *

 338          KK  C312D8
 339          KM        Combine R312D6,312D8 and R312D7
 340          HC       3
              *

 341          KK  R312D8
 342          KM        Route C312D8 to 312D9
 343          RD
 344          RC   0.030   0.030   0.030     550   0.005
 345          RX      10      14      18      30      38      50      54      58
 346          RY       5       4       3       0       0       3       4       5
              *

 347          KK    314D
 348          KM    Runoff from Sub-Basin 314D
 349          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
 350          KM    L=       .4  Lca=       .2   S=   89.2  Kn= .038  LAG=  8.8
 351          KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
 352          BA    .065
 353          LG     .25     .37    7.14     .14   30.00
 354          UI     62.    188.    236.    101.     30.      8.      0.      0.      0.      0.
 355          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
              *

 356          KK   S314D
 357          KM    On-Site 100-Year 2-Hour Storm Retention Basin Vol= 3.9 A-F
 358          KM    Basin Bleed-Off Pipe d = 18", Maximum Flow Qp = 15 cfs
 359          RS       1    ELEV      10
 360          SV       0     0.1     0.5     1.2     2.5     3.9     5.8     8.5
 361          SE      10      11    11.5    12.0    13.0    14.0    15.0    16.0
 362          SL      11    1.77     0.6     0.5
 363          SS    14.2      20     3.0     1.5
              *

 364          KK   R314D
 365          KM   MUSKINGUM-CUNGE ROUTE IN CHANNEL FROM SUB-BASIN 314D THROUGH 314B1
 366          KM            1) Reach Length = 1050 ft.
 367          RD
 368          RC    .025    .025    .025    1000   .0070
 369          RX      10      24      32      50      58      76      84      98
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 370          RY       5       4       3       0       0       3       4       5
              *
1                                      HEC-1 INPUT                                          PAGE 10

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


 371          KK   314B1
 372          KM   BASIN 316B1
 373          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
 374          KM    L=       .2  Lca=       .1   S=   65.2  Kn= .020  LAG=   3.2
 375          KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
 376          BA    .035
 377          LG     .10     .37    7.14     .14   80.00
 378          UI    238.     96.      0.      0.      0.      0.      0.      0.      0.      0.
 379          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
              *

 380          KK  S314B1
 381          KM    On-Site 100-Year 2-Hour Storm Retention Basin Routing
 382          KM    Basin Bleed-Off Pipe d = 18", Maximum Flow Qp = 15 cfs
 383          RS       1    ELEV      10
 384          SV       0     0.1     0.5     1.3     2.7     4.2     5.5    14.5
 385          SE      10      11    11.5    12.0    13.0    14.0    15.0    16.0
 386          SL      11    1.77     0.6     0.5
 387          SS      14     200     3.0     1.5
              *

 388          KK  C314B1
 389          KM        Combine R314D and 314B1
 390          HC       2
              *

 391          KK  R314B1
 392          KM        Route C314B1 to 314B2
 393          RD
 394          RC   0.025   0.025   0.025    2000   0.008
 395          RX      10      14      18      30      38      50      54      58
 396          RY       5       4       3       0       0       3       4       5
              *

 397          KK    313S
 398          KM   RUNOFF GENERATED ON SUB-BASIN 313
 399          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
 400          KM    L= 1.16 mi.  Lca= 0.37 mi.  S= 287 ft/mi.  Kn= .04  LAG= 14.24 min.
 401          KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
 402          BA    .508
 403          LG    .123    .219    8.05    .093   29.81
 404          UI     170     570     898    1363     903     556    232.    128.     37.     37.
              *

 405          KK   313RR
 406          KM   ROUTE FLOW THROUGH DETENTION BEHIND C.A.P. STRUCTURE NO.2
 407          RS       1    ELEV      13
 408          SV       0     0.3     3.0    10.2    25.3    51.6
 409          SE      13      14      16      18      20      22
 410          SL   14.84    4.59     0.6     0.5
 411          SS      21      50     3.0     1.5
              *
1                                      HEC-1 INPUT                                          PAGE 11

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


 412          KK   RM313
 413          KM   MUSKINGUM-CUNGE ROUTE IN CHANNEL FROM DETENTION THROUGH SUB-BASIN 316A
 414          KM           1) Reach Length = 4800 ft.
 415          RD
 416          RC    .050    .040    .050    4800   .0099
 417          RX      60     140     190     200     210     220     270     350
 418          RY       5       4       2       0       0       2       4       5
              *

 419          KK    314A
 420          KM   RUNOFF GENERATED ON SUB-BASIN 314A
 421          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
 422          KM    L=       .9  Lca=       .4   S=   59.6  Kn= .038  LAG=  17.3
```

```
423          KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
424          BA    .237
425          LG     .25     .37    7.14     .14   30.00
426          UI     47.    189.    282.    435.    507.    342.    234.    115.     67.     36.
427          UI     14.     14.      0.      0.      0.      0.      0.      0.      0.      0.
428          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
             *

429          KK   S314A
430          KM    On-Site 100-Year 2-Hour Storm Retention Basin Vol= 14.1 A-F
431          KM    Basin Bleed-Off Pipe d = 24", Maximum Flow Qp = 25 cfs
432          RS       1    ELEV      10
433          SV       0     0.1     2.1     4.3     9.2    14.1    18.5    24.5
434          SE      10      11    11.5    12.0    13.0    14.0    15.0    16.0
435          SL      11    3.14     0.6     0.5
436          SS    14.2      20     3.0     1.5
             *

437          KK   C314A
438          KM   COMBINE HYDROGRAPHS FROM SUB-BASIN 314A WITH ROUTED FLOW FROM 315
439          HC       2
             *

440          KK  W-314A
441          KM   The First 100 cfs Goes to South along 19th Avenue
442          DT  S-314A
443          DI       0      50     100     150     300     500    1000
444          DQ       0      50     100     100     100     100     100
             *

445          KK   R314A
446          KM   MUSKINGUM-CUNGE ROUTE IN CHANNEL FROM SUB-BASIN 314A THROUGH 314B2
447          KM            1) Reach Length =  850 ft.
448          RS       1    FLOW      -1
449          RC    .045    .035    .045     800   .0060
450          RX      10      24      32      50      58      76      84      98
451          RY       5       4       3       0       0       3       4       5
             *
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LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

452          KK   314B2
453          KM   BASIN 314B2
454          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
455          KM    L=       .4  Lca=       .2   S=   41.5  Kn= .020  LAG=   5.6
456          KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
457          BA    .061
458          LG     .10     .37    7.14     .14   80.00
459          UI    141.    335.     97.     15.      0.      0.      0.      0.      0.      0.
460          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
             *

461          KK  S314B2
462          KM    On-Site 100-Year 2-Hour Storm Retention Basin Routing
463          KM    Basin Bleed-Off Pipe d = 18", Maximum Flow Qp = 15 cfs
464          RS       1    ELEV      10
465          SV       0     0.1     1.1     2.3     4.8     7.3    11.5    14.5
466          SE      10      11    11.5    12.0    13.0    14.0    15.0    16.0
467          SL      11    1.77     0.6     0.5
468          SS      14     200     3.0     1.5
             *

469          KK  C314B2
470          KM        Combine R314A, 314B2, and R314B1
471          HC       3
             *

472          KK  R314B2
473          KM   MUSKINGUM-CUNGE ROUTE IN CHANNEL FROM SUB-BASIN 314B2 THROUGH 312D9
474          KM            1) Reach Length = 1550 ft.
475          RD
476          RC    .025    .025    .025    1450   .0080
477          RX      10      24      32      50      58      76      84      98
478          RY       5       4       3       0       0       3       4       5
             *
```

```
          479          KK   312D9
          480          KM   BASIN 312D9
          481          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
          482          KM    L=       .3  Lca=       .2   S=   41.2  Kn= .020  LAG=   4.9
          483          KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
          484          BA    .050
          485          LG     .10     .37    7.14     .14   80.00
          486          UI    139.    259.     42.      0.      0.      0.      0.      0.      0.
          487          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.
                       *

          488          KK  C312D9
          489          KM       Combine R312D8, R314B2, and 312D9
          490          HC       3
                       *
1                                        HEC-1 INPUT                                          PAGE 13

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


          491          KK  S312D9
          492          KM    Regional Retention Basin Routing Vol = 38.4 A-F
          493          KM    Basin Bleed-Off Pipe d = 42", Maximum Flow Qp = 75.0 cfs
          494          RS       1    ELEV      10
          495          SV       0     0.1     5.0    12.0    25.0    38.4    52.5    68.5
          496          SE      10      11    11.5    12.0    13.0    14.0    15.0    16.0
          497          SL    11.0    9.62     0.6     0.5
          498          SS    14.4     200     3.0     1.5
                       *

          499          KK  R312D9
          500          KM   MUSKINGUM-CUNGE ROUTE IN CHANNEL FROM SUB-BASIN 312D9 THROUGH 316B3
          501          KM           1) Reach Length =  700 ft. Pipe d = 48"
          502          RD     700   0.005   0.012            CIRC       4
                       *

          503          KK   314B3
          504          KM   BASIN 314B3
          505          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
          506          KM    L=       .4  Lca=       .2   S=   33.3  Kn= .020  LAG=   5.7
          507          KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
          508          BA    .057
          509          LG     .10     .37    7.14     .14   80.00
          510          UI    127.    311.     96.     15.      0.      0.      0.      0.      0.
          511          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.
                       *

          512          KK  S314B3
          513          KM    On-Site 100-Year 2-Hour Storm Retention Basin Routing
          514          KM    Basin Bleed-Off Pipe d = 18", Maximum Flow Qp = 15 cfs
          515          RS       1    ELEV      10
          516          SV       0     0.1     1.0     2.2     4.5     6.8     7.5    14.5
          517          SE      10      11    11.5    12.0    13.0    14.0    15.0    16.0
          518          SL      11    1.77     0.6     0.5
          519          SS      14     200     3.0     1.5
                       *

          520          KK  C314B3
          521          KM       Combine R312D9 and 314B3
          522          HC       2
                       *

          523          KK  R314B3
          524          KM   MUSKINGUM-CUNGE ROUTE IN CHANNEL FROM SUB-BASIN 314B3 THROUGH 312D3
          525          KM           1) Reach Length = 500 ft. Pipe d = 48"
          526          RD     500   0.003   0.012            CIRC       4
                       *

          527          KK   312D3
          528          KM   BASIN 312D3
          529          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
          530          KM    L=       .2  Lca=       .1   S=   34.8  Kn= .020  LAG=   3.6
          531          KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
          532          BA    .035
1                                        HEC-1 INPUT                                          PAGE 14
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LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 533          LG     .10     .37    7.14     .14   80.00
 534          UI    204.    128.      0.      0.      0.      0.      0.      0.      0.      0.
 535          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
              *

 536          KK  S312D3
 537          KM    On-Site 100-Year 2-Hour Storm Retention Basin Routing
 538          KM    Basin Bleed-Off Pipe d = 18", Maximum Flow Qp = 15 cfs
 539          RS       1    ELEV      10
 540          SV       0     0.1     0.6     1.3     2.7     4.2     6.5    11.5
 541          SE      10      11    11.5    12.0    13.0    14.0    15.0    16.0
 542          SL      11    1.77     0.6     0.5
 543          SS      14     200     3.0     1.5
              *

 544          KK   E-ALL
 545          KM        Combine East On-Site and Off-Site Flows
 546          HC       2
              *

 547          KK    23RD
 548          KM        Combine R312D2 and E-ALL, Total Flow at 23rd Ave.
 549          HC       2
              *

 550          KK   TOTAL
 551          KM        Combine East and West Flows - Total Flow Leaving the Site
 552          HC       2
              *

 553          KK   RM317
 554          KM   MUSKINGUM-CUNGE ROUTE FLOW FROM SUB-BASINS 312 & 314 THROUGH SUB-BASIN 317S2
 555          KM            1) Reach Length = 2640 ft.
 556          RD
              * RC   .05     .04     .05    2640  0.0038
 557          RC    .018    .018    .018    2640  0.0038
 558          RX       0       5     205     215     235     245     445     450
 559          RY       5       3       1       0       0       1       3       5
              *

 560          KK    315S
 561          KM    RUNOFF GENERATED ON SUB-BASIN 315
 562          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
 563          KM    L=  1.54 mi. Lca=  0.58 mi.  S= 300 ft/mi.   Kn= .045  LAG= 21.00 min.
 564          KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
 565          BA    .704
 566          LG    .134    .286    7.50    .117   14.19
 567          UI    113.    353.    594.    786.   1203.   1217.    882.    648.    436.    211.
 568          UI    151.     92.     35.     35.     35.      0.      0.      0.      0.      0.
              *
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LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10


 569          KK    319S
 570          KM    RUNOFF GENERATED ON SUB-BASIN 319
 571          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
 572          KM    L=  1.94 mi. Lca=  1.09 mi.  S= 288 ft/mi.   Kn= .047  LAG= 30.67 min.
 573          KM    PH0ENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
 574          BA    .542
 575          LG    .137    .283    7.78    .105   11.38
 576          UI     60.     92.    229.    305.    365.    449.    612.    734.    563.    466.
 577          UI    375.    303.    222.    126.    100.     74.     60.     24.     18.     18.
 578          UI     18.     18.      0.      0.      0.      0.      0.      0.      0.      0.
              *

 579          KK   HC315
 580          KM   COMBINE HYDROGRAPHS FROM SUB-BASIN 315 & 319
 581          HC       2
              *

 582          KK   315RR
 583          KM    ROUTE FLOW THROUGH DETENTION BEHIND C.A.P. STRUCTURE NO. 3
 584          RS       1    ELEV      13
```

```
585          SV       0     1.3    13.2    41.3    90.4   159.6
586          SE      13      14      16      18      20      22
587          SL   15.42    9.62     0.6     0.5
588          SS      21      50     3.0     1.5
             *

589          KK   RM316
590          KM   MUSKINGUM-CUNGE ROUTE FLOW FROM DETENTION THROUGH SUB-BASIN 316
591          KM           1) Reach Length = 5000 ft.
592          RD
593          RC     .05     .04     .05    5000  0.0116
594          RX       0      60     160     200     210     220     250     350
595          RY       4       3       2       0       0       2       3       4
             *

596          KK    316S
597          KM    RUNOFF GENERATED ON SUB-BASIN 316
598          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
599          KM    L=  0.99 mi. Lca=  0.51 mi.  S= 63 ft/mi.   Kn= .029  LAG= 14.66 min.
600          KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
601          BA    .339
602          LG    .130    .250    5.98    .198   45.00
603          UI    106.    362.    561.    890.    618.    396.    173.     95.     34.     24.
604          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
605          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
             *

606          KK   HC316
607          KM   COMBINE HYDROGRAPHS FROM SUB-BASIN 316 WITH ROUTED FLOW FROM 315
608          HC       2
             *
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LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

609          KK   RM317
610          KM   MUSKINGUM-CUNGE ROUTE FLOW FROM SUB-BASIN 316 THROUGH SUB-BASIN 317
611          KM           1) Reach Length = 3750 ft.
             *   OLD KM          1) Reach Length = 6360 ft.
612          RD
613          RC    .025    .020    .025    3750  0.0066
             * RC   .05     .04     .05    3750  0.0066
614          RX       0       5     205     215     235     245     445     450
615          RY       5       3     1.5       0       0     1.5       3       5
             *
             *  ============================================================================
             *  J2 UPDATE - DIVIDED 317S INTO 317S1 AND 317S2
             *  317S1 IS PORTION OF 317S E. OF 23RD AVE.
             *  317S2 IS PROPOSED VESTAR DEVLOPMENT AND COMERCIAL AREA SOUTH OF VESTAR THAT
             *  WILL BE DEVELOPED IN THE NEAR FUTURE, PER LETTER OF INTENT FROM VESTAR TO
             *  ADOT
             *  ============================================================================
             *

616          KK   317S1
617          KM    PORTION OF OLD 317S BASIN EAST OF 23RD A
618          KM    RUNOFF GENERATED ON SUB-BASIN 317S1
619          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
620          KM    L=      1.6  Lca=       .9   S=   43.9  Kn= .020  LAG=  15.8
621          KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
622          BA   0.546
623          LG    .100    .250    4.43    .252   65.32
624          UI    140.    509.    772.   1285.   1064.    712.    409.    191.    103.     36.
625          UI     36.      0.      0.      0.      0.      0.      0.      0.      0.      0.
             *

626          KK   DT317
627          KM   THROW AWAY 100-YR 2-HR RETENTION VOLUME:  1) 59.47-27.18 = 32.29 AC-FT FROM
628          KM                                                 SUB-BASIN 317S1 (Hydrograph
629          KM                                                 identified as OR317)
630          KM                                              2) Balance of runoff continues on.
631          KM                                               (Hydrograph identified as DT317)
632          DT   OR317   32.29
633          DI       0   10000
634          DQ       0   10000
             *
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          635          KK   317S2
          636          KM    VESTAR AND COMMERCIAL DEVELOPMENT SOUTH
          637          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
          638          KM    L=       .59 Lca=       .29  S=   20.45 Kn= .020  LAG=   8.3
          639          KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
          640          BA    .105
          641          LG     .10     .25    4.90     .25   90.00
          642          UI     113     355     360     136      36      13       0       0       0       0
          643          UI       0       0       0       0       0       0       0       0       0       0
                       *
                       *
1                                          HEC-1 INPUT                                                  PAGE 17

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


          644          KK  DT17S2
          645          KM   THROW AWAY 100-YR 2-HR RETENTION VOLUME:  1) 17.28 AC-FT FROM
          646          KM     V=CA(P/12): P=2.65"  C=0.90                SUB-BASIN 317S2 (Hydrograph
          647          KM                                              identified as OR317)
          648          KM                                             2) Balance of runoff continues on
          649          KM                                              (Hydrograph identified as DT17S2)
          650          DT  OR17S2   13.98
          651          DI       0   10000
          652          DQ       0   10000
                       *
                       *

          653          KK  HC317A
          654          KM   COMBINE HYDROGRAPHS FROM TOTAL, HC 316, 317S1, AND 317S2
          655          HC       4
                       *

          656          KK   RM317
          657          KM   MUSKINGUM-CUNGE ROUTE FLOW FROM HC317A THROUGH BASIN 317S4
          658          KM   NOTE FLOW IS ROUTED THROUGH RYAN PROPERTIES  ONSITE  CAHNNEL
          659          KM   TO THE PINNACLE PEAK CBC.
          660          KM            1) Reach Length = 3300 ft.
          661          RD
          662          RC    .020    .020   0.020    3400  0.0015
          663          RX       0      10      10       22      34      34      40      50
          664          RY     100     100      93       93      93     100     100     100
                       *

          665          KK   312B4
          666          KM   BASIN 312B4
          667          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
          668          KM    L=       .9  Lca=       .3   S=   30.2  Kn= .020  LAG=   8.6
          669          KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
          670          BA     .05
          671          LG     .10     .15    8.28     .08  41.29
          672          UI     54.    166.    197.     81.     24.      7.      0.      0.      0.      0.
          673          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
                       *

          674          KK  R312B4
          675          KM       Route 312B4 to 317S3 by 54" Pipe
          676          RD    5034   0.005   0.013            CIRC     4.5
                       *

          677          KK   317S3
          678          KM   BASIN 317s3
          679          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
          680          KM    L=       .9  Lca=       .5   S=   26.4  Kn= .020  LAG=  11.5
          681          KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
          682          BA     .05
          683          LG     .10     .25    4.43     .25  42.48
          684          UI     30.     92.    169.    130.     70.     25.     10.      5.      0.      0.
          685          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
                       *
1                                          HEC-1 INPUT                                                  PAGE 18

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


          686          KK  HC317S3
```

```
687          KM    COMBINE HYDROGRAPHS FROM SUB-BASIN 317S3 WITH ROUTED FLOW FROM 312B4
688          HC       2
             *

689          KK   317S4
690          KM   BASIN 317S4
691          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
692          KM    RYAN COMPANIES
693          KM    L=       .64 Lca=       .32  S=    7.9 Kn= .020  LAG=  10.6
694          KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
695          BA    .122
696          LG     .10     .25    4.43     .25      90
697          UI      78     233     414     269     118      46      12       0       0       0
698          UI       0       0       0       0       0       0       0       0       0       0
             *

699          KK  DT317S
700          KM    OPTIMUS 100YR-2HR ONSITE RETENTION BASIN (RYAN COMPANIES)
701          DT  OR317S   19.26
702          DI       0   10000
703          DQ       0   10000
             *

704          KK  HC317B
705          KM   COMBINE HYDROGRAPHS FROM SUB-BASIN 317 WITH ROUTED FLOWS FROM 312,314 & 316
706          HC       2
             *

707          KK   317S5
708          KM   BASIN 317S5
709          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
710          KM    TANG PROPERTY
711          KM    L=       .29 Lca=       .15  S=   25.9  Kn= .020  LAG=   4.8
712          KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
713          BA    .019
714          LG     .10     .25    4.43     .25      90
715          UI      60     106      15       0       0       0       0       0       0       0
716          UI       0       0       0       0       0       0       0       0       0       0
             *

717          KK  HC317C
718          KO       1       2
719          KM    COMBINE HYDROGRAPHS FROM RYAN COMPANIES CHANNEL AND TANG PROPRTY
720          HC       3
             *

721          KK   317RR
722          KO       1       2
723          KM    ROUTE FLOW PINNACLE PEAK ROAD CULVERT
724          KM   UPDATED STAGE-STORAGE FROM MODEL BY AVILLA-DEER VALLEY JAN-2017
725          KM   NEW 3-8'x6'x199'CBC REPLACING 2-8'x7'x118'
726          KM   APR-19-2018
727          KM   USED HY8 TO DETERMINE RATING CURVE.
```



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LINE      ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10
728          RS       1    ELEV   12.95
             *  ************************************************************************
             *  ANDES MODIFIED SV, SE, SQ DATA
             *  ************************************************************************
729          SV       0    7.75   11.85   15.72   19.88   23.68   27.67   28.46   35.53   36.39
730          SV   42.31   44.72   46.87   48.88   50.46   52.03   53.47   54.90
731          SE   12.95   14.70   15.31   15.86   16.38   16.85   17.30   17.39   18.12   18.20
732          SE   18.75   18.93   19.08   19.22   19.33   19.44   19.54   19.64
733          SQ       0     200     300     400     500     600     700     720     898     923
734          SQ    1254    1432    1610    1788    1966    2144    2322    2500
             *

735          KK   RM318
736          KM   MUSKINGUM-CUNGE ROUTE FLOW FROM SUB-BASIN 317 THROUGH SUB-BASIN 318
737          KM           1) Reach Length = 1805 ft.
738          KM   J2 UPDATED CHANNEL LONGITUDINAL & SIDE SLOPE FROM 60% PLANS FEB 2007
739          RD
740          RC    .013    .013    .013    1805  0.0025
741          RX       0       6      12   23.44   63.40    76.4    78.4    88.4
742          RY    6.72    6.62     6.5     0.8     0.0     6.5     6.5     6.5
```

```
                *

  743           KK    318S
  744           KM    RUNOFF GENERATED ON SUB-BASIN 318
  745           KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
  746           KM    L=  1.15 mi. Lca=  0.44 mi.  S= 36 ft/mi.   Kn= .020  LAG= 11.25 min.
  747           KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
  748           BA    .345
  749           LG    .100    .250    3.77    .334   78.25
  750           UI    195.    596.   1090.    803.    410.    149.     52.     32.      0.      0.
                *

  751           KK   DT318
  752           KM   THROW AWAY 10-YR 2-HR RETENTION VOLUME:  1) 1.20 AC-FT FROM SUB-BASIN 318
  753           KM                                             (Hydrograph identified as OR318)
  754           KM                                           2) Balance of runoff continues on.
  755           KM                                             (Hydrograph identified as DT318)
  756           DT   OR318    1.20
  757           DI       0   10000
  758           DQ       0   10000
                *

  759           KK   DT318
  760           KM   THROW AWAY 100-YR 2-HR RETENTION VOLUME:  1) 33.57 AC-FT FROM SUB-BASIN 318
  761           KM                                             (Hydrograph identified as OR318)
  762           KM                                           2) Balance of runoff continues on.
  763           KM                                             (Hydrograph identified as DT318)
  764           DT   OR318   33.57
  765           DI       0   10000
  766           DQ       0   10000
                *
1                                      HEC-1 INPUT                                          PAGE 20

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

  767           KK    320S
  768           KM    RUNOFF GENERATED ON SUB-BASIN 320
  769           KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
  770           KM    L=  1.74 mi. Lca=  0.72 mi.  S= 218 ft/mi.   Kn= .043  LAG= 24.25 min.
  771           KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
  772           BA   1.106
  773           LG    .130    .271    7.50    .116   12.76
  774           UI    154.    381.    724.    933.   1215.   1830.   1563.   1202.    921.    689.
  775           UI    367.    258.    169.    106.     47.     47.     47.     47.      0.      0.
                *

  776           KK   DT320
  777           KM   THROW AWAY 10-YR 2-HR RETENTION VOLUME:  1) 1.80 AC-FT FROM SUB-BASIN 320
  778           KM                                             (Hydrograph identified as OR320)
  779           KM                                           2) Balance of runoff continues on.
  780           KM                                             (Hydrograph identified as DT320)
  781           DT   OR320    1.80
  782           DI       0   10000
  783           DQ       0   10000
                *

  784           KK   320RR
  785           KM    ROUTE FLOW THROUGH DETENTION BEHIND C.A.P. STRUCTURES NO. 4 & 5
  786           RS       1    ELEV      13
  787           SV       0     0.6    12.4    48.7   119.5   230.3
  788           SE      13      14      16      18      20      22
  789           SL   14.80   11.66     0.6     0.5
  790           SS      20     200     3.0     1.5
                *

  791           KK   320RE
  792           KM   DIVERT OUTFLOW FROM STRUCTURE NO. 5 INTO SUB-BASIN 325
  793           KM   REMAINING OUTFLOW INTO SUB-BASIN 321 IS FROM STRUCTURE NO. 4
  794           DT    325D
  795           DI       0      13      63     102     128     150
  796           DQ       0       5      28      42      52      60
                *

  797           KK   RM321
  798           KM   MUSKINGUM-CUNGE ROUTE FLOW FROM SUB-BASIN 320 THROUGH SUB-BASIN 321
  799           KM            1) Reach Length = 11,160 ft.
```

```
          800          RD
          801          RC     .05     .04     .05   11160  0.0085
          802          RX       0       5     155     160     170     175     325     330
          803          RY       3       2       1       0       0       1       2       3
                       *

          804          KK    321S
          805          KM    RUNOFF GENERATED ON SUB-BASIN 321
          806          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
          807          KM    L=  2.27 mi. Lca=  1.24 mi.  S= 57 ft/mi.   Kn= .021  LAG= 20.79 min.
          808          KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
          809          BA    1.121
          810          LG    .115    .258    3.77    .345   49.76
1                                          HEC-1 INPUT                                                PAGE 21

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

          811          UI    182.    577.    962.   1277.   1981.   1911.   1392.   1019.    671.    319.
          812          UI    231.    134.     56.     56.     56.      0.      0.      0.      0.      0.
                       *

          813          KK   DT321
          814          KM   THROW AWAY 100-YR 2-HR RETENTION VOLUME:  1) 29.01 AC-FT FROM SUB-BASIN 321
          815          KM                                              (Hydrograph identified as OR321)
          816          KM                                             2) Balance of runoff continues on.
          817          KM                                              (Hydrograph identified as DT321)
          818          DT   OR321   29.01
          819          DI       0   10000
          820          DQ       0   10000
                       *

          821          KK   HC321
          822          KM    COMBINE HYDROGRAPHS FROM SUB-BASIN 321 WITH ROUTED FLOW FROM 320
          823          HC       2
                       *

          824          KK   RM318
          825          KM   MUSKINGUM-CUNGE ROUTE FLOW FROM SUB-BASIN 321 THROUGH SUB-BASIN 318
          826          KM           1) Reach Length = 2760 ft.
          827          RD
          828          RC     .05     .04     .05    2760  0.0051
          829          RX       0      50     150     165     175     190     240     250
          830          RY       6       5       4       0       0       4       5       7
                       *

          831          KK    322S
          832          KM    RUNOFF GENERATED ON SUB-BASIN 322
          833          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
          834          KM    L=  0.92 mi. Lca=  0.34 mi.  S= 61 ft/mi.   Kn= .020  LAG= 8.48 min.
          835          KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
          836          BA    .110
          837          LG    .100    .250    4.24    .433   25.12
          838          UI    114.    351.    387.    152.     43.     13.      0.      0.      0.      0.
                       *

          839          KK   322RR
          840          KM    ROUTE FLOW THROUGH ON-SITE DETENTION
          841          RS       1    ELEV    36.1
          842          SV       0     .05     3.9    12.8    29.3    57.8
          843          SE    36.1      38      40      42      44      46
          844          SL   37.65     6.6     0.6     0.5
          845          SS      45     100     3.0     1.5
                       *

          846          KK   RM318
          847          KM   MUSKINGUM-CUNGE ROUTE OUTFLOW FROM DETENTION THROUGH SUB-BASIN 318
          848          KM           1) Reach Length = 5200 ft.
          849          RD
          850          RC     .05     .04     .05    5200  0.0063
          851          RX       0       5     205     215     225     235     435     440
          852          RY       5       3       1       0       0       1       3       5
                       *
1                                          HEC-1 INPUT                                                PAGE 22

        LINE           ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10
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```
853          KK   HC318
854          KM   COMBINE HYDROGRAPHS FROM SUB-BASIN 318 WITH ROUTED FLOW FROM  321 & 322
855          HC       4
             *

856          KK   318RE
857          DT   324D1
858          DI       1    3000
859          DQ       1    3000
             *
             *  * ========================================================================
             *  * J2 ADDED A NEW DIVERT OPERATION TO SIMULATE NEW RCBC REQUIRED TO CAPTURE
             *  * BYPASS FLOWS.
             *  * ========================================================================
             *

860          KK  326RE1
861          KM   SEPARATE OUT WEST OVERFLOWS ONTO THE FRONTAGE ROAD AND MAINLINE I-17.
862          KM   THESE FLOWS HEAD SOUTH AND EVENTUALLY ENTER THE DEER VALLEY ROAD INTERCHANGE.
863          KM   REMAINING FLOWS CONTINUE SOUTH TO 6x7 BOX CULVERT IN SCATTER WASH AT I-17.
864          KM    SOURCE:  Scatter Wash Drainage and Storm Drain Study - Conceptual Plan
865          KM             Prepared for the City of Phoenix Engineering Dept., Floodplain
866          KM             Management, ST-886366, September 1989,by Greiner, Inc.
867          DT    331D
868          DI      31     409    1382    2434
869          DQ       0       0     215     840
             *

870          KK   320RD
871          KM   RETRIEVE FLOW FROM C.A.P. STRUCTURE NO. 5
872          DR    325D
             *

873          KK   RM325
874          KM   MUSKINGUM-CUNGE ROUTE OUTFLOW FROM STRUCTURE NO. 5 THROUGH SUB-BASIN 325
875          KM           1) Reach Length = 8560 ft.
876          RD
877          RC     .05     .04     .05    8560  0.0082
878          RX       0      10     200     220     235     255     440     450
879          RY       5       4       2       0       0       2       4       5
             *

880          KK    325S
881          KM    RUNOFF GENERATED ON SUB-BASIN 325
882          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
883          KM    L=  1.71 mi. Lca=  0.65 mi.  S= 60 ft/mi.   Kn= .021  LAG= 14.46 min.
884          KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
885          BA    .568
886          LG    .112    .256    3.87    .356   71.46
887          UI    183.    621.    969.   1510.   1023.    647.    270.    154.     48.     41.
             *
1                                       HEC-1 INPUT                                              PAGE 23

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


888          KK   DT325
889          KM   THROW AWAY 100-YR 2-HR RETENTION VOLUME:  1) 43.37 AC-FT FROM SUB-BASIN 325
890          KM                                              (Hydrograph identified as OR325)
891          KM                                             2) Balance of runoff continues on.
892          KM                                              (Hydrograph identified as DT325)
893          DT   OR325   43.37
894          DI       0   10000
895          DQ       0   10000
             *

896          KK   HC325
897          KM   COMBINE HYDROGRAPHS FROM SUB-BASIN 325 WITH ROUTED FLOW FROM 320
898          HC       2
             *

899          KK   RM326
900          KM   MUSKINGUM-CUNGE ROUTE FLOW FROM SUB-BASIN 325 THROUGH SUB-BASIN 326
901          KM           1) Reach Length = 6200 ft.
902          RD
903          RC     .05     .04     .05    6200  0.0068
904          RX      80     130     195     220     235     260     325     375
```

```
905          RY       6       5       3       0       0       3       5       6
             *

906          KK    326S
907          KM    RUNOFF GENERATED ON SUB-BASIN 326
908          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
909          KM    L=  2.01 mi. Lca=  0.90 mi.  S= 37 ft/mi.   Kn= .020  LAG= 18.17 min.
910          KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
911          BA    .498
912          LG    .100    .250    4.14    .412   75.05
913          UI     92.    355.    541.    793.    1074    751.    529.    318.    157.     99.
914          UI     38.     28.     28.      0.      0.      0.      0.      0.      0.      0.
             *

915          KK   DT326
916          KM   THROW AWAY 10-YR 2-HR RETENTION VOLUME:  1) 4.70 AC-FT FROM SUB-BASIN 326
917          KM                                              (Hydrograph identified as OR326)
918          KM                                            2) Balance of runoff continues on.
919          KM                                              (Hydrograph identified as DT326)
920          DT   OR326    4.70
921          DI       0   10000
922          DQ       0   10000
             *

923          KK   DT326
924          KM   THROW AWAY 100-YR 2-HR RETENTION VOLUME:  1) 42.65 AC-FT FROM SUB-BASIN 326
925          KM                                              (Hydrograph identified as OR326)
926          KM                                             2) Balance of runoff continues on.
927          KM                                              (Hydrograph identified as DT326)
928          DT   OR326   42.65
929          DI       0   10000
930          DQ       0   10000
             *
```



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

931          KK   HC326
932          KM   COMBINE HYDROGRAPHS FROM SUB-BASIN 326 WITH ROUTED FLOW FROM 325 AND
933          KM   OVERFLOW FROM 318
934          HC       3
             *

935          KK  326RE2
936          DT   324D2
937          DI       0       1    1200
938          DQ       0       1    1200
             *

939          KK    327S
940          KM    RUNOFF GENERATED ON SUB-BASIN 327
941          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
942          KM    L=  1.51 mi. Lca=  0.66 mi.  S= 29 ft/mi.   Kn= .020  LAG= 15.17 min.
943          KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
944          BA    .375
945          LG    .100    .130   10.10    .033   75.00
946          UI    108.    377.    575.    946.    705.    464.    227.    117.     53.     26.
947          UI     26.      0.      0.      0.      0.      0.      0.      0.      0.      0.
             *

948          KK   DT327
949          KM   THROW AWAY 10-YR 2-HR RETENTION VOLUME:  1) 1.90 AC-FT FROM SUB-BASIN 327
950          KM                                              (Hydrograph identified as OR327)
951          KM                                            2) Balance of runoff continues on.
952          KM                                              (Hydrograph identified as DT327)
953          DT   OR327    1.90
954          DI       0   10000
955          DQ       0   10000
             *

956          KK   DT327
957          KM   THROW AWAY 100-YR 2-HR RETENTION VOLUME:  1) 3.80 AC-FT FROM SUB-BASIN 327
958          KM                                              (Hydrograph identified as OR327)
959          KM                                             2) Balance of runoff continues on.
960          KM                                              (Hydrograph identified as DT327)
961          DT   OR327    3.80
```

```
 962          DI       0   10000
 963          DQ       0   10000
              *

 964          KK  327RRA
 965          KM    ROUTE FLOW THROUGH DEER VALLEY AIRPORT RESERVOIR
 966          KM        SOURCE:  Deer Valley Municipal Airport
 967          KM                 Master Storm Drainage Plan
 968          RS       1    ELEV    1450
 969          SA   0.057    0.35    0.69    0.69    0.69
 970          SE    1450    1452  1452.5    1453    1455
 971          SQ       0    17.6      28      83    1000
              *
1                                      HEC-1 INPUT                                          PAGE 25

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

 972          KK  327RRB
 973          KM    ROUTE FLOW THROUGH DEER VALLEY AIRPORT RESERVOIR
 974          KM        SOURCE:  Deer Valley Municipal Airport
 975          KM                 Master Storm Drainage Plan
 976          RS       1    ELEV    1444
 977          SA     .13     .55     .55     .55
 978          SE    1444    1446  1446.5  1448.5
 979          SQ       0      12     121    1000
              *

 980          KK  327RRC
 981          KM    ROUTE FLOW THROUGH DEER VALLEY AIRPORT RESERVOIR
 982          KM        SOURCE:  Deer Valley Municipal Airport
 983          KM                 Master Storm Drainage Plan
 984          RS       1    ELEV    1434
 985          SA       0     3.9     4.2     4.4     4.4     4.4
 986          SE    1432    1433    1434    1435    1436    1438
 987          SQ       0       6      18      35     350    1000
              *

 988          KK  327RRD
 989          KM    ROUTE FLOW THROUGH DEER VALLEY AIRPORT RESERVOIR
 990          KM        SOURCE:  Deer Valley Municipal Airport
 991          KM                 Master Storm Drainage Plan
 992          RS       1    ELEV    1438
 993          SA      08     .70     .70     .70
 994          SE    1438  1438.9  1439.4  1441.4
 995          SQ       0       3     159    1000
              *

 996          KK  327RRE
 997          KM    ROUTE FLOW THROUGH DEER VALLEY AIRPORT RESERVOIR
 998          KM        SOURCE:  Deer Valley Municipal Airport
 999          KM                 Master Storm Drainage Plan
1000          RS       1    ELEV    1436
1001          SA    .057     .73     .73     .73
1002          SE    1436    1438  1438.5  1440.5
1003          SQ       0       7     273    1000
              *

1004          KK   327R1
1005          KM   DIVERT FLOW SOUTH ALONG 19TH AVENUE AT DEER VALLEY RD.
1006          DT    339D
1007          DI       0     145     418    2248    4002
1008          DQ       0       0     121     550    1220
              *

1009          KK   327R2
1010          KM   DIVERT FLOW SOUTH INTO SUB-BASIN 341.  THIS DIVERT IS USED TO SIMULATE
1011          KM   THE CROWN OVERTOPPING OF DEER VALLEY RD.
1012          DT    341D
1013          DI       0      55     328     746
1014          DQ       0       0     241     487
              *
1                                      HEC-1 INPUT                                          PAGE 26

     LINE     ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10
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```
1015          KK   RM328
1016          KM   MUSKINGUM-CUNGE ROUTE FLOW FROM SUB-BASIN 327 THROUGH SUB-BASIN 328
1017          KM           1) Reach Length = 3850 ft.
1018          RD
1019          RC     .05     .04     .05    3850  0.0057
1020          RX       0      .5    45.5    45.5    50.5    55.5    60.5    60.5
1021          RY       5       3     2.3     2.8     2.8       3       4       5
              *

1022          KK    328A
1023          KM   BASIN 328A
1024          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
1025          KM    L=      1.1  Lca=       .5   S=   36.1  Kn= .050  LAG=  29.0
1026          KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
1027          BA     .22
1028          LG     .10     .13   10.10     .03   79.32
1029          UI     26.     45.    103.    136.    165.    207.    302.    281.    219.    178.
1030          UI    142.    111.     62.     44.     35.     26.     12.      8.      8.      8.
1031          UI      8.      0.      0.      0.      0.      0.      0.      0.      0.      0.
1032          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
              *

1033          KK  DT328A
1034          KM   THROW AWAY 10-YR 2-HR RETENTION VOLUME:  1) 1.86 AC-FT FROM SUB-BASIN 328A
1035          KM                                               (Hydrograph identified as OR328)
1036          KM                                            2) Balance of runoff continues on.
1037          KM                                               (Hydrograph identified as DT328)
1038          DT   OR328    1.86
1039          DI       0   10000
1040          DQ       0   10000
              *

1041          KK  DT328A
1042          KM   THROW AWAY 100-YR 2-HR RETENTION VOLUME:  1) 1.96 AC-FT FROM SUB-BASIN 328A
1043          KM                                               (Hydrograph identified as OR328)
1044          KM                                            2) Balance of runoff continues on.
1045          KM                                               (Hydrograph identified as DT328)
1046          DT   OR328    1.96
1047          DI       0   10000
1048          DQ       0   10000
              *

1049          KK  328RE1
1050          KM    DIVERT FLOW ACROSS I-17 THROUGH NEW 42" CMP AT ADOBE DR. AND NEW 60"
1051          KM    EQUIV CULVERT THAT CONNECTS TO THE EXISTING 6' X 3' RCBC AT LOUISE DR.
1052          KM    SOURCE:  Scatter Wash Drainage and Storm Drain Study - Conceptual Plan
1053          KM             Prepared for the City of Phoenix Engineering Dept., Floodplain
1054          KM             Management, ST-886366, September 1989,by Greiner, Inc.
1055          DT   329D1
1056          DI       0     201    3000
1057          DQ       0     201     201
              *
```



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


1058          KK    328B
1059          KM   BASIN 328B
1060          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
1061          KM    L=       .7  Lca=       .3   S=   11.7  Kn= .050  LAG=  24.9
1062          KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
1063          BA     .17
1064          LG     .10     .13   10.10     .03   79.32
1065          UI     23.     54.    106.    136.    174.    262.    248.    189.    147.    113.
1066          UI     69.     40.     30.     22.      7.      7.      7.      7.      0.      0.
1067          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
              *

1068          KK  DT328B
1069          KM   THROW AWAY 10-YR 2-HR RETENTION VOLUME:  1) 1.44 AC-FT FROM SUB-BASIN 328B
1070          KM                                               (Hydrograph identified as OR328)
1071          KM                                            2) Balance of runoff continues on.
1072          KM                                               (Hydrograph identified as DT328)
1073          DT   OR328    1.44
1074          DI       0   10000
1075          DQ       0   10000
```

```
                *
1076            KK  DT328B
1077            KM   THROW AWAY 100-YR 2-HR RETENTION VOLUME:  1) 1.51 AC-FT FROM SUB-BASIN 328B
1078            KM                                              (Hydrograph identified as OR328)
1079            KM                                             2) Balance of runoff continues on.
1080            KM                                              (Hydrograph identified as DT328)
1081            DT   OR328    1.51
1082            DI       0   10000
1083            DQ       0   10000
                *

1084            KK   DIVSD
1085            KM   ROUTE TO PROPOSED DEER VALLEY ROAD STORM DRAIN SYSTEM
1086            KM   (46 CFS = RATIONAL METHOD CALC'D 2-YR Q FROM SUB D2)
1087            DT    SD22
1088            DI       0      46    1000
1089            DQ       0      46      46
                *

1090            KK    C328
1091            KM   COMBINE HYDROGRAPHS 328A AND 328B
1092            HC       2
                *

1093            KK   DIV48
1094            KM   DIVERT 121 CFS INTO PROPOSED 48 INCH PIPE DRAINING TO DV BASIN NE
1095            DT    SD48
1096            DI       0     107     1000
1097            DQ       0     107      107
                *
1                                       HEC-1 INPUT                                                PAGE 28

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


1098            KK   HC328
1099            KM   COMBINE HYDROGRAPHS FROM SUB-BASIN 328 WITH OVERFLOW FROM 326 & 327
1100            HC       3
                *

1101            KK   DIVCL
1102            KM    DIVERT UP TO 30 CFS FLOW INTO NE BASIN AT DEER VALLEY RD
1103            KO       1       2
1104            DT    DVCL
1105            DI       0      30    1000
1106            DQ       0      30      30
                *

1107            KK    R318
1108            KM   RETRIEVE FLOWS DIVERTED AT 318
1109            DR    331D
                *

1110            KK    331S
1111            KM    RUNOFF GENERATED ON SUB-BASIN 331
1112            KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
1113            KM    L=  0.40 mi. Lca=  0.07 mi.  S= 65 ft/mi.   Kn= .020  LAG= 3.35 min.
1114            KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
1115            BA    .094
1116            LG    .100    .150    8.20    .045   83.94
1117            UI    604.    291.      0.      0.      0.      0.      0.      0.      0.      0.
1118            UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
                *

1119            KK   HC331
1120            KM   COMBINE HYDROGRAPHS FROM SUB-BASIN 331 WITH OVERFLOWS FROM SUB-BASIN 318
1121            KM   AND 328 (TOTAL FLOW INTO DEER VALLEY RD. INTERCHANGE SAG)
1122            HC       3
                *

1123            KK   331RR
1124            KM   ROUTE FLOW THROUGH DEPRESSED SECTION AT DEER VALLEY RD. INTERCHANGE TO
1125            KM   WEST SIDE OF I-17.
1126            RS       1    ELEV      85
1127            SV       0    2.35    4.08    6.18    8.56   11.19   14.09   17.23   20.68   24.45
1128            SV   28.66   33.42   36.02
```

```
1129          SE      85      86      87      88      89      90      91      92      93      94
1130          SE      95      96    96.5
1131          SQ       0       0       0       0       0       0       0       0       0       0
1132          SQ       0       0      52
              *

1133          KK   RM330
1134          KM   MUSKINGUM-CUNGE ROUTE OUTFLOW FROM DEER VALLEY RD. INTERCHANGE
1135          KM   THROUGH SUB-BASIN 330.
1136          KM            1) Reach Length = 5760 ft.
1137          RD
1138          RC    .045     .04    .045    5760  0.0068
1139          RX       0       5      55      60      70      75     125     130
1                                       HEC-1 INPUT                                                PAGE 29

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

1140          RY      10       2       1       0       0       1       2      10
              *

1141          KK    R318
1142          KM   RETRIEVE HYDROGRAPH FOR NORTH BRANCH OF SCATTER WASH
1143          KM   (ALSO KNOWN AS FLOW THROUGH EXTENDED EXISTING 2-8x7 RCBC AND NEW 3-8X7 RCBC)
1144          DR   324D1
              *

1145          KK    R326
1146          KM   RETRIEVE HYDROGRAPH FOR SOUTH BRANCH OF SCATTER WASH
1147          KM   (ALSO KNOWN AS FLOW THROUGH EXTENDED EXISTING 6x7 RCBC & NEW 10X7 RCBC)
1148          DR   324D2
              *

1149          KK    323S
1150          KM    RUNOFF GENERATED ON SUB-BASIN 323
1151          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
1152          KM    L=  1.76 mi. Lca=  0.69 mi.  S= 27 ft/mi.   Kn= .020  LAG= 16.58 min.
1153          KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
1154          BA    .373
1155          LG    .101    .251    5.98    .189   89.64
1156          UI     84.    320.    481.    784.    761.    517.    332.    148.     91.     37.
1157          UI     23.     23.      0.      0.      0.      0.      0.      0.      0.      0.
              *

1158          KK   RM324
1159          KM   MUSKINGUM-CUNGE ROUTE FLOW FROM SUB-BASIN 323 THROUGH SUB-BASIN 324
1160          KM            1) Reach Length = 2980 ft.
1161          RD    2980   .0064     .04            TRAP      20       4
              *

1162          KK    324S
1163          KM    RUNOFF GENERATED ON SUB-BASIN 324
1164          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
1165          KM    L=  0.75 mi. Lca=  0.46 mi.  S= 290 ft/mi.   Kn= .035  LAG= 11.45 min.
1166          KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
1167          BA    .160
1168          LG    .165    .255    6.29    .183   57.43
1169          UI     87.    267.    492.    378.    203.     72.     27.     14.      0.      0.
              *

1170          KK   HC324
1171          KM   COMBINE HYDROGRAPHS FROM NORTH & SOUTH BRANCH OF SCATTER WASH, SUB-BASIN 323
1172          KM           & SUB-BASIN 324
1173          HC       4
              *

1174          KK  CONTRR
1175          KM    ROUTE FLOW CONTROL STRUCTURE OF SCATTER WASH BASIN
1176          RS       1    ELEV    00.0
              *
              *  J2 SV INPUT FROM PTG ADOT CONTOUR STRIP MAP FOR SCATTER WASH
              *
1177          SV       0    1.03    1.94    2.87    4.08    4.96    5.40    8.17   11.44   12.93
1                                       HEC-1 INPUT                                                PAGE 30

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

1178          SV   16.01   17.52   19.46
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1179          SE       0     1.9    2.55    3.13    3.75    4.16    4.34    5.42    6.46    6.87
1180          SE    7.50    7.79    8.12
              *  J2 SQ INPUT. USED HY8
1181          SQ       0     150     300     500     750     925    1011    1712    2523    2869
1182          SQ    3416    3679    3982
              *
              *  * ========================================================================
              *  * J2 MODIFIED - AT HC324. BEFORE IMPROVEMENTS, Q = 2241 CFS WITH RCBC
              *  * DIVERSIONS Q = 3018 CFS. PROPOSED BASIN MUST INTERCEPT TOP 777 CFS
              *  * (DELTA Q). LATERAL WEIR SHALL BE SIZED TO CONVEY THIS Q.
              *  * ========================================================================
              *

1183          KK  N_WIER
1184          KO       2       2
1185          KM   J2 MODIFICATION
1186          KM   PROPOSED DETENTION BASIN
1187          DT   N_BSN
1188          DI       0     150     300     500     750     925    1011    1712    2523    2869
1189          DI    3416    3679    3982
1190          DQ       0       0       0       0       0       0   11.46  212.15  523.22  669.18
1191          DQ  915.61 1037.41 1182.05
              *
              * ========================================================================
              * J2 MODIFIED - ROUTE PROPOSED DETENTION BASIN
              * ========================================================================
              *

1192          KK   RNEWR
1193          KM   J2 MODIFIED
1194          KM   RETRIEVE WEIR DIVERT
1195          DR   N_BSN
              *

1196          KK   DTBSN
1197          KM   UPDATED SCATTER WASH BASIN VOLUME WITH POST DESIGN SURVEY PROVIDED BY
1198          KM   ADOT/CEI 03-22-2010
1199          KO       1
1200          RS       1    ELEV    1391
1201          SV       0    1.64    5.11    8.87   12.82   16.94   21.22   25.68   30.30   35.10
1202          SV   40.06   45.20   50.51   53.20
1203          SE    1391    1392    1393    1394    1395    1396    1397    1398    1399    1400
1204          SE    1401    1402    1403  1403.5
              *   LOW FLOW OUTLET 1-30 INCH PIPE
1205          SQ       0       0       0       0       0       0       0       0       0       0
1206          SQ       5      23      32      94
              *

1207          KK   OUTFW
1208          KM   COMBINATION OF REMAINING FLOW IN THE CHANNEL WITH THE BLEEDOFF FLOW FROM THE
1209          KM   DETENTION BASIN
1210          KO       1
1211          HC       2
              *
```



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


1212          KK   RM329
1213          KM   MUSKINGUM-CUNGE ROUTE OVERFLOW FROM SUB-BASIN 324 THROUGH 329
1214          KM           1) Reach Length = 5160 ft.
1215          RD
1216          RC    .055    .045    .055    5160   .0056
1217          RX       0      60     110     145     170     195     250     400
1218          RY       7       6       2       0       0       2       6       7
              *

1219          KK    R326
1220          KM   RETRIEVE HYDROGRAPH FOR DIVERTED FLOW FROM SUB-BASIN 326
1221          DR   329D1
              *

1222          KK   RM329
1223          KM   MUSKINGUM-CUNGE ROUTE DIVERTED FLOW THROUGH SUB-BASIN 329
1224          KM           1) Reach Length = 5000 ft.
1225          RD
```

```
1226          RC     .03    .045    .045    5000   .0070
1227          RX       0      10      30      33      48      51     151     200
1228          RY       3       2     1.5       0       0     1.5       2       3
              *

1229          KK    329S
1230          KM    RUNOFF GENERATED ON SUB-BASIN 329
1231          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
1232          KM    L=  1.01 mi. Lca=  0.51 mi.  S= 272 ft/mi.   Kn= .026  LAG= 10.03 min.
1233          KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
1234          BA    .657
1235          LG    .124    .152    8.28    .079   62.07
1236          UI    480.   1407.   2348.   1359.    500.    165.     68.      0.      0.      0.
              *

1237          KK   DT329
1238          KM   THROW AWAY 10-YR 2-HR RETENTION VOLUME:  1) 0.80 AC-FT FROM SUB-BASIN 329
1239          KM                                             (Hydrograph identified as OR329)
1240          KM                                           2) Balance of runoff continues on.
1241          KM                                             (Hydrograph identified as DT329)
1242          DT   OR329    0.80
1243          DI       0   10000
1244          DQ       0   10000
              *

1245          KK   DT329
1246          KM   THROW AWAY 100-YR 2-HR RETENTION VOLUME:  1) 28.84 AC-FT FROM SUB-BASIN 329
1247          KM                                              (Hydrograph identified as OR329)
1248          KM                                            2) Balance of runoff continues on.
1249          KM                                              (Hydrograph identified as DT329)
1250          DT   OR329   28.84
1251          DI       0   10000
1252          DQ       0   10000
              *
              * ============================================================================
              * J2 MODIFIED - CHANGED NUMBER OF COMBINES TO 5
              * ============================================================================
              *
1                                      HEC-1 INPUT                                                PAGE 32

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


1253          KK   HC329
1254          KM   COMBINE HYDROGRAPHS FROM SUB-BASIN 318 WITH FLOWS FROM 324, 326, & 328
1255          HC       3
              *

1256          KK   RM330
1257          KM   MUSKINGUM-CUNGE ROUTE FLOW FROM SUB-BASIN 329 THROUGH SUB-BASIN 330
1258          KM            1) Reach Length = 2980 ft.
1259          RD
1260          RC     .05    .045     .05    2980  0.0044
1261          RX       0     190     230     240     260     270     330     400
1262          RY       7       4       2       0       0       2       6       7
              *

1263          KK    330S
1264          KM    RUNOFF GENERATED ON SUB-BASIN 330
1265          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
1266          KM    L=  1.15 mi. Lca=  0.65 mi.  S= 31 ft/mi.   Kn= .022  LAG= 14.77 min.
1267          KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
1268          BA    .463
1269          LG    .113    .158    8.60    .069   59.40
1270          UI    142.    487.    753.   1207.    850.    548.    245.    133.     51.     32.
1271          UI     32.      0.      0.      0.      0.      0.      0.      0.      0.      0.
              *

1272          KK   DT330
1273          KM   THROW AWAY 10-YR 2-HR RETENTION VOLUME:  1) 4.80 AC-FT FROM SUB-BASIN 330
1274          KM                                             (Hydrograph identified as OR330)
1275          KM                                           2) Balance of runoff continues on.
1276          KM                                             (Hydrograph identified as DT330)
1277          DT   OR330    4.80
1278          DI       0   10000
1279          DQ       0   10000
              *
```

```
1280          KK   DT330
1281          KM   THROW AWAY 100-YR 2-HR RETENTION VOLUME:  1) 23.11 AC-FT FROM SUB-BASIN 330
1282          KM                                              (Hydrograph identified as OR330)
1283          KM                                             2) Balance of runoff continues on.
1284          KM                                              (Hydrograph identified as DT330)
1285          DT   OR330   23.11
1286          DI       0   10000
1287          DQ       0   10000
              *

1288          KK   HC330
1289          KM   COMBINE HYDROGRAPHS FROM SUB-BASIN 330 WITH FLOWS FROM 329 & 331
1290          HC       3
              *
1                                        HEC-1 INPUT                                                PAGE 33

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


1291          KK   RM346
1292          KM   MUSKINGUM-CUNGE ROUTE FLOW FROM SUB-BASIN 330 THROUGH SUB-BASIN 346
1293          KM            1) Reach Length = 4240 ft.
1294          RD
1295          RC     .05     .04     .05    4240  0.0061
1296          RX       0      10     280     285     335     340     500     510
1297          RY      10       8       4       2       2       4       8      10
              *

1298          KK    334S
1299          KM    RUNOFF GENERATED ON SUB-BASIN 334
1300          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
1301          KM    L=  1.43 mi. Lca=  0.87 mi.  S= 24 ft/mi.   Kn= .020  LAG= 17.11 min.
1302          KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
1303          BA    .350
1304          LG    .100    .250    3.50    .278   75.19
1305          UI     71.    284.    426.    666.    741.    500.    339.    160.     95.     48.
1306          UI     21.     21.      0.      0.      0.      0.      0.      0.      0.      0.
              *

1307          KK   DT334
1308          KM   THROW AWAY 100-YR 2-HR RETENTION VOLUME:  1) 23.51 AC-FT FROM SUB-BASIN 334
1309          KM                                              (Hydrograph identified as OR334)
1310          KM                                             2) Balance of runoff continues on.
1311          KM                                              (Hydrograph identified as DT334)
1312          DT   OR334   23.51
1313          DI       0   10000
1314          DQ       0   10000
              *

1315          KK   334RE
1316          KM   DIVERT FLOW FROM SUB-BASIN 334 TO 337
1317          KM    SOURCE:  Drainage Report Scatter Wash Hydrology
1318          KM             And Outer Loop Highway Interceptor Drain
1319          DT    337D
1320          DI       0     100     500    1000    2000
1321          DQ       0       0      84     222     514
              *

1322          KK   RM335
1323          KM   MUSKINGUM-CUNGE ROUTE FLOW FROM SUB-BASIN 334 THROUGH SUB-BASIN 335
1324          KM            1) Reach Length = 2615 ft.
1325          RD
1326          RC     .03     .02     .03    2615  0.0046
1327          RX     100     100     105     105     140     140     145     145
1328          RY     5.0     0.5     0.5     0.0     0.0     0.5     0.5     5.0
              *

1329          KK    335S
1330          KM    RUNOFF GENERATED ON SUB-BASIN 335
1331          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
1332          KM    L=  0.97 mi. Lca=  0.47 mi.  S= 28 ft/mi.   Kn= .020  LAG= 11.34 min.
1333          KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
1334          BA    .274
1                                        HEC-1 INPUT                                                PAGE 34

LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10
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```
1335          LG    .125    .250    3.50    .334   46.77
1336          UI    153.    466.    855.    642.    335.    120.     44.     25.      0.      0.
              *

1337          KK   DT335
1338          KM   THROW AWAY 100-YR 2-HR RETENTION VOLUME:  1) 7.33 AC-FT FROM SUB-BASIN 335
1339          KM                                             (Hydrograph identified as OR335)
1340          KM                                            2) Balance of runoff continues on.
1341          KM                                             (Hydrograph identified as DT335)
1342          DT   OR335    7.33
1343          DI       0   10000
1344          DQ       0   10000
              *

1345          KK   HC335
1346          KM   COMBINE HYDROGRAPHS FROM SUB-BASIN 334 AND SUB-BASIN 339
1347          HC       2
              *

1348          KK   RM338
1349          KM   MUSKINGUM-CUNGE ROUTE FLOW FROM SUB-BASIN 335 THROUGH SUB-BASIN 338
1350          KM    SOURCE:  Drainage Report Scatter Wash Hydrology
1351          KM             And Outer Loop Highway Interceptor Drain
1352          KM            1) Reach Length = 2615 ft.
1353          RD    2695  0.0037   0.018            TRAP      16       0
              *

1354          KK    338S
1355          KM    RUNOFF GENERATED ON SUB-BASIN 338
1356          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
1357          KM    L=  1.41 mi. Lca=  0.54 mi.  S= 27 ft/mi.   Kn= .021  LAG= 14.58 min.
1358          KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
1359          BA    .216
1360          LG    .115    .256    3.55    .300   50.87
1361          UI     68.    233.    361.    570.    392.    250.    107.     60.     20.     15.
              *

1362          KK   DT338
1363          KM   THROW AWAY 100-YR 2-HR RETENTION VOLUME:  1) 2.07 AC-FT FROM SUB-BASIN 338
1364          KM                                             (Hydrograph identified as OR338)
1365          KM                                            2) Balance of runoff continues on.
1366          KM                                             (Hydrograph identified as DT338)
1367          DT   OR338    2.07
1368          DI       0   10000
1369          DQ       0   10000
              *

1370          KK   HC338
1371          KM   COMBINE HYDROGRAPHS FROM SUB-BASIN 335 AND SUB-BASIN 338
1372          HC       2
              *
```



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


1373          KK   338RR
1374          KM   ROUTE FLOWS THROUGH DETENTION BASIN A
1375          KM    SOURCE:  Drainage Report Scatter Wash Hydrology
1376          KM             And Outer Loop Highway Interceptor Drain
1377          RS       1    STOR      -1       0
1378          SV       0     2.7   113.6     125
1379          SE    1392  1393.2    1412    1414
1380          SL    1392    2.64     0.6     0.5
1381          SS    1412     100     3.0     1.5
              *

1382          KK   338RE
1383          KM   DIVERT TOTAL FLOW FOR FUTURE RETRIEVAL
1384          DT    342D
1385          DI       0     100     500    1000    2000
1386          DQ       0     100     500    1000    2000
              *

1387          KK    332S
1388          KM    RUNOFF GENERATED ON SUB-BASIN 332
```

```
1389          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
1390          KM    L=  1.14 mi. Lca=  0.43 mi.  S= 226 ft/mi.   Kn= .037  LAG= 14.51 min.
1391          KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
1392          BA    .572
1393          LG    .117    .287    4.12    .268   14.21
1394          UI    183.    622.    967.   1517.   1034.    657.    275.    156.     51.     41.
              *

1395          KK   332RR
1396          KM   ROUTE FLOW THROUGH DETENTION BEHIND C.A.P. STRUCTURE NO. 6
1397          RS       1    ELEV      15
1398          SV       0     0.2    10.6    43.5   102.8
1399          SE      15      16      18      20      22
1400          SL   16.43    4.59     0.6     0.5
1401          SS    20.4     115     3.0     1.5
              *

1402          KK   RM333
1403          KM   MUSKINGUM-CUNGE ROUTE FLOW IN CHANNEL FROM DETENTION THROUGH SUB-BASIN 333
1404          KM           1) Reach Length = 9200 ft.
1405          RD    9200  0.0072   0.035            TRAP      12       2
              *

1406          KK    333S
1407          KM    RUNOFF GENERATED ON SUB-BASIN 333
1408          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
1409          KM    L=  2.23 mi. Lca=  1.16 mi.  S= 68 ft/mi.   Kn= .021  LAG= 19.47 min.
1410          KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
1411          BA    .982
1412          LG    .102    .153    8.20    .044   72.68
1413          UI    170.    594.    944.   1295.   2006.   1565.   1141.    801.    395.    255.
1414          UI    156.     52.     52.     52.      0.      0.      0.      0.      0.      0.
1415          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
              *
```



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


1416          KK   DT333
1417          KM   THROW AWAY 100-YR 2-HR RETENTION VOLUME:  1) 7.21 AC-FT FROM SUB-BASIN 333
1418          KM                                              (Hydrograph identified as OR333)
1419          KM                                             2) Balance of runoff continues on.
1420          KM                                              (Hydrograph identified as DT333)
1421          DT   OR333    7.21
1422          DI       0   10000
1423          DQ       0   10000
              *

1424          KK   HC333
1425          KM   COMBINE HYDROGRAPHS FROM SUB-BASIN 332 AND SUB-BASIN 333
1426          HC       2
              *

1427          KK  333RRA
1428          KM    ROUTE FLOW THROUGH DEER VALLEY AIRPORT RESERVOIR
1429          KM        SOURCE:  Deer Valley Municipal Airport
1430          KM                 Master Storm Drainage Plan
1431          RS       1    ELEV  1463.7
1432          SA     .92    1.27    1.27    1.27
1433          SE  1463.7  1467.3    1468    1470
1434          SQ       0      22     678    2000
              *

1435          KK  333RRB
1436          KM    ROUTE FLOW THROUGH DEER VALLEY AIRPORT RESERVOIR
1437          KM        SOURCE:  Deer Valley Municipal Airport
1438          KM                 Master Storm Drainage Plan
1439          RS       1    ELEV    1468
1440          SA     .87    2.42   3.338   3.338   3.339
1441          SE    1462    1470    1471    1473  1473.5
1442          SQ       0      20     206    1200    1600
              *

1443          KK  333RRC
1444          KM    ROUTE FLOW THROUGH DEER VALLEY AIRPORT RESERVOIR
1445          KM        SOURCE:  Deer Valley Municipal Airport
```

```
1446          KM                Master Storm Drainage Plan
1447          RS       1    ELEV    1458
1448          SA     .27    1.13    2.06   2.555   2.555   2.555   2.555
1449          SE    1458    1460    1461  1461.5    1462    1464  1464.5
1450          SQ       0    12.5    20.2      28      78    1200    1600
              *

1451          KK  333RRD
1452          KM    ROUTE FLOW THROUGH DEER VALLEY AIRPORT RESERVOIR
1453          KM        SOURCE:  Deer Valley Municipal Airport
1454          KM                 Master Storm Drainage Plan
1455          RS       1    ELEV    1452
1456          SA     .57    1.75     2.2    2.57    2.57    2.57
1457          SE    1452    1454    1456  1457.7  1459.7    1460
1458          SQ       0      36     100     140    1200    1600
              *
```



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


1459          KK  333RRE
1460          KM    ROUTE FLOW THROUGH DEER VALLEY AIRPORT RESERVOIR
1461          KM        SOURCE:  Deer Valley Municipal Airport
1462          KM                 Master Storm Drainage Plan
1463          RS       1    ELEV    1450
1464          SA    .477    .882    1.24   1.469   1.469   1.469
1465          SE    1450    1452    1454    1455    1457  1457.5
1466          SQ       0    66.5   127.5     162    1200    1600
              *

1467          KK  333RRF
1468          KM    ROUTE FLOW THROUGH DEER VALLEY AIRPORT RESERVOIR
1469          KM        SOURCE:  Deer Valley Municipal Airport
1470          KM                 Master Storm Drainage Plan
1471          RS       1    ELEV    1470
1472          SA       0     .21     .33     .33     .33
1473          SE    1470    1472  1472.2    1475  1475.5
1474          SQ       0       7       8    1200    1600
              *

1475          KK  333RRG
1476          KM    ROUTE FLOW THROUGH DEER VALLEY AIRPORT RESERVOIR
1477          KM        SOURCE:  Deer Valley Municipal Airport
1478          KM                 Master Storm Drainage Plan
1479          RS       1    ELEV    1466
1480          SA    .016     .65     .65     .65     .65
1481          SE    1466  1467.8  1468.3  1470.3  1470.5
1482          SQ       0    12.2      45    1200    1600
              *

1483          KK  333RRH
1484          KM    ROUTE FLOW THROUGH DEER VALLEY AIRPORT RESERVOIR
1485          KM        SOURCE:  Deer Valley Municipal Airport
1486          KM                 Master Storm Drainage Plan
1487          RS       1    ELEV    1460
1488          SA       0      .3     .63      .7      .7      .7      .7
1489          SE    1460    1462  1462.5  1462.6  1463.0    1465  1465.5
1490          SQ       0       7       8      10      51    1200    1600
              *

1491          KK  333RRI
1492          KM    ROUTE FLOW THROUGH DEER VALLEY AIRPORT RESERVOIR
1493          KM        SOURCE:  Deer Valley Municipal Airport
1494          KM                 Master Storm Drainage Plan
1495          RS       1    ELEV    1456
1496          SA    .092     .54     .90     .90     .90
1497          SE    1456    1458  1458.5  1460.5    1461
1498          SQ       0      25    40.4    1200    1600
              *
```



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


1499          KK  333RRJ
1500          KM    ROUTE FLOW THROUGH DEER VALLEY AIRPORT RESERVOIR
```

```
1501          KM        SOURCE:  Deer Valley Municipal Airport
1502          KM                 Master Storm Drainage Plan
1503          RS       1    ELEV    1456
1504          SA     .06     .16     .28     .28     .28
1505          SE    1456    1457  1457.5  1459.5    1460
1506          SQ       0     8.4      23    1200    1600
              *

1507          KK  333RRK
1508          KM    ROUTE FLOW THROUGH DEER VALLEY AIRPORT RESERVOIR
1509          KM        SOURCE:  Deer Valley Municipal Airport
1510          KM                 Master Storm Drainage Plan
1511          RS       1    ELEV  1452.8
1512          SA       0     .73    1.66    1.66    1.66    1.66
1513          SE  1452.8    1454  1454.8  1455.3  1457.3  1457.5
1514          SQ       0      14      28     169    1200    1600
              *

1515          KK  333RRL
1516          KM    ROUTE FLOW THROUGH DEER VALLEY AIRPORT RESERVOIR
1517          KM        SOURCE:  Deer Valley Municipal Airport
1518          KM                 Master Storm Drainage Plan
1519          RS       1    ELEV    1444
1520          SA     .01     .08     .26     .70     .70     .70
1521          SE    1444    1446    1448  1448.5  1453.5    1455
1522          SL  1444.0    37.7      .6      .5
1523          SS  1448.4      20     3.0     1.5
              *

1524          KK  333RRM
1525          KM    ROUTE FLOW THROUGH DEER VALLEY AIRPORT RESERVOIR
1526          KM        SOURCE:  Deer Valley Municipal Airport
1527          KM                 Master Storm Drainage Plan
1528          RS       1    ELEV  1446.0
1529          SA    .028     .39     .49     .54     .54     .54
1530          SE    1446    1448  1448.5  1449.5  1451.5    1452
1531          SQ       0      36     114     567    1200    1600
              *

1532          KK   RM337
1533          KM   MUSKINGUM-CUNGE ROUTE FLOW FROM SUB-BASIN 333 THROUGH SUB-BASIN 337
1534          KM           1) Reach Length = 5450 ft.
1535          RD    5450  0.0046   0.045            TRAP      20       2
              *

1536          KK    336S
1537          KM    RUNOFF GENERATED ON SUB-BASIN 336
1538          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
1539          KM    L=  0.63 mi. Lca=  0.35 mi.  S= 25 ft/mi.   Kn= .020  LAG= 8.80 min.
1540          KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
1541          BA    .111
1542          LG    .100    .150    7.50    .111   74.99
```



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

1543          UI    106.    322.    402.    172.     52.     13.      0.      0.      0.      0.
1544          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
              *

1545          KK  336RRA
1546          KM    ROUTE FLOW THROUGH DEER VALLEY AIRPORT RESERVOIR
1547          KM        SOURCE:  Deer Valley Municipal Airport
1548          KM                 Master Storm Drainage Plan
1549          RS       1    ELEV    1451
1550          SA       0     .09     .46     .46     .46
1551          SE    1451    1452    1454  1454.5  1455.0
1552          SQ       0     3.4    12.2      15     293
              *

1553          KK  336RRB
1554          KM    ROUTE FLOW THROUGH DEER VALLEY AIRPORT RESERVOIR
1555          KM        SOURCE:  Deer Valley Municipal Airport
1556          KM                 Master Storm Drainage Plan
1557          RS       1    ELEV    1451
1558          SA       0     .37     .37     .37     .37
1559          SE    1451  1451.5    1452  1452.5    1454
```

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1560          SQ       0      14      69     250    1000
              *

1561          KK  336RRC
1562          KM    ROUTE FLOW THROUGH DEER VALLEY AIRPORT RESERVOIR
1563          KM        SOURCE:  Deer Valley Municipal Airport
1564          KM                 Master Storm Drainage Plan
1565          RS       1    ELEV  1429.4
1566          SA       0     .25     .62    1.19    1.46    1.46    1.46
1567          SE  1429.4    1430    1432    1438    1439  1439.2  1439.7
1568          SQ       0     2.5      17      45      49      50     253
              *

1569          KK   RM337
1570          KM   MUSKINGUM-CUNGE ROUTE FLOW FROM SUB-BASIN 336 THROUGH SUB-BASIN 337
1571          KM           1) Reach Length = 2960 ft.
1572          RD    2960  0.0051   0.030            TRAP       0      50
              *

1573          KK    337S
1574          KM    RUNOFF GENERATED ON SUB-BASIN 337
1575          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
1576          KM    L=  0.80 mi. Lca=  0.56 mi.  S= 31 ft/mi.   Kn= .020  LAG= 11.05 min.
1577          KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
1578          BA    .262
1579          LG    .100    .250    5.05    .222   74.81
1580          UI    154.    468.    849.    600.    291.    109.     34.     24.      0.      0.
              *
```



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


1581          KK   DT337
1582          KM   THROW AWAY 100-YR 2-HR RETENTION VOLUME:  1) 13.77 AC-FT FROM SUB-BASIN 337
1583          KM                                              (Hydrograph identified as OR337)
1584          KM                                             2) Balance of runoff continues on.
1585          KM                                              (Hydrograph identified as DT337)
1586          DT   OR337   13.77
1587          DI       0   10000
1588          DQ       0   10000
              *

1589          KK    R334
1590          KM   RETRIEVE HYDROGRAPH FROM SUB-BASIN 334
1591          DR    337D
              *

1592          KK   HC337
1593          KM   COMBINE HYDROGRAPHS FROM SUB-BASINS 333, 334, 336, & 337
1594          HC       4
              *

1595          KK   337RE
1596          KM   DIVERT FLOW FROM SUB-BASIN 337 TO 340
1597          KM    SOURCE:  Concept Drainage Design Hydrology, I-17 to Cave Creek,
1598          KM             Outer Loop Highway, CRS sirrine, Inc.
1599          DT    340D
1600          DI       0     100     250     350     499     984    1922
1601          DQ       0      12      50      76     112     201     343
              *

1602          KK   RM339
1603          KM   MUSKINGUM-CUNGE ROUTE FLOW FROM SUB-BASIN 337 THROUGH SUB-BASIN 339
1604          KM           1) Reach Length = 2105 ft.
1605          RD    2105  0.0038   0.025            TRAP       8      20
              *

1606          KK    327D
1607          KM   RETRIEVE HYDROGRAPH FROM SUB-BASIN 327D
1608          DR    339D
              *

1609          KK   RM339
1610          KM   MUSKINGUM-CUNGE ROUTE FLOW FROM SUB-BASIN 327 THROUGH SUB-BASIN 339
1611          KM           1) Reach Length = 2645 ft.
1612          RD    2645  0.0042   0.030            TRAP       0      50
```

```
                *

1613            KK    339S
1614            KM    RUNOFF GENERATED ON SUB-BASIN 339
1615            KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
1616            KM    L=  0.89 mi. Lca=  0.67 mi.  S= 26 ft/mi.   Kn= .020  LAG= 12.74 min.
1617            KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
1618            BA    .229
1619            LG    .100    .210    6.96    .144   75.00
1620            UI     99.    314.    552.    603.    360.    162.     76.     24.     19.      0.
                *
1                                     HEC-1 INPUT                                                PAGE 41

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


1621            KK   DT339
1622            KM   THROW AWAY 100-YR 2-HR RETENTION VOLUME:  1) 10.97 AC-FT FROM SUB-BASIN 339
1623            KM                                              (Hydrograph identified as OR339)
1624            KM                                             2) Balance of runoff continues on.
1625            KM                                              (Hydrograph identified as DT339)
1626            DT   OR339   10.97
1627            DI       0   10000
1628            DQ       0   10000
                *

1629            KK   HC339
1630            KM   COMBINE HYDROGRAPHS FROM SUB-BASINS 327, 337 & 339
1631            HC       3
                *

1632            KK   RM340
1633            KM   MUSKINGUM-CUNGE ROUTE FLOW FROM SUB-BASIN 339 THROUGH SUB-BASIN 340
1634            KM           1) Reach Length = 2650 ft.
1635            RD    2650  0.0060   0.025            TRAP       0      50
                *

1636            KK    340S
1637            KM    RUNOFF GENERATED ON SUB-BASIN 340
1638            KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
1639            KM    L=  1.06 mi. Lca=  0.45 mi.  S= 27 ft/mi.   Kn= .020  LAG= 11.62 min.
1640            KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
1641            BA    .270
1642            LG    .100    .190    7.14    .138   57.22
1643            UI    143.    438.    810.    648.    356.    128.     51.     24.      0.      0.
                *

1644            KK   DT340
1645            KM   THROW AWAY 100-YR 2-HR RETENTION VOLUME:  1) 4.24 AC-FT FROM SUB-BASIN 340
1646            KM                                              (Hydrograph identified as OR340)
1647            KM                                             2) Balance of runoff continues on.
1648            KM                                              (Hydrograph identified as DT340)
1649            DT   OR340    4.24
1650            DI       0   10000
1651            DQ       0   10000
                *

1652            KK    R337
1653            KM   RETRIEVE FLOWS DIVERTED AT 337
1654            DR    340D
                *

1655            KK   HC340
1656            KM   COMBINE HYDROGRAPHS FROM SUB-BASINS 337, 339 & 340
1657            HC       4
                *
1                                     HEC-1 INPUT                                                PAGE 42

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


1658            KK   RM342
1659            KM   MUSKINGUM-CUNGE ROUTE FLOW FROM SUB-BASIN 340 THROUGH SUB-BASIN 342
1660            KM           1) Reach Length = 1300 ft.
1661            RD    1300  0.0023   0.035            TRAP       8       2
                *
```

```
1662          KK    R338
1663          KM   RETRIEVE FLOW FROM DETENTION BASIN
1664          DR    342D
              *

1665          KK   RM342
1666          KM   MUSKINGUM-CUNGE ROUTE FLOW FROM DETENTION BASIN A TO DETENTION BASIN B
1667          KM    SOURCE:  Drainage Report Scatter Wash Hydrology
1668          KM             And Outer Loop Highway Interceptor Drain
1669          KM            1) Reach Length = 3795 ft.
1670          RD    3795  0.0045   0.012            CIRC       3
              *

1671          KK    342S
1672          KM    RUNOFF GENERATED ON SUB-BASIN 342
1673          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
1674          KM    L=  0.67 mi. Lca=  0.35 mi.  S= 27 ft/mi.   Kn= .024  LAG= 10.65 min.
1675          KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
1676          BA    .127
1677          LG    .139    .119    9.40    .022   62.72
1678          UI     81.    243.    430.    280.    123.     48.     12.      0.      0.      0.
              *

1679          KK   DT342
1680          KM   THROW AWAY 100-YR 2-HR RETENTION VOLUME:  1) 7.66 AC-FT FROM SUB-BASIN 342
1681          KM                                             (Hydrograph identified as OR342)
1682          KM                                            2) Balance of runoff continues on.
1683          KM                                             (Hydrograph identified as DT342)
1684          DT   OR342    7.66
1685          DI       0   10000
1686          DQ       0   10000
              *

1687          KK   HC342
1688          KM   COMBINE HYDROGRAPHS FROM SUB-BASINS 338, 340 & 342
1689          HC       3
              *

1690          KK   342RR
1691          KM   ROUTE FLOWS THROUGH DETENTION BASIN B
1692          KM    SOURCE:  Drainage Report Scatter Wash Hydrology
1693          KM             And Outer Loop Highway Interceptor Drain
1694          RS       1    STOR      -1       0
1695          SV       0     8.2    29.8    64.1   106.3   168.1   179.8   192.6   212.9   242.0
1696          SV   268.5   315.0
1697          SQ       0      10      20      30      40      54      96     138     180     223
1698          SQ     247     337
1699          SE  1367.6  1369.4  1371.7  1375.2  1379.5  1385.8  1387.0  1388.3  1390.0  1392.3
```



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

1700          SE  1394.4  1398.0
              *

1701          KK   342RE
1702          KM   DIVERT FLOW FROM DETENTION BASIN B TO DETENTION BASIN C
1703          KM    SOURCE:  Drainage Report Scatter Wash Hydrology
1704          KM             And Outer Loop Highway Interceptor Drain
1705          DT    345D
1706          DI       0      10      20      30      40      54      96     138     180     223
1707          DI     247     337
1708          DQ       0       0       0       0       0       0      40      80     120     160
1709          DQ     181     267
              *

1710          KK   RM343
1711          KM   MUSKINGUM-CUNGE ROUTE FLOW FROM SUB-BASIN 342 THROUGH SUB-BASIN 343
1712          KM            1) Reach Length = 1400 ft.
1713          RD    1400  0.0055   0.012            TRAP       8       2
              *

1714          KK   327R2
1715          KM   RETRIEVE DIVERTED FLOW FROM DEER VALLEY RD.
1716          DR    341D
              *
```

```
1717          KK    341S
1718          KM    RUNOFF GENERATED ON SUB-BASIN 341
1719          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
1720          KM    L=  1.07 mi. Lca=  0.55 mi.  S= 24 ft/mi.   Kn= .020  LAG= 12.87 min.
1721          KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
1722          BA    .320
1723          LG    .100    .130   10.10    .034   78.61
1724          UI    135.    431.    748.    851.    509.    237.    108.     37.     26.      0.
              *

1725          KK   DT341
1726          KM   THROW AWAY 10-YR 2-HR RETENTION VOLUME:  1) 6.50 AC-FT FROM SUB-BASIN 341
1727          KM                                             (Hydrograph identified as OR341)
1728          KM                                            2) Balance of runoff continues on.
1729          KM                                             (Hydrograph identified as DT341)
1730          DT   OR341    6.50
1731          DI       0   10000
1732          DQ       0   10000
              *

1733          KK   DT341
1734          KM   THROW AWAY 100-YR 2-HR RETENTION VOLUME:  1) 16.88 AC-FT FROM SUB-BASIN 341
1735          KM                                             (Hydrograph identified as OR341)
1736          KM                                            2) Balance of runoff continues on.
1737          KM                                             (Hydrograph identified as DT341)
1738          DT   OR341   16.88
1739          DI       0   10000
1740          DQ       0   10000
              *
```



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


1741          KK     CLR
1742          KM   RETRIEVE OVERLAND FLOW ENTERING DEER VALLEY SE AND NE BASINS 30CFS MAX
1743          DR    DVCL
              *

1744          KK    CLSD
1745          KM   RETRIEVE 48 INCH PIPE FLOW ENTERING DEER VALLEY NE BASIN
1746          DR    SD48
              *

1747          KK     CCL
1748          KM   COMBINE INFLOWS INTO DV BASINS NE AND SE
1749          HC       2
              *

1750          KK  CLBASN
1751          KM   ROUTE FLOW THROUGH PROPOSED SE AND NE RETENTION BASINS AT DEER VALLEY ROAD
1752          KM   OUTLET IS 24" PIPE TO ROSE GARDEN BASIN
1753          RS       1    FLOW       0
1754          SV       0   16.94
1755          SE    1392    1398
1756          SQ       0      32
              *

1757          KK   RSD22
1758          KM   RETRIEVE OTHER 48 INCH STORM DRAIN FLOWS DIVERTED NORTH OF DEER VALLEY RD
1759          DR    SD22
              *

1760          KK     C48
1761          KM   COMBINE FLOWS IN COP 48 INCH STORM DRAIN
1762          HC       2
              *

1763          KK  RCLBN
1764          KM   ROUTE FLOW IN COP SD FROM DEER VALLEY SE BASIN TO ROSE GARDEN BASIN
1765          RD    2400    .002    .013            CIRC       4
              *

1766          KK   HC341
1767          KM   COMBINE HYDROGRAPHS FROM SUB-BASIN 341 WITH OVERFLOW FROM DEER VALLEY RD.
1768          KM   AND FROM 24" OUTLET PIPE FROM DEER VALLEY NE BASIN
1769          HC       3
```

```
                *
1770            KK   341RR
1771            KM   ROUTE FLOWS THROUGH DETENTION BASIN D **(ROSE GARDEN BASIN)**
1772            KM    SOURCE:  Drainage Report Scatter Wash Hydrology
1773            KM             And Outer Loop Highway Interceptor Drain
1774            RS       1    STOR      -1       0
1775            SV       0     0.7    25.4    30.0    34.6
1776            SE    1381  1382.5  1396.0  1398.0    1400
1777            SL    1381    2.41     0.6     0.5
1778            SS    1397     100     3.0     1.5
                *
1                                    HEC-1 INPUT                                        PAGE 45

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


1779            KK   RM343
1780            KM   MUSKINGUM-CUNGE ROUTE FLOW FROM DETENTION BASIN D TO SUB-BASIN 343
1781            KM            1) Reach Length = 2500 ft.
1782            KM    SOURCE:  Drainage Report Scatter Wash Hydrology
1783            KM             And Outer Loop Highway Interceptor Drain
1784            RD    2500  0.0046   0.012            CIRC       3
                *

1785            KK    343S
1786            KM    RUNOFF GENERATED ON SUB-BASIN 343
1787            KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
1788            KM    L=  0.86 mi. Lca=  0.40 mi.  S= 21 ft/mi.   Kn= .020  LAG= 10.77 min.
1789            KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
1790            BA    .254
1791            LG    .100    .050   12.40    .011   67.87
1792            UI    159.    475.    849.    567.    257.    100.     25.     24.      0.      0.
                *

1793            KK   DT343
1794            KM   THROW AWAY 100-YR 2-HR RETENTION VOLUME:  1) 5.49 AC-FT FROM SUB-BASIN 343
1795            KM                                             (Hydrograph identified as OR343)
1796            KM                                           2) Balance of runoff continues on.
1797            KM                                             (Hydrograph identified as DT343)
1798            DT   OR343    5.49
1799            DI       0   10000
1800            DQ       0   10000
                *

1801            KK   HC343
1802            KM   COMBINE HYDROGRAPHS FROM SUB-BASINS 341, 342 & 343
1803            HC       3
                *

1804            KK   RM345
1805            KM   MUSKINGUM-CUNGE ROUTE FLOW FROM SUB-BASIN 343 THROUGH SUB-BASIN 345
1806            KM            1) Reach Length = 7280 ft.
1807            RD    7280  0.0055   0.012            TRAP       8       2
                *

1808            KK    345S
1809            KM    RUNOFF GENERATED ON SUB-BASIN 345
1810            KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
1811            KM    L=  1.76 mi. Lca=  1.02 mi.  S= 26 ft/mi.   Kn= .020  LAG= 19.37 min.
1812            KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
1813            BA    .530
1814            LG    .105    .102    9.40    .023   72.01
1815            UI     92.    325.    514.    707.   1091.    841.    612.    428.    206.    135.
1816            UI     81.     28.     28.     28.      0.      0.      0.      0.      0.      0.
                *
1                                    HEC-1 INPUT                                        PAGE 46

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


1817            KK   DT345
1818            KM   THROW AWAY 10-YR 2-HR RETENTION VOLUME:  1) 6.00 AC-FT FROM SUB-BASIN 345
1819            KM                                             (Hydrograph identified as OR345)
1820            KM                                           2) Balance of runoff continues on.
1821            KM                                             (Hydrograph identified as DT345)
1822            DT   OR345    6.00
```

```
1823          DI       0   10000
1824          DQ       0   10000
              *

1825          KK   DT345
1826          KM   THROW AWAY 100-YR 2-HR RETENTION VOLUME:  1) 27.06 AC-FT FROM SUB-BASIN 345
1827          KM                                              (Hydrograph identified as OR345)
1828          KM                                             2) Balance of runoff continues on.
1829          KM                                              (Hydrograph identified as DT345)
1830          DT   OR345   27.06
1831          DI       0   10000
1832          DQ       0   10000
              *

1833          KK    R343
1834          KM   RETRIEVE FLOWS DIVERTED AT 343.
1835          DR    345D
              *

1836          KK   RM343
1837          KM   MUSKINGUM-CUNGE ROUTE FLOW FROM SUB-BASIN 342 THROUGH SUB-BASIN 343
1838          KM            1) Reach Length = 1400 ft.
1839          RD    1400  0.0043   0.012            CIRC       5
              *

1840          KK   HC345
1841          KM   COMBINE HYDROGRAPHS FROM SUB-BASINS 342, 343 & 345
1842          HC       3
              *

1843          KK   345RR
1844          KM   ROUTE FLOWS THROUGH DETENTION BASIN C
1845          KM    SOURCE:  Drainage Report Scatter Wash Hydrology
1846          KM             And Outer Loop Highway Interceptor Drain
1847          RS       1    STOR      -1       0
1848          SA    2.15    2.24    2.32    2.52    2.71    2.91    3.12    3.67    3.67
1849          SE    1338    1339    1340    1342    1344    1346    1348    1353    1356
1850          SL    1339    5.94     0.6     0.5
1851          SS    1352      40     2.7     1.5
              *

1852          KK   RM346
1853          KM   MUSKINGUM-CUNGE ROUTE FLOW FROM SUB-BASIN 343 THROUGH SUB-BASIN 346
1854          KM            1) Reach Length = 2000 ft.
1855          RD    2000  0.0100   0.012            TRAP       8       2
              *
```



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

1856          KK    346S
1857          KM    RUNOFF GENERATED ON SUB-BASIN 346
1858          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
1859          KM    L=  1.15 mi. Lca=  0.74 mi.  S= 35 ft/mi.   Kn= .022  LAG= 15.16 min.
1860          KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
1861          BA    .296
1862          LG    .129    .266    5.67    .209   50.42
1863          UI     85.    298.    455.    747.    556.    366.    178.     92.     42.     20.
1864          UI     20.      0.      0.      0.      0.      0.      0.      0.      0.      0.
              *

1865          KK   HC346
1866          KM   COMBINE HYDROGRAPHS FROM SUB-BASINS 330, 345 & 346
1867          HC       3
              *

1868          KK   RM347
1869          KM   MUSKINGUM-CUNGE ROUTE FLOW FROM SUB-BASIN 346 THROUGH SUB-BASIN 347
1870          KM            1) Reach Length = 6685 ft.
1871          RD
1872          RC   0.055   0.045   0.055    6685  0.0042
1873          RX       0      20     175     180     200     205     310     330
1874          RY      10       6       4       2       2       4       6      10
              *

1875          KK    347S
```

```
1876          KM    RUNOFF GENERATED ON SUB-BASIN 347
1877          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
1878          KM    L=  1.54 mi. Lca=  0.89 mi.  S= 27 ft/mi.   Kn= .023  LAG= 19.96 min.
1879          KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
1880          BA    .401
1881          LG    .150    .275    5.67    .214   40.95
1882          UI     68.    229.    369.    498.    785.    653.    479.    345.    186.    114.
1883          UI     68.     28.     21.     21.      0.      0.      0.      0.      0.      0.
              *

1884          KK   HC347
1885          KM   COMBINE HYDROGRAPHS FROM SUB-BASINS 346 & SUB-BASINS 347
1886          HC       2
              *

1887          KK     AD1
1888          KM   ADOBE DAM LOW LEVEL SPILLWAY OUTFLOW; ASSUME CONSTANT OUTFLOW OF
1889          KM   1730 CFS FOR 100-YEAR STORM.
1890          KM   SOURCE:  F.I.S., Maricopa County, Arizona and Incorporated Areas, FEMA.
1891          BA     0.1
1892          IN     120
1893          QI    1730    1730    1730    1730    1730    1730    1730    1730    1730    1730
1894          QI    1730    1730    1730    1730    1730    1730    1730    1730    1730    1730
              *
```



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


1895          KK   RMAD1
1896          KM   NORMAL DEPTH STORAGE ROUTE ADOBE DAM AND OUTFLOW THROUGH SUB-BASIN 347
1897          KM           1) Reach Length = 3240 ft.
1898          RS       5    FLOW      -1
1899          RC   0.055   0.045   0.055    3240  0.0040
1900          RX      30      80     180     200     240     260     265     270
1901          RY       7       6       5       0       0       6       7       8
              *

1902          KK    348S
1903          KM    RUNOFF GENERATED ON SUB-BASIN 348
1904          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
1905          KM    L=  2.23 mi. Lca=  0.83 mi.  S= 30 ft/mi.   Kn= .022  LAG= 20.98 min.
1906          KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
1907          BA   1.105
1908          LG    .121    .260    3.71    .347   54.64
1909          UI    177.    556.    934.   1236.   1894.   1907.   1384.   1015.    682.    330.
1910          UI    237.    144.     54.     54.     54.      0.      0.      0.      0.      0.
              *

1911          KK   DT348
1912          KM   THROW AWAY 100-YR 2-HR RETENTION VOLUME:  1) 15.02 AC-FT FROM SUB-BASIN 348
1913          KM                                               (Hydrograph identified as OR348)
1914          KM                                              2) Balance of runoff continues on.
1915          KM                                               (Hydrograph identified as DT348)
1916          DT   OR348   15.02
1917          DI       0   10000
1918          DQ       0   10000
              *

1919          KK   HC348
1920          KM   COMBINE HYDROGRAPHS FROM SUB-BASINS 348 WITH ROUTED OUTFLOW FROM ADOBE DAM
1921          HC       2
              *

1922          KK   RM349
1923          KM   MUSKINGUM-CUNGE ROUTE FLOW FROM SUB-BASIN 348 THROUGH SUB-BASIN 349
1924          KM           1) Reach Length = 3120 ft.
1925          RD
1926          RC    0.05    0.04    0.05    3120  0.0051
1927          RX     160     165     170     200     245     280     285     290
1928          RY       7     6.5       6       0       0       6     6.5       7
              *

1929          KK    349S
1930          KM    RUNOFF GENERATED ON SUB-BASIN 349
1931          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
1932          KM    L=  0.59 mi. Lca=  0.41 mi.  S= 27 ft/mi.   Kn= .026  LAG= 11.67 min.
```

```
          1933          KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
          1934          BA    .048
          1935          LG    .163    .295    3.68    .765   38.13
          1936          UI     25.     77.    143.    116.     64.     23.      9.      4.      0.      0.
                        *
1                                              HEC-1 INPUT                                                 PAGE 49

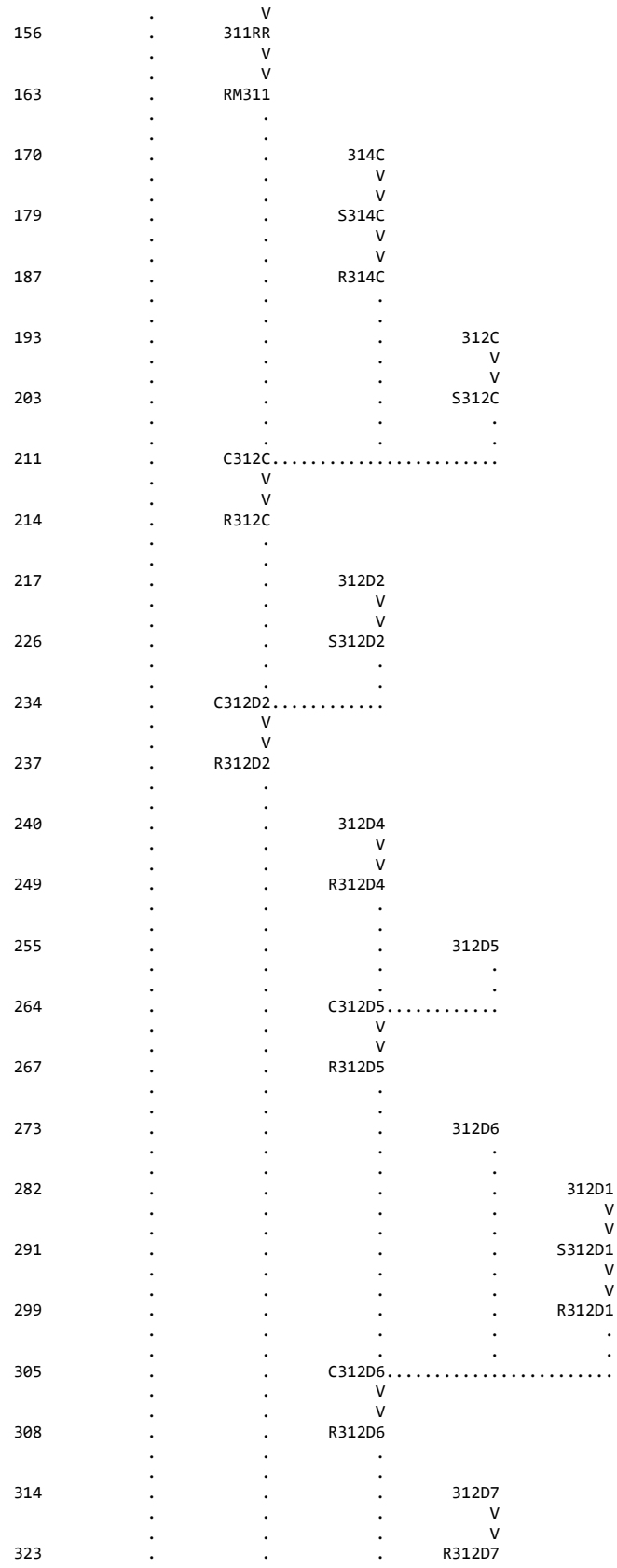
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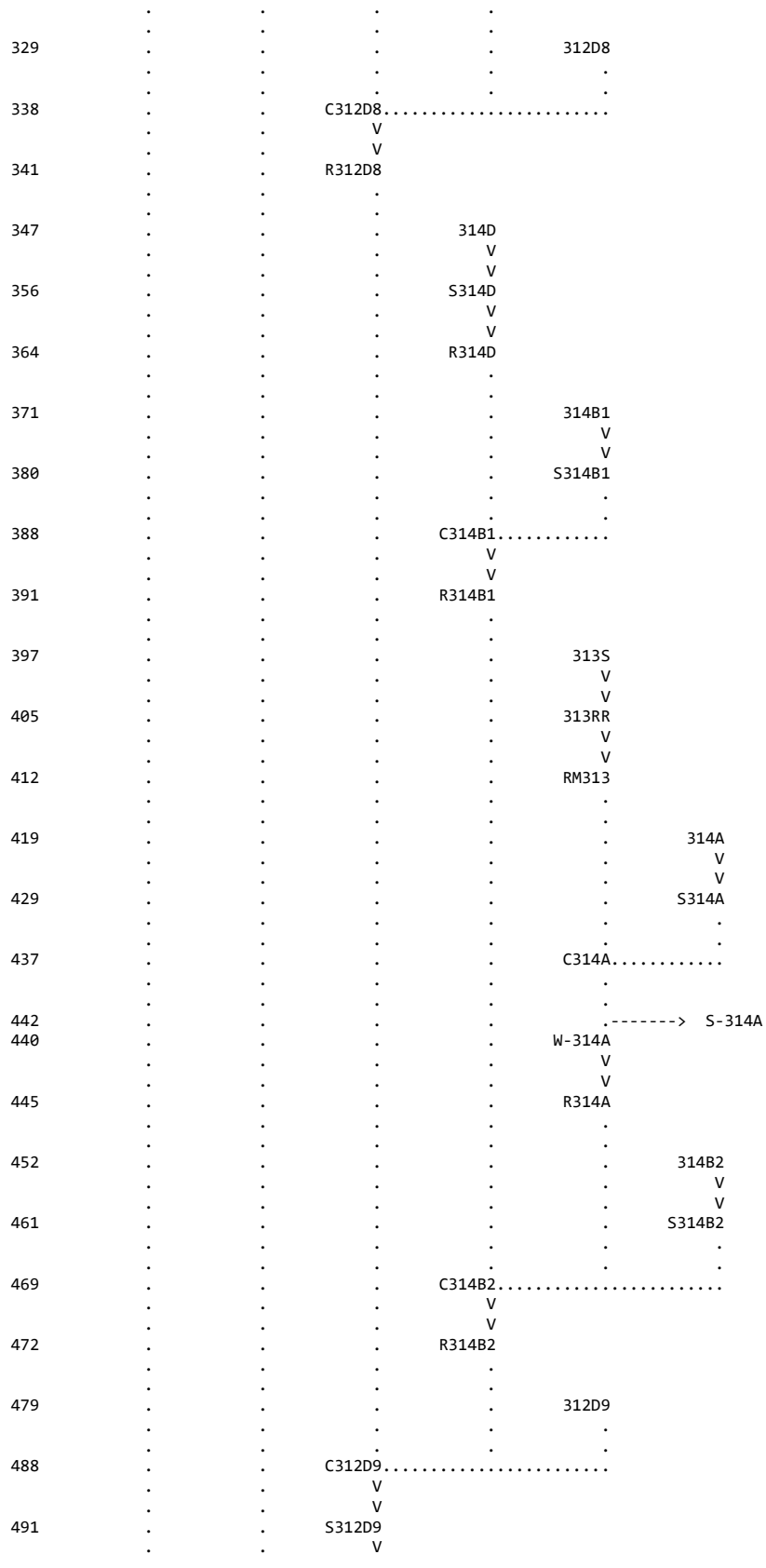

          1937          KK   HC349
          1938          KM   COMBINE HYDROGRAPHS FROM SUB-BASINS 348 WITH SUB-BASIN 349
          1939          HC       2
                        *

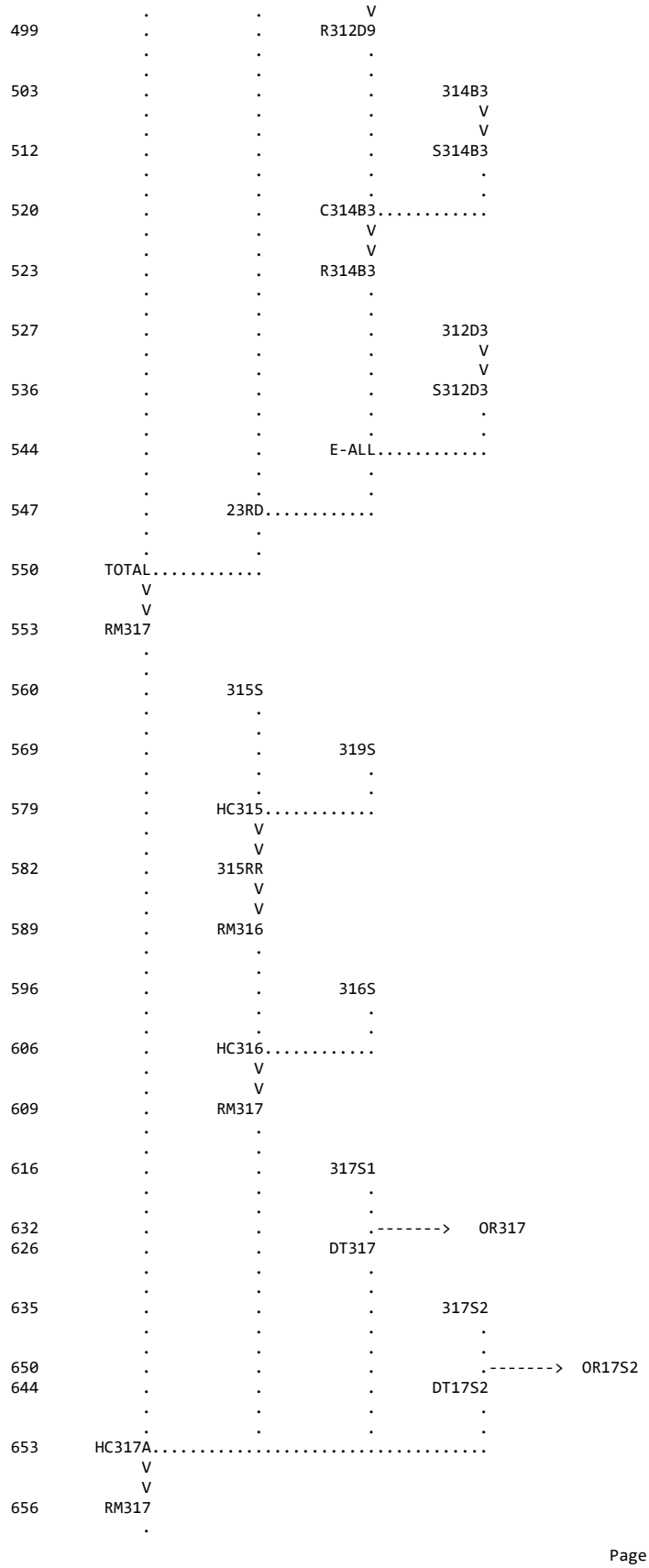
          1940          KK   HCSKB
          1941          KM   COMBINE HYDROGRAPHS AT CONFLUENCE OF SKUNK CREEK & SCATTER WASH ADOBE DAM
          1942          HC       2
          1943          ZW    A=SCATTER WASH  B=HCSKB  C=FLOW  F=SKUNK CREEK
          1944          ZZ
1
               SCHEMATIC DIAGRAM OF STREAM NETWORK
 INPUT
  LINE      (V) ROUTING          (--->) DIVERSION OR PUMP FLOW

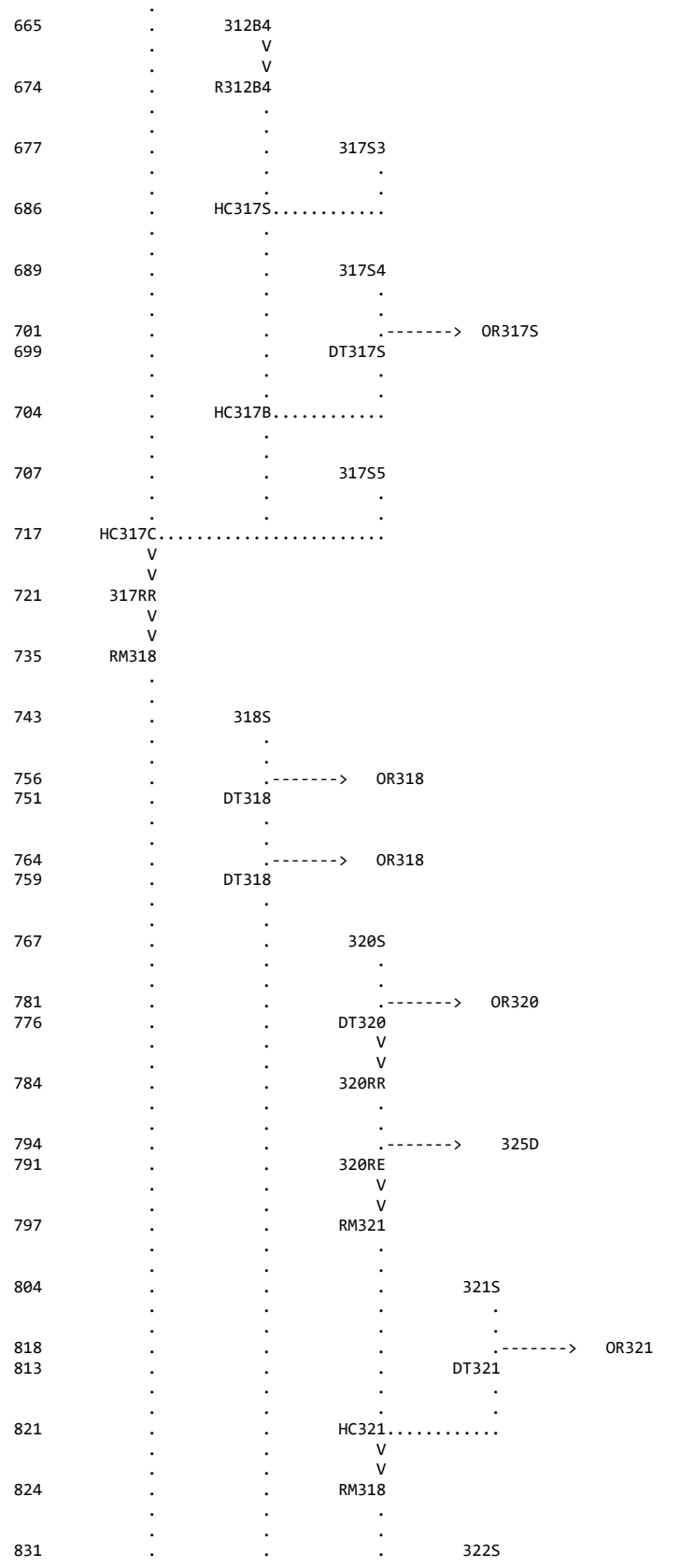
   NO.      (.) CONNECTOR        (<---) RETURN OF DIVERTED OR PUMPED FLOW

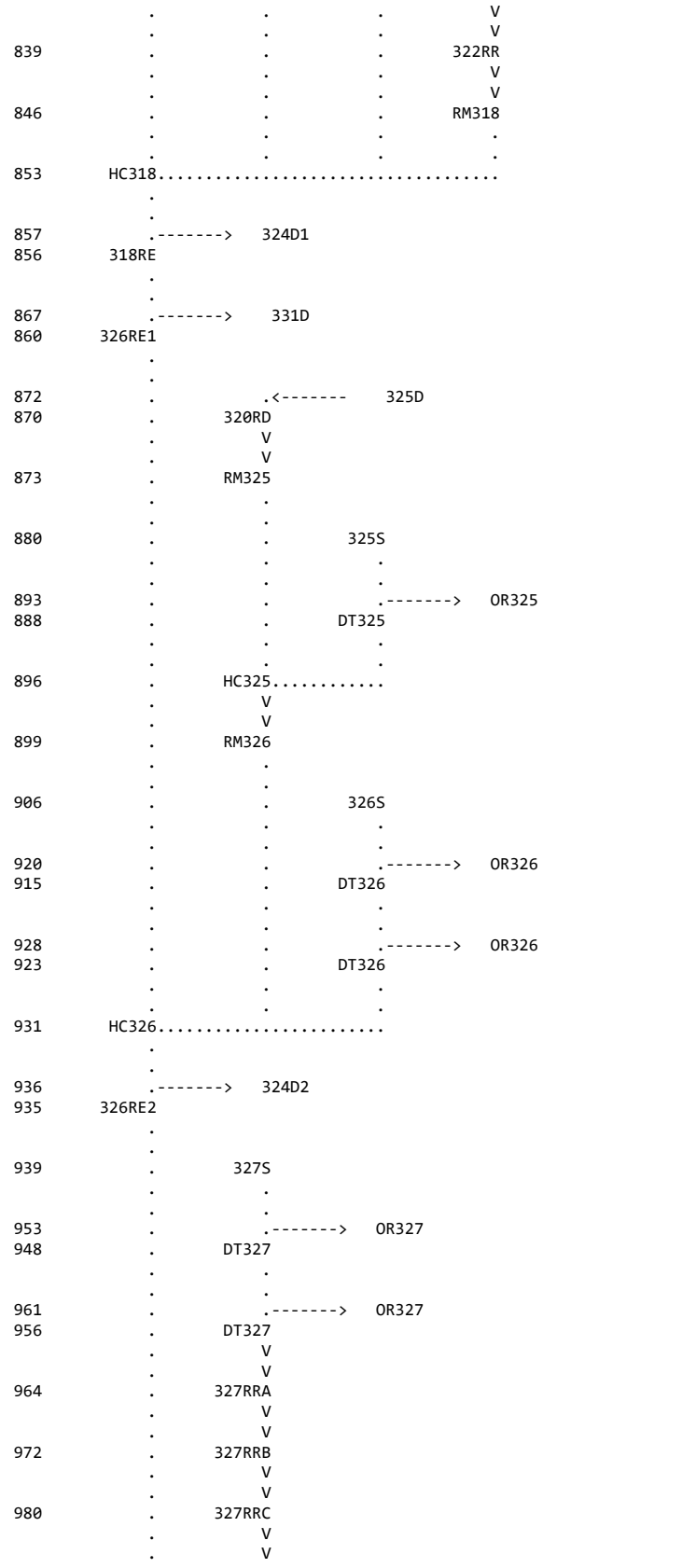
    37        312A
              V
              V
    57       S312A
              V
              V
    65       R312A
              .
              .
    68        .       312B1
              .          V
              .          V
    77        .      S312B1
              .          .
              .          .
    85      C312B1............
              V
              V
    88      R312B1
              .
              .
    91        .       312B2
              .          V
              .          V
   100        .      S312B2
              .          .
              .          .
   108      C312B2............
              V
              V
   111      R312B2
              .
              .
   114        .       312B3
              .          V
              .          V
   123        .      S312B3
              .          .
              .          .
   131      C312B3............
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              .
   134        .        310S
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   143        .          .        311S
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              .          V
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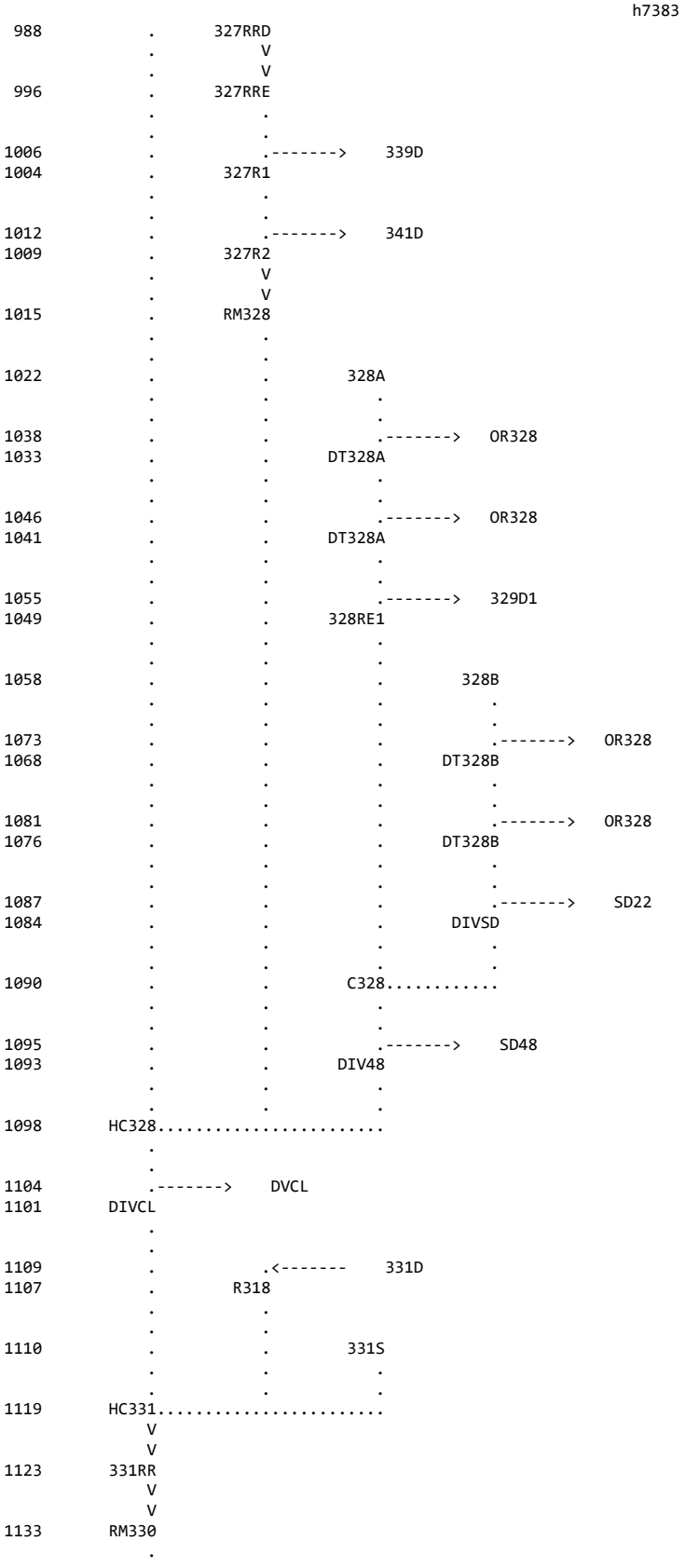

V
311RR
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V
RM311
314C
V
V
S314C
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312C
V
V
S312C
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V
R312C
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V
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C312D2
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R312D7

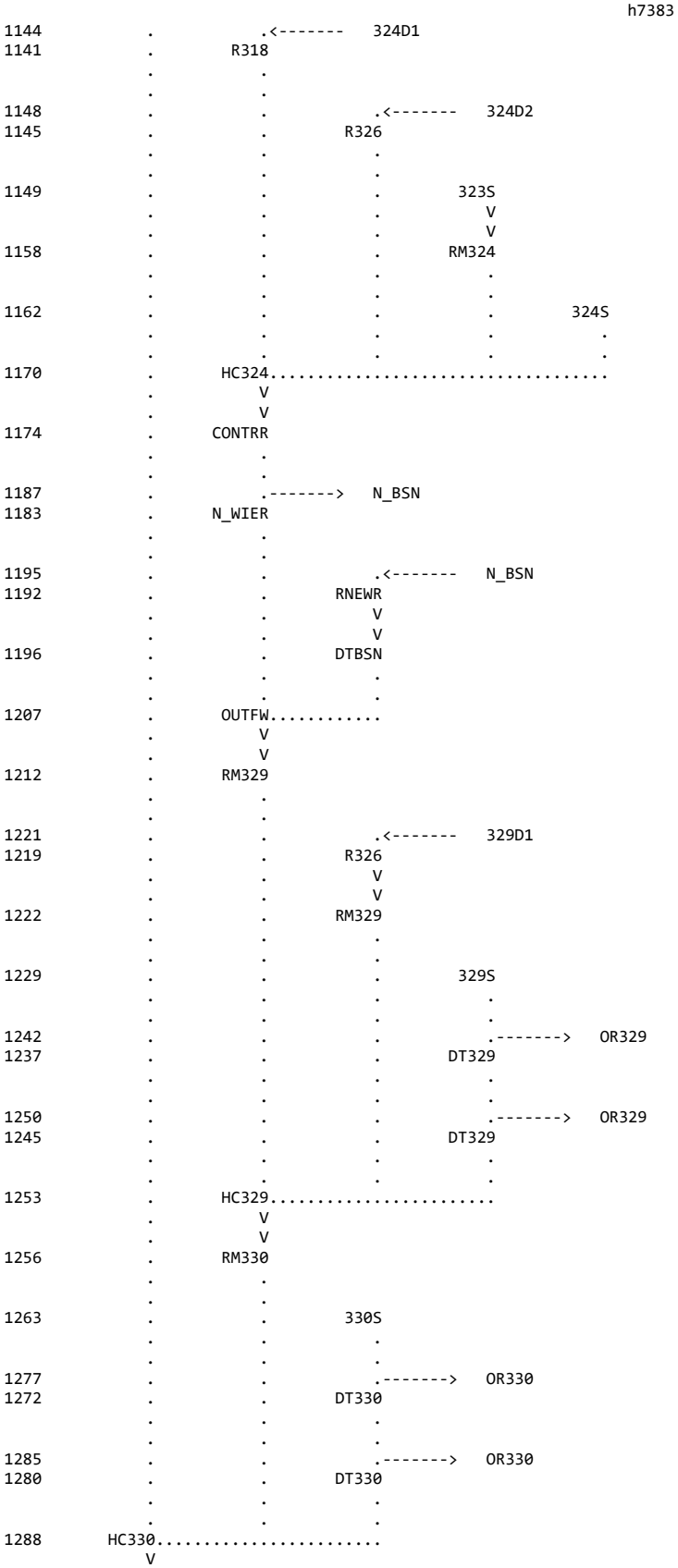

329 312D8
338 C312D8
341 R312D8
347 314D
356 S314D
364 R314D
371 314B1
380 S314B1
388 C314B1
391 R314B1
397 313S
405 313RR
412 RM313
419 314A
429 S314A
437 C314A
442 S-314A
440 W-314A
445 R314A
452 314B2
461 S314B2
469 C314B2
472 R314B2
479 312D9
488 C312D9
491 S312D9

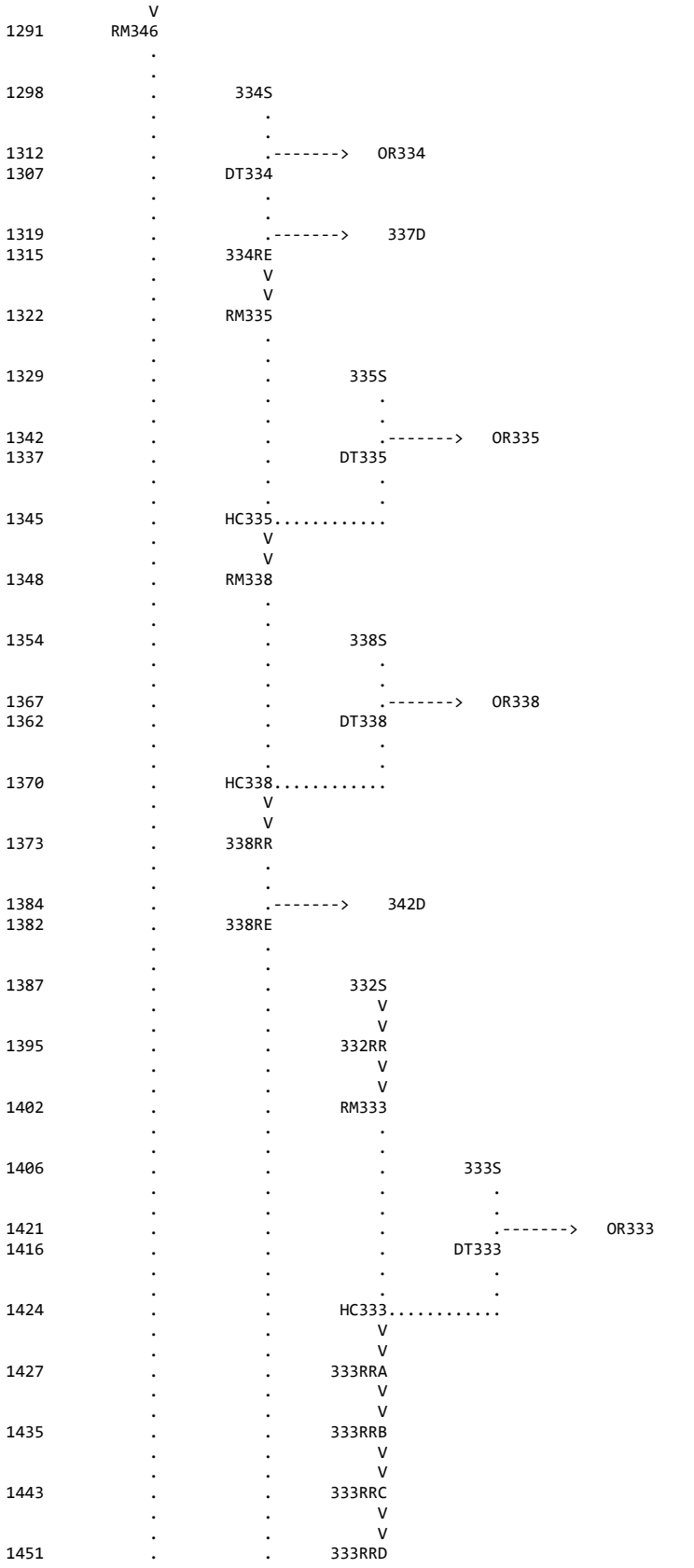

499 R312D9
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512 S314B3
520 C314B3
523 R314B3
527 312D3
536 S312D3
544 E-ALL
547 23RD
550 TOTAL
553 RM317
560 315S
569 319S
579 HC315
582 315RR
589 RM316
596 316S
606 HC316
609 RM317
616 317S1
632 OR317
626 DT317
635 317S2
650 OR17S2
644 DT17S2
653 HC317A
656 RM317

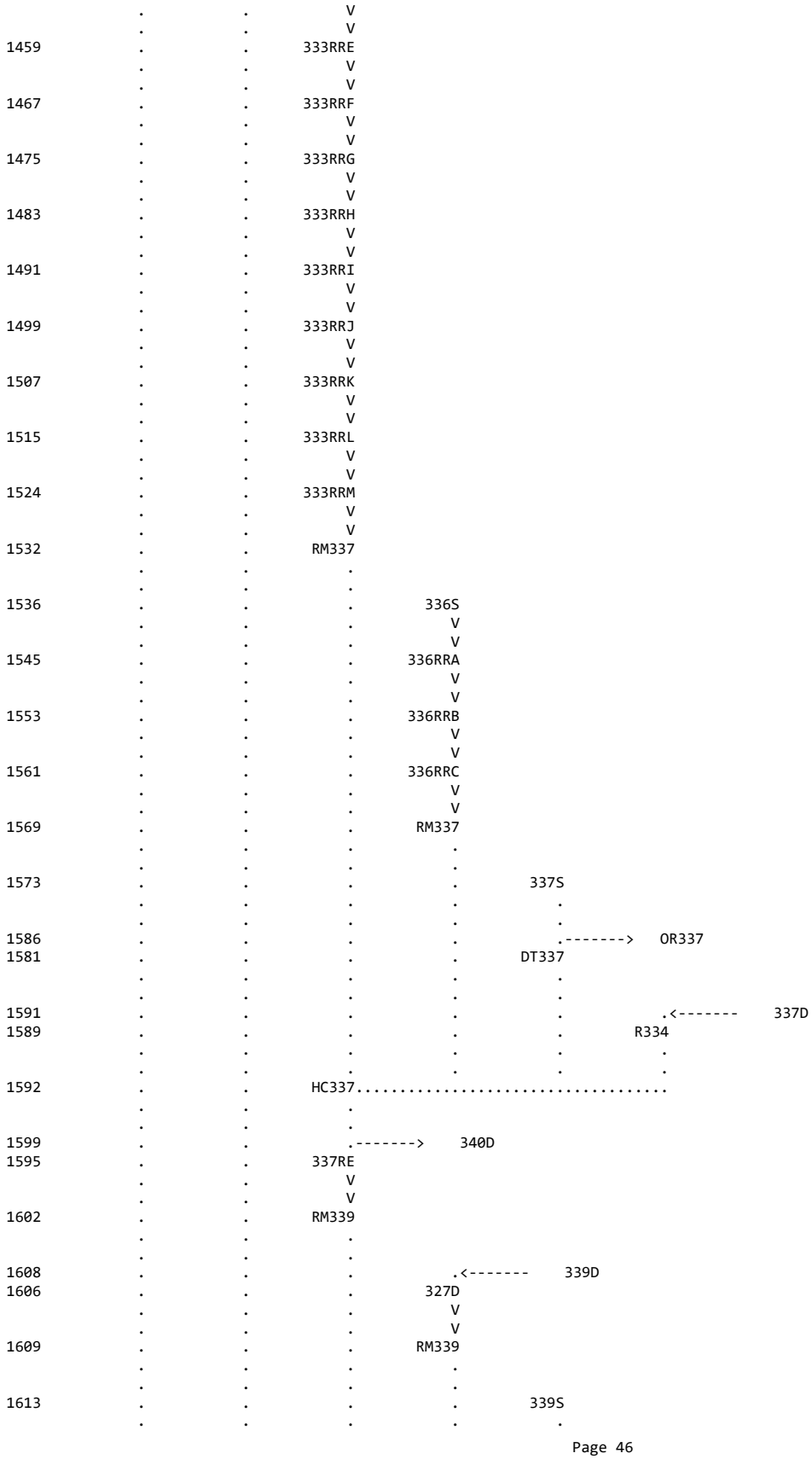

665 312B4
674 R312B4
677 317S3
686 HC317S
689 317S4
701 OR317S
699 DT317S
704 HC317B
707 317S5
717 HC317C
721 317RR
735 RM318
743 318S
756 OR318
751 DT318
764 OR318
759 DT318
767 320S
781 OR320
776 DT320
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794 325D
791 320RE
797 RM321
804 321S
818 OR321
813 DT321
821 HC321
824 RM318
831 322S

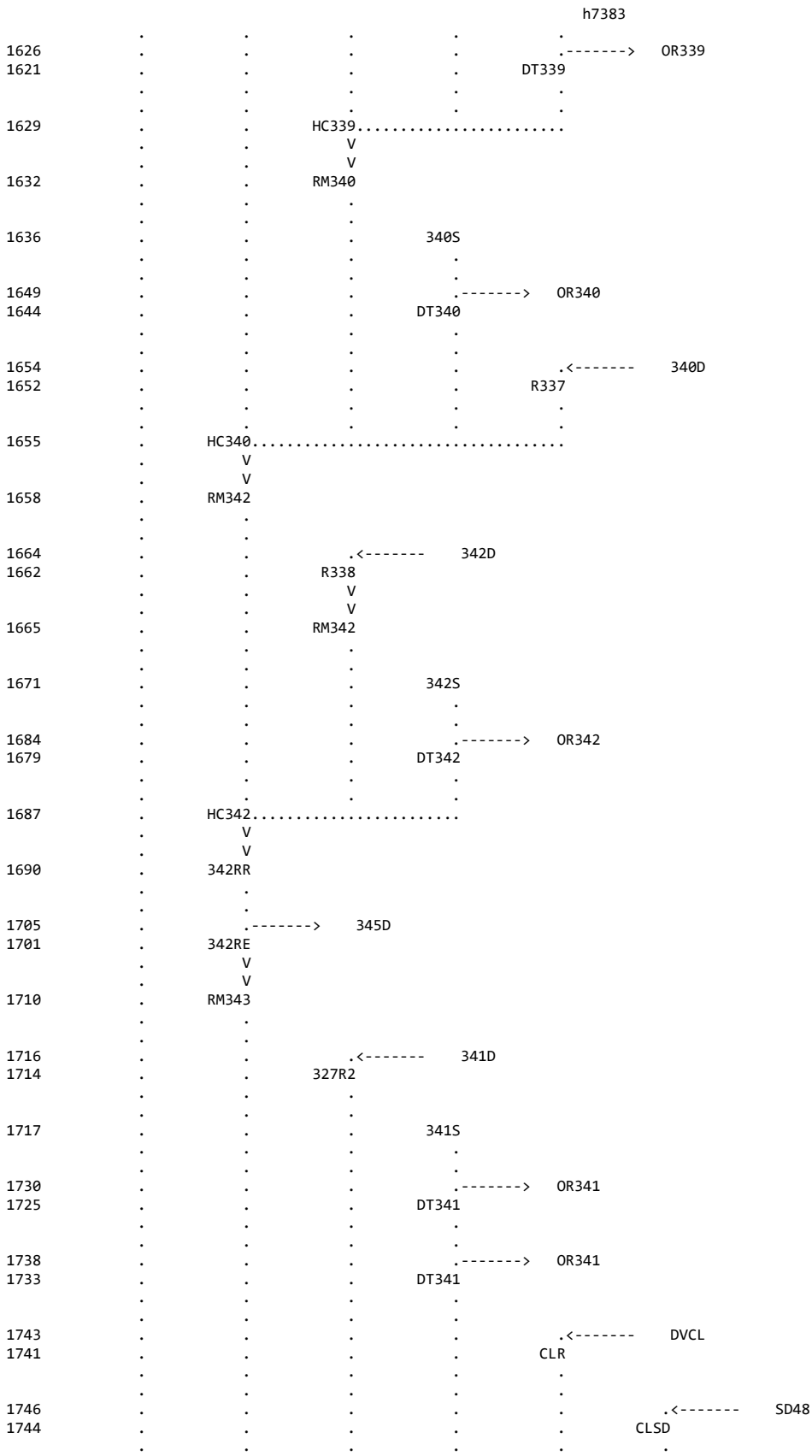

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318RE
331D
326RE1
325D
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RM325
325S
OR325
DT325
HC325
RM326
326S
OR326
DT326
OR326
DT326
HC326
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327S
OR327
DT327
OR327
DT327
327RRA
327RRB
327RRC

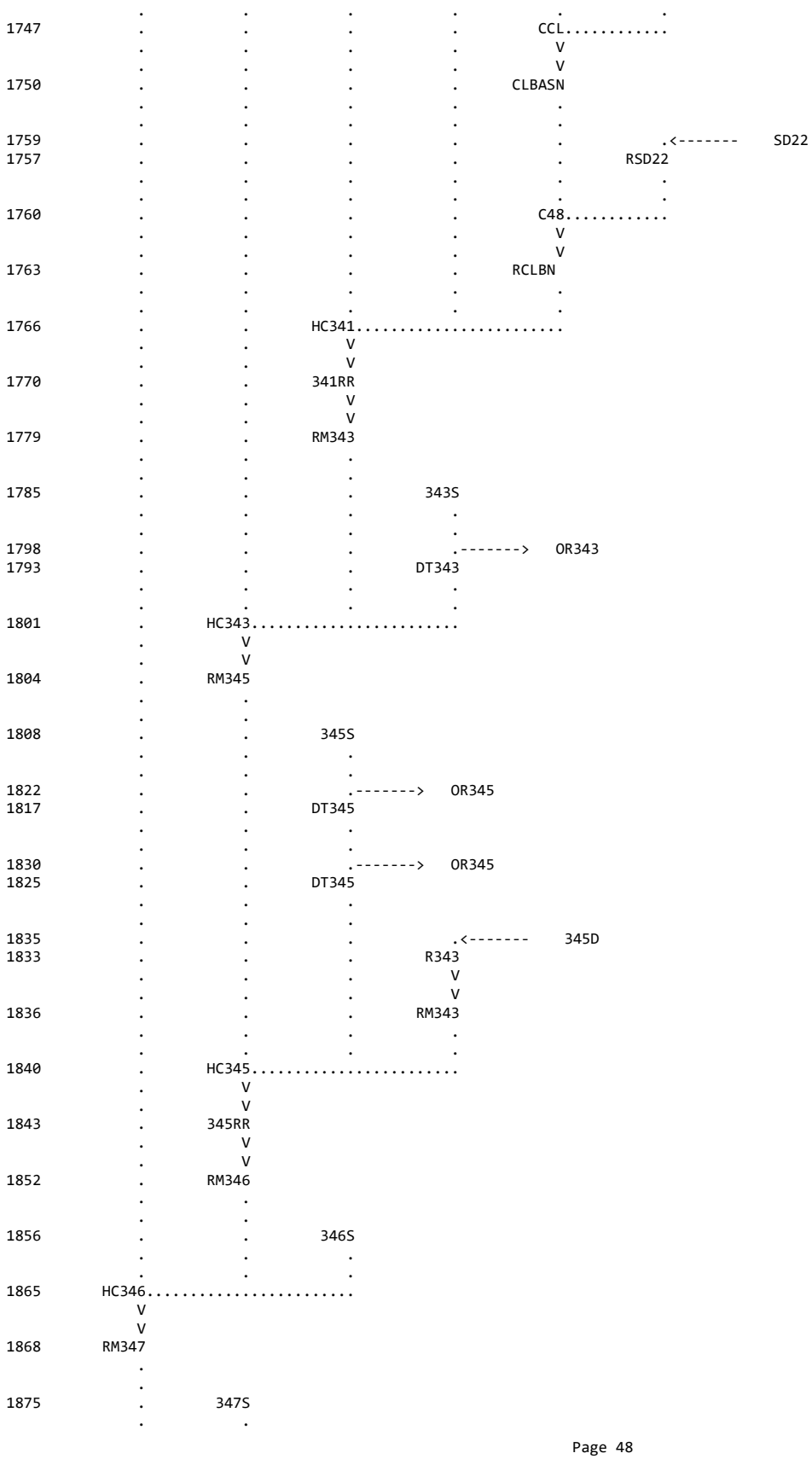

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1006
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1004
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341D
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327R2
1015
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1022
328A
1038
OR328
1033
DT328A
1046
OR328
1041
DT328A
1055
329D1
1049
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1058
328B
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OR328
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DT328B
1081
OR328
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DT328B
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SD22
1084
DIVSD
1090
C328.....
1095
SD48
1093
DIV48
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HC328.....
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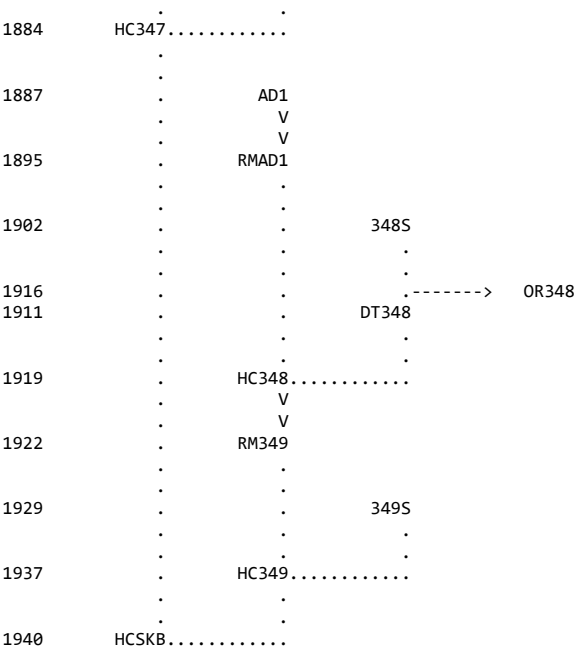

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HC324
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OR330
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DT330
1285
OR330
1280
DT330
1288
HC330


V
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1307 DT334
1319 337D
1315 334RE
1322 RM335
1329 335S
1342 OR335
1337 DT335
1345 HC335
1348 RM338
1354 338S
1367 OR338
1362 DT338
1370 HC338
1373 338RR
1384 342D
1382 338RE
1387 332S
1395 332RR
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1406 333S
1421 OR333
1416 DT333
1424 HC333
1427 333RRA
1435 333RRB
1443 333RRC
1451 333RRD


1459 333RRE
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1475 333RRG
1483 333RRH
1491 333RRI
1499 333RRJ
1507 333RRK
1515 333RRL
1524 333RRM
1532 RM337
1536 336S
1545 336RRA
1553 336RRB
1561 336RRC
1569 RM337
1573 337S
1586 OR337
1581 DT337
1591 337D
1589 R334
1592 HC337
1599 340D
1595 337RE
1602 RM339
1608 339D
1606 327D
1609 RM339
1613 339S


h7383
1626
OR339
1621
DT339
1629
HC339
1632
RM340
1636
340S
1649
OR340
1644
DT340
1654
340D
1652
R337
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HC340
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RM342
1664
342D
1662
R338
1665
RM342
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OR342
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DT342
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HC342
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OR341
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DT341
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OR341
1733
DT341
1743
DVCL
1741
CLR
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SD48
1744
CLSD


h7383
1747
CCL
1750
CLBASN
1759
SD22
1757
RSD22
1760
C48
1763
RCLBN
1766
HC341
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341RR
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RM343
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343S
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OR343
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DT343
1801
HC343
1804
RM345
1808
345S
1822
OR345
1817
DT345
1830
OR345
1825
DT345
1835
345D
1833
R343
1836
RM343
1840
HC345
1843
345RR
1852
RM346
1856
346S
1865
HC346
1868
RM347
1875
347S



(***) RUNOFF ALSO COMPUTED AT THIS LOCATION

