Appendix B – Hydrologic Parameters & HEC-1 Analyses

- Proposed Condition Standard Form 4
- Proposed Condition HEC-1

TIME OF CONCENTRATION / LAG TIME DETERMINATION - less than 1 mi2

Kimley»Horn

DURANGO & GRAND MONTECITO
ULTIMATE CONDITION

Project No: 090935040
Date: 6/20/24
Calculated by: CK

SUB-BASIN DATA						INITIAL / OVERLAND TIME (Ti)			TRAVEL TIME (Tt)							T_{lag}	REMARKS
Basin ID	DEV./UNDEV. (D or U)	CN	K	AREA Ac	AREA Mi^2	INITIAL LENGTH Feet	SLOPE %	Ti Min	TRAVEL LENGTH Feet	SLOPE %	V_1 VELOCITY FPS	V_2 VELOCITY FPS	Tt Min	Tc Min	Tc Check Min	T_{lag} 0.6Tc/60 Hours	100 YR RAINFALL INCHES
(1)	(2)	(3)	(4)	(5a)	(5b)	(6)	(7)	(8)	(9)	(10)	(10a)	(10b)	(11)	(12)	(13)	(14)	(15)
ON	D	92.0	0.8244	8.80	0.0138	35	1.00	2.9	845	1.20	2.2	3.4	5.5	8.4	14.9	**0.084**	3.00
GMP	D	98.0	0.9036	0.75	0.0012	13	2.30	1.0	344	0.40	1.3	1.9	4.5	5.5	12.0	**0.055**	3.00

NOTE:

(1) Subbasin Name
(2) Developed or Undeveloped Subbasin
(3) Curve Number (See Subbasin CN Calculations)
(4) K = 0.0132 (CN) - 0.39
(5a) & (5b) Area
(6) Initial Length
(7) Initial Slope
(8) Ti = 1.8 (1.1 - K) L^1/2 / S^1/3
(9) Travel Length
(10) Slope
(10a) Slope V_1 applies to the first 500 feet of travel distance;
Developed V_1 = 20.2*(S/100)^1/2
(10b) V_2 applies to the remaining travel distance;
Developed V_2 = 30.6*(S/100)^1/2
(11) Tt = 500/(V1*60)+(Travel Length-500)/(V2*60)
(12) Tc = Ti + Tt
(13) Tc Check = L/180+10 (select smaller Tc)
(14) Tlag = 0.6 Tc/60
(15) Rainfall in inches

REFERENCE: Calculations based on the Clark County Regional Flood Control District HCDDM

STANDARD FORM 4

*Referenced/Revised from Ariva Retail and Office Center Study (PW21-12227)

```
1****************************************
 *                                      *
 *   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *
 *               JUN   1998             *
 *            VERSION 4.1               *
 *                                      *
 *  RUN DATE   20JUN24  TIME  13:00:47  *
 *                                      *
 ****************************************
```

```
****************************************
*                                      *
*    U.S. ARMY CORPS OF ENGINEERS      *
*    HYDROLOGIC ENGINEERING CENTER     *
*          609 SECOND STREET           *
*       DAVIS, CALIFORNIA 95616        *
*           (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.

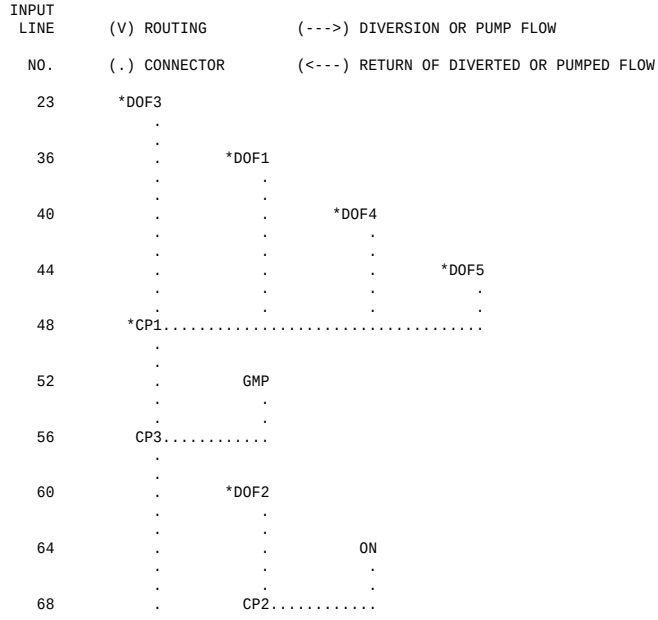
THE DEFINITIONS OF VARIABLES -RTIMP- AND -RTIOR- HAVE CHANGED FROM THOSE USED WITH THE 1973-STYLE INPUT STRUCTURE.
THE DEFINITION OF -AMSKK- ON RM-CARD WAS CHANGED WITH REVISIONS DATED 28 SEP 81. THIS IS THE FORTRAN77 VERSION
NEW OPTIONS: DAMBREAK OUTFLOW SUBMERGENCE , SINGLE EVENT DAMAGE CALCULATION,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


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

                        *DIAGRAM
 *** FREE ***
             1          ID
             2          ID   ********************************************
             3          ID   *                                          *
             4          ID   *    DURANGO & GRAND MONTECITO             *
             5          ID   *    ULTIMATE CONDITION                    *
             6          