```
1*****************************************                    *****************************************
 *                                       *                    *                                       *
 *   FLOOD HYDROGRAPH PACKAGE  (HEC-1)   *                    *    U.S. ARMY CORPS OF ENGINEERS       *
 *               JUN   1998              *                    *    HYDROLOGIC ENGINEERING CENTER      *
 *            VERSION 4.1                *                    *          609 SECOND STREET            *
 *                                       *                    *       DAVIS, CALIFORNIA 95616         *
 *  RUN DATE   27JUN18  TIME  10:16:34   *                    *           (916) 756-1104              *
 *                                       *                    *                                       *
 *****************************************                    *****************************************
```

THE FOLLOWING MODIFICATIONS WERE DONE TO THE HEC-1 FILE (4-19-18)

****
****

I-17 / PINNACLE PEAK RD TI & HAPPY VALLEY ROAD TI
ANDES PROJECT #:1606D
100-YEAR, 24-HOUR STORM
FILE NAME: H7383.DAT

THE FOLLOWING MODIFICATIONS WRE DONE TO THE HEC-1 FILE

1. UPDATED RESERVIOR ROUTING FOR CARD 317RR BASED ON DATA FROM
AVILLA-DEER VALLEY STAGE-STORAGE HEC-1 MODEL AND
HY-8 ANALYSIS OF NEW 3-8'x6'x199' CBC

==========

THE FOLLOWING MODIFICATIONS WERE DONE TO THE HEC-1 FILE (3-24-10)
RECIEVED POST DESIGN SURVEY FOR SCATTER WASH BASIN ON 03-22-10
BASIN VOLUME WAS REDUCED TO 51 AC-FT

1. UPDATED SE & SV FOR STORAGE ROUTE KK DTBSN

****
****

I-17 WIDENING, SR101L TO JOMAX ROAD
J2 PROJECT #:06.0121
100-YEAR, 24-HOUR STORM
FILE NAME: SW100807.DAT

THE FOLLOWING MODIFICATIONS WRE DONE TO THE HEC-1 FILE

1. SPLIT BASIN 317S2 INTO THREE BASINS. NEW BASINS:
317S2 - VESTAR DEVELOPMENT
317S4 - RYAN COMPANIES PROPERTY

317S5 - TANG PROPERTIES
2. UPDATED RESERVIOR ROUTING FOR CARDS 317RR BASED ON NEW TOPO DATA

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

    IT          HYDROGRAPH TIME DATA
                       NMIN           4  MINUTES IN COMPUTATION INTERVAL
                      IDATE     10OCT92  STARTING DATE
                      ITIME        1200  STARTING TIME
                         NQ        1000  NUMBER OF HYDROGRAPH ORDINATES
                     NDDATE     13OCT92  ENDING DATE
                     NDTIME        0636  ENDING TIME
                     ICENT           19  CENTURY MARK

                  COMPUTATION INTERVAL     .07 HOURS
                       TOTAL TIME BASE   66.60 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


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


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           *            *
 717 KK    *    HC317C  *
           *            *
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 718 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           1  PRINT CONTROL
                      IPLOT           2  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                             COMBINE HYDROGRAPHS FROM RYAN COMPANIES CHANNEL AND TANG PROPRTY

 720 HC          HYDROGRAPH COMBINATION
                      ICOMP           3  NUMBER OF HYDROGRAPHS TO COMBINE
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HYDROGRAPH AT STATION HC317C
SUM OF 3 HYDROGRAPHS

DA MON HRMN	ORD	FLOW	DA MON HRMN	ORD	FLOW	DA MON HRMN	ORD	FLOW	DA MON HRMN	ORD	FLOW
10 OCT 1200	1	0.	11 OCT 0440	251	437.	11 OCT 2120	501	8.	12 OCT 1400	751	0.
10 OCT 1204	2	0.	11 OCT 0444	252	435.	11 OCT 2124	502	8.	12 OCT 1404	752	0.
10 OCT 1208	3	0.	11 OCT 0448	253	432.	11 OCT 2128	503	8.	12 OCT 1408	753	0.
10 OCT 1212	4	1.	11 OCT 0452	254	430.	11 OCT 2132	504	7.	12 OCT 1412	754	0.
10 OCT 1216	5	1.	11 OCT 0456	255	428.	11 OCT 2136	505	7.	12 OCT 1416	755	0.
10 OCT 1220	6	1.	11 OCT 0500	256	426.	11 OCT 2140	506	7.	12 OCT 1420	756	0.
10 OCT 1224	7	1.	11 OCT 0504	257	424.	11 OCT 2144	507	7.	12 OCT 1424	757	0.
10 OCT 1228	8	1.	11 OCT 0508	258	421.	11 OCT 2148	508	7.	12 OCT 1428	758	0.
10 OCT 1232	9	2.	11 OCT 0512	259	419.	11 OCT 2152	509	6.	12 OCT 1432	759	0.
10 OCT 1236	10	2.	11 OCT 0516	260	416.	11 OCT 2156	510	6.	12 OCT 1436	760	0.
10 OCT 1240	11	3.	11 OCT 0520	261	413.	11 OCT 2200	511	6.	12 OCT 1440	761	0.
10 OCT 1244	12	4.	11 OCT 0524	262	411.	11 OCT 2204	512	6.	12 OCT 1444	762	0.
10 OCT 1248	13	4.	11 OCT 0528	263	408.	11 OCT 2208	513	6.	12 OCT 1448	763	0.
10 OCT 1252	14	5.	11 OCT 0532	264	405.	11 OCT 2212	514	6.	12 OCT 1452	764	0.
10 OCT 1256	15	5.	11 OCT 0536	265	402.	11 OCT 2216	515	6.	12 OCT 1456	765	0.
10 OCT 1300	16	5.	11 OCT 0540	266	399.	11 OCT 2220	516	5.	12 OCT 1500	766	0.

10 OCT	1304	17	6.	*	11 OCT	0544	267	396.	*	11 OCT	2224	517	5.	*	12 OCT	1504	767	0.
10 OCT	1308	18	6.	*	11 OCT	0548	268	393.	*	11 OCT	2228	518	5.	*	12 OCT	1508	768	0.
10 OCT	1312	19	6.	*	11 OCT	0552	269	390.	*	11 OCT	2232	519	5.	*	12 OCT	1512	769	0.
10 OCT	1316	20	6.	*	11 OCT	0556	270	388.	*	11 OCT	2236	520	5.	*	12 OCT	1516	770	0.
10 OCT	1320	21	7.	*	11 OCT	0600	271	385.	*	11 OCT	2240	521	5.	*	12 OCT	1520	771	0.
10 OCT	1324	22	7.	*	11 OCT	0604	272	383.	*	11 OCT	2244	522	5.	*	12 OCT	1524	772	0.
10 OCT	1328	23	8.	*	11 OCT	0608	273	380.	*	11 OCT	2248	523	5.	*	12 OCT	1528	773	0.
10 OCT	1332	24	8.	*	11 OCT	0612	274	378.	*	11 OCT	2252	524	4.	*	12 OCT	1532	774	0.
10 OCT	1336	25	8.	*	11 OCT	0616	275	375.	*	11 OCT	2256	525	4.	*	12 OCT	1536	775	0.
10 OCT	1340	26	9.	*	11 OCT	0620	276	373.	*	11 OCT	2300	526	4.	*	12 OCT	1540	776	0.
10 OCT	1344	27	9.	*	11 OCT	0624	277	370.	*	11 OCT	2304	527	4.	*	12 OCT	1544	777	0.
10 OCT	1348	28	10.	*	11 OCT	0628	278	368.	*	11 OCT	2308	528	4.	*	12 OCT	1548	778	0.
10 OCT	1352	29	10.	*	11 OCT	0632	279	366.	*	11 OCT	2312	529	4.	*	12 OCT	1552	779	0.
10 OCT	1356	30	10.	*	11 OCT	0636	280	364.	*	11 OCT	2316	530	4.	*	12 OCT	1556	780	0.
10 OCT	1400	31	11.	*	11 OCT	0640	281	362.	*	11 OCT	2320	531	4.	*	12 OCT	1600	781	0.
10 OCT	1404	32	11.	*	11 OCT	0644	282	360.	*	11 OCT	2324	532	4.	*	12 OCT	1604	782	0.
10 OCT	1408	33	12.	*	11 OCT	0648	283	358.	*	11 OCT	2328	533	4.	*	12 OCT	1608	783	0.
10 OCT	1412	34	12.	*	11 OCT	0652	284	356.	*	11 OCT	2332	534	4.	*	12 OCT	1612	784	0.
10 OCT	1416	35	13.	*	11 OCT	0656	285	354.	*	11 OCT	2336	535	3.	*	12 OCT	1616	785	0.
10 OCT	1420	36	14.	*	11 OCT	0700	286	352.	*	11 OCT	2340	536	3.	*	12 OCT	1620	786	0.
10 OCT	1424	37	14.	*	11 OCT	0704	287	351.	*	11 OCT	2344	537	3.	*	12 OCT	1624	787	0.
10 OCT	1428	38	15.	*	11 OCT	0708	288	349.	*	11 OCT	2348	538	3.	*	12 OCT	1628	788	0.
10 OCT	1432	39	15.	*	11 OCT	0712	289	347.	*	11 OCT	2352	539	3.	*	12 OCT	1632	789	0.
10 OCT	1436	40	16.	*	11 OCT	0716	290	346.	*	11 OCT	2356	540	3.	*	12 OCT	1636	790	0.
10 OCT	1440	41	16.	*	11 OCT	0720	291	344.	*	12 OCT	0000	541	3.	*	12 OCT	1640	791	0.
10 OCT	1444	42	17.	*	11 OCT	0724	292	343.	*	12 OCT	0004	542	3.	*	12 OCT	1644	792	0.
10 OCT	1448	43	17.	*	11 OCT	0728	293	341.	*	12 OCT	0008	543	3.	*	12 OCT	1648	793	0.
10 OCT	1452	44	18.	*	11 OCT	0732	294	339.	*	12 OCT	0012	544	3.	*	12 OCT	1652	794	0.
10 OCT	1456	45	18.	*	11 OCT	0736	295	338.	*	12 OCT	0016	545	3.	*	12 OCT	1656	795	0.
10 OCT	1500	46	19.	*	11 OCT	0740	296	336.	*	12 OCT	0020	546	3.	*	12 OCT	1700	796	0.
10 OCT	1504	47	19.	*	11 OCT	0744	297	334.	*	12 OCT	0024	547	3.	*	12 OCT	1704	797	0.
10 OCT	1508	48	20.	*	11 OCT	0748	298	332.	*	12 OCT	0028	548	3.	*	12 OCT	1708	798	0.
10 OCT	1512	49	20.	*	11 OCT	0752	299	330.	*	12 OCT	0032	549	3.	*	12 OCT	1712	799	0.
10 OCT	1516	50	21.	*	11 OCT	0756	300	328.	*	12 OCT	0036	550	3.	*	12 OCT	1716	800	0.
10 OCT	1520	51	21.	*	11 OCT	0800	301	326.	*	12 OCT	0040	551	2.	*	12 OCT	1720	801	0.
10 OCT	1524	52	22.	*	11 OCT	0804	302	325.	*	12 OCT	0044	552	2.	*	12 OCT	1724	802	0.
10 OCT	1528	53	22.	*	11 OCT	0808	303	323.	*	12 OCT	0048	553	2.	*	12 OCT	1728	803	0.
10 OCT	1532	54	22.	*	11 OCT	0812	304	321.	*	12 OCT	0052	554	2.	*	12 OCT	1732	804	0.
10 OCT	1536	55	23.	*	11 OCT	0816	305	319.	*	12 OCT	0056	555	2.	*	12 OCT	1736	805	0.
10 OCT	1540	56	23.	*	11 OCT	0820	306	316.	*	12 OCT	0100	556	2.	*	12 OCT	1740	806	0.
10 OCT	1544	57	23.	*	11 OCT	0824	307	314.	*	12 OCT	0104	557	2.	*	12 OCT	1744	807	0.
10 OCT	1548	58	24.	*	11 OCT	0828	308	312.	*	12 OCT	0108	558	2.	*	12 OCT	1748	808	0.
10 OCT	1552	59	24.	*	11 OCT	0832	309	310.	*	12 OCT	0112	559	2.	*	12 OCT	1752	809	0.
10 OCT	1556	60	24.	*	11 OCT	0836	310	308.	*	12 OCT	0116	560	2.	*	12 OCT	1756	810	0.
10 OCT	1600	61	24.	*	11 OCT	0840	311	305.	*	12 OCT	0120	561	2.	*	12 OCT	1800	811	0.
10 OCT	1604	62	25.	*	11 OCT	0844	312	303.	*	12 OCT	0124	562	2.	*	12 OCT	1804	812	0.
10 OCT	1608	63	25.	*	11 OCT	0848	313	301.	*	12 OCT	0128	563	2.	*	12 OCT	1808	813	0.
10 OCT	1612	64	26.	*	11 OCT	0852	314	298.	*	12 OCT	0132	564	2.	*	12 OCT	1812	814	0.
10 OCT	1616	65	26.	*	11 OCT	0856	315	296.	*	12 OCT	0136	565	2.	*	12 OCT	1816	815	0.
10 OCT	1620	66	27.	*	11 OCT	0900	316	294.	*	12 OCT	0140	566	2.	*	12 OCT	1820	816	0.
10 OCT	1624	67	27.	*	11 OCT	0904	317	292.	*	12 OCT	0144	567	2.	*	12 OCT	1824	817	0.
10 OCT	1628	68	27.	*	11 OCT	0908	318	290.	*	12 OCT	0148	568	2.	*	12 OCT	1828	818	0.
10 OCT	1632	69	28.	*	11 OCT	0912	319	289.	*	12 OCT	0152	569	2.	*	12 OCT	1832	819	0.
10 OCT	1636	70	28.	*	11 OCT	0916	320	287.	*	12 OCT	0156	570	2.	*	12 OCT	1836	820	0.
10 OCT	1640	71	29.	*	11 OCT	0920	321	286.	*	12 OCT	0200	571	2.	*	12 OCT	1840	821	0.
10 OCT	1644	72	29.	*	11 OCT	0924	322	285.	*	12 OCT	0204	572	2.	*	12 OCT	1844	822	0.
10 OCT	1648	73	30.	*	11 OCT	0928	323	284.	*	12 OCT	0208	573	2.	*	12 OCT	1848	823	0.
10 OCT	1652	74	30.	*	11 OCT	0932	324	283.	*	12 OCT	0212	574	2.	*	12 OCT	1852	824	0.
10 OCT	1656	75	30.	*	11 OCT	0936	325	281.	*	12 OCT	0216	575	2.	*	12 OCT	1856	825	0.
10 OCT	1700	76	31.	*	11 OCT	0940	326	279.	*	12 OCT	0220	576	1.	*	12 OCT	1900	826	0.
10 OCT	1704	77	31.	*	11 OCT	0944	327	277.	*	12 OCT	0224	577	1.	*	12 OCT	1904	827	0.
10 OCT	1708	78	31.	*	11 OCT	0948	328	275.	*	12 OCT	0228	578	1.	*	12 OCT	1908	828	0.
10 OCT	1712	79	31.	*	11 OCT	0952	329	273.	*	12 OCT	0232	579	1.	*	12 OCT	1912	829	0.
10 OCT	1716	80	32.	*	11 OCT	0956	330	271.	*	12 OCT	0236	580	1.	*	12 OCT	1916	830	0.
10 OCT	1720	81	32.	*	11 OCT	1000	331	270.	*	12 OCT	0240	581	1.	*	12 OCT	1920	831	0.
10 OCT	1724	82	32.	*	11 OCT	1004	332	268.	*	12 OCT	0244	582	1.	*	12 OCT	1924	832	0.
10 OCT	1728	83	32.	*	11 OCT	1008	333	266.	*	12 OCT	0248	583	1.	*	12 OCT	1928	833	0.
10 OCT	1732	84	33.	*	11 OCT	1012	334	265.	*	12 OCT	0252	584	1.	*	12 OCT	1932	834	0.
10 OCT	1736	85	33.	*	11 OCT	1016	335	263.	*	12 OCT	0256	585	1.	*	12 OCT	1936	835	0.
10 OCT	1740	86	33.	*	11 OCT	1020	336	262.	*	12 OCT	0300	586	1.	*	12 OCT	1940	836	0.
10 OCT	1744	87	34.	*	11 OCT	1024	337	260.	*	12 OCT	0304	587	1.	*	12 OCT	1944	837	0.
10 OCT	1748	88	34.	*	11 OCT	1028	338	259.	*	12 OCT	0308	588	1.	*	12 OCT	1948	838	0.
10 OCT	1752	89	35.	*	11 OCT	1032	339	258.	*	12 OCT	0312	589	1.	*	12 OCT	1952	839	0.
10 OCT	1756	90	35.	*	11 OCT	1036	340	256.	*	12 OCT	0316	590	1.	*	12 OCT	1956	840	0.
10 OCT	1800	91	35.	*	11 OCT	1040	341	254.	*	12 OCT	0320	591	1.	*	12 OCT	2000	841	0.
10 OCT	1804	92	36.	*	11 OCT	1044	342	253.	*	12 OCT	0324	592	1.	*	12 OCT	2004	842	0.
10 OCT	1808	93	36.	*	11 OCT	1048	343	251.	*	12 OCT	0328	593	1.	*	12 OCT	2008	843	0.

10	OCT	1812	94	36.	*	11	OCT	1052	344	249.	*	12	OCT	0332	594	1.	*	12	OCT	2012	844	0.
10	OCT	1816	95	37.	*	11	OCT	1056	345	247.	*	12	OCT	0336	595	1.	*	12	OCT	2016	845	0.
10	OCT	1820	96	37.	*	11	OCT	1100	346	246.	*	12	OCT	0340	596	1.	*	12	OCT	2020	846	0.
10	OCT	1824	97	38.	*	11	OCT	1104	347	244.	*	12	OCT	0344	597	1.	*	12	OCT	2024	847	0.
10	OCT	1828	98	38.	*	11	OCT	1108	348	243.	*	12	OCT	0348	598	1.	*	12	OCT	2028	848	0.
10	OCT	1832	99	38.	*	11	OCT	1112	349	242.	*	12	OCT	0352	599	1.	*	12	OCT	2032	849	0.
10	OCT	1836	100	39.	*	11	OCT	1116	350	241.	*	12	OCT	0356	600	1.	*	12	OCT	2036	850	0.
10	OCT	1840	101	39.	*	11	OCT	1120	351	240.	*	12	OCT	0400	601	1.	*	12	OCT	2040	851	0.
10	OCT	1844	102	39.	*	11	OCT	1124	352	239.	*	12	OCT	0404	602	1.	*	12	OCT	2044	852	0.
10	OCT	1848	103	40.	*	11	OCT	1128	353	238.	*	12	OCT	0408	603	1.	*	12	OCT	2048	853	0.
10	OCT	1852	104	40.	*	11	OCT	1132	354	237.	*	12	OCT	0412	604	1.	*	12	OCT	2052	854	0.
10	OCT	1856	105	40.	*	11	OCT	1136	355	236.	*	12	OCT	0416	605	1.	*	12	OCT	2056	855	0.
10	OCT	1900	106	40.	*	11	OCT	1140	356	234.	*	12	OCT	0420	606	1.	*	12	OCT	2100	856	0.
10	OCT	1904	107	41.	*	11	OCT	1144	357	232.	*	12	OCT	0424	607	1.	*	12	OCT	2104	857	0.
10	OCT	1908	108	41.	*	11	OCT	1148	358	231.	*	12	OCT	0428	608	1.	*	12	OCT	2108	858	0.
10	OCT	1912	109	42.	*	11	OCT	1152	359	229.	*	12	OCT	0432	609	1.	*	12	OCT	2112	859	0.
10	OCT	1916	110	42.	*	11	OCT	1156	360	227.	*	12	OCT	0436	610	1.	*	12	OCT	2116	860	0.
10	OCT	1920	111	42.	*	11	OCT	1200	361	225.	*	12	OCT	0440	611	1.	*	12	OCT	2120	861	0.
10	OCT	1924	112	42.	*	11	OCT	1204	362	223.	*	12	OCT	0444	612	1.	*	12	OCT	2124	862	0.
10	OCT	1928	113	43.	*	11	OCT	1208	363	220.	*	12	OCT	0448	613	1.	*	12	OCT	2128	863	0.
10	OCT	1932	114	43.	*	11	OCT	1212	364	216.	*	12	OCT	0452	614	1.	*	12	OCT	2132	864	0.
10	OCT	1936	115	44.	*	11	OCT	1216	365	212.	*	12	OCT	0456	615	1.	*	12	OCT	2136	865	0.
10	OCT	1940	116	44.	*	11	OCT	1220	366	208.	*	12	OCT	0500	616	1.	*	12	OCT	2140	866	0.
10	OCT	1944	117	45.	*	11	OCT	1224	367	204.	*	12	OCT	0504	617	1.	*	12	OCT	2144	867	0.
10	OCT	1948	118	46.	*	11	OCT	1228	368	200.	*	12	OCT	0508	618	1.	*	12	OCT	2148	868	0.
10	OCT	1952	119	46.	*	11	OCT	1232	369	197.	*	12	OCT	0512	619	1.	*	12	OCT	2152	869	0.
10	OCT	1956	120	47.	*	11	OCT	1236	370	194.	*	12	OCT	0516	620	1.	*	12	OCT	2156	870	0.
10	OCT	2000	121	47.	*	11	OCT	1240	371	191.	*	12	OCT	0520	621	1.	*	12	OCT	2200	871	0.
10	OCT	2004	122	47.	*	11	OCT	1244	372	189.	*	12	OCT	0524	622	1.	*	12	OCT	2204	872	0.
10	OCT	2008	123	48.	*	11	OCT	1248	373	187.	*	12	OCT	0528	623	1.	*	12	OCT	2208	873	0.
10	OCT	2012	124	48.	*	11	OCT	1252	374	185.	*	12	OCT	0532	624	1.	*	12	OCT	2212	874	0.
10	OCT	2016	125	49.	*	11	OCT	1256	375	183.	*	12	OCT	0536	625	1.	*	12	OCT	2216	875	0.
10	OCT	2020	126	49.	*	11	OCT	1300	376	182.	*	12	OCT	0540	626	1.	*	12	OCT	2220	876	0.
10	OCT	2024	127	50.	*	11	OCT	1304	377	180.	*	12	OCT	0544	627	1.	*	12	OCT	2224	877	0.
10	OCT	2028	128	50.	*	11	OCT	1308	378	178.	*	12	OCT	0548	628	1.	*	12	OCT	2228	878	0.
10	OCT	2032	129	51.	*	11	OCT	1312	379	176.	*	12	OCT	0552	629	1.	*	12	OCT	2232	879	0.
10	OCT	2036	130	51.	*	11	OCT	1316	380	174.	*	12	OCT	0556	630	1.	*	12	OCT	2236	880	0.
10	OCT	2040	131	52.	*	11	OCT	1320	381	173.	*	12	OCT	0600	631	1.	*	12	OCT	2240	881	0.
10	OCT	2044	132	53.	*	11	OCT	1324	382	171.	*	12	OCT	0604	632	1.	*	12	OCT	2244	882	0.
10	OCT	2048	133	54.	*	11	OCT	1328	383	169.	*	12	OCT	0608	633	0.	*	12	OCT	2248	883	0.
10	OCT	2052	134	54.	*	11	OCT	1332	384	167.	*	12	OCT	0612	634	0.	*	12	OCT	2252	884	0.
10	OCT	2056	135	55.	*	11	OCT	1336	385	165.	*	12	OCT	0616	635	0.	*	12	OCT	2256	885	0.
10	OCT	2100	136	56.	*	11	OCT	1340	386	164.	*	12	OCT	0620	636	0.	*	12	OCT	2300	886	0.
10	OCT	2104	137	56.	*	11	OCT	1344	387	162.	*	12	OCT	0624	637	0.	*	12	OCT	2304	887	0.
10	OCT	2108	138	57.	*	11	OCT	1348	388	160.	*	12	OCT	0628	638	0.	*	12	OCT	2308	888	0.
10	OCT	2112	139	58.	*	11	OCT	1352	389	159.	*	12	OCT	0632	639	0.	*	12	OCT	2312	889	0.
10	OCT	2116	140	58.	*	11	OCT	1356	390	157.	*	12	OCT	0636	640	0.	*	12	OCT	2316	890	0.
10	OCT	2120	141	59.	*	11	OCT	1400	391	155.	*	12	OCT	0640	641	0.	*	12	OCT	2320	891	0.
10	OCT	2124	142	60.	*	11	OCT	1404	392	154.	*	12	OCT	0644	642	0.	*	12	OCT	2324	892	0.
10	OCT	2128	143	61.	*	11	OCT	1408	393	152.	*	12	OCT	0648	643	0.	*	12	OCT	2328	893	0.
10	OCT	2132	144	61.	*	11	OCT	1412	394	151.	*	12	OCT	0652	644	0.	*	12	OCT	2332	894	0.
10	OCT	2136	145	62.	*	11	OCT	1416	395	149.	*	12	OCT	0656	645	0.	*	12	OCT	2336	895	0.
10	OCT	2140	146	63.	*	11	OCT	1420	396	148.	*	12	OCT	0700	646	0.	*	12	OCT	2340	896	0.
10	OCT	2144	147	64.	*	11	OCT	1424	397	146.	*	12	OCT	0704	647	0.	*	12	OCT	2344	897	0.
10	OCT	2148	148	65.	*	11	OCT	1428	398	145.	*	12	OCT	0708	648	0.	*	12	OCT	2348	898	0.
10	OCT	2152	149	66.	*	11	OCT	1432	399	143.	*	12	OCT	0712	649	0.	*	12	OCT	2352	899	0.
10	OCT	2156	150	67.	*	11	OCT	1436	400	141.	*	12	OCT	0716	650	0.	*	12	OCT	2356	900	0.
10	OCT	2200	151	68.	*	11	OCT	1440	401	140.	*	12	OCT	0720	651	0.	*	13	OCT	0000	901	0.
10	OCT	2204	152	69.	*	11	OCT	1444	402	138.	*	12	OCT	0724	652	0.	*	13	OCT	0004	902	0.
10	OCT	2208	153	70.	*	11	OCT	1448	403	136.	*	12	OCT	0728	653	0.	*	13	OCT	0008	903	0.
10	OCT	2212	154	71.	*	11	OCT	1452	404	134.	*	12	OCT	0732	654	0.	*	13	OCT	0012	904	0.
10	OCT	2216	155	73.	*	11	OCT	1456	405	132.	*	12	OCT	0736	655	0.	*	13	OCT	0016	905	0.
10	OCT	2220	156	74.	*	11	OCT	1500	406	130.	*	12	OCT	0740	656	0.	*	13	OCT	0020	906	0.
10	OCT	2224	157	75.	*	11	OCT	1504	407	128.	*	12	OCT	0744	657	0.	*	13	OCT	0024	907	0.
10	OCT	2228	158	76.	*	11	OCT	1508	408	127.	*	12	OCT	0748	658	0.	*	13	OCT	0028	908	0.
10	OCT	2232	159	78.	*	11	OCT	1512	409	125.	*	12	OCT	0752	659	0.	*	13	OCT	0032	909	0.
10	OCT	2236	160	81.	*	11	OCT	1516	410	123.	*	12	OCT	0756	660	0.	*	13	OCT	0036	910	0.
10	OCT	2240	161	84.	*	11	OCT	1520	411	121.	*	12	OCT	0800	661	0.	*	13	OCT	0040	911	0.
10	OCT	2244	162	87.	*	11	OCT	1524	412	120.	*	12	OCT	0804	662	0.	*	13	OCT	0044	912	0.
10	OCT	2248	163	91.	*	11	OCT	1528	413	118.	*	12	OCT	0808	663	0.	*	13	OCT	0048	913	0.
10	OCT	2252	164	95.	*	11	OCT	1532	414	116.	*	12	OCT	0812	664	0.	*	13	OCT	0052	914	0.
10	OCT	2256	165	101.	*	11	OCT	1536	415	115.	*	12	OCT	0816	665	0.	*	13	OCT	0056	915	0.
10	OCT	2300	166	106.	*	11	OCT	1540	416	113.	*	12	OCT	0820	666	0.	*	13	OCT	0100	916	0.
10	OCT	2304	167	111.	*	11	OCT	1544	417	112.	*	12	OCT	0824	667	0.	*	13	OCT	0104	917	0.
10	OCT	2308	168	117.	*	11	OCT	1548	418	110.	*	12	OCT	0828	668	0.	*	13	OCT	0108	918	0.
10	OCT	2312	169	123.	*	11	OCT	1552	419	109.	*	12	OCT	0832	669	0.	*	13	OCT	0112	919	0.
10	OCT	2316	170	128.	*	11	OCT	1556	420	107.	*	12	OCT	0836	670	0.	*	13	OCT	0116	920	0.

10 OCT 2320	171	133.	*	11 OCT 1600	421	106.	*	12 OCT 0840	671	0.	*	13 OCT 0120	921	0.
10 OCT 2324	172	139.	*	11 OCT 1604	422	104.	*	12 OCT 0844	672	0.	*	13 OCT 0124	922	0.
10 OCT 2328	173	144.	*	11 OCT 1608	423	102.	*	12 OCT 0848	673	0.	*	13 OCT 0128	923	0.
10 OCT 2332	174	156.	*	11 OCT 1612	424	100.	*	12 OCT 0852	674	0.	*	13 OCT 0132	924	0.
10 OCT 2336	175	184.	*	11 OCT 1616	425	98.	*	12 OCT 0856	675	0.	*	13 OCT 0136	925	0.
10 OCT 2340	176	222.	*	11 OCT 1620	426	95.	*	12 OCT 0900	676	0.	*	13 OCT 0140	926	0.
10 OCT 2344	177	268.	*	11 OCT 1624	427	93.	*	12 OCT 0904	677	0.	*	13 OCT 0144	927	0.
10 OCT 2348	178	334.	*	11 OCT 1628	428	90.	*	12 OCT 0908	678	0.	*	13 OCT 0148	928	0.
10 OCT 2352	179	430.	*	11 OCT 1632	429	88.	*	12 OCT 0912	679	0.	*	13 OCT 0152	929	0.
10 OCT 2356	180	647.	*	11 OCT 1636	430	86.	*	12 OCT 0916	680	0.	*	13 OCT 0156	930	0.
11 OCT 0000	181	1057.	*	11 OCT 1640	431	84.	*	12 OCT 0920	681	0.	*	13 OCT 0200	931	0.
11 OCT 0004	182	1302.	*	11 OCT 1644	432	82.	*	12 OCT 0924	682	0.	*	13 OCT 0204	932	0.
11 OCT 0008	183	1420.	*	11 OCT 1648	433	80.	*	12 OCT 0928	683	0.	*	13 OCT 0208	933	0.
11 OCT 0012	184	1444.	*	11 OCT 1652	434	78.	*	12 OCT 0932	684	0.	*	13 OCT 0212	934	0.
11 OCT 0016	185	1365.	*	11 OCT 1656	435	76.	*	12 OCT 0936	685	0.	*	13 OCT 0216	935	0.
11 OCT 0020	186	1226.	*	11 OCT 1700	436	74.	*	12 OCT 0940	686	0.	*	13 OCT 0220	936	0.
11 OCT 0024	187	1057.	*	11 OCT 1704	437	72.	*	12 OCT 0944	687	0.	*	13 OCT 0224	937	0.
11 OCT 0028	188	925.	*	11 OCT 1708	438	71.	*	12 OCT 0948	688	0.	*	13 OCT 0228	938	0.
11 OCT 0032	189	833.	*	11 OCT 1712	439	69.	*	12 OCT 0952	689	0.	*	13 OCT 0232	939	0.
11 OCT 0036	190	772.	*	11 OCT 1716	440	68.	*	12 OCT 0956	690	0.	*	13 OCT 0236	940	0.
11 OCT 0040	191	732.	*	11 OCT 1720	441	66.	*	12 OCT 1000	691	0.	*	13 OCT 0240	941	0.
11 OCT 0044	192	707.	*	11 OCT 1724	442	65.	*	12 OCT 1004	692	0.	*	13 OCT 0244	942	0.
11 OCT 0048	193	697.	*	11 OCT 1728	443	63.	*	12 OCT 1008	693	0.	*	13 OCT 0248	943	0.
11 OCT 0052	194	694.	*	11 OCT 1732	444	61.	*	12 OCT 1012	694	0.	*	13 OCT 0252	944	0.
11 OCT 0056	195	703.	*	11 OCT 1736	445	59.	*	12 OCT 1016	695	0.	*	13 OCT 0256	945	0.
11 OCT 0100	196	720.	*	11 OCT 1740	446	57.	*	12 OCT 1020	696	0.	*	13 OCT 0300	946	0.
11 OCT 0104	197	737.	*	11 OCT 1744	447	55.	*	12 OCT 1024	697	0.	*	13 OCT 0304	947	0.
11 OCT 0108	198	752.	*	11 OCT 1748	448	53.	*	12 OCT 1028	698	0.	*	13 OCT 0308	948	0.
11 OCT 0112	199	761.	*	11 OCT 1752	449	51.	*	12 OCT 1032	699	0.	*	13 OCT 0312	949	0.
11 OCT 0116	200	765.	*	11 OCT 1756	450	49.	*	12 OCT 1036	700	0.	*	13 OCT 0316	950	0.
11 OCT 0120	201	763.	*	11 OCT 1800	451	47.	*	12 OCT 1040	701	0.	*	13 OCT 0320	951	0.
11 OCT 0124	202	757.	*	11 OCT 1804	452	45.	*	12 OCT 1044	702	0.	*	13 OCT 0324	952	0.
11 OCT 0128	203	748.	*	11 OCT 1808	453	43.	*	12 OCT 1048	703	0.	*	13 OCT 0328	953	0.
11 OCT 0132	204	737.	*	11 OCT 1812	454	41.	*	12 OCT 1052	704	0.	*	13 OCT 0332	954	0.
11 OCT 0136	205	725.	*	11 OCT 1816	455	39.	*	12 OCT 1056	705	0.	*	13 OCT 0336	955	0.
11 OCT 0140	206	711.	*	11 OCT 1820	456	38.	*	12 OCT 1100	706	0.	*	13 OCT 0340	956	0.
11 OCT 0144	207	696.	*	11 OCT 1824	457	36.	*	12 OCT 1104	707	0.	*	13 OCT 0344	957	0.
11 OCT 0148	208	682.	*	11 OCT 1828	458	35.	*	12 OCT 1108	708	0.	*	13 OCT 0348	958	0.
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11 OCT 0200	211	641.	*	11 OCT 1840	461	31.	*	12 OCT 1120	711	0.	*	13 OCT 0400	961	0.
11 OCT 0204	212	629.	*	11 OCT 1844	462	30.	*	12 OCT 1124	712	0.	*	13 OCT 0404	962	0.
11 OCT 0208	213	617.	*	11 OCT 1848	463	29.	*	12 OCT 1128	713	0.	*	13 OCT 0408	963	0.
11 OCT 0212	214	606.	*	11 OCT 1852	464	28.	*	12 OCT 1132	714	0.	*	13 OCT 0412	964	0.
11 OCT 0216	215	596.	*	11 OCT 1856	465	27.	*	12 OCT 1136	715	0.	*	13 OCT 0416	965	0.
11 OCT 0220	216	586.	*	11 OCT 1900	466	26.	*	12 OCT 1140	716	0.	*	13 OCT 0420	966	0.
11 OCT 0224	217	576.	*	11 OCT 1904	467	25.	*	12 OCT 1144	717	0.	*	13 OCT 0424	967	0.
11 OCT 0228	218	567.	*	11 OCT 1908	468	24.	*	12 OCT 1148	718	0.	*	13 OCT 0428	968	0.
11 OCT 0232	219	559.	*	11 OCT 1912	469	23.	*	12 OCT 1152	719	0.	*	13 OCT 0432	969	0.
11 OCT 0236	220	551.	*	11 OCT 1916	470	22.	*	12 OCT 1156	720	0.	*	13 OCT 0436	970	0.
11 OCT 0240	221	544.	*	11 OCT 1920	471	21.	*	12 OCT 1200	721	0.	*	13 OCT 0440	971	0.
11 OCT 0244	222	537.	*	11 OCT 1924	472	20.	*	12 OCT 1204	722	0.	*	13 OCT 0444	972	0.
11 OCT 0248	223	530.	*	11 OCT 1928	473	19.	*	12 OCT 1208	723	0.	*	13 OCT 0448	973	0.
11 OCT 0252	224	524.	*	11 OCT 1932	474	19.	*	12 OCT 1212	724	0.	*	13 OCT 0452	974	0.
11 OCT 0256	225	517.	*	11 OCT 1936	475	18.	*	12 OCT 1216	725	0.	*	13 OCT 0456	975	0.
11 OCT 0300	226	512.	*	11 OCT 1940	476	18.	*	12 OCT 1220	726	0.	*	13 OCT 0500	976	0.
11 OCT 0304	227	507.	*	11 OCT 1944	477	17.	*	12 OCT 1224	727	0.	*	13 OCT 0504	977	0.
11 OCT 0308	228	502.	*	11 OCT 1948	478	17.	*	12 OCT 1228	728	0.	*	13 OCT 0508	978	0.
11 OCT 0312	229	497.	*	11 OCT 1952	479	16.	*	12 OCT 1232	729	0.	*	13 OCT 0512	979	0.
11 OCT 0316	230	493.	*	11 OCT 1956	480	16.	*	12 OCT 1236	730	0.	*	13 OCT 0516	980	0.
11 OCT 0320	231	489.	*	11 OCT 2000	481	15.	*	12 OCT 1240	731	0.	*	13 OCT 0520	981	0.
11 OCT 0324	232	485.	*	11 OCT 2004	482	15.	*	12 OCT 1244	732	0.	*	13 OCT 0524	982	0.
11 OCT 0328	233	482.	*	11 OCT 2008	483	15.	*	12 OCT 1248	733	0.	*	13 OCT 0528	983	0.
11 OCT 0332	234	479.	*	11 OCT 2012	484	14.	*	12 OCT 1252	734	0.	*	13 OCT 0532	984	0.
11 OCT 0336	235	476.	*	11 OCT 2016	485	14.	*	12 OCT 1256	735	0.	*	13 OCT 0536	985	0.
11 OCT 0340	236	473.	*	11 OCT 2020	486	13.	*	12 OCT 1300	736	0.	*	13 OCT 0540	986	0.
11 OCT 0344	237	470.	*	11 OCT 2024	487	13.	*	12 OCT 1304	737	0.	*	13 OCT 0544	987	0.
11 OCT 0348	238	467.	*	11 OCT 2028	488	12.	*	12 OCT 1308	738	0.	*	13 OCT 0548	988	0.
11 OCT 0352	239	464.	*	11 OCT 2032	489	12.	*	12 OCT 1312	739	0.	*	13 OCT 0552	989	0.
11 OCT 0356	240	463.	*	11 OCT 2036	490	12.	*	12 OCT 1316	740	0.	*	13 OCT 0556	990	0.
11 OCT 0400	241	465.	*	11 OCT 2040	491	11.	*	12 OCT 1320	741	0.	*	13 OCT 0600	991	0.
11 OCT 0404	242	462.	*	11 OCT 2044	492	11.	*	12 OCT 1324	742	0.	*	13 OCT 0604	992	0.
11 OCT 0408	243	459.	*	11 OCT 2048	493	10.	*	12 OCT 1328	743	0.	*	13 OCT 0608	993	0.
11 OCT 0412	244	456.	*	11 OCT 2052	494	10.	*	12 OCT 1332	744	0.	*	13 OCT 0612	994	0.
11 OCT 0416	245	453.	*	11 OCT 2056	495	10.	*	12 OCT 1336	745	0.	*	13 OCT 0616	995	0.
11 OCT 0420	246	450.	*	11 OCT 2100	496	9.	*	12 OCT 1340	746	0.	*	13 OCT 0620	996	0.
11 OCT 0424	247	447.	*	11 OCT 2104	497	9.	*	12 OCT 1344	747	0.	*	13 OCT 0624	997	0.

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   11 OCT 0428  248      445.   *   11 OCT 2108  498        9.   *   12 OCT 1348  748        0.   *   13 OCT 0628  998        0.
   11 OCT 0432  249      442.   *   11 OCT 2112  499        9.   *   12 OCT 1352  749        0.   *   13 OCT 0632  999        0.
   11 OCT 0436  250      439.   *   11 OCT 2116  500        8.   *   12 OCT 1356  750        0.   *   13 OCT 0636 1000        0.
                               *                                  *                                  *
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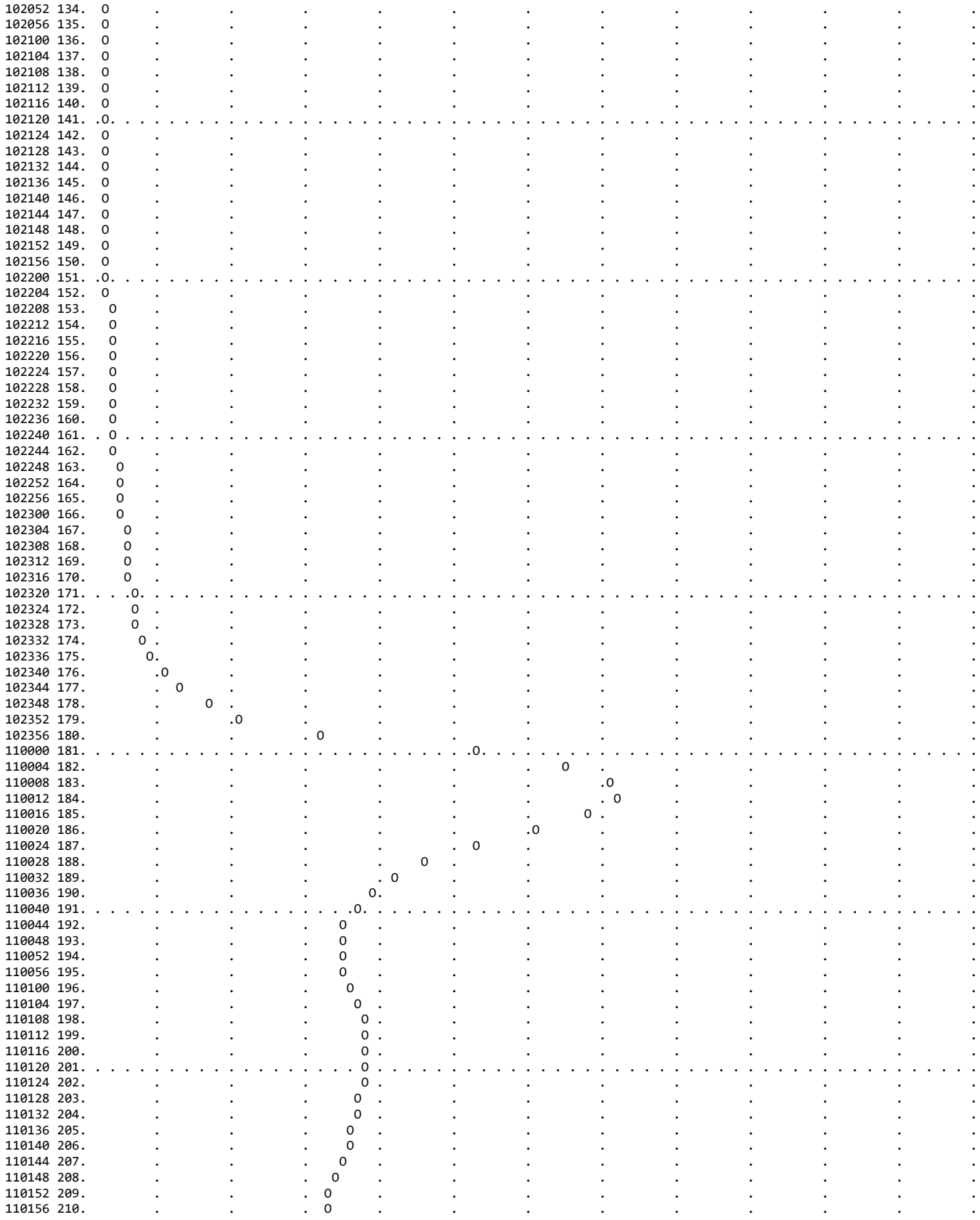
  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                    6-HR       24-HR       72-HR     66.60-HR
+   (CFS)       (HR)
                        (CFS)
+    1444.     12.20                608.        279.        104.         104.
                             (INCHES)      .917       1.687       1.737       1.737
                              (AC-FT)      301.        554.        571.        571.

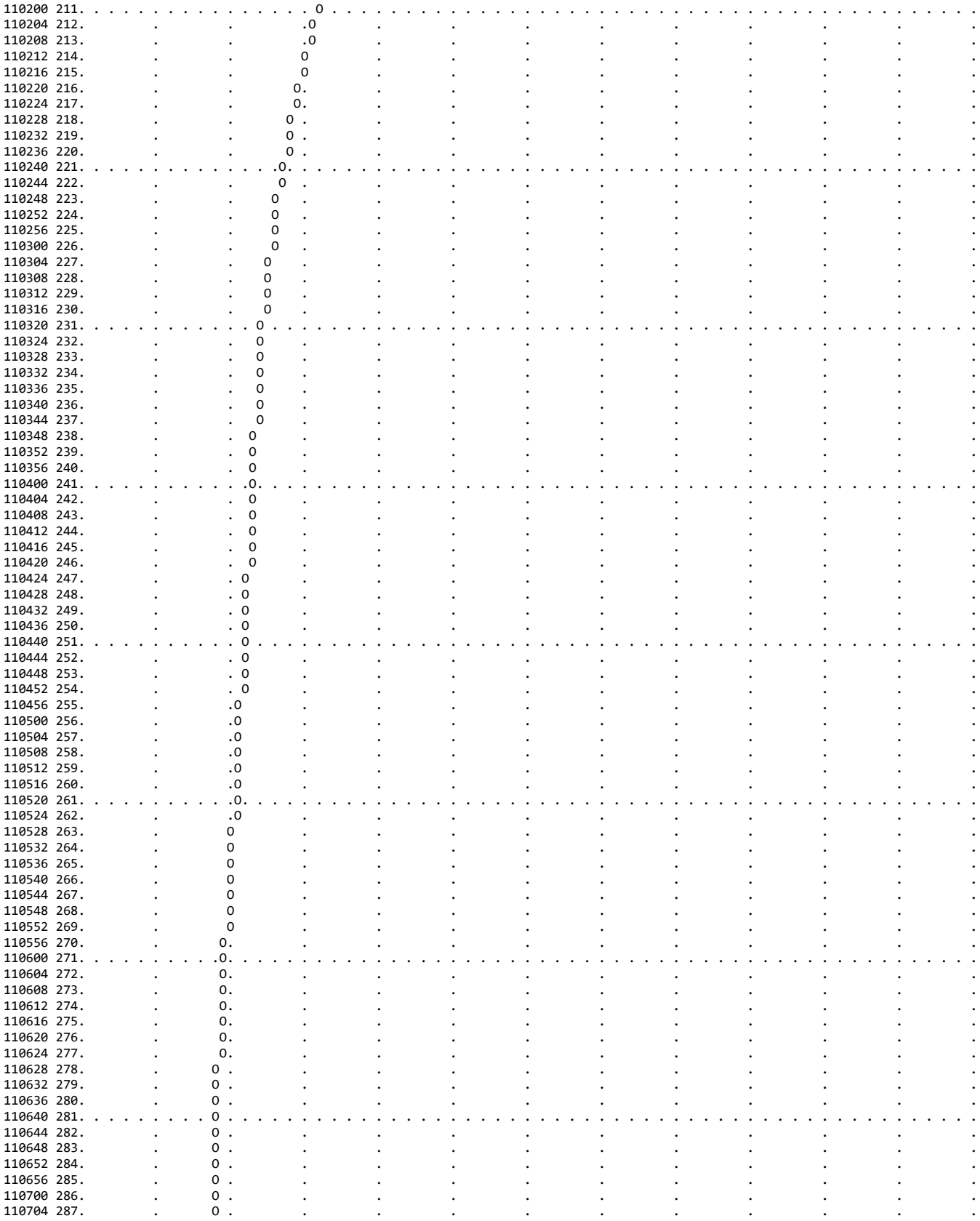
                             CUMULATIVE AREA =    6.16 SQ MI

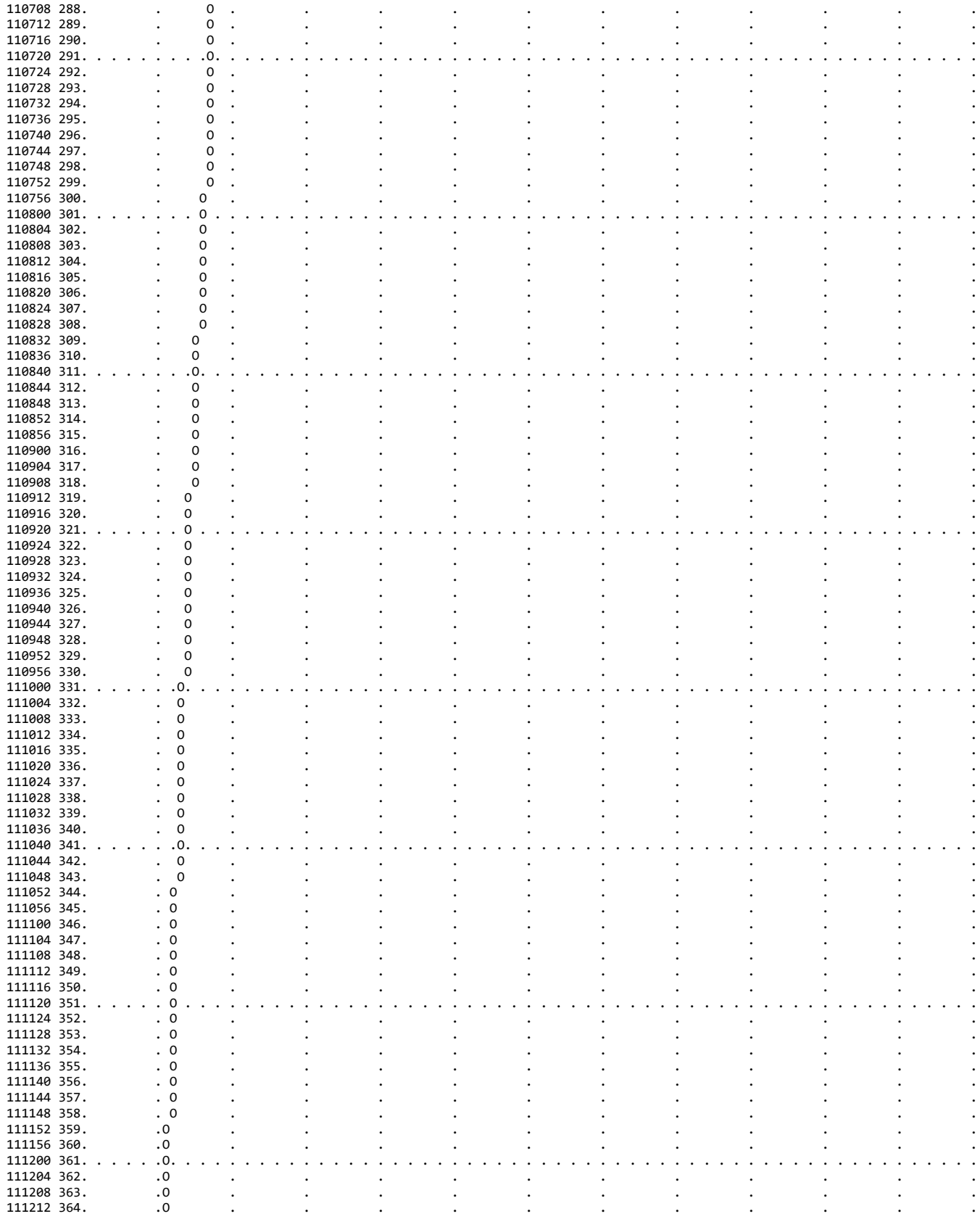
1                                                    STATION   HC317C

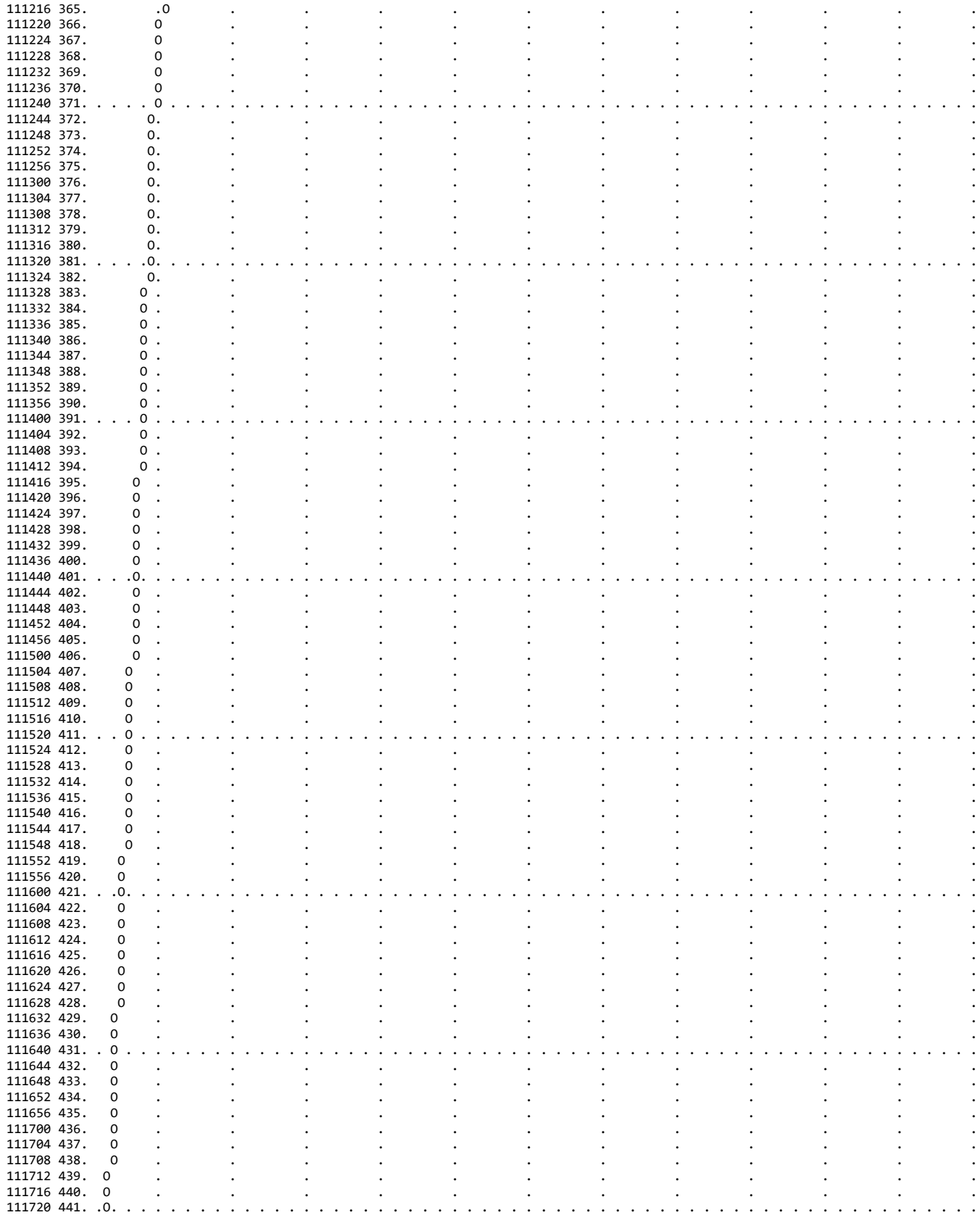
                          (O) OUTFLOW
          0.      200.      400.      600.      800.     1000.     1200.     1400.     1600.        0.        0.        0.        0.
 DAHRMN PER
 101200   10O---------.---------.---------.---------.---------.---------.---------.---------.---------.---------.---------.---------.
 101204   20        .         .         .         .         .         .         .         .         .         .         .         .
 101208   30        .         .         .         .         .         .         .         .         .         .         .         .
 101212   40        .         .         .         .         .         .         .         .         .         .         .         .
 101216   50        .         .         .         .         .         .         .         .         .         .         .         .
 101220   60        .         .         .         .         .         .         .         .         .         .         .         .
 101224   70        .         .         .         .         .         .         .         .         .         .         .         .
 101228   80        .         .         .         .         .         .         .         .         .         .         .         .
 101232   90        .         .         .         .         .         .         .         .         .         .         .         .
 101236  100        .         .         .         .         .         .         .         .         .         .         .         .
 101240  110 . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . .
 101244  120        .         .         .         .         .         .         .         .         .         .         .         .
 101248  130        .         .         .         .         .         .         .         .         .         .         .         .
 101252  140        .         .         .         .         .         .         .         .         .         .         .         .
 101256  150        .         .         .         .         .         .         .         .         .         .         .         .
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 101308  180        .         .         .         .         .         .         .         .         .         .         .         .
 101312  190        .         .         .         .         .         .         .         .         .         .         .         .
 101316  200        .         .         .         .         .         .         .         .         .         .         .         .
 101320  210 . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . .
 101324  220        .         .         .         .         .         .         .         .         .         .         .         .
 101328  230        .         .         .         .         .         .         .         .         .         .         .         .
 101332  240        .         .         .         .         .         .         .         .         .         .         .         .
 101336  250        .         .         .         .         .         .         .         .         .         .         .         .
 101340  260        .         .         .         .         .         .         .         .         .         .         .         .
 101344  270        .         .         .         .         .         .         .         .         .         .         .         .
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 101352  29.O       .         .         .         .         .         .         .         .         .         .         .         .
 101356  30.O       .         .         .         .         .         .         .         .         .         .         .         .
 101400  31.O. . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . .
 101404  32.O       .         .         .         .         .         .         .         .         .         .         .         .
 101408  33.O       .         .         .         .         .         .         .         .         .         .         .         .
 101412  34.O       .         .         .         .         .         .         .         .         .         .         .         .
 101416  35.O       .         .         .         .         .         .         .         .         .         .         .         .
 101420  36.O       .         .         .         .         .         .         .         .         .         .         .         .
 101424  37.O       .         .         .         .         .         .         .         .         .         .         .         .
 101428  38.O       .         .         .         .         .         .         .         .         .         .         .         .
 101432  39.O       .         .         .         .         .         .         .         .         .         .         .         .
 101436  40.O       .         .         .         .         .         .         .         .         .         .         .         .
 101440  41.O. . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . .
 101444  42.O       .         .         .         .         .         .         .         .         .         .         .         .
 101448  43.O       .         .         .         .         .         .         .         .         .         .         .         .
 101452  44.O       .         .         .         .         .         .         .         .         .         .         .         .
 101456  45.O       .         .         .         .         .         .         .         .         .         .         .         .
 101500  46.O       .         .         .         .         .         .         .         .         .         .         .         .
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 101512  49.O       .         .         .         .         .         .         .         .         .         .         .         .
 101516  50.O       .         .         .         .         .         .         .         .         .         .         .         .
 101520  51.O. . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . .
 101524  52.O       .         .         .         .         .         .         .         .         .         .         .         .
 101528  53.O       .         .         .         .         .         .         .         .         .         .         .         .
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101544  57.O       .       .       .       .       .       .       .       .       .       .       .       .
101548  58.O       .       .       .       .       .       .       .       .       .       .       .       .
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101556  60.O       .       .       .       .       .       .       .       .       .       .       .       .
101600  61.O. . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . .
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130552 9890        .         .         .         .         .         .         .         .         .         .         .         .
130556 9900        .         .         .         .         .         .         .         .         .         .         .         .
130600 9910 . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . .
130604 9920        .         .         .         .         .         .         .         .         .         .         .         .
130608 9930        .         .         .         .         .         .         .         .         .         .         .         .
130612 9940        .         .         .         .         .         .         .         .         .         .         .         .
130616 9950        .         .         .         .         .         .         .         .         .         .         .         .
130620 9960        .         .         .         .         .         .         .         .         .         .         .         .
130624 9970        .         .         .         .         .         .         .         .         .         .         .         .
130628 9980        .         .         .         .         .         .         .         .         .         .         .         .
130632 9990        .         .         .         .         .         .         .         .         .         .         .         .
13063610000---------.---------.---------.---------.---------.---------.---------.---------.---------.---------.---------.---------.
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          *            *
 721 KK   *     317RR  *
          *            *
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 722 KO          OUTPUT CONTROL VARIABLES
                       IPRNT           1  PRINT CONTROL
                       IPLOT           2  PLOT CONTROL
                       QSCAL          0.  HYDROGRAPH PLOT SCALE
                            ROUTE FLOW PINNACLE PEAK ROAD CULVERT
                           UPDATED STAGE-STORAGE FROM MODEL BY AVILLA-DEER VALLEY JAN-2017
                           NEW 3-8'x6'x199'CBC REPLACING 2-8'x7'x118'
                           APR-19-2018
                           USED HY8 TO DETERMINE RATING CURVE.

              HYDROGRAPH ROUTING DATA

 728 RS          STORAGE ROUTING
                       NSTPS           1  NUMBER OF SUBREACHES
                        ITYP        ELEV  TYPE OF INITIAL CONDITION
                       RSVRIC      12.95  INITIAL CONDITION
                           X         .00 WORKING R AND D COEFFICIENT

 729 SV            STORAGE          .0       7.8      11.9      15.7      19.9      23.7      27.7      28.5      35.5      36.4
                                   42.3      44.7      46.9      48.9      50.5      52.0      53.5      54.9

 731 SE          ELEVATION       12.95     14.70     15.31     15.86     16.38     16.85     17.30     17.39     18.12     18.20
                                 18.75     18.93     19.08     19.22     19.33     19.44     19.54     19.64

 733 SQ          DISCHARGE          0.      200.      300.      400.      500.      600.      700.      720.      898.      923.
                                 1254.     1432.     1610.     1788.     1966.     2144.     2322.     2500.

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HYDROGRAPH AT STATION 317RR

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DA MON HRMN ORD	OUTFLOW	STORAGE	STAGE	DA MON HRMN ORD	OUTFLOW	STORAGE	STAGE	DA MON HRMN ORD	OUTFLOW	STORAGE	STAGE
10 OCT 1200 1	0.	.0	12.9	11 OCT 1016 335	276.	10.9	15.2	12 OCT 0832 669	0.	.0	13.0
10 OCT 1204 2	0.	.0	13.0	11 OCT 1020 336	274.	10.8	15.2	12 OCT 0836 670	0.	.0	13.0
10 OCT 1208 3	0.	.0	13.0	11 OCT 1024 337	272.	10.7	15.1	12 OCT 0840 671	0.	.0	13.0
10 OCT 1212 4	0.	.0	13.0	11 OCT 1028 338	271.	10.7	15.1	12 OCT 0844 672	0.	.0	13.0
10 OCT 1216 5	0.	.0	13.0	11 OCT 1032 339	269.	10.6	15.1	12 OCT 0848 673	0.	.0	13.0
10 OCT 1220 6	0.	.0	13.0	11 OCT 1036 340	268.	10.5	15.1	12 OCT 0852 674	0.	.0	13.0
10 OCT 1224 7	0.	.0	13.0	11 OCT 1040 341	266.	10.5	15.1	12 OCT 0856 675	0.	.0	13.0

10	OCT	1228	8	1.	.0	13.0 * 11 OCT 1044 342	265.	10.4	15.1 * 12 OCT 0900 676	0.	.0	13.0
10	OCT	1232	9	1.	.0	13.0 * 11 OCT 1048 343	263.	10.3	15.1 * 12 OCT 0904 677	0.	.0	13.0
10	OCT	1236	10	1.	.0	13.0 * 11 OCT 1052 344	261.	10.3	15.1 * 12 OCT 0908 678	0.	.0	13.0
10	OCT	1240	11	1.	.0	13.0 * 11 OCT 1056 345	260.	10.2	15.1 * 12 OCT 0912 679	0.	.0	13.0
10	OCT	1244	12	1.	.1	13.0 * 11 OCT 1100 346	258.	10.1	15.1 * 12 OCT 0916 680	0.	.0	13.0
10	OCT	1248	13	2.	.1	13.0 * 11 OCT 1104 347	256.	10.1	15.0 * 12 OCT 0920 681	0.	.0	13.0
10	OCT	1252	14	2.	.1	13.0 * 11 OCT 1108 348	255.	10.0	15.0 * 12 OCT 0924 682	0.	.0	13.0
10	OCT	1256	15	2.	.1	13.0 * 11 OCT 1112 349	253.	9.9	15.0 * 12 OCT 0928 683	0.	.0	13.0
10	OCT	1300	16	3.	.1	13.0 * 11 OCT 1116 350	252.	9.9	15.0 * 12 OCT 0932 684	0.	.0	13.0
10	OCT	1304	17	3.	.1	13.0 * 11 OCT 1120 351	250.	9.8	15.0 * 12 OCT 0936 685	0.	.0	13.0
10	OCT	1308	18	3.	.1	13.0 * 11 OCT 1124 352	249.	9.8	15.0 * 12 OCT 0940 686	0.	.0	13.0
10	OCT	1312	19	4.	.1	13.0 * 11 OCT 1128 353	248.	9.7	15.0 * 12 OCT 0944 687	0.	.0	13.0
10	OCT	1316	20	4.	.2	13.0 * 11 OCT 1132 354	246.	9.7	15.0 * 12 OCT 0948 688	0.	.0	13.0
10	OCT	1320	21	4.	.2	13.0 * 11 OCT 1136 355	245.	9.6	15.0 * 12 OCT 0952 689	0.	.0	13.0
10	OCT	1324	22	5.	.2	13.0 * 11 OCT 1140 356	244.	9.6	15.0 * 12 OCT 0956 690	0.	.0	13.0
10	OCT	1328	23	5.	.2	13.0 * 11 OCT 1144 357	243.	9.5	15.0 * 12 OCT 1000 691	0.	.0	13.0
10	OCT	1332	24	6.	.2	13.0 * 11 OCT 1148 358	241.	9.4	15.0 * 12 OCT 1004 692	0.	.0	13.0
10	OCT	1336	25	6.	.2	13.0 * 11 OCT 1152 359	240.	9.4	14.9 * 12 OCT 1008 693	0.	.0	13.0
10	OCT	1340	26	6.	.2	13.0 * 11 OCT 1156 360	238.	9.3	14.9 * 12 OCT 1012 694	0.	.0	13.0
10	OCT	1344	27	7.	.3	13.0 * 11 OCT 1200 361	237.	9.3	14.9 * 12 OCT 1016 695	0.	.0	13.0
10	OCT	1348	28	7.	.3	13.0 * 11 OCT 1204 362	235.	9.2	14.9 * 12 OCT 1020 696	0.	.0	13.0
10	OCT	1352	29	7.	.3	13.0 * 11 OCT 1208 363	233.	9.1	14.9 * 12 OCT 1024 697	0.	.0	13.0
10	OCT	1356	30	8.	.3	13.0 * 11 OCT 1212 364	231.	9.0	14.9 * 12 OCT 1028 698	0.	.0	13.0
10	OCT	1400	31	8.	.3	13.0 * 11 OCT 1216 365	229.	8.9	14.9 * 12 OCT 1032 699	0.	.0	13.0
10	OCT	1404	32	9.	.3	13.0 * 11 OCT 1220 366	227.	8.8	14.9 * 12 OCT 1036 700	0.	.0	13.0
10	OCT	1408	33	9.	.3	13.0 * 11 OCT 1224 367	224.	8.7	14.8 * 12 OCT 1040 701	0.	.0	13.0
10	OCT	1412	34	9.	.4	13.0 * 11 OCT 1228 368	221.	8.6	14.8 * 12 OCT 1044 702	0.	.0	13.0
10	OCT	1416	35	10.	.4	13.0 * 11 OCT 1232 369	218.	8.5	14.8 * 12 OCT 1048 703	0.	.0	13.0
10	OCT	1420	36	10.	.4	13.0 * 11 OCT 1236 370	216.	8.4	14.8 * 12 OCT 1052 704	0.	.0	13.0
10	OCT	1424	37	11.	.4	13.0 * 11 OCT 1240 371	213.	8.3	14.8 * 12 OCT 1056 705	0.	.0	13.0
10	OCT	1428	38	11.	.4	13.0 * 11 OCT 1244 372	210.	8.2	14.8 * 12 OCT 1100 706	0.	.0	13.0
10	OCT	1432	39	12.	.5	13.1 * 11 OCT 1248 373	207.	8.0	14.7 * 12 OCT 1104 707	0.	.0	13.0
10	OCT	1436	40	12.	.5	13.1 * 11 OCT 1252 374	204.	7.9	14.7 * 12 OCT 1108 708	0.	.0	13.0
10	OCT	1440	41	13.	.5	13.1 * 11 OCT 1256 375	202.	7.8	14.7 * 12 OCT 1112 709	0.	.0	13.0
10	OCT	1444	42	13.	.5	13.1 * 11 OCT 1300 376	199.	7.7	14.7 * 12 OCT 1116 710	0.	.0	13.0
10	OCT	1448	43	14.	.5	13.1 * 11 OCT 1304 377	197.	7.6	14.7 * 12 OCT 1120 711	0.	.0	13.0
10	OCT	1452	44	14.	.6	13.1 * 11 OCT 1308 378	195.	7.5	14.7 * 12 OCT 1124 712	0.	.0	13.0
10	OCT	1456	45	15.	.6	13.1 * 11 OCT 1312 379	192.	7.5	14.6 * 12 OCT 1128 713	0.	.0	13.0
10	OCT	1500	46	15.	.6	13.1 * 11 OCT 1316 380	190.	7.4	14.6 * 12 OCT 1132 714	0.	.0	13.0
10	OCT	1504	47	16.	.6	13.1 * 11 OCT 1320 381	188.	7.3	14.6 * 12 OCT 1136 715	0.	.0	13.0
10	OCT	1508	48	16.	.6	13.1 * 11 OCT 1324 382	186.	7.2	14.6 * 12 OCT 1140 716	0.	.0	13.0
10	OCT	1512	49	17.	.6	13.1 * 11 OCT 1328 383	184.	7.1	14.6 * 12 OCT 1144 717	0.	.0	13.0
10	OCT	1516	50	17.	.7	13.1 * 11 OCT 1332 384	182.	7.0	14.5 * 12 OCT 1148 718	0.	.0	13.0
10	OCT	1520	51	18.	.7	13.1 * 11 OCT 1336 385	180.	7.0	14.5 * 12 OCT 1152 719	0.	.0	13.0
10	OCT	1524	52	18.	.7	13.1 * 11 OCT 1340 386	178.	6.9	14.5 * 12 OCT 1156 720	0.	.0	13.0
10	OCT	1528	53	19.	.7	13.1 * 11 OCT 1344 387	176.	6.8	14.5 * 12 OCT 1200 721	0.	.0	13.0
10	OCT	1532	54	19.	.7	13.1 * 11 OCT 1348 388	174.	6.7	14.5 * 12 OCT 1204 722	0.	.0	13.0
10	OCT	1536	55	20.	.8	13.1 * 11 OCT 1352 389	172.	6.7	14.5 * 12 OCT 1208 723	0.	.0	13.0
10	OCT	1540	56	20.	.8	13.1 * 11 OCT 1356 390	170.	6.6	14.4 * 12 OCT 1212 724	0.	.0	13.0
10	OCT	1544	57	20.	.8	13.1 * 11 OCT 1400 391	168.	6.5	14.4 * 12 OCT 1216 725	0.	.0	13.0
10	OCT	1548	58	21.	.8	13.1 * 11 OCT 1404 392	166.	6.4	14.4 * 12 OCT 1220 726	0.	.0	13.0
10	OCT	1552	59	21.	.8	13.1 * 11 OCT 1408 393	164.	6.4	14.4 * 12 OCT 1224 727	0.	.0	13.0
10	OCT	1556	60	22.	.8	13.1 * 11 OCT 1412 394	163.	6.3	14.4 * 12 OCT 1228 728	0.	.0	13.0
10	OCT	1600	61	22.	.9	13.1 * 11 OCT 1416 395	161.	6.2	14.4 * 12 OCT 1232 729	0.	.0	13.0
10	OCT	1604	62	22.	.9	13.1 * 11 OCT 1420 396	159.	6.2	14.3 * 12 OCT 1236 730	0.	.0	13.0
10	OCT	1608	63	23.	.9	13.1 * 11 OCT 1424 397	158.	6.1	14.3 * 12 OCT 1240 731	0.	.0	13.0
10	OCT	1612	64	23.	.9	13.2 * 11 OCT 1428 398	156.	6.0	14.3 * 12 OCT 1244 732	0.	.0	13.0
10	OCT	1616	65	23.	.9	13.2 * 11 OCT 1432 399	154.	6.0	14.3 * 12 OCT 1248 733	0.	.0	13.0
10	OCT	1620	66	24.	.9	13.2 * 11 OCT 1436 400	153.	5.9	14.3 * 12 OCT 1252 734	0.	.0	13.0
10	OCT	1624	67	24.	.9	13.2 * 11 OCT 1440 401	151.	5.9	14.3 * 12 OCT 1256 735	0.	.0	13.0
10	OCT	1628	68	25.	1.0	13.2 * 11 OCT 1444 402	150.	5.8	14.3 * 12 OCT 1300 736	0.	.0	13.0
10	OCT	1632	69	25.	1.0	13.2 * 11 OCT 1448 403	148.	5.7	14.2 * 12 OCT 1304 737	0.	.0	13.0
10	OCT	1636	70	25.	1.0	13.2 * 11 OCT 1452 404	146.	5.7	14.2 * 12 OCT 1308 738	0.	.0	13.0
10	OCT	1640	71	26.	1.0	13.2 * 11 OCT 1456 405	144.	5.6	14.2 * 12 OCT 1312 739	0.	.0	13.0
10	OCT	1644	72	26.	1.0	13.2 * 11 OCT 1500 406	143.	5.5	14.2 * 12 OCT 1316 740	0.	.0	13.0
10	OCT	1648	73	27.	1.0	13.2 * 11 OCT 1504 407	141.	5.5	14.2 * 12 OCT 1320 741	0.	.0	13.0
10	OCT	1652	74	27.	1.0	13.2 * 11 OCT 1508 408	139.	5.4	14.2 * 12 OCT 1324 742	0.	.0	13.0
10	OCT	1656	75	27.	1.1	13.2 * 11 OCT 1512 409	137.	5.3	14.2 * 12 OCT 1328 743	0.	.0	13.0
10	OCT	1700	76	28.	1.1	13.2 * 11 OCT 1516 410	136.	5.3	14.1 * 12 OCT 1332 744	0.	.0	13.0
10	OCT	1704	77	28.	1.1	13.2 * 11 OCT 1520 411	134.	5.2	14.1 * 12 OCT 1336 745	0.	.0	13.0
10	OCT	1708	78	29.	1.1	13.2 * 11 OCT 1524 412	132.	5.1	14.1 * 12 OCT 1340 746	0.	.0	13.0
10	OCT	1712	79	29.	1.1	13.2 * 11 OCT 1528 413	130.	5.0	14.1 * 12 OCT 1344 747	0.	.0	13.0
10	OCT	1716	80	29.	1.1	13.2 * 11 OCT 1532 414	128.	5.0	14.1 * 12 OCT 1348 748	0.	.0	13.0
10	OCT	1720	81	30.	1.2	13.2 * 11 OCT 1536 415	127.	4.9	14.1 * 12 OCT 1352 749	0.	.0	13.0
10	OCT	1724	82	30.	1.2	13.2 * 11 OCT 1540 416	125.	4.8	14.0 * 12 OCT 1356 750	0.	.0	13.0
10	OCT	1728	83	30.	1.2	13.2 * 11 OCT 1544 417	123.	4.8	14.0 * 12 OCT 1400 751	0.	.0	13.0
10	OCT	1732	84	31.	1.2	13.2 * 11 OCT 1548 418	122.	4.7	14.0 * 12 OCT 1404 752	0.	.0	13.0

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10 OCT 2244 162	74.	2.9	13.6 * 11 OCT 2100 496	12.	.5	13.1 * 12 OCT 1916 830	0.	.0	13.0
10 OCT 2248 163	76.	3.0	13.6 * 11 OCT 2104 497	12.	.5	13.1 * 12 OCT 1920 831	0.	.0	13.0
10 OCT 2252 164	78.	3.0	13.6 * 11 OCT 2108 498	12.	.4	13.1 * 12 OCT 1924 832	0.	.0	13.0
10 OCT 2256 165	81.	3.1	13.7 * 11 OCT 2112 499	11.	.4	13.0 * 12 OCT 1928 833	0.	.0	13.0
10 OCT 2300 166	84.	3.3	13.7 * 11 OCT 2116 500	11.	.4	13.0 * 12 OCT 1932 834	0.	.0	13.0
10 OCT 2304 167	87.	3.4	13.7 * 11 OCT 2120 501	10.	.4	13.0 * 12 OCT 1936 835	0.	.0	13.0
10 OCT 2308 168	91.	3.5	13.7 * 11 OCT 2124 502	10.	.4	13.0 * 12 OCT 1940 836	0.	.0	13.0
10 OCT 2312 169	95.	3.7	13.8 * 11 OCT 2128 503	10.	.4	13.0 * 12 OCT 1944 837	0.	.0	13.0
10 OCT 2316 170	99.	3.8	13.8 * 11 OCT 2132 504	10.	.4	13.0 * 12 OCT 1948 838	0.	.0	13.0
10 OCT 2320 171	103.	4.0	13.9 * 11 OCT 2136 505	9.	.4	13.0 * 12 OCT 1952 839	0.	.0	13.0
10 OCT 2324 172	107.	4.2	13.9 * 11 OCT 2140 506	9.	.3	13.0 * 12 OCT 1956 840	0.	.0	13.0
10 OCT 2328 173	112.	4.3	13.9 * 11 OCT 2144 507	9.	.3	13.0 * 12 OCT 2000 841	0.	.0	13.0
10 OCT 2332 174	117.	4.5	14.0 * 11 OCT 2148 508	8.	.3	13.0 * 12 OCT 2004 842	0.	.0	13.0
10 OCT 2336 175	124.	4.8	14.0 * 11 OCT 2152 509	8.	.3	13.0 * 12 OCT 2008 843	0.	.0	13.0
10 OCT 2340 176	134.	5.2	14.1 * 11 OCT 2156 510	8.	.3	13.0 * 12 OCT 2012 844	0.	.0	13.0
10 OCT 2344 177	149.	5.8	14.3 * 11 OCT 2200 511	8.	.3	13.0 * 12 OCT 2016 845	0.	.0	13.0
10 OCT 2348 178	169.	6.6	14.4 * 11 OCT 2204 512	7.	.3	13.0 * 12 OCT 2020 846	0.	.0	13.0
10 OCT 2352 179	198.	7.7	14.7 * 11 OCT 2208 513	7.	.3	13.0 * 12 OCT 2024 847	0.	.0	13.0
10 OCT 2356 180	241.	9.4	14.9 * 11 OCT 2212 514	7.	.3	13.0 * 12 OCT 2028 848	0.	.0	13.0
11 OCT 0000 181	319.	12.6	15.4 * 11 OCT 2216 515	7.	.3	13.0 * 12 OCT 2032 849	0.	.0	13.0
11 OCT 0004 182	431.	17.0	16.0 * 11 OCT 2220 516	7.	.3	13.0 * 12 OCT 2036 850	0.	.0	13.0
11 OCT 0008 183	550.	21.8	16.6 * 11 OCT 2224 517	6.	.3	13.0 * 12 OCT 2040 851	0.	.0	13.0
11 OCT 0012 184	667.	26.3	17.1 * 11 OCT 2228 518	6.	.2	13.0 * 12 OCT 2044 852	0.	.0	13.0
11 OCT 0016 185	762.	30.1	17.6 * 11 OCT 2232 519	6.	.2	13.0 * 12 OCT 2048 853	0.	.0	13.0
11 OCT 0020 186	831.	32.9	17.8 * 11 OCT 2236 520	6.	.2	13.0 * 12 OCT 2052 854	0.	.0	13.0
11 OCT 0024 187	872.	34.5	18.0 * 11 OCT 2240 521	6.	.2	13.0 * 12 OCT 2056 855	0.	.0	13.0
11 OCT 0028 188	887.	35.1	18.1 * 11 OCT 2244 522	6.	.2	13.0 * 12 OCT 2100 856	0.	.0	13.0
11 OCT 0032 189	886.	35.1	18.1 * 11 OCT 2248 523	6.	.2	13.0 * 12 OCT 2104 857	0.	.0	13.0
11 OCT 0036 190	875.	34.6	18.0 * 11 OCT 2252 524	5.	.2	13.0 * 12 OCT 2108 858	0.	.0	13.0
11 OCT 0040 191	859.	34.0	18.0 * 11 OCT 2256 525	5.	.2	13.0 * 12 OCT 2112 859	0.	.0	13.0
11 OCT 0044 192	841.	33.3	17.9 * 11 OCT 2300 526	5.	.2	13.0 * 12 OCT 2116 860	0.	.0	13.0
11 OCT 0048 193	823.	32.6	17.8 * 11 OCT 2304 527	5.	.2	13.0 * 12 OCT 2120 861	0.	.0	13.0
11 OCT 0052 194	807.	31.9	17.7 * 11 OCT 2308 528	5.	.2	13.0 * 12 OCT 2124 862	0.	.0	13.0
11 OCT 0056 195	793.	31.3	17.7 * 11 OCT 2312 529	5.	.2	13.0 * 12 OCT 2128 863	0.	.0	13.0
11 OCT 0100 196	782.	30.9	17.6 * 11 OCT 2316 530	5.	.2	13.0 * 12 OCT 2132 864	0.	.0	13.0
11 OCT 0104 197	775.	30.7	17.6 * 11 OCT 2320 531	5.	.2	13.0 * 12 OCT 2136 865	0.	.0	13.0
11 OCT 0108 198	771.	30.5	17.6 * 11 OCT 2324 532	4.	.2	13.0 * 12 OCT 2140 866	0.	.0	13.0
11 OCT 0112 199	769.	30.4	17.6 * 11 OCT 2328 533	4.	.2	13.0 * 12 OCT 2144 867	0.	.0	13.0
11 OCT 0116 200	768.	30.4	17.6 * 11 OCT 2332 534	4.	.2	13.0 * 12 OCT 2148 868	0.	.0	13.0
11 OCT 0120 201	768.	30.4	17.6 * 11 OCT 2336 535	4.	.2	13.0 * 12 OCT 2152 869	0.	.0	13.0
11 OCT 0124 202	767.	30.3	17.6 * 11 OCT 2340 536	4.	.2	13.0 * 12 OCT 2156 870	0.	.0	13.0
11 OCT 0128 203	765.	30.2	17.6 * 11 OCT 2344 537	4.	.2	13.0 * 12 OCT 2200 871	0.	.0	13.0
11 OCT 0132 204	762.	30.1	17.6 * 11 OCT 2348 538	4.	.1	13.0 * 12 OCT 2204 872	0.	.0	13.0
11 OCT 0136 205	758.	30.0	17.5 * 11 OCT 2352 539	4.	.1	13.0 * 12 OCT 2208 873	0.	.0	13.0
11 OCT 0140 206	753.	29.8	17.5 * 11 OCT 2356 540	4.	.1	13.0 * 12 OCT 2212 874	0.	.0	13.0
11 OCT 0144 207	746.	29.5	17.5 * 12 OCT 0000 541	4.	.1	13.0 * 12 OCT 2216 875	0.	.0	13.0
11 OCT 0148 208	739.	29.2	17.5 * 12 OCT 0004 542	4.	.1	13.0 * 12 OCT 2220 876	0.	.0	13.0
11 OCT 0152 209	731.	28.9	17.4 * 12 OCT 0008 543	3.	.1	13.0 * 12 OCT 2224 877	0.	.0	13.0
11 OCT 0156 210	721.	28.5	17.4 * 12 OCT 0012 544	3.	.1	13.0 * 12 OCT 2228 878	0.	.0	13.0
11 OCT 0200 211	712.	28.1	17.4 * 12 OCT 0016 545	3.	.1	13.0 * 12 OCT 2232 879	0.	.0	13.0
11 OCT 0204 212	702.	27.7	17.3 * 12 OCT 0020 546	3.	.1	13.0 * 12 OCT 2236 880	0.	.0	13.0
11 OCT 0208 213	691.	27.3	17.3 * 12 OCT 0024 547	3.	.1	13.0 * 12 OCT 2240 881	0.	.0	13.0
11 OCT 0212 214	681.	26.9	17.2 * 12 OCT 0028 548	3.	.1	13.0 * 12 OCT 2244 882	0.	.0	13.0
11 OCT 0216 215	671.	26.5	17.2 * 12 OCT 0032 549	3.	.1	13.0 * 12 OCT 2248 883	0.	.0	13.0
11 OCT 0220 216	660.	26.1	17.1 * 12 OCT 0036 550	3.	.1	13.0 * 12 OCT 2252 884	0.	.0	13.0
11 OCT 0224 217	650.	25.7	17.1 * 12 OCT 0040 551	3.	.1	13.0 * 12 OCT 2256 885	0.	.0	13.0
11 OCT 0228 218	640.	25.3	17.0 * 12 OCT 0044 552	3.	.1	13.0 * 12 OCT 2300 886	0.	.0	13.0
11 OCT 0232 219	630.	24.9	17.0 * 12 OCT 0048 553	3.	.1	13.0 * 12 OCT 2304 887	0.	.0	13.0
11 OCT 0236 220	620.	24.5	16.9 * 12 OCT 0052 554	3.	.1	13.0 * 12 OCT 2308 888	0.	.0	13.0
11 OCT 0240 221	611.	24.1	16.9 * 12 OCT 0056 555	3.	.1	13.0 * 12 OCT 2312 889	0.	.0	13.0
11 OCT 0244 222	602.	23.8	16.9 * 12 OCT 0100 556	3.	.1	13.0 * 12 OCT 2316 890	0.	.0	13.0
11 OCT 0248 223	593.	23.4	16.8 * 12 OCT 0104 557	3.	.1	13.0 * 12 OCT 2320 891	0.	.0	13.0
11 OCT 0252 224	584.	23.1	16.8 * 12 OCT 0108 558	2.	.1	13.0 * 12 OCT 2324 892	0.	.0	13.0
11 OCT 0256 225	575.	22.7	16.7 * 12 OCT 0112 559	2.	.1	13.0 * 12 OCT 2328 893	0.	.0	13.0
11 OCT 0300 226	567.	22.4	16.7 * 12 OCT 0116 560	2.	.1	13.0 * 12 OCT 2332 894	0.	.0	13.0
11 OCT 0304 227	559.	22.1	16.7 * 12 OCT 0120 561	2.	.1	13.0 * 12 OCT 2336 895	0.	.0	13.0
11 OCT 0308 228	552.	21.8	16.6 * 12 OCT 0124 562	2.	.1	13.0 * 12 OCT 2340 896	0.	.0	13.0
11 OCT 0312 229	545.	21.6	16.6 * 12 OCT 0128 563	2.	.1	13.0 * 12 OCT 2344 897	0.	.0	13.0
11 OCT 0316 230	538.	21.3	16.6 * 12 OCT 0132 564	2.	.1	13.0 * 12 OCT 2348 898	0.	.0	13.0
11 OCT 0320 231	532.	21.1	16.5 * 12 OCT 0136 565	2.	.1	13.0 * 12 OCT 2352 899	0.	.0	13.0
11 OCT 0324 232	526.	20.9	16.5 * 12 OCT 0140 566	2.	.1	13.0 * 12 OCT 2356 900	0.	.0	13.0
11 OCT 0328 233	520.	20.6	16.5 * 12 OCT 0144 567	2.	.1	13.0 * 13 OCT 0000 901	0.	.0	13.0
11 OCT 0332 234	514.	20.4	16.4 * 12 OCT 0148 568	2.	.1	13.0 * 13 OCT 0004 902	0.	.0	13.0
11 OCT 0336 235	509.	20.2	16.4 * 12 OCT 0152 569	2.	.1	13.0 * 13 OCT 0008 903	0.	.0	13.0
11 OCT 0340 236	505.	20.1	16.4 * 12 OCT 0156 570	2.	.1	13.0 * 13 OCT 0012 904	0.	.0	13.0
11 OCT 0344 237	500.	19.9	16.4 * 12 OCT 0200 571	2.	.1	13.0 * 13 OCT 0016 905	0.	.0	13.0
11 OCT 0348 238	496.	19.7	16.4 * 12 OCT 0204 572	2.	.1	13.0 * 13 OCT 0020 906	0.	.0	13.0

11 OCT 0352 239	492.	19.6	16.3 * 12 OCT 0208 573	2.	.1	13.0 * 13 OCT 0024 907	0.	.0	13.0
11 OCT 0356 240	489.	19.4	16.3 * 12 OCT 0212 574	2.	.1	13.0 * 13 OCT 0028 908	0.	.0	13.0
11 OCT 0400 241	486.	19.3	16.3 * 12 OCT 0216 575	2.	.1	13.0 * 13 OCT 0032 909	0.	.0	13.0
11 OCT 0404 242	483.	19.2	16.3 * 12 OCT 0220 576	2.	.1	13.0 * 13 OCT 0036 910	0.	.0	13.0
11 OCT 0408 243	480.	19.1	16.3 * 12 OCT 0224 577	2.	.1	13.0 * 13 OCT 0040 911	0.	.0	13.0
11 OCT 0412 244	477.	18.9	16.3 * 12 OCT 0228 578	2.	.1	13.0 * 13 OCT 0044 912	0.	.0	13.0
11 OCT 0416 245	474.	18.8	16.2 * 12 OCT 0232 579	2.	.1	13.0 * 13 OCT 0048 913	0.	.0	13.0
11 OCT 0420 246	472.	18.7	16.2 * 12 OCT 0236 580	2.	.1	13.0 * 13 OCT 0052 914	0.	.0	13.0
11 OCT 0424 247	469.	18.6	16.2 * 12 OCT 0240 581	2.	.1	13.0 * 13 OCT 0056 915	0.	.0	13.0
11 OCT 0428 248	466.	18.5	16.2 * 12 OCT 0244 582	2.	.1	13.0 * 13 OCT 0100 916	0.	.0	13.0
11 OCT 0432 249	463.	18.3	16.2 * 12 OCT 0248 583	1.	.1	13.0 * 13 OCT 0104 917	0.	.0	13.0
11 OCT 0436 250	460.	18.2	16.2 * 12 OCT 0252 584	1.	.1	13.0 * 13 OCT 0108 918	0.	.0	13.0
11 OCT 0440 251	458.	18.1	16.2 * 12 OCT 0256 585	1.	.1	13.0 * 13 OCT 0112 919	0.	.0	13.0
11 OCT 0444 252	455.	18.0	16.1 * 12 OCT 0300 586	1.	.1	13.0 * 13 OCT 0116 920	0.	.0	13.0
11 OCT 0448 253	452.	17.9	16.1 * 12 OCT 0304 587	1.	.1	13.0 * 13 OCT 0120 921	0.	.0	13.0
11 OCT 0452 254	450.	17.8	16.1 * 12 OCT 0308 588	1.	.1	13.0 * 13 OCT 0124 922	0.	.0	13.0
11 OCT 0456 255	447.	17.7	16.1 * 12 OCT 0312 589	1.	.1	13.0 * 13 OCT 0128 923	0.	.0	13.0
11 OCT 0500 256	445.	17.6	16.1 * 12 OCT 0316 590	1.	.1	13.0 * 13 OCT 0132 924	0.	.0	13.0
11 OCT 0504 257	442.	17.5	16.1 * 12 OCT 0320 591	1.	.0	13.0 * 13 OCT 0136 925	0.	.0	13.0
11 OCT 0508 258	440.	17.4	16.1 * 12 OCT 0324 592	1.	.0	13.0 * 13 OCT 0140 926	0.	.0	13.0
11 OCT 0512 259	437.	17.3	16.1 * 12 OCT 0328 593	1.	.0	13.0 * 13 OCT 0144 927	0.	.0	13.0
11 OCT 0516 260	435.	17.2	16.0 * 12 OCT 0332 594	1.	.0	13.0 * 13 OCT 0148 928	0.	.0	13.0
11 OCT 0520 261	432.	17.1	16.0 * 12 OCT 0336 595	1.	.0	13.0 * 13 OCT 0152 929	0.	.0	13.0
11 OCT 0524 262	430.	17.0	16.0 * 12 OCT 0340 596	1.	.0	13.0 * 13 OCT 0156 930	0.	.0	13.0
11 OCT 0528 263	427.	16.9	16.0 * 12 OCT 0344 597	1.	.0	13.0 * 13 OCT 0200 931	0.	.0	13.0
11 OCT 0532 264	425.	16.7	16.0 * 12 OCT 0348 598	1.	.0	13.0 * 13 OCT 0204 932	0.	.0	13.0
11 OCT 0536 265	422.	16.6	16.0 * 12 OCT 0352 599	1.	.0	13.0 * 13 OCT 0208 933	0.	.0	13.0
11 OCT 0540 266	419.	16.5	16.0 * 12 OCT 0356 600	1.	.0	13.0 * 13 OCT 0212 934	0.	.0	13.0
11 OCT 0544 267	417.	16.4	15.9 * 12 OCT 0400 601	1.	.0	13.0 * 13 OCT 0216 935	0.	.0	13.0
11 OCT 0548 268	414.	16.3	15.9 * 12 OCT 0404 602	1.	.0	13.0 * 13 OCT 0220 936	0.	.0	13.0
11 OCT 0552 269	411.	16.2	15.9 * 12 OCT 0408 603	1.	.0	13.0 * 13 OCT 0224 937	0.	.0	13.0
11 OCT 0556 270	408.	16.1	15.9 * 12 OCT 0412 604	1.	.0	13.0 * 13 OCT 0228 938	0.	.0	13.0
11 OCT 0600 271	406.	16.0	15.9 * 12 OCT 0416 605	1.	.0	13.0 * 13 OCT 0232 939	0.	.0	13.0
11 OCT 0604 272	403.	15.8	15.9 * 12 OCT 0420 606	1.	.0	13.0 * 13 OCT 0236 940	0.	.0	13.0
11 OCT 0608 273	400.	15.7	15.9 * 12 OCT 0424 607	1.	.0	13.0 * 13 OCT 0240 941	0.	.0	13.0
11 OCT 0612 274	398.	15.6	15.8 * 12 OCT 0428 608	1.	.0	13.0 * 13 OCT 0244 942	0.	.0	13.0
11 OCT 0616 275	395.	15.5	15.8 * 12 OCT 0432 609	1.	.0	13.0 * 13 OCT 0248 943	0.	.0	13.0
11 OCT 0620 276	392.	15.4	15.8 * 12 OCT 0436 610	1.	.0	13.0 * 13 OCT 0252 944	0.	.0	13.0
11 OCT 0624 277	389.	15.3	15.8 * 12 OCT 0440 611	1.	.0	13.0 * 13 OCT 0256 945	0.	.0	13.0
11 OCT 0628 278	387.	15.2	15.8 * 12 OCT 0444 612	1.	.0	13.0 * 13 OCT 0300 946	0.	.0	13.0
11 OCT 0632 279	384.	15.1	15.8 * 12 OCT 0448 613	1.	.0	13.0 * 13 OCT 0304 947	0.	.0	13.0
11 OCT 0636 280	381.	15.0	15.8 * 12 OCT 0452 614	1.	.0	13.0 * 13 OCT 0308 948	0.	.0	13.0
11 OCT 0640 281	379.	14.9	15.7 * 12 OCT 0456 615	1.	.0	13.0 * 13 OCT 0312 949	0.	.0	13.0
11 OCT 0644 282	377.	14.8	15.7 * 12 OCT 0500 616	1.	.0	13.0 * 13 OCT 0316 950	0.	.0	13.0
11 OCT 0648 283	374.	14.7	15.7 * 12 OCT 0504 617	1.	.0	13.0 * 13 OCT 0320 951	0.	.0	13.0
11 OCT 0652 284	372.	14.6	15.7 * 12 OCT 0508 618	1.	.0	13.0 * 13 OCT 0324 952	0.	.0	13.0
11 OCT 0656 285	370.	14.5	15.7 * 12 OCT 0512 619	1.	.0	13.0 * 13 OCT 0328 953	0.	.0	13.0
11 OCT 0700 286	367.	14.5	15.7 * 12 OCT 0516 620	1.	.0	13.0 * 13 OCT 0332 954	0.	.0	13.0
11 OCT 0704 287	365.	14.4	15.7 * 12 OCT 0520 621	1.	.0	13.0 * 13 OCT 0336 955	0.	.0	13.0
11 OCT 0708 288	363.	14.3	15.7 * 12 OCT 0524 622	1.	.0	13.0 * 13 OCT 0340 956	0.	.0	13.0
11 OCT 0712 289	361.	14.2	15.6 * 12 OCT 0528 623	1.	.0	13.0 * 13 OCT 0344 957	0.	.0	13.0
11 OCT 0716 290	359.	14.1	15.6 * 12 OCT 0532 624	1.	.0	13.0 * 13 OCT 0348 958	0.	.0	13.0
11 OCT 0720 291	357.	14.1	15.6 * 12 OCT 0536 625	1.	.0	13.0 * 13 OCT 0352 959	0.	.0	13.0
11 OCT 0724 292	356.	14.0	15.6 * 12 OCT 0540 626	1.	.0	13.0 * 13 OCT 0356 960	0.	.0	13.0
11 OCT 0728 293	354.	13.9	15.6 * 12 OCT 0544 627	1.	.0	13.0 * 13 OCT 0400 961	0.	.0	13.0
11 OCT 0732 294	352.	13.9	15.6 * 12 OCT 0548 628	1.	.0	13.0 * 13 OCT 0404 962	0.	.0	13.0
11 OCT 0736 295	350.	13.8	15.6 * 12 OCT 0552 629	1.	.0	13.0 * 13 OCT 0408 963	0.	.0	13.0
11 OCT 0740 296	348.	13.7	15.6 * 12 OCT 0556 630	1.	.0	13.0 * 13 OCT 0412 964	0.	.0	13.0
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11 OCT 0748 298	345.	13.6	15.6 * 12 OCT 0604 632	1.	.0	13.0 * 13 OCT 0420 966	0.	.0	13.0
11 OCT 0752 299	343.	13.5	15.5 * 12 OCT 0608 633	1.	.0	13.0 * 13 OCT 0424 967	0.	.0	13.0
11 OCT 0756 300	341.	13.4	15.5 * 12 OCT 0612 634	1.	.0	13.0 * 13 OCT 0428 968	0.	.0	13.0
11 OCT 0800 301	339.	13.4	15.5 * 12 OCT 0616 635	1.	.0	13.0 * 13 OCT 0432 969	0.	.0	13.0
11 OCT 0804 302	337.	13.3	15.5 * 12 OCT 0620 636	1.	.0	13.0 * 13 OCT 0436 970	0.	.0	13.0
11 OCT 0808 303	336.	13.2	15.5 * 12 OCT 0624 637	1.	.0	13.0 * 13 OCT 0440 971	0.	.0	13.0
11 OCT 0812 304	334.	13.2	15.5 * 12 OCT 0628 638	1.	.0	13.0 * 13 OCT 0444 972	0.	.0	13.0
11 OCT 0816 305	332.	13.1	15.5 * 12 OCT 0632 639	1.	.0	13.0 * 13 OCT 0448 973	0.	.0	13.0
11 OCT 0820 306	330.	13.0	15.5 * 12 OCT 0636 640	1.	.0	13.0 * 13 OCT 0452 974	0.	.0	13.0
11 OCT 0824 307	328.	12.9	15.5 * 12 OCT 0640 641	0.	.0	13.0 * 13 OCT 0456 975	0.	.0	13.0
11 OCT 0828 308	326.	12.9	15.5 * 12 OCT 0644 642	0.	.0	13.0 * 13 OCT 0500 976	0.	.0	13.0
11 OCT 0832 309	324.	12.8	15.4 * 12 OCT 0648 643	0.	.0	13.0 * 13 OCT 0504 977	0.	.0	13.0
11 OCT 0836 310	322.	12.7	15.4 * 12 OCT 0652 644	0.	.0	13.0 * 13 OCT 0508 978	0.	.0	13.0
11 OCT 0840 311	320.	12.6	15.4 * 12 OCT 0656 645	0.	.0	13.0 * 13 OCT 0512 979	0.	.0	13.0
11 OCT 0844 312	318.	12.5	15.4 * 12 OCT 0700 646	0.	.0	13.0 * 13 OCT 0516 980	0.	.0	13.0
11 OCT 0848 313	316.	12.5	15.4 * 12 OCT 0704 647	0.	.0	13.0 * 13 OCT 0520 981	0.	.0	13.0
11 OCT 0852 314	314.	12.4	15.4 * 12 OCT 0708 648	0.	.0	13.0 * 13 OCT 0524 982	0.	.0	13.0
11 OCT 0856 315	311.	12.3	15.4 * 12 OCT 0712 649	0.	.0	13.0 * 13 OCT 0528 983	0.	.0	13.0

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 11 OCT 0900 316     309.     12.2    15.4 * 12 OCT 0716 650       0.       .0    13.0 * 13 OCT 0532 984       0.       .0    13.0
 11 OCT 0904 317     307.     12.1    15.3 * 12 OCT 0720 651       0.       .0    13.0 * 13 OCT 0536 985       0.       .0    13.0
 11 OCT 0908 318     305.     12.0    15.3 * 12 OCT 0724 652       0.       .0    13.0 * 13 OCT 0540 986       0.       .0    13.0
 11 OCT 0912 319     303.     12.0    15.3 * 12 OCT 0728 653       0.       .0    13.0 * 13 OCT 0544 987       0.       .0    13.0
 11 OCT 0916 320     301.     11.9    15.3 * 12 OCT 0732 654       0.       .0    13.0 * 13 OCT 0548 988       0.       .0    13.0
 11 OCT 0920 321     299.     11.8    15.3 * 12 OCT 0736 655       0.       .0    13.0 * 13 OCT 0552 989       0.       .0    13.0
 11 OCT 0924 322     297.     11.7    15.3 * 12 OCT 0740 656       0.       .0    13.0 * 13 OCT 0556 990       0.       .0    13.0
 11 OCT 0928 323     296.     11.7    15.3 * 12 OCT 0744 657       0.       .0    13.0 * 13 OCT 0600 991       0.       .0    13.0
 11 OCT 0932 324     294.     11.6    15.3 * 12 OCT 0748 658       0.       .0    13.0 * 13 OCT 0604 992       0.       .0    13.0
 11 OCT 0936 325     293.     11.5    15.3 * 12 OCT 0752 659       0.       .0    13.0 * 13 OCT 0608 993       0.       .0    13.0
 11 OCT 0940 326     291.     11.5    15.3 * 12 OCT 0756 660       0.       .0    13.0 * 13 OCT 0612 994       0.       .0    13.0
 11 OCT 0944 327     289.     11.4    15.2 * 12 OCT 0800 661       0.       .0    13.0 * 13 OCT 0616 995       0.       .0    13.0
 11 OCT 0948 328     288.     11.4    15.2 * 12 OCT 0804 662       0.       .0    13.0 * 13 OCT 0620 996       0.       .0    13.0
 11 OCT 0952 329     286.     11.3    15.2 * 12 OCT 0808 663       0.       .0    13.0 * 13 OCT 0624 997       0.       .0    13.0
 11 OCT 0956 330     284.     11.2    15.2 * 12 OCT 0812 664       0.       .0    13.0 * 13 OCT 0628 998       0.       .0    13.0
 11 OCT 1000 331     283.     11.1    15.2 * 12 OCT 0816 665       0.       .0    13.0 * 13 OCT 0632 999       0.       .0    13.0
 11 OCT 1004 332     281.     11.1    15.2 * 12 OCT 0820 666       0.       .0    13.0 * 13 OCT 06361000       0.       .0    13.0
 11 OCT 1008 333     279.     11.0    15.2 * 12 OCT 0824 667       0.       .0    13.0 *
 11 OCT 1012 334     277.     10.9    15.2 * 12 OCT 0828 668       0.       .0    13.0 *
                                          *                                            *
 ********************************************************************************************************************************************

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                   6-HR        24-HR       72-HR     66.60-HR
+   (CFS)       (HR)
                        (CFS)
+     887.     12.47                595.        279.        104.         104.
                       (INCHES)      .897       1.686       1.737        1.737
                        (AC-FT)      295.        554.        571.         571.

 PEAK STORAGE   TIME                        MAXIMUM AVERAGE STORAGE
                                   6-HR        24-HR       72-HR     66.60-HR
+  (AC-FT)      (HR)
       35.     12.47                 24.         11.          4.           4.

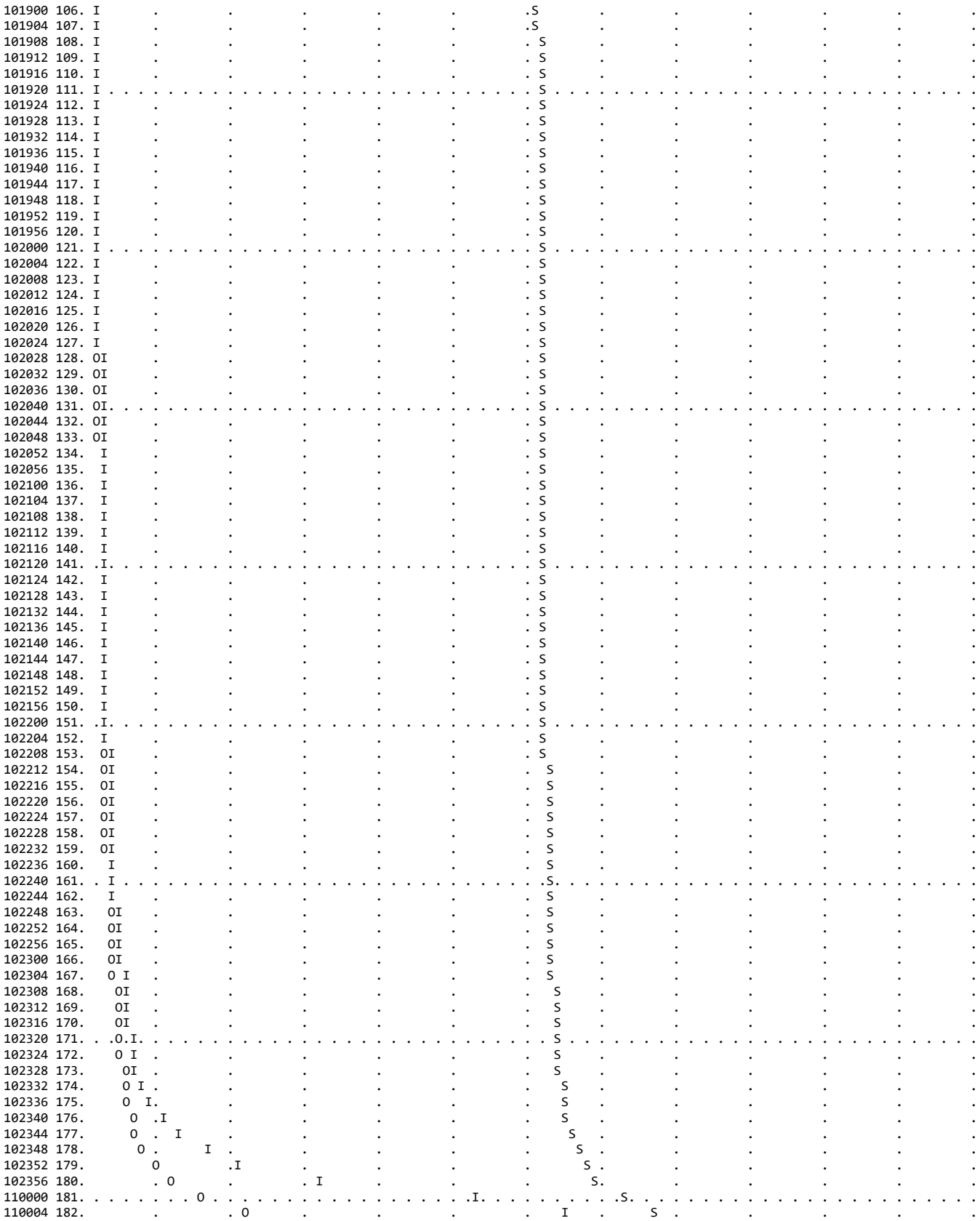
  PEAK STAGE    TIME                          MAXIMUM AVERAGE STAGE
                                   6-HR        24-HR       72-HR     66.60-HR
+   (FEET)      (HR)
     18.08     12.47               16.79       14.97       13.71        13.71

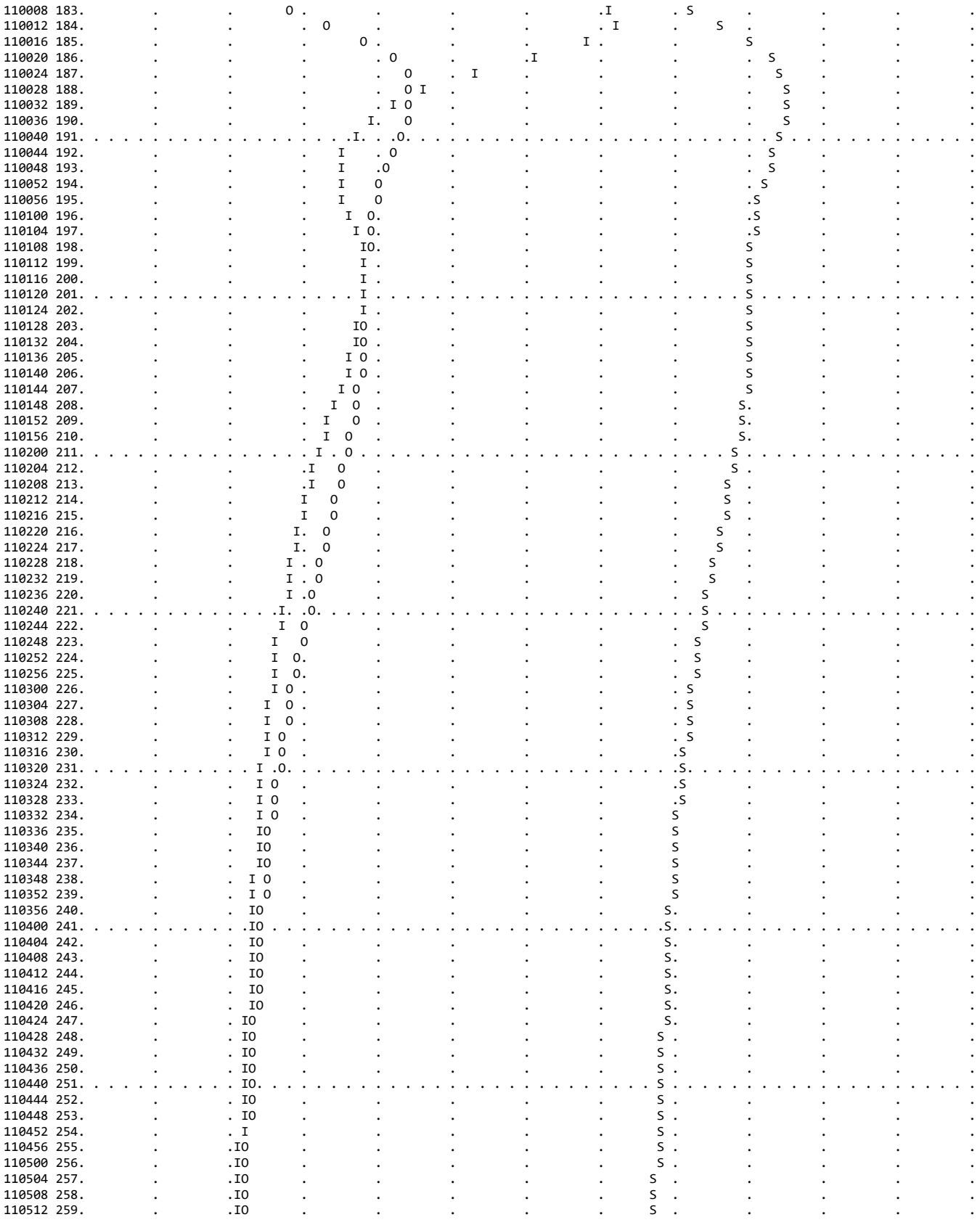
                        CUMULATIVE AREA =    6.16 SQ MI

1                                                  STATION    317RR

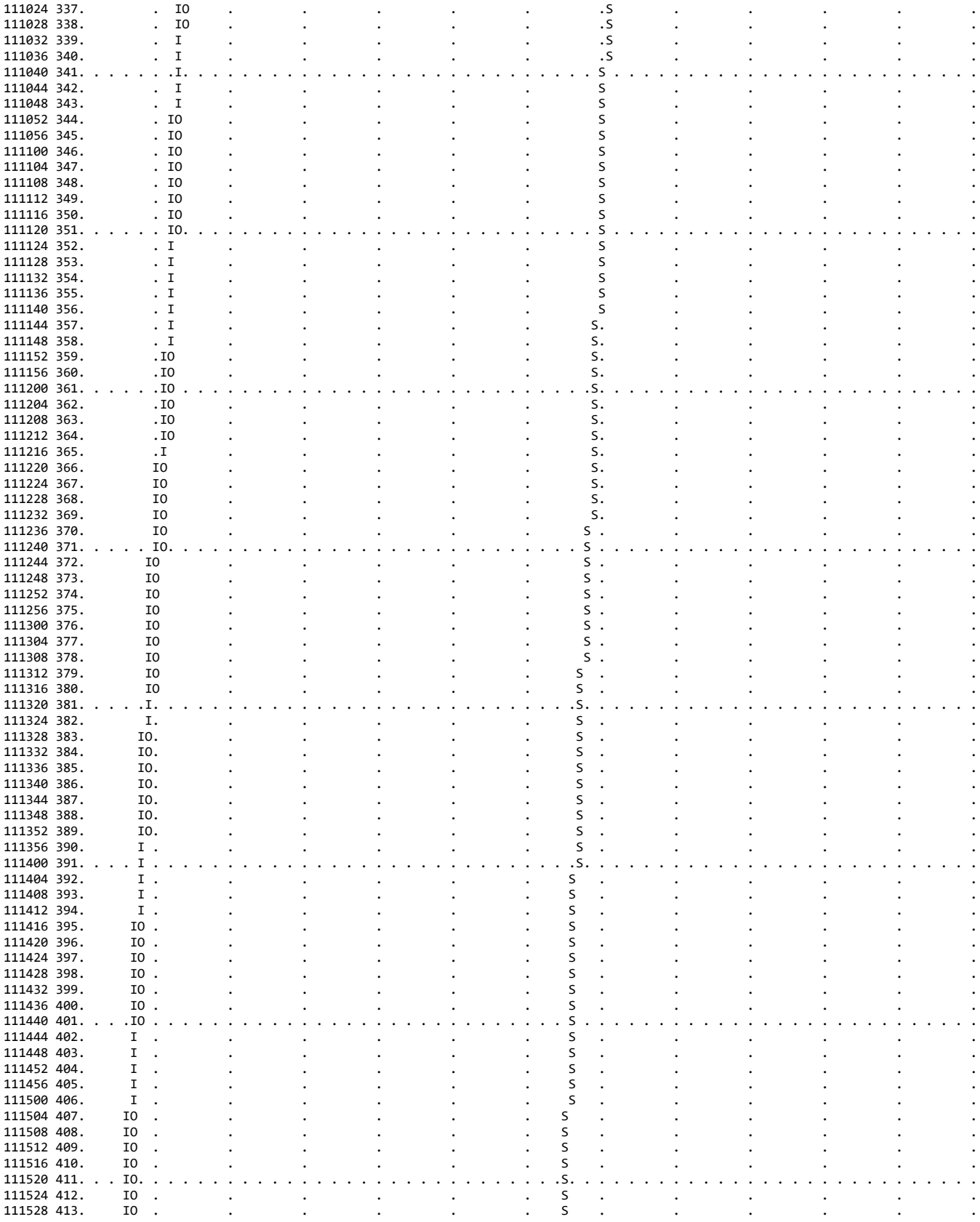
                      (I) INFLOW,   (O) OUTFLOW
         0.      200.      400.      600.      800.     1000.     1200.     1400.     1600.        0.        0.        0.        0.
                                                                                    (S) STORAGE
         0.        0.        0.        0.        0.        0.        0.       10.       20.       30.       40.        0.        0.
 DAHRMN PER
 101200   1I---------.---------.---------.---------.---------.---------S---------.---------.---------.---------.---------.---------.
 101204   2I         .         .         .         .         .         S         .         .         .         .         .         .
 101208   3I         .         .         .         .         .         S         .         .         .         .         .         .
 101212   4I         .         .         .         .         .         S         .         .         .         .         .         .
 101216   5I         .         .         .         .         .         S         .         .         .         .         .         .
 101220   6I         .         .         .         .         .         S         .         .         .         .         .         .
 101224   7I         .         .         .         .         .         S         .         .         .         .         .         .
 101228   8I         .         .         .         .         .         S         .         .         .         .         .         .
 101232   9I         .         .         .         .         .         S         .         .         .         .         .         .
 101236  10I         .         .         .         .         .         S         .         .         .         .         .         .
 101240  11I . . . . . . . . . . . . . . . . . . . . . . . . . . . . . S . . . . . . . . . . . . . . . . . . . . . . . . . . . . . .
 101244  12I         .         .         .         .         .         S         .         .         .         .         .         .
 101248  13I         .         .         .         .         .         S         .         .         .         .         .         .
 101252  14I         .         .         .         .         .         S         .         .         .         .         .         .
 101256  15I         .         .         .         .         .         S         .         .         .         .         .         .
 101300  16I         .         .         .         .         .         S         .         .         .         .         .         .
 101304  17I         .         .         .         .         .         S         .         .         .         .         .         .
 101308  18I         .         .         .         .         .         S         .         .         .         .         .         .
 101312  19I         .         .         .         .         .         S         .         .         .         .         .         .
 101316  20I         .         .         .         .         .         S         .         .         .         .         .         .
 101320  21I . . . . . . . . . . . . . . . . . . . . . . . . . . . . . S . . . . . . . . . . . . . . . . . . . . . . . . . . . . . .
 101324  22I         .         .         .         .         .         S         .         .         .         .         .         .
 101328  23I         .         .         .         .         .         S         .         .         .         .         .         .
 101332  24I         .         .         .         .         .         S         .         .         .         .         .         .
 101336  25I         .         .         .         .         .         S         .         .         .         .         .         .
 101340  26I         .         .         .         .         .         S         .         .         .         .         .         .
 101344  27I         .         .         .         .         .         S         .         .         .         .         .         .
 101348  28I         .         .         .         .         .         S         .         .         .         .         .         .
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101352  29OI       .       .       .       .       .       S       .       .       .       .       .       .
101356  30OI       .       .       .       .       .       S       .       .       .       .       .       .
101400  31OI. . . . . . . . . . . . . . . . . . . . . . . . S . . . . . . . . . . . . . . . . . . . . . . . .
101404  32OI       .       .       .       .       .       S       .       .       .       .       .       .
101408  33OI       .       .       .       .       .       S       .       .       .       .       .       .
101412  34OI       .       .       .       .       .       S       .       .       .       .       .       .
101416  35OI       .       .       .       .       .       S       .       .       .       .       .       .
101420  36.I       .       .       .       .       .       S       .       .       .       .       .       .
101424  37.I       .       .       .       .       .       S       .       .       .       .       .       .
101428  38.I       .       .       .       .       .       S       .       .       .       .       .       .
101432  39.I       .       .       .       .       .       S       .       .       .       .       .       .
101436  40.I       .       .       .       .       .       S       .       .       .       .       .       .
101440  41.I. . . . . . . . . . . . . . . . . . . . . . . . S . . . . . . . . . . . . . . . . . . . . . . . .
101444  42.I       .       .       .       .       .       .S      .       .       .       .       .       .
101448  43.I       .       .       .       .       .       .S      .       .       .       .       .       .
101452  44.I       .       .       .       .       .       .S      .       .       .       .       .       .
101456  45.I       .       .       .       .       .       .S      .       .       .       .       .       .
101500  46.I       .       .       .       .       .       .S      .       .       .       .       .       .
101504  47.I       .       .       .       .       .       .S      .       .       .       .       .       .
101508  48.I       .       .       .       .       .       .S      .       .       .       .       .       .
101512  49.I       .       .       .       .       .       .S      .       .       .       .       .       .
101516  50.I       .       .       .       .       .       .S      .       .       .       .       .       .
101520  51.I. . . . . . . . . . . . . . . . . . . . . . . . .S. . . . . . . . . . . . . . . . . . . . . . . .
101524  52.I       .       .       .       .       .       .S      .       .       .       .       .       .
101528  53.I       .       .       .       .       .       .S      .       .       .       .       .       .
101532  54.I       .       .       .       .       .       .S      .       .       .       .       .       .
101536  55.I       .       .       .       .       .       .S      .       .       .       .       .       .
101540  56.I       .       .       .       .       .       .S      .       .       .       .       .       .
101544  57.I       .       .       .       .       .       .S      .       .       .       .       .       .
101548  58.I       .       .       .       .       .       .S      .       .       .       .       .       .
101552  59.I       .       .       .       .       .       .S      .       .       .       .       .       .
101556  60.I       .       .       .       .       .       .S      .       .       .       .       .       .
101600  61.I. . . . . . . . . . . . . . . . . . . . . . . . .S. . . . . . . . . . . . . . . . . . . . . . . .
101604  62.I       .       .       .       .       .       .S      .       .       .       .       .       .
101608  63.I       .       .       .       .       .       .S      .       .       .       .       .       .
101612  64.I       .       .       .       .       .       .S      .       .       .       .       .       .
101616  65.I       .       .       .       .       .       .S      .       .       .       .       .       .
101620  66.I       .       .       .       .       .       .S      .       .       .       .       .       .
101624  67.I       .       .       .       .       .       .S      .       .       .       .       .       .
101628  68.I       .       .       .       .       .       .S      .       .       .       .       .       .
101632  69.I       .       .       .       .       .       .S      .       .       .       .       .       .
101636  70.I       .       .       .       .       .       .S      .       .       .       .       .       .
101640  71.I. . . . . . . . . . . . . . . . . . . . . . . . .S. . . . . . . . . . . . . . . . . . . . . . . .
101644  72.I       .       .       .       .       .       .S      .       .       .       .       .       .
101648  73.I       .       .       .       .       .       .S      .       .       .       .       .       .
101652  74.OI      .       .       .       .       .       .S      .       .       .       .       .       .
101656  75.OI      .       .       .       .       .       .S      .       .       .       .       .       .
101700  76.OI      .       .       .       .       .       .S      .       .       .       .       .       .
101704  77.OI      .       .       .       .       .       .S      .       .       .       .       .       .
101708  78.OI      .       .       .       .       .       .S      .       .       .       .       .       .
101712  79.OI      .       .       .       .       .       .S      .       .       .       .       .       .
101716  80.OI      .       .       .       .       .       .S      .       .       .       .       .       .
101720  81.OI. . . . . . . . . . . . . . . . . . . . . . . . .S. . . . . . . . . . . . . . . . . . . . . . . .
101724  82.OI      .       .       .       .       .       .S      .       .       .       .       .       .
101728  83. I      .       .       .       .       .       .S      .       .       .       .       .       .
101732  84. I      .       .       .       .       .       .S      .       .       .       .       .       .
101736  85. I      .       .       .       .       .       .S      .       .       .       .       .       .
101740  86. I      .       .       .       .       .       .S      .       .       .       .       .       .
101744  87. I      .       .       .       .       .       .S      .       .       .       .       .       .
101748  88. I      .       .       .       .       .       .S      .       .       .       .       .       .
101752  89. I      .       .       .       .       .       .S      .       .       .       .       .       .
101756  90. I      .       .       .       .       .       .S      .       .       .       .       .       .
101800  91. I. . . . . . . . . . . . . . . . . . . . . . . . .S. . . . . . . . . . . . . . . . . . . . . . . .
101804  92. I      .       .       .       .       .       .S      .       .       .       .       .       .
101808  93. I      .       .       .       .       .       .S      .       .       .       .       .       .
101812  94. I      .       .       .       .       .       .S      .       .       .       .       .       .
101816  95. I      .       .       .       .       .       .S      .       .       .       .       .       .
101820  96. I      .       .       .       .       .       .S      .       .       .       .       .       .
101824  97. I      .       .       .       .       .       .S      .       .       .       .       .       .
101828  98. I      .       .       .       .       .       .S      .       .       .       .       .       .
101832  99. I      .       .       .       .       .       .S      .       .       .       .       .       .
101836 100. I      .       .       .       .       .       .S      .       .       .       .       .       .
101840 101. I. . . . . . . . . . . . . . . . . . . . . . . . .S. . . . . . . . . . . . . . . . . . . . . . . .
101844 102. I      .       .       .       .       .       .S      .       .       .       .       .       .
101848 103. I      .       .       .       .       .       .S      .       .       .       .       .       .
101852 104. I      .       .       .       .       .       .S      .       .       .       .       .       .
101856 105. I      .       .       .       .       .       .S      .       .       .       .       .       .
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110516 260.        .        .IO      .        .        .        .        .     S  .        .        .        .        .
110520 261. . . . . . . . . .IO . . . . . . . . . . . . . . . . . . . . . . .S. . . . . . . . . . . . . . . . . . . . . . .
110524 262.        .        .I       .        .        .        .        .     S  .        .        .        .        .
110528 263.        .        IO       .        .        .        .        .     S  .        .        .        .        .
110532 264.        .        IO       .        .        .        .        .     S  .        .        .        .        .
110536 265.        .        IO       .        .        .        .        .     S  .        .        .        .        .
110540 266.        .        IO       .        .        .        .        .     S  .        .        .        .        .
110544 267.        .        IO       .        .        .        .        .    S   .        .        .        .        .
110548 268.        .        IO       .        .        .        .        .    S   .        .        .        .        .
110552 269.        .        IO       .        .        .        .        .    S   .        .        .        .        .
110556 270.        .       IO        .        .        .        .        .    S   .        .        .        .        .
110600 271. . . . . . . . . .IO . . . . . . . . . . . . . . . . . . . . . . . S. . . . . . . . . . . . . . . . . . . . . . .
110604 272.        .        IO       .        .        .        .        .    S   .        .        .        .        .
110608 273.        .        IO       .        .        .        .        .    S   .        .        .        .        .
110612 274.        .        IO       .        .        .        .        .    S   .        .        .        .        .
110616 275.        .        IO       .        .        .        .        .    S   .        .        .        .        .
110620 276.        .        IO       .        .        .        .        .   S    .        .        .        .        .
110624 277.        .        I.       .        .        .        .        .   S    .        .        .        .        .
110628 278.        .       IO.       .        .        .        .        .   S    .        .        .        .        .
110632 279.        .       IO.       .        .        .        .        .   S    .        .        .        .        .
110636 280.        .       IO.       .        .        .        .        .   S    .        .        .        .        .
110640 281. . . . . . . . . IO. . . . . . . . . . . . . . . . . . . . . . .S. . . . . . . . . . . . . . . . . . . . . . .
110644 282.        .       IO.       .        .        .        .        .   S    .        .        .        .        .
110648 283.        .       IO.       .        .        .        .        .   S    .        .        .        .        .
110652 284.        .       IO.       .        .        .        .        .   S    .        .        .        .        .
110656 285.        .       I .       .        .        .        .        .   S    .        .        .        .        .
110700 286.        .       I .       .        .        .        .        .  S     .        .        .        .        .
110704 287.        .       I .       .        .        .        .        .  S     .        .        .        .        .
110708 288.        .      IO .       .        .        .        .        .  S     .        .        .        .        .
110712 289.        .      IO .       .        .        .        .        .  S     .        .        .        .        .
110716 290.        .      IO .       .        .        .        .        .  S     .        .        .        .        .
110720 291. . . . . . . . .IO . . . . . . . . . . . . . . . . . . . . . . .S. . . . . . . . . . . . . . . . . . . . . . .
110724 292.        .      IO .       .        .        .        .        .  S     .        .        .        .        .
110728 293.        .      IO .       .        .        .        .        .  S     .        .        .        .        .
110732 294.        .      IO .       .        .        .        .        .  S     .        .        .        .        .
110736 295.        .      IO .       .        .        .        .        .  S     .        .        .        .        .
110740 296.        .      I  .       .        .        .        .        .  S     .        .        .        .        .
110744 297.        .      I  .       .        .        .        .        .  S     .        .        .        .        .
110748 298.        .      I  .       .        .        .        .        .  S     .        .        .        .        .
110752 299.        .      I  .       .        .        .        .        .  S     .        .        .        .        .
110756 300.        .     IO  .       .        .        .        .        . S      .        .        .        .        .
110800 301. . . . . . . . IO. . . . . . . . . . . . . . . . . . . . . . .S. . . . . . . . . . . . . . . . . . . . . . .
110804 302.        .     IO  .       .        .        .        .        . S      .        .        .        .        .
110808 303.        .     IO  .       .        .        .        .        . S      .        .        .        .        .
110812 304.        .     IO  .       .        .        .        .        . S      .        .        .        .        .
110816 305.        .     IO  .       .        .        .        .        . S      .        .        .        .        .
110820 306.        .     I   .       .        .        .        .        . S      .        .        .        .        .
110824 307.        .     I   .       .        .        .        .        . S      .        .        .        .        .
110828 308.        .     I   .       .        .        .        .        . S      .        .        .        .        .
110832 309.        .    IO   .       .        .        .        .        . S      .        .        .        .        .
110836 310.        .    IO   .       .        .        .        .        . S      .        .        .        .        .
110840 311. . . . . . . .IO . . . . . . . . . . . . . . . . . . . . . . .S. . . . . . . . . . . . . . . . . . . . . . .
110844 312.        .    IO   .       .        .        .        .        . S      .        .        .        .        .
110848 313.        .    IO   .       .        .        .        .        .S       .        .        .        .        .
110852 314.        .    IO   .       .        .        .        .        .S       .        .        .        .        .
110856 315.        .    IO   .       .        .        .        .        .S       .        .        .        .        .
110900 316.        .    I    .       .        .        .        .        .S       .        .        .        .        .
110904 317.        .    I    .       .        .        .        .        .S       .        .        .        .        .
110908 318.        .    I    .       .        .        .        .        .S       .        .        .        .        .
110912 319.        .   IO    .       .        .        .        .        .S       .        .        .        .        .
110916 320.        .   IO    .       .        .        .        .        .S       .        .        .        .        .
110920 321. . . . . . . IO. . . . . . . . . . . . . . . . . . . . . . . .S. . . . . . . . . . . . . . . . . . . . . . .
110924 322.        .   IO    .       .        .        .        .        .S       .        .        .        .        .
110928 323.        .   IO    .       .        .        .        .        .S       .        .        .        .        .
110932 324.        .   IO    .       .        .        .        .        .S       .        .        .        .        .
110936 325.        .   IO    .       .        .        .        .        .S       .        .        .        .        .
110940 326.        .   IO    .       .        .        .        .       .S        .        .        .        .        .
110944 327.        .   I     .       .        .        .        .       .S        .        .        .        .        .
110948 328.        .   I     .       .        .        .        .       .S        .        .        .        .        .
110952 329.        .   I     .       .        .        .        .       .S        .        .        .        .        .
110956 330.        .   I     .       .        .        .        .       .S        .        .        .        .        .
111000 331. . . . . . .IO . . . . . . . . . . . . . . . . . . . . . . .S. . . . . . . . . . . . . . . . . . . . . . .
111004 332.        .  IO     .       .        .        .        .       .S        .        .        .        .        .
111008 333.        .  IO     .       .        .        .        .       .S        .        .        .        .        .
111012 334.        .  IO     .       .        .        .        .       .S        .        .        .        .        .
111016 335.        .  IO     .       .        .        .        .       .S        .        .        .        .        .
111020 336.        .  IO     .       .        .        .        .       .S        .        .        .        .        .
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111532 414.     I   .       .       .       .       .       .   S   .       .       .       .       .       .
111536 415.     I   .       .       .       .       .       .   S   .       .       .       .       .       .
111540 416.     I   .       .       .       .       .       .   S   .       .       .       .       .       .
111544 417.     I   .       .       .       .       .       .   S   .       .       .       .       .       .
111548 418.     I   .       .       .       .       .       .   S   .       .       .       .       .       .
111552 419.    IO   .       .       .       .       .       .   S   .       .       .       .       .       .
111556 420.    IO   .       .       .       .       .       .   S   .       .       .       .       .       .
111600 421. . .IO . . . . . . . . . . . . . . . . . . . . . . .S. . . . . . . . . . . . . . . . . . . . . . . .
111604 422.    IO   .       .       .       .       .       .   S   .       .       .       .       .       .
111608 423.    IO   .       .       .       .       .       .   S   .       .       .       .       .       .
111612 424.    IO   .       .       .       .       .       .   S   .       .       .       .       .       .
111616 425.    IO   .       .       .       .       .       .   S   .       .       .       .       .       .
111620 426.    I    .       .       .       .       .       .   S   .       .       .       .       .       .
111624 427.    I    .       .       .       .       .       .   S   .       .       .       .       .       .
111628 428.    I    .       .       .       .       .       .   S   .       .       .       .       .       .
111632 429.   IO    .       .       .       .       .       .   S   .       .       .       .       .       .
111636 430.   IO    .       .       .       .       .       .   S   .       .       .       .       .       .
111640 431. . IO. . . . . . . . . . . . . . . . . . . . . . . .S. . . . . . . . . . . . . . . . . . . . . . . .
111644 432.   IO    .       .       .       .       .       .   S   .       .       .       .       .       .
111648 433.   IO    .       .       .       .       .       .   S   .       .       .       .       .       .
111652 434.   IO    .       .       .       .       .       .   S   .       .       .       .       .       .
111656 435.   IO    .       .       .       .       .       . S     .       .       .       .       .       .
111700 436.   I     .       .       .       .       .       . S     .       .       .       .       .       .
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111708 438.   I     .       .       .       .       .       . S     .       .       .       .       .       .
111712 439.  IO     .       .       .       .       .       . S     .       .       .       .       .       .
111716 440.  IO     .       .       .       .       .       . S     .       .       .       .       .       .
111720 441. .IO . . . . . . . . . . . . . . . . . . . . . . .S. . . . . . . . . . . . . . . . . . . . . . . .
111724 442.  IO     .       .       .       .       .       . S     .       .       .       .       .       .
111728 443.  IO     .       .       .       .       .       . S     .       .       .       .       .       .
111732 444.  IO     .       .       .       .       .       . S     .       .       .       .       .       .
111736 445.  IO     .       .       .       .       .       . S     .       .       .       .       .       .
111740 446.  I      .       .       .       .       .       . S     .       .       .       .       .       .
111744 447.  I      .       .       .       .       .       . S     .       .       .       .       .       .
111748 448.  I      .       .       .       .       .       . S     .       .       .       .       .       .
111752 449.  I      .       .       .       .       .       . S     .       .       .       .       .       .
111756 450. IO      .       .       .       .       .       . S     .       .       .       .       .       .
111800 451. IO. . . . . . . . . . . . . . . . . . . . . . . . S . . . . . . . . . . . . . . . . . . . . . . . .
111804 452. IO      .       .       .       .       .       . S     .       .       .       .       .       .
111808 453. IO      .       .       .       .       .       . S     .       .       .       .       .       .
111812 454. IO      .       .       .       .       .       . S     .       .       .       .       .       .
111816 455. IO      .       .       .       .       .       . S     .       .       .       .       .       .
111820 456. IO      .       .       .       .       .       . S     .       .       .       .       .       .
111824 457. I       .       .       .       .       .       . S     .       .       .       .       .       .
111828 458. I       .       .       .       .       .       . S     .       .       .       .       .       .
111832 459. I       .       .       .       .       .       . S     .       .       .       .       .       .
111836 460. I       .       .       .       .       .       . S     .       .       .       .       .       .
111840 461. I . . . . . . . . . . . . . . . . . . . . . . . . S . . . . . . . . . . . . . . . . . . . . . . . .
111844 462. I       .       .       .       .       .       . S     .       .       .       .       .       .
111848 463.IO       .       .       .       .       .       . S     .       .       .       .       .       .
111852 464.IO       .       .       .       .       .       .S      .       .       .       .       .       .
111856 465.IO       .       .       .       .       .       .S      .       .       .       .       .       .
111900 466.IO       .       .       .       .       .       .S      .       .       .       .       .       .
111904 467.IO       .       .       .       .       .       .S      .       .       .       .       .       .
111908 468.IO       .       .       .       .       .       .S      .       .       .       .       .       .
111912 469.IO       .       .       .       .       .       .S      .       .       .       .       .       .
111916 470.I        .       .       .       .       .       .S      .       .       .       .       .       .
111920 471.I. . . . . . . . . . . . . . . . . . . . . . . . .S. . . . . . . . . . . . . . . . . . . . . . . .
111924 472.I        .       .       .       .       .       .S      .       .       .       .       .       .
111928 473.I        .       .       .       .       .       .S      .       .       .       .       .       .
111932 474.I        .       .       .       .       .       .S      .       .       .       .       .       .
111936 475.I        .       .       .       .       .       .S      .       .       .       .       .       .
111940 476.I        .       .       .       .       .       .S      .       .       .       .       .       .
111944 477.I        .       .       .       .       .       .S      .       .       .       .       .       .
111948 478.I        .       .       .       .       .       .S      .       .       .       .       .       .
111952 479.I        .       .       .       .       .       .S      .       .       .       .       .       .
111956 480.I        .       .       .       .       .       .S      .       .       .       .       .       .
112000 481.I. . . . . . . . . . . . . . . . . . . . . . . . .S. . . . . . . . . . . . . . . . . . . . . . . .
112004 482.I        .       .       .       .       .       .S      .       .       .       .       .       .
112008 483.I        .       .       .       .       .       .S      .       .       .       .       .       .
112012 484.I        .       .       .       .       .       .S      .       .       .       .       .       .
112016 485.I        .       .       .       .       .       .S      .       .       .       .       .       .
112020 486.I        .       .       .       .       .       .S      .       .       .       .       .       .
112024 487.I        .       .       .       .       .       .S      .       .       .       .       .       .
112028 488.I        .       .       .       .       .       .S      .       .       .       .       .       .
112032 489.I        .       .       .       .       .       .S      .       .       .       .       .       .
112036 490.I        .       .       .       .       .       .S      .       .       .       .       .       .
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112040 491.I. . . . . .S. . . . . .
112044 492.I       .       .       .       .       .S      .       .       .       .       .       .
112048 493.I       .       .       .       .       .S      .       .       .       .       .       .
112052 494.I       .       .       .       .       .S      .       .       .       .       .       .
112056 495IO       .       .       .       .       S       .       .       .       .       .       .
112100 496IO       .       .       .       .       S       .       .       .       .       .       .
112104 497IO       .       .       .       .       S       .       .       .       .       .       .
112108 498IO       .       .       .       .       S       .       .       .       .       .       .
112112 499IO       .       .       .       .       S       .       .       .       .       .       .
112116 500IO       .       .       .       .       S       .       .       .       .       .       .
112120 501IO. . . . . S . . . . . .
112124 502IO       .       .       .       .       S       .       .       .       .       .       .
112128 503I        .       .       .       .       S       .       .       .       .       .       .
112132 504I        .       .       .       .       S       .       .       .       .       .       .
112136 505I        .       .       .       .       S       .       .       .       .       .       .
112140 506I        .       .       .       .       S       .       .       .       .       .       .
112144 507I        .       .       .       .       S       .       .       .       .       .       .
112148 508I        .       .       .       .       S       .       .       .       .       .       .
112152 509I        .       .       .       .       S       .       .       .       .       .       .
112156 510I        .       .       .       .       S       .       .       .       .       .       .
112200 511I . . . . . S . . . . . .
112204 512I        .       .       .       .       S       .       .       .       .       .       .
112208 513I        .       .       .       .       S       .       .       .       .       .       .
112212 514I        .       .       .       .       S       .       .       .       .       .       .
112216 515I        .       .       .       .       S       .       .       .       .       .       .
112220 516I        .       .       .       .       S       .       .       .       .       .       .
112224 517I        .       .       .       .       S       .       .       .       .       .       .
112228 518I        .       .       .       .       S       .       .       .       .       .       .
112232 519I        .       .       .       .       S       .       .       .       .       .       .
112236 520I        .       .       .       .       S       .       .       .       .       .       .
112240 521I . . . . . S . . . . . .
112244 522I        .       .       .       .       S       .       .       .       .       .       .
112248 523I        .       .       .       .       S       .       .       .       .       .       .
112252 524I        .       .       .       .       S       .       .       .       .       .       .
112256 525I        .       .       .       .       S       .       .       .       .       .       .
112300 526I        .       .       .       .       S       .       .       .       .       .       .
112304 527I        .       .       .       .       S       .       .       .       .       .       .
112308 528I        .       .       .       .       S       .       .       .       .       .       .
112312 529I        .       .       .       .       S       .       .       .       .       .       .
112316 530I        .       .       .       .       S       .       .       .       .       .       .
112320 531I . . . . . S . . . . . .
112324 532I        .       .       .       .       S       .       .       .       .       .       .
112328 533I        .       .       .       .       S       .       .       .       .       .       .
112332 534I        .       .       .       .       S       .       .       .       .       .       .
112336 535I        .       .       .       .       S       .       .       .       .       .       .
112340 536I        .       .       .       .       S       .       .       .       .       .       .
112344 537I        .       .       .       .       S       .       .       .       .       .       .
112348 538I        .       .       .       .       S       .       .       .       .       .       .
112352 539I        .       .       .       .       S       .       .       .       .       .       .
112356 540I        .       .       .       .       S       .       .       .       .       .       .
120000 541I . . . . . S . . . . . .
120004 542I        .       .       .       .       S       .       .       .       .       .       .
120008 543I        .       .       .       .       S       .       .       .       .       .       .
120012 544I        .       .       .       .       S       .       .       .       .       .       .
120016 545I        .       .       .       .       S       .       .       .       .       .       .
120020 546I        .       .       .       .       S       .       .       .       .       .       .
120024 547I        .       .       .       .       S       .       .       .       .       .       .
120028 548I        .       .       .       .       S       .       .       .       .       .       .
120032 549I        .       .       .       .       S       .       .       .       .       .       .
120036 550I        .       .       .       .       S       .       .       .       .       .       .
120040 551I . . . . . S . . . . . .
120044 552I        .       .       .       .       S       .       .       .       .       .       .
120048 553I        .       .       .       .       S       .       .       .       .       .       .
120052 554I        .       .       .       .       S       .       .       .       .       .       .
120056 555I        .       .       .       .       S       .       .       .       .       .       .
120100 556I        .       .       .       .       S       .       .       .       .       .       .
120104 557I        .       .       .       .       S       .       .       .       .       .       .
120108 558I        .       .       .       .       S       .       .       .       .       .       .
120112 559I        .       .       .       .       S       .       .       .       .       .       .
120116 560I        .       .       .       .       S       .       .       .       .       .       .
120120 561I . . . . . S . . . . . .
120124 562I        .       .       .       .       S       .       .       .       .       .       .
120128 563I        .       .       .       .       S       .       .       .       .       .       .
120132 564I        .       .       .       .       S       .       .       .       .       .       .
120136 565I        .       .       .       .       S       .       .       .       .       .       .
120140 566I        .       .       .       .       S       .       .       .       .       .       .
120144 567I        .       .       .       .       S       .       .       .       .       .       .
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120148 568I        .       .       .       .       .       S       .       .       .       .       .       .
120152 569I        .       .       .       .       .       S       .       .       .       .       .       .
120156 570I        .       .       .       .       .       S       .       .       .       .       .       .
120200 571I . . . . . . . . . . . . . . . . . . . . . . . . S . . . . . . . . . . . . . . . . . . . . . . . .
120204 572I        .       .       .       .       .       S       .       .       .       .       .       .
120208 573I        .       .       .       .       .       S       .       .       .       .       .       .
120212 574I        .       .       .       .       .       S       .       .       .       .       .       .
120216 575I        .       .       .       .       .       S       .       .       .       .       .       .
120220 576I        .       .       .       .       .       S       .       .       .       .       .       .
120224 577I        .       .       .       .       .       S       .       .       .       .       .       .
120228 578I        .       .       .       .       .       S       .       .       .       .       .       .
120232 579I        .       .       .       .       .       S       .       .       .       .       .       .
120236 580I        .       .       .       .       .       S       .       .       .       .       .       .
120240 581I . . . . . . . . . . . . . . . . . . . . . . . . S . . . . . . . . . . . . . . . . . . . . . . . .
120244 582I        .       .       .       .       .       S       .       .       .       .       .       .
120248 583I        .       .       .       .       .       S       .       .       .       .       .       .
120252 584I        .       .       .       .       .       S       .       .       .       .       .       .
120256 585I        .       .       .       .       .       S       .       .       .       .       .       .
120300 586I        .       .       .       .       .       S       .       .       .       .       .       .
120304 587I        .       .       .       .       .       S       .       .       .       .       .       .
120308 588I        .       .       .       .       .       S       .       .       .       .       .       .
120312 589I        .       .       .       .       .       S       .       .       .       .       .       .
120316 590I        .       .       .       .       .       S       .       .       .       .       .       .
120320 591I . . . . . . . . . . . . . . . . . . . . . . . . S . . . . . . . . . . . . . . . . . . . . . . . .
120324 592I        .       .       .       .       .       S       .       .       .       .       .       .
120328 593I        .       .       .       .       .       S       .       .       .       .       .       .
120332 594I        .       .       .       .       .       S       .       .       .       .       .       .
120336 595I        .       .       .       .       .       S       .       .       .       .       .       .
120340 596I        .       .       .       .       .       S       .       .       .       .       .       .
120344 597I        .       .       .       .       .       S       .       .       .       .       .       .
120348 598I        .       .       .       .       .       S       .       .       .       .       .       .
120352 599I        .       .       .       .       .       S       .       .       .       .       .       .
120356 600I        .       .       .       .       .       S       .       .       .       .       .       .
120400 601I . . . . . . . . . . . . . . . . . . . . . . . . S . . . . . . . . . . . . . . . . . . . . . . . .
120404 602I        .       .       .       .       .       S       .       .       .       .       .       .
120408 603I        .       .       .       .       .       S       .       .       .       .       .       .
120412 604I        .       .       .       .       .       S       .       .       .       .       .       .
120416 605I        .       .       .       .       .       S       .       .       .       .       .       .
120420 606I        .       .       .       .       .       S       .       .       .       .       .       .
120424 607I        .       .       .       .       .       S       .       .       .       .       .       .
120428 608I        .       .       .       .       .       S       .       .       .       .       .       .
120432 609I        .       .       .       .       .       S       .       .       .       .       .       .
120436 610I        .       .       .       .       .       S       .       .       .       .       .       .
120440 611I . . . . . . . . . . . . . . . . . . . . . . . . S . . . . . . . . . . . . . . . . . . . . . . . .
120444 612I        .       .       .       .       .       S       .       .       .       .       .       .
120448 613I        .       .       .       .       .       S       .       .       .       .       .       .
120452 614I        .       .       .       .       .       S       .       .       .       .       .       .
120456 615I        .       .       .       .       .       S       .       .       .       .       .       .
120500 616I        .       .       .       .       .       S       .       .       .       .       .       .
120504 617I        .       .       .       .       .       S       .       .       .       .       .       .
120508 618I        .       .       .       .       .       S       .       .       .       .       .       .
120512 619I        .       .       .       .       .       S       .       .       .       .       .       .
120516 620I        .       .       .       .       .       S       .       .       .       .       .       .
120520 621I . . . . . . . . . . . . . . . . . . . . . . . . S . . . . . . . . . . . . . . . . . . . . . . . .
120524 622I        .       .       .       .       .       S       .       .       .       .       .       .
120528 623I        .       .       .       .       .       S       .       .       .       .       .       .
120532 624I        .       .       .       .       .       S       .       .       .       .       .       .
120536 625I        .       .       .       .       .       S       .       .       .       .       .       .
120540 626I        .       .       .       .       .       S       .       .       .       .       .       .
120544 627I        .       .       .       .       .       S       .       .       .       .       .       .
120548 628I        .       .       .       .       .       S       .       .       .       .       .       .
120552 629I        .       .       .       .       .       S       .       .       .       .       .       .
120556 630I        .       .       .       .       .       S       .       .       .       .       .       .
120600 631I . . . . . . . . . . . . . . . . . . . . . . . . S . . . . . . . . . . . . . . . . . . . . . . . .
120604 632I        .       .       .       .       .       S       .       .       .       .       .       .
120608 633I        .       .       .       .       .       S       .       .       .       .       .       .
120612 634I        .       .       .       .       .       S       .       .       .       .       .       .
120616 635I        .       .       .       .       .       S       .       .       .       .       .       .
120620 636I        .       .       .       .       .       S       .       .       .       .       .       .
120624 637I        .       .       .       .       .       S       .       .       .       .       .       .
120628 638I        .       .       .       .       .       S       .       .       .       .       .       .
120632 639I        .       .       .       .       .       S       .       .       .       .       .       .
120636 640I        .       .       .       .       .       S       .       .       .       .       .       .
120640 641I . . . . . . . . . . . . . . . . . . . . . . . . S . . . . . . . . . . . . . . . . . . . . . . . .
120644 642I        .       .       .       .       .       S       .       .       .       .       .       .
120648 643I        .       .       .       .       .       S       .       .       .       .       .       .
120652 644I        .       .       .       .       .       S       .       .       .       .       .       .
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120656 645I        .         .         .         .         .         S         .         .         .         .         .         .
120700 646I        .         .         .         .         .         S         .         .         .         .         .         .
120704 647I        .         .         .         .         .         S         .         .         .         .         .         .
120708 648I        .         .         .         .         .         S         .         .         .         .         .         .
120712 649I        .         .         .         .         .         S         .         .         .         .         .         .
120716 650I        .         .         .         .         .         S         .         .         .         .         .         .
120720 651I . . . . . . . . . . . . . . . . . . . . . . . . . . . . S . . . . . . . . . . . . . . . . . . . . . . . . . . . . .
120724 652I        .         .         .         .         .         S         .         .         .         .         .         .
120728 653I        .         .         .         .         .         S         .         .         .         .         .         .
120732 654I        .         .         .         .         .         S         .         .         .         .         .         .
120736 655I        .         .         .         .         .         S         .         .         .         .         .         .
120740 656I        .         .         .         .         .         S         .         .         .         .         .         .
120744 657I        .         .         .         .         .         S         .         .         .         .         .         .
120748 658I        .         .         .         .         .         S         .         .         .         .         .         .
120752 659I        .         .         .         .         .         S         .         .         .         .         .         .
120756 660I        .         .         .         .         .         S         .         .         .         .         .         .
120800 661I . . . . . . . . . . . . . . . . . . . . . . . . . . . . S . . . . . . . . . . . . . . . . . . . . . . . . . . . . .
120804 662I        .         .         .         .         .         S         .         .         .         .         .         .
120808 663I        .         .         .         .         .         S         .         .         .         .         .         .
120812 664I        .         .         .         .         .         S         .         .         .         .         .         .
120816 665I        .         .         .         .         .         S         .         .         .         .         .         .
120820 666I        .         .         .         .         .         S         .         .         .         .         .         .
120824 667I        .         .         .         .         .         S         .         .         .         .         .         .
120828 668I        .         .         .         .         .         S         .         .         .         .         .         .
120832 669I        .         .         .         .         .         S         .         .         .         .         .         .
120836 670I        .         .         .         .         .         S         .         .         .         .         .         .
120840 671I . . . . . . . . . . . . . . . . . . . . . . . . . . . . S . . . . . . . . . . . . . . . . . . . . . . . . . . . . .
120844 672I        .         .         .         .         .         S         .         .         .         .         .         .
120848 673I        .         .         .         .         .         S         .         .         .         .         .         .
120852 674I        .         .         .         .         .         S         .         .         .         .         .         .
120856 675I        .         .         .         .         .         S         .         .         .         .         .         .
120900 676I        .         .         .         .         .         S         .         .         .         .         .         .
120904 677I        .         .         .         .         .         S         .         .         .         .         .         .
120908 678I        .         .         .         .         .         S         .         .         .         .         .         .
120912 679I        .         .         .         .         .         S         .         .         .         .         .         .
120916 680I        .         .         .         .         .         S         .         .         .         .         .         .
120920 681I . . . . . . . . . . . . . . . . . . . . . . . . . . . . S . . . . . . . . . . . . . . . . . . . . . . . . . . . . .
120924 682I        .         .         .         .         .         S         .         .         .         .         .         .
120928 683I        .         .         .         .         .         S         .         .         .         .         .         .
120932 684I        .         .         .         .         .         S         .         .         .         .         .         .
120936 685I        .         .         .         .         .         S         .         .         .         .         .         .
120940 686I        .         .         .         .         .         S         .         .         .         .         .         .
120944 687I        .         .         .         .         .         S         .         .         .         .         .         .
120948 688I        .         .         .         .         .         S         .         .         .         .         .         .
120952 689I        .         .         .         .         .         S         .         .         .         .         .         .
120956 690I        .         .         .         .         .         S         .         .         .         .         .         .
121000 691I . . . . . . . . . . . . . . . . . . . . . . . . . . . . S . . . . . . . . . . . . . . . . . . . . . . . . . . . . .
121004 692I        .         .         .         .         .         S         .         .         .         .         .         .
121008 693I        .         .         .         .         .         S         .         .         .         .         .         .
121012 694I        .         .         .         .         .         S         .         .         .         .         .         .
121016 695I        .         .         .         .         .         S         .         .         .         .         .         .
121020 696I        .         .         .         .         .         S         .         .         .         .         .         .
121024 697I        .         .         .         .         .         S         .         .         .         .         .         .
121028 698I        .         .         .         .         .         S         .         .         .         .         .         .
121032 699I        .         .         .         .         .         S         .         .         .         .         .         .
121036 700I        .         .         .         .         .         S         .         .         .         .         .         .
121040 701I . . . . . . . . . . . . . . . . . . . . . . . . . . . . S . . . . . . . . . . . . . . . . . . . . . . . . . . . . .
121044 702I        .         .         .         .         .         S         .         .         .         .         .         .
121048 703I        .         .         .         .         .         S         .         .         .         .         .         .
121052 704I        .         .         .         .         .         S         .         .         .         .         .         .
121056 705I        .         .         .         .         .         S         .         .         .         .         .         .
121100 706I        .         .         .         .         .         S         .         .         .         .         .         .
121104 707I        .         .         .         .         .         S         .         .         .         .         .         .
121108 708I        .         .         .         .         .         S         .         .         .         .         .         .
121112 709I        .         .         .         .         .         S         .         .         .         .         .         .
121116 710I        .         .         .         .         .         S         .         .         .         .         .         .
121120 711I . . . . . . . . . . . . . . . . . . . . . . . . . . . . S . . . . . . . . . . . . . . . . . . . . . . . . . . . . .
121124 712I        .         .         .         .         .         S         .         .         .         .         .         .
121128 713I        .         .         .         .         .         S         .         .         .         .         .         .
121132 714I        .         .         .         .         .         S         .         .         .         .         .         .
121136 715I        .         .         .         .         .         S         .         .         .         .         .         .
121140 716I        .         .         .         .         .         S         .         .         .         .         .         .
121144 717I        .         .         .         .         .         S         .         .         .         .         .         .
121148 718I        .         .         .         .         .         S         .         .         .         .         .         .
121152 719I        .         .         .         .         .         S         .         .         .         .         .         .
121156 720I        .         .         .         .         .         S         .         .         .         .         .         .
121200 721I . . . . . . . . . . . . . . . . . . . . . . . . . . . . S . . . . . . . . . . . . . . . . . . . . . . . . . . . . .
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121204 722I                                   S
121208 723I                                   S
121212 724I                                   S
121216 725I                                   S
121220 726I                                   S
121224 727I                                   S
121228 728I                                   S
121232 729I                                   S
121236 730I                                   S
121240 731I                                   S
121244 732I                                   S
121248 733I                                   S
121252 734I                                   S
121256 735I                                   S
121300 736I                                   S
121304 737I                                   S
121308 738I                                   S
121312 739I                                   S
121316 740I                                   S
121320 741I                                   S
121324 742I                                   S
121328 743I                                   S
121332 744I                                   S
121336 745I                                   S
121340 746I                                   S
121344 747I                                   S
121348 748I                                   S
121352 749I                                   S
121356 750I                                   S
121400 751I                                   S
121404 752I                                   S
121408 753I                                   S
121412 754I                                   S
121416 755I                                   S
121420 756I                                   S
121424 757I                                   S
121428 758I                                   S
121432 759I                                   S
121436 760I                                   S
121440 761I                                   S
121444 762I                                   S
121448 763I                                   S
121452 764I                                   S
121456 765I                                   S
121500 766I                                   S
121504 767I                                   S
121508 768I                                   S
121512 769I                                   S
121516 770I                                   S
121520 771I                                   S
121524 772I                                   S
121528 773I                                   S
121532 774I                                   S
121536 775I                                   S
121540 776I                                   S
121544 777I                                   S
121548 778I                                   S
121552 779I                                   S
121556 780I                                   S
121600 781I                                   S
121604 782I                                   S
121608 783I                                   S
121612 784I                                   S
121616 785I                                   S
121620 786I                                   S
121624 787I                                   S
121628 788I                                   S
121632 789I                                   S
121636 790I                                   S
121640 791I                                   S
121644 792I                                   S
121648 793I                                   S
121652 794I                                   S
121656 795I                                   S
121700 796I                                   S
121704 797I                                   S
121708 798I                                   S
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121712 799I        .       .       .       .       .       S       .       .       .       .       .       .
121716 800I        .       .       .       .       .       S       .       .       .       .       .       .
121720 801I . . . . . . . . . . . . . . . . . . . . . . . . S . . . . . . . . . . . . . . . . . . . . . . . .
121724 802I        .       .       .       .       .       S       .       .       .       .       .       .
121728 803I        .       .       .       .       .       S       .       .       .       .       .       .
121732 804I        .       .       .       .       .       S       .       .       .       .       .       .
121736 805I        .       .       .       .       .       S       .       .       .       .       .       .
121740 806I        .       .       .       .       .       S       .       .       .       .       .       .
121744 807I        .       .       .       .       .       S       .       .       .       .       .       .
121748 808I        .       .       .       .       .       S       .       .       .       .       .       .
121752 809I        .       .       .       .       .       S       .       .       .       .       .       .
121756 810I        .       .       .       .       .       S       .       .       .       .       .       .
121800 811I . . . . . . . . . . . . . . . . . . . . . . . . S . . . . . . . . . . . . . . . . . . . . . . . .
121804 812I        .       .       .       .       .       S       .       .       .       .       .       .
121808 813I        .       .       .       .       .       S       .       .       .       .       .       .
121812 814I        .       .       .       .       .       S       .       .       .       .       .       .
121816 815I        .       .       .       .       .       S       .       .       .       .       .       .
121820 816I        .       .       .       .       .       S       .       .       .       .       .       .
121824 817I        .       .       .       .       .       S       .       .       .       .       .       .
121828 818I        .       .       .       .       .       S       .       .       .       .       .       .
121832 819I        .       .       .       .       .       S       .       .       .       .       .       .
121836 820I        .       .       .       .       .       S       .       .       .       .       .       .
121840 821I . . . . . . . . . . . . . . . . . . . . . . . . S . . . . . . . . . . . . . . . . . . . . . . . .
121844 822I        .       .       .       .       .       S       .       .       .       .       .       .
121848 823I        .       .       .       .       .       S       .       .       .       .       .       .
121852 824I        .       .       .       .       .       S       .       .       .       .       .       .
121856 825I        .       .       .       .       .       S       .       .       .       .       .       .
121900 826I        .       .       .       .       .       S       .       .       .       .       .       .
121904 827I        .       .       .       .       .       S       .       .       .       .       .       .
121908 828I        .       .       .       .       .       S       .       .       .       .       .       .
121912 829I        .       .       .       .       .       S       .       .       .       .       .       .
121916 830I        .       .       .       .       .       S       .       .       .       .       .       .
121920 831I . . . . . . . . . . . . . . . . . . . . . . . . S . . . . . . . . . . . . . . . . . . . . . . . .
121924 832I        .       .       .       .       .       S       .       .       .       .       .       .
121928 833I        .       .       .       .       .       S       .       .       .       .       .       .
121932 834I        .       .       .       .       .       S       .       .       .       .       .       .
121936 835I        .       .       .       .       .       S       .       .       .       .       .       .
121940 836I        .       .       .       .       .       S       .       .       .       .       .       .
121944 837I        .       .       .       .       .       S       .       .       .       .       .       .
121948 838I        .       .       .       .       .       S       .       .       .       .       .       .
121952 839I        .       .       .       .       .       S       .       .       .       .       .       .
121956 840I        .       .       .       .       .       S       .       .       .       .       .       .
122000 841I . . . . . . . . . . . . . . . . . . . . . . . . S . . . . . . . . . . . . . . . . . . . . . . . .
122004 842I        .       .       .       .       .       S       .       .       .       .       .       .
122008 843I        .       .       .       .       .       S       .       .       .       .       .       .
122012 844I        .       .       .       .       .       S       .       .       .       .       .       .
122016 845I        .       .       .       .       .       S       .       .       .       .       .       .
122020 846I        .       .       .       .       .       S       .       .       .       .       .       .
122024 847I        .       .       .       .       .       S       .       .       .       .       .       .
122028 848I        .       .       .       .       .       S       .       .       .       .       .       .
122032 849I        .       .       .       .       .       S       .       .       .       .       .       .
122036 850I        .       .       .       .       .       S       .       .       .       .       .       .
122040 851I . . . . . . . . . . . . . . . . . . . . . . . . S . . . . . . . . . . . . . . . . . . . . . . . .
122044 852I        .       .       .       .       .       S       .       .       .       .       .       .
122048 853I        .       .       .       .       .       S       .       .       .       .       .       .
122052 854I        .       .       .       .       .       S       .       .       .       .       .       .
122056 855I        .       .       .       .       .       S       .       .       .       .       .       .
122100 856I        .       .       .       .       .       S       .       .       .       .       .       .
122104 857I        .       .       .       .       .       S       .       .       .       .       .       .
122108 858I        .       .       .       .       .       S       .       .       .       .       .       .
122112 859I        .       .       .       .       .       S       .       .       .       .       .       .
122116 860I        .       .       .       .       .       S       .       .       .       .       .       .
122120 861I . . . . . . . . . . . . . . . . . . . . . . . . S . . . . . . . . . . . . . . . . . . . . . . . .
122124 862I        .       .       .       .       .       S       .       .       .       .       .       .
122128 863I        .       .       .       .       .       S       .       .       .       .       .       .
122132 864I        .       .       .       .       .       S       .       .       .       .       .       .
122136 865I        .       .       .       .       .       S       .       .       .       .       .       .
122140 866I        .       .       .       .       .       S       .       .       .       .       .       .
122144 867I        .       .       .       .       .       S       .       .       .       .       .       .
122148 868I        .       .       .       .       .       S       .       .       .       .       .       .
122152 869I        .       .       .       .       .       S       .       .       .       .       .       .
122156 870I        .       .       .       .       .       S       .       .       .       .       .       .
122200 871I . . . . . . . . . . . . . . . . . . . . . . . . S . . . . . . . . . . . . . . . . . . . . . . . .
122204 872I        .       .       .       .       .       S       .       .       .       .       .       .
122208 873I        .       .       .       .       .       S       .       .       .       .       .       .
122212 874I        .       .       .       .       .       S       .       .       .       .       .       .
122216 875I        .       .       .       .       .       S       .       .       .       .       .       .
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122220 876I        .       .       .       .       .       S       .       .       .       .       .       .
122224 877I        .       .       .       .       .       S       .       .       .       .       .       .
122228 878I        .       .       .       .       .       S       .       .       .       .       .       .
122232 879I        .       .       .       .       .       S       .       .       .       .       .       .
122236 880I        .       .       .       .       .       S       .       .       .       .       .       .
122240 881I . . . . . . . . . . . . . . . . . . . . . . . . S . . . . . . . . . . . . . . . . . . . . . . . .
122244 882I        .       .       .       .       .       S       .       .       .       .       .       .
122248 883I        .       .       .       .       .       S       .       .       .       .       .       .
122252 884I        .       .       .       .       .       S       .       .       .       .       .       .
122256 885I        .       .       .       .       .       S       .       .       .       .       .       .
122300 886I        .       .       .       .       .       S       .       .       .       .       .       .
122304 887I        .       .       .       .       .       S       .       .       .       .       .       .
122308 888I        .       .       .       .       .       S       .       .       .       .       .       .
122312 889I        .       .       .       .       .       S       .       .       .       .       .       .
122316 890I        .       .       .       .       .       S       .       .       .       .       .       .
122320 891I . . . . . . . . . . . . . . . . . . . . . . . . S . . . . . . . . . . . . . . . . . . . . . . . .
122324 892I        .       .       .       .       .       S       .       .       .       .       .       .
122328 893I        .       .       .       .       .       S       .       .       .       .       .       .
122332 894I        .       .       .       .       .       S       .       .       .       .       .       .
122336 895I        .       .       .       .       .       S       .       .       .       .       .       .
122340 896I        .       .       .       .       .       S       .       .       .       .       .       .
122344 897I        .       .       .       .       .       S       .       .       .       .       .       .
122348 898I        .       .       .       .       .       S       .       .       .       .       .       .
122352 899I        .       .       .       .       .       S       .       .       .       .       .       .
122356 900I        .       .       .       .       .       S       .       .       .       .       .       .
130000 901I . . . . . . . . . . . . . . . . . . . . . . . . S . . . . . . . . . . . . . . . . . . . . . . . .
130004 902I        .       .       .       .       .       S       .       .       .       .       .       .
130008 903I        .       .       .       .       .       S       .       .       .       .       .       .
130012 904I        .       .       .       .       .       S       .       .       .       .       .       .
130016 905I        .       .       .       .       .       S       .       .       .       .       .       .
130020 906I        .       .       .       .       .       S       .       .       .       .       .       .
130024 907I        .       .       .       .       .       S       .       .       .       .       .       .
130028 908I        .       .       .       .       .       S       .       .       .       .       .       .
130032 909I        .       .       .       .       .       S       .       .       .       .       .       .
130036 910I        .       .       .       .       .       S       .       .       .       .       .       .
130040 911I . . . . . . . . . . . . . . . . . . . . . . . . S . . . . . . . . . . . . . . . . . . . . . . . .
130044 912I        .       .       .       .       .       S       .       .       .       .       .       .
130048 913I        .       .       .       .       .       S       .       .       .       .       .       .
130052 914I        .       .       .       .       .       S       .       .       .       .       .       .
130056 915I        .       .       .       .       .       S       .       .       .       .       .       .
130100 916I        .       .       .       .       .       S       .       .       .       .       .       .
130104 917I        .       .       .       .       .       S       .       .       .       .       .       .
130108 918I        .       .       .       .       .       S       .       .       .       .       .       .
130112 919I        .       .       .       .       .       S       .       .       .       .       .       .
130116 920I        .       .       .       .       .       S       .       .       .       .       .       .
130120 921I . . . . . . . . . . . . . . . . . . . . . . . . S . . . . . . . . . . . . . . . . . . . . . . . .
130124 922I        .       .       .       .       .       S       .       .       .       .       .       .
130128 923I        .       .       .       .       .       S       .       .       .       .       .       .
130132 924I        .       .       .       .       .       S       .       .       .       .       .       .
130136 925I        .       .       .       .       .       S       .       .       .       .       .       .
130140 926I        .       .       .       .       .       S       .       .       .       .       .       .
130144 927I        .       .       .       .       .       S       .       .       .       .       .       .
130148 928I        .       .       .       .       .       S       .       .       .       .       .       .
130152 929I        .       .       .       .       .       S       .       .       .       .       .       .
130156 930I        .       .       .       .       .       S       .       .       .       .       .       .
130200 931I . . . . . . . . . . . . . . . . . . . . . . . . S . . . . . . . . . . . . . . . . . . . . . . . .
130204 932I        .       .       .       .       .       S       .       .       .       .       .       .
130208 933I        .       .       .       .       .       S       .       .       .       .       .       .
130212 934I        .       .       .       .       .       S       .       .       .       .       .       .
130216 935I        .       .       .       .       .       S       .       .       .       .       .       .
130220 936I        .       .       .       .       .       S       .       .       .       .       .       .
130224 937I        .       .       .       .       .       S       .       .       .       .       .       .
130228 938I        .       .       .       .       .       S       .       .       .       .       .       .
130232 939I        .       .       .       .       .       S       .       .       .       .       .       .
130236 940I        .       .       .       .       .       S       .       .       .       .       .       .
130240 941I . . . . . . . . . . . . . . . . . . . . . . . . S . . . . . . . . . . . . . . . . . . . . . . . .
130244 942I        .       .       .       .       .       S       .       .       .       .       .       .
130248 943I        .       .       .       .       .       S       .       .       .       .       .       .
130252 944I        .       .       .       .       .       S       .       .       .       .       .       .
130256 945I        .       .       .       .       .       S       .       .       .       .       .       .
130300 946I        .       .       .       .       .       S       .       .       .       .       .       .
130304 947I        .       .       .       .       .       S       .       .       .       .       .       .
130308 948I        .       .       .       .       .       S       .       .       .       .       .       .
130312 949I        .       .       .       .       .       S       .       .       .       .       .       .
130316 950I        .       .       .       .       .       S       .       .       .       .       .       .
130320 951I . . . . . . . . . . . . . . . . . . . . . . . . S . . . . . . . . . . . . . . . . . . . . . . . .
130324 952I        .       .       .       .       .       S       .       .       .       .       .       .
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 130328 953I        .        .        .        .        .        S        .        .        .        .        .        .
 130332 954I        .        .        .        .        .        S        .        .        .        .        .        .
 130336 955I        .        .        .        .        .        S        .        .        .        .        .        .
 130340 956I        .        .        .        .        .        S        .        .        .        .        .        .
 130344 957I        .        .        .        .        .        S        .        .        .        .        .        .
 130348 958I        .        .        .        .        .        S        .        .        .        .        .        .
 130352 959I        .        .        .        .        .        S        .        .        .        .        .        .
 130356 960I        .        .        .        .        .        S        .        .        .        .        .        .
 130400 961I . . . . . . . . . . . . . . . . . . . . . . . . . . S . . . . . . . . . . . . . . . . . . . . . . . . . . .
 130404 962I        .        .        .        .        .        S        .        .        .        .        .        .
 130408 963I        .        .        .        .        .        S        .        .        .        .        .        .
 130412 964I        .        .        .        .        .        S        .        .        .        .        .        .
 130416 965I        .        .        .        .        .        S        .        .        .        .        .        .
 130420 966I        .        .        .        .        .        S        .        .        .        .        .        .
 130424 967I        .        .        .        .        .        S        .        .        .        .        .        .
 130428 968I        .        .        .        .        .        S        .        .        .        .        .        .
 130432 969I        .        .        .        .        .        S        .        .        .        .        .        .
 130436 970I        .        .        .        .        .        S        .        .        .        .        .        .
 130440 971I . . . . . . . . . . . . . . . . . . . . . . . . . . S . . . . . . . . . . . . . . . . . . . . . . . . . . .
 130444 972I        .        .        .        .        .        S        .        .        .        .        .        .
 130448 973I        .        .        .        .        .        S        .        .        .        .        .        .
 130452 974I        .        .        .        .        .        S        .        .        .        .        .        .
 130456 975I        .        .        .        .        .        S        .        .        .        .        .        .
 130500 976I        .        .        .        .        .        S        .        .        .        .        .        .
 130504 977I        .        .        .        .        .        S        .        .        .        .        .        .
 130508 978I        .        .        .        .        .        S        .        .        .        .        .        .
 130512 979I        .        .        .        .        .        S        .        .        .        .        .        .
 130516 980I        .        .        .        .        .        S        .        .        .        .        .        .
 130520 981I . . . . . . . . . . . . . . . . . . . . . . . . . . S . . . . . . . . . . . . . . . . . . . . . . . . . . .
 130524 982I        .        .        .        .        .        S        .        .        .        .        .        .
 130528 983I        .        .        .        .        .        S        .        .        .        .        .        .
 130532 984I        .        .        .        .        .        S        .        .        .        .        .        .
 130536 985I        .        .        .        .        .        S        .        .        .        .        .        .
 130540 986I        .        .        .        .        .        S        .        .        .        .        .        .
 130544 987I        .        .        .        .        .        S        .        .        .        .        .        .
 130548 988I        .        .        .        .        .        S        .        .        .        .        .        .
 130552 989I        .        .        .        .        .        S        .        .        .        .        .        .
 130556 990I        .        .        .        .        .        S        .        .        .        .        .        .
 130600 991I . . . . . . . . . . . . . . . . . . . . . . . . . . S . . . . . . . . . . . . . . . . . . . . . . . . . . .
 130604 992I        .        .        .        .        .        S        .        .        .        .        .        .
 130608 993I        .        .        .        .        .        S        .        .        .        .        .        .
 130612 994I        .        .        .        .        .        S        .        .        .        .        .        .
 130616 995I        .        .        .        .        .        S        .        .        .        .        .        .
 130620 996I        .        .        .        .        .        S        .        .        .        .        .        .
 130624 997I        .        .        .        .        .        S        .        .        .        .        .        .
 130628 998I        .        .        .        .        .        S        .        .        .        .        .        .
 130632 999I        .        .        .        .        .        S        .        .        .        .        .        .
 1306361000I---------.---------.---------.---------.---------.---------S---------.---------.---------.---------.---------.---------.
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           *            *
1101 KK    *     DIVCL  *
           *            *
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1103 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           1  PRINT CONTROL
                      IPLOT           2  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE

     DT          DIVERSION
                      ISTAD        DVCL  DIVERSION HYDROGRAPH IDENTIFICATION

     DI             INFLOW         .00     30.00   1000.00

     DQ      DIVERTED FLOW         .00     30.00     30.00

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DA MON HRMN	ORD	FLOW	DA MON HRMN	ORD	FLOW	DA MON HRMN	ORD	FLOW	DA MON HRMN	ORD	FLOW
10 OCT 1200	1	0.	11 OCT 0440	251	30.	11 OCT 2120	501	3.	12 OCT 1400	751	1.
10 OCT 1204	2	0.	11 OCT 0444	252	30.	11 OCT 2124	502	3.	12 OCT 1404	752	1.
10 OCT 1208	3	0.	11 OCT 0448	253	30.	11 OCT 2128	503	3.	12 OCT 1408	753	1.
10 OCT 1212	4	0.	11 OCT 0452	254	29.	11 OCT 2132	504	3.	12 OCT 1412	754	1.
10 OCT 1216	5	0.	11 OCT 0456	255	29.	11 OCT 2136	505	3.	12 OCT 1416	755	1.
10 OCT 1220	6	0.	11 OCT 0500	256	29.	11 OCT 2140	506	3.	12 OCT 1420	756	1.
10 OCT 1224	7	0.	11 OCT 0504	257	29.	11 OCT 2144	507	3.	12 OCT 1424	757	1.
10 OCT 1228	8	0.	11 OCT 0508	258	28.	11 OCT 2148	508	3.	12 OCT 1428	758	1.
10 OCT 1232	9	0.	11 OCT 0512	259	28.	11 OCT 2152	509	3.	12 OCT 1432	759	1.
10 OCT 1236	10	0.	11 OCT 0516	260	28.	11 OCT 2156	510	3.	12 OCT 1436	760	1.
10 OCT 1240	11	0.	11 OCT 0520	261	28.	11 OCT 2200	511	3.	12 OCT 1440	761	1.
10 OCT 1244	12	0.	11 OCT 0524	262	27.	11 OCT 2204	512	3.	12 OCT 1444	762	1.
10 OCT 1248	13	0.	11 OCT 0528	263	27.	11 OCT 2208	513	3.	12 OCT 1448	763	1.
10 OCT 1252	14	0.	11 OCT 0532	264	27.	11 OCT 2212	514	3.	12 OCT 1452	764	1.
10 OCT 1256	15	0.	11 OCT 0536	265	27.	11 OCT 2216	515	3.	12 OCT 1456	765	1.
10 OCT 1300	16	0.	11 OCT 0540	266	27.	11 OCT 2220	516	3.	12 OCT 1500	766	1.
10 OCT 1304	17	0.	11 OCT 0544	267	26.	11 OCT 2224	517	3.	12 OCT 1504	767	1.
10 OCT 1308	18	0.	11 OCT 0548	268	26.	11 OCT 2228	518	3.	12 OCT 1508	768	1.
10 OCT 1312	19	0.	11 OCT 0552	269	26.	11 OCT 2232	519	3.	12 OCT 1512	769	1.
10 OCT 1316	20	0.	11 OCT 0556	270	26.	11 OCT 2236	520	3.	12 OCT 1516	770	1.
10 OCT 1320	21	0.	11 OCT 0600	271	25.	11 OCT 2240	521	3.	12 OCT 1520	771	1.
10 OCT 1324	22	0.	11 OCT 0604	272	25.	11 OCT 2244	522	3.	12 OCT 1524	772	1.
10 OCT 1328	23	0.	11 OCT 0608	273	25.	11 OCT 2248	523	3.	12 OCT 1528	773	1.
10 OCT 1332	24	0.	11 OCT 0612	274	25.	11 OCT 2252	524	3.	12 OCT 1532	774	1.
10 OCT 1336	25	0.	11 OCT 0616	275	25.	11 OCT 2256	525	3.	12 OCT 1536	775	1.
10 OCT 1340	26	0.	11 OCT 0620	276	24.	11 OCT 2300	526	3.	12 OCT 1540	776	1.
10 OCT 1344	27	0.	11 OCT 0624	277	24.	11 OCT 2304	527	3.	12 OCT 1544	777	1.
10 OCT 1348	28	0.	11 OCT 0628	278	24.	11 OCT 2308	528	3.	12 OCT 1548	778	1.
10 OCT 1352	29	0.	11 OCT 0632	279	24.	11 OCT 2312	529	3.	12 OCT 1552	779	1.
10 OCT 1356	30	0.	11 OCT 0636	280	23.	11 OCT 2316	530	3.	12 OCT 1556	780	1.
10 OCT 1400	31	0.	11 OCT 0640	281	23.	11 OCT 2320	531	3.	12 OCT 1600	781	1.
10 OCT 1404	32	0.	11 OCT 0644	282	23.	11 OCT 2324	532	3.	12 OCT 1604	782	1.
10 OCT 1408	33	0.	11 OCT 0648	283	23.	11 OCT 2328	533	3.	12 OCT 1608	783	1.
10 OCT 1412	34	0.	11 OCT 0652	284	23.	11 OCT 2332	534	3.	12 OCT 1612	784	1.
10 OCT 1416	35	0.	11 OCT 0656	285	22.	11 OCT 2336	535	3.	12 OCT 1616	785	1.
10 OCT 1420	36	1.	11 OCT 0700	286	22.	11 OCT 2340	536	3.	12 OCT 1620	786	1.
10 OCT 1424	37	1.	11 OCT 0704	287	22.	11 OCT 2344	537	3.	12 OCT 1624	787	1.
10 OCT 1428	38	1.	11 OCT 0708	288	22.	11 OCT 2348	538	3.	12 OCT 1628	788	1.
10 OCT 1432	39	1.	11 OCT 0712	289	22.	11 OCT 2352	539	3.	12 OCT 1632	789	1.
10 OCT 1436	40	1.	11 OCT 0716	290	21.	11 OCT 2356	540	3.	12 OCT 1636	790	1.
10 OCT 1440	41	1.	11 OCT 0720	291	21.	12 OCT 0000	541	3.	12 OCT 1640	791	1.
10 OCT 1444	42	1.	11 OCT 0724	292	21.	12 OCT 0004	542	3.	12 OCT 1644	792	1.
10 OCT 1448	43	1.	11 OCT 0728	293	21.	12 OCT 0008	543	3.	12 OCT 1648	793	1.
10 OCT 1452	44	1.	11 OCT 0732	294	21.	12 OCT 0012	544	3.	12 OCT 1652	794	1.
10 OCT 1456	45	1.	11 OCT 0736	295	20.	12 OCT 0016	545	3.	12 OCT 1656	795	1.
10 OCT 1500	46	1.	11 OCT 0740	296	20.	12 OCT 0020	546	2.	12 OCT 1700	796	1.
10 OCT 1504	47	1.	11 OCT 0744	297	20.	12 OCT 0024	547	2.	12 OCT 1704	797	1.
10 OCT 1508	48	1.	11 OCT 0748	298	20.	12 OCT 0028	548	2.	12 OCT 1708	798	1.
10 OCT 1512	49	1.	11 OCT 0752	299	20.	12 OCT 0032	549	2.	12 OCT 1712	799	1.
10 OCT 1516	50	1.	11 OCT 0756	300	20.	12 OCT 0036	550	2.	12 OCT 1716	800	1.
10 OCT 1520	51	1.	11 OCT 0800	301	19.	12 OCT 0040	551	2.	12 OCT 1720	801	1.
10 OCT 1524	52	1.	11 OCT 0804	302	19.	12 OCT 0044	552	2.	12 OCT 1724	802	1.
10 OCT 1528	53	1.	11 OCT 0808	303	19.	12 OCT 0048	553	2.	12 OCT 1728	803	1.
10 OCT 1532	54	1.	11 OCT 0812	304	19.	12 OCT 0052	554	2.	12 OCT 1732	804	1.
10 OCT 1536	55	2.	11 OCT 0816	305	19.	12 OCT 0056	555	2.	12 OCT 1736	805	1.
10 OCT 1540	56	2.	11 OCT 0820	306	19.	12 OCT 0100	556	2.	12 OCT 1740	806	1.
10 OCT 1544	57	2.	11 OCT 0824	307	18.	12 OCT 0104	557	2.	12 OCT 1744	807	1.
10 OCT 1548	58	2.	11 OCT 0828	308	18.	12 OCT 0108	558	2.	12 OCT 1748	808	1.
10 OCT 1552	59	2.	11 OCT 0832	309	18.	12 OCT 0112	559	2.	12 OCT 1752	809	1.
10 OCT 1556	60	2.	11 OCT 0836	310	18.	12 OCT 0116	560	2.	12 OCT 1756	810	1.
10 OCT 1600	61	2.	11 OCT 0840	311	18.	12 OCT 0120	561	2.	12 OCT 1800	811	1.
10 OCT 1604	62	2.	11 OCT 0844	312	18.	12 OCT 0124	562	2.	12 OCT 1804	812	1.
10 OCT 1608	63	2.	11 OCT 0848	313	18.	12 OCT 0128	563	2.	12 OCT 1808	813	1.
10 OCT 1612	64	2.	11 OCT 0852	314	18.	12 OCT 0132	564	2.	12 OCT 1812	814	1.
10 OCT 1616	65	2.	11 OCT 0856	315	17.	12 OCT 0136	565	2.	12 OCT 1816	815	1.
10 OCT 1620	66	2.	11 OCT 0900	316	17.	12 OCT 0140	566	2.	12 OCT 1820	816	1.
10 OCT 1624	67	2.	11 OCT 0904	317	17.	12 OCT 0144	567	2.	12 OCT 1824	817	1.
10 OCT 1628	68	2.	11 OCT 0908	318	17.	12 OCT 0148	568	2.	12 OCT 1828	818	1.
10 OCT 1632	69	2.	11 OCT 0912	319	17.	12 OCT 0152	569	2.	12 OCT 1832	819	1.
10 OCT 1636	70	2.	11 OCT 0916	320	17.	12 OCT 0156	570	2.	12 OCT 1836	820	1.
10 OCT 1640	71	2.	11 OCT 0920	321	17.	12 OCT 0200	571	2.	12 OCT 1840	821	1.

10	OCT	1644	72	2.	*	11	OCT	0924	322	17.	*	12	OCT	0204	572	2.	*	12	OCT	1844	822	1.
10	OCT	1648	73	2.	*	11	OCT	0928	323	17.	*	12	OCT	0208	573	2.	*	12	OCT	1848	823	1.
10	OCT	1652	74	2.	*	11	OCT	0932	324	16.	*	12	OCT	0212	574	2.	*	12	OCT	1852	824	1.
10	OCT	1656	75	2.	*	11	OCT	0936	325	16.	*	12	OCT	0216	575	2.	*	12	OCT	1856	825	1.
10	OCT	1700	76	2.	*	11	OCT	0940	326	16.	*	12	OCT	0220	576	2.	*	12	OCT	1900	826	1.
10	OCT	1704	77	2.	*	11	OCT	0944	327	16.	*	12	OCT	0224	577	2.	*	12	OCT	1904	827	1.
10	OCT	1708	78	2.	*	11	OCT	0948	328	16.	*	12	OCT	0228	578	2.	*	12	OCT	1908	828	1.
10	OCT	1712	79	2.	*	11	OCT	0952	329	16.	*	12	OCT	0232	579	2.	*	12	OCT	1912	829	1.
10	OCT	1716	80	2.	*	11	OCT	0956	330	16.	*	12	OCT	0236	580	2.	*	12	OCT	1916	830	1.
10	OCT	1720	81	3.	*	11	OCT	1000	331	16.	*	12	OCT	0240	581	2.	*	12	OCT	1920	831	1.
10	OCT	1724	82	3.	*	11	OCT	1004	332	16.	*	12	OCT	0244	582	2.	*	12	OCT	1924	832	1.
10	OCT	1728	83	3.	*	11	OCT	1008	333	16.	*	12	OCT	0248	583	2.	*	12	OCT	1928	833	1.
10	OCT	1732	84	3.	*	11	OCT	1012	334	15.	*	12	OCT	0252	584	2.	*	12	OCT	1932	834	1.
10	OCT	1736	85	3.	*	11	OCT	1016	335	15.	*	12	OCT	0256	585	2.	*	12	OCT	1936	835	1.
10	OCT	1740	86	3.	*	11	OCT	1020	336	15.	*	12	OCT	0300	586	2.	*	12	OCT	1940	836	1.
10	OCT	1744	87	3.	*	11	OCT	1024	337	15.	*	12	OCT	0304	587	2.	*	12	OCT	1944	837	1.
10	OCT	1748	88	3.	*	11	OCT	1028	338	15.	*	12	OCT	0308	588	2.	*	12	OCT	1948	838	1.
10	OCT	1752	89	4.	*	11	OCT	1032	339	15.	*	12	OCT	0312	589	2.	*	12	OCT	1952	839	1.
10	OCT	1756	90	4.	*	11	OCT	1036	340	15.	*	12	OCT	0316	590	2.	*	12	OCT	1956	840	1.
10	OCT	1800	91	4.	*	11	OCT	1040	341	15.	*	12	OCT	0320	591	2.	*	12	OCT	2000	841	1.
10	OCT	1804	92	4.	*	11	OCT	1044	342	15.	*	12	OCT	0324	592	2.	*	12	OCT	2004	842	1.
10	OCT	1808	93	4.	*	11	OCT	1048	343	15.	*	12	OCT	0328	593	2.	*	12	OCT	2008	843	1.
10	OCT	1812	94	4.	*	11	OCT	1052	344	14.	*	12	OCT	0332	594	2.	*	12	OCT	2012	844	1.
10	OCT	1816	95	4.	*	11	OCT	1056	345	14.	*	12	OCT	0336	595	2.	*	12	OCT	2016	845	1.
10	OCT	1820	96	4.	*	11	OCT	1100	346	14.	*	12	OCT	0340	596	2.	*	12	OCT	2020	846	1.
10	OCT	1824	97	4.	*	11	OCT	1104	347	14.	*	12	OCT	0344	597	2.	*	12	OCT	2024	847	1.
10	OCT	1828	98	4.	*	11	OCT	1108	348	14.	*	12	OCT	0348	598	2.	*	12	OCT	2028	848	1.
10	OCT	1832	99	4.	*	11	OCT	1112	349	14.	*	12	OCT	0352	599	2.	*	12	OCT	2032	849	1.
10	OCT	1836	100	4.	*	11	OCT	1116	350	14.	*	12	OCT	0356	600	2.	*	12	OCT	2036	850	1.
10	OCT	1840	101	4.	*	11	OCT	1120	351	14.	*	12	OCT	0400	601	2.	*	12	OCT	2040	851	1.
10	OCT	1844	102	4.	*	11	OCT	1124	352	14.	*	12	OCT	0404	602	2.	*	12	OCT	2044	852	1.
10	OCT	1848	103	4.	*	11	OCT	1128	353	14.	*	12	OCT	0408	603	2.	*	12	OCT	2048	853	1.
10	OCT	1852	104	4.	*	11	OCT	1132	354	14.	*	12	OCT	0412	604	2.	*	12	OCT	2052	854	1.
10	OCT	1856	105	4.	*	11	OCT	1136	355	14.	*	12	OCT	0416	605	2.	*	12	OCT	2056	855	1.
10	OCT	1900	106	4.	*	11	OCT	1140	356	13.	*	12	OCT	0420	606	2.	*	12	OCT	2100	856	1.
10	OCT	1904	107	4.	*	11	OCT	1144	357	13.	*	12	OCT	0424	607	2.	*	12	OCT	2104	857	1.
10	OCT	1908	108	4.	*	11	OCT	1148	358	13.	*	12	OCT	0428	608	2.	*	12	OCT	2108	858	1.
10	OCT	1912	109	4.	*	11	OCT	1152	359	13.	*	12	OCT	0432	609	2.	*	12	OCT	2112	859	1.
10	OCT	1916	110	4.	*	11	OCT	1156	360	13.	*	12	OCT	0436	610	2.	*	12	OCT	2116	860	1.
10	OCT	1920	111	4.	*	11	OCT	1200	361	13.	*	12	OCT	0440	611	2.	*	12	OCT	2120	861	1.
10	OCT	1924	112	4.	*	11	OCT	1204	362	13.	*	12	OCT	0444	612	2.	*	12	OCT	2124	862	1.
10	OCT	1928	113	4.	*	11	OCT	1208	363	13.	*	12	OCT	0448	613	2.	*	12	OCT	2128	863	1.
10	OCT	1932	114	4.	*	11	OCT	1212	364	13.	*	12	OCT	0452	614	2.	*	12	OCT	2132	864	1.
10	OCT	1936	115	4.	*	11	OCT	1216	365	13.	*	12	OCT	0456	615	2.	*	12	OCT	2136	865	1.
10	OCT	1940	116	4.	*	11	OCT	1220	366	13.	*	12	OCT	0500	616	2.	*	12	OCT	2140	866	1.
10	OCT	1944	117	3.	*	11	OCT	1224	367	13.	*	12	OCT	0504	617	2.	*	12	OCT	2144	867	1.
10	OCT	1948	118	3.	*	11	OCT	1228	368	12.	*	12	OCT	0508	618	2.	*	12	OCT	2148	868	1.
10	OCT	1952	119	3.	*	11	OCT	1232	369	12.	*	12	OCT	0512	619	2.	*	12	OCT	2152	869	1.
10	OCT	1956	120	3.	*	11	OCT	1236	370	12.	*	12	OCT	0516	620	2.	*	12	OCT	2156	870	1.
10	OCT	2000	121	3.	*	11	OCT	1240	371	12.	*	12	OCT	0520	621	2.	*	12	OCT	2200	871	1.
10	OCT	2004	122	3.	*	11	OCT	1244	372	12.	*	12	OCT	0524	622	2.	*	12	OCT	2204	872	1.
10	OCT	2008	123	3.	*	11	OCT	1248	373	12.	*	12	OCT	0528	623	2.	*	12	OCT	2208	873	1.
10	OCT	2012	124	3.	*	11	OCT	1252	374	12.	*	12	OCT	0532	624	2.	*	12	OCT	2212	874	1.
10	OCT	2016	125	3.	*	11	OCT	1256	375	12.	*	12	OCT	0536	625	2.	*	12	OCT	2216	875	1.
10	OCT	2020	126	3.	*	11	OCT	1300	376	12.	*	12	OCT	0540	626	2.	*	12	OCT	2220	876	1.
10	OCT	2024	127	3.	*	11	OCT	1304	377	12.	*	12	OCT	0544	627	2.	*	12	OCT	2224	877	1.
10	OCT	2028	128	3.	*	11	OCT	1308	378	12.	*	12	OCT	0548	628	2.	*	12	OCT	2228	878	1.
10	OCT	2032	129	3.	*	11	OCT	1312	379	12.	*	12	OCT	0552	629	2.	*	12	OCT	2232	879	1.
10	OCT	2036	130	3.	*	11	OCT	1316	380	12.	*	12	OCT	0556	630	2.	*	12	OCT	2236	880	1.
10	OCT	2040	131	3.	*	11	OCT	1320	381	12.	*	12	OCT	0600	631	2.	*	12	OCT	2240	881	0.
10	OCT	2044	132	3.	*	11	OCT	1324	382	11.	*	12	OCT	0604	632	2.	*	12	OCT	2244	882	0.
10	OCT	2048	133	3.	*	11	OCT	1328	383	11.	*	12	OCT	0608	633	2.	*	12	OCT	2248	883	0.
10	OCT	2052	134	3.	*	11	OCT	1332	384	11.	*	12	OCT	0612	634	2.	*	12	OCT	2252	884	0.
10	OCT	2056	135	3.	*	11	OCT	1336	385	11.	*	12	OCT	0616	635	2.	*	12	OCT	2256	885	0.
10	OCT	2100	136	3.	*	11	OCT	1340	386	11.	*	12	OCT	0620	636	2.	*	12	OCT	2300	886	0.
10	OCT	2104	137	3.	*	11	OCT	1344	387	11.	*	12	OCT	0624	637	2.	*	12	OCT	2304	887	0.
10	OCT	2108	138	3.	*	11	OCT	1348	388	11.	*	12	OCT	0628	638	2.	*	12	OCT	2308	888	0.
10	OCT	2112	139	3.	*	11	OCT	1352	389	11.	*	12	OCT	0632	639	2.	*	12	OCT	2312	889	0.
10	OCT	2116	140	3.	*	11	OCT	1356	390	11.	*	12	OCT	0636	640	2.	*	12	OCT	2316	890	0.
10	OCT	2120	141	3.	*	11	OCT	1400	391	11.	*	12	OCT	0640	641	2.	*	12	OCT	2320	891	0.
10	OCT	2124	142	3.	*	11	OCT	1404	392	10.	*	12	OCT	0644	642	2.	*	12	OCT	2324	892	0.
10	OCT	2128	143	3.	*	11	OCT	1408	393	10.	*	12	OCT	0648	643	2.	*	12	OCT	2328	893	0.
10	OCT	2132	144	3.	*	11	OCT	1412	394	10.	*	12	OCT	0652	644	2.	*	12	OCT	2332	894	0.
10	OCT	2136	145	3.	*	11	OCT	1416	395	10.	*	12	OCT	0656	645	2.	*	12	OCT	2336	895	0.
10	OCT	2140	146	3.	*	11	OCT	1420	396	10.	*	12	OCT	0700	646	2.	*	12	OCT	2340	896	0.
10	OCT	2144	147	3.	*	11	OCT	1424	397	10.	*	12	OCT	0704	647	2.	*	12	OCT	2344	897	0.
10	OCT	2148	148	3.	*	11	OCT	1428	398	10.	*	12	OCT	0708	648	2.	*	12	OCT	2348	898	0.

10	OCT	2152	149	3.	*	11	OCT	1432	399	10.	*	12	OCT	0712	649	2.	*	12	OCT	2352	899	0.
10	OCT	2156	150	3.	*	11	OCT	1436	400	9.	*	12	OCT	0716	650	2.	*	12	OCT	2356	900	0.
10	OCT	2200	151	3.	*	11	OCT	1440	401	9.	*	12	OCT	0720	651	2.	*	13	OCT	0000	901	0.
10	OCT	2204	152	3.	*	11	OCT	1444	402	9.	*	12	OCT	0724	652	2.	*	13	OCT	0004	902	0.
10	OCT	2208	153	3.	*	11	OCT	1448	403	9.	*	12	OCT	0728	653	2.	*	13	OCT	0008	903	0.
10	OCT	2212	154	3.	*	11	OCT	1452	404	9.	*	12	OCT	0732	654	2.	*	13	OCT	0012	904	0.
10	OCT	2216	155	3.	*	11	OCT	1456	405	9.	*	12	OCT	0736	655	2.	*	13	OCT	0016	905	0.
10	OCT	2220	156	3.	*	11	OCT	1500	406	9.	*	12	OCT	0740	656	2.	*	13	OCT	0020	906	0.
10	OCT	2224	157	3.	*	11	OCT	1504	407	9.	*	12	OCT	0744	657	2.	*	13	OCT	0024	907	0.
10	OCT	2228	158	3.	*	11	OCT	1508	408	8.	*	12	OCT	0748	658	1.	*	13	OCT	0028	908	0.
10	OCT	2232	159	3.	*	11	OCT	1512	409	8.	*	12	OCT	0752	659	1.	*	13	OCT	0032	909	0.
10	OCT	2236	160	3.	*	11	OCT	1516	410	8.	*	12	OCT	0756	660	1.	*	13	OCT	0036	910	0.
10	OCT	2240	161	4.	*	11	OCT	1520	411	8.	*	12	OCT	0800	661	1.	*	13	OCT	0040	911	0.
10	OCT	2244	162	4.	*	11	OCT	1524	412	8.	*	12	OCT	0804	662	1.	*	13	OCT	0044	912	0.
10	OCT	2248	163	4.	*	11	OCT	1528	413	8.	*	12	OCT	0808	663	1.	*	13	OCT	0048	913	0.
10	OCT	2252	164	4.	*	11	OCT	1532	414	8.	*	12	OCT	0812	664	1.	*	13	OCT	0052	914	0.
10	OCT	2256	165	5.	*	11	OCT	1536	415	8.	*	12	OCT	0816	665	1.	*	13	OCT	0056	915	0.
10	OCT	2300	166	5.	*	11	OCT	1540	416	7.	*	12	OCT	0820	666	1.	*	13	OCT	0100	916	0.
10	OCT	2304	167	5.	*	11	OCT	1544	417	7.	*	12	OCT	0824	667	1.	*	13	OCT	0104	917	0.
10	OCT	2308	168	5.	*	11	OCT	1548	418	7.	*	12	OCT	0828	668	1.	*	13	OCT	0108	918	0.
10	OCT	2312	169	5.	*	11	OCT	1552	419	7.	*	12	OCT	0832	669	1.	*	13	OCT	0112	919	0.
10	OCT	2316	170	6.	*	11	OCT	1556	420	7.	*	12	OCT	0836	670	1.	*	13	OCT	0116	920	0.
10	OCT	2320	171	6.	*	11	OCT	1600	421	7.	*	12	OCT	0840	671	1.	*	13	OCT	0120	921	0.
10	OCT	2324	172	6.	*	11	OCT	1604	422	7.	*	12	OCT	0844	672	1.	*	13	OCT	0124	922	0.
10	OCT	2328	173	6.	*	11	OCT	1608	423	7.	*	12	OCT	0848	673	1.	*	13	OCT	0128	923	0.
10	OCT	2332	174	7.	*	11	OCT	1612	424	7.	*	12	OCT	0852	674	1.	*	13	OCT	0132	924	0.
10	OCT	2336	175	8.	*	11	OCT	1616	425	7.	*	12	OCT	0856	675	1.	*	13	OCT	0136	925	0.
10	OCT	2340	176	10.	*	11	OCT	1620	426	7.	*	12	OCT	0900	676	1.	*	13	OCT	0140	926	0.
10	OCT	2344	177	11.	*	11	OCT	1624	427	7.	*	12	OCT	0904	677	1.	*	13	OCT	0144	927	0.
10	OCT	2348	178	12.	*	11	OCT	1628	428	7.	*	12	OCT	0908	678	1.	*	13	OCT	0148	928	0.
10	OCT	2352	179	13.	*	11	OCT	1632	429	7.	*	12	OCT	0912	679	1.	*	13	OCT	0152	929	0.
10	OCT	2356	180	30.	*	11	OCT	1636	430	7.	*	12	OCT	0916	680	1.	*	13	OCT	0156	930	0.
11	OCT	0000	181	30.	*	11	OCT	1640	431	7.	*	12	OCT	0920	681	1.	*	13	OCT	0200	931	0.
11	OCT	0004	182	30.	*	11	OCT	1644	432	7.	*	12	OCT	0924	682	1.	*	13	OCT	0204	932	0.
11	OCT	0008	183	30.	*	11	OCT	1648	433	7.	*	12	OCT	0928	683	1.	*	13	OCT	0208	933	0.
11	OCT	0012	184	30.	*	11	OCT	1652	434	6.	*	12	OCT	0932	684	1.	*	13	OCT	0212	934	0.
11	OCT	0016	185	30.	*	11	OCT	1656	435	6.	*	12	OCT	0936	685	1.	*	13	OCT	0216	935	0.
11	OCT	0020	186	30.	*	11	OCT	1700	436	6.	*	12	OCT	0940	686	1.	*	13	OCT	0220	936	0.
11	OCT	0024	187	30.	*	11	OCT	1704	437	6.	*	12	OCT	0944	687	1.	*	13	OCT	0224	937	0.
11	OCT	0028	188	30.	*	11	OCT	1708	438	6.	*	12	OCT	0948	688	1.	*	13	OCT	0228	938	0.
11	OCT	0032	189	30.	*	11	OCT	1712	439	6.	*	12	OCT	0952	689	1.	*	13	OCT	0232	939	0.
11	OCT	0036	190	30.	*	11	OCT	1716	440	6.	*	12	OCT	0956	690	1.	*	13	OCT	0236	940	0.
11	OCT	0040	191	30.	*	11	OCT	1720	441	6.	*	12	OCT	1000	691	1.	*	13	OCT	0240	941	0.
11	OCT	0044	192	30.	*	11	OCT	1724	442	6.	*	12	OCT	1004	692	1.	*	13	OCT	0244	942	0.
11	OCT	0048	193	30.	*	11	OCT	1728	443	6.	*	12	OCT	1008	693	1.	*	13	OCT	0248	943	0.
11	OCT	0052	194	30.	*	11	OCT	1732	444	6.	*	12	OCT	1012	694	1.	*	13	OCT	0252	944	0.
11	OCT	0056	195	30.	*	11	OCT	1736	445	6.	*	12	OCT	1016	695	1.	*	13	OCT	0256	945	0.
11	OCT	0100	196	30.	*	11	OCT	1740	446	5.	*	12	OCT	1020	696	1.	*	13	OCT	0300	946	0.
11	OCT	0104	197	30.	*	11	OCT	1744	447	5.	*	12	OCT	1024	697	1.	*	13	OCT	0304	947	0.
11	OCT	0108	198	30.	*	11	OCT	1748	448	5.	*	12	OCT	1028	698	1.	*	13	OCT	0308	948	0.
11	OCT	0112	199	30.	*	11	OCT	1752	449	5.	*	12	OCT	1032	699	1.	*	13	OCT	0312	949	0.
11	OCT	0116	200	30.	*	11	OCT	1756	450	5.	*	12	OCT	1036	700	1.	*	13	OCT	0316	950	0.
11	OCT	0120	201	30.	*	11	OCT	1800	451	5.	*	12	OCT	1040	701	1.	*	13	OCT	0320	951	0.
11	OCT	0124	202	30.	*	11	OCT	1804	452	5.	*	12	OCT	1044	702	1.	*	13	OCT	0324	952	0.
11	OCT	0128	203	30.	*	11	OCT	1808	453	5.	*	12	OCT	1048	703	1.	*	13	OCT	0328	953	0.
11	OCT	0132	204	30.	*	11	OCT	1812	454	5.	*	12	OCT	1052	704	1.	*	13	OCT	0332	954	0.
11	OCT	0136	205	30.	*	11	OCT	1816	455	5.	*	12	OCT	1056	705	1.	*	13	OCT	0336	955	0.
11	OCT	0140	206	30.	*	11	OCT	1820	456	5.	*	12	OCT	1100	706	1.	*	13	OCT	0340	956	0.
11	OCT	0144	207	30.	*	11	OCT	1824	457	5.	*	12	OCT	1104	707	1.	*	13	OCT	0344	957	0.
11	OCT	0148	208	30.	*	11	OCT	1828	458	4.	*	12	OCT	1108	708	1.	*	13	OCT	0348	958	0.
11	OCT	0152	209	30.	*	11	OCT	1832	459	4.	*	12	OCT	1112	709	1.	*	13	OCT	0352	959	0.
11	OCT	0156	210	30.	*	11	OCT	1836	460	4.	*	12	OCT	1116	710	1.	*	13	OCT	0356	960	0.
11	OCT	0200	211	30.	*	11	OCT	1840	461	4.	*	12	OCT	1120	711	1.	*	13	OCT	0400	961	0.
11	OCT	0204	212	30.	*	11	OCT	1844	462	4.	*	12	OCT	1124	712	1.	*	13	OCT	0404	962	0.
11	OCT	0208	213	30.	*	11	OCT	1848	463	4.	*	12	OCT	1128	713	1.	*	13	OCT	0408	963	0.
11	OCT	0212	214	30.	*	11	OCT	1852	464	4.	*	12	OCT	1132	714	1.	*	13	OCT	0412	964	0.
11	OCT	0216	215	30.	*	11	OCT	1856	465	4.	*	12	OCT	1136	715	1.	*	13	OCT	0416	965	0.
11	OCT	0220	216	30.	*	11	OCT	1900	466	4.	*	12	OCT	1140	716	1.	*	13	OCT	0420	966	0.
11	OCT	0224	217	30.	*	11	OCT	1904	467	4.	*	12	OCT	1144	717	1.	*	13	OCT	0424	967	0.
11	OCT	0228	218	30.	*	11	OCT	1908	468	4.	*	12	OCT	1148	718	1.	*	13	OCT	0428	968	0.
11	OCT	0232	219	30.	*	11	OCT	1912	469	4.	*	12	OCT	1152	719	1.	*	13	OCT	0432	969	0.
11	OCT	0236	220	30.	*	11	OCT	1916	470	4.	*	12	OCT	1156	720	1.	*	13	OCT	0436	970	0.
11	OCT	0240	221	30.	*	11	OCT	1920	471	4.	*	12	OCT	1200	721	1.	*	13	OCT	0440	971	0.
11	OCT	0244	222	30.	*	11	OCT	1924	472	4.	*	12	OCT	1204	722	1.	*	13	OCT	0444	972	0.
11	OCT	0248	223	30.	*	11	OCT	1928	473	4.	*	12	OCT	1208	723	1.	*	13	OCT	0448	973	0.
11	OCT	0252	224	30.	*	11	OCT	1932	474	4.	*	12	OCT	1212	724	1.	*	13	OCT	0452	974	0.
11	OCT	0256	225	30.	*	11	OCT	1936	475	4.	*	12	OCT	1216	725	1.	*	13	OCT	0456	975	0.

11 OCT 0300	226	30.	*	11 OCT 1940	476	3.	*	12 OCT 1220	726	1.	*	13 OCT 0500	976	0.
11 OCT 0304	227	30.	*	11 OCT 1944	477	3.	*	12 OCT 1224	727	1.	*	13 OCT 0504	977	0.
11 OCT 0308	228	30.	*	11 OCT 1948	478	3.	*	12 OCT 1228	728	1.	*	13 OCT 0508	978	0.
11 OCT 0312	229	30.	*	11 OCT 1952	479	3.	*	12 OCT 1232	729	1.	*	13 OCT 0512	979	0.
11 OCT 0316	230	30.	*	11 OCT 1956	480	3.	*	12 OCT 1236	730	1.	*	13 OCT 0516	980	0.
11 OCT 0320	231	30.	*	11 OCT 2000	481	3.	*	12 OCT 1240	731	1.	*	13 OCT 0520	981	0.
11 OCT 0324	232	30.	*	11 OCT 2004	482	3.	*	12 OCT 1244	732	1.	*	13 OCT 0524	982	0.
11 OCT 0328	233	30.	*	11 OCT 2008	483	3.	*	12 OCT 1248	733	1.	*	13 OCT 0528	983	0.
11 OCT 0332	234	30.	*	11 OCT 2012	484	3.	*	12 OCT 1252	734	1.	*	13 OCT 0532	984	0.
11 OCT 0336	235	30.	*	11 OCT 2016	485	3.	*	12 OCT 1256	735	1.	*	13 OCT 0536	985	0.
11 OCT 0340	236	30.	*	11 OCT 2020	486	3.	*	12 OCT 1300	736	1.	*	13 OCT 0540	986	0.
11 OCT 0344	237	30.	*	11 OCT 2024	487	3.	*	12 OCT 1304	737	1.	*	13 OCT 0544	987	0.
11 OCT 0348	238	30.	*	11 OCT 2028	488	3.	*	12 OCT 1308	738	1.	*	13 OCT 0548	988	0.
11 OCT 0352	239	30.	*	11 OCT 2032	489	3.	*	12 OCT 1312	739	1.	*	13 OCT 0552	989	0.
11 OCT 0356	240	30.	*	11 OCT 2036	490	3.	*	12 OCT 1316	740	1.	*	13 OCT 0556	990	0.
11 OCT 0400	241	30.	*	11 OCT 2040	491	3.	*	12 OCT 1320	741	1.	*	13 OCT 0600	991	0.
11 OCT 0404	242	30.	*	11 OCT 2044	492	3.	*	12 OCT 1324	742	1.	*	13 OCT 0604	992	0.
11 OCT 0408	243	30.	*	11 OCT 2048	493	3.	*	12 OCT 1328	743	1.	*	13 OCT 0608	993	0.
11 OCT 0412	244	30.	*	11 OCT 2052	494	3.	*	12 OCT 1332	744	1.	*	13 OCT 0612	994	0.
11 OCT 0416	245	30.	*	11 OCT 2056	495	3.	*	12 OCT 1336	745	1.	*	13 OCT 0616	995	0.
11 OCT 0420	246	30.	*	11 OCT 2100	496	3.	*	12 OCT 1340	746	1.	*	13 OCT 0620	996	0.
11 OCT 0424	247	30.	*	11 OCT 2104	497	3.	*	12 OCT 1344	747	1.	*	13 OCT 0624	997	0.
11 OCT 0428	248	30.	*	11 OCT 2108	498	3.	*	12 OCT 1348	748	1.	*	13 OCT 0628	998	0.
11 OCT 0432	249	30.	*	11 OCT 2112	499	3.	*	12 OCT 1352	749	1.	*	13 OCT 0632	999	0.
11 OCT 0436	250	30.	*	11 OCT 2116	500	3.	*	12 OCT 1356	750	1.	*	13 OCT 0636	1000	0.

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	66.60-HR
+ (CFS)	(HR)				
		(CFS)			
+ 30.	11.93	30.	15.	6.	6.
		(INCHES) .026	.053	.062	.062
		(AC-FT) 15.	30.	35.	35.

CUMULATIVE AREA = 10.67 SQ MI

HYDROGRAPH AT STATION DIVCL

DA MON HRMN	ORD	FLOW	*	DA MON HRMN	ORD	FLOW	*	DA MON HRMN	ORD	FLOW	*	DA MON HRMN	ORD	FLOW
10 OCT 1200	1	0.	*	11 OCT 0440	251	0.	*	11 OCT 2120	501	0.	*	12 OCT 1400	751	0.
10 OCT 1204	2	0.	*	11 OCT 0444	252	0.	*	11 OCT 2124	502	0.	*	12 OCT 1404	752	0.
10 OCT 1208	3	0.	*	11 OCT 0448	253	0.	*	11 OCT 2128	503	0.	*	12 OCT 1408	753	0.
10 OCT 1212	4	0.	*	11 OCT 0452	254	0.	*	11 OCT 2132	504	0.	*	12 OCT 1412	754	0.
10 OCT 1216	5	0.	*	11 OCT 0456	255	0.	*	11 OCT 2136	505	0.	*	12 OCT 1416	755	0.
10 OCT 1220	6	0.	*	11 OCT 0500	256	0.	*	11 OCT 2140	506	0.	*	12 OCT 1420	756	0.
10 OCT 1224	7	0.	*	11 OCT 0504	257	0.	*	11 OCT 2144	507	0.	*	12 OCT 1424	757	0.
10 OCT 1228	8	0.	*	11 OCT 0508	258	0.	*	11 OCT 2148	508	0.	*	12 OCT 1428	758	0.
10 OCT 1232	9	0.	*	11 OCT 0512	259	0.	*	11 OCT 2152	509	0.	*	12 OCT 1432	759	0.
10 OCT 1236	10	0.	*	11 OCT 0516	260	0.	*	11 OCT 2156	510	0.	*	12 OCT 1436	760	0.
10 OCT 1240	11	0.	*	11 OCT 0520	261	0.	*	11 OCT 2200	511	0.	*	12 OCT 1440	761	0.
10 OCT 1244	12	0.	*	11 OCT 0524	262	0.	*	11 OCT 2204	512	0.	*	12 OCT 1444	762	0.
10 OCT 1248	13	0.	*	11 OCT 0528	263	0.	*	11 OCT 2208	513	0.	*	12 OCT 1448	763	0.
10 OCT 1252	14	0.	*	11 OCT 0532	264	0.	*	11 OCT 2212	514	0.	*	12 OCT 1452	764	0.
10 OCT 1256	15	0.	*	11 OCT 0536	265	0.	*	11 OCT 2216	515	0.	*	12 OCT 1456	765	0.
10 OCT 1300	16	0.	*	11 OCT 0540	266	0.	*	11 OCT 2220	516	0.	*	12 OCT 1500	766	0.
10 OCT 1304	17	0.	*	11 OCT 0544	267	0.	*	11 OCT 2224	517	0.	*	12 OCT 1504	767	0.
10 OCT 1308	18	0.	*	11 OCT 0548	268	0.	*	11 OCT 2228	518	0.	*	12 OCT 1508	768	0.
10 OCT 1312	19	0.	*	11 OCT 0552	269	0.	*	11 OCT 2232	519	0.	*	12 OCT 1512	769	0.
10 OCT 1316	20	0.	*	11 OCT 0556	270	0.	*	11 OCT 2236	520	0.	*	12 OCT 1516	770	0.
10 OCT 1320	21	0.	*	11 OCT 0600	271	0.	*	11 OCT 2240	521	0.	*	12 OCT 1520	771	0.
10 OCT 1324	22	0.	*	11 OCT 0604	272	0.	*	11 OCT 2244	522	0.	*	12 OCT 1524	772	0.
10 OCT 1328	23	0.	*	11 OCT 0608	273	0.	*	11 OCT 2248	523	0.	*	12 OCT 1528	773	0.
10 OCT 1332	24	0.	*	11 OCT 0612	274	0.	*	11 OCT 2252	524	0.	*	12 OCT 1532	774	0.
10 OCT 1336	25	0.	*	11 OCT 0616	275	0.	*	11 OCT 2256	525	0.	*	12 OCT 1536	775	0.
10 OCT 1340	26	0.	*	11 OCT 0620	276	0.	*	11 OCT 2300	526	0.	*	12 OCT 1540	776	0.
10 OCT 1344	27	0.	*	11 OCT 0624	277	0.	*	11 OCT 2304	527	0.	*	12 OCT 1544	777	0.
10 OCT 1348	28	0.	*	11 OCT 0628	278	0.	*	11 OCT 2308	528	0.	*	12 OCT 1548	778	0.
10 OCT 1352	29	0.	*	11 OCT 0632	279	0.	*	11 OCT 2312	529	0.	*	12 OCT 1552	779	0.
10 OCT 1356	30	0.	*	11 OCT 0636	280	0.	*	11 OCT 2316	530	0.	*	12 OCT 1556	780	0.

10	OCT	1400	31	0.	*	11	OCT	0640	281	0.	*	11	OCT	2320	531	0.	*	12	OCT	1600	781	0.
10	OCT	1404	32	0.	*	11	OCT	0644	282	0.	*	11	OCT	2324	532	0.	*	12	OCT	1604	782	0.
10	OCT	1408	33	0.	*	11	OCT	0648	283	0.	*	11	OCT	2328	533	0.	*	12	OCT	1608	783	0.
10	OCT	1412	34	0.	*	11	OCT	0652	284	0.	*	11	OCT	2332	534	0.	*	12	OCT	1612	784	0.
10	OCT	1416	35	0.	*	11	OCT	0656	285	0.	*	11	OCT	2336	535	0.	*	12	OCT	1616	785	0.
10	OCT	1420	36	0.	*	11	OCT	0700	286	0.	*	11	OCT	2340	536	0.	*	12	OCT	1620	786	0.
10	OCT	1424	37	0.	*	11	OCT	0704	287	0.	*	11	OCT	2344	537	0.	*	12	OCT	1624	787	0.
10	OCT	1428	38	0.	*	11	OCT	0708	288	0.	*	11	OCT	2348	538	0.	*	12	OCT	1628	788	0.
10	OCT	1432	39	0.	*	11	OCT	0712	289	0.	*	11	OCT	2352	539	0.	*	12	OCT	1632	789	0.
10	OCT	1436	40	0.	*	11	OCT	0716	290	0.	*	11	OCT	2356	540	0.	*	12	OCT	1636	790	0.
10	OCT	1440	41	0.	*	11	OCT	0720	291	0.	*	12	OCT	0000	541	0.	*	12	OCT	1640	791	0.
10	OCT	1444	42	0.	*	11	OCT	0724	292	0.	*	12	OCT	0004	542	0.	*	12	OCT	1644	792	0.
10	OCT	1448	43	0.	*	11	OCT	0728	293	0.	*	12	OCT	0008	543	0.	*	12	OCT	1648	793	0.
10	OCT	1452	44	0.	*	11	OCT	0732	294	0.	*	12	OCT	0012	544	0.	*	12	OCT	1652	794	0.
10	OCT	1456	45	0.	*	11	OCT	0736	295	0.	*	12	OCT	0016	545	0.	*	12	OCT	1656	795	0.
10	OCT	1500	46	0.	*	11	OCT	0740	296	0.	*	12	OCT	0020	546	0.	*	12	OCT	1700	796	0.
10	OCT	1504	47	0.	*	11	OCT	0744	297	0.	*	12	OCT	0024	547	0.	*	12	OCT	1704	797	0.
10	OCT	1508	48	0.	*	11	OCT	0748	298	0.	*	12	OCT	0028	548	0.	*	12	OCT	1708	798	0.
10	OCT	1512	49	0.	*	11	OCT	0752	299	0.	*	12	OCT	0032	549	0.	*	12	OCT	1712	799	0.
10	OCT	1516	50	0.	*	11	OCT	0756	300	0.	*	12	OCT	0036	550	0.	*	12	OCT	1716	800	0.
10	OCT	1520	51	0.	*	11	OCT	0800	301	0.	*	12	OCT	0040	551	0.	*	12	OCT	1720	801	0.
10	OCT	1524	52	0.	*	11	OCT	0804	302	0.	*	12	OCT	0044	552	0.	*	12	OCT	1724	802	0.
10	OCT	1528	53	0.	*	11	OCT	0808	303	0.	*	12	OCT	0048	553	0.	*	12	OCT	1728	803	0.
10	OCT	1532	54	0.	*	11	OCT	0812	304	0.	*	12	OCT	0052	554	0.	*	12	OCT	1732	804	0.
10	OCT	1536	55	0.	*	11	OCT	0816	305	0.	*	12	OCT	0056	555	0.	*	12	OCT	1736	805	0.
10	OCT	1540	56	0.	*	11	OCT	0820	306	0.	*	12	OCT	0100	556	0.	*	12	OCT	1740	806	0.
10	OCT	1544	57	0.	*	11	OCT	0824	307	0.	*	12	OCT	0104	557	0.	*	12	OCT	1744	807	0.
10	OCT	1548	58	0.	*	11	OCT	0828	308	0.	*	12	OCT	0108	558	0.	*	12	OCT	1748	808	0.
10	OCT	1552	59	0.	*	11	OCT	0832	309	0.	*	12	OCT	0112	559	0.	*	12	OCT	1752	809	0.
10	OCT	1556	60	0.	*	11	OCT	0836	310	0.	*	12	OCT	0116	560	0.	*	12	OCT	1756	810	0.
10	OCT	1600	61	0.	*	11	OCT	0840	311	0.	*	12	OCT	0120	561	0.	*	12	OCT	1800	811	0.
10	OCT	1604	62	0.	*	11	OCT	0844	312	0.	*	12	OCT	0124	562	0.	*	12	OCT	1804	812	0.
10	OCT	1608	63	0.	*	11	OCT	0848	313	0.	*	12	OCT	0128	563	0.	*	12	OCT	1808	813	0.
10	OCT	1612	64	0.	*	11	OCT	0852	314	0.	*	12	OCT	0132	564	0.	*	12	OCT	1812	814	0.
10	OCT	1616	65	0.	*	11	OCT	0856	315	0.	*	12	OCT	0136	565	0.	*	12	OCT	1816	815	0.
10	OCT	1620	66	0.	*	11	OCT	0900	316	0.	*	12	OCT	0140	566	0.	*	12	OCT	1820	816	0.
10	OCT	1624	67	0.	*	11	OCT	0904	317	0.	*	12	OCT	0144	567	0.	*	12	OCT	1824	817	0.
10	OCT	1628	68	0.	*	11	OCT	0908	318	0.	*	12	OCT	0148	568	0.	*	12	OCT	1828	818	0.
10	OCT	1632	69	0.	*	11	OCT	0912	319	0.	*	12	OCT	0152	569	0.	*	12	OCT	1832	819	0.
10	OCT	1636	70	0.	*	11	OCT	0916	320	0.	*	12	OCT	0156	570	0.	*	12	OCT	1836	820	0.
10	OCT	1640	71	0.	*	11	OCT	0920	321	0.	*	12	OCT	0200	571	0.	*	12	OCT	1840	821	0.
10	OCT	1644	72	0.	*	11	OCT	0924	322	0.	*	12	OCT	0204	572	0.	*	12	OCT	1844	822	0.
10	OCT	1648	73	0.	*	11	OCT	0928	323	0.	*	12	OCT	0208	573	0.	*	12	OCT	1848	823	0.
10	OCT	1652	74	0.	*	11	OCT	0932	324	0.	*	12	OCT	0212	574	0.	*	12	OCT	1852	824	0.
10	OCT	1656	75	0.	*	11	OCT	0936	325	0.	*	12	OCT	0216	575	0.	*	12	OCT	1856	825	0.
10	OCT	1700	76	0.	*	11	OCT	0940	326	0.	*	12	OCT	0220	576	0.	*	12	OCT	1900	826	0.
10	OCT	1704	77	0.	*	11	OCT	0944	327	0.	*	12	OCT	0224	577	0.	*	12	OCT	1904	827	0.
10	OCT	1708	78	0.	*	11	OCT	0948	328	0.	*	12	OCT	0228	578	0.	*	12	OCT	1908	828	0.
10	OCT	1712	79	0.	*	11	OCT	0952	329	0.	*	12	OCT	0232	579	0.	*	12	OCT	1912	829	0.
10	OCT	1716	80	0.	*	11	OCT	0956	330	0.	*	12	OCT	0236	580	0.	*	12	OCT	1916	830	0.
10	OCT	1720	81	0.	*	11	OCT	1000	331	0.	*	12	OCT	0240	581	0.	*	12	OCT	1920	831	0.
10	OCT	1724	82	0.	*	11	OCT	1004	332	0.	*	12	OCT	0244	582	0.	*	12	OCT	1924	832	0.
10	OCT	1728	83	0.	*	11	OCT	1008	333	0.	*	12	OCT	0248	583	0.	*	12	OCT	1928	833	0.
10	OCT	1732	84	0.	*	11	OCT	1012	334	0.	*	12	OCT	0252	584	0.	*	12	OCT	1932	834	0.
10	OCT	1736	85	0.	*	11	OCT	1016	335	0.	*	12	OCT	0256	585	0.	*	12	OCT	1936	835	0.
10	OCT	1740	86	0.	*	11	OCT	1020	336	0.	*	12	OCT	0300	586	0.	*	12	OCT	1940	836	0.
10	OCT	1744	87	0.	*	11	OCT	1024	337	0.	*	12	OCT	0304	587	0.	*	12	OCT	1944	837	0.
10	OCT	1748	88	0.	*	11	OCT	1028	338	0.	*	12	OCT	0308	588	0.	*	12	OCT	1948	838	0.
10	OCT	1752	89	0.	*	11	OCT	1032	339	0.	*	12	OCT	0312	589	0.	*	12	OCT	1952	839	0.
10	OCT	1756	90	0.	*	11	OCT	1036	340	0.	*	12	OCT	0316	590	0.	*	12	OCT	1956	840	0.
10	OCT	1800	91	0.	*	11	OCT	1040	341	0.	*	12	OCT	0320	591	0.	*	12	OCT	2000	841	0.
10	OCT	1804	92	0.	*	11	OCT	1044	342	0.	*	12	OCT	0324	592	0.	*	12	OCT	2004	842	0.
10	OCT	1808	93	0.	*	11	OCT	1048	343	0.	*	12	OCT	0328	593	0.	*	12	OCT	2008	843	0.
10	OCT	1812	94	0.	*	11	OCT	1052	344	0.	*	12	OCT	0332	594	0.	*	12	OCT	2012	844	0.
10	OCT	1816	95	0.	*	11	OCT	1056	345	0.	*	12	OCT	0336	595	0.	*	12	OCT	2016	845	0.
10	OCT	1820	96	0.	*	11	OCT	1100	346	0.	*	12	OCT	0340	596	0.	*	12	OCT	2020	846	0.
10	OCT	1824	97	0.	*	11	OCT	1104	347	0.	*	12	OCT	0344	597	0.	*	12	OCT	2024	847	0.
10	OCT	1828	98	0.	*	11	OCT	1108	348	0.	*	12	OCT	0348	598	0.	*	12	OCT	2028	848	0.
10	OCT	1832	99	0.	*	11	OCT	1112	349	0.	*	12	OCT	0352	599	0.	*	12	OCT	2032	849	0.
10	OCT	1836	100	0.	*	11	OCT	1116	350	0.	*	12	OCT	0356	600	0.	*	12	OCT	2036	850	0.
10	OCT	1840	101	0.	*	11	OCT	1120	351	0.	*	12	OCT	0400	601	0.	*	12	OCT	2040	851	0.
10	OCT	1844	102	0.	*	11	OCT	1124	352	0.	*	12	OCT	0404	602	0.	*	12	OCT	2044	852	0.
10	OCT	1848	103	0.	*	11	OCT	1128	353	0.	*	12	OCT	0408	603	0.	*	12	OCT	2048	853	0.
10	OCT	1852	104	0.	*	11	OCT	1132	354	0.	*	12	OCT	0412	604	0.	*	12	OCT	2052	854	0.
10	OCT	1856	105	0.	*	11	OCT	1136	355	0.	*	12	OCT	0416	605	0.	*	12	OCT	2056	855	0.
10	OCT	1900	106	0.	*	11	OCT	1140	356	0.	*	12	OCT	0420	606	0.	*	12	OCT	2100	856	0.
10	OCT	1904	107	0.	*	11	OCT	1144	357	0.	*	12	OCT	0424	607	0.	*	12	OCT	2104	857	0.

10 OCT 1908	108	0.	*	11 OCT 1148	358	0.	*	12 OCT 0428	608	0.	*	12 OCT 2108	858	0.
10 OCT 1912	109	0.	*	11 OCT 1152	359	0.	*	12 OCT 0432	609	0.	*	12 OCT 2112	859	0.
10 OCT 1916	110	0.	*	11 OCT 1156	360	0.	*	12 OCT 0436	610	0.	*	12 OCT 2116	860	0.
10 OCT 1920	111	0.	*	11 OCT 1200	361	0.	*	12 OCT 0440	611	0.	*	12 OCT 2120	861	0.
10 OCT 1924	112	0.	*	11 OCT 1204	362	0.	*	12 OCT 0444	612	0.	*	12 OCT 2124	862	0.
10 OCT 1928	113	0.	*	11 OCT 1208	363	0.	*	12 OCT 0448	613	0.	*	12 OCT 2128	863	0.
10 OCT 1932	114	0.	*	11 OCT 1212	364	0.	*	12 OCT 0452	614	0.	*	12 OCT 2132	864	0.
10 OCT 1936	115	0.	*	11 OCT 1216	365	0.	*	12 OCT 0456	615	0.	*	12 OCT 2136	865	0.
10 OCT 1940	116	0.	*	11 OCT 1220	366	0.	*	12 OCT 0500	616	0.	*	12 OCT 2140	866	0.
10 OCT 1944	117	0.	*	11 OCT 1224	367	0.	*	12 OCT 0504	617	0.	*	12 OCT 2144	867	0.
10 OCT 1948	118	0.	*	11 OCT 1228	368	0.	*	12 OCT 0508	618	0.	*	12 OCT 2148	868	0.
10 OCT 1952	119	0.	*	11 OCT 1232	369	0.	*	12 OCT 0512	619	0.	*	12 OCT 2152	869	0.
10 OCT 1956	120	0.	*	11 OCT 1236	370	0.	*	12 OCT 0516	620	0.	*	12 OCT 2156	870	0.
10 OCT 2000	121	0.	*	11 OCT 1240	371	0.	*	12 OCT 0520	621	0.	*	12 OCT 2200	871	0.
10 OCT 2004	122	0.	*	11 OCT 1244	372	0.	*	12 OCT 0524	622	0.	*	12 OCT 2204	872	0.
10 OCT 2008	123	0.	*	11 OCT 1248	373	0.	*	12 OCT 0528	623	0.	*	12 OCT 2208	873	0.
10 OCT 2012	124	0.	*	11 OCT 1252	374	0.	*	12 OCT 0532	624	0.	*	12 OCT 2212	874	0.
10 OCT 2016	125	0.	*	11 OCT 1256	375	0.	*	12 OCT 0536	625	0.	*	12 OCT 2216	875	0.
10 OCT 2020	126	0.	*	11 OCT 1300	376	0.	*	12 OCT 0540	626	0.	*	12 OCT 2220	876	0.
10 OCT 2024	127	0.	*	11 OCT 1304	377	0.	*	12 OCT 0544	627	0.	*	12 OCT 2224	877	0.
10 OCT 2028	128	0.	*	11 OCT 1308	378	0.	*	12 OCT 0548	628	0.	*	12 OCT 2228	878	0.
10 OCT 2032	129	0.	*	11 OCT 1312	379	0.	*	12 OCT 0552	629	0.	*	12 OCT 2232	879	0.
10 OCT 2036	130	0.	*	11 OCT 1316	380	0.	*	12 OCT 0556	630	0.	*	12 OCT 2236	880	0.
10 OCT 2040	131	0.	*	11 OCT 1320	381	0.	*	12 OCT 0600	631	0.	*	12 OCT 2240	881	0.
10 OCT 2044	132	0.	*	11 OCT 1324	382	0.	*	12 OCT 0604	632	0.	*	12 OCT 2244	882	0.
10 OCT 2048	133	0.	*	11 OCT 1328	383	0.	*	12 OCT 0608	633	0.	*	12 OCT 2248	883	0.
10 OCT 2052	134	0.	*	11 OCT 1332	384	0.	*	12 OCT 0612	634	0.	*	12 OCT 2252	884	0.
10 OCT 2056	135	0.	*	11 OCT 1336	385	0.	*	12 OCT 0616	635	0.	*	12 OCT 2256	885	0.
10 OCT 2100	136	0.	*	11 OCT 1340	386	0.	*	12 OCT 0620	636	0.	*	12 OCT 2300	886	0.
10 OCT 2104	137	0.	*	11 OCT 1344	387	0.	*	12 OCT 0624	637	0.	*	12 OCT 2304	887	0.
10 OCT 2108	138	0.	*	11 OCT 1348	388	0.	*	12 OCT 0628	638	0.	*	12 OCT 2308	888	0.
10 OCT 2112	139	0.	*	11 OCT 1352	389	0.	*	12 OCT 0632	639	0.	*	12 OCT 2312	889	0.
10 OCT 2116	140	0.	*	11 OCT 1356	390	0.	*	12 OCT 0636	640	0.	*	12 OCT 2316	890	0.
10 OCT 2120	141	0.	*	11 OCT 1400	391	0.	*	12 OCT 0640	641	0.	*	12 OCT 2320	891	0.
10 OCT 2124	142	0.	*	11 OCT 1404	392	0.	*	12 OCT 0644	642	0.	*	12 OCT 2324	892	0.
10 OCT 2128	143	0.	*	11 OCT 1408	393	0.	*	12 OCT 0648	643	0.	*	12 OCT 2328	893	0.
10 OCT 2132	144	0.	*	11 OCT 1412	394	0.	*	12 OCT 0652	644	0.	*	12 OCT 2332	894	0.
10 OCT 2136	145	0.	*	11 OCT 1416	395	0.	*	12 OCT 0656	645	0.	*	12 OCT 2336	895	0.
10 OCT 2140	146	0.	*	11 OCT 1420	396	0.	*	12 OCT 0700	646	0.	*	12 OCT 2340	896	0.
10 OCT 2144	147	0.	*	11 OCT 1424	397	0.	*	12 OCT 0704	647	0.	*	12 OCT 2344	897	0.
10 OCT 2148	148	0.	*	11 OCT 1428	398	0.	*	12 OCT 0708	648	0.	*	12 OCT 2348	898	0.
10 OCT 2152	149	0.	*	11 OCT 1432	399	0.	*	12 OCT 0712	649	0.	*	12 OCT 2352	899	0.
10 OCT 2156	150	0.	*	11 OCT 1436	400	0.	*	12 OCT 0716	650	0.	*	12 OCT 2356	900	0.
10 OCT 2200	151	0.	*	11 OCT 1440	401	0.	*	12 OCT 0720	651	0.	*	13 OCT 0000	901	0.
10 OCT 2204	152	0.	*	11 OCT 1444	402	0.	*	12 OCT 0724	652	0.	*	13 OCT 0004	902	0.
10 OCT 2208	153	0.	*	11 OCT 1448	403	0.	*	12 OCT 0728	653	0.	*	13 OCT 0008	903	0.
10 OCT 2212	154	0.	*	11 OCT 1452	404	0.	*	12 OCT 0732	654	0.	*	13 OCT 0012	904	0.
10 OCT 2216	155	0.	*	11 OCT 1456	405	0.	*	12 OCT 0736	655	0.	*	13 OCT 0016	905	0.
10 OCT 2220	156	0.	*	11 OCT 1500	406	0.	*	12 OCT 0740	656	0.	*	13 OCT 0020	906	0.
10 OCT 2224	157	0.	*	11 OCT 1504	407	0.	*	12 OCT 0744	657	0.	*	13 OCT 0024	907	0.
10 OCT 2228	158	0.	*	11 OCT 1508	408	0.	*	12 OCT 0748	658	0.	*	13 OCT 0028	908	0.
10 OCT 2232	159	0.	*	11 OCT 1512	409	0.	*	12 OCT 0752	659	0.	*	13 OCT 0032	909	0.
10 OCT 2236	160	0.	*	11 OCT 1516	410	0.	*	12 OCT 0756	660	0.	*	13 OCT 0036	910	0.
10 OCT 2240	161	0.	*	11 OCT 1520	411	0.	*	12 OCT 0800	661	0.	*	13 OCT 0040	911	0.
10 OCT 2244	162	0.	*	11 OCT 1524	412	0.	*	12 OCT 0804	662	0.	*	13 OCT 0044	912	0.
10 OCT 2248	163	0.	*	11 OCT 1528	413	0.	*	12 OCT 0808	663	0.	*	13 OCT 0048	913	0.
10 OCT 2252	164	0.	*	11 OCT 1532	414	0.	*	12 OCT 0812	664	0.	*	13 OCT 0052	914	0.
10 OCT 2256	165	0.	*	11 OCT 1536	415	0.	*	12 OCT 0816	665	0.	*	13 OCT 0056	915	0.
10 OCT 2300	166	0.	*	11 OCT 1540	416	0.	*	12 OCT 0820	666	0.	*	13 OCT 0100	916	0.
10 OCT 2304	167	0.	*	11 OCT 1544	417	0.	*	12 OCT 0824	667	0.	*	13 OCT 0104	917	0.
10 OCT 2308	168	0.	*	11 OCT 1548	418	0.	*	12 OCT 0828	668	0.	*	13 OCT 0108	918	0.
10 OCT 2312	169	0.	*	11 OCT 1552	419	0.	*	12 OCT 0832	669	0.	*	13 OCT 0112	919	0.
10 OCT 2316	170	0.	*	11 OCT 1556	420	0.	*	12 OCT 0836	670	0.	*	13 OCT 0116	920	0.
10 OCT 2320	171	0.	*	11 OCT 1600	421	0.	*	12 OCT 0840	671	0.	*	13 OCT 0120	921	0.
10 OCT 2324	172	0.	*	11 OCT 1604	422	0.	*	12 OCT 0844	672	0.	*	13 OCT 0124	922	0.
10 OCT 2328	173	0.	*	11 OCT 1608	423	0.	*	12 OCT 0848	673	0.	*	13 OCT 0128	923	0.
10 OCT 2332	174	0.	*	11 OCT 1612	424	0.	*	12 OCT 0852	674	0.	*	13 OCT 0132	924	0.
10 OCT 2336	175	0.	*	11 OCT 1616	425	0.	*	12 OCT 0856	675	0.	*	13 OCT 0136	925	0.
10 OCT 2340	176	0.	*	11 OCT 1620	426	0.	*	12 OCT 0900	676	0.	*	13 OCT 0140	926	0.
10 OCT 2344	177	0.	*	11 OCT 1624	427	0.	*	12 OCT 0904	677	0.	*	13 OCT 0144	927	0.
10 OCT 2348	178	0.	*	11 OCT 1628	428	0.	*	12 OCT 0908	678	0.	*	13 OCT 0148	928	0.
10 OCT 2352	179	0.	*	11 OCT 1632	429	0.	*	12 OCT 0912	679	0.	*	13 OCT 0152	929	0.
10 OCT 2356	180	9.	*	11 OCT 1636	430	0.	*	12 OCT 0916	680	0.	*	13 OCT 0156	930	0.
11 OCT 0000	181	72.	*	11 OCT 1640	431	0.	*	12 OCT 0920	681	0.	*	13 OCT 0200	931	0.
11 OCT 0004	182	133.	*	11 OCT 1644	432	0.	*	12 OCT 0924	682	0.	*	13 OCT 0204	932	0.
11 OCT 0008	183	172.	*	11 OCT 1648	433	0.	*	12 OCT 0928	683	0.	*	13 OCT 0208	933	0.
11 OCT 0012	184	182.	*	11 OCT 1652	434	0.	*	12 OCT 0932	684	0.	*	13 OCT 0212	934	0.

11 OCT	0016	185	173.	*	11 OCT	1656	435	0.	*	12 OCT	0936	685	0.	*	13 OCT	0216	935	0.
11 OCT	0020	186	164.	*	11 OCT	1700	436	0.	*	12 OCT	0940	686	0.	*	13 OCT	0220	936	0.
11 OCT	0024	187	153.	*	11 OCT	1704	437	0.	*	12 OCT	0944	687	0.	*	13 OCT	0224	937	0.
11 OCT	0028	188	90.	*	11 OCT	1708	438	0.	*	12 OCT	0948	688	0.	*	13 OCT	0228	938	0.
11 OCT	0032	189	70.	*	11 OCT	1712	439	0.	*	12 OCT	0952	689	0.	*	13 OCT	0232	939	0.
11 OCT	0036	190	79.	*	11 OCT	1716	440	0.	*	12 OCT	0956	690	0.	*	13 OCT	0236	940	0.
11 OCT	0040	191	74.	*	11 OCT	1720	441	0.	*	12 OCT	1000	691	0.	*	13 OCT	0240	941	0.
11 OCT	0044	192	63.	*	11 OCT	1724	442	0.	*	12 OCT	1004	692	0.	*	13 OCT	0244	942	0.
11 OCT	0048	193	54.	*	11 OCT	1728	443	0.	*	12 OCT	1008	693	0.	*	13 OCT	0248	943	0.
11 OCT	0052	194	48.	*	11 OCT	1732	444	0.	*	12 OCT	1012	694	0.	*	13 OCT	0252	944	0.
11 OCT	0056	195	45.	*	11 OCT	1736	445	0.	*	12 OCT	1016	695	0.	*	13 OCT	0256	945	0.
11 OCT	0100	196	43.	*	11 OCT	1740	446	0.	*	12 OCT	1020	696	0.	*	13 OCT	0300	946	0.
11 OCT	0104	197	40.	*	11 OCT	1744	447	0.	*	12 OCT	1024	697	0.	*	13 OCT	0304	947	0.
11 OCT	0108	198	38.	*	11 OCT	1748	448	0.	*	12 OCT	1028	698	0.	*	13 OCT	0308	948	0.
11 OCT	0112	199	36.	*	11 OCT	1752	449	0.	*	12 OCT	1032	699	0.	*	13 OCT	0312	949	0.
11 OCT	0116	200	35.	*	11 OCT	1756	450	0.	*	12 OCT	1036	700	0.	*	13 OCT	0316	950	0.
11 OCT	0120	201	33.	*	11 OCT	1800	451	0.	*	12 OCT	1040	701	0.	*	13 OCT	0320	951	0.
11 OCT	0124	202	31.	*	11 OCT	1804	452	0.	*	12 OCT	1044	702	0.	*	13 OCT	0324	952	0.
11 OCT	0128	203	30.	*	11 OCT	1808	453	0.	*	12 OCT	1048	703	0.	*	13 OCT	0328	953	0.
11 OCT	0132	204	29.	*	11 OCT	1812	454	0.	*	12 OCT	1052	704	0.	*	13 OCT	0332	954	0.
11 OCT	0136	205	28.	*	11 OCT	1816	455	0.	*	12 OCT	1056	705	0.	*	13 OCT	0336	955	0.
11 OCT	0140	206	27.	*	11 OCT	1820	456	0.	*	12 OCT	1100	706	0.	*	13 OCT	0340	956	0.
11 OCT	0144	207	27.	*	11 OCT	1824	457	0.	*	12 OCT	1104	707	0.	*	13 OCT	0344	957	0.
11 OCT	0148	208	26.	*	11 OCT	1828	458	0.	*	12 OCT	1108	708	0.	*	13 OCT	0348	958	0.
11 OCT	0152	209	25.	*	11 OCT	1832	459	0.	*	12 OCT	1112	709	0.	*	13 OCT	0352	959	0.
11 OCT	0156	210	25.	*	11 OCT	1836	460	0.	*	12 OCT	1116	710	0.	*	13 OCT	0356	960	0.
11 OCT	0200	211	23.	*	11 OCT	1840	461	0.	*	12 OCT	1120	711	0.	*	13 OCT	0400	961	0.
11 OCT	0204	212	21.	*	11 OCT	1844	462	0.	*	12 OCT	1124	712	0.	*	13 OCT	0404	962	0.
11 OCT	0208	213	19.	*	11 OCT	1848	463	0.	*	12 OCT	1128	713	0.	*	13 OCT	0408	963	0.
11 OCT	0212	214	17.	*	11 OCT	1852	464	0.	*	12 OCT	1132	714	0.	*	13 OCT	0412	964	0.
11 OCT	0216	215	15.	*	11 OCT	1856	465	0.	*	12 OCT	1136	715	0.	*	13 OCT	0416	965	0.
11 OCT	0220	216	14.	*	11 OCT	1900	466	0.	*	12 OCT	1140	716	0.	*	13 OCT	0420	966	0.
11 OCT	0224	217	12.	*	11 OCT	1904	467	0.	*	12 OCT	1144	717	0.	*	13 OCT	0424	967	0.
11 OCT	0228	218	10.	*	11 OCT	1908	468	0.	*	12 OCT	1148	718	0.	*	13 OCT	0428	968	0.
11 OCT	0232	219	9.	*	11 OCT	1912	469	0.	*	12 OCT	1152	719	0.	*	13 OCT	0432	969	0.
11 OCT	0236	220	8.	*	11 OCT	1916	470	0.	*	12 OCT	1156	720	0.	*	13 OCT	0436	970	0.
11 OCT	0240	221	6.	*	11 OCT	1920	471	0.	*	12 OCT	1200	721	0.	*	13 OCT	0440	971	0.
11 OCT	0244	222	5.	*	11 OCT	1924	472	0.	*	12 OCT	1204	722	0.	*	13 OCT	0444	972	0.
11 OCT	0248	223	5.	*	11 OCT	1928	473	0.	*	12 OCT	1208	723	0.	*	13 OCT	0448	973	0.
11 OCT	0252	224	5.	*	11 OCT	1932	474	0.	*	12 OCT	1212	724	0.	*	13 OCT	0452	974	0.
11 OCT	0256	225	5.	*	11 OCT	1936	475	0.	*	12 OCT	1216	725	0.	*	13 OCT	0456	975	0.
11 OCT	0300	226	5.	*	11 OCT	1940	476	0.	*	12 OCT	1220	726	0.	*	13 OCT	0500	976	0.
11 OCT	0304	227	5.	*	11 OCT	1944	477	0.	*	12 OCT	1224	727	0.	*	13 OCT	0504	977	0.
11 OCT	0308	228	4.	*	11 OCT	1948	478	0.	*	12 OCT	1228	728	0.	*	13 OCT	0508	978	0.
11 OCT	0312	229	4.	*	11 OCT	1952	479	0.	*	12 OCT	1232	729	0.	*	13 OCT	0512	979	0.
11 OCT	0316	230	4.	*	11 OCT	1956	480	0.	*	12 OCT	1236	730	0.	*	13 OCT	0516	980	0.
11 OCT	0320	231	4.	*	11 OCT	2000	481	0.	*	12 OCT	1240	731	0.	*	13 OCT	0520	981	0.
11 OCT	0324	232	4.	*	11 OCT	2004	482	0.	*	12 OCT	1244	732	0.	*	13 OCT	0524	982	0.
11 OCT	0328	233	4.	*	11 OCT	2008	483	0.	*	12 OCT	1248	733	0.	*	13 OCT	0528	983	0.
11 OCT	0332	234	3.	*	11 OCT	2012	484	0.	*	12 OCT	1252	734	0.	*	13 OCT	0532	984	0.
11 OCT	0336	235	3.	*	11 OCT	2016	485	0.	*	12 OCT	1256	735	0.	*	13 OCT	0536	985	0.
11 OCT	0340	236	3.	*	11 OCT	2020	486	0.	*	12 OCT	1300	736	0.	*	13 OCT	0540	986	0.
11 OCT	0344	237	3.	*	11 OCT	2024	487	0.	*	12 OCT	1304	737	0.	*	13 OCT	0544	987	0.
11 OCT	0348	238	3.	*	11 OCT	2028	488	0.	*	12 OCT	1308	738	0.	*	13 OCT	0548	988	0.
11 OCT	0352	239	3.	*	11 OCT	2032	489	0.	*	12 OCT	1312	739	0.	*	13 OCT	0552	989	0.
11 OCT	0356	240	2.	*	11 OCT	2036	490	0.	*	12 OCT	1316	740	0.	*	13 OCT	0556	990	0.
11 OCT	0400	241	2.	*	11 OCT	2040	491	0.	*	12 OCT	1320	741	0.	*	13 OCT	0600	991	0.
11 OCT	0404	242	2.	*	11 OCT	2044	492	0.	*	12 OCT	1324	742	0.	*	13 OCT	0604	992	0.
11 OCT	0408	243	2.	*	11 OCT	2048	493	0.	*	12 OCT	1328	743	0.	*	13 OCT	0608	993	0.
11 OCT	0412	244	2.	*	11 OCT	2052	494	0.	*	12 OCT	1332	744	0.	*	13 OCT	0612	994	0.
11 OCT	0416	245	1.	*	11 OCT	2056	495	0.	*	12 OCT	1336	745	0.	*	13 OCT	0616	995	0.
11 OCT	0420	246	1.	*	11 OCT	2100	496	0.	*	12 OCT	1340	746	0.	*	13 OCT	0620	996	0.
11 OCT	0424	247	1.	*	11 OCT	2104	497	0.	*	12 OCT	1344	747	0.	*	13 OCT	0624	997	0.
11 OCT	0428	248	1.	*	11 OCT	2108	498	0.	*	12 OCT	1348	748	0.	*	13 OCT	0628	998	0.
11 OCT	0432	249	1.	*	11 OCT	2112	499	0.	*	12 OCT	1352	749	0.	*	13 OCT	0632	999	0.
11 OCT	0436	250	0.	*	11 OCT	2116	500	0.	*	12 OCT	1356	750	0.	*	13 OCT	0636	1000	0.
				*					*					*				

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PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
			6-HR	24-HR	72-HR	66.60-HR
+ (CFS)	(HR)					
		(CFS)				
+ 182.	12.20		26.	6.	2.	2.
		(INCHES)	.022	.022	.022	.022
		(AC-FT)	13.	13.	13.	13.

CUMULATIVE AREA = 10.67 SQ MI

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          **************
          *            *
1183 KK   *    N_WIER  *
          *            *
          **************

1184 KO         OUTPUT CONTROL VARIABLES
                     IPRNT           2  PRINT CONTROL
                     IPLOT           2  PLOT CONTROL
                     QSCAL          0.  HYDROGRAPH PLOT SCALE
                         J2 MODIFICATION
                         PROPOSED DETENTION BASIN

    DT           DIVERSION
                     ISTAD       N_BSN  DIVERSION HYDROGRAPH IDENTIFICATION

    DI             INFLOW         .00    150.00    300.00    500.00    750.00    925.00   1011.00   1712.00   2523.00   2869.00
                               3416.00   3679.00   3982.00

    DQ      DIVERTED FLOW         .00       .00       .00       .00       .00       .00     11.46    212.15    523.22    669.18
                              915.61   1037.41   1182.05
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DIVERSION HYDROGRAPH N_BSN

DA MON HRMN	ORD	FLOW	DA MON HRMN	ORD	FLOW	DA MON HRMN	ORD	FLOW	DA MON HRMN	ORD	FLOW
10 OCT 1200	1	0.	11 OCT 0440	251	0.	11 OCT 2120	501	0.	12 OCT 1400	751	0.
10 OCT 1204	2	0.	11 OCT 0444	252	0.	11 OCT 2124	502	0.	12 OCT 1404	752	0.
10 OCT 1208	3	0.	11 OCT 0448	253	0.	11 OCT 2128	503	0.	12 OCT 1408	753	0.
10 OCT 1212	4	0.	11 OCT 0452	254	0.	11 OCT 2132	504	0.	12 OCT 1412	754	0.
10 OCT 1216	5	0.	11 OCT 0456	255	0.	11 OCT 2136	505	0.	12 OCT 1416	755	0.
10 OCT 1220	6	0.	11 OCT 0500	256	0.	11 OCT 2140	506	0.	12 OCT 1420	756	0.
10 OCT 1224	7	0.	11 OCT 0504	257	0.	11 OCT 2144	507	0.	12 OCT 1424	757	0.
10 OCT 1228	8	0.	11 OCT 0508	258	0.	11 OCT 2148	508	0.	12 OCT 1428	758	0.
10 OCT 1232	9	0.	11 OCT 0512	259	0.	11 OCT 2152	509	0.	12 OCT 1432	759	0.
10 OCT 1236	10	0.	11 OCT 0516	260	0.	11 OCT 2156	510	0.	12 OCT 1436	760	0.
10 OCT 1240	11	0.	11 OCT 0520	261	0.	11 OCT 2200	511	0.	12 OCT 1440	761	0.
10 OCT 1244	12	0.	11 OCT 0524	262	0.	11 OCT 2204	512	0.	12 OCT 1444	762	0.
10 OCT 1248	13	0.	11 OCT 0528	263	0.	11 OCT 2208	513	0.	12 OCT 1448	763	0.
10 OCT 1252	14	0.	11 OCT 0532	264	0.	11 OCT 2212	514	0.	12 OCT 1452	764	0.
10 OCT 1256	15	0.	11 OCT 0536	265	0.	11 OCT 2216	515	0.	12 OCT 1456	765	0.
10 OCT 1300	16	0.	11 OCT 0540	266	0.	11 OCT 2220	516	0.	12 OCT 1500	766	0.
10 OCT 1304	17	0.	11 OCT 0544	267	0.	11 OCT 2224	517	0.	12 OCT 1504	767	0.
10 OCT 1308	18	0.	11 OCT 0548	268	0.	11 OCT 2228	518	0.	12 OCT 1508	768	0.
10 OCT 1312	19	0.	11 OCT 0552	269	0.	11 OCT 2232	519	0.	12 OCT 1512	769	0.
10 OCT 1316	20	0.	11 OCT 0556	270	0.	11 OCT 2236	520	0.	12 OCT 1516	770	0.
10 OCT 1320	21	0.	11 OCT 0600	271	0.	11 OCT 2240	521	0.	12 OCT 1520	771	0.
10 OCT 1324	22	0.	11 OCT 0604	272	0.	11 OCT 2244	522	0.	12 OCT 1524	772	0.
10 OCT 1328	23	0.	11 OCT 0608	273	0.	11 OCT 2248	523	0.	12 OCT 1528	773	0.
10 OCT 1332	24	0.	11 OCT 0612	274	0.	11 OCT 2252	524	0.	12 OCT 1532	774	0.
10 OCT 1336	25	0.	11 OCT 0616	275	0.	11 OCT 2256	525	0.	12 OCT 1536	775	0.
10 OCT 1340	26	0.	11 OCT 0620	276	0.	11 OCT 2300	526	0.	12 OCT 1540	776	0.
10 OCT 1344	27	0.	11 OCT 0624	277	0.	11 OCT 2304	527	0.	12 OCT 1544	777	0.
10 OCT 1348	28	0.	11 OCT 0628	278	0.	11 OCT 2308	528	0.	12 OCT 1548	778	0.
10 OCT 1352	29	0.	11 OCT 0632	279	0.	11 OCT 2312	529	0.	12 OCT 1552	779	0.
10 OCT 1356	30	0.	11 OCT 0636	280	0.	11 OCT 2316	530	0.	12 OCT 1556	780	0.
10 OCT 1400	31	0.	11 OCT 0640	281	0.	11 OCT 2320	531	0.	12 OCT 1600	781	0.
10 OCT 1404	32	0.	11 OCT 0644	282	0.	11 OCT 2324	532	0.	12 OCT 1604	782	0.
10 OCT 1408	33	0.	11 OCT 0648	283	0.	11 OCT 2328	533	0.	12 OCT 1608	783	0.
10 OCT 1412	34	0.	11 OCT 0652	284	0.	11 OCT 2332	534	0.	12 OCT 1612	784	0.
10 OCT 1416	35	0.	11 OCT 0656	285	0.	11 OCT 2336	535	0.	12 OCT 1616	785	0.
10 OCT 1420	36	0.	11 OCT 0700	286	0.	11 OCT 2340	536	0.	12 OCT 1620	786	0.
10 OCT 1424	37	0.	11 OCT 0704	287	0.	11 OCT 2344	537	0.	12 OCT 1624	787	0.

10	OCT	1428	38	0.	*	11	OCT	0708	288	0.	*	11	OCT	2348	538	0.	*	12	OCT	1628	788	0.
10	OCT	1432	39	0.	*	11	OCT	0712	289	0.	*	11	OCT	2352	539	0.	*	12	OCT	1632	789	0.
10	OCT	1436	40	0.	*	11	OCT	0716	290	0.	*	11	OCT	2356	540	0.	*	12	OCT	1636	790	0.
10	OCT	1440	41	0.	*	11	OCT	0720	291	0.	*	12	OCT	0000	541	0.	*	12	OCT	1640	791	0.
10	OCT	1444	42	0.	*	11	OCT	0724	292	0.	*	12	OCT	0004	542	0.	*	12	OCT	1644	792	0.
10	OCT	1448	43	0.	*	11	OCT	0728	293	0.	*	12	OCT	0008	543	0.	*	12	OCT	1648	793	0.
10	OCT	1452	44	0.	*	11	OCT	0732	294	0.	*	12	OCT	0012	544	0.	*	12	OCT	1652	794	0.
10	OCT	1456	45	0.	*	11	OCT	0736	295	0.	*	12	OCT	0016	545	0.	*	12	OCT	1656	795	0.
10	OCT	1500	46	0.	*	11	OCT	0740	296	0.	*	12	OCT	0020	546	0.	*	12	OCT	1700	796	0.
10	OCT	1504	47	0.	*	11	OCT	0744	297	0.	*	12	OCT	0024	547	0.	*	12	OCT	1704	797	0.
10	OCT	1508	48	0.	*	11	OCT	0748	298	0.	*	12	OCT	0028	548	0.	*	12	OCT	1708	798	0.
10	OCT	1512	49	0.	*	11	OCT	0752	299	0.	*	12	OCT	0032	549	0.	*	12	OCT	1712	799	0.
10	OCT	1516	50	0.	*	11	OCT	0756	300	0.	*	12	OCT	0036	550	0.	*	12	OCT	1716	800	0.
10	OCT	1520	51	0.	*	11	OCT	0800	301	0.	*	12	OCT	0040	551	0.	*	12	OCT	1720	801	0.
10	OCT	1524	52	0.	*	11	OCT	0804	302	0.	*	12	OCT	0044	552	0.	*	12	OCT	1724	802	0.
10	OCT	1528	53	0.	*	11	OCT	0808	303	0.	*	12	OCT	0048	553	0.	*	12	OCT	1728	803	0.
10	OCT	1532	54	0.	*	11	OCT	0812	304	0.	*	12	OCT	0052	554	0.	*	12	OCT	1732	804	0.
10	OCT	1536	55	0.	*	11	OCT	0816	305	0.	*	12	OCT	0056	555	0.	*	12	OCT	1736	805	0.
10	OCT	1540	56	0.	*	11	OCT	0820	306	0.	*	12	OCT	0100	556	0.	*	12	OCT	1740	806	0.
10	OCT	1544	57	0.	*	11	OCT	0824	307	0.	*	12	OCT	0104	557	0.	*	12	OCT	1744	807	0.
10	OCT	1548	58	0.	*	11	OCT	0828	308	0.	*	12	OCT	0108	558	0.	*	12	OCT	1748	808	0.
10	OCT	1552	59	0.	*	11	OCT	0832	309	0.	*	12	OCT	0112	559	0.	*	12	OCT	1752	809	0.
10	OCT	1556	60	0.	*	11	OCT	0836	310	0.	*	12	OCT	0116	560	0.	*	12	OCT	1756	810	0.
10	OCT	1600	61	0.	*	11	OCT	0840	311	0.	*	12	OCT	0120	561	0.	*	12	OCT	1800	811	0.
10	OCT	1604	62	0.	*	11	OCT	0844	312	0.	*	12	OCT	0124	562	0.	*	12	OCT	1804	812	0.
10	OCT	1608	63	0.	*	11	OCT	0848	313	0.	*	12	OCT	0128	563	0.	*	12	OCT	1808	813	0.
10	OCT	1612	64	0.	*	11	OCT	0852	314	0.	*	12	OCT	0132	564	0.	*	12	OCT	1812	814	0.
10	OCT	1616	65	0.	*	11	OCT	0856	315	0.	*	12	OCT	0136	565	0.	*	12	OCT	1816	815	0.
10	OCT	1620	66	0.	*	11	OCT	0900	316	0.	*	12	OCT	0140	566	0.	*	12	OCT	1820	816	0.
10	OCT	1624	67	0.	*	11	OCT	0904	317	0.	*	12	OCT	0144	567	0.	*	12	OCT	1824	817	0.
10	OCT	1628	68	0.	*	11	OCT	0908	318	0.	*	12	OCT	0148	568	0.	*	12	OCT	1828	818	0.
10	OCT	1632	69	0.	*	11	OCT	0912	319	0.	*	12	OCT	0152	569	0.	*	12	OCT	1832	819	0.
10	OCT	1636	70	0.	*	11	OCT	0916	320	0.	*	12	OCT	0156	570	0.	*	12	OCT	1836	820	0.
10	OCT	1640	71	0.	*	11	OCT	0920	321	0.	*	12	OCT	0200	571	0.	*	12	OCT	1840	821	0.
10	OCT	1644	72	0.	*	11	OCT	0924	322	0.	*	12	OCT	0204	572	0.	*	12	OCT	1844	822	0.
10	OCT	1648	73	0.	*	11	OCT	0928	323	0.	*	12	OCT	0208	573	0.	*	12	OCT	1848	823	0.
10	OCT	1652	74	0.	*	11	OCT	0932	324	0.	*	12	OCT	0212	574	0.	*	12	OCT	1852	824	0.
10	OCT	1656	75	0.	*	11	OCT	0936	325	0.	*	12	OCT	0216	575	0.	*	12	OCT	1856	825	0.
10	OCT	1700	76	0.	*	11	OCT	0940	326	0.	*	12	OCT	0220	576	0.	*	12	OCT	1900	826	0.
10	OCT	1704	77	0.	*	11	OCT	0944	327	0.	*	12	OCT	0224	577	0.	*	12	OCT	1904	827	0.
10	OCT	1708	78	0.	*	11	OCT	0948	328	0.	*	12	OCT	0228	578	0.	*	12	OCT	1908	828	0.
10	OCT	1712	79	0.	*	11	OCT	0952	329	0.	*	12	OCT	0232	579	0.	*	12	OCT	1912	829	0.
10	OCT	1716	80	0.	*	11	OCT	0956	330	0.	*	12	OCT	0236	580	0.	*	12	OCT	1916	830	0.
10	OCT	1720	81	0.	*	11	OCT	1000	331	0.	*	12	OCT	0240	581	0.	*	12	OCT	1920	831	0.
10	OCT	1724	82	0.	*	11	OCT	1004	332	0.	*	12	OCT	0244	582	0.	*	12	OCT	1924	832	0.
10	OCT	1728	83	0.	*	11	OCT	1008	333	0.	*	12	OCT	0248	583	0.	*	12	OCT	1928	833	0.
10	OCT	1732	84	0.	*	11	OCT	1012	334	0.	*	12	OCT	0252	584	0.	*	12	OCT	1932	834	0.
10	OCT	1736	85	0.	*	11	OCT	1016	335	0.	*	12	OCT	0256	585	0.	*	12	OCT	1936	835	0.
10	OCT	1740	86	0.	*	11	OCT	1020	336	0.	*	12	OCT	0300	586	0.	*	12	OCT	1940	836	0.
10	OCT	1744	87	0.	*	11	OCT	1024	337	0.	*	12	OCT	0304	587	0.	*	12	OCT	1944	837	0.
10	OCT	1748	88	0.	*	11	OCT	1028	338	0.	*	12	OCT	0308	588	0.	*	12	OCT	1948	838	0.
10	OCT	1752	89	0.	*	11	OCT	1032	339	0.	*	12	OCT	0312	589	0.	*	12	OCT	1952	839	0.
10	OCT	1756	90	0.	*	11	OCT	1036	340	0.	*	12	OCT	0316	590	0.	*	12	OCT	1956	840	0.
10	OCT	1800	91	0.	*	11	OCT	1040	341	0.	*	12	OCT	0320	591	0.	*	12	OCT	2000	841	0.
10	OCT	1804	92	0.	*	11	OCT	1044	342	0.	*	12	OCT	0324	592	0.	*	12	OCT	2004	842	0.
10	OCT	1808	93	0.	*	11	OCT	1048	343	0.	*	12	OCT	0328	593	0.	*	12	OCT	2008	843	0.
10	OCT	1812	94	0.	*	11	OCT	1052	344	0.	*	12	OCT	0332	594	0.	*	12	OCT	2012	844	0.
10	OCT	1816	95	0.	*	11	OCT	1056	345	0.	*	12	OCT	0336	595	0.	*	12	OCT	2016	845	0.
10	OCT	1820	96	0.	*	11	OCT	1100	346	0.	*	12	OCT	0340	596	0.	*	12	OCT	2020	846	0.
10	OCT	1824	97	0.	*	11	OCT	1104	347	0.	*	12	OCT	0344	597	0.	*	12	OCT	2024	847	0.
10	OCT	1828	98	0.	*	11	OCT	1108	348	0.	*	12	OCT	0348	598	0.	*	12	OCT	2028	848	0.
10	OCT	1832	99	0.	*	11	OCT	1112	349	0.	*	12	OCT	0352	599	0.	*	12	OCT	2032	849	0.
10	OCT	1836	100	0.	*	11	OCT	1116	350	0.	*	12	OCT	0356	600	0.	*	12	OCT	2036	850	0.
10	OCT	1840	101	0.	*	11	OCT	1120	351	0.	*	12	OCT	0400	601	0.	*	12	OCT	2040	851	0.
10	OCT	1844	102	0.	*	11	OCT	1124	352	0.	*	12	OCT	0404	602	0.	*	12	OCT	2044	852	0.
10	OCT	1848	103	0.	*	11	OCT	1128	353	0.	*	12	OCT	0408	603	0.	*	12	OCT	2048	853	0.
10	OCT	1852	104	0.	*	11	OCT	1132	354	0.	*	12	OCT	0412	604	0.	*	12	OCT	2052	854	0.
10	OCT	1856	105	0.	*	11	OCT	1136	355	0.	*	12	OCT	0416	605	0.	*	12	OCT	2056	855	0.
10	OCT	1900	106	0.	*	11	OCT	1140	356	0.	*	12	OCT	0420	606	0.	*	12	OCT	2100	856	0.
10	OCT	1904	107	0.	*	11	OCT	1144	357	0.	*	12	OCT	0424	607	0.	*	12	OCT	2104	857	0.
10	OCT	1908	108	0.	*	11	OCT	1148	358	0.	*	12	OCT	0428	608	0.	*	12	OCT	2108	858	0.
10	OCT	1912	109	0.	*	11	OCT	1152	359	0.	*	12	OCT	0432	609	0.	*	12	OCT	2112	859	0.
10	OCT	1916	110	0.	*	11	OCT	1156	360	0.	*	12	OCT	0436	610	0.	*	12	OCT	2116	860	0.
10	OCT	1920	111	0.	*	11	OCT	1200	361	0.	*	12	OCT	0440	611	0.	*	12	OCT	2120	861	0.
10	OCT	1924	112	0.	*	11	OCT	1204	362	0.	*	12	OCT	0444	612	0.	*	12	OCT	2124	862	0.
10	OCT	1928	113	0.	*	11	OCT	1208	363	0.	*	12	OCT	0448	613	0.	*	12	OCT	2128	863	0.
10	OCT	1932	114	0.	*	11	OCT	1212	364	0.	*	12	OCT	0452	614	0.	*	12	OCT	2132	864	0.

10 OCT 1936	115	0.	*	11 OCT 1216	365	0.	*	12 OCT 0456	615	0.	*	12 OCT 2136	865	0.
10 OCT 1940	116	0.	*	11 OCT 1220	366	0.	*	12 OCT 0500	616	0.	*	12 OCT 2140	866	0.
10 OCT 1944	117	0.	*	11 OCT 1224	367	0.	*	12 OCT 0504	617	0.	*	12 OCT 2144	867	0.
10 OCT 1948	118	0.	*	11 OCT 1228	368	0.	*	12 OCT 0508	618	0.	*	12 OCT 2148	868	0.
10 OCT 1952	119	0.	*	11 OCT 1232	369	0.	*	12 OCT 0512	619	0.	*	12 OCT 2152	869	0.
10 OCT 1956	120	0.	*	11 OCT 1236	370	0.	*	12 OCT 0516	620	0.	*	12 OCT 2156	870	0.
10 OCT 2000	121	0.	*	11 OCT 1240	371	0.	*	12 OCT 0520	621	0.	*	12 OCT 2200	871	0.
10 OCT 2004	122	0.	*	11 OCT 1244	372	0.	*	12 OCT 0524	622	0.	*	12 OCT 2204	872	0.
10 OCT 2008	123	0.	*	11 OCT 1248	373	0.	*	12 OCT 0528	623	0.	*	12 OCT 2208	873	0.
10 OCT 2012	124	0.	*	11 OCT 1252	374	0.	*	12 OCT 0532	624	0.	*	12 OCT 2212	874	0.
10 OCT 2016	125	0.	*	11 OCT 1256	375	0.	*	12 OCT 0536	625	0.	*	12 OCT 2216	875	0.
10 OCT 2020	126	0.	*	11 OCT 1300	376	0.	*	12 OCT 0540	626	0.	*	12 OCT 2220	876	0.
10 OCT 2024	127	0.	*	11 OCT 1304	377	0.	*	12 OCT 0544	627	0.	*	12 OCT 2224	877	0.
10 OCT 2028	128	0.	*	11 OCT 1308	378	0.	*	12 OCT 0548	628	0.	*	12 OCT 2228	878	0.
10 OCT 2032	129	0.	*	11 OCT 1312	379	0.	*	12 OCT 0552	629	0.	*	12 OCT 2232	879	0.
10 OCT 2036	130	0.	*	11 OCT 1316	380	0.	*	12 OCT 0556	630	0.	*	12 OCT 2236	880	0.
10 OCT 2040	131	0.	*	11 OCT 1320	381	0.	*	12 OCT 0600	631	0.	*	12 OCT 2240	881	0.
10 OCT 2044	132	0.	*	11 OCT 1324	382	0.	*	12 OCT 0604	632	0.	*	12 OCT 2244	882	0.
10 OCT 2048	133	0.	*	11 OCT 1328	383	0.	*	12 OCT 0608	633	0.	*	12 OCT 2248	883	0.
10 OCT 2052	134	0.	*	11 OCT 1332	384	0.	*	12 OCT 0612	634	0.	*	12 OCT 2252	884	0.
10 OCT 2056	135	0.	*	11 OCT 1336	385	0.	*	12 OCT 0616	635	0.	*	12 OCT 2256	885	0.
10 OCT 2100	136	0.	*	11 OCT 1340	386	0.	*	12 OCT 0620	636	0.	*	12 OCT 2300	886	0.
10 OCT 2104	137	0.	*	11 OCT 1344	387	0.	*	12 OCT 0624	637	0.	*	12 OCT 2304	887	0.
10 OCT 2108	138	0.	*	11 OCT 1348	388	0.	*	12 OCT 0628	638	0.	*	12 OCT 2308	888	0.
10 OCT 2112	139	0.	*	11 OCT 1352	389	0.	*	12 OCT 0632	639	0.	*	12 OCT 2312	889	0.
10 OCT 2116	140	0.	*	11 OCT 1356	390	0.	*	12 OCT 0636	640	0.	*	12 OCT 2316	890	0.
10 OCT 2120	141	0.	*	11 OCT 1400	391	0.	*	12 OCT 0640	641	0.	*	12 OCT 2320	891	0.
10 OCT 2124	142	0.	*	11 OCT 1404	392	0.	*	12 OCT 0644	642	0.	*	12 OCT 2324	892	0.
10 OCT 2128	143	0.	*	11 OCT 1408	393	0.	*	12 OCT 0648	643	0.	*	12 OCT 2328	893	0.
10 OCT 2132	144	0.	*	11 OCT 1412	394	0.	*	12 OCT 0652	644	0.	*	12 OCT 2332	894	0.
10 OCT 2136	145	0.	*	11 OCT 1416	395	0.	*	12 OCT 0656	645	0.	*	12 OCT 2336	895	0.
10 OCT 2140	146	0.	*	11 OCT 1420	396	0.	*	12 OCT 0700	646	0.	*	12 OCT 2340	896	0.
10 OCT 2144	147	0.	*	11 OCT 1424	397	0.	*	12 OCT 0704	647	0.	*	12 OCT 2344	897	0.
10 OCT 2148	148	0.	*	11 OCT 1428	398	0.	*	12 OCT 0708	648	0.	*	12 OCT 2348	898	0.
10 OCT 2152	149	0.	*	11 OCT 1432	399	0.	*	12 OCT 0712	649	0.	*	12 OCT 2352	899	0.
10 OCT 2156	150	0.	*	11 OCT 1436	400	0.	*	12 OCT 0716	650	0.	*	12 OCT 2356	900	0.
10 OCT 2200	151	0.	*	11 OCT 1440	401	0.	*	12 OCT 0720	651	0.	*	13 OCT 0000	901	0.
10 OCT 2204	152	0.	*	11 OCT 1444	402	0.	*	12 OCT 0724	652	0.	*	13 OCT 0004	902	0.
10 OCT 2208	153	0.	*	11 OCT 1448	403	0.	*	12 OCT 0728	653	0.	*	13 OCT 0008	903	0.
10 OCT 2212	154	0.	*	11 OCT 1452	404	0.	*	12 OCT 0732	654	0.	*	13 OCT 0012	904	0.
10 OCT 2216	155	0.	*	11 OCT 1456	405	0.	*	12 OCT 0736	655	0.	*	13 OCT 0016	905	0.
10 OCT 2220	156	0.	*	11 OCT 1500	406	0.	*	12 OCT 0740	656	0.	*	13 OCT 0020	906	0.
10 OCT 2224	157	0.	*	11 OCT 1504	407	0.	*	12 OCT 0744	657	0.	*	13 OCT 0024	907	0.
10 OCT 2228	158	0.	*	11 OCT 1508	408	0.	*	12 OCT 0748	658	0.	*	13 OCT 0028	908	0.
10 OCT 2232	159	0.	*	11 OCT 1512	409	0.	*	12 OCT 0752	659	0.	*	13 OCT 0032	909	0.
10 OCT 2236	160	0.	*	11 OCT 1516	410	0.	*	12 OCT 0756	660	0.	*	13 OCT 0036	910	0.
10 OCT 2240	161	0.	*	11 OCT 1520	411	0.	*	12 OCT 0800	661	0.	*	13 OCT 0040	911	0.
10 OCT 2244	162	0.	*	11 OCT 1524	412	0.	*	12 OCT 0804	662	0.	*	13 OCT 0044	912	0.
10 OCT 2248	163	0.	*	11 OCT 1528	413	0.	*	12 OCT 0808	663	0.	*	13 OCT 0048	913	0.
10 OCT 2252	164	0.	*	11 OCT 1532	414	0.	*	12 OCT 0812	664	0.	*	13 OCT 0052	914	0.
10 OCT 2256	165	0.	*	11 OCT 1536	415	0.	*	12 OCT 0816	665	0.	*	13 OCT 0056	915	0.
10 OCT 2300	166	0.	*	11 OCT 1540	416	0.	*	12 OCT 0820	666	0.	*	13 OCT 0100	916	0.
10 OCT 2304	167	0.	*	11 OCT 1544	417	0.	*	12 OCT 0824	667	0.	*	13 OCT 0104	917	0.
10 OCT 2308	168	0.	*	11 OCT 1548	418	0.	*	12 OCT 0828	668	0.	*	13 OCT 0108	918	0.
10 OCT 2312	169	0.	*	11 OCT 1552	419	0.	*	12 OCT 0832	669	0.	*	13 OCT 0112	919	0.
10 OCT 2316	170	0.	*	11 OCT 1556	420	0.	*	12 OCT 0836	670	0.	*	13 OCT 0116	920	0.
10 OCT 2320	171	0.	*	11 OCT 1600	421	0.	*	12 OCT 0840	671	0.	*	13 OCT 0120	921	0.
10 OCT 2324	172	0.	*	11 OCT 1604	422	0.	*	12 OCT 0844	672	0.	*	13 OCT 0124	922	0.
10 OCT 2328	173	0.	*	11 OCT 1608	423	0.	*	12 OCT 0848	673	0.	*	13 OCT 0128	923	0.
10 OCT 2332	174	0.	*	11 OCT 1612	424	0.	*	12 OCT 0852	674	0.	*	13 OCT 0132	924	0.
10 OCT 2336	175	0.	*	11 OCT 1616	425	0.	*	12 OCT 0856	675	0.	*	13 OCT 0136	925	0.
10 OCT 2340	176	0.	*	11 OCT 1620	426	0.	*	12 OCT 0900	676	0.	*	13 OCT 0140	926	0.
10 OCT 2344	177	0.	*	11 OCT 1624	427	0.	*	12 OCT 0904	677	0.	*	13 OCT 0144	927	0.
10 OCT 2348	178	0.	*	11 OCT 1628	428	0.	*	12 OCT 0908	678	0.	*	13 OCT 0148	928	0.
10 OCT 2352	179	0.	*	11 OCT 1632	429	0.	*	12 OCT 0912	679	0.	*	13 OCT 0152	929	0.
10 OCT 2356	180	66.	*	11 OCT 1636	430	0.	*	12 OCT 0916	680	0.	*	13 OCT 0156	930	0.
11 OCT 0000	181	178.	*	11 OCT 1640	431	0.	*	12 OCT 0920	681	0.	*	13 OCT 0200	931	0.
11 OCT 0004	182	295.	*	11 OCT 1644	432	0.	*	12 OCT 0924	682	0.	*	13 OCT 0204	932	0.
11 OCT 0008	183	484.	*	11 OCT 1648	433	0.	*	12 OCT 0928	683	0.	*	13 OCT 0208	933	0.
11 OCT 0012	184	676.	*	11 OCT 1652	434	0.	*	12 OCT 0932	684	0.	*	13 OCT 0212	934	0.
11 OCT 0016	185	821.	*	11 OCT 1656	435	0.	*	12 OCT 0936	685	0.	*	13 OCT 0216	935	0.
11 OCT 0020	186	918.	*	11 OCT 1700	436	0.	*	12 OCT 0940	686	0.	*	13 OCT 0220	936	0.
11 OCT 0024	187	991.	*	11 OCT 1704	437	0.	*	12 OCT 0944	687	0.	*	13 OCT 0224	937	0.
11 OCT 0028	188	1016.	*	11 OCT 1708	438	0.	*	12 OCT 0948	688	0.	*	13 OCT 0228	938	0.
11 OCT 0032	189	894.	*	11 OCT 1712	439	0.	*	12 OCT 0952	689	0.	*	13 OCT 0232	939	0.
11 OCT 0036	190	711.	*	11 OCT 1716	440	0.	*	12 OCT 0956	690	0.	*	13 OCT 0236	940	0.
11 OCT 0040	191	488.	*	11 OCT 1720	441	0.	*	12 OCT 1000	691	0.	*	13 OCT 0240	941	0.

11 OCT	0044	192	329.	*	11 OCT	1724	442	0.	*	12 OCT	1004	692	0.	*	13 OCT	0244	942	0.
11 OCT	0048	193	239.	*	11 OCT	1728	443	0.	*	12 OCT	1008	693	0.	*	13 OCT	0248	943	0.
11 OCT	0052	194	186.	*	11 OCT	1732	444	0.	*	12 OCT	1012	694	0.	*	13 OCT	0252	944	0.
11 OCT	0056	195	152.	*	11 OCT	1736	445	0.	*	12 OCT	1016	695	0.	*	13 OCT	0256	945	0.
11 OCT	0100	196	128.	*	11 OCT	1740	446	0.	*	12 OCT	1020	696	0.	*	13 OCT	0300	946	0.
11 OCT	0104	197	111.	*	11 OCT	1744	447	0.	*	12 OCT	1024	697	0.	*	13 OCT	0304	947	0.
11 OCT	0108	198	100.	*	11 OCT	1748	448	0.	*	12 OCT	1028	698	0.	*	13 OCT	0308	948	0.
11 OCT	0112	199	91.	*	11 OCT	1752	449	0.	*	12 OCT	1032	699	0.	*	13 OCT	0312	949	0.
11 OCT	0116	200	81.	*	11 OCT	1756	450	0.	*	12 OCT	1036	700	0.	*	13 OCT	0316	950	0.
11 OCT	0120	201	72.	*	11 OCT	1800	451	0.	*	12 OCT	1040	701	0.	*	13 OCT	0320	951	0.
11 OCT	0124	202	66.	*	11 OCT	1804	452	0.	*	12 OCT	1044	702	0.	*	13 OCT	0324	952	0.
11 OCT	0128	203	63.	*	11 OCT	1808	453	0.	*	12 OCT	1048	703	0.	*	13 OCT	0328	953	0.
11 OCT	0132	204	63.	*	11 OCT	1812	454	0.	*	12 OCT	1052	704	0.	*	13 OCT	0332	954	0.
11 OCT	0136	205	62.	*	11 OCT	1816	455	0.	*	12 OCT	1056	705	0.	*	13 OCT	0336	955	0.
11 OCT	0140	206	59.	*	11 OCT	1820	456	0.	*	12 OCT	1100	706	0.	*	13 OCT	0340	956	0.
11 OCT	0144	207	54.	*	11 OCT	1824	457	0.	*	12 OCT	1104	707	0.	*	13 OCT	0344	957	0.
11 OCT	0148	208	50.	*	11 OCT	1828	458	0.	*	12 OCT	1108	708	0.	*	13 OCT	0348	958	0.
11 OCT	0152	209	45.	*	11 OCT	1832	459	0.	*	12 OCT	1112	709	0.	*	13 OCT	0352	959	0.
11 OCT	0156	210	40.	*	11 OCT	1836	460	0.	*	12 OCT	1116	710	0.	*	13 OCT	0356	960	0.
11 OCT	0200	211	36.	*	11 OCT	1840	461	0.	*	12 OCT	1120	711	0.	*	13 OCT	0400	961	0.
11 OCT	0204	212	31.	*	11 OCT	1844	462	0.	*	12 OCT	1124	712	0.	*	13 OCT	0404	962	0.
11 OCT	0208	213	26.	*	11 OCT	1848	463	0.	*	12 OCT	1128	713	0.	*	13 OCT	0408	963	0.
11 OCT	0212	214	21.	*	11 OCT	1852	464	0.	*	12 OCT	1132	714	0.	*	13 OCT	0412	964	0.
11 OCT	0216	215	16.	*	11 OCT	1856	465	0.	*	12 OCT	1136	715	0.	*	13 OCT	0416	965	0.
11 OCT	0220	216	11.	*	11 OCT	1900	466	0.	*	12 OCT	1140	716	0.	*	13 OCT	0420	966	0.
11 OCT	0224	217	9.	*	11 OCT	1904	467	0.	*	12 OCT	1144	717	0.	*	13 OCT	0424	967	0.
11 OCT	0228	218	7.	*	11 OCT	1908	468	0.	*	12 OCT	1148	718	0.	*	13 OCT	0428	968	0.
11 OCT	0232	219	5.	*	11 OCT	1912	469	0.	*	12 OCT	1152	719	0.	*	13 OCT	0432	969	0.
11 OCT	0236	220	3.	*	11 OCT	1916	470	0.	*	12 OCT	1156	720	0.	*	13 OCT	0436	970	0.
11 OCT	0240	221	1.	*	11 OCT	1920	471	0.	*	12 OCT	1200	721	0.	*	13 OCT	0440	971	0.
11 OCT	0244	222	0.	*	11 OCT	1924	472	0.	*	12 OCT	1204	722	0.	*	13 OCT	0444	972	0.
11 OCT	0248	223	0.	*	11 OCT	1928	473	0.	*	12 OCT	1208	723	0.	*	13 OCT	0448	973	0.
11 OCT	0252	224	0.	*	11 OCT	1932	474	0.	*	12 OCT	1212	724	0.	*	13 OCT	0452	974	0.
11 OCT	0256	225	0.	*	11 OCT	1936	475	0.	*	12 OCT	1216	725	0.	*	13 OCT	0456	975	0.
11 OCT	0300	226	0.	*	11 OCT	1940	476	0.	*	12 OCT	1220	726	0.	*	13 OCT	0500	976	0.
11 OCT	0304	227	0.	*	11 OCT	1944	477	0.	*	12 OCT	1224	727	0.	*	13 OCT	0504	977	0.
11 OCT	0308	228	0.	*	11 OCT	1948	478	0.	*	12 OCT	1228	728	0.	*	13 OCT	0508	978	0.
11 OCT	0312	229	0.	*	11 OCT	1952	479	0.	*	12 OCT	1232	729	0.	*	13 OCT	0512	979	0.
11 OCT	0316	230	0.	*	11 OCT	1956	480	0.	*	12 OCT	1236	730	0.	*	13 OCT	0516	980	0.
11 OCT	0320	231	0.	*	11 OCT	2000	481	0.	*	12 OCT	1240	731	0.	*	13 OCT	0520	981	0.
11 OCT	0324	232	0.	*	11 OCT	2004	482	0.	*	12 OCT	1244	732	0.	*	13 OCT	0524	982	0.
11 OCT	0328	233	0.	*	11 OCT	2008	483	0.	*	12 OCT	1248	733	0.	*	13 OCT	0528	983	0.
11 OCT	0332	234	0.	*	11 OCT	2012	484	0.	*	12 OCT	1252	734	0.	*	13 OCT	0532	984	0.
11 OCT	0336	235	0.	*	11 OCT	2016	485	0.	*	12 OCT	1256	735	0.	*	13 OCT	0536	985	0.
11 OCT	0340	236	0.	*	11 OCT	2020	486	0.	*	12 OCT	1300	736	0.	*	13 OCT	0540	986	0.
11 OCT	0344	237	0.	*	11 OCT	2024	487	0.	*	12 OCT	1304	737	0.	*	13 OCT	0544	987	0.
11 OCT	0348	238	0.	*	11 OCT	2028	488	0.	*	12 OCT	1308	738	0.	*	13 OCT	0548	988	0.
11 OCT	0352	239	0.	*	11 OCT	2032	489	0.	*	12 OCT	1312	739	0.	*	13 OCT	0552	989	0.
11 OCT	0356	240	0.	*	11 OCT	2036	490	0.	*	12 OCT	1316	740	0.	*	13 OCT	0556	990	0.
11 OCT	0400	241	0.	*	11 OCT	2040	491	0.	*	12 OCT	1320	741	0.	*	13 OCT	0600	991	0.
11 OCT	0404	242	0.	*	11 OCT	2044	492	0.	*	12 OCT	1324	742	0.	*	13 OCT	0604	992	0.
11 OCT	0408	243	0.	*	11 OCT	2048	493	0.	*	12 OCT	1328	743	0.	*	13 OCT	0608	993	0.
11 OCT	0412	244	0.	*	11 OCT	2052	494	0.	*	12 OCT	1332	744	0.	*	13 OCT	0612	994	0.
11 OCT	0416	245	0.	*	11 OCT	2056	495	0.	*	12 OCT	1336	745	0.	*	13 OCT	0616	995	0.
11 OCT	0420	246	0.	*	11 OCT	2100	496	0.	*	12 OCT	1340	746	0.	*	13 OCT	0620	996	0.
11 OCT	0424	247	0.	*	11 OCT	2104	497	0.	*	12 OCT	1344	747	0.	*	13 OCT	0624	997	0.
11 OCT	0428	248	0.	*	11 OCT	2108	498	0.	*	12 OCT	1348	748	0.	*	13 OCT	0628	998	0.
11 OCT	0432	249	0.	*	11 OCT	2112	499	0.	*	12 OCT	1352	749	0.	*	13 OCT	0632	999	0.
11 OCT	0436	250	0.	*	11 OCT	2116	500	0.	*	12 OCT	1356	750	0.	*	13 OCT	0636	1000	0.
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PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
			6-HR	24-HR	72-HR	66.60-HR
+ (CFS)	(HR)					
		(CFS)				
+ 1016.	12.47		108.	27.	10.	10.
		(INCHES)	1.879	1.879	1.879	1.879
		(AC-FT)	53.	53.	53.	53.

CUMULATIVE AREA = .53 SQ MI

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HYDROGRAPH AT STATION N_WIER

DA	MON	HRMN	ORD	FLOW	DA	MON	HRMN	ORD	FLOW	DA	MON	HRMN	ORD	FLOW	DA	MON	HRMN	ORD	FLOW
10	OCT	1200	1	0.	11	OCT	0440	251	677.	11	OCT	2120	501	12.	12	OCT	1400	751	0.
10	OCT	1204	2	0.	11	OCT	0444	252	673.	11	OCT	2124	502	12.	12	OCT	1404	752	0.
10	OCT	1208	3	0.	11	OCT	0448	253	669.	11	OCT	2128	503	11.	12	OCT	1408	753	0.
10	OCT	1212	4	1.	11	OCT	0452	254	666.	11	OCT	2132	504	11.	12	OCT	1412	754	0.
10	OCT	1216	5	1.	11	OCT	0456	255	662.	11	OCT	2136	505	10.	12	OCT	1416	755	0.
10	OCT	1220	6	2.	11	OCT	0500	256	659.	11	OCT	2140	506	10.	12	OCT	1420	756	0.
10	OCT	1224	7	2.	11	OCT	0504	257	656.	11	OCT	2144	507	10.	12	OCT	1424	757	0.
10	OCT	1228	8	3.	11	OCT	0508	258	653.	11	OCT	2148	508	10.	12	OCT	1428	758	0.
10	OCT	1232	9	3.	11	OCT	0512	259	650.	11	OCT	2152	509	9.	12	OCT	1432	759	0.
10	OCT	1236	10	5.	11	OCT	0516	260	646.	11	OCT	2156	510	9.	12	OCT	1436	760	0.
10	OCT	1240	11	6.	11	OCT	0520	261	643.	11	OCT	2200	511	9.	12	OCT	1440	761	0.
10	OCT	1244	12	8.	11	OCT	0524	262	639.	11	OCT	2204	512	8.	12	OCT	1444	762	0.
10	OCT	1248	13	9.	11	OCT	0528	263	636.	11	OCT	2208	513	8.	12	OCT	1448	763	0.
10	OCT	1252	14	10.	11	OCT	0532	264	632.	11	OCT	2212	514	8.	12	OCT	1452	764	0.
10	OCT	1256	15	11.	11	OCT	0536	265	629.	11	OCT	2216	515	8.	12	OCT	1456	765	0.
10	OCT	1300	16	12.	11	OCT	0540	266	625.	11	OCT	2220	516	7.	12	OCT	1500	766	0.
10	OCT	1304	17	12.	11	OCT	0544	267	620.	11	OCT	2224	517	7.	12	OCT	1504	767	0.
10	OCT	1308	18	13.	11	OCT	0548	268	616.	11	OCT	2228	518	7.	12	OCT	1508	768	0.
10	OCT	1312	19	14.	11	OCT	0552	269	612.	11	OCT	2232	519	7.	12	OCT	1512	769	0.
10	OCT	1316	20	14.	11	OCT	0556	270	607.	11	OCT	2236	520	7.	12	OCT	1516	770	0.
10	OCT	1320	21	15.	11	OCT	0600	271	603.	11	OCT	2240	521	6.	12	OCT	1520	771	0.
10	OCT	1324	22	15.	11	OCT	0604	272	599.	11	OCT	2244	522	6.	12	OCT	1524	772	0.
10	OCT	1328	23	15.	11	OCT	0608	273	595.	11	OCT	2248	523	6.	12	OCT	1528	773	0.
10	OCT	1332	24	16.	11	OCT	0612	274	590.	11	OCT	2252	524	6.	12	OCT	1532	774	0.
10	OCT	1336	25	16.	11	OCT	0616	275	585.	11	OCT	2256	525	6.	12	OCT	1536	775	0.
10	OCT	1340	26	16.	11	OCT	0620	276	581.	11	OCT	2300	526	6.	12	OCT	1540	776	0.
10	OCT	1344	27	16.	11	OCT	0624	277	576.	11	OCT	2304	527	6.	12	OCT	1544	777	0.
10	OCT	1348	28	16.	11	OCT	0628	278	572.	11	OCT	2308	528	5.	12	OCT	1548	778	0.
10	OCT	1352	29	17.	11	OCT	0632	279	568.	11	OCT	2312	529	5.	12	OCT	1552	779	0.
10	OCT	1356	30	17.	11	OCT	0636	280	564.	11	OCT	2316	530	5.	12	OCT	1556	780	0.
10	OCT	1400	31	18.	11	OCT	0640	281	560.	11	OCT	2320	531	5.	12	OCT	1600	781	0.
10	OCT	1404	32	18.	11	OCT	0644	282	556.	11	OCT	2324	532	5.	12	OCT	1604	782	0.
10	OCT	1408	33	19.	11	OCT	0648	283	552.	11	OCT	2328	533	5.	12	OCT	1608	783	0.
10	OCT	1412	34	20.	11	OCT	0652	284	549.	11	OCT	2332	534	5.	12	OCT	1612	784	0.
10	OCT	1416	35	20.	11	OCT	0656	285	545.	11	OCT	2336	535	5.	12	OCT	1616	785	0.
10	OCT	1420	36	21.	11	OCT	0700	286	542.	11	OCT	2340	536	4.	12	OCT	1620	786	0.
10	OCT	1424	37	22.	11	OCT	0704	287	539.	11	OCT	2344	537	4.	12	OCT	1624	787	0.
10	OCT	1428	38	22.	11	OCT	0708	288	537.	11	OCT	2348	538	4.	12	OCT	1628	788	0.
10	OCT	1432	39	23.	11	OCT	0712	289	534.	11	OCT	2352	539	4.	12	OCT	1632	789	0.
10	OCT	1436	40	23.	11	OCT	0716	290	531.	11	OCT	2356	540	4.	12	OCT	1636	790	0.
10	OCT	1440	41	24.	11	OCT	0720	291	529.	12	OCT	0000	541	4.	12	OCT	1640	791	0.
10	OCT	1444	42	24.	11	OCT	0724	292	527.	12	OCT	0004	542	4.	12	OCT	1644	792	0.
10	OCT	1448	43	25.	11	OCT	0728	293	524.	12	OCT	0008	543	4.	12	OCT	1648	793	0.
10	OCT	1452	44	26.	11	OCT	0732	294	522.	12	OCT	0012	544	4.	12	OCT	1652	794	0.
10	OCT	1456	45	26.	11	OCT	0736	295	519.	12	OCT	0016	545	4.	12	OCT	1656	795	0.
10	OCT	1500	46	27.	11	OCT	0740	296	517.	12	OCT	0020	546	3.	12	OCT	1700	796	0.
10	OCT	1504	47	28.	11	OCT	0744	297	514.	12	OCT	0024	547	3.	12	OCT	1704	797	0.
10	OCT	1508	48	28.	11	OCT	0748	298	511.	12	OCT	0028	548	3.	12	OCT	1708	798	0.
10	OCT	1512	49	29.	11	OCT	0752	299	508.	12	OCT	0032	549	3.	12	OCT	1712	799	0.
10	OCT	1516	50	30.	11	OCT	0756	300	505.	12	OCT	0036	550	3.	12	OCT	1716	800	0.
10	OCT	1520	51	30.	11	OCT	0800	301	502.	12	OCT	0040	551	3.	12	OCT	1720	801	0.
10	OCT	1524	52	31.	11	OCT	0804	302	499.	12	OCT	0044	552	3.	12	OCT	1724	802	0.
10	OCT	1528	53	31.	11	OCT	0808	303	496.	12	OCT	0048	553	3.	12	OCT	1728	803	0.
10	OCT	1532	54	32.	11	OCT	0812	304	493.	12	OCT	0052	554	3.	12	OCT	1732	804	0.
10	OCT	1536	55	32.	11	OCT	0816	305	489.	12	OCT	0056	555	3.	12	OCT	1736	805	0.
10	OCT	1540	56	32.	11	OCT	0820	306	486.	12	OCT	0100	556	3.	12	OCT	1740	806	0.
10	OCT	1544	57	32.	11	OCT	0824	307	484.	12	OCT	0104	557	3.	12	OCT	1744	807	0.
10	OCT	1548	58	33.	11	OCT	0828	308	481.	12	OCT	0108	558	3.	12	OCT	1748	808	0.
10	OCT	1552	59	33.	11	OCT	0832	309	478.	12	OCT	0112	559	3.	12	OCT	1752	809	0.
10	OCT	1556	60	34.	11	OCT	0836	310	475.	12	OCT	0116	560	3.	12	OCT	1756	810	0.
10	OCT	1600	61	34.	11	OCT	0840	311	472.	12	OCT	0120	561	3.	12	OCT	1800	811	0.
10	OCT	1604	62	35.	11	OCT	0844	312	469.	12	OCT	0124	562	2.	12	OCT	1804	812	0.
10	OCT	1608	63	35.	11	OCT	0848	313	466.	12	OCT	0128	563	2.	12	OCT	1808	813	0.
10	OCT	1612	64	36.	11	OCT	0852	314	463.	12	OCT	0132	564	2.	12	OCT	1812	814	0.
10	OCT	1616	65	37.	11	OCT	0856	315	459.	12	OCT	0136	565	2.	12	OCT	1816	815	0.
10	OCT	1620	66	38.	11	OCT	0900	316	456.	12	OCT	0140	566	2.	12	OCT	1820	816	0.
10	OCT	1624	67	38.	11	OCT	0904	317	453.	12	OCT	0144	567	2.	12	OCT	1824	817	0.
10	OCT	1628	68	39.	11	OCT	0908	318	449.	12	OCT	0148	568	2.	12	OCT	1828	818	0.
10	OCT	1632	69	39.	11	OCT	0912	319	446.	12	OCT	0152	569	2.	12	OCT	1832	819	0.
10	OCT	1636	70	40.	11	OCT	0916	320	444.	12	OCT	0156	570	2.	12	OCT	1836	820	0.
10	OCT	1640	71	41.	11	OCT	0920	321	441.	12	OCT	0200	571	2.	12	OCT	1840	821	0.
10	OCT	1644	72	41.	11	OCT	0924	322	439.	12	OCT	0204	572	2.	12	OCT	1844	822	0.
10	OCT	1648	73	42.	11	OCT	0928	323	437.	12	OCT	0208	573	2.	12	OCT	1848	823	0.

10	OCT	1652	74	42.	*	11	OCT	0932	324	435.	*	12	OCT	0212	574	2.	*	12	OCT	1852	824	0.
10	OCT	1656	75	42.	*	11	OCT	0936	325	434.	*	12	OCT	0216	575	2.	*	12	OCT	1856	825	0.
10	OCT	1700	76	43.	*	11	OCT	0940	326	432.	*	12	OCT	0220	576	2.	*	12	OCT	1900	826	0.
10	OCT	1704	77	43.	*	11	OCT	0944	327	430.	*	12	OCT	0224	577	2.	*	12	OCT	1904	827	0.
10	OCT	1708	78	43.	*	11	OCT	0948	328	428.	*	12	OCT	0228	578	2.	*	12	OCT	1908	828	0.
10	OCT	1712	79	43.	*	11	OCT	0952	329	426.	*	12	OCT	0232	579	2.	*	12	OCT	1912	829	0.
10	OCT	1716	80	44.	*	11	OCT	0956	330	424.	*	12	OCT	0236	580	2.	*	12	OCT	1916	830	0.
10	OCT	1720	81	44.	*	11	OCT	1000	331	421.	*	12	OCT	0240	581	2.	*	12	OCT	1920	831	0.
10	OCT	1724	82	44.	*	11	OCT	1004	332	418.	*	12	OCT	0244	582	2.	*	12	OCT	1924	832	0.
10	OCT	1728	83	45.	*	11	OCT	1008	333	416.	*	12	OCT	0248	583	2.	*	12	OCT	1928	833	0.
10	OCT	1732	84	45.	*	11	OCT	1012	334	413.	*	12	OCT	0252	584	2.	*	12	OCT	1932	834	0.
10	OCT	1736	85	46.	*	11	OCT	1016	335	410.	*	12	OCT	0256	585	2.	*	12	OCT	1936	835	0.
10	OCT	1740	86	47.	*	11	OCT	1020	336	407.	*	12	OCT	0300	586	2.	*	12	OCT	1940	836	0.
10	OCT	1744	87	47.	*	11	OCT	1024	337	404.	*	12	OCT	0304	587	1.	*	12	OCT	1944	837	0.
10	OCT	1748	88	48.	*	11	OCT	1028	338	401.	*	12	OCT	0308	588	1.	*	12	OCT	1948	838	0.
10	OCT	1752	89	48.	*	11	OCT	1032	339	399.	*	12	OCT	0312	589	1.	*	12	OCT	1952	839	0.
10	OCT	1756	90	49.	*	11	OCT	1036	340	397.	*	12	OCT	0316	590	1.	*	12	OCT	1956	840	0.
10	OCT	1800	91	49.	*	11	OCT	1040	341	394.	*	12	OCT	0320	591	1.	*	12	OCT	2000	841	0.
10	OCT	1804	92	50.	*	11	OCT	1044	342	392.	*	12	OCT	0324	592	1.	*	12	OCT	2004	842	0.
10	OCT	1808	93	50.	*	11	OCT	1048	343	389.	*	12	OCT	0328	593	1.	*	12	OCT	2008	843	0.
10	OCT	1812	94	51.	*	11	OCT	1052	344	386.	*	12	OCT	0332	594	1.	*	12	OCT	2012	844	0.
10	OCT	1816	95	52.	*	11	OCT	1056	345	384.	*	12	OCT	0336	595	1.	*	12	OCT	2016	845	0.
10	OCT	1820	96	52.	*	11	OCT	1100	346	381.	*	12	OCT	0340	596	1.	*	12	OCT	2020	846	0.
10	OCT	1824	97	53.	*	11	OCT	1104	347	378.	*	12	OCT	0344	597	1.	*	12	OCT	2024	847	0.
10	OCT	1828	98	53.	*	11	OCT	1108	348	375.	*	12	OCT	0348	598	1.	*	12	OCT	2028	848	0.
10	OCT	1832	99	54.	*	11	OCT	1112	349	373.	*	12	OCT	0352	599	1.	*	12	OCT	2032	849	0.
10	OCT	1836	100	54.	*	11	OCT	1116	350	371.	*	12	OCT	0356	600	1.	*	12	OCT	2036	850	0.
10	OCT	1840	101	54.	*	11	OCT	1120	351	369.	*	12	OCT	0400	601	1.	*	12	OCT	2040	851	0.
10	OCT	1844	102	55.	*	11	OCT	1124	352	367.	*	12	OCT	0404	602	1.	*	12	OCT	2044	852	0.
10	OCT	1848	103	55.	*	11	OCT	1128	353	365.	*	12	OCT	0408	603	1.	*	12	OCT	2048	853	0.
10	OCT	1852	104	55.	*	11	OCT	1132	354	364.	*	12	OCT	0412	604	1.	*	12	OCT	2052	854	0.
10	OCT	1856	105	56.	*	11	OCT	1136	355	362.	*	12	OCT	0416	605	1.	*	12	OCT	2056	855	0.
10	OCT	1900	106	56.	*	11	OCT	1140	356	360.	*	12	OCT	0420	606	1.	*	12	OCT	2100	856	0.
10	OCT	1904	107	57.	*	11	OCT	1144	357	358.	*	12	OCT	0424	607	1.	*	12	OCT	2104	857	0.
10	OCT	1908	108	57.	*	11	OCT	1148	358	355.	*	12	OCT	0428	608	1.	*	12	OCT	2108	858	0.
10	OCT	1912	109	58.	*	11	OCT	1152	359	352.	*	12	OCT	0432	609	1.	*	12	OCT	2112	859	0.
10	OCT	1916	110	58.	*	11	OCT	1156	360	349.	*	12	OCT	0436	610	1.	*	12	OCT	2116	860	0.
10	OCT	1920	111	59.	*	11	OCT	1200	361	346.	*	12	OCT	0440	611	1.	*	12	OCT	2120	861	0.
10	OCT	1924	112	59.	*	11	OCT	1204	362	342.	*	12	OCT	0444	612	1.	*	12	OCT	2124	862	0.
10	OCT	1928	113	60.	*	11	OCT	1208	363	337.	*	12	OCT	0448	613	1.	*	12	OCT	2128	863	0.
10	OCT	1932	114	60.	*	11	OCT	1212	364	330.	*	12	OCT	0452	614	1.	*	12	OCT	2132	864	0.
10	OCT	1936	115	61.	*	11	OCT	1216	365	323.	*	12	OCT	0456	615	1.	*	12	OCT	2136	865	0.
10	OCT	1940	116	62.	*	11	OCT	1220	366	315.	*	12	OCT	0500	616	1.	*	12	OCT	2140	866	0.
10	OCT	1944	117	63.	*	11	OCT	1224	367	307.	*	12	OCT	0504	617	1.	*	12	OCT	2144	867	0.
10	OCT	1948	118	64.	*	11	OCT	1228	368	300.	*	12	OCT	0508	618	1.	*	12	OCT	2148	868	0.
10	OCT	1952	119	64.	*	11	OCT	1232	369	294.	*	12	OCT	0512	619	1.	*	12	OCT	2152	869	0.
10	OCT	1956	120	65.	*	11	OCT	1236	370	286.	*	12	OCT	0516	620	1.	*	12	OCT	2156	870	0.
10	OCT	2000	121	65.	*	11	OCT	1240	371	279.	*	12	OCT	0520	621	1.	*	12	OCT	2200	871	0.
10	OCT	2004	122	66.	*	11	OCT	1244	372	271.	*	12	OCT	0524	622	1.	*	12	OCT	2204	872	0.
10	OCT	2008	123	66.	*	11	OCT	1248	373	263.	*	12	OCT	0528	623	1.	*	12	OCT	2208	873	0.
10	OCT	2012	124	67.	*	11	OCT	1252	374	256.	*	12	OCT	0532	624	1.	*	12	OCT	2212	874	0.
10	OCT	2016	125	68.	*	11	OCT	1256	375	249.	*	12	OCT	0536	625	1.	*	12	OCT	2216	875	0.
10	OCT	2020	126	68.	*	11	OCT	1300	376	243.	*	12	OCT	0540	626	1.	*	12	OCT	2220	876	0.
10	OCT	2024	127	69.	*	11	OCT	1304	377	238.	*	12	OCT	0544	627	1.	*	12	OCT	2224	877	0.
10	OCT	2028	128	70.	*	11	OCT	1308	378	233.	*	12	OCT	0548	628	1.	*	12	OCT	2228	878	0.
10	OCT	2032	129	71.	*	11	OCT	1312	379	229.	*	12	OCT	0552	629	1.	*	12	OCT	2232	879	0.
10	OCT	2036	130	72.	*	11	OCT	1316	380	226.	*	12	OCT	0556	630	1.	*	12	OCT	2236	880	0.
10	OCT	2040	131	73.	*	11	OCT	1320	381	222.	*	12	OCT	0600	631	1.	*	12	OCT	2240	881	0.
10	OCT	2044	132	74.	*	11	OCT	1324	382	219.	*	12	OCT	0604	632	1.	*	12	OCT	2244	882	0.
10	OCT	2048	133	75.	*	11	OCT	1328	383	216.	*	12	OCT	0608	633	1.	*	12	OCT	2248	883	0.
10	OCT	2052	134	76.	*	11	OCT	1332	384	213.	*	12	OCT	0612	634	1.	*	12	OCT	2252	884	0.
10	OCT	2056	135	77.	*	11	OCT	1336	385	210.	*	12	OCT	0616	635	1.	*	12	OCT	2256	885	0.
10	OCT	2100	136	77.	*	11	OCT	1340	386	207.	*	12	OCT	0620	636	1.	*	12	OCT	2300	886	0.
10	OCT	2104	137	78.	*	11	OCT	1344	387	204.	*	12	OCT	0624	637	1.	*	12	OCT	2304	887	0.
10	OCT	2108	138	79.	*	11	OCT	1348	388	201.	*	12	OCT	0628	638	1.	*	12	OCT	2308	888	0.
10	OCT	2112	139	80.	*	11	OCT	1352	389	199.	*	12	OCT	0632	639	1.	*	12	OCT	2312	889	0.
10	OCT	2116	140	81.	*	11	OCT	1356	390	196.	*	12	OCT	0636	640	1.	*	12	OCT	2316	890	0.
10	OCT	2120	141	82.	*	11	OCT	1400	391	193.	*	12	OCT	0640	641	1.	*	12	OCT	2320	891	0.
10	OCT	2124	142	83.	*	11	OCT	1404	392	191.	*	12	OCT	0644	642	1.	*	12	OCT	2324	892	0.
10	OCT	2128	143	84.	*	11	OCT	1408	393	189.	*	12	OCT	0648	643	1.	*	12	OCT	2328	893	0.
10	OCT	2132	144	85.	*	11	OCT	1412	394	186.	*	12	OCT	0652	644	0.	*	12	OCT	2332	894	0.
10	OCT	2136	145	87.	*	11	OCT	1416	395	184.	*	12	OCT	0656	645	0.	*	12	OCT	2336	895	0.
10	OCT	2140	146	88.	*	11	OCT	1420	396	182.	*	12	OCT	0700	646	0.	*	12	OCT	2340	896	0.
10	OCT	2144	147	90.	*	11	OCT	1424	397	179.	*	12	OCT	0704	647	0.	*	12	OCT	2344	897	0.
10	OCT	2148	148	91.	*	11	OCT	1428	398	177.	*	12	OCT	0708	648	0.	*	12	OCT	2348	898	0.
10	OCT	2152	149	92.	*	11	OCT	1432	399	175.	*	12	OCT	0712	649	0.	*	12	OCT	2352	899	0.
10	OCT	2156	150	93.	*	11	OCT	1436	400	173.	*	12	OCT	0716	650	0.	*	12	OCT	2356	900	0.

10 OCT 2200	151	94.	*	11 OCT 1440	401	171.	*	12 OCT 0720	651	0.	*	13 OCT 0000	901	0.
10 OCT 2204	152	96.	*	11 OCT 1444	402	169.	*	12 OCT 0724	652	0.	*	13 OCT 0004	902	0.
10 OCT 2208	153	97.	*	11 OCT 1448	403	166.	*	12 OCT 0728	653	0.	*	13 OCT 0008	903	0.
10 OCT 2212	154	99.	*	11 OCT 1452	404	164.	*	12 OCT 0732	654	0.	*	13 OCT 0012	904	0.
10 OCT 2216	155	101.	*	11 OCT 1456	405	162.	*	12 OCT 0736	655	0.	*	13 OCT 0016	905	0.
10 OCT 2220	156	103.	*	11 OCT 1500	406	160.	*	12 OCT 0740	656	0.	*	13 OCT 0020	906	0.
10 OCT 2224	157	104.	*	11 OCT 1504	407	158.	*	12 OCT 0744	657	0.	*	13 OCT 0024	907	0.
10 OCT 2228	158	106.	*	11 OCT 1508	408	156.	*	12 OCT 0748	658	0.	*	13 OCT 0028	908	0.
10 OCT 2232	159	108.	*	11 OCT 1512	409	154.	*	12 OCT 0752	659	0.	*	13 OCT 0032	909	0.
10 OCT 2236	160	111.	*	11 OCT 1516	410	152.	*	12 OCT 0756	660	0.	*	13 OCT 0036	910	0.
10 OCT 2240	161	114.	*	11 OCT 1520	411	149.	*	12 OCT 0800	661	0.	*	13 OCT 0040	911	0.
10 OCT 2244	162	117.	*	11 OCT 1524	412	147.	*	12 OCT 0804	662	0.	*	13 OCT 0044	912	0.
10 OCT 2248	163	120.	*	11 OCT 1528	413	145.	*	12 OCT 0808	663	0.	*	13 OCT 0048	913	0.
10 OCT 2252	164	123.	*	11 OCT 1532	414	143.	*	12 OCT 0812	664	0.	*	13 OCT 0052	914	0.
10 OCT 2256	165	127.	*	11 OCT 1536	415	141.	*	12 OCT 0816	665	0.	*	13 OCT 0056	915	0.
10 OCT 2300	166	130.	*	11 OCT 1540	416	139.	*	12 OCT 0820	666	0.	*	13 OCT 0100	916	0.
10 OCT 2304	167	135.	*	11 OCT 1544	417	137.	*	12 OCT 0824	667	0.	*	13 OCT 0104	917	0.
10 OCT 2308	168	141.	*	11 OCT 1548	418	135.	*	12 OCT 0828	668	0.	*	13 OCT 0108	918	0.
10 OCT 2312	169	147.	*	11 OCT 1552	419	133.	*	12 OCT 0832	669	0.	*	13 OCT 0112	919	0.
10 OCT 2316	170	154.	*	11 OCT 1556	420	131.	*	12 OCT 0836	670	0.	*	13 OCT 0116	920	0.
10 OCT 2320	171	161.	*	11 OCT 1600	421	129.	*	12 OCT 0840	671	0.	*	13 OCT 0120	921	0.
10 OCT 2324	172	169.	*	11 OCT 1604	422	127.	*	12 OCT 0844	672	0.	*	13 OCT 0124	922	0.
10 OCT 2328	173	177.	*	11 OCT 1608	423	125.	*	12 OCT 0848	673	0.	*	13 OCT 0128	923	0.
10 OCT 2332	174	189.	*	11 OCT 1612	424	123.	*	12 OCT 0852	674	0.	*	13 OCT 0132	924	0.
10 OCT 2336	175	210.	*	11 OCT 1616	425	122.	*	12 OCT 0856	675	0.	*	13 OCT 0136	925	0.
10 OCT 2340	176	252.	*	11 OCT 1620	426	120.	*	12 OCT 0900	676	0.	*	13 OCT 0140	926	0.
10 OCT 2344	177	323.	*	11 OCT 1624	427	118.	*	12 OCT 0904	677	0.	*	13 OCT 0144	927	0.
10 OCT 2348	178	460.	*	11 OCT 1628	428	116.	*	12 OCT 0908	678	0.	*	13 OCT 0148	928	0.
10 OCT 2352	179	770.	*	11 OCT 1632	429	114.	*	12 OCT 0912	679	0.	*	13 OCT 0152	929	0.
10 OCT 2356	180	1135.	*	11 OCT 1636	430	112.	*	12 OCT 0916	680	0.	*	13 OCT 0156	930	0.
11 OCT 0000	181	1414.	*	11 OCT 1640	431	109.	*	12 OCT 0920	681	0.	*	13 OCT 0200	931	0.
11 OCT 0004	182	1633.	*	11 OCT 1644	432	107.	*	12 OCT 0924	682	0.	*	13 OCT 0204	932	0.
11 OCT 0008	183	1937.	*	11 OCT 1648	433	105.	*	12 OCT 0928	683	0.	*	13 OCT 0208	933	0.
11 OCT 0012	184	2208.	*	11 OCT 1652	434	103.	*	12 OCT 0932	684	0.	*	13 OCT 0212	934	0.
11 OCT 0016	185	2385.	*	11 OCT 1656	435	100.	*	12 OCT 0936	685	0.	*	13 OCT 0216	935	0.
11 OCT 0020	186	2503.	*	11 OCT 1700	436	98.	*	12 OCT 0940	686	0.	*	13 OCT 0220	936	0.
11 OCT 0024	187	2588.	*	11 OCT 1704	437	96.	*	12 OCT 0944	687	0.	*	13 OCT 0224	937	0.
11 OCT 0028	188	2617.	*	11 OCT 1708	438	94.	*	12 OCT 0948	688	0.	*	13 OCT 0228	938	0.
11 OCT 0032	189	2474.	*	11 OCT 1712	439	92.	*	12 OCT 0952	689	0.	*	13 OCT 0232	939	0.
11 OCT 0036	190	2251.	*	11 OCT 1716	440	90.	*	12 OCT 0956	690	0.	*	13 OCT 0236	940	0.
11 OCT 0040	191	1944.	*	11 OCT 1720	441	88.	*	12 OCT 1000	691	0.	*	13 OCT 0240	941	0.
11 OCT 0044	192	1687.	*	11 OCT 1724	442	86.	*	12 OCT 1004	692	0.	*	13 OCT 0244	942	0.
11 OCT 0048	193	1543.	*	11 OCT 1728	443	84.	*	12 OCT 1008	693	0.	*	13 OCT 0248	943	0.
11 OCT 0052	194	1434.	*	11 OCT 1732	444	82.	*	12 OCT 1012	694	0.	*	13 OCT 0252	944	0.
11 OCT 0056	195	1351.	*	11 OCT 1736	445	80.	*	12 OCT 1016	695	0.	*	13 OCT 0256	945	0.
11 OCT 0100	196	1290.	*	11 OCT 1740	446	78.	*	12 OCT 1020	696	0.	*	13 OCT 0300	946	0.
11 OCT 0104	197	1248.	*	11 OCT 1744	447	76.	*	12 OCT 1024	697	0.	*	13 OCT 0304	947	0.
11 OCT 0108	198	1221.	*	11 OCT 1748	448	74.	*	12 OCT 1028	698	0.	*	13 OCT 0308	948	0.
11 OCT 0112	199	1198.	*	11 OCT 1752	449	73.	*	12 OCT 1032	699	0.	*	13 OCT 0312	949	0.
11 OCT 0116	200	1172.	*	11 OCT 1756	450	71.	*	12 OCT 1036	700	0.	*	13 OCT 0316	950	0.
11 OCT 0120	201	1150.	*	11 OCT 1800	451	69.	*	12 OCT 1040	701	0.	*	13 OCT 0320	951	0.
11 OCT 0124	202	1135.	*	11 OCT 1804	452	67.	*	12 OCT 1044	702	0.	*	13 OCT 0324	952	0.
11 OCT 0128	203	1129.	*	11 OCT 1808	453	65.	*	12 OCT 1048	703	0.	*	13 OCT 0328	953	0.
11 OCT 0132	204	1128.	*	11 OCT 1812	454	63.	*	12 OCT 1052	704	0.	*	13 OCT 0332	954	0.
11 OCT 0136	205	1126.	*	11 OCT 1816	455	61.	*	12 OCT 1056	705	0.	*	13 OCT 0336	955	0.
11 OCT 0140	206	1118.	*	11 OCT 1820	456	59.	*	12 OCT 1100	706	0.	*	13 OCT 0340	956	0.
11 OCT 0144	207	1106.	*	11 OCT 1824	457	57.	*	12 OCT 1104	707	0.	*	13 OCT 0344	957	0.
11 OCT 0148	208	1095.	*	11 OCT 1828	458	55.	*	12 OCT 1108	708	0.	*	13 OCT 0348	958	0.
11 OCT 0152	209	1082.	*	11 OCT 1832	459	53.	*	12 OCT 1112	709	0.	*	13 OCT 0352	959	0.
11 OCT 0156	210	1071.	*	11 OCT 1836	460	51.	*	12 OCT 1116	710	0.	*	13 OCT 0356	960	0.
11 OCT 0200	211	1060.	*	11 OCT 1840	461	49.	*	12 OCT 1120	711	0.	*	13 OCT 0400	961	0.
11 OCT 0204	212	1048.	*	11 OCT 1844	462	47.	*	12 OCT 1124	712	0.	*	13 OCT 0404	962	0.
11 OCT 0208	213	1035.	*	11 OCT 1848	463	46.	*	12 OCT 1128	713	0.	*	13 OCT 0408	963	0.
11 OCT 0212	214	1023.	*	11 OCT 1852	464	44.	*	12 OCT 1132	714	0.	*	13 OCT 0412	964	0.
11 OCT 0216	215	1010.	*	11 OCT 1856	465	42.	*	12 OCT 1136	715	0.	*	13 OCT 0416	965	0.
11 OCT 0220	216	997.	*	11 OCT 1900	466	41.	*	12 OCT 1140	716	0.	*	13 OCT 0420	966	0.
11 OCT 0224	217	985.	*	11 OCT 1904	467	39.	*	12 OCT 1144	717	0.	*	13 OCT 0424	967	0.
11 OCT 0228	218	973.	*	11 OCT 1908	468	38.	*	12 OCT 1148	718	0.	*	13 OCT 0428	968	0.
11 OCT 0232	219	960.	*	11 OCT 1912	469	36.	*	12 OCT 1152	719	0.	*	13 OCT 0432	969	0.
11 OCT 0236	220	947.	*	11 OCT 1916	470	35.	*	12 OCT 1156	720	0.	*	13 OCT 0436	970	0.
11 OCT 0240	221	934.	*	11 OCT 1920	471	34.	*	12 OCT 1200	721	0.	*	13 OCT 0440	971	0.
11 OCT 0244	222	920.	*	11 OCT 1924	472	32.	*	12 OCT 1204	722	0.	*	13 OCT 0444	972	0.
11 OCT 0248	223	905.	*	11 OCT 1928	473	31.	*	12 OCT 1208	723	0.	*	13 OCT 0448	973	0.
11 OCT 0252	224	890.	*	11 OCT 1932	474	30.	*	12 OCT 1212	724	0.	*	13 OCT 0452	974	0.
11 OCT 0256	225	877.	*	11 OCT 1936	475	29.	*	12 OCT 1216	725	0.	*	13 OCT 0456	975	0.
11 OCT 0300	226	864.	*	11 OCT 1940	476	28.	*	12 OCT 1220	726	0.	*	13 OCT 0500	976	0.
11 OCT 0304	227	852.	*	11 OCT 1944	477	27.	*	12 OCT 1224	727	0.	*	13 OCT 0504	977	0.

11	OCT	0308	228	840.	*	11	OCT	1948	478	26.	*	12	OCT	1228	728	0.	*	13	OCT	0508	978	0.
11	OCT	0312	229	829.	*	11	OCT	1952	479	25.	*	12	OCT	1232	729	0.	*	13	OCT	0512	979	0.
11	OCT	0316	230	817.	*	11	OCT	1956	480	24.	*	12	OCT	1236	730	0.	*	13	OCT	0516	980	0.
11	OCT	0320	231	806.	*	11	OCT	2000	481	23.	*	12	OCT	1240	731	0.	*	13	OCT	0520	981	0.
11	OCT	0324	232	796.	*	11	OCT	2004	482	22.	*	12	OCT	1244	732	0.	*	13	OCT	0524	982	0.
11	OCT	0328	233	787.	*	11	OCT	2008	483	22.	*	12	OCT	1248	733	0.	*	13	OCT	0528	983	0.
11	OCT	0332	234	778.	*	11	OCT	2012	484	21.	*	12	OCT	1252	734	0.	*	13	OCT	0532	984	0.
11	OCT	0336	235	770.	*	11	OCT	2016	485	20.	*	12	OCT	1256	735	0.	*	13	OCT	0536	985	0.
11	OCT	0340	236	762.	*	11	OCT	2020	486	20.	*	12	OCT	1300	736	0.	*	13	OCT	0540	986	0.
11	OCT	0344	237	754.	*	11	OCT	2024	487	19.	*	12	OCT	1304	737	0.	*	13	OCT	0544	987	0.
11	OCT	0348	238	746.	*	11	OCT	2028	488	18.	*	12	OCT	1308	738	0.	*	13	OCT	0548	988	0.
11	OCT	0352	239	739.	*	11	OCT	2032	489	18.	*	12	OCT	1312	739	0.	*	13	OCT	0552	989	0.
11	OCT	0356	240	732.	*	11	OCT	2036	490	17.	*	12	OCT	1316	740	0.	*	13	OCT	0556	990	0.
11	OCT	0400	241	726.	*	11	OCT	2040	491	17.	*	12	OCT	1320	741	0.	*	13	OCT	0600	991	0.
11	OCT	0404	242	721.	*	11	OCT	2044	492	16.	*	12	OCT	1324	742	0.	*	13	OCT	0604	992	0.
11	OCT	0408	243	715.	*	11	OCT	2048	493	16.	*	12	OCT	1328	743	0.	*	13	OCT	0608	993	0.
11	OCT	0412	244	710.	*	11	OCT	2052	494	15.	*	12	OCT	1332	744	0.	*	13	OCT	0612	994	0.
11	OCT	0416	245	704.	*	11	OCT	2056	495	15.	*	12	OCT	1336	745	0.	*	13	OCT	0616	995	0.
11	OCT	0420	246	699.	*	11	OCT	2100	496	14.	*	12	OCT	1340	746	0.	*	13	OCT	0620	996	0.
11	OCT	0424	247	694.	*	11	OCT	2104	497	14.	*	12	OCT	1344	747	0.	*	13	OCT	0624	997	0.
11	OCT	0428	248	690.	*	11	OCT	2108	498	13.	*	12	OCT	1348	748	0.	*	13	OCT	0628	998	0.
11	OCT	0432	249	685.	*	11	OCT	2112	499	13.	*	12	OCT	1352	749	0.	*	13	OCT	0632	999	0.
11	OCT	0436	250	681.	*	11	OCT	2116	500	12.	*	12	OCT	1356	750	0.	*	13	OCT	0636	1000	0.
					*						*						*					

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PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW				
		6-HR	24-HR	72-HR	66.60-HR	
+ (CFS)	(HR)					
		(CFS)				
+ 2617.	12.47	1046.	448.	166.	166.	
		(INCHES)	18.253	31.241	32.088	32.088
		(AC-FT)	519.	888.	912.	912.

CUMULATIVE AREA = .53 SQ MI

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DA	MON	HRMN	ORD	OUTFLOW	STORAGE	STAGE	DA	MON	HRMN	ORD	OUTFLOW	STORAGE	STAGE	DA	MON	HRMN	ORD	OUTFLOW	STORAGE	STAGE
10	OCT	1200	1	0.	.0	1391.0	11	OCT	1016	335	5.	39.8	1400.9	12	OCT	0832	669	1.	35.8	1400.1
10	OCT	1204	2	0.	.0	1391.0	11	OCT	1020	336	5.	39.8	1400.9	12	OCT	0836	670	1.	35.8	1400.1
10	OCT	1208	3	0.	.0	1391.0	11	OCT	1024	337	5.	39.8	1400.9	12	OCT	0840	671	1.	35.8	1400.1
10	OCT	1212	4	0.	.0	1391.0	11	OCT	1028	338	5.	39.7	1400.9	12	OCT	0844	672	1.	35.8	1400.1
10	OCT	1216	5	0.	.0	1391.0	11	OCT	1032	339	5.	39.7	1400.9	12	OCT	0848	673	1.	35.8	1400.1
10	OCT	1220	6	0.	.0	1391.0	11	OCT	1036	340	5.	39.7	1400.9	12	OCT	0852	674	1.	35.8	1400.1
10	OCT	1224	7	0.	.0	1391.0	11	OCT	1040	341	5.	39.7	1400.9	12	OCT	0856	675	1.	35.8	1400.1
10	OCT	1228	8	0.	.0	1391.0	11	OCT	1044	342	5.	39.6	1400.9	12	OCT	0900	676	1.	35.8	1400.1
10	OCT	1232	9	0.	.0	1391.0	11	OCT	1048	343	5.	39.6	1400.9	12	OCT	0904	677	1.	35.8	1400.1
10	OCT	1236	10	0.	.0	1391.0	11	OCT	1052	344	5.	39.6	1400.9	12	OCT	0908	678	1.	35.8	1400.1
10	OCT	1240	11	0.	.0	1391.0	11	OCT	1056	345	4.	39.6	1400.9	12	OCT	0912	679	1.	35.8	1400.1
10	OCT	1244	12	0.	.0	1391.0	11	OCT	1100	346	4.	39.5	1400.9	12	OCT	0916	680	1.	35.8	1400.1
10	OCT	1248	13	0.	.0	1391.0	11	OCT	1104	347	4.	39.5	1400.9	12	OCT	0920	681	1.	35.8	1400.1
10	OCT	1252	14	0.	.0	1391.0	11	OCT	1108	348	4.	39.5	1400.9	12	OCT	0924	682	1.	35.8	1400.1
10	OCT	1256	15	0.	.0	1391.0	11	OCT	1112	349	4.	39.5	1400.9	12	OCT	0928	683	1.	35.8	1400.1
10	OCT	1300	16	0.	.0	1391.0	11	OCT	1116	350	4.	39.4	1400.9	12	OCT	0932	684	1.	35.8	1400.1
10	OCT	1304	17	0.	.0	1391.0	11	OCT	1120	351	4.	39.4	1400.9	12	OCT	0936	685	1.	35.8	1400.1
10	OCT	1308	18	0.	.0	1391.0	11	OCT	1124	352	4.	39.4	1400.9	12	OCT	0940	686	1.	35.8	1400.1
10	OCT	1312	19	0.	.0	1391.0	11	OCT	1128	353	4.	39.4	1400.9	12	OCT	0944	687	1.	35.8	1400.1
10	OCT	1316	20	0.	.0	1391.0	11	OCT	1132	354	4.	39.3	1400.9	12	OCT	0948	688	1.	35.8	1400.1
10	OCT	1320	21	0.	.0	1391.0	11	OCT	1136	355	4.	39.3	1400.8	12	OCT	0952	689	1.	35.8	1400.1
10	OCT	1324	22	0.	.0	1391.0	11	OCT	1140	356	4.	39.3	1400.8	12	OCT	0956	690	1.	35.8	1400.1
10	OCT	1328	23	0.	.0	1391.0	11	OCT	1144	357	4.	39.3	1400.8	12	OCT	1000	691	1.	35.8	1400.1
10	OCT	1332	24	0.	.0	1391.0	11	OCT	1148	358	4.	39.2	1400.8	12	OCT	1004	692	1.	35.7	1400.1
10	OCT	1336	25	0.	.0	1391.0	11	OCT	1152	359	4.	39.2	1400.8	12	OCT	1008	693	1.	35.7	1400.1
10	OCT	1340	26	0.	.0	1391.0	11	OCT	1156	360	4.	39.2	1400.8	12	OCT	1012	694	1.	35.7	1400.1
10	OCT	1344	27	0.	.0	1391.0	11	OCT	1200	361	4.	39.2	1400.8	12	OCT	1016	695	1.	35.7	1400.1
10	OCT	1348	28	0.	.0	1391.0	11	OCT	1204	362	4.	39.2	1400.8	12	OCT	1020	696	1.	35.7	1400.1
10	OCT	1352	29	0.	.0	1391.0	11	OCT	1208	363	4.	39.1	1400.8	12	OCT	1024	697	1.	35.7	1400.1
10	OCT	1356	30	0.	.0	1391.0	11	OCT	1212	364	4.	39.1	1400.8	12	OCT	1028	698	1.	35.7	1400.1
10	OCT	1400	31	0.	.0	1391.0	11	OCT	1216	365	4.	39.1	1400.8	12	OCT	1032	699	1.	35.7	1400.1
10	OCT	1404	32	0.	.0	1391.0	11	OCT	1220	366	4.	39.1	1400.8	12	OCT	1036	700	1.	35.7	1400.1
10	OCT	1408	33	0.	.0	1391.0	11	OCT	1224	367	4.	39.0	1400.8	12	OCT	1040	701	1.	35.7	1400.1
10	OCT	1412	34	0.	.0	1391.0	11	OCT	1228	368	4.	39.0	1400.8	12	OCT	1044	702	1.	35.7	1400.1
10	OCT	1416	35	0.	.0	1391.0	11	OCT	1232	369	4.	39.0	1400.8	12	OCT	1048	703	1.	35.7	1400.1
10	OCT	1420	36	0.	.0	1391.0	11	OCT	1236	370	4.	39.0	1400.8	12	OCT	1052	704	1.	35.7	1400.1
10	OCT	1424	37	0.	.0	1391.0	11	OCT	1240	371	4.	39.0	1400.8	12	OCT	1056	705	1.	35.7	1400.1
10	OCT	1428	38	0.	.0	1391.0	11	OCT	1244	372	4.	38.9	1400.8	12	OCT	1100	706	1.	35.7	1400.1
10	OCT	1432	39	0.	.0	1391.0	11	OCT	1248	373	4.	38.9	1400.8	12	OCT	1104	707	1.	35.7	1400.1
10	OCT	1436	40	0.	.0	1391.0	11	OCT	1252	374	4.	38.9	1400.8	12	OCT	1108	708	1.	35.7	1400.1
10	OCT	1440	41	0.	.0	1391.0	11	OCT	1256	375	4.	38.9	1400.8	12	OCT	1112	709	1.	35.7	1400.1
10	OCT	1444	42	0.	.0	1391.0	11	OCT	1300	376	4.	38.8	1400.8	12	OCT	1116	710	1.	35.7	1400.1
10	OCT	1448	43	0.	.0	1391.0	11	OCT	1304	377	4.	38.8	1400.8	12	OCT	1120	711	1.	35.7	1400.1
10	OCT	1452	44	0.	.0	1391.0	11	OCT	1308	378	4.	38.8	1400.7	12	OCT	1124	712	1.	35.7	1400.1
10	OCT	1456	45	0.	.0	1391.0	11	OCT	1312	379	4.	38.8	1400.7	12	OCT	1128	713	1.	35.7	1400.1
10	OCT	1500	46	0.	.0	1391.0	11	OCT	1316	380	4.	38.8	1400.7	12	OCT	1132	714	1.	35.7	1400.1
10	OCT	1504	47	0.	.0	1391.0	11	OCT	1320	381	4.	38.7	1400.7	12	OCT	1136	715	1.	35.7	1400.1
10	OCT	1508	48	0.	.0	1391.0	11	OCT	1324	382	4.	38.7	1400.7	12	OCT	1140	716	1.	35.7	1400.1
10	OCT	1512	49	0.	.0	1391.0	11	OCT	1328	383	4.	38.7	1400.7	12	OCT	1144	717	1.	35.7	1400.1
10	OCT	1516	50	0.	.0	1391.0	11	OCT	1332	384	4.	38.7	1400.7	12	OCT	1148	718	1.	35.7	1400.1
10	OCT	1520	51	0.	.0	1391.0	11	OCT	1336	385	4.	38.7	1400.7	12	OCT	1152	719	1.	35.7	1400.1
10	OCT	1524	52	0.	.0	1391.0	11	OCT	1340	386	4.	38.6	1400.7	12	OCT	1156	720	1.	35.7	1400.1
10	OCT	1528	53	0.	.0	1391.0	11	OCT	1344	387	4.	38.6	1400.7	12	OCT	1200	721	1.	35.7	1400.1
10	OCT	1532	54	0.	.0	1391.0	11	OCT	1348	388	4.	38.6	1400.7	12	OCT	1204	722	1.	35.6	1400.1
10	OCT	1536	55	0.	.0	1391.0	11	OCT	1352	389	4.	38.6	1400.7	12	OCT	1208	723	1.	35.6	1400.1
10	OCT	1540	56	0.	.0	1391.0	11	OCT	1356	390	3.	38.6	1400.7	12	OCT	1212	724	1.	35.6	1400.1
10	OCT	1544	57	0.	.0	1391.0	11	OCT	1400	391	3.	38.5	1400.7	12	OCT	1216	725	1.	35.6	1400.1
10	OCT	1548	58	0.	.0	1391.0	11	OCT	1404	392	3.	38.5	1400.7	12	OCT	1220	726	1.	35.6	1400.1
10	OCT	1552	59	0.	.0	1391.0	11	OCT	1408	393	3.	38.5	1400.7	12	OCT	1224	727	1.	35.6	1400.1
10	OCT	1556	60	0.	.0	1391.0	11	OCT	1412	394	3.	38.5	1400.7	12	OCT	1228	728	1.	35.6	1400.1
10	OCT	1600	61	0.	.0	1391.0	11	OCT	1416	395	3.	38.5	1400.7	12	OCT	1232	729	1.	35.6	1400.1
10	OCT	1604	62	0.	.0	1391.0	11	OCT	1420	396	3.	38.5	1400.7	12	OCT	1236	730	1.	35.6	1400.1
10	OCT	1608	63	0.	.0	1391.0	11	OCT	1424	397	3.	38.4	1400.7	12	OCT	1240	731	1.	35.6	1400.1
10	OCT	1612	64	0.	.0	1391.0	11	OCT	1428	398	3.	38.4	1400.7	12	OCT	1244	732	1.	35.6	1400.1
10	OCT	1616	65	0.	.0	1391.0	11	OCT	1432	399	3.	38.4	1400.7	12	OCT	1248	733	1.	35.6	1400.1
10	OCT	1620	66	0.	.0	1391.0	11	OCT	1436	400	3.	38.4	1400.7	12	OCT	1252	734	1.	35.6	1400.1
10	OCT	1624	67	0.	.0	1391.0	11	OCT	1440	401	3.	38.4	1400.7	12	OCT	1256	735	1.	35.6	1400.1
10	OCT	1628	68	0.	.0	1391.0	11	OCT	1444	402	3.	38.3	1400.7	12	OCT	1300	736	1.	35.6	1400.1
10	OCT	1632	69	0.	.0	1391.0	11	OCT	1448	403	3.	38.3	1400.7	12	OCT	1304	737	1.	35.6	1400.1
10	OCT	1636	70	0.	.0	1391.0	11	OCT	1452	404	3.	38.3	1400.6	12	OCT	1308	738	1.	35.6	1400.1
10	OCT	1640	71	0.	.0	1391.0	11	OCT	1456	405	3.	38.3	1400.6	12	OCT	1312	739	1.	35.6	1400.1
10	OCT	1644	72	0.	.0	1391.0	11	OCT	1500	406	3.	38.3	1400.6	12	OCT	1316	740	1.	35.6	1400.1
10	OCT	1648	73	0.	.0	1391.0	11	OCT	1504	407	3.	38.3	1400.6	12	OCT	1320	741	0.	35.6	1400.1
10	OCT	1652	74	0.	.0	1391.0	11	OCT	1508	408	3.	38.2	1400.6	12	OCT	1324	742	0.	35.6	1400.1

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10 OCT 1656  75       0.       .0  1391.0 * 11 OCT 1512 409       3.     38.2  1400.6 * 12 OCT 1328 743       0.     35.6  1400.1
10 OCT 1700  76       0.       .0  1391.0 * 11 OCT 1516 410       3.     38.2  1400.6 * 12 OCT 1332 744       0.     35.6  1400.1
10 OCT 1704  77       0.       .0  1391.0 * 11 OCT 1520 411       3.     38.2  1400.6 * 12 OCT 1336 745       0.     35.6  1400.1
10 OCT 1708  78       0.       .0  1391.0 * 11 OCT 1524 412       3.     38.2  1400.6 * 12 OCT 1340 746       0.     35.6  1400.1
10 OCT 1712  79       0.       .0  1391.0 * 11 OCT 1528 413       3.     38.2  1400.6 * 12 OCT 1344 747       0.     35.6  1400.1
10 OCT 1716  80       0.       .0  1391.0 * 11 OCT 1532 414       3.     38.1  1400.6 * 12 OCT 1348 748       0.     35.6  1400.1
10 OCT 1720  81       0.       .0  1391.0 * 11 OCT 1536 415       3.     38.1  1400.6 * 12 OCT 1352 749       0.     35.6  1400.1
10 OCT 1724  82       0.       .0  1391.0 * 11 OCT 1540 416       3.     38.1  1400.6 * 12 OCT 1356 750       0.     35.6  1400.1
10 OCT 1728  83       0.       .0  1391.0 * 11 OCT 1544 417       3.     38.1  1400.6 * 12 OCT 1400 751       0.     35.6  1400.1
10 OCT 1732  84       0.       .0  1391.0 * 11 OCT 1548 418       3.     38.1  1400.6 * 12 OCT 1404 752       0.     35.6  1400.1
10 OCT 1736  85       0.       .0  1391.0 * 11 OCT 1552 419       3.     38.1  1400.6 * 12 OCT 1408 753       0.     35.6  1400.1
10 OCT 1740  86       0.       .0  1391.0 * 11 OCT 1556 420       3.     38.0  1400.6 * 12 OCT 1412 754       0.     35.6  1400.1
10 OCT 1744  87       0.       .0  1391.0 * 11 OCT 1600 421       3.     38.0  1400.6 * 12 OCT 1416 755       0.     35.6  1400.1
10 OCT 1748  88       0.       .0  1391.0 * 11 OCT 1604 422       3.     38.0  1400.6 * 12 OCT 1420 756       0.     35.6  1400.1
10 OCT 1752  89       0.       .0  1391.0 * 11 OCT 1608 423       3.     38.0  1400.6 * 12 OCT 1424 757       0.     35.6  1400.1
10 OCT 1756  90       0.       .0  1391.0 * 11 OCT 1612 424       3.     38.0  1400.6 * 12 OCT 1428 758       0.     35.5  1400.1
10 OCT 1800  91       0.       .0  1391.0 * 11 OCT 1616 425       3.     38.0  1400.6 * 12 OCT 1432 759       0.     35.5  1400.1
10 OCT 1804  92       0.       .0  1391.0 * 11 OCT 1620 426       3.     37.9  1400.6 * 12 OCT 1436 760       0.     35.5  1400.1
10 OCT 1808  93       0.       .0  1391.0 * 11 OCT 1624 427       3.     37.9  1400.6 * 12 OCT 1440 761       0.     35.5  1400.1
10 OCT 1812  94       0.       .0  1391.0 * 11 OCT 1628 428       3.     37.9  1400.6 * 12 OCT 1444 762       0.     35.5  1400.1
10 OCT 1816  95       0.       .0  1391.0 * 11 OCT 1632 429       3.     37.9  1400.6 * 12 OCT 1448 763       0.     35.5  1400.1
10 OCT 1820  96       0.       .0  1391.0 * 11 OCT 1636 430       3.     37.9  1400.6 * 12 OCT 1452 764       0.     35.5  1400.1
10 OCT 1824  97       0.       .0  1391.0 * 11 OCT 1640 431       3.     37.9  1400.6 * 12 OCT 1456 765       0.     35.5  1400.1
10 OCT 1828  98       0.       .0  1391.0 * 11 OCT 1644 432       3.     37.8  1400.6 * 12 OCT 1500 766       0.     35.5  1400.1
10 OCT 1832  99       0.       .0  1391.0 * 11 OCT 1648 433       3.     37.8  1400.6 * 12 OCT 1504 767       0.     35.5  1400.1
10 OCT 1836 100       0.       .0  1391.0 * 11 OCT 1652 434       3.     37.8  1400.5 * 12 OCT 1508 768       0.     35.5  1400.1
10 OCT 1840 101       0.       .0  1391.0 * 11 OCT 1656 435       3.     37.8  1400.5 * 12 OCT 1512 769       0.     35.5  1400.1
10 OCT 1844 102       0.       .0  1391.0 * 11 OCT 1700 436       3.     37.8  1400.5 * 12 OCT 1516 770       0.     35.5  1400.1
10 OCT 1848 103       0.       .0  1391.0 * 11 OCT 1704 437       3.     37.8  1400.5 * 12 OCT 1520 771       0.     35.5  1400.1
10 OCT 1852 104       0.       .0  1391.0 * 11 OCT 1708 438       3.     37.8  1400.5 * 12 OCT 1524 772       0.     35.5  1400.1
10 OCT 1856 105       0.       .0  1391.0 * 11 OCT 1712 439       3.     37.7  1400.5 * 12 OCT 1528 773       0.     35.5  1400.1
10 OCT 1900 106       0.       .0  1391.0 * 11 OCT 1716 440       3.     37.7  1400.5 * 12 OCT 1532 774       0.     35.5  1400.1
10 OCT 1904 107       0.       .0  1391.0 * 11 OCT 1720 441       3.     37.7  1400.5 * 12 OCT 1536 775       0.     35.5  1400.1
10 OCT 1908 108       0.       .0  1391.0 * 11 OCT 1724 442       3.     37.7  1400.5 * 12 OCT 1540 776       0.     35.5  1400.1
10 OCT 1912 109       0.       .0  1391.0 * 11 OCT 1728 443       3.     37.7  1400.5 * 12 OCT 1544 777       0.     35.5  1400.1
10 OCT 1916 110       0.       .0  1391.0 * 11 OCT 1732 444       3.     37.7  1400.5 * 12 OCT 1548 778       0.     35.5  1400.1
10 OCT 1920 111       0.       .0  1391.0 * 11 OCT 1736 445       3.     37.7  1400.5 * 12 OCT 1552 779       0.     35.5  1400.1
10 OCT 1924 112       0.       .0  1391.0 * 11 OCT 1740 446       3.     37.6  1400.5 * 12 OCT 1556 780       0.     35.5  1400.1
10 OCT 1928 113       0.       .0  1391.0 * 11 OCT 1744 447       3.     37.6  1400.5 * 12 OCT 1600 781       0.     35.5  1400.1
10 OCT 1932 114       0.       .0  1391.0 * 11 OCT 1748 448       3.     37.6  1400.5 * 12 OCT 1604 782       0.     35.5  1400.1
10 OCT 1936 115       0.       .0  1391.0 * 11 OCT 1752 449       3.     37.6  1400.5 * 12 OCT 1608 783       0.     35.5  1400.1
10 OCT 1940 116       0.       .0  1391.0 * 11 OCT 1756 450       3.     37.6  1400.5 * 12 OCT 1612 784       0.     35.5  1400.1
10 OCT 1944 117       0.       .0  1391.0 * 11 OCT 1800 451       2.     37.6  1400.5 * 12 OCT 1616 785       0.     35.5  1400.1
10 OCT 1948 118       0.       .0  1391.0 * 11 OCT 1804 452       2.     37.6  1400.5 * 12 OCT 1620 786       0.     35.5  1400.1
10 OCT 1952 119       0.       .0  1391.0 * 11 OCT 1808 453       2.     37.5  1400.5 * 12 OCT 1624 787       0.     35.5  1400.1
10 OCT 1956 120       0.       .0  1391.0 * 11 OCT 1812 454       2.     37.5  1400.5 * 12 OCT 1628 788       0.     35.5  1400.1
10 OCT 2000 121       0.       .0  1391.0 * 11 OCT 1816 455       2.     37.5  1400.5 * 12 OCT 1632 789       0.     35.5  1400.1
10 OCT 2004 122       0.       .0  1391.0 * 11 OCT 1820 456       2.     37.5  1400.5 * 12 OCT 1636 790       0.     35.5  1400.1
10 OCT 2008 123       0.       .0  1391.0 * 11 OCT 1824 457       2.     37.5  1400.5 * 12 OCT 1640 791       0.     35.5  1400.1
10 OCT 2012 124       0.       .0  1391.0 * 11 OCT 1828 458       2.     37.5  1400.5 * 12 OCT 1644 792       0.     35.5  1400.1
10 OCT 2016 125       0.       .0  1391.0 * 11 OCT 1832 459       2.     37.5  1400.5 * 12 OCT 1648 793       0.     35.5  1400.1
10 OCT 2020 126       0.       .0  1391.0 * 11 OCT 1836 460       2.     37.5  1400.5 * 12 OCT 1652 794       0.     35.5  1400.1
10 OCT 2024 127       0.       .0  1391.0 * 11 OCT 1840 461       2.     37.4  1400.5 * 12 OCT 1656 795       0.     35.5  1400.1
10 OCT 2028 128       0.       .0  1391.0 * 11 OCT 1844 462       2.     37.4  1400.5 * 12 OCT 1700 796       0.     35.5  1400.1
10 OCT 2032 129       0.       .0  1391.0 * 11 OCT 1848 463       2.     37.4  1400.5 * 12 OCT 1704 797       0.     35.5  1400.1
10 OCT 2036 130       0.       .0  1391.0 * 11 OCT 1852 464       2.     37.4  1400.5 * 12 OCT 1708 798       0.     35.5  1400.1
10 OCT 2040 131       0.       .0  1391.0 * 11 OCT 1856 465       2.     37.4  1400.5 * 12 OCT 1712 799       0.     35.5  1400.1
10 OCT 2044 132       0.       .0  1391.0 * 11 OCT 1900 466       2.     37.4  1400.5 * 12 OCT 1716 800       0.     35.5  1400.1
10 OCT 2048 133       0.       .0  1391.0 * 11 OCT 1904 467       2.     37.4  1400.5 * 12 OCT 1720 801       0.     35.5  1400.1
10 OCT 2052 134       0.       .0  1391.0 * 11 OCT 1908 468       2.     37.3  1400.5 * 12 OCT 1724 802       0.     35.5  1400.1
10 OCT 2056 135       0.       .0  1391.0 * 11 OCT 1912 469       2.     37.3  1400.5 * 12 OCT 1728 803       0.     35.4  1400.1
10 OCT 2100 136       0.       .0  1391.0 * 11 OCT 1916 470       2.     37.3  1400.4 * 12 OCT 1732 804       0.     35.4  1400.1
10 OCT 2104 137       0.       .0  1391.0 * 11 OCT 1920 471       2.     37.3  1400.4 * 12 OCT 1736 805       0.     35.4  1400.1
10 OCT 2108 138       0.       .0  1391.0 * 11 OCT 1924 472       2.     37.3  1400.4 * 12 OCT 1740 806       0.     35.4  1400.1
10 OCT 2112 139       0.       .0  1391.0 * 11 OCT 1928 473       2.     37.3  1400.4 * 12 OCT 1744 807       0.     35.4  1400.1
10 OCT 2116 140       0.       .0  1391.0 * 11 OCT 1932 474       2.     37.3  1400.4 * 12 OCT 1748 808       0.     35.4  1400.1
10 OCT 2120 141       0.       .0  1391.0 * 11 OCT 1936 475       2.     37.3  1400.4 * 12 OCT 1752 809       0.     35.4  1400.1
10 OCT 2124 142       0.       .0  1391.0 * 11 OCT 1940 476       2.     37.3  1400.4 * 12 OCT 1756 810       0.     35.4  1400.1
10 OCT 2128 143       0.       .0  1391.0 * 11 OCT 1944 477       2.     37.2  1400.4 * 12 OCT 1800 811       0.     35.4  1400.1
10 OCT 2132 144       0.       .0  1391.0 * 11 OCT 1948 478       2.     37.2  1400.4 * 12 OCT 1804 812       0.     35.4  1400.1
10 OCT 2136 145       0.       .0  1391.0 * 11 OCT 1952 479       2.     37.2  1400.4 * 12 OCT 1808 813       0.     35.4  1400.1
10 OCT 2140 146       0.       .0  1391.0 * 11 OCT 1956 480       2.     37.2  1400.4 * 12 OCT 1812 814       0.     35.4  1400.1
10 OCT 2144 147       0.       .0  1391.0 * 11 OCT 2000 481       2.     37.2  1400.4 * 12 OCT 1816 815       0.     35.4  1400.1
10 OCT 2148 148       0.       .0  1391.0 * 11 OCT 2004 482       2.     37.2  1400.4 * 12 OCT 1820 816       0.     35.4  1400.1
10 OCT 2152 149       0.       .0  1391.0 * 11 OCT 2008 483       2.     37.2  1400.4 * 12 OCT 1824 817       0.     35.4  1400.1
10 OCT 2156 150       0.       .0  1391.0 * 11 OCT 2012 484       2.     37.2  1400.4 * 12 OCT 1828 818       0.     35.4  1400.1
10 OCT 2200 151       0.       .0  1391.0 * 11 OCT 2016 485       2.     37.1  1400.4 * 12 OCT 1832 819       0.     35.4  1400.1
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10 OCT 2204 152       0.       .0  1391.0 * 11 OCT 2020 486       2.     37.1  1400.4 * 12 OCT 1836 820       0.     35.4  1400.1
10 OCT 2208 153       0.       .0  1391.0 * 11 OCT 2024 487       2.     37.1  1400.4 * 12 OCT 1840 821       0.     35.4  1400.1
10 OCT 2212 154       0.       .0  1391.0 * 11 OCT 2028 488       2.     37.1  1400.4 * 12 OCT 1844 822       0.     35.4  1400.1
10 OCT 2216 155       0.       .0  1391.0 * 11 OCT 2032 489       2.     37.1  1400.4 * 12 OCT 1848 823       0.     35.4  1400.1
10 OCT 2220 156       0.       .0  1391.0 * 11 OCT 2036 490       2.     37.1  1400.4 * 12 OCT 1852 824       0.     35.4  1400.1
10 OCT 2224 157       0.       .0  1391.0 * 11 OCT 2040 491       2.     37.1  1400.4 * 12 OCT 1856 825       0.     35.4  1400.1
10 OCT 2228 158       0.       .0  1391.0 * 11 OCT 2044 492       2.     37.1  1400.4 * 12 OCT 1900 826       0.     35.4  1400.1
10 OCT 2232 159       0.       .0  1391.0 * 11 OCT 2048 493       2.     37.1  1400.4 * 12 OCT 1904 827       0.     35.4  1400.1
10 OCT 2236 160       0.       .0  1391.0 * 11 OCT 2052 494       2.     37.0  1400.4 * 12 OCT 1908 828       0.     35.4  1400.1
10 OCT 2240 161       0.       .0  1391.0 * 11 OCT 2056 495       2.     37.0  1400.4 * 12 OCT 1912 829       0.     35.4  1400.1
10 OCT 2244 162       0.       .0  1391.0 * 11 OCT 2100 496       2.     37.0  1400.4 * 12 OCT 1916 830       0.     35.4  1400.1
10 OCT 2248 163       0.       .0  1391.0 * 11 OCT 2104 497       2.     37.0  1400.4 * 12 OCT 1920 831       0.     35.4  1400.1
10 OCT 2252 164       0.       .0  1391.0 * 11 OCT 2108 498       2.     37.0  1400.4 * 12 OCT 1924 832       0.     35.4  1400.1
10 OCT 2256 165       0.       .0  1391.0 * 11 OCT 2112 499       2.     37.0  1400.4 * 12 OCT 1928 833       0.     35.4  1400.1
10 OCT 2300 166       0.       .0  1391.0 * 11 OCT 2116 500       2.     37.0  1400.4 * 12 OCT 1932 834       0.     35.4  1400.1
10 OCT 2304 167       0.       .0  1391.0 * 11 OCT 2120 501       2.     37.0  1400.4 * 12 OCT 1936 835       0.     35.4  1400.1
10 OCT 2308 168       0.       .0  1391.0 * 11 OCT 2124 502       2.     37.0  1400.4 * 12 OCT 1940 836       0.     35.4  1400.1
10 OCT 2312 169       0.       .0  1391.0 * 11 OCT 2128 503       2.     37.0  1400.4 * 12 OCT 1944 837       0.     35.4  1400.1
10 OCT 2316 170       0.       .0  1391.0 * 11 OCT 2132 504       2.     36.9  1400.4 * 12 OCT 1948 838       0.     35.4  1400.1
10 OCT 2320 171       0.       .0  1391.0 * 11 OCT 2136 505       2.     36.9  1400.4 * 12 OCT 1952 839       0.     35.4  1400.1
10 OCT 2324 172       0.       .0  1391.0 * 11 OCT 2140 506       2.     36.9  1400.4 * 12 OCT 1956 840       0.     35.4  1400.1
10 OCT 2328 173       0.       .0  1391.0 * 11 OCT 2144 507       2.     36.9  1400.4 * 12 OCT 2000 841       0.     35.4  1400.1
10 OCT 2332 174       0.       .0  1391.0 * 11 OCT 2148 508       2.     36.9  1400.4 * 12 OCT 2004 842       0.     35.4  1400.1
10 OCT 2336 175       0.       .0  1391.0 * 11 OCT 2152 509       2.     36.9  1400.4 * 12 OCT 2008 843       0.     35.4  1400.1
10 OCT 2340 176       0.       .0  1391.0 * 11 OCT 2156 510       2.     36.9  1400.4 * 12 OCT 2012 844       0.     35.4  1400.1
10 OCT 2344 177       0.       .0  1391.0 * 11 OCT 2200 511       2.     36.9  1400.4 * 12 OCT 2016 845       0.     35.4  1400.1
10 OCT 2348 178       0.       .0  1391.0 * 11 OCT 2204 512       2.     36.9  1400.4 * 12 OCT 2020 846       0.     35.4  1400.1
10 OCT 2352 179       0.       .0  1391.0 * 11 OCT 2208 513       2.     36.9  1400.4 * 12 OCT 2024 847       0.     35.4  1400.1
10 OCT 2356 180       0.       .2  1391.1 * 11 OCT 2212 514       2.     36.8  1400.4 * 12 OCT 2028 848       0.     35.4  1400.1
11 OCT 0000 181       0.       .9  1391.5 * 11 OCT 2216 515       2.     36.8  1400.3 * 12 OCT 2032 849       0.     35.4  1400.1
11 OCT 0004 182       0.      2.2  1392.1 * 11 OCT 2220 516       2.     36.8  1400.3 * 12 OCT 2036 850       0.     35.4  1400.1
11 OCT 0008 183       0.      4.3  1392.8 * 11 OCT 2224 517       2.     36.8  1400.3 * 12 OCT 2040 851       0.     35.4  1400.1
11 OCT 0012 184       0.      7.5  1393.6 * 11 OCT 2228 518       2.     36.8  1400.3 * 12 OCT 2044 852       0.     35.4  1400.1
11 OCT 0016 185       0.     11.6  1394.7 * 11 OCT 2232 519       2.     36.8  1400.3 * 12 OCT 2048 853       0.     35.4  1400.1
11 OCT 0020 186       0.     16.4  1395.9 * 11 OCT 2236 520       2.     36.8  1400.3 * 12 OCT 2052 854       0.     35.4  1400.1
11 OCT 0024 187       0.     21.7  1397.1 * 11 OCT 2240 521       2.     36.8  1400.3 * 12 OCT 2056 855       0.     35.4  1400.1
11 OCT 0028 188       0.     27.2  1398.3 * 11 OCT 2244 522       2.     36.8  1400.3 * 12 OCT 2100 856       0.     35.4  1400.1
11 OCT 0032 189       0.     32.5  1399.5 * 11 OCT 2248 523       2.     36.8  1400.3 * 12 OCT 2104 857       0.     35.4  1400.1
11 OCT 0036 190       2.     36.9  1400.4 * 11 OCT 2252 524       2.     36.7  1400.3 * 12 OCT 2108 858       0.     35.4  1400.1
11 OCT 0040 191       5.     40.2  1401.0 * 11 OCT 2256 525       2.     36.7  1400.3 * 12 OCT 2112 859       0.     35.4  1400.1
11 OCT 0044 192      13.     42.4  1401.4 * 11 OCT 2300 526       2.     36.7  1400.3 * 12 OCT 2116 860       0.     35.4  1400.1
11 OCT 0048 193      18.     43.8  1401.7 * 11 OCT 2304 527       2.     36.7  1400.3 * 12 OCT 2120 861       0.     35.4  1400.1
11 OCT 0052 194      22.     44.9  1401.9 * 11 OCT 2308 528       2.     36.7  1400.3 * 12 OCT 2124 862       0.     35.4  1400.1
11 OCT 0056 195      24.     45.7  1402.1 * 11 OCT 2312 529       2.     36.7  1400.3 * 12 OCT 2128 863       0.     35.4  1400.1
11 OCT 0100 196      25.     46.3  1402.2 * 11 OCT 2316 530       2.     36.7  1400.3 * 12 OCT 2132 864       0.     35.3  1400.1
11 OCT 0104 197      26.     46.9  1402.3 * 11 OCT 2320 531       2.     36.7  1400.3 * 12 OCT 2136 865       0.     35.3  1400.1
11 OCT 0108 198      27.     47.3  1402.4 * 11 OCT 2324 532       2.     36.7  1400.3 * 12 OCT 2140 866       0.     35.3  1400.0
11 OCT 0112 199      27.     47.7  1402.5 * 11 OCT 2328 533       2.     36.7  1400.3 * 12 OCT 2144 867       0.     35.3  1400.0
11 OCT 0116 200      28.     48.0  1402.5 * 11 OCT 2332 534       2.     36.7  1400.3 * 12 OCT 2148 868       0.     35.3  1400.0
11 OCT 0120 201      28.     48.3  1402.6 * 11 OCT 2336 535       2.     36.7  1400.3 * 12 OCT 2152 869       0.     35.3  1400.0
11 OCT 0124 202      29.     48.5  1402.6 * 11 OCT 2340 536       2.     36.6  1400.3 * 12 OCT 2156 870       0.     35.3  1400.0
11 OCT 0128 203      29.     48.7  1402.7 * 11 OCT 2344 537       2.     36.6  1400.3 * 12 OCT 2200 871       0.     35.3  1400.0
11 OCT 0132 204      29.     48.9  1402.7 * 11 OCT 2348 538       2.     36.6  1400.3 * 12 OCT 2204 872       0.     35.3  1400.0
11 OCT 0136 205      30.     49.1  1402.7 * 11 OCT 2352 539       2.     36.6  1400.3 * 12 OCT 2208 873       0.     35.3  1400.0
11 OCT 0140 206      30.     49.2  1402.8 * 11 OCT 2356 540       2.     36.6  1400.3 * 12 OCT 2212 874       0.     35.3  1400.0
11 OCT 0144 207      30.     49.4  1402.8 * 12 OCT 0000 541       2.     36.6  1400.3 * 12 OCT 2216 875       0.     35.3  1400.0
11 OCT 0148 208      30.     49.5  1402.8 * 12 OCT 0004 542       2.     36.6  1400.3 * 12 OCT 2220 876       0.     35.3  1400.0
11 OCT 0152 209      30.     49.6  1402.8 * 12 OCT 0008 543       1.     36.6  1400.3 * 12 OCT 2224 877       0.     35.3  1400.0
11 OCT 0156 210      31.     49.7  1402.8 * 12 OCT 0012 544       1.     36.6  1400.3 * 12 OCT 2228 878       0.     35.3  1400.0
11 OCT 0200 211      31.     49.7  1402.8 * 12 OCT 0016 545       1.     36.6  1400.3 * 12 OCT 2232 879       0.     35.3  1400.0
11 OCT 0204 212      31.     49.7  1402.8 * 12 OCT 0020 546       1.     36.6  1400.3 * 12 OCT 2236 880       0.     35.3  1400.0
11 OCT 0208 213      31.     49.7  1402.8 * 12 OCT 0024 547       1.     36.6  1400.3 * 12 OCT 2240 881       0.     35.3  1400.0
11 OCT 0212 214      31.     49.7  1402.8 * 12 OCT 0028 548       1.     36.5  1400.3 * 12 OCT 2244 882       0.     35.3  1400.0
11 OCT 0216 215      30.     49.6  1402.8 * 12 OCT 0032 549       1.     36.5  1400.3 * 12 OCT 2248 883       0.     35.3  1400.0
11 OCT 0220 216      30.     49.5  1402.8 * 12 OCT 0036 550       1.     36.5  1400.3 * 12 OCT 2252 884       0.     35.3  1400.0
11 OCT 0224 217      30.     49.4  1402.8 * 12 OCT 0040 551       1.     36.5  1400.3 * 12 OCT 2256 885       0.     35.3  1400.0
11 OCT 0228 218      30.     49.3  1402.8 * 12 OCT 0044 552       1.     36.5  1400.3 * 12 OCT 2300 886       0.     35.3  1400.0
11 OCT 0232 219      30.     49.1  1402.7 * 12 OCT 0048 553       1.     36.5  1400.3 * 12 OCT 2304 887       0.     35.3  1400.0
11 OCT 0236 220      29.     49.0  1402.7 * 12 OCT 0052 554       1.     36.5  1400.3 * 12 OCT 2308 888       0.     35.3  1400.0
11 OCT 0240 221      29.     48.8  1402.7 * 12 OCT 0056 555       1.     36.5  1400.3 * 12 OCT 2312 889       0.     35.3  1400.0
11 OCT 0244 222      29.     48.7  1402.7 * 12 OCT 0100 556       1.     36.5  1400.3 * 12 OCT 2316 890       0.     35.3  1400.0
11 OCT 0248 223      29.     48.5  1402.6 * 12 OCT 0104 557       1.     36.5  1400.3 * 12 OCT 2320 891       0.     35.3  1400.0
11 OCT 0252 224      28.     48.4  1402.6 * 12 OCT 0108 558       1.     36.5  1400.3 * 12 OCT 2324 892       0.     35.3  1400.0
11 OCT 0256 225      28.     48.2  1402.6 * 12 OCT 0112 559       1.     36.5  1400.3 * 12 OCT 2328 893       0.     35.3  1400.0
11 OCT 0300 226      28.     48.1  1402.5 * 12 OCT 0116 560       1.     36.4  1400.3 * 12 OCT 2332 894       0.     35.3  1400.0
11 OCT 0304 227      28.     47.9  1402.5 * 12 OCT 0120 561       1.     36.4  1400.3 * 12 OCT 2336 895       0.     35.3  1400.0
11 OCT 0308 228      27.     47.8  1402.5 * 12 OCT 0124 562       1.     36.4  1400.3 * 12 OCT 2340 896       0.     35.3  1400.0
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11 OCT 0312 229	27.	47.6	1402.5 * 12 OCT 0128 563	1.	36.4	1400.3 * 12 OCT 2344 897	0.	35.3	1400.0
11 OCT 0316 230	27.	47.5	1402.4 * 12 OCT 0132 564	1.	36.4	1400.3 * 12 OCT 2348 898	0.	35.3	1400.0
11 OCT 0320 231	27.	47.3	1402.4 * 12 OCT 0136 565	1.	36.4	1400.3 * 12 OCT 2352 899	0.	35.3	1400.0
11 OCT 0324 232	26.	47.2	1402.4 * 12 OCT 0140 566	1.	36.4	1400.3 * 12 OCT 2356 900	0.	35.3	1400.0
11 OCT 0328 233	26.	47.0	1402.3 * 12 OCT 0144 567	1.	36.4	1400.3 * 13 OCT 0000 901	0.	35.3	1400.0
11 OCT 0332 234	26.	46.9	1402.3 * 12 OCT 0148 568	1.	36.4	1400.3 * 13 OCT 0004 902	0.	35.3	1400.0
11 OCT 0336 235	26.	46.7	1402.3 * 12 OCT 0152 569	1.	36.4	1400.3 * 13 OCT 0008 903	0.	35.3	1400.0
11 OCT 0340 236	25.	46.6	1402.3 * 12 OCT 0156 570	1.	36.4	1400.3 * 13 OCT 0012 904	0.	35.3	1400.0
11 OCT 0344 237	25.	46.5	1402.2 * 12 OCT 0200 571	1.	36.4	1400.3 * 13 OCT 0016 905	0.	35.3	1400.0
11 OCT 0348 238	25.	46.3	1402.2 * 12 OCT 0204 572	1.	36.4	1400.3 * 13 OCT 0020 906	0.	35.3	1400.0
11 OCT 0352 239	25.	46.2	1402.2 * 12 OCT 0208 573	1.	36.4	1400.3 * 13 OCT 0024 907	0.	35.3	1400.0
11 OCT 0356 240	24.	46.1	1402.2 * 12 OCT 0212 574	1.	36.3	1400.3 * 13 OCT 0028 908	0.	35.3	1400.0
11 OCT 0400 241	24.	45.9	1402.1 * 12 OCT 0216 575	1.	36.3	1400.3 * 13 OCT 0032 909	0.	35.3	1400.0
11 OCT 0404 242	24.	45.8	1402.1 * 12 OCT 0220 576	1.	36.3	1400.2 * 13 OCT 0036 910	0.	35.3	1400.0
11 OCT 0408 243	24.	45.7	1402.1 * 12 OCT 0224 577	1.	36.3	1400.2 * 13 OCT 0040 911	0.	35.3	1400.0
11 OCT 0412 244	24.	45.5	1402.1 * 12 OCT 0228 578	1.	36.3	1400.2 * 13 OCT 0044 912	0.	35.3	1400.0
11 OCT 0416 245	23.	45.4	1402.0 * 12 OCT 0232 579	1.	36.3	1400.2 * 13 OCT 0048 913	0.	35.3	1400.0
11 OCT 0420 246	23.	45.3	1402.0 * 12 OCT 0236 580	1.	36.3	1400.2 * 13 OCT 0052 914	0.	35.3	1400.0
11 OCT 0424 247	23.	45.1	1402.0 * 12 OCT 0240 581	1.	36.3	1400.2 * 13 OCT 0056 915	0.	35.3	1400.0
11 OCT 0428 248	22.	45.0	1402.0 * 12 OCT 0244 582	1.	36.3	1400.2 * 13 OCT 0100 916	0.	35.3	1400.0
11 OCT 0432 249	22.	44.9	1401.9 * 12 OCT 0248 583	1.	36.3	1400.2 * 13 OCT 0104 917	0.	35.3	1400.0
11 OCT 0436 250	22.	44.8	1401.9 * 12 OCT 0252 584	1.	36.3	1400.2 * 13 OCT 0108 918	0.	35.3	1400.0
11 OCT 0440 251	21.	44.7	1401.9 * 12 OCT 0256 585	1.	36.3	1400.2 * 13 OCT 0112 919	0.	35.3	1400.0
11 OCT 0444 252	21.	44.5	1401.9 * 12 OCT 0300 586	1.	36.3	1400.2 * 13 OCT 0116 920	0.	35.3	1400.0
11 OCT 0448 253	20.	44.4	1401.8 * 12 OCT 0304 587	1.	36.3	1400.2 * 13 OCT 0120 921	0.	35.3	1400.0
11 OCT 0452 254	20.	44.3	1401.8 * 12 OCT 0308 588	1.	36.3	1400.2 * 13 OCT 0124 922	0.	35.3	1400.0
11 OCT 0456 255	20.	44.2	1401.8 * 12 OCT 0312 589	1.	36.2	1400.2 * 13 OCT 0128 923	0.	35.3	1400.0
11 OCT 0500 256	19.	44.1	1401.8 * 12 OCT 0316 590	1.	36.2	1400.2 * 13 OCT 0132 924	0.	35.3	1400.0
11 OCT 0504 257	19.	44.0	1401.8 * 12 OCT 0320 591	1.	36.2	1400.2 * 13 OCT 0136 925	0.	35.3	1400.0
11 OCT 0508 258	18.	43.9	1401.7 * 12 OCT 0324 592	1.	36.2	1400.2 * 13 OCT 0140 926	0.	35.3	1400.0
11 OCT 0512 259	18.	43.8	1401.7 * 12 OCT 0328 593	1.	36.2	1400.2 * 13 OCT 0144 927	0.	35.3	1400.0
11 OCT 0516 260	18.	43.7	1401.7 * 12 OCT 0332 594	1.	36.2	1400.2 * 13 OCT 0148 928	0.	35.3	1400.0
11 OCT 0520 261	17.	43.6	1401.7 * 12 OCT 0336 595	1.	36.2	1400.2 * 13 OCT 0152 929	0.	35.3	1400.0
11 OCT 0524 262	17.	43.5	1401.7 * 12 OCT 0340 596	1.	36.2	1400.2 * 13 OCT 0156 930	0.	35.3	1400.0
11 OCT 0528 263	17.	43.4	1401.7 * 12 OCT 0344 597	1.	36.2	1400.2 * 13 OCT 0200 931	0.	35.3	1400.0
11 OCT 0532 264	16.	43.3	1401.6 * 12 OCT 0348 598	1.	36.2	1400.2 * 13 OCT 0204 932	0.	35.3	1400.0
11 OCT 0536 265	16.	43.2	1401.6 * 12 OCT 0352 599	1.	36.2	1400.2 * 13 OCT 0208 933	0.	35.3	1400.0
11 OCT 0540 266	16.	43.1	1401.6 * 12 OCT 0356 600	1.	36.2	1400.2 * 13 OCT 0212 934	0.	35.3	1400.0
11 OCT 0544 267	15.	43.1	1401.6 * 12 OCT 0400 601	1.	36.2	1400.2 * 13 OCT 0216 935	0.	35.3	1400.0
11 OCT 0548 268	15.	43.0	1401.6 * 12 OCT 0404 602	1.	36.2	1400.2 * 13 OCT 0220 936	0.	35.3	1400.0
11 OCT 0552 269	15.	42.9	1401.6 * 12 OCT 0408 603	1.	36.2	1400.2 * 13 OCT 0224 937	0.	35.3	1400.0
11 OCT 0556 270	15.	42.8	1401.5 * 12 OCT 0412 604	1.	36.2	1400.2 * 13 OCT 0228 938	0.	35.3	1400.0
11 OCT 0600 271	14.	42.7	1401.5 * 12 OCT 0416 605	1.	36.2	1400.2 * 13 OCT 0232 939	0.	35.3	1400.0
11 OCT 0604 272	14.	42.6	1401.5 * 12 OCT 0420 606	1.	36.1	1400.2 * 13 OCT 0236 940	0.	35.3	1400.0
11 OCT 0608 273	14.	42.6	1401.5 * 12 OCT 0424 607	1.	36.1	1400.2 * 13 OCT 0240 941	0.	35.3	1400.0
11 OCT 0612 274	14.	42.5	1401.5 * 12 OCT 0428 608	1.	36.1	1400.2 * 13 OCT 0244 942	0.	35.3	1400.0
11 OCT 0616 275	13.	42.4	1401.5 * 12 OCT 0432 609	1.	36.1	1400.2 * 13 OCT 0248 943	0.	35.3	1400.0
11 OCT 0620 276	13.	42.4	1401.4 * 12 OCT 0436 610	1.	36.1	1400.2 * 13 OCT 0252 944	0.	35.3	1400.0
11 OCT 0624 277	13.	42.3	1401.4 * 12 OCT 0440 611	1.	36.1	1400.2 * 13 OCT 0256 945	0.	35.3	1400.0
11 OCT 0628 278	13.	42.2	1401.4 * 12 OCT 0444 612	1.	36.1	1400.2 * 13 OCT 0300 946	0.	35.3	1400.0
11 OCT 0632 279	12.	42.1	1401.4 * 12 OCT 0448 613	1.	36.1	1400.2 * 13 OCT 0304 947	0.	35.3	1400.0
11 OCT 0636 280	12.	42.1	1401.4 * 12 OCT 0452 614	1.	36.1	1400.2 * 13 OCT 0308 948	0.	35.3	1400.0
11 OCT 0640 281	12.	42.0	1401.4 * 12 OCT 0456 615	1.	36.1	1400.2 * 13 OCT 0312 949	0.	35.3	1400.0
11 OCT 0644 282	12.	41.9	1401.4 * 12 OCT 0500 616	1.	36.1	1400.2 * 13 OCT 0316 950	0.	35.3	1400.0
11 OCT 0648 283	11.	41.9	1401.4 * 12 OCT 0504 617	1.	36.1	1400.2 * 13 OCT 0320 951	0.	35.3	1400.0
11 OCT 0652 284	11.	41.8	1401.3 * 12 OCT 0508 618	1.	36.1	1400.2 * 13 OCT 0324 952	0.	35.3	1400.0
11 OCT 0656 285	11.	41.8	1401.3 * 12 OCT 0512 619	1.	36.1	1400.2 * 13 OCT 0328 953	0.	35.3	1400.0
11 OCT 0700 286	11.	41.7	1401.3 * 12 OCT 0516 620	1.	36.1	1400.2 * 13 OCT 0332 954	0.	35.3	1400.0
11 OCT 0704 287	11.	41.6	1401.3 * 12 OCT 0520 621	1.	36.1	1400.2 * 13 OCT 0336 955	0.	35.3	1400.0
11 OCT 0708 288	10.	41.6	1401.3 * 12 OCT 0524 622	1.	36.1	1400.2 * 13 OCT 0340 956	0.	35.2	1400.0
11 OCT 0712 289	10.	41.5	1401.3 * 12 OCT 0528 623	1.	36.1	1400.2 * 13 OCT 0344 957	0.	35.2	1400.0
11 OCT 0716 290	10.	41.5	1401.3 * 12 OCT 0532 624	1.	36.0	1400.2 * 13 OCT 0348 958	0.	35.2	1400.0
11 OCT 0720 291	10.	41.4	1401.3 * 12 OCT 0536 625	1.	36.0	1400.2 * 13 OCT 0352 959	0.	35.2	1400.0
11 OCT 0724 292	10.	41.4	1401.3 * 12 OCT 0540 626	1.	36.0	1400.2 * 13 OCT 0356 960	0.	35.2	1400.0
11 OCT 0728 293	9.	41.3	1401.2 * 12 OCT 0544 627	1.	36.0	1400.2 * 13 OCT 0400 961	0.	35.2	1400.0
11 OCT 0732 294	9.	41.3	1401.2 * 12 OCT 0548 628	1.	36.0	1400.2 * 13 OCT 0404 962	0.	35.2	1400.0
11 OCT 0736 295	9.	41.2	1401.2 * 12 OCT 0552 629	1.	36.0	1400.2 * 13 OCT 0408 963	0.	35.2	1400.0
11 OCT 0740 296	9.	41.2	1401.2 * 12 OCT 0556 630	1.	36.0	1400.2 * 13 OCT 0412 964	0.	35.2	1400.0
11 OCT 0744 297	9.	41.1	1401.2 * 12 OCT 0600 631	1.	36.0	1400.2 * 13 OCT 0416 965	0.	35.2	1400.0
11 OCT 0748 298	9.	41.1	1401.2 * 12 OCT 0604 632	1.	36.0	1400.2 * 13 OCT 0420 966	0.	35.2	1400.0
11 OCT 0752 299	8.	41.0	1401.2 * 12 OCT 0608 633	1.	36.0	1400.2 * 13 OCT 0424 967	0.	35.2	1400.0
11 OCT 0756 300	8.	41.0	1401.2 * 12 OCT 0612 634	1.	36.0	1400.2 * 13 OCT 0428 968	0.	35.2	1400.0
11 OCT 0800 301	8.	40.9	1401.2 * 12 OCT 0616 635	1.	36.0	1400.2 * 13 OCT 0432 969	0.	35.2	1400.0
11 OCT 0804 302	8.	40.9	1401.2 * 12 OCT 0620 636	1.	36.0	1400.2 * 13 OCT 0436 970	0.	35.2	1400.0
11 OCT 0808 303	8.	40.8	1401.2 * 12 OCT 0624 637	1.	36.0	1400.2 * 13 OCT 0440 971	0.	35.2	1400.0
11 OCT 0812 304	8.	40.8	1401.1 * 12 OCT 0628 638	1.	36.0	1400.2 * 13 OCT 0444 972	0.	35.2	1400.0
11 OCT 0816 305	7.	40.8	1401.1 * 12 OCT 0632 639	1.	36.0	1400.2 * 13 OCT 0448 973	0.	35.2	1400.0

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  11 OCT 0820 306       7.     40.7  1401.1 * 12 OCT 0636 640       1.     36.0  1400.2 * 13 OCT 0452 974       0.     35.2  1400.0
  11 OCT 0824 307       7.     40.7  1401.1 * 12 OCT 0640 641       1.     36.0  1400.2 * 13 OCT 0456 975       0.     35.2  1400.0
  11 OCT 0828 308       7.     40.6  1401.1 * 12 OCT 0644 642       1.     36.0  1400.2 * 13 OCT 0500 976       0.     35.2  1400.0
  11 OCT 0832 309       7.     40.6  1401.1 * 12 OCT 0648 643       1.     36.0  1400.2 * 13 OCT 0504 977       0.     35.2  1400.0
  11 OCT 0836 310       7.     40.6  1401.1 * 12 OCT 0652 644       1.     35.9  1400.2 * 13 OCT 0508 978       0.     35.2  1400.0
  11 OCT 0840 311       7.     40.5  1401.1 * 12 OCT 0656 645       1.     35.9  1400.2 * 13 OCT 0512 979       0.     35.2  1400.0
  11 OCT 0844 312       7.     40.5  1401.1 * 12 OCT 0700 646       1.     35.9  1400.2 * 13 OCT 0516 980       0.     35.2  1400.0
  11 OCT 0848 313       6.     40.5  1401.1 * 12 OCT 0704 647       1.     35.9  1400.2 * 13 OCT 0520 981       0.     35.2  1400.0
  11 OCT 0852 314       6.     40.4  1401.1 * 12 OCT 0708 648       1.     35.9  1400.2 * 13 OCT 0524 982       0.     35.2  1400.0
  11 OCT 0856 315       6.     40.4  1401.1 * 12 OCT 0712 649       1.     35.9  1400.2 * 13 OCT 0528 983       0.     35.2  1400.0
  11 OCT 0900 316       6.     40.4  1401.1 * 12 OCT 0716 650       1.     35.9  1400.2 * 13 OCT 0532 984       0.     35.2  1400.0
  11 OCT 0904 317       6.     40.3  1401.1 * 12 OCT 0720 651       1.     35.9  1400.2 * 13 OCT 0536 985       0.     35.2  1400.0
  11 OCT 0908 318       6.     40.3  1401.0 * 12 OCT 0724 652       1.     35.9  1400.2 * 13 OCT 0540 986       0.     35.2  1400.0
  11 OCT 0912 319       6.     40.3  1401.0 * 12 OCT 0728 653       1.     35.9  1400.2 * 13 OCT 0544 987       0.     35.2  1400.0
  11 OCT 0916 320       6.     40.2  1401.0 * 12 OCT 0732 654       1.     35.9  1400.2 * 13 OCT 0548 988       0.     35.2  1400.0
  11 OCT 0920 321       5.     40.2  1401.0 * 12 OCT 0736 655       1.     35.9  1400.2 * 13 OCT 0552 989       0.     35.2  1400.0
  11 OCT 0924 322       5.     40.2  1401.0 * 12 OCT 0740 656       1.     35.9  1400.2 * 13 OCT 0556 990       0.     35.2  1400.0
  11 OCT 0928 323       5.     40.1  1401.0 * 12 OCT 0744 657       1.     35.9  1400.2 * 13 OCT 0600 991       0.     35.2  1400.0
  11 OCT 0932 324       5.     40.1  1401.0 * 12 OCT 0748 658       1.     35.9  1400.2 * 13 OCT 0604 992       0.     35.2  1400.0
  11 OCT 0936 325       5.     40.1  1401.0 * 12 OCT 0752 659       1.     35.9  1400.2 * 13 OCT 0608 993       0.     35.2  1400.0
  11 OCT 0940 326       5.     40.0  1401.0 * 12 OCT 0756 660       1.     35.9  1400.2 * 13 OCT 0612 994       0.     35.2  1400.0
  11 OCT 0944 327       5.     40.0  1401.0 * 12 OCT 0800 661       1.     35.9  1400.2 * 13 OCT 0616 995       0.     35.2  1400.0
  11 OCT 0948 328       5.     40.0  1401.0 * 12 OCT 0804 662       1.     35.9  1400.2 * 13 OCT 0620 996       0.     35.2  1400.0
  11 OCT 0952 329       5.     40.0  1401.0 * 12 OCT 0808 663       1.     35.9  1400.2 * 13 OCT 0624 997       0.     35.2  1400.0
  11 OCT 0956 330       5.     39.9  1401.0 * 12 OCT 0812 664       1.     35.9  1400.2 * 13 OCT 0628 998       0.     35.2  1400.0
  11 OCT 1000 331       5.     39.9  1401.0 * 12 OCT 0816 665       1.     35.9  1400.2 * 13 OCT 0632 999       0.     35.2  1400.0
  11 OCT 1004 332       5.     39.9  1401.0 * 12 OCT 0820 666       1.     35.8  1400.2 * 13 OCT 06361000      0.     35.2  1400.0
  11 OCT 1008 333       5.     39.9  1401.0 * 12 OCT 0824 667       1.     35.8  1400.2 *
  11 OCT 1012 334       5.     39.8  1401.0 * 12 OCT 0828 668       1.     35.8  1400.1 *
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  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                    6-HR        24-HR        72-HR     66.60-HR
+   (CFS)       (HR)
                     (CFS)
+      31.     14.07                 23.           9.           3.           3.
                     (INCHES)      .000         .000         .000         .000
                      (AC-FT)       11.          17.          18.          18.

 PEAK STORAGE   TIME                        MAXIMUM AVERAGE STORAGE
                                    6-HR        24-HR        72-HR     66.60-HR
+  (AC-FT)      (HR)
       50.     14.07                 46.          40.          31.          31.

  PEAK STAGE    TIME                          MAXIMUM AVERAGE STAGE
                                    6-HR        24-HR        72-HR     66.60-HR
+   (FEET)      (HR)
   1402.85     14.07              1402.14     1401.04     1398.76      1398.76

                      CUMULATIVE AREA =     .00 SQ MI



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           *            *
1207 KK    *     OUTFW  *
           *            *
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1210 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           1  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE

1211 HC          HYDROGRAPH COMBINATION
                      ICOMP           2  NUMBER OF HYDROGRAPHS TO COMBINE

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DA MON HRMN	ORD	FLOW	DA MON HRMN	ORD	FLOW	DA MON HRMN	ORD	FLOW	DA MON HRMN	ORD	FLOW
10 OCT 1200	1	0.	11 OCT 0440	251	698.	11 OCT 2120	501	14.	12 OCT 1400	751	1.
10 OCT 1204	2	0.	11 OCT 0444	252	694.	11 OCT 2124	502	13.	12 OCT 1404	752	1.
10 OCT 1208	3	0.	11 OCT 0448	253	689.	11 OCT 2128	503	13.	12 OCT 1408	753	1.
10 OCT 1212	4	1.	11 OCT 0452	254	686.	11 OCT 2132	504	13.	12 OCT 1412	754	1.
10 OCT 1216	5	1.	11 OCT 0456	255	682.	11 OCT 2136	505	12.	12 OCT 1416	755	1.
10 OCT 1220	6	2.	11 OCT 0500	256	678.	11 OCT 2140	506	12.	12 OCT 1420	756	1.
10 OCT 1224	7	2.	11 OCT 0504	257	675.	11 OCT 2144	507	12.	12 OCT 1424	757	1.
10 OCT 1228	8	3.	11 OCT 0508	258	671.	11 OCT 2148	508	11.	12 OCT 1428	758	1.
10 OCT 1232	9	3.	11 OCT 0512	259	668.	11 OCT 2152	509	11.	12 OCT 1432	759	1.
10 OCT 1236	10	5.	11 OCT 0516	260	664.	11 OCT 2156	510	11.	12 OCT 1436	760	1.
10 OCT 1240	11	6.	11 OCT 0520	261	660.	11 OCT 2200	511	10.	12 OCT 1440	761	1.
10 OCT 1244	12	8.	11 OCT 0524	262	657.	11 OCT 2204	512	10.	12 OCT 1444	762	0.
10 OCT 1248	13	9.	11 OCT 0528	263	653.	11 OCT 2208	513	10.	12 OCT 1448	763	0.
10 OCT 1252	14	10.	11 OCT 0532	264	649.	11 OCT 2212	514	10.	12 OCT 1452	764	0.
10 OCT 1256	15	11.	11 OCT 0536	265	645.	11 OCT 2216	515	9.	12 OCT 1456	765	0.
10 OCT 1300	16	12.	11 OCT 0540	266	640.	11 OCT 2220	516	9.	12 OCT 1500	766	0.
10 OCT 1304	17	12.	11 OCT 0544	267	636.	11 OCT 2224	517	9.	12 OCT 1504	767	0.
10 OCT 1308	18	13.	11 OCT 0548	268	631.	11 OCT 2228	518	9.	12 OCT 1508	768	0.
10 OCT 1312	19	14.	11 OCT 0552	269	626.	11 OCT 2232	519	9.	12 OCT 1512	769	0.
10 OCT 1316	20	14.	11 OCT 0556	270	622.	11 OCT 2236	520	8.	12 OCT 1516	770	0.
10 OCT 1320	21	15.	11 OCT 0600	271	618.	11 OCT 2240	521	8.	12 OCT 1520	771	0.
10 OCT 1324	22	15.	11 OCT 0604	272	613.	11 OCT 2244	522	8.	12 OCT 1524	772	0.
10 OCT 1328	23	15.	11 OCT 0608	273	608.	11 OCT 2248	523	8.	12 OCT 1528	773	0.
10 OCT 1332	24	16.	11 OCT 0612	274	604.	11 OCT 2252	524	8.	12 OCT 1532	774	0.
10 OCT 1336	25	16.	11 OCT 0616	275	599.	11 OCT 2256	525	7.	12 OCT 1536	775	0.
10 OCT 1340	26	16.	11 OCT 0620	276	594.	11 OCT 2300	526	7.	12 OCT 1540	776	0.
10 OCT 1344	27	16.	11 OCT 0624	277	589.	11 OCT 2304	527	7.	12 OCT 1544	777	0.
10 OCT 1348	28	16.	11 OCT 0628	278	584.	11 OCT 2308	528	7.	12 OCT 1548	778	0.
10 OCT 1352	29	17.	11 OCT 0632	279	580.	11 OCT 2312	529	7.	12 OCT 1552	779	0.
10 OCT 1356	30	17.	11 OCT 0636	280	576.	11 OCT 2316	530	7.	12 OCT 1556	780	0.
10 OCT 1400	31	18.	11 OCT 0640	281	571.	11 OCT 2320	531	7.	12 OCT 1600	781	0.
10 OCT 1404	32	18.	11 OCT 0644	282	567.	11 OCT 2324	532	6.	12 OCT 1604	782	0.
10 OCT 1408	33	19.	11 OCT 0648	283	563.	11 OCT 2328	533	6.	12 OCT 1608	783	0.
10 OCT 1412	34	20.	11 OCT 0652	284	560.	11 OCT 2332	534	6.	12 OCT 1612	784	0.
10 OCT 1416	35	20.	11 OCT 0656	285	556.	11 OCT 2336	535	6.	12 OCT 1616	785	0.
10 OCT 1420	36	21.	11 OCT 0700	286	553.	11 OCT 2340	536	6.	12 OCT 1620	786	0.
10 OCT 1424	37	22.	11 OCT 0704	287	550.	11 OCT 2344	537	6.	12 OCT 1624	787	0.
10 OCT 1428	38	22.	11 OCT 0708	288	547.	11 OCT 2348	538	6.	12 OCT 1628	788	0.
10 OCT 1432	39	23.	11 OCT 0712	289	544.	11 OCT 2352	539	6.	12 OCT 1632	789	0.
10 OCT 1436	40	23.	11 OCT 0716	290	541.	11 OCT 2356	540	6.	12 OCT 1636	790	0.
10 OCT 1440	41	24.	11 OCT 0720	291	539.	12 OCT 0000	541	5.	12 OCT 1640	791	0.
10 OCT 1444	42	24.	11 OCT 0724	292	536.	12 OCT 0004	542	5.	12 OCT 1644	792	0.
10 OCT 1448	43	25.	11 OCT 0728	293	534.	12 OCT 0008	543	5.	12 OCT 1648	793	0.
10 OCT 1452	44	26.	11 OCT 0732	294	531.	12 OCT 0012	544	5.	12 OCT 1652	794	0.
10 OCT 1456	45	26.	11 OCT 0736	295	528.	12 OCT 0016	545	5.	12 OCT 1656	795	0.
10 OCT 1500	46	27.	11 OCT 0740	296	526.	12 OCT 0020	546	5.	12 OCT 1700	796	0.
10 OCT 1504	47	28.	11 OCT 0744	297	523.	12 OCT 0024	547	5.	12 OCT 1704	797	0.
10 OCT 1508	48	28.	11 OCT 0748	298	519.	12 OCT 0028	548	5.	12 OCT 1708	798	0.
10 OCT 1512	49	29.	11 OCT 0752	299	516.	12 OCT 0032	549	5.	12 OCT 1712	799	0.
10 OCT 1516	50	30.	11 OCT 0756	300	513.	12 OCT 0036	550	5.	12 OCT 1716	800	0.
10 OCT 1520	51	30.	11 OCT 0800	301	510.	12 OCT 0040	551	5.	12 OCT 1720	801	0.
10 OCT 1524	52	31.	11 OCT 0804	302	507.	12 OCT 0044	552	4.	12 OCT 1724	802	0.
10 OCT 1528	53	31.	11 OCT 0808	303	503.	12 OCT 0048	553	4.	12 OCT 1728	803	0.
10 OCT 1532	54	32.	11 OCT 0812	304	500.	12 OCT 0052	554	4.	12 OCT 1732	804	0.
10 OCT 1536	55	32.	11 OCT 0816	305	497.	12 OCT 0056	555	4.	12 OCT 1736	805	0.
10 OCT 1540	56	32.	11 OCT 0820	306	494.	12 OCT 0100	556	4.	12 OCT 1740	806	0.
10 OCT 1544	57	32.	11 OCT 0824	307	491.	12 OCT 0104	557	4.	12 OCT 1744	807	0.
10 OCT 1548	58	33.	11 OCT 0828	308	488.	12 OCT 0108	558	4.	12 OCT 1748	808	0.
10 OCT 1552	59	33.	11 OCT 0832	309	485.	12 OCT 0112	559	4.	12 OCT 1752	809	0.
10 OCT 1556	60	34.	11 OCT 0836	310	482.	12 OCT 0116	560	4.	12 OCT 1756	810	0.
10 OCT 1600	61	34.	11 OCT 0840	311	479.	12 OCT 0120	561	4.	12 OCT 1800	811	0.
10 OCT 1604	62	35.	11 OCT 0844	312	476.	12 OCT 0124	562	4.	12 OCT 1804	812	0.
10 OCT 1608	63	35.	11 OCT 0848	313	472.	12 OCT 0128	563	4.	12 OCT 1808	813	0.
10 OCT 1612	64	36.	11 OCT 0852	314	469.	12 OCT 0132	564	4.	12 OCT 1812	814	0.
10 OCT 1616	65	37.	11 OCT 0856	315	466.	12 OCT 0136	565	4.	12 OCT 1816	815	0.
10 OCT 1620	66	38.	11 OCT 0900	316	462.	12 OCT 0140	566	4.	12 OCT 1820	816	0.
10 OCT 1624	67	38.	11 OCT 0904	317	459.	12 OCT 0144	567	4.	12 OCT 1824	817	0.
10 OCT 1628	68	39.	11 OCT 0908	318	455.	12 OCT 0148	568	3.	12 OCT 1828	818	0.
10 OCT 1632	69	39.	11 OCT 0912	319	452.	12 OCT 0152	569	3.	12 OCT 1832	819	0.
10 OCT 1636	70	40.	11 OCT 0916	320	449.	12 OCT 0156	570	3.	12 OCT 1836	820	0.
10 OCT 1640	71	41.	11 OCT 0920	321	447.	12 OCT 0200	571	3.	12 OCT 1840	821	0.

10	OCT	1644	72	41.	*	11	OCT	0924	322	444.	*	12	OCT	0204	572	3.	*	12	OCT	1844	822	0.
10	OCT	1648	73	42.	*	11	OCT	0928	323	442.	*	12	OCT	0208	573	3.	*	12	OCT	1848	823	0.
10	OCT	1652	74	42.	*	11	OCT	0932	324	441.	*	12	OCT	0212	574	3.	*	12	OCT	1852	824	0.
10	OCT	1656	75	42.	*	11	OCT	0936	325	439.	*	12	OCT	0216	575	3.	*	12	OCT	1856	825	0.
10	OCT	1700	76	43.	*	11	OCT	0940	326	437.	*	12	OCT	0220	576	3.	*	12	OCT	1900	826	0.
10	OCT	1704	77	43.	*	11	OCT	0944	327	435.	*	12	OCT	0224	577	3.	*	12	OCT	1904	827	0.
10	OCT	1708	78	43.	*	11	OCT	0948	328	433.	*	12	OCT	0228	578	3.	*	12	OCT	1908	828	0.
10	OCT	1712	79	43.	*	11	OCT	0952	329	431.	*	12	OCT	0232	579	3.	*	12	OCT	1912	829	0.
10	OCT	1716	80	44.	*	11	OCT	0956	330	429.	*	12	OCT	0236	580	3.	*	12	OCT	1916	830	0.
10	OCT	1720	81	44.	*	11	OCT	1000	331	426.	*	12	OCT	0240	581	3.	*	12	OCT	1920	831	0.
10	OCT	1724	82	44.	*	11	OCT	1004	332	423.	*	12	OCT	0244	582	3.	*	12	OCT	1924	832	0.
10	OCT	1728	83	45.	*	11	OCT	1008	333	420.	*	12	OCT	0248	583	3.	*	12	OCT	1928	833	0.
10	OCT	1732	84	45.	*	11	OCT	1012	334	417.	*	12	OCT	0252	584	3.	*	12	OCT	1932	834	0.
10	OCT	1736	85	46.	*	11	OCT	1016	335	414.	*	12	OCT	0256	585	3.	*	12	OCT	1936	835	0.
10	OCT	1740	86	47.	*	11	OCT	1020	336	411.	*	12	OCT	0300	586	3.	*	12	OCT	1940	836	0.
10	OCT	1744	87	47.	*	11	OCT	1024	337	409.	*	12	OCT	0304	587	3.	*	12	OCT	1944	837	0.
10	OCT	1748	88	48.	*	11	OCT	1028	338	406.	*	12	OCT	0308	588	3.	*	12	OCT	1948	838	0.
10	OCT	1752	89	48.	*	11	OCT	1032	339	404.	*	12	OCT	0312	589	3.	*	12	OCT	1952	839	0.
10	OCT	1756	90	49.	*	11	OCT	1036	340	401.	*	12	OCT	0316	590	3.	*	12	OCT	1956	840	0.
10	OCT	1800	91	49.	*	11	OCT	1040	341	399.	*	12	OCT	0320	591	3.	*	12	OCT	2000	841	0.
10	OCT	1804	92	50.	*	11	OCT	1044	342	396.	*	12	OCT	0324	592	2.	*	12	OCT	2004	842	0.
10	OCT	1808	93	50.	*	11	OCT	1048	343	393.	*	12	OCT	0328	593	2.	*	12	OCT	2008	843	0.
10	OCT	1812	94	51.	*	11	OCT	1052	344	391.	*	12	OCT	0332	594	2.	*	12	OCT	2012	844	0.
10	OCT	1816	95	52.	*	11	OCT	1056	345	388.	*	12	OCT	0336	595	2.	*	12	OCT	2016	845	0.
10	OCT	1820	96	52.	*	11	OCT	1100	346	385.	*	12	OCT	0340	596	2.	*	12	OCT	2020	846	0.
10	OCT	1824	97	53.	*	11	OCT	1104	347	382.	*	12	OCT	0344	597	2.	*	12	OCT	2024	847	0.
10	OCT	1828	98	53.	*	11	OCT	1108	348	380.	*	12	OCT	0348	598	2.	*	12	OCT	2028	848	0.
10	OCT	1832	99	54.	*	11	OCT	1112	349	377.	*	12	OCT	0352	599	2.	*	12	OCT	2032	849	0.
10	OCT	1836	100	54.	*	11	OCT	1116	350	375.	*	12	OCT	0356	600	2.	*	12	OCT	2036	850	0.
10	OCT	1840	101	54.	*	11	OCT	1120	351	373.	*	12	OCT	0400	601	2.	*	12	OCT	2040	851	0.
10	OCT	1844	102	55.	*	11	OCT	1124	352	371.	*	12	OCT	0404	602	2.	*	12	OCT	2044	852	0.
10	OCT	1848	103	55.	*	11	OCT	1128	353	370.	*	12	OCT	0408	603	2.	*	12	OCT	2048	853	0.
10	OCT	1852	104	55.	*	11	OCT	1132	354	368.	*	12	OCT	0412	604	2.	*	12	OCT	2052	854	0.
10	OCT	1856	105	56.	*	11	OCT	1136	355	366.	*	12	OCT	0416	605	2.	*	12	OCT	2056	855	0.
10	OCT	1900	106	56.	*	11	OCT	1140	356	364.	*	12	OCT	0420	606	2.	*	12	OCT	2100	856	0.
10	OCT	1904	107	57.	*	11	OCT	1144	357	362.	*	12	OCT	0424	607	2.	*	12	OCT	2104	857	0.
10	OCT	1908	108	57.	*	11	OCT	1148	358	359.	*	12	OCT	0428	608	2.	*	12	OCT	2108	858	0.
10	OCT	1912	109	58.	*	11	OCT	1152	359	357.	*	12	OCT	0432	609	2.	*	12	OCT	2112	859	0.
10	OCT	1916	110	58.	*	11	OCT	1156	360	353.	*	12	OCT	0436	610	2.	*	12	OCT	2116	860	0.
10	OCT	1920	111	59.	*	11	OCT	1200	361	350.	*	12	OCT	0440	611	2.	*	12	OCT	2120	861	0.
10	OCT	1924	112	59.	*	11	OCT	1204	362	346.	*	12	OCT	0444	612	2.	*	12	OCT	2124	862	0.
10	OCT	1928	113	60.	*	11	OCT	1208	363	341.	*	12	OCT	0448	613	2.	*	12	OCT	2128	863	0.
10	OCT	1932	114	60.	*	11	OCT	1212	364	334.	*	12	OCT	0452	614	2.	*	12	OCT	2132	864	0.
10	OCT	1936	115	61.	*	11	OCT	1216	365	327.	*	12	OCT	0456	615	2.	*	12	OCT	2136	865	0.
10	OCT	1940	116	62.	*	11	OCT	1220	366	319.	*	12	OCT	0500	616	2.	*	12	OCT	2140	866	0.
10	OCT	1944	117	63.	*	11	OCT	1224	367	311.	*	12	OCT	0504	617	2.	*	12	OCT	2144	867	0.
10	OCT	1948	118	64.	*	11	OCT	1228	368	304.	*	12	OCT	0508	618	2.	*	12	OCT	2148	868	0.
10	OCT	1952	119	64.	*	11	OCT	1232	369	297.	*	12	OCT	0512	619	2.	*	12	OCT	2152	869	0.
10	OCT	1956	120	65.	*	11	OCT	1236	370	290.	*	12	OCT	0516	620	2.	*	12	OCT	2156	870	0.
10	OCT	2000	121	65.	*	11	OCT	1240	371	283.	*	12	OCT	0520	621	2.	*	12	OCT	2200	871	0.
10	OCT	2004	122	66.	*	11	OCT	1244	372	275.	*	12	OCT	0524	622	2.	*	12	OCT	2204	872	0.
10	OCT	2008	123	66.	*	11	OCT	1248	373	267.	*	12	OCT	0528	623	2.	*	12	OCT	2208	873	0.
10	OCT	2012	124	67.	*	11	OCT	1252	374	259.	*	12	OCT	0532	624	2.	*	12	OCT	2212	874	0.
10	OCT	2016	125	68.	*	11	OCT	1256	375	253.	*	12	OCT	0536	625	2.	*	12	OCT	2216	875	0.
10	OCT	2020	126	68.	*	11	OCT	1300	376	247.	*	12	OCT	0540	626	2.	*	12	OCT	2220	876	0.
10	OCT	2024	127	69.	*	11	OCT	1304	377	242.	*	12	OCT	0544	627	2.	*	12	OCT	2224	877	0.
10	OCT	2028	128	70.	*	11	OCT	1308	378	237.	*	12	OCT	0548	628	2.	*	12	OCT	2228	878	0.
10	OCT	2032	129	71.	*	11	OCT	1312	379	233.	*	12	OCT	0552	629	2.	*	12	OCT	2232	879	0.
10	OCT	2036	130	72.	*	11	OCT	1316	380	229.	*	12	OCT	0556	630	2.	*	12	OCT	2236	880	0.
10	OCT	2040	131	73.	*	11	OCT	1320	381	226.	*	12	OCT	0600	631	2.	*	12	OCT	2240	881	0.
10	OCT	2044	132	74.	*	11	OCT	1324	382	223.	*	12	OCT	0604	632	2.	*	12	OCT	2244	882	0.
10	OCT	2048	133	75.	*	11	OCT	1328	383	219.	*	12	OCT	0608	633	2.	*	12	OCT	2248	883	0.
10	OCT	2052	134	76.	*	11	OCT	1332	384	216.	*	12	OCT	0612	634	2.	*	12	OCT	2252	884	0.
10	OCT	2056	135	77.	*	11	OCT	1336	385	213.	*	12	OCT	0616	635	1.	*	12	OCT	2256	885	0.
10	OCT	2100	136	77.	*	11	OCT	1340	386	210.	*	12	OCT	0620	636	1.	*	12	OCT	2300	886	0.
10	OCT	2104	137	78.	*	11	OCT	1344	387	208.	*	12	OCT	0624	637	1.	*	12	OCT	2304	887	0.
10	OCT	2108	138	79.	*	11	OCT	1348	388	205.	*	12	OCT	0628	638	1.	*	12	OCT	2308	888	0.
10	OCT	2112	139	80.	*	11	OCT	1352	389	202.	*	12	OCT	0632	639	1.	*	12	OCT	2312	889	0.
10	OCT	2116	140	81.	*	11	OCT	1356	390	200.	*	12	OCT	0636	640	1.	*	12	OCT	2316	890	0.
10	OCT	2120	141	82.	*	11	OCT	1400	391	197.	*	12	OCT	0640	641	1.	*	12	OCT	2320	891	0.
10	OCT	2124	142	83.	*	11	OCT	1404	392	194.	*	12	OCT	0644	642	1.	*	12	OCT	2324	892	0.
10	OCT	2128	143	84.	*	11	OCT	1408	393	192.	*	12	OCT	0648	643	1.	*	12	OCT	2328	893	0.
10	OCT	2132	144	85.	*	11	OCT	1412	394	190.	*	12	OCT	0652	644	1.	*	12	OCT	2332	894	0.
10	OCT	2136	145	87.	*	11	OCT	1416	395	187.	*	12	OCT	0656	645	1.	*	12	OCT	2336	895	0.
10	OCT	2140	146	88.	*	11	OCT	1420	396	185.	*	12	OCT	0700	646	1.	*	12	OCT	2340	896	0.
10	OCT	2144	147	90.	*	11	OCT	1424	397	183.	*	12	OCT	0704	647	1.	*	12	OCT	2344	897	0.
10	OCT	2148	148	91.	*	11	OCT	1428	398	180.	*	12	OCT	0708	648	1.	*	12	OCT	2348	898	0.

10 OCT 2152	149	92.	*	11 OCT 1432	399	178.	*	12 OCT 0712	649	1.	*	12 OCT 2352	899	0.
10 OCT 2156	150	93.	*	11 OCT 1436	400	176.	*	12 OCT 0716	650	1.	*	12 OCT 2356	900	0.
10 OCT 2200	151	94.	*	11 OCT 1440	401	174.	*	12 OCT 0720	651	1.	*	13 OCT 0000	901	0.
10 OCT 2204	152	96.	*	11 OCT 1444	402	172.	*	12 OCT 0724	652	1.	*	13 OCT 0004	902	0.
10 OCT 2208	153	97.	*	11 OCT 1448	403	170.	*	12 OCT 0728	653	1.	*	13 OCT 0008	903	0.
10 OCT 2212	154	99.	*	11 OCT 1452	404	168.	*	12 OCT 0732	654	1.	*	13 OCT 0012	904	0.
10 OCT 2216	155	101.	*	11 OCT 1456	405	165.	*	12 OCT 0736	655	1.	*	13 OCT 0016	905	0.
10 OCT 2220	156	103.	*	11 OCT 1500	406	163.	*	12 OCT 0740	656	1.	*	13 OCT 0020	906	0.
10 OCT 2224	157	104.	*	11 OCT 1504	407	161.	*	12 OCT 0744	657	1.	*	13 OCT 0024	907	0.
10 OCT 2228	158	106.	*	11 OCT 1508	408	159.	*	12 OCT 0748	658	1.	*	13 OCT 0028	908	0.
10 OCT 2232	159	108.	*	11 OCT 1512	409	157.	*	12 OCT 0752	659	1.	*	13 OCT 0032	909	0.
10 OCT 2236	160	111.	*	11 OCT 1516	410	155.	*	12 OCT 0756	660	1.	*	13 OCT 0036	910	0.
10 OCT 2240	161	114.	*	11 OCT 1520	411	153.	*	12 OCT 0800	661	1.	*	13 OCT 0040	911	0.
10 OCT 2244	162	117.	*	11 OCT 1524	412	151.	*	12 OCT 0804	662	1.	*	13 OCT 0044	912	0.
10 OCT 2248	163	120.	*	11 OCT 1528	413	148.	*	12 OCT 0808	663	1.	*	13 OCT 0048	913	0.
10 OCT 2252	164	123.	*	11 OCT 1532	414	146.	*	12 OCT 0812	664	1.	*	13 OCT 0052	914	0.
10 OCT 2256	165	127.	*	11 OCT 1536	415	144.	*	12 OCT 0816	665	1.	*	13 OCT 0056	915	0.
10 OCT 2300	166	130.	*	11 OCT 1540	416	142.	*	12 OCT 0820	666	1.	*	13 OCT 0100	916	0.
10 OCT 2304	167	135.	*	11 OCT 1544	417	140.	*	12 OCT 0824	667	1.	*	13 OCT 0104	917	0.
10 OCT 2308	168	141.	*	11 OCT 1548	418	138.	*	12 OCT 0828	668	1.	*	13 OCT 0108	918	0.
10 OCT 2312	169	147.	*	11 OCT 1552	419	136.	*	12 OCT 0832	669	1.	*	13 OCT 0112	919	0.
10 OCT 2316	170	154.	*	11 OCT 1556	420	134.	*	12 OCT 0836	670	1.	*	13 OCT 0116	920	0.
10 OCT 2320	171	161.	*	11 OCT 1600	421	132.	*	12 OCT 0840	671	1.	*	13 OCT 0120	921	0.
10 OCT 2324	172	169.	*	11 OCT 1604	422	130.	*	12 OCT 0844	672	1.	*	13 OCT 0124	922	0.
10 OCT 2328	173	177.	*	11 OCT 1608	423	128.	*	12 OCT 0848	673	1.	*	13 OCT 0128	923	0.
10 OCT 2332	174	189.	*	11 OCT 1612	424	126.	*	12 OCT 0852	674	1.	*	13 OCT 0132	924	0.
10 OCT 2336	175	210.	*	11 OCT 1616	425	124.	*	12 OCT 0856	675	1.	*	13 OCT 0136	925	0.
10 OCT 2340	176	252.	*	11 OCT 1620	426	123.	*	12 OCT 0900	676	1.	*	13 OCT 0140	926	0.
10 OCT 2344	177	323.	*	11 OCT 1624	427	121.	*	12 OCT 0904	677	1.	*	13 OCT 0144	927	0.
10 OCT 2348	178	460.	*	11 OCT 1628	428	119.	*	12 OCT 0908	678	1.	*	13 OCT 0148	928	0.
10 OCT 2352	179	770.	*	11 OCT 1632	429	116.	*	12 OCT 0912	679	1.	*	13 OCT 0152	929	0.
10 OCT 2356	180	1135.	*	11 OCT 1636	430	114.	*	12 OCT 0916	680	1.	*	13 OCT 0156	930	0.
11 OCT 0000	181	1414.	*	11 OCT 1640	431	112.	*	12 OCT 0920	681	1.	*	13 OCT 0200	931	0.
11 OCT 0004	182	1633.	*	11 OCT 1644	432	110.	*	12 OCT 0924	682	1.	*	13 OCT 0204	932	0.
11 OCT 0008	183	1937.	*	11 OCT 1648	433	108.	*	12 OCT 0928	683	1.	*	13 OCT 0208	933	0.
11 OCT 0012	184	2208.	*	11 OCT 1652	434	105.	*	12 OCT 0932	684	1.	*	13 OCT 0212	934	0.
11 OCT 0016	185	2385.	*	11 OCT 1656	435	103.	*	12 OCT 0936	685	1.	*	13 OCT 0216	935	0.
11 OCT 0020	186	2503.	*	11 OCT 1700	436	101.	*	12 OCT 0940	686	1.	*	13 OCT 0220	936	0.
11 OCT 0024	187	2588.	*	11 OCT 1704	437	99.	*	12 OCT 0944	687	1.	*	13 OCT 0224	937	0.
11 OCT 0028	188	2617.	*	11 OCT 1708	438	97.	*	12 OCT 0948	688	1.	*	13 OCT 0228	938	0.
11 OCT 0032	189	2474.	*	11 OCT 1712	439	94.	*	12 OCT 0952	689	1.	*	13 OCT 0232	939	0.
11 OCT 0036	190	2253.	*	11 OCT 1716	440	92.	*	12 OCT 0956	690	1.	*	13 OCT 0236	940	0.
11 OCT 0040	191	1949.	*	11 OCT 1720	441	90.	*	12 OCT 1000	691	1.	*	13 OCT 0240	941	0.
11 OCT 0044	192	1700.	*	11 OCT 1724	442	88.	*	12 OCT 1004	692	1.	*	13 OCT 0244	942	0.
11 OCT 0048	193	1561.	*	11 OCT 1728	443	86.	*	12 OCT 1008	693	1.	*	13 OCT 0248	943	0.
11 OCT 0052	194	1456.	*	11 OCT 1732	444	84.	*	12 OCT 1012	694	1.	*	13 OCT 0252	944	0.
11 OCT 0056	195	1375.	*	11 OCT 1736	445	82.	*	12 OCT 1016	695	1.	*	13 OCT 0256	945	0.
11 OCT 0100	196	1315.	*	11 OCT 1740	446	81.	*	12 OCT 1020	696	1.	*	13 OCT 0300	946	0.
11 OCT 0104	197	1274.	*	11 OCT 1744	447	79.	*	12 OCT 1024	697	1.	*	13 OCT 0304	947	0.
11 OCT 0108	198	1247.	*	11 OCT 1748	448	77.	*	12 OCT 1028	698	1.	*	13 OCT 0308	948	0.
11 OCT 0112	199	1225.	*	11 OCT 1752	449	75.	*	12 OCT 1032	699	1.	*	13 OCT 0312	949	0.
11 OCT 0116	200	1200.	*	11 OCT 1756	450	73.	*	12 OCT 1036	700	1.	*	13 OCT 0316	950	0.
11 OCT 0120	201	1178.	*	11 OCT 1800	451	71.	*	12 OCT 1040	701	1.	*	13 OCT 0320	951	0.
11 OCT 0124	202	1164.	*	11 OCT 1804	452	69.	*	12 OCT 1044	702	1.	*	13 OCT 0324	952	0.
11 OCT 0128	203	1157.	*	11 OCT 1808	453	67.	*	12 OCT 1048	703	1.	*	13 OCT 0328	953	0.
11 OCT 0132	204	1158.	*	11 OCT 1812	454	65.	*	12 OCT 1052	704	1.	*	13 OCT 0332	954	0.
11 OCT 0136	205	1156.	*	11 OCT 1816	455	63.	*	12 OCT 1056	705	1.	*	13 OCT 0336	955	0.
11 OCT 0140	206	1148.	*	11 OCT 1820	456	61.	*	12 OCT 1100	706	1.	*	13 OCT 0340	956	0.
11 OCT 0144	207	1137.	*	11 OCT 1824	457	59.	*	12 OCT 1104	707	1.	*	13 OCT 0344	957	0.
11 OCT 0148	208	1125.	*	11 OCT 1828	458	57.	*	12 OCT 1108	708	1.	*	13 OCT 0348	958	0.
11 OCT 0152	209	1113.	*	11 OCT 1832	459	55.	*	12 OCT 1112	709	1.	*	13 OCT 0352	959	0.
11 OCT 0156	210	1102.	*	11 OCT 1836	460	53.	*	12 OCT 1116	710	1.	*	13 OCT 0356	960	0.
11 OCT 0200	211	1090.	*	11 OCT 1840	461	51.	*	12 OCT 1120	711	1.	*	13 OCT 0400	961	0.
11 OCT 0204	212	1078.	*	11 OCT 1844	462	50.	*	12 OCT 1124	712	1.	*	13 OCT 0404	962	0.
11 OCT 0208	213	1066.	*	11 OCT 1848	463	48.	*	12 OCT 1128	713	1.	*	13 OCT 0408	963	0.
11 OCT 0212	214	1053.	*	11 OCT 1852	464	46.	*	12 OCT 1132	714	1.	*	13 OCT 0412	964	0.
11 OCT 0216	215	1040.	*	11 OCT 1856	465	45.	*	12 OCT 1136	715	1.	*	13 OCT 0416	965	0.
11 OCT 0220	216	1028.	*	11 OCT 1900	466	43.	*	12 OCT 1140	716	1.	*	13 OCT 0420	966	0.
11 OCT 0224	217	1015.	*	11 OCT 1904	467	41.	*	12 OCT 1144	717	1.	*	13 OCT 0424	967	0.
11 OCT 0228	218	1003.	*	11 OCT 1908	468	40.	*	12 OCT 1148	718	1.	*	13 OCT 0428	968	0.
11 OCT 0232	219	990.	*	11 OCT 1912	469	39.	*	12 OCT 1152	719	1.	*	13 OCT 0432	969	0.
11 OCT 0236	220	977.	*	11 OCT 1916	470	37.	*	12 OCT 1156	720	1.	*	13 OCT 0436	970	0.
11 OCT 0240	221	963.	*	11 OCT 1920	471	36.	*	12 OCT 1200	721	1.	*	13 OCT 0440	971	0.
11 OCT 0244	222	949.	*	11 OCT 1924	472	35.	*	12 OCT 1204	722	1.	*	13 OCT 0444	972	0.
11 OCT 0248	223	933.	*	11 OCT 1928	473	33.	*	12 OCT 1208	723	1.	*	13 OCT 0448	973	0.
11 OCT 0252	224	918.	*	11 OCT 1932	474	32.	*	12 OCT 1212	724	1.	*	13 OCT 0452	974	0.
11 OCT 0256	225	905.	*	11 OCT 1936	475	31.	*	12 OCT 1216	725	1.	*	13 OCT 0456	975	0.

11	OCT	0300	226	892.	*	11	OCT	1940	476	30.	*	12	OCT	1220	726	1.	*	13	OCT	0500	976	0.
11	OCT	0304	227	880.	*	11	OCT	1944	477	29.	*	12	OCT	1224	727	1.	*	13	OCT	0504	977	0.
11	OCT	0308	228	868.	*	11	OCT	1948	478	28.	*	12	OCT	1228	728	1.	*	13	OCT	0508	978	0.
11	OCT	0312	229	856.	*	11	OCT	1952	479	27.	*	12	OCT	1232	729	1.	*	13	OCT	0512	979	0.
11	OCT	0316	230	844.	*	11	OCT	1956	480	26.	*	12	OCT	1236	730	1.	*	13	OCT	0516	980	0.
11	OCT	0320	231	833.	*	11	OCT	2000	481	25.	*	12	OCT	1240	731	1.	*	13	OCT	0520	981	0.
11	OCT	0324	232	822.	*	11	OCT	2004	482	24.	*	12	OCT	1244	732	1.	*	13	OCT	0524	982	0.
11	OCT	0328	233	813.	*	11	OCT	2008	483	24.	*	12	OCT	1248	733	1.	*	13	OCT	0528	983	0.
11	OCT	0332	234	804.	*	11	OCT	2012	484	23.	*	12	OCT	1252	734	1.	*	13	OCT	0532	984	0.
11	OCT	0336	235	796.	*	11	OCT	2016	485	22.	*	12	OCT	1256	735	1.	*	13	OCT	0536	985	0.
11	OCT	0340	236	787.	*	11	OCT	2020	486	22.	*	12	OCT	1300	736	1.	*	13	OCT	0540	986	0.
11	OCT	0344	237	779.	*	11	OCT	2024	487	21.	*	12	OCT	1304	737	1.	*	13	OCT	0544	987	0.
11	OCT	0348	238	771.	*	11	OCT	2028	488	20.	*	12	OCT	1308	738	1.	*	13	OCT	0548	988	0.
11	OCT	0352	239	763.	*	11	OCT	2032	489	20.	*	12	OCT	1312	739	1.	*	13	OCT	0552	989	0.
11	OCT	0356	240	757.	*	11	OCT	2036	490	19.	*	12	OCT	1316	740	1.	*	13	OCT	0556	990	0.
11	OCT	0400	241	750.	*	11	OCT	2040	491	19.	*	12	OCT	1320	741	1.	*	13	OCT	0600	991	0.
11	OCT	0404	242	745.	*	11	OCT	2044	492	18.	*	12	OCT	1324	742	1.	*	13	OCT	0604	992	0.
11	OCT	0408	243	739.	*	11	OCT	2048	493	18.	*	12	OCT	1328	743	1.	*	13	OCT	0608	993	0.
11	OCT	0412	244	733.	*	11	OCT	2052	494	17.	*	12	OCT	1332	744	1.	*	13	OCT	0612	994	0.
11	OCT	0416	245	728.	*	11	OCT	2056	495	17.	*	12	OCT	1336	745	1.	*	13	OCT	0616	995	0.
11	OCT	0420	246	722.	*	11	OCT	2100	496	16.	*	12	OCT	1340	746	1.	*	13	OCT	0620	996	0.
11	OCT	0424	247	717.	*	11	OCT	2104	497	16.	*	12	OCT	1344	747	1.	*	13	OCT	0624	997	0.
11	OCT	0428	248	712.	*	11	OCT	2108	498	15.	*	12	OCT	1348	748	1.	*	13	OCT	0628	998	0.
11	OCT	0432	249	707.	*	11	OCT	2112	499	15.	*	12	OCT	1352	749	1.	*	13	OCT	0632	999	0.
11	OCT	0436	250	702.	*	11	OCT	2116	500	14.	*	12	OCT	1356	750	1.	*	13	OCT	0636	1000	0.
					*						*						*					

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PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	66.60-HR
+ (CFS)	(HR)				
		(CFS)			
+ 2617.	12.47	1068.	456.	169.	169.
		(INCHES) 18.623	31.803	32.729	32.729
		(AC-FT) 529.	904.	930.	930.

CUMULATIVE AREA = .53 SQ MI

-----DSS---ZOPEN: Existing File Opened, File: H1DSS.DSS
Unit: 71; DSS Version: 6-JG
-----DSS---ZWRITE Unit 71; Vers. 4: /SCATTER WASH/HCSKB/FLOW/10OCT1992/4MIN/SKUNK CREEK/
-----DSS---ZWRITE Unit 71; Vers. 4: /SCATTER WASH/HCSKB/FLOW/11OCT1992/4MIN/SKUNK CREEK/
-----DSS---ZWRITE Unit 71; Vers. 4: /SCATTER WASH/HCSKB/FLOW/12OCT1992/4MIN/SKUNK CREEK/
-----DSS---ZWRITE Unit 71; Vers. 4: /SCATTER WASH/HCSKB/FLOW/13OCT1992/4MIN/SKUNK CREEK/
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 6-HOUR	24-HOUR	72-HOUR	BASIN AREA	MAXIMUM STAGE	TIME OF MAX STAGE
	HYDROGRAPH AT									
+		312A	246.	12.07	30.	9.	3.	.16		
	ROUTED TO									
+		S312A	42.	12.60	28.	9.	3.	.16		
+									14.10	12.60
	ROUTED TO									
+		R312A	42.	12.67	28.	9.	3.	.16		
	HYDROGRAPH AT									
+		312B1	218.	12.00	31.	11.	4.	.13		
	ROUTED TO									
+		S312B1	14.	13.13	13.	9.	4.	.13		
+									13.59	13.20
	2 COMBINED AT									
+		C312B1	55.	12.73	42.	18.	7.	.29		
	ROUTED TO									
+		R312B1	55.	12.73	42.	18.	7.	.29		
	HYDROGRAPH AT									

+	312B2	52.	12.00	7.	3.	1.	.03		
	ROUTED TO								
+	S312B2	11.	12.13	7.	3.	1.	.03		
+								12.82	12.13
	2 COMBINED AT								
+	C312B2	66.	12.67	48.	20.	8.	.32		
	ROUTED TO								
+	R312B2	66.	12.73	48.	20.	8.	.32		
	HYDROGRAPH AT								
+	312B3	131.	12.00	19.	6.	2.	.08		
	ROUTED TO								
+	S312B3	13.	12.67	12.	6.	2.	.08		
+								13.30	12.67
	2 COMBINED AT								
+	C312B3	79.	12.73	60.	26.	10.	.39		
	HYDROGRAPH AT								
+	310S	1071.	12.07	137.	40.	14.	.68		
	HYDROGRAPH AT								
+	311S	822.	12.07	101.	29.	10.	.57		
	2 COMBINED AT								
+	HC311	1893.	12.07	237.	69.	25.	1.25		
	ROUTED TO								
+	311RR	291.	12.73	129.	64.	23.	1.25		
+								20.46	12.73
	ROUTED TO								
+	RM311	285.	13.00	129.	64.	23.	1.25		
+								2.03	13.00
	HYDROGRAPH AT								
+	314C	94.	12.00	10.	3.	1.	.06		
	ROUTED TO								
+	S314C	15.	12.20	10.	3.	1.	.06		
+								14.00	12.20
	ROUTED TO								
+	R314C	15.	12.60	10.	3.	1.	.06		
+								.62	12.60
	HYDROGRAPH AT								
+	312C	652.	12.13	87.	26.	9.	.47		
	ROUTED TO								
+	S312C	85.	12.87	68.	26.	9.	.47		
+								14.28	12.87
	3 COMBINED AT								
+	C312C	383.	13.00	206.	92.	33.	1.78		
	ROUTED TO								
+	R312C	383.	13.07	206.	92.	33.	1.78		
	HYDROGRAPH AT								
+	312D2	184.	12.00	26.	9.	3.	.10		
	ROUTED TO								
+	S312D2	13.	13.13	13.	8.	3.	.10		
+								13.52	13.13
	2 COMBINED AT								
+	C312D2	396.	13.07	219.	100.	37.	1.88		
	ROUTED TO								
+	R312D2	395.	13.07	219.	100.	37.	1.88		
	HYDROGRAPH AT								

+	312D4	80.	12.00	11.	4.	1.	.05		
	ROUTED TO								
+	R312D4	82.	11.73	11.	4.	1.	.05		
	HYDROGRAPH AT								
+	312D5	128.	12.00	18.	6.	2.	.07		
	2 COMBINED AT								
+	C312D5	211.	11.73	30.	10.	4.	.12		
	ROUTED TO								
+	R312D5	210.	11.80	30.	10.	4.	.12		
	HYDROGRAPH AT								
+	312D6	94.	12.00	13.	5.	2.	.05		
	HYDROGRAPH AT								
+	312D1	148.	12.00	21.	7.	3.	.09		
	ROUTED TO								
+	S312D1	13.	12.73	12.	7.	3.	.09		
+								13.40	12.73
	ROUTED TO								
+	R312D1	13.	12.93	12.	7.	3.	.09		
	3 COMBINED AT								
+	C312D6	309.	11.80	53.	21.	8.	.26		
	ROUTED TO								
+	R312D6	309.	11.93	53.	21.	8.	.26		
	HYDROGRAPH AT								
+	312D7	86.	12.00	12.	4.	2.	.05		
	ROUTED TO								
+	R312D7	86.	11.93	12.	4.	2.	.05		
	HYDROGRAPH AT								
+	312D8	85.	12.00	12.	4.	2.	.05		
	3 COMBINED AT								
+	C312D8	480.	11.93	77.	29.	11.	.36		
	ROUTED TO								
+	R312D8	479.	11.93	77.	29.	11.	.36		
	HYDROGRAPH AT								
+	314D	101.	12.00	11.	3.	1.	.06		
	ROUTED TO								
+	S314D	15.	12.27	10.	3.	1.	.06		
+								13.98	12.27
	ROUTED TO								
+	R314D	15.	12.33	10.	3.	1.	.06		
	HYDROGRAPH AT								
+	314B1	60.	12.00	9.	3.	1.	.04		
	ROUTED TO								
+	S314B1	12.	12.13	8.	3.	1.	.04		
+								12.85	12.13
	2 COMBINED AT								
+	C314B1	26.	12.33	18.	6.	2.	.10		
	ROUTED TO								
+	R314B1	26.	12.47	18.	6.	2.	.10		
	HYDROGRAPH AT								
+	313S	822.	12.00	97.	29.	10.	.51		
	ROUTED TO								
+	313RR	56.	12.80	52.	28.	10.	.51		
+								21.02	12.80

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          ROUTED TO
+                      RM313        55.   13.13          52.          28.          10.        .51
          HYDROGRAPH AT
+                       314A       343.   12.07          40.          12.           4.        .24
          ROUTED TO
+                       S314A       32.   12.67          25.          12.           4.        .24
+                                                                                            14.36       12.67
          2 COMBINED AT
+                       C314A       86.   12.73          77.          39.          14.        .75
          DIVERSION TO
+                      S-314A       86.     .00          77.          39.          14.        .75
          HYDROGRAPH AT
+                      W-314A        0.     .00           0.           0.           0.        .75
          ROUTED TO
+                       R314A        0.     .00           0.           0.           0.        .75
+                                                                                              .00       25.07
          HYDROGRAPH AT
+                       314B2      105.   12.00          15.           5.           2.        .06
          ROUTED TO
+                      S314B2       12.   12.60          11.           5.           2.        .06
+                                                                                            13.15       12.60
          3 COMBINED AT
+                      C314B2       39.   12.47          29.          11.           4.        .91
          ROUTED TO
+                      R314B2       39.   12.53          29.          11.           4.        .91
          HYDROGRAPH AT
+                       312D9       79.   12.00          11.           4.           1.        .05
          3 COMBINED AT
+                      C312D9      577.   11.93         115.          44.          16.       1.32
          ROUTED TO
+                      S312D9       74.   13.87          72.          43.          16.       1.32
+                                                                                            13.55       13.87
          ROUTED TO
+                      R312D9       74.   13.87          72.          43.          16.       1.32
          HYDROGRAPH AT
+                       314B3       98.   12.00          14.           5.           2.        .06
          ROUTED TO
+                      S314B3       12.   12.60          11.           5.           2.        .06
+                                                                                            13.10       12.60
          2 COMBINED AT
+                      C314B3       86.   13.53          82.          48.          18.       1.38
          ROUTED TO
+                      R314B3       86.   13.53          82.          48.          18.       1.38
          HYDROGRAPH AT
+                       312D3       59.   12.00           8.           3.           1.        .04
          ROUTED TO
+                      S312D3       12.   12.13           8.           3.           1.        .04
+                                                                                            12.87       12.13
          2 COMBINED AT
+                       E-ALL       96.   13.07          89.          51.          19.       1.41
          2 COMBINED AT
+                        23RD      491.   13.07         308.         150.          56.       3.29
          2 COMBINED AT
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+	TOTAL	569.	13.07	367.	177.	66.	3.68		
	ROUTED TO								
+	RM317	568.	13.27	367.	177.	66.	3.68		
	HYDROGRAPH AT								
+	315S	971.	12.13	112.	31.	11.	.70		
	HYDROGRAPH AT								
+	319S	626.	12.27	85.	23.	8.	.54		
	2 COMBINED AT								
+	HC315	1552.	12.13	197.	54.	19.	1.25		
	ROUTED TO								
+	315RR	98.	13.07	92.	49.	18.	1.25		
+								19.95	13.07
	ROUTED TO								
+	RM316	99.	13.33	92.	49.	18.	1.25		
	HYDROGRAPH AT								
+	316S	528.	12.00	66.	21.	7.	.34		
	2 COMBINED AT								
+	HC316	528.	12.00	142.	68.	25.	1.59		
	ROUTED TO								
+	RM317	526.	12.20	142.	68.	25.	1.59		
	HYDROGRAPH AT								
+	317S1	870.	12.07	122.	41.	15.	.55		
	DIVERSION TO								
+	OR317	728.	12.07	55.	16.	6.	.55		
	HYDROGRAPH AT								
+	DT317	870.	12.07	85.	24.	9.	.55		
	HYDROGRAPH AT								
+	317S2	184.	12.00	27.	10.	3.	.10		
	DIVERSION TO								
+	OR17S2	184.	12.67	25.	7.	3.	.10		
	HYDROGRAPH AT								
+	DT17S2	22.	12.67	7.	3.	1.	.10		
	4 COMBINED AT								
+	HC317A	1545.	12.07	596.	272.	101.	5.92		
	ROUTED TO								
+	RM317	1313.	12.20	587.	270.	100.	5.92		
	HYDROGRAPH AT								
+	312B4	94.	12.00	12.	4.	1.	.05		
	ROUTED TO								
+	R312B4	94.	12.07	12.	4.	1.	.05		
	HYDROGRAPH AT								
+	317S3	88.	12.00	10.	3.	1.	.05		
	2 COMBINED AT								
+	HC317S	181.	12.00	22.	7.	2.	.10		
	HYDROGRAPH AT								
+	317S4	212.	12.00	32.	11.	4.	.12		
	DIVERSION TO								
+	OR317S	212.	16.00	32.	10.	3.	.12		
	HYDROGRAPH AT								
+	DT317S	6.	16.00	4.	1.	0.	.12		
	2 COMBINED AT								
+	HC317B	181.	12.00	23.	8.	3.	.22		

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          HYDROGRAPH AT
+                        317S5        33.   12.00          5.          2.          1.        .02

          3 COMBINED AT
+                        HC317C     1444.   12.20        608.        279.        104.       6.16

          ROUTED TO
+                        317RR       887.   12.47        595.        279.        104.       6.16
+                                                                                          18.08       12.47

          ROUTED TO
+                        RM318       887.   12.53        594.        279.        104.       6.16

          HYDROGRAPH AT
+                         318S       583.   12.00         83.         29.         10.        .34

          DIVERSION TO
+                        OR318         8.   12.00          2.          1.          0.        .34

          HYDROGRAPH AT
+                        DT318       583.   12.00         83.         28.         10.        .34

          DIVERSION TO
+                        OR318       583.   12.13         62.         17.          6.        .34

          HYDROGRAPH AT
+                        DT318       358.   12.13         35.         11.          4.        .34

          HYDROGRAPH AT
+                         320S      1447.   12.13        175.         48.         17.       1.11

          DIVERSION TO
+                        OR320         5.   12.13          4.          1.          0.       1.11

          HYDROGRAPH AT
+                        DT320      1447.   12.13        175.         47.         17.       1.11

          ROUTED TO
+                        320RR       111.   12.93        103.         44.         16.       1.11
+                                                                                          18.75       12.93

          DIVERSION TO
+                         325D        46.   12.93         43.         19.          7.       1.11

          HYDROGRAPH AT
+                        320RE        66.   12.93         61.         26.          9.       1.11

          ROUTED TO
+                        RM321        69.   13.00         61.         26.          9.       1.11

          HYDROGRAPH AT
+                         321S      1554.   12.07        218.         70.         25.       1.12

          DIVERSION TO
+                        OR321       189.   12.07         43.         15.          5.       1.12

          HYDROGRAPH AT
+                        DT321      1554.   12.07        203.         56.         20.       1.12

          2 COMBINED AT
+                        HC321      1554.   12.07        252.         82.         29.       2.23

          ROUTED TO
+                        RM318      1512.   12.27        250.         82.         29.       2.23

          HYDROGRAPH AT
+                         322S       154.   12.00         16.          5.          2.        .11

          ROUTED TO
+                        322RR        50.   12.20         16.          5.          2.        .11
+                                                                                          40.08       12.20

          ROUTED TO
+                        RM318        50.   12.60         16.          5.          2.        .11

          4 COMBINED AT
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+		HC318	2421.	12.33	887.	376.	139.	8.84
	DIVERSION TO							
+		324D1	2421.	.00	887.	376.	139.	8.84
	HYDROGRAPH AT							
+		318RE	0.	.00	0.	0.	0.	8.84
	DIVERSION TO							
+		331D	0.	.00	0.	0.	0.	8.84
	HYDROGRAPH AT							
+		326RE1	0.	.00	0.	0.	0.	8.84
	HYDROGRAPH AT							
+		320RD	46.	12.93	43.	19.	7.	.00
	ROUTED TO							
+		RM325	55.	13.13	43.	19.	7.	.00
	HYDROGRAPH AT							
+		325S	914.	12.00	130.	44.	16.	.57
	DIVERSION TO							
+		OR325	880.	12.07	75.	22.	8.	.57
	HYDROGRAPH AT							
+		DT325	905.	12.07	75.	22.	8.	.57
	2 COMBINED AT							
+		HC325	905.	12.07	111.	41.	15.	.57
	ROUTED TO							
+		RM326	765.	12.40	108.	41.	15.	.57
	HYDROGRAPH AT							
+		326S	770.	12.07	116.	40.	14.	.50
	DIVERSION TO							
+		OR326	14.	12.07	9.	2.	1.	.50
	HYDROGRAPH AT							
+		DT326	770.	12.07	116.	37.	13.	.50
	DIVERSION TO							
+		OR326	770.	12.27	84.	22.	8.	.50
	HYDROGRAPH AT							
+		DT326	561.	12.27	52.	16.	6.	.50
	3 COMBINED AT							
+		HC326	1066.	12.40	159.	57.	20.	9.91
	DIVERSION TO							
+		324D2	1066.	.00	159.	57.	20.	9.91
	HYDROGRAPH AT							
+		326RE2	0.	.00	0.	0.	0.	9.91
	HYDROGRAPH AT							
+		327S	638.	12.00	98.	33.	12.	.38
	DIVERSION TO							
+		OR327	9.	12.00	4.	1.	0.	.38
	HYDROGRAPH AT							
+		DT327	638.	12.00	98.	32.	11.	.38
	DIVERSION TO							
+		OR327	14.	12.00	8.	2.	1.	.38
	HYDROGRAPH AT							
+		DT327	638.	12.00	98.	30.	11.	.38
	ROUTED TO							
+		327RRA	638.	12.07	98.	30.	11.	.38
+							1454.21	12.07

```
          ROUTED TO
+                      327RRB      639.   12.07          98.          30.          11.        .38
+                                                                                                      1447.68       12.07

          ROUTED TO
+                      327RRC      543.   12.20          89.          31.          12.        .38
+                                                                                                      1436.59       12.20

          ROUTED TO
+                      327RRD      539.   12.20          89.          30.          12.        .38
+                                                                                                      1440.30       12.20

          ROUTED TO
+                      327RRE      537.   12.27          89.          30.          12.        .38
+                                                                                                      1439.23       12.27

          DIVERSION TO
+                        339D      149.   12.27          13.           3.           1.        .38

          HYDROGRAPH AT
+                       327R1      388.   12.27          76.          27.          10.        .38

          DIVERSION TO
+                        341D      276.   12.27          32.           8.           3.        .38

          HYDROGRAPH AT
+                       327R2      112.   12.27          44.          19.           8.        .38

          ROUTED TO
+                       RM328      109.   12.60          43.          19.           8.        .38

          HYDROGRAPH AT
+                        328A      301.   12.27          58.          20.           7.        .22

          DIVERSION TO
+                       OR328        6.   12.27           4.           1.           0.        .22

          HYDROGRAPH AT
+                      DT328A      301.   12.27          58.          19.           7.        .22

          DIVERSION TO
+                       OR328        9.   12.27           4.           1.           0.        .22

          HYDROGRAPH AT
+                      DT328A      301.   12.27          58.          18.           6.        .22

          DIVERSION TO
+                       329D1      201.   12.27          52.          16.           6.        .22

          HYDROGRAPH AT
+                      328RE1      100.   12.27           6.           2.           1.        .22

          HYDROGRAPH AT
+                        328B      250.   12.13          45.          15.           5.        .17

          DIVERSION TO
+                       OR328        5.   12.13           3.           1.           0.        .17

          HYDROGRAPH AT
+                      DT328B      250.   12.13          45.          14.           5.        .17

          DIVERSION TO
+                       OR328        7.   12.13           3.           1.           0.        .17

          HYDROGRAPH AT
+                      DT328B      250.   12.13          45.          14.           5.        .17

          DIVERSION TO
+                         SD22       46.   12.13          24.           8.           3.        .17

          HYDROGRAPH AT
+                       DIVSD      204.   12.13          21.           5.           2.        .17

          2 COMBINED AT
+                        C328      303.   12.20          27.           7.           2.        .39
```

	DIVERSION TO								
+		SD48	107.	12.20	15.	4.	1.	.39	
	HYDROGRAPH AT								
+		DIV48	196.	12.20	12.	3.	1.	.39	
	3 COMBINED AT								
+		HC328	212.	12.20	55.	22.	9.	10.67	
	DIVERSION TO								
+		DVCL	30.	12.20	30.	15.	6.	10.67	
	HYDROGRAPH AT								
+		DIVCL	182.	12.20	26.	6.	2.	10.67	
	HYDROGRAPH AT								
+		R318	0.	.00	0.	0.	0.	.00	
	HYDROGRAPH AT								
+		331S	164.	12.00	25.	8.	3.	.09	
	3 COMBINED AT								
+		HC331	236.	12.00	50.	15.	5.	10.77	
	ROUTED TO								
+		331RR	0.	.00	0.	0.	0.	10.77	
+									95.13 24.13
	ROUTED TO								
+		RM330	0.	.00	0.	0.	0.	10.77	
	HYDROGRAPH AT								
+		R318	2421.	12.33	887.	376.	139.	.00	
	HYDROGRAPH AT								
+		R326	1066.	12.40	159.	57.	20.	.00	
	HYDROGRAPH AT								
+		323S	621.	12.07	97.	34.	12.	.37	
	ROUTED TO								
+		RM324	615.	12.13	97.	34.	12.	.37	
	HYDROGRAPH AT								
+		324S	263.	12.00	34.	11.	4.	.16	
	4 COMBINED AT								
+		HC324	3877.	12.40	1156.	475.	175.	.53	
	ROUTED TO								
+		CONTRR	3633.	12.47	1154.	475.	175.	.53	
+									7.74 12.47
	DIVERSION TO								
+		N_BSN	1016.	12.47	108.	27.	10.	.53	
	HYDROGRAPH AT								
+		N_WIER	2617.	12.47	1046.	448.	166.	.53	
	HYDROGRAPH AT								
+		RNEWR	1016.	12.47	108.	27.	10.	.00	
	ROUTED TO								
+		DTBSN	31.	14.07	23.	9.	3.	.00	
+									1402.85 14.07
	2 COMBINED AT								
+		OUTFW	2617.	12.47	1068.	456.	169.	.53	
	ROUTED TO								
+		RM329	2559.	12.60	1065.	456.	169.	.53	
	HYDROGRAPH AT								
+		R326	201.	12.00	52.	16.	6.	.00	
	ROUTED TO								
+		RM329	201.	12.73	52.	16.	6.	.00	

	HYDROGRAPH AT						
+	329S	1140.	12.00	155.	50.	18.	.66
	DIVERSION TO						
+	OR329	11.	12.00	2.	0.	0.	.66
	HYDROGRAPH AT						
+	DT329	1140.	12.00	155.	50.	18.	.66
	DIVERSION TO						
+	OR329	611.	12.00	48.	15.	5.	.66
	HYDROGRAPH AT						
+	DT329	1140.	12.00	128.	36.	13.	.66
	3 COMBINED AT						
+	HC329	2926.	12.60	1215.	507.	188.	1.19
	ROUTED TO						
+	RM330	2858.	12.80	1212.	507.	188.	1.19
	HYDROGRAPH AT						
+	330S	778.	12.00	110.	35.	13.	.46
	DIVERSION TO						
+	OR330	12.	12.00	9.	2.	1.	.46
	HYDROGRAPH AT						
+	DT330	778.	12.00	110.	33.	12.	.46
	DIVERSION TO						
+	OR330	683.	12.00	47.	12.	4.	.46
	HYDROGRAPH AT						
+	DT330	778.	12.00	76.	21.	8.	.46
	3 COMBINED AT						
+	HC330	2944.	12.80	1286.	528.	195.	12.42
	ROUTED TO						
+	RM346	2907.	13.00	1284.	528.	195.	12.42
	HYDROGRAPH AT						
+	334S	563.	12.07	83.	28.	10.	.35
	DIVERSION TO						
+	OR334	513.	12.07	40.	12.	4.	.35
	HYDROGRAPH AT						
+	DT334	563.	12.07	57.	17.	6.	.35
	DIVERSION TO						
+	337D	101.	12.07	5.	1.	0.	.35
	HYDROGRAPH AT						
+	334RE	462.	12.07	52.	15.	5.	.35
	ROUTED TO						
+	RM335	449.	12.13	51.	15.	5.	.35
	HYDROGRAPH AT						
+	335S	430.	12.00	52.	17.	6.	.27
	DIVERSION TO						
+	OR335	85.	12.00	11.	4.	1.	.27
	HYDROGRAPH AT						
+	DT335	430.	12.00	48.	13.	5.	.27
	2 COMBINED AT						
+	HC335	791.	12.13	98.	28.	10.	.62
	ROUTED TO						
+	RM338	729.	12.20	98.	28.	10.	.62
	HYDROGRAPH AT						

+	338S	336.	12.00	43.	14.	5.	.22		
	DIVERSION TO								
+	OR338	5.	12.00	4.	1.	0.	.22		
	HYDROGRAPH AT								
+	DT338	336.	12.00	43.	13.	5.	.22		
	2 COMBINED AT								
+	HC338	977.	12.20	138.	41.	15.	.84		
	ROUTED TO								
+	338RR	40.	14.93	39.	33.	15.	.84		
+								1401.89	15.00
	DIVERSION TO								
+	342D	40.	.00	39.	33.	15.	.84		
	HYDROGRAPH AT								
+	338RE	0.	.00	0.	0.	0.	.84		
	HYDROGRAPH AT								
+	332S	814.	12.00	80.	22.	8.	.57		
	ROUTED TO								
+	332RR	39.	12.60	37.	21.	8.	.57		
+								19.59	12.60
	ROUTED TO								
+	RM333	40.	12.87	37.	21.	8.	.57		
	HYDROGRAPH AT								
+	333S	1584.	12.07	252.	83.	30.	.98		
	DIVERSION TO								
+	OR333	26.	12.07	15.	4.	1.	.98		
	HYDROGRAPH AT								
+	DT333	1584.	12.07	252.	80.	29.	.98		
	2 COMBINED AT								
+	HC333	1586.	12.07	274.	100.	36.	1.55		
	ROUTED TO								
+	333RRA	1569.	12.13	274.	99.	36.	1.55		
+								1469.35	12.13
	ROUTED TO								
+	333RRB	1544.	12.13	274.	96.	38.	1.55		
+								1473.43	12.13
	ROUTED TO								
+	333RRC	1533.	12.20	272.	96.	38.	1.55		
+								1464.42	12.20
	ROUTED TO								
+	333RRD	1537.	12.20	268.	96.	38.	1.55		
+								1459.95	12.20
	ROUTED TO								
+	333RRE	1527.	12.27	267.	96.	38.	1.55		
+								1457.41	12.27
	ROUTED TO								
+	333RRF	1555.	12.27	267.	96.	38.	1.55		
+								1475.44	12.27
	ROUTED TO								
+	333RRG	1539.	12.27	267.	96.	38.	1.55		
+								1470.47	12.27
	ROUTED TO								
+	333RRH	1535.	12.27	267.	96.	38.	1.55		
+								1465.42	12.27
	ROUTED TO								
+	333RRI	1533.	12.27	267.	96.	38.	1.55		

```
+                                                                                                  1460.92       12.27

          ROUTED TO
+                      333RRJ      1533.   12.27         267.         96.         38.       1.55
+                                                                                                  1459.92       12.27

          ROUTED TO
+                      333RRK      1520.   12.33         266.         95.         38.       1.55
+                                                                                                  1457.46       12.33

          ROUTED TO
+                      333RRL      1506.   12.33         266.         95.         38.       1.55
+                                                                                                  1454.55       12.33

          ROUTED TO
+                      333RRM      1501.   12.33         266.         95.         38.       1.55
+                                                                                                  1451.88       12.33

          ROUTED TO
+                       RM337      1426.   12.53         265.         96.         38.       1.55

          HYDROGRAPH AT
+                        336S       193.   12.00          27.          9.          3.        .11

          ROUTED TO
+                      336RRA       194.   11.93          27.          9.          3.        .11
+                                                                                                  1454.82       11.93

          ROUTED TO
+                      336RRB       195.   11.87          27.          9.          3.        .11
+                                                                                                  1452.35       11.87

          ROUTED TO
+                      336RRC        47.   12.33          27.          9.          3.        .11
+                                                                                                  1438.46       12.33

          ROUTED TO
+                       RM337        47.   12.60          27.          9.          3.        .11

          HYDROGRAPH AT
+                        337S       445.   12.00          63.         21.          8.        .26

          DIVERSION TO
+                       OR337       302.   12.00          22.          7.          3.        .26

          HYDROGRAPH AT
+                       DT337       445.   12.00          50.         14.          5.        .26

          HYDROGRAPH AT
+                        R334       101.   12.07           5.          1.          0.        .00

          4 COMBINED AT
+                       HC337      1546.   12.53         340.        119.         47.       1.93

          DIVERSION TO
+                        340D       286.   12.53          66.         21.          8.       1.93

          HYDROGRAPH AT
+                       337RE      1260.   12.53         274.         98.         39.       1.93

          ROUTED TO
+                       RM339      1269.   12.67         274.         98.         39.       1.93

          HYDROGRAPH AT
+                        327D       149.   12.27          13.          3.          1.        .00

          ROUTED TO
+                       RM339       146.   12.47          13.          3.          1.        .00

          HYDROGRAPH AT
+                        339S       391.   12.00          56.         19.          7.        .23

          DIVERSION TO
+                       OR339       150.   12.00          17.          6.          2.        .23

          HYDROGRAPH AT
+                       DT339       391.   12.00          47.         13.          5.        .23
```

	3 COMBINED AT								
+		HC339	1446.	12.67	332.	115.	45.	2.16	
	ROUTED TO								
+		RM340	1465.	12.80	331.	115.	45.	2.16	
	HYDROGRAPH AT								
+		340S	455.	12.00	59.	19.	7.	.27	
	DIVERSION TO								
+		OR340	10.	12.00	7.	2.	1.	.27	
	HYDROGRAPH AT								
+		DT340	455.	12.00	59.	17.	6.	.27	
	HYDROGRAPH AT								
+		R337	286.	12.53	66.	21.	8.	.00	
	4 COMBINED AT								
+		HC340	1732.	12.80	447.	152.	59.	3.27	
	ROUTED TO								
+		RM342	1656.	12.80	447.	152.	59.	3.27	
	HYDROGRAPH AT								
+		R338	40.	14.93	39.	33.	15.	.00	
	ROUTED TO								
+		RM342	40.	15.00	39.	33.	15.	.00	
	HYDROGRAPH AT								
+		342S	223.	12.00	33.	11.	4.	.13	
	DIVERSION TO								
+		OR342	171.	12.00	13.	4.	1.	.13	
	HYDROGRAPH AT								
+		DT342	223.	12.00	24.	7.	2.	.13	
	3 COMBINED AT								
+		HC342	1715.	12.80	508.	191.	76.	3.39	
	ROUTED TO								
+		342RR	171.	17.87	165.	113.	61.	3.39	
+									1389.62 17.87
	DIVERSION TO								
+		345D	111.	17.80	105.	56.	20.	3.39	
	HYDROGRAPH AT								
+		342RE	60.	17.80	59.	57.	41.	3.39	
	ROUTED TO								
+		RM343	60.	17.87	59.	57.	41.	3.39	
	HYDROGRAPH AT								
+		327R2	276.	12.27	32.	8.	3.	.00	
	HYDROGRAPH AT								
+		341S	559.	12.00	84.	28.	10.	.32	
	DIVERSION TO								
+		OR341	16.	12.00	10.	3.	1.	.32	
	HYDROGRAPH AT								
+		DT341	559.	12.00	84.	25.	9.	.32	
	DIVERSION TO								
+		OR341	519.	12.00	34.	9.	3.	.32	
	HYDROGRAPH AT								
+		DT341	559.	12.00	58.	16.	6.	.32	
	HYDROGRAPH AT								
+		CLR	30.	11.93	30.	15.	6.	.00	

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          HYDROGRAPH AT
+                      CLSD       107.   11.93          15.          4.          1.        .00
          2 COMBINED AT
+                       CCL       137.   11.93          44.         19.          8.        .00
          ROUTED TO
+                    CLBASN        25.   18.13          24.         18.          8.        .00
+                                                                                      1396.66       18.13
          HYDROGRAPH AT
+                      RSD22        46.   11.67          24.          8.          3.        .00
          2 COMBINED AT
+                        C48        65.   12.87          41.         25.         11.        .00
          ROUTED TO
+                    RCLBN          65.   12.93          41.         25.         11.        .00
          3 COMBINED AT
+                      HC341       808.   12.07         130.         50.         20.        .32
          ROUTED TO
+                      341RR       313.   12.60          80.         47.         20.        .32
+                                                                                      1397.92       12.60
          ROUTED TO
+                      RM343       304.   12.60          80.         47.         20.        .32
          HYDROGRAPH AT
+                       343S       451.   12.00          69.         23.          8.        .25
          DIVERSION TO
+                      OR343        15.   12.00           9.          3.          1.        .25
          HYDROGRAPH AT
+                      DT343       451.   12.00          69.         20.          7.        .25
          3 COMBINED AT
+                      HC343       488.   12.00         188.        120.         68.       3.97
          ROUTED TO
+                      RM345       482.   12.07         188.        120.         68.       3.97
          HYDROGRAPH AT
+                       345S       861.   12.07         141.         47.         17.        .53
          DIVERSION TO
+                      OR345        16.   12.07          12.          3.          1.        .53
          HYDROGRAPH AT
+                      DT345       861.   12.07         141.         44.         16.        .53
          DIVERSION TO
+                      OR345       622.   12.07          55.         14.          5.        .53
          HYDROGRAPH AT
+                      DT345       861.   12.07         107.         30.         11.        .53
          HYDROGRAPH AT
+                       R343       111.   17.87         105.         56.         20.        .00
          ROUTED TO
+                      RM343       111.   17.93         105.         56.         20.        .00
          3 COMBINED AT
+                      HC345      1344.   12.07         354.        206.         99.       4.50
          ROUTED TO
+                      345RR       530.   12.80         294.        192.         98.       4.50
+                                                                                      1354.46       12.80
          ROUTED TO
+                      RM346       527.   12.87         293.        192.         98.       4.50
          HYDROGRAPH AT
+                       346S       460.   12.00          60.         19.          7.        .30
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          3 COMBINED AT
+                         HC346      3425.   13.00        1604.        729.        300.      17.21

          ROUTED TO
+                         RM347      3356.   13.33        1597.        729.        300.      17.21

          HYDROGRAPH AT
+                          347S       568.   12.07          74.         23.          8.        .40

          2 COMBINED AT
+                         HC347      3381.   13.33        1612.        749.        308.      17.61

          HYDROGRAPH AT
+                           AD1      1730.     .00        1730.       1730.       1730.        .10

          ROUTED TO
+                         RMAD1      1730.     .00        1730.       1730.       1730.        .10
+                                                                                                  5.40         .00

          HYDROGRAPH AT
+                          348S      1545.   12.07         223.         73.         26.       1.11

          DIVERSION TO
+                         OR348        37.   12.07          24.          8.          3.       1.11

          HYDROGRAPH AT
+                         DT348      1545.   12.07         223.         66.         24.       1.11

          2 COMBINED AT
+                         HC348      3275.   12.07        1953.       1796.       1754.       1.21

          ROUTED TO
+                         RM349      3271.   12.20        1953.       1796.       1754.       1.21

          HYDROGRAPH AT
+                          349S        59.   12.00           7.          2.          1.        .05

          2 COMBINED AT
+                         HC349      3302.   12.20        1960.       1798.       1754.       1.25

          2 COMBINED AT
+                         HCSKB      5216.   13.33        3511.       2545.       2063.      18.87
1
                                    SUMMARY OF KINEMATIC WAVE - MUSKINGUM-CUNGE ROUTING
                                        (FLOW IS DIRECT RUNOFF WITHOUT BASE FLOW)
                                                                                 INTERPOLATED TO
                                                                              COMPUTATION INTERVAL
            ISTAQ    ELEMENT      DT       PEAK    TIME TO     VOLUME      DT       PEAK    TIME TO     VOLUME
                                                      PEAK                                             PEAK

                                 (MIN)     (CFS)      (MIN)     (IN)     (MIN)     (CFS)     (MIN)       (IN)

              R312A  MANE         4.00     41.60    760.00      2.03      4.00     41.60    760.00        2.03

 CONTINUITY SUMMARY (AC-FT) - INFLOW= .1758E+02 EXCESS= .0000E+00 OUTFLOW= .1758E+02 BASIN STORAGE= .4061E-03 PERCENT ERROR=    .0

              R312B1  MANE         1.54     55.24    764.23      2.53      4.00     55.24    764.00        2.53

 CONTINUITY SUMMARY (AC-FT) - INFLOW= .3872E+02 EXCESS= .0000E+00 OUTFLOW= .3872E+02 BASIN STORAGE= .1297E-03 PERCENT ERROR=    .0

              R312B2  MANE         4.00     66.26    764.00      2.58      4.00     66.26    764.00        2.58

 CONTINUITY SUMMARY (AC-FT) - INFLOW= .4369E+02 EXCESS= .0000E+00 OUTFLOW= .4368E+02 BASIN STORAGE= .4013E-03 PERCENT ERROR=    .0

              R312C  MANE         4.00    382.86    784.00      1.94      4.00    382.86    784.00        1.94

 CONTINUITY SUMMARY (AC-FT) - INFLOW= .1838E+03 EXCESS= .0000E+00 OUTFLOW= .1838E+03 BASIN STORAGE= .6140E-03 PERCENT ERROR=    .0
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R312D2	MANE	1.34	394.84	784.30	2.01	4.00	394.61	784.00	2.01

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2016E+03 EXCESS= .0000E+00 OUTFLOW= .2016E+03 BASIN STORAGE= .1669E-03 PERCENT ERROR= .0

R312D4	MANE	3.83	82.42	703.82	2.93	4.00	82.30	704.00	2.93

CONTINUITY SUMMARY (AC-FT) - INFLOW= .7801E+01 EXCESS= .0000E+00 OUTFLOW= .7804E+01 BASIN STORAGE= .3053E-03 PERCENT ERROR= .0

R312D5	MANE	2.53	209.73	709.24	3.07	4.00	209.59	708.00	3.07

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2031E+02 EXCESS= .0000E+00 OUTFLOW= .2031E+02 BASIN STORAGE= .1466E-03 PERCENT ERROR= .0

R312D1	MANE	4.00	13.17	776.00	3.15	4.00	13.17	776.00	3.15

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1429E+02 EXCESS= .0000E+00 OUTFLOW= .1429E+02 BASIN STORAGE= .2882E-03 PERCENT ERROR= .0

R312D6	MANE	3.80	309.45	713.58	3.11	4.00	308.75	716.00	3.11

CONTINUITY SUMMARY (AC-FT) - INFLOW= .4368E+02 EXCESS= .0000E+00 OUTFLOW= .4368E+02 BASIN STORAGE= .2211E-03 PERCENT ERROR= .0

R312D7	MANE	2.74	85.93	718.42	3.14	4.00	85.91	716.00	3.14

CONTINUITY SUMMARY (AC-FT) - INFLOW= .8366E+01 EXCESS= .0000E+00 OUTFLOW= .8366E+01 BASIN STORAGE= .1855E-03 PERCENT ERROR= .0

R312D8	MANE	1.42	479.30	716.53	3.11	4.00	479.27	716.00	3.11

CONTINUITY SUMMARY (AC-FT) - INFLOW= .6028E+02 EXCESS= .0000E+00 OUTFLOW= .6029E+02 BASIN STORAGE= .9553E-04 PERCENT ERROR= .0

R314D	MANE	4.00	14.71	740.00	1.85	4.00	14.71	740.00	1.85

CONTINUITY SUMMARY (AC-FT) - INFLOW= .6420E+01 EXCESS= .0000E+00 OUTFLOW= .6420E+01 BASIN STORAGE= .1326E-03 PERCENT ERROR= .0

R314B1	MANE	4.00	26.23	748.00	2.27	4.00	26.23	748.00	2.27

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1213E+02 EXCESS= .0000E+00 OUTFLOW= .1213E+02 BASIN STORAGE= .2344E-03 PERCENT ERROR= .0

RM313	MANE	4.00	55.46	788.00	2.04	4.00	55.46	788.00	2.04

CONTINUITY SUMMARY (AC-FT) - INFLOW= .5519E+02 EXCESS= .0000E+00 OUTFLOW= .5519E+02 BASIN STORAGE= .8536E-03 PERCENT ERROR= .0

R314B2	MANE	4.00	38.73	752.00	.46	4.00	38.73	752.00	.46

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2225E+02 EXCESS= .0000E+00 OUTFLOW= .2225E+02 BASIN STORAGE= .1725E-03 PERCENT ERROR= .0

R312D9	MANE	1.09	73.88	834.03	1.28	4.00	73.88	832.00	1.28

CONTINUITY SUMMARY (AC-FT) - INFLOW= .9010E+02 EXCESS= .0000E+00 OUTFLOW= .9010E+02 BASIN STORAGE= .9689E-04 PERCENT ERROR= .0

R314B3	MANE	.92	85.60	812.12	1.36	4.00	85.60	812.00	1.36

CONTINUITY SUMMARY (AC-FT) - INFLOW= .9955E+02 EXCESS= .0000E+00 OUTFLOW= .9955E+02 BASIN STORAGE= .8480E-04 PERCENT ERROR= .0

RM317 MANE 4.00 568.30 796.00 1.85 4.00 568.30 796.00 1.85

CONTINUITY SUMMARY (AC-FT) - INFLOW= .3631E+03 EXCESS= .0000E+00 OUTFLOW= .3631E+03 BASIN STORAGE= .3185E-03 PERCENT ERROR= .0

RM316 MANE 4.00 98.60 800.00 1.46 4.00 98.60 800.00 1.46

CONTINUITY SUMMARY (AC-FT) - INFLOW= .9703E+02 EXCESS= .0000E+00 OUTFLOW= .9715E+02 BASIN STORAGE= .9749E-03 PERCENT ERROR= -.1

RM317 MANE 4.00 525.78 732.00 1.64 4.00 525.78 732.00 1.64

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1383E+03 EXCESS= .0000E+00 OUTFLOW= .1383E+03 BASIN STORAGE= .3965E-03 PERCENT ERROR= .0

RM317 MANE 4.00 1313.48 732.00 1.75 4.00 1313.48 732.00 1.75

CONTINUITY SUMMARY (AC-FT) - INFLOW= .5547E+03 EXCESS= .0000E+00 OUTFLOW= .5510E+03 BASIN STORAGE= .6081E-04 PERCENT ERROR= .7

R312B4 MANE 4.00 93.68 724.00 2.67 4.00 93.68 724.00 2.67

CONTINUITY SUMMARY (AC-FT) - INFLOW= .7141E+01 EXCESS= .0000E+00 OUTFLOW= .7125E+01 BASIN STORAGE= .1322E-02 PERCENT ERROR= .2

RM318 MANE 2.94 886.71 751.81 1.74 4.00 886.56 752.00 1.74

CONTINUITY SUMMARY (AC-FT) - INFLOW= .5707E+03 EXCESS= .0000E+00 OUTFLOW= .5707E+03 BASIN STORAGE= .2337E-03 PERCENT ERROR= .0

RM321 MANE 4.00 69.21 780.00 .87 4.00 69.21 780.00 .87

CONTINUITY SUMMARY (AC-FT) - INFLOW= .5103E+02 EXCESS= .0000E+00 OUTFLOW= .5133E+02 BASIN STORAGE= .2933E-02 PERCENT ERROR= -.6

RM318 MANE 2.40 1517.39 736.80 1.36 4.00 1511.55 736.00 1.36

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1620E+03 EXCESS= .0000E+00 OUTFLOW= .1618E+03 BASIN STORAGE= .5069E-03 PERCENT ERROR= .1

RM318 MANE 4.00 49.51 756.00 1.62 4.00 49.51 756.00 1.62

CONTINUITY SUMMARY (AC-FT) - INFLOW= .9479E+01 EXCESS= .0000E+00 OUTFLOW= .9515E+01 BASIN STORAGE= .2002E-02 PERCENT ERROR= -.4

RM325 MANE 4.00 54.95 788.00 -1.00 4.00 54.95 788.00 -1.00

RM326 MANE .80 765.01 744.00 2.68 4.00 765.01 744.00 2.66

CONTINUITY SUMMARY (AC-FT) - INFLOW= .8107E+02 EXCESS= .0000E+00 OUTFLOW= .8130E+02 BASIN STORAGE= .1121E-02 PERCENT ERROR= -.3

RM328 MANE 4.00 109.35 756.00 2.08 4.00 109.35 756.00 2.08

CONTINUITY SUMMARY (AC-FT) - INFLOW= .4165E+02 EXCESS= .0000E+00 OUTFLOW= .4167E+02 BASIN STORAGE= .5963E-01 PERCENT ERROR= -.2

RM330 MANE 4.00 .00 .00 .00 4.00 .00 756.00 .00

RM324 MANE 4.00 615.44 728.00 3.39 4.00 615.44 728.00 3.39

CONTINUITY SUMMARY (AC-FT) - INFLOW= .6739E+02 EXCESS= .0000E+00 OUTFLOW= .6738E+02 BASIN STORAGE= .6172E-02 PERCENT ERROR= .0

RM329	MANE	4.00	2559.24	756.00	32.73	4.00	2559.24	756.00	32.73	

CONTINUITY SUMMARY (AC-FT) - INFLOW= .9304E+03 EXCESS= .0000E+00 OUTFLOW= .9303E+03 BASIN STORAGE= .1274E-01 PERCENT ERROR= .0

RM329	MANE	4.00	201.00	764.00	-1.00	4.00	201.00	764.00	-1.00	
RM330	MANE	4.00	2857.58	768.00	16.26	4.00	2857.58	768.00	16.26	

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1033E+04 EXCESS= .0000E+00 OUTFLOW= .1032E+04 BASIN STORAGE= .8217E-02 PERCENT ERROR= .1

RM346	MANE	4.00	2906.90	780.00	1.62	4.00	2906.90	780.00	1.62	

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1074E+04 EXCESS= .0000E+00 OUTFLOW= .1074E+04 BASIN STORAGE= .8096E-02 PERCENT ERROR= .0

RM335	MANE	1.20	452.54	729.60	1.62	4.00	449.13	728.00	1.61	

CONTINUITY SUMMARY (AC-FT) - INFLOW= .3017E+02 EXCESS= .0000E+00 OUTFLOW= .3031E+02 BASIN STORAGE= .4573E-03 PERCENT ERROR= -.4

RM338	MANE	2.83	742.23	730.71	1.68	4.00	728.52	732.00	1.68	

CONTINUITY SUMMARY (AC-FT) - INFLOW= .5596E+02 EXCESS= .0000E+00 OUTFLOW= .5596E+02 BASIN STORAGE= .5166E-02 PERCENT ERROR= .0

RM333	MANE	4.00	39.81	772.00	1.38	4.00	39.81	772.00	1.38	

CONTINUITY SUMMARY (AC-FT) - INFLOW= .4200E+02 EXCESS= .0000E+00 OUTFLOW= .4201E+02 BASIN STORAGE= .9946E-02 PERCENT ERROR= .0

RM337	MANE	4.00	1426.34	752.00	2.52	4.00	1426.34	752.00	2.52	

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2085E+03 EXCESS= .0000E+00 OUTFLOW= .2086E+03 BASIN STORAGE= .1310E+00 PERCENT ERROR= -.1

RM337	MANE	4.00	46.97	756.00	3.09	4.00	46.97	756.00	3.09	

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1827E+02 EXCESS= .0000E+00 OUTFLOW= .1828E+02 BASIN STORAGE= .3825E-02 PERCENT ERROR= .0

RM339	MANE	4.00	1268.74	760.00	2.09	4.00	1268.74	760.00	2.09	

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2145E+03 EXCESS= .0000E+00 OUTFLOW= .2145E+03 BASIN STORAGE= .2908E-01 PERCENT ERROR= .0

RM339	MANE	1.20	146.34	750.00	-1.00	4.00	145.51	748.00	-1.00	
RM340	MANE	4.00	1465.22	768.00	2.15	4.00	1465.22	768.00	2.15	

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2474E+03 EXCESS= .0000E+00 OUTFLOW= .2475E+03 BASIN STORAGE= .3858E-01 PERCENT ERROR= .0

RM342	MANE	2.82	1656.30	767.51	1.86	4.00	1655.83	768.00	1.86	

CONTINUITY SUMMARY (AC-FT) - INFLOW= .3249E+03 EXCESS= .0000E+00 OUTFLOW= .3248E+03 BASIN STORAGE= .2552E-01 PERCENT ERROR= .0

```
             RM342  MANE         4.00     39.80    904.00     -1.00      4.00     39.80    904.00       -1.00

             RM343  MANE         2.88     59.56   1075.39      1.25      4.00     59.56   1076.00        1.25

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2272E+03 EXCESS= .0000E+00 OUTFLOW= .2271E+03 BASIN STORAGE= .1854E+00 PERCENT ERROR=    .0

            RCLBN   MANE         4.00     65.20    776.00     -1.00      4.00     65.20    776.00       -1.00

             RM343  MANE         3.12    307.59    758.57      6.30      4.00    304.01    756.00        6.30

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1076E+03 EXCESS= .0000E+00 OUTFLOW= .1075E+03 BASIN STORAGE= .9442E-02 PERCENT ERROR=    .0

             RM345  MANE         4.00    482.35    724.00      1.77      4.00    482.35    724.00        1.77

CONTINUITY SUMMARY (AC-FT) - INFLOW= .3752E+03 EXCESS= .0000E+00 OUTFLOW= .3744E+03 BASIN STORAGE= .9774E+00 PERCENT ERROR=    .0

             RM343  MANE         2.06    111.13   1075.22     -1.00      4.00    111.13   1076.00       -1.00

             RM346  MANE         1.74    529.30    770.81      2.26      4.00    526.97    772.00        2.26

CONTINUITY SUMMARY (AC-FT) - INFLOW= .5411E+03 EXCESS= .0000E+00 OUTFLOW= .5409E+03 BASIN STORAGE= .2278E+00 PERCENT ERROR=    .0

             RM347  MANE         4.00   3356.28    800.00      1.80      4.00   3356.28    800.00        1.80

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1653E+04 EXCESS= .0000E+00 OUTFLOW= .1651E+04 BASIN STORAGE= .3071E+01 PERCENT ERROR=   -.1

             RM349  MANE         4.00   3270.82    732.00    150.19      4.00   3270.82    732.00      150.19

CONTINUITY SUMMARY (AC-FT) - INFLOW= .9662E+04 EXCESS= .0000E+00 OUTFLOW= .9662E+04 BASIN STORAGE= .0000E+00 PERCENT ERROR=    .0



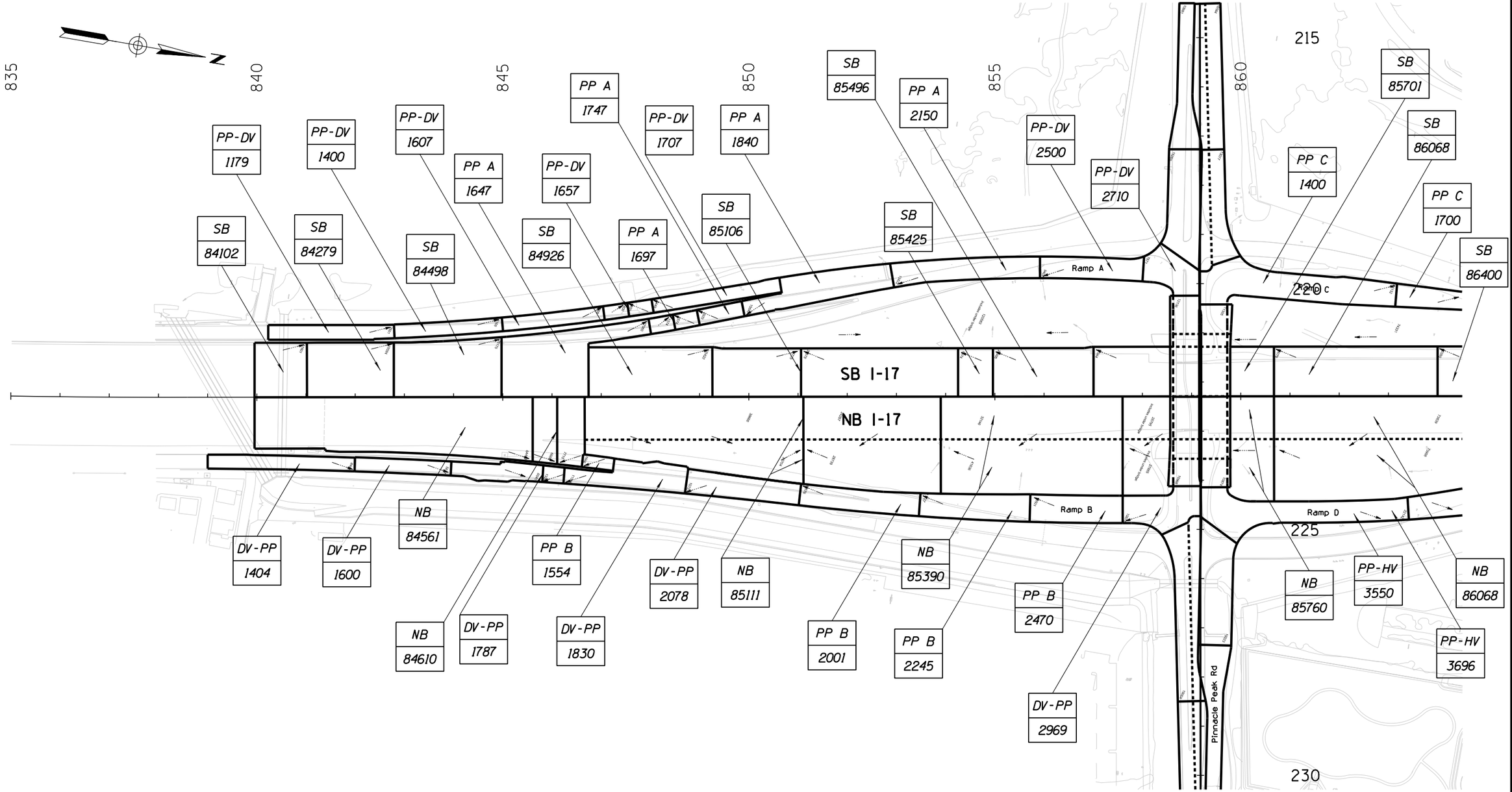
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APPENDIX E

GUTTER AND INLET HYDROLOGY AND HYDRAULICS

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	ARIZ.	00-017-A(248)T			
		017 MA 216			



-WARNING-
OVERHEAD POWER LINES WITHIN PROJECT CONSTRUCTION LIMITS

Contact Arizona 811 at least two full working days before you begin excavation
ARIZONA811 BLUE STAKE, INC.
Call 811 or click Arizona811.com

	NAME	DATE
DESIGN	JG	03/18
DRAWN	AE	03/18
CHECKED	ML	03/18

Andes Engineering andes.us

ARIZONA DEPARTMENT OF TRANSPORTATION
INFRASTRUCTURE DELIVERY AND OPERATIONS DIVISION
DRAINAGE DESIGN SERVICES

ONSITE DRAINAGE AREAS MAP
I-17 STA 835+00 TO 864+00

ROUTE	LOCATION
I-17	PINNACLE PEAK RD TI & HAPPY VALLEY RD TI

TRACS NO. H7383 01C | 00-017-A(248)T

PRELIMINARY
STAGE V
Review
NOT FOR CONSTRUCTION OR RECORDING

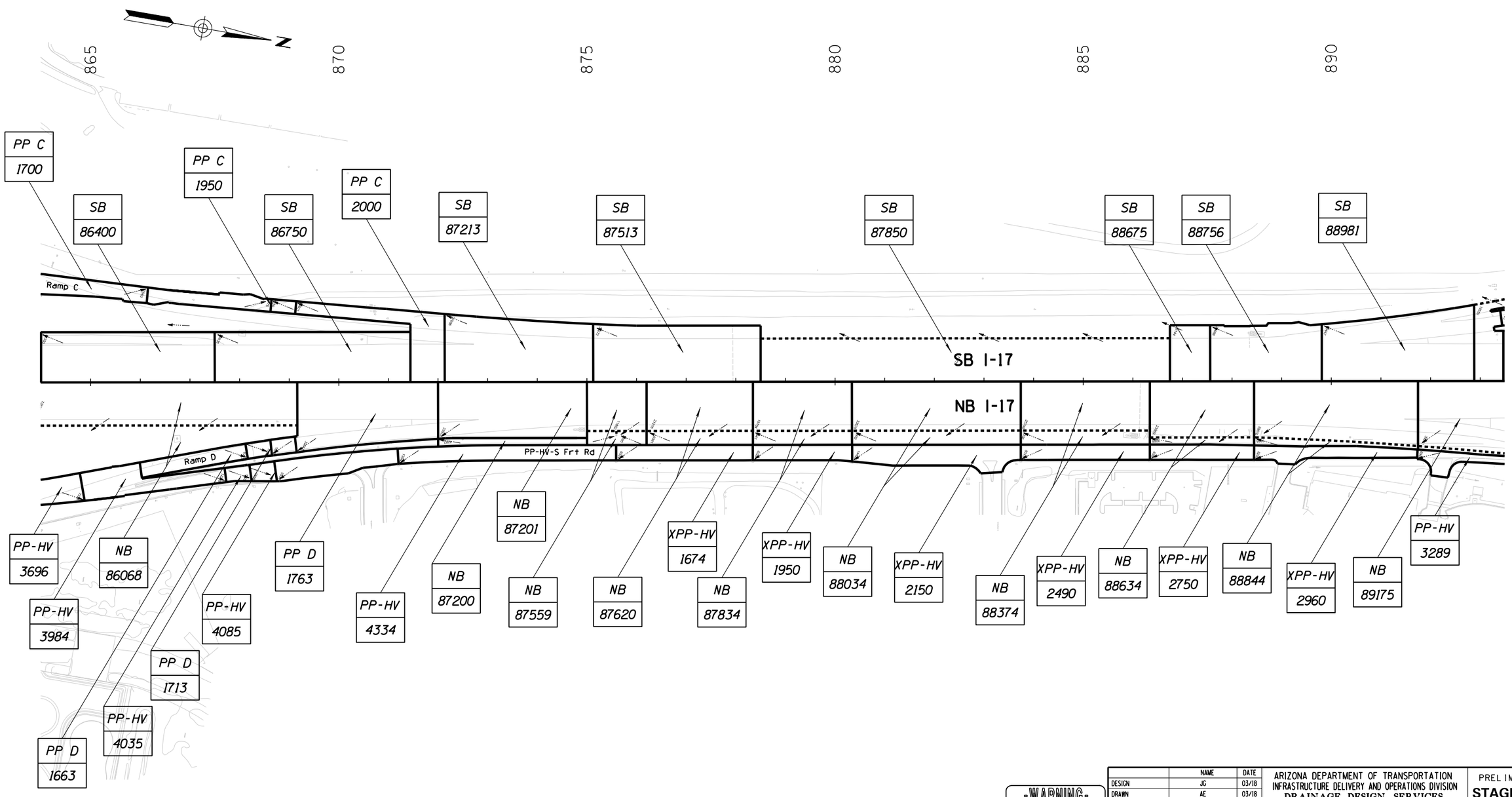
DWG NO. DA-01.01

1 OF 6

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SURVEY NO. | FINISHED PLANS- | REVISIONS- | LOCATION- | DATE-

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F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	ARIZ.	00-017-A(248)T			
		017 MA 216			



PLOT DATE: Friday, May 04, 2018 3:41:47 PM PLOT SCALE: 1:100 PLOT BY: jguan-HDR

SURVEY NO. | FINISHED PLANS | REVISIONS | LOCATION | DATE

WARNING
OVERHEAD POWER LINES WITHIN PROJECT CONSTRUCTION LIMITS

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ARIZONA811 Call 811 or click Arizona811.com

	NAME	DATE
DESIGN	JG	03/18
DRAWN	AE	03/18
CHECKED	ML	03/18

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ARIZONA DEPARTMENT OF TRANSPORTATION
INFRASTRUCTURE DELIVERY AND OPERATIONS DIVISION
DRAINAGE DESIGN SERVICES

ONSITE DRAINAGE AREAS MAP
I-17 STA 864+00 TO 893+00

ROUTE	LOCATION
I-17	PINNACLE PEAK RD TI & HAPPY VALLEY RD TI

TRACS NO. H7383 01C | 00-017-A(248)T

PRELIMINARY
STAGE V
Review
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DWG NO. DA-01.02

2 OF 6

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F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	ARIZ.	00-017-A(248)T			
		017 MA 216			

HV A 2300
HV A 2550
HV A 2831
HV A 2801
HV A2 23100
HV A 2050
HV A 1636
HV A 1828
HV A 1461
SB 89347
SB 89400
HV A2 23400
HV C2 20394
JM-HV 599
SB 91000
JM-HV 850
JM-HV 1014
JM-HV 1064
JM-HV 1114
JM-HV 1525
HV C 1362
JM-HV 1425
JM-HV 1475
HV C2 20327
SB 92169
HV B1 14775
HV D1 10700
HV D1 10900
HV D 1175
NB 89175
PP-HV 3289
PP-HV 3568
NB 89437
PP-HV 3900
PP-HV 4200
PP-HV 4500
HV B1 14702
XHV-JM 1095
NB 91000
XHV-JM 752
HV D 1439
HV-JM 1000
HV D2 20529
HV-JM 700

Bus Ramp
Ramp A
Ramp B
Ramp C
Ramp D
Happy Valley Rd
JM-HV Frt Rd
HV-JM Frt Rd
SB I-17
NB I-17
155
160
165
895
900
905
910
915
920

WARNING
OVERHEAD POWER LINES WITHIN PROJECT CONSTRUCTION LIMITS

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ARIZONA811
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	NAME	DATE
DESIGN	JC	03/18
DRAWN	AE	03/18
CHECKED	ML	03/18

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INFRASTRUCTURE DELIVERY AND OPERATIONS DIVISION
DRAINAGE DESIGN SERVICES

ONSITE DRAINAGE AREAS MAP
I-17 STA 893+00 TO 922+00

ROUTE: I-17
LOCATION: PINNACLE PEAK RD TI & HAPPY VALLEY RD TI

TRACS NO. H7383 01C
00-017-A(248)T

PRELIMINARY
STAGE V
Review
NOT FOR CONSTRUCTION OR RECORDING

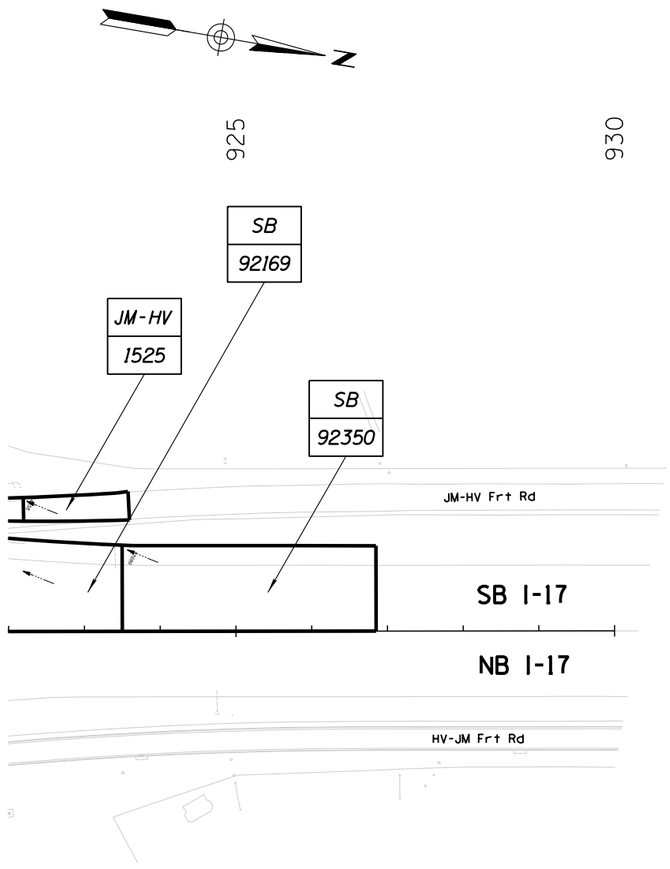
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F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	ARIZ.	00-017-A(248)T			
		017 MA 216			



-WARNING-
OVERHEAD POWER LINES WITHIN PROJECT CONSTRUCTION LIMITS

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DESIGN	JG	03/18
DRAWN	AE	03/18
CHECKED	ML	03/18

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INFRASTRUCTURE DELIVERY AND OPERATIONS DIVISION
DRAINAGE DESIGN SERVICES

ONSITE DRAINAGE AREAS MAP
I-17 STA 922+00 TO 930+00

ROUTE	LOCATION
I-17	PINNACLE PEAK RD TI & HAPPY VALLEY RD TI

TRACS NO. H7383 01C | 00-017-A(248)T

PRELIMINARY
STAGE V
Review
NOT FOR CONSTRUCTION OR RECORDING

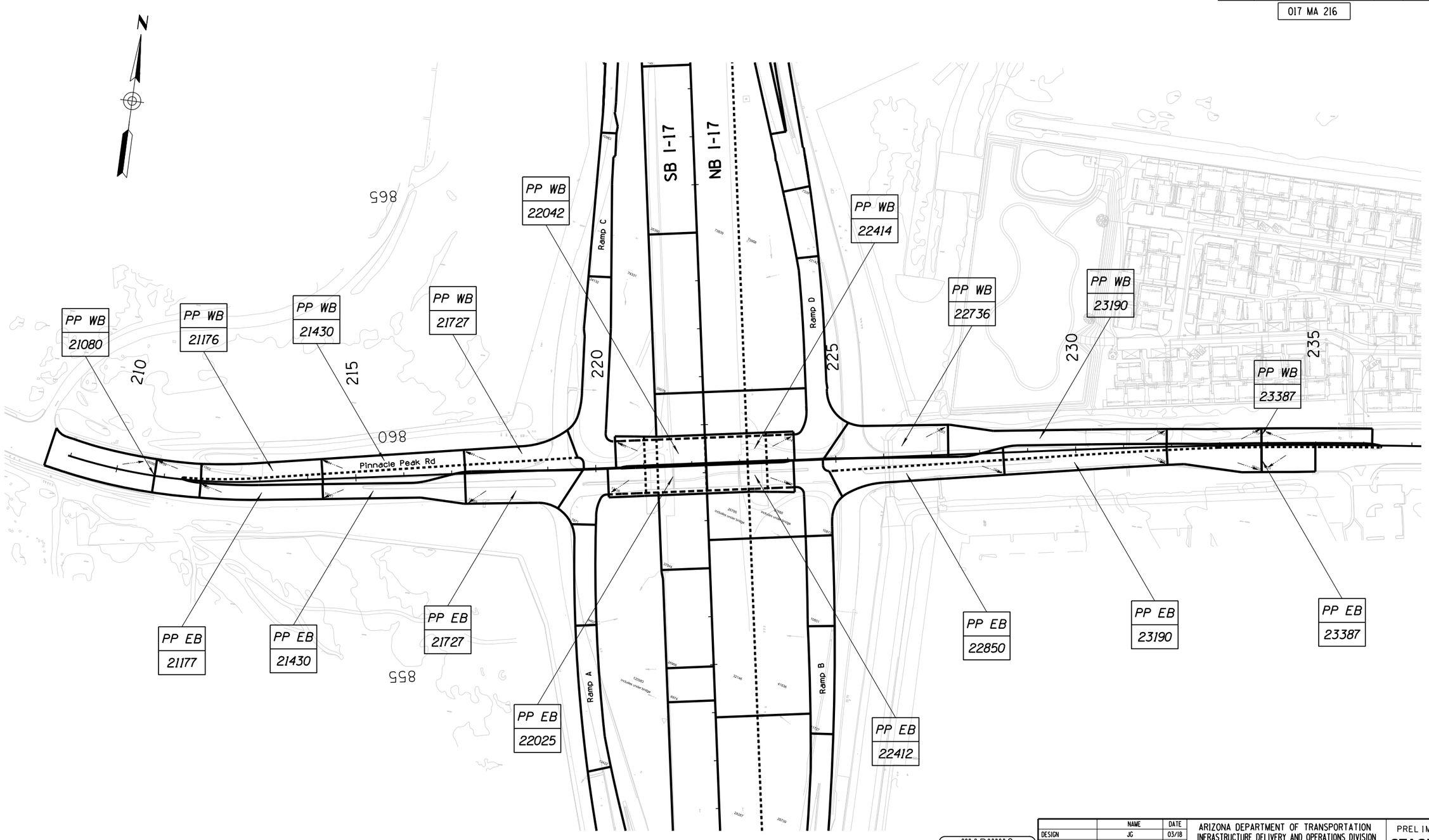
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F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	ARIZ.	00-017-A(248)T			
		017 MA 216			



- WARNING -
OVERHEAD POWER LINES WITHIN PROJECT CONSTRUCTION LIMITS

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ARIZONA811
Call 811 or click Arizona811.com

	NAME	DATE
DESIGN	JG	03/18
DRAWN	AE	03/18
CHECKED	ML	03/18

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ARIZONA DEPARTMENT OF TRANSPORTATION
INFRASTRUCTURE DELIVERY AND OPERATIONS DIVISION
DRAINAGE DESIGN SERVICES

ONSITE DRAINAGE AREAS MAP
PINNACLE PEAK RD

ROUTE	LOCATION
I-17	PINNACLE PEAK RD TI & HAPPY VALLEY RD TI

TRACS NO. H7383 01C | 00-017-A(248)T

PRELIMINARY
STAGE V
Review
NOT FOR CONSTRUCTION OR RECORDING

DWG NO. DA-01.05

5 OF 6

PLOT DATE: Friday, May 04, 2018 3:42:05 PM | PLOT SCALE: 1:100 | PLOT BY: jguan-HDR
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F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	ARIZ.	00-017-A(248)T			
		017 MA 216			

N

HV - JM 1200

HV - JM 1000

HV D1 10900

HV WB 16453

HV WB 16891

HV - JM 690

HV WB 16649

HV WB 16719

HV WB 17118

HV WB 17000

HV D1 10700

HV WB 15051

HV WB 15582

HV C2 20327

HV C2 20394

HV WB 15503

HV WB 15300

HV WB 15059

HV WB 14718

HV EB 16329

HV EB 16547

HV EB 16852

HV B1 14702

HV EB 16800

HV B1 14775

HV EB 17000

HV EB 15620

HV EB 15767

HV EB 15263

HV EB 15201

HV A2 23400

HV A2 23100

HV A 3074

HV EB 14756

HV EB 15069

Ramp C

Ramp D

Ramp A

Ramp B

Bus Ramp

SB I-17

NB I-17

HV-JM Frt Rd

Happy Valley Rd

915

910

905

150

155

160

165

170

PLOT DATE: Friday, May 04, 2018 4:00:16 PM PLOT BY: jguan-HDR

SURVEY NO.	FINISHED PLANS-	REVISIONS-	LOCATION-	DATE-

PLOT SCALE: 1:100

SURVEY NO.	FINISHED PLANS-	REVISIONS-	LOCATION-	DATE-

- WARNING -
OVERHEAD POWER LINES WITHIN PROJECT CONSTRUCTION LIMITS

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ARIZONA811 BLUE STAKE, INC.
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	NAME	DATE
DESIGN	JG	03/18
DRAWN	AE	03/18
CHECKED	ML	03/18

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ARIZONA DEPARTMENT OF TRANSPORTATION
INFRASTRUCTURE DELIVERY AND OPERATIONS DIVISION
DRAINAGE DESIGN SERVICES

ONSITE DRAINAGE AREAS MAP
HAPPY VALLEY RD

PRELIMINARY
STAGE V
Review
NOT FOR CONSTRUCTION OR RECORDING

ROUTE	LOCATION	DWG NO. DA-01.06
I-17	PINNACLE PEAK RD TI & HAPPY VALLEY RD TI	
TRACS NO. H7383 01C		00-017-A(248)T

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Andes Engineering

Project 1606D
Roadway I-17 NB
Frequency 10-Year

I-17 Northbound

Designed	JOG	Date	Apr-2018
Reviewed	ML	Date	Apr-2018
Updated	JOG	Date	Apr-2018

I-17 / Pinnacle Peak Rd TI & Happy Valley Rd TI
Gutter & Inlet Hydraulic Computation Sheet
I-17 NB Mainline, NB Frontage Roads, PP Ramps B & D, HV Ramps B & D

	I-17 NB			DV-PP FRT RD					PP RAMP B			DV-PP FR	PP-HV-S FRT RD					PP RAMP D				I-17 NB			PP-HV-N FRT RD					HV RAMP B1		HV Ra
Inlet #	**103**	**106**	**105**	**101**	**102**	**108**	**107**	**109**	**111**	**115**	**114**	**113**	**119**	**120**	**121**	**123**	**122**	**126**	**125**	**124**	**129**	**132**	**133**	**207**	**206**	**203**	**200**	**208**	**209**	**618**	**617**	**619**
ID	A84561	A84610	C1554	B1404	B1600	B1787	B1830	B2078	C2001	C2245	C2470	B2969	E3550	E3696	E3984	E4035	E4085	D1663	D1713	D1763	A87201	A88634	A88844	A89175	G3289	G3568	G3900	G4200	G4500	H14702	H14775	I10700
Area #	**84561**	**84610**	**1554**	**1404**	**1600**	**1787**	**1830**	**2078**	**2001**	**2245**	**2470**	**2969**	**3550**	**3696**	**3984**	**4035**	**4085**	**1663**	**1713**	**1763**	**87201**	**88634**	**88844**	**89175**	**3289**	**3568**	**3900**	**4200**	**4500**	**14702**	**14775**	**10700**
Station	845+61	846+10	15+54	14+04	16+00	17+87	18+30	20+78	20+01	22+45	24+70	29+69	35+50	36+96	39+84	40+35	40+85	16+63	17+13	17+63	872+01	886+34	888+44	891+75	32+89	35+68	39+00	42+00	45+00	147+02	147+75	107+00
Offset from CL	128.72	134.11	7.67	14.00	14.00	13.50	13.50	13.50	13.50	16.53	25.50	13.50	11.50	11.50	13.92	18.64	25.33	11.50	11.50	11.50	110.16	180.50	108.50	126.21	12.00	14.00	14.00	21.98	26.00	42.46	46.56	14.50
Lt or Rt	Rt	Rt	Rt	Rt	Rt	Rt	Rt	Rt	Lt	Lt	Lt	Rt	Rt	Rt	Rt	Rt	Rt	Rt	Rt	Rt	Rt	Rt	Rt	Rt	Rt	Rt	Rt	Rt	Rt	Lt	Lt	Lt
Upstream Inlet	-	Sag	-	-	1404	Sag	2078	-	2245	2470	-	-	-	3550	3696	3984	Sag	-	Sag	87201	-	88844	89175	-	3568	3900	4200	4500	-	14775	-	-
Direction of Flow	>>>>>	v	<<<<<	>>>>>	>>>>>	v	<<<<<	<<<<<	<<<<<	<<<<<	<<<<<	<<<<<	>>>>>	>>>>>	>>>>>	>>>>>	v	>>>>>	v	<<<<<	<<<<<	<<<<<	<<<<<	<<<<<	<<<<<	<<<<<	<<<<<	<<<<<	<<<<<	<<<<<	<<<<<	>>>>>
HYDROLOGY																																
Tc (min)	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
i (in/hr)	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25
Contributing Area																																
Pavement (Sq.ft.)	64443	14379	1666	8464	5617	7366	11538	10727	11576	11727	10501	10873	22142	7339	12215	1509	11391	6713	3156	35817	33923	23869	39670	39261	6909	16587	14074	18901	16477	3136	23142	14607
Pavement (Acre)	1.4794	0.3301	0.0382	0.1943	0.1289	0.1691	0.2649	0.2463	0.2657	0.2692	0.2411	0.2496	0.5083	0.1685	0.2804	0.0346	0.2615	0.1541	0.0725	0.8222	0.7788	0.5480	0.9107	0.9013	0.1586	0.3808	0.3231	0.4339	0.3783	0.0720	0.5313	0.3353
Side Slope (Sq.ft.)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3068	3685	0	0	0	0	0	3569	0	0	0
Side Slopes (Acre)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0704	0.0846	0.0000	0.0000	0.0000	0.0000	0.0000	0.0819	0.0000	0.0000	0.0000
Total Area	1.4794	0.3301	0.0382	0.1943	0.1289	0.1691	0.2649	0.2463	0.2657	0.2692	0.2411	0.2496	0.5083	0.1685	0.2804	0.0346	0.2615	0.1541	0.0725	0.8222	0.7788	0.6184	0.9953	0.9013	0.1586	0.3808	0.3231	0.4339	0.4602	0.0720	0.5313	0.3353
Runoff Coefficient C																																
Pavement	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Roadside	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70
Composite C	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.92	0.93	0.95	0.95	0.95	0.95	0.95	0.91	0.95	0.95	0.95
Flows																																
Known (cfs)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Bypass (cfs)	0.00	0.55	0.00	0.00	0.29	0.67	0.19	0.00	0.25	0.18	0.00	0.00	0.00	0.44	0.12	0.08	0.03	0.00	0.30	0.46	0.00	0.39	0.26	0.00	0.21	0.00	0.55	0.40	0.00	0.45	0.00	0.00
CiA (cfs)	5.97	1.33	0.15	0.78	0.52	0.68	1.07	0.99	1.07	1.09	0.97	1.01	2.05	0.68	1.13	0.14	1.06	0.62	0.29	3.32	3.14	2.42	3.93	3.64	0.64	1.54	1.30	1.75	1.77	0.29	2.14	1.35
Total Q (cfs)	5.97	1.88	0.15	0.78	0.81	1.35	1.26	0.99	1.32	1.27	0.97	1.01	2.05	1.12	1.25	0.22	1.09	0.62	0.59	3.78	3.14	2.81	4.19	3.64	0.85	1.54	1.85	2.15	1.77	0.74	2.14	1.35
HYDRAULICS																																
Roadway Slopes (ft/ft)																																
Longitudinal (S)	0.005275	0.000000	0.004948	0.004000	0.004000	0.000000	0.002502	0.016522	0.029921	0.029921	0.012184	0.029921	0.027857	0.031432	0.003264	0.005772	0.000000	0.012131	0.000000	0.002914	0.019120	0.004017	0.004017	0.004017	0.005862	0.004174	0.011674	0.029673	0.034173	0.021683	0.029895	0.030869
Cross Slope (Sxp)	0.0200	0.0200	0.0200	0.0200	0.0200	0.0200	0.0200	0.0200	0.0100	0.0200	0.0200	0.0200	0.0200	0.0200	0.0200	0.0200	0.0200	0.0200	0.0200	0.0200	0.0200	0.0200	0.0200	0.0200	0.0200	0.0200	0.0200	0.0200	0.0200	0.0200	0.0100	0.0200
Gutter																																
Standard and Type	F4	F4	F4	D	D	F4	F4	F4	F4	F4	F4	F4	E	E	D	D	D	E	E	E	E	E	E	E	D	D	D	D	D	F4	F4	D
Pan Width (ft)	4.50	4.50	4.50	2.00	2.00	4.50	4.50	4.50	4.50	4.50	4.50	4.50	2.50	2.50	2.00	2.00	2.00	2.50	2.50	2.50	2.50	2.50	2.50	2.50	2.00	2.00	2.00	2.00	2.00	4.50	4.50	2.00
Back Slope Width (ft)	-	-	-	0.21	0.21	-	-	-	-	-	-	-	2.00	2.00	0.21	0.21	0.21	2.00	2.00	2.00	2.00	2.00	2.00	2.00	0.21	0.21	0.21	0.21	0.21	-	-	0.21
Depression (ft)	0.25	0.25	0.25	0.14	0.14	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.05	0.05	0.14	0.14	0.14	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.14	0.14	0.14	0.14	0.14	0.25	0.25	0.14
Sx (ft/ft)	0.0556	0.0556	0.0556	0.0677	0.0677	0.0556	0.0556	0.0556	0.0556	0.0556	0.0556	0.0556	0.0208	0.0208	0.0677	0.0677	0.0677	0.0208	0.0208	0.0208	0.0208	0.0208	0.0208	0.0208	0.0677	0.0677	0.0677	0.0677	0.0677	0.0556	0.0556	0.0677
Sb (ft/ft)	-	-	-	0.4167	0.4167	-	-	-	-	-	-	-	0.1667	0.1667	0.4167	0.4167	0.4167	0.1667	0.1667	0.1667	0.1667	0.1667	0.1667	0.1667	0.4167	0.4167	0.4167	0.4167	0.4167	-	-	0.4167
Gutter n	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013
Gutter Capacity (cfs)	1.39	-	1.35	0.19	0.19	-	0.96	2.46	3.31	3.31	2.11	3.31	0.13	0.14	0.17	0.23	-	0.09	-	0.04	0.11	0.05	0.05	0.05	0.23	0.20	0.33	0.53	0.56	2.82	3.31	0.54
T in Gutter (ft)	-	-	2.00	-	-	-	-	3.21	3.19	3.14	3.37	2.89	-	-	-	1.96	-	-	-	-	-	-	-	-	-	-	-	-	-	2.73	3.83	-
Curb/Barrier Height (ft)	3.00	3.00	3.00	0.50	0.50	3.00	3.00	3.00	3.00	3.00	3.00	3.00	0.33	0.33	0.50	0.50	0.50	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.50	0.50	0.50	0.50	0.50	3.00	3.00	0.50
Depth of flow (ft)	0.42	0.42	0.16	0.21	0.21	0.25	0.29	0.21	0.20	0.20	0.21	0.19	0.14	0.11	0.25	0.13	0.18	0.11	0.12	0.28	0.18	0.23	0.27	0.26	0.20	0.26	0.23	0.21	0.19	0.19	0.23	0.18
Area in Gutter Ag (sq.ft)	1.32	1.35	0.17	0.29	0.29	0.55	0.73	0.36	0.36	0.35	0.39	0.31	0.29	0.21	0.37	0.13	0.23	0.20	0.23	0.63	0.39	0.52	0.61	0.58	0.27	0.38	0.33	0.29	0.25	0.28	0.48	0.23
Hyd Radius Gutter Rg (ft)	0.29	0.30	0.04	0.14	0.15	0.12	0.16	0.08	0.08	0.08	0.09	0.07	0.12	0.08	0.18	0.07	0.12	0.08	0.09	0.25	0.15	0.21	0.25	0.23	0.14	0.19	0.17	0.14	0.13	0.06	0.11	0.11
Qg (cfs)	4.86	-	0.15	0.57	0.58	-	1.25	0.99	1.32	1.27	0.97	1.01	1.33	0.83	0.78	0.18	-	0.47	-	1.55	1.76	1.31	1.75	1.58	0.63	0.94	1.24	1.56	1.36	0.74	2.14	1.08
Qo (cfs)	-	-	-	0.10	0.11	-	-	-	-	-	-	-	0.24	0.13	0.15	0.04	-	0.07	-	0.46	0.37	0.34	0.51	0.44	0.11	0.18	0.23	0.28	0.24	-	-	0.19
T in Pavement (ft)	8.46	8.70	-	3.77	3.90	-	1.88	-	-	-	-	-	4.54	2.94	5.83	-	2.40	2.71	3.40	11.29	6.43	9.06	10.98	10.27	3.43	6.17	4.91	3.81	2.97	-	-	2.31
Pavement n	0.0160	0.0160	0.0160	0.0160	0.0160	0.0160	0.0160	0.0160	0.0160	0.0160	0.0160	0.0160	0.0160	0.0160	0.0160	0.0160	0.0160	0.0160	0.0160	0.0160	0.0160	0.0160	0.0160	0.0160	0.0160	0.0160	0.0160	0.0160	0.0160	0.0160	0.0160	0.0160
Qp (cfs)	1.11	-	-	0.11	0.12	-	0.01	-	-	-	-	-	0.48	0.16	0.32	-	-	0.08	-	1.78	1.01	1.16	1.94	1.62	0.10	0.42	0.38	0.31	0.17	-	-	0.08
Q (cfs)	5.97	1.88	0.15	0.78	0.81	1.35	1.26	0.99	1.32	1.27	0.97	1.01	2.05	1.12	1.25	0.22	1.09	0.62	0.59	3.78	3.14	2.81	4.19	3.64	0.85	1.54	1.85	2.15	1.77	0.74	2.14	1.35
Spread (ft)	**12.96**	**13.20**	**4.50**	**5.77**	**5.90**	**4.50**	**6.38**	**4.50**	**4.50**	**4.50**	**4.50**	**4.50**	**7.04**	**5.44**	**7.83**	**2.00**	**4.40**	**5.21**	**5.90**	**13.79**	**8.93**	**11.56**	**13.48**	**12.77**	**5.43**	**8.17**	**6.91**	**5.81**	**4.97**	**4.50**	**4.50**	**4.31**
Shoulder Width (ft)	12.00	12.00	12.00	2.00	2.00	2.00	2.00	4.00	10.00	10.00	10.00	4.00	3.50	3.50	2.00	2.00	2.00	3.50	3.50	3.50	4.00	12.00	12.00	12.00	2.00	2.00	2.00	2.00	2.00	6.00	6.00	2.50
Depth of Flow (in)	**5.03**	**3.70**	**1.95**	**2.53**	**2.56**	**2.97**	**3.45**	**2.46**	**2.46**	**2.44**	**2.54**	**2.32**	**1.71**	**1.33**	**3.02**	**1.60**	**2.20**	**1.27**	**1.44**	**3.33**	**2.17**	**2.80**	**3.26**	**3.09**	**2.45**	**3.11**	**2.80**	**2.54**	**2.34**	**2.25**	**2.78**	**2.18**
Flow Velocity (ft/s)	**3.67**	**0.00**	**0.90**	**1.98**	**2.00**	**0.00**	**1.70**	**2.74**	**3.67**	**3.61**	**2.48**	**3.30**	**4.56**	**3.91**	**2.11**	**1.41**	**0.00**	**2.34**	**0.00**	**2.46**	**4.55**	**2.54**	**2.84**	**2.73**	**2.32**	**2.45**	**3.73**	**5.41**	**5.34**	**2.64**	**4.45**	**4.72**
Allowable Spread	18.00	18.00	18.00	8.00	8.00	8.00	8.00	10.00	16.00	16.00	16.00	10.00	9.50	9.50	8.00	8.00	8.00	14.00	14.00	14.00	10.00	18.00	18.00	18.00	8.00	8.00	8.00	8.00	8.00	12.00	12.00	10.50
INLET																																
Type	G	G	G	CO	CO	G	G	G	G	G	G	G	G	G	CO	CO	CO	G	G	G	G	G	G	G	CO	CO	CO	CO	CO	G	G	CO
Standard	C-15.92	C-15.92	C-15.92	C-15.20	C-15.20	C-15.92	C-15.92	C-15.92	C-15.92	C-15.92	C-15.92	C-15.92	C-15.91	C-15.91	C-15.20	C-15.20	C-15.20	C-15.91	C-15.91	C-15.91	C-15.91	C-15.91	C-15.91	C-15.91	C-15.20	C-15.20	C-15.20	C-15.20	C-15.20	C-15.92	C-15.92	C-15.20
Location	Grade	Sag	Grade	Grade	Grade	Sag	Grade	Grade	Grade	Grade	Grade	Grade	Grade	Grade	Grade	Sag	Grade	Grade	Sag	Grade	Grade	Grade	Grade	Grade	Grade	Grade	Grade	Grade	Grade	Grade	Grade	Grade
Inlet Depression (in)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Slotted Drain/Curb Opening?	yes	no	no	yes	yes	no	no	no	yes	no	no	yes	no	no	yes	yes	yes	no	no	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	no	yes
Capture Ratio	0.67	0.67	0.67	0.80	0.80	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.80	0.80	0.80	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.80	0.80	0.80	0.80	0.80	0.67	0.67	0.80
Length (ft)	**15.0**	**0.0**	**0.0**	**3.0**	**3.0**	**0.0**	**0.0**	**0.0**	**10.0**	**0.0**	**0.0**	**5.0**	**0.0**	**0.0**	**6.5**	**3.0**	**3.0**	**0.0**	**0.0**	**15.0**	**10.0**	**15.0**	**15.0**	**15.0**	**6.5**	**6.5**	**14.5**	**10.5**	**10.5**	**5.0**	**0.0**	**10.5**
Se (ft/ft)	0.0706	0.0000	0.0000	0.0978	0.0977	0.0000	0.0000	0.0000	0.0741	0.0000	0.0000	0.0741	0.0000	0.0000	0.0936	0.1026	0.0677	0.0000	0.0000	0.0345	0.0395	0.0364	0.0347	0.0353	0.0985	0.0931	0.0955	0.0978	0.0996	0.0742	0.0000	0.1008
Effective Length (ft)	10	0	0	2	2	0	0	0	7	0	0	3	0	0	5	2	2	0	0	10	7	10	10	10	5	5	12	8	8	3	0	8
Lt (ft)	18	0	0	6	6	0	0	0	15	0	0	14	0	0	7	4	0	0	0	19	28	17	21	20	7	8	11	16	15	11	0	13
Efficiency	0.78	0.00	0.00	0.63	0.62	0.00	0.00	0.00	0.65	0.00	0.00	0.40	0.00	0.00	0.94	0.86	1.00	0.00	0.00	0.75	0.39	0.79	0.68	0.72	0.94	0.86	1.00	0.75	0.77	0.49	0.00	0.85
Sag Capacity (cfs)	216.91	0.00	0.00	4.88	4.88	0.00	0.00	0.00	176.88	0.00	0.00	136.84	0.00	0.00	7.16	4.88	4.88	0.00	0.00	6.44	4.96	6.44	6.44	6.44	7.16	7.16	12.36	9.76	9.76	136.84	0.00	9.76
Sag Depth (in)	3.28	0.00	0.00	1.77	1.81	0.00	0.00	0.00	1.38	0.00	0.00	1.36	0.00	0.00	1.88	0.76	2.20	0.00	0.00	2.80	2.95	2.30	3.00	2.73	1.46	2.15	1.69	2.19	1.92	1.11	0.00	1.61
SD Qi (cfs)	**4.69**	**0.00**	**0.00**	**0.49**	**0.51**	**0.00**	**0.00**	**0.00**	**0.86**	**0.00**	**0.00**	**0.40**	**0.00**	**0.00**	**1.17**	**0.19**	**1.09**	**0.00**	**0.00**	**2.85**	**1.23**	**2.21**	**2.86**	**2.62**	**0.81**	**1.32**	**1.85**	**1.61**	**1.37**	**0.36**	**0.00**	**1.15**
Bypass (cfs)	1.28	1.88	0.15	0.29	0.31	1.35	1.26	0.99	0.46	1.27	0.97	0.60	2.05	1.12	0.08	0.03	0.00	0.62	0.59	0.93	1.92	0.60	1.33	1.02	0.05	0.21	0.00	0.55	0.40	0.38	2.14	0.20
Spread at Grate (ft)	7.57	13.20	4.50	4.07	4.19	4.50	6.38	4.50	3.12	4.50	4.50	3.76	7.04	5.44	2.99	1.00	4.40	5.21	5.90	8.44	7.51	6.75	9.01	8.19	2.00	4.10	6.91	3.59	2.96	3.56	4.50	2.22
Grate																																
Capture Ratio	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
Grate Length (in)	40.38	40.38	40.38	0.00	0.00	40.38	40.38	40.38	40.38	40.38	40.38	40.38	41.25	41.25	0.00	0.00	0.00	41.25	41.25	41.25	41.25	41.25	41.25	41.25	0.00	0.00	0.00	0.00	0.00	40.38	40.38	0.00
Grate Width (in)	23.63	23.63	23.63	0.00	0.00	23.63	23.63	23.63	23.63	23.63	23.63	23.63	36.00	36.00	0.00	0.00	0.00	36.00	36.00	36.00	36.00	36.00	36.00	36.00	0.00	0.00	0.00	0.00	0.00	23.63	23.63	0.00
# of Long Bars	10.00	10.00	10.00	0.00	0.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	14.00	14.00	0.00	0.00	0.00	14.00	14.00	14.00	14.00	14.00	14.00	14.00	0.00	0.00	0.00	0.00	0.00	10.00	10.00	0.00
Width of Long Bars (in)	0.50	0.50	0.50	0.00	0.00	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.00	0.00	0.00	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.00	0.00	0.00	0.00	0.00	0.50	0.50	0.00
Width of Side Bars (in)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
# of Transverse Bars	2.00	2.00	2.00	0.00	0.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	0.00	0.00	0.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	0.00	0.00	0.00	0.00	0.00	2.00	2.00	0.00
Width of Trans. Bars (In)	0.50	0.50	0.50	0.00	0.00	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.00	0.00	0.00	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.00	0.00	0.00	0.00	0.00	0.50	0.50	0.00
Vo (ft/s)	8.20	8.20	8.20	0.00	0.00	8.20	8.20	8.20	8.20	8.20	8.20	8.20	8.20	8.20	0.00	0.00	0.00	8.20	8.20	8.20	8.20	8.20	8.20	8.20	0.00	0.00	0.00	0.00	0.00	8.20	8.20	0.00
Perimeter (ft)	7.30	7.30	7.30	0.00	0.00	7.30	7.30	7.30	7.30	7.30	7.30	7.30	9.44	9.44	0.00	0.00	0.00	9.44	9.44	9.44	9.44	9.44	9.44	9.44	0.00	0.00	0.00	0.00	0.00	7.30	7.30	0.00
Area (sq.ft)	5.06	5.06	5.06	0.00	0.00	5.06	5.06	5.06	5.06	5.06	5.06	5.06	8.06	8.06	0.00	0.00	0.00	8.06	8.06	8.06	8.06	8.06	8.06	8.06	0.00	0.00	0.00	0.00	0.00	5.06	5.06	0.00
Clogged Perimeter (ft)	3.65	3.65	3.65	0.00	0.00	3.65	3.65	3.65	3.65	3.65	3.65	3.65	4.72	4.72	0.00	0.00	0.00	4.72	4.72	4.72	4.72	4.72	4.72	4.72	0.00	0.00	0.00	0.00	0.00	3.65	3.65	0.00
Clogged Area (sq.ft.)	2.53	2.53	2.53	0.00	0.00	2.53	2.53	2.53	2.53	2.53	2.53	2.53	4.03	4.03	0.00	0.00	0.00	4.03	4.03	4.03	4.03	4.03	4.03	4.03	0.00	0.00	0.00	0.00	0.00	2.53	2.53	0.00
INLET HYDRAULICS																																
G Hydraulics - Grade																																
Eo	0.5526	0.3504	0.7848	0.0000	0.0000	0.7848	0.6266	0.7848	0.9303	0.7848	0.7848	0.8616	0.7733	0.8824	0.0000	0.0000	0.0000	0.8990	0.8502	0.6904	0.7439	0.7919	0.6606	0.7043	0.0000	0.0000	0.0000	0.0000	0.0000	0.8836	0.7848	0.0000
Qs/Q	0.4474	0.6496	0.2152	1.0000	1.0000	0.2152	0.3734	0.2152	0.0697	0.2152	0.2152	0.1384	0.2267	0.1176	1.0000	1.0000	1.0000	0.1010	0.1498

Andes Engineering

Project 1606D
Roadway I-17 NB
Frequency 10-Year

I-17 Northbound

Designed	**JOG**	**Date**	Apr-2018
Reviewed	**ML**	**Date**	Apr-2018
Updated	**JOG**	**Date**	Apr-2018

I-17 / Pinnacle Peak Rd TI & Happy Valley Rd TI
Gutter & Inlet Hydraulic Computation Sheet
I-17 NB Mainline, NB Frontage Roads, PP Ramps B & D, HV Ramps B & D

	mp D1	HV RAMP D		HV-JM FRT RD	
Inlet #	**623**	**625**	**626**	**Spillway**	**Spillway**
ID	I10900	K1175	K1439	L00690	L01000
Area #	**10900**	**1175**	**1439**	**690**	**1000**
Station	109+00	11+75	14+39	6+90	10+00
Offset from CL	14.50	11.50	11.50	6.00	28.50
Lt or Rt	Lt	Rt	Rt	Rt	Rt
Upstream Inlet	10700	-	1175	Sag	-
Direction of Flow	>>>>>	>>>>>	>>>>>	v	<<<<<
HYDROLOGY					
Tc (min)	10	10	10	10	10
i (in/hr)	4.25	4.25	4.25	4.25	4.25
Contributing Area					
Pavement (Sq.ft.)	4418	9222	8330	13176	8504
Pavement (Acre)	0.1014	0.2117	0.1912	0.3025	0.1952
Side Slope (Sq.ft.)	0	0	0	0	0
Side Slopes (Acre)	0.0000	0.0000	0.0000	0.0000	0.0000
Total Area	0.1014	0.2117	0.1912	0.3025	0.1952
Runoff Coefficient C					
Pavement	0.95	0.95	0.95	0.95	0.95
Roadside	0.70	0.70	0.70	0.70	0.70
Composite C	0.95	0.95	0.95	0.95	0.95
Flows					
Known (cfs)	0.00	0.00	0.00	0.00	0.00
Bypass (cfs)	0.20	0.00	0.11	0.00	0.00
CiA (cfs)	0.41	0.85	0.77	1.22	0.79
Total Q (cfs)	0.61	0.85	0.89	1.22	0.79
HYDRAULICS					
Roadway Slopes (ft/ft)					
Longitudinal (S)	0.017398	0.011002	0.011002	0.000000	0.009194
Cross Slope (Sxp)	0.0200	0.0200	0.0200	0.0200	0.0200
Gutter					
Standard and Type	D	E	E	D	D
Pan Width (ft)	2.00	2.50	2.50	2.00	2.00
Back Slope Width (ft)	0.21	2.00	2.00	0.21	0.21
Depression (ft)	0.14	0.05	0.05	0.14	0.14
Sx (ft/ft)	0.0677	0.0208	0.0208	0.0677	0.0677
Sb (ft/ft)	0.4167	0.1667	0.1667	0.4167	0.4167
Gutter n	0.013	0.013	0.013	0.013	0.013
Gutter Capacity (cfs)	0.40	0.08	0.08	-	0.29
T in Gutter (ft)	-	-	-	-	-
Curb/Barrier Height (ft)	0.50	0.33	0.33	0.50	0.50
Depth of flow (ft)	0.15	0.12	0.12	0.09	0.19
Area in Gutter Ag (sq.ft)	0.17	0.24	0.24	0.04	0.24
Hyd Radius Gutter Rg (ft)	0.09	0.10	0.10	0.02	0.12
Qg (cfs)	0.51	0.60	0.62	-	0.62
Qo (cfs)	0.09	0.10	0.10	-	0.11
T in Pavement (ft)	0.95	3.49	3.60	-	2.52
Pavement n	0.0160	0.0160	0.0160	0.0160	0.0160
Qp (cfs)	0.01	0.15	0.16	-	0.06
Q (cfs)	0.61	0.85	0.89	1.22	0.79
Spread (ft)	**2.95**	**5.99**	**6.10**	**2.00**	**4.52**
Shoulder Width (ft)	2.50	3.50	3.50	4.00	4.00
Depth of Flow (in)	**1.85**	**1.46**	**1.49**	**1.03**	**2.23**
Flow Velocity (ft/s)	**2.95**	**2.51**	**2.55**	**0.00**	**2.64**
Allowable Spread	10.50	9.50	9.50	8.00	8.00
INLET					
Type	CO	G	G	CO	CO
Standard	C-15.20	C-15.91	C-15.91	C-04.10	C-04.10
Location	Grade	Grade	Grade	Sag	Grade
Inlet Depression (in)	1.00	1.00	1.00	0.00	0.00
Slotted Drain/Curb Opening?	yes	no	yes	yes	yes
Capture Ratio	0.80	0.67	0.67	0.80	0.80
Length (ft)	**6.5**	**0.0**	**5.0**	**22.0**	**13.0**
Se (ft/ft)	0.1025	0.0000	0.0443	0.0677	0.0677
Effective Length (ft)	5	0	3	18	10
Lt (ft)	8	0	13	0	9
Efficiency	0.87	0.00	0.42	1.00	1.00
Sag Capacity (cfs)	7.16	0.00	3.47	17.24	11.38
Sag Depth (in)	1.16	0.00	1.61	1.03	1.01
SD Qi (cfs)	**0.53**	**0.00**	**0.37**	**1.22**	**0.79**
Bypass (cfs)	0.08	0.85	0.52	0.00	0.00
Spread at Grate (ft)	1.45	5.99	5.05	2.00	4.52
Grate					
Capture Ratio	0.50	0.50	0.50	0.50	0.50
Grate Length (in)	0.00	41.25	41.25	0.00	0.00
Grate Width (in)	0.00	36.00	36.00	0.00	0.00
# of Long Bars	0.00	14.00	14.00	0.00	0.00
Width of Long Bars (in)	0.00	0.50	0.50	0.00	0.00
Width of Side Bars (in)	0.00	0.00	0.00	0.00	0.00
# of Transverse Bars	0.00	2.00	2.00	0.00	0.00
Width of Trans. Bars (In)	0.00	0.50	0.50	0.00	0.00
Vo (ft/s)	0.00	8.20	8.20	0.00	0.00
Perimeter (ft)	0.00	9.44	9.44	0.00	0.00
Area (sq.ft)	0.00	8.06	8.06	0.00	0.00
Clogged Perimeter (ft)	0.00	4.72	4.72	0.00	0.00
Clogged Area (sq.ft.)	0.00	4.03	4.03	0.00	0.00
INLET HYDRAULICS					
G Hydraulics - Grade					
Eo	0.0000	0.8436	0.9100	0.0000	0.0000
Qs/Q	1.0000	0.1564	0.0900	1.0000	1.0000
Rf	0.7343	1.0000	1.0000	1.0000	0.7627
Rs	0.00	0.15	0.15	0.00	0.00
Efficiency	0.00	0.87	0.92	0.00	0.00
Qi (cfs)	0.00	0.74	0.48	0.00	0.00
G Hydraulics - Sag					
Weir Depth (in)	0.00	1.85	1.32	0.00	0.00
Orifice Depth (in)	0.00	0.02	0.01	0.00	0.00
Controlling Depth (in)	0.00	1.85	1.32	0.00	0.00
Depth at Grate (in)	0.00	1.85	1.32	0.00	0.00
Flows					
Intercepted (cfs)	**0.53**	**0.74**	**0.85**	**1.22**	**0.79**
Bypass (cfs)	**0.08**	**0.11**	**0.04**	**0.00**	**0.00**

Andes Engineering

Project 1606D
Roadway I-17 SB
Frequency 10-Year

I-17 Southbound

Designed	JOG	Date	Apr-2018
Reviewed	ML	Date	Apr-2018
Updated	JOG	Date	Apr-2018

I-17 / Pinnacle Peak Rd TI & Happy Valley Rd TI
Gutter & Inlet Hydraulic Computation Sheet
I-17 SB Mainline, SB Frontage Roads, PP Ramps A & C, HV Ramps A & C

	I-17 SB & PP Ramp A					PP-DV FRT RD					PP Ramp A			PP-DV FR	I-17 SB	I-17 SB				PP Ramp C & I-17 SB						I-17 SB		I-17 SB	HV Ramp A			
Inlet #	301	311	305	306	304	300	310	309	308	307	313	314	315	509	303	316	317	319	321	318	320	326	325	324	323	Spillway	Spillway	406	407	402	400	408
ID	A84279	A84498	C01647	C01697	C01747	B01179	B01400	B01607	B01657	B01707	C01840	C02150	B02500	B02710	A84926	A85701	A86068	A86400	A86750	D01400	D01700	D01950	D02000	A87213	A87513	A88756	A88981	A89347	E01461	E01828	E02050	E02300
Area #	84279	84498	1647	1697	1747	1179	1400	1607	1657	1707	1840	2150	2500	2710	84926	85701	86068	86400	86750	1400	1700	1950	2000	87213	87513	88756	88981	89347	1461	1828	2050	2300
Station	842+79	844+98	16+47	16+97	17+47	11+79	14+00	16+07	16+57	17+07	18+40	21+50	25+00	27+10	849+26	857+01	860+68	864+00	867+50	14+00	17+00	19+50	20+00	872+13	875+13	887+56	889+81	893+47	14+61	18+28	20+50	23+00
Offset from CL	108.50	119.19	13.50	13.50	13.50	14.00	14.00	14.00	14.00	14.00	11.50	13.50	25.50	20.39	96.50	96.50	96.50	96.50	96.50	21.10	9.10	5.50	5.50	134.55	112.01	111.00	112.82	96.50	11.02	11.50	11.50	11.50
Lt or Rt	Lt	Lt	Lt	Lt	Lt	Lt	Lt	Lt	Lt	Lt	Rt	Rt	Rt	Lt	Lt	Lt	Lt	Lt	Lt	Lt	Lt	Lt	Lt	Lt	Lt	Lt	Lt	Lt	Lt	Lt	Lt	Rt
Upstream Inlet	-	84279	84498	Sag	-	-	1179	1400	Sag	-	2150	2500	-	-	-	86068	86400	86750	-	-	1400	Sag	87213	87513	-	88981	-	-	1828	2050	-	2550
Direction of Flow	>>>>>	>>>>>	>>>>>	v	<<<<<	>>>>>	>>>>>	>>>>>	v	<<<<<	<<<<<	<<<<<	<<<<<	<<<<<	>>>>>	<<<<<	<<<<<	<<<<<	<<<<<	>>>>>	>>>>>	v	<<<<<	<<<<<	<<<<<	<<<<<	<<<<<	<<<<<	<<<<<	<<<<<	<<<<<	<<<<<
HYDROLOGY																																
Flows																																
Known (cfs)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Bypass (cfs)	0.00	0.18	0.42	0.45	0.00	0.00	0.28	0.05	0.03	0.00	0.28	0.17	0.00	0.00	0.00	0.27	0.32	0.34	0.00	0.00	0.45	0.53	0.28	0.24	0.00	0.74	0.00	0.00	0.01	0.03	0.00	0.08
CIA (cfs)	1.82	2.33	2.51	0.29	0.27	0.70	0.57	0.54	0.26	0.69	1.45	1.24	0.87	0.73	2.36	3.43	3.07	3.28	3.69	2.24	1.02	0.76	1.45	3.49	3.55	2.38	3.75	0.49	1.05	0.64	0.82	1.00
Total Q (cfs)	1.82	2.52	2.93	0.74	0.27	0.70	0.85	0.59	0.29	0.69	1.73	1.41	0.87	0.73	2.36	3.71	3.38	3.61	3.69	2.24	1.47	1.30	1.73	3.73	3.55	3.12	3.75	0.49	1.06	0.67	0.82	1.08
HYDRAULICS																																
Roadway Slopes (ft/ft)																																
Longitudinal (S)	0.004000	0.004000	0.004000	0.000000	0.005392	0.006000	0.006000	0.006000	0.000000	0.004639	0.014890	0.021529	0.033771	0.012184	0.001408	0.006378	0.007405	0.006618	0.006552	0.029760	0.021316	0.000000	0.004016	0.004016	0.004016	0.004029	0.004029	0.005665	0.004004	0.004004	0.004004	0.004004
Cross Slope (Sxp)	0.0230	0.0230	0.0400	0.0400	0.0400	0.0200	0.0200	0.0200	0.0200	0.0200	0.0100	0.0149	0.0200	0.0200	0.0200	0.0200	0.0200	0.0200	0.0200	0.0200	0.0200	0.0200	0.0200	0.0200	0.0200	0.0200	0.0200	0.0200	0.0320	0.0590	0.0500	0.0200
Gutter																																
Standard and Type	F4	F4	F4	F4	F4	D	D	D	D	D	F4	F4	F4	D	E	E	E	E	E	F4	F4	E	E	E	E	E	E	E	E	E	E	E
Pan Width (ft)	4.50	4.50	4.50	4.50	4.50	2.00	2.00	2.00	2.00	2.00	4.50	4.50	4.50	2.00	2.50	2.50	2.50	2.50	2.50	4.50	4.50	2.50	2.50	2.50	2.50	2.50	2.50	2.50	2.50	2.50	2.50	2.50
Back Slope Width (ft)	-	-	-	-	-	0.21	0.21	0.21	0.21	0.21	-	-	-	0.21	2.00	2.00	2.00	2.00	2.00	-	-	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Depression (ft)	0.25	0.25	0.25	0.25	0.25	0.14	0.14	0.14	0.14	0.14	0.25	0.25	0.25	0.14	0.05	0.05	0.05	0.05	0.05	0.25	0.25	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Sx (ft/ft)	0.0556	0.0556	0.0556	0.0556	0.0556	0.0677	0.0677	0.0677	0.0677	0.0677	0.0556	0.0556	0.0556	0.0677	0.0208	0.0208	0.0208	0.0208	0.0208	0.0556	0.0556	0.0208	0.0208	0.0208	0.0208	0.0208	0.0208	0.0208	0.0208	0.0208	0.0208	0.0208
Sb (ft/ft)	-	-	-	-	-	0.4167	0.4167	0.4167	0.4167	0.4167	-	-	-	0.4167	0.1667	0.1667	0.1667	0.1667	0.1667	-	-	0.1667	0.1667	0.1667	0.1667	0.1667	0.1667	0.1667	0.1667	0.1667	0.1667	0.1667	0.1667
Gutter n	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013
Gutter Capacity (cfs)	1.21	1.21	1.21	-	1.41	0.24	0.24	0.24	-	0.21	2.34	2.81	3.52	0.34	0.03	0.06	0.07	0.06	0.06	3.30	2.79	-	0.05	0.05	0.05	0.05	0.05	0.06	0.05	0.05	0.05	0.05
T in Gutter (ft)	-	-	-	-	2.43	-	-	-	-	-	4.03	3.48	2.67	-	-	-	-	-	-	3.90	3.54	-	-	-	-	-	-	-	-	-	-	-
Curb/Barrier Height (ft)	3.00	3.00	3.00	3.00	3.00	0.50	0.50	0.50	0.50	0.50	3.00	3.00	3.00	0.50	0.33	0.33	0.33	0.33	0.33	3.00	3.00	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.33
Depth of flow (ft)	0.30	0.33	0.35	0.17	0.18	0.19	0.20	0.18	0.08	0.20	0.24	0.22	0.19	0.17	0.27	0.24	0.22	0.23	0.24	0.23	0.22	0.20	0.19	0.26	0.26	0.24	0.26	0.11	0.17	0.14	0.16	0.16
Area in Gutter Ag (sq.ft)	0.79	0.94	1.03	0.18	0.23	0.25	0.27	0.23	0.02	0.26	0.52	0.41	0.27	0.21	0.60	0.53	0.49	0.52	0.52	0.49	0.42	0.44	0.42	0.58	0.57	0.54	0.59	0.22	0.36	0.30	0.32	0.34
Hyd Radius Gutter Rg (ft)	0.18	0.21	0.23	0.04	0.05	0.12	0.14	0.11	0.01	0.13	0.12	0.09	0.06	0.11	0.24	0.21	0.20	0.21	0.21	0.11	0.09	0.18	0.17	0.23	0.23	0.22	0.23	0.09	0.14	0.12	0.13	0.14
Qg (cfs)	1.79	2.39	2.80	-	0.27	0.54	0.63	0.47	-	0.52	1.73	1.41	0.87	0.59	1.00	1.71	1.64	1.69	1.71	2.24	1.47	-	0.92	1.61	1.55	1.42	1.62	0.36	0.70	0.51	0.60	0.65
Qo (cfs)	-	-	-	-	-	0.10	0.11	0.08	-	0.09	-	-	-	0.11	0.28	0.44	0.40	0.43	0.44	-	-	-	0.20	0.45	0.43	0.37	0.45	0.06	0.14	0.09	0.11	0.13
T in Pavement (ft)	2.19	3.64	2.61	-	-	2.79	3.39	2.29	-	3.14	-	-	-	1.89	10.73	9.27	8.53	9.06	9.18	-	-	7.56	7.08	10.40	10.15	9.53	10.41	3.00	3.63	1.56	2.07	5.49
Pavement n	0.0160	0.0160	0.0160	0.0160	0.0160	0.0160	0.0160	0.0160	0.0160	0.0160	0.0160	0.0160	0.0160	0.0160	0.0160	0.0160	0.0160	0.0160	0.0160	0.0160	0.0160	0.0160	0.0160	0.0160	0.0160	0.0160	0.0160	0.0160	0.0160	0.0160	0.0160	0.0160
Qp (cfs)	0.03	0.13	0.13	-	-	0.06	0.10	0.04	-	0.07	-	-	-	0.03	1.08	1.55	1.34	1.49	1.54	-	-	-	0.60	1.67	1.57	1.33	1.68	0.07	0.22	0.06	0.10	0.30
Q (cfs)	1.82	2.52	2.93	0.74	0.27	0.70	0.85	0.59	0.29	0.69	1.73	1.41	0.87	0.73	2.36	3.71	3.38	3.61	3.69	2.24	1.47	1.30	1.73	3.73	3.55	3.12	3.75	0.49	1.06	0.67	0.82	1.08
Spread (ft)	6.69	8.14	7.11	4.50	4.50	4.79	5.39	4.29	2.00	5.14	4.50	4.50	4.50	3.89	13.23	11.77	11.03	11.56	11.68	4.50	4.50	10.06	9.58	12.90	12.65	12.03	12.91	5.50	6.13	4.06	4.57	7.99
Shoulder Width (ft)	6.00	3.80	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	4.00	4.00	4.00	4.00	12.00	12.00	12.00	12.00	12.00	4.00	4.00	8.00	8.00	8.00	12.00	12.00	5.00	12.00	2.50	2.50	2.50	2.50
Depth of Flow (in)	3.60	4.01	4.25	1.99	2.12	2.29	2.44	2.17	0.00	2.38	2.89	2.60	2.22	2.08	3.20	2.85	2.67	2.80	2.83	2.82	2.63	2.44	2.33	3.12	3.06	2.91	3.12	1.35	2.02	1.73	1.87	1.94
Flow Velocity (ft/s)	2.26	2.54	2.71	0.00	1.16	2.20	2.34	2.07	0.00	2.00	3.32	3.41	3.22	2.82	1.66	3.24	3.33	3.26	3.27	4.53	3.46	0.00	2.20	2.75	2.71	2.62	2.76	1.68	1.97	1.74	1.85	1.91
Allowable Spread	12.00	9.80	16.00	16.00	16.00	8.00	8.00	8.00	8.00	8.00	10.00	10.00	10.00	10.00	18.00	18.00	18.00	18.00	18.00	16.00	16.00	14.00	14.00	14.00	18.00	18.00	18.00	18.00	14.50	14.50	8.50	8.50
INLET																																
Type	G	G	G	G	G	CO	G	G	G	G	G	G	G	CO	G	G	G	G	G	G	G	G	G	G	G	CO	CO	G	G	G	G	G
Standard	C-15.92	C-15.92	C-15.92	C-15.92	C-15.92	C-15.20	C-15.40	C-15.40	C-15.40	C-15.40	C-15.92	C-15.92	C-15.92	C-15.20	C-15.91	C-15.91	C-15.91	C-15.91	C-15.91	C-15.92	C-15.92	C-15.91	C-15.91	C-15.91	C-15.91	D1	D1	C-15.91	C-15.91	C-15.91	C-15.91	C-15.91
Location	Grade	Grade	Grade	Sag	Grade	Grade	Grade	Grade	Sag	Grade	Grade	Grade	Grade	Grade	Grade	Grade	Grade	Grade	Grade	Grade	Grade	Sag	Grade	Grade	Grade	Grade	Grade	Grade	Grade	Grade	Grade	Grade
Inlet Depression (in)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Slotted Drain/Curb Opening?	yes	yes	yes	no	no	yes	yes	yes	yes	yes	yes	no	no	yes	yes	yes	yes	yes	yes	no	no	no	yes	yes	yes	yes	yes	no	yes	no	no	yes
Capture Ratio	0.67	0.67	0.67	0.67	0.67	0.80	0.80	0.80	0.80	0.80	0.67	0.67	0.67	0.80	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	1.00	1.00	0.67	0.67	0.67	0.67	0.67
Length (ft)	5.0	5.0	5.0	0.0	0.0	3.0	3.0	3.0	3.0	3.0	10.0	0.0	0.0	6.5	5.0	15.0	15.0	15.0	15.0	0.0	0.0	0.0	5.0	15.0	15.0	12.0	12.0	0.0	5.0	0.0	0.0	5.0
Se (ft/ft)	0.0738	0.0731	0.0733	0.0000	0.0000	0.0998	0.0986	0.1008	0.0677	0.0993	0.0741	0.0000	0.0000	0.1017	0.0350	0.0362	0.0370	0.0364	0.0363	0.0000	0.0000	0.0000	0.0387	0.0352	0.0354	0.0360	0.0352	0.0000	0.0427	0.0000	0.0000	0.0409
Effective Length (ft)	3	3	3	0	0	2	2	2	2	2	7	0	0	5	3	10	10	10	10	0	0	0	3	10	10	12	12	0	3	0	0	3
Lt (ft)	10	11	12	0	0	6	7	6	0	6	14	0	0	7	12	23	23	23	23	0	0	0	14	20	20	18	20	0	11	0	0	11
Efficiency	0.54	0.48	0.46	0.00	0.00	0.60	0.56	0.64	1.00	0.64	0.70	0.00	0.00	0.88	0.44	0.65	0.66	0.65	0.65	0.00	0.00	0.00	0.40	0.71	0.73	0.85	0.80	0.00	0.50	0.00	0.00	0.48
Sag Capacity (cfs)	136.84	136.84	136.84	0.00	0.00	4.88	4.88	4.88	4.88	4.88	176.88	0.00	0.00	7.16	3.47	6.44	6.44	6.44	6.44	0.00	0.00	0.00	3.47	6.44	6.44	7.30	7.30	0.00	3.47	0.00	0.00	3.47
Sag Depth (in)	2.02	2.51	2.77	0.00	0.00	1.65	1.88	1.47	0.92	1.63	1.65	0.00	0.00	1.31	3.09	2.77	2.60	2.72	2.76	0.00	0.00	0.00	2.51	2.78	2.69	2.27	2.56	0.00	1.82	0.00	0.00	1.83
SD Qi (cfs)	0.98	1.21	1.33	0.00	0.00	0.42	0.48	0.38	0.29	0.44	1.21	0.00	0.00	0.64	1.04	2.42	2.22	2.36	2.40	0.00	0.00	0.00	0.68	2.66	2.57	2.65	3.01	0.00	0.53	0.00	0.00	0.52
Bypass (cfs)	0.83	1.31	1.59	0.74	0.27	0.28	0.38	0.21	0.00	0.25	0.52	1.41	0.87	0.09	1.32	1.29	1.17	1.25	1.29	2.24	1.47	1.30	1.04	1.07	0.97	0.47	0.74	0.49	0.54	0.67	0.82	0.56
Spread at Grate (ft)	5.09	6.47	5.75	4.50	4.50	3.48	4.05	3.00	2.00	3.60	2.96	4.50	4.50	1.84	10.80	8.13	7.60	7.98	8.09	4.50	4.50	10.06	8.04	8.33	8.04	6.19	7.30	5.50	4.82	4.06	4.57	6.34
Grate																																
Capture Ratio	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
Grate Length (in)	40.38	40.38	40.38	40.38	40.38	0.00	40.38	40.38	40.38	40.38	40.38	40.38	40.38	0.00	41.25	41.25	41.25	41.25	41.25	40.38	40.38	41.25	41.25	41.25	41.25	0.00	0.00	41.25	41.25	41.25	41.25	41.25
Grate Width (in)	23.63	23.63	23.63	23.63	23.63	0.00	23.63	23.63	23.63	23.63	23.63	23.63	23.63	0.00	36.00	36.00	36.00	36.00	36.00	23.63	23.63	36.00	36.00	36.00	36.00	0.00	0.00	36.00	36.00	36.00	36.00	36.00
# of Long Bars	10.00	10.00	10.00	10.00	10.00	0.00	13.00	13.00	13.00	13.00	10.00	10.00	10.00	0.00	14.00	14.00	14.00	14.00	14.00	10.00	10.00	14.00	14.00	14.00	14.00	0.00	0.00	14.00	14.00	14.00	14.00	14.00
Width of Long Bars (in)	0.50	0.50	0.50	0.50	0.50	0.00	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.00	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.00	0.00	0.50	0.50	0.50	0.50	0.50
Width of Side Bars (in)	0.00	0.00	0.00	0.00	0.00	0.00	0.38	0.38	0.38	0.38	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
# of Transverse Bars	2.00	2.00	2.00	2.00	2.00	0.00	9.00	9.00	9.00	9.00	2.00	2.00	2.00	0.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	0.00	0.00	2.00	2.00	2.00	2.00	2.00
Width of Trans. Bars (In)	0.50	0.50	0.50	0.50	0.50	0.00	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.00	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.00	0.00	0.50	0.50	0.50	0.50	0.50
Vo (ft/s)	8.20	8.20	8.20	8.20	8.20	0.00	6.60	6.60	6.60	6.60	8.20	8.20	8.20	0.00	8.20	8.20	8.20	8.20	8.20	8.20	8.20	8.20	8.20	8.20	8.20	0.00	0.00	8.20	8.20	8.20	8.20	8.20
Perimeter (ft)	7.30	7.30	7.30	7.30	7.30	0.00	7.30	7.30	7.30	7.30	7.30	7.30	7.30	0.00	9.44	9.44	9.44	9.44	9.44	7.30	7.30	9.44	9.44	9.44	9.44	0.00	0.00	9.44	9.44	9.44	9.44	9.44
Area (sq.ft)	5.06	5.06	5.06	5.06	5.06	0.00	3.85	3.85	3.85	3.85	5.06	5.06	5.06	0.00	8.06	8.06	8.06	8.06	8.06	5.06	5.06	8.06	8.06	8.06	8.06	0.00	0.00	8.06	8.06	8.06	8.06	8.06
Clogged Perimeter (ft)	3.65	3.65	3.65	3.65	3.65	0.00	3.65	3.65	3.65	3.65	3.65	3.65	3.65	0.00	4.72	4.72	4.72	4.72	4.72	3.65	3.65	4.72	4.72	4.72	4.72	0.00	0.00	4.72	4.72	4.72	4.72	4.72
Clogged Area (sq.ft.)	2.53	2.53	2.53	2.53	2.53	0.00	1.93	1.93	1.93	1.93	2.53	2.53	2.53	0.00	4.03	4.03	4.03	4.03	4.03	2.53	2.53	4.03	4.03	4.03	4.03	0.00	0.00	4.03	4.03	4.03	4.03	4.03
INLET HYDRAULICS																																
G Hydraulics - Grade																																
Eo	0.7291	0.6201	0.6737	0.7848	0.7848	0.0000	0.8308	0.9419	1.0000	0.8796	0.9460	0.7848	0.7848	0.0000	0.5807	0.7075	0.7383	0.7162	0.7096	0.7848	0.7848	0.6114	0.7127	0.6966	0.7124	0.0000	0.0000	0.8778	0.9260	0.9724	0.9420	0.8195
Qs/Q	0.2709	0.3799	0.3263	0.2152	0.2152	1.0000	0.1692	0.0581	0.0000	0.1204	0.0540	0.2152	0.2152	1.0000	0.4193	0.2925	0.2617	0.2838	0.2904	0.2152	0.2152	0.3886	0.2873	0.3034	0.2876	1.0000	1.0000	0.1222	0.0740	0.0276	0.0580	0.1805
Rf	1.0000	1.0000	1.0000	1.0000	1.0000	0.8024	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.7465	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.7645	0.7518	1.0000	1.0000	1.0000	1.0000	1.0000
Rs	0.18	0.16	0.21	0.50	0.38	0.00	0.16	0.18	0.50	0.19	0.06	0.08	0.10	0.00	0.24	0.11	0.10	0.11	0.11	0.06	0.09	0.50	0.18	0.13	0.14	0.00	0.00	0.24	0.26	0.36	0.33	0.21
Efficiency	0.78	0.68	0.74	0.89	0.87	0.00	0.86	0.95	1.00	0.90	0.95	0.80	0.81	0.00	0.68	0.74	0.77	0.75	0.74	0.80	0.81	0.81	0.76	0.74	0.75	0.00	0.00	0.91	0.95	0.98	0.96	0.86
Qi (cfs)	0.65	0.89	1.18	0.66	0.24	0.00	0.32	0.20	0.00	0.22	0.50	1.13	0.70	0.00	0.90	0.95	0.89	0.93	0.96	1.79	1.18	1.05	0.80	0.79	0.73	0.00	0.00	0.45	0.51	0.66	0.79	0.48
G Hydraulics - Sag																																
Weir Depth (in)	2.15	2.91	3.32	1.99	1.02	0.00	1.27	0.87	0.00	0.96	1.58	3.06	2.22	0.00	2.47	2.43	2.27	2.38	2.43	4.16	3.14	2.44	2.11	2.14	2.01	0.00	0.00	1.28	1.35	1.57	1.79	1.39
Orifice Depth (in)	0.04	0.11	0.16	0.04	0.00	0.00	0.02	0.01	0.00	0.01	0.02	0.13	0.05	0.00	0.04	0.04	0.03	0.04	0.04	0.32	0.14	0.04	0.03	0.03	0.02	0.00	0.00	0.01	0.01	0.01	0.02	0.01
Controlling Depth (in)	2.15	2.91	3.32	1.99	1.02	0.00	1.27	0.87	0.00	0.96	1.58	3.06	2.22	0.00	2.47	2.43	2.27	2.38	2.43	4.16	3.14	2.44	2.11	2.14	2.01	0.00	0.00	1.28	1.35	1.57	1.79	1.39
Depth at Grate (in)	2.15	2.91	3.32	1.99	1.02	0.00	1.27	0.87	0.00	0.96	1.58	3.06	2.22	0.00	2.47	2.43	2.27	2.38	2.43	4.16	3.14	2.44	2.11	2.14	2.01	0.00	0.00	1.28	1.35	1.57	1.79	1.39
Flows																																
Intercepted (cfs)	1.63	2.10	2.52	0.74	0.24	0.42	0.80	0.58	0.29	0.67	1.70	1.13	0.70	0.64	1.94	3.37	3.11	3.30	3.36	1.79	1.18	1.30	1.48	3.45	3.31	2.65	3.01

Andes Engineering

Project 1606D
Roadway I-17 SB
Frequency 10-Year

I-17 Southbound

Designed	**JOG**	**Date**	Apr-2018
Reviewed	**ML**	**Date**	Apr-2018
Updated	**JOG**	**Date**	Apr-2018

I-17 / Pinnacle Peak Rd TI & Happy Valley Rd TI
Gutter & Inlet Hydraulic Computation Sheet
I-17 SB Mainline, SB Frontage Roads, PP Ramps A & C, HV Ramps A & C

	HV Ramps A & A2				HV Ramp A	HV Ramp C2		JM-HV FRT RD								HV Ramp C & I-17 SB		
Inlet #	**409**	**411**	**608**	**612**	**410**	**614**	**615**	**416**	**417**	**418**	**419**	**420**	**422**	**424**	**425**	**421**	**423**	**426**
ID	E02550	E02800	F23100	F23400	E02831	H20327	H20394	I00599	I00850	I01014	I01064	I01114	I01425	I01475	I01525	G01362	A92169	A92350
Area #	**2550**	**2800**	**23100**	**23400**	**2831**	**20327**	**20394**	**599**	**850**	**1014**	**1064**	**1114**	**1425**	**1475**	**1525**	**1362**	**92169**	**92350**
Station	25+50	28+00	231+00	234+00	28+31	203+27	203+94	5+99	8+50	10+14	10+64	11+14	14+25	14+75	15+25	13+62	921+69	923+50
Offset from CL	11.50	21.86	14.00	14.00	2.71	32.88	30.65	14.00	14.00	14.00	14.00	14.00	14.00	14.00	14.00	5.50	120.89	109.10
Lt or Rt	Rt	Rt	Rt	Rt	Rt	Rt	Rt	Lt	Lt	Lt	Lt	Lt	Lt	Lt	Lt	Lt	Lt	Lt
Upstream Inlet	2800	23100	23400	-	-	-	20327	-	599	850	Sag	-	-	Sag	-	92169	92350	-
Direction of Flow	<<<<<	<<<<<	<<<<<	<<<<<	<<<<<	>>>>>	>>>>>	>>>>>	>>>>>	>>>>>	v	<<<<<	>>>>>	v	<<<<<	<<<<<	<<<<<	<<<<<
HYDROLOGY																		
Flows																		
Known (cfs)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Bypass (cfs)	0.21	0.27	0.21	0.00	0.00	0.00	0.42	0.00	0.42	0.20	0.64	0.00	0.00	0.13	0.00	0.43	0.29	0.00
CIA (cfs)	1.29	0.68	1.24	2.07	1.93	2.09	0.25	1.22	1.10	0.69	0.47	0.68	0.31	0.26	0.40	1.28	1.99	3.49
Total Q (cfs)	1.50	0.95	1.45	2.07	1.93	2.09	0.66	1.22	1.52	0.89	1.10	0.68	0.31	0.39	0.40	1.71	2.28	3.49
HYDRAULICS																		
Roadway Slopes (ft/ft)																		
Longitudinal (S)	0.005689	0.016313	0.035972	0.035972	0.012295	0.022215	0.007637	0.026000	0.023367	0.006092	0.000000	0.004441	0.003964	0.000000	0.003895	0.006863	0.006863	0.006863
Cross Slope (Sxp)	0.0590	0.0400	0.0290	0.0290	0.0340	0.0200	0.0200	0.0200	0.0320	0.0320	0.0320	0.0320	0.0320	0.0320	0.0320	0.0320	0.0200	0.0200
Gutter																		
Standard and Type	E	D	D	D	D	F4	F4	D	D	D	D	D	D	D	D	E	E	E
Pan Width (ft)	2.50	2.00	2.00	2.00	2.00	4.50	4.50	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.50	2.50	2.50
Back Slope Width (ft)	2.00	0.21	0.21	0.21	0.21	-	-	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	2.00	2.00	2.00
Depression (ft)	0.05	0.14	0.14	0.14	0.14	0.25	0.25	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.05	0.05	0.05
Sx (ft/ft)	0.0208	0.0677	0.0677	0.0677	0.0677	0.0556	0.0556	0.0677	0.0677	0.0677	0.0677	0.0677	0.0677	0.0677	0.0677	0.0208	0.0208	0.0208
Sb (ft/ft)	0.1667	0.4167	0.4167	0.4167	0.4167	-	-	0.4167	0.4167	0.4167	0.4167	0.4167	0.4167	0.4167	0.4167	0.1667	0.1667	0.1667
Gutter n	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013
Gutter Capacity (cfs)	0.06	0.39	0.58	0.58	0.34	2.85	1.67	0.49	0.47	0.24	-	0.20	0.19	-	0.19	0.06	0.06	0.06
T in Gutter (ft)	-	-	-	-	-	4.01	3.19	-	-	-	-	-	-	-	-	-	-	-
Curb/Barrier Height (ft)	0.33	0.50	0.50	0.50	0.50	3.00	3.00	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.33	0.33	0.33
Depth of flow (ft)	0.19	0.18	0.18	0.21	0.24	0.24	0.20	0.18	0.20	0.21	0.19	0.20	0.16	0.09	0.17	0.18	0.19	0.23
Area in Gutter Ag (sq.ft)	0.41	0.23	0.23	0.28	0.35	0.52	0.36	0.23	0.26	0.28	0.24	0.27	0.18	0.05	0.21	0.39	0.42	0.51
Hyd Radius Gutter Rg (ft)	0.16	0.11	0.11	0.14	0.17	0.12	0.08	0.11	0.13	0.14	0.12	0.13	0.09	0.03	0.10	0.16	0.17	0.20
Qg (cfs)	1.05	0.78	1.18	1.59	1.38	2.09	0.66	0.97	1.20	0.69	-	0.53	0.26	-	0.33	1.08	1.21	1.66
Qo (cfs)	0.23	0.14	0.21	0.29	0.26	-	-	0.17	0.21	0.12	-	0.10	0.05	-	0.06	0.23	0.27	0.42
T in Pavement (ft)	2.32	1.15	1.62	2.42	3.14	-	-	2.27	2.01	2.31	1.58	2.01	0.70	-	1.15	4.09	7.12	8.83
Pavement n	0.0160	0.0160	0.0160	0.0160	0.0160	0.0160	0.0160	0.0160	0.0160	0.0160	0.0160	0.0160	0.0160	0.0160	0.0160	0.0160	0.0160	0.0160
Qp (cfs)	0.22	0.03	0.07	0.19	0.29	-	-	0.07	0.11	0.08	-	0.05	0.00	-	0.01	0.40	0.80	1.42
Q (cfs)	1.50	0.95	1.45	2.07	1.93	2.09	0.66	1.22	1.52	0.89	1.10	0.68	0.31	0.39	0.40	1.71	2.28	3.49
Spread (ft)	**4.82**	**3.15**	**3.62**	**4.42**	**5.14**	**4.50**	**4.50**	**4.27**	**4.01**	**4.31**	**3.58**	**4.07**	**2.70**	**2.00**	**3.15**	**6.59**	**9.62**	**11.33**
Shoulder Width (ft)	2.50	2.50	2.50	2.50	2.50	4.50	4.50	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	8.00	11.00	12.00
Depth of Flow (in)	**2.27**	**2.18**	**2.19**	**2.47**	**2.91**	**2.88**	**2.45**	**2.17**	**2.40**	**2.51**	**2.23**	**2.42**	**1.89**	**1.12**	**2.07**	**2.20**	**2.33**	**2.75**
Flow Velocity (ft/s)	**2.57**	**3.43**	**5.12**	**5.78**	**3.96**	**4.03**	**1.85**	**4.31**	**4.53**	**2.42**	**0.00**	**1.99**	**1.45**	**0.00**	**1.58**	**2.76**	**2.89**	**3.27**
Allowable Spread	8.50	8.50	8.50	8.50	8.50	10.50	10.50	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00	14.00	17.00	18.00
INLET																		
Type	G	CO	CO	CO	G	G	G	CO	CO	CO	CO	CO	CO	CO	CO	G	G	G
Standard	C-15.91	C-15.20	C-15.20	C-15.20	C-15.40	C-15.92	C-15.92	C-15.20	C-15.20	C-15.20	C-15.20	C-15.20	C-15.20	C-15.20	C-15.20	C-15.91	C-15.91	C-15.91
Location	Grade	Grade	Grade	Grade	Grade	Grade	Grade	Grade	Grade	Grade	Sag	Grade	Grade	Sag	Grade	Grade	Grade	Grade
Inlet Depression (in)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Slotted Drain/Curb Opening?	no	yes	yes	yes	yes	no	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
Capture Ratio	0.67	0.80	0.80	0.80	0.80	0.67	0.67	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.67	0.67	0.67
Length (ft)	**0.0**	**6.5**	**10.5**	**14.5**	**3.0**	**0.0**	**5.0**	**6.5**	**10.5**	**3.0**	**3.0**	**3.0**	**3.0**	**3.0**	**3.0**	**10.0**	**5.0**	**15.0**
Se (ft/ft)	0.0000	0.1018	0.1015	0.0998	0.0975	0.0000	0.0740	0.1009	0.1004	0.0998	0.0677	0.1003	0.1023	0.0677	0.1019	0.0419	0.0386	0.0366
Effective Length (ft)	0	5	8	12	2	0	3	5	8	2	2	2	2	2	2	7	3	10
Lt (ft)	0	9	14	16	12	0	8	12	12	7	0	5	4	0	4	15	18	22
Efficiency	0.00	0.78	0.81	0.90	0.34	0.00	0.65	0.65	0.87	0.55	1.00	0.65	0.84	1.00	0.79	0.64	0.31	0.66
Sag Capacity (cfs)	0.00	7.16	9.76	12.36	4.88	0.00	136.84	7.16	9.76	4.88	4.88	4.88	4.88	4.88	4.88	4.96	3.47	6.44
Sag Depth (in)	0.00	1.57	1.68	1.82	3.23	0.00	1.03	1.85	1.74	1.93	2.23	1.62	0.96	1.12	1.14	1.97	3.02	2.66
SD Qi (cfs)	**0.00**	**0.75**	**1.18**	**1.85**	**0.66**	**0.00**	**0.43**	**0.80**	**1.32**	**0.49**	**1.10**	**0.44**	**0.26**	**0.39**	**0.32**	**1.10**	**0.70**	**2.30**
Bypass (cfs)	1.50	0.21	0.27	0.21	1.27	2.09	0.23	0.42	0.20	0.40	0.00	0.24	0.05	0.00	0.08	0.61	1.58	1.20
Spread at Grate (ft)	4.82	1.85	2.01	2.00	4.44	4.50	3.11	2.95	1.98	3.25	3.58	2.81	1.41	2.00	1.82	4.59	8.46	7.79
Grate																		
Capture Ratio	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
Grate Length (in)	41.25	0.00	0.00	0.00	40.38	40.38	40.38	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	41.25	41.25	41.25
Grate Width (in)	36.00	0.00	0.00	0.00	23.63	23.63	23.63	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	36.00	36.00	36.00
# of Long Bars	14.00	0.00	0.00	0.00	13.00	10.00	10.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	14.00	14.00	14.00
Width of Long Bars (in)	0.50	0.00	0.00	0.00	0.50	0.50	0.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.50	0.50	0.50
Width of Side Bars (in)	0.00	0.00	0.00	0.00	0.38	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
# of Transverse Bars	2.00	0.00	0.00	0.00	9.00	2.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.00	2.00	2.00
Width of Trans. Bars (In)	0.50	0.00	0.00	0.00	0.50	0.50	0.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.50	0.50	0.50
Vo (ft/s)	8.20	0.00	0.00	0.00	6.60	8.20	8.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	8.20	8.20	8.20
Perimeter (ft)	9.44	0.00	0.00	0.00	7.30	7.30	7.30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	9.44	9.44	9.44
Area (sq.ft)	8.06	0.00	0.00	0.00	3.85	5.06	5.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	8.06	8.06	8.06
Clogged Perimeter (ft)	4.72	0.00	0.00	0.00	3.65	3.65	3.65	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.72	4.72	4.72
Clogged Area (sq.ft.)	4.03	0.00	0.00	0.00	1.93	2.53	2.53	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.03	4.03	4.03
INLET HYDRAULICS																		
G Hydraulics - Grade																		
Eo	0.9255	0.0000	0.0000	0.0000	0.7910	0.7848	0.9310	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.9409	0.6895	0.7269
Qs/Q	0.0745	1.0000	1.0000	1.0000	0.2090	0.2152	0.0690	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.0591	0.3105	0.2731
Rf	1.0000	0.6913	0.5392	0.4795	1.0000	1.0000	1.0000	0.6122	0.5923	0.7820	1.0000	0.8206	0.8698	1.0000	0.8575	1.0000	1.0000	1.0000
Rs	0.28	0.00	0.00	0.00	0.12	0.08	0.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.19	0.13	0.11
Efficiency	0.95	0.00	0.00	0.00	0.82	0.80	0.95	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.95	0.73	0.76
Qi (cfs)	1.42	0.00	0.00	0.00	1.04	1.68	0.22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.58	1.15	0.91
G Hydraulics - Sag																		
Weir Depth (in)	2.68	0.00	0.00	0.00	2.85	3.98	0.92	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.47	2.78	2.31
Orifice Depth (in)	0.06	0.00	0.00	0.00	0.18	0.28	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.06	0.04
Controlling Depth (in)	2.68	0.00	0.00	0.00	2.85	3.98	0.92	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.47	2.78	2.31
Depth at Grate (in)	2.68	0.00	0.00	0.00	2.85	3.98	0.92	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.47	2.78	2.31
Flows																		
Intercepted (cfs)	**1.42**	**0.75**	**1.18**	**1.85**	**1.70**	**1.68**	**0.65**	**0.80**	**1.32**	**0.49**	**1.10**	**0.44**	**0.26**	**0.39**	**0.32**	**1.68**	**1.85**	**3.20**
Bypass (cfs)	**0.08**	**0.21**	**0.27**	**0.21**	**0.23**	**0.42**	**0.01**	**0.42**	**0.20**	**0.40**	**0.00**	**0.24**	**0.05**	**0.00**	**0.08**	**0.03**	**0.43**	**0.29**

Andes Engineering

Project 1606D
Roadway Pinnacle Peak Rd
Frequency 10-Year

Pinnacle Peak Rd

Designed	JOG	Date	Apr-2018
Reviewed	ML	Date	Apr-2018
Updated	JOG	Date	Apr-2018

I-17 / Pinnacle Peak Rd TI & Happy Valley Rd TI
Gutter & Inlet Hydraulic Computation Sheet
Pinnacle Peak Road

	PP EB								PP WB								
Inlet #	**504**	**502**	**500**	**508**	**511**	**513**	**515**	**517**	**506**	**505**	**503**	**501**	**507**	**510**	**512**	**514**	**516**
ID	A21177	A21430	A21727	A22025	A22412	A22850	A23190	A23387	B21080	B21176	B21430	B21727	B22042	B22414	B22736	B23190	B23387
Area #	**21177**	**21430**	**21727**	**22025**	**22412**	**22850**	**23190**	**23387**	**21080**	**21176**	**21430**	**21727**	**22042**	**22414**	**22736**	**23190**	**23387**
Station	211+77	214+30	217+27	220+25	224+12	228+50	231+90	233+87	210+80	211+76	214+30	217+27	220+42	224+14	227+36	231+90	233+87
Offset from CL	4.09	41.44	62.87	55.00	55.00	46.19	37.67	56.00	35.00	35.34	41.68	49.11	56.00	55.00	62.50	37.13	35.00
Lt or Rt	Rt	Rt	Rt	Rt	Rt	Rt	Rt	Rt	Lt	Lt	Lt	Lt	Lt	Lt	Lt	Lt	Lt
Upstream Inlet	-	21727	-	-	-	-	22850	Sag	Sag	21430	21727	-	-	-	-	22736	Sag
Direction of Flow	<<<<<	<<<<<	<<<<<	<<<<<	>>>>>	>>>>>	>>>>>	v	v	<<<<<	<<<<<	<<<<<	<<<<<	>>>>>	>>>>>	>>>>>	v
HYDROLOGY																	
Flows																	
Known (cfs)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Bypass (cfs)	0.00	0.22	0.00	0.00	0.00	0.00	0.36	0.35	0.09	0.36	0.44	0.00	0.00	0.00	0.00	0.24	0.26
CIA (cfs)	0.68	1.02	1.42	1.12	1.02	1.76	1.65	1.56	2.11	1.07	1.54	1.21	1.05	1.01	1.49	1.53	1.23
Total Q (cfs)	0.68	1.23	1.42	1.12	1.02	1.76	2.01	1.91	2.20	1.43	1.98	1.21	1.05	1.01	1.49	1.78	1.49
HYDRAULICS																	
Roadway Slopes (ft/ft)																	
Longitudinal (S)	0.009721	0.029515	0.029515	0.020176	0.017869	0.029469	0.019564	0.000000	0.000000	0.009721	0.029515	0.029515	0.018505	0.018065	0.029470	0.019564	0.000000
Cross Slope (Sxp)	0.0390	0.0100	0.0200	0.0200	0.0200	0.0200	0.0200	0.0200	0.0390	0.0390	0.0200	0.0200	0.0200	0.0200	0.0200	0.0200	0.0200
Gutter																	
Standard and Type	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D
Pan Width (ft)	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Back Slope Width (ft)	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21
Depression (ft)	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14
Sx (ft/ft)	0.0677	0.0677	0.0677	0.0677	0.0677	0.0677	0.0677	0.0677	0.0677	0.0677	0.0677	0.0677	0.0677	0.0677	0.0677	0.0677	0.0677
Sb (ft/ft)	0.4167	0.4167	0.4167	0.4167	0.4167	0.4167	0.4167	0.4167	0.4167	0.4167	0.4167	0.4167	0.4167	0.4167	0.4167	0.4167	0.4167
Gutter n	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013
Gutter Capacity (cfs)	0.30	0.53	0.53	0.43	0.41	0.52	0.43	-	-	0.30	0.53	0.53	0.42	0.41	0.52	0.43	-
T in Gutter (ft)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Curb/Barrier Height (ft)	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
Depth of flow (ft)	0.18	0.18	0.19	0.18	0.18	0.20	0.22	0.27	0.29	0.23	0.21	0.18	0.18	0.18	0.19	0.21	0.23
Area in Gutter Ag (sq.ft)	0.22	0.21	0.24	0.23	0.23	0.26	0.31	0.40	0.45	0.32	0.28	0.22	0.23	0.23	0.24	0.29	0.32
Hyd Radius Gutter Rg (ft)	0.11	0.11	0.12	0.12	0.11	0.13	0.15	0.20	0.23	0.16	0.14	0.11	0.11	0.11	0.12	0.15	0.16
Qg (cfs)	0.56	0.95	1.12	0.89	0.81	1.33	1.41	-	-	1.07	1.46	0.98	0.84	0.81	1.16	1.28	-
Qo (cfs)	0.10	0.17	0.20	0.16	0.14	0.24	0.26	-	-	0.20	0.26	0.17	0.15	0.14	0.21	0.23	-
T in Pavement (ft)	1.06	3.97	2.52	2.39	2.29	3.18	4.29	6.60	4.07	2.39	3.55	2.06	2.32	2.25	2.67	3.87	4.56
Pavement n	0.0160	0.0160	0.0160	0.0160	0.0160	0.0160	0.0160	0.0160	0.0160	0.0160	0.0160	0.0160	0.0160	0.0160	0.0160	0.0160	0.0160
Qp (cfs)	0.02	0.11	0.10	0.07	0.06	0.19	0.35	-	-	0.16	0.26	0.06	0.07	0.06	0.12	0.26	-
Q (cfs)	0.68	1.23	1.42	1.12	1.02	1.76	2.01	1.91	2.20	1.43	1.98	1.21	1.05	1.01	1.49	1.78	1.49
Spread (ft)	**3.06**	**5.97**	**4.52**	**4.39**	**4.29**	**5.18**	**6.29**	**8.60**	**6.07**	**4.39**	**5.55**	**4.06**	**4.32**	**4.25**	**4.67**	**5.87**	**6.56**
Shoulder Width (ft)	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00
Depth of Flow (in)	**2.12**	**2.10**	**2.23**	**2.20**	**2.17**	**2.39**	**2.65**	**3.21**	**0.00**	**2.75**	**2.48**	**2.12**	**2.18**	**2.16**	**2.27**	**2.55**	**2.72**
Flow Velocity (ft/s)	**2.58**	**4.44**	**4.73**	**3.85**	**3.58**	**5.07**	**4.58**	**0.00**	**0.00**	**3.34**	**5.26**	**4.48**	**3.66**	**3.58**	**4.80**	**4.42**	**0.00**
Allowable Spread	18.00	18.00	18.00	18.00	18.00	18.00	18.00	18.00	18.00	18.00	18.00	18.00	18.00	18.00	18.00	18.00	18.00
INLET																	
Type	CO	CO	CO	CO	CO	CO	CO	CO	G	G	G	CO	CO	CO	CO	CO	CO
Standard	C-15.20	C-15.20	C-15.20	C-15.20	C-15.20	C-15.20	C-15.20	C-15.20	C-15.40	C-15.40	C-15.40	C-15.20	C-15.20	C-15.20	C-15.20	C-15.20	C-15.20
Location	Grade	Grade	Grade	Grade	Grade	Grade	Grade	Sag	Sag	Grade	Grade	Grade	Grade	Grade	Grade	Grade	Sag
Inlet Depression (in)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Slotted Drain/Curb Opening?	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
Capture Ratio	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
Length (ft)	**3.0**	**14.5**	**10.5**	**10.5**	**10.5**	**10.5**	**10.5**	**3.0**	**3.0**	**3.0**	**3.0**	**6.5**	**10.5**	**10.5**	**10.5**	**10.5**	**3.0**
Se (ft/ft)	0.1019	0.0999	0.1006	0.1006	0.1011	0.0992	0.0969	0.0677	0.0677	0.0990	0.0985	0.1013	0.1009	0.1011	0.1003	0.0978	0.0677
Effective Length (ft)	2	12	8	8	8	8	8	2	2	2	2	5	8	8	8	8	2
Lt (ft)	7	12	13	10	10	14	14	0	0	9	15	12	10	10	13	13	0
Efficiency	0.54	0.99	0.85	0.94	0.97	0.80	0.82	1.00	1.00	0.41	0.27	0.64	0.97	0.97	0.84	0.85	1.00
Sag Capacity (cfs)	4.88	12.36	9.76	9.76	9.76	9.76	9.76	4.88	4.88	4.88	4.88	7.16	9.76	9.76	9.76	9.76	4.88
Sag Depth (in)	1.62	1.29	1.66	1.42	1.33	1.92	2.09	3.21	3.53	2.65	3.29	1.84	1.36	1.32	1.71	1.93	2.72
SD Qi (cfs)	**0.37**	**1.23**	**1.20**	**1.06**	**0.99**	**1.40**	**1.65**	**1.91**	**2.20**	**0.59**	**0.53**	**0.77**	**1.01**	**0.98**	**1.24**	**1.52**	**1.49**
Bypass (cfs)	0.31	0.01	0.22	0.06	0.03	0.36	0.35	0.00	0.00	0.84	1.45	0.44	0.04	0.03	0.24	0.26	0.00
Spread at Grate (ft)	2.33	0.97	2.34	1.59	1.20	2.97	3.42	8.60	6.07	3.65	4.98	2.85	1.32	1.18	2.48	3.00	6.56
Grate																	
Capture Ratio	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
Grate Length (in)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	40.38	40.38	40.38	0.00	0.00	0.00	0.00	0.00	0.00
Grate Width (in)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	23.63	23.63	23.63	0.00	0.00	0.00	0.00	0.00	0.00
# of Long Bars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	13.00	13.00	13.00	0.00	0.00	0.00	0.00	0.00	0.00
Width of Long Bars (in)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.50	0.50	0.50	0.00	0.00	0.00	0.00	0.00	0.00
Width of Side Bars (in)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.38	0.38	0.38	0.00	0.00	0.00	0.00	0.00	0.00
# of Transverse Bars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	9.00	9.00	9.00	0.00	0.00	0.00	0.00	0.00	0.00
Width of Trans. Bars (In)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.50	0.50	0.50	0.00	0.00	0.00	0.00	0.00	0.00
Vo (ft/s)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.60	6.60	6.60	0.00	0.00	0.00	0.00	0.00	0.00
Perimeter (ft)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.30	7.30	7.30	0.00	0.00	0.00	0.00	0.00	0.00
Area (sq.ft)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.85	3.85	3.85	0.00	0.00	0.00	0.00	0.00	0.00
Clogged Perimeter (ft)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.65	3.65	3.65	0.00	0.00	0.00	0.00	0.00	0.00
Clogged Area (sq.ft.)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.93	1.93	1.93	0.00	0.00	0.00	0.00	0.00	0.00
INLET HYDRAULICS																	
G Hydraulics - Grade																	
Eo	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.6489	0.8737	0.7392	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Qs/Q	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.3511	0.1263	0.2608	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Rf	0.7682	0.6008	0.5744	0.6536	0.6776	0.5438	0.5876	1.0000	1.0000	1.0000	1.0000	0.5968	0.6706	0.6775	0.5678	0.6025	1.0000
Rs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.50	0.16	0.05	0.00	0.00	0.00	0.00	0.00	0.00
Efficiency	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.82	0.89	0.75	0.00	0.00	0.00	0.00	0.00	0.00
Qi (cfs)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.75	1.09	0.00	0.00	0.00	0.00	0.00	0.00
G Hydraulics - Sag																	
Weir Depth (in)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.17	3.12	0.00	0.00	0.00	0.00	0.00	0.00
Orifice Depth (in)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.23	0.00	0.00	0.00	0.00	0.00	0.00
Controlling Depth (in)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.17	3.12	0.00	0.00	0.00	0.00	0.00	0.00
Depth at Grate (in)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.17	3.12	0.00	0.00	0.00	0.00	0.00	0.00
Flows																	
Intercepted (cfs)	**0.37**	**1.23**	**1.20**	**1.06**	**0.99**	**1.40**	**1.65**	**1.91**	**2.20**	**1.34**	**1.62**	**0.77**	**1.01**	**0.98**	**1.24**	**1.52**	**1.49**
Bypass (cfs)	**0.31**	**0.01**	**0.22**	**0.06**	**0.03**	**0.36**	**0.35**	**0.00**	**0.00**	**0.09**	**0.36**	**0.44**	**0.04**	**0.03**	**0.24**	**0.26**	**0.00**

Andes Engineering

Project 1606D
Roadway Happy Valley Rd
Frequency 10-Year

Happy Valley Rd

Designed	**JOG**	**Date**	Apr-2018
Reviewed	**ML**	**Date**	Apr-2018
Updated	**JOG**	**Date**	Apr-2018

I-17 / Pinnacle Peak Rd TI & Happy Valley Rd TI
Gutter & Inlet Hydraulic Computation Sheet
Happy Valley Road

	HV EB							HV WB								
Inlet #	**642**	**600**	**605**	**611**	**620**	**635**	**640**	**602**	**603**	**609**	**610**	**621**	**627**	**628**	**636**	**641**
ID	A14756	A15069	A15201	A15620	A16547	A16800	A17000	B15051	B15300	B15503	B15582	B16453	B16719	C20529	B16891	B17118
Area #	**14756**	**15069**	**15201**	**15620**	**16547**	**16800**	**17000**	**15051**	**15300**	**15503**	**15582**	**16453**	**16719**	**20529**	**16891**	**17118**
Station	147+56	150+69	152+01	156+20	165+47	168+00	170+00	150+51	153+00	155+03	155+82	164+53	167+19	205+29	168+91	171+18
Offset from CL	47.85	49.57	71.66	29.35	48.69	75.57	55.08	59.02	89.43	63.37	34.67	28.51	87.27	17.00	80.76	61.88
Lt or Rt	Rt	Rt	Rt	Rt	Rt	Rt	Rt	Lt	Lt	Lt	Lt	Lt	Lt	Rt	Lt	Lt
Upstream Inlet	-	-	15620	-	-	-	16800	15300	15503	-	-	-	16453	-	20529	-
Direction of Flow	<<<<<	<<<<<	<<<<<	<<<<<	>>>>>	>>>>>	>>>>>	<<<<<	<<<<<	<<<<<	<<<<<	>>>>>	>>>>>	>>>>>	>>>>>	>>>>>
HYDROLOGY																
Tc (min)	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
i (in/hr)	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25
Contributing Area																
Pavement (Sq.ft.)	21839	8064	18538	4063	7300	18368	12146	11768	12092	11156	8349	8189	11522	8157	8906	14292
Pavement (Acre)	0.5014	0.1851	0.4256	0.0933	0.1676	0.4217	0.2788	0.2702	0.2776	0.2561	0.1917	0.1880	0.2645	0.1873	0.2045	0.3281
Side Slope (Sq.ft.)	0	0	0	0	0	6947	0	0	0	9251	0	0	0	0	0	0
Side Slopes (Acre)	0.0000	0.0000	0.0000	0.0000	0.0000	0.1595	0.0000	0.0000	0.0000	0.2124	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total Area	0.5014	0.1851	0.4256	0.0933	0.1676	0.5812	0.2788	0.2702	0.2776	0.4685	0.1917	0.1880	0.2645	0.1873	0.2045	0.3281
Runoff Coefficient C																
Pavement	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Roadside	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70
Composite C	0.95	0.95	0.95	0.95	0.95	0.88	0.95	0.95	0.95	0.84	0.95	0.95	0.95	0.95	0.95	0.95
Flows																
Known (cfs)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Bypass (cfs)	0.00	0.00	0.19	0.00	0.00	0.00	0.20	0.23	0.32	0.00	0.00	0.00	0.20	0.00	0.43	0.00
CiA (cfs)	2.02	0.75	1.72	0.38	0.68	2.18	1.13	1.09	1.12	1.67	0.77	0.76	1.07	0.76	0.83	1.32
Total Q (cfs)	2.02	0.75	1.90	0.38	0.68	2.18	1.33	1.32	1.44	1.67	0.77	0.76	1.27	0.76	1.26	1.32
HYDRAULICS																
Roadway Slopes (ft/ft)																
Longitudinal (S)	0.004267	0.027847	0.030000	0.030000	0.030000	0.030000	0.018242	0.027683	0.030000	0.030000	0.030000	0.029999	0.029999	0.022502	0.024877	0.007258
Cross Slope (Sxp)	0.0200	0.0200	0.0200	0.0200	0.0200	0.0200	0.0200	0.0200	0.0200	0.0200	0.0200	0.0200	0.0200	0.0200	0.0200	0.0200
Gutter																
Standard and Type	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D
Pan Width (ft)	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Back Slope Width (ft)	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21
Depression (ft)	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14
Sx (ft/ft)	0.0677	0.0677	0.0677	0.0677	0.0677	0.0677	0.0677	0.0677	0.0677	0.0677	0.0677	0.0677	0.0677	0.0677	0.0677	0.0677
Sb (ft/ft)	0.4167	0.4167	0.4167	0.4167	0.4167	0.4167	0.4167	0.4167	0.4167	0.4167	0.4167	0.4167	0.4167	0.4167	0.4167	0.4167
Gutter n	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013
Gutter Capacity (cfs)	0.20	0.51	0.53	0.53	0.53	0.53	0.41	0.51	0.53	0.53	0.53	0.53	0.53	0.46	0.48	0.26
T in Gutter (ft)	-	-	-	1.76	-	-	-	-	-	-	-	-	-	-	-	-
Curb/Barrier Height (ft)	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
Depth of flow (ft)	0.28	0.15	0.20	0.12	0.15	0.21	0.20	0.18	0.19	0.20	0.15	0.15	0.18	0.16	0.18	0.23
Area in Gutter Ag (sq.ft)	0.43	0.17	0.27	0.11	0.16	0.29	0.26	0.23	0.24	0.25	0.17	0.17	0.22	0.18	0.23	0.32
Hyd Radius Gutter Rg (ft)	0.21	0.09	0.14	0.05	0.08	0.14	0.13	0.12	0.12	0.13	0.08	0.08	0.11	0.09	0.12	0.16
Qg (cfs)	1.13	0.63	1.42	0.31	0.57	1.57	1.01	1.05	1.13	1.28	0.65	0.64	1.02	0.63	1.00	0.91
Qo (cfs)	0.23	0.11	0.25	0.07	0.11	0.29	0.18	0.19	0.20	0.23	0.12	0.12	0.18	0.11	0.18	0.17
T in Pavement (ft)	7.25	0.88	3.39	-	0.55	3.84	3.05	2.40	2.54	2.99	0.85	0.82	2.18	1.18	2.42	4.55
Pavement n	0.0160	0.0160	0.0160	0.0160	0.0160	0.0160	0.0160	0.0160	0.0160	0.0160	0.0160	0.0160	0.0160	0.0160	0.0160	0.0160
Qp (cfs)	0.66	0.01	0.23	-	0.00	0.32	0.14	0.09	0.11	0.16	0.01	0.01	0.07	0.01	0.09	0.25
Q (cfs)	2.02	0.75	1.90	0.38	0.68	2.18	1.33	1.32	1.44	1.67	0.77	0.76	1.27	0.76	1.26	1.32
Spread (ft)	**9.25**	**2.88**	**5.39**	**2.00**	**2.55**	**5.84**	**5.05**	**4.40**	**4.54**	**4.99**	**2.85**	**2.82**	**4.18**	**3.18**	**4.42**	**6.55**
Shoulder Width (ft)	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00
Depth of Flow (in)	**3.37**	**1.84**	**2.44**	**1.47**	**1.76**	**2.55**	**2.36**	**2.20**	**2.23**	**2.34**	**1.83**	**1.82**	**2.15**	**1.91**	**2.21**	**2.72**
Flow Velocity (ft/s)	**2.66**	**3.69**	**5.22**	**2.86**	**3.64**	**5.45**	**3.94**	**4.52**	**4.78**	**5.01**	**3.82**	**3.80**	**4.58**	**3.47**	**4.29**	**2.85**
Allowable Spread	18.00	18.00	18.00	18.00	18.00	18.00	18.00	18.00	18.00	18.00	18.00	18.00	18.00	18.00	18.00	18.00
INLET																
Type	G	CO	CO	CO	CO	CO	CO	CO	CO	CO	CO	CO	CO	CO	CO	CO
Standard	C-15.10	C-15.20	C-15.20	C-15.20	C-15.20	C-15.20	C-15.20	C-15.20	C-15.20	C-15.20	C-15.20	C-15.20	C-15.20	C-15.20	C-15.20	C-15.20
Location	Grade	Grade	Grade	Grade	Grade	Grade	Grade	Grade	Grade	Grade	Grade	Grade	Grade	Grade	Grade	Grade
Inlet Depression (in)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Slotted Drain/Curb Opening?	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
Capture Ratio	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
Length (ft)	**3.0**	**6.5**	**14.5**	**3.0**	**10.5**	**14.5**	**10.5**	**10.5**	**10.5**	**10.5**	**10.5**	**6.5**	**14.5**	**3.0**	**10.5**	**10.5**
Se (ft/ft)	0.0910	0.1028	0.0987	0.1025	0.1030	0.0978	0.0994	0.1007	0.1004	0.0997	0.1025	0.1028	0.1012	0.1027	0.1007	0.0962
Effective Length (ft)	2	5	12	2	8	12	8	8	8	8	8	5	12	2	8	8
Lt (ft)	9	10	15	7	9	16	11	12	13	14	10	10	12	9	12	9
Efficiency	0.43	0.75	0.93	0.51	0.98	0.91	0.93	0.87	0.84	0.81	0.96	0.74	0.99	0.42	0.90	1.00
Sag Capacity (cfs)	4.88	7.16	12.36	4.88	9.76	12.36	9.76	9.76	9.76	9.76	9.76	7.16	12.36	4.88	9.76	9.76
Sag Depth (in)	3.34	1.33	1.72	1.09	1.01	1.89	1.59	1.58	1.68	1.85	1.11	1.34	1.31	1.73	1.53	1.58
SD Qi (cfs)	**0.87**	**0.56**	**1.78**	**0.19**	**0.66**	**1.97**	**1.23**	**1.15**	**1.21**	**1.34**	**0.75**	**0.56**	**1.26**	**0.32**	**1.13**	**1.32**
Bypass (cfs)	1.15	0.18	0.13	0.19	0.01	0.20	0.10	0.17	0.23	0.32	0.03	0.20	0.01	0.43	0.13	0.00
Spread at Grate (ft)	7.60	1.76	2.09	1.56	0.63	2.55	2.04	2.15	2.39	2.80	0.90	1.76	0.73	2.62	2.00	0.40
Grate																
Capture Ratio	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
Grate Length (in)	40.38	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grate Width (in)	23.63	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
# of Long Bars	13.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Width of Long Bars (in)	0.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Width of Side Bars (in)	0.38	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
# of Transverse Bars	9.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Width of Trans. Bars (In)	0.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vo (ft/s)	6.60	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Perimeter (ft)	7.30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Area (sq.ft)	3.85	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Clogged Perimeter (ft)	3.65	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Clogged Area (sq.ft.)	1.93	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
INLET HYDRAULICS																
G Hydraulics - Grade																
Eo	0.5508	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Qs/Q	0.4492	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Rf	1.0000	0.6675	0.5299	0.7425	0.6728	0.5094	0.6458	0.5934	0.5701	0.5488	0.6564	0.6581	0.5879	0.6873	0.6137	0.7432
Rs	0.14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Efficiency	0.61	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Qi (cfs)	0.71	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
G Hydraulics - Sag																
Weir Depth (in)	2.68	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Orifice Depth (in)	0.15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Controlling Depth (in)	2.68	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Depth at Grate (in)	2.68	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Flows																
Intercepted (cfs)	**1.58**	**0.56**	**1.78**	**0.19**	**0.66**	**1.97**	**1.23**	**1.15**	**1.21**	**1.34**	**0.75**	**0.56**	**1.26**	**0.32**	**1.13**	**1.32**
Bypass (cfs)	**0.45**	**0.18**	**0.13**	**0.19**	**0.01**	**0.20**	**0.10**	**0.17**	**0.23**	**0.32**	**0.03**	**0.20**	**0.01**	**0.43**	**0.13**	**0.00**

APPENDIX F

STORMCAD TABLES AND PROFILES

Scenario: 10-Year
Current Time Step: 0.000Hr
FlexTable: Catch Basin Table

Label	External CA (acres)	System Flow Time (min)	Downstream Conduit Flow (cfs)	Elevation (Invert) (ft)	Elevation (Rim) (ft)	Hydraulic Grade Line (In) (ft)	Hydraulic Grade Line (Out) (ft)	Headloss Method	Headloss (ft)
CB 101	0.185	4.980	1.04	1,404.43	1,412.35	(N/A)	1,404.81	HEC-22 Energy (Third Edition)	0.00
CB 102	0.123	4.980	0.69	1,407.26	1,412.86	(N/A)	1,407.55	HEC-22 Energy (Third Edition)	0.00
CB 103	1.405	4.980	7.90	1,408.95	1,413.45	(N/A)	1,410.31	HEC-22 Energy (Third Edition)	0.00
CB 105	0.036	4.980	0.20	1,408.85	1,413.35	(N/A)	1,410.39	HEC-22 Energy (Third Edition)	0.00
CB 106	0.314	5.348	9.70	1,408.31	1,413.31	1,409.94	1,409.55	HEC-22 Energy (Third Edition)	0.52
CB 107	0.252	4.980	1.42	1,407.81	1,412.56	(N/A)	1,409.71	HEC-22 Energy (Third Edition)	0.00
CB 108	0.161	5.439	11.93	1,407.51	1,412.51	1,409.18	1,408.92	HEC-22 Energy (Third Edition)	0.43
CB 109	0.234	4.980	1.31	1,405.71	1,414.93	(N/A)	1,406.11	HEC-22 Energy (Third Edition)	0.00
CB 110	2.264	4.980	12.72	1,407.00	1,410.50	(N/A)	1,408.73	HEC-22 Energy (Third Edition)	0.00
CB 111	0.252	5.251	13.97	1,406.30	1,420.28	1,408.31	1,408.31	HEC-22 Energy (Third Edition)	0.06
CB 112	1.370	4.980	7.70	1,408.00	1,411.50	(N/A)	1,411.30	HEC-22 Energy (Third Edition)	0.00
CB 114	0.229	4.980	1.29	1,429.35	1,434.35	(N/A)	1,429.74	HEC-22 Energy (Third Edition)	0.00
CB 115	0.256	5.690	10.08	1,407.44	1,427.08	1,410.23	1,410.09	HEC-22 Energy (Third Edition)	0.23
CB 117	2.799	17.074	55.48	1,408.00	1,415.46	1,411.66	1,411.65	HEC-22 Energy (Third Edition)	0.08
CB 118	1.032	17.821	58.12	1,407.00	1,413.31	1,410.05	1,409.66	HEC-22 Energy (Third Edition)	0.64
CB 119	0.483	4.980	2.71	1,428.47	1,433.47	(N/A)	1,429.04	HEC-22 Energy (Third Edition)	0.00
CB 120	0.160	4.980	0.90	1,421.83	1,426.83	(N/A)	1,422.16	HEC-22 Energy (Third Edition)	0.00
CB 121	0.266	4.980	1.49	1,417.49	1,422.45	(N/A)	1,418.90	HEC-22 Energy (Third Edition)	0.00
CB 122	0.243	4.980	1.37	1,417.49	1,422.24	(N/A)	1,418.90	HEC-22 Energy (Third Edition)	0.00
CB 123	0.033	5.329	3.00	1,417.26	1,422.33	1,418.89	1,418.87	HEC-22 Energy (Third Edition)	0.02
CB 124	0.781	4.980	4.39	1,417.23	1,421.98	(N/A)	1,418.91	HEC-22 Energy (Third Edition)	0.00
CB 125	0.069	5.147	4.74	1,416.86	1,421.86	1,418.89	1,418.89	HEC-22 Energy (Third Edition)	0.01
CB 126	0.146	5.778	8.32	1,416.50	1,421.97	1,418.77	1,418.72	HEC-22 Energy (Third Edition)	0.07
CB 129	0.740	4.980	4.16	1,420.25	1,425.25	(N/A)	1,420.97	HEC-22 Energy (Third Edition)	0.00
CB 132	0.570	10.502	23.47	1,423.39	1,431.97	1,429.34	1,429.34	HEC-22 Energy (Third Edition)	0.08
CB 133	0.924	9.678	20.85	1,424.60	1,433.03	1,430.14	1,430.13	HEC-22 Energy (Third Edition)	0.07
CB 137	0.560	13.532	33.91	1,418.88	1,426.37	1,422.94	1,422.94	HEC-22 Energy (Third Edition)	0.15
CB 202	0.000	4.980	10.00	1,428.50	1,433.22	(N/A)	1,431.55	HEC-22 Energy (Third Edition)	0.00
CB 203	0.362	4.980	2.03	1,430.02	1,435.02	(N/A)	1,431.50	HEC-22 Energy (Third Edition)	0.00
CB 206	0.151	4.980	0.85	1,428.74	1,433.74	(N/A)	1,431.18	HEC-22 Energy (Third Edition)	0.00
CB 207	0.856	8.031	16.59	1,427.00	1,434.56	1,431.00	1,430.99	HEC-22 Energy (Third Edition)	0.05
CB 208	0.412	4.980	2.32	1,437.00	1,441.74	1,437.57	1,437.57	HEC-22 Energy (Third Edition)	0.04
CB 209	0.417	4.980	2.34	1,446.90	1,451.90	(N/A)	1,447.43	HEC-22 Energy (Third Edition)	0.00
CB 300	0.166	4.980	0.93	1,405.74	1,413.16	(N/A)	1,407.31	HEC-22 Energy (Third Edition)	0.00
CB 301	0.427	31.545	8.71	1,405.26	1,415.26	1,407.26	1,407.26	HEC-22 Energy (Third Edition)	0.01
CB 303	0.549	25.601	3.77	1,406.55	1,413.39	1,408.44	1,408.43	HEC-22 Energy (Third Edition)	0.01
CB 304	0.064	26.406	3.85	1,406.51	1,412.22	1,408.40	1,408.38	HEC-22 Energy (Third Edition)	0.02
CB 305	0.590	4.980	3.32	1,407.50	1,412.00	(N/A)	1,408.28	HEC-22 Energy (Third Edition)	0.00
CB 306	0.069	26.919	5.52	1,406.49	1,411.89	1,408.32	1,408.28	HEC-22 Energy (Third Edition)	0.05
CB 307	0.162	27.399	5.86	1,406.46	1,410.55	1,408.21	1,408.19	HEC-22 Energy (Third Edition)	0.03
CB 308	0.061	28.024	5.90	1,406.43	1,410.47	1,408.10	1,408.10	HEC-22 Energy (Third Edition)	0.01
CB 309	0.127	28.258	6.18	1,406.41	1,410.59	1,407.93	1,407.93	HEC-22 Energy (Third Edition)	0.02
CB 310	0.135	30.011	6.17	1,406.30	1,411.83	1,407.57	1,407.46	HEC-22 Energy (Third Edition)	0.14
CB 311	0.549	30.119	7.46	1,405.45	1,414.05	1,407.38	1,407.37	HEC-22 Energy (Third Edition)	0.02
CB 313	0.341	4.980	1.92	1,408.35	1,413.35	(N/A)	1,408.83	HEC-22 Energy (Third Edition)	0.00
CB 314	0.293	4.980	1.65	1,417.67	1,422.67	(N/A)	1,418.11	HEC-22 Energy (Third Edition)	0.00
CB 315	0.205	6.321	4.68	1,427.90	1,432.90	1,428.84	1,428.72	HEC-22 Energy (Third Edition)	0.18
CB 316	0.808	4.980	4.54	1,410.32	1,415.32	(N/A)	1,411.07	HEC-22 Energy (Third Edition)	0.00
CB 317	0.721	4.980	4.05	1,412.83	1,417.83	(N/A)	1,413.54	HEC-22 Energy (Third Edition)	0.00
CB 318	0.526	4.980	2.96	1,429.74	1,434.74	(N/A)	1,430.48	HEC-22 Energy (Third Edition)	0.00
CB 319	0.771	4.980	4.33	1,415.11	1,420.11	(N/A)	1,415.84	HEC-22 Energy (Third Edition)	0.00
CB 320	0.239	4.980	1.34	1,421.48	1,426.48	(N/A)	1,421.88	HEC-22 Energy (Third Edition)	0.00
CB 321	0.869	4.980	4.88	1,417.57	1,422.57	(N/A)	1,418.35	HEC-22 Energy (Third Edition)	0.00
CB 323	0.835	5.243	13.79	1,422.29	1,426.81	1,423.60	1,423.56	HEC-22 Energy (Third Edition)	0.13
CB 324	0.820	5.987	17.69	1,419.93	1,425.10	1,421.38	1,421.38	HEC-22 Energy (Third Edition)	0.10
CB 325	0.340	6.682	18.84	1,417.57	1,423.97	1,419.52	1,419.52	HEC-22 Energy (Third Edition)	0.05
CB 326	0.180	6.808	19.64	1,417.18	1,423.88	1,419.31	1,419.15	HEC-22 Energy (Third Edition)	0.21
CB 330	0.000	8.603	32.39	1,410.57	1,416.00	1,413.27	1,413.19	HEC-22 Energy (Third Edition)	0.16
CB 400	0.192	4.980	1.08	1,434.10	1,436.95	(N/A)	1,434.58	HEC-22 Energy (Third Edition)	0.00
CB 402	0.150	6.170	1.82	1,431.40	1,435.96	1,431.89	1,431.85	HEC-22 Energy (Third Edition)	0.08
CB 404	1.050	4.980	5.90	1,430.50	1,434.01	(N/A)	1,431.63	HEC-22 Energy (Third Edition)	0.00
CB 405	0.000	8.259	6.62	1,430.15	1,434.00	1,431.40	1,431.40	HEC-22 Energy (Third Edition)	0.02
CB 406	0.116	8.586	7.04	1,430.00	1,436.12	1,431.28	1,431.22	HEC-22 Energy (Third Edition)	0.09
CB 407	0.248	8.733	8.12	1,429.80	1,434.94	1,431.09	1,431.02	HEC-22 Energy (Third Edition)	0.10
CB 408	0.234	4.980	1.31	1,434.70	1,438.24	(N/A)	1,435.13	HEC-22 Energy (Third Edition)	0.00
CB 409	0.303	4.980	1.70	1,433.87	1,438.87	(N/A)	1,434.32	HEC-22 Energy (Third Edition)	0.00
CB 410	0.454	6.750	9.61	1,439.20	1,444.20	1,440.53	1,440.43	HEC-22 Energy (Third Edition)	0.22
CB 411	0.161	6.799	10.41	1,437.34	1,442.34	1,438.84	1,438.63	HEC-22 Energy (Third Edition)	0.34
CB 416	0.288	4.980	1.62	1,438.70	1,456.90	1,439.17	1,439.17	HEC-22 Energy (Third Edition)	0.03
CB 417	0.258	4.980	1.45	1,444.80	1,450.27	(N/A)	1,445.22	HEC-22 Energy (Third Edition)	0.00
CB 418	0.162	4.980	0.91	1,443.25	1,447.86	(N/A)	1,443.58	HEC-22 Energy (Third Edition)	0.00
CB 419	0.110	4.980	0.62	1,443.50	1,447.68	(N/A)	1,443.77	HEC-22 Energy (Third Edition)	0.00
CB 420	0.161	4.980	0.90	1,443.75	1,447.77	(N/A)	1,444.08	HEC-22 Energy (Third Edition)	0.00
CB 421	0.302	4.980	1.70	1,444.00	1,449.38	(N/A)	1,444.45	HEC-22 Energy (Third Edition)	0.00
CB 422	0.074	4.980	0.42	1,444.50	1,448.08	(N/A)	1,444.72	HEC-22 Energy (Third Edition)	0.00
CB 423	0.468	5.595	7.04	1,446.85	1,451.85	1,448.01	1,447.86	HEC-22 Energy (Third Edition)	0.22

CB 424	0.061	5.683	7.35	1,444.75	1,447.97	1,445.79	1,445.79	HEC-22 Energy (Third Edition)	0.07
CB 425	0.095	4.980	0.53	1,445.10	1,448.03	(N/A)	1,445.35	HEC-22 Energy (Third Edition)	0.00
CB 426	0.822	4.980	4.62	1,448.09	1,453.09	(N/A)	1,448.85	HEC-22 Energy (Third Edition)	0.00
CB 500	0.333	4.980	1.87	1,426.80	1,431.60	(N/A)	1,427.27	HEC-22 Energy (Third Edition)	0.00
CB 501	0.285	5.481	3.39	1,426.08	1,431.88	1,426.85	1,426.77	HEC-22 Energy (Third Edition)	0.13
CB 502	0.239	4.980	1.34	1,419.04	1,424.04	(N/A)	1,419.60	HEC-22 Energy (Third Edition)	0.00
CB 503	0.362	6.159	6.47	1,418.26	1,423.26	1,419.28	1,419.23	HEC-22 Energy (Third Edition)	0.12
CB 504	0.161	4.980	0.90	1,414.35	1,418.85	(N/A)	1,415.38	HEC-22 Energy (Third Edition)	0.00
CB 505	0.252	6.690	8.44	1,413.50	1,417.24	1,415.24	1,415.23	HEC-22 Energy (Third Edition)	0.04
CB 506	0.498	6.983	10.85	1,413.00	1,416.79	1,414.68	1,414.33	HEC-22 Energy (Third Edition)	0.50
CB 507	0.247	4.980	1.39	1,436.00	1,440.57	(N/A)	1,436.41	HEC-22 Energy (Third Edition)	0.00
CB 508	0.265	5.577	2.80	1,435.45	1,440.45	1,436.11	1,436.08	HEC-22 Energy (Third Edition)	0.07
CB 509	0.172	5.845	3.69	1,433.69	1,438.69	1,434.50	1,434.41	HEC-22 Energy (Third Edition)	0.13
CB 510	0.237	4.980	1.33	1,436.11	1,440.61	(N/A)	1,436.51	HEC-22 Energy (Third Edition)	0.00
CB 511	0.239	5.553	2.60	1,435.50	1,440.66	1,436.17	1,436.10	HEC-22 Energy (Third Edition)	0.10
CB 512	0.349	4.980	1.96	1,426.55	1,431.55	(N/A)	1,427.04	HEC-22 Energy (Third Edition)	0.00
CB 513	0.414	4.980	2.33	1,423.54	1,428.54	(N/A)	1,424.07	HEC-22 Energy (Third Edition)	0.00
CB 514	0.361	4.980	2.03	1,417.30	1,419.16	(N/A)	1,417.84	HEC-22 Energy (Third Edition)	0.00
CB 515	0.388	4.980	2.18	1,415.15	1,419.17	(N/A)	1,415.66	HEC-22 Energy (Third Edition)	0.00
CB 517	0.366	4.980	2.06	1,412.85	1,416.85	(N/A)	1,413.35	HEC-22 Energy (Third Edition)	0.00
CB 600	0.176	4.980	0.99	1,439.50	1,443.01	(N/A)	1,439.93	HEC-22 Energy (Third Edition)	0.00
CB 601	0.116	5.287	1.62	1,439.25	1,443.75	1,439.76	1,439.76	HEC-22 Energy (Third Edition)	0.03
CB 602	0.257	5.519	3.01	1,438.75	1,442.58	1,439.51	1,439.46	HEC-22 Energy (Third Edition)	0.10
CB 603	0.264	4.980	1.48	1,444.64	1,449.64	(N/A)	1,445.06	HEC-22 Energy (Third Edition)	0.00
CB 604	0.236	5.388	2.76	1,443.50	1,449.05	1,444.14	1,444.12	HEC-22 Energy (Third Edition)	0.06
CB 605	0.404	5.659	4.92	1,442.15	1,447.15	1,443.01	1,442.99	HEC-22 Energy (Third Edition)	0.08
CB 607	0.215	5.845	7.61	1,440.13	1,445.13	1,441.38	1,441.27	HEC-22 Energy (Third Edition)	0.17
CB 608	0.291	4.980	1.64	1,445.38	1,450.38	(N/A)	1,445.82	HEC-22 Energy (Third Edition)	0.00
CB 609	0.392	4.980	2.20	1,451.47	1,455.97	(N/A)	1,451.99	HEC-22 Energy (Third Edition)	0.00
CB 610	0.182	5.285	3.18	1,450.63	1,458.69	1,451.34	1,451.30	HEC-22 Energy (Third Edition)	0.09
CB 611	0.089	5.530	3.63	1,449.88	1,459.91	1,450.61	1,450.60	HEC-22 Energy (Third Edition)	0.06
CB 612	0.486	5.732	6.23	1,449.24	1,460.45	1,450.26	1,450.19	HEC-22 Energy (Third Edition)	0.13
CB 613	0.154	4.980	0.87	1,459.10	1,464.10	(N/A)	1,459.42	HEC-22 Energy (Third Edition)	0.00
CB 614	0.493	5.660	3.52	1,458.15	1,463.15	1,458.86	1,458.85	HEC-22 Energy (Third Edition)	0.06
CB 615	0.058	5.774	3.82	1,456.16	1,461.74	1,457.05	1,456.89	HEC-22 Energy (Third Edition)	0.21
CB 616	0.156	4.980	0.88	1,460.50	1,465.50	(N/A)	1,460.82	HEC-22 Energy (Third Edition)	0.00
CB 617	0.505	5.619	3.61	1,457.53	1,462.53	1,458.24	1,458.24	HEC-22 Energy (Third Edition)	0.05
CB 618	0.068	6.036	5.70	1,451.50	1,460.96	1,452.57	1,452.41	HEC-22 Energy (Third Edition)	0.23
CB 619	0.319	4.980	1.79	1,459.27	1,464.27	(N/A)	1,459.73	HEC-22 Energy (Third Edition)	0.00
CB 620	0.159	5.426	1.86	1,454.98	1,459.48	1,455.54	1,455.49	HEC-22 Energy (Third Edition)	0.09
CB 621	0.179	4.980	1.01	1,456.75	1,461.75	(N/A)	1,457.10	HEC-22 Energy (Third Edition)	0.00
CB 622	0.765	4.980	4.30	1,449.00	1,454.00	(N/A)	1,449.73	HEC-22 Energy (Third Edition)	0.00
CB 623	0.096	4.980	0.54	1,454.22	1,459.22	(N/A)	1,454.47	HEC-22 Energy (Third Edition)	0.00
CB 625	0.201	5.823	1.44	1,440.64	1,455.36	1,441.08	1,441.08	HEC-22 Energy (Third Edition)	0.03
CB 626	0.182	5.242	2.11	1,442.90	1,452.45	1,443.44	1,443.44	HEC-22 Energy (Third Edition)	0.04
CB 627	0.251	5.210	5.65	1,448.24	1,453.24	1,449.29	1,449.14	HEC-22 Energy (Third Edition)	0.21
CB 628	0.178	5.272	6.62	1,447.55	1,452.55	1,448.54	1,448.53	HEC-22 Energy (Third Edition)	0.07
CB 635	0.512	4.980	2.88	1,445.21	1,451.21	(N/A)	1,445.80	HEC-22 Energy (Third Edition)	0.00
CB 636	0.194	4.980	1.09	1,444.00	1,448.53	(N/A)	1,444.79	HEC-22 Energy (Third Edition)	0.00
CB 637	0.238	5.360	5.21	1,443.50	1,450.93	1,444.49	1,444.37	HEC-22 Energy (Third Edition)	0.18
CB 639	0.078	5.772	5.53	1,439.00	1,447.44	1,439.96	1,439.79	HEC-22 Energy (Third Edition)	0.22
CB 640	0.265	5.915	6.92	1,438.00	1,446.12	1,438.89	1,438.89	HEC-22 Energy (Third Edition)	0.06
CB 641	0.312	4.980	1.75	1,441.25	1,444.85	(N/A)	1,441.71	HEC-22 Energy (Third Edition)	0.00
CB X125A	0.000	15.847	44.80	1,412.31	1,422.79	1,414.74	1,414.66	HEC-22 Energy (Third Edition)	0.34
CB X130A	0.311	4.980	1.75	1,420.50	1,424.50	(N/A)	1,420.96	HEC-22 Energy (Third Edition)	0.00
CB X207B	0.188	4.980	1.06	1,426.39	1,431.60	(N/A)	1,430.42	HEC-22 Energy (Third Edition)	0.00
CB X207D	0.147	4.980	0.83	1,425.81	1,430.00	(N/A)	1,429.70	HEC-22 Energy (Third Edition)	0.00
CB X207F	0.184	4.980	1.03	1,425.10	1,429.00	(N/A)	1,428.63	HEC-22 Energy (Third Edition)	0.00
CB X207G	0.679	11.408	26.55	1,421.92	1,428.66	1,428.17	1,428.16	HEC-22 Energy (Third Edition)	0.10
CB X207H	0.331	4.980	1.86	1,423.45	1,428.00	(N/A)	1,426.93	HEC-22 Energy (Third Edition)	0.00
CB X207I	0.889	12.457	30.70	1,420.00	1,428.44	1,426.31	1,426.29	HEC-22 Energy (Third Edition)	0.14
CB X207J	0.000	4.980	0.00	1,422.30	1,427.30	(N/A)	1,425.42	HEC-22 Energy (Third Edition)	0.00
CB X207K	0.521	12.988	32.28	1,419.22	1,426.00	1,424.75	1,424.75	HEC-22 Energy (Third Edition)	0.13
CB X207L	0.196	4.980	1.10	1,422.00	1,426.50	(N/A)	1,422.82	HEC-22 Energy (Third Edition)	0.00
CB X207M	0.874	13.679	37.77	1,418.28	1,425.96	1,422.38	1,422.37	HEC-22 Energy (Third Edition)	0.10
CB X306B	0.152	4.980	0.85	1,406.97	1,414.00	1,409.35	1,409.35	HEC-22 Energy (Third Edition)	0.00
CB X306C	0.684	24.548	2.34	1,406.90	1,413.34	1,409.21	1,409.21	HEC-22 Energy (Third Edition)	0.03
CB X315C	0.257	33.222	9.11	1,405.06	1,415.20	1,406.38	1,406.37	HEC-22 Energy (Third Edition)	0.03
CB X331	0.587	4.980	3.30	1,407.91	1,414.33	(N/A)	1,408.54	HEC-22 Energy (Third Edition)	0.00
CB X625A	0.000	4.980	0.00	1,444.36	1,445.79	(N/A)	1,444.36	HEC-22 Energy (Third Edition)	0.00
CB X625B	0.065	4.980	0.37	1,444.50	1,449.10	(N/A)	1,444.71	HEC-22 Energy (Third Edition)	0.00
CB X625E	0.069	4.980	0.39	1,448.00	1,448.50	1,448.21	1,448.21	Absolute	0.00
CB X626A	0.198	4.980	1.11	1,444.49	1,449.10	(N/A)	1,444.85	HEC-22 Energy (Third Edition)	0.00
HW 134	0.000	4.980	0.00	1,440.00	1,442.00	1,440.00	1,440.00	Absolute	0.00
HW 201	0.000	4.980	0.00	1,439.00	1,441.00	1,439.00	1,439.00	Absolute	0.00
HW 322	1.648	4.980	9.26	1,423.00	1,426.00	1,423.96	1,423.96	Absolute	0.00
HW 332	0.000	4.980	0.00	1,408.00	1,410.00	1,409.35	1,409.35	Absolute	0.00
HW 412	0.000	4.980	0.00	1,440.00	1,442.00	1,440.00	1,440.00	Absolute	0.00
HW 415	0.000	4.980	0.00	1,439.00	1,441.00	1,439.33	1,439.33	Absolute	0.00
HW 630	0.000	4.980	0.00	1,445.00	1,447.00	1,445.00	1,445.00	Absolute	0.00
HW 638	0.000	4.980	0.00	1,440.50	1,443.50	1,440.50	1,440.50	Absolute	0.00
HW X399	0.000	4.980	0.00	1,432.10	1,434.10	1,432.10	1,432.10	Absolute	0.00
SP HJ1	0.287	4.980	1.61	1,446.80	1,447.30	1,447.24	1,447.24	Absolute	0.00
SP HJ2	0.185	4.980	1.04	1,447.71	1,448.21	(N/A)	1,448.06	HEC-22 Energy (Third Edition)	0.00
SP PHN1	0.307	4.980	1.73	1,435.67	1,436.17	(N/A)	1,436.13	HEC-22 Energy (Third Edition)	0.00

Scenario: 10-Year
Current Time Step: 0.000Hr
FlexTable: Conduit Table

Label	Start Node	Invert (Start) (ft)	Stop Node	Invert (Stop) (ft)	Length (Scaled) (ft)	Slope (Calculated) (ft/ft)	Diameter (in)	Manning's n	Flow (cfs)	Velocity (ft/s)	Depth (Out) (ft)	Capacity (Full Flow) (cfs)	Flow / Capacity (Design) (%)	Depth (Normal) / Rise (%)
102	CB 102	1,407.26	O 102	1,404.01	33	0.0973	24	0.013	0.69	7.17	0.14	70.58	1.0	7.0
103	CB 103	1,408.95	CB 106	1,408.31	50	0.0128	24	0.013	7.90	7.17	2.02	25.58	30.9	38.1
105	CB 105	1,408.85	CB 106	1,408.31	51	0.0107	24	0.013	0.20	2.29	2.08	23.39	0.9	6.6
106	CB 106	1,408.31	CB 108	1,407.51	46	0.0173	24	0.013	9.70	8.47	2.11	29.78	32.6	39.3
107	CB 107	1,407.81	CB 108	1,407.51	43	0.0069	24	0.013	1.42	3.53	2.19	18.84	7.5	18.6
108	CB 108	1,407.51	O 108	1,403.93	33	0.1078	24	0.013	11.93	17.34	0.61	74.29	16.1	27.1
110	CB 110	1,407.00	CB 111	1,406.30	104	0.0068	24	0.013	12.72	6.37	2.16	18.60	68.4	60.7
111	CB 111	1,406.30	T 111	1,406.26	5	0.0087	24	0.013	13.97	7.19	1.97	21.13	66.1	59.4
112	CB 112	1,408.00	T 112	1,407.82	44	0.0041	18	0.013	7.70	4.36	3.24	6.70	114.9	(N/A)
114	CB 114	1,429.35	CB 115	1,422.08	244	0.0299	24	0.013	1.29	5.72	0.25	39.08	3.3	12.4
116	MH 116	1,409.29	CB 117	1,408.00	322	0.0040	48	0.013	46.63	7.28	3.87	90.85	51.3	50.8
117A	CB 117	1,408.00	T 117A	1,407.82	56	0.0032	48	0.013	55.48	6.98	3.70	81.51	68.1	60.5
117B	T 117A	1,407.82	T 117B	1,407.18	200	0.0032	48	0.013	55.34	6.97	3.84	81.52	67.9	60.4
117C	T 117B	1,407.18	CB 118	1,407.00	56	0.0031	48	0.013	54.84	6.89	3.71	80.53	68.1	60.5
118	CB 118	1,407.00	O 118	1,406.00	277	0.0036	48	0.013	58.12	7.37	2.40	86.35	67.3	60.1
119	CB 119	1,428.47	MH 116	1,416.00	76	0.1643	24	0.013	2.71	13.00	0.24	91.70	3.0	11.8
120	CB 120	1,421.83	T 120	1,410.20	43	0.2694	24	0.013	0.90	11.07	3.25	117.42	0.8	6.2
121	CB 121	1,417.49	CB 123	1,417.26	42	0.0054	24	0.013	1.49	3.28	1.64	16.66	9.0	20.2
122	CB 122	1,417.49	CB 123	1,417.26	59	0.0039	24	0.013	1.37	2.84	1.64	14.07	9.7	21.0
123	CB 123	1,417.26	CB 126	1,416.50	48	0.0158	24	0.013	3.00	5.88	2.37	28.42	10.5	21.9
124	CB 124	1,417.23	CB 125	1,416.86	50	0.0074	24	0.013	4.39	5.00	2.04	19.43	22.6	32.3
125	CB 125	1,416.86	CB 126	1,416.50	57	0.0063	24	0.013	4.74	1.51	2.35	17.95	26.4	35.1
126	CB 126	1,416.50	MH 127	1,414.90	37	0.0438	24	0.013	8.32	2.65	3.75	47.33	17.6	28.4
128A	T 128A	1,417.67	T 128B	1,417.38	53	0.0055	36	0.013	36.70	5.19	3.52	49.52	74.1	64.1
128B	T 128B	1,417.38	MH 131	1,416.92	83	0.0055	36	0.013	39.15	5.54	3.34	49.52	79.1	67.1
129	CB 129	1,420.25	T 128B	1,417.38	10	0.2928	24	0.013	4.16	18.12	3.76	122.40	3.4	12.6
131	MH 131	1,416.92	T 131	1,416.65	30	0.0090	36	0.013	39.98	9.48	3.11	63.36	63.1	57.6
134	HW 134	1,440.00	MH 135	1,439.80	34	0.0059	24	0.013	0.00	0.00	0.00	17.33	0.0	(N/A)
135	MH 135	1,439.80	MH 136	1,438.35	300	0.0048	24	0.013	0.00	0.00	0.00	15.73	0.0	(N/A)
136	MH 136	1,438.35	O 136	1,438.00	77	0.0045	24	0.013	0.00	0.00	0.00	15.22	0.0	(N/A)
201	HW 201	1,439.00	CB 208	1,437.00	84	0.0238	24	0.013	0.00	0.00	0.76	34.93	0.0	(N/A)
202	CB 202	1,428.50	CB 205	1,428.00	137	0.0037	30	0.013	10.00	2.04	3.47	24.78	40.4	44.2
203	CB 203	1,430.02	CB 205	1,429.02	63	0.0159	24	0.013	2.03	5.26	2.48	28.55	7.1	18.1
205	CB 205	1,428.00	CB 207	1,427.00	281	0.0036	30	0.013	11.93	2.43	4.12	24.45	48.8	49.3
206	CB 206	1,428.74	CB 207	1,427.74	31	0.0323	24	0.013	0.85	0.27	3.44	40.65	2.1	10.0
207	CB 207	1,427.00	T 207	1,425.19	140	0.0130	30	0.013	16.59	3.38	5.53	46.70	35.5	41.2
208	CB 208	1,437.00	O 208	1,436.00	55	0.0183	24	0.013	2.32	5.74	0.37	30.60	7.6	18.6
209A	CB 209	1,446.90	T 209	1,436.50	42	0.2454	24	0.013	2.34	14.31	0.72	112.06	2.1	10.0
209B	T 209	1,436.50	O 209	1,436.00	30	0.0167	24	0.013	2.34	5.57	0.39	29.20	8.0	19.1
302	T 302	1,406.56	CB 303	1,406.55	13	0.0008	24	0.013	2.28	1.85	1.90	6.32	36.1	41.5
303	CB 303	1,406.55	CB 304	1,406.51	84	0.0005	24	0.013	3.77	1.73	1.90	4.94	76.2	65.3
304	CB 304	1,406.51	CB 306	1,406.49	50	0.0004	24	0.013	3.85	1.62	1.87	4.53	84.9	70.8
305	CB 305	1,407.50	CB 306	1,406.49	50	0.0203	24	0.013	3.32	6.62	1.88	32.23	10.3	21.7
306	CB 306	1,406.49	CB 307	1,406.46	55	0.0005	24	0.013	5.52	1.91	1.78	5.28	104.4	86.6
307	CB 307	1,406.46	CB 308	1,406.43	70	0.0004	24	0.013	5.86	1.86	1.70	4.69	124.9	(N/A)
308	CB 308	1,406.43	CB 309	1,406.41	30	0.0007	24	0.013	5.90	2.12	1.65	5.86	100.8	82.7
309	CB 309	1,406.41	CB 310	1,406.30	207	0.0005	24	0.013	6.18	1.97	1.38	5.22	118.4	(N/A)
310	CB 310	1,406.30	T 310	1,406.17	11	0.0114	24	0.013	6.17	6.42	1.29	24.13	25.6	34.5
311	CB 311	1,405.45	T 315	1,405.42	33	0.0009	36	0.013	7.46	2.63	1.93	20.06	37.2	42.2
313	CB 313	1,408.35	O 313	1,408.00	33	0.0105	24	0.013	1.92	4.46	0.39	23.15	8.3	19.5
314A	CB 314	1,417.67	T 314	1,408.50	36	0.2537	24	0.013	1.65	13.00	0.60	113.93	1.4	8.4
314B	T 314	1,408.50	O 314	1,408.00	13	0.0385	24	0.013	1.64	6.74	0.28	44.37	3.7	13.2
315A	CB 315	1,427.90	T 315	1,408.50	58	0.3346	24	0.013	4.68	19.66	1.03	130.86	3.6	12.9
315B	T 315	1,408.50	O 315	1,408.00	21	0.0238	24	0.013	4.67	7.73	0.54	34.90	13.4	24.7
316	CB 316	1,410.32	O 316	1,408.00	34	0.0674	24	0.013	4.54	11.09	0.39	58.74	7.7	18.8
317	CB 317	1,412.83	CB 330	1,410.67	23	0.0960	24	0.013	4.05	12.14	2.98	70.09	5.8	16.3
318	CB 318	1,429.74	MH 329	1,412.63	108	0.1590	12	0.013	2.96	14.28	1.77	14.20	20.8	31.0
319	CB 319	1,415.11	T 328	1,413.25	23	0.0826	24	0.013	4.33	11.75	2.67	65.01	6.7	17.5
320	CB 320	1,421.48	MH 328	1,414.92	70	0.0938	24	0.013	1.34	8.65	2.31	69.28	1.9	9.7
321	CB 321	1,417.57	T 327	1,415.98	20	0.0798	24	0.013	4.88	12.03	2.41	63.92	7.6	18.7
322	HW 322	1,423.00	CB 323	1,422.39	91	0.0067	36	0.013	9.26	5.76	1.60	54.66	16.9	27.8
323	CB 323	1,422.29	CB 324	1,420.03	300	0.0075	36	0.013	13.79	6.72	1.78	57.90	23.8	33.2
324	CB 324	1,419.93	CB 325	1,417.67	300	0.0075	36	0.013	17.69	7.19	1.99	57.87	30.6	37.9
325	CB 325	1,417.57	CB 326	1,417.28	50	0.0058	36	0.013	18.84	6.65	2.19	50.79	37.1	42.2
326	CB 326	1,417.18	MH 327	1,416.90	49	0.0057	36	0.013	19.64	6.70	2.20	50.52	38.9	43.3
327A	MH 327	1,416.80	T 327	1,415.98	110	0.0075	36	0.013	19.52	7.36	2.33	57.61	33.9	40.1
327B	T 327	1,415.98	MH 328	1,414.92	142	0.0075	36	0.013	23.65	7.76	2.16	57.69	41.0	44.6
328A	MH 328	1,414.82	T 328	1,413.25	209	0.0075	36	0.013	24.45	7.84	2.56	57.87	42.3	45.4
328B	T 328	1,413.25	MH 329	1,412.63	83	0.0075	36	0.013	27.60	8.08	1.77	57.82	47.7	48.7
329	MH 329	1,412.53	CB 330	1,410.67	250	0.0074	36	0.013	29.87	8.22	2.83	57.53	51.9	51.1
330A	CB 330	1,410.57	T 330A	1,410.27	39	0.0077	36	0.013	32.39	8.48	2.81	58.43	55.4	53.2
330B	T 330A	1,410.27	T 330B	1,408.91	173	0.0079	36	0.013	32.25	8.56	1.58	59.25	54.4	52.6
330C	T 330B	1,408.91	O 330	1,408.00	116	0.0078	36	0.013	31.63	8.50	1.57	59.07	53.5	52.1
331	T-34	1,407.74	0 331	1,407.00	12	0.0639	24	0.013	3.29	9.89	0.38	57.18	5.8	16.3
332	HW 332	1,408.00	T-33	1,407.13	6	0.1463	24	0.013	0.00	0.00	2.22	86.52	0.0	(N/A)
400	CB 400	1,434.10	MH 401	1,434.02	61	0.0014	24	0.013	1.08	1.84	0.48	8.42	12.8	24.2
401	MH 401	1,434.02	CB 402	1,431.40	158	0.0165	36	0.013	1.05	4.14	0.63	85.79	1.2	7.8
402	CB 402	1,431.40	MH 403	1,430.85	42	0.0129	36	0.013	1.82	4.48	0.86	75.88	2.4	10.7
403A	MH 403	1,430.85	T 403	1,430.31	233	0.0023	36	0.013	1.80	2.45	1.36	32.18	5.6	16.1
403B	T 403	1,430.31	CB 405	1,430.15	73	0.0022	36	0.013	6.74	3.50	1.30	30.97	21.8	31.7
404	CB 404	1,430.50	T 403	1,430.31	43	0.0045	24	0.013	5.90	4.52	1.30	15.15	38.9	43.3
405	CB 405	1,430.15	CB 406	1,430.00	69	0.0022	36	0.013	6.62	3.50	1.36	31.18	21.2	31.3
406	CB 406	1,430.00	CB 407	1,429.80	42	0.0048	36	0.013	7.04	4.72	1.40	46.18	15.2	26.4
407	CB 407	1,429.80	O 407	1,429.50	221	0.0014	36	0.013	8.12	3.12	1.19	24.59	33.0	39.6
408	CB 408	1,434.70	O 408	1,433.37	26	0.0520	18	0.013	1.31	7.26	0.24	23.94	5.5	15.9
409	CB 409	1,433.87	O 409	1,431.00	181	0.0159	24	0.013	1.70	4.99	0.33	28.50	6.0	16.6
410	CB 410	1,439.20	CB 411	1,437.34	36	0.0510	24	0.013	9.61	12.48	1.88	51.09	18.8	29.4
411	CB 411	1,437.34	O 411	1,431.00	209	0.0304	24	0.013	10.41	10.59	0.70	39.41	26.4	35.1
412	HW 412	1,440.00	MH 413	1,439.00	56	0.0179	24	0.013	0.00	0.00	0.00	30.23	0.0	(N/A)
413	MH 413	1,439.00	MH 414	1,436.00	300	0.0100	24	0.013	0.00	0.00	0.00	22.62	0.0	(N/A)
414	MH 414	1,436.00	O 414	1,431.00	230	0.0217	24	0.013	0.00	0.00	0.00	33.36	0.0	(N/A)
415	HW 415	1,439.00	CB 416	1,438.70	74	0.0040	24	0.013	0.00	0.00	0.63	14.40	0.0	(N/A)
416	CB 416	1,438.70	O 416	1,437.42	138	0.0093	24	0.013	1.62	4.06	0.37	21.77	7.4	18.5
417	CB 417	1,444.80	O 417	1,440.00	44	0.1101	24	0.013	1.45	9.36	0.19	75.07	1.9	9.6
418	CB 418	1,443.25	O 418	1,438.00	42	0.1253	24	0.013	0.91	8.51	0.15	80.06	1.1	7.5
419	CB 419	1,443.50	O 419	1,439.00	37	0.1210	24	0.013	0.62	7.48	0.13	78.68	0.8	6.3
420	CB 420	1,443.75	O 420	1,440.00	34	0.1116	24	0.013	0.90	8.16	0.15	75.57	1.2	7.7
421	CB 421	1,444.00	O 421	1,441.00	68	0.0440	24	0.013	1.70	7.13	0.26	47.43	3.6	12.9
422	CB 422	1,444.50	O 422	1,444.00	21	0.0243	24	0.013	0.42	3.79	0.15	35.28	1.2	7.6
423	CB 423	1,446.85	CB 424	1,444.75	55	0.0385	24	0.013	7.04	10.33	1.33	44.39	15.9	26.9

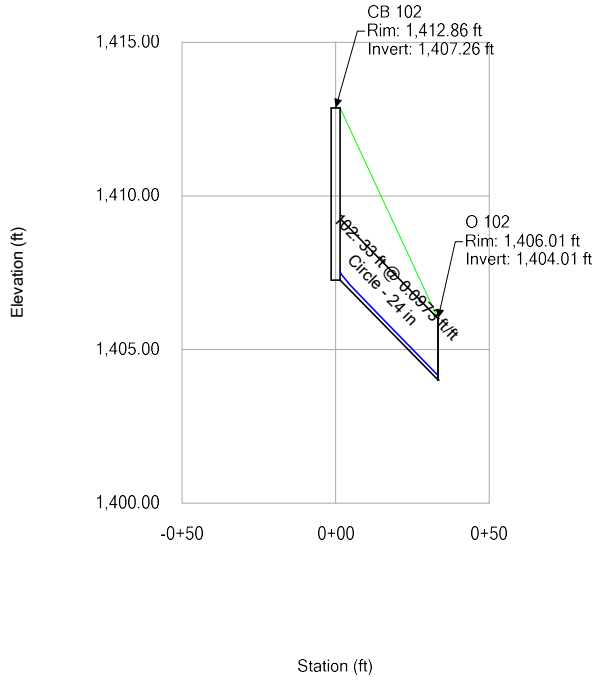
424	CB 424	1,444.75	O 424	1,444.00	20	0.0369	24	0.013	7.35	10.29	0.63	43.42	16.9	27.8
425	CB 425	1,445.10	O 425	1,445.00	18	0.0057	24	0.013	0.53	2.46	0.24	17.05	3.1	12.1
426	CB 426	1,448.09	CB 423	1,446.85	182	0.0068	24	0.013	4.62	4.93	1.49	18.68	24.7	33.9
500	CB 500	1,426.80	CB 501	1,426.08	112	0.0064	24	0.013	1.87	3.73	0.99	18.14	10.3	21.7
501	CB 501	1,426.08	CB 503	1,418.26	297	0.0263	24	0.013	3.39	7.30	1.34	36.70	9.2	20.5
502	CB 502	1,419.04	CB 503	1,418.26	83	0.0094	24	0.013	1.34	3.86	1.36	21.91	6.1	16.8
503	CB 503	1,418.26	CB 505	1,413.50	250	0.0190	24	0.013	6.47	7.84	1.84	31.22	20.7	30.9
504	CB 504	1,414.35	CB 505	1,413.50	39	0.0216	24	0.013	0.90	4.59	1.88	33.21	2.7	11.4
505	CB 505	1,413.50	CB 506	1,413.00	93	0.0054	24	0.013	8.44	5.30	2.10	16.58	50.9	50.5
506	CB 506	1,413.00	O 506	1,412.00	109	0.0092	24	0.013	10.85	6.90	1.00	21.66	50.1	50.1
507	CB 507	1,436.00	CB 508	1,435.45	111	0.0049	24	0.013	1.39	3.11	0.86	15.90	8.7	20.0
508	CB 508	1,435.45	CB 509	1,433.69	97	0.0181	24	0.013	2.80	6.04	1.03	30.43	9.2	20.5
509	CB 509	1,433.69	CB 315	1,427.90	215	0.0269	24	0.013	3.69	7.54	1.19	37.11	9.9	21.3
510	CB 510	1,436.11	CB 511	1,435.50	110	0.0055	24	0.013	1.33	3.20	0.86	16.84	7.9	19.0
511	CB 511	1,435.50	O 511	1,411.92	189	0.1246	24	0.013	2.60	11.65	0.25	79.86	3.3	12.4
512	CB 512	1,426.55	O 512	1,414.76	108	0.1091	24	0.013	1.96	10.22	0.22	74.73	2.6	11.2
513A	CB 513	1,423.54	T 513	1,413.50	30	0.3384	24	0.013	2.33	15.98	0.18	131.59	1.8	9.2
513B	T 513	1,413.50	O 513	1,410.54	33	0.0897	24	0.013	2.33	10.06	2.00	67.75	3.4	12.7
514	CB 514	1,417.30	O 514	1,417.20	20	0.0050	18	0.013	2.03	3.59	0.53	7.45	27.2	35.6
515	CB 515	1,415.15	O 515	1,411.25	54	0.0716	24	0.013	2.18	9.11	0.26	60.52	3.6	13.0
517	CB 517	1,412.85	O 517	1,411.83	32	0.0321	24	0.013	2.06	6.75	0.31	40.50	5.1	15.3
600	CB 602	1,438.75	CB 601	1,439.25	57	-0.0087	18	0.013	1.62	4.10	1.00	9.81	16.5	27.5
601	CB 601	1,439.25	CB 600	1,439.50	53	-0.0047	18	0.013	0.99	2.87	0.67	7.23	13.7	25.0
602	CB 602	1,438.75	O 602	1,438.00	115	0.0065	18	0.013	3.01	4.39	0.62	8.49	35.4	41.1
603	CB 603	1,444.64	CB 604	1,443.50	103	0.0111	24	0.013	1.48	4.22	0.83	23.78	6.2	16.9
604	CB 604	1,443.50	CB 605	1,442.15	91	0.0148	24	0.013	2.76	5.61	1.14	27.53	10.0	21.4
605	CB 605	1,442.15	CB 607	1,440.13	87	0.0232	24	0.013	4.92	7.78	1.52	34.49	14.3	25.5
607	CB 607	1,440.13	CB 410	1,439.20	246	0.0038	24	0.013	7.61	4.53	1.71	13.91	54.7	52.7
608	CB 608	1,445.38	CB 607	1,440.13	213	0.0247	24	0.013	1.64	5.75	1.55	35.55	4.6	14.6
609	CB 609	1,451.47	CB 610	1,450.63	84	0.0100	24	0.013	2.20	4.57	0.92	22.65	9.7	21.1
610	CB 610	1,450.63	CB 611	1,449.88	75	0.0100	24	0.013	3.18	5.09	0.93	22.66	14.0	25.3
611	CB 611	1,449.88	CB 612	1,449.24	64	0.0100	24	0.013	3.63	5.28	1.33	22.64	16.0	27.1
612A	CB 612	1,449.24	T 612	1,440.00	68	0.1359	24	0.013	6.23	15.58	1.21	83.39	7.5	18.5
612B	T 612	1,440.00	O 612	1,431.00	191	0.0471	24	0.013	6.21	10.70	0.48	49.10	12.6	24.0
613	CB 613	1,459.10	CB 614	1,458.15	127	0.0075	24	0.013	0.87	3.13	0.95	19.53	4.4	14.3
614	CB 614	1,458.15	CB 615	1,456.16	56	0.0355	24	0.013	3.52	8.20	1.11	42.62	8.3	19.4
615A	CB 615	1,456.16	T 615	1,439.50	66	0.2538	24	0.013	3.82	16.75	0.93	113.97	3.3	12.5
615B	T 615	1,439.50	O 615	1,438.99	31	0.0165	24	0.013	3.80	6.39	0.50	29.02	13.1	24.5
616	CB 616	1,460.50	CB 617	1,457.53	164	0.0181	24	0.013	0.88	4.28	0.95	30.44	2.9	11.7
617	CB 617	1,457.53	CB 618	1,452.50	56	0.0898	24	0.013	3.61	11.45	0.31	67.77	5.3	15.7
618	CB 618	1,451.50	O 618	1,439.00	90	0.1383	24	0.013	5.70	15.28	0.35	84.12	6.8	17.6
619A	CB 619	1,459.27	T 619	1,439.50	79	0.2487	24	0.013	1.79	13.28	0.62	112.81	1.6	8.8
619B	T 619	1,439.50	O 619	1,439.00	26	0.0192	24	0.013	1.79	5.41	0.33	31.36	5.7	16.2
620	CB 620	1,454.98	CB 618	1,451.50	195	0.0178	24	0.013	1.86	5.33	1.38	30.20	6.2	16.8
621	CB 621	1,456.75	CB 620	1,454.98	114	0.0156	24	0.013	1.01	4.24	0.72	28.25	3.6	12.9
622	CB 622	1,449.00	CB 627	1,448.24	76	0.0099	24	0.013	4.30	5.53	1.33	22.56	19.1	29.6
623A	CB 623	1,454.22	T 623	1,439.50	58	0.2549	24	0.013	0.54	9.29	0.34	114.20	0.5	5.0
623B	T 623	1,439.50	O 623	1,439.00	27	0.0185	24	0.013	0.54	3.72	0.18	30.78	1.7	9.2
627	CB 627	1,448.24	CB 628	1,447.55	30	0.0231	24	0.013	5.65	8.08	1.28	34.35	16.5	27.4
628	CB 628	1,447.55	O 628	1,446.00	31	0.0500	24	0.013	6.62	11.13	0.53	50.57	13.1	24.4
630	HW 630	1,445.00	O 630	1,444.00	141	0.0071	24	0.013	0.00	0.00	0.00	19.07	0.0	(N/A)
634	T 627	1,438.30	O X625D	1,438.00	32	0.0093	24	0.013	1.42	3.92	2.00	21.84	6.5	17.3
635	CB 635	1,445.21	CB 637	1,443.50	107	0.0160	24	0.013	2.88	5.84	1.27	28.62	10.1	21.4
636	CB 636	1,444.00	CB 637	1,443.50	74	0.0068	24	0.013	1.09	3.24	1.29	18.62	5.9	16.4
637	CB 637	1,443.50	CB 639	1,442.00	146	0.0103	24	0.013	5.21	5.91	0.65	22.92	22.8	32.4
638	HW 638	1,440.50	CB 639	1,439.00	117	0.0129	36	0.013	0.00	0.00	1.22	75.66	0.0	(N/A)
639	CB 639	1,439.00	CB 640	1,438.00	59	0.0170	36	0.013	5.53	6.89	1.14	86.95	6.4	17.1
640	CB 640	1,438.00	O 640	1,437.00	100	0.0100	36	0.013	6.92	6.10	0.65	66.69	10.4	21.7
641	CB 641	1,441.25	O 641	1,441.00	36	0.0069	24	0.013	1.75	3.74	0.41	18.77	9.3	20.6
HJ1	SP HJ1	1,446.80	O HJ1	1,444.00	46	0.0610	24	0.013	1.61	7.86	0.23	55.88	2.9	11.7
HJ2	SP HJ2	1,447.71	O HJ2	1,444.50	26	0.1243	24	0.013	1.04	8.83	0.16	79.75	1.3	8.0
PHN1	SP PHN1	1,435.67	O PHN1	1,434.30	30	0.0451	24	0.013	1.73	7.23	0.26	48.05	3.6	13.0
X 101	CB 101	1,404.43	O X101	1,404.00	30	0.0145	18	0.013	1.04	4.32	0.29	12.65	8.2	19.4
X109	CB 109	1,405.71	O X111	1,405.56	23	0.0064	24	0.013	1.31	3.35	0.36	18.10	7.3	18.2
X111	T 111	1,406.26	O X111	1,406.00	35	0.0075	24	0.013	13.96	6.78	1.25	19.62	71.2	62.3
X112	T 112	1,407.82	CB 115	1,407.44	95	0.0040	18	0.013	7.64	4.33	3.12	6.64	115.1	(N/A)
X115	CB 115	1,407.44	O X115	1,407.20	59	0.0041	18	0.013	10.08	5.71	2.25	6.73	149.9	(N/A)
X125	MH 127	1,414.90	CB X125A	1,412.31	135	0.0192	36	0.013	44.93	12.97	2.92	92.31	48.7	49.2
X125A	CB X125A	1,412.31	T 120	1,410.20	142	0.0148	42	0.013	44.80	11.75	3.03	122.57	36.6	41.8
X125B	T 120	1,410.20	MH 116	1,409.29	146	0.0062	42	0.013	45.20	8.51	3.09	79.31	57.0	54.1
X130A	CB X130A	1,420.50	MH 131	1,420.00	38	0.0131	24	0.013	1.75	4.70	0.49	25.94	6.7	17.6
X131	T 131	1,416.65	MH 127	1,414.90	280	0.0063	36	0.013	39.94	8.21	3.51	52.75	75.7	65.0
X207A	T 207	1,425.19	CB 133	1,424.60	192	0.0031	30	0.013	16.34	3.33	5.71	22.76	71.8	62.7
X207B	CB X207B	1,426.39	CB 133	1,425.60	48	0.0166	24	0.013	1.06	0.34	4.82	29.12	3.6	13.0
X207C	CB 133	1,424.60	CB 132	1,423.39	210	0.0058	30	0.013	20.85	4.25	6.14	31.13	67.0	59.9
X207D	CB X207D	1,425.81	CB 132	1,424.47	48	0.0282	18	0.013	0.83	0.47	5.23	17.63	4.7	14.7
X207E	CB 132	1,423.39	CB X207G	1,421.92	260	0.0057	30	0.013	23.47	4.78	6.49	30.85	76.1	65.3
X207F	CB X207F	1,425.10	CB X207G	1,423.39	51	0.0336	18	0.013	1.03	0.59	5.23	19.26	5.4	15.7
X207G	CB X207G	1,421.92	CB X207I	1,420.00	340	0.0056	30	0.013	26.55	5.41	6.65	30.81	86.2	71.6
X207H	CB X207H	1,423.45	CB X207I	1,420.00	54	0.0638	18	0.013	1.86	1.05	6.91	26.53	7.0	17.9
X207I	CB X207I	1,420.00	CB X207K	1,419.22	200	0.0039	30	0.013	30.70	6.25	5.83	25.64	119.7	(N/A)
X207J	CB X207J	1,422.30	CB X207K	1,421.54	51	0.0149	18	0.013	0.00	0.00	3.88	12.83	0.0	(N/A)
X207K1	CB X207K	1,419.22	CB 137	1,418.88	214	0.0016	30	0.013	32.28	6.58	4.40	16.33	197.6	(N/A)
X207K2	CB 137	1,418.88	CB X207M	1,418.78	61	0.0016	30	0.013	33.91	6.91	3.60	16.60	204.3	(N/A)
X207L	CB X207L	1,422.00	CB X207M	1,421.70	52	0.0058	24	0.013	1.10	3.07	1.12	17.18	6.4	17.2
X207M	CB X207M	1,418.28	T 128A	1,417.67	306	0.0020	36	0.013	37.77	5.34	3.63	29.80	126.7	(N/A)
X300	CB 300	1,405.74	CB 301	1,405.26	39	0.0122	24	0.013	0.93	3.80	2.05	25.00	3.7	13.2
X306A	T-33	1,407.13	CB X306B	1,406.97	30	0.0054	24	0.013	0.00	0.00	2.38	16.63	0.0	(N/A)
X306B	CB X306B	1,406.97	CB X306C	1,406.90	319	0.0002	24	0.013	0.85	0.27	2.44	3.35	25.5	34.4
X306C	CB X306C	1,406.90	T 302	1,406.56	168	0.0020	12	0.013	2.34	2.98	1.90	1.60	145.9	(N/A)
X310	T 310	1,406.17	CB 311	1,405.81	31	0.0117	24	0.013	6.17	6.49	1.56	24.47	25.2	34.2
X315A	T 315	1,405.42	CB 301	1,405.26	187	0.0009	36	0.013	7.44	2.57	2.03	19.48	38.2	42.9
X315B	CB 301	1,405.26	CB X315C	1,405.21	177	0.0003	36	0.013	8.71	1.75	1.99	11.22	77.6	66.2
X315C	CB X315C	1,405.06	O X315C	1,405.01	39	0.0013	36	0.013	9.11	3.15	1.28	23.91	38.1	42.8
X331	CB X331	1,407.91	T-34	1,407.74	23	0.0075	24	0.013	3.30	4.63	0.86	19.53	16.9	27.8
X399	HW X399	1,432.10	MH 403	1,430.85	517	0.0024	24	0.013	0.00	0.00	0.87	11.12	0.0	(N/A)
X401	MH X401	1,434.30	MH 401	1,434.02	97	0.0029	36	0.024	0.00	0.00	0.45	19.56	0.0	(N/A)
X625A	CB X625A	1,444.36	MH X625C	1,444.00	76	0.0047	18	0.013	0.00	0.00	0.29	7.24	0.0	(N/A)
X625B	CB X625B	1,444.50	MH X625C	1,444.00	66	0.0076	24	0.013	0.37	2.42	0.27	19.73	1.9	9.5
X625C	MH X625C	1,444.00	CB 625	1,440.64	96	0.0349	24	0.013	0.36	4.11	0.59	42.24	0.8	6.5
X625D	CB 625	1,440.64	T 627	1,438.30	67	0.0349	24	0.013	1.44	6.26	1.70	42.28	3.4	12.6
X625E	CB X625E	1,448.00	O X625E	1,445.00	20	0.1471	24	0.013	0.39	6.94	0.10	86.75	0.4	4.8
X626A	CB X626A	1,444.49	CB 626	1,442.90	76	0.0209	24	0.013	1.11	4.84	0.71	32.71	3.4	12.6
X626B	CB 626	1,442.90	O X626B	1,441.07	86	0.0212	24	0.013	2.11	5.89	0.34	32.97	6.4	17.1

Scenario: 10-Year
Current Time Step: 0.000Hr
Conduit FlexTable: Combined Pipe/Node Report

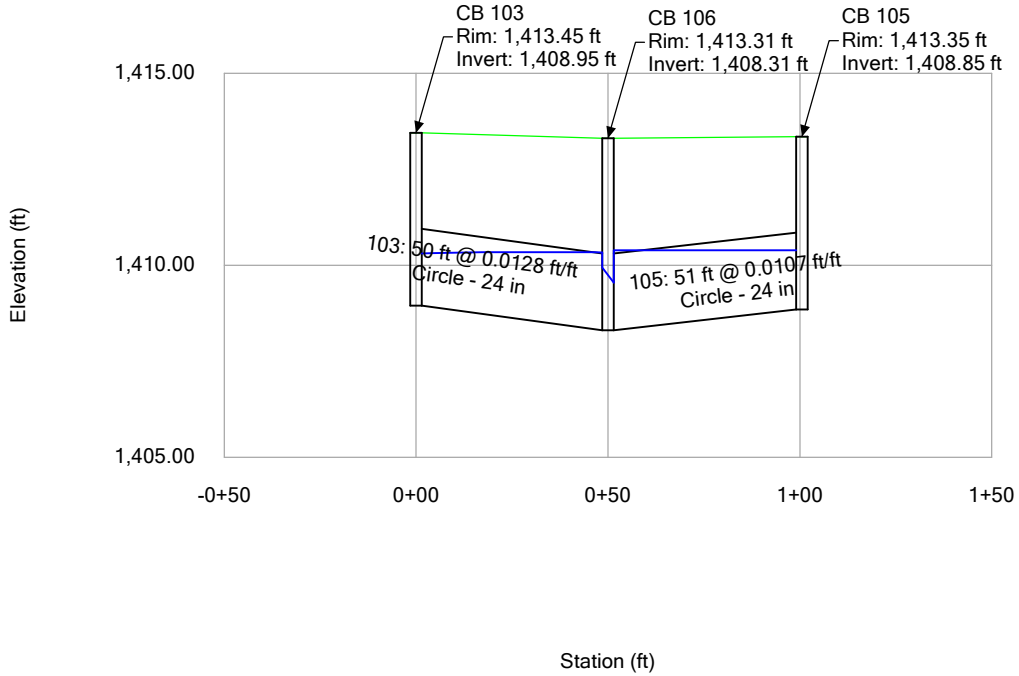
Label	Start Node	Stop Node	Length (Unified) (ft)	Diameter (in)	System CA (acres)	System Flow Time (min)	System Intensity (in/h)	System Rational Flow (cfs)	Capacity (Full Flow) (cfs)	Velocity (ft/s)	Slope (Calculated) (ft/ft)	Invert (Start) (ft)	Depth (In) (ft)	Energy Grade Line (In) (ft)	Invert (Stop) (ft)	Depth (Out) (ft)	Energy Grade Line (Out) (ft)
102	CB 102	O 102	33	24	0.123	4.980	5.575	0.69	70.58	7.17	0.0973	1,407.26	0.29	1,407.64	1,404.01	0.14	1,404.95
103	CB 103	CB 106	50	24	1.405	4.980	5.575	7.90	25.58	7.17	0.0128	1,408.95	1.36	1,410.50	1,408.31	2.02	1,410.43
105	CB 105	CB 106	51	24	0.036	4.980	5.575	0.20	23.39	2.29	0.0107	1,408.85	1.54	1,410.39	1,408.31	2.08	1,410.39
106	CB 106	CB 108	46	24	1.755	5.348	5.483	9.70	29.78	8.47	0.0173	1,408.31	1.11	1,409.88	1,407.51	2.11	1,409.77
107	CB 107	CB 108	43	24	0.252	4.980	5.575	1.42	18.84	3.53	0.0069	1,407.81	1.90	1,409.71	1,407.51	2.19	1,409.71
108	CB 108	O 108	33	24	2.168	5.439	5.459	11.93	74.29	17.34	0.1078	1,407.51	1.24	1,409.28	1,403.93	0.61	1,407.91
110	CB 110	CB 111	104	24	2.264	4.980	5.575	12.72	18.60	6.37	0.0068	1,407.00	1.73	1,409.03	1,406.30	2.16	1,408.72
111	CB 111	T 111	5	24	2.516	5.251	5.509	13.97	21.13	7.19	0.0087	1,406.30	1.94	1,408.55	1,406.26	1.97	1,408.54
112	CB 112	T 112	44	18	1.370	4.980	5.575	7.70	6.70	4.36	0.0041	1,408.00	3.30	1,411.59	1,407.82	3.24	1,411.36
114	CB 114	CB 115	244	24	0.229	4.980	5.575	1.29	39.08	5.72	0.0299	1,429.35	0.39	1,429.88	1,422.08	0.25	1,422.84
116	MH 116	CB 117	322	48	10.664	16.335	3.408	36.63	90.85	7.28	0.0040	1,409.29	2.77	1,412.45	1,408.00	3.87	1,412.09
117A	CB 117	T 117A	56	48	13.463	17.074	3.351	45.48	81.51	6.98	0.0032	1,408.00	3.58	1,411.92	1,407.82	3.70	1,411.83
117B	T 117A	T 117B	200	48	13.463	17.208	3.341	45.34	81.52	6.97	0.0032	1,407.82	3.41	1,411.59	1,407.18	3.84	1,411.32
117C	T 117B	CB 118	56	48	13.463	17.686	3.304	44.84	80.53	6.89	0.0031	1,407.18	3.59	1,411.10	1,407.00	3.71	1,411.01
118	CB 118	O 118	277	48	14.495	17.821	3.294	48.12	86.35	7.37	0.0036	1,407.00	2.40	1,410.25	1,406.00	2.40	1,409.25
119	CB 119	MH 116	76	24	0.483	4.980	5.575	2.71	91.70	13.00	0.1643	1,428.47	0.57	1,429.25	1,416.00	0.24	1,418.86
120	CB 120	T 120	43	24	0.160	4.980	5.575	0.90	117.42	11.07	0.2694	1,421.83	0.33	1,422.27	1,410.20	3.25	1,413.45
121	CB 121	CB 123	42	24	0.266	4.980	5.575	1.49	16.66	3.28	0.0054	1,417.49	1.41	1,418.91	1,417.26	1.64	1,418.91
122	CB 122	CB 123	59	24	0.243	4.980	5.575	1.37	14.07	2.84	0.0039	1,417.49	1.41	1,418.91	1,417.26	1.64	1,418.91
123	CB 123	CB 126	48	24	0.542	5.329	5.488	3.00	28.42	5.88	0.0158	1,417.26	1.61	1,418.89	1,416.50	2.37	1,418.88
124	CB 124	CB 125	50	24	0.781	4.980	5.575	4.39	19.43	5.00	0.0074	1,417.23	1.68	1,418.95	1,416.86	2.04	1,418.93
125	CB 125	CB 126	57	24	0.850	5.147	5.536	4.74	17.95	1.51	0.0063	1,416.86	2.02	1,418.91	1,416.50	2.35	1,418.89
126	CB 126	MH 127	37	24	1.538	5.778	5.369	8.32	47.33	2.65	0.0438	1,416.50	2.20	1,418.81	1,414.90	3.75	1,418.76
128A	T 128A	T 128B	53	36	7.432	14.632	3.565	26.70	49.52	5.19	0.0055	1,417.67	3.39	1,421.48	1,417.38	3.52	1,421.31
128B	T 128B	MH 131	83	36	8.172	14.804	3.539	29.15	49.52	5.54	0.0055	1,417.38	3.17	1,421.02	1,416.92	3.34	1,420.74
129	CB 129	T 128B	10	24	0.740	4.980	5.575	4.16	122.40	18.12	0.2928	1,420.25	0.72	1,421.23	1,417.38	3.76	1,421.16
131	MH 131	T 131	30	36	8.483	15.053	3.506	29.98	63.36	9.48	0.0090	1,416.92	2.94	1,420.36	1,416.65	3.11	1,420.26
134	HW 134	MH 135	34	24	0.000	4.980	5.575	0.00	17.33	0.00	0.0059	1,440.00	0.00	1,440.00	1,439.80	0.00	1,439.80
135	MH 135	MH 136	300	24	0.000	4.980	5.575	0.00	15.73	0.00	0.0048	1,439.80	0.00	1,439.80	1,438.35	0.00	1,438.35
136	MH 136	O 136	77	24	0.000	4.980	5.575	0.00	15.22	0.00	0.0045	1,438.35	0.00	1,438.35	1,438.00	0.00	1,438.00
201	HW 201	CB 208	84	24	0.000	4.980	5.575	0.00	34.93	0.00	0.0238	1,439.00	0.00	1,439.00	1,437.00	0.76	1,437.76
202	CB 202	CB 205	137	30	0.000	4.980	5.575	0.00	24.78	2.04	0.0037	1,428.50	3.05	1,431.61	1,428.00	3.47	1,431.53
203	CB 203	CB 205	63	24	0.362	4.980	5.575	2.03	28.55	5.26	0.0159	1,430.02	1.48	1,431.52	1,429.02	2.48	1,431.51
205	CB 205	CB 207	281	30	0.362	6.101	5.284	1.93	24.45	2.43	0.0036	1,428.00	3.36	1,431.45	1,427.00	4.12	1,431.21
206	CB 206	CB 207	31	24	0.151	4.980	5.575	0.85	40.65	0.27	0.0323	1,428.74	2.44	1,431.18	1,427.74	3.44	1,431.18
207	CB 207	T 207	140	30	1.369	8.031	4.775	6.59	46.70	3.38	0.0130	1,427.00	3.95	1,431.13	1,425.19	5.53	1,430.90
208	CB 208	O 208	55	24	0.412	4.980	5.575	2.32	30.60	5.74	0.0183	1,437.00	0.53	1,437.72	1,436.00	0.37	1,436.88
209A	CB 209	T 209	42	24	0.417	4.980	5.575	2.34	112.06	14.31	0.2454	1,446.90	0.53	1,447.62	1,436.50	0.72	1,437.29
209B	T 209	O 209	30	24	0.417	5.029	5.567	2.34	29.20	5.57	0.0167	1,436.50	0.53	1,437.22	1,436.00	0.39	1,436.85
302	T 302	CB 303	13	24	0.836	25.485	2.706	2.28	6.32	1.85	0.0008	1,406.56	1.90	1,408.46	1,406.55	1.90	1,408.46
303	CB 303	CB 304	84	24	1.385	25.601	2.697	3.77	4.94	1.73	0.0005	1,406.55	1.88	1,408.45	1,406.51	1.90	1,408.43
304	CB 304	CB 306	50	24	1.449	26.406	2.636	3.85	4.53	1.62	0.0004	1,406.51	1.87	1,408.40	1,406.49	1.87	1,408.39
305	CB 305	CB 306	50	24	0.590	4.980	5.575	3.32	32.23	6.62	0.0203	1,407.50	0.78	1,408.41	1,406.49	1.88	1,408.39
306	CB 306	CB 307	55	24	2.108	26.919	2.596	5.52	5.28	1.91	0.0005	1,406.49	1.78	1,408.32	1,406.46	1.78	1,408.29
307	CB 307	CB 308	70	24	2.270	27.399	2.559	5.86	4.69	1.86	0.0004	1,406.46	1.71	1,408.24	1,406.43	1.70	1,408.19
308	CB 308	CB 309	30	24	2.331	28.024	2.512	5.90	5.86	2.12	0.0007	1,406.43	1.65	1,408.15	1,406.41	1.65	1,408.13
309	CB 309	CB 310	207	24	2.458	28.258	2.494	6.18	5.22	1.97	0.0005	1,406.41	1.50	1,408.00	1,406.30	1.38	1,407.79
310	CB 310	T 310	11	24	2.593	30.011	2.360	6.17	24.13	6.42	0.0114	1,406.30	1.13	1,407.61	1,406.17	1.29	1,407.57
311	CB 311	T 315	33	36	3.142	30.119	2.356	7.46	20.06	2.63	0.0009	1,405.45	1.91	1,407.40	1,405.42	1.93	1,407.39
313	CB 313	O 313	33	24	0.341	4.980	5.575	1.92	23.15	4.46	0.0105	1,408.35	0.48	1,409.00	1,408.00	0.39	1,408.70
314A	CB 314	T 314	36	24	0.293	4.980	5.575	1.65	113.93	13.00	0.2537	1,417.67	0.44	1,418.27	1,408.50	0.60	1,409.15
314B	T 314	O 314	13	24	0.293	5.026	5.568	1.64	44.37	6.74	0.0385	1,408.50	0.44	1,409.10	1,408.00	0.28	1,408.85
315A	CB 315	T 315	58	24	0.889	6.321	5.226	4.68	130.86	19.66	0.3346	1,427.90	0.76	1,428.94	1,408.50	1.03	1,409.64
315B	T 315	O 315	21	24	0.889	6.370	5.213	4.67	34.90	7.73	0.0238	1,408.50	0.76	1,409.54	1,408.00	0.54	1,409.28
316	CB 316	O 316	34	24	0.808	4.980	5.575	4.54	58.74	11.09	0.0674	1,410.32	0.75	1,411.35	1,408.00	0.39	1,410.09
317	CB 317	CB 330	23	24	0.721	4.980	5.575	4.05	70.09	12.14	0.0960	1,412.83	0.71	1,413.80	1,410.67	2.98	1,413.68
318	CB 318	MH 329	108	12	0.526	4.980	5.575	2.96	14.20	14.28	0.1590	1,429.74	0.74	1,430.83	1,412.63	1.77	1,414.62
319	CB 319	T 328	23	24	0.771	4.980	5.575	4.33	65.01	11.75	0.0826	1,415.11	0.73	1,416.11	1,413.25	2.67	1,415.95
320	CB 320	MH 328	70	24	0.239	4.980	5.575	1.34	69.28	8.65	0.0938	1,421.48	0.40	1,422.02	1,414.92	2.31	1,417.23
321	CB 321	T 327	20	24	0.869	4.980	5.575	4.88	63.92	12.03	0.0798	1,417.57	0.78	1,418.64	1,415.98	2.41	1,418.42
322	HW 322	CB 323	91	36	1.648	4.980	5.575	9.26	54.66	5.76	0.0067	1,423.00	0.96	1,424.31	1,422.39	1.60	1,424.07
323	CB 323	CB 324	300	36	2.483	5.243	5.511	13.79	57.90	6.72	0.0075	1,422.29	1.18	1,423.91	1,420.03	1.78	1,421.95
324	CB 324	CB 325	300	36	3.303	5.987	5.314	17.69	57.87	7.19	0.0075	1,419.93	1.35	1,421.79	1,417.67	1.99	1,419.84
325	CB 325	CB 326	50	36	3.643	6.682	5.131	18.84	50.79	6.65	0.0058	1,417.57	1.90	1,419.72	1,417.28	2.19	1,419.64
326	CB 326	MH 327	49	36	3.823	6.808	5.098	19.64	50.52	6.70	0.0057	1,417.18	1.92	1,419.36	1,416.90	2.20	1,419.28
327A	MH 327	T 327	110	36	3.823	6.929	5.066	19.52	57.61	7.36	0.0075	1,416.80	1.42	1,418.77	1,415.98	2.33	1,418.47
327B	T 327	MH 328	142	36	4.692	7.178	5.000	23.65	57.69	7.76	0.0075	1,415.98	1.57	1,418.17	1,414.92	2.16	1,417.33
328A	MH 328	T 328	209	36	4.931	7.482	4.920	24.45	57.87	7.84	0.0075	1,414.82	1.59	1,417.05	1,413.25	2.56	1,416.02
328B	T 328	MH 329	83	36	5.702	7.925	4.803	27.60	57.82	8.08	0.0075	1,413.25	1.70	1,415.64	1,412.63	1.77	1,415.03
329	MH 329	CB 330	250	36	6.228	8.096	4.758	29.87	57.53	8.22	0.0074	1,412.53	1.77	1,415.04	1,410.67	2.83	1,413.78
330A	CB 330	T 330A	39	36	6.949	8.603	4.624	32.39	58.43	8.48	0.0077	1,410.57	2.54	1,413.51	1,410.27	2.81	1,413.41
330B	T 330A	T 330B	173	36	6.949	8.679	4.604	32.25	59.25	8.56	0.0079	1,410.27	1.84	1,412.90	1,408.91	1.58	1,411.63
330C	T 330B	O 330	116	36	6.949	9.015	4.515	31.63	59.07	8.50	0.0078	1,408.91	1.82	1,411.50	1,408.00	1.57	1,410.68
331	T-34	0 331	12	24	0.587	5.062	5.558	3.29	57.18	9.89	0.0639	1,407.74	0.63	1,408.60	1,407.00	0.38	1,408.35
332	HW 332	T-33	6	24	0.000	4.980	5.575	0.00	86.52	0.00	0.1463	1,408.00	1.35	1,409.35	1,407.13	2.22	1,409.35
400	CB 400	MH 401	61	24	0.192	4.980	5.575	1.08	8.42	1.84	0.0014	1,434.10	0.48	1,434.64	1,434.02	0.48	1,434.55
401	MH 401	CB 402	158	36	0.192	5.534	5.434	1.05	85.79	4.14	0.0165	1,434.02	0.32	1,434.44	1,431.40	0.63	1,432.04
402	CB 402	MH 403	42	36	0.342	6.170	5.266	1.82	75.88	4.48	0.0129	1,431.40	0.42	1,431.96	1,430.85	0.86	1,431.73
403A	MH 403	T 403	233	36	0.342	6.328	5.224	1.80	32.18	2.45	0.0023	1,430.85	0.83	1,431.70	1,430.31	1.36	1,431.68
403B	T 403	CB 405	73	36	1.392	7.911	4.807	6.74	30.97	3.50	0.0022	1,430.31	1.18	1,431.59	1,430.15	1.30	1,431.52
404	CB 404	T 403	43	24	1.050	4.980	5.575	5.90	15.15	4.52	0.0045	1,430.50	1.13	1,431.79	1,430.31	1.30	1,431.71
405	CB 405	CB 406	69	36	1.392	8.259	4.715	6.62	31.18	3.50	0.0022	1,430.15	1.23	1,431.47	1,430.00	1.36	1,431.42
406	CB 406	CB 407	42	36	1.508	8.586	4.629	7.04	46.18	4.72	0.0048	1,430.00	1.19	1,431.31	1,429.80	1.40	1,431.27
407	CB 407	O 407	221	36	1.756	8.733	4.590	8.12	24.59	3.12	0.0014	1,429.80	1.19	1,431.14	1,429.50	1.19	1,430.84
408	CB 408	O 408	26	18	0.234	4.980	5.575	1.31	23.94	7.26	0.0539	1,434.70	0.43	1,435.28	1,433.37	0.24	1,434.42
409	CB 409	O 409	181	24	0.303	4.980	5.575	1.70	28.50	4.99	0.0159	1,433.87	0.45	1,434.48	1,431.00	0.33	1,431.72
410	CB 410	CB 411	36	24	1.864	6.750	5.113	9.61	51.09	12.48	0.0510	1,439.20	1.11	1,440.76	1,437.34	1.88	1,439.37
411	CB 411	O 411	209	24	2.025	6.799	5.100	10.41	39.41	10.59	0.0304	1,437.34	1.16	1,438.97	1,431.00	0.70	1,433.44
412	HW 412	MH 413	56	24	0.000	4.980	5.575	0.00	30.23	0.00	0.0179	1,440.00	0.00	1,440.00	1,439.00	0.00	0.00
413	MH 413	MH 414	300	24	0.000	4.980	5.575	0.00	22.62	0.00	0.0100	1,439.00	0.00	1,439.00	1,436.00	0.00	0.00
414	MH 414	O 414	230	24	0.000	4.980	5.575	0.00	33.36	0.00	0.0217	1,436.00	0.00	1,436.00	1,431.00	0.00	1,431.00
415	HW 415	CB 416	74	24	0.000	4.980	5.575	0.00	14.40	0.00	0.0040	1,439.00	0.33	1,439.33	1,438.70	0.63	1,439.33
416	CB 416	O 416	138	24	0.288	4.980	5.575	1.62	21.77	4.06	0.0093	1,438.70	0.44	1,439.30	1,437.42	0.37	1,438.05
417	CB 417	O 417	44	24	0.258	4.980	5.575	1.45	75.07	9.36	0.1101	1,444.80	0.42	1,445.36	1,440.00	0.19	1,441.55
418	CB 418	O 418	42	24	0.162	4.980	5.575	0.91	80.06	8.51	0.1253	1,443.25	0.33	1,443.69	1,438.00	0.15	1,439.27
419	CB 419	O 419	37	24	0.110	4.980	5.575	0.62	78.68	7.48	0.1210	1,443.50	0.27	1,443.86	1,439.00	0.13	1,439.99
420	CB 420	O 420	34	24	0.161	4.980	5.575	0.90	75.57	8.16	0.1116	1,443.75	0.33	1,444.19	1,440.00	0.15	1,441.19
421	CB 421	O 421	68	24	0.302	4.980	5.575	1.70	47.43	7.13	0.0440	1,444.00	0.45	1,444.61	1,441.00	0.26	1,442.05
422	CB 422	O 422	21	24	0.074	4.980	5.575	0.42	35.28	3.79	0.0243	1,444.50	0.22	1,444.80	1,444.00	0.15	1,444.38
423	CB 423	CB 424	55	24	1.290	5.595	5.418	7.04	44.39	10.33	0.0385	1,446.85	0.94	1,448.16	1,444.75	1.33	1,446.22
424	CB 424	O 424	20	24	1.351	5.683	5.395	7.35	43.42	10.29	0.0369	1,444.75	0.96	1,446.09	1,444.00	0.63	1,445.78
425	CB 425	O 425	18	24	0.095	4.980	5.575	0.53	17.05	2.46	0.0057	1,445.10	0.25	1,445.44	1,445.00	0.24	1,445.34
426	CB 426	CB 423	182	24	0.822	4.980	5.575	4.62	18.68	4.93	0.0068	1,448.09	0.76	1,449.13	1,446.85	1.49	1,448.39
500	CB 500	CB 501	112	24	0.333	4.980	5.575	1.87	18.14	3.73	0.0064	1,426.80	0.47	1,427.44	1,426.08	0.99	1,427.09
501	CB 501	CB 503	297	24	0.618	5.481	5.448	3.39	36.70	7.30	0.0263	1,426.08	0.64	1,426.96	1,418.26	1.34	1,419.64
502	CB 502	CB 503	83	24	0.239	4.980	5.575	1.34	21.91	3.86	0.0094	1,419.04	0.56	1,419.65	1,418.26	1.36	1,419.63
503	CB 503	CB 505	250	24	1.219	6.159	5.269	6.47	31.22	7.84	0.0190	1,418.26	0.90	1,419.51	1,413.50	1.84	1,415.41
504	CB 504	CB 505	39	24	0.161	4.980	5.575	0.90	33.21	4.59	0.0216	1,414.35	1.03	1,415.38	1,413.50	1.88	1,415.38
505	CB 505	CB 506	93	24	1.632	6.690	5.129	8.44	16.58	5.30	0.0054	1,413.50	1.70	1,415.34	1,413.00	2.10	1,415.21
506	CB 506	O 506	109	24	2.130	6.983	5.051	10.85	21.66	6.90	0.0092	1,413.00	1.18	1,414.67	1,412.00	1.00	1,413.74
507	CB 507	CB 508	111	24	0.247	4.980	5.575	1.39	15.90	3.11	0.0049	1,436.00	0.41	1,436.55	1,435.45	0.86	1,436.32
508	CB 508	CB 509	97	24	0.512	5.577	5.422	2.80	30.43	6.04	0.0181	1,435.45	0.58	1,436.24	1,433.69	1.03	1,434.76
509	CB 509	CB 315	215	24	0.684	5.845	5.352	3.69	37.11	7.54	0.0269	1,433.69	0.67	1,434.61	1,427.90	1.19	1,429.14
510	CB 510	CB 511	110	24	0.237	4.980	5.575	1.33	16.84	3.20	0.0055	1,436.11	0.40	1,436.65	1,435.50	0.86	1,436.37
511	CB 511	O 511	189	24	0.476	5.553	5.429	2.60	79.86	11.65	0.1246	1,435.50	0.56	1,436.26	1,411.92	0.25	1,414.28
512	CB 512	O 512	108	24	0.349	4.980	5.575	1.96	74.73	10.22	0.1091	1,426.55	0.49	1,427.21	1,414.76	0.22	1,416.60
513A	CB 513	T 513	30	24	0.414	4.980	5.575	2.33	131.59	15.98	0.3384	1,423.54	0.53	1,424.26	1,413.50	0.18	1,417.65
513B	T 513	O 513	33	24	0.414	5.011	5.572	2.33	67.75	10.06	0.0897	1,413.50	0.53	1,414.22	1,410.54	2.00	1,412.55

514	CB 514	O 514	20	18	0.361	4.980	5.575	2.03	7.45	3.59	0.0050	1,417.30	0.54	1,418.03	1,417.20	0.53	1,417.93
515	CB 515	O 515	54	24	0.388	4.980	5.575	2.18	60.52	9.11	0.0716	1,415.15	0.51	1,415.85	1,411.25	0.26	1,412.80
517	CB 517	O 517	32	24	0.366	4.980	5.575	2.06	40.50	6.75	0.0321	1,412.85	0.50	1,413.52	1,411.83	0.31	1,412.83
600	CB 602	CB 601	57	18	0.292	5.287	5.499	1.62	9.81	4.10	-0.0087	1,438.75	0.48	1,439.90	1,439.25	1.00	1,439.78
601	CB 601	CB 600	53	18	0.176	4.980	5.575	0.99	7.23	2.87	-0.0047	1,439.25	0.43	1,440.02	1,439.50	0.67	1,439.95
602	CB 602	O 602	115	18	0.549	5.519	5.438	3.01	8.49	4.39	0.0065	1,438.75	0.66	1,439.66	1,438.00	0.62	1,438.92
603	CB 603	CB 604	103	24	0.264	4.980	5.575	1.48	23.78	4.22	0.0111	1,444.64	0.42	1,445.21	1,443.50	0.83	1,444.36
604	CB 604	CB 605	91	24	0.500	5.388	5.472	2.76	27.53	5.61	0.0148	1,443.50	0.58	1,444.29	1,442.15	1.14	1,443.32
605	CB 605	CB 607	87	24	0.904	5.659	5.401	4.92	34.49	7.78	0.0232	1,442.15	0.78	1,443.22	1,440.13	1.52	1,441.70
607	CB 607	CB 410	246	24	1.410	5.845	5.352	7.61	13.91	4.53	0.0038	1,440.13	1.08	1,441.51	1,439.20	1.71	1,441.02
608	CB 608	CB 607	213	24	0.291	4.980	5.575	1.64	35.55	5.75	0.0247	1,445.38	0.44	1,445.98	1,440.13	1.55	1,441.68
609	CB 609	CB 610	84	24	0.392	4.980	5.575	2.20	22.65	4.57	0.0100	1,451.47	0.52	1,452.17	1,450.63	0.92	1,451.58
610	CB 610	CB 611	75	24	0.574	5.285	5.499	3.18	22.66	5.09	0.0100	1,450.63	0.62	1,451.48	1,449.88	0.93	1,450.88
611	CB 611	CB 612	64	24	0.663	5.530	5.435	3.63	22.64	5.28	0.0100	1,449.88	0.67	1,450.79	1,449.24	1.33	1,450.61
612A	CB 612	T 612	68	24	1.149	5.732	5.382	6.23	83.39	15.58	0.1359	1,449.24	0.88	1,450.46	1,440.00	1.21	1,441.34
612B	T 612	O 612	191	24	1.149	5.804	5.362	6.21	49.10	10.70	0.0471	1,440.00	0.88	1,441.22	1,431.00	0.48	1,433.26
613	CB 613	CB 614	127	24	0.154	4.980	5.575	0.87	19.53	3.13	0.0075	1,459.10	0.32	1,459.53	1,458.15	0.95	1,459.11
614	CB 614	CB 615	56	24	0.647	5.660	5.401	3.52	42.62	8.20	0.0355	1,458.15	0.66	1,459.05	1,456.16	1.11	1,457.32
615A	CB 615	T 615	66	24	0.705	5.774	5.371	3.82	113.97	16.75	0.2538	1,456.16	0.68	1,457.10	1,439.50	0.93	1,440.52
615B	T 615	O 615	31	24	0.705	5.839	5.353	3.80	29.02	6.39	0.0165	1,439.50	0.68	1,440.43	1,438.99	0.50	1,440.08
616	CB 616	CB 617	164	24	0.156	4.980	5.575	0.88	30.44	4.28	0.0181	1,460.50	0.32	1,460.93	1,457.53	0.95	1,458.49
617	CB 617	CB 618	56	24	0.661	5.619	5.411	3.61	67.77	11.45	0.0898	1,457.53	0.66	1,458.44	1,452.50	0.31	1,453.41
618	CB 618	O 618	90	24	1.067	6.036	5.301	5.70	84.12	15.28	0.1383	1,451.50	0.84	1,452.66	1,439.00	0.35	1,442.98
619A	CB 619	T 619	79	24	0.319	4.980	5.575	1.79	112.81	13.28	0.2487	1,459.27	0.46	1,459.90	1,439.50	0.62	1,440.18
619B	T 619	O 619	26	24	0.319	5.080	5.554	1.79	31.36	5.41	0.0192	1,439.50	0.46	1,440.13	1,439.00	0.33	1,439.76
620	CB 620	CB 618	195	24	0.338	5.426	5.462	1.86	30.20	5.33	0.0178	1,454.98	0.47	1,455.62	1,451.50	1.38	1,452.89
621	CB 621	CB 620	114	24	0.179	4.980	5.575	1.01	28.25	4.24	0.0156	1,456.75	0.35	1,457.22	1,454.98	0.72	1,455.71
622	CB 622	CB 627	76	24	0.765	4.980	5.575	4.30	22.56	5.53	0.0099	1,449.00	0.73	1,450.00	1,448.24	1.33	1,449.63
623A	CB 623	T 623	58	24	0.096	4.980	5.575	0.54	114.20	9.29	0.2549	1,454.22	0.25	1,454.56	1,439.50	0.34	1,439.87
623B	T 623	O 623	27	24	0.096	5.084	5.553	0.54	30.78	3.72	0.0185	1,439.50	0.25	1,439.84	1,439.00	0.18	1,439.40
627	CB 627	CB 628	30	24	1.016	5.210	5.519	5.65	34.35	8.08	0.0231	1,448.24	0.84	1,449.40	1,447.55	1.28	1,448.93
628	CB 628	O 628	31	24	1.194	5.272	5.503	6.62	50.57	11.13	0.0500	1,447.55	0.91	1,448.81	1,446.00	0.53	1,448.07
630	HW 630	O 630	141	24	0.000	4.980	5.575	0.00	19.07	0.00	0.0071	1,445.00	0.00	1,445.00	1,444.00	0.00	1,444.00
634	T 627	O X625D	32	24	0.266	6.002	5.310	1.42	21.84	3.92	0.0093	1,438.30	1.70	1,440.00	1,438.00	2.00	1,440.00
635	CB 635	CB 637	107	24	0.512	4.980	5.575	2.88	28.62	5.84	0.0160	1,445.21	0.59	1,446.01	1,443.50	1.27	1,444.80
636	CB 636	CB 637	74	24	0.194	4.980	5.575	1.09	18.62	3.24	0.0068	1,444.00	0.79	1,444.80	1,443.50	1.29	1,444.79
637	CB 637	CB 639	146	24	0.944	5.360	5.480	5.21	22.92	5.91	0.0103	1,443.50	0.81	1,444.61	1,442.00	0.65	1,443.19
638	HW 638	CB 639	117	36	0.000	4.980	5.575	0.00	75.66	0.00	0.0129	1,440.50	0.00	1,440.50	1,439.00	1.22	1,440.22
639	CB 639	CB 640	59	36	1.022	5.772	5.371	5.53	86.95	6.89	0.0170	1,439.00	0.74	1,440.00	1,438.00	1.14	1,439.21
640	CB 640	O 640	100	36	1.287	5.915	5.333	6.92	66.69	6.10	0.0100	1,438.00	0.83	1,439.12	1,437.00	0.65	1,438.23
641	CB 641	O 641	36	24	0.312	4.980	5.575	1.75	18.77	3.74	0.0069	1,441.25	0.46	1,441.87	1,441.00	0.41	1,441.63
HJ1	SP HJ1	O HJ1	46	24	0.287	4.980	5.575	1.61	55.88	7.86	0.0610	1,446.80	0.44	1,447.39	1,444.00	0.23	1,445.19
HJ2	SP HJ2	O HJ2	26	24	0.185	4.980	5.575	1.04	79.75	8.83	0.1243	1,447.71	0.35	1,448.18	1,444.50	0.16	1,445.87
PHN1	SP PHN1	O PHN1	30	24	0.307	4.980	5.575	1.73	48.05	7.23	0.0451	1,435.67	0.45	1,436.29	1,434.30	0.26	1,435.37
X 101	CB 101	O X101	30	18	0.185	4.980	5.575	1.04	12.65	4.32	0.0145	1,404.43	0.38	1,404.95	1,404.00	0.29	1,404.58
X109	CB 109	O X111	23	24	0.234	4.980	5.575	1.31	18.10	3.35	0.0064	1,405.71	0.40	1,406.24	1,405.56	0.36	1,406.10
X111	T 111	O X111	35	24	2.516	5.261	5.506	13.96	19.62	6.78	0.0075	1,406.26	1.35	1,408.21	1,406.00	1.25	1,407.96
X112	T 112	CB 115	95	18	1.370	5.149	5.535	7.64	6.64	4.33	0.0040	1,407.82	3.24	1,411.35	1,407.44	3.12	1,410.85
X115	CB 115	O X115	59	18	1.855	5.690	5.393	10.08	6.73	5.71	0.0041	1,407.44	2.55	1,410.50	1,407.20	2.25	1,409.96
X125	MH 127	CB X125A	135	36	10.021	15.673	3.458	34.93	92.31	12.97	0.0192	1,414.90	2.18	1,418.12	1,412.31	2.92	1,415.86
X125A	CB X125A	T 120	142	42	10.021	15.847	3.445	34.80	122.57	11.75	0.0148	1,412.31	2.09	1,415.27	1,410.20	3.03	1,413.59
X125B	T 120	MH 116	146	42	10.181	16.049	3.430	35.20	79.31	8.51	0.0062	1,410.20	2.10	1,413.17	1,409.29	3.09	1,412.74
X130A	CB X130A	MH 131	38	24	0.311	4.980	5.575	1.75	25.94	4.70	0.0131	1,420.50	0.46	1,421.12	1,420.00	0.49	1,420.59
X131	T 131	MH 127	280	36	8.483	15.105	3.502	29.94	52.75	8.21	0.0063	1,416.65	2.68	1,419.89	1,414.90	3.51	1,418.91
X207A	T 207	CB 133	192	30	1.369	8.719	4.593	6.34	22.76	3.33	0.0031	1,425.19	5.43	1,430.79	1,424.60	5.71	1,430.49
X207B	CB X207B	CB 133	48	24	0.188	4.980	5.575	1.06	29.12	0.34	0.0166	1,426.39	4.03	1,430.42	1,425.60	4.82	1,430.42
X207C	CB 133	CB 132	210	30	2.481	9.678	4.340	10.85	31.13	4.25	0.0058	1,424.60	5.47	1,430.35	1,423.39	6.14	1,429.81
X207D	CB X207D	CB 132	48	18	0.147	4.980	5.575	0.83	17.63	0.47	0.0282	1,425.81	3.89	1,429.70	1,424.47	5.23	1,429.70
X207E	CB 132	CB X207G	260	30	3.198	10.502	4.178	13.47	30.85	4.78	0.0057	1,423.39	5.88	1,429.62	1,421.92	6.49	1,428.77
X207F	CB X207F	CB X207G	51	18	0.184	4.980	5.575	1.03	19.26	0.59	0.0336	1,425.10	3.53	1,428.63	1,423.39	5.23	1,428.63
X207G	CB X207G	CB X207I	340	30	4.061	11.408	4.044	16.55	30.81	5.41	0.0056	1,421.92	6.15	1,428.53	1,420.00	6.65	1,427.10
X207H	CB X207H	CB X207I	54	18	0.331	4.980	5.575	1.86	26.53	1.05	0.0638	1,423.45	3.48	1,426.94	1,420.00	6.91	1,426.93
X207I	CB X207I	CB X207K	200	30	5.281	12.457	3.888	20.70	25.64	6.25	0.0039	1,420.00	6.17	1,426.78	1,419.22	5.83	1,425.66
X207J	CB X207J	CB X207K	51	18	0.000	4.980	5.575	0.00	12.83	0.00	0.0149	1,422.30	3.12	1,425.42	1,421.54	3.88	1,425.42
X207K1	CB X207K	CB 137	214	30	5.802	12.988	3.809	22.28	16.33	6.58	0.0016	1,419.22	5.39	1,425.28	1,418.88	4.40	1,423.96
X207K2	CB 137	CB X207M	61	30	6.362	13.532	3.728	23.91	16.60	6.91	0.0016	1,418.88	3.92	1,423.54	1,418.78	3.60	1,423.12
X207L	CB X207L	CB X207M	52	24	0.196	4.980	5.575	1.10	17.18	3.07	0.0058	1,422.00	0.82	1,422.83	1,421.70	1.12	1,422.83
X207M	CB X207M	T 128A	306	36	7.432	13.679	3.706	27.77	29.80	5.34	0.0020	1,418.28	4.00	1,422.72	1,417.67	3.63	1,421.74
X300	CB 300	CB 301	39	24	0.166	4.980	5.575	0.93	25.00	3.80	0.0122	1,405.74	1.57	1,407.31	1,405.26	2.05	1,407.31
X306A	T-33	CB X306B	30	24	0.000	4.980	5.575	0.00	16.63	0.00	0.0054	1,407.13	2.22	1,409.35	1,406.97	2.38	1,409.35
X306B	CB X306B	CB X306C	319	24	0.152	4.980	5.575	0.85	3.35	0.27	0.0002	1,406.97	2.38	1,409.35	1,406.90	2.44	1,409.35
X306C	CB X306C	T 302	168	12	0.836	24.548	2.778	2.34	1.60	2.98	0.0020	1,406.90	2.28	1,409.32	1,406.56	1.90	1,408.59
X310	T 310	CB 311	31	24	2.593	30.040	2.359	6.17	24.47	6.49	0.0117	1,406.17	1.16	1,407.49	1,405.81	1.56	1,407.45
X315A	T 315	CB 301	187	36	3.142	30.330	2.350	7.44	19.48	2.57	0.0009	1,405.42	1.90	1,407.36	1,405.26	2.03	1,407.32
X315B	CB 301	CB X315C	177	36	3.735	31.545	2.314	8.71	11.22	1.75	0.0003	1,405.26	1.99	1,407.29	1,405.21	1.99	1,407.24
X315C	CB X315C	O X315C	39	36	3.992	33.222	2.263	9.11	23.91	3.15	0.0013	1,405.06	1.28	1,406.50	1,405.01	1.28	1,406.45
X331	CB X331	T-34	23	24	0.587	4.980	5.575	3.30	19.53	4.63	0.0075	1,407.91	0.63	1,408.78	1,407.74	0.86	1,408.68
X399	HW X399	MH 403	517	24	0.000	4.980	5.575	0.00	11.12	0.00	0.0024	1,432.10	0.00	1,432.10	1,430.85	0.87	1,431.72
X401	MH X401	MH 401	97	36	0.000	0.000	5.575	0.00	19.56	0.00	0.0029	1,434.30	0.17	1,434.47	1,434.02	0.45	1,434.47
X625A	CB X625A	MH X625C	76	18	0.000	4.980	5.575	0.00	7.24	0.00	0.0047	1,444.36	0.00	1,444.36	1,444.00	0.29	1,444.29
X625B	CB X625B	MH X625C	66	24	0.065	4.980	5.575	0.37	19.73	2.42	0.0076	1,444.50	0.21	1,444.78	1,444.00	0.27	1,444.30
X625C	MH X625C	CB 625	96	24	0.065	5.432	5.461	0.36	42.24	4.11	0.0349	1,444.00	0.20	1,444.27	1,440.64	0.59	1,441.23
X625D	CB 625	T 627	67	24	0.266	5.823	5.357	1.44	42.28	6.26	0.0349	1,440.64	0.41	1,441.20	1,438.30	1.70	1,440.00
X625E	CB X625E	O X625E	20	24	0.069	4.980	5.575	0.39	86.75	6.94	0.1471	1,448.00	0.21	1,448.29	1,445.00	0.10	1,445.84
X626A	CB X626A	CB 626	76	24	0.198	4.980	5.575	1.11	32.71	4.84	0.0209	1,444.49	0.36	1,444.98	1,442.90	0.71	1,443.63
X626B	CB 626	O X626B	86	24	0.380	5.242	5.511	2.11	32.97	5.89	0.0212	1,442.90	0.50	1,443.58	1,441.07	0.34	1,441.95

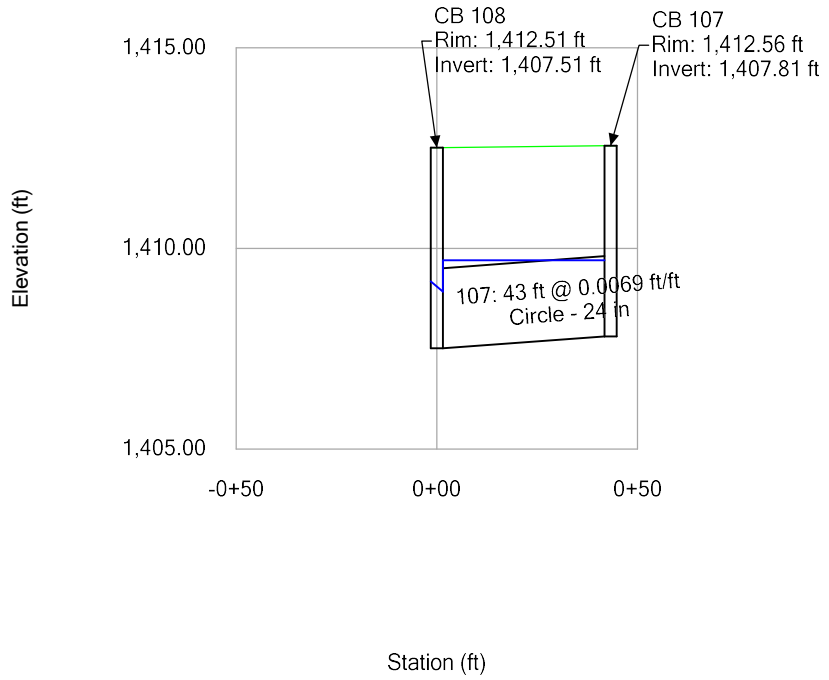
Profile Report
Engineering Profile - 2 (h7383 StormCAD Project.stsw)



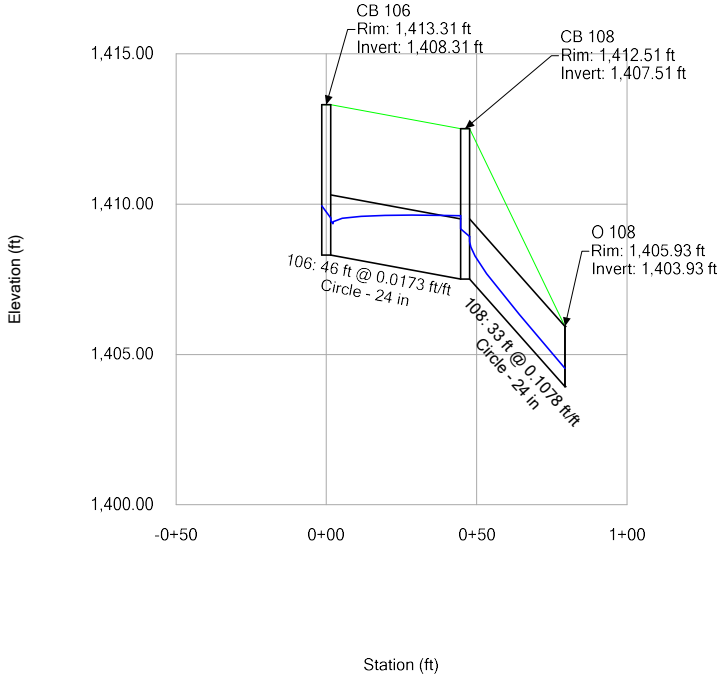
Profile Report
Engineering Profile - 4 (h7383 StormCAD Project.stsw)



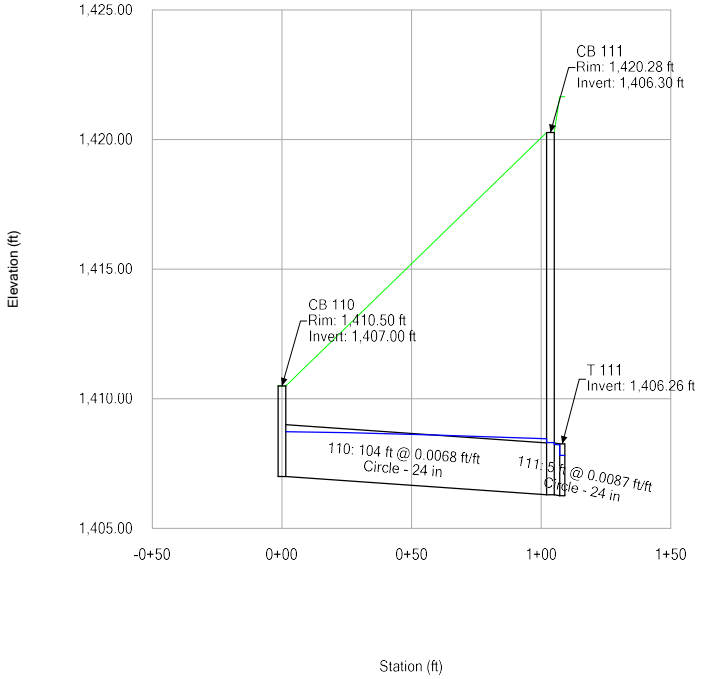
Profile Report
Engineering Profile - 6 (h7383 StormCAD Project.stsw)



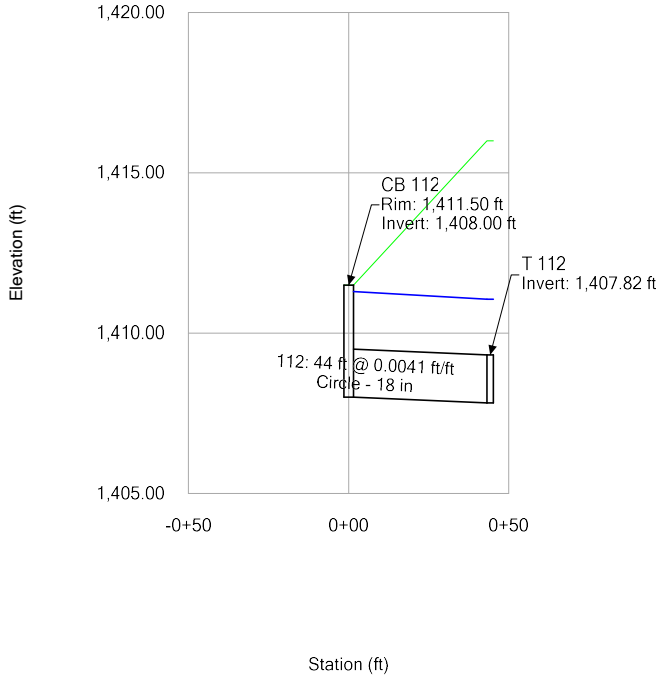
Profile Report
Engineering Profile - 7 (h7383 StormCAD Project.stsw)



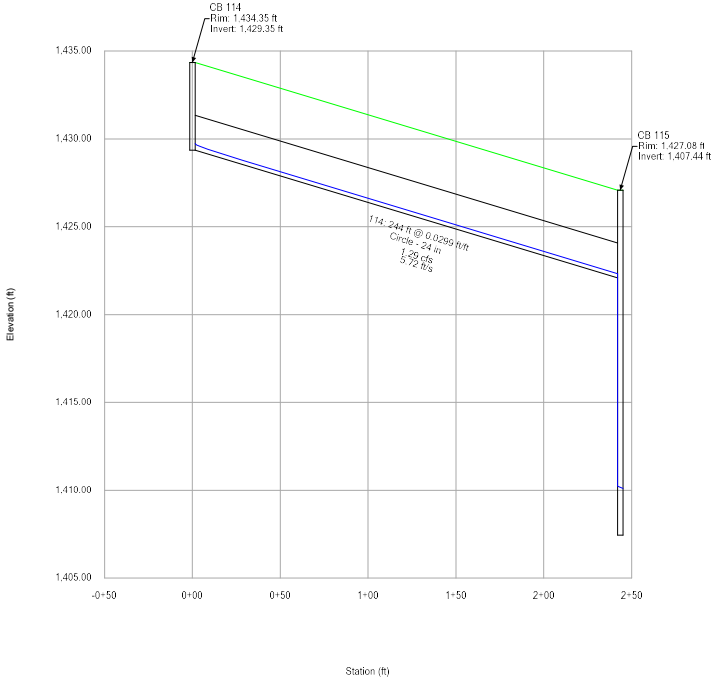
Profile Report
Engineering Profile - 9 (h7383 StormCAD Project.stsw)



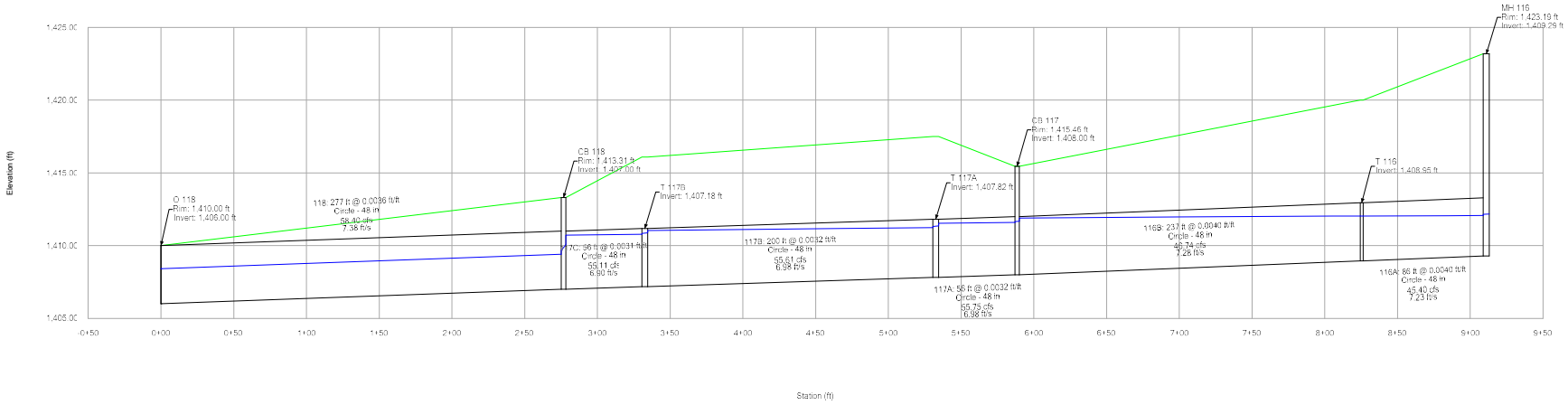
Profile Report
Engineering Profile - 9A (h7383 StormCAD Project.stsw)



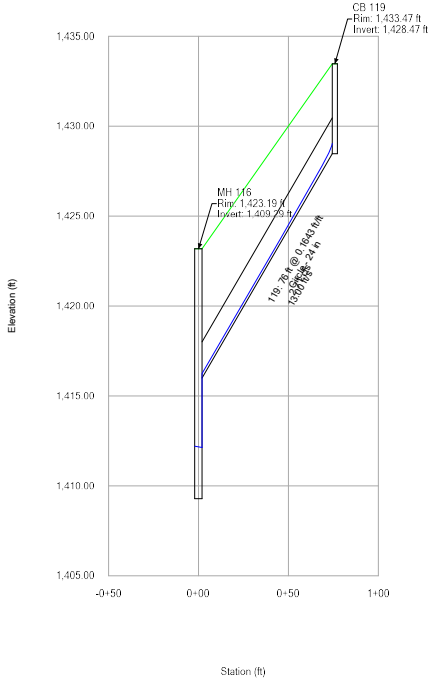
Profile Report
Engineering Profile - 10 (h7383 StormCAD Project.stsw)



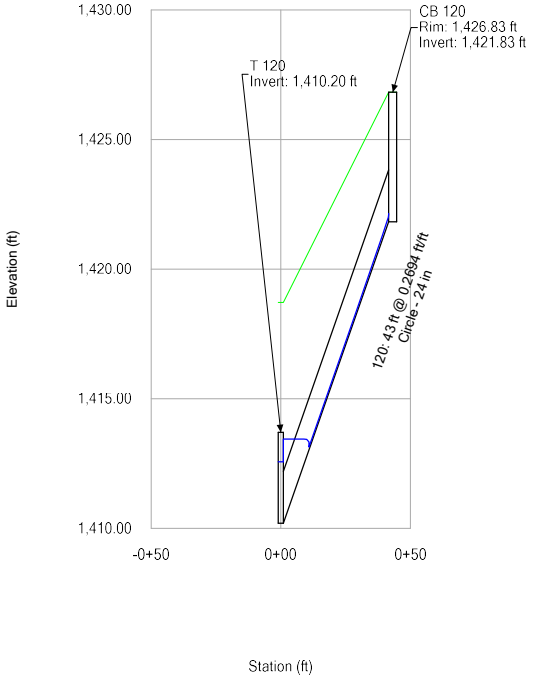
Profile Report
Engineering Profile - 11 (h7383 StormCAD Project.stsw)



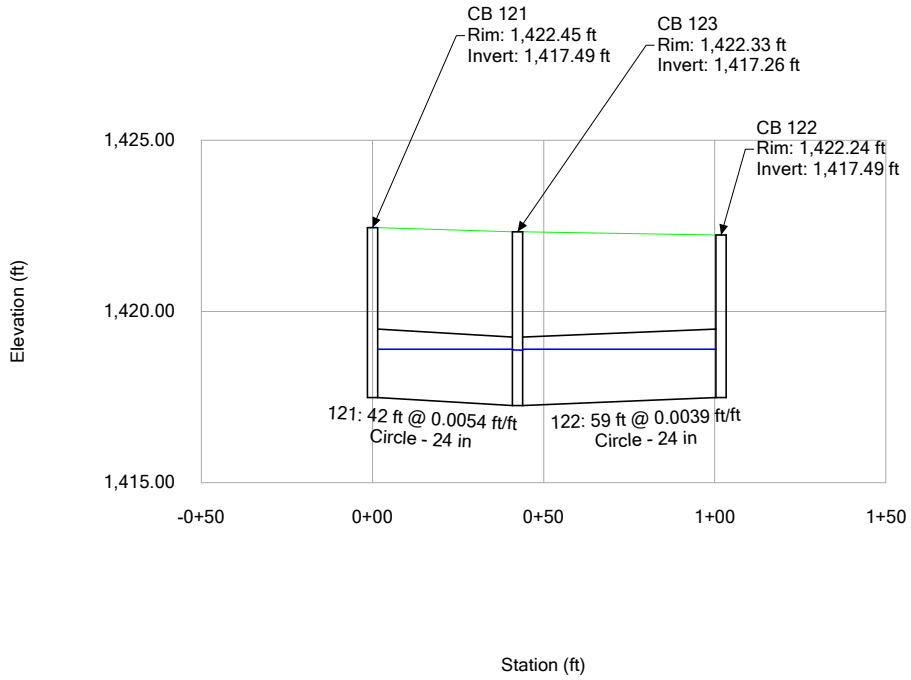
Profile Report
Engineering Profile - 12 (h7383 StormCAD Project.stsw)



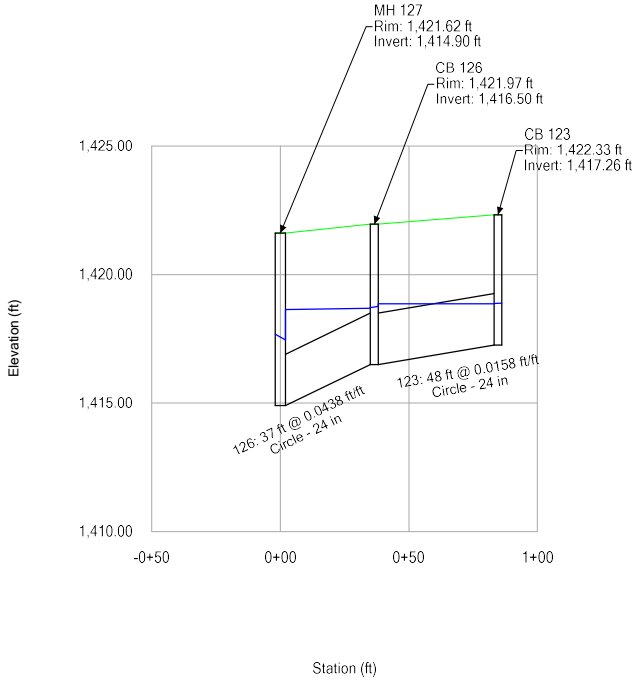
Profile Report
Engineering Profile - 13 (h7383 StormCAD Project.stsw)



Profile Report
Engineering Profile - 14 (h7383 StormCAD Project.stsw)

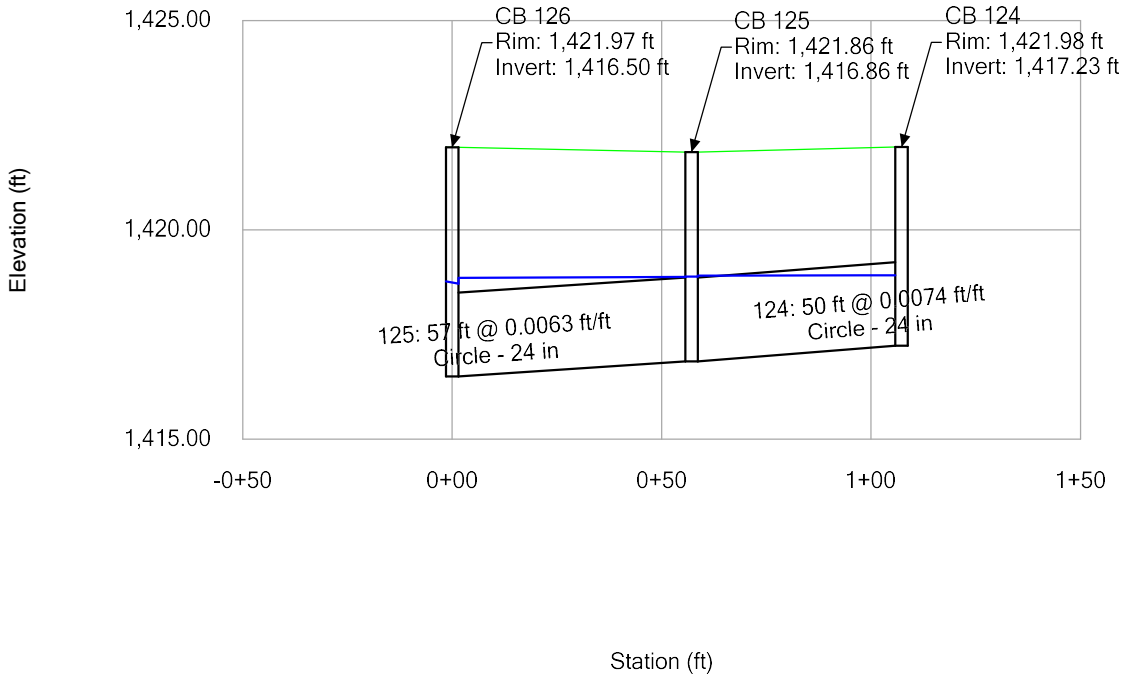


Profile Report
Engineering Profile - 15 (h7383 StormCAD Project.stsw)

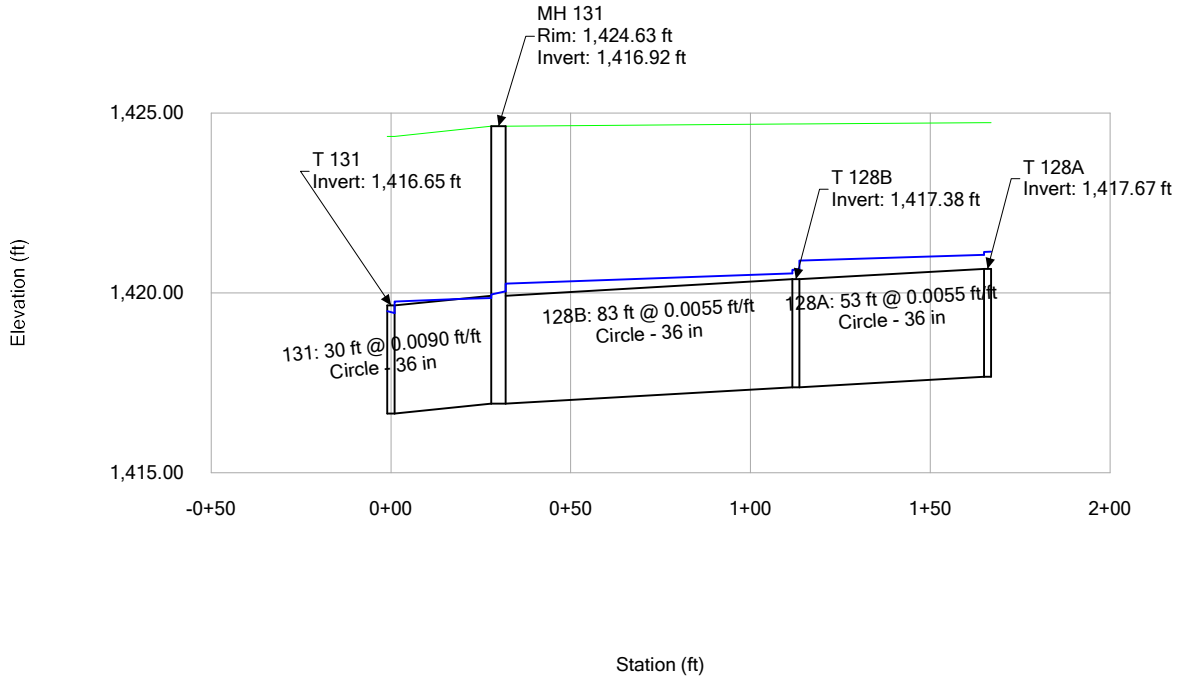


Profile Report

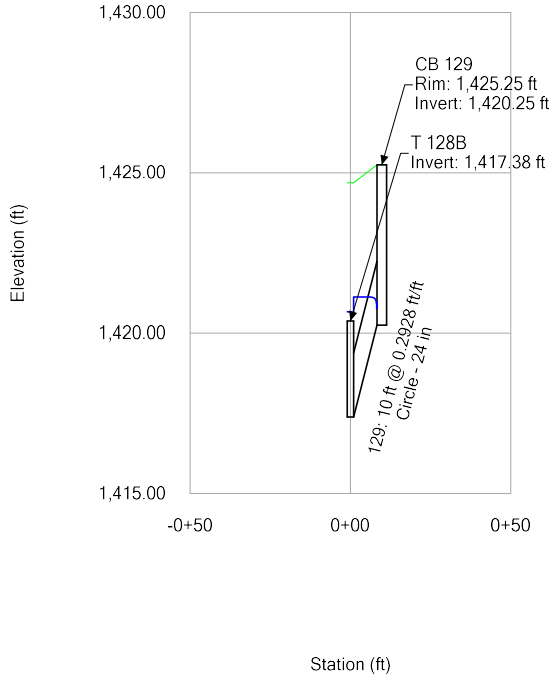
Engineering Profile - 16 (h7383 StormCAD Project.stsw)



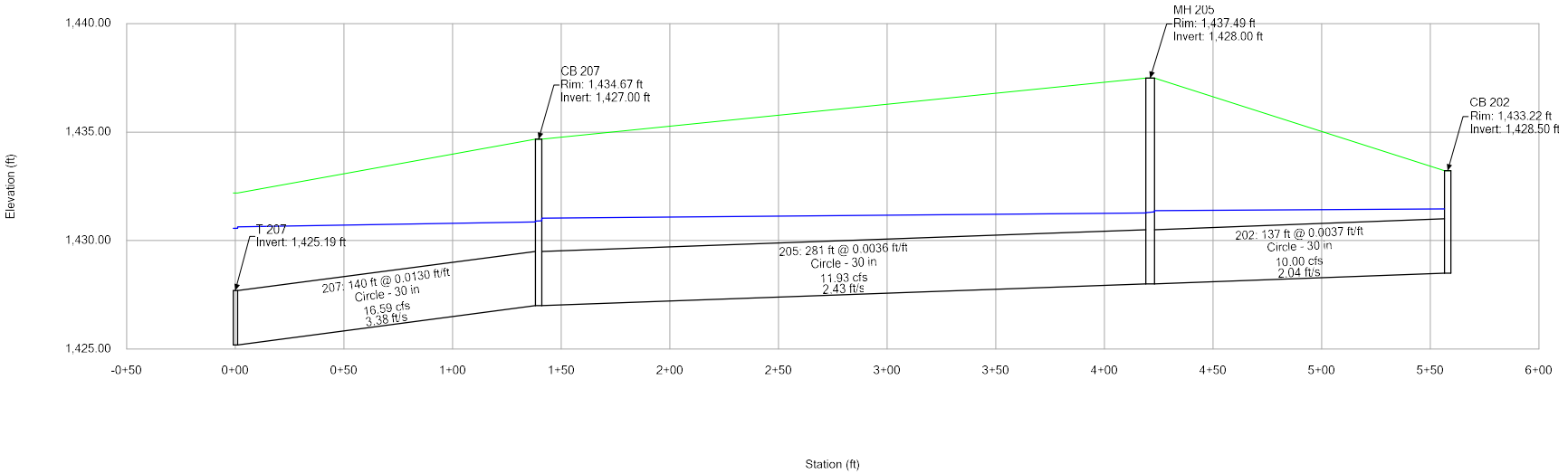
Profile Report
Engineering Profile - 18 (h7383 StormCAD Project.stsw)



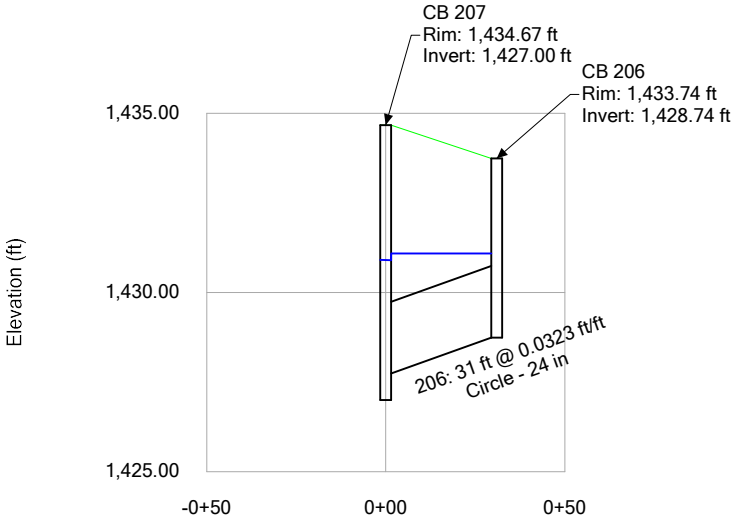
Profile Report
Engineering Profile - 19 (h7383 StormCAD Project.stsw)



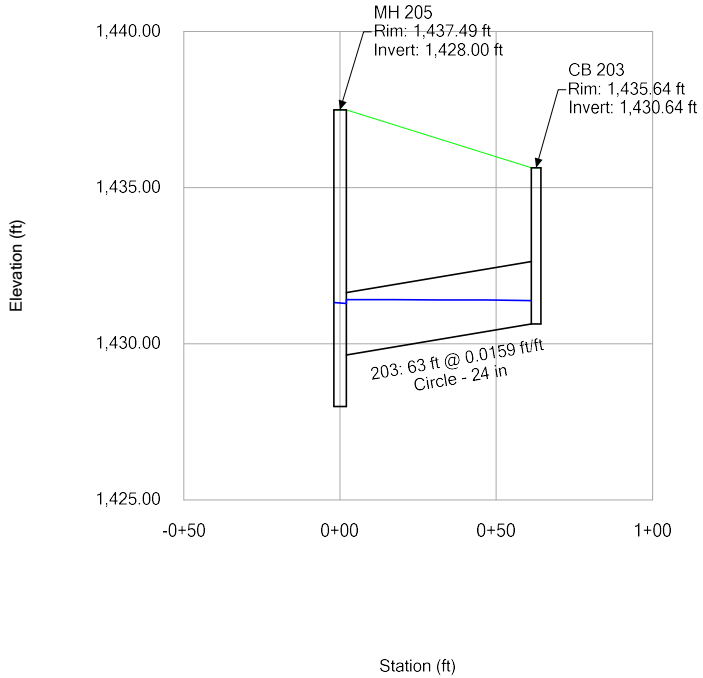
Profile Report
Engineering Profile - 20 (h7383 StormCAD Project.stsw)



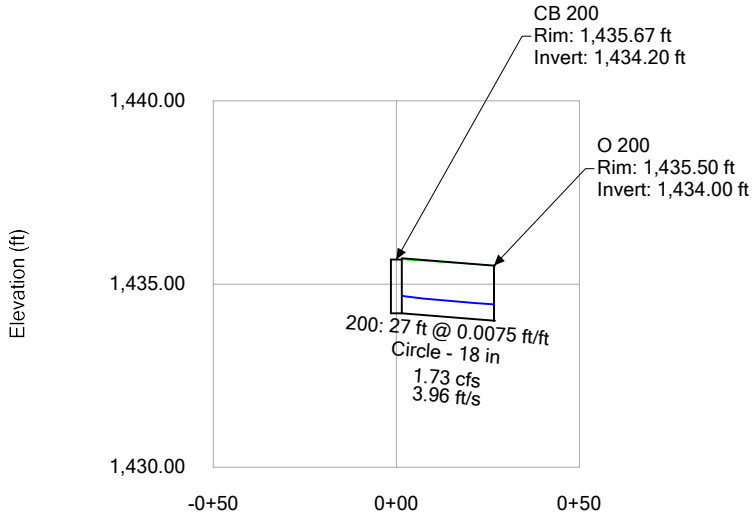
Profile Report
Engineering Profile - 21 (h7383 StormCAD Project.stsw)



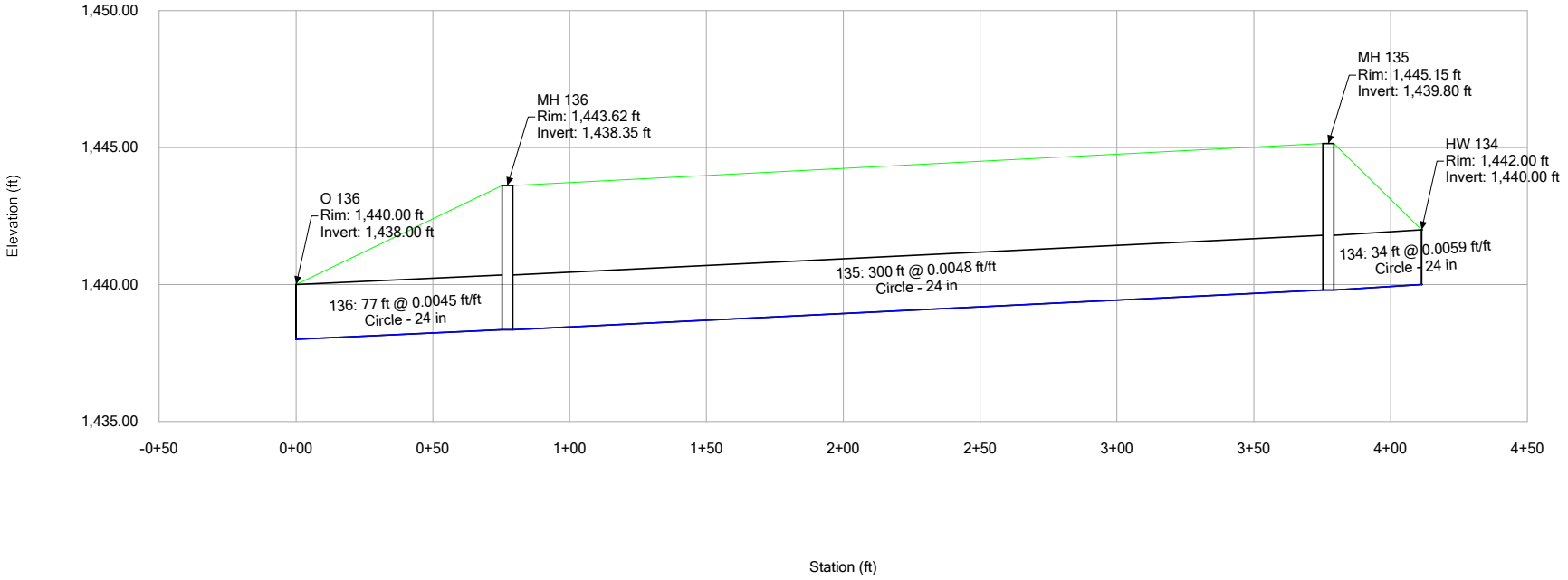
Profile Report
Engineering Profile - 22 (h7383 StormCAD Project.stsw)



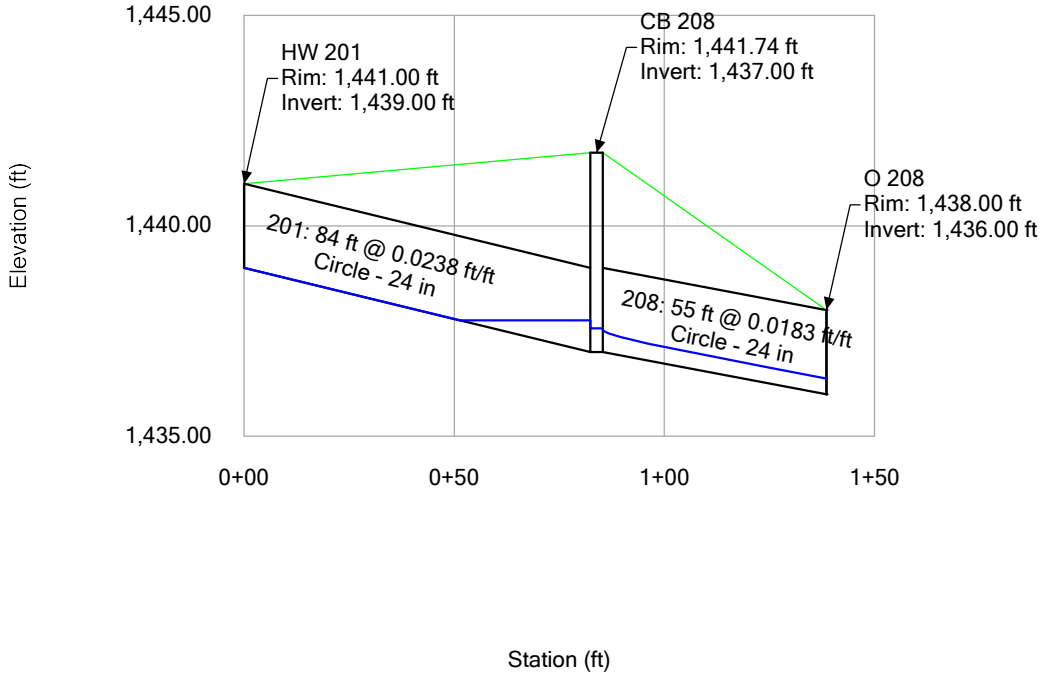
Profile Report
Engineering Profile - 22A (h7383 StormCAD Project.stsw)



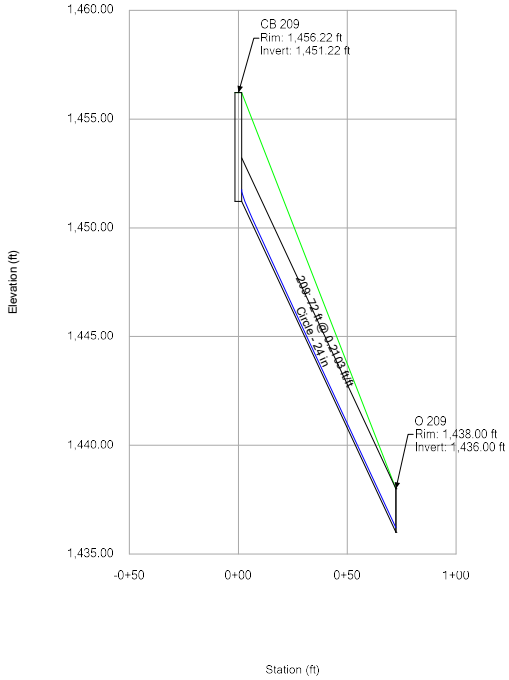
Profile Report
Engineering Profile - 23 (h7383 StormCAD Project.stsw)



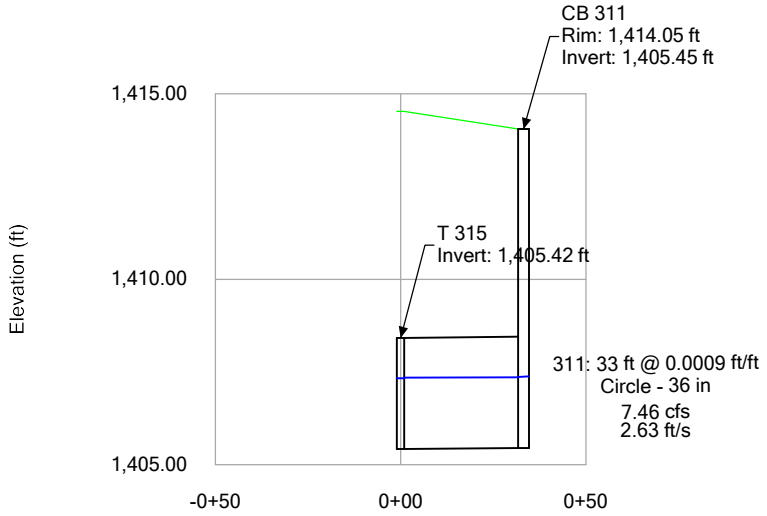
Profile Report
Engineering Profile - 24 (h7383 StormCAD Project.stsw)



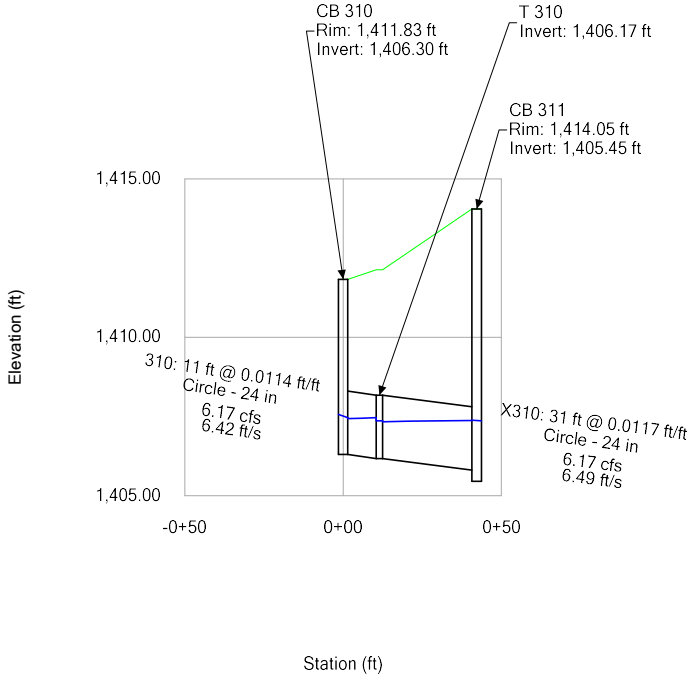
Profile Report
Engineering Profile - 25 (h7383 StormCAD Project.stsw)



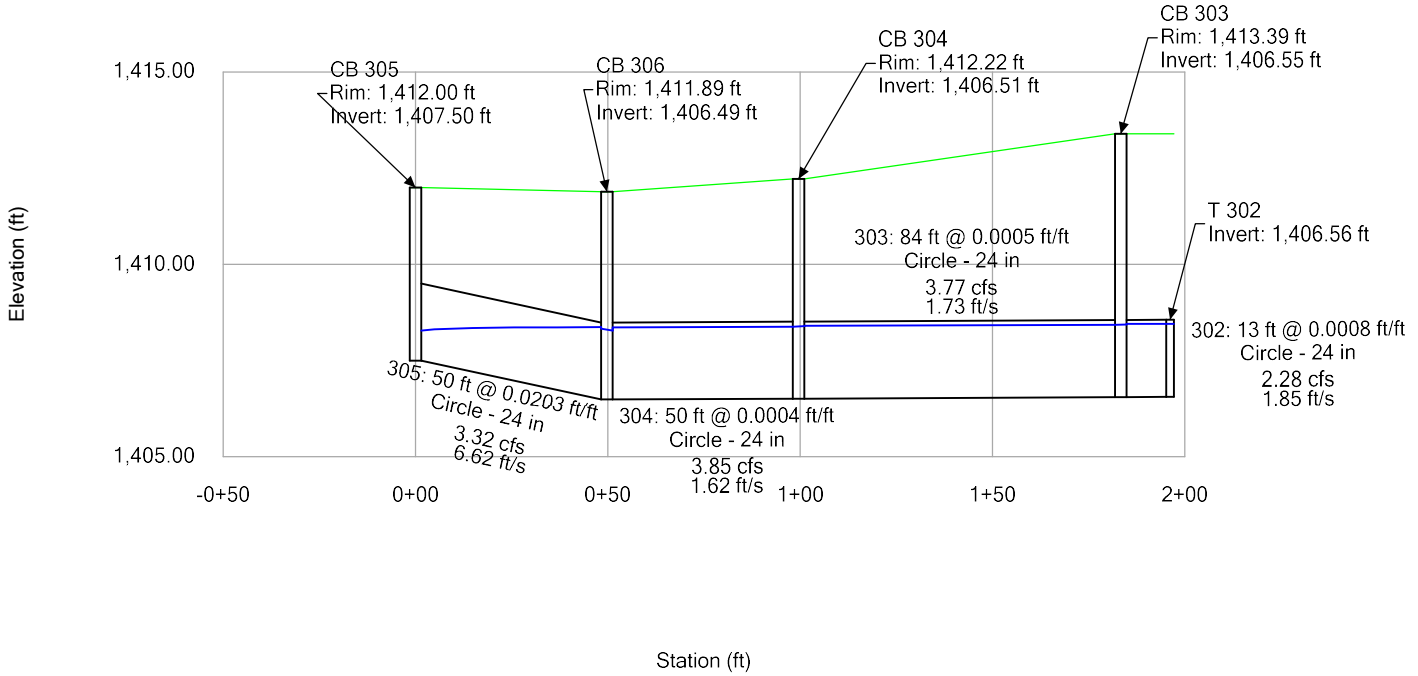
Profile Report
Engineering Profile - 26 (h7383 StormCAD Project.stsw)



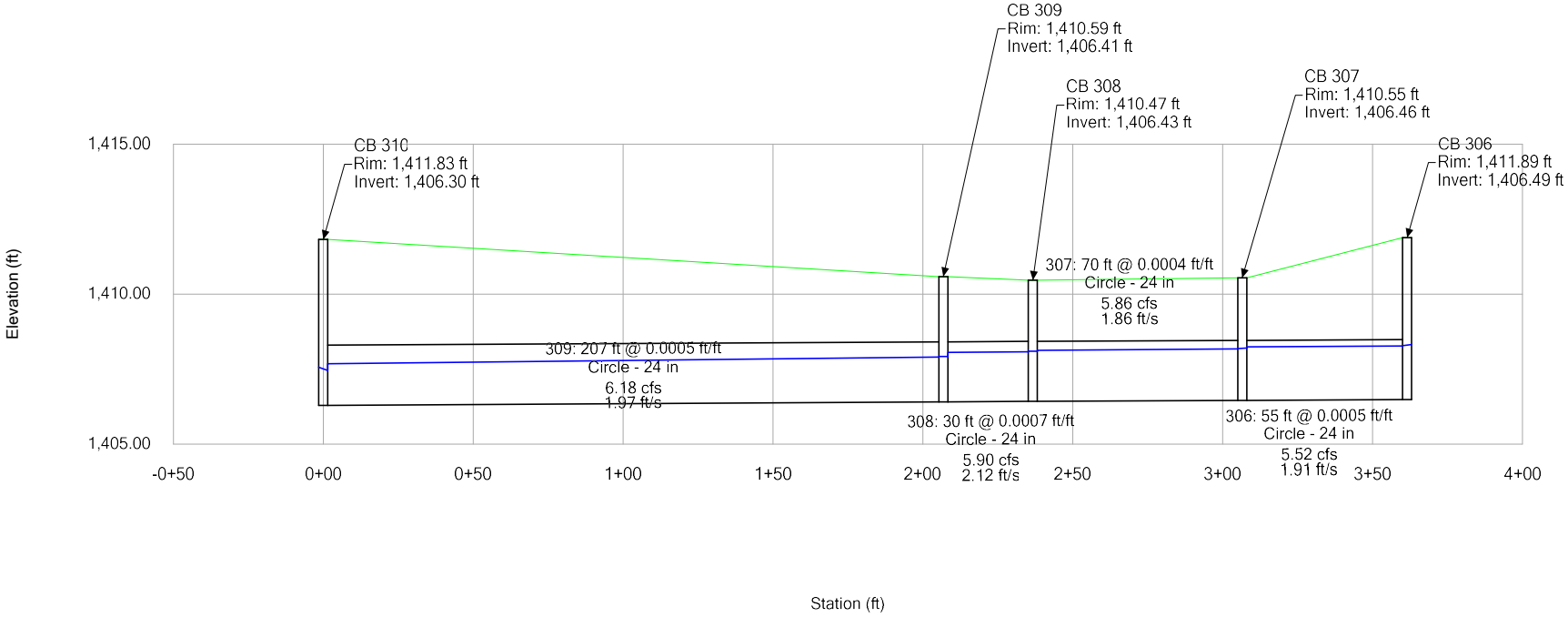
Profile Report
Engineering Profile - 27 (h7383 StormCAD Project.stsw)



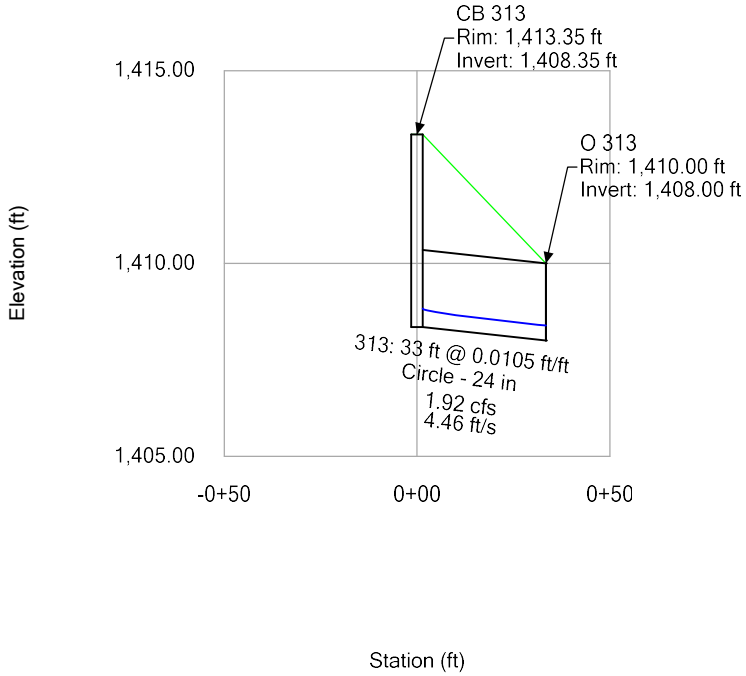
Profile Report
Engineering Profile - 28 (h7383 StormCAD Project.stsw)



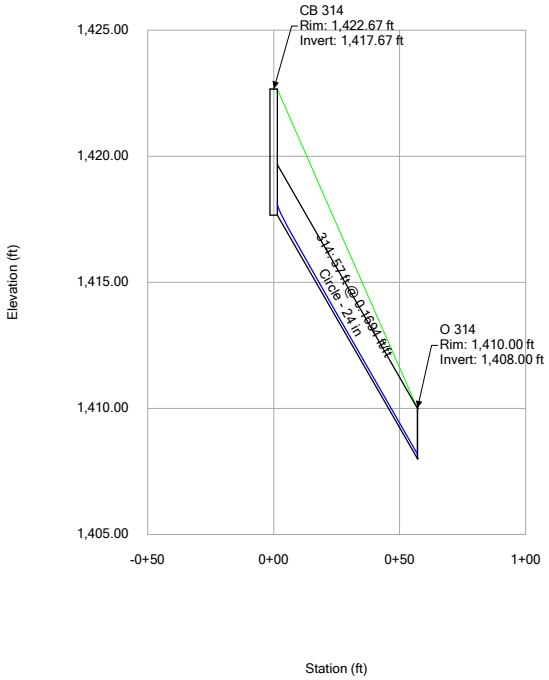
Profile Report
Engineering Profile - 29 (h7383 StormCAD Project.stsw)



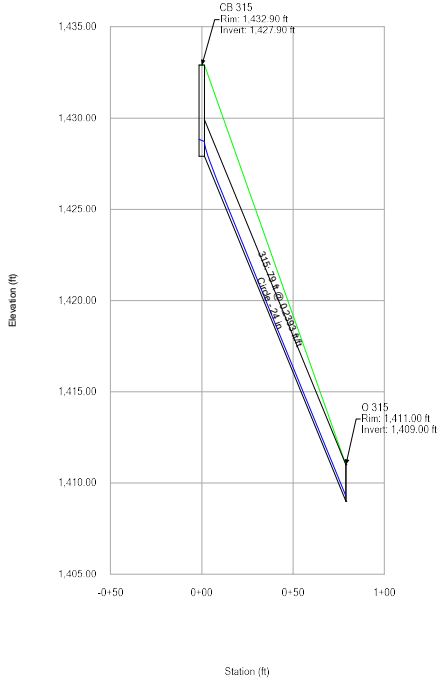
Profile Report
Engineering Profile - 32 (h7383 StormCAD Project.stsw)



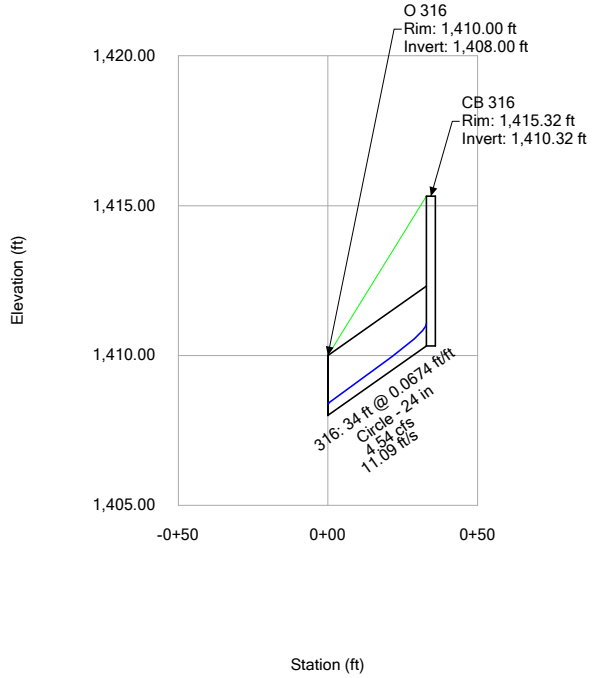
Profile Report
Engineering Profile - 33 (h7383 StormCAD Project.stsw)



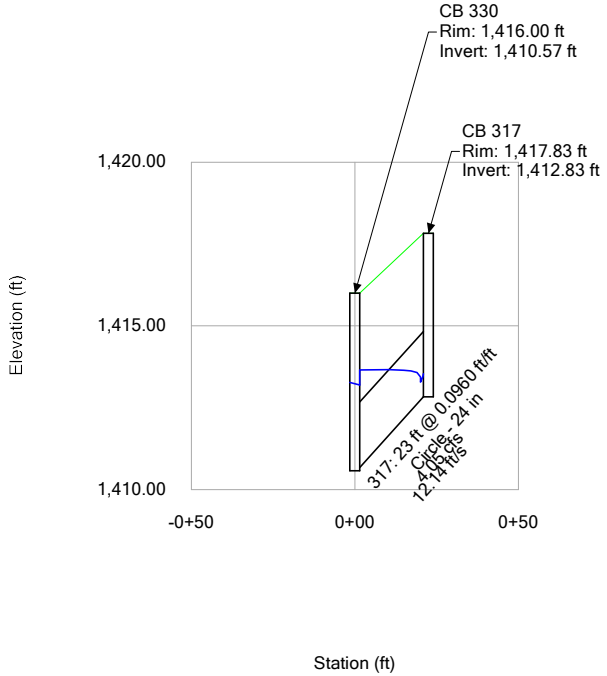
Profile Report
Engineering Profile - 34 (h7383 StormCAD Project.stsw)



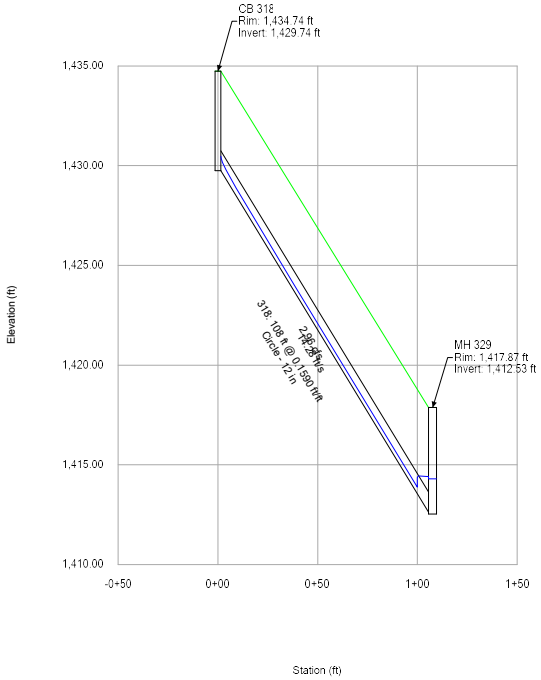
Profile Report
Engineering Profile - 35 (h7383 StormCAD Project.stsw)



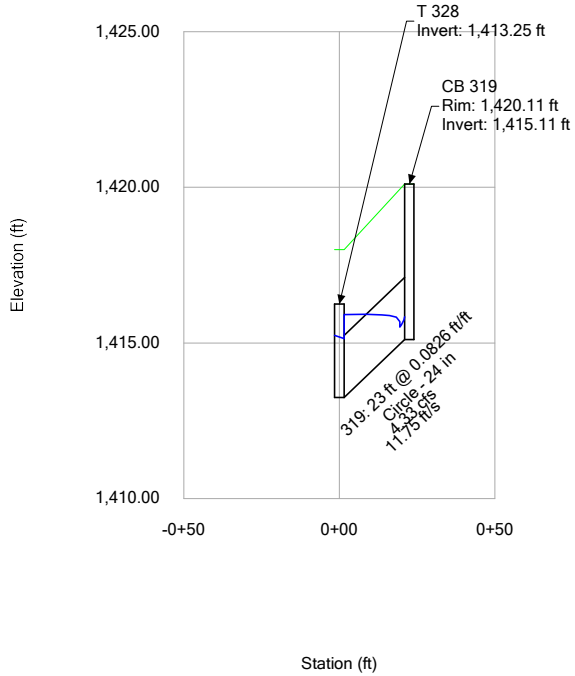
Profile Report
Engineering Profile - 35A (h7383 StormCAD Project.stsw)



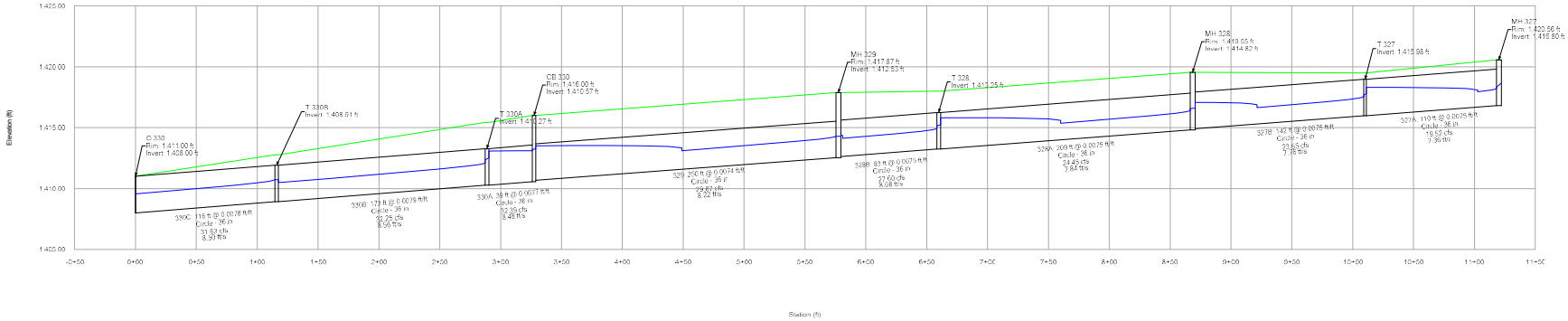
Profile Report
Engineering Profile - 36 (h7383 StormCAD Project.stsw)



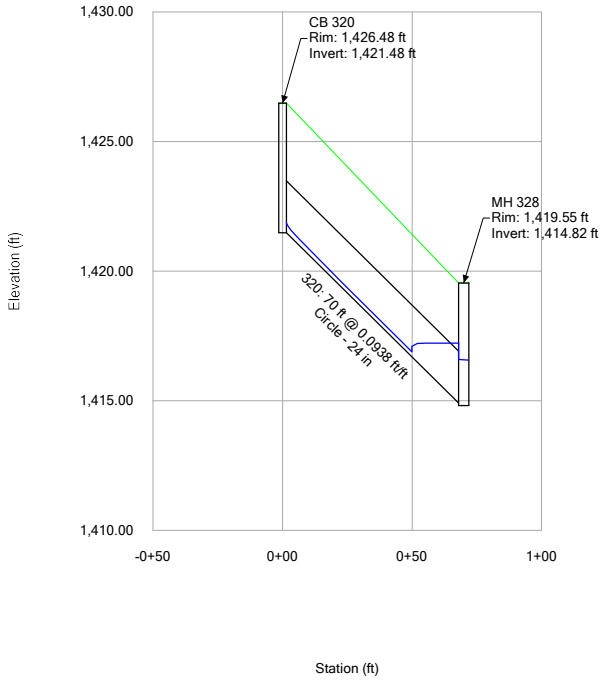
Profile Report
Engineering Profile - 37 (h7383 StormCAD Project.stsw)



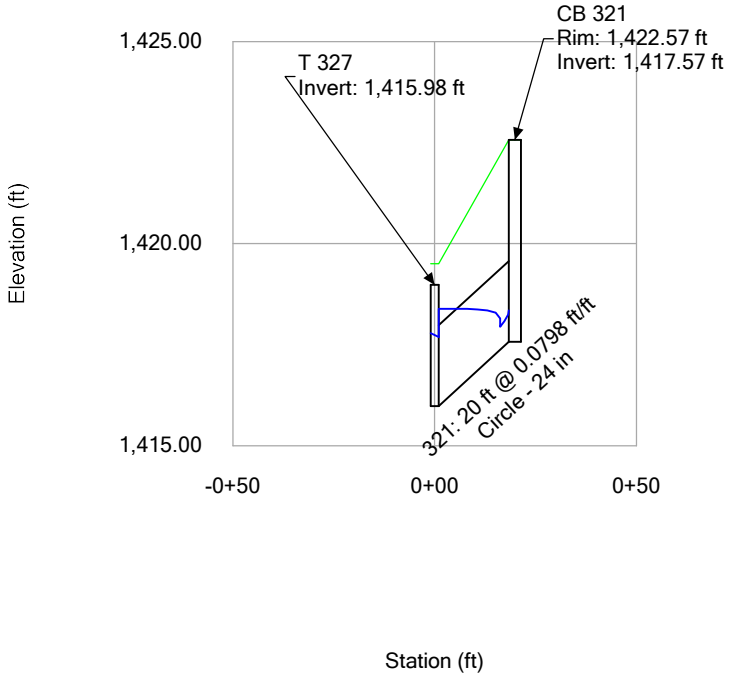
Profile Report
Engineering Profile - 38 (h7383 StormCAD Project.stsw)



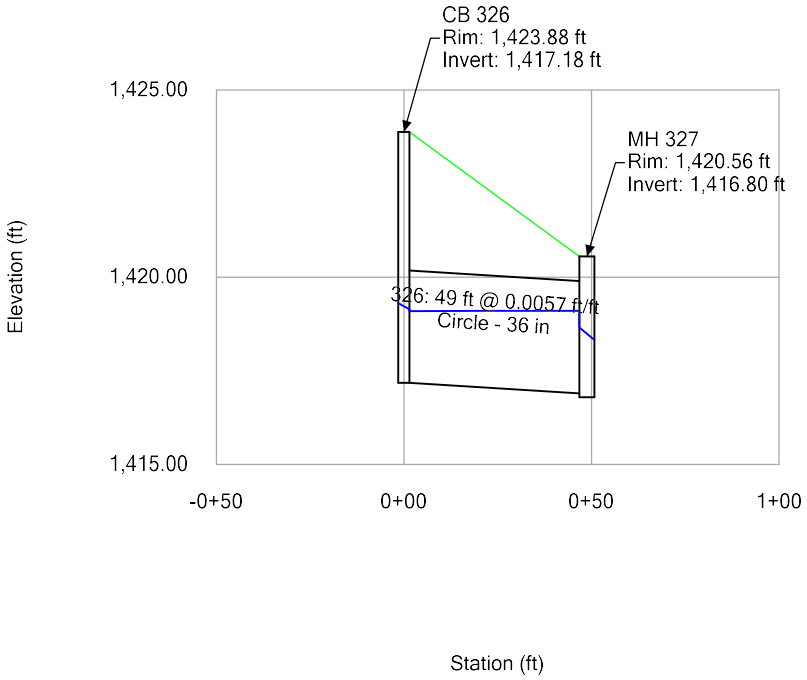
Profile Report
Engineering Profile - 39 (h7383 StormCAD Project.stsw)



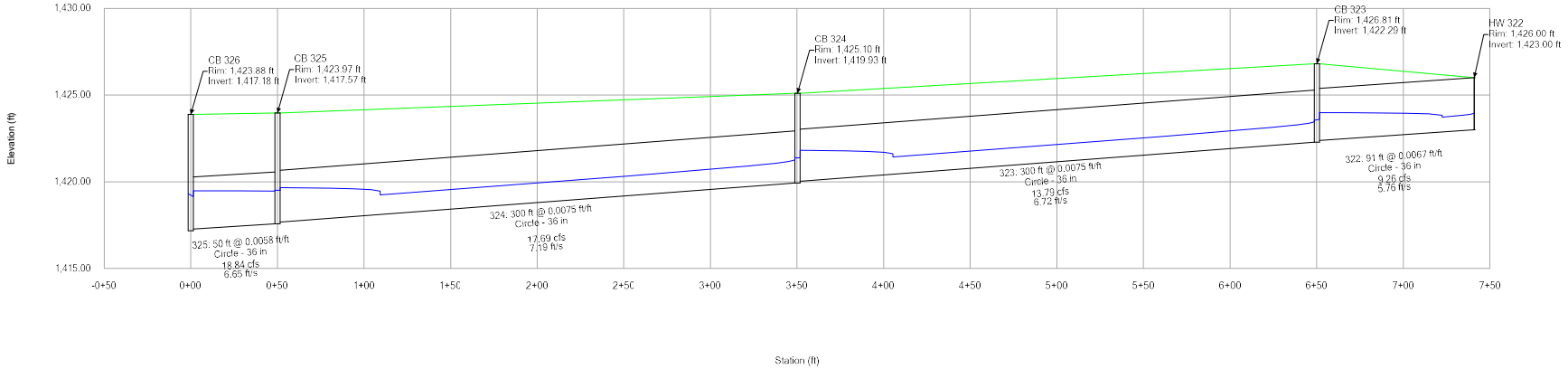
Profile Report
Engineering Profile - 40 (h7383 StormCAD Project.stsw)



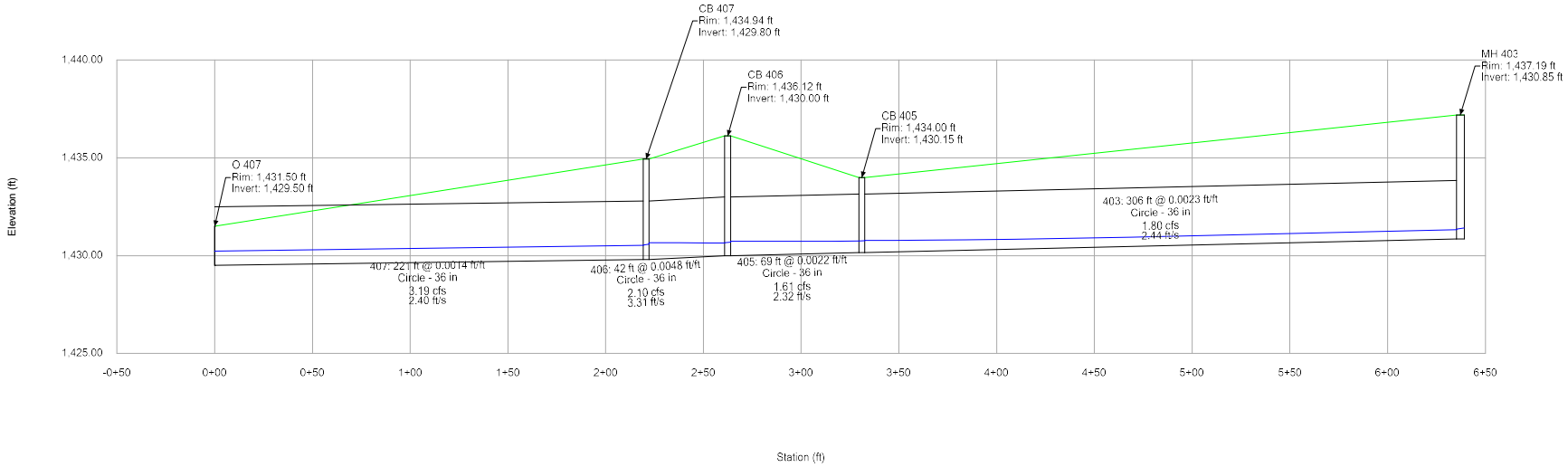
Profile Report
Engineering Profile - 41 (h7383 StormCAD Project.stsw)



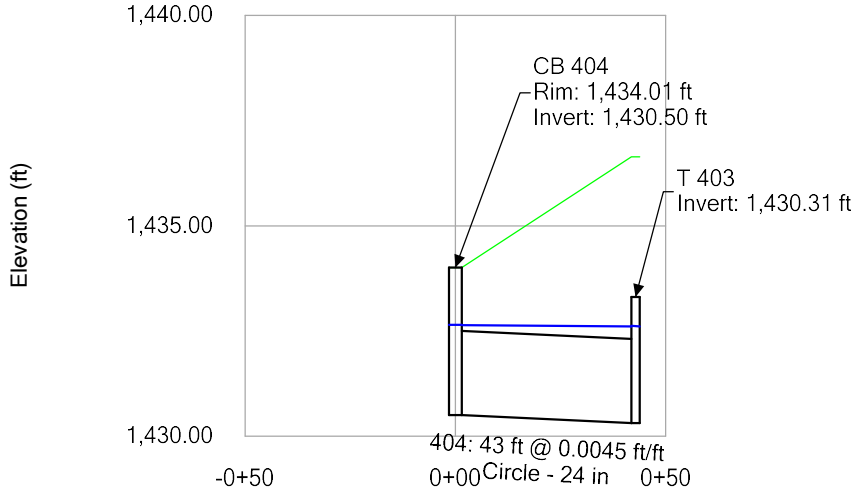
Profile Report
Engineering Profile - 42 (h7383 StormCAD Project.stsw)



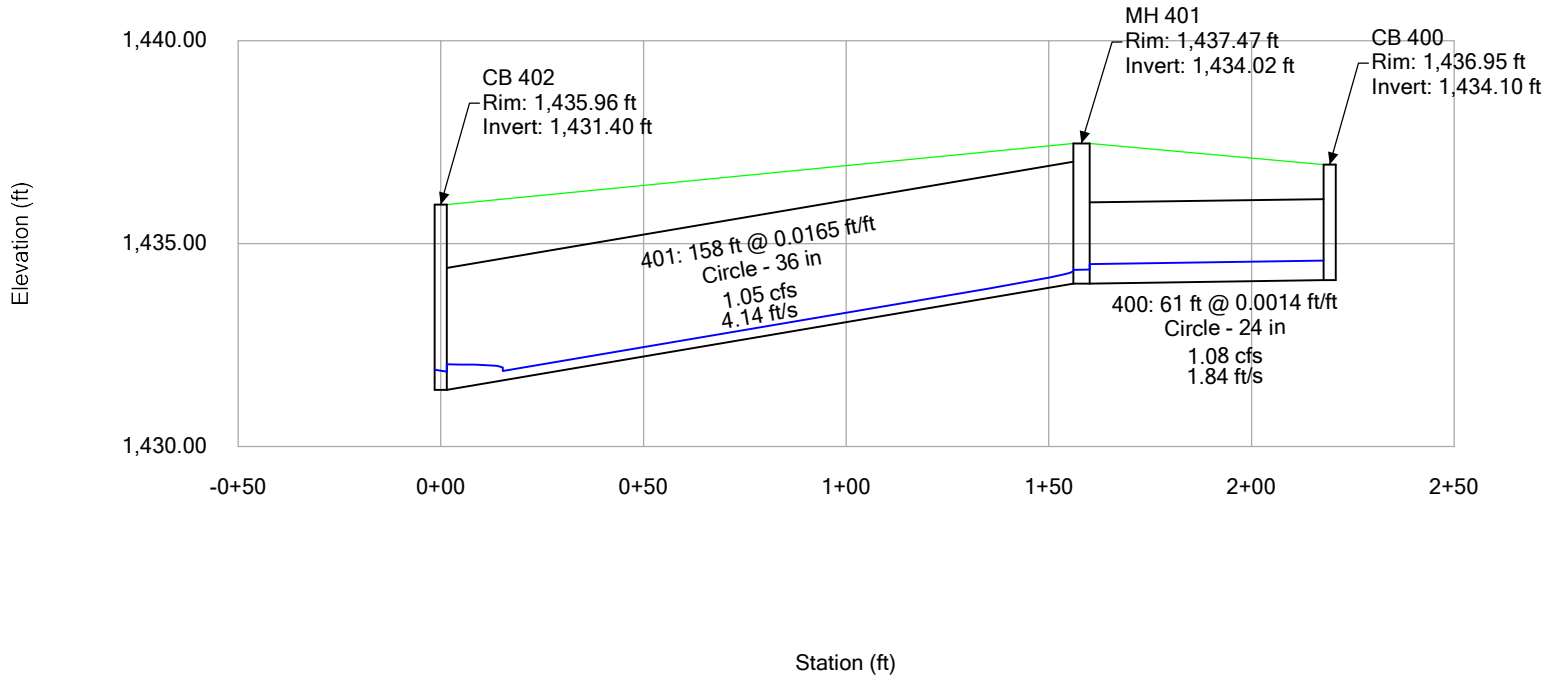
Profile Report
Engineering Profile - 43 (h7383 StormCAD Project.stsw)



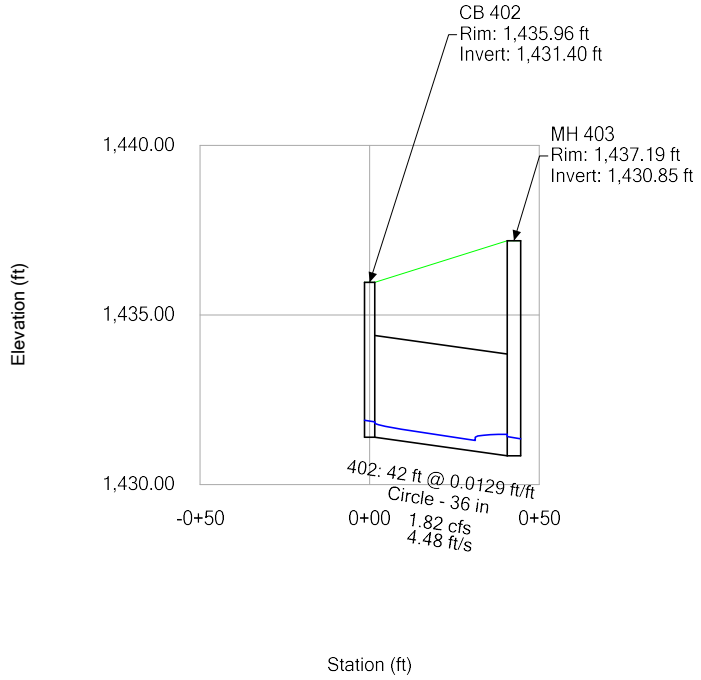
Profile Report
Engineering Profile - 44 (h7383 StormCAD Project.stsw)



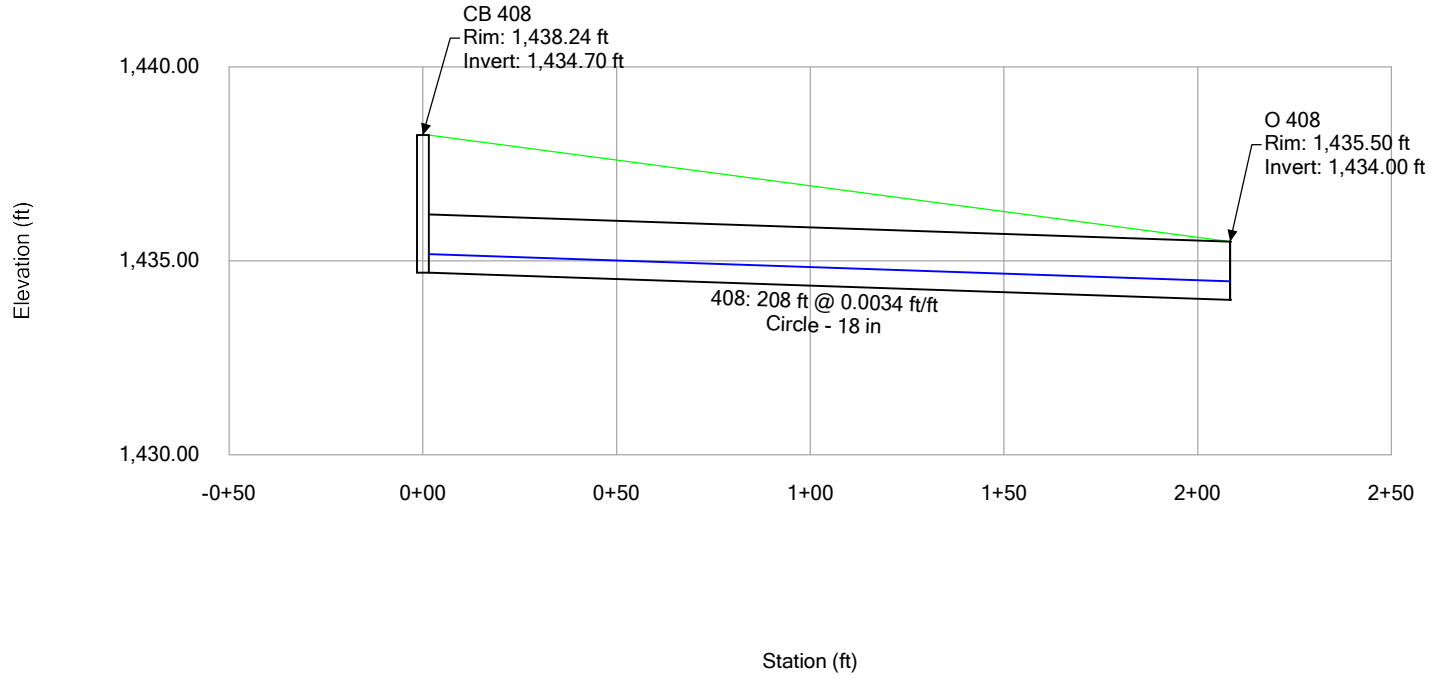
Profile Report
Engineering Profile - 45 (h7383 StormCAD Project.stsw)



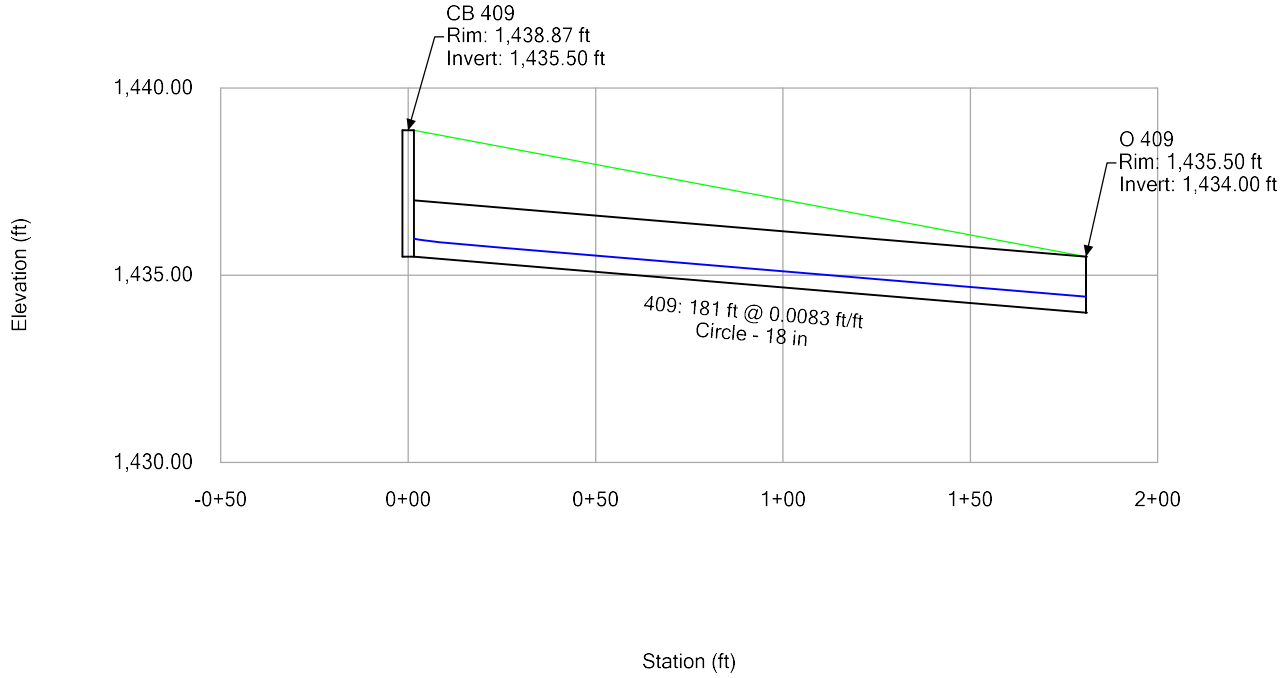
Profile Report
Engineering Profile - 46 (h7383 StormCAD Project.stsw)



Profile Report
Engineering Profile - 47 (h7383 StormCAD Project.stsw)

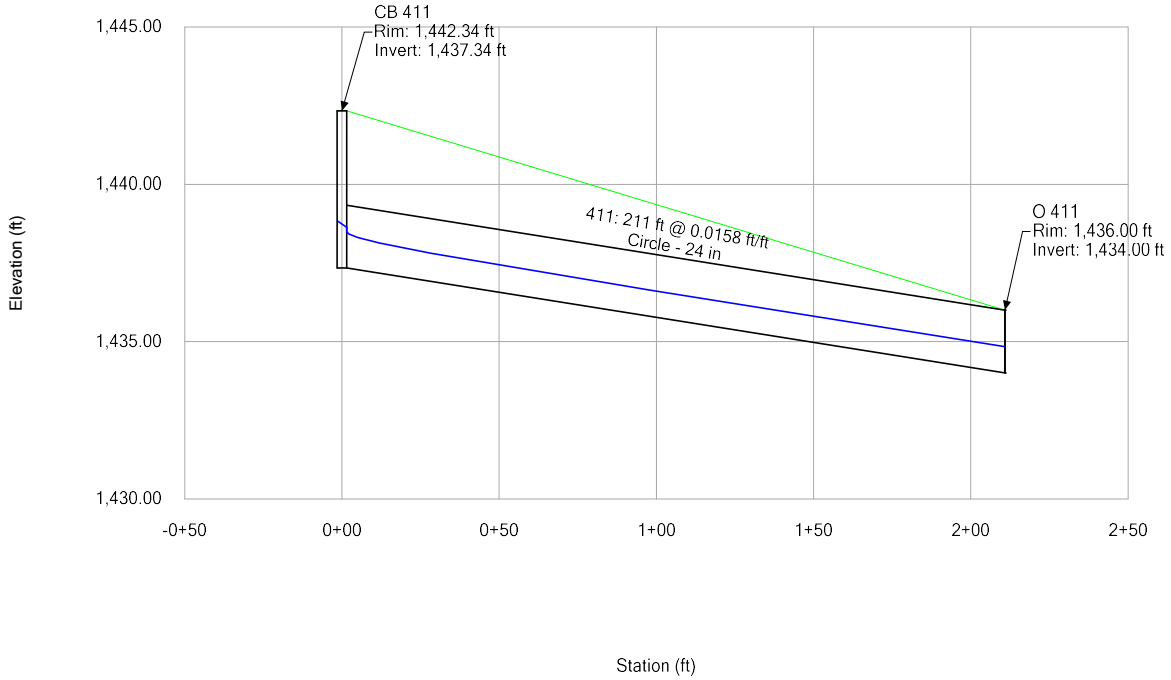


Profile Report
Engineering Profile - 48 (h7383 StormCAD Project.stsw)

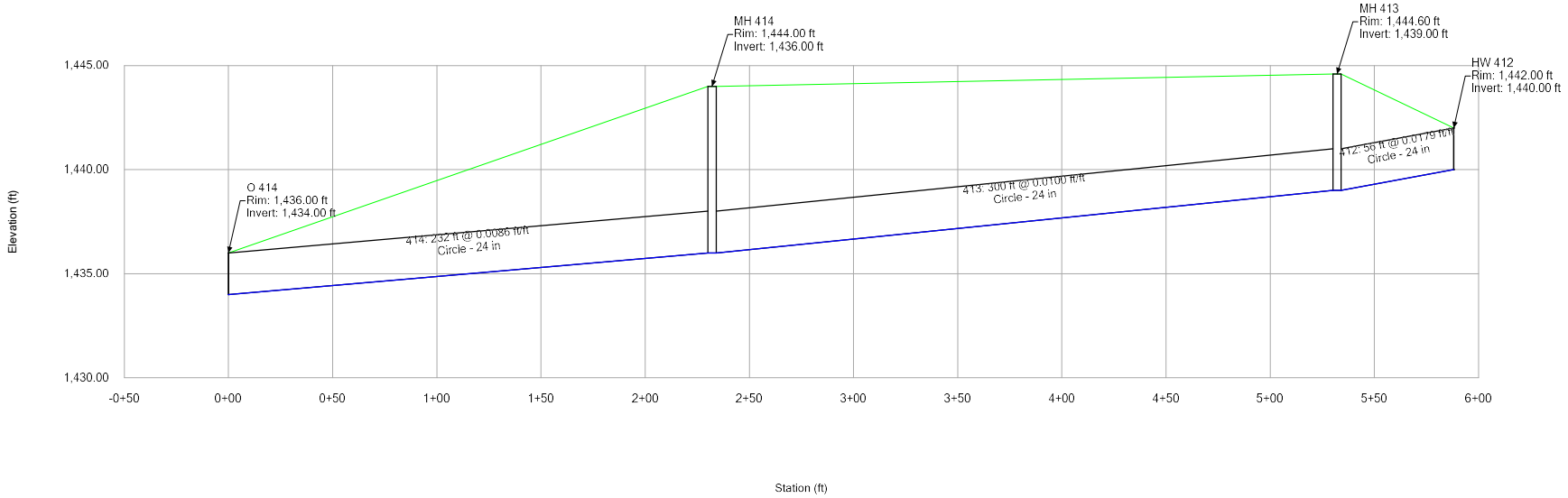


Profile Report

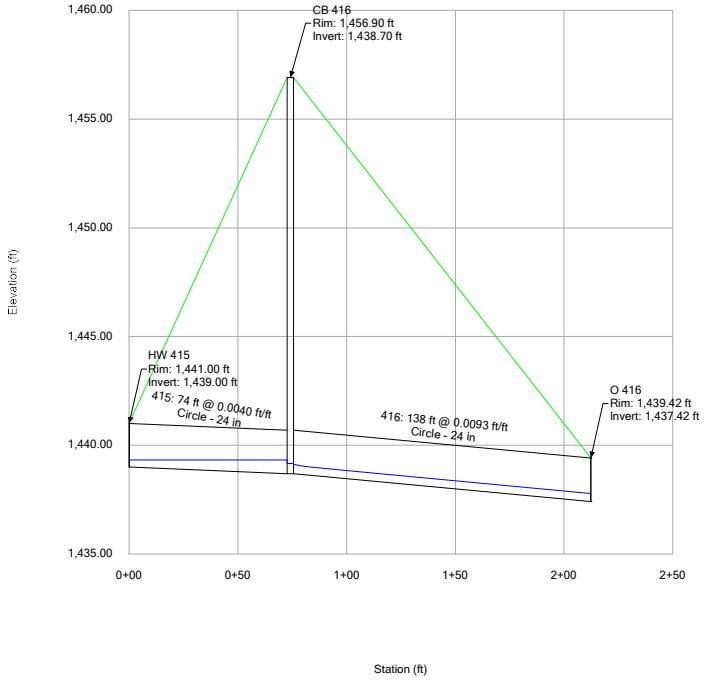
Engineering Profile - 49 (h7383 StormCAD Project.stsw)



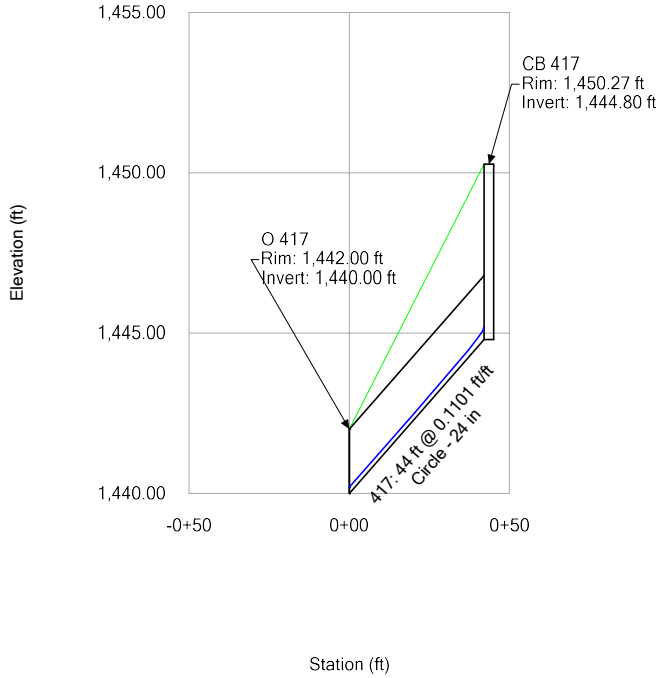
Profile Report
Engineering Profile - 50 (h7383 StormCAD Project.stsw)



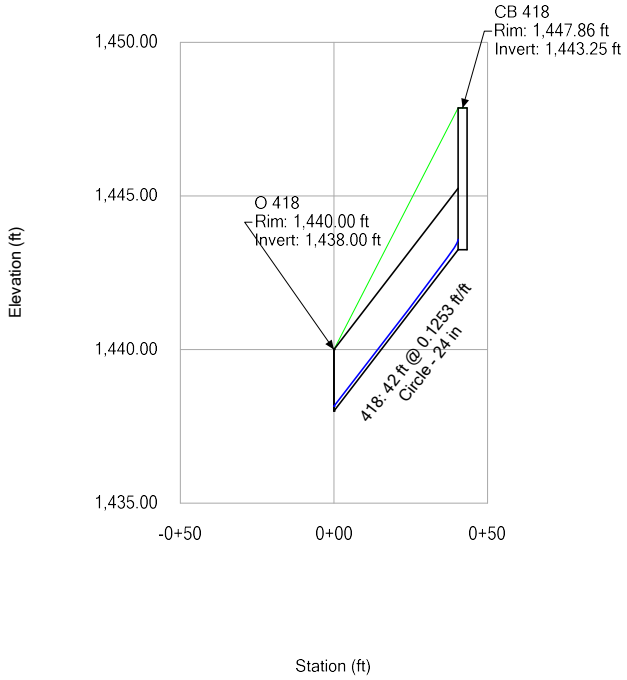
Profile Report
Engineering Profile - 51 (h7383 StormCAD Project.stsw)



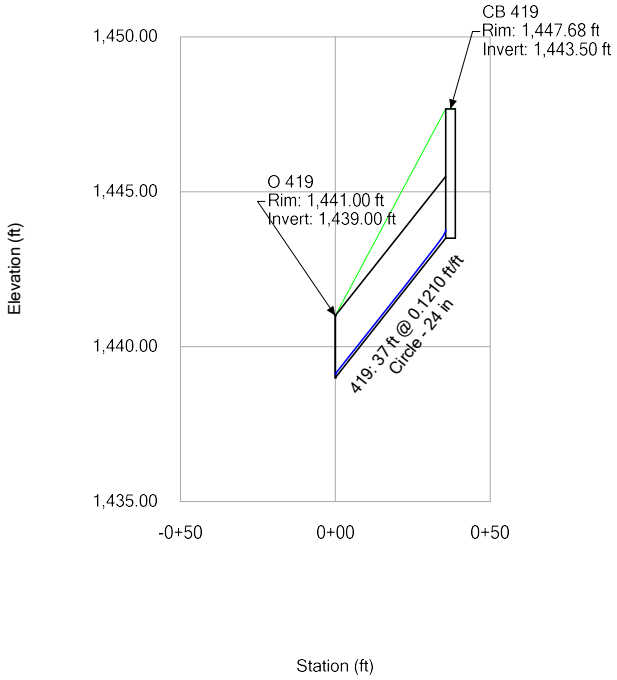
Profile Report
Engineering Profile - 52 (h7383 StormCAD Project.stsw)



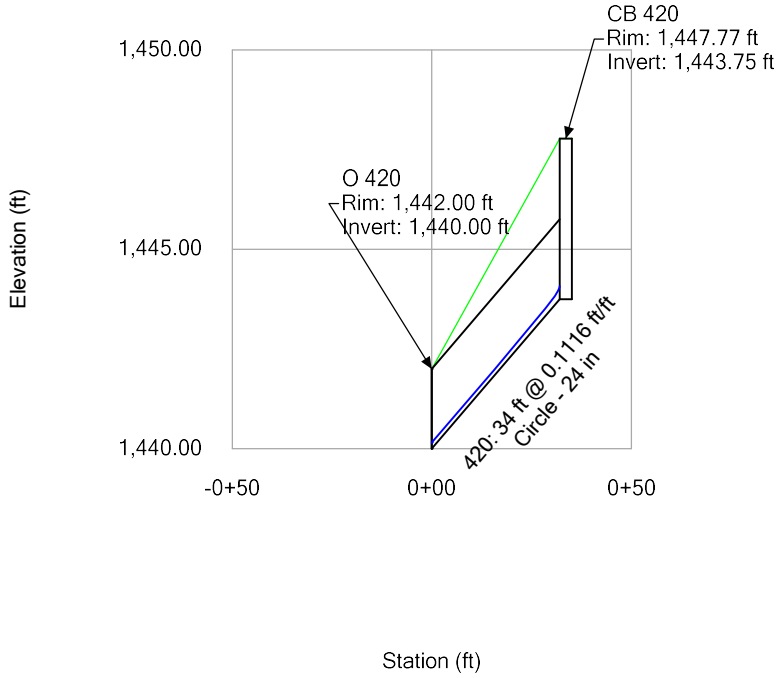
Profile Report
Engineering Profile - 53 (h7383 StormCAD Project.stsw)



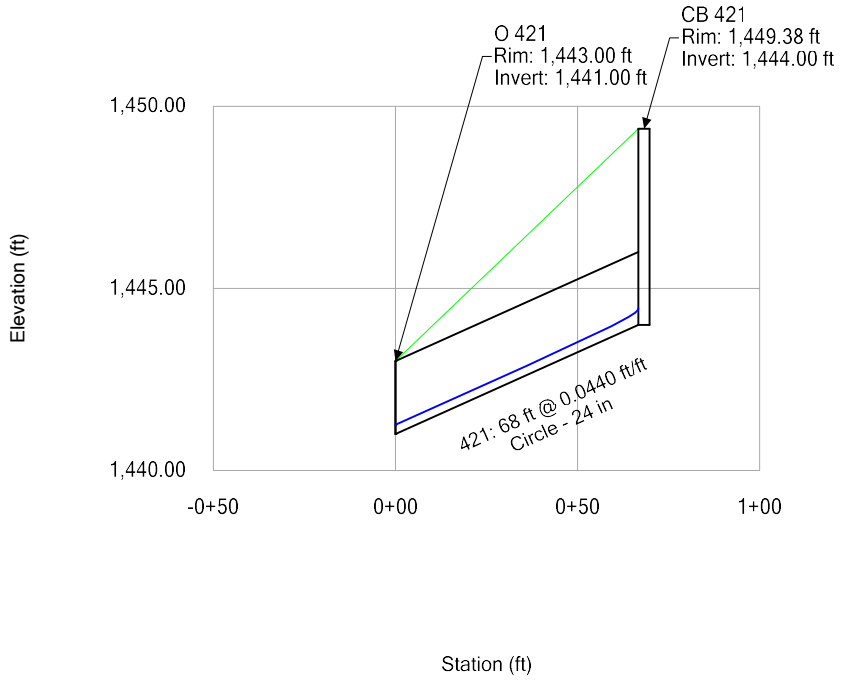
Profile Report
Engineering Profile - 54 (h7383 StormCAD Project.stsw)



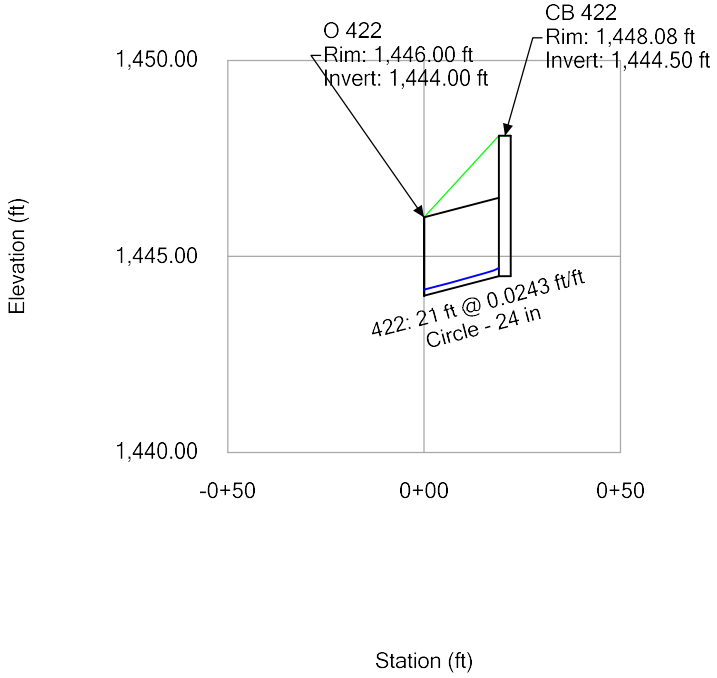
Profile Report
Engineering Profile - 55 (h7383 StormCAD Project.stsw)



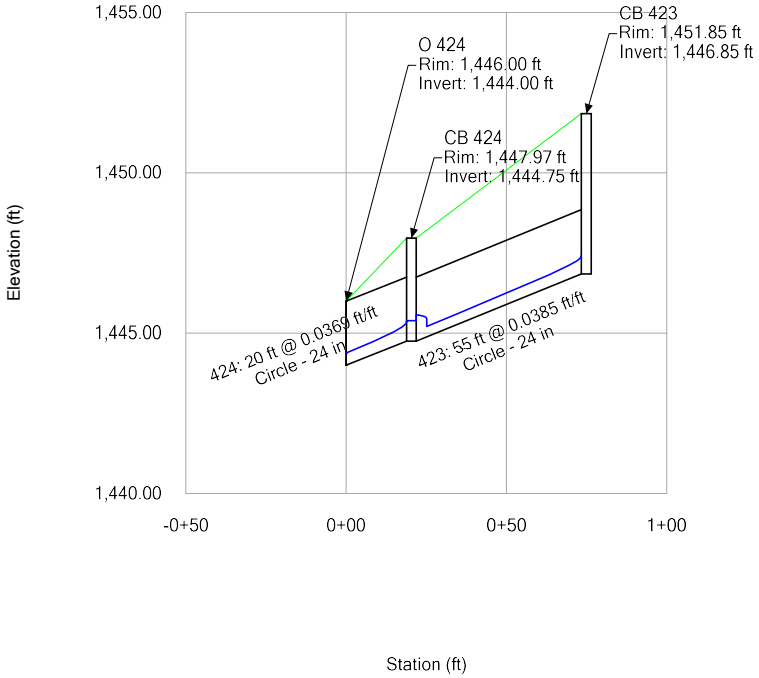
Profile Report
Engineering Profile - 56 (h7383 StormCAD Project.stsw)



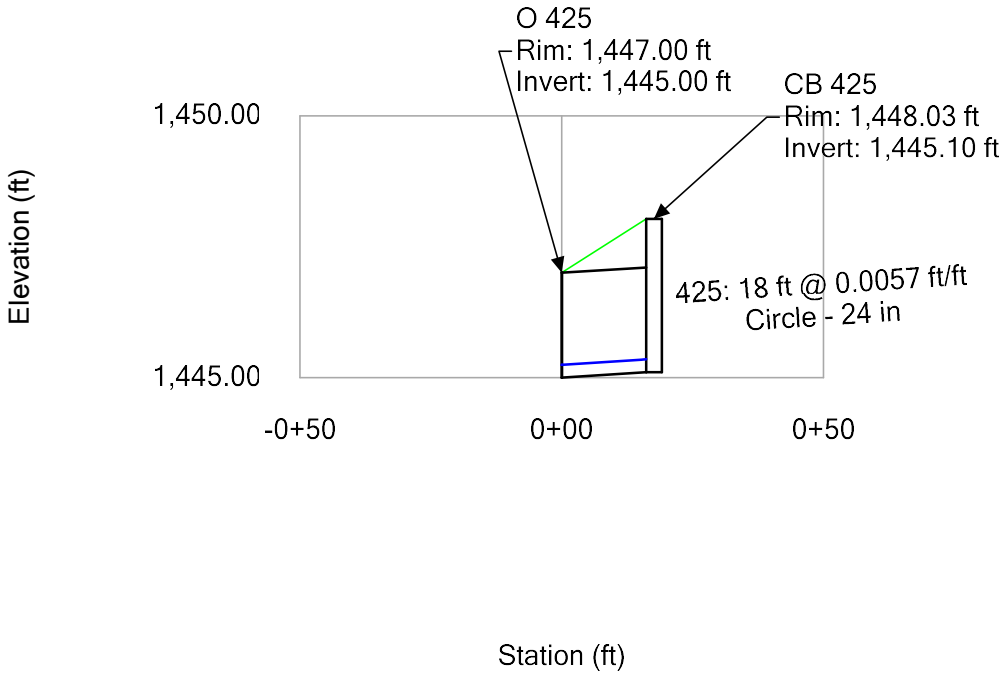
Profile Report
Engineering Profile - 57 (h7383 StormCAD Project.stsw)



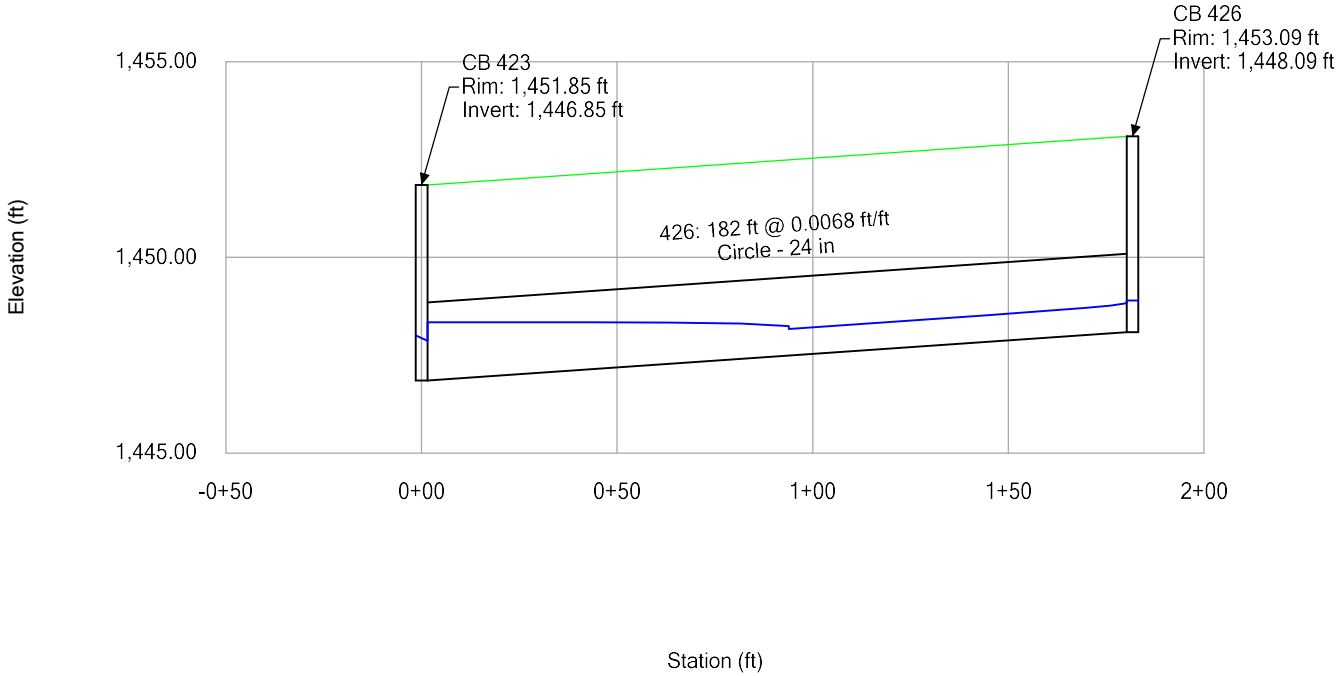
Profile Report
Engineering Profile - 58 (h7383 StormCAD Project.stsw)



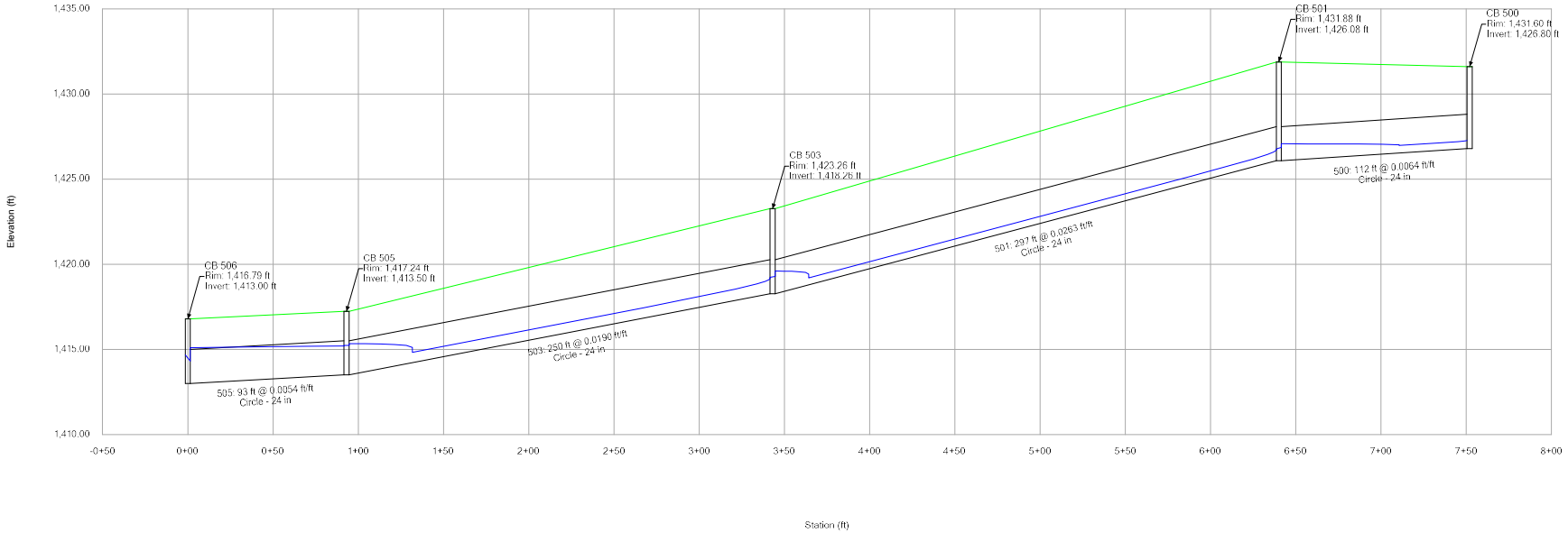
Profile Report
Engineering Profile - 59 (h7383 StormCAD Project.stsw)



Profile Report
Engineering Profile - 60 (h7383 StormCAD Project.stsw)

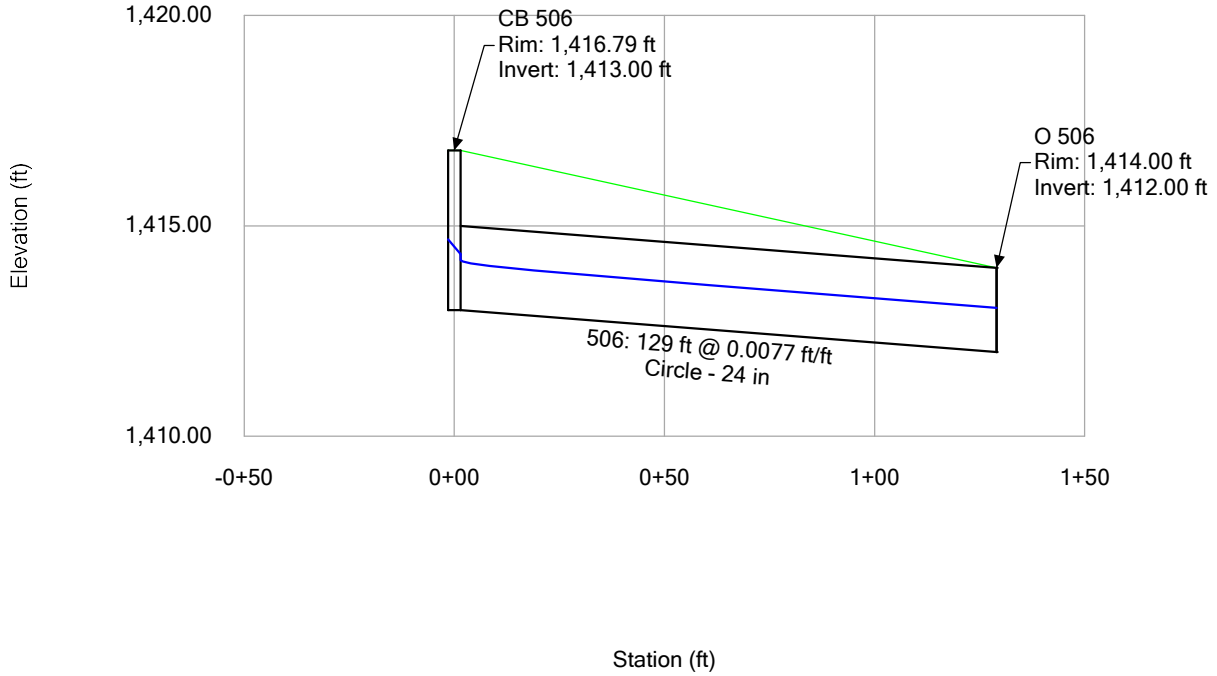


Profile Report
Engineering Profile - 61 (h7383 StormCAD Project.stsw)

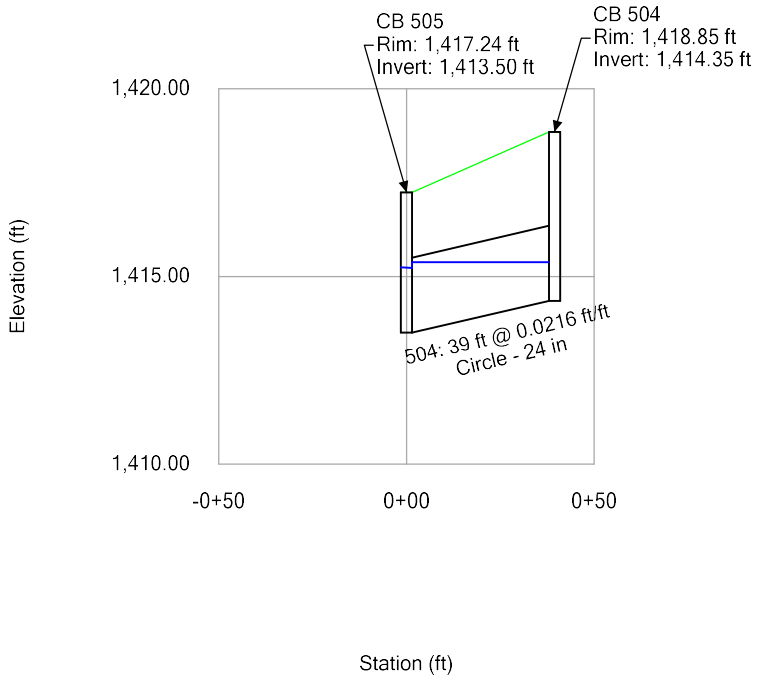


Profile Report

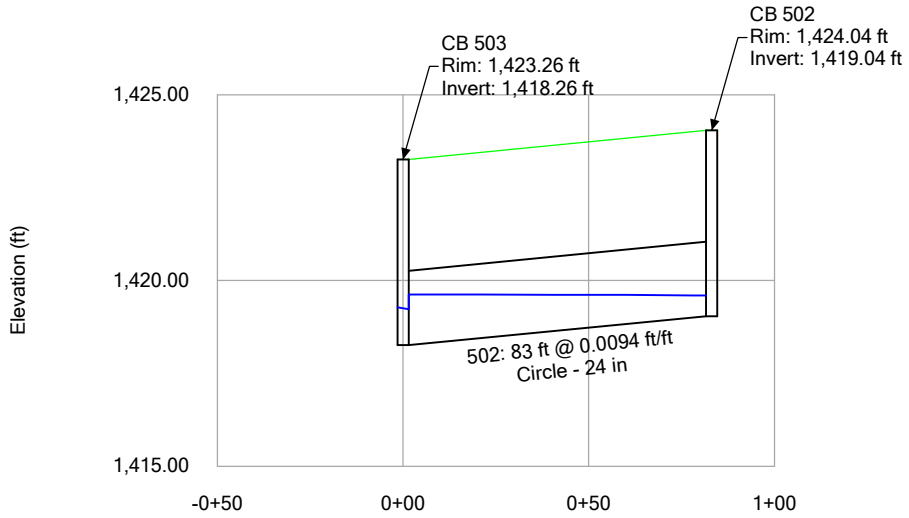
Engineering Profile - 62 (h7383 StormCAD Project.stsw)



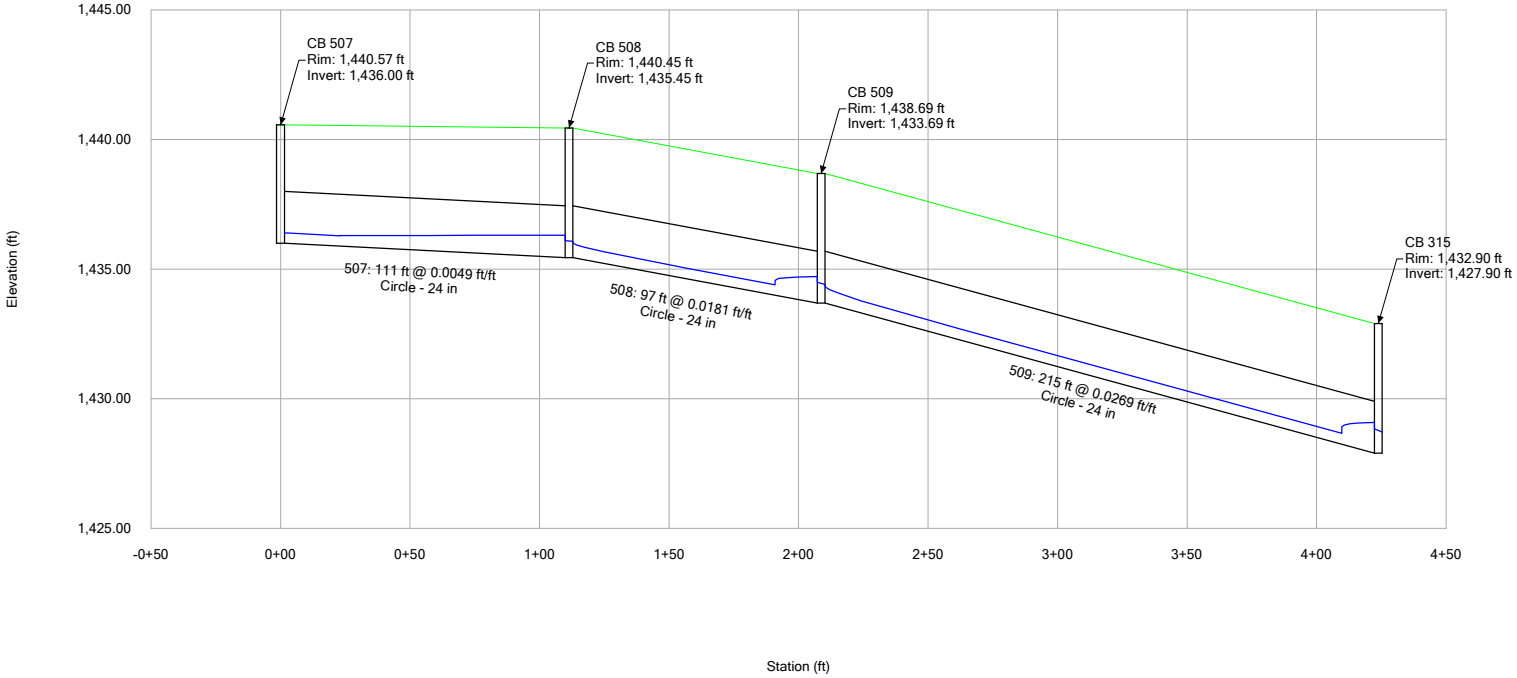
Profile Report
Engineering Profile - 63 (h7383 StormCAD Project.stsw)



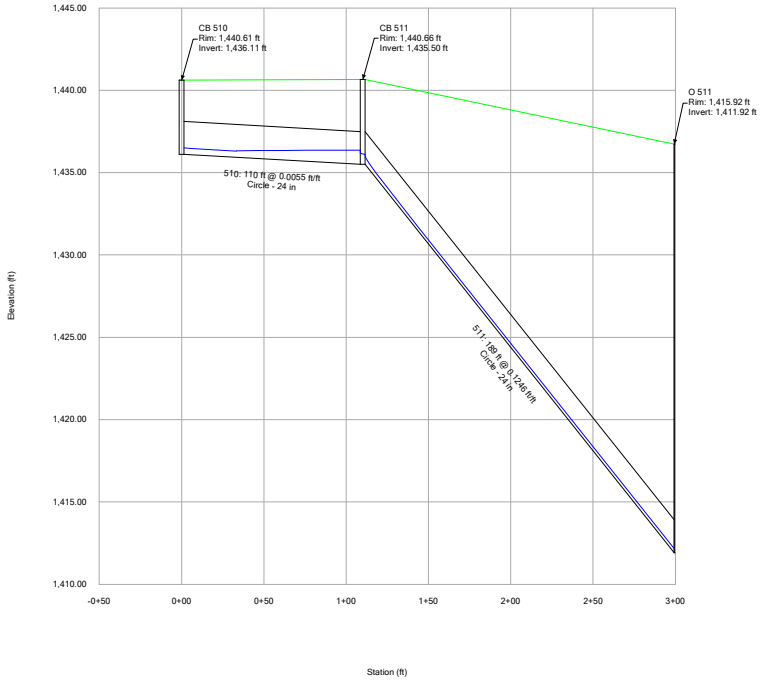
Profile Report
Engineering Profile - 64 (h7383 StormCAD Project.stsw)



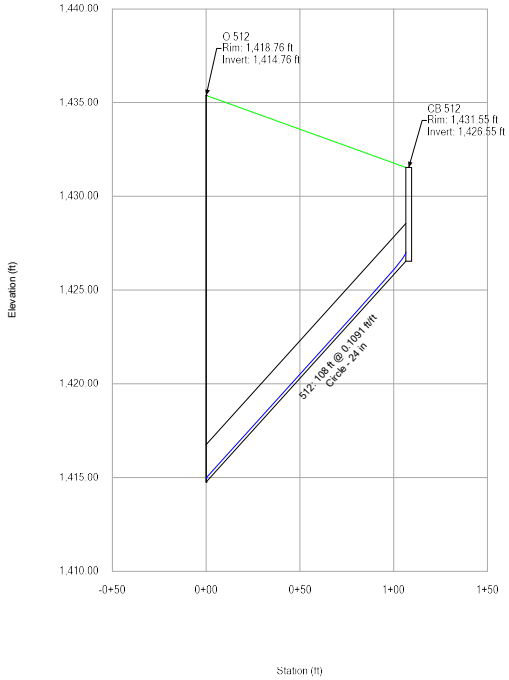
Profile Report
Engineering Profile - 65 (h7383 StormCAD Project.stsw)



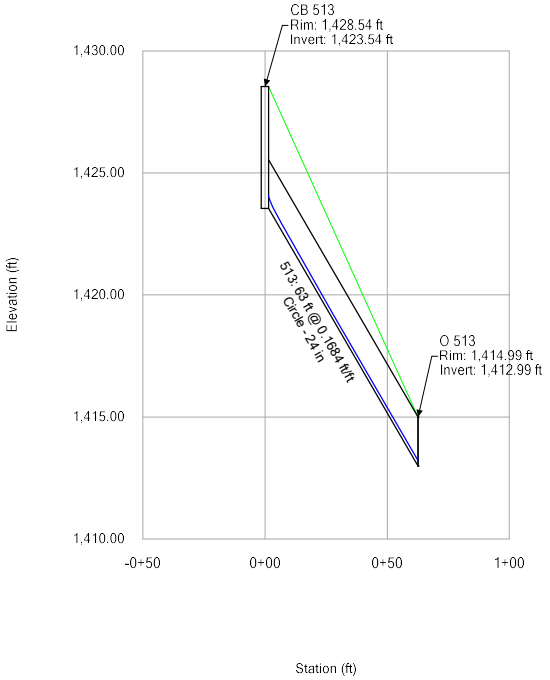
Profile Report
Engineering Profile - 67 (h7383 StormCAD Project.stsw)



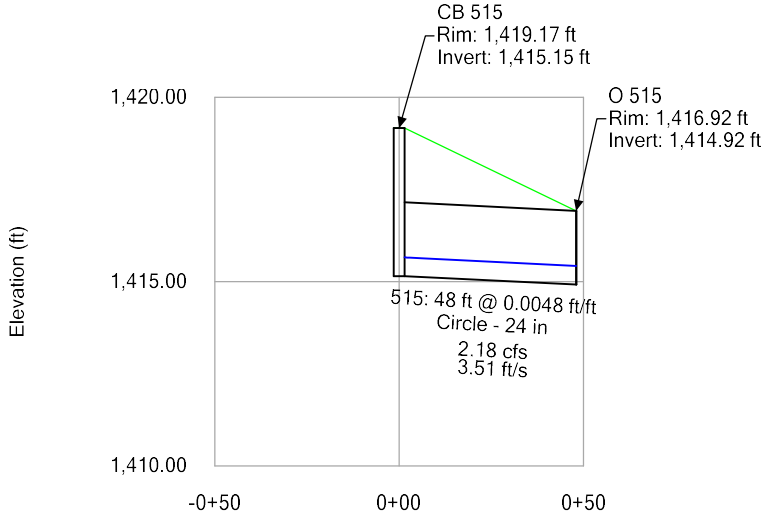
Profile Report
Engineering Profile - 68 (h7383 StormCAD Project.stsw)



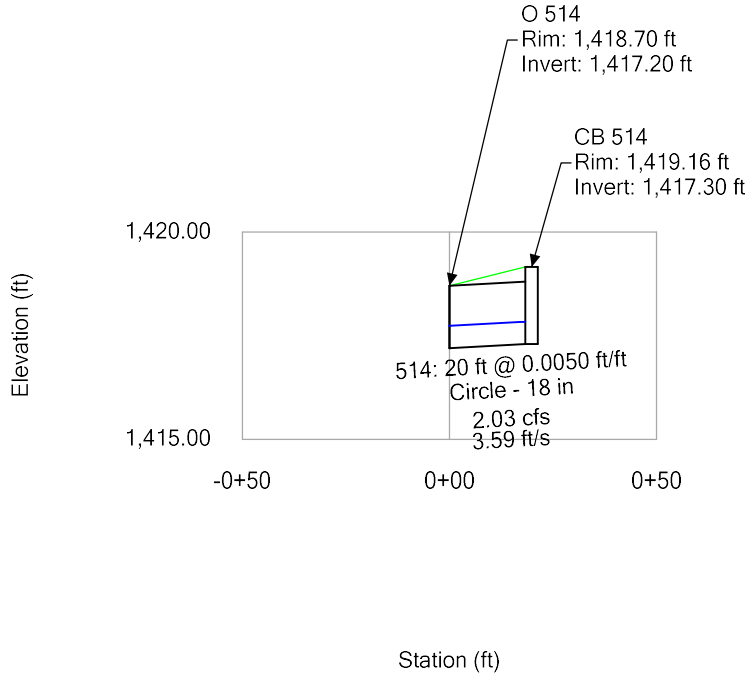
Profile Report
Engineering Profile - 69 (h7383 StormCAD Project.stsw)



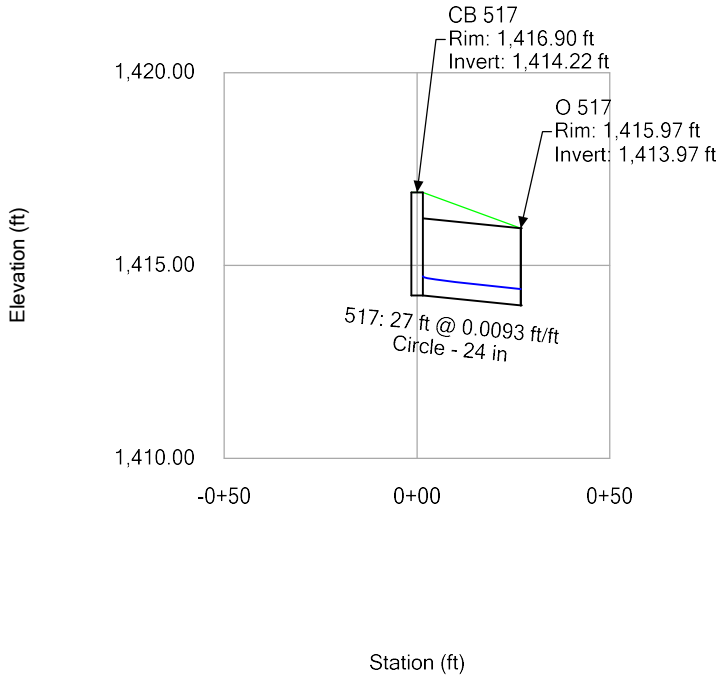
Profile Report
Engineering Profile - 70 (h7383 StormCAD Project.stsw)



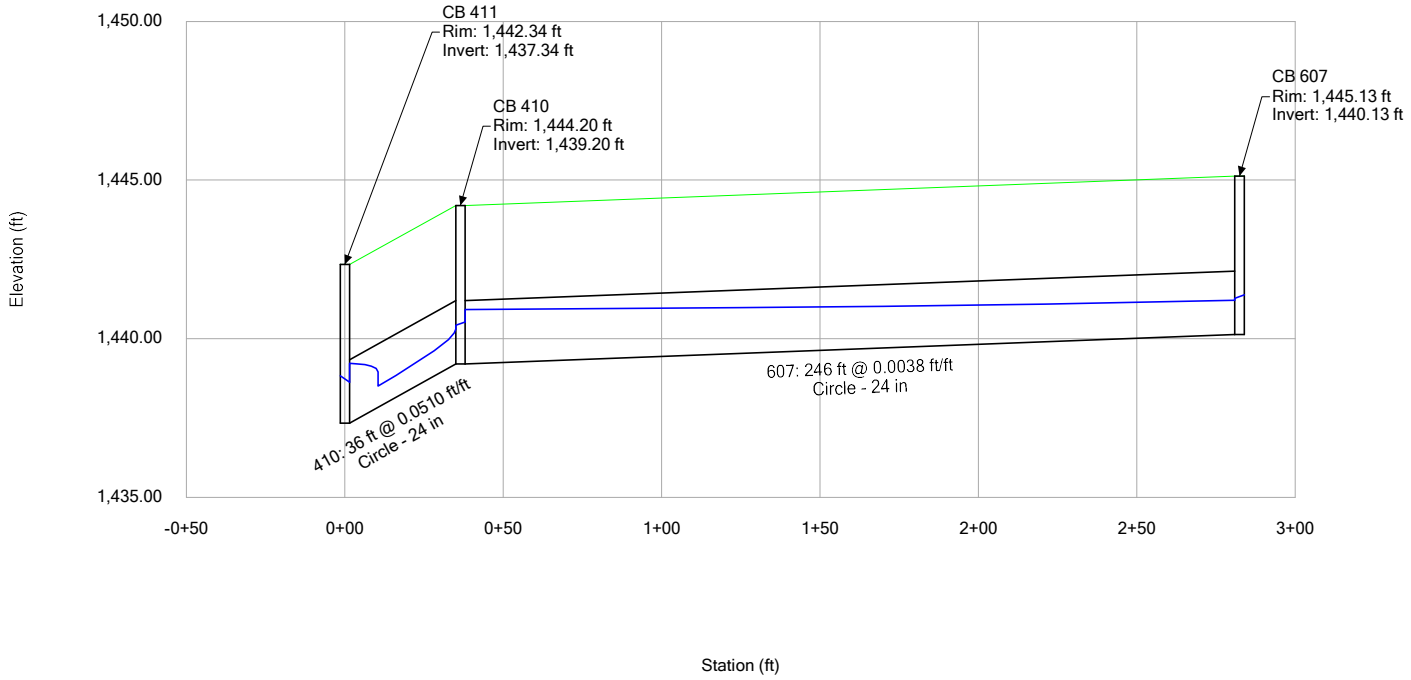
Profile Report
Engineering Profile - 70A (h7383 StormCAD Project.stsw)



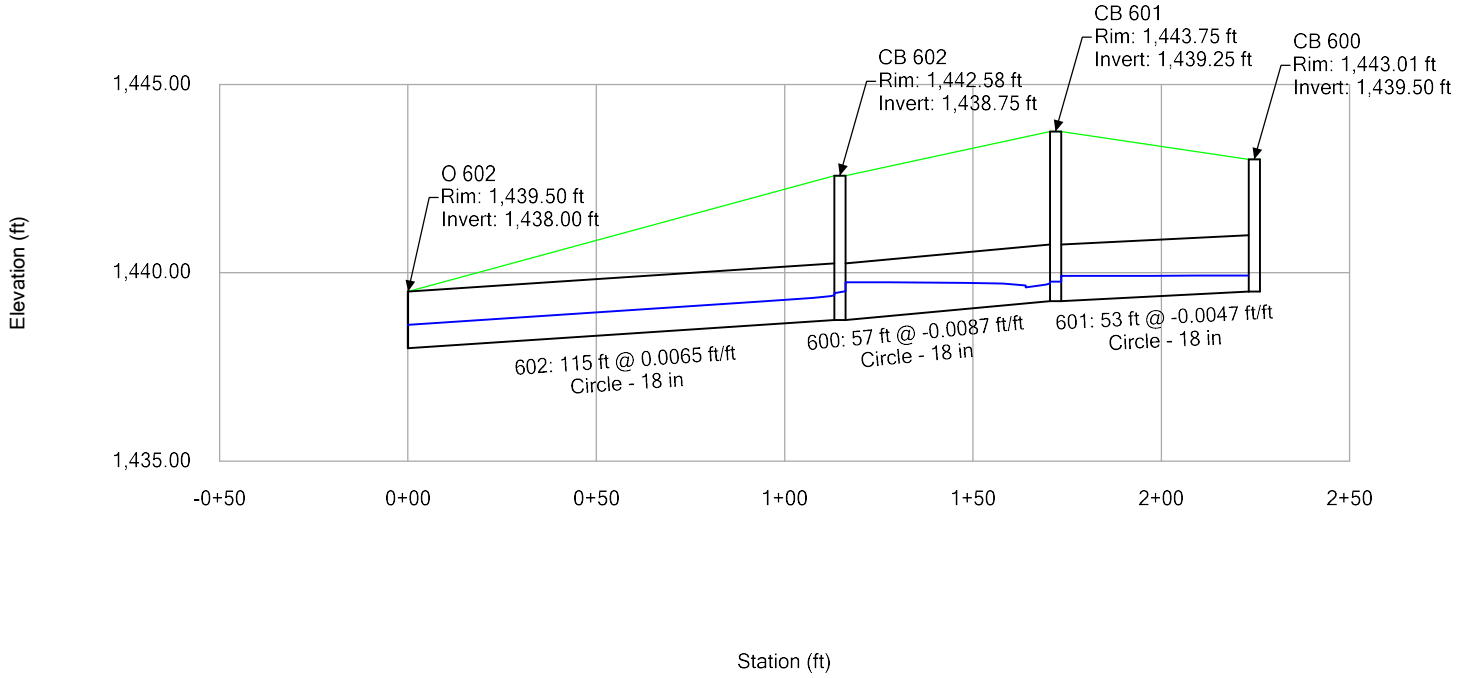
Profile Report
Engineering Profile - 71 (h7383 StormCAD Project.stsw)



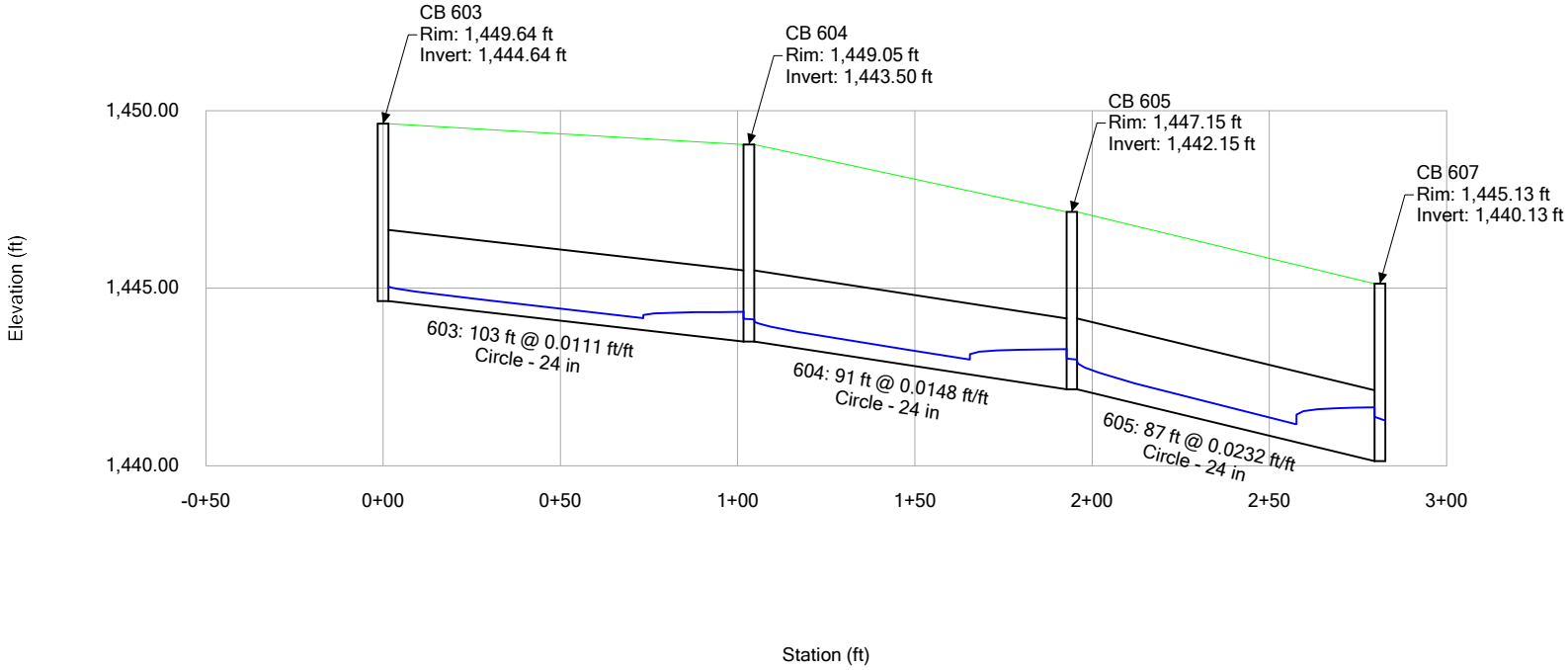
Profile Report
Engineering Profile - 72 (h7383 StormCAD Project.stsw)



Profile Report
Engineering Profile - 73 (h7383 StormCAD Project.stsw)

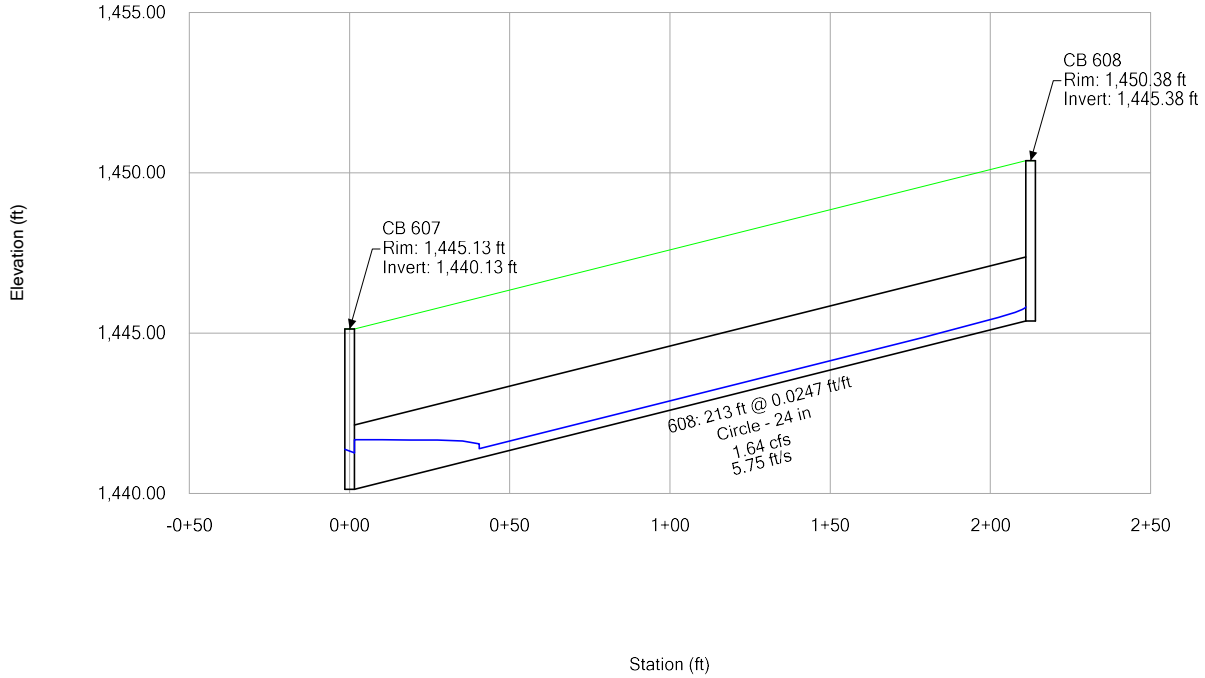


Profile Report
Engineering Profile - 74 (h7383 StormCAD Project.stsw)

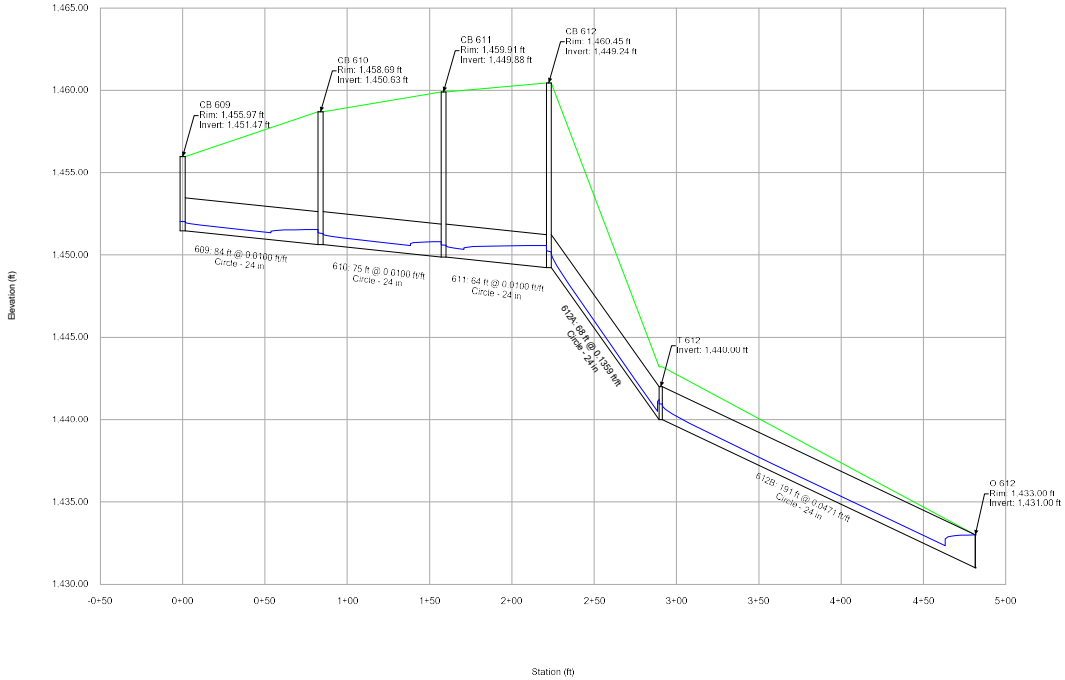


Profile Report

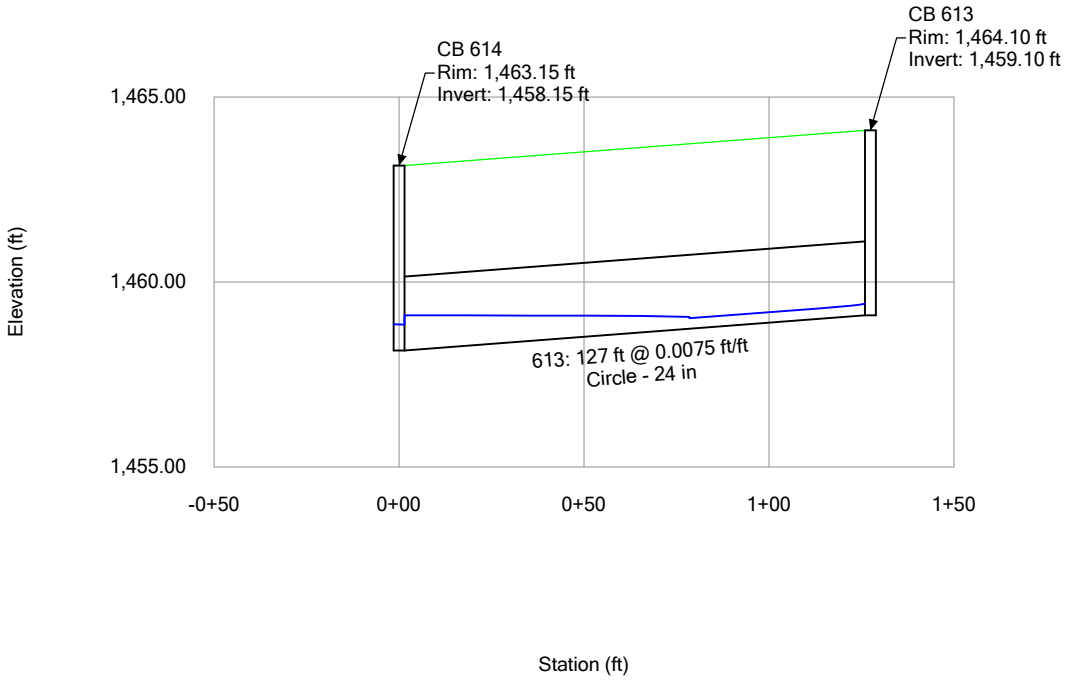
Engineering Profile - 74A (h7383 StormCAD Project.stsw)



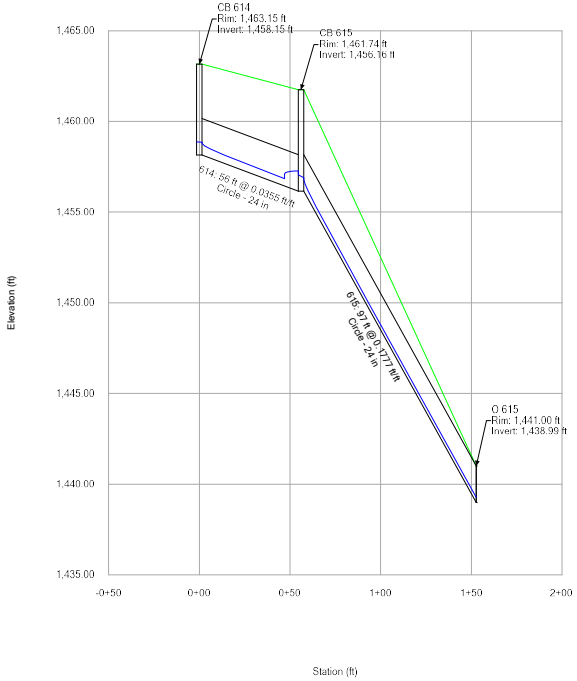
Profile Report
Engineering Profile - 75 (h7383 StormCAD Project.stsw)



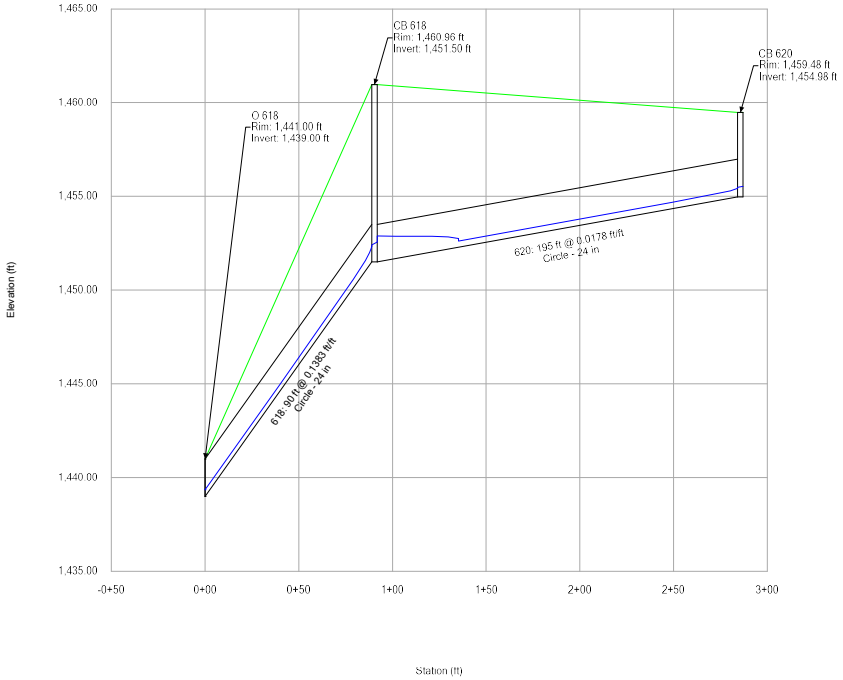
Profile Report
Engineering Profile - 76 (h7383 StormCAD Project.stsw)



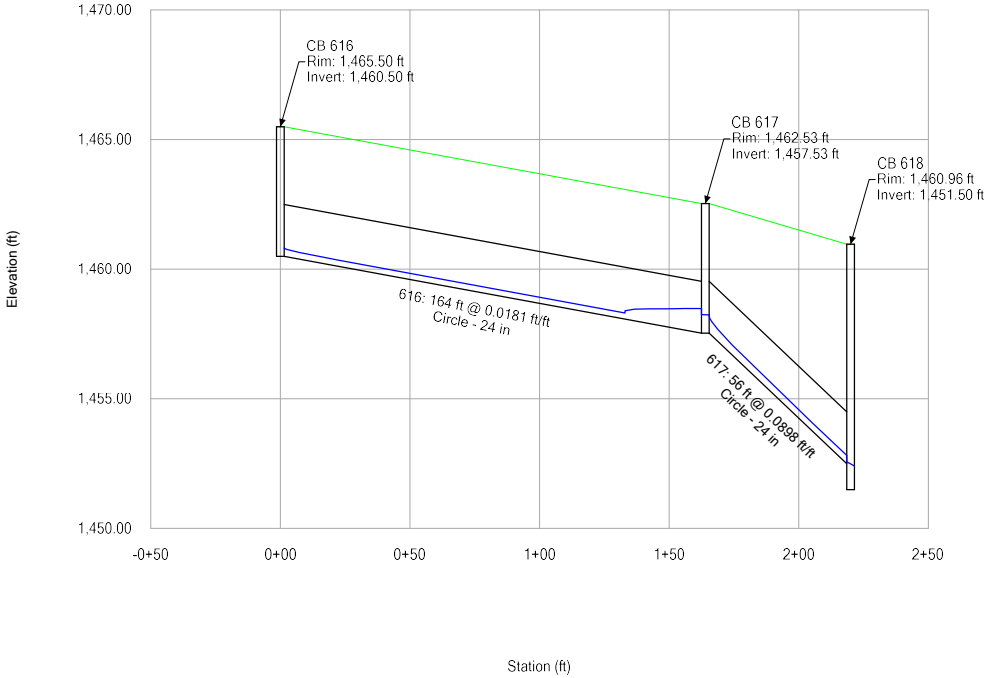
Profile Report
Engineering Profile - 77 (h7383 StormCAD Project.stsw)



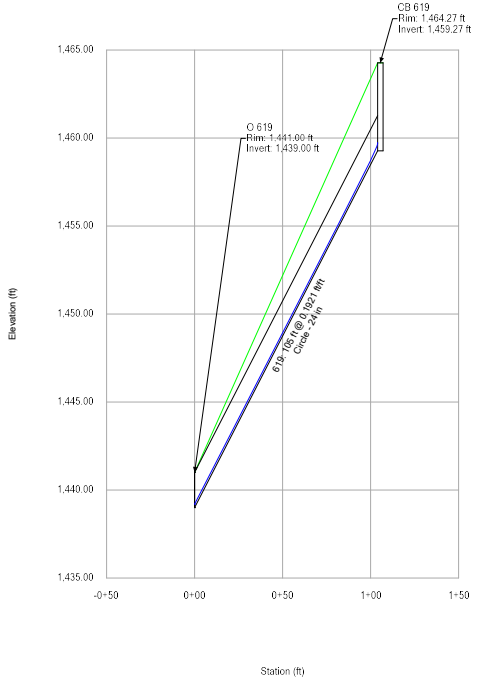
Profile Report
Engineering Profile - 78 (h7383 StormCAD Project.stsw)



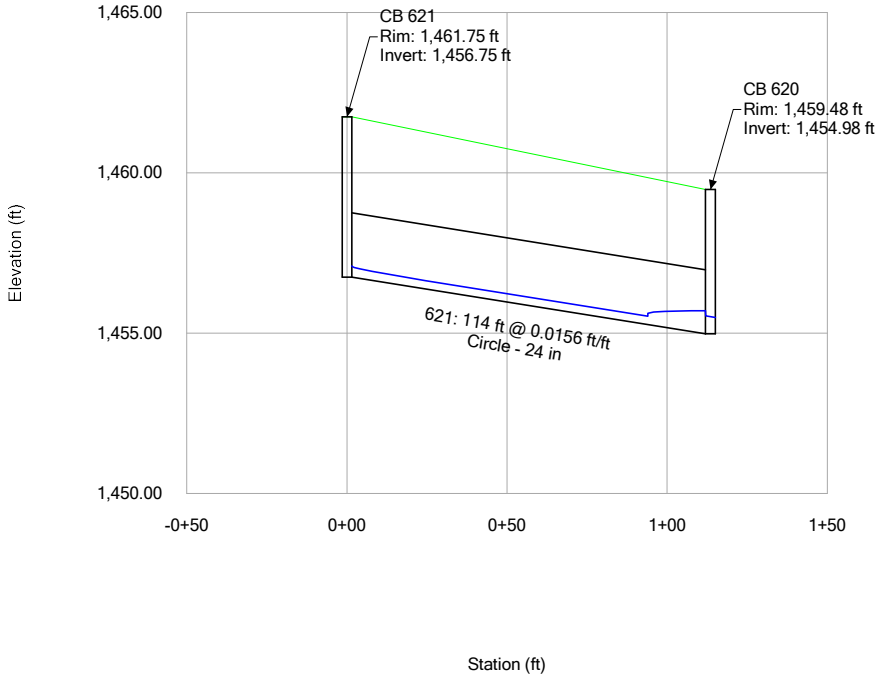
Profile Report
Engineering Profile - 79 (h7383 StormCAD Project.stsw)



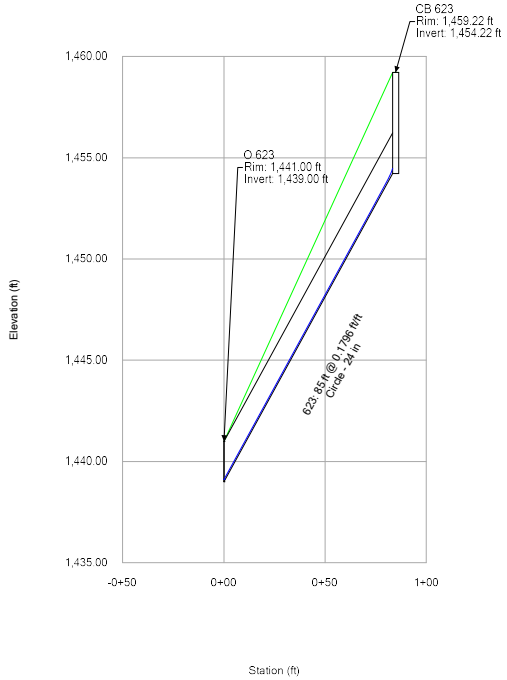
Profile Report
Engineering Profile - 80 (h7383 StormCAD Project.stsw)



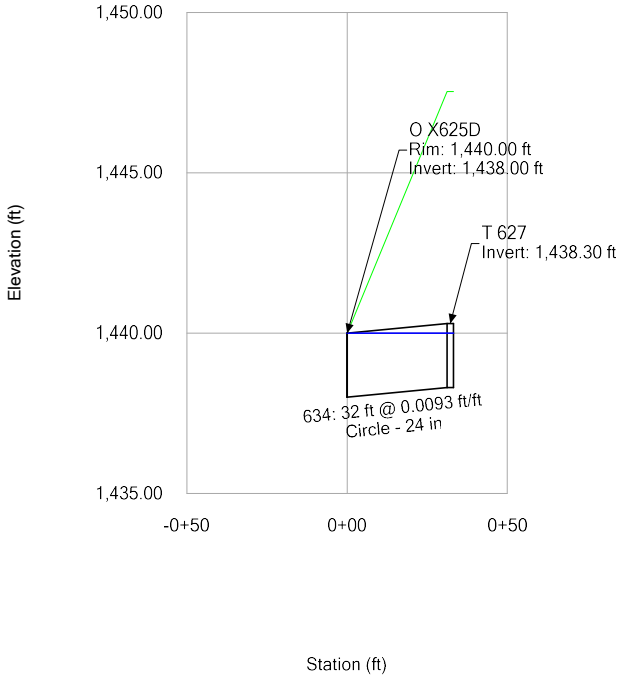
Profile Report
Engineering Profile - 81 (h7383 StormCAD Project.stsw)



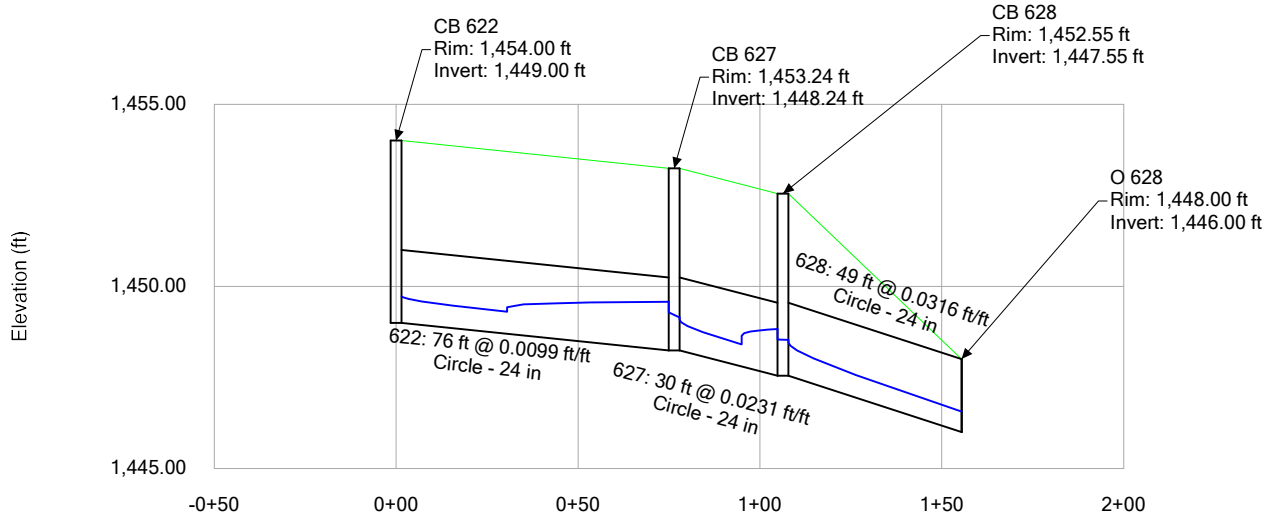
Profile Report
Engineering Profile - 83 (h7383 StormCAD Project.stsw)



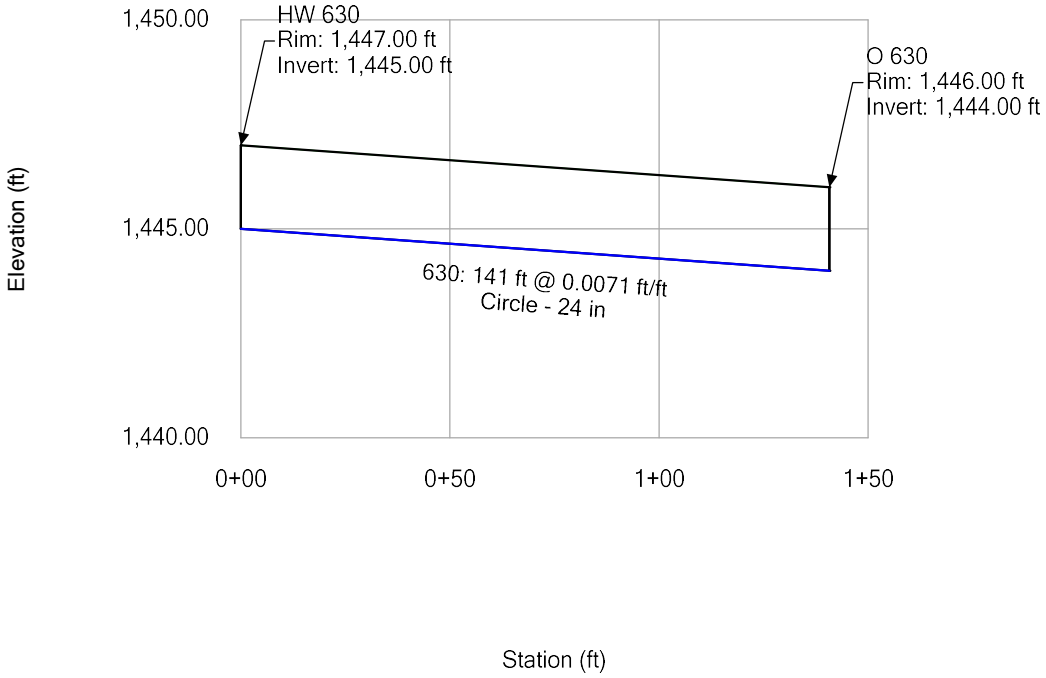
Profile Report
Engineering Profile - 84 (h7383 StormCAD Project.stsw)



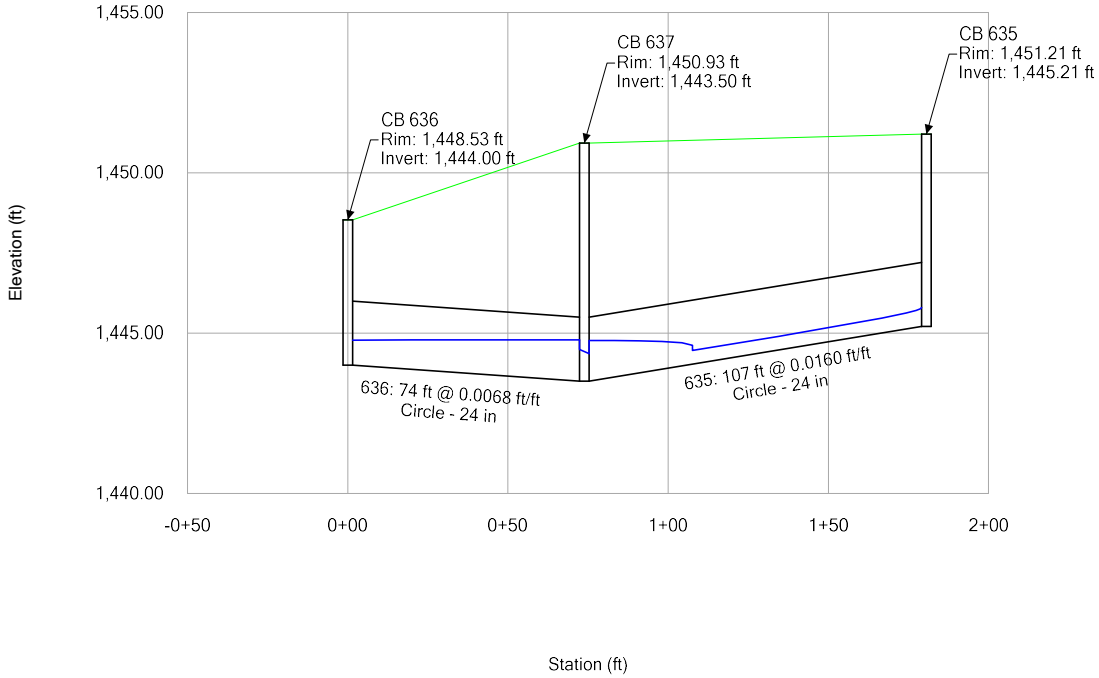
Profile Report
Engineering Profile - 85 (h7383 StormCAD Project.stsw)



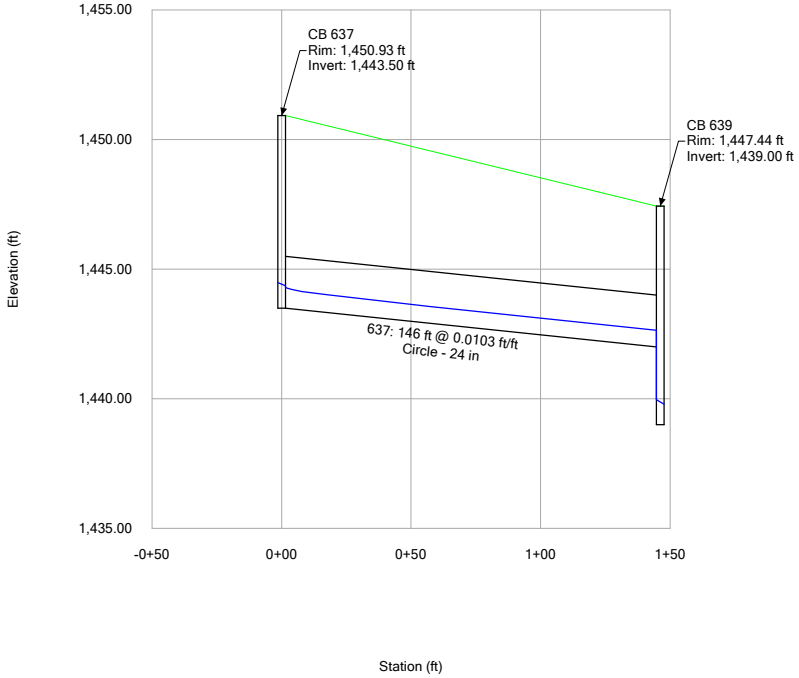
Profile Report
Engineering Profile - 87 (h7383 StormCAD Project.stsw)



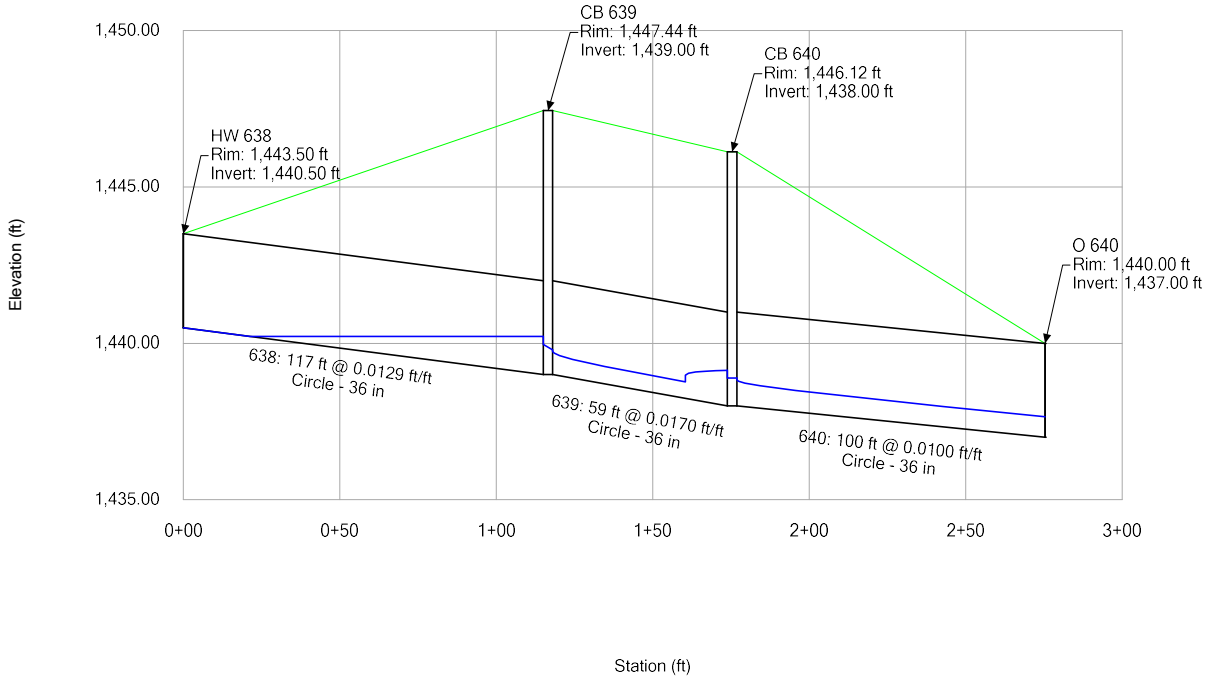
Profile Report
Engineering Profile - 92 (h7383 StormCAD Project.stsw)



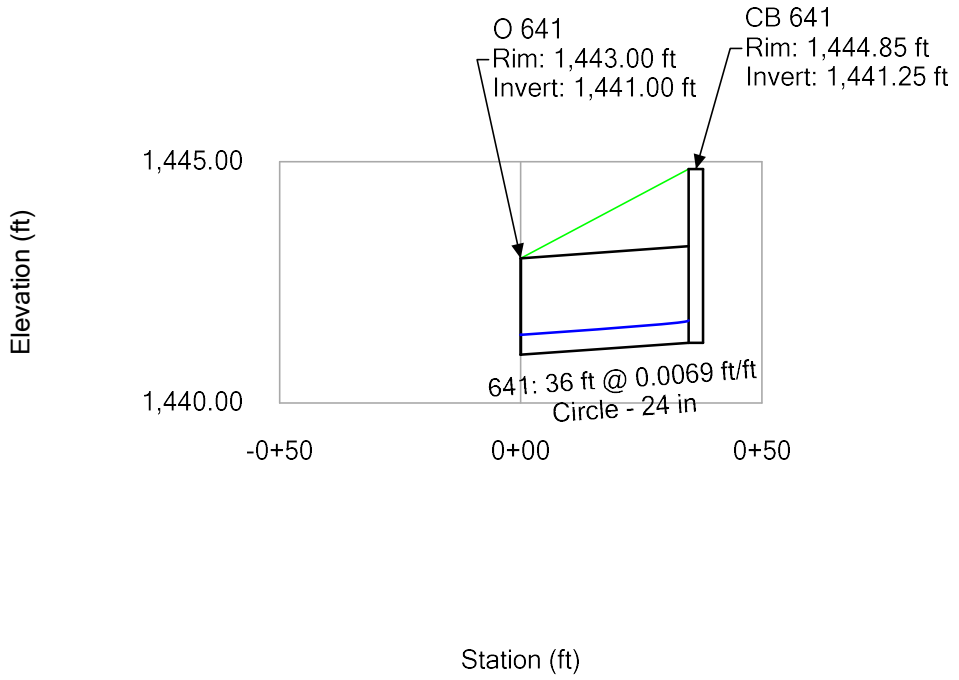
Profile Report
Engineering Profile - 93 (h7383 StormCAD Project.stsw)



Profile Report
Engineering Profile - 94 (h7383 StormCAD Project.stsw)



Profile Report
Engineering Profile - 95 (h7383 StormCAD Project.stsw)



APPENDIX G

BASIN TABLES AND PERCOLATION TEST RESULTS

Andes Engineering

I-17/Pinnacle Peak Rd TI and Happy Valley Rd TI
Basin Capacity Spreadsheet

4/10/2018

First Flush Depth: 0.5 in
0.0417 ft

100-Yr 2-Hr Ret Depth: 2.56 in
0.2133 ft

		Retention/Detention Basins Storage Volume							
		PPA FF	PPW Ret	HVA FF	HVBW FF	HVBE FF	HVCW FF	HVCE FF	HVD FF
Required	V (cu.ft.)	20952	19776	9583	10803	4225	2352	4574	4748
	V (Ac-ft)	0.481	0.454	0.220	0.248	0.097	0.054	0.105	0.109
Provided	Depth (ft)	2.2	2.3	1	1	1	1	1	1
	Bot A (sq.ft.)	9949	9415	89913	42613	4335	47463	50337	56703
	Perc Tests	2	2	5	5	2	5	5	5
	V (cu.ft.)	21887.8	21654.5	89913	42613	4335	47463	50337	56703
	V (Ac-ft)	0.502	0.497	2.064	0.978	0.100	1.090	1.156	1.302

Area ID	Inlet No.	Road	Paved A (sq.ft.)	CA (Ac.)	To Basin/Outfall	Basins Contributing CA: PPA (Ac.)	PPW (Ac.)	HVA (Ac.)	HVBW (Ac.)	HVBE (Ac.)	HVCW (Ac.)	HVCE (Ac.)	HVD (Ac.)
A84561	103	I-17 NB	64443	1.405	Scatter Wash								
A84610	106	I-17 NB	14379	0.314	Scatter Wash								
A85111	110	I-17 NB	62953	1.373	Scatter Wash								
A85390	112	I-17 NB	32146	0.701	Scatter Wash								
A85760	118	I-17 NB	26795	0.584	Scatter Wash								
A86068	117	I-17 NB	73839	1.610	Scatter Wash								
A87200	130	I-17 NB	0	0.000	Scatter Wash								
A87201	129	I-17 NB	33923	0.740	Scatter Wash								
A87559	X207M	I-17 NB	11892	0.259	Scatter Wash								
A87620	137	I-17 NB	21216	0.463	Scatter Wash								
A87834	X207K	I-17 NB	19754	0.431	Scatter Wash								
A88034	X207I	I-17 NB	33678	0.734	Scatter Wash								
A88374	X207G	I-17 NB	25745	0.561	Scatter Wash								
A88634	132	I-17 NB	23869	0.521	Scatter Wash								
A88844	133	I-17 NB	39670	0.865	Scatter Wash								
A89175	207	I-17 NB	39261	0.856	Scatter Wash								
A89437	Sheetflow	I-17 NB	120040	2.618	HVBW				2.618				
A91000	Sheetflow	I-17 NB	83473	1.820	HVD								1.820
B1404	101	DV-PP FR	8464	0.185	Scatter Wash								
B1600	102	DV-PP FR	5617	0.123	Scatter Wash								
B1787	108	DV-PP FR	7366	0.161	Scatter Wash								
B1830	107	DV-PP FR	11538	0.252	Scatter Wash								
B2078	109	DV-PP FR	10727	0.234	Scatter Wash								
B2969	113	DV-PP FR	10873	0.237	Scatter Wash								
C1554	105	PP B	1666	0.036	Scatter Wash								
C2001	111	PP B	11576	0.252	Scatter Wash								
C2245	115	PP B	11727	0.256	Scatter Wash								
C2470	114	PP B	10501	0.229	Scatter Wash								
D1663	126	PP D	6713	0.146	Scatter Wash								
D1713	125	PP D	3156	0.069	Scatter Wash								
D1763	124	PP D	35817	0.781	Scatter Wash								
E3500	119	PP-HV FR	20044	0.437	Scatter Wash								
E3696	120	PP-HV FR	9636	0.210	Scatter Wash								
E3984	121	PP-HV FR	12215	0.266	Scatter Wash								
E4035	123	PP-HV FR	1509	0.033	Scatter Wash								
E4085	122	PP-HV FR	11391	0.248	Scatter Wash								
F1674	X207L	PP-HV FR	8524	0.186	Scatter Wash								
F1950	X207J	PP-HV FR	6228	0.136	Scatter Wash								
F2150	X207H	PP-HV FR	14425	0.315	Scatter Wash								
F2490	X207F	PP-HV FR	8015	0.175	Scatter Wash								
F2750	X207D	PP-HV FR	6393	0.139	Scatter Wash								
F2960	X207B	PP-HV FR	8200	0.179	Scatter Wash								
G3289	206	PP-HV FR	6909	0.151	Scatter Wash								
G3568	203	PP-HV FR	16587	0.362	Scatter Wash								
G3900	200	PP-HV FR	14074	0.307	Scatter Wash								
G4200	208	PP-HV FR	18901	0.412	Scatter Wash								
G4500	209	PP-HV FR	16477	0.359	HVBE					0.359			
H14702	618	HV B1	3136	0.068	HVBW				0.068				
H14775	617	HV B1	23142	0.505	HVBW				0.505				
I10700	619	HV D1	14607	0.319	HVD								0.319
I10900	623	HV D1	4418	0.096	HVD								0.096
J20529	628	HV D2	8157	0.178	HVBW				0.178				
K1175	625	HV D	9222	0.201	HVD								0.201
K1439	626	HV D	8330	0.182	HVD								0.182
L00690	Spillway	HV-JM FR	13176	0.287	HVBW				0.287				
L01000	Spillway	HV-JM FR	8504	0.185	HVBW				0.185				
M00752	X626B	HV-JM FR	2991	0.065	HVBW				0.065				
M01095	X626A	HV-JM FR	9083	0.198	HVBW				0.198				
A84102	X315C	I-17 SB	11801	0.257	Scatter Wash								
A84279	301	I-17 SB	19594	0.427	Scatter Wash								
A84498	311	I-17 SB	25175	0.549	Scatter Wash								
A84926	303	I-17 SB	25422	0.554	Scatter Wash								
A85106	X306C	I-17 SB	49104	1.071	Scatter Wash								
A85425	X306B	I-17 SB	6974	0.152	Scatter Wash								
A85496	Existing	I-17 SB	26906	0.587	PPA	0.587							
A85701	316	I-17 SB	37044	0.808	PPA	0.808							
A86068	317	I-17 SB	33079	0.721	PPA	0.721							
A86400	319	I-17 SB	35350	0.771	PPA	0.771							
A86750	321	I-17 SB	39835	0.869	PPA	0.869							
A87213	324	I-17 SB	37606	0.820	PPA	0.820							
A87513	323	I-17 SB	38272	0.835	PPA	0.835							
A87850	Sheetflow	I-17 SB	71775	1.565	PPA	1.565							
A88756	Spillway	I-17 SB	25698	0.560	PPA	0.560							
A88981	Spillway	I-17 SB	40447	0.882	PPA	0.882							
A89347	406	I-17 SB	5317	0.116	PPA	0.116							
A89400	Sheetflow	I-17 SB	115723	2.524	HVCE							2.524	
A89414	405	I-17 SB	0	0.000	PPA	0.000							
A91000	Sheetflow	I-17 SB	88898	1.939	HVA			1.939					
A92169	423	I-17 SB	21472	0.468	HVCW						0.468		
A92350	426	I-17 SB	37699	0.822	HVCW						0.822		
B01179	300	PP-DV FR	7601	0.166	Scatter Wash								

B01400	310	PP-DV FR	6168	0.135	Scatter Wash								
B01607	309	PP-DV FR	5808	0.127	Scatter Wash								
B01657	308	PP-DV FR	2800	0.061	Scatter Wash								
B01707	307	PP-DV FR	7449	0.162	Scatter Wash								
B02500	315	PP-DV FR	9407	0.205	Scatter Wash								
B02710	509	PP-DV FR	7871	0.172	PPA	0.172							
C01647	305	PP A	27060	0.590	Scatter Wash								
C01697	306	PP A	3148	0.069	Scatter Wash								
C01747	304	PP A	2929	0.064	Scatter Wash								
C01840	313	PP A	15649	0.341	PPA	0.341							
C02150	314	PP A	13422	0.293	PPA	0.293							
D01400	318	PP C	24132	0.526	PPA	0.526							
D01700	320	PP C	10963	0.239	PPA	0.239							
D01950	326	PP C	8250	0.180	PPA	0.180							
D02000	325	PP C	15601	0.340	PPA	0.340							
E01461	407	HV A	11355	0.248	PPA	0.248							
E01636	404	HV A	0	0.000	PPA	0.000							
E01828	402	HV A	6883	0.150	PPA	0.150							
E02050	400	HV A	8823	0.192	HVA			0.192					
E02300	408	HV A	10747	0.234	HVA			0.234					
E02550	409	HV A	13907	0.303	HVA			0.303					
E02800	411	HV A	7386	0.161	HVA			0.161					
E02831	410	HV A	7785	0.170	HVA			0.170					
E03074	607	HV A	2306	0.050	HVA			0.050					
F23100	608	HV A2	6540	0.143	HVA			0.143					
F23400	612	HV A2	22046	0.481	HVA			0.481					
G01362	421	HV C	13858	0.302	HVBW				0.302				
H20327	614	HV C2	22596	0.493	HVBE					0.493			
H20394	615	HV C2	2665	0.058	HVBE					0.058			
I00599	416	JM-HV FR	13184	0.288	HVBW				0.288				
I00850	417	JM-HV FR	11841	0.258	HVBW				0.258				
I01014	418	JM-HV FR	7414	0.162	HVBW				0.162				
I01064	419	JM-HV FR	5026	0.110	HVBW				0.110				
I01114	420	JM-HV FR	7363	0.161	HVBW				0.161				
I01425	422	JM-HV FR	3388	0.074	HVBW				0.074				
I01475	424	JM-HV FR	2800	0.061	HVBW				0.061				
I01525	425	JM-HV FR	4358	0.095	HVBW				0.095				
A21177	504	PP EB	7390	0.161	PPW		0.161						
A21430	502	PP EB	10981	0.239	PPW		0.239						
A21727	500	PP EB	15269	0.333	PPW		0.333						
A22025	508	PP EB	12136	0.265	PPA	0.265							
A22412	511	PP EB	10965	0.239	Scatter Wash								
A22850	513	PP EB	19004	0.414	Scatter Wash								
A23190	515	PP EB	17768	0.388	Scatter Wash								
A23387	517	PP EB	16803	0.366	Scatter Wash								
B21080	506	PP WB	22815	0.498	PPW		0.498						
B21176	505	PP WB	11563	0.252	PPW		0.252						
B21430	503	PP WB	16584	0.362	PPW		0.362						
B21727	501	PP WB	13077	0.285	PPW		0.285						
B22042	507	PP WB	11305	0.247	PPA	0.247							
B22414	510	PP WB	10874	0.237	Scatter Wash								
B22736	512	PP WB	16023	0.349	Scatter Wash								
B23190	514	PP WB	16553	0.361	Scatter Wash								
B23387	516	PP WB	13281	0.290	Scatter Wash								
A15069	600	HV EB	8064	0.176	HVA			0.176					
A15201	605	HV EB	18538	0.404	HVA			0.404					
A15263	604	HV EB	0	0.000	HVA			0.000					
A15620	611	HV EB	4063	0.089	HVA			0.089					
A15767	613	HV EB	0	0.000	HVA			0.000					
A16329	616	HV EB	0	0.000	HVBW				0.000				
A16547	620	HV EB	7300	0.159	HVBW				0.159				
A16800	635	HV EB	18368	0.401	HVBE					0.401			
A16852	637	HV EB	0	0.000	HVBE					0.000			
A17000	640	HV EB	12146	0.265	HVBE					0.265			
B15051	602	HV WB	11768	0.257	HVA			0.257					
B15059	601	HV WB	0	0.000	HVA			0.000					
B15300	603	HV WB	12092	0.264	HVA			0.264					
B15503	609	HV WB	11156	0.243	HVA			0.243					
B15582	610	HV WB	8349	0.182	HVA			0.182					
B16453	621	HV WB	8189	0.179	HVBW				0.179				
B16649	622	HV WB	0	0.000	HVBE					0.000			
B16719	627	HV WB	11522	0.251	HVBE					0.251			
B16891	636	HV WB	8906	0.194	HVBE					0.194			
B17000	639	HV WB	0	0.000	HVBE					0.000			
B17118	641	HV WB	14292	0.312	HVBE					0.312			
						11.535	**2.13**	**5.288**	**5.953**	**2.333**	**1.29**	**2.524**	**2.618**

June 6, 2018

HDR, Inc.
3200 East Camelback Road, Suite 350
Phoenix, AZ 85018

Attn: Jill Bennett, PE
P: 602-522-7700
E: jill.bennett@hdrinc.com

Re: **Supplement No. 1 - Field Percolation Test Results**
Roadway Geotechnical Engineering Report
I-17 Pinnacle Peak Road TI and Happy Valley Road TI
Phoenix-Cordes Junction Highway, Phoenix, Arizona
ADOT TRACS No. 017 MA 217 H7383 01D
Federal Aid No. 017-A(248)A
Terracon Project No. 65165069

Terracon Consultants, Inc. (Terracon) completed field percolation testing services for the Interstate 17 (I-17) Pinnacle Peak Road Traffic Interchange (TI) and Happy Valley Road TI in Phoenix, Arizona. The field percolation testing was performed in general accordance with our proposal titled Cost *Proposal – Revision No. 2 for Geotechnical Engineering Services, I-17 Pinnacle Peak Road and Happy Valley Road TI's, Phoenix-Cordes Junction Highway, Phoenix, Arizona* Terracon Proposal No. P65165069 – Revision No. 2 dated January 20, 2017. Terracon previously performed a geotechnical evaluation of the site and summarized the results in a Structures Geotechnical Engineering Report, a Roadway Geotechnical Engineering Report, and a Pavement Design Summary Report, all issued under separate covers.

Field Percolation Test Results

The percolation testing was performed at selected locations provided to Terracon, and the approximate location of the percolation tests are shown on the attached Exhibits A-2 and A-3. The percolation test holes were drilled on May 31, 2018 with a 15-inch solid stem auger and manually cleaned. A 12-inch diameter PVC casing was installed in each test hole and the void in the test hole surrounding the outside perimeter of the PVC casing was backfilled with hand-tamped on-site soils in an effort to direct flow to the bottom of the test hole. The holes were partially filled with water and allowed to pre-soak. On May 31, 2018 and June 1, 2018, the percolation tests were performed in general accordance with Method 2 of the Maricopa County Flood Control District (MCFCD) Drainage Design Manual (Hydraulics) to aid in the design (performed by others) of the proposed basins. The percolation tests were performed by filling the

percolation test holes with approximately 8 to 12 inches of water and measuring the rate of water drop within each test hole. Multiple water level readings were taken within the percolation test holes, and the holes were refilled with water (as needed) until a stabilized percolation rate was observed.

The following table provides the field measurements of the percolation testing to aid in the design of the proposed basins at the site. Our scope of work was limited to presenting the field measurements of the percolation tests, and we understand the design of the proposed storm-water retention basins will be performed by others.

Percolation Test Results		
Test	**Test Depth Below Existing Ground Surface (feet)**	**Percolation Rate (inches/hour)**
P-1	3	14
P-2	3	21
P-3	5	57
P-4	1.5	81
P-5	3	16
P-6	3	15
P-7	0.5	9

*Note: Percolation rates shown are unfactored.

The field percolation rates measured are based on the soil conditions encountered at the particular locations of the percolation tests. If the soil conditions throughout the basin are different than those encountered, then the actual rates will likely differ, and additional percolation testing including large scale testing may be appropriate to further evaluate the basins. It should be noted that siltation and vegetation growth along with other factors may affect the infiltration rates of the on-site areas. The infiltration rates presented in this report are unfactored field measurements, and should be de-rated based on the MCFCD Drainage Design Manual for a 12-inch diameter test hole during the design of the proposed storm-water retention basins (performed by others). The de-rating factors should be in accordance with ADOT Drainage Policies and Standards and the MCFCD Drainage Policies and Standards.

We recommend that excavations for the retention basins be excavated with light weight equipment to help reduce compaction of the basin bottom surface which will ultimately be used for percolation of storm water. Once constructed, no traffic should be allowed to travel across the basin bottom. It should be noted that compaction of the basin bottom will result in reduced percolation rates. If compaction of the basin bottom does occur, the exposed surface should be scarified to a minimum depth of 8 inches and left uncompacted.

Closure

All other recommendations presented in our geotechnical report should be adhered to during the design and construction of the project. This supplemental letter should be attached to the original Roadway Geotechnical Report for the referenced project (Terracon Project No. 65165069, report dated March 26, 2018) and become a part thereof. We appreciate the opportunity to be of continued service to HDR. Should any questions arise concerning this supplemental letter, please contact us.

Sincerely,
TERRACON CONSULTANTS, INC.

DRAFT

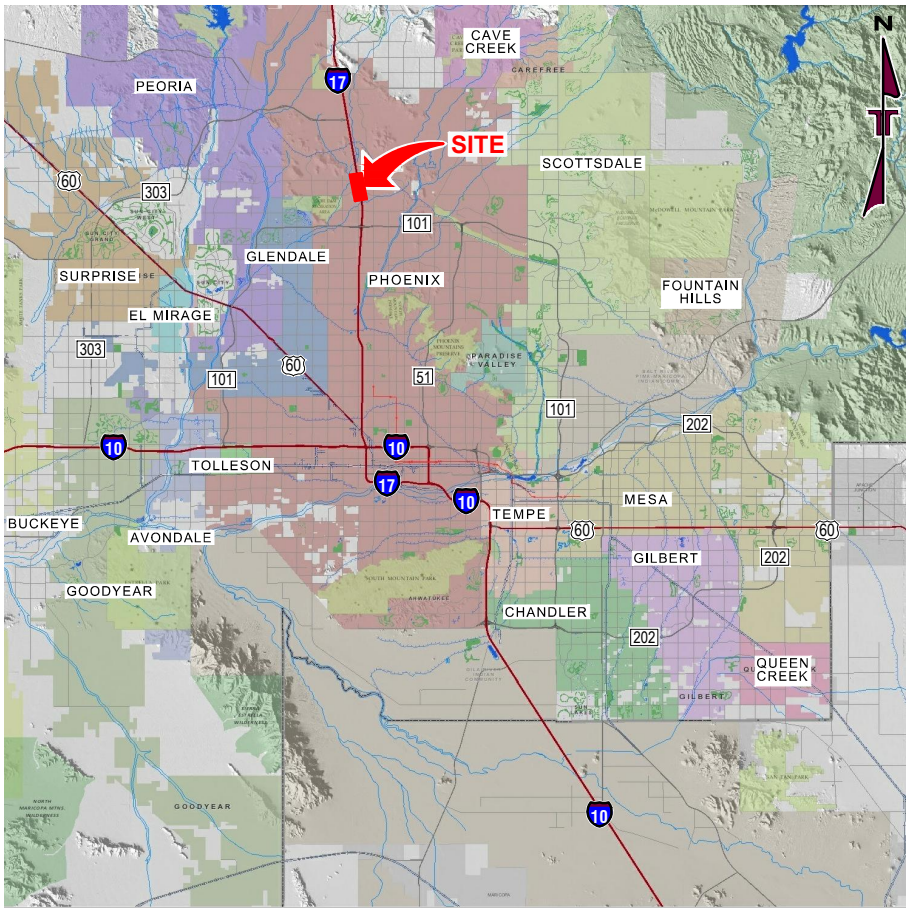
Final Letter will be Stamped and Signed

Ramon Padilla, P.E.
Geotechnical Services Manager

Donald R. Clark, P.E.
Senior Principal

Attachments: Exhibit A-1 – Site Vicinity Maps
Exhibit A-2 & A-3 – Site Map and Percolation Test Locations

Copies to: Addressee (1 via email)



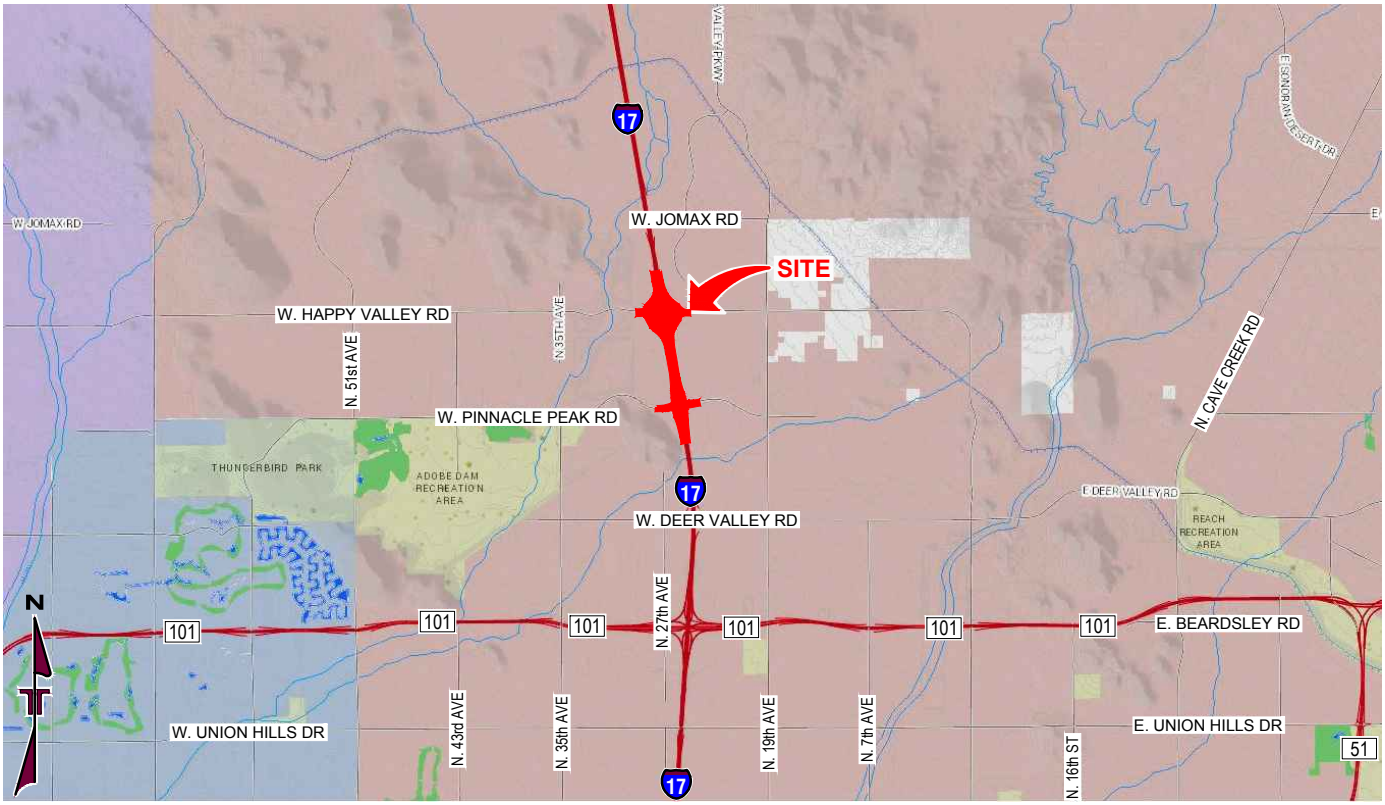


IMAGE SOURCE: MARICOPA COUNTY ASSESSER'S ONLINE PARCEL VIEWER, 2017

Project Mngr: RP	Project No. 65165069	Terracon Consulting Engineers and Scientists	SITE VICINITY MAPS
Drawn By: DSC	Scale: AS SHOWN	4685 South Ash Avenue, Suite H-4 Tempe, AZ 85282	I-17 Pinnacle Peak Road and Happy Valley Road TI's
Checked By: RP	File No. 65165069.DWG	PH. (480) 897-8200 FAX. (480) 897-1133	Phoenix-Cordes Junction Highway
Approved By: SDN	Date: 11/20/2017		Phoenix, Arizona

EXHIBIT A-1



LEGEND:

APPROXIMATE PERCOLATION TEST LOCATION

0 150' 300'
APPROXIMATE SCALE

IMAGE SOURCE: MARICOPA COUNTY ONLINE HISTORICAL AERIAL MAPS, 2017

Project Mngr: RP	Project No. 65165069-TIUPs
Drawn By: KLJ	Scale: AS SHOWN
Checked By: RP	File No. 65165069-TIUPS.DWG
Approved By: SDN	Date: 06/01/2018

Terracon
Consulting Engineers and Scientists
4685 South Ash Avenue, Suite H-4 Tempe, AZ 85282
PH. (480) 897-8200 FAX. (480) 897-1133

SITE PLAN AND PERCOLATION TEST LOCATIONS

I-17 Pinnacle Peak Road and Happy Valley Road TI's
Phoenix-Cordes Junction Highway
Phoenix, Arizona

EXHIBIT

A-2

n: \projects \2016 \65165069 \working files - i-17 pp&hpv ti \diagrams - drawings - figures \cad \65165069 - tiups.dwg



LEGEND:

APPROXIMATE PERCOLATION TEST LOCATION

0 150' 300'
APPROXIMATE SCALE

IMAGE SOURCE: MARICOPA COUNTY ONLINE HISTORICAL AERIAL MAPS, 2017

Project Mngr: RP	Project No. 65165069-TIUPs
Drawn By: KLJ	Scale: AS SHOWN
Checked By: RP	File No. 65165069-TIUPS.DWG
Approved By: SDN	Date: 06/01/2018

Terracon
Consulting Engineers and Scientists
4685 South Ash Avenue, Suite H-4 Tempe, AZ 85282
PH. (480) 897-8200 FAX. (480) 897-1133

SITE PLAN AND PERCOLATION TEST LOCATIONS

I-17 Pinnacle Peak Road and Happy Valley Road TI's
Phoenix-Cordes Junction Highway
Phoenix, Arizona

EXHIBIT

A-3

n:\projects\2016\65165069\working files - i-17 pp&hpv ti\diagrams-drawings-figures\cad\65165069-tiups.dwg

APPENDIX H

DITCH CALCULATIONS

Hydraulic Analysis Report

Project Data

Project Title: H7383 - I-17 PP & HV Ditches
Designer: Andes Engineering
Project Date: Friday, May 04, 2018
Project Units: U.S. Customary Units
Notes:

Channel Analysis: PP South

Notes:

Input Parameters

Channel Type: Trapezoidal
Side Slope 1 (Z1): 4.0000 ft/ft
Side Slope 2 (Z2): 3.0000 ft/ft
Channel Width: 8.0000 ft
Longitudinal Slope: 0.0040 ft/ft
Manning's n: 0.0350
Lining Type: Rock Riprap - 150 mm (6-inch)
Flow: 13.0000 cfs

Result Parameters

Depth: 0.6906 ft
Area of Flow: 7.1942 ft^2
Wetted Perimeter: 13.0314 ft
Hydraulic Radius: 0.5521 ft
Average Velocity: 1.8070 ft/s
Top Width: 12.8343 ft
Froude Number: 0.4253
Critical Depth: 0.4082 ft
Critical Velocity: 3.3777 ft/s
Critical Slope: 0.0256 ft/ft
Critical Top Width: 10.86 ft
Calculated Max Shear Stress: 0.1724 lb/ft^2
Calculated Avg Shear Stress: 0.1378 lb/ft^2

Channel Analysis: I-17 SB

Notes:

Input Parameters

Channel Type: Triangular
Side Slope 1 (Z1): 8.0000 ft/ft
Side Slope 2 (Z2): 8.0000 ft/ft
Longitudinal Slope: 0.0050 ft/ft
Manning's n: 0.0330
Flow: 12.0000 cfs

Result Parameters

Depth: 0.8985 ft
Area of Flow: 6.4582 ft^2
Wetted Perimeter: 14.4877 ft
Hydraulic Radius: 0.4458 ft
Average Velocity: 1.8581 ft/s
Top Width: 14.3758 ft
Froude Number: 0.4885
Critical Depth: 0.6746 ft
Critical Velocity: 3.2957 ft/s
Critical Slope: 0.0230 ft/ft
Critical Top Width: 10.79 ft
Calculated Max Shear Stress: 0.2803 lb/ft^2
Calculated Avg Shear Stress: 0.1391 lb/ft^2

Channel Analysis: HV Ramp B

Notes:

Input Parameters

Channel Type: Trapezoidal
Side Slope 1 (Z1): 4.0000 ft/ft
Side Slope 2 (Z2): 4.0000 ft/ft
Channel Width: 8.0000 ft
Longitudinal Slope: 0.0050 ft/ft
Manning's n: 0.0330
Flow: 6.0000 cfs

Result Parameters

Depth: 0.4021 ft
Area of Flow: 3.8635 ft^2
Wetted Perimeter: 11.3158 ft
Hydraulic Radius: 0.3414 ft
Average Velocity: 1.5530 ft/s
Top Width: 11.2168 ft
Froude Number: 0.4663
Critical Depth: 0.2485 ft
Critical Velocity: 2.6850 ft/s
Critical Slope: 0.0264 ft/ft
Critical Top Width: 9.99 ft
Calculated Max Shear Stress: 0.1255 lb/ft^2
Calculated Avg Shear Stress: 0.1065 lb/ft^2

Channel Analysis: HV-JM

Notes:

Input Parameters

Channel Type: Trapezoidal
Side Slope 1 (Z1): 4.0000 ft/ft
Side Slope 2 (Z2): 4.0000 ft/ft
Channel Width: 5.5000 ft
Longitudinal Slope: 0.0100 ft/ft
Manning's n: 0.0330
Flow: 4.0000 cfs

Result Parameters

Depth: 0.3178 ft
Area of Flow: 2.1520 ft^2
Wetted Perimeter: 8.1208 ft
Hydraulic Radius: 0.2650 ft
Average Velocity: 1.8587 ft/s
Top Width: 8.0425 ft
Froude Number: 0.6332
Critical Depth: 0.2391 ft
Critical Velocity: 2.5908 ft/s
Critical Slope: 0.0271 ft/ft
Critical Top Width: 7.41 ft
Calculated Max Shear Stress: 0.1983 lb/ft^2
Calculated Avg Shear Stress: 0.1654 lb/ft^2

Channel Analysis: JM-HV

Notes:

Input Parameters

Channel Type: Triangular
Side Slope 1 (Z1): 4.0000 ft/ft
Side Slope 2 (Z2): 4.0000 ft/ft
Longitudinal Slope: 0.0100 ft/ft
Manning's n: 0.0330
Flow: 13.0000 cfs

Result Parameters

Depth: 1.0603 ft
Area of Flow: 4.4972 ft^2
Wetted Perimeter: 8.7437 ft
Hydraulic Radius: 0.5143 ft
Average Velocity: 2.8907 ft/s
Top Width: 8.4826 ft
Froude Number: 0.6996
Critical Depth: 0.9192 ft
Critical Velocity: 3.8469 ft/s
Critical Slope: 0.0214 ft/ft
Critical Top Width: 7.35 ft
Calculated Max Shear Stress: 0.6616 lb/ft^2
Calculated Avg Shear Stress: 0.3209 lb/ft^2

Riprap Lining Design Worksheet

From ADOT's Highway Drainage Design Manual - Hydraulics, Equation 11.6:

$$D_{50} = 0.001C\ V_a^3 / (d_{avg}^{0.5}\ K_1^{1.5}) \qquad (11.6)$$

Where: D_{50} = the median riprap particle size, inches
V_a = the average velocity in the main channel, ft/sec
C = Correction factor (described below)
d_{avg} = the average flow depth in the main flow channel, ft
K_1 = Factor for bank slope, see below

K_1 is defined as:

$$K_1 = [1-(\sin^2\Theta/\sin^2\Phi)]^{0.5} \qquad (11.7)$$

Where: Θ = the bank angle with the horizontal
Φ = the riprap material's angle of repose

C = Csg * Csf

Csg = 2.12 / (Ss -1)^1.5 Where Ss is the specific gravity of rock riprap, assumed as 2.65

Csg = 1.00

Csf = (SF / 1.2)^1.5 Where SF is the stability factor, assumed as 1.6

Csf = 1.54

C = 1.54

									Sin^2
Θ:	3	H :	1	V	0.3218	Radians	18.43	Degrees	0.1000
ϕ:					0.7156	Radians	41	Degrees	0.4304

K1 =	0.8762		
Va =	3.0	ft/s	Max calculated velocity
davg =	1	ft	Max calculated depth
D50 =	**0.10**	**in**	
D50 =	**1.00**	**in**	Rounded up Requirement
Use D50 =	**1**	**in**	Ok for Granite Mulch 1-1/4" Minus

APPENDIX I

DRAINAGE SHEETS

NOTE:
THE ZEROS IN PARENTHESES (0, 0.0 & 0.000) INDICATE THE DIMENSIONAL PRECISION FOR THAT COLUMN

NOTE:
FOR PIPE CULVERT PLACEMENT SEE STANDARD DRAWINGS C-13.10 AND C-13.15

NOTE:
PIPE OPTIONS SELECTED ARE THOSE REQUIRED TO MEET MINIMUM SERVICE LIFE.
ALLOWABLE PIPE OPTIONS ARE INDICATED WITH THE LETTER 'X' IN THE SPACE. BLANK SPACES ARE NOT ALLOWABLE ALTERNATES.

CSP - CORRUGATED STEEL PIPE
CAP - CORRUGATED ALUMINUM PIPE
RCP - REINFORCED CONCRETE PIPE
NRCP - NON-REINFORCED CONCRETE PIPE
NRCIPCP - NON-REINFORCED CAST-IN-PLACE CONCRETE PIPE
CHDPEPP - CORRUGATED HIGH-DENSITY POLYETHYLENE PLASTIC PIPE

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	ARIZ.	00-017-A(248)T	45	896	
		017 MA 216			

| DESCRIPTION | | | | | | | | CSP | | | | | | | | | | CAP | | | | | | RCP | | | | | | | | | |

NOTE:
THE ZEROS IN PARENTHESES (0, 0.0 & 0.000) INDICATE THE DIMENSIONAL PRECISION FOR THAT COLUMN

NOTE:
FOR PIPE CULVERT PLACEMENT SEE STANDARD DRAWINGS C-13.10 AND C-13.15

NOTE:
PIPE OPTIONS SELECTED ARE THOSE REQUIRED TO MEET MINIMUM SERVICE LIFE.
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CSP - CORRUGATED STEEL PIPE
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F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	ARIZ.	00-017-A(248)T	46	896	
		017 MA 216			

Station	Plan Reference Number	Controlling Fill Height Range	Size, Corrugated (In.)	Size, Smooth (In.)	Length (0) (Ft.)	Skew (0) (Degree)	CSP: Corrugation	CSP: Wall Thickness (0.000) (In.)	CSP: Coating: Zinc	CSP: Coating: Bituminous Coated Zinc	CSP: Coating: Aluminum	CSP: Coating: Bituminous Coated Aluminum	CAP: Corrugation	CAP: Wall Thickness (0.000) (In.)	CAP: Coating: Uncoated	CAP: Coating: Bituminous Coated	RCP: Class - Non-Trench	RCP: Class - Trench	RCP: Class	RCP: Minimum Wall Thickness (0) (In.)	NRCP: AASHTO M-294 Type C	NRCP: AASHTO M-294 Type S	NRCIPCP: C-13.20 & C-13.25	CHDPEPP: Detail	CHDPEPP: Size, (In) Manhole (In.)	END TREATMENT: End Section: Standard or Detail (Each)	Catch Basin, Manhole, Headwall & Junction Structure: Ea: S-Single / D-Double	Location	H (0.0) (Ft.)	L Wing (0.0) (Ft.)	L 18" Slotted Drain (0) (Ft.)	L 24" Slotted Drain (0) (Ft.)	Grate: Type	Grate: Elevation (0.00) (Ft.)	Grate: Depth (Ft.)	Grate: L (0.0) (Ft.)	Inlet Depression C-15.70 (In.)	QUANTITIES: Pipe Excavation (0) (Cubic Yard)	Pipe Backfill (0) C-13.15 (Cubic Yard)	Drainage Excavation (0) (Cubic Yard)	Berm/Dike Embankment (0) (Cubic Yard)	REMARKS
DV-PP Frt Rd Sta 20+78																									C-15.92			9.2					1414.9							CB 109 on Exst Pipe
13.50' Rt																																								Detail D3
I-17 Sta 851+11	110	5		24	104											IV									C-15.80			3.5					1410.5			50	17			CB 110 to CB 111
115.00' Rt																																								
DV-PP Frt Rd Sta 23+10	111	5		24	5											IV									C-15.92			14.0		10			1420.3			8	1			CB 111 to Exst Pipe
13.50' Rt																																							
I-17 Sta 853+90	112	1		18	44											IV				X					C-15.80			3.5					1411.5			17	6			CB 112 to Exst Pipe
115.05' Rt																																								
																																							113 Not Used
DV-PP Frt Rd Sta 27+80	114	2		24	244											II				X					C-15.92			5.0					1434.4			248	40			CB 114 to 115
13.50' Rt																																								
DV-PP Frt Rd Sta 25+37																									C-15.92			19.6					1427.1							CB 115 on Exst Pipe
13.50' Rt																																							Detail D3
I-17 Sta 863+88	116	4		48	322											III							48		C-18.10			13.9					1423.2			897	104			MH 116 to CB 117
150.24' Rt																																							
I-17 Sta 860+68	117	2		48	312											II							48		D6			7.5					1415.5			489	101			CB 117 to CB 118
115.00' Rt																																							
Sheet Total																								0		2				10					1709	268			

FILL HEIGHT RANGE TABLE (Ft.)												
RANGE NO.		1	2	3	4	5	6	7	8	9	10	11	12
FILL	>	1	3	5	8	11	15	20	25	30	40	55	70
HEIGHT (Ft.)	≤	3	5	8	11	15	20	25	30	40	55	70	90

◒ SHOULD FIELD CONDITIONS VARY FROM THE RANGE INDICATED, CONTACT DESIGN FOR RE-EVALUATION OF PIPE DESIGN REQUIREMENTS.

PIPE CORRUGATION			
A	2⅔x½	D	6x2
B	3x1	E	3x1 or 9x2½
C	9x2½		

WARNING
OVERHEAD POWER LINES WITHIN PROJECT CONSTRUCTION LIMITS

Contact Arizona 811 at least two full working days before you begin excavation
ARIZONA811
Call 811 or click Arizona811.com

	NAME	DATE
DESIGN	JG	06/18
DRAWN	AE	06/18
CHECKED	ML	06/18

Andes Engineering andes.us

ARIZONA DEPARTMENT OF TRANSPORTATION
INFRASTRUCTURE DELIVERY AND OPERATIONS DIVISION
DRAINAGE DESIGN SERVICES

NEW PIPE SUMMARY

ROUTE: I-17
LOCATION: PINNACLE PEAK RD TI & HAPPY VALLEY RD TI
TRACS NO. H7383 01C
00-017-A(248)T
DWG NO. G-05.02
___ OF ___

CERTIFICATE NO. 32316 JAVIER O. CUANA Date Signed 06/27/2018 ARIZONA, U.S.A. Expires 03/31/2019

REV. DATE: 07/27/2012
PLOT DATE: Tuesday, June 19, 2018 9:00:23 AM PLOT SCALE: 1:100 PLOT BY: jguan.000-HDR
DATE- LOCATION- REVISIONS- FINISHED PLANS- SURVEY NO.

9:00:23 AM c:\pwworking\west01\d0353505\h7383ps02.dgn

NOTE:
THE ZEROS IN PARENTHESES (0, 0.0 & 0.000) INDICATE THE DIMENSIONAL PRECISION FOR THAT COLUMN

NOTE:
FOR PIPE CULVERT PLACEMENT SEE STANDARD DRAWINGS C-13.10 AND C-13.15

NOTE:
PIPE OPTIONS SELECTED ARE THOSE REQUIRED TO MEET MINIMUM SERVICE LIFE.
ALLOWABLE PIPE OPTIONS ARE INDICATED WITH THE LETTER 'X' IN THE SPACE. BLANK SPACES ARE NOT ALLOWABLE ALTERNATES.

CSP - CORRUGATED STEEL PIPE
CAP - CORRUGATED ALUMINUM PIPE
RCP - REINFORCED CONCRETE PIPE
NRCP - NON-REINFORCED CONCRETE PIPE
NRCIPCP - NON-REINFORCED CAST-IN-PLACE CONCRETE PIPE
CHDPEPP - CORRUGATED HIGH-DENSITY POLYETHYLENE PLASTIC PIPE

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	ARIZ.	00-017-A(248)T	47	896	
		017 MA 216			

DESCRIPTION								CSP											CAP					RCP											END TREATMENT																								QUANTITIES				
				In.	In.	Ft.	Degree	In.	Coating										In.																	Each																								Cubic Yard				
																																		Catch Basin, Manhole, Headwall & Junction Structure																												
																																			Ea																								Ft.			Grate				
																																																												Ft.				
Station	Plan Reference Number	Controlling Fill Height Range	Size, Corrugated	Size, Smooth	Length (0)	Skew (0)	Corrugation	Wall Thickness (0.000)	Zinc	Bituminous Coated Zinc	Aluminum	Bituminous Coated Aluminum	Corrugation	Wall Thickness (0.000)	Uncoated	Bituminous Coated	Class - Non-Trench	Class - Trench	Class	Minimum Wall Thickness (0)	AASHTO M-294 Type C	AASHTO M-294 Type S	C-13.20 & C-13.25	Detail	Size, (In) Manhole	End Section Standard or Detail	S-Single / D-Double	Location	H (0.0)	L Wing (0.0)	L 18° Slotted Drain (0)	L 24° Slotted Drain (0)	Type	Elevation (0.00)	Depth	L (0.0)	Inlet Depression C-15.70	Pipe Excavation (0)	Pipe Backfill (0) C-13.15	Drainage Excavation (0)	Berm/Dike Embankment (0)	REMARKS
I-17 Sta 857+60	118	8		48	277											V					X			48	D6			6.3					1413.3			375	89			CB 118 to Channel
114.96' Rt																																																																					
PP Ramp D Sta 11+82	119	2		24	76											II					X				C-15.91			5.0					1433.5			99	12			CB 119 to MH 116
13.51' Lt																																																																		
PP Ramp D Sta 13+86	120	2		24	43											II					X				C-15.91			5.0		15			1426.8			53	7			CB 120 to Exst Pipe
13.50' Lt																																																																
PP-HV-S FR Sta 39+84	121	1		24	42											III					X				C-15.20			5.0	3.5				1422.5			26	7			CB 121 to CB 123
13.92' Rt																																																																
PP-HV-S FR Sta 40+85	122	1		24	59											III					X				C-15.20			4.8					1422.2			35	10			CB 122 to CB 123
25.33' Rt																																																															
PP-HV-S FR Sta 40+26	123	2		24	50											II					X				C-15.20			5.2					1422.4			34	8			CB 123 to CB 126
17.48' Rt																																																														
PP Ramp D Sta 17+63	124	1		24	50											III					X				C-15.91			4.8		15			1422.0			30	8			CB 124 to CB 125
11.50' Rt																																																														
PP Ramp D Sta 17+13	125	2		24	57											II					X				C-15.91			5.0					1421.9			36	9			CB 125 to CB 126
11.50' Rt																																																													
PP Ramp D Sta 16+55	126	2		24	37											II					X				C-15.91			5.5					1422.0			28	6			CB 126 to MH 127
11.50' Rt																																																												
Sheet Total																								0		1											30				716	157			

FILL HEIGHT RANGE TABLE (Ft.)													
RANGE NO.		1	2	3	4	5	6	7	8	9	10	11	12
FILL	>	1	3	5	8	11	15	20	25	30	40	55	70
HEIGHT (Ft.)	≤	3	5	8	11	15	20	25	30	40	55	70	90
◒ SHOULD FIELD CONDITIONS VARY FROM THE RANGE INDICATED, CONTACT DESIGN FOR RE-EVALUATION OF PIPE DESIGN REQUIREMENTS.													

◪ PIPE CORRUGATION			
A	2⅔x½	D	6x2
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C	9x2½		

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ARIZONA811
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	NAME	DATE
DESIGN	JG	06/18
DRAWN	AE	06/18
CHECKED	ML	06/18

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ARIZONA DEPARTMENT OF TRANSPORTATION
INFRASTRUCTURE DELIVERY AND OPERATIONS DIVISION
DRAINAGE DESIGN SERVICES

NEW PIPE SUMMARY

ROUTE	LOCATION
I-17	PINNACLE PEAK RD TI & HAPPY VALLEY RD TI

TRACS NO. H7383 01C | 00-017-A(248)T | ___ OF ___

CERTIFICATE NO. 32316 JAVIER O. CUANA Date Signed 06/27/2018 ARIZONA, U.S.A.
Expires 03/31/2019
DWG NO. G-05.03

PLOT DATE:Tuesday, June 19, 2018 9:00:29 AM PLOT SCALE:1:100 PLOT BY:jguan.000-HDR
REV. DATE: 07/27/2012
DATE- LOCATION- REVISIONS- FINISHED PLANS- SURVEY NO.

9:00:29 AM c:\pwworking\west01\d0353505\h7383ps03.dgn

NOTE:
THE ZEROS IN PARENTHESES (0, 0.0 & 0.000) INDICATE THE DIMENSIONAL PRECISION FOR THAT COLUMN

NOTE:
FOR PIPE CULVERT PLACEMENT SEE STANDARD DRAWINGS C-13.10 AND C-13.15

NOTE:
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NRCIPCP - NON-REINFORCED CAST-IN-PLACE CONCRETE PIPE
CHDPEPP - CORRUGATED HIGH-DENSITY POLYETHYLENE PLASTIC PIPE

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	ARIZ.	00-017-A(248)T	48	896	
		017 MA 216			

Station	Plan Reference Number	Controlling Fill Height Range	Size, Corrugated (In.)	Size, Smooth (In.)	Length (0) (Ft.)	Skew (0) (Degree)	CSP: Corrugation	CSP: Wall Thickness (0.000) (In.)	CSP: Zinc Coating	CSP: Bituminous Coated Zinc	CSP: Aluminum Coating	CSP: Bituminous Coated Aluminum	CAP: Corrugation	CAP: Wall Thickness (0.000) (In.)	CAP: Uncoated	CAP: Bituminous Coated	RCP: Class - Non-Trench	RCP: Class - Trench	RCP: Class	RCP: Minimum Wall Thickness (0) (In.)	NRCP: AASHTO M-294 Type C	NRCP: AASHTO M-294 Type S	NRCIPCP: C-13.20 & C-13.25	CHDPEPP: Detail	CHDPEPP: Size, (In)	End Section: Standard or Detail (Each)	Catch Basin, Manhole, Headwall & Junction Structure: S-Single / D-Double (Ea)	Location	H (0.0) (Ft.)	L Wing (0.0) (Ft.)	L 18° Slotted Drain (0) (Ft.)	L 24° Slotted Drain (0) (Ft.)	Grate: Type	Grate: Elevation (0.00) (Ft.)	Inlet Depression C-15.70: Depth (In.)	Inlet Depression C-15.70: L (0.0) (Ft.)	Pipe Excavation (0) (Cubic Yard)	Pipe Backfill (0) C-13.15 (Cubic Yard)	Drainage Excavation (0) (Cubic Yard)	Berm/Dike Embankment (0) (Cubic Yard)	REMARKS
PP Ramp D Sta 16+62																								48	C-18.10			6.7					1421.6							MH 127 on Exst Pipe
24.41' Lt																																								Detail D3
I-17 Sta 872+54	128	3		36	136											II				X																128	33			Exst Pipe to CB 131
115.30' Rt																																							
I-17 Sta 872+00	129	2		24	10											II				X					C-15.91			5.0		10			1425.3			8	2			CB 129 to Exst Pipe
109.81' Rt																																							
																																							130 Not Used
I-17 Sta 871+18	131	2		36	30											II				X				48	C-18.10			7.7					1424.6			37	7			MH 131 to Exst Pipe
127.10' Rt																																							
I-17 Sta 886+34																									C-15.92			8.6		20			1432.0							CB 132 on Exst Pipe
108.50' Rt																																							Detail D3
I-17 Sta 888+44																									C-15.92			8.4		20			1433.0							CB 133 on Exst Pipe
110.42' Rt																																							Detail D3
I-17 Sta 910+04	134	2		24	34											II				X	1															10	6			Basin to MH 135
122.99' Rt																																							
I-17 Sta 909+80	135	2		24	300											II				X				48	C-18.10			5.6					1445.4			227	49			MH 135 to MH 136
98.80' Rt																																							
Sheet Total																					1		3							50						409	96			

FILL HEIGHT RANGE TABLE (Ft.)												
RANGE NO.		1	2	3	4	5	6	7	8	9	10	11	12
FILL HEIGHT (Ft.)	>	1	3	5	8	11	15	20	25	30	40	55	70
	≤	3	5	8	11	15	20	25	30	40	55	70	90
◒ SHOULD FIELD CONDITIONS VARY FROM THE RANGE INDICATED, CONTACT DESIGN FOR RE-EVALUATION OF PIPE DESIGN REQUIREMENTS.													

◪ PIPE CORRUGATION			
A	2⅔x½	D	6x2
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	NAME	DATE
DESIGN	JG	06/18
DRAWN	AE	06/18
CHECKED	ML	06/18

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ARIZONA DEPARTMENT OF TRANSPORTATION
INFRASTRUCTURE DELIVERY AND OPERATIONS DIVISION
DRAINAGE DESIGN SERVICES

NEW PIPE SUMMARY

ROUTE: I-17
LOCATION: PINNACLE PEAK RD TI & HAPPY VALLEY RD TI
TRACS NO. H7383 01C
00-017-A(248)T
DWG NO. G-05.04
___ OF ___

CERTIFICATE NO. 32316 JAVIER O. CUANA Date Signed 06/27/2018 ARIZONA, U.S.A. Expires 03/31/2019

PLOT DATE:Tuesday, June 19, 2018 9:00:35 AM PLOT SCALE:1:100 PLOT BY:jguan 000-HDR
REV. DATE: 07/27/2012
DATE- LOCATION- REVISIONS- FINISHED PLANS- SURVEY NO.

9:00:35 AM c:\pwworking\west01\d0353505\h7383ps04.dgn

NOTE:
THE ZEROS IN PARENTHESES (0, 0.0 & 0.000) INDICATE THE DIMENSIONAL PRECISION FOR THAT COLUMN

NOTE:
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CHDPEPP - CORRUGATED HIGH-DENSITY POLYETHYLENE PLASTIC PIPE

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	ARIZ.	00-017-A(248)T	49	896	

017 MA 216

	DESCRIPTION								CSP			CAP			RCP			NRCP	NRCIPCP	CHDPEPP	END TREATMENT														QUANTITIES				
	Station	Plan Reference Number	Controlling Fill Height Range	Size, Corrugated	Size, Smooth	Length (0)	Skew (0)	Corrugation	Wall Thickness (0.000)	Zinc	Bituminous Coated Zinc	Aluminum	Bituminous Coated Aluminum	Corrugation	Wall Thickness (0.000)	Uncoated	Bituminous Coated	Class - Non-Trench	Class - Trench	Class	Minimum Wall Thickness (0)	AASHTO M-294 Type C	AASHTO M-294 Type S	C-13.20 & C-13.25 Detail	Size, (In) Manhole	End Section Standard or Detail	S-Single / D-Double	Location	H (0.0)	L Wing (0.0)	L 18° Slotted Drain (0)	L 24° Slotted Drain (0)	Type	Elevation (0.00)	Grate Depth	Grate L (0.0)	Inlet Depression C-15.70	Pipe Excavation (0)	Pipe Backfill (0) C-13.15	Drainage Excavation (0)	Berm/Dike Embankment (0)	REMARKS
				In.	In.	Ft.	Degree			In.	Coating					In.										Each	Ea			Ft.			Grate	Ft.	In.	Ft.					
	I-17 Sta 906+80	136	2		24	77														11			X	1		48	C-18.10			5.6				1443.9			53	13			MH 136 to Basin
	99.32' Rt																																						
	I-17 Sta 876+20																									C-15.80			7.3				1426.2							CB 137 on Exst Pipe
	106.82' Rt																																						Detail D3
																																							200 Not Used
	PP-HV-N FR Sta 42+13	201	4		24	84														III			X						10.3							48	14			Basin to CB 208
	60.93' Lt																																						
	PP-HV-N FR Sta 36+78	202	1		30	137														III			X				C-15.80			4.7				1433.2			97	28			CB 202 to CB 205
	33.32' Rt																																						
	PP-HV-N FR Sta 35+68	203	2		24	63														II			X				C-15.20			5.0	3.5			1435.0			42	10			CB 203 to MH 205
	14.00' Rt																																						
																																							204 Not Used
	I-17 Sta 894+56	205	3		30	281														II			X			48	D6			7.5				1435.5			310	56			CB 205 to CB 207
	111.51' Rt																																						
	PP-HV-N FR Sta 32+89	206	2		24	31														II			X				C-15.20			5.0	3.5			1433.7			21	5			CB 206 to CB 207
	12.00' Rt																																						
	Sheet Total																							1		2					0							571	126			

FILL HEIGHT RANGE TABLE (Ft.)												
RANGE NO.		1	2	3	4	5	6	7	8	9	10	11	12
FILL	>	1	3	5	8	11	15	20	25	30	40	55	70
HEIGHT (Ft.)	≤	3	5	8	11	15	20	25	30	40	55	70	90

◒ SHOULD FIELD CONDITIONS VARY FROM THE RANGE INDICATED, CONTACT DESIGN FOR RE-EVALUATION OF PIPE DESIGN REQUIREMENTS.

PIPE CORRUGATION			
A	2⅔x½	D	6x2
B	3x1	E	3x1 or 9x2½
C	9x2½		

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	NAME	DATE
DESIGN	JG	06/18
DRAWN	AE	06/18
CHECKED	ML	06/18

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ARIZONA DEPARTMENT OF TRANSPORTATION
INFRASTRUCTURE DELIVERY AND OPERATIONS DIVISION
DRAINAGE DESIGN SERVICES

NEW PIPE SUMMARY

ROUTE: I-17
LOCATION: PINNACLE PEAK RD TI & HAPPY VALLEY RD TI
TRACS NO. H7383 01C
00-017-A(248)T

Registered Professional Engineer CERTIFICATE 32316 JAVIER O. CUANA Date Signed 06/27/2018 ARIZONA, U.S.A.
Expires 03/31/2019

DWG NO. G-05.05
___ OF ___

REV. DATE: 07/27/2012
PLOT DATE: Tuesday, June 19, 2018 9:00:40 AM PLOT SCALE: 1:100 PLOT BY: jguan
DATE- LOCATION- REVISIONS- FINISHED PLANS- SURVEY NO.
000-HDR

9:00:40 AM c:\pwworking\west01\d0353505\h7383ps05.dgn

NOTE:
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CHDPEPP - CORRUGATED HIGH-DENSITY POLYETHYLENE PLASTIC PIPE

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	ARIZ.	00-017-A(248)T	50	896	

017 MA 216

	DESCRIPTION							CSP			CAP		RCP	NRCP	NRCIPCP	CHDPEPP	END TREATMENT														QUANTITIES	
	Station	Plan Reference Number	Controlling Fill Height Range	Size, Corrugated	Size, Smooth In.	Length (0) In.	Skew (0) Ft. Degree	Corrugation	Wall Thickness (0.000) In.	Coating	In.						In.	Each		Catch Basin, Manhole, Headwall & Junction Structure											Cubic Yard	
																		End Section	Ea				Ft.			Grate					
																											Ft.					
																												In.	Ft.			
	Station	Plan Reference Number	Controlling Fill Height Range	Size, Corrugated	Size, Smooth In.	Length (0) In.	Skew (0) Ft. Degree	Corrugation	Wall Thickness (0.000) In.	Zinc	Bituminous Coated Zinc	Aluminum	Bituminous Coated Aluminum	Corrugation	Wall Thickness (0.000) In.	Uncoated	Bituminous Coated	Class - Non-Trench	Class - Trench	Class	Minimum Wall Thickness (0) In.	AASHTO M-294 Type C	AASHTO M-294 Type S	C-13.20 & C-13.25 Detail	Size, (In) Manhole	Standard or Detail	End Section	S-Single / D-Double	Location	H (0.0)	L Wing (0.0)	L 18° Slotted Drain (0)	L 24° Slotted Drain (0)	Type	Elevation (0.00)	Depth	L (0.0)	Inlet Depression C-15.70	Pipe Excavation (0)	Pipe Backfill (0) C-13.15	Drainage Excavation (0)	Berm/Dike Embankment (0)	REMARKS
	I-17 Sta 891+75	207	3		30	140											II			X					C-15.92			7.6		15				1434.6			163	28			CB 207 to Exst Pipe
	128.20' Rt																																									
	PP-HV-N FR Sta 42+00	208	1		24	55											III			X	1				C-15.20			4.7	7.5					1441.7			35	9			CB 208 to Ditch
	21.98' Rt																																									
	PP-HV-N FR Sta 45+00	209	2		24	72											II			X	1				C-15.20			5.0	7.5					1451.9			88	12			CB 209 to Basin
	26.00' Rt																																									
	PP-DV Frt Rd Sta 11+79																								C-15.20			7.4						1413.2							CB 300 on Exst Pipe
	14.00' Lt																																									Detail D3
	I-17 Sta 842+79																								C-15.92			10.0		5				1415.3							CB 301 on Exst Pipe
	108.50' Lt																																									Detail D3
	I-17 Sta 849+39	302	2		24	13											II			X																		7	2			Exst Pipe to CB 303
	93.79' Lt																																									
	I-17 Sta 849+26	303	2		24	84											II			X					C-15.91			6.8		5				1413.4			69	14			CB 303 to CB 304
	96.50' Lt																																									
	PP Ramp A Sta 17+47	304	2		24	50											II			X					C-15.92			5.7						1412.2			35	8			CB 304 to CB 306
	13.50' Lt																																									
	PP Ramp A Sta 16+47	305	1		24	50											III			X					C-15.92			4.5		5				1412.0			31	8			CB 305 to CB 306
	13.50' Lt																																									
	Sheet Total																				2		0							30								426	81			

FILL HEIGHT RANGE TABLE (Ft.)												
RANGE NO.		1	2	3	4	5	6	7	8	9	10	11	12
FILL	>	1	3	5	8	11	15	20	25	30	40	55	70
HEIGHT (Ft.)	≤	3	5	8	11	15	20	25	30	40	55	70	90

◒ SHOULD FIELD CONDITIONS VARY FROM THE RANGE INDICATED, CONTACT DESIGN FOR RE-EVALUATION OF PIPE DESIGN REQUIREMENTS.

PIPE CORRUGATION			
A	2⅔x½	D	6x2
B	3x1	E	3x1 or 9x2½
C	9x2½		

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ARIZONA811
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	NAME	DATE
DESIGN	JG	06/18
DRAWN	AE	06/18
CHECKED	ML	06/18

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ARIZONA DEPARTMENT OF TRANSPORTATION
INFRASTRUCTURE DELIVERY AND OPERATIONS DIVISION
DRAINAGE DESIGN SERVICES

NEW PIPE SUMMARY

ROUTE	LOCATION
I-17	PINNACLE PEAK RD TI & HAPPY VALLEY RD TI

TRACS NO. H7383 01C | 00-017-A(248)T | ___ OF ___

Registered Professional Engineer CERTIFICATE 32316 JAVIER O. CUANA Date Signed 06/27/2018 ARIZONA, U.S.A.
Expires 03/31/2019
DWG NO. G-05.06

REV. DATE: 07/27/2012
PLOT DATE: Tuesday, June 19, 2018 9:00:45 AM PLOT SCALE: 1:100 PLOT BY: jguan 000-HDR
DATE- LOCATION- REVISIONS- FINISHED PLANS- SURVEY NO.

9:00:45 AM c:\pwworking\west01\d0353505\h7383ps06.dgn

NOTE:
THE ZEROS IN PARENTHESES (0, 0.0 & 0.000) INDICATE THE DIMENSIONAL PRECISION FOR THAT COLUMN

NOTE:
FOR PIPE CULVERT PLACEMENT SEE STANDARD DRAWINGS C-13.10 AND C-13.15

NOTE:
PIPE OPTIONS SELECTED ARE THOSE REQUIRED TO MEET MINIMUM SERVICE LIFE.
ALLOWABLE PIPE OPTIONS ARE INDICATED WITH THE LETTER 'X' IN THE SPACE. BLANK SPACES ARE NOT ALLOWABLE ALTERNATES.

CSP - CORRUGATED STEEL PIPE
CAP - CORRUGATED ALUMINUM PIPE
RCP - REINFORCED CONCRETE PIPE
NRCP - NON-REINFORCED CONCRETE PIPE
NRCIPCP - NON-REINFORCED CAST-IN-PLACE CONCRETE PIPE
CHDPEPP - CORRUGATED HIGH-DENSITY POLYETHYLENE PLASTIC PIPE

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	ARIZ.	00-017-A(248)T	51	896	
		017 MA 216			

Station	Plan Reference Number	Controlling Fill Height Range	Size, Corrugated (In.)	Size, Smooth (In.)	Length (0) (Ft.)	Skew (0) (Degree)	CSP: Corrugation	CSP: Wall Thickness (0.000) (In.)	CSP: Coating: Zinc	CSP: Coating: Bituminous Coated Zinc	CSP: Coating: Aluminum	CSP: Coating: Bituminous Coated Aluminum	CAP: Corrugation	CAP: Wall Thickness (0.000) (In.)	RCP: Uncoated	RCP: Bituminous Coated	RCP: Class - Non-Trench	RCP: Class - Trench	RCP: Class	Minimum Wall Thickness (0) (In.)	NRCP: AASHTO M-294 Type C	NRCP: AASHTO M-294 Type S	NRCIPCP: C-13.20 & C-13.25	CHDPEPP: Detail	END TREATMENT: End Section (Each): Size, (In) Manhole	Standard or Detail	Catch Basin, Manhole, Headwall & Junction Structure (Ea): S-Single / D-Double	Location	H (0.0)	L Wing (0.0) (Ft.)	L 18" Slotted Drain (0) (Ft.)	L 24" Slotted Drain (0) (Ft.)	Type	Grate: Elevation (0.00)	Grate: Depth (In.)	Grate: L (0.0) (Ft.)	Inlet Depression C-15.70	QUANTITIES: Pipe Excavation (0) (Cubic Yard)	Pipe Backfill (0) C-13.15	Drainage Excavation (0)	Berm/Dike Embankment (0)	REMARKS
PP Ramp A Sta 16+97	306	2		24	55														II				X			C-15.92			5.4					1411.9			36	9			CB 306 to CB 307
13.50' Lt																																								
PP-DV Frt Rd Sta 17+07	307	1		24	70														III				X			C-15.40			4.1					1410.6			36	11			CB 307 to CB 308
14.00' Lt																																								
PP-DV Frt Rd Sta 16+37	308	1		24	30																		X			C-15.40			4.0								15	5			CB 308 to CB 309
14.00' Lt																																								
PP-DV Frt Rd Sta 16+07	309	1		24	207														III				X			C-15.40			4.2					1410.6			109	34			CB 309 to CB 310
14.00' Lt																																								
PP-DV Frt Rd Sta 14+00	310	2		24	11														II				X			C-15.40			5.5					1411.8			7	2			CB 310 to Exst Pipe
14.00' Lt																																								
I-17 Sta 844+98	311	3		36	33														II				X			C-15.92			8.6		5			1414.1			45	8			CB 311 to Exst Pipe
119.19' Lt																																								
																																								312 Not Used
PP Ramp A Sta 18+40	313	2		24	33														II				X	1		C-15.92			5.0		10			1413.4			21	5			CB 313 to Basin
11.50' Rt																																								
PP Ramp A Sta 21+50	314	2		24	49														II				X	1		C-15.92			5.0					1422.7			56	8			CB 314 to Basin
13.50' Rt																																								
Sheet Total																								2		0					15							325	83			

FILL HEIGHT RANGE TABLE (Ft.)													
RANGE NO.		1	2	3	4	5	6	7	8	9	10	11	12
FILL HEIGHT (Ft.)	>	1	3	5	8	11	15	20	25	30	40	55	70
	≤	3	5	8	11	15	20	25	30	40	55	70	90

◒ SHOULD FIELD CONDITIONS VARY FROM THE RANGE INDICATED, CONTACT DESIGN FOR RE-EVALUATION OF PIPE DESIGN REQUIREMENTS.

PIPE CORRUGATION			
A	2⅔x½	D	6x2
B	3x1	E	3x1 or 9x2½
C	9x2½		

WARNING
OVERHEAD POWER LINES WITHIN PROJECT CONSTRUCTION LIMITS

Contact Arizona 811 at least two full working days before you begin excavation
ARIZONA811
Call 811 or click Arizona811.com

	NAME	DATE
DESIGN	JG	06/18
DRAWN	AE	06/18
CHECKED	ML	06/18

Andes Engineering andes.us

ARIZONA DEPARTMENT OF TRANSPORTATION
INFRASTRUCTURE DELIVERY AND OPERATIONS DIVISION
DRAINAGE DESIGN SERVICES

NEW PIPE SUMMARY

ROUTE: I-17
LOCATION: PINNACLE PEAK RD TI & HAPPY VALLEY RD TI
TRACS NO. H7383 01C
00-017-A(248)T
DWG NO. G-05.07
___ OF ___

Registered Professional Engineer CERTIFICATE 32316 JAVIER O. CUANA Date Signed 06/27/2018 ARIZONA, U.S.A.
Expires 03/31/2019

REV. DATE: 07/27/2012
PLOT DATE: Tuesday, June 19, 2018 9:00:50 AM PLOT SCALE: 1:100 PLOT BY: jguan.000-HDR
DATE- LOCATION- REVISIONS- FINISHED PLANS- SURVEY NO.

9:00:50 AM c:\pwworking\west01\d0353505\h7383ps07.dgn

NOTE:
THE ZEROS IN PARENTHESES (0, 0.0 & 0.000) INDICATE THE DIMENSIONAL PRECISION FOR THAT COLUMN

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F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	ARIZ.	00-017-A(248)T	52	896	
		017 MA 216			

Station	Plan Reference Number	Controlling Fill Height Range	Size, Corrugated (In.)	Size, Smooth (In.)	Length (0) (Ft.)	Skew (0) (Degree)	DESCRIPTION: CSP: Corrugation	CSP: Wall Thickness (0.000) (In.)	CSP: Coating: Zinc	CSP: Coating: Bituminous Coated Zinc	CSP: Coating: Aluminum	CSP: Coating: Bituminous Coated Aluminum	CAP: Corrugation	CAP: Wall Thickness (0.000) (In.)	RCP: Uncoated	RCP: Bituminous Coated	RCP: Class - Non-Trench	RCP: Class - Trench	RCP: Class	Minimum Wall Thickness (0) (In.)	NRCP: AASHTO M-294 Type C	NRCP: AASHTO M-294 Type S	NRCIPCP: C-13.20 & C-13.25	CHDPEPP: Detail	END TREATMENT: Each: End Section: Size, (In) Manhole	End Section: Standard or Detail	Catch Basin, Manhole, Headwall & Junction Structure: Ea: S-Single / D-Double	Ea: Location	Ea: H (0.0) (Ft.)	Ea: L Wing (0.0) (Ft.)	Ft.: L 18" Slotted Drain (0)	Ft.: L 24" Slotted Drain (0)	Grate: Type	Grate: Elevation (0.00)	Grate: Ft.: Depth (In.)	Grate: Ft.: L (0.0)	Inlet Depression C-15.70	QUANTITIES: Cubic Yard: Pipe Excavation (0)	Pipe Backfill (0) C-13.15	Drainage Excavation (0)	Berm/Dike Embankment (0)	REMARKS
PP-DV Frt Rd Sta 25+00	315	2		24	79														II			X	1			C-15.92			5.0						1432.9			136	13			CB 315 to Basin
25.50' Rt																																								
I-17 Sta 857+01	316	2		24	34														II			X	1			C-15.91			5.0		15				1415.3			25	6			CB 316 to Basin
96.50' Lt																																								
I-17 Sta 860+86	317	2		24	23																	X				C-15.91			5.0		15							17	4			CB 317 to CB 330
96.50' Lt																																								
PP Ramp C Sta 14+00	318	2		24	108														II			X				C-15.92			5.0						1434.7			169	18			CB 318 to MH 329
21.10' Lt																																								
I-17 Sta 864+00	319	2		24	23														II			X				C-15.91			5.0		15				1420.1			16	4			CB 319 to Pipe 328
96.50' Lt																																								
PP Ramp C Sta 17+00	320	2		24	70														II			X				C-15.92			5.0						1426.5			68	11			CB 320 to MH 328
9.10' Lt																																								
I-17 Sta 867+50	321	2		24	20														II			X				C-15.91			5.0		15				1422.6			14	3			CB 321 to Pipe 327
96.50' Lt																																								
I-17 Sta 876+00	322	1		36	91														III			X																44	22			Exst Pipe to CB 323
137.84' Lt																																								
I-17 Sta 875+13	323	1		36	300														III			X				C-15.91			4.5		15				1426.8			273	72			CB 323 to CB 324
112.01' Lt																																								
Sheet Total																							2		0						75							763	152			

FILL HEIGHT RANGE TABLE (Ft.)													
RANGE NO.		1	2	3	4	5	6	7	8	9	10	11	12
FILL HEIGHT (Ft.)	>	1	3	5	8	11	15	20	25	30	40	55	70
	≤	3	5	8	11	15	20	25	30	40	55	70	90

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PIPE CORRUGATION			
A	2⅔x½	D	6x2
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C	9x2½		

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ARIZONA811
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	NAME	DATE
DESIGN	JG	06/18
DRAWN	AE	06/18
CHECKED	ML	06/18

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ARIZONA DEPARTMENT OF TRANSPORTATION
INFRASTRUCTURE DELIVERY AND OPERATIONS DIVISION
DRAINAGE DESIGN SERVICES

NEW PIPE SUMMARY

ROUTE: I-17
LOCATION: PINNACLE PEAK RD TI & HAPPY VALLEY RD TI
TRACS NO. H7383 01C
00-017-A(248)T

CERTIFICATE NO. 32316 JAVIER O. CUANA Date Signed 06/27/2018 ARIZONA, U.S.A.
Expires 03/31/2019
DWG NO. G-05.08
___ OF ___

REV. DATE: 07/27/2012
PLOT DATE: Tuesday, June 19, 2018 9:00:56 AM PLOT SCALE: 1:100 PLOT BY: jguan.000-HDR
DATE- LOCATION- REVISIONS- FINISHED PLANS- SURVEY NO.

9:00:56 AM c:\pwworking\west01\d0353505\h7383ps08.dgn

NOTE:
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NOTE:
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F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	ARIZ.	00-017-A(248)T	53	896	
		017 MA 216			

Station	Plan Reference Number	Controlling Fill Height Range	Size, Corrugated In.	Size, Smooth In.	Length (0) Ft.	Skew (0) Degree	DESCRIPTION: CSP / CAP / RCP	NRCP	NRCIPCP	CHDPEPP	END TREATMENT: Each End Section	Catch Basin, Manhole, Headwall & Junction Structure: Ea	Ft.	Grate Ft.	Inlet Depression C-15.70 In.	Inlet Depression C-15.70 Ft.	QUANTITIES: Cubic Yard	REMARKS
							Corrugation / Wall Thickness (0.000) / Zinc / Bituminous Coated Zinc / Aluminum / Bituminous Coated Aluminum / Corrugation / Wall Thickness (0.000) / Uncoated / Bituminous Coated / Class - Non-Trench / Class - Trench / Class / Minimum Wall Thickness (0) / AASHTO M-294 Type C / AASHTO M-294 Type S / C-13.20 & C-13.25 Detail / Size, (In) Manhole				Standard or Detail	S-Single / D-Double / Location / H (0.0) / L Wing (0.0) / L 18° Slotted Drain (0) / L 24° Slotted Drain (0) / Type / Elevation (0.00) / Depth / L (0.0)		Pipe Excavation (0)	Pipe Backfill (0) C-13.15	Drainage Excavation (0)	Berm/Dike Embankment (0)	
I-17 Sta 872+13	324	1	36	300			X				C-15.91		5.2	15			302	72			CB 324 to CB 325
132.56' Lt																					
PP Ramp C Sta 20+00	325	2	36	50			II X				C-15.91		6.4	5			52	12			CB 325 to CB 326
5.50' Lt																					
PP Ramp C Sta 19+50	326	2	36	49			II X				C-15.91		6.7				53	12			CB 326 to MH 327
5.50' Lt																					
I-17 Sta 868+60	327	1	36	252			III X		48		C-18.10		3.8				194	60			MH 327 to MH 328
114.38' Lt																					
I-17 Sta 866+09	328	1	36	291			III X		48		C-18.10		4.7				273	70			MH 328 to MH 329
119.00' Lt																					
I-17 Sta 863+18	329	1	36	250			III X		48		C-18.10		5.3				251	60			MH 329 to CB 330
119.00' Lt																					
I-17 Sta 860+68	330	1	36	327			III X	1	48		D6		5.4				350	78			CB 330 to Basin
119.00' Lt																					
I-17 Sta 854+95	331	2	24	12			II X	1									5	2			Exst Pipe to Basin
121.17' Lt																					
I-17 Sta 854+37	332	2	24	6			II X	1									3	1			Basin to Exst Pipe
128.14' Lt																					
Sheet Total								3	4					20			1483	367			

FILL HEIGHT RANGE TABLE (Ft.)												
RANGE NO.		1	2	3	4	5	6	7	8	9	10	11	12
FILL HEIGHT (Ft.)	>	1	3	5	8	11	15	20	25	30	40	55	70
	≤	3	5	8	11	15	20	25	30	40	55	70	90

SHOULD FIELD CONDITIONS VARY FROM THE RANGE INDICATED, CONTACT DESIGN FOR RE-EVALUATION OF PIPE DESIGN REQUIREMENTS.

PIPE CORRUGATION			
A	2⅔x½	D	6x2
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DESIGN	JG	06/18
DRAWN	AE	06/18
CHECKED	ML	06/18

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ARIZONA DEPARTMENT OF TRANSPORTATION
INFRASTRUCTURE DELIVERY AND OPERATIONS DIVISION
DRAINAGE DESIGN SERVICES

NEW PIPE SUMMARY

ROUTE: I-17
LOCATION: PINNACLE PEAK RD TI & HAPPY VALLEY RD TI
TRACS NO. H7383 01C
00-017-A(248)T
DWG NO. G-05.09
___ OF ___

CERTIFICATE NO. 32316 JAVIER O. CUANA ARIZONA, U.S.A. Date Signed 06/27/2018
Expires 03/31/2019

REV. DATE: 07/27/2012
PLOT DATE: Tuesday, June 19, 2012 9:01:01 AM
PLOT BY: jguan.000-HDR
PLOT SCALE: 1:100
DATE- LOCATION- REVISIONS- FINISHED PLANS- SURVEY NO.

9:01:01 AM c:\pwworking\west01\d0353505\h7383ps09.dgn

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CHDPEPP - CORRUGATED HIGH-DENSITY POLYETHYLENE PLASTIC PIPE

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	ARIZ.	00-017-A(248)T	54	896	
		017 MA 216			

Station	Plan Reference Number	Controlling Fill Height Range	Size, Corrugated In.	Size, Smooth In.	Length (0) Ft.	Skew (0) Degree	DESCRIPTION: CSP Corrugation	CSP Wall Thickness (0.000) In.	CSP Coating: Zinc	CSP Coating: Bituminous Coated Zinc	CSP Coating: Aluminum	CSP Coating: Bituminous Coated Aluminum	CAP Corrugation	CAP Wall Thickness (0.000) In.	CAP Coating: Uncoated	CAP Coating: Bituminous Coated	RCP Class - Non-Trench	RCP Class - Trench	RCP Class	RCP Minimum Wall Thickness (0) In.	NRCP AASHTO M-294 Type C	NRCP AASHTO M-294 Type S	NRCIPCP C-13.20 & C-13.25	CHDPEPP Detail	CHDPEPP Size, (In) Manhole	END TREATMENT: End Section Each, Standard or Detail	Catch Basin, Manhole, Headwall & Junction Structure: Ea, S-Single / D-Double	Location	H (0.0)	Ft., L Wing (0.0)	Ft., L 18° Slotted Drain (0)	Ft., L 24° Slotted Drain (0)	Ft., Type	Grate, Elevation (0.00)	Grate, Ft., Depth In.	Grate, Ft., L (0.0)	Inlet Depression C-15.70 In.	QUANTITIES: Pipe Excavation (0) Cubic Yard	Pipe Backfill (0) C-13.15	Drainage Excavation (0)	Berm/Dike Embankment (0)	REMARKS
HV Ramp A Sta 20+50	400	1		24	61												III			X					C-15.91			2.9					1437.0			23	10			CB 400 to MH 401
11.50' Lt																																								
HV Ramp A Sta 19+89	401	1		36	158												III			X				48	C-18.10			3.5					1437.5			123	38			MH 401 to CB 402
22.91' Lt																																								
HV Ramp A Sta 18+28	402	1		36	42												III			X					C-15.91			4.6					1436.0			33	10			CB 402 to MH 403
11.50' Lt																																								
HV Ramp A Sta 18+28	403	2		36	306												II			X				48	C-18.10			6.3					1437.2			326	73			MH 403 to CB 405
30.99' Rt																																								
HV Ramp A Sta 15+98	404	1		24	43												III			X					C-15.80			3.5					1434.0			20	7			CB 404 to Pipe 403
24.42' Lt																																								
I-17 Sta 894+14	405	1		36	69												III			X				48	D6			3.8					1434.0			45	17			CB 405 to CB 406
110.58' Lt																																								
I-17 Sta 893+47	406	2		36	42												II			X					C-15.91			6.1					1436.1			42	10			CB 406 to CB 407
96.50' Lt																																								
HV Ramp A Sta 14+61	407	1		36	221												III			X	1				C-15.91			5.1		5			1434.9			190	53			CB 407 to Ditch
11.02' Lt																																								
HV Ramp A Sta 23+00	408	1		18	26												IV			X	1				C-15.91			3.5		5			1438.2			11	3			CB 408 to Ditch
11.50' Rt																																								
Sheet Total																					2		3							10							813	221			

FILL HEIGHT RANGE TABLE (Ft.)													
RANGE NO.		1	2	3	4	5	6	7	8	9	10	11	12
FILL HEIGHT (Ft.)	>	1	3	5	8	11	15	20	25	30	40	55	70
	≤	3	5	8	11	15	20	25	30	40	55	70	90
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	NAME	DATE
DESIGN	JG	06/18
DRAWN	AE	06/18
CHECKED	ML	06/18

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ARIZONA DEPARTMENT OF TRANSPORTATION
INFRASTRUCTURE DELIVERY AND OPERATIONS DIVISION
DRAINAGE DESIGN SERVICES

NEW PIPE SUMMARY

ROUTE: I-17
LOCATION: PINNACLE PEAK RD TI & HAPPY VALLEY RD TI
TRACS NO. H7383 01C
00-017-A(248)T

32316 JAVIER O. CUANA — Date Signed 06/27/2018 — ARIZONA, U.S.A. — Expires 03/31/2019
DWG NO. G-05.10
___ OF ___

REV. DATE: 07/27/2012
PLOT DATE: Tuesday, June 19, 2018 9:01:09 AM PLOT SCALE: 1:100 PLOT BY: jguan.000-HDR
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9:01:09 AM c:\pwworking\west01\d0353505\h7383ps10.dgn

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NRCIPCP - NON-REINFORCED CAST-IN-PLACE CONCRETE PIPE
CHDPEPP - CORRUGATED HIGH-DENSITY POLYETHYLENE PLASTIC PIPE

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	ARIZ.	00-017-A(248)T	55	896	
		017 MA 216			

DESCRIPTION							CSP				CAP		RCP				END TREATMENT																QUANTITIES			
				In.	In.	Ft.	Degree	In.	Coating		In.					In.	Each	Catch Basin, Manhole, Headwall & Junction Structure															Cubic Yard			
Station	Plan Reference Number	Controlling Fill Height Range	Size, Corrugated	Size, Smooth	Length (0)	Skew (0)	Corrugation	Wall Thickness (0.000)	Zinc	Bituminous Coated Zinc	Aluminum	Bituminous Coated Aluminum	Corrugation	Wall Thickness (0.000)	Uncoated	Bituminous Coated	Class - Non-Trench	Class - Trench	Class	Minimum Wall Thickness (0)	AASHTO M-294 Type C	AASHTO M-294 Type S	C-13.20 & C-13.25 Detail	Size, (In) Manhole	End Section Standard or Detail	Ea	S-Single / D-Double	Location	H (0.0)	L Wing (0.0)	Ft. L 18° Slotted Drain (0)	Ft. L 24° Slotted Drain (0)	Grate Type	Elevation (0.00)	Ft. Depth	In. L (0.0)	Inlet Depression C-15.70	Pipe Excavation (0)	Pipe Backfill (0) C-13.15	Drainage Excavation (0)	Berm/Dike Embankment (0)	REMARKS
HV Ramp A Sta 25+50	409	2		24	181												II			X	1			C-15.91			5.0					1438.9			139	30			CB 409 to Basin
11.50' Rt																																								
HV Ramp A Sta 28+31	410	2		24	36												II			X				C-15.40			5.0					1444.2			26	6			CB 410 to CB 411
2.71' Rt																																							
HV Ramp A Sta 28+00	411	2		24	209												II			X	1			C-15.20			5.0	3.5				1442.3			201	34			CB 411 to Basin
21.86' Rt																																							
I-17 Sta 910+52	412	2		24	56												II			X	1															17	9			Basin to MH 413
141.17' Lt																																							
I-17 Sta 910+15	413	2		24	300												II			X			48	C-18.10			5.6					1444.6			253	49			MH 413 to MH 414
99.00' Lt																																							
I-17 Sta 907+15	414	3		24	230												II			X			48	C-18.10			8.0					1444.0			281	38			MH 414 to Basin
99.00' Lt																																							
JM-HV Frt Rd Sta 5+99	415	5		24	74												IV				1															68	12			Ditch to CB 416
88.08' Lt																																							
JM-HV Frt Rd Sta 5+99	416	6		24	138												IV				1			C-15.20			18.2	3.5				1456.9			297	23			CB 416 to Basin
14.00' Lt																																							
JM-HV Frt Rd Sta 8+50	417	2		24	44												II			X	1			C-15.20			5.5	7.5				1450.3			41	7			CB 417 to Ditch
14.00' Lt																																							
Sheet Total																					6		2						0							1324	208			

FILL HEIGHT RANGE TABLE (Ft.)												
RANGE NO.		1	2	3	4	5	6	7	8	9	10	11	12
FILL HEIGHT (Ft.)	>	1	3	5	8	11	15	20	25	30	40	55	70
	≤	3	5	8	11	15	20	25	30	40	55	70	90
◒ SHOULD FIELD CONDITIONS VARY FROM THE RANGE INDICATED, CONTACT DESIGN FOR RE-EVALUATION OF PIPE DESIGN REQUIREMENTS.													

◪ PIPE CORRUGATION			
A	2⅔x½	D	6x2
B	3x1	E	3x1 or 9x2½
C	9x2½		

WARNING
OVERHEAD POWER LINES WITHIN PROJECT CONSTRUCTION LIMITS
Contact Arizona 811 at least two full working days before you begin excavation
ARIZONA811 Call 811 or click Arizona811.com

	NAME	DATE
DESIGN	JG	06/18
DRAWN	AE	06/18
CHECKED	ML	06/18

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ARIZONA DEPARTMENT OF TRANSPORTATION
INFRASTRUCTURE DELIVERY AND OPERATIONS DIVISION
DRAINAGE DESIGN SERVICES

NEW PIPE SUMMARY

ROUTE: I-17
LOCATION: PINNACLE PEAK RD TI & HAPPY VALLEY RD TI
TRACS NO. H7383 01C
00-017-A(248)T

CERTIFICATE NO. 32316 JAVIER O. CUANA Date Signed 06/27/2018 ARIZONA, U.S.A. Expires 03/31/2019

DWG NO. G-05.11
___ OF ___

REV. DATE: 07/27/2012
PLOT DATE: Tuesday, June 19, 2018 9:01:14 AM PLOT SCALE: 1:100 PLOT BY: jguan.000-HDR
DATE- LOCATION- REVISIONS- FINISHED PLANS- SURVEY NO.

9:01:14 AM c:\pwworking\west01\d0353505\h7383ps11.dgn

NOTE:
THE ZEROS IN PARENTHESES (0, 0.0 & 0.000) INDICATE THE DIMENSIONAL PRECISION FOR THAT COLUMN

NOTE:
FOR PIPE CULVERT PLACEMENT SEE STANDARD DRAWINGS C-13.10 AND C-13.15

NOTE:
PIPE OPTIONS SELECTED ARE THOSE REQUIRED TO MEET MINIMUM SERVICE LIFE.
ALLOWABLE PIPE OPTIONS ARE INDICATED WITH THE LETTER 'X' IN THE SPACE. BLANK SPACES ARE NOT ALLOWABLE ALTERNATES.

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CAP - CORRUGATED ALUMINUM PIPE
RCP - REINFORCED CONCRETE PIPE
NRCP - NON-REINFORCED CONCRETE PIPE
NRCIPCP - NON-REINFORCED CAST-IN-PLACE CONCRETE PIPE
CHDPEPP - CORRUGATED HIGH-DENSITY POLYETHYLENE PLASTIC PIPE

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	ARIZ.	00-017-A(248)T	56	896	
		017 MA 216			

Station	Plan Reference Number	Controlling Fill Height Range	Size, Corrugated (In.)	Size, Smooth (In.)	Length (0) (Ft.)	Skew (0) (Degree)	DESCRIPTION: CSP: Corrugation	CSP: Wall Thickness (0.000) (In.)	CSP: Coating: Zinc	CSP: Coating: Bituminous Coated Zinc	CSP: Coating: Aluminum	CSP: Coating: Bituminous Coated Aluminum	CAP: Corrugation	CAP: Wall Thickness (0.000) (In.)	CAP: Coating: Uncoated	CAP: Coating: Bituminous Coated	RCP: Class - Non-Trench	RCP: Class - Trench	RCP: Class	RCP: Minimum Wall Thickness (0) (In.)	NRCP: AASHTO M-294 Type C	NRCP: AASHTO M-294 Type S	NRCIPCP: C-13.20 & C-13.25	CHDPEPP: Detail	CHDPEPP: Size, (In) Manhole (In.)	END TREATMENT: Each: End Section: Standard or Detail	Catch Basin, Manhole, Headwall & Junction Structure: Ea: S-Single / D-Double	Ea: Location	Ea: H (0.0) (Ft.)	Ea: L Wing (0.0) (Ft.)	Ea: Ft.: L 18° Slotted Drain (0) (Ft.)	Ea: Ft.: L 24° Slotted Drain (0) (Ft.)	Ea: Grate: Type	Ea: Grate: Elevation (0.00) (Ft.)	Ea: Grate: Ft.: Depth (In.)	Ea: Grate: Ft.: L (0.0) (Ft.)	Inlet Depression C-15.70 (In.)	QUANTITIES: Cubic Yard: Pipe Excavation (0)	Pipe Backfill (0) C-13.15	Drainage Excavation (0)	Berm/Dike Embankment (0)	REMARKS
JM-HV Frt Rd Sta 10+14	418	1		24	42												III			X	1			C-15.20			4.6					1447.9			36	7			CB 418 to Ditch
14.00' Lt																																									
JM-HV Frt Rd Sta 10+64	419	1		24	37												III			X	1			C-15.20			4.2					1447.7			28	6			CB 419 to Ditch
14.00' Lt																																									
JM-HV Frt Rd Sta 11+14	420	1		24	34												III			X	1			C-15.20			4.0					1447.8			24	6			CB 420 to Ditch
14.00' Lt																																									
HV Ramp C Sta 13+62	421	2		24	68												II			X	1			C-15.91			5.4		10			1449.4			56	11			CB 421 to Ditch
5.50' Lt																																									
JM-HV Frt Rd Sta 14+25	422	1		24	21												III			X	1			C-15.20			3.9					1448.1			10	3			CB 422 to Ditch
14.00' Lt																																									
I-17 Sta 921+69	423	2		24	55												II			X				C-15.91			5.0		5			1451.9			40	9			CB 423 to CB 424
120.89' Lt																																									
JM-HV Frt Rd Sta 14+75	424	1		24	20												III			X	1			C-15.20			3.8					1448.0			10	3			CB 424 to Ditch
14.23' Lt																																									
JM-HV Frt Rd Sta 15+25	425	1		24	18												III			X	1			C-15.20			2.9					1448.0			7	3			CB 425 to Ditch
15.23' Lt																																									
I-17 Sta 923+50	426	2		24	182												II			X				C-15.91			5.0		15			1453.1			124	30			CB 426 to CB 423
109.10' Lt																																									
Sheet Total																					6		0						30							335	78			

FILL HEIGHT RANGE TABLE (Ft.)												
RANGE NO.		1	2	3	4	5	6	7	8	9	10	11	12
FILL HEIGHT (Ft.)	>	1	3	5	8	11	15	20	25	30	40	55	70
	≤	3	5	8	11	15	20	25	30	40	55	70	90

◒ SHOULD FIELD CONDITIONS VARY FROM THE RANGE INDICATED, CONTACT DESIGN FOR RE-EVALUATION OF PIPE DESIGN REQUIREMENTS.

PIPE CORRUGATION			
A	2⅔x½	D	6x2
B	3x1	E	3x1 or 9x2½
C	9x2½		

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	NAME	DATE
DESIGN	JG	06/18
DRAWN	AE	06/18
CHECKED	ML	06/18

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ARIZONA DEPARTMENT OF TRANSPORTATION
INFRASTRUCTURE DELIVERY AND OPERATIONS DIVISION
DRAINAGE DESIGN SERVICES

NEW PIPE SUMMARY

ROUTE: I-17
LOCATION: PINNACLE PEAK RD TI & HAPPY VALLEY RD TI
TRACS NO. H7383 01C
00-017-A(248)T
DWG NO. G-05.12
___ OF ___

CERTIFICATE NO. 32316 JAVIER O. CUANA Date Signed 06/27/2018 ARIZONA, U.S.A. Expires 03/31/2019

REV. DATE: 07/27/2012
PLOT DATE: Tuesday, June 19, 2018 9:01:20 AM PLOT SCALE: 1:100 PLOT BY: jguan.000-HDR
DATE- LOCATION- REVISIONS- FINISHED PLANS- SURVEY NO.

9:01:20 AM c:\pwworking\west01\d0353505\h7383ps12.dgn

NOTE:
THE ZEROS IN PARENTHESES (0, 0.0 & 0.000) INDICATE THE DIMENSIONAL PRECISION FOR THAT COLUMN

NOTE:
FOR PIPE CULVERT PLACEMENT SEE STANDARD DRAWINGS C-13.10 AND C-13.15

NOTE:
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CHDPEPP - CORRUGATED HIGH-DENSITY POLYETHYLENE PLASTIC PIPE

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	ARIZ.	00-017-A(248)T	57	896	
		017 MA 216			

Station	Plan Reference Number	Controlling Fill Height Range	Size, Corrugated (In.)	Size, Smooth (In.)	Length (0) (Ft.)	Skew (0) (Degree)	CSP: Corrugation	CSP: Wall Thickness (0.000) (In.)	CSP: Zinc Coating	CSP: Bituminous Coated Zinc	CSP: Aluminum Coating	CSP: Bituminous Coated Aluminum	CAP: Corrugation	CAP: Wall Thickness (0.000) (In.)	CAP: Uncoated	CAP: Bituminous Coated	RCP: Class - Non-Trench	RCP: Class - Trench	RCP: Class	RCP: Minimum Wall Thickness (0) (In.)	NRCP: AASHTO M-294 Type C	NRCP: AASHTO M-294 Type S	NRCIPCP: C-13.20 & C-13.25	CHDPEPP: Detail	CHDPEPP: Size, (In) Manhole	END TREATMENT: Each End Section Standard or Detail	Catch Basin, Manhole, Headwall & Junction Structure: Ea S-Single / D-Double	Ea Location	Ea H (0.0)	Ft. L Wing (0.0)	Ft. L 18° Slotted Drain (0)	Ft. L 24° Slotted Drain (0)	Ft. Type	Grate Elevation (0.00)	Grate Ft. Depth (In.)	Grate Ft. L (0.0) (Ft.)	Inlet Depression C-15.70	QUANTITIES: Pipe Excavation (0) Cubic Yard	Pipe Backfill (0) C-13.15	Drainage Excavation (0)	Berm/Dike Embankment (0)	REMARKS
PP Sta 217+27	500	1		24	112												III			X					C-15.20			4.8	7.5				1431.6			70	18			CB 500 to CB 501
62.87' Rt																																							
PP Sta 217+27	501	2		24	297												II			X					C-15.20			5.8	3.5				1431.9			337	49			CB 501 to CB 503
49.11' Lt																																							
PP Sta 214+30	502	2		24	83												II			X					C-15.20			5.0	11.5				1424.0			54	14			CB 502 to CB 503
41.44' Rt																																							
PP Sta 214+30	503	2		24	250												II			X					C-15.40			5.0					1423.3			219	41			CB 503 to CB 505
41.68' Lt																																							
PP Sta 211+76	504	1		24	39												III			X					C-15.20			4.5					1418.9			24	6			CB 504 to CB 505
4.09' Rt																																							
PP Sta 211+76	505	1		24	93												III			X					C-15.40			3.7					1417.2			46	15			CB 505 to CB 506
35.34' Lt																																							
PP Sta 210+80	506	1		24	109												III			X	1				C-15.40			3.8					1416.8			58	18			CB 506 to Basin
35.00' Lt																																							
PP Sta 220+42	507	1		24	111												III			X					C-15.20			4.6	7.5				1440.6			66	18			CB 507 to CB 508
56.00' Lt																																							
PP Sta 220+25	508	2		24	97												II			X					C-15.20			5.0	7.5				1440.5			69	16			CB 508 to CB 509
55.00' Rt																																							
Sheet Total																					1		0						0								943	195			

FILL HEIGHT RANGE TABLE (Ft.)												
RANGE NO.		1	2	3	4	5	6	7	8	9	10	11	12
FILL HEIGHT (Ft.)	>	1	3	5	8	11	15	20	25	30	40	55	70
	≤	3	5	8	11	15	20	25	30	40	55	70	90

◒ SHOULD FIELD CONDITIONS VARY FROM THE RANGE INDICATED, CONTACT DESIGN FOR RE-EVALUATION OF PIPE DESIGN REQUIREMENTS.

◪ PIPE CORRUGATION			
A	2⅔x½	D	6x2
B	3x1	E	3x1 or 9x2½
C	9x2½		

WARNING
OVERHEAD POWER LINES WITHIN PROJECT CONSTRUCTION LIMITS

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ARIZONA811
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	NAME	DATE
DESIGN	JG	06/18
DRAWN	AE	06/18
CHECKED	ML	06/18

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ARIZONA DEPARTMENT OF TRANSPORTATION
INFRASTRUCTURE DELIVERY AND OPERATIONS DIVISION
DRAINAGE DESIGN SERVICES

NEW PIPE SUMMARY

ROUTE: I-17
LOCATION: PINNACLE PEAK RD TI & HAPPY VALLEY RD TI
TRACS NO. H7383 01C
00-017-A(248)T
DWG NO. G-05.13
___ OF ___

CERTIFICATE NO. 32316 JAVIER O. CUANA ARIZONA, U.S.A. Date Signed 06/27/2018
Expires 03/31/2019

REV. DATE: 07/27/2012
PLOT DATE: Tuesday, June 19, 2018 9:01:25 AM PLOT SCALE: 1:100 PLOT BY: jguan.000-HDR
DATE- LOCATION- REVISIONS- FINISHED PLANS- SURVEY NO.

9:01:25 AM c:\pwworking\west01\d0353505\h7383ps13.dgn

NOTE:
THE ZEROS IN PARENTHESES (0, 0.0 & 0.000) INDICATE THE DIMENSIONAL PRECISION FOR THAT COLUMN

NOTE:
FOR PIPE CULVERT PLACEMENT SEE STANDARD DRAWINGS C-13.10 AND C-13.15

NOTE:
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CHDPEPP - CORRUGATED HIGH-DENSITY POLYETHYLENE PLASTIC PIPE

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	ARIZ.	00-017-A(248)T	58	896	
		017 MA 216			

Station	Plan Reference Number	Controlling Fill Height Range	Size, Corrugated (In.)	Size, Smooth (In.)	Length (0) (Ft.)	Skew (0) (Degree)	DESCRIPTION: CSP: Corrugation	CSP: Wall Thickness (0.000) (In.)	CSP: Zinc Coating	CSP: Bituminous Coated Zinc	CSP: Aluminum Coating	CSP: Bituminous Coated Aluminum	CAP: Corrugation	CAP: Wall Thickness (0.000) (In.)	CAP: Uncoated	CAP: Bituminous Coated	RCP: Class - Non-Trench	RCP: Class - Trench	RCP: Class	RCP: Minimum Wall Thickness (0) (In.)	NRCP: AASHTO M-294 Type C	NRCP: AASHTO M-294 Type S	NRCIPCP: C-13.20 & C-13.25	CHDPEPP: Detail	END TREATMENT: Each End Section: Size, (In) Manhole	Standard or Detail	Ea Catch Basin, Manhole, Headwall & Junction Structure: S-Single / D-Double	Location	H (0.0)	L Wing (0.0)	Ft. L 18° Slotted Drain (0)	Ft. L 24° Slotted Drain (0)	Grate Type	Grate Elevation (0.00)	Grate Ft. In. Depth	Grate Ft. L (0.0)	Inlet Depression C-15.70	QUANTITIES: Cubic Yard Pipe Excavation (0)	Pipe Backfill (0) C-13.15	Drainage Excavation (0)	Berm/Dike Embankment (0)	REMARKS
PP-DV Frt Rd Sta 27+10	509	2		24	215														II			X			C-15.20			5.0	3.5				1438.7			191	35			CB 509 to CB 317
20.39' Lt																																								
PP Sta 224+14	510	1		24	110														III			X			C-15.20			4.5	7.5				1440.6			65	18			CB 510 to CB 511
55.00' Lt																																								
PP Sta 224+12	511	2		24	189														II			X			C-15.20			5.2	7.5				1440.7			366	31			CB 511 to CBC 1
55.00' Rt																																								
PP Sta 227+36	512	2		24	108														II			X			C-15.20			5.0	7.5				1431.6			137	18			CB 512 to CBC 1
62.50' Lt																																								
PP Sta 228+50	513	2		24	63														II			X	1		C-15.20			5.0	7.5				1428.5			84	10			CB 513 to Channel
46.19' Rt																																								
PP Sta 231+90	514	1		18	20														IV			X	1		C-15.20			1.9	7.5				1419.2			4	3			CB 514 to Ditch
37.13' Lt																																								
PP Sta 231+90	515	1		24	54														III			X	1		C-15.20			4.0	7.5				1419.2			39	9			CB 515 to Channel
37.67' Rt																																								
																																								516 Not Used
PP Sta 233+87	517	1		24	32														III			X	1		C-15.20			4.0					1416.9			18	5			CB 517 to Channel
56.00' Rt																																								
Sheet Total																							4		0									0			904	129			

FILL HEIGHT RANGE TABLE (Ft.)												
RANGE NO.		1	2	3	4	5	6	7	8	9	10	11	12
FILL HEIGHT (Ft.)	>	1	3	5	8	11	15	20	25	30	40	55	70
	≤	3	5	8	11	15	20	25	30	40	55	70	90

SHOULD FIELD CONDITIONS VARY FROM THE RANGE INDICATED, CONTACT DESIGN FOR RE-EVALUATION OF PIPE DESIGN REQUIREMENTS.

PIPE CORRUGATION			
A	2⅔x½	D	6x2
B	3x1	E	3x1 or 9x2½
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	NAME	DATE
DESIGN	JG	06/18
DRAWN	AE	06/18
CHECKED	ML	06/18

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ARIZONA DEPARTMENT OF TRANSPORTATION
INFRASTRUCTURE DELIVERY AND OPERATIONS DIVISION
DRAINAGE DESIGN SERVICES

NEW PIPE SUMMARY

ROUTE: I-17
LOCATION: PINNACLE PEAK RD TI & HAPPY VALLEY RD TI
TRACS NO. H7383 01C
00-017-A(248)T

CERTIFICATE NO. 32316 JAVIER O. CUANA Date Signed 06/27/2018 ARIZONA, U.S.A.
Expires 03/31/2019
DWG NO. G-05.14
___ OF ___

REV. DATE: 07/27/2012
PLOT DATE: Tuesday, June 19, 2018 9:01:32 AM PLOT SCALE: 1:100 PLOT BY: jguan.000-HDR
DATE- LOCATION- REVISIONS- FINISHED PLANS- SURVEY NO.

9:01:32 AM c:\pwworking\west01\d0353505\h7383psl4.dgn

NOTE:
THE ZEROS IN PARENTHESES (0, 0.0 & 0.000) INDICATE THE DIMENSIONAL PRECISION FOR THAT COLUMN

NOTE:
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NOTE:
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CHDPEPP - CORRUGATED HIGH-DENSITY POLYETHYLENE PLASTIC PIPE

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	ARIZ.	00-017-A(248)T	59	896	
		017 MA 216			

Station	Plan Reference Number	Controlling Fill Height Range	Size, Corrugated (In.)	Size, Smooth (In.)	Length (0) (Ft.)	Skew (0) (Degree)	DESCRIPTION: CSP: Corrugation	CSP: Wall Thickness (0.000) (In.)	CSP: Coating: Zinc	CSP: Coating: Bituminous Coated Zinc	CSP: Coating: Aluminum	CSP: Coating: Bituminous Coated Aluminum	CAP: Corrugation	CAP: Wall Thickness (0.000) (In.)	CAP: Coating: Uncoated	CAP: Coating: Bituminous Coated	RCP: Class - Non-Trench	RCP: Class - Trench	RCP: Class	Minimum Wall Thickness (0) (In.)	NRCP: AASHTO M-294 Type C	NRCP: AASHTO M-294 Type S	NRCIPCP: C-13.20 & C-13.25	CHDPEPP: Detail	END TREATMENT: Each: End Section: Size, (In) Manhole	End Section: Standard or Detail	Catch Basin, Manhole, Headwall & Junction Structure: Ea: S-Single / D-Double	Ea: Location	Ea: H (0.0)	Ea: L Wing (0.0)	Ft.: L 18" Slotted Drain (0)	Ft.: L 24" Slotted Drain (0)	Ft.: Type	Grate: Elevation (0.00)	Grate: Ft.: Depth	Grate: Ft.: L (0.0)	Inlet Depression C-15.70 (In.)	Pipe Excavation (0) (Ft.)	QUANTITIES: Cubic Yard: Pipe Backfill (0) C-13.15	Drainage Excavation (0)	Berm/Dike Embankment (0)	REMARKS
HV Sta 150+69	600	1		18	53												IV				X				C-15.20			3.5	3.5				1443.0			20	7			CB 600 to CB 601
49.57' Rt																																								
HV Sta 150+59	601	2		18	57												II				X				C-15.80			4.5					1443.8			28	7			CB 601 to CB 602
2.16' Lt																																								
HV Sta 150+51	602	1		18	115												IV				X	1			C-15.20			3.8	7.5				1442.6			50	15			CB 602 to Basin
59.02' Lt																																								
HV Sta 153+00	603	2		24	103												II				X				C-15.20			5.0	7.5				1449.6			69	17			CB 603 to CB 604
89.43' Lt																																								
HV Sta 152+63	604	2		24	91												II				X				C-15.80			5.5					1449.1			68	15			CB 604 to CB 605
6.73' Rt																																								
HV Sta 152+01	605	2		24	87												II				X				C-15.20			5.0	11.5				1447.2			63	14			CB 605 to CB 607
71.66' Rt																																								
																																								606 Not Used
HV Ramp A Sta 30+74	607	2		24	246												II				X				C-15.40			5.0					1445.1			163	40			CB 607 to CB 410
17.98' Lt																																								
HV Ramp A2 Sta 231+00	608	2		24	213												II				X				C-15.20			5.0	7.5				1450.4			192	35			CB 608 to CB 607
14.00' Rt																																								
Sheet Total																						1		0					0								654	150			

FILL HEIGHT RANGE TABLE (Ft.)												
RANGE NO.		1	2	3	4	5	6	7	8	9	10	11	12
FILL HEIGHT (Ft.)	>	1	3	5	8	11	15	20	25	30	40	55	70
	≤	3	5	8	11	15	20	25	30	40	55	70	90

◒ SHOULD FIELD CONDITIONS VARY FROM THE RANGE INDICATED, CONTACT DESIGN FOR RE-EVALUATION OF PIPE DESIGN REQUIREMENTS.

PIPE CORRUGATION			
A	2⅔x½	D	6x2
B	3x1	E	3x1 or 9x2½
C	9x2½		

WARNING
OVERHEAD POWER LINES WITHIN PROJECT CONSTRUCTION LIMITS

Contact Arizona 811 at least two full working days before you begin excavation
ARIZONA811
Call 811 or click Arizona811.com

	NAME	DATE
DESIGN	JG	06/18
DRAWN	AE	06/18
CHECKED	ML	06/18

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ARIZONA DEPARTMENT OF TRANSPORTATION
INFRASTRUCTURE DELIVERY AND OPERATIONS DIVISION
DRAINAGE DESIGN SERVICES

NEW PIPE SUMMARY

ROUTE: I-17
LOCATION: PINNACLE PEAK RD TI & HAPPY VALLEY RD TI
TRACS NO. H7383 01C
00-017-A(248)T
DWG NO. G-05.15
___ OF ___

CERTIFICATE NO. 32316 JAVIER O. CUANA — Date Signed 06/27/2018 — ARIZONA, U.S.A. — Expires 03/31/2019

REV. DATE: 07/27/2012
PLOT DATE: Tuesday, June 19, 2018 9:01:37 AM PLOT SCALE: 1:100 PLOT BY: jguan.000-HDR
DATE- LOCATION- REVISIONS- FINISHED PLANS- SURVEY NO.

9:01:37 AM c:\pwworking\west01\d0353505\h7383ps15.dgn

NOTE:
THE ZEROS IN PARENTHESES (0, 0.0 & 0.000) INDICATE THE DIMENSIONAL PRECISION FOR THAT COLUMN

NOTE:
FOR PIPE CULVERT PLACEMENT SEE STANDARD DRAWINGS C-13.10 AND C-13.15

NOTE:
PIPE OPTIONS SELECTED ARE THOSE REQUIRED TO MEET MINIMUM SERVICE LIFE.
ALLOWABLE PIPE OPTIONS ARE INDICATED WITH THE LETTER 'X' IN THE SPACE. BLANK SPACES ARE NOT ALLOWABLE ALTERNATES.

CSP - CORRUGATED STEEL PIPE
CAP - CORRUGATED ALUMINUM PIPE
RCP - REINFORCED CONCRETE PIPE
NRCP - NON-REINFORCED CONCRETE PIPE
NRCIPCP - NON-REINFORCED CAST-IN-PLACE CONCRETE PIPE
CHDPEPP - CORRUGATED HIGH-DENSITY POLYETHYLENE PLASTIC PIPE

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	ARIZ.	00-017-A(248)T	60	896	
		017 MA 216			

	DESCRIPTION							CSP				CAP		RCP														END TREATMENT																		QUANTITIES				
					In.	In.	Ft.	Degree	In.	Coating			In.															Each																		Cubic Yard				
																											Catch Basin, Manhole, Headwall & Junction Structure																					
																											Ea							Ft.				Grate		Ft.									
Station	Plan Reference Number	Controlling Fill Height Range	Size, Corrugated	Size, Smooth	Length (0)	Skew (0)	Corrugation	Wall Thickness (0.000)	Zinc	Bituminous Coated Zinc	Aluminum	Bituminous Coated Aluminum	Corrugation	Wall Thickness (0.000)	Uncoated	Bituminous Coated	Class - Non-Trench	Class - Trench	Class	Minimum Wall Thickness (0)	AASHTO M-294 Type C	AASHTO M-294 Type S	C-13.20 & C-13.25	Detail	Size, (In) Manhole	End Section Standard or Detail		S-Single / D-Double	Location	H (0.0)	L Wing (0.0)	L 18" Slotted Drain (0)	L 24" Slotted Drain (0)	Type	Elevation (0.00)	In. Depth	Ft. L (0.0)	Inlet Depression C-15.70	Pipe Excavation (0)	Pipe Backfill (0) C-13.15	Drainage Excavation (0)	Berm/Dike Embankment (0)	REMARKS
HV Sta 155+03	609	1		24	84														III			X			C-15.20			4.5	7.5				1456.0			51	14			CB 609 to CB 610
63.37' Lt																																																
HV Sta 155+82	610	3		24	75														II			X			C-15.20			8.1	7.5				1458.7			74	12			CB 610 to CB 611
34.67' Lt																																															
HV Sta 156+20	611	4		24	64														III			X			C-15.20			10.0					1459.9			77	10			CB 611 to CB 612
29.35' Rt																																															
HV Ramp A2 Sta 234+00	612	4		24	259														III			X	1		C-15.20			11.2	11.5				1460.5			599	42			CB 612 to Basin
14.00' Rt																																															
HV Sta 157+67	613	2		24	127														II			X			C-15.80			5.0					1464.1			84	21			CB 613 to CB 614
5.83' Lt																																															
HV Ramp C2 Sta 203+27	614	2		24	56														II			X			C-15.92			5.0					1463.2			40	9			CB 614 to CB 615
32.88' Rt																																															
HV Ramp C2 Sta 203+94	615	2		24	97														II			X	1		C-15.92			5.6		5			1461.7			158	16			CB 615 to Basin
30.65' Rt																																															
HV Sta 163+29	616	2		24	164														II			X			C-15.80			5.0					1465.5			127	27			CB 616 to CB 617
8.16' Lt																																															
HV Ramp B1 Sta 147+75	617	2		24	56														II			X			C-15.92			5.0					1462.5			50	9			CB 617 to CB 618
46.56' Lt																																															
Sheet Total																							2		0					5							1262	161			

FILL HEIGHT RANGE TABLE (Ft.)													
RANGE NO.		1	2	3	4	5	6	7	8	9	10	11	12
FILL	>	1	3	5	8	11	15	20	25	30	40	55	70
HEIGHT (Ft.)	≤	3	5	8	11	15	20	25	30	40	55	70	90
◒ SHOULD FIELD CONDITIONS VARY FROM THE RANGE INDICATED, CONTACT DESIGN FOR RE-EVALUATION OF PIPE DESIGN REQUIREMENTS.													

◪ PIPE CORRUGATION			
A	2⅔x½	D	6x2
B	3x1	E	3x1 or 9x2½
C	9x2½		

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ARIZONA811
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	NAME	DATE
DESIGN	JG	06/18
DRAWN	AE	06/18
CHECKED	ML	06/18

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ARIZONA DEPARTMENT OF TRANSPORTATION
INFRASTRUCTURE DELIVERY AND OPERATIONS DIVISION
DRAINAGE DESIGN SERVICES

NEW PIPE SUMMARY

ROUTE	LOCATION
I-17	PINNACLE PEAK RD TI & HAPPY VALLEY RD TI

TRACS NO. H7383 01C | 00-017-A(248)T | ___ OF ___

Registered Professional Engineer CERTIFICATE 32316 JAVIER O. CUANA Date Signed 06/27/2018 ARIZONA, U.S.A.
Expires 03/31/2019
DWG NO. G-05.16

REV. DATE: 07/27/2012
PLOT DATE: Tuesday, June 19, 2018 9:01:43 AM PLOT SCALE: 1:100 PLOT BY: jguan.000-HDR
DATE- LOCATION- REVISIONS- FINISHED PLANS- SURVEY NO.

9:01:43 AM c:\pwworking\west01\d0353505\h7383ps16.dgn

NOTE:
THE ZEROS IN PARENTHESES (0, 0.0 & 0.000) INDICATE THE DIMENSIONAL PRECISION FOR THAT COLUMN

NOTE:
FOR PIPE CULVERT PLACEMENT SEE STANDARD DRAWINGS C-13.10 AND C-13.15

NOTE:
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CHDPEPP - CORRUGATED HIGH-DENSITY POLYETHYLENE PLASTIC PIPE

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	ARIZ.	00-017-A(248)T	61	896	
		017 MA 216			

Station	Plan Reference Number	Controlling Fill Height Range	Size, Corrugated (In.)	Size, Smooth (In.)	Length (0) (Ft.)	Skew (0) (Degree)	DESCRIPTION: CSP: Corrugation	CSP: Wall Thickness (0.000) (In.)	CSP: Coating: Zinc	CSP: Coating: Bituminous Coated Zinc	CSP: Coating: Aluminum	CSP: Coating: Bituminous Coated Aluminum	CAP: Corrugation	CAP: Wall Thickness (0.000) (In.)	RCP: Uncoated	RCP: Bituminous Coated	RCP: Class - Non-Trench	RCP: Class - Trench	RCP: Class	Minimum Wall Thickness (0) (In.)	NRCP: AASHTO M-294 Type C	NRCP: AASHTO M-294 Type S	NRCIPCP: C-13.20 & C-13.25	CHDPEPP: Detail	CHDPEPP: Size, (In) Manhole	END TREATMENT: End Section (Each): Standard or Detail	Catch Basin, Manhole, Headwall & Junction Structure (Ea): S-Single / D-Double	Location	H (0.0) (Ft.)	L Wing (0.0) (Ft.)	L 18° Slotted Drain (0) (Ft.)	L 24° Slotted Drain (0) (Ft.)	Grate: Type	Grate: Elevation (0.00) (Ft.)	Grate: Depth (In.)	Grate: L (0.0) (Ft.)	Inlet Depression C-15.70 (Ft.)	QUANTITIES: Cubic Yard: Pipe Excavation (0)	Pipe Backfill (0) C-13.15	Drainage Excavation (0)	Berm/Dike Embankment (0)	REMARKS
HV Ramp B1 Sta 147+02	618	3		24	90												II			X	1				C-15.92			9.5		5			1461.0			162	15			CB 618 to Basin
42.46' Lt																																								
HV Ramp D1 Sta 107+00	619	2		24	105												II			X	1				C-15.20			5.0	7.5				1464.3			182	17			CB 619 to Basin
14.50' Lt																																								
HV Sta 165+47	620	1		24	195												III			X					C-15.20			4.5	7.5				1459.5			146	32			CB 620 to CB 618
48.69' Rt																																								
HV Sta 164+53	621	2		24	114												II			X					C-15.20			5.0	3.5				1461.8			81	19			CB 621 to CB 620
28.51' Lt																																								
HV Sta 164+89	622	2		24	76												II			X					C-15.80			5.0					1454.0			50	12			CB 622 to 627
128.46' Lt																																								
HV Ramp D1 Sta 109+00	623	2		24	85												II			X	1				C-15.20			5.0	3.5				1459.2			124	14			CB 623 to Basin
14.50' Lt																																								
																																								624 Not used
HV Ramp D Sta 11+75																									C-15.91			14.7					1455.4							CB 625 on Exst Pipe
11.50' Rt																																								Detail D3
HV Ramp D Sta 14+39																									C-15.91			9.5		5			1452.5							CB 626 on Exst Pipe
11.50' Rt																																								Detail D3
Sheet Total																					3		0						10								745	109			

FILL HEIGHT RANGE TABLE (Ft.)												
RANGE NO.		1	2	3	4	5	6	7	8	9	10	11	12
FILL HEIGHT (Ft.)	>	1	3	5	8	11	15	20	25	30	40	55	70
	≤	3	5	8	11	15	20	25	30	40	55	70	90

◒ SHOULD FIELD CONDITIONS VARY FROM THE RANGE INDICATED, CONTACT DESIGN FOR RE-EVALUATION OF PIPE DESIGN REQUIREMENTS.

PIPE CORRUGATION			
A	2⅔x½	D	6x2
B	3x1	E	3x1 or 9x2½
C	9x2½		

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	NAME	DATE
DESIGN	JG	06/18
DRAWN	AE	06/18
CHECKED	ML	06/18

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ARIZONA DEPARTMENT OF TRANSPORTATION
INFRASTRUCTURE DELIVERY AND OPERATIONS DIVISION
DRAINAGE DESIGN SERVICES

NEW PIPE SUMMARY

ROUTE: I-17
LOCATION: PINNACLE PEAK RD TI & HAPPY VALLEY RD TI
TRACS NO. H7383 01C
00-017-A(248)T

Certified Professional Engineer 32316 JAVIER O. CUANA ARIZONA, U.S.A. Date Signed 06/27/2018
Expires 03/31/2019
DWG NO. G-05.17
___ OF ___

REV. DATE: 07/27/2012
PLOT DATE: Tuesday, June 19, 2018 9:01:48 AM PLOT SCALE: 1:100 PLOT BY: jguan.000-HDR
DATE- LOCATION- REVISIONS- FINISHED PLANS- SURVEY NO.

9:01:48 AM c:\pwworking\west01\d0353505\h7383ps17.dgn

NOTE:
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NOTE:
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CHDPEPP - CORRUGATED HIGH-DENSITY POLYETHYLENE PLASTIC PIPE

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	ARIZ.	00-017-A(248)T	62	896	

017 MA 216

	DESCRIPTION								CSP					CAP			RCP												END TREATMENT																				QUANTITIES				
					In.	In.	Ft.	Degree	In.	Coating				In.															Each																				Cubic Yard				
																												Catch Basin, Manhole, Headwall & Junction Structure																								
																												Ea							Ft.				Grade		Ft.											
	Station	Plan Reference Number	Controlling Fill Height Range	Size, Corrugated	Size, Smooth	Length (0)	Skew (0)	Corrugation	Wall Thickness (0.000)	Zinc	Bituminous Coated Zinc	Aluminum	Bituminous Coated Aluminum	Corrugation	Wall Thickness (0.000)	Uncoated	Bituminous Coated	Class - Non-Trench	Class - Trench	Class	Minimum Wall Thickness (0)	AASHTO M-294 Type C	AASHTO M-294 Type S	C-13.20 & C-13.25	Detail	Size, (In) Manhole	End Section Standard or Detail	S-Single / D-Double	Location	H (0.0)	L Wing (0.0)	L 18° Slotted Drain (0)	L 24° Slotted Drain (0)	Type	Elevation (0.00)	Depth	L (0.0)	Inlet Depression C-15.70	Pipe Excavation (0)	Pipe Backfill (0) C-13.15	Drainage Excavation (0)	Berm/Dike Embankment (0)	REMARKS
	HV Sta 167+19	627	2		24	30														II			X			C-15.20			5.0	11.5					1453.2			19	5			CB 627 to CB 628
	87.27' Lt																																																		
	HV Ramp D2 Sta 205+29	628	2		24	31														II			X	1		C-15.20			5.0						1452.6			22	5			CB 628 to Basin
	17.00' Rt																																																	
	HV-JM Frt Rd Sta 7+00	630	1		24	141														III			X	2																											
	70.62' Lt																																																	
	HV Ramp D Sta 11+54	634	3		24	32														II			X	1																											
	52.26' Lt																																																	
	HV Sta 168+00	635	2		24	107														II			X			C-15.20			6.0	11.5					1451.2			87	18			CB 635 to CB 637
	75.57' Rt																																																	
	Sheet Total																							4		0										0					176	56							

FILL HEIGHT RANGE TABLE (Ft.)												
RANGE NO.		1	2	3	4	5	6	7	8	9	10	11	12
FILL HEIGHT (Ft.)	>	1	3	5	8	11	15	20	25	30	40	55	70
	≤	3	5	8	11	15	20	25	30	40	55	70	90
⊖ SHOULD FIELD CONDITIONS VARY FROM THE RANGE INDICATED, CONTACT DESIGN FOR RE-EVALUATION OF PIPE DESIGN REQUIREMENTS.													

◪ PIPE CORRUGATION			
A	2⅔x½	D	6x2
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	NAME	DATE
DESIGN	JG	06/18
DRAWN	AE	06/18
CHECKED	ML	06/18

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ARIZONA DEPARTMENT OF TRANSPORTATION
INFRASTRUCTURE DELIVERY AND OPERATIONS DIVISION
DRAINAGE DESIGN SERVICES

NEW PIPE SUMMARY

ROUTE	LOCATION
I-17	PINNACLE PEAK RD TI & HAPPY VALLEY RD TI

TRACS NO. H7383 01C | 00-017-A(248)T | ___ OF ___

CERTIFICATE NO. 32316 JAVIER O. CUANA Date Signed 06/27/2018 ARIZONA, U.S.A. Registered Professional Engineer

Expires 03/31/2019
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REV. DATE: 07/27/2012
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F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	ARIZ.	00-017-A(248)T	63	896	
		017 MA 216			

DESCRIPTION							CSP			CAP		RCP	NRCP	NRCIPCP	CHDPEPP	END TREATMENT														QUANTITIES				
				In.	In.	Ft.	Degree	In.	Coating		In.			In.		Each	Catch Basin, Manhole, Headwall & Junction Structure													Cubic Yard				
Station	Plan Reference Number	Controlling Fill Height Range	Size, Corrugated	Size, Smooth	Length (0)	Skew (0)	Corrugation	Wall Thickness (0.000)	Zinc	Bituminous Coated	Aluminum	Bituminous Coated Aluminum	Corrugation	Wall Thickness (0.000)	Uncoated	Bituminous Coated	Class - Non-Trench	Class - Trench	Class	Minimum Wall Thickness (0)	AASHTO M-294 Type C	AASHTO M-294 Type S	C-13.20 & C-13.25	Detail	Size, (In) Manhole	End Section	Standard or Detail	S-Single / D-Double	Location	H (0.0)	L Wing (0.0)	L 18° Slotted Drain (0)	L 24° Slotted Drain (0)	Type	Ea	Ft.	Grate	Ft.	Elevation (0.00)	Depth	In.	Ft.	L (0.0)	Inlet Depression C-15.70	Pipe Excavation (0)	Pipe Backfill (0) C-13.15	Drainage Excavation (0)	Berm/Dike Embankment (0)	REMARKS
HV Sta 168+91	636	1		24	74											III				X					C-15.20			4.5	7.5													43	12			CB 636 to CB 637
80.76' Lt																																														
HV Sta 168+52	637	3		24	146											II				X					C-15.80			7.4														141	24			CB 637 to CB 639
16.72' Lt																																													
HV Sta 170+58	638	3		36	117											II				X	1																					64	28			Ditch to CB 639
105.02' Lt																																													
HV Sta 170+00	639	3		36	59											II				X					C-15.80			8.4														83	14			CB 639 to CB 640
3.75' Lt																																													
HV Sta 170+00	640	3		36	100											II				X	1				C-15.20			8.1	7.5													135	24			CB 640 to Basin
55.08' Rt																																													
HV Sta 171+18	641	1		24	36											III				X	1				C-15.20			3.6	7.5													17	6			CB 641 to Ditch
61.88' Lt																																													
HV Sta 147+56																									C-15.10			4.5																	CB 642 on Exst Pipe
45.85' Rt																																													Detail D2
Sheet Total																					3		0						0													483	108			

FILL HEIGHT RANGE TABLE (Ft.)												
RANGE NO.		1	2	3	4	5	6	7	8	9	10	11	12
FILL HEIGHT (Ft.)	>	1	3	5	8	11	15	20	25	30	40	55	70
	≤	3	5	8	11	15	20	25	30	40	55	70	90
⊖ SHOULD FIELD CONDITIONS VARY FROM THE RANGE INDICATED, CONTACT DESIGN FOR RE-EVALUATION OF PIPE DESIGN REQUIREMENTS.													

PIPE CORRUGATION			
A	2⅔x½	D	6x2
B	3x1	E	3x1 or 9x2½
C	9x2½		

WARNING
OVERHEAD POWER LINES WITHIN PROJECT CONSTRUCTION LIMITS

Contact Arizona 811 at least two full working days before you begin excavation
ARIZONA811
Call 811 or click Arizona811.com

	NAME	DATE
DESIGN	JG	06/18
DRAWN	AE	06/18
CHECKED	ML	06/18

Andes Engineering andes.us

ARIZONA DEPARTMENT OF TRANSPORTATION
INFRASTRUCTURE DELIVERY AND OPERATIONS DIVISION
DRAINAGE DESIGN SERVICES

NEW PIPE SUMMARY

ROUTE	LOCATION
I-17	PINNACLE PEAK RD TI & HAPPY VALLEY RD TI

TRACS NO. H7383 01C | 00-017-A(248)T | ___ OF ___

CERTIFICATE NO. 32316 JAVIER O. CUANA Date Signed 06/27/2018 ARIZONA, U.S.A. Registered Professional Engineer
Expires 03/31/2019
DWG NO. G-05.19

REV. DATE: 07/27/2012 | SURVEY NO. | FINISHED PLANS- | REVISIONS- | LOCATION- | DATE-
PLOT DATE: Tuesday, June 19, 2018 9:01:59 AM | PLOT SCALE: 1:100 | PLOT BY: jguan.000-HDR

9:01:59 AM c:\pwworking\west01\d0353505\h7383psl9.dgn

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	ARIZ.	00-017-A(248)T	66	896	

017 MA 216

DESCRIPTION												END TREATMENT									LENGTH OF BARREL & BARREL EXTENSIONS										APPROXIMATE QUANTITIES									
												WINGS			APRONS		MISCELLANEOUS				Construction ℄				Existing & Construction ℄						Lbs.	Ea.	Cubic Yards							
Plan Reference Number ◯ & ◉	Structure Number	New	Extend	Number of Barrels	Barrel Span (0.0)	Barrel Height (0.0)	Culvert Length (0.0)	Skew (Degree) (0)	SD 6.01 Miscellaneous Details	SD 6.01 Extension Details	◪ Standard or Detail	▲ Location	Inlet Wings	Outlet Wings	◪ Standard or Detail	Apron	◪ Standard or Detail	Scour/Bank Protection	◪ Standard or Detail	Energy Dissipators	I	II	III	IV	V	V	IV	III	II	I	◑ Reinforcing Steel (0)	◑ Place Dowels	◑ Class S Concrete f'c=6,000 PSI	◑ Remove Str Concrete (0)	◑ Structural Excavation (0)	◑ Structure Backfill (0)	Berm Embankment (0)	Dike Embankment (0)	Drainage Excavation (0)	REMARKS
1	7322	X		3	8	6	199	0	X		SD 6.03-2	Left											75							29482		214							
Station: PP Sta 226+15												Right		X	SD 6.08-1	X	SD 6.11-1										124			51750	25	389							
Existing: 2-8'x7'x118' (Remove)																												Box Culvert Total		81232	25	603	247	5134	352				
												Left																												
Station:												Right																												
Existing:																												Box Culvert Total										
												Left																												
Station:												Right																												
Existing:																												Box Culvert Total										
												Left																												
Station:												Right																												
Existing:																												Box Culvert Total										
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Station:												Right																												
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Existing:																												Box Culvert Total										
												Left																												
Station:												Right																												
Existing:																												Box Culvert Total										
																													Sheet Total:	81232	25	603	247	5134	352				

NOTE:
THE ZEROS IN PARENTHESES (0, 0.0 & 0.00) INDICATE THE DIMENSIONAL PRECISION FOR THAT COLUMN

◑ TOTALS SHOWN FOR THE BOX CULVERT INCLUDE THE QUANTITIES FOR HEADWALLS, WINGS, APRONS, CURBS, CUT-OFF WALLS AND LAPS AT CONSTRUCTION JOINTS.

NOTE:
FOR STRUCTURAL EXCAVATION, STRUCTURE BACKFILL PLACEMENT AND MEASUREMENT, SEE STRUCTURE DETAIL DRAWING SD 6.01 (4 OF 5)

◪ BRIDGE GROUP STRUCTURE DETAIL DRAWINGS SD 6.01 TO SD 6.11

▲ Construction ℄ Looking Ahead

-WARNING-
OVERHEAD POWER LINES WITHIN PROJECT CONSTRUCTION LIMITS

Contact Arizona 811 at least two full working days before you begin excavation
ARIZONA811
Call 811 or click Arizona811.com

	NAME	DATE
DESIGN	JG	06/18
DRAWN	AE	06/18
CHECKED	ML	06/18

Andes Engineering andes.us

ARIZONA DEPARTMENT OF TRANSPORTATION
INFRASTRUCTURE DELIVERY AND OPERATIONS DIVISION
DRAINAGE DESIGN SERVICES

NEW BOX CULVERT SUMMARY

ROUTE	LOCATION
I-17	PINNACLE PEAK RD TI & HAPPY VALLEY RD TI

TRACS NO. H7383 01C | 00-017-A(248)T

Certified Professional Engineer 32316 JAVIER O. CUJANA Date Signed 06/30/2018 ARIZONA, U.S.A.
Expires 03/31/2019

DWG NO. G-07.01

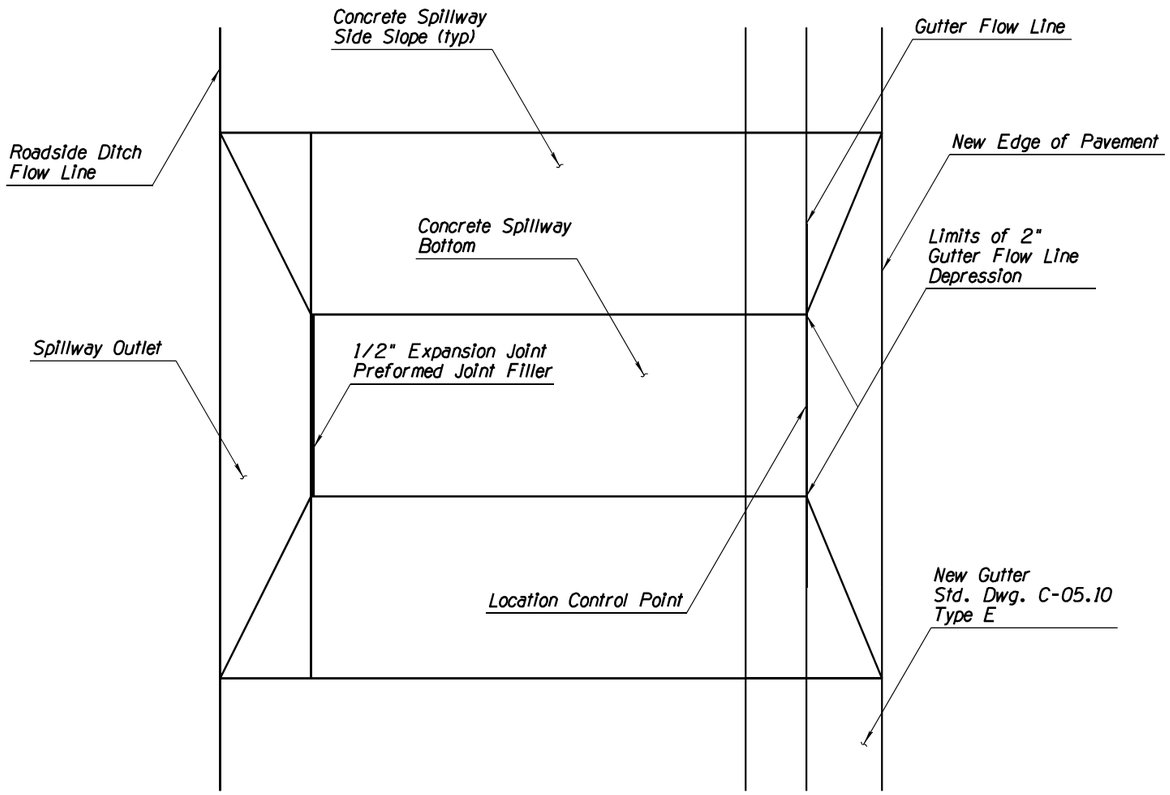
___ OF ___

PLOT DATE:Tuesday, June 18, 2019 8:44:11 AM PLOT SCALE:1:100 PLOT BY:jguan_000-HDR
REV. DATE: 08/08/2013
SURVEY NO. | FINISHED PLANS- | REVISIONS- | LOCATION- | DATE-

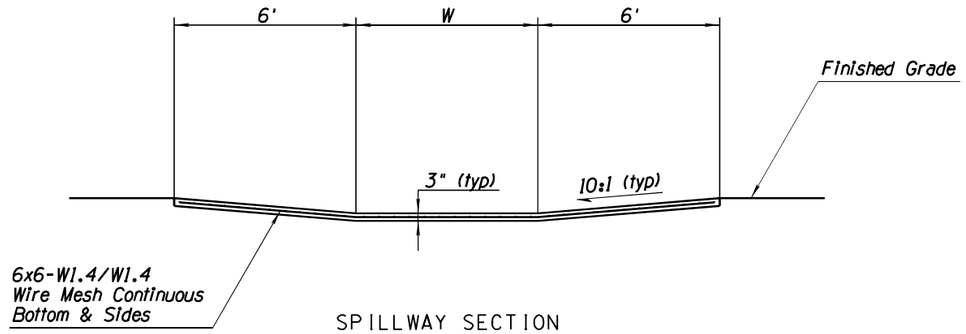
8:44:11 AM c:\pwworking\west01\d0353505\h7383bcs01.dgn

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	ARIZ.	00-017-A(248)T	113	896	

017 MA 216



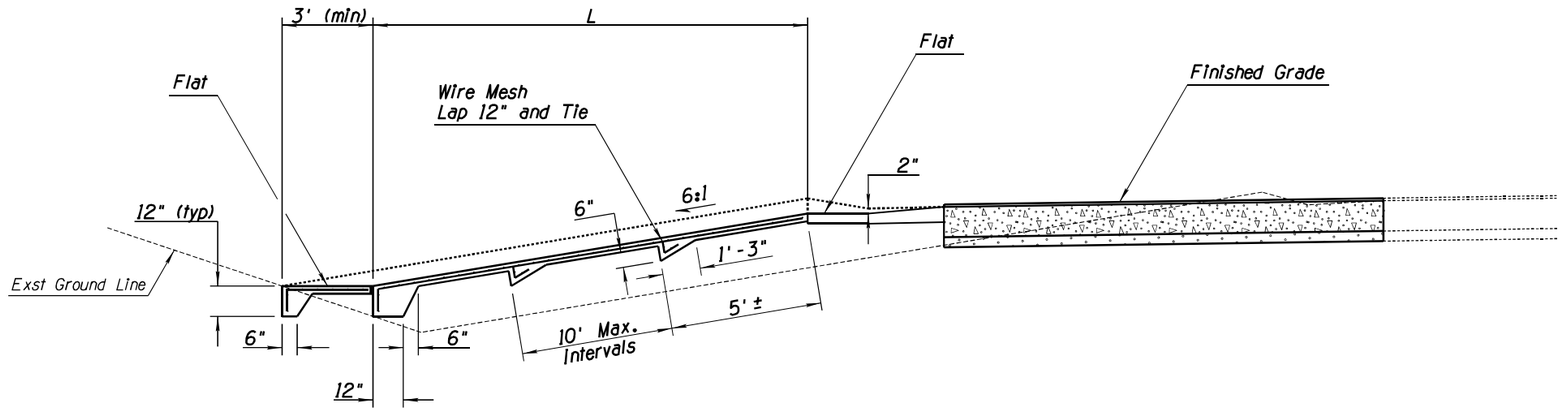
PLAN VIEW



SPILLWAY SECTION

LOCATION TABLE

Location	L (ft)	W (ft)
I-17 Sta 887+56, Lt	22	6
I-17 Sta 889+81, Lt	22	6



ELEVATION

DETAIL D1

EMBANKMENT SPILLWAY
(N.T.S.)

Note:

All concrete shall be Class B.

WARNING
OVERHEAD POWER LINES WITHIN PROJECT CONSTRUCTION LIMITS
Contact Arizona 811 at least two full working days before you begin excavation
ARIZONA811
Call 811 or click Arizona811.com

	NAME	DATE
DESIGN	JG	06/18
DRAWN	AE	06/18
CHECKED	ML	06/18

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ARIZONA DEPARTMENT OF TRANSPORTATION
INFRASTRUCTURE DELIVERY AND OPERATIONS DIVISION
DRAINAGE DESIGN SERVICES

DRAINAGE DETAIL SHEET
DETAIL D1

ROUTE: I-17
LOCATION: PINNACLE PEAK RD TI & HAPPY VALLEY RD TI

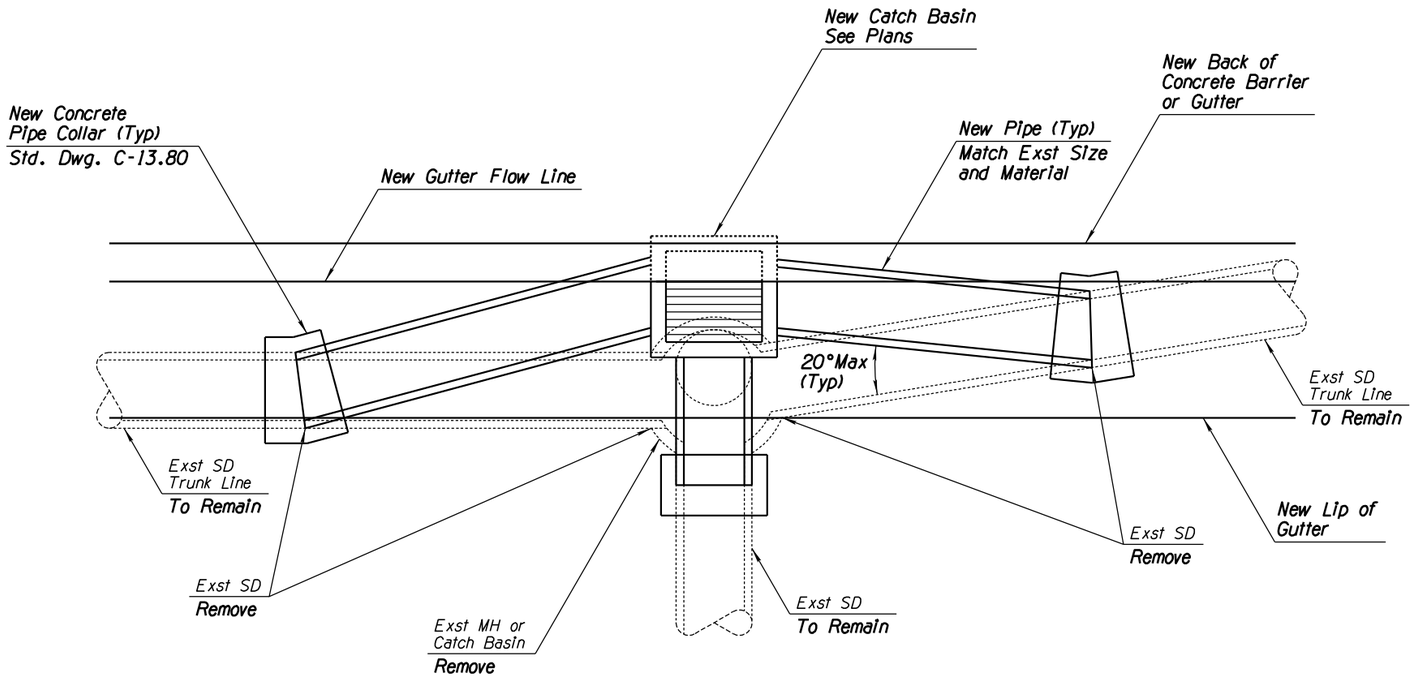
TRACS NO. H7383 01C | 00-017-A(248)T | ___ OF ___

CERTIFICATE NO. 32316 JAVIER O. GUANA Date Signed 06/30/2018 ARIZONA, U.S.A.
Expires 03/31/2019

DWG NO. G-09.01

PLOT DATE:Tuesday, June 19, 2018 8:44:32 AM PLOT SCALE:1:2.5 PLOT BY:jguan_000-HDR
SURVEY NO. | FINISHED PLANS- | FINISHED PLANS- | REVISIONS- | LOCATION- | DATE-
8:44:32 AM c:\pwworking\west01\d0353505\h7383ddt101.dgn

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	ARIZ.	00-017-A(248)T	114	896	
		017 MA 216			



Note:

Length of new pipe varies depending on actual location of exst trunk line.

DETAIL D2

CB CONNECTION TO EXST TRUNK LINE (N.T.S.)

WARNING
OVERHEAD POWER LINES WITHIN PROJECT CONSTRUCTION LIMITS

Contact Arizona 811 at least two full working days before you begin excavation
ARIZONA 811
Call 811 or click Arizona811.com

	NAME	DATE
DESIGN	JG	06/18
DRAWN	AE	06/18
CHECKED	ML	06/18

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ARIZONA DEPARTMENT OF TRANSPORTATION
INFRASTRUCTURE DELIVERY AND OPERATIONS DIVISION
DRAINAGE DESIGN SERVICES

DRAINAGE DETAIL SHEET
DETAIL D2

ROUTE	LOCATION
I-17	PINNACLE PEAK RD TI & HAPPY VALLEY RD TI

TRACS NO. H7383 01C | 00-017-A(248)T

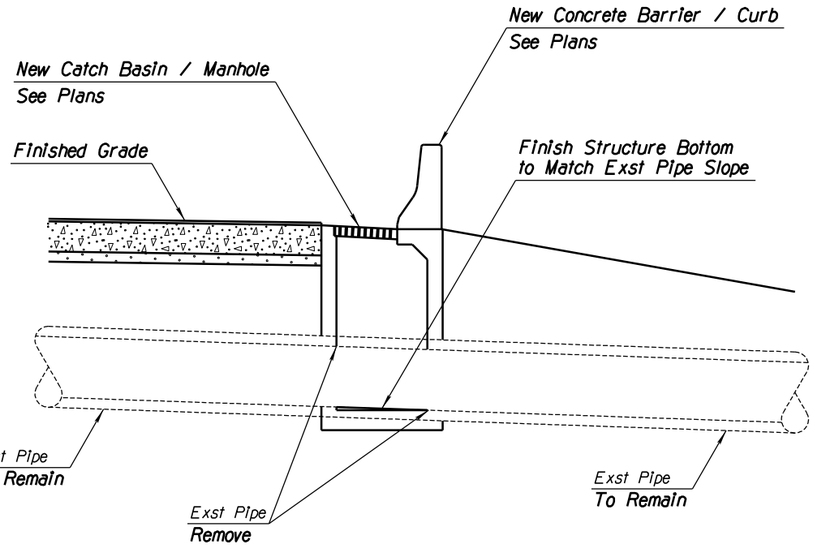
Certified Professional Engineer (Civil)
32316
JAVIER O. GUANA
Date Signed 06/19/2018
ARIZONA, U.S.A.
Expires 03/31/2019

DWG NO. G-09.02

____ OF ____

PLOT DATE:Tuesday, June 19, 2018 8:44:40 AM PLOT SCALE:1:2.5 PLOT BY:jguan
SURVEY NO. | FINISHED PLANS- | REVISIONS- | LOCATION- | DATE-
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F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	ARIZ.	00-017-A(248)T	115	896	
		017 MA 216			

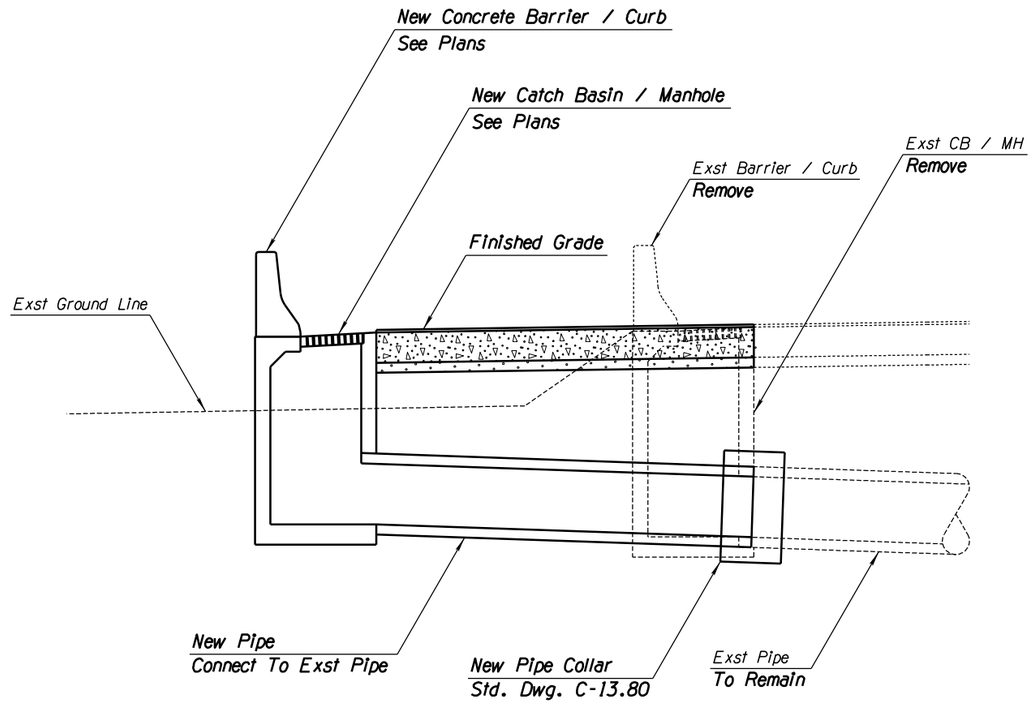


Note:

Std. Dwg. C-15.92 CB shown. Detail applies to other CB and MH structures.

DETAIL D3

NEW CB/MH ON EXST STORM DRAIN
(N.T.S.)



Note:

Std. Dwg. C-15.92 CB shown. Detail applies to other CB and MH structures.

DETAIL D4

EXST CB/MH REMOVAL
CONNECTION TO NEW CB/MH
(N.T.S.)

WARNING
OVERHEAD POWER LINES WITHIN PROJECT CONSTRUCTION LIMITS

Contact Arizona 811 at least two full working days before you begin excavation
ARIZONA811
Call 811 or click Arizona811.com

	NAME	DATE
DESIGN	JG	06/18
DRAWN	AE	06/18
CHECKED	ML	06/18

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ARIZONA DEPARTMENT OF TRANSPORTATION
INFRASTRUCTURE DELIVERY AND OPERATIONS DIVISION
DRAINAGE DESIGN SERVICES

DRAINAGE DETAIL SHEET
DETAILS D3 & D4

Professional Engineer Certificate No. 32316 JAVIER O. GUANA Date Signed 06/19/2018 ARIZONA, U.S.A.
Expires 03/31/2019

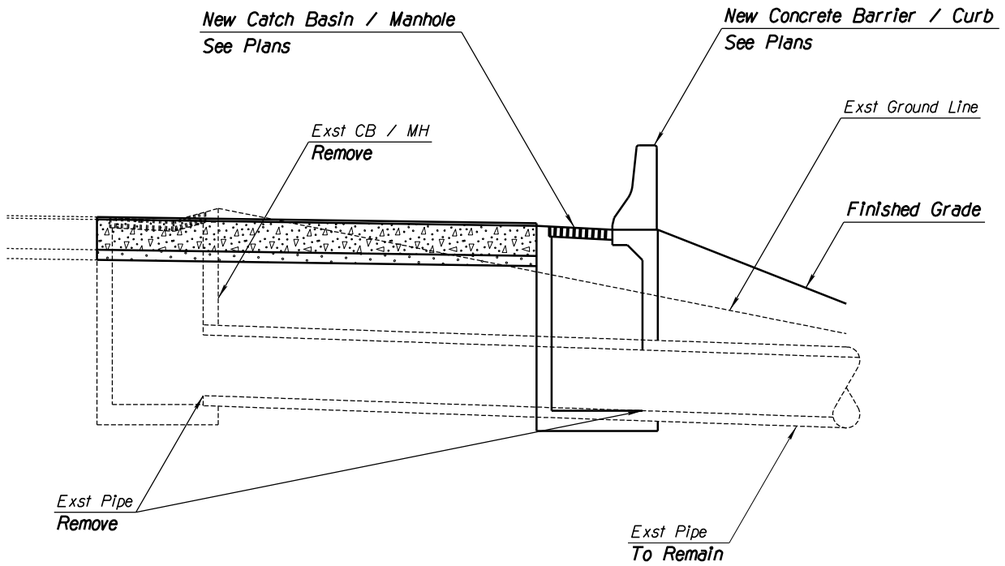
ROUTE	LOCATION	
I-17	PINNACLE PEAK RD TI & HAPPY VALLEY RD TI	DWG NO. G-09.03
TRACS NO. H7383 OIC		00-017-A(248)T ___ OF ___

PLOT DATE:Tuesday, June 19, 2018 8:44:45 AM PLOT SCALE:1:2.5 PLOT BY:jguan_000-HDR
SURVEY NO. | FINISHED PLANS- | REVISIONS- | LOCATION- | DATE-

8:44:45 AM c:\pwworking\west01\d0353505\h7383ddtl03.dgn

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	ARIZ.	00-017-A(248)T	116	896	

017 MA 216

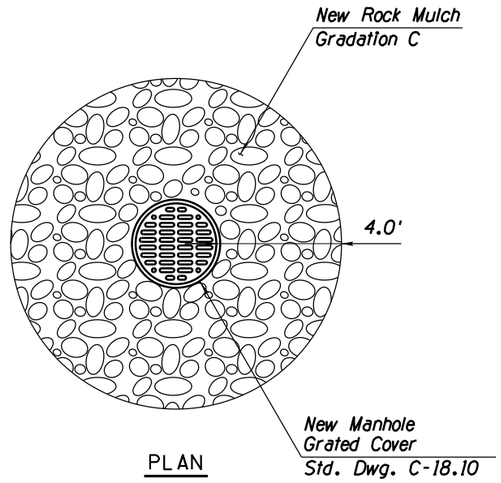


Note:

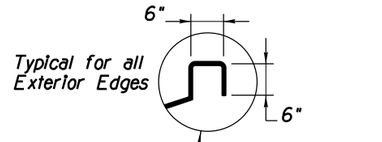
Std. Dwg. C-15.92 CB shown. Detail applies to other CB and MH structures.

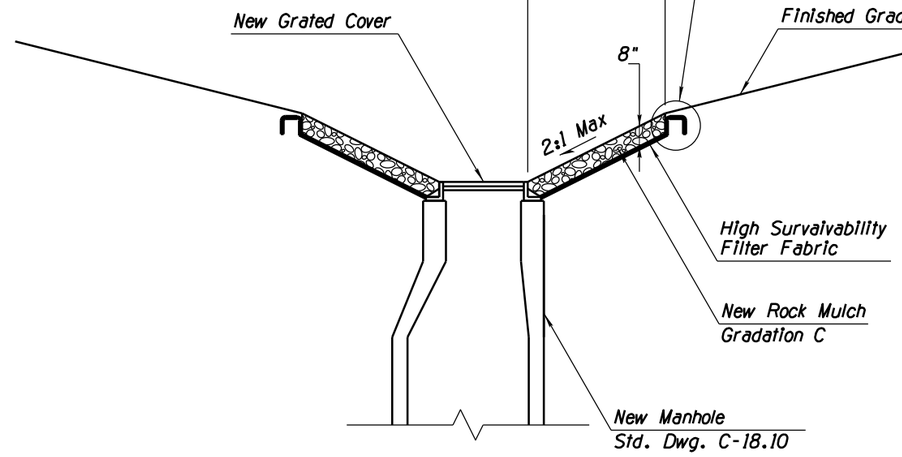
DETAIL D5

EXST CB/MH REMOVAL
NEW CB/MH ON EXST PIPE
(N.T.S.)



PLAN





ELEVATION

DETAIL D6

MANHOLE WITH GRATED COVER
(N.T.S.)

- WARNING -
OVERHEAD POWER LINES WITHIN PROJECT CONSTRUCTION LIMITS

Contact Arizona 811 at least two full working days before you begin excavation
ARIZONA811
Call 811 or click Arizona811.com

	NAME	DATE
DESIGN	JG	06/18
DRAWN	AE	06/18
CHECKED	ML	06/18

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ARIZONA DEPARTMENT OF TRANSPORTATION
INFRASTRUCTURE DELIVERY AND OPERATIONS DIVISION
DRAINAGE DESIGN SERVICES

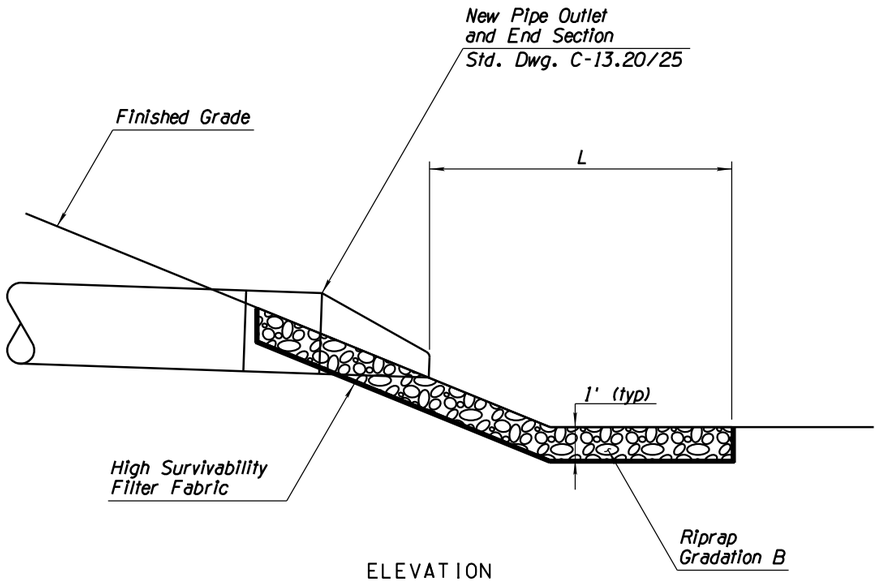
DRAINAGE DETAIL SHEET
DETAILS D5 & D6

CERTIFICATE NO. 32316 JAVIER O. CUANA Date Signed 06/07/2018 ARIZONA, U.S.A.
Expires 03/31/2019

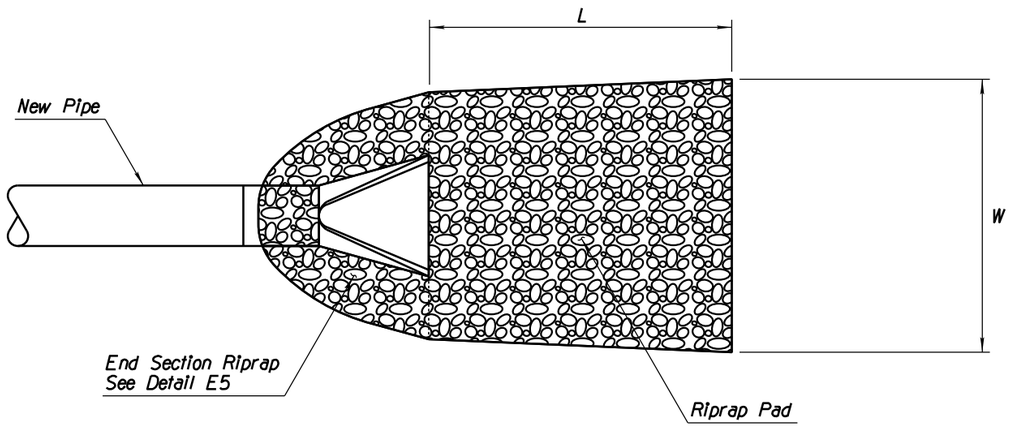
ROUTE	LOCATION	DWG NO. G-09.04
I-17	PINNACLE PEAK RD TI & HAPPY VALLEY RD TI	
TRACS NO. H7383 01C		00-017-A(248)T ___ OF ___

PLOT DATE:Tuesday, June 19, 2018 8:44:49 AM PLOT SCALE:1:2.5 PLOT BY:jguan 000-HDR
SURVEY NO. | FINISHED PLANS- | REVISIONS- | LOCATION- | DATE-
8:44:49 AM c:\pwworking\west01\d0353505\h7383ddt104.dgn

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	ARIZ.	00-017-A(248)T	117	896	
		017 MA 216			



ELEVATION



PLAN VIEW

Note:

Color of Riprap/Rock Mulch shall conform to the requirements of Special Provision 8030126 Rock (Riprap) (2 inch to 12 inch Angular).

DIMENSIONS TABLE

Pipe Diameter	L	W
24"	10.0'	9.0'
36"	15.0'	13.0'

DETAIL D7

RIPRAP AT END SECTION (N.T.S.)

WARNING
OVERHEAD POWER LINES WITHIN PROJECT CONSTRUCTION LIMITS

Contact Arizona 811 at least two full working days before you begin excavation
ARIZONA811
Call 811 or click Arizona811.com

	NAME	DATE
DESIGN	JG	06/18
DRAWN	AE	06/18
CHECKED	ML	06/18

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ARIZONA DEPARTMENT OF TRANSPORTATION
INFRASTRUCTURE DELIVERY AND OPERATIONS DIVISION
DRAINAGE DESIGN SERVICES

DRAINAGE DETAIL SHEET
DETAIL D7

ROUTE	LOCATION
I-17	PINNACLE PEAK RD TI & HAPPY VALLEY RD TI

TRACS NO. H7383 01C | 00-017-A(248)T

CERTIFICATE NO. 32316 JAVIER O. CUANA Date Signed 06/30/2018 ARIZONA, U.S.A.
Expires 03/31/2019

DWG NO. G-09.05

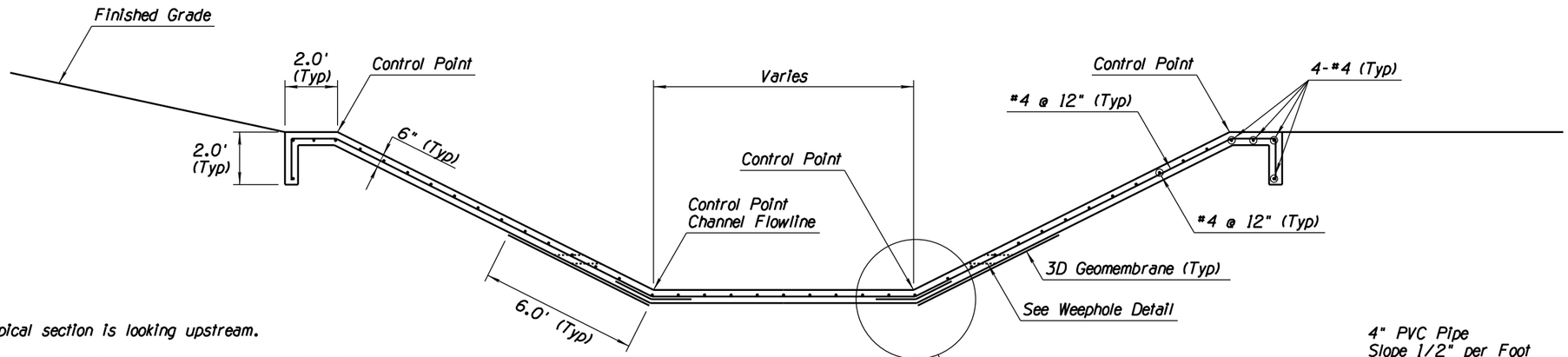
___ OF ___

PLOT DATE:Tuesday, June 19, 2018 8:44:56 AM PLOT SCALE:1:2.5 PLOT BY:jguan 000-HDR

SURVEY NO. | FINISHED PLANS- | REVISIONS- | LOCATION- | DATE-

8:44:56 AM c:\pwworking\west01\d0353505\h7383ddt105.dgn

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	ARIZ.	00-017-A(248)T	118	896	
		017 MA 216			



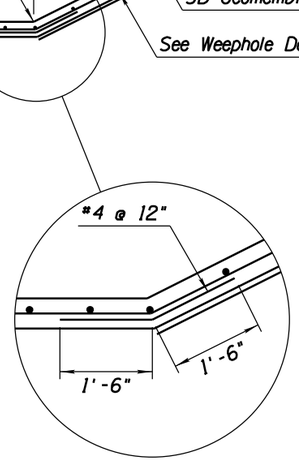
Notes:

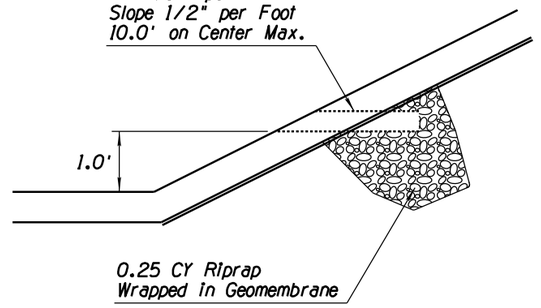
1. Typical section is looking upstream.
2. All concrete shall be Class S (f'c=3000 psi)

CONTROL POINT TABLE

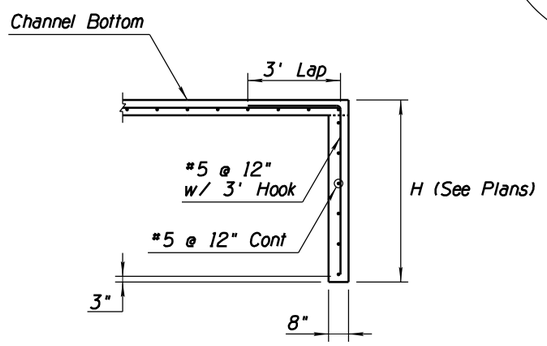
Point ID	PP Station	Rt Offset (ft)	Elevation (ft)
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02	226+03.81	185.27	1406.11
03	225+88.96	184.43	1413.13
04	225+87.65	152.54	1413.06
05	226+01.21	124.09	1415.62
06	226+28.23	123.31	1414.55
07	226+61.00	137.60	1407.62
08	226+68.00	118.02	1414.70
09	227+10.00	130.50	1408.87
10	227+07.00	112.74	1414.97
11	227+11.00	140.37	1408.87
12	227+13.24	151.43	1414.48
13*	226+62.00	147.35	1407.64
14**	226+67.00	159.05	1413.79
15	226+52.00	173.75	1413.25
16	226+52.00	193.21	1413.25

* Ahead Radius 33'
** Ahead Radius 16'





WEEPHOLE DETAIL



CUTOFF WALL DETAIL

DETAIL D8

CONCRETE CHANNEL LINING (N.T.S.)

WARNING
OVERHEAD POWER LINES WITHIN PROJECT CONSTRUCTION LIMITS

Contact Arizona 811 at least two full working days before you begin excavation
ARIZONA811
Call 811 or click Arizona811.com

	NAME	DATE
DESIGN	JG	06/18
DRAWN	AE	06/18
CHECKED	ML	06/18

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ARIZONA DEPARTMENT OF TRANSPORTATION
INFRASTRUCTURE DELIVERY AND OPERATIONS DIVISION
DRAINAGE DESIGN SERVICES

DRAINAGE DETAIL SHEET
DETAIL D8

ROUTE	LOCATION
I-17	PINNACLE PEAK RD TI & HAPPY VALLEY RD TI

Professional Engineer (Civil) CERTIFICATE NO. 32316 JAVIER O. GUANA Date Signed 06/27/2018 ARIZONA, U.S.A.
Expires 03/31/2019

DWG NO. G-09.06

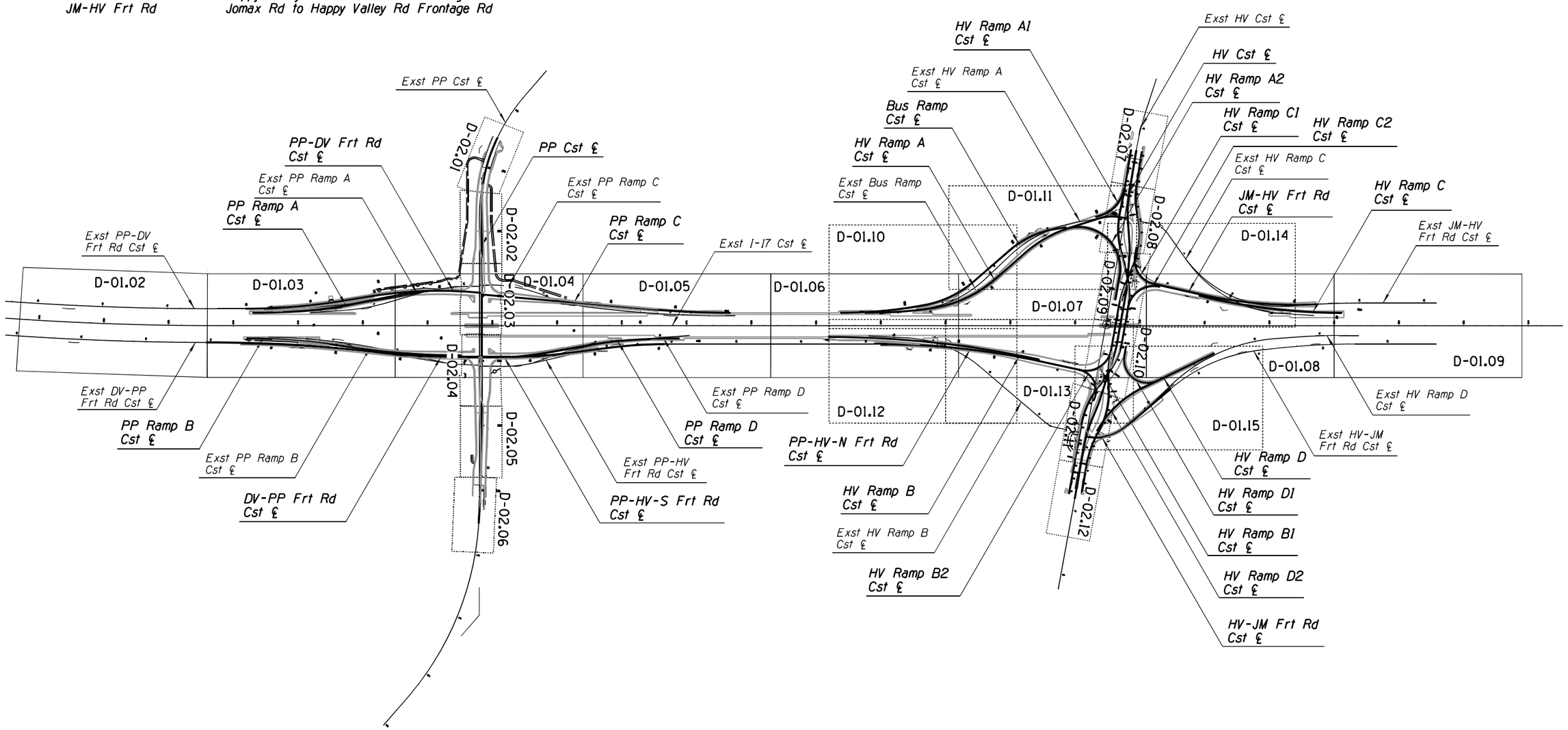
TRACS NO. H7383 01C | 00-017-A(248)T | ___ OF ___

PLOT DATE:Tuesday, June 19, 2018 8:45:01 AM PLOT SCALE:1:2.5 PLOT BY:jguan_000-HDR
SURVEY NO. | FINISHED PLANS- | REVISIONS- | LOCATION- | DATE-
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LIST OF ABBREVIATIONS

ABBREVIATIONS	DESCRIPTION
PP	Pinnacle Peak Rd
PP-DV Frt Rd	Pinnacle Peak Rd to Deer Valley Rd Frontage Rd
DV-PP Frt Rd	Deer Valley Rd to Pinnacle Peak Rd Frontage Rd
PP-HV-S Frt Rd	Pinnacle Peak Rd to Happy Valley Rd South Frontage Rd
PP-HV-N Frt Rd	Pinnacle Peak Rd to Happy Valley Rd North Frontage Rd
HV	Happy Valley Rd
HV-JM Frt Rd	Happy Valley Rd to Jomax Rd Frontage Rd
JM-HV Frt Rd	Jomax Rd to Happy Valley Rd Frontage Rd

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	ARIZ.	00-017-A(248)T	310	896	
		017 MA 216			



WARNING
OVERHEAD POWER LINES WITHIN PROJECT CONSTRUCTION LIMITS

Contact Arizona 811 at least two full working days before you begin excavation
ARIZONA811
Call 811 or click Arizona811.com

	NAME	DATE
DESIGN	JG	06/18
DRAWN	AE	06/18
CHECKED	ML	06/18

Andes Engineering andes.us

ARIZONA DEPARTMENT OF TRANSPORTATION
INFRASTRUCTURE DELIVERY AND OPERATIONS DIVISION
DRAINAGE DESIGN SERVICES

DRAINAGE PLAN KEY MAP

ROUTE	LOCATION
I-17	PINNACLE PEAK RD TI & HAPPY VALLEY RD TI

TRACS NO. H7383 01C | 00-017-A(248)T

Professional Engineer Stamp: CERTIFICATE NO. 72316 JAVIER O. GUANA, Date Signed 06/19/2018, ARIZONA, U.S.A.
Expires 03/31/2019

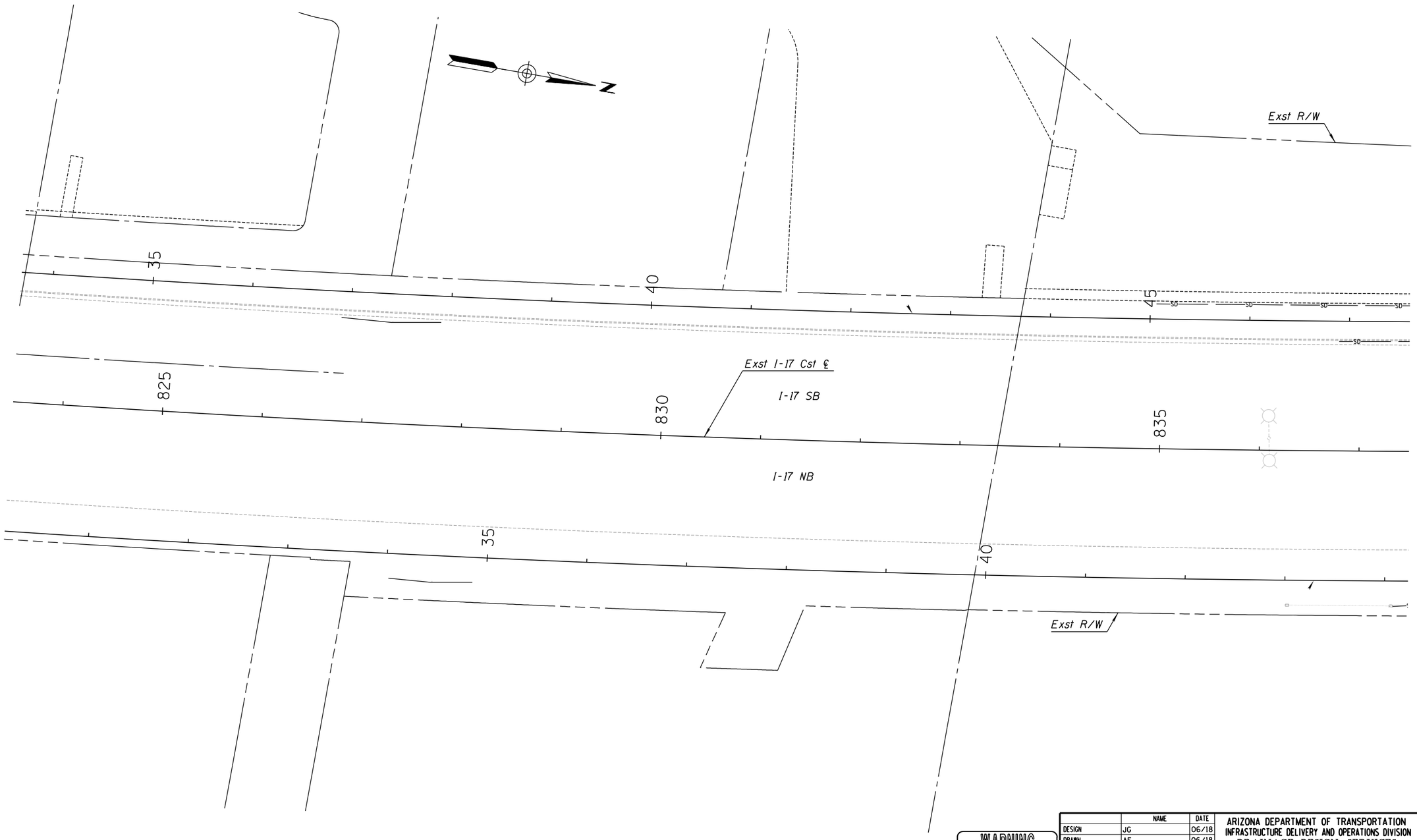
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NOTE:

Existing storm drain, catch basins, manholes and drainage structures to remain unless otherwise noted.

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	ARIZ.	00-017-A(248)T	311	896	
		017 MA 216			



WARNING
OVERHEAD POWER LINES WITHIN PROJECT CONSTRUCTION LIMITS

Contact Arizona 811 at least two full working days before you begin excavation
ARIZONA811
Call 811 or click Arizona811.com

	NAME	DATE
DESIGN	JG	06/18
DRAWN	AE	06/18
CHECKED	ML	06/18

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ARIZONA DEPARTMENT OF TRANSPORTATION
INFRASTRUCTURE DELIVERY AND OPERATIONS DIVISION
DRAINAGE DESIGN SERVICES

I-17 MAINLINE
DRAINAGE PLAN
Sta 823+50 to 837+50

ROUTE	LOCATION
I-17	PINNACLE PEAK RD TI & HAPPY VALLEY RD TI

TRACS NO. H7383 01C | 00-017-A(248)T

Certified Professional Engineer
32316
JAVIER O. CUANA
Date Signed 06/27/2018
ARIZONA, U.S.A.
Expires 03/31/2019

DWG NO. D-01.02

___ OF ___

PLOT DATE:Tuesday, June 19, 2018 8:50:52 AM PLOT SCALE=1:50.0194 PLOT BY:jguan.000-HDR

SURVEY NO. | FINISHED PLANS- | REVISIONS- | LOCATION- | DATE-

8:50:52 AM c:\pwworking\west01\d0353505\h7383drn01.dgn

NOTES:

1. Existing storm drain, catch basins, manholes and drainage structures to remain unless otherwise noted.
2. Reconstruct channel lining after pipe removal/installation per typical section in Detail D8.

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	ARIZ.	00-017-A(248)T	312	896	
		017 MA 216			

STA 838+00
BEGIN PROJECT

Exst PP-DV Frt Rd Cst ℄

Exst R/W

Exst CB
Remove
See Detail D4

Exst CB
Remove
See Detail D4

Exst MH
Remove
See Detail D2

I-17 SB

Exst I-17 Cst ℄

PP-DV Frt Rd Cst ℄

PP Ramp A Cst ℄

Exst CB & 36" SD
Remove 155 LF

Exst 7 CB & 18" SD
Remove 620 LF

Exst 2 CB & 36" SD
Remove 146 LF

Exst MH & 24" SD
Remove 180 LF

New Riprap (Typ)
See Detail D7

Exst CB & 18" SD
Remove 6 LF

Exst 2 CB & 24" SD
Remove 70 LF

Exst Inlet & 18" SD
Remove 38 LF
See Detail D5

I-17 NB

PP Ramp B Cst ℄

DV-PP Frt Rd Cst ℄

Exst 3 CB & 24" SD
Remove 86 LF

Exst CB
Remove
See Detail D4

ADOT Channel

Exst Concrete Channel Lining
Remove (Channel Lining) 11 SY
See Note 2

Exst R/W

Exst Concrete Channel Lining
Remove (Channel Lining) 11 SY
See Note 2

Exst Concrete Channel Lining
Remove (Channel Lining) 11 SY
See Note 2

-WARNING-
OVERHEAD POWER LINES WITHIN PROJECT CONSTRUCTION LIMITS

Contact Arizona 811 at least two full working days before you begin excavation
ARIZONA811
Call 811 or click Arizona811.com

	NAME	DATE
DESIGN	JG	06/18
DRAWN	AE	06/18
CHECKED	ML	06/18

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ARIZONA DEPARTMENT OF TRANSPORTATION
INFRASTRUCTURE DELIVERY AND OPERATIONS DIVISION
DRAINAGE DESIGN SERVICES

I-17 MAINLINE
DRAINAGE PLAN
Sta 837+50 to 852+50

ROUTE	LOCATION
I-17	PINNACLE PEAK RD TI & HAPPY VALLEY RD TI

TRACS NO. H7383 01C | 00-017-A(248)T

Certified Professional Engineer (CPE) 12316 JAVIER O. GUANA Date Signed 06/19/2018 ARIZONA, U.S.A.
Expires 03/31/2019

DWG NO. D-01.03

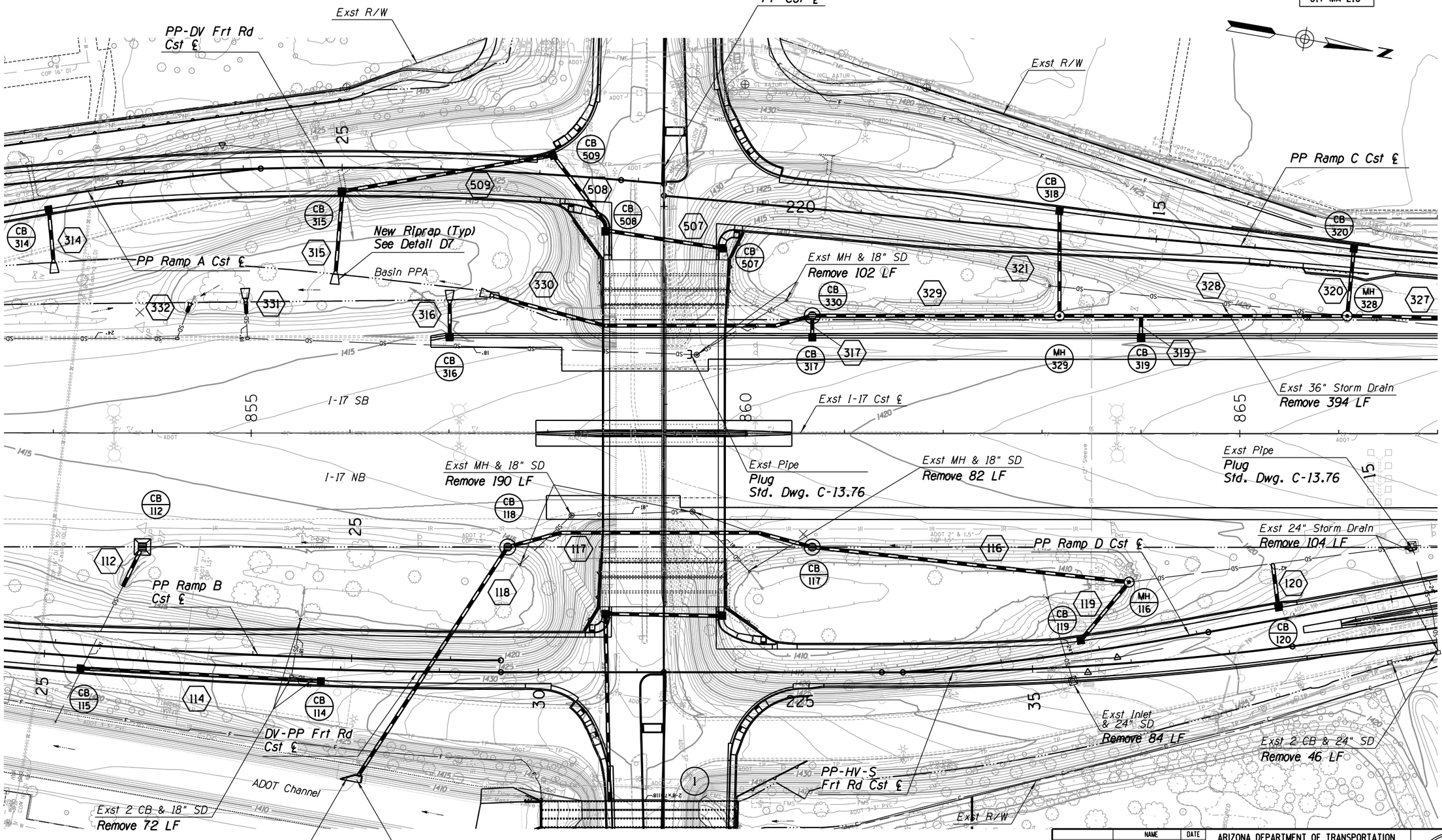
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SURVEY NO. | FINISHED PLANS- | REVISIONS- | LOCATION- | DATE-
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NOTE:

Existing storm drain, catch basins, manholes and drainage structures to remain unless otherwise noted.

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	ARIZ.	00-017-A(248)T	313	896	
		017 MA 216			



WARNING
OVERHEAD POWER LINES WITHIN PROJECT CONSTRUCTION LIMITS

Contact Arizona 811 at least two full working days before you begin excavation
ARIZONA811 BLUE STAKE, INC.
Call 811 or click Arizona811.com

	NAME	DATE
DESIGN	JG	06/18
DRAWN	AE	06/18
CHECKED	ML	06/18

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ARIZONA DEPARTMENT OF TRANSPORTATION
INFRASTRUCTURE DELIVERY AND OPERATIONS DIVISION
DRAINAGE DESIGN SERVICES

I-17 MAINLINE
DRAINAGE PLAN
Sta 852+50 to 867+00

ROUTE	LOCATION
I-17	PINNACLE PEAK RD TI & HAPPY VALLEY RD TI

TRACS NO. H7383 01C | 00-017-A(248)T | ___ OF ___

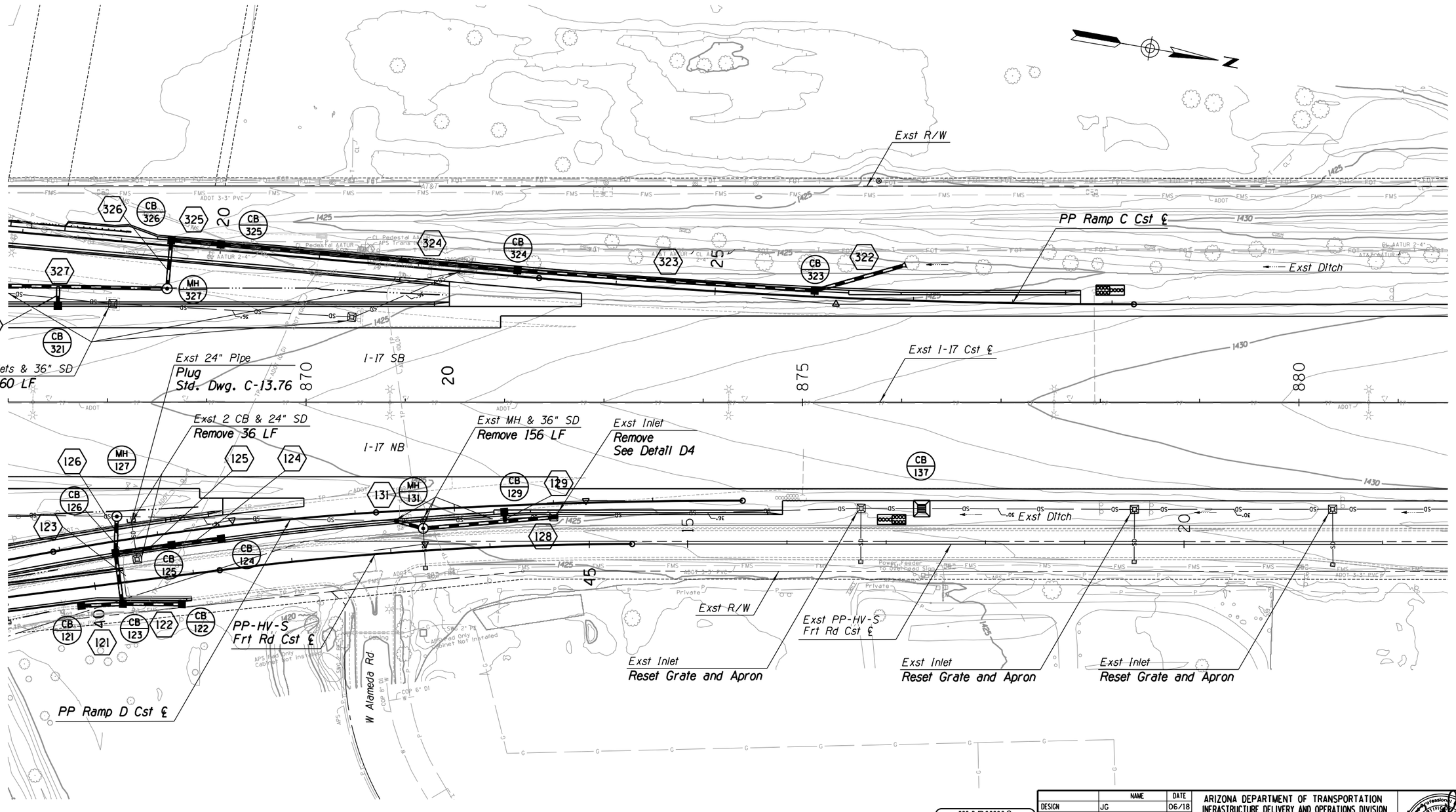
CERTIFIED Professional Engineer (Civil) 72316 JAVIER O. GUANA Date Signed 06/18/2018 ARIZONA, U.S.A.
Expires 03/31/2019
DWG NO. D-01.04

DATE- | LOCATION- | REVISIONS- | FINISHED PLANS- | SURVEY NO.
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PLOT DATE=Tuesday, June 19, 2018 8:51:44 AM
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NOTE:

Existing storm drain, catch basins, manholes and drainage structures to remain unless otherwise noted.

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	ARIZ.	00-017-A(248)T	314	896	
		017 MA 216			



WARNING
OVERHEAD POWER LINES WITHIN PROJECT CONSTRUCTION LIMITS

Contact Arizona 811 at least two full working days before you begin excavation
ARIZONA 811
Call 811 or click Arizona811.com

	NAME	DATE
DESIGN	JG	06/18
DRAWN	AE	06/18
CHECKED	ML	06/18

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ARIZONA DEPARTMENT OF TRANSPORTATION
INFRASTRUCTURE DELIVERY AND OPERATIONS DIVISION
DRAINAGE DESIGN SERVICES

I-17 MAINLINE
DRAINAGE PLAN
Sta 867+00 to 881+50

ROUTE	LOCATION
I-17	PINNACLE PEAK RD TI & HAPPY VALLEY RD TI

TRACS NO. H7383 01C | 00-017-A(248)T | ___ OF ___

Professional Engineer — 32516 JAVIER O. GUANA — Date Signed 06/29/2018 — ARIZONA, U.S.A. — Expires 03/31/2019

DWG NO. D-01.05

SURVEY NO. | FINISHED PLANS | REVISIONS | LOCATION | DATE

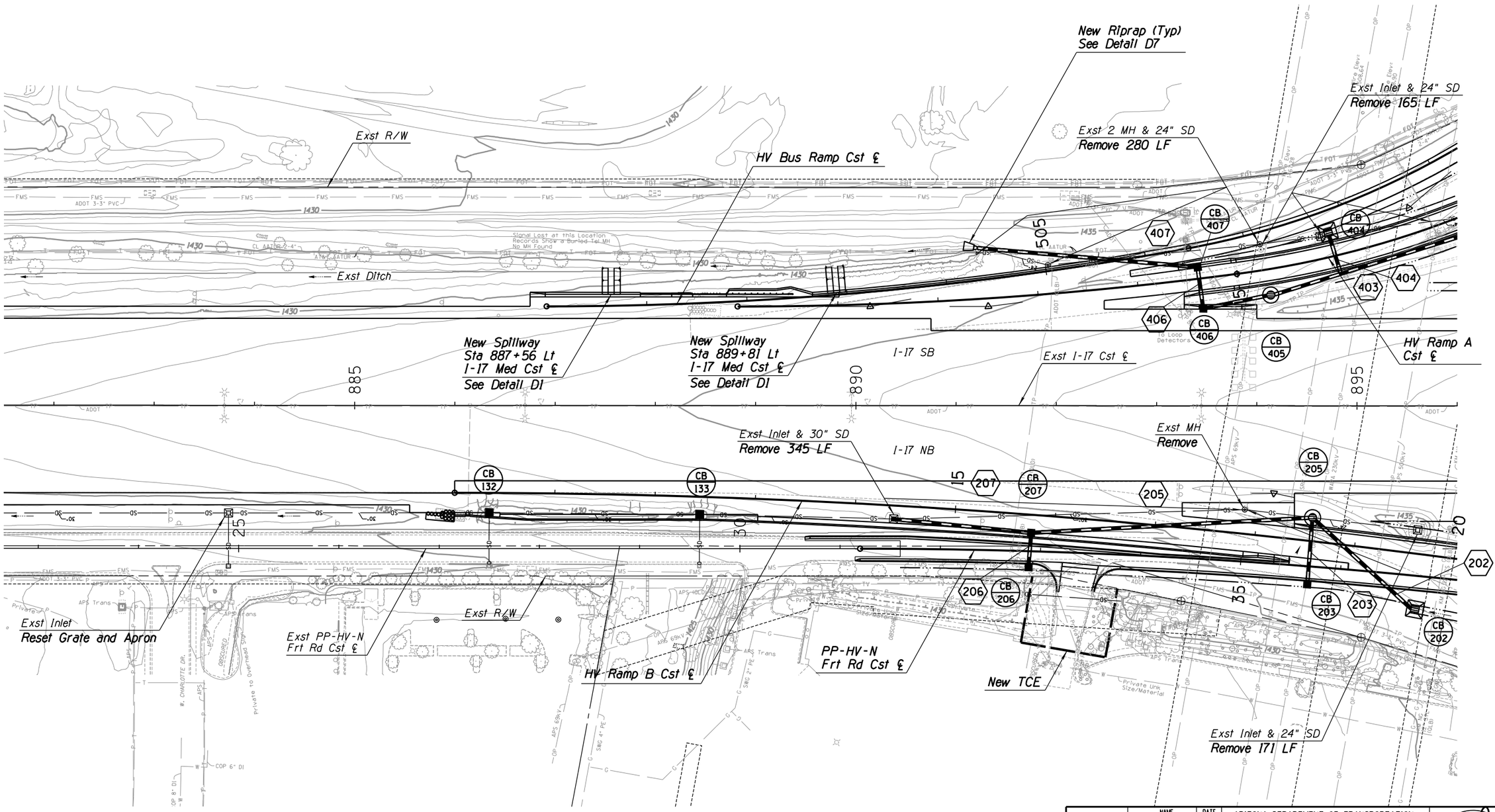
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8:52:08 AM c:\pwworking\west01\d0353505\h7383drn04.dgn

NOTE:

Existing storm drain, catch basins, manholes and drainage structures to remain unless otherwise noted.

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	ARIZ.	00-017-A(248)T	315	896	
		017 MA 216			



WARNING
OVERHEAD POWER LINES WITHIN PROJECT CONSTRUCTION LIMITS
Contact Arizona 811 at least two full working days before you begin excavation
ARIZONA811
Call 811 or click Arizona811.com

	NAME	DATE
DESIGN	JG	06/18
DRAWN	AE	06/18
CHECKED	ML	06/18

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ARIZONA DEPARTMENT OF TRANSPORTATION
INFRASTRUCTURE DELIVERY AND OPERATIONS DIVISION
DRAINAGE DESIGN SERVICES

I-17 MAINLINE
DRAINAGE PLAN
Sta 881+50 to 896+00

ROUTE	LOCATION
I-17	PINNACLE PEAK RD TI & HAPPY VALLEY RD TI

TRACS NO. H7383 01C | 00-017-A(248)T

CERTIFICATE NO. 32316 JAVIER O. GUANA Date Signed 06/29/2018 ARIZONA, U.S.A.
Expires 03/31/2019

DWG NO. D-01.06

___ OF ___

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NOTE:

Existing storm drain, catch basins, manholes and drainage structures to remain unless otherwise noted.

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	ARIZ.	00-017-A(248)T	316	896	

017 MA 216

HV Bus Ramp Cst ℄

HV Ramp C1 Cst ℄

Basin HVA

New Riprap (Typ)
See Detail D7

HV Ramp A2 Cst ℄

Exst HV Cst ℄

Exst 36" CMP
Remove 12 LF

Exst 18" Storm Drain
Remove 212 LF

Exst 18" Storm Drain
Remove 204 LF

HV Ramp C2
Cst ℄

HV Ramp A Cst ℄

I-17 SB

Exst I-17 Cst ℄

Exst 2 MH & 18" SD
Remove 140 LF

HV Cst ℄

Exst 2 MH & 18" SD
Remove 152 LF

Exst 18" Storm Drain
Remove 150 LF

I-17 NB

New Spillway
Sta 39+00 Rt
PP-HV-N Frt Rd ℄
Std. Dwg. C-04.10

Basin HVB West

Exst 18" Storm Drain
Remove 200 LF

HV Ramp B1 Cst ℄

HV Ramp D1 Cst ℄

New Ditch

PP-HV-N Frt Rd Cst ℄

HV Ramp B Cst ℄

Exst 18" Storm Drain
Remove 440 LF

Basin HVB East

HV Ramp B2 Cst ℄

WARNING
OVERHEAD POWER LINES WITHIN PROJECT CONSTRUCTION LIMITS

Contact Arizona 811 at least two full working days before you begin excavation
ARIZONA811
Call 811 or click Arizona811.com

	NAME	DATE
DESIGN	JG	06/18
DRAWN	AE	06/18
CHECKED	ML	06/18

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ARIZONA DEPARTMENT OF TRANSPORTATION
INFRASTRUCTURE DELIVERY AND OPERATIONS DIVISION
DRAINAGE DESIGN SERVICES

I-17 MAINLINE
DRAINAGE PLAN
Sta 896+00 to 910+50

ROUTE: I-17 | LOCATION: PINNACLE PEAK RD TI & HAPPY VALLEY RD TI

TRACS NO. H7383 01C | 00-017-A(248)T | ___ OF ___

CERTIFICATE NO. 32316 JAVIER O. GUANA Date Signed 06/07/2018 ARIZONA, U.S.A.

Expires 03/31/2019

DWG NO. D-01.07

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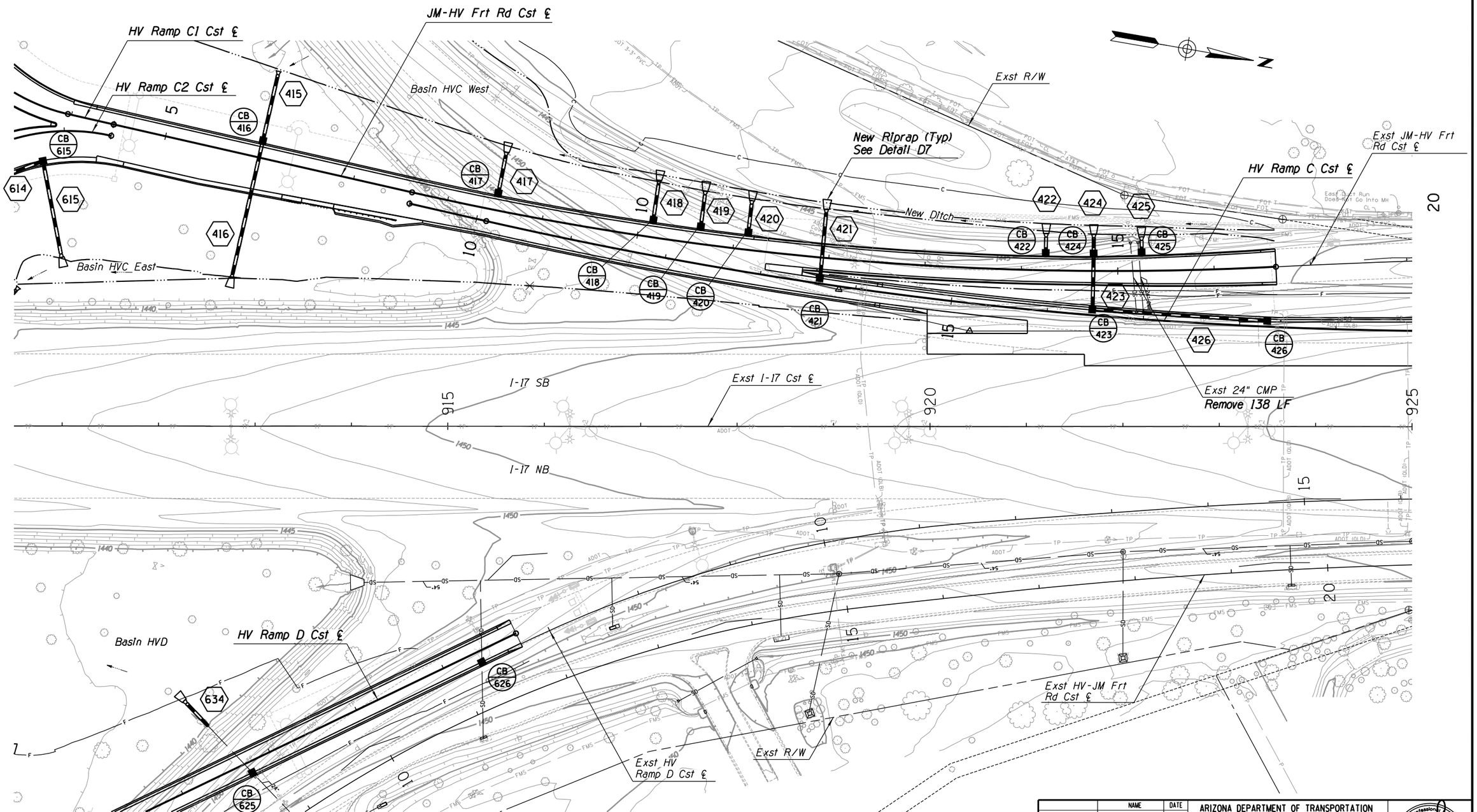
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NOTE:

Existing storm drain, catch basins, manholes and drainage structures to remain unless otherwise noted.

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	ARIZ.	00-017-A(248)T	317	896	
		017 MA 216			



WARNING
OVERHEAD POWER LINES WITHIN PROJECT CONSTRUCTION LIMITS

Contact Arizona 811 at least two full working days before you begin excavation
ARIZONA811
Call 811 or click Arizona811.com

	NAME	DATE
DESIGN	JG	06/18
DRAWN	AE	06/18
CHECKED	ML	06/18

Andes Engineering andes.us

ARIZONA DEPARTMENT OF TRANSPORTATION
INFRASTRUCTURE DELIVERY AND OPERATIONS DIVISION
DRAINAGE DESIGN SERVICES

I-17 MAINLINE
DRAINAGE PLAN
Sta 910+50 to 925+00

ROUTE	LOCATION
I-17	PINNACLE PEAK RD TI & HAPPY VALLEY RD TI

TRACS NO. H7383 01C | 00-017-A(248)T | ___ OF ___

32316 JAVIER O. GUANA — Date Signed 06/28/2018 — ARIZONA, U.S.A. — Expires 03/31/2019

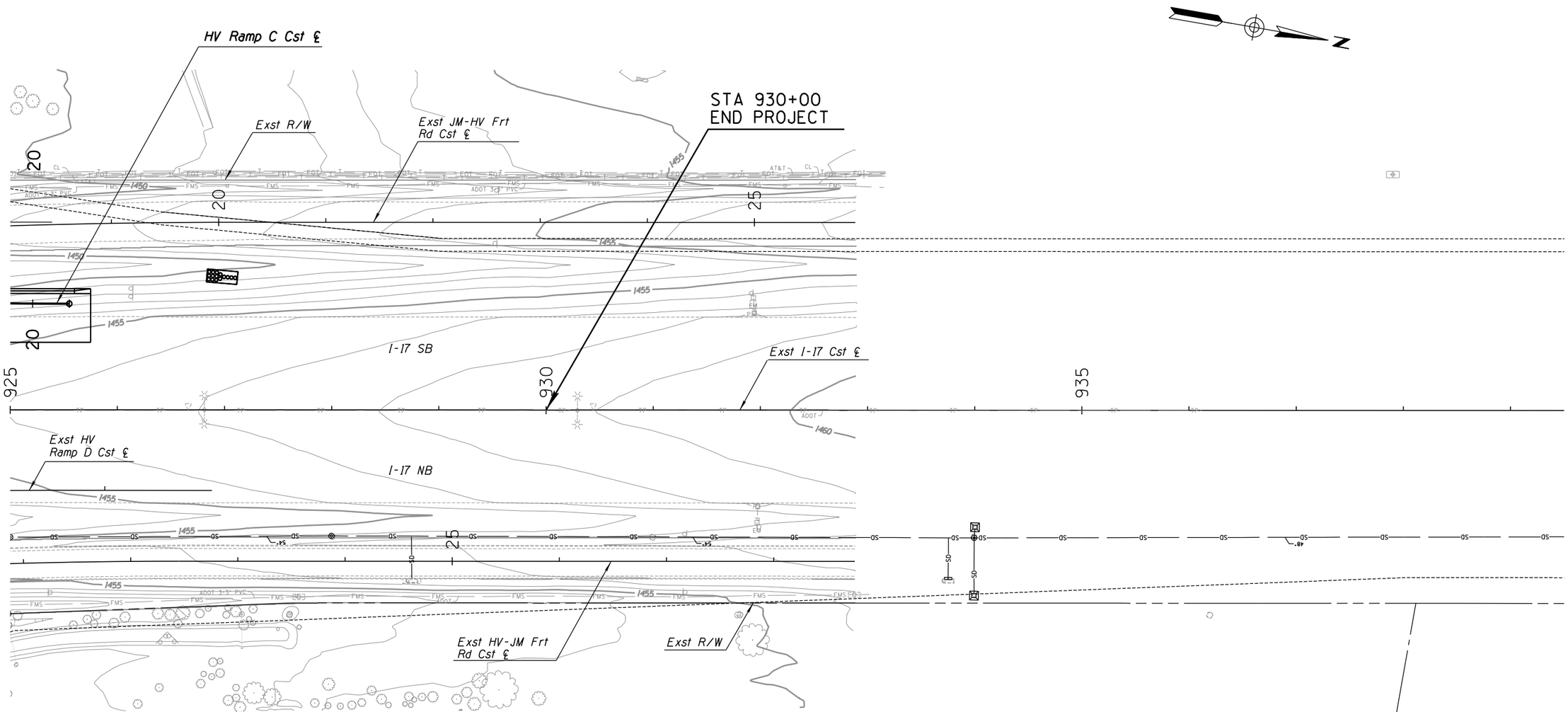
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NOTE:

Existing storm drain, catch basins, manholes and drainage structures to remain unless otherwise noted.

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	ARIZ.	00-017-A(248)T	318	896	
		017 MA 216			



2
℄

WARNING
OVERHEAD POWER LINES WITHIN PROJECT CONSTRUCTION LIMITS

Contact Arizona 811 at least two full working days before you begin excavation
ARIZONA811
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	NAME	DATE
DESIGN	JG	06/18
DRAWN	AE	06/18
CHECKED	ML	06/18

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ARIZONA DEPARTMENT OF TRANSPORTATION
INFRASTRUCTURE DELIVERY AND OPERATIONS DIVISION
DRAINAGE DESIGN SERVICES

I-17 MAINLINE
DRAINAGE PLAN
Sta 925+00 to 930+00

ROUTE	LOCATION
I-17	PINNACLE PEAK RD TI & HAPPY VALLEY RD TI

TRACS NO. H7383 01C | 00-017-A(248)T | ___ OF ___

12316 JAVIER O. GUANA
Date Signed 06/19/2018
ARIZONA, U.S.A.
Expires 03/31/2019

DWG NO. D-01.09

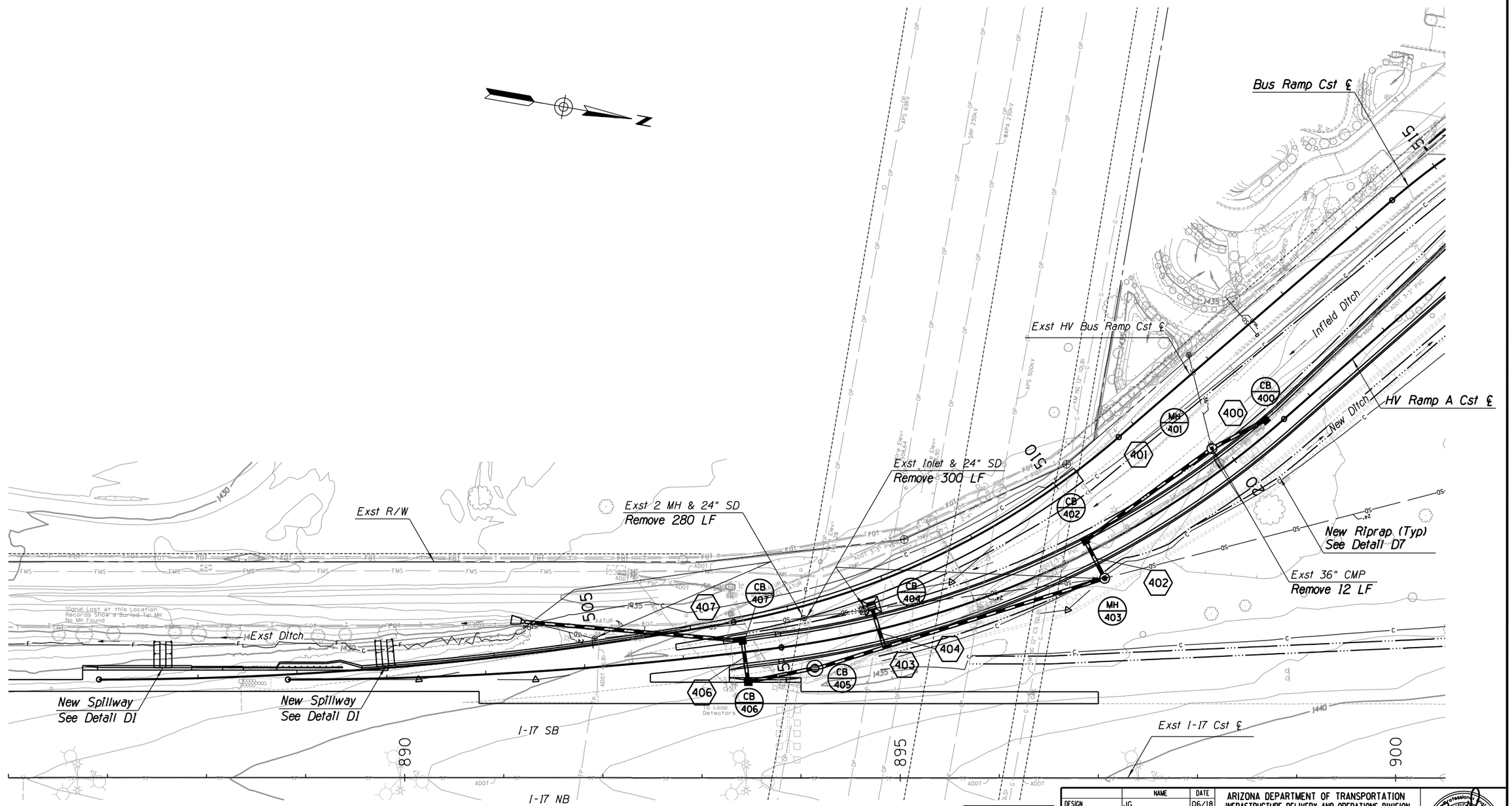
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NOTE:

Existing storm drain, catch basins, manholes and drainage structures to remain unless otherwise noted.

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	ARIZ.	00-017-A(248)T	319	896	
		017 MA 216			



WARNING
OVERHEAD POWER LINES WITHIN PROJECT CONSTRUCTION LIMITS

Contact Arizona 811 at least two full working days before you begin excavation
ARIZONA811
Call 811 or click Arizona811.com

	NAME	DATE
DESIGN	JG	06/18
DRAWN	AE	06/18
CHECKED	ML	06/18

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ARIZONA DEPARTMENT OF TRANSPORTATION
INFRASTRUCTURE DELIVERY AND OPERATIONS DIVISION
DRAINAGE DESIGN SERVICES

HAPPY VALLEY RAMP A
DRAINAGE PLAN
Sta 13+66 to 21+00

ROUTE	LOCATION
I-17	PINNACLE PEAK RD TI & HAPPY VALLEY RD TI

TRACS NO. H7383 01C | 00-017-A(248)T | ___ OF ___

Certified Professional Engineer 32316 JAVIER O. CUANA Date Signed 06/27/18 ARIZONA, U.S.A.
Expires 03/31/2019
DWG NO. D-01.10

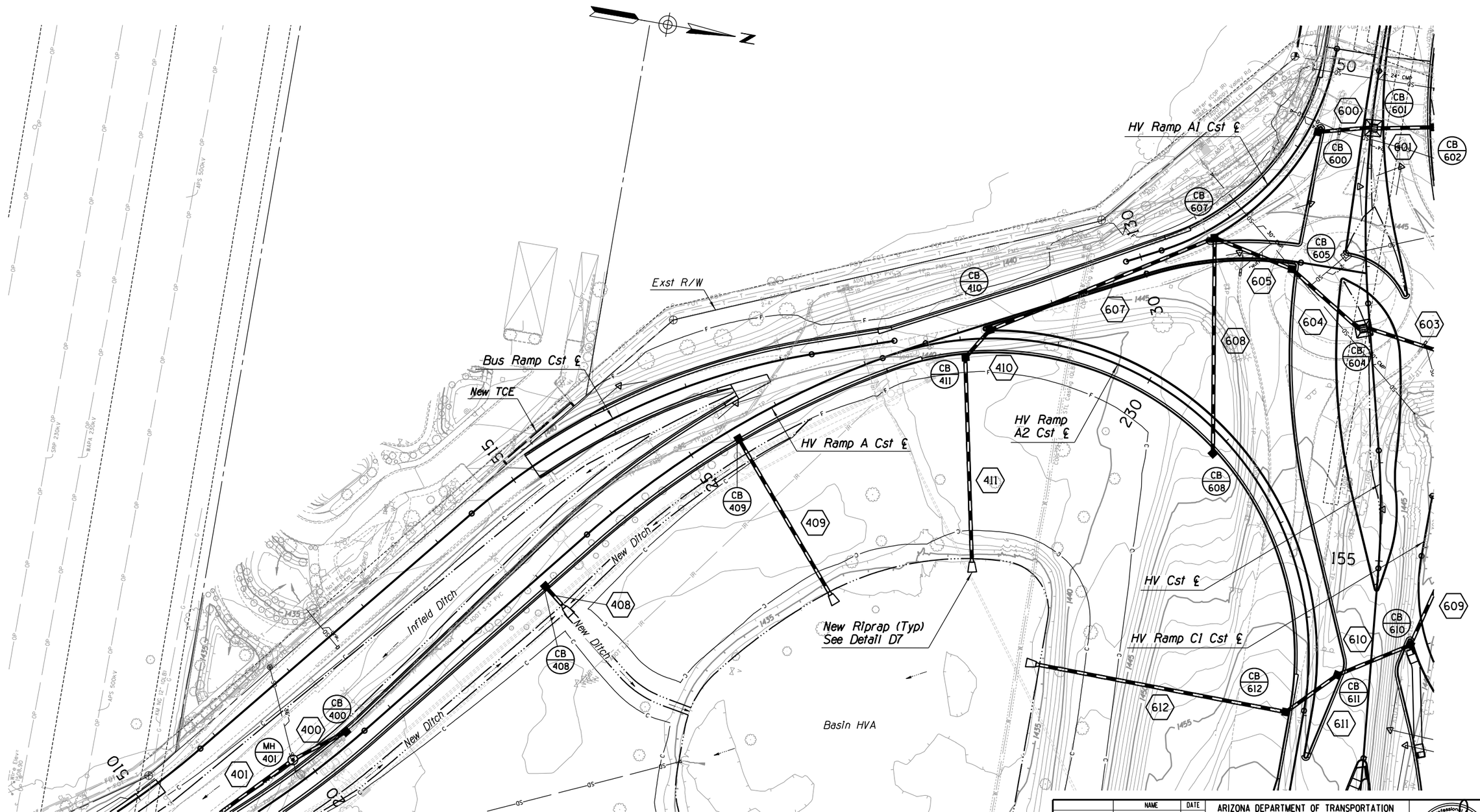
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8:54:27 AM c:\pwworking\west01\d0353505\h7383hydrn01.dgn

NOTE:

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F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	ARIZ.	00-017-A(248)T	320	896	
		017 MA 216			



WARNING
OVERHEAD POWER LINES WITHIN PROJECT CONSTRUCTION LIMITS

Contact Arizona 811 at least two full working days before you begin excavation
ARIZONA811
Call 811 or click Arizona811.com

	NAME	DATE
DESIGN	JG	06/18
DRAWN	AE	06/18
CHECKED	ML	06/18

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ARIZONA DEPARTMENT OF TRANSPORTATION
INFRASTRUCTURE DELIVERY AND OPERATIONS DIVISION
DRAINAGE DESIGN SERVICES

HAPPY VALLEY
RAMPS A, A1 & A2
DRAINAGE PLAN

ROUTE	LOCATION
I-17	PINNACLE PEAK RD TI & HAPPY VALLEY RD TI

TRACS NO. H7383 01C | 00-017-A(248)T | ___ OF ___

Registered Professional Engineer (Civil) CERTIFICATE NO. 32316 JAVIER O. GUANA Date Signed 06/27/2018 ARIZONA, U.S.A.
Expires 03/31/2019
DWG NO. D-01.11

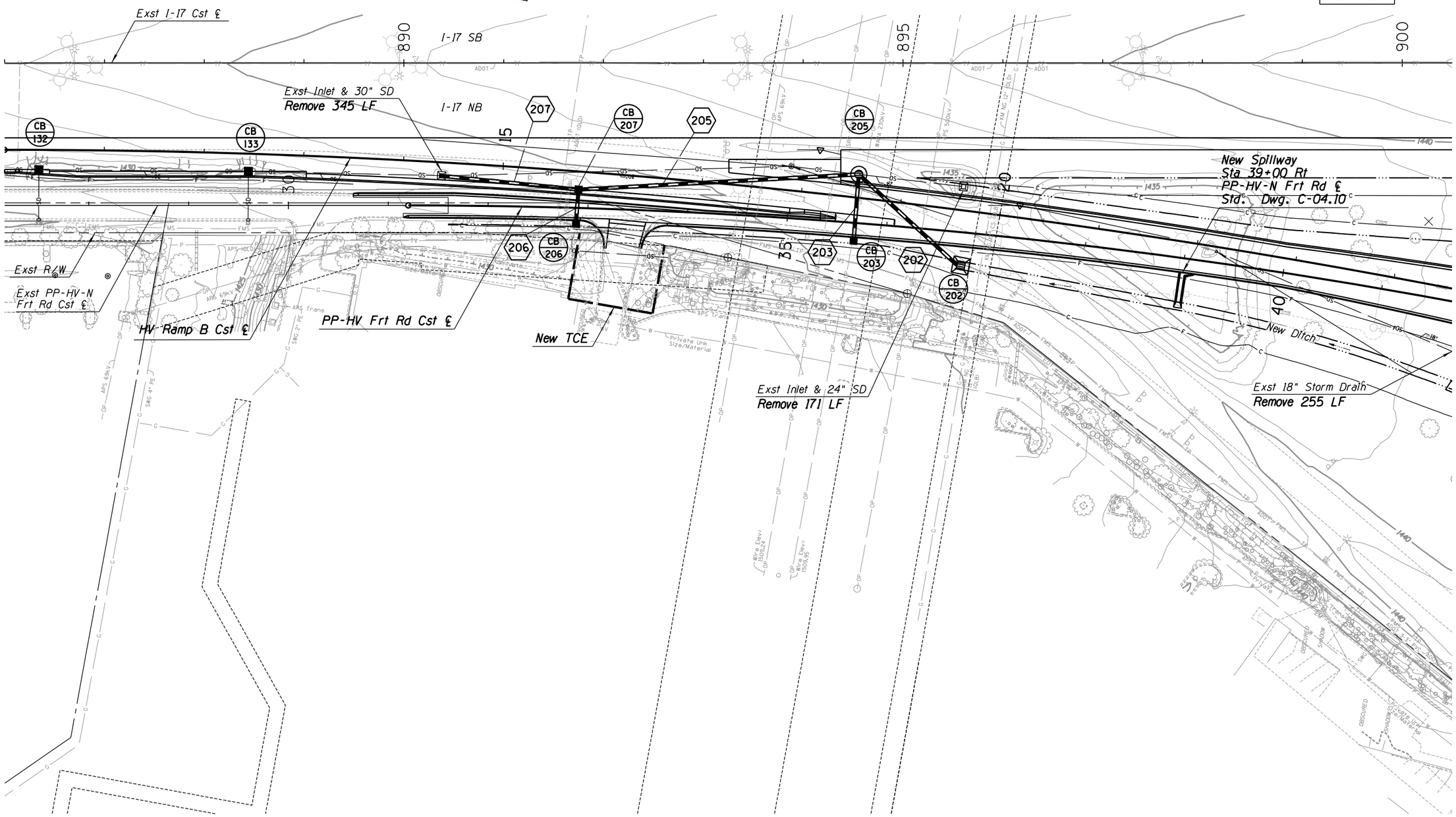
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NOTE:

Existing storm drain, catch basins, manholes and drainage structures to remain unless otherwise noted.

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	ARIZ.	00-017-A(248)T	321	896	
		017 MA 216			



WARNING
OVERHEAD POWER LINES WITHIN PROJECT CONSTRUCTION LIMITS

Contact Arizona 811 at least two full working days before you begin excavation
ARIZONA811
Call 811 or click Arizona811.com

	NAME	DATE
DESIGN	JG	06/18
DRAWN	AE	06/18
CHECKED	ML	06/18

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ARIZONA DEPARTMENT OF TRANSPORTATION
INFRASTRUCTURE DELIVERY AND OPERATIONS DIVISION
DRAINAGE DESIGN SERVICES

PP-HV-N FRT RD
DRAINAGE PLAN
Sta 31+20 to 42+50

ROUTE: I-17
LOCATION: PINNACLE PEAK RD TI & HAPPY VALLEY RD TI

TRACS NO. H7383 01C | 00-017-A(248)T

Registered Professional Engineer (Civil) CERTIFICATE NO. 32316 JAVIER O. GUANA Date Signed 05/17/2018 ARIZONA, U.S.A.

Expires 03/31/2019

DWG NO. D-01.12

___ OF ___

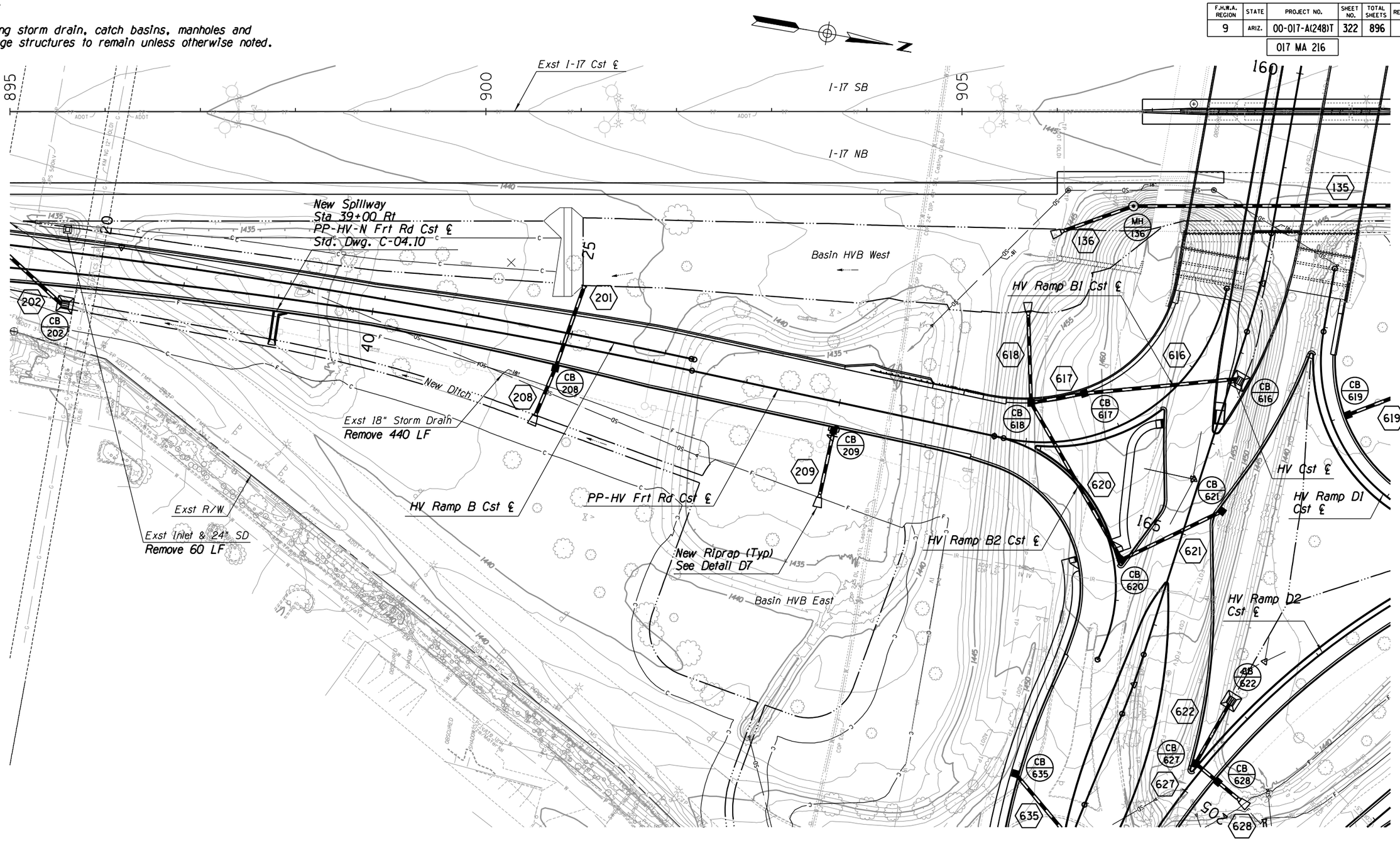
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NOTE:

Existing storm drain, catch basins, manholes and drainage structures to remain unless otherwise noted.

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	ARIZ.	00-017-A(248)T	322	896	

017 MA 216



	NAME	DATE
DESIGN	JG	06/18
DRAWN	AE	06/18
CHECKED	ML	06/18

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ARIZONA DEPARTMENT OF TRANSPORTATION
INFRASTRUCTURE DELIVERY AND OPERATIONS DIVISION
DRAINAGE DESIGN SERVICES

PP-HV-N FRT RD
HV RAMPS B1 & B2
DRAINAGE PLAN

ROUTE	LOCATION
I-17	PINNACLE PEAK RD TI & HAPPY VALLEY RD TI

TRACS NO. H7383 01C | 00-017-A(248)T

Professional Engineer (Civil) CERTIFICATE NO. 12316 JAVIER O. GUANA Date Signed 06/29/2018 ARIZONA, U.S.A.
Expires 03/31/2019

DWG NO. D-01.13

___ OF ___

WARNING
OVERHEAD POWER LINES WITHIN PROJECT CONSTRUCTION LIMITS

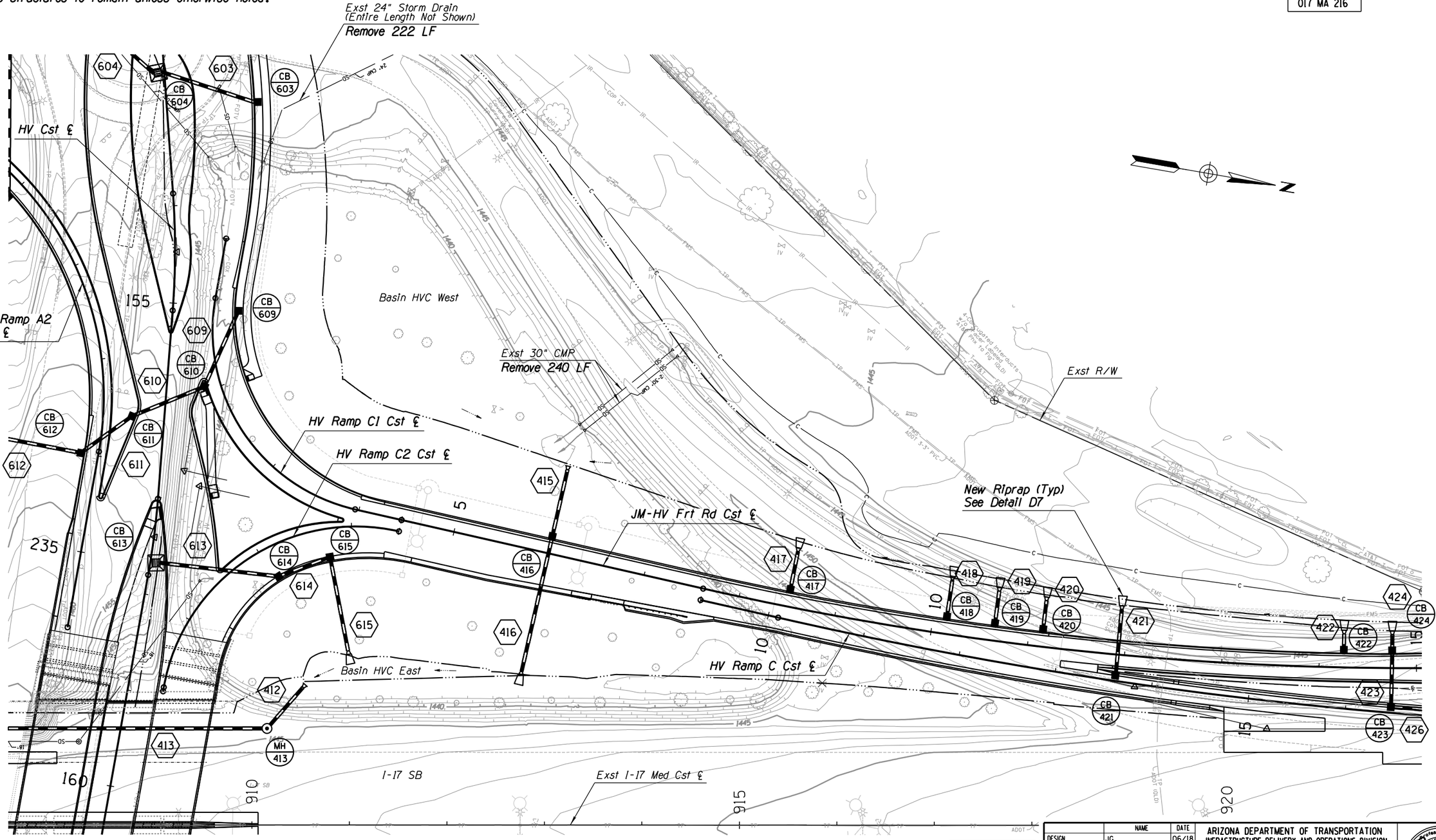
Contact Arizona 811 at least two full working days before you begin excavation
ARIZONA811
Call 811 or click Arizona811.com

PLOT DATE:Tuesday, June 19, 2018 8:55:46 AM PLOT SCALE:1:50 PLOT BY:jguan_000-HDR
c:\pwworking\west01\d0353505\h7383hydrn04.dgn

NOTE:

Existing storm drain, catch basins, manholes and drainage structures to remain unless otherwise noted.

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	ARIZ.	00-017-A(248)T	323	896	
		017 MA 216			



WARNING
OVERHEAD POWER LINES WITHIN PROJECT CONSTRUCTION LIMITS

Contact Arizona 811 at least two full working days before you begin excavation
ARIZONA811
Call 811 or click Arizona811.com

	NAME	DATE
DESIGN	JG	06/18
DRAWN	AE	06/18
CHECKED	ML	06/18

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ARIZONA DEPARTMENT OF TRANSPORTATION
INFRASTRUCTURE DELIVERY AND OPERATIONS DIVISION
DRAINAGE DESIGN SERVICES

JM-HV FRT RD
HV RAMPS C1 & C2
DRAINAGE PLAN

ROUTE: I-17
LOCATION: PINNACLE PEAK RD TI & HAPPY VALLEY RD TI

TRACS NO. H7383 01C | 00-017-A(248)T | ___ OF ___

Professional Engineer (Civil) CERTIFICATE NO. 32316 JAVIER O. GUANA Date Signed 06/13/2018 ARIZONA, U.S.A.
Expires 03/31/2019

DWG NO. D-01.14

PLOT DATE:Tuesday, June 19, 2018 8:56:11 AM PLOT SCALE:1:50.0194 PLOT BY:jguan.000-HDR
DATE- | LOCATION- | REVISIONS- | FINISHED PLANS- | SURVEY NO.

8:56:11 AM c:\pwworking\west01\d0353505\h7383hvdrn05.dgn

NOTE:

Existing storm drain, catch basins, manholes and drainage structures to remain unless otherwise noted.

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	ARIZ.	00-017-A(248)T	324	896	
		017 MA 216			

HV Ramp B1 Cst ℄
New Riprap
See Detail D7
Basin HVD
HV Ramp D Cst ℄
HV Ramp D1 Cst ℄
HV Cst ℄
HV Ramp B2 Cst ℄
HV Ramp D2 Cst ℄
Exst HV-JM Frt Rd Cst ℄
HV-JM Frt Rd Cst ℄
Exst 24" Storm Drain
Remove 172 LF
New Spillway
Sta 10+00 Rt
HV-JM Frt Rd Cst ℄
Std. Dwg. C-04.10
Exst Ditch
Exst R/W
New Spillway, Double
Sta 6+90 Rt
HV-JM Frt Rd Cst ℄
Std. Dwg. C-04.10
New Ditch
Exst 18" Storm Drain
Remove 164 LF

618 617 616 620 621 622 627 628 635 637 636 630 638 639 640 634 619 623 626 625
CB 618 CB 617 CB 616 CB 619 CB 621 CB 620 CB 622 CB 627 CB 628 CB 635 CB 637 CB 636 CB 640 CB 639 CB 623 CB 626 CB 625

I-17 SOC EOT

WARNING
OVERHEAD POWER LINES WITHIN PROJECT CONSTRUCTION LIMITS

Contact Arizona 811 at least two full working days before you begin excavation
ARIZONA811 Call 811 or click Arizona811.com

	NAME	DATE
DESIGN	JG	06/18
DRAWN	AE	06/18
CHECKED	ML	06/18

Andes Engineering andes.us

ARIZONA DEPARTMENT OF TRANSPORTATION
INFRASTRUCTURE DELIVERY AND OPERATIONS DIVISION
DRAINAGE DESIGN SERVICES

HAPPPY VALLEY RAMPS
B1, B2, D, D1 & D2
HV-JM FRT RD DRAINAGE PLAN

ROUTE I-17 LOCATION PINNACLE PEAK RD TI & HAPPY VALLEY RD TI

TRACS NO. H7383 01C 00-017-A(248)T

Registered Professional Engineer (Civil) 32316 JAVIER O. QUIANA Date Signed 06/07/2018 ARIZONA, U.S.A.
Expires 03/31/2019

DWG NO. D-01.15

___ OF ___

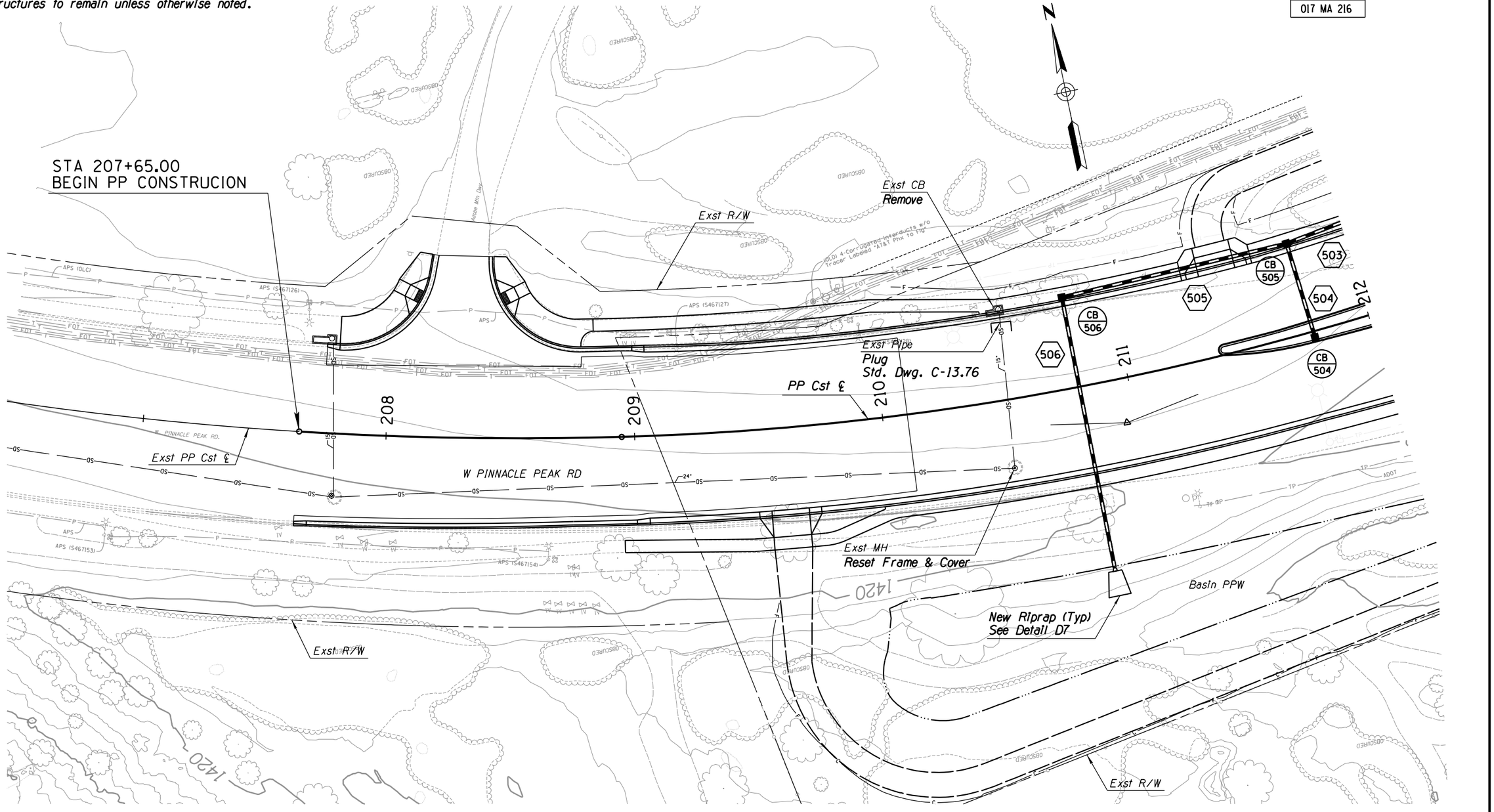
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SURVEY NO. | FINISHED PLANS- | REVISIONS- | LOCATION- | DATE-

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NOTE:

Existing storm drain, catch basins, manholes and drainage structures to remain unless otherwise noted.

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	ARIZ.	00-017-A(248)T	325	896	
		017 MA 216			



	NAME	DATE
DESIGN	JG	06/18
DRAWN	AE	06/18
CHECKED	ML	06/18

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ARIZONA DEPARTMENT OF TRANSPORTATION
INFRASTRUCTURE DELIVERY AND OPERATIONS DIVISION
DRAINAGE DESIGN SERVICES

PINNACLE PEAK
DRAINAGE PLAN
Sta 207+65 to 212+00

ROUTE	LOCATION
I-17	PINNACLE PEAK RD TI & HAPPY VALLEY RD TI

TRACS NO. H7383 01C | 00-017-A(248)T | ___ OF ___

DWG NO. D-02.01

Certified Professional Engineer (Civil) 12316 JAVIER O. GUANA Date Signed 06/12/2018 ARIZONA, U.S.A.
Expires 03/31/2019

WARNING
OVERHEAD POWER LINES WITHIN PROJECT CONSTRUCTION LIMITS

Contact Arizona 811 at least two full working days before you begin excavation
ARIZONA811
Call 811 or click Arizona811.com

PLOT DATE:Tuesday, June 19, 2018 9:04:50 AM PLOT SCALE:1:20 PLOT BY:jguan_000-HDR
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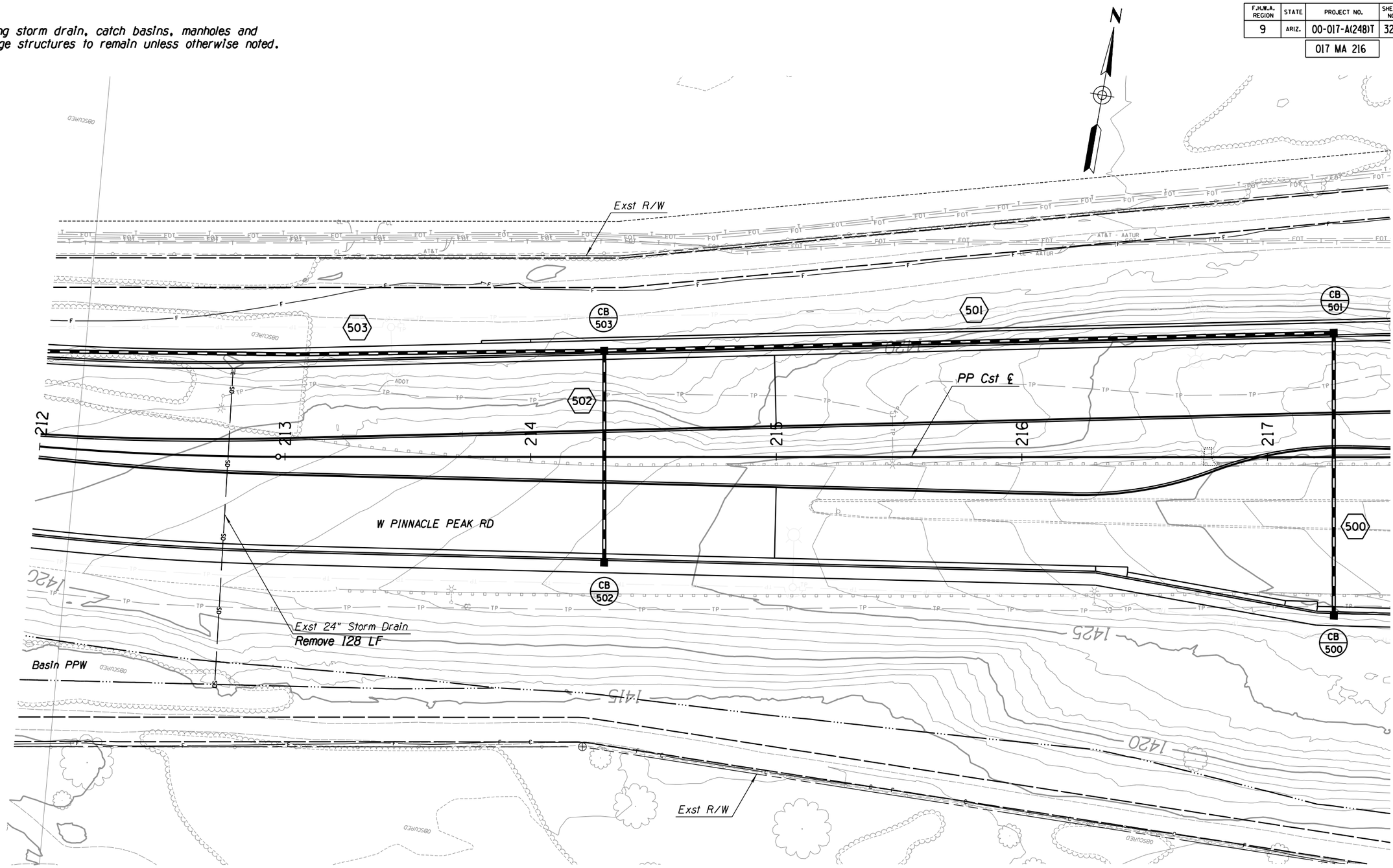
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NOTE:

Existing storm drain, catch basins, manholes and drainage structures to remain unless otherwise noted.

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	ARIZ.	00-017-A(248)T	326	896	

017 MA 216



WARNING

OVERHEAD POWER LINES WITHIN PROJECT CONSTRUCTION LIMITS

Contact Arizona 811 at least two full working days before you begin excavation

ARIZONA811 Call 811 or click Arizona811.com

	NAME	DATE
DESIGN	JG	06/18
DRAWN	AE	06/18
CHECKED	ML	06/18

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ARIZONA DEPARTMENT OF TRANSPORTATION
INFRASTRUCTURE DELIVERY AND OPERATIONS DIVISION
DRAINAGE DESIGN SERVICES

PINNACLE PEAK
DRAINAGE PLAN
Sta 212+00 to 217+50

ROUTE	LOCATION
I-17	PINNACLE PEAK RD TI & HAPPY VALLEY RD TI

Registered Professional Engineer (Civil) CERTIFICATE NO. 12316 JAVIER O. GUANA Date Signed 06/27/2018 ARIZONA, U.S.A.

Expires 03/31/2019

DWG NO. D-02.02

TRACS NO. H7383 01C | 00-017-A(248)T | ___ OF ___

PLOT DATE:Tuesday, June 19, 2018 9:05:01 AM PLOT BY:jguan_000-HDR PLOT SCALE:1:20
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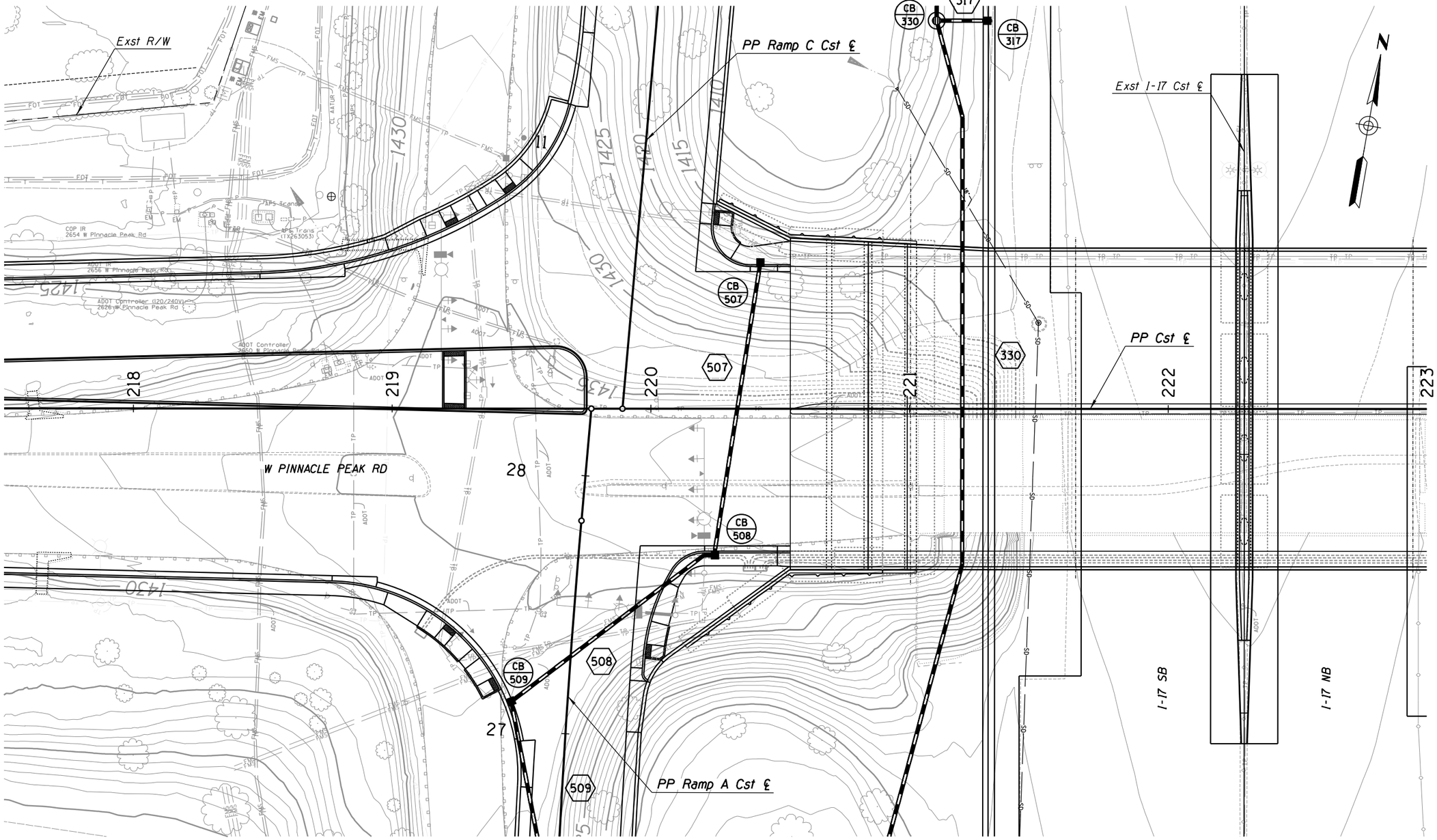
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NOTE:

Existing storm drain, catch basins, manholes and drainage structures to remain unless otherwise noted.

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	ARIZ.	00-017-A(248)T	327	896	

017 MA 216



WARNING

OVERHEAD POWER LINES WITHIN PROJECT CONSTRUCTION LIMITS

Contact Arizona 811 at least two full working days before you begin excavation

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	NAME	DATE
DESIGN	JG	06/18
DRAWN	AE	06/18
CHECKED	ML	06/18

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ARIZONA DEPARTMENT OF TRANSPORTATION
INFRASTRUCTURE DELIVERY AND OPERATIONS DIVISION
DRAINAGE DESIGN SERVICES

PINNACLE PEAK
DRAINAGE PLAN
Sta 217+50 to 223+00

ROUTE	LOCATION
I-17	PINNACLE PEAK RD TI & HAPPY VALLEY RD TI

TRACS NO. H7383 01C | 00-017-A(248)T

Certified Professional Engineer (Civil) 12316 JAVIER O. CUANA Date Signed 06/13/2018 ARIZONA, U.S.A.

Expires 03/31/2019

DWG NO. D-02.03

___ OF ___

PLOT DATE:Tuesday, June 19, 2018 9:05:13 AM PLOT SCALE:1:20 PLOT BY:jguen 000-HDR

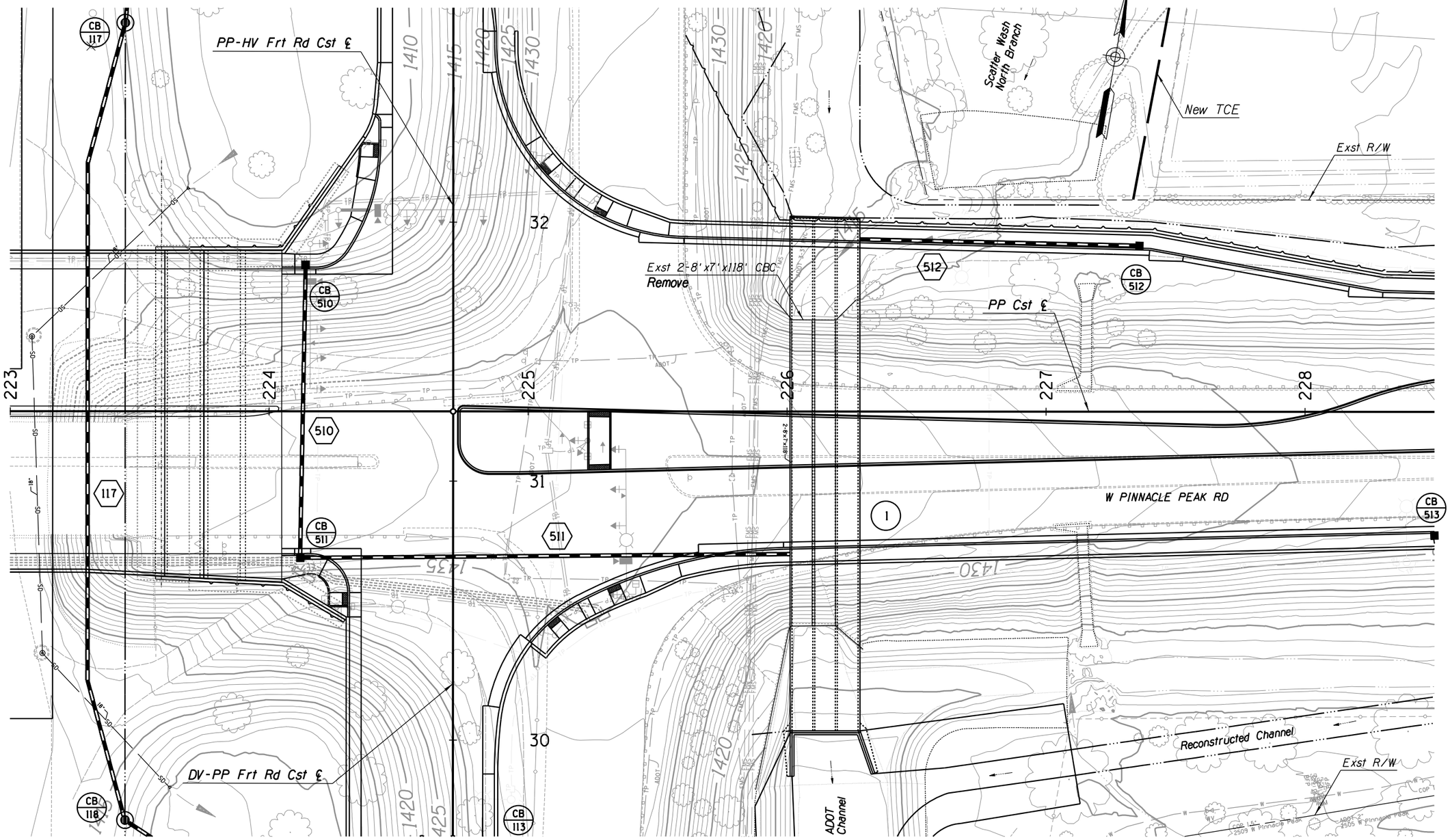
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NOTE:

Existing storm drain, catch basins, manholes and drainage structures to remain unless otherwise noted.

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	ARIZ.	00-017-A(248)T	328	896	
		017 MA 216			



PLOT DATE:Tuesday, June 18, 2019 9:05:27 AM PLOT SCALE:1:20 PLOT BY:jguan 000-HDR

SURVEY NO.	FINISHED PLANS	REVISIONS	LOCATION	DATE

WARNING
OVERHEAD POWER LINES WITHIN PROJECT CONSTRUCTION LIMITS
Contact Arizona 811 at least two full working days before you begin excavation
ARIZONA811 Call 811 or click Arizona811.com

	NAME	DATE
DESIGN	JG	06/18
DRAWN	AE	06/18
CHECKED	ML	06/18

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ARIZONA DEPARTMENT OF TRANSPORTATION
INFRASTRUCTURE DELIVERY AND OPERATIONS DIVISION
DRAINAGE DESIGN SERVICES

PINNACLE PEAK
DRAINAGE PLAN
Sta 223+00 to 228+50

ROUTE	LOCATION
I-17	PINNACLE PEAK RD TI & HAPPY VALLEY RD TI

TRACS NO. H7383 01C | 00-017-A(248)T

CERTIFICATE — 32316 JAVIER O. CUANA — Registered Professional Engineer — ARIZONA, U.S.A. — Date Signed 06/30/2018 — Expires 03/31/2019

DWG NO. D-02.04

___ OF ___

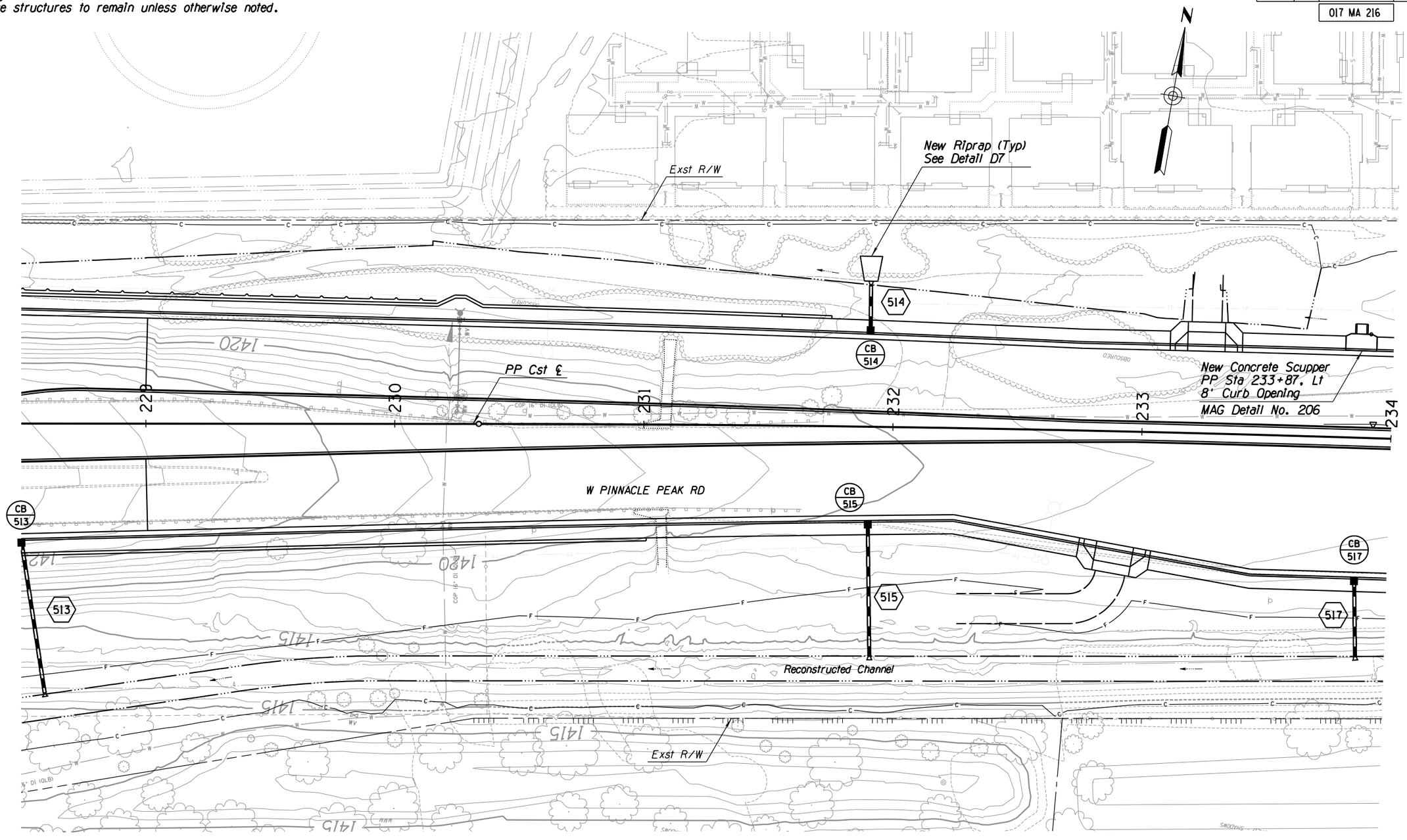
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NOTE:

Existing storm drain, catch basins, manholes and drainage structures to remain unless otherwise noted.

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	ARIZ.	00-017-A(248)T	329	896	

017 MA 216



WARNING
OVERHEAD POWER LINES WITHIN PROJECT CONSTRUCTION LIMITS

Contact Arizona 811 at least two full working days before you begin excavation
ARIZONA811
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	NAME	DATE
DESIGN	JG	06/18
DRAWN	AE	06/18
CHECKED	ML	06/18

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ARIZONA DEPARTMENT OF TRANSPORTATION
INFRASTRUCTURE DELIVERY AND OPERATIONS DIVISION
DRAINAGE DESIGN SERVICES

PINNACLE PEAK
DRAINAGE PLAN
Sta 228+50 to 234+00

ROUTE	LOCATION
I-17	PINNACLE PEAK RD TI & HAPPY VALLEY RD TI

TRACS NO. H7383 01C | 00-017-A(248)T

Registered Professional Engineer (Civil)
CERTIFICATE NO. 32316
JAVIER O. GUANA
Date Signed 06/28/2018
ARIZONA, U.S.A.
Expires 03/31/2019

DWG NO. D-02.05

___ OF ___

PLOT DATE:Tuesday, June 19, 2018 9:05:39 AM PLOT SCALE:1:20 PLOT BY:jguan_000-HDR

SURVEY NO. | FINISHED PLANS- | REVISIONS- | LOCATION- | DATE-

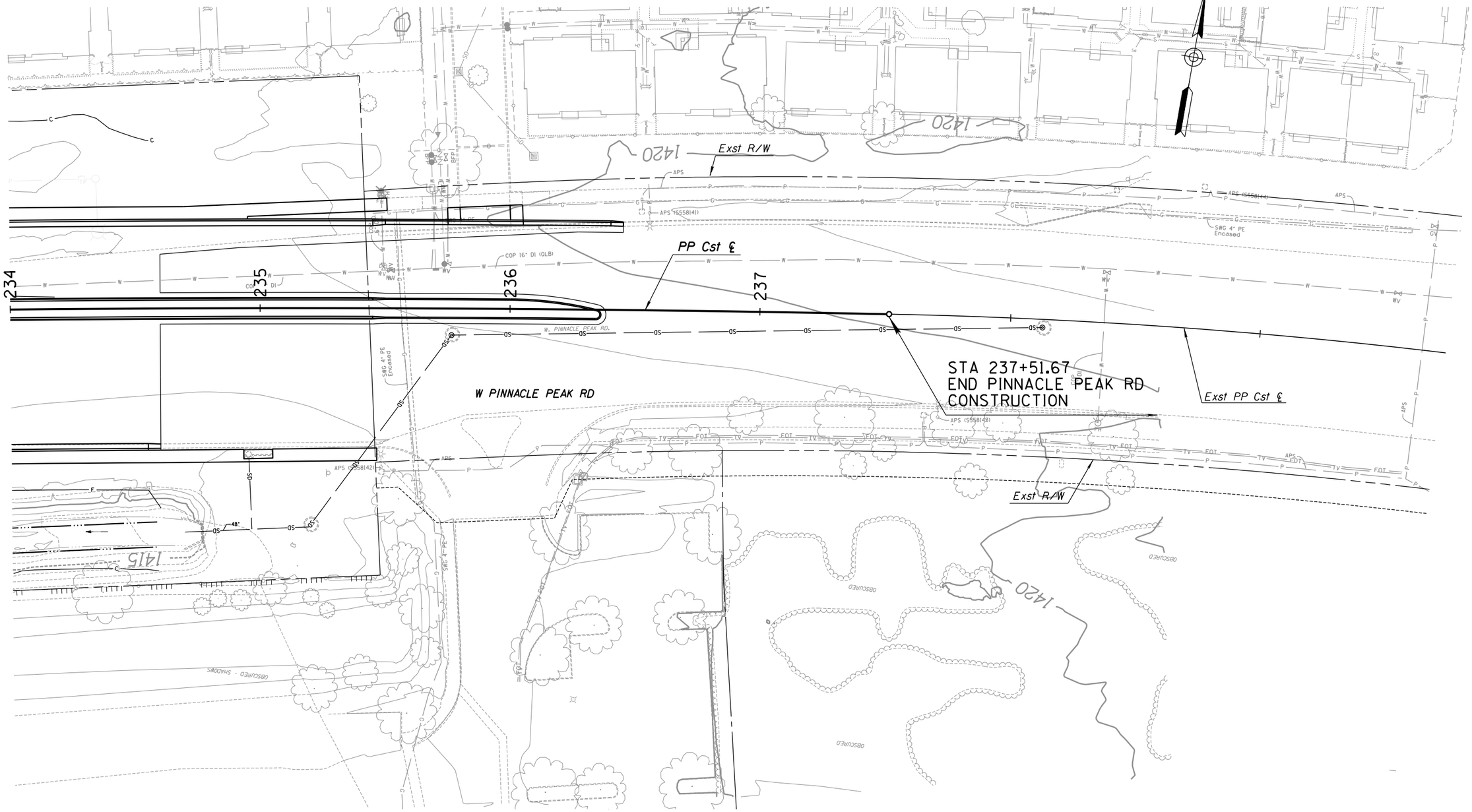
9:05:39 AM c:\pwworking\west01\d0353505\h7383xrppdrn05.dgn

NOTE:

Existing storm drain, catch basins, manholes and drainage structures to remain unless otherwise noted.

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	ARIZ.	00-017-A(248)T	330	896	

017 MA 216



WARNING

OVERHEAD POWER LINES WITHIN PROJECT CONSTRUCTION LIMITS

Contact Arizona 811 at least two full working days before you begin excavation

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	NAME	DATE
DESIGN	JG	06/18
DRAWN	AE	06/18
CHECKED	ML	06/18

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ARIZONA DEPARTMENT OF TRANSPORTATION
INFRASTRUCTURE DELIVERY AND OPERATIONS DIVISION
DRAINAGE DESIGN SERVICES

PINNACLE PEAK
DRAINAGE PLAN
Sta 234+00 to 237+52

ROUTE	LOCATION
I-17	PINNACLE PEAK RD TI & HAPPY VALLEY RD TI

TRACS NO. H7383 01C | 00-017-A(248)T

Professional Engineer Certificate No. 32316 JAVIER O. OJANA Date Signed 06/29/2018 ARIZONA, U.S.A.

Expires 03/31/2019

DWG NO. D-02.06

___ OF ___

PLOT DATE:Tuesday, June 19, 2018 9:05:50 AM PLOT SCALE:1:20 PLOT BY:jguan 000-HDR

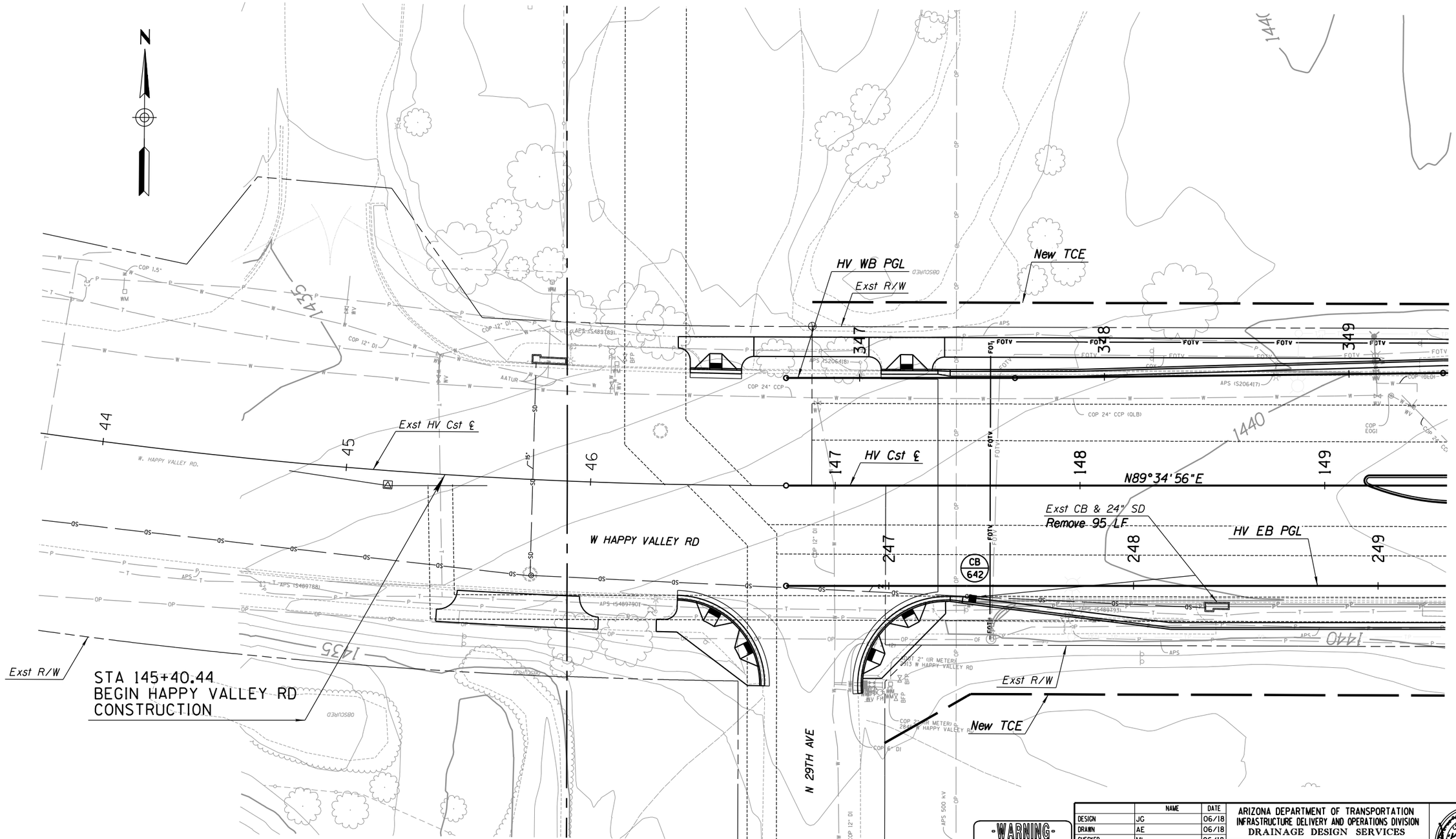
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NOTE:

Existing storm drain, catch basins, manholes and drainage structures to remain unless otherwise noted.

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	ARIZ.	00-017-A(248)T	331	896	
		017 MA 216			



WARNING

OVERHEAD POWER LINES WITHIN PROJECT CONSTRUCTION LIMITS

Contact Arizona 811 at least two full working days before you begin excavation

ARIZONA811 Call 811 or click Arizona811.com

	NAME	DATE
DESIGN	JG	06/18
DRAWN	AE	06/18
CHECKED	ML	06/18

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ARIZONA DEPARTMENT OF TRANSPORTATION
INFRASTRUCTURE DELIVERY AND OPERATIONS DIVISION
DRAINAGE DESIGN SERVICES

HAPPY VALLEY
DRAINAGE PLAN
Sta 145+40 to 149+50

ROUTE	LOCATION	
I-17	PINNACLE PEAK RD TI & HAPPY VALLEY RD TI	
TRACS NO. H7383 01C		00-017-A(248)T

CERTIFICATE NO. 32316 JAVIER O. CUANA Date Signed 06/07/2018 ARIZONA, U.S.A. Expires 03/31/2019

DWG NO. D-02.07

___ OF ___

PLOT DATE:Tuesday, June 19, 2018 8:47:04 AM PLOT SCALE:1:20 PLOT BY:jguan 000-HDR

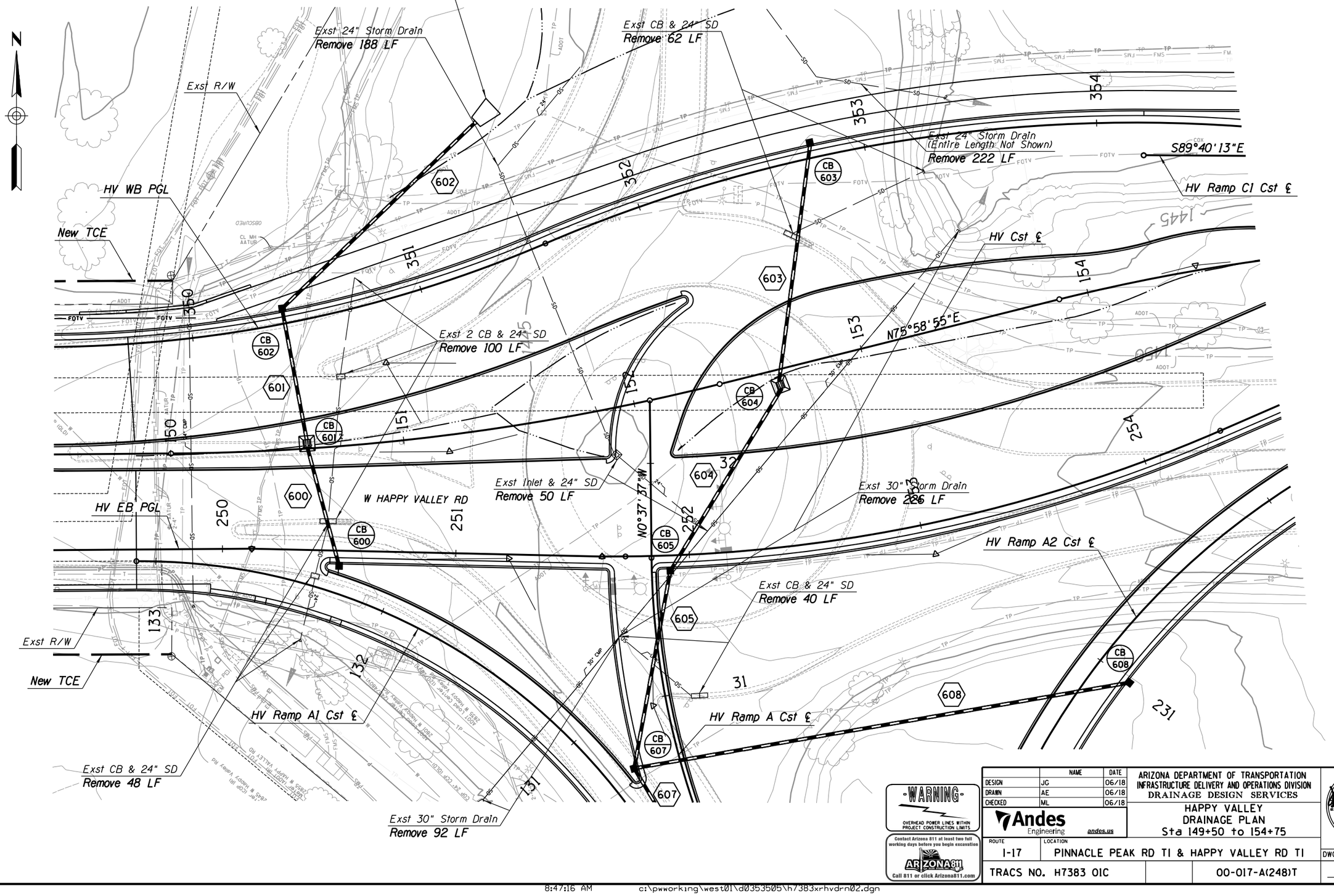
SURVEY NO. | FINISHED PLANS- | REVISIONS- | LOCATION- | DATE-

8:47:04 AM c:\pwworking\west01\d0353505\h7383xrhydrn01.dgn

NOTE:

Existing storm drain, catch basins, manholes and drainage structures to remain unless otherwise noted.

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	ARIZ.	00-017-A(248)T	332	896	
		017 MA 216			



WARNING
OVERHEAD POWER LINES WITHIN PROJECT CONSTRUCTION LIMITS

Contact Arizona 811 at least two full working days before you begin excavation
ARIZONA811
Call 811 or click Arizona811.com

	NAME	DATE
DESIGN	JG	06/18
DRAWN	AE	06/18
CHECKED	ML	06/18

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ARIZONA DEPARTMENT OF TRANSPORTATION
INFRASTRUCTURE DELIVERY AND OPERATIONS DIVISION
DRAINAGE DESIGN SERVICES

HAPPY VALLEY
DRAINAGE PLAN
Sta 149+50 to 154+75

ROUTE: I-17
LOCATION: PINNACLE PEAK RD TI & HAPPY VALLEY RD TI

TRACS NO. H7383 01C | 00-017-A(248)T | ___ OF ___

Certified Professional Engineer (Civil)
32316
JAVIER O. GUANA
Date Signed 06/27/2018
ARIZONA, U.S.A.
Expires 03/31/2019

DWG NO. D-02.08

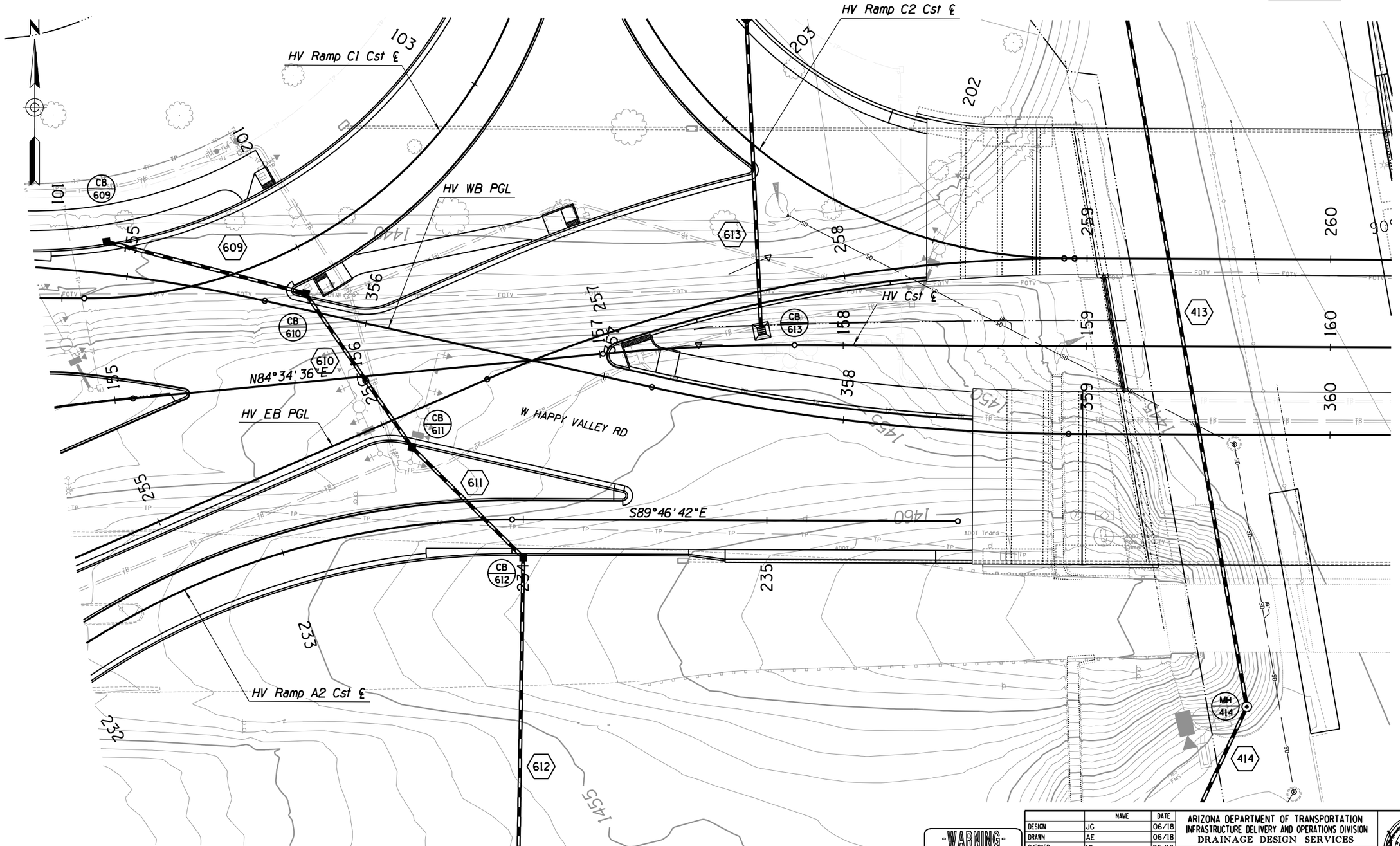
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SURVEY NO. | FINISHED PLANS- | REVISIONS- | LOCATION- | DATE-

8:47:16 AM c:\pwworking\west01\d0353505\h7383xrhydrn02.dgn

NOTE:

Existing storm drain, catch basins, manholes and drainage structures to remain unless otherwise noted.

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	ARIZ.	00-017-A(248)T	333	896	
		017 MA 216			



WARNING

OVERHEAD POWER LINES WITHIN PROJECT CONSTRUCTION LIMITS

Contact Arizona 811 at least two full working days before you begin excavation

ARIZONA 811

Call 811 or click Arizona811.com

	NAME	DATE
DESIGN	JG	06/18
DRAWN	AE	06/18
CHECKED	ML	06/18

Andes Engineering andes.us

ARIZONA DEPARTMENT OF TRANSPORTATION
INFRASTRUCTURE DELIVERY AND OPERATIONS DIVISION
DRAINAGE DESIGN SERVICES

HAPPY VALLEY
DRAINAGE PLAN
Sta 154+75 to 160+25

Registered Professional Engineer (Civil) CERTIFICATE NO. 32316 JAVIER O. GUANA Date Signed 06/19/2018 ARIZONA, U.S.A.

Expires 03/31/2019

ROUTE	LOCATION
I-17	PINNACLE PEAK RD TI & HAPPY VALLEY RD TI

DWG NO. D-02.09

TRACS NO. H7383 01C | 00-017-A(248)T | ____ OF ____

PLOT DATE:Tuesday, June 19, 2018 8:47:27 AM PLOT SCALE:1:20 PLOT BY:jguan 000-HDR

SURVEY NO. | FINISHED PLANS- | REVISIONS- | LOCATION- | DATE-

8:47:27 AM c:\pwworking\west01\d0353505\h7383xrhydrn03.dgn

NOTE:

Existing storm drain, catch basins, manholes and drainage structures to remain unless otherwise noted.

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	ARIZ.	00-017-A(248)T	334	896	
		017 MA 216			



- WARNING -
OVERHEAD POWER LINES WITHIN PROJECT CONSTRUCTION LIMITS

Contact Arizona 811 at least two full working days before you begin excavation
ARIZONA811
Call 811 or click Arizona811.com

	NAME	DATE
DESIGN	JG	06/18
DRAWN	AE	06/18
CHECKED	ML	06/18

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ARIZONA DEPARTMENT OF TRANSPORTATION
INFRASTRUCTURE DELIVERY AND OPERATIONS DIVISION
DRAINAGE DESIGN SERVICES

HAPPY VALLEY
DRAINAGE PLAN
Sta 160+25 to 165+75

ROUTE	LOCATION
I-17	PINNACLE PEAK RD TI & HAPPY VALLEY RD TI

TRACS NO. H7383 01C | 00-017-A(248)T | ___ OF ___

CERTIFICATE NO. 12316 JAVIER O. GUANA Date Signed 06/27/2018 ARIZONA, U.S.A.
Expires 03/31/2019

DWG NO. D-02.10

PLOT DATE:Tuesday, June 19, 2018 8:47:40 AM PLOT SCALE:1:20 PLOT BY:jguan_000-HDR
SURVEY NO. | FINISHED PLANS- | REVISIONS- | LOCATION- | DATE-

8:47:40 AM c:\pwworking\west01\d0353505\h7383xrhvdrn04.dgn

NOTE:

Existing storm drain, catch basins, manholes and drainage structures to remain unless otherwise noted.

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	ARIZ.	00-017-A(248)T	335	896	
		017 MA 216			

Exst 18" Storm Drain
(Entire Length Not Shown)
Remove 164 LF

Exst 24" Storm Drain
Remove 224 LF

New Riprap (Typ)
See Detail D7

HV-JM Frt Rd Cst ℄

Exst CB & 24" SD
Remove 22 LF

HV Ramp D2 Cst ℄

HV WB PGL

HV Ramp B2 Cst ℄

HV Cst ℄

Exst CB
Remove

HAPPY VALLEY RD

HV EB PGL

Exst 30" Storm Drain
Remove 288 LF

Exst Inlet & 24" SD
Remove 45 LF

Exst 18" SD
Remove 80 LF

Exst 18" Storm Drain
Remove 304 LF

Exst CB & 24" SD
Remove 47 LF

Exst 2 CB & 18" SD
Remove 50 LF

Exst CB & 30" SD
Remove 33 LF

CB 622, 627, 628, 635, 636, 637, 639, 640, 641

- WARNING -
OVERHEAD POWER LINES WITHIN PROJECT CONSTRUCTION LIMITS

Contact Arizona 811 at least two full working days before you begin excavation
ARIZONA811
Call 811 or click Arizona811.com

	NAME	DATE
DESIGN	JG	06/18
DRAWN	AE	06/18
CHECKED	ML	06/18

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ARIZONA DEPARTMENT OF TRANSPORTATION
INFRASTRUCTURE DELIVERY AND OPERATIONS DIVISION
DRAINAGE DESIGN SERVICES

HAPPY VALLEY
DRAINAGE PLAN
Sta 165+75 to 171+50

ROUTE	LOCATION	
I-17	PINNACLE PEAK RD TI & HAPPY VALLEY RD TI	
TRACS NO. H7383 01C		00-017-A(248)T

CERTIFICATE 32316 JAVIER O. CUANA Date Signed 06/27/2018 ARIZONA, U.S.A. Expires 03/31/2019

DWG NO. D-02.11

___ OF ___

PLOT DATE:Tuesday, June 19, 2018 8:47:52 AM PLOT SCALE:1:20 PLOT BY:jguan 000-HDR

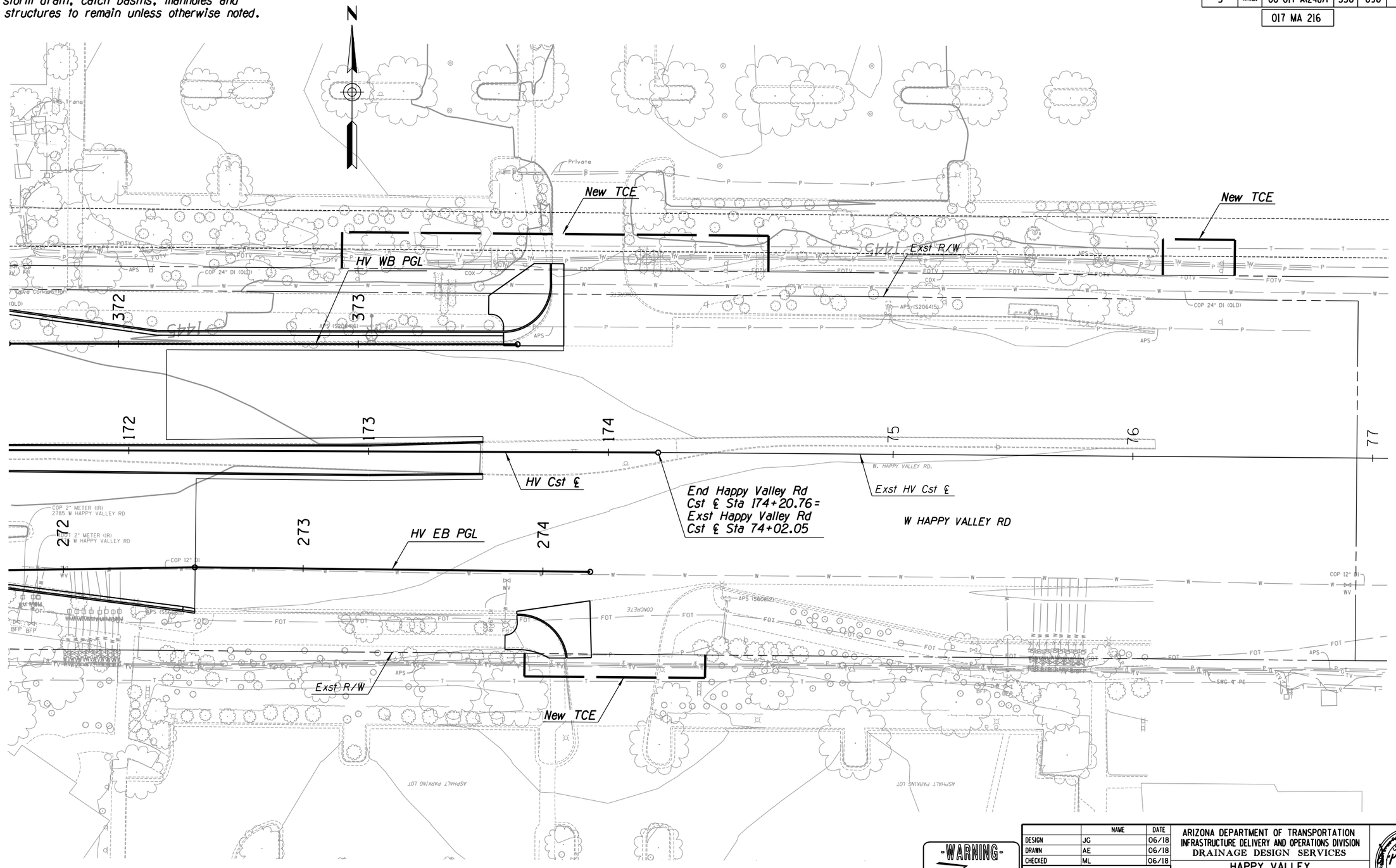
SURVEY NO. | FINISHED PLANS | REVISIONS | LOCATION | DATE

8:47:52 AM c:\pwworking\west01\d0353505\h7383xrhvdrn05.dgn

NOTE:

Existing storm drain, catch basins, manholes and drainage structures to remain unless otherwise noted.

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	ARIZ.	00-017-A(248)T	336	896	
		017 MA 216			



WARNING
OVERHEAD POWER LINES WITHIN PROJECT CONSTRUCTION LIMITS

Contact Arizona 811 at least two full working days before you begin excavation
ARIZONA 811
Call 811 or click Arizona811.com

	NAME	DATE
DESIGN	JG	06/18
DRAWN	AE	06/18
CHECKED	ML	06/18

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ARIZONA DEPARTMENT OF TRANSPORTATION
INFRASTRUCTURE DELIVERY AND OPERATIONS DIVISION
DRAINAGE DESIGN SERVICES

HAPPY VALLEY
DRAINAGE PLAN
Sta 171+50 to 174+20

ROUTE	LOCATION
I-17	PINNACLE PEAK RD TI & HAPPY VALLEY RD TI

TRACS NO. H7383 01C | 00-017-A(248)T | ___ OF ___

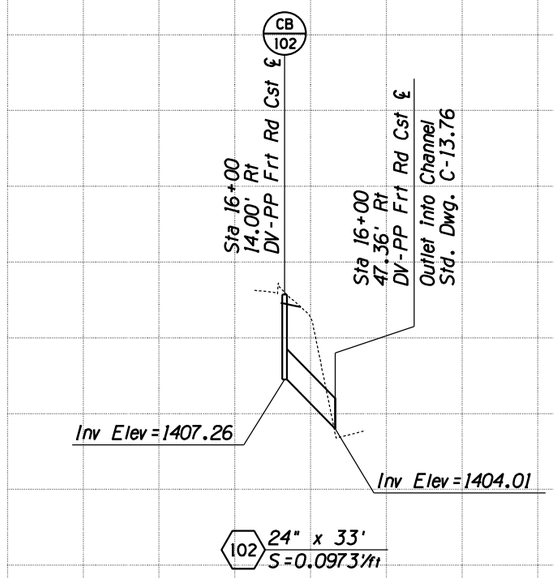
32316 JAVIER O. GUANA
Date Signed 06/19/2018
ARIZONA, U.S.A.
Expires 03/31/2019

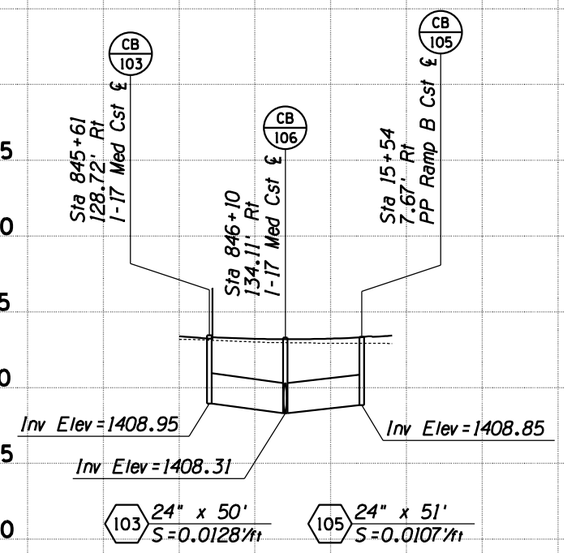
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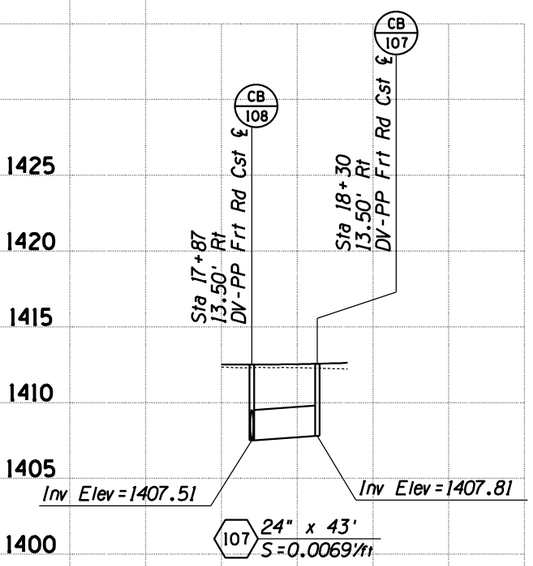
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SURVEY NO. | FINISHED PLANS | REVISIONS | LOCATION | DATE

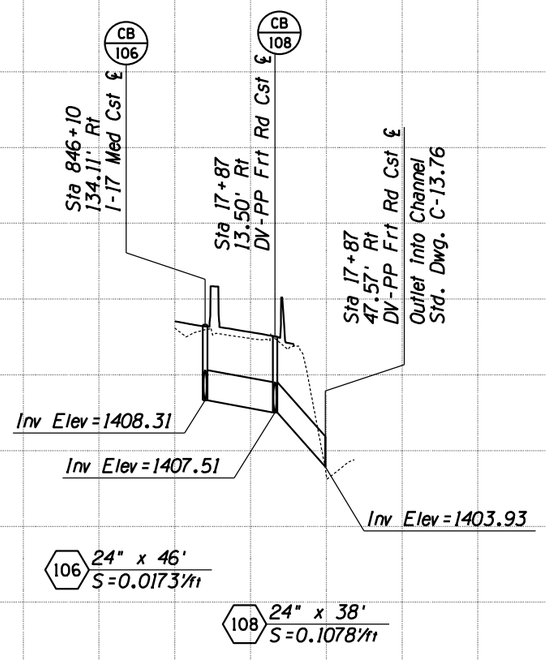
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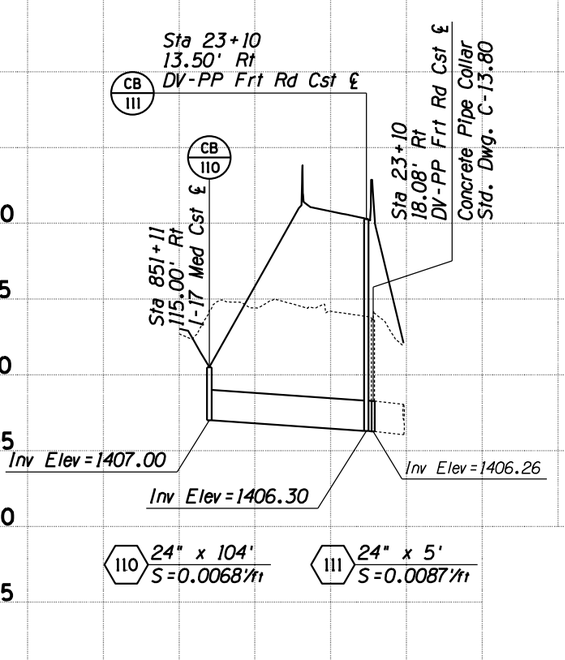
F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
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		017 MA 216			

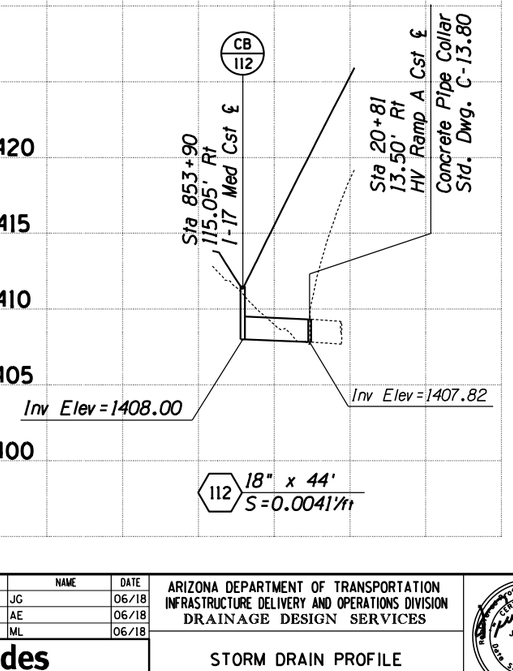












WARNING
OVERHEAD POWER LINES WITHIN PROJECT CONSTRUCTION LIMITS

Contact Arizona 811 at least two full working days before you begin excavation
ARIZONA 811
Call 811 or click Arizona811.com

	NAME	DATE
DESIGN	JG	06/18
DRAWN	AE	06/18
CHECKED	ML	06/18

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ARIZONA DEPARTMENT OF TRANSPORTATION
INFRASTRUCTURE DELIVERY AND OPERATIONS DIVISION
DRAINAGE DESIGN SERVICES

STORM DRAIN PROFILE

ROUTE	LOCATION
I-17	PINNACLE PEAK RD TI & HAPPY VALLEY RD TI

TRACS NO. H7383 01C | 00-017-A(248)T | ___ OF ___

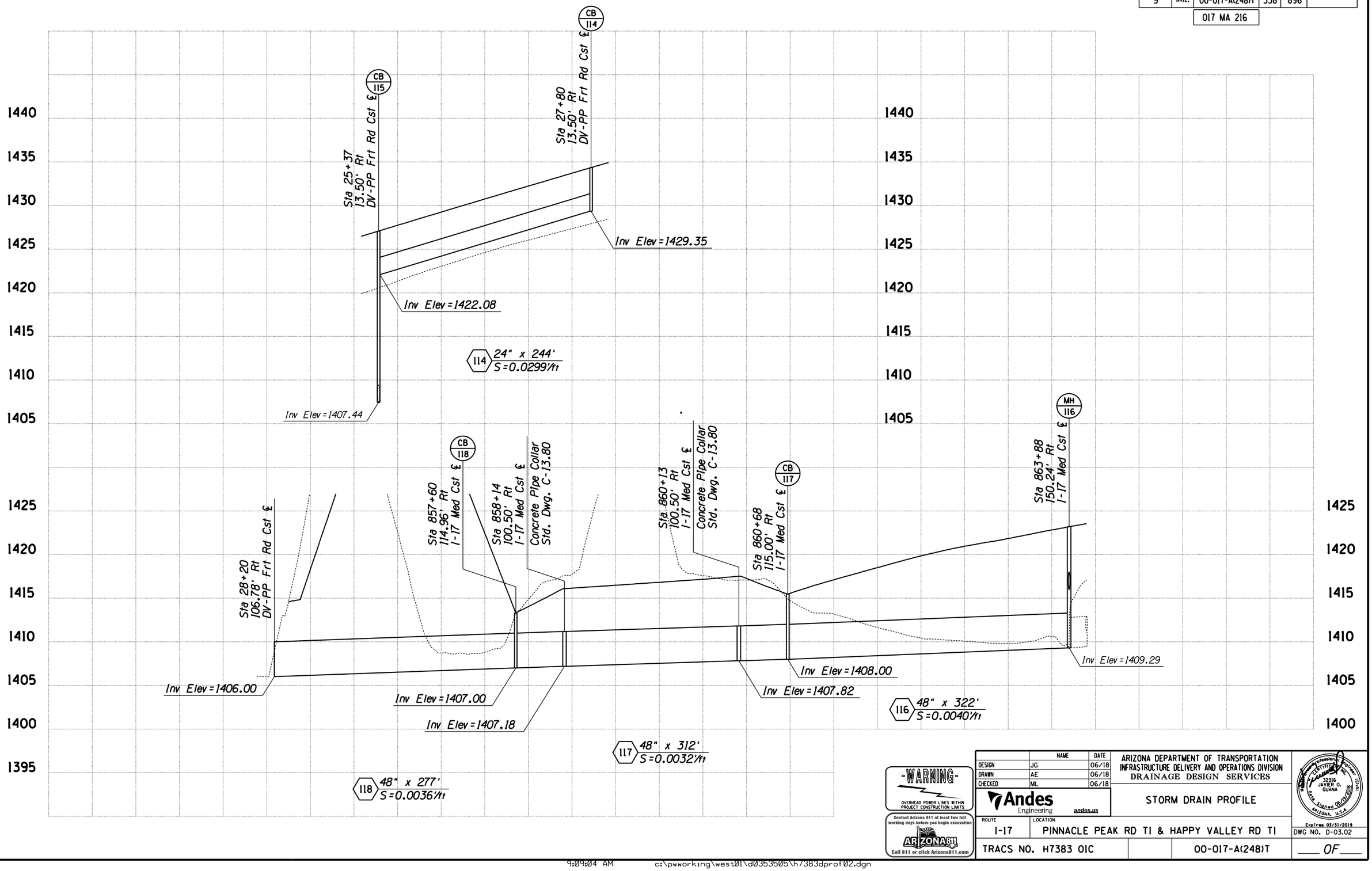
Registered Professional Engineer
CERTIFICATE NO. 32316
JAVIER O. GUANA
Date Signed 06/19/2018
ARIZONA, U.S.A.
Expires 03/31/2019

DWG NO. D-03.01

PLOT DATE: Tuesday, June 19, 2018 9:08:56 AM PLOT SCALE 1:50 PLOT BY: jguan.000-HDR
SURVEY NO. | FINISHED PLANS | REVISIONS | LOCATION | DATE | SURVEY NO.

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F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
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		017 MA 216			



PLOT DATE:Tuesday, June 11, 2019 9:09:04 AM PLOT SCALE:1:50 PLOT BY:jguan_000-HDR

SURVEY NO.	FINISHED PLANS-	REVISIONS-	LOCATION-	DATE-

WARNING
OVERHEAD POWER LINES WITHIN PROJECT CONSTRUCTION LIMITS

Contact Arizona 811 at least two full working days before you begin excavation
ARIZONA811
Call 811 or click Arizona811.com

	NAME	DATE
DESIGN	JG	06/18
DRAWN	AE	06/18
CHECKED	ML	06/18

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ARIZONA DEPARTMENT OF TRANSPORTATION
INFRASTRUCTURE DELIVERY AND OPERATIONS DIVISION
DRAINAGE DESIGN SERVICES

STORM DRAIN PROFILE

ROUTE	LOCATION
I-17	PINNACLE PEAK RD TI & HAPPY VALLEY RD TI

TRACS NO. H7383 01C | 00-017-A(248)T

Registered Professional Engineer (Civil) CERTIFICATE NO. 12316 JAVIER O. GUANA Date Signed 06/12/2008 ARIZONA, U.S.A.
Expires 03/31/2019

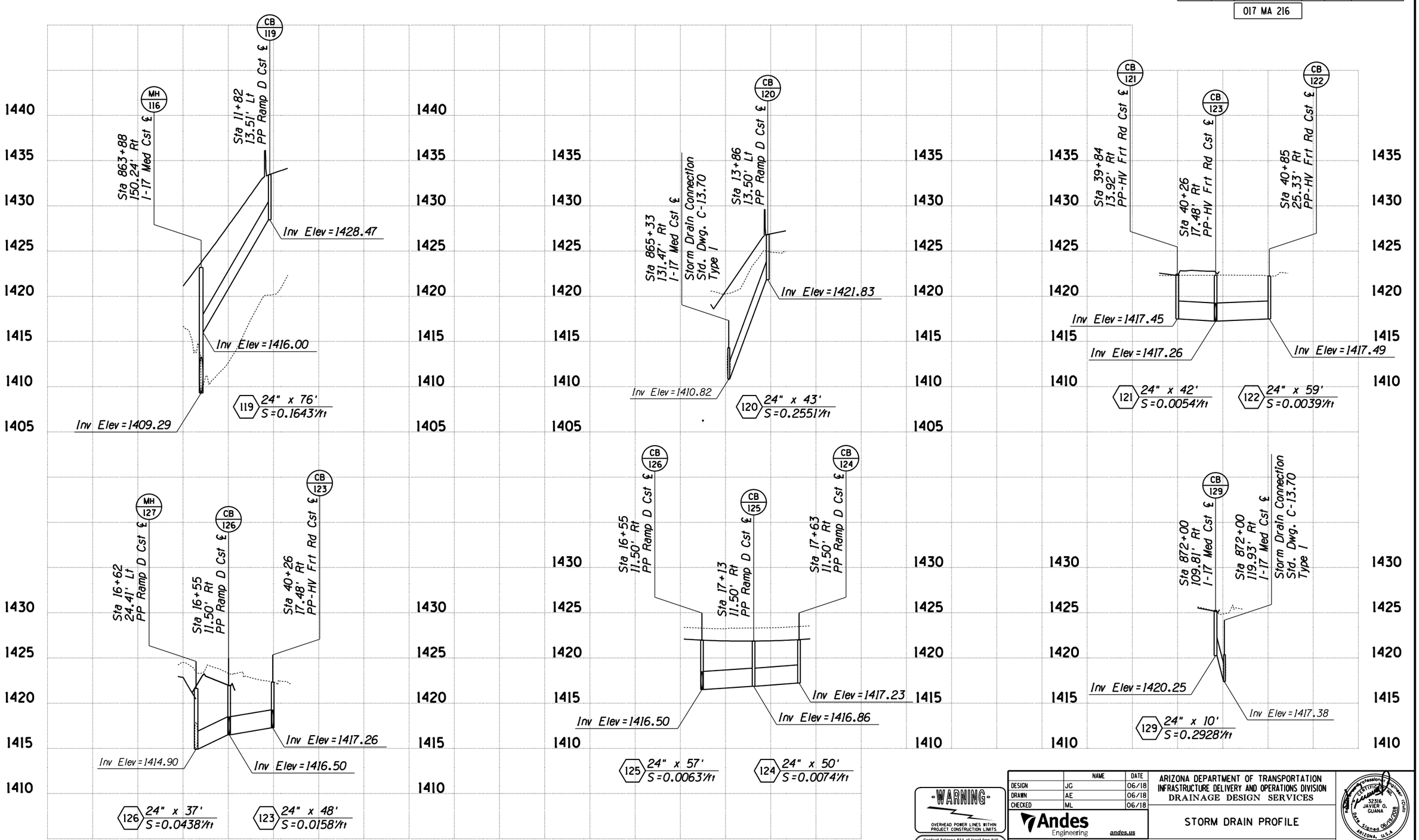
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F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	ARIZ.	00-017-A(248)T	339	896	

017 MA 216



PLOT DATE: Tuesday, June 19, 2018 9:12:09 AM PLOT SCALE: 1:50 PLOT BY: jguan.000-HDR

SURVEY NO.	FINISHED PLANS	REVISIONS	LOCATION	DATE

WARNING
OVERHEAD POWER LINES WITHIN PROJECT CONSTRUCTION LIMITS

Contact Arizona 811 at least two full working days before you begin excavation
ARIZONA 811
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	NAME	DATE
DESIGN	JG	06/18
DRAWN	AE	06/18
CHECKED	ML	06/18

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ARIZONA DEPARTMENT OF TRANSPORTATION
INFRASTRUCTURE DELIVERY AND OPERATIONS DIVISION
DRAINAGE DESIGN SERVICES

STORM DRAIN PROFILE

ROUTE	LOCATION
I-17	PINNACLE PEAK RD TI & HAPPY VALLEY RD TI

TRACS NO. H7383 01C | 00-017-A(248)T

Professional Engineer Certificate No. 32316 JAVIER O. GUANA ARIZONA, U.S.A. Date Signed 06/19/2018
Expires 03/31/2019

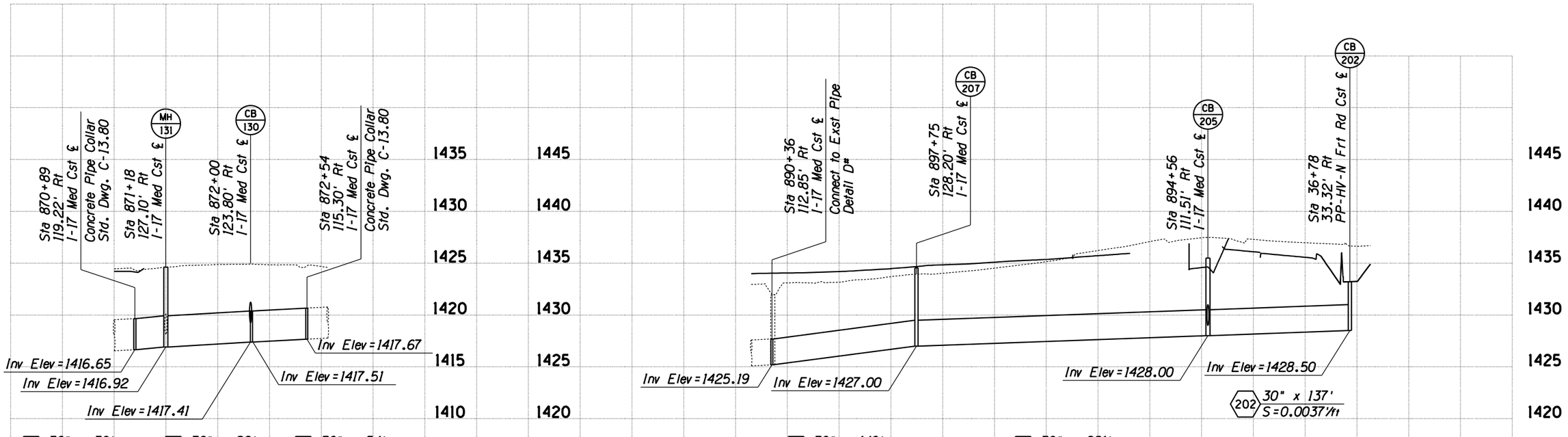
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F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	ARIZ.	00-017-A(248)T	340	896	

017 MA 216



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OVERHEAD POWER LINES WITHIN PROJECT CONSTRUCTION LIMITS

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	NAME	DATE
DESIGN	JG	06/18
DRAWN	AE	06/18
CHECKED	ML	06/18

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ARIZONA DEPARTMENT OF TRANSPORTATION
INFRASTRUCTURE DELIVERY AND OPERATIONS DIVISION
DRAINAGE DESIGN SERVICES

STORM DRAIN PROFILE

ROUTE	LOCATION
I-17	PINNACLE PEAK RD TI & HAPPY VALLEY RD TI

TRACS NO. H7383 01C | 00-017-A(248)T

Registered Professional Engineer (Civil) CERTIFICATE 32316 JAVIER O. CUANA Date Signed 06/29/2018 ARIZONA, U.S.A.
Expires 03/31/2019

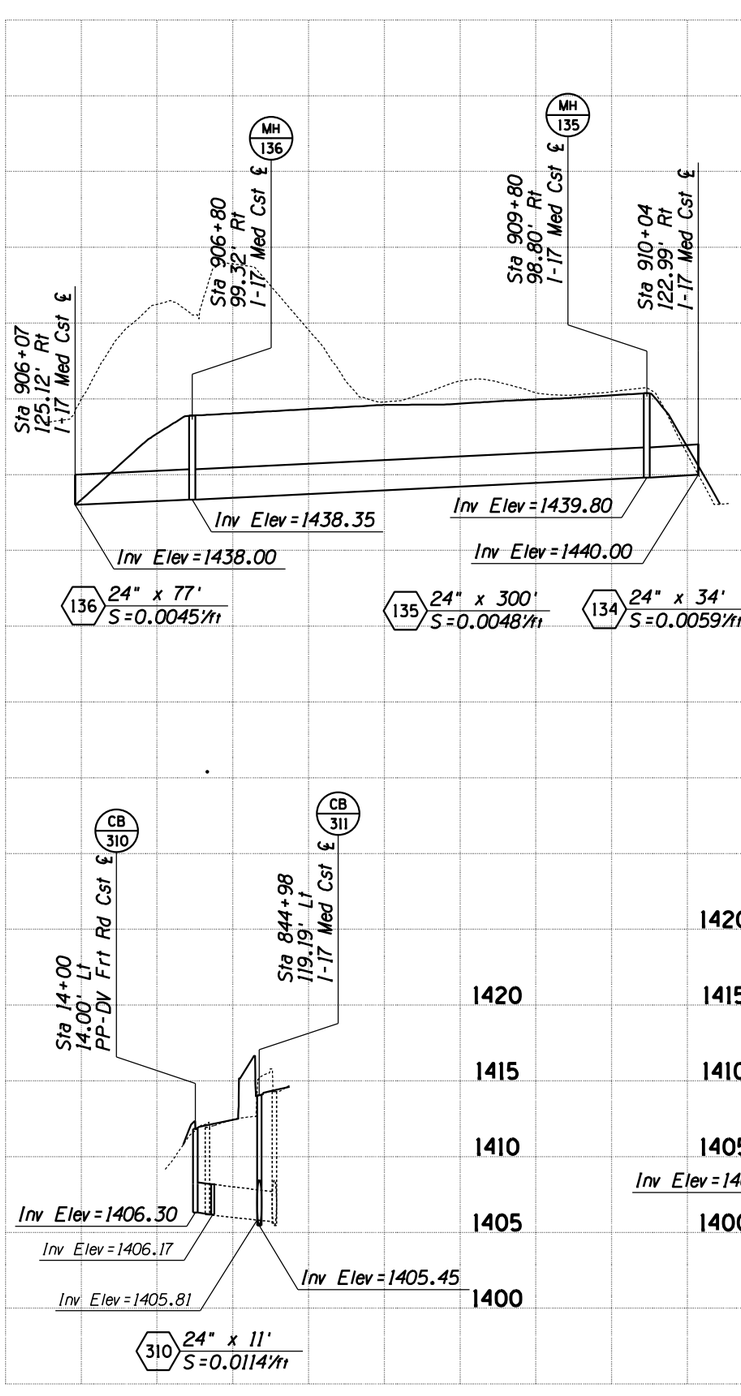
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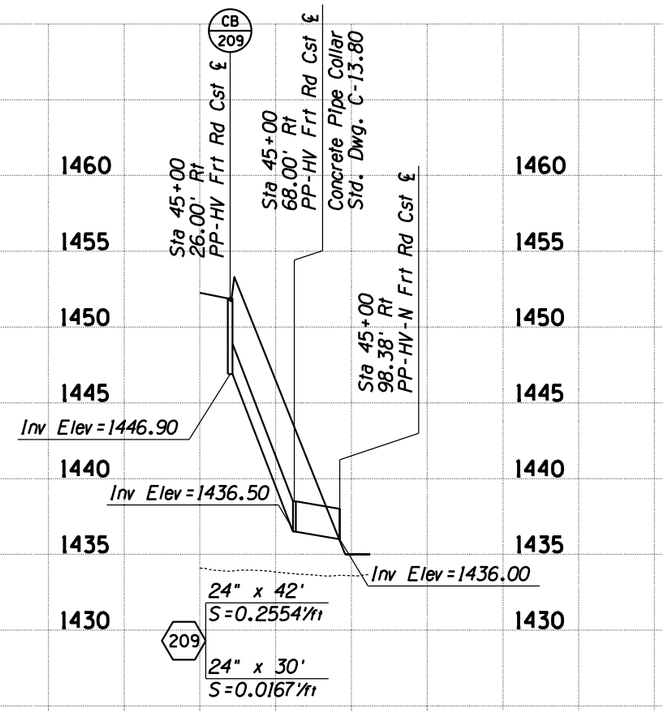
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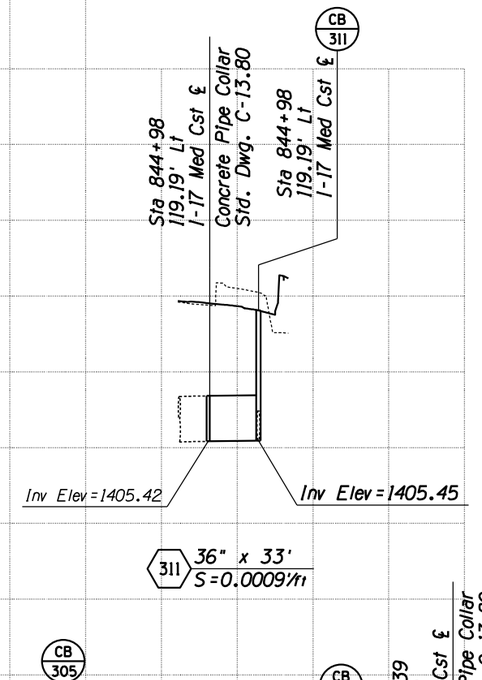
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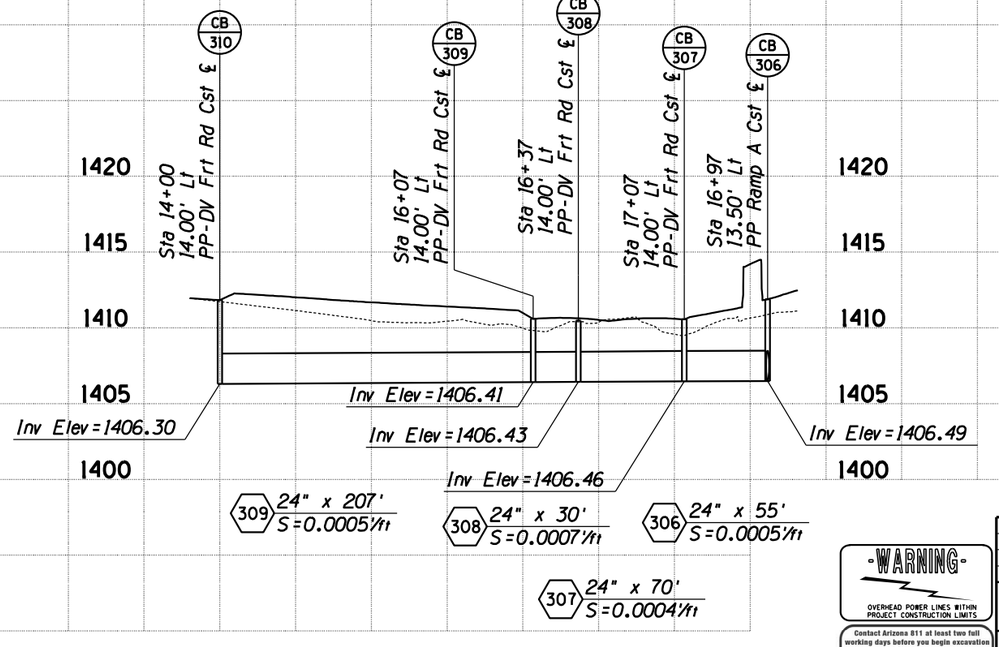
F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
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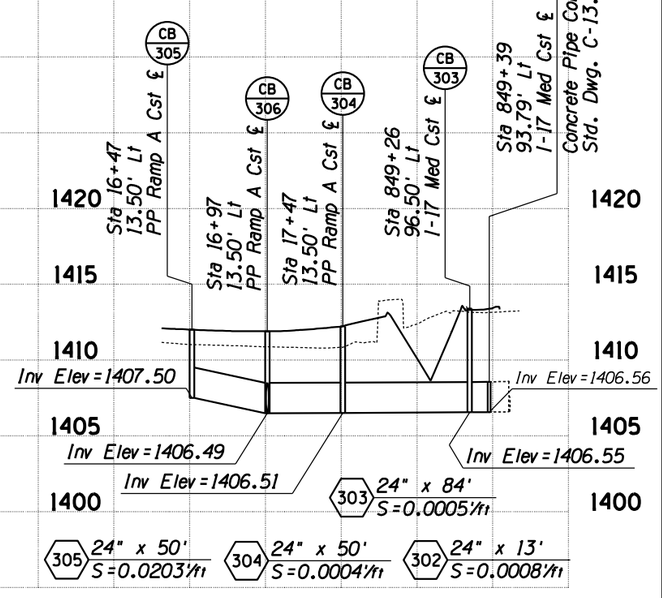
017 MA 216











WARNING
OVERHEAD POWER LINES WITHIN PROJECT CONSTRUCTION LIMITS

Contact Arizona 811 at least two full working days before you begin excavation
ARIZONA811
Call 811 or click Arizona811.com

	NAME	DATE
DESIGN	JG	06/18
DRAWN	AE	06/18
CHECKED	ML	06/18

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ARIZONA DEPARTMENT OF TRANSPORTATION
INFRASTRUCTURE DELIVERY AND OPERATIONS DIVISION
DRAINAGE DESIGN SERVICES

STORM DRAIN PROFILE

ROUTE	LOCATION
I-17	PINNACLE PEAK RD TI & HAPPY VALLEY RD TI

TRACS NO. H7383 01C | 00-017-A(248)T

Professional Engineer Certificate No. 32316 Javier O. Guana Date Signed 06/27/2018 Arizona, U.S.A. Expires 03/31/2019

DWG NO. D-03.05

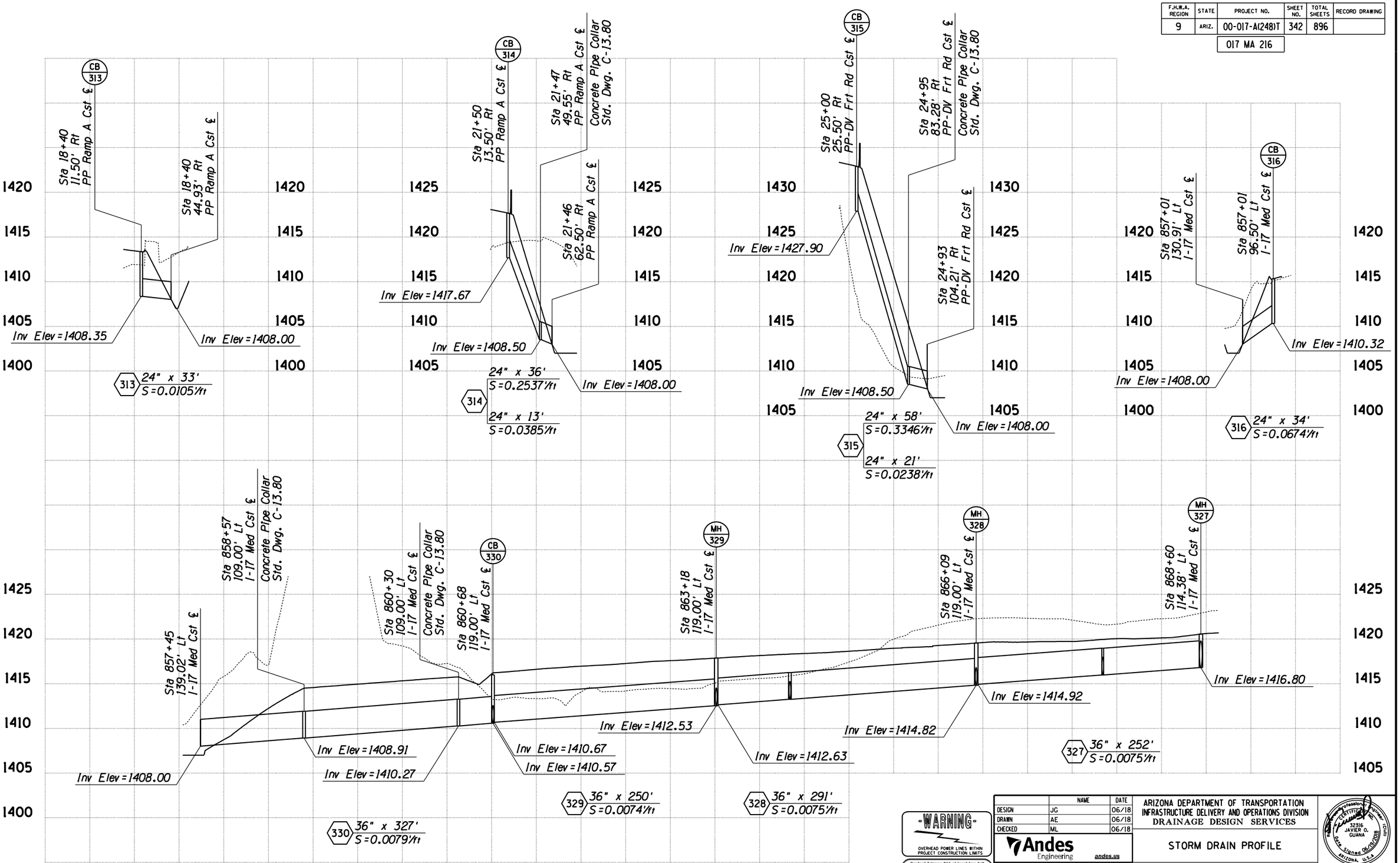
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SURVEY NO. | FINISHED PLANS- | REVISIONS- | LOCATION- | DATE-

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F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	ARIZ.	00-017-A(248)T	342	896	

017 MA 216



WARNING
OVERHEAD POWER LINES WITHIN PROJECT CONSTRUCTION LIMITS

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ARIZONA 811
Call 811 or click Arizona811.com

	NAME	DATE
DESIGN	JG	06/18
DRAWN	AE	06/18
CHECKED	ML	06/18

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ARIZONA DEPARTMENT OF TRANSPORTATION
INFRASTRUCTURE DELIVERY AND OPERATIONS DIVISION
DRAINAGE DESIGN SERVICES

STORM DRAIN PROFILE

ROUTE	LOCATION
I-17	PINNACLE PEAK RD TI & HAPPY VALLEY RD TI

TRACS NO. H7383 01C | 00-017-A(248)T

Professional Engineer
CERTIFICATE NO. 32316
JAVIER O. GUANA
Date Signed 06/29/2018
ARIZONA, U.S.A.
Expires 03/31/2019

DWG NO. D-03.06

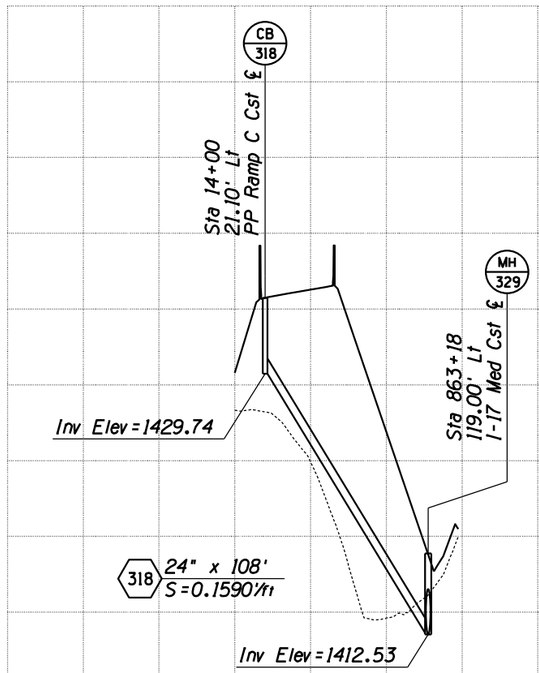
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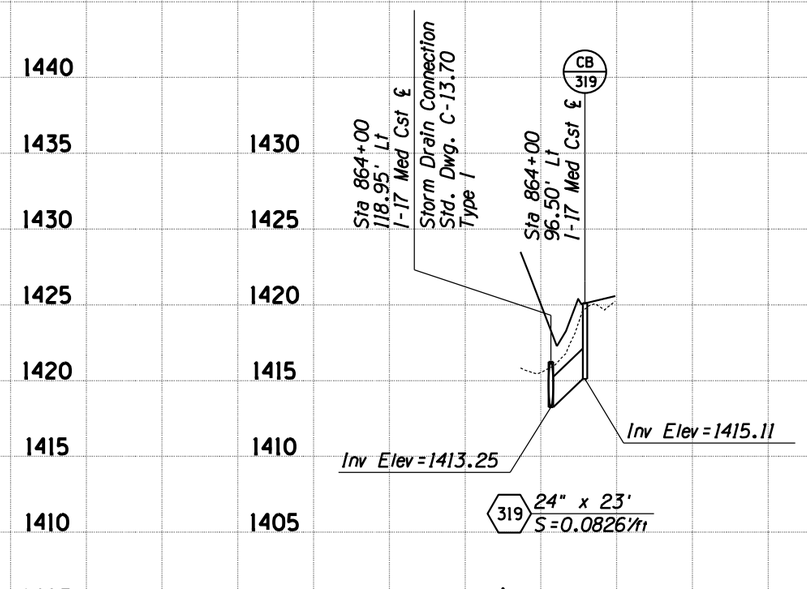
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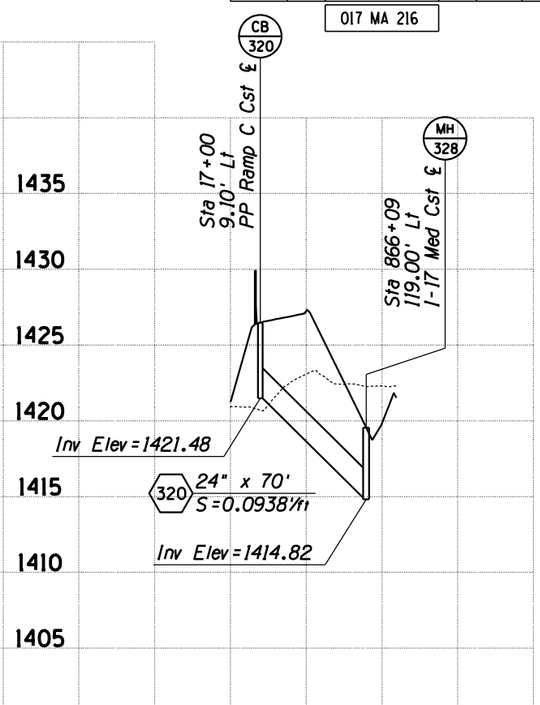
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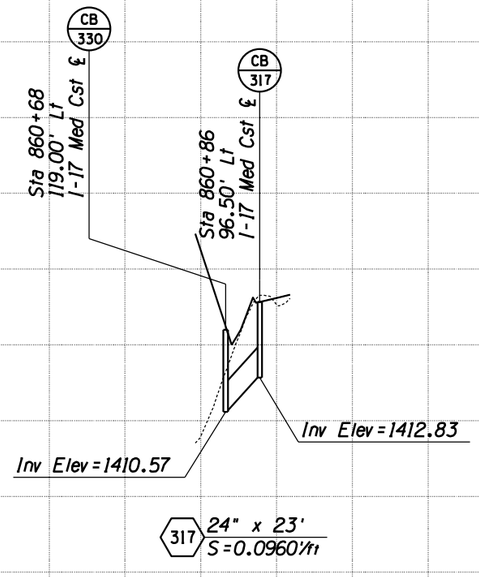
F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	ARIZ.	00-017-A(248)T	343	896	

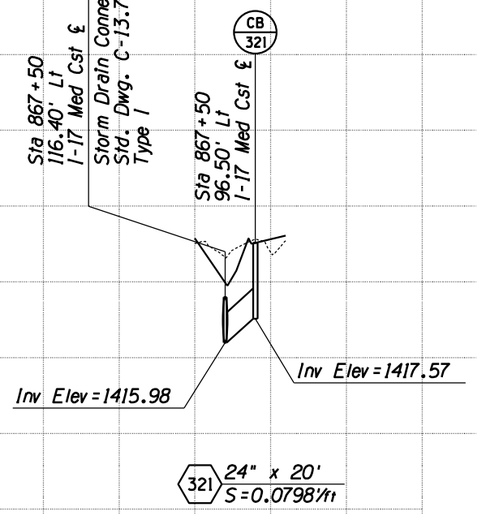
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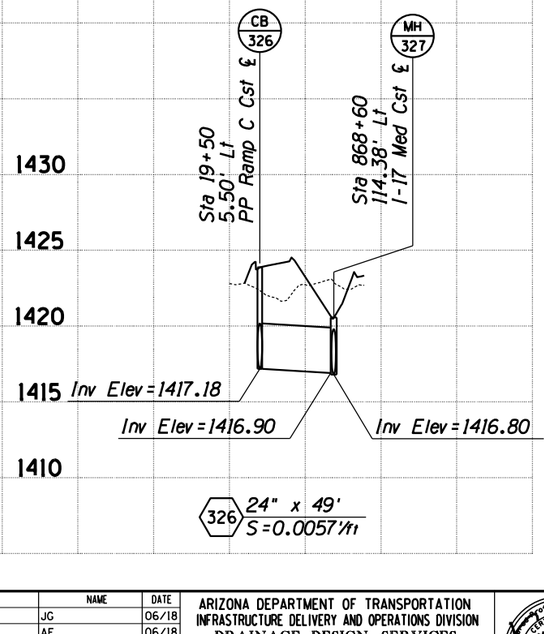












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DRAWN	AE	06/18
CHECKED	ML	06/18

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ARIZONA DEPARTMENT OF TRANSPORTATION
INFRASTRUCTURE DELIVERY AND OPERATIONS DIVISION
DRAINAGE DESIGN SERVICES

STORM DRAIN PROFILE

ROUTE	LOCATION
I-17	PINNACLE PEAK RD TI & HAPPY VALLEY RD TI

TRACS NO. H7383 01C | 00-017-A(248)T | ___ OF ___

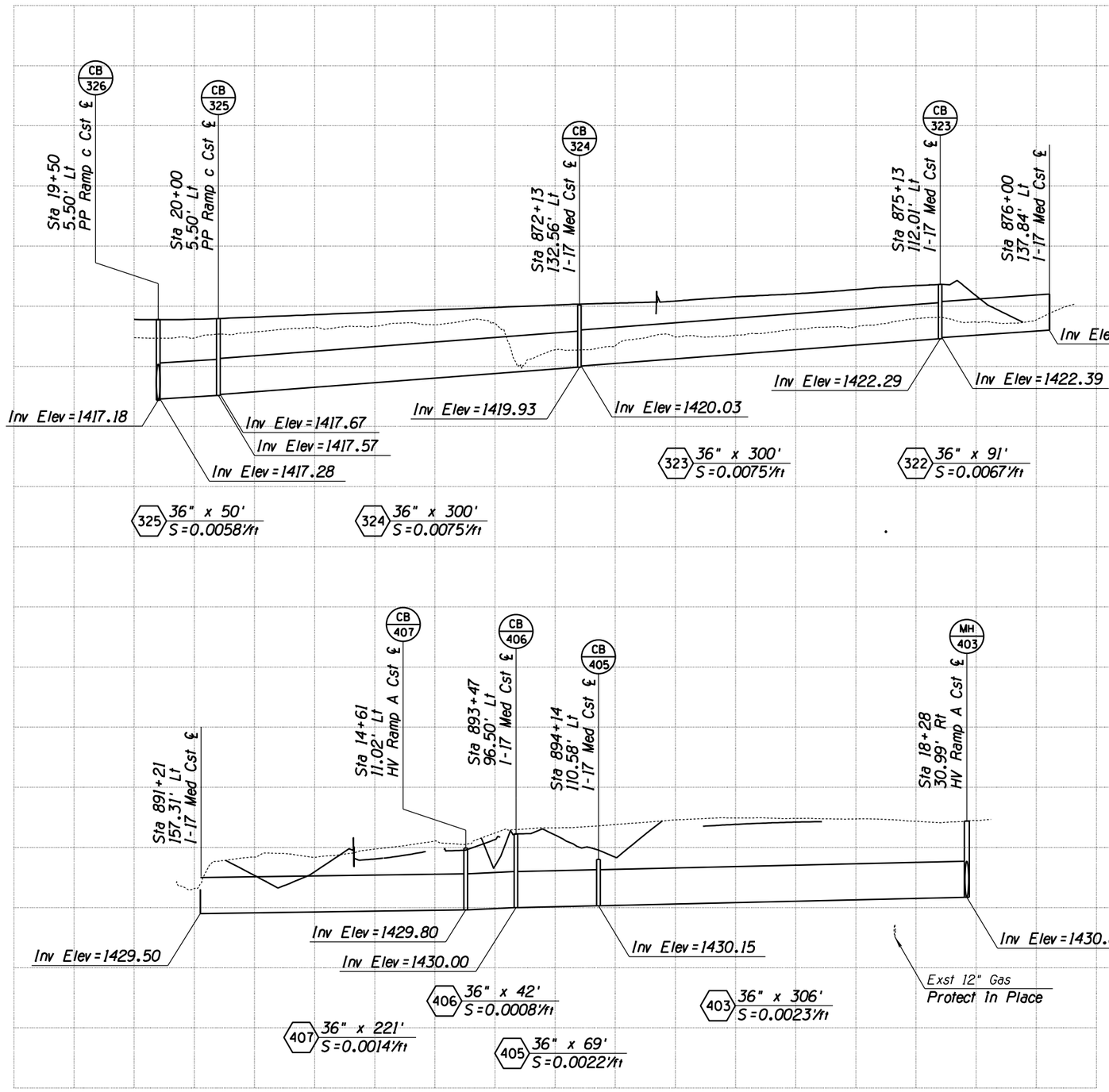
Registered Professional Engineer (Civil)
CERTIFICATE NO. 32316
JAVIER O. GUANA
Date Signed 06/18/2018
ARIZONA, U.S.A.
Expires 03/31/2019

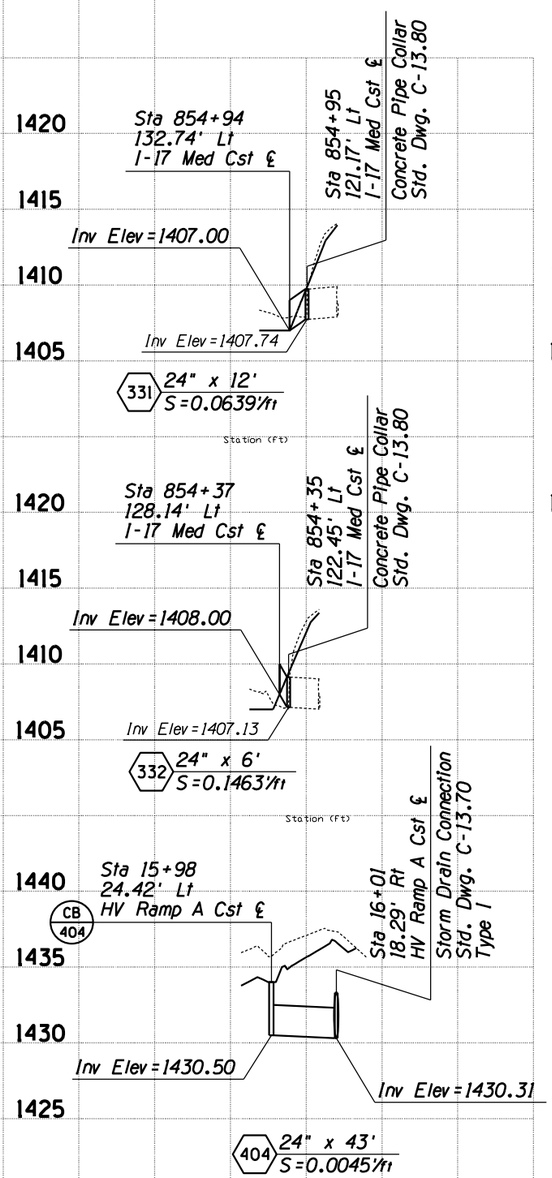
DWG NO. D-03.07

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SURVEY NO. | FINISHED PLANS- | REVISIONS- | LOCATION- | DATE-

9:09:49 AM c:\pwworking\west01\d0353505\h7383dprof07.dgn

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	ARIZ.	00-017-A(248)T	344	896	
		017 MA 216			





	NAME	DATE
DESIGN	JG	06/18
DRAWN	AE	06/18
CHECKED	ML	06/18

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ARIZONA DEPARTMENT OF TRANSPORTATION
INFRASTRUCTURE DELIVERY AND OPERATIONS DIVISION
DRAINAGE DESIGN SERVICES

STORM DRAIN PROFILE

ROUTE	LOCATION
I-17	PINNACLE PEAK RD TI & HAPPY VALLEY RD TI

TRACS NO. H7383 01C | 00-017-A(248)T | DWG NO. D-03.08 | ___ OF ___

Registered Professional Engineer (Civil) CERTIFICATE NO. 12316 JAVIER O. GUANA Date Signed 06/12/2018 ARIZONA, U.S.A. Expires 03/31/2019

WARNING
OVERHEAD POWER LINES WITHIN PROJECT CONSTRUCTION LIMITS

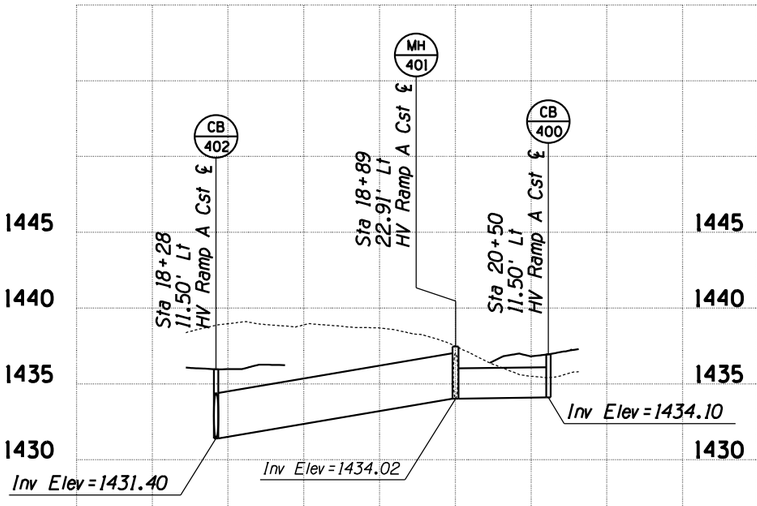
Contact Arizona 811 at least two full working days before you begin excavation
ARIZONA811 Call 811 or click Arizona811.com

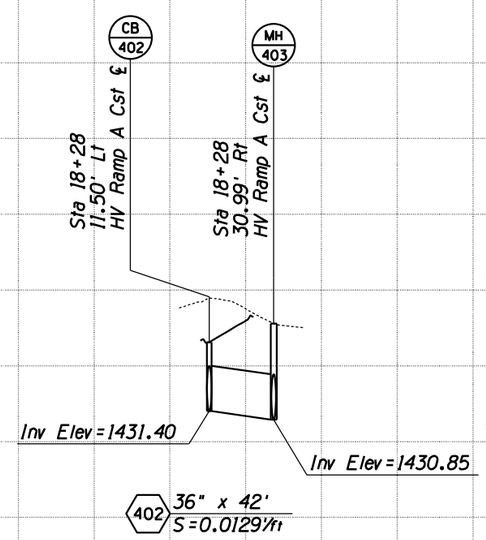
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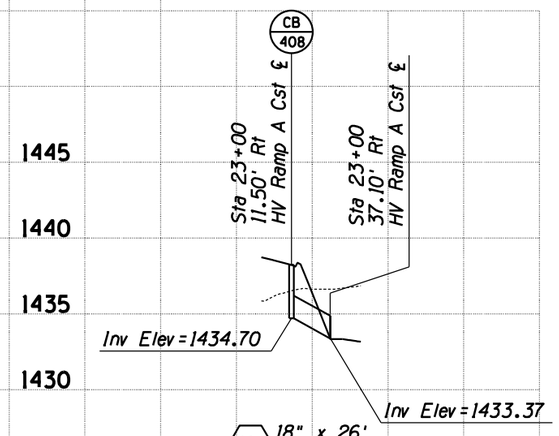
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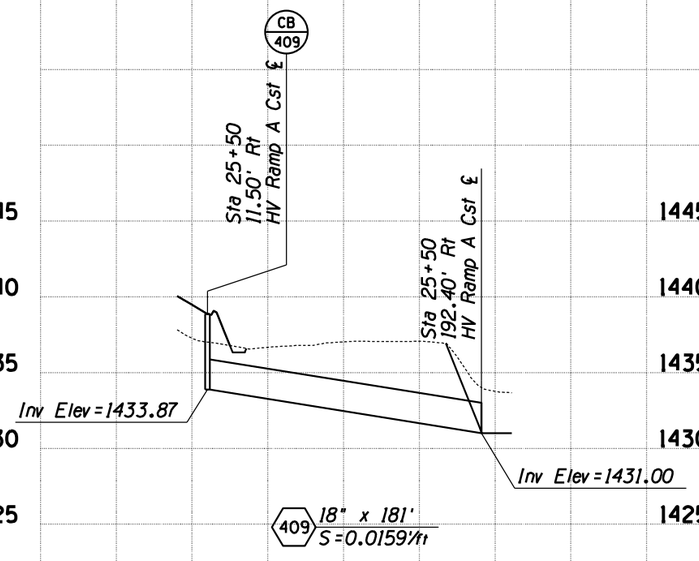
F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	ARIZ.	00-017-A(248)T	345	896	

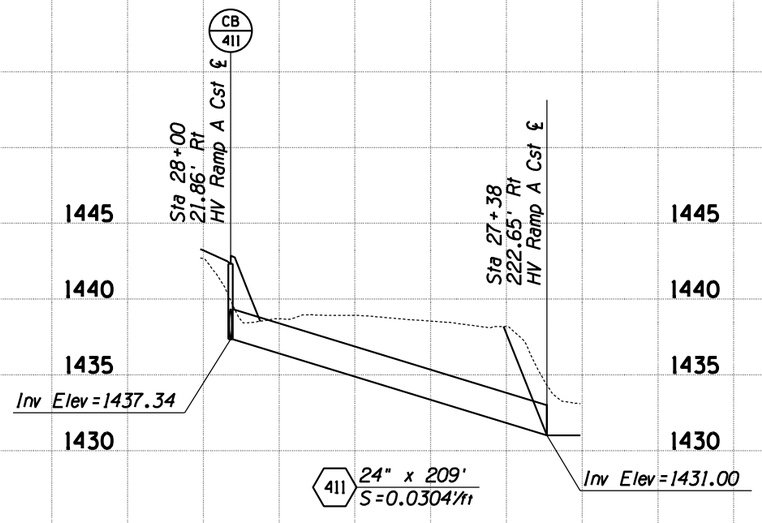
017 MA 216

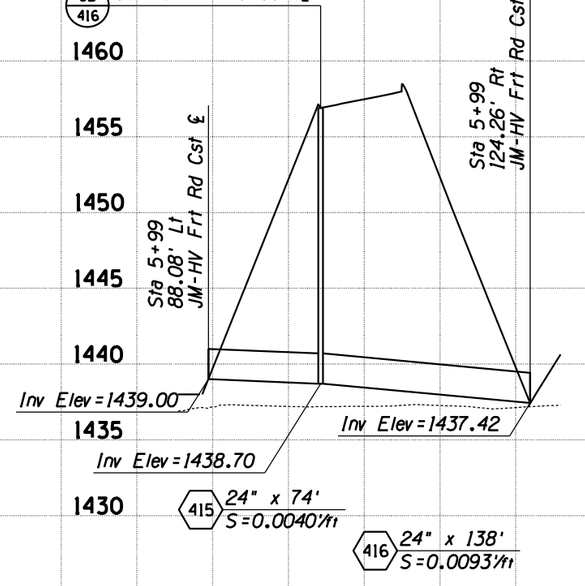












WARNING
OVERHEAD POWER LINES WITHIN PROJECT CONSTRUCTION LIMITS

Contact Arizona 811 at least two full working days before you begin excavation
ARIZONA 811
Call 811 or click Arizona811.com

	NAME	DATE
DESIGN	JG	06/18
DRAWN	AE	06/18
CHECKED	ML	06/18

Andes Engineering andes.us

ARIZONA DEPARTMENT OF TRANSPORTATION
INFRASTRUCTURE DELIVERY AND OPERATIONS DIVISION
DRAINAGE DESIGN SERVICES

STORM DRAIN PROFILE

ROUTE	LOCATION
I-17	PINNACLE PEAK RD TI & HAPPY VALLEY RD TI

TRACS NO. H7383 01C | 00-017-A(248)T

Registered Professional Engineer (Civil)
CERTIFICATE NO. 32316
JAVIER O. CUANA
Date Signed 06/29/2018
ARIZONA, U.S.A.
Expires 03/31/2019

DWG NO. D-03.09

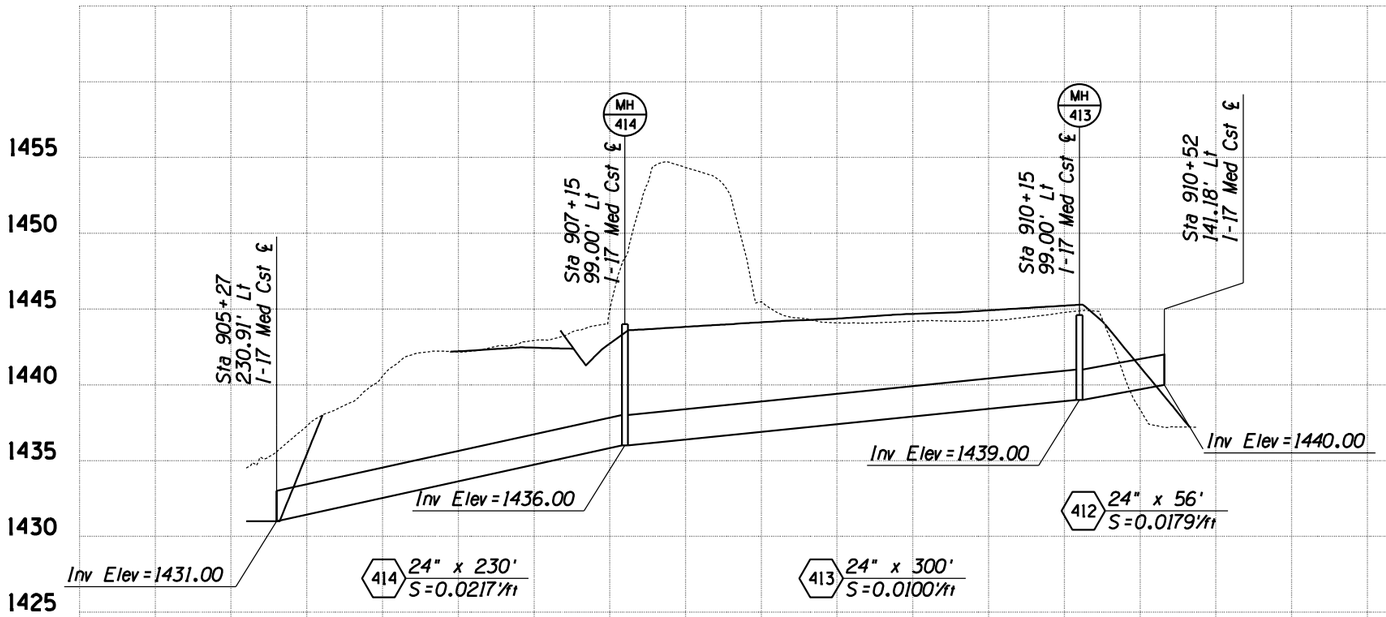
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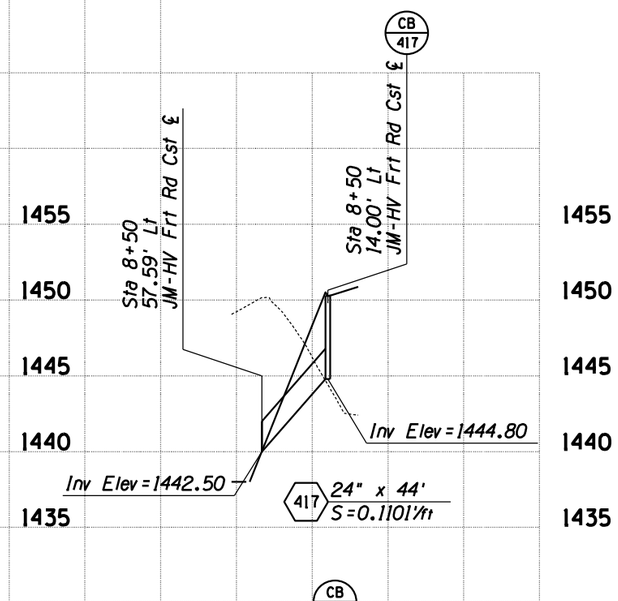
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SURVEY NO. | FINISHED PLANS- | REVISIONS- | LOCATION- | DATE-

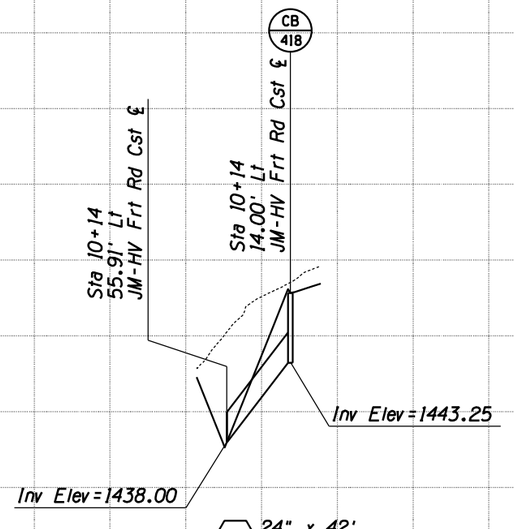
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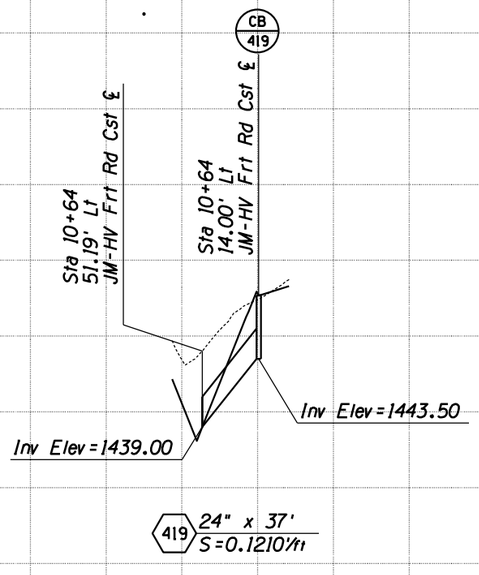
F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	ARIZ.	00-017-A(248)T	346	896	

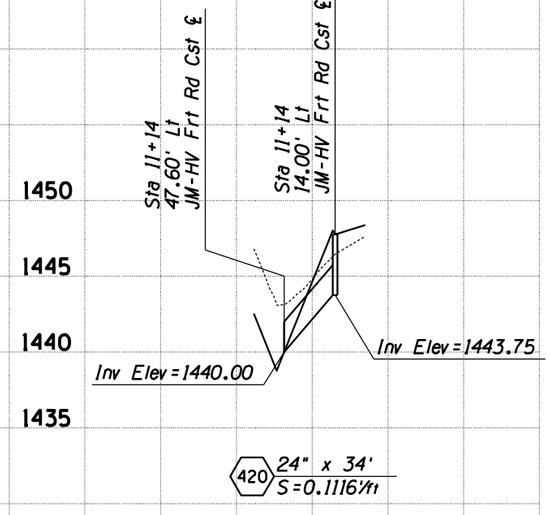
017 MA 216











"WARNING"
OVERHEAD POWER LINES WITHIN PROJECT CONSTRUCTION LIMITS

Contact Arizona 811 at least two full working days before you begin excavation
ARIZONA811
Call 811 or click Arizona811.com

	NAME	DATE
DESIGN	JG	06/18
DRAWN	AE	06/18
CHECKED	ML	06/18

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ARIZONA DEPARTMENT OF TRANSPORTATION
INFRASTRUCTURE DELIVERY AND OPERATIONS DIVISION
DRAINAGE DESIGN SERVICES

STORM DRAIN PROFILE

ROUTE	LOCATION
I-17	PINNACLE PEAK RD TI & HAPPY VALLEY RD TI

TRACS NO. H7383 01C | 00-017-A(248)T | ___ OF ___

Professional Engineer — Certificate No. 32316 — Javier O. Guana — State of Arizona, U.S.A. — Date Signed 06/29/2018 — Expires 03/31/2019

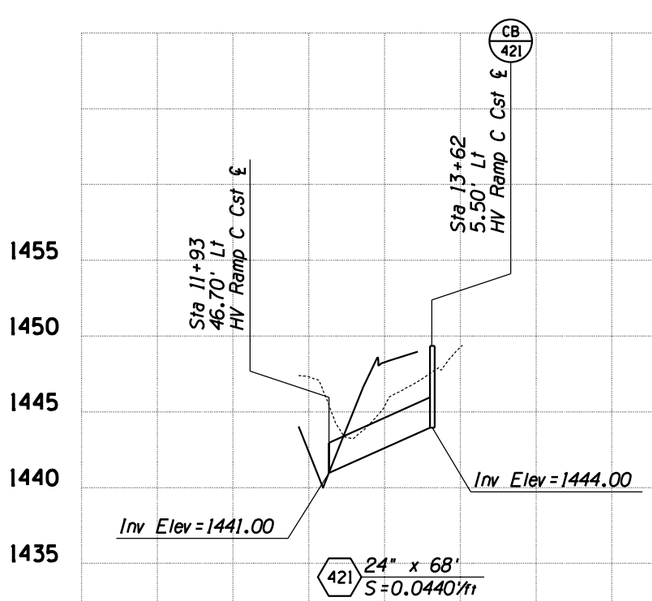
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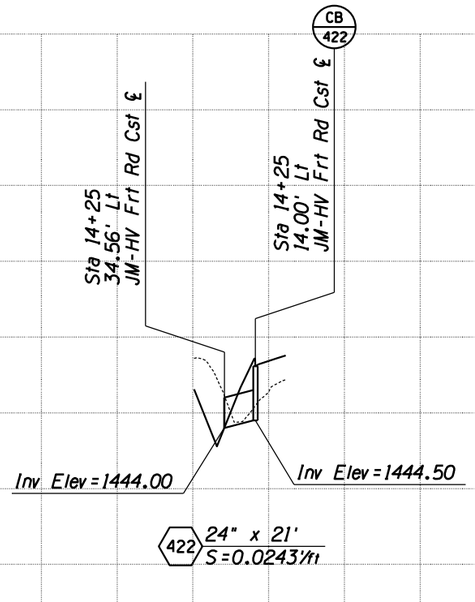
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SURVEY NO. | FINISHED PLANS | REVISIONS | LOCATION | DATE

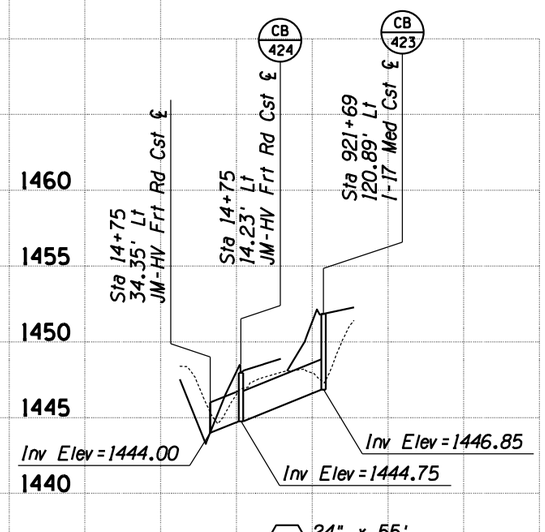
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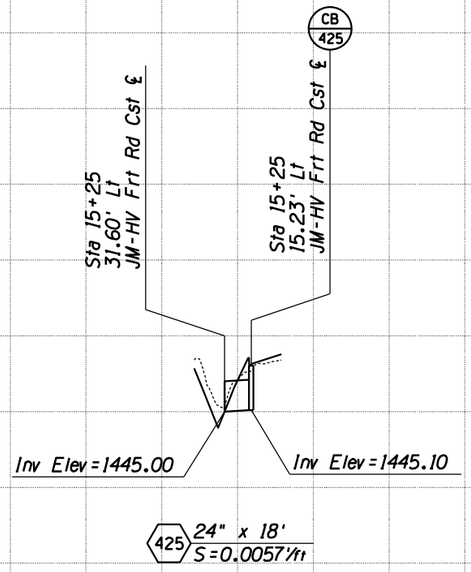
F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	ARIZ.	00-017-A(248)T	347	896	

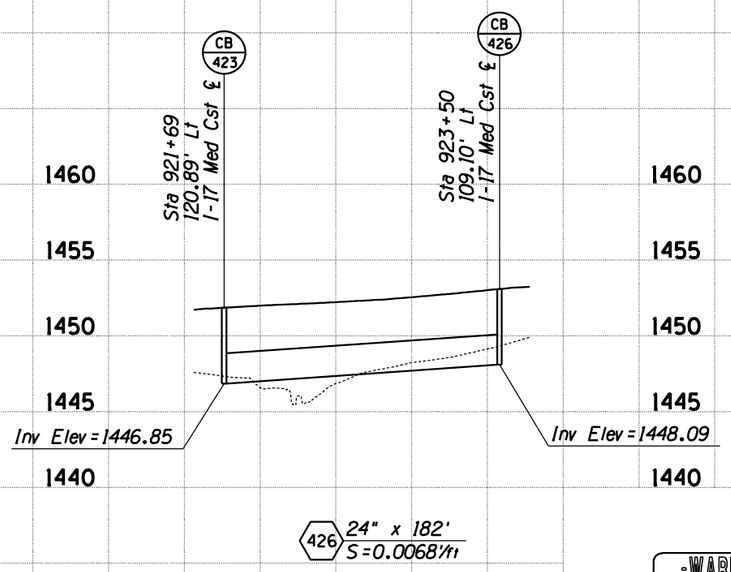
017 MA 216











WARNING
OVERHEAD POWER LINES WITHIN PROJECT CONSTRUCTION LIMITS

Contact Arizona 811 at least two full working days before you begin excavation
ARIZONA 811
Call 811 or click Arizona811.com

	NAME	DATE
DESIGN	JG	06/18
DRAWN	AE	06/18
CHECKED	ML	06/18

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ARIZONA DEPARTMENT OF TRANSPORTATION
INFRASTRUCTURE DELIVERY AND OPERATIONS DIVISION
DRAINAGE DESIGN SERVICES

STORM DRAIN PROFILE

ROUTE	LOCATION
I-17	PINNACLE PEAK RD TI & HAPPY VALLEY RD TI

TRACS NO. H7383 01C | 00-017-A(248)T | ___ OF ___

Registered Professional Engineer (Civil) CERTIFICATE NO. 32316 JAVIER O. GUANA Date Signed 05/18/2018 ARIZONA, U.S.A.
Expires 03/31/2019

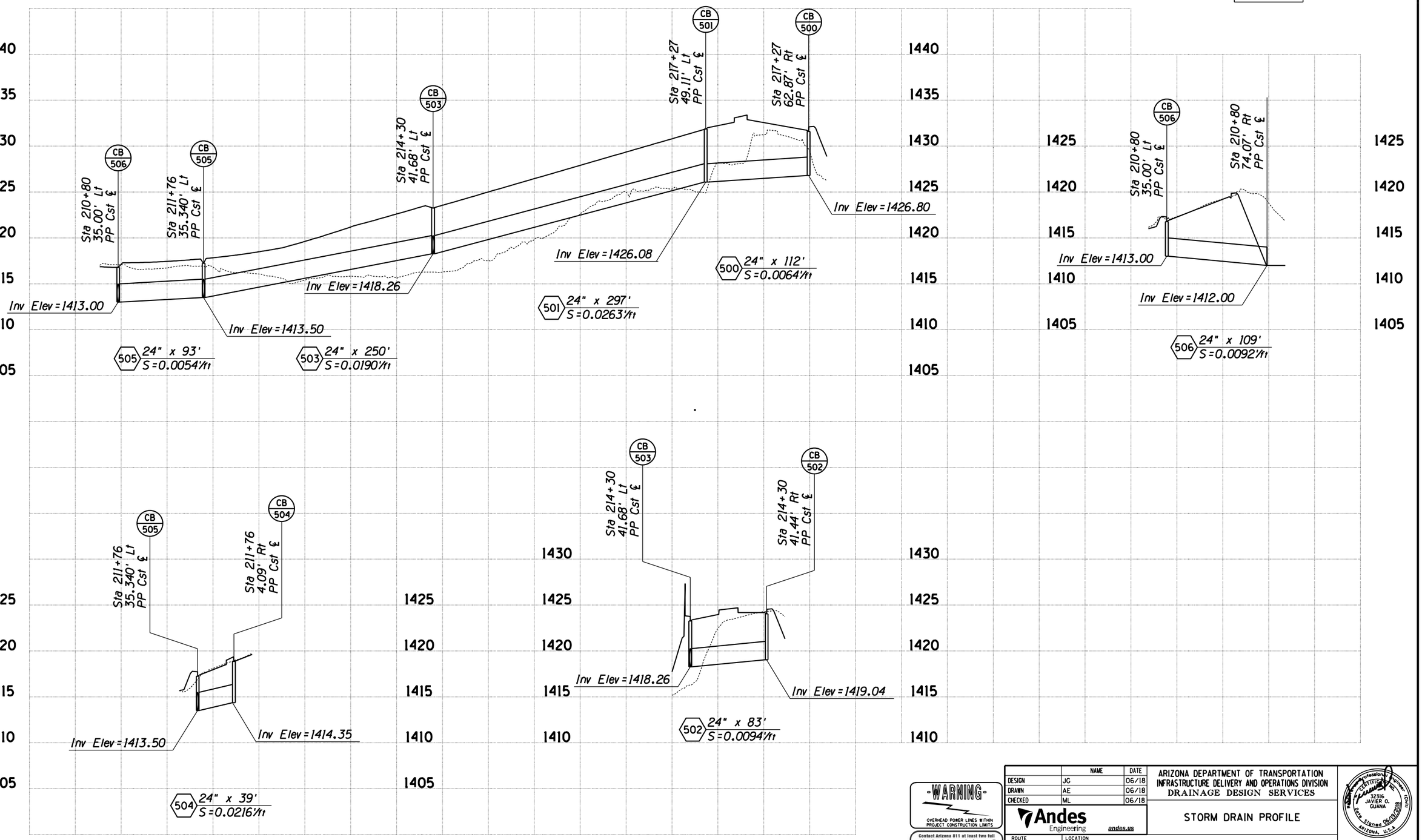
DWG NO. D-03.11

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SURVEY NO. | FINISHED PLANS- | REVISIONS- | LOCATION- | DATE-

9:20:05 AM c:\pwworking\west01\d0353505\h7383dprof11.dgn

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	ARIZ.	00-017-A(248)T	348	896	

017 MA 216



PLOT DATE: Tuesday, June 19, 2018 9:20:13 AM PLOT SCALE: 1:50 PLOT BY: jguan
SURVEY NO. | FINISHED PLANS | REVISIONS | LOCATION | DATE
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WARNING
OVERHEAD POWER LINES WITHIN PROJECT CONSTRUCTION LIMITS
Contact Arizona 811 at least two full working days before you begin excavation
ARIZONA 811 Arizona Blue Stake, Inc.
Call 811 or click Arizona811.com

	NAME	DATE
DESIGN	JG	06/18
DRAWN	AE	06/18
CHECKED	ML	06/18

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ARIZONA DEPARTMENT OF TRANSPORTATION
INFRASTRUCTURE DELIVERY AND OPERATIONS DIVISION
DRAINAGE DESIGN SERVICES

STORM DRAIN PROFILE

ROUTE	LOCATION
I-17	PINNACLE PEAK RD TI & HAPPY VALLEY RD TI

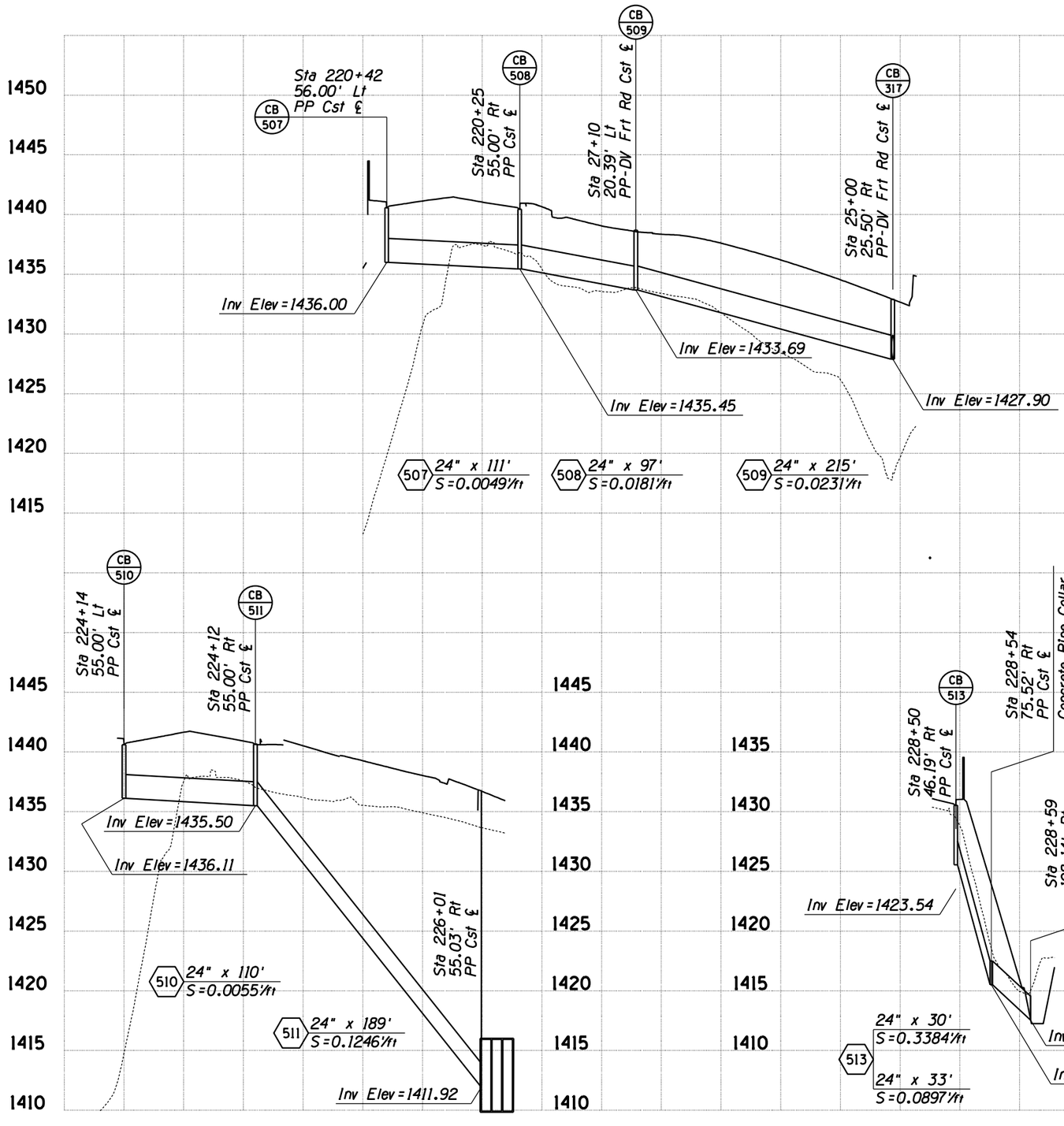
TRACS NO. H7383 01C | 00-017-A(248)T

Professional Engineer — CERTIFICATE NO. 32316 JAVIER O. GUANA — Date Signed 05/18/2018 — ARIZONA, U.S.A.
Expires 03/31/2019

DWG NO. D-03.12

___ OF ___

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	ARIZ.	00-017-A(248)T	349	896	
		017 MA 216			



PLOT DATE: Tuesday, June 19, 2018 9:20:22 AM PLOT SCALE: 1:50 PLOT BY: jguan.000-HDR

SURVEY NO. | FINISHED PLANS- | REVISIONS- | LOCATION- | DATE-

WARNING
OVERHEAD POWER LINES WITHIN PROJECT CONSTRUCTION LIMITS

Contact Arizona 811 at least two full working days before you begin excavation
ARIZONA811
Call 811 or click Arizona811.com

	NAME	DATE
DESIGN	JG	06/18
DRAWN	AE	06/18
CHECKED	ML	06/18

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ARIZONA DEPARTMENT OF TRANSPORTATION
INFRASTRUCTURE DELIVERY AND OPERATIONS DIVISION
DRAINAGE DESIGN SERVICES

STORM DRAIN PROFILE

ROUTE	LOCATION
I-17	PINNACLE PEAK RD TI & HAPPY VALLEY RD TI

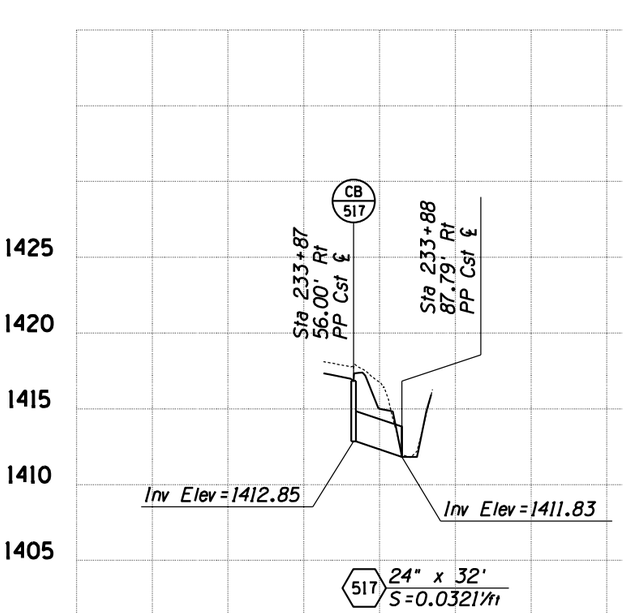
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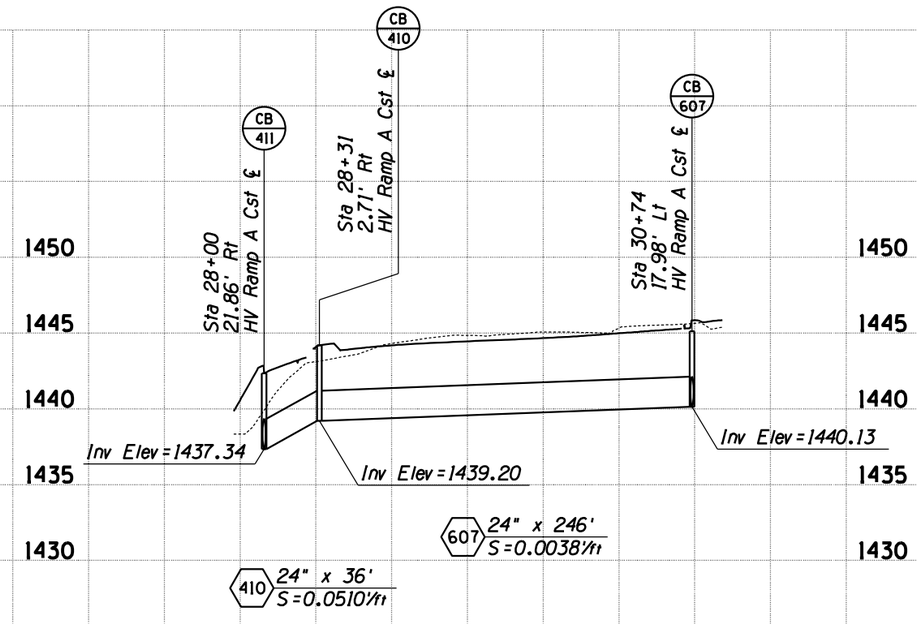
32316 JAVIER O. CUANA — Date Signed 06/19/2018 — Arizona, U.S.A. — Expires 03/31/2019

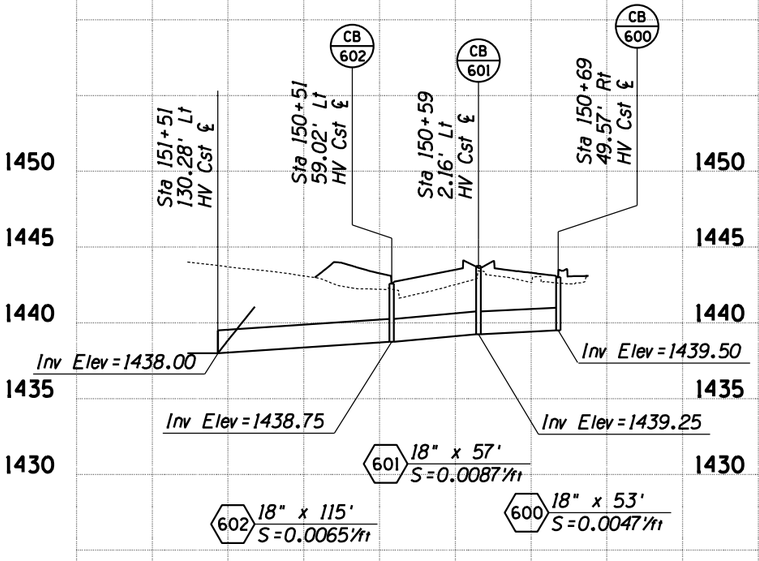
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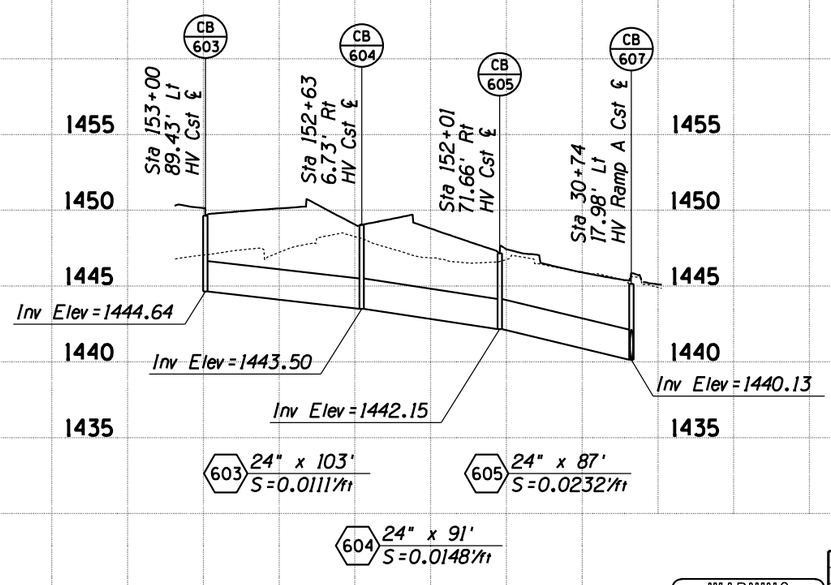
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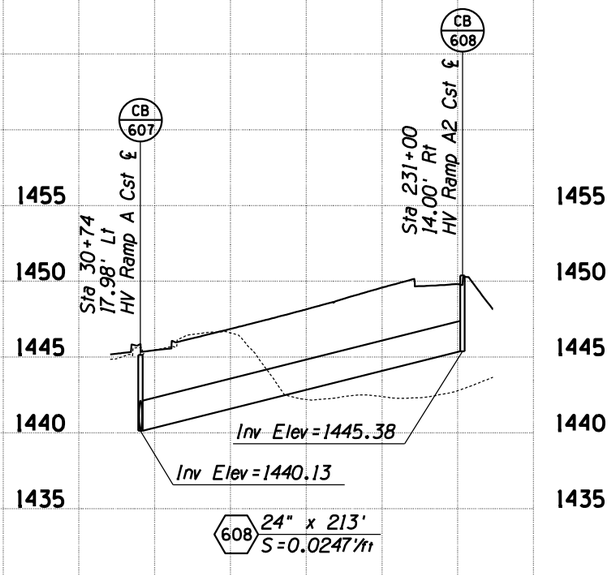
F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	ARIZ.	00-017-A(248)T	350	896	
		017 MA 216			











WARNING
OVERHEAD POWER LINES WITHIN PROJECT CONSTRUCTION LIMITS

Contact Arizona 811 at least two full working days before you begin excavation
ARIZONA 811
Call 811 or click Arizona811.com

	NAME	DATE
DESIGN	JG	06/18
DRAWN	AE	06/18
CHECKED	ML	06/18

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ARIZONA DEPARTMENT OF TRANSPORTATION
INFRASTRUCTURE DELIVERY AND OPERATIONS DIVISION
DRAINAGE DESIGN SERVICES

STORM DRAIN PROFILE

ROUTE	LOCATION
I-17	PINNACLE PEAK RD TI & HAPPY VALLEY RD TI

TRACS NO. H7383 01C | 00-017-A(248)T | ___ OF ___

Registered Professional Engineer (Civil)
CERTIFICATE NO. 32316
JAVIER O. GUANA
Date Signed 06/29/2018
ARIZONA, U.S.A.
Expires 03/31/2019

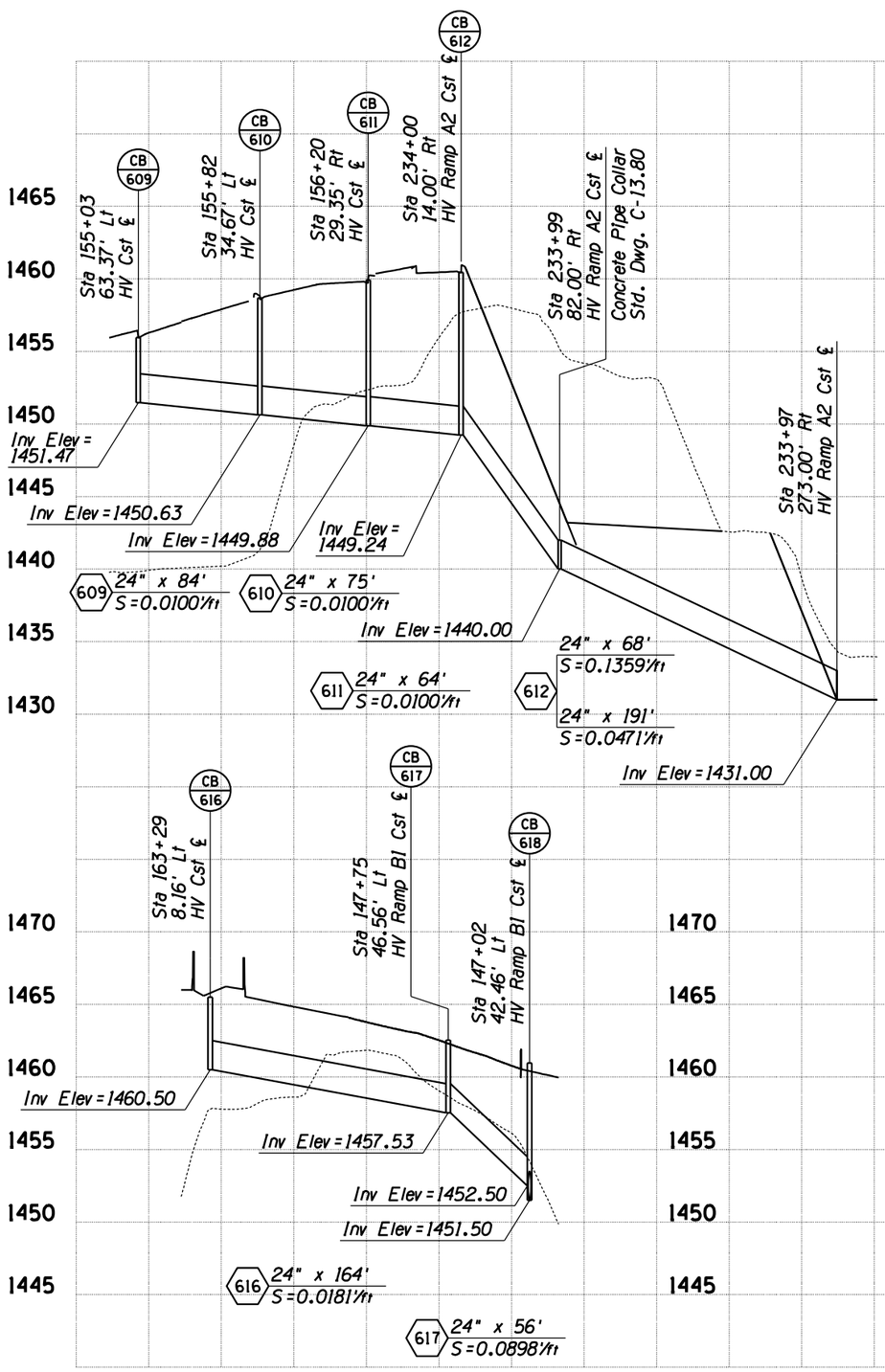
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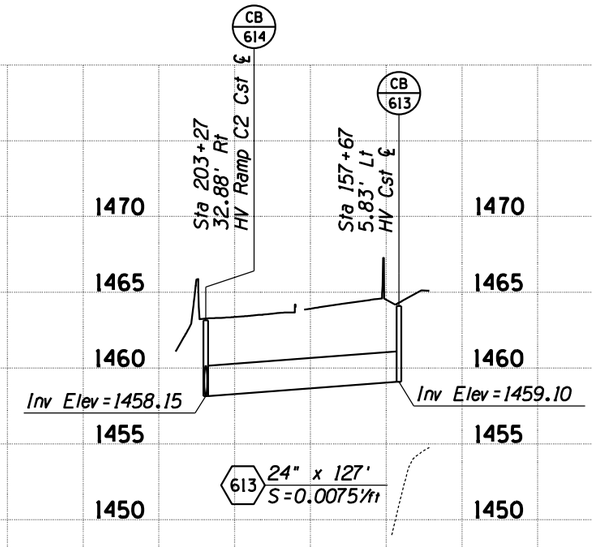
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SURVEY NO. | FINISHED PLANS- | REVISIONS- | LOCATION- | DATE- | SURVEY NO.

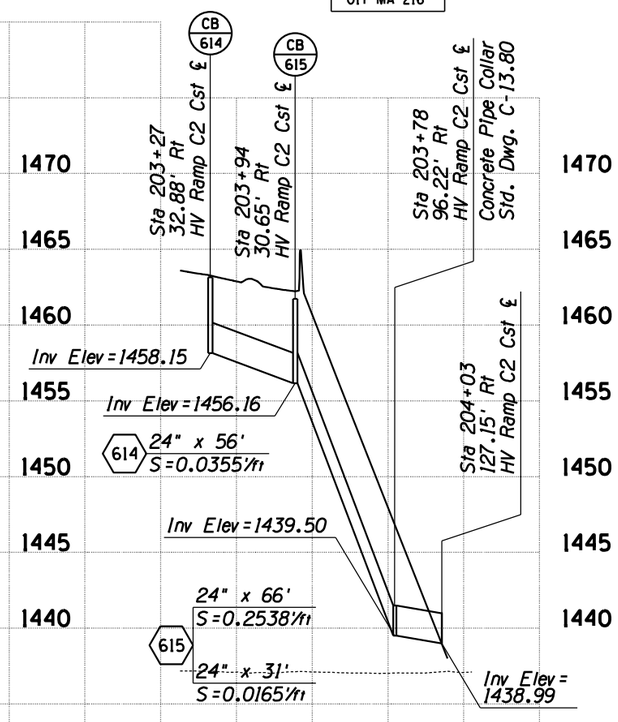
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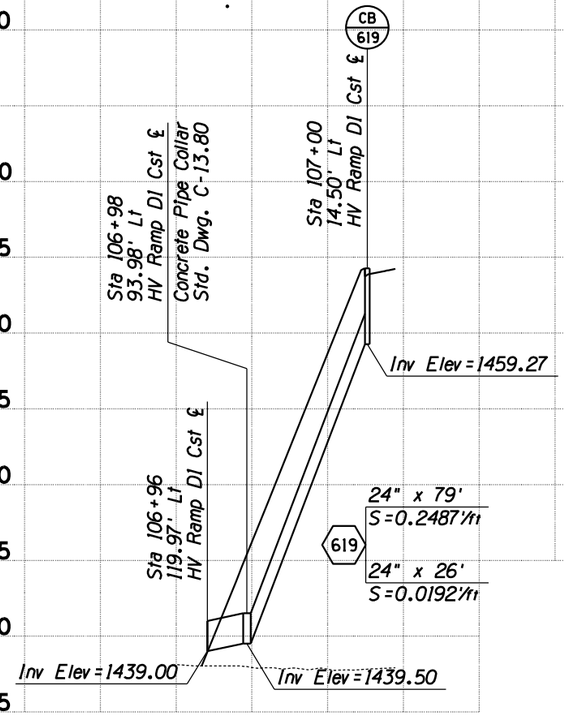
F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	ARIZ.	00-017-A(248)T	351	896	

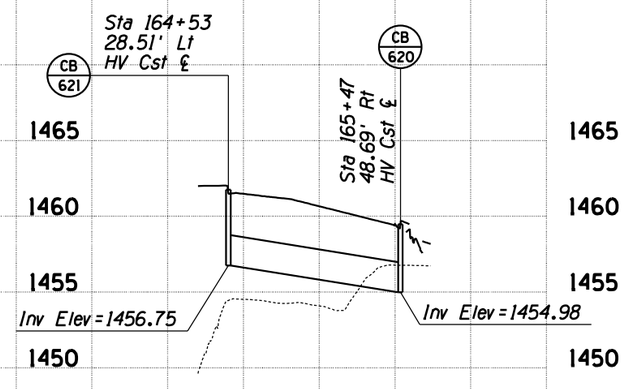
017 MA 216











WARNING
OVERHEAD POWER LINES WITHIN PROJECT CONSTRUCTION LIMITS

Contact Arizona 811 at least two full working days before you begin excavation
ARIZONA811 Call 811 or click Arizona811.com

	NAME	DATE
DESIGN	JG	06/18
DRAWN	AE	06/18
CHECKED	ML	06/18

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ARIZONA DEPARTMENT OF TRANSPORTATION
INFRASTRUCTURE DELIVERY AND OPERATIONS DIVISION
DRAINAGE DESIGN SERVICES

STORM DRAIN PROFILE

ROUTE	LOCATION
I-17	PINNACLE PEAK RD TI & HAPPY VALLEY RD TI

TRACS NO. H7383 01C | 00-017-A(248)T

Professional Engineer — Certificate No. 32316 — JAVIER O. GUANA — Date Signed 06/27/2018 — Arizona, U.S.A. — Expires 03/31/2019

DWG NO. D-03.15

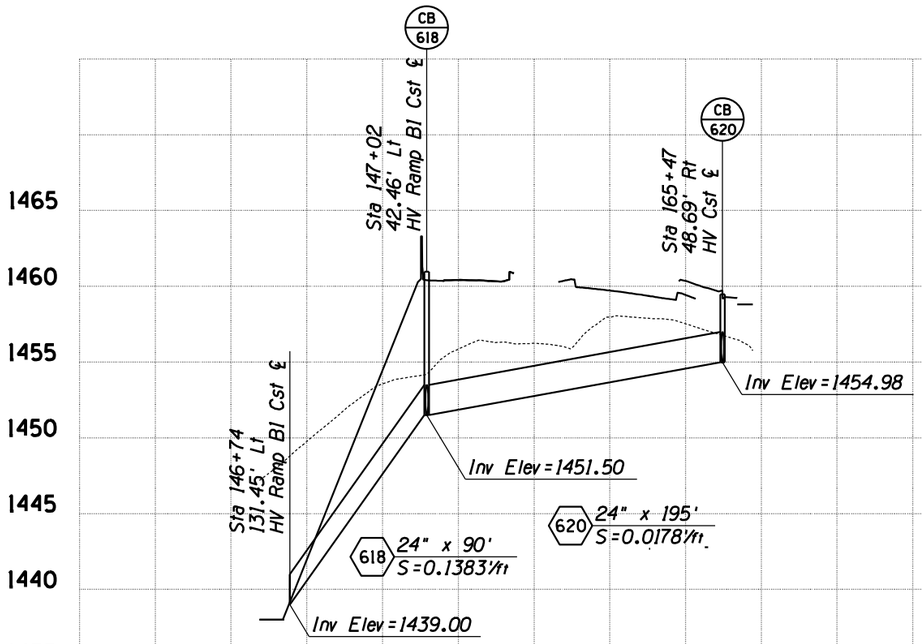
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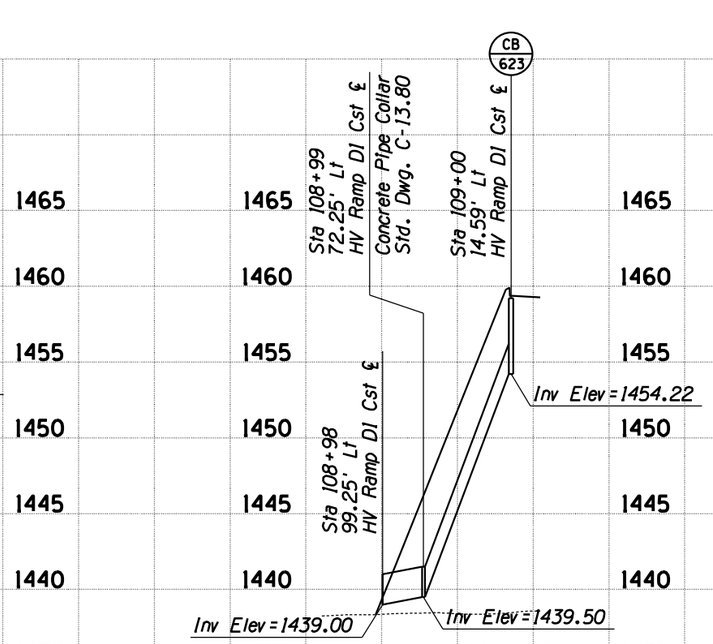
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SURVEY NO. | FINISHED PLANS | REVISIONS | LOCATION | DATE

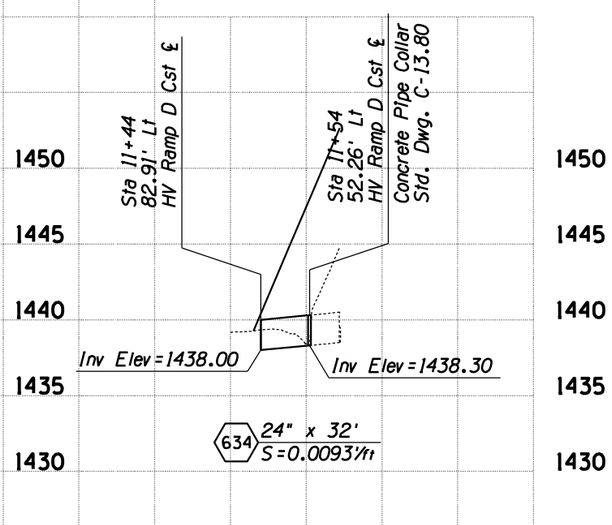
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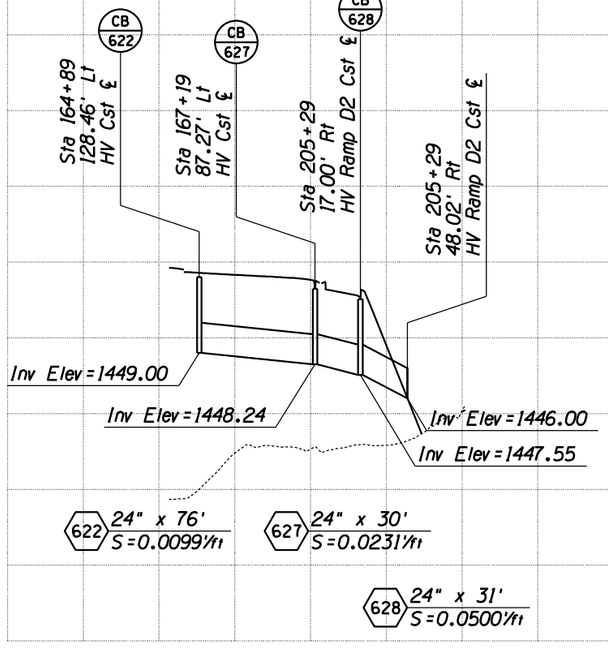
F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	ARIZ.	00-017-A(248)T	352	896	

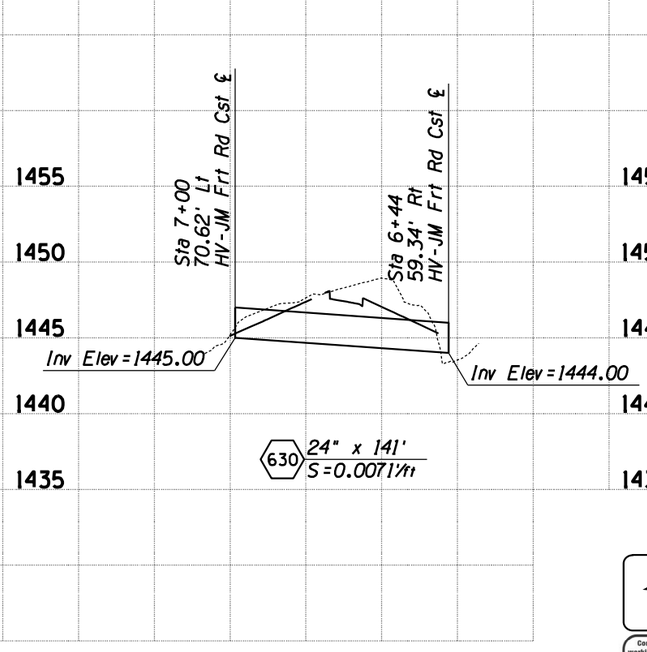
017 MA 216

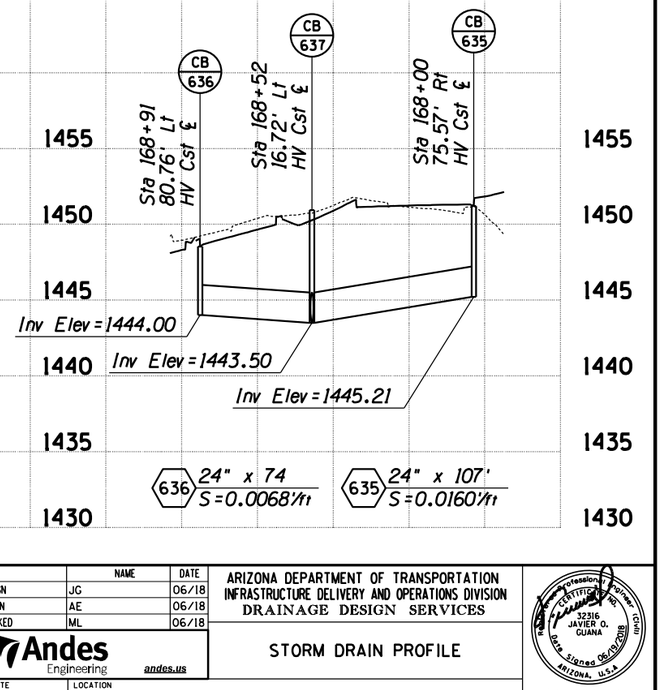












WARNING
OVERHEAD POWER LINES WITHIN PROJECT CONSTRUCTION LIMITS

Contact Arizona 811 at least two full working days before you begin excavation
ARIZONA811
Call 811 or click Arizona811.com

	NAME	DATE
DESIGN	JG	06/18
DRAWN	AE	06/18
CHECKED	ML	06/18

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ARIZONA DEPARTMENT OF TRANSPORTATION
INFRASTRUCTURE DELIVERY AND OPERATIONS DIVISION
DRAINAGE DESIGN SERVICES

STORM DRAIN PROFILE

ROUTE	LOCATION
I-17	PINNACLE PEAK RD TI & HAPPY VALLEY RD TI

TRACS NO. H7383 01C | 00-017-A(248)T | ___ OF ___

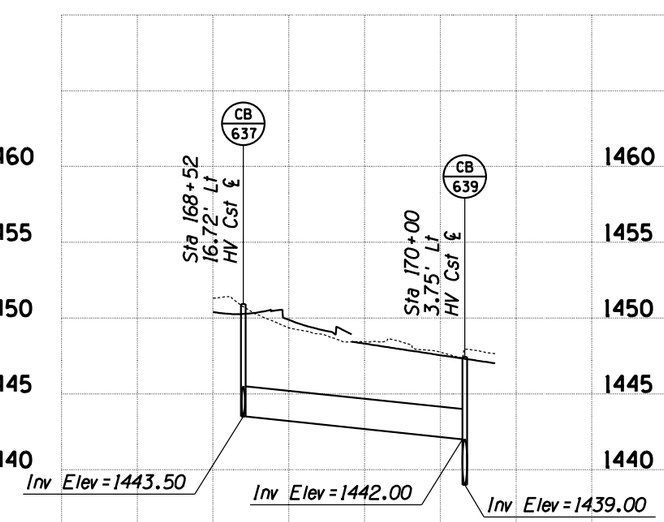
32316 JAVIER O. CUANA
Registered Professional Engineer (Civil)
CERTIFICATE NO.
Date Signed 06/19/2018
ARIZONA, U.S.A.
Expires 03/31/2019

DWG NO. D-03.16

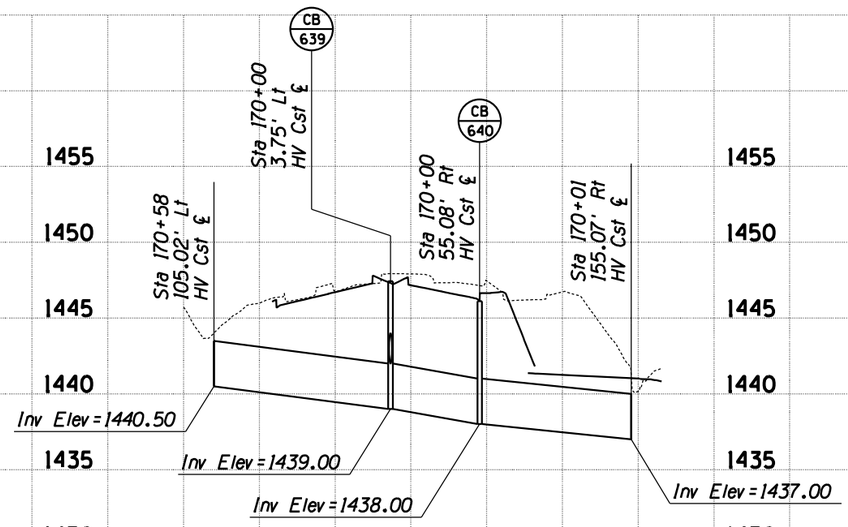
PLOT DATE:Tuesday, June 19, 2018 AM PLOT SCALE:1:50 PLOT BY:jguan.000+HDR
SURVEY NO. | FINISHED PLANS- | REVISIONS- | LOCATION- | DATE-

9:20:50 AM c:\pwworking\west01\d0353505\h7383dprof16.dgn

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	ARIZ.	00-017-A(248)T	353	896	
		017 MA 216			



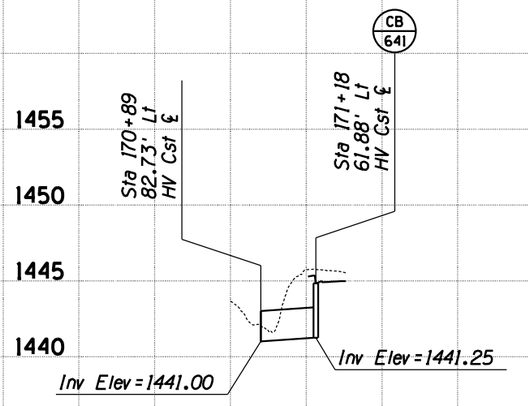
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S = 0.0103'/ft



638 36" x 117'
S = 0.0129'/ft

639 36" x 59'
S = 0.0170'/ft

640 36" x 100'
S = 0.0100'/ft



641 24" x 36'
S = 0.0069'/ft

PLOT DATE: Tuesday, June 19, 2018 9:20:58 AM PLOT SCALE: 1:50 PLOT BY: jguan.000-HDR

SURVEY NO. | FINISHED PLANS- | REVISIONS- | LOCATION- | DATE-

WARNING
OVERHEAD POWER LINES WITHIN PROJECT CONSTRUCTION LIMITS

Contact Arizona 811 at least two full working days before you begin excavation
ARIZONA 811
Call 811 or click Arizona811.com

	NAME	DATE
DESIGN	JG	06/18
DRAWN	AE	06/18
CHECKED	ML	06/18

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ARIZONA DEPARTMENT OF TRANSPORTATION
INFRASTRUCTURE DELIVERY AND OPERATIONS DIVISION
DRAINAGE DESIGN SERVICES

STORM DRAIN PROFILE

ROUTE	LOCATION
I-17	PINNACLE PEAK RD TI & HAPPY VALLEY RD TI

TRACS NO. H7383 01C | 00-017-A(248)T

Registered Professional Engineer (Civil)
CERTIFICATE NO. 32316
JAVIER O. GUANA
Date Signed 06/19/2018
ARIZONA, U.S.A.
Expires 03/31/2019

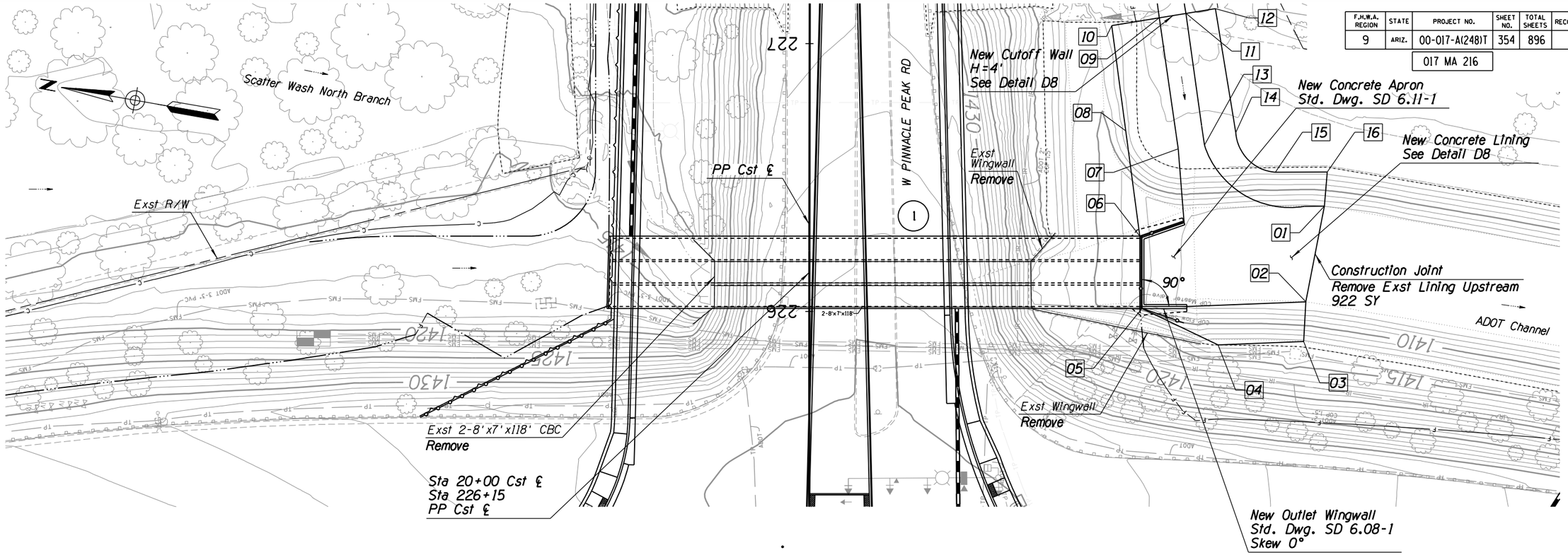
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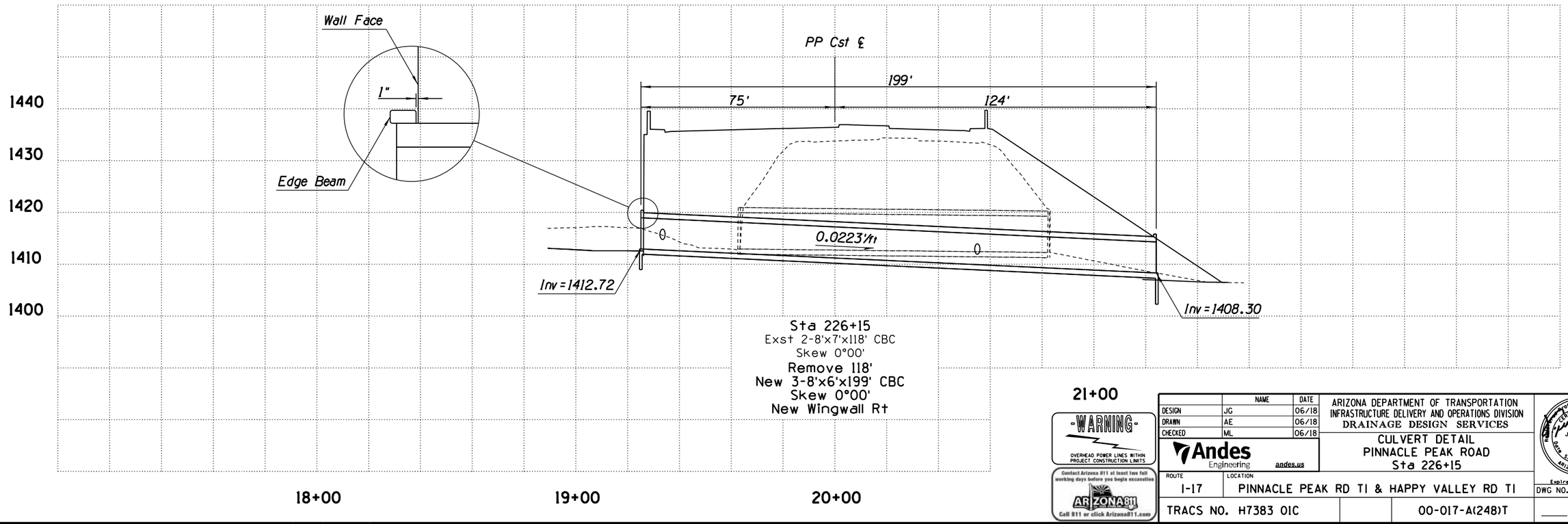
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F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	ARIZ.	00-017-A(248)T	354	896	

017 MA 216





Sta 226+15
Exst 2-8'x7'x118' CBC
Skew 0°00'
Remove 118'
New 3-8'x6'x199' CBC
Skew 0°00'
New Wingwall Rt

WARNING
OVERHEAD POWER LINES WITHIN PROJECT CONSTRUCTION LIMITS

Contact Arizona 811 at least two full working days before you begin excavation
ARIZONA811
Call 811 or click Arizona811.com

	NAME	DATE
DESIGN	JG	06/18
DRAWN	AE	06/18
CHECKED	ML	06/18

Andes Engineering andes.us

ARIZONA DEPARTMENT OF TRANSPORTATION
INFRASTRUCTURE DELIVERY AND OPERATIONS DIVISION
DRAINAGE DESIGN SERVICES

CULVERT DETAIL
PINNACLE PEAK ROAD
Sta 226+15

ROUTE: I-17
LOCATION: PINNACLE PEAK RD TI & HAPPY VALLEY RD TI

TRACS NO. H7383 01C | 00-017-A(248)T

Certified Professional Engineer - Civil
CERTIFICATE NO. 32316
JAVIER O. GUANA
Date Signed 05/31/2019
ARIZONA, U.S.A.
Expires 03/31/2019

DWG NO. D-04.01

___ OF ___

PLOT DATE=Jun, 19, 2018 TIME=4:07:27 PM PLOT SCALE=1:40 PLOT BY=AHOFFMAN-HDR
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APPENDIX J

PINNACLE PEAK CHANNEL

Hydraulic Analysis Report

Project Data

Project Title: I-17, Pinnacle Peak Rd TI & Happy Valley Rd TI
Designer: Andes Engineering
Project Date: Wednesday, June 27, 2018
Project Units: U.S. Customary Units
Notes:

Channel Analysis: PP Channel Analysis

Notes:

Input Parameters

Channel Type: Trapezoidal
Side Slope 1 (Z1): 2.0000 ft/ft
Side Slope 2 (Z2): 2.0000 ft/ft
Channel Width: 10.0000 ft
Longitudinal Slope: 0.0097 ft/ft
Manning's n: 0.0350
Lining Type: Rock Riprap - 150 mm (6-inch)
Flow: 78.0000 cfs

Result Parameters

Depth: 1.3810 ft
Area of Flow: 17.6237 ft^2
Wetted Perimeter: 16.1759 ft
Hydraulic Radius: 1.0895 ft
Average Velocity: 4.4258 ft/s
Top Width: 15.5238 ft
Froude Number: 0.7320
Critical Depth: 1.1415 ft
Critical Velocity: 5.5630 ft/s
Critical Slope: 0.0190 ft/ft
Critical Top Width: 14.57 ft
Calculated Max Shear Stress: 0.8359 lb/ft^2
Calculated Avg Shear Stress: 0.6595 lb/ft^2

PINNACLE PEAK ROAD
FROM
I-17 TO 19th AVENUE
DRAINAGE REPORT FOR
100% DESIGN SUBMITTAL

PHOENIX PROJECT NO.: ST85100090

January 13, 2005

WP #021727

Prepared for:

City of Phoenix
Street Transportation Department
1034 East Madison
Phoenix, Arizona 85034-2292
Phone: (602) 495-2050

Prepared by:

Wood, Patel & Associates, Inc.
2051 West Northern Avenue
Suite 100
Phoenix, Arizona 85021
Phone: (602) 335-8500
Fax: (602) 335-8580
Website: www.woodpatel.com

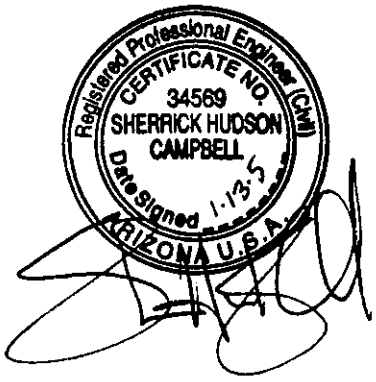


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APPENDICES

Appendix A	Peak Flow Estimates
Appendix B	Street Capacity, Storm Drain, and Open Channel Hydraulic Analysis
Appendix C	Referenced Materials

PLATES

Plate 1	Area Location Map
Plate 2	Aerial Photo Map
Plate 3	Flood Insurance Rate Map (FIRM)
Plate 4	Drainage Map
Plate 5	Storm Drain Design Summary Sheet



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Y:\WP\Reports\Hydrology\021727 Pinnacle Peak Road_Drainage Report_100% Submittal.doc

1.0 STORM DRAIN CHECKLIST

The Storm Drain Checklist, per the City of Phoenix Storm Water Policies and Standards (Ref. 1) is included on pages 2, 3, and 4.

NO.	STATUS	ITEM
9.	APPROX. LOCATION OF WATER & SEWER TAPS SHOWN IN PLAN & PROFILE. NO NATURAL GAS TAPS ARE SHOWN.	Water, sewer, and natural gas service taps shown in plan & profile.
10.	SEE IMPROVEMENT PLAN FOR DETAILS	All sanitary sewer manhole rim and invert elevations shown on plans.
11.	SEE IMPROVEMENT PLAN FOR DETAILS	Existing top of water valve nut elevations noted on storm drain plans.
12.	SEE IMPROVEMENT PLAN FOR DETAILS	Storm drain conflicts with other utilities identified.
13.	N/A	SRP, RID, and private irrigation facilities checked for conflicts.
14.	SEE IMPROVEMENT PLAN FOR APPROXIMATE LOCATION OF EXISTING WATER LINE	Waterline thrust block conflicts shown.
15.	SEE IMPROVEMENT PLAN FOR DETAILS	Pipe support for sanitary sewer line above main storm drain identified.
16.	SEE IMPROVEMENT PLAN FOR DETAILS	Any existing Portland Cement concrete pavement underlay shown.
17.	SEE IMPROVEMENT PLAN FOR DETAILS	Existing topography and buildings shown at least 30 feet beyond street R.O.W.
18.	SEE IMPROVEMENT PLAN FOR DETAILS	Intersecting side street elevations at least 100 feet beyond curb returns noted on plans.
19.	TO BE CHECKED FOR 90% SUBMITTAL	Potential ponding behind sidewalks checked and resolved.
20.	CONFLICTS ARE NOT ANTICIPATED	Driveway/catch basin conflicts checked and resolved.
21.	FINISH FLOOR ELEVATION REPORTED TO BE 1433.32 AT N.W. CORNER OF 20TH DR. & PINNACLE PEAK IS APPROXIMATELY 2.32' ABOVE SUMP OUTFALL OF 1431.00 IN 20TH DRIVE	Finish floor elevations checked relative to 100-Year water surface elevations (6 inches), top of curb elevations (14 inches low curb, 6 inches high curb), street crown elevations (6 inches), and sump outfall elevations (6 inches) as appropriate.
22.	SEE IMPROVEMENT PLAN FOR DETAILS	One typical full-street cross-section with storm drain and all other underground utilities drawn at 1" = 10' H & V scale on each storm drain profile sheet. The section should be taken at a specific station location on that sheet, and that station location shall be noted on the cross-section.
23.	SEE IMPROVEMENT PLAN FOR DETAILS	Main line storm drain plans shall be 1 inch = 20 feet horizontal and 1 inch=2 feet vertical (unless otherwise approved).
24.	SEE IMPROVEMENT PLAN FOR DETAILS	Scales for connector pipe/catch basin profiles shall be 1 inch = 5 feet horizontal and 1 inch=5 feet vertical (unless otherwise approved).
25.	SEE REPORT FOR DETAILS	Mainline storm drain has minimum 5-foot cover (unless otherwise approved).
26.	INCLUDED	Maximum distance that surface drainage is carried in a collector/arterial is 660 feet before reaching a catch basin
27.	SEE IMPROVEMENT PLAN FOR DETAILS	Soil boring(s) extending at least 2 feet below proposed storm drain have been taken and shown on the plans.
28.	INCLUDED PENDING FURTHER INFORMATION	Soil boring logs and information including pH & resistivity shown on plans. Alternate pipe materials selected are appropriate for soil conditions.

2.0 INTRODUCTION

The City of Phoenix (COP) Street Transportation Department has contracted with Wood, Patel & Associates, Inc. (Wood/Patel) to prepare a paving and storm drainage improvement plan for a portion of Pinnacle Peak Road from Interstate-17 (I-17) to 19th Avenue, herein referred to as the Site. The aforementioned improvement plan spans approximately 3,700 linear feet.

As part of the Scope of Work for this project, Wood/Patel has prepared a drainage design for the 100 percent design plan submittal. This drainage design is based on the results of an alternatives analysis entitled *Pinnacle Peak Road from I-17 to 19th Avenue Storm Drain Outfall Alternative Analysis* (Reference 1, hereinafter referred to as *Outfall Alternative Analysis*) that was prepared on March 21, 2003 by Wood/Patel and approved by the City of Phoenix. This Outfall Alternative Analysis was prepared to determine the optimal outfall location for the proposed storm drainage system. Three options for the outfall locations were developed and preliminary hydraulic analyses were performed to determine the feasibility of the alternatives. The recommended alternative, Option 3, from that study was adopted and is refined in this report.

This report serves to document the drainage design for outfall Option 3, the recommended alternative, for the 100 percent plan development and design. Option 3 consists of the design of a storm drain pipeline within the Pinnacle Peak Road alignment with conveyance towards the western project limits. The storm drain pipeline is to convey expected 2-year peak storm flows produced within the boundaries of the Site, as well as a portion of adjacent 20th Drive and 23rd Avenue, as shown on Plate 4 – *Drainage Map*. Additionally, storm drain conveyance capacity is to be provided for expected 100-year peak storm flows from the roadway portions of 20th Drive and 23rd Avenue, north of the Site as shown on Plate 4 – *Drainage Map*. At the storm drain outlet west of 23rd Avenue, an open channel is to be graded along the south side of the roadway and within the Arizona Department of Transportation (ADOT) right-of-way to route the flow west and towards the existing drainage channel located along the east side of I-17. A copy of Plate 5 depicting Option 3 from the *Outfall Alternative Analysis* is included in Appendix C.

6.0 OFFSITE DRAINAGE

A review of the offsite hydrology was performed to determine the impact of offsite flows to this project. This review was made partially with topography based on 1-inch equal to 100 scale, 2' contour interval photogrammetric mapping flown in October 1990 and provided to Wood/Patel by the City of Phoenix. Wood/Patel performed a cursory comparison of this contour mapping with mapping prepared in year 2000 for the Corridors Project located along the south side of Pinnacle Peak Road. Wood/Patel determined that the topography may have been altered in the area of the ADOT channel since the COP 1990 mapping was performed. A limited topographic survey along the ADOT channel alignment has been performed to determine the current field conditions within the impacted area.

The north side of Happy Valley Road between I-17 and 19th Avenue was recently improved as part of a City of Phoenix, Street Transportation Department project (ST85100151). Storm runoff flows from this system are expected to outlet to the south into a channel/box culvert conveyance system that is under construction along the west side of 23rd Avenue alignment. This conveyance system is believed to comprise a portion of the Happy Valley Center improvements located at the southwest corner of 23rd Avenue and Happy Valley Road. According to a Happy Valley Center site plan provided to Wood/Patel by the City of Phoenix this open channel/box culvert conveyance system is to extend southerly along the west side of 23rd Avenue alignment to a point located south of the Happy Valley Center. At this point an open channel is to extend to the west where it is to daylight with flow draining overland southwesterly towards an existing ADOT culvert near the northeast corner of I-17 and Pinnacle Peak Road. After review of the site plan, it was determined that the flow from the channel is not expected to impact the Site.

There is a secondary outlet for a Happy Valley Road storm drain system that currently appears to be plugged but is believed to be intended to ultimately outlet to the south at approximately the 21st Avenue alignment. When the south side of Happy Valley Road is constructed, the plugged outlet at 21st Avenue alignment is to be removed and a channel is to be required to convey this flow westerly towards the previously mentioned 23rd Avenue channel/box culvert conveyance system. As part of a separate contract with the City of Phoenix, Wood/Patel is currently preparing design options for this storm drain outfall. Therefore, expected 2-year flows generated north of Happy Valley Road are not anticipated to impact the Site.

As mentioned, an existing ADOT culvert located immediately east of I-17 crosses underneath Pinnacle Peak Road. The culvert appears to have been constructed in a perched condition.

Therefore, ponding is believed to occur upstream of the culvert on the north side of Pinnacle Peak Road before the culvert begins to convey runoff. Ponding may take place upstream of this culvert to an elevation where it may also break out and flow south over an existing low point on Pinnacle Peak Road, west of the project limit. Part of this drainage area is believed to be comprised of land located north of Pinnacle Peak Road, south of Happy Valley Road, east of 23rd Avenue, and west of 19th Avenue. The ADOT culvert discharges into an existing drainage channel that lies along the eastern side of I-17. The Site is not expected to discharge flow to the culvert. However, the channel downstream of the ADOT culvert is to serve as the outfall for the proposed storm drain improvement plan, presented in this report.

As mentioned, an existing low point in the Pinnacle Peak Road alignment occurs west of the project limit. Offsite flow originating north of the Pinnacle Peak Road alignment is believed to be collected at this location (see Plate 4). Existing grades at the edge of pavement near this low point are to be maintained as a part of the paving improvement of the Site in effort to maintain present drainage conditions for conveyance of offsite flow from the north.

Additionally, there are a number of developed industrial parcels along the north side of Pinnacle Peak Road between 19th Avenue and 23rd Avenue. These projects are reported to have been developed under the City of Phoenix design guidelines that include on-site retention for the 100-year, 2-hour storm event. Future development of property in the vicinity of the Site is also expected to provide retention consistent with City of Phoenix criteria. Therefore, flows are not anticipated to contribute to the storm drain system from these parcels in an expected 2-year event.

7.0 ONSITE DRAINAGE

The storm drain design follows drainage criteria and requirements set out in the *City of Phoenix Storm Water Policies and Standards,* (Reference 2) unless otherwise noted. The roadway storm drains and catch basins were sized for expected 2-year peak storm flows with two exceptions, as described below, in which the catch basin and storm drain were upsized to convey expected 100-year peak storm flows per direction from the City of Phoenix.

Both onsite and offsite peak storm flows were estimated using the Flood Control District of Maricopa County's rational method program DDMS (Reference 3). The runoff coefficients are based on the City of Phoenix guidelines (Reference 2).

7.1 Hydrology

Drainage basins have been delineated based on the roadway improvement plan at each of the proposed catch basin inlets along Pinnacle Peak Road as well as 20th Drive and 23rd Avenue. The location of the drainage basins is shown on Plate 4 – *Drainage Map*.

Drainage sub-basin 2 consists of a portion of 20th Avenue north of Pinnacle Peak Road and a portion of the proposed Pinnacle Peak Road. The concentration point of this sub-basin is to be located in a sump condition.

Drainage sub-basin 7 and 8 consist of the existing right-of-way area of 23rd Avenue north of Pinnacle Peak Road to Happy Valley Road. A portion of 23rd Avenue immediately north of Pinnacle Peak Road is not currently improved. However, the peak flows from this drainage basin are estimated assuming a fully improved roadway.

Per City of Phoenix direction, expected 100-year peak storm flow from the existing right-of-way will be evaluated and used in design of catch basins and storm drain for the following locations:

- Immediately north of the Pinnacle Peak and 20th Drive intersection (catch basin 2).
- Immediately north of the Pinnacle Peak and 23rd Avenue intersection (east side only) (catch basin 7).

- East of 20th Drive on the north side of Pinnacle Peak Road at the upstream end of the storm drain system. (catch basin 1).

The peak flow estimates used in the proposed storm drain improvement plan design are summarized along with the hydrologic calculations and supporting documentation in Appendix A.

7.2 Hydraulics

A hydraulic analysis has been prepared to document the expected performance of the proposed storm drain system. The peak storm runoff is to be collected via curb inlet catch basins and conveyed within a storm drain in Pinnacle Peak Road towards the aforementioned ADOT channel outfall. Each catch basin is to be located at a maximum 600 feet apart in compliance with the requirements set out in the *City of Phoenix Storm Water Policies and Standards* (Ref. 2). Capture ratios of 80 percent and 50 percent were considered for a curb opening catch basins and a grated inlet catch basins in a sump condition, respectively. A minimum 12-foot dry lane is to be provided in each travel direction to meet the requirements in the *City of Phoenix Storm Water Policies and Standards* (Ref. 2).

As mentioned, catch basins 1 and 2 are designed to have expected 100-year flow interception capacity. Each catch basin with the exception of 1 is to be installed in a sump condition. Catch basin 7 and its lateral connector pipe and the lateral connector pipe at catch basin 8 are each designed to accommodate a 10 cfs portion of the expected 100-year peak storm flow of 36 cfs for the future improved condition of 23rd Avenue, north of Pinnacle Peak Road, extending to Happy Valley Road. Catch basin 8 is to be constructed as an interim grated inlet to intercept localized flow. Catch basin 8 is to be replaced in the future with the same capacity as catch basin 7 to collect a total flow of 10 cfs. Additionally, a 30-inch storm drain stub is to be constructed at this location for future use in conveyance of the 16 cfs remainder of the expected 100-year flow from the aforementioned 23rd Avenue right-of-way.

Catch basins 9 and 10 are to be installed in 23rd Avenue south of Pinnacle Peak Road to collect the local runoff and bypass flow from Pinnacle Peak Road due to depressed curb

returns at this location. The pavement sump at this location is to have a maximum available ponding depth of 0.42' prior to overflow back onto Pinnacle Peak Road.

It is noted that a minimum covering depth of 5 feet typically required by the City of Phoenix cannot be achieved for the 48-inch pipe due to outfall constraints. Per COP suggestions, a minimum cover depth of approximately two (2) feet is to be provided for the storm drain pipe.

The hydraulic grade line for the expected 2-year peak storm flow is expected to be within one (1) foot of the main line storm drain crown. However, the hydraulic grade line for the expected 100-year peak storm flows at 20th Drive and 23rd Avenue is expected to be in a pressurized condition. This has been discussed with the City of Phoenix with their concurrence given. Some pipe velocities are expected to be less than 5 feet per second due to shallow slopes required by outfall constraints. However, a minimum freeboard depth of one (1) foot is expected to be provided throughout the storm drain system, for the estimated design flows.

Hydraulic calculations for the storm drains and catch basins for both the expected 2-year event and composite 2-year/100-year event are included in Appendix B. The City of Phoenix storm drain design summary sheet is included as Plate 5.

As mentioned, the storm drain system is to outfall into a drainage channel located within ADOT right-of-way on the south side of Pinnacle Peak Road. This drainage channel is designed for the expected 2-year peak storm flows identified to be intercepted and conveyed within the proposed storm drain. Flood events in excess of the expected 2-year event are not within the scope of this project. This Pinnacle Peak Road drainage channel is to connect into the existing drainage channel within the ADOT right-of-way west of the Site. The Pinnacle Peak Road channel is to consist of a ten (10) foot bottom width and 2 horizontal unit to 1 vertical unit sideslope. The channel is expected to flow under sub-critical conditions with a velocity of less than five (5) feet per second and a depth of approximately 2.14 feet. Normal depth flow estimates are also included in Appendix B. It is noted that grading will be required within the existing ADOT right-of-way in order to connect the Pinnacle Peak Road channel to the existing drainage channel extending

south along the east side of I-17. Grading is to extend approximately 1500 feet south of Pinnacle Peak Road.

The City of Phoenix is to coordinate with and prepare any necessary application to ADOT for a permit to perform any required work within the ADOT right-of-way. It should be noted that the City of Phoenix is to be responsible for addressing and coordinating with ADOT and the U.S. Army Corps of Engineers, for any Section 404 permit requirements associated with this project.

8.0 MAINTENANCE

Ongoing maintenance of the designed or recommended drainage systems is required to preserve the design integrity and purpose of the drainage system. Failure to provide maintenance can prevent the drainage system from performing to its intended design purpose and can result in reduced performance. Maintenance within the public right-of-way is the responsibility of the governing municipality. However, it is the responsibility of private developers, homeowners associations, etc. for facilities on private property within drainage easements and included private streets. A regular maintenance program is required in order to have the drainage system perform to the level of protection or services as presented in this project's report, improvement plan, and specifications.

9.0 RETENTION REQUIREMENTS

Retention is not part of the scope of this project nor is it being provided as a part of this roadway improvement design.

10.0 FINISHED FLOOR ELEVATIONS

The design of finish floor elevations are not part of the scope of this project.

11.0 CONCLUSIONS

1. The contents of this report address the design of a storm drain improvement plan for the subject portion of Pinnacle Peak Road which is consistent with the recommended design Option 3 (Ref. 1).

2. Estimates of peak storm flow for the Site were made using the Rational method, as documented in the *Drainage Design Manual for Maricopa County, Volume I Hydrology* (Ref. 3) as per the *City of Phoenix Storm Water Policies and Standards* (Ref. 2).

3. The storm drain improvement presented in this report has been designed based on the expected 2-year flood event. However, expected 100-year flow interception is incorporated into the design of the storm drain at 20th Drive and 23rd Avenue, for the roadway portions illustrated on Plate 4 – *Drainage Map*.

4. The storm drain improvement presented in this report is proposed to outfall into an open channel to be located south of Pinnacle Peak Road within the ADOT right-of-way. This channel has been designed for the expected 2-year storm drain discharge, only.

5. The subject portion of Pinnacle Peak Road is understood to be classified as a major arterial and therefore the maximum allowable depth of flow is to be the depth which yields a 12-foot dry travel lane in each direction.

6. Future development for parcels located along the north side of the Site are to provide 100-year, 2-hour onsite retention per City of Phoenix requirements.

7. The design of hydraulic structures is based on generally accepted engineering practices and is believed to be in accordance with City of Phoenix requirements unless otherwise noted.

8. The City of Phoenix is to coordinate with and prepare any necessary application to ADOT for a permit to perform any required work within the ADOT right-of-way for the outfall channel. It is also noted that the City of Phoenix is to be responsible for

addressing and coordinating with ADOT and the U.S. Army Corps of Engineers, in regard to any Section 404 permit requirements associated with this project.

9. Ongoing maintenance is required for all drainage systems in order to assure design performance. Maintenance is the responsibility of either private or public parties.

12.0 REFERENCES

1. Wood, Patel & Associates, Inc., *Pinnacle Peak Road from I-17 to 19th Avenue Storm Drain Outfall Alternative Analysis,* May 21, 2003.

2. City of Phoenix, *Storm Water Policies and Standards,* September 2003.

3. Flood Control District of Maricopa County, *Drainage Design Manual for Maricopa County, Arizona, Hydrology*, Draft 2002.

4. Flood Control District of Maricopa County, *Drainage Design Manual for Maricopa County, Arizona, Hydraulics*, Draft 2002.

5. Engineering Alliance, Inc, *Drainage Report for Project #ST85100057, 19th Avenue, Deer Valley Road to Pinnacle Peak Road,* October 2002 (Preliminary).

OUTFALL CHANNEL
Worksheet for Trapezoidal Channel

Project Description	
Worksheet	Trapezoidal Channe
Flow Element	Trapezoidal Channe
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Mannings Coeffic	0.025	
Slope	001100	ft/ft
Left Side Slope	2.00	H : V
Right Side Slope	2.00	H : V
Bottom Width	10.00	ft
Discharge	78.00	cfs

Results		
Depth	2.10	ft
Flow Area	29.7	ft²
Wetted Perim	19.37	ft
Top Width	18.38	ft
Critical Depth	1.14	ft
Critical Slope	0.009682	ft/ft
Velocity	2.62	ft/s
Velocity Head	0.11	ft
Specific Energ	2.20	ft
Froude Numb	0.36	
Flow Type	Subcritical	

OUTFALL CHANNEL CROSS SECTION
Cross Section for Trapezoidal Channel

Project Description	
Worksheet	Trapezoidal Channe
Flow Element	Trapezoidal Channe
Method	Manning's Formula
Solve For	Channel Depth

Section Data		
Mannings Coeffic	0.025	
Slope	001100	ft/ft
Depth	2.10	ft
Left Side Slope	2.00	H : V
Right Side Slope	2.00	H : V
Bottom Width	10.00	ft
Discharge	78.00	cfs

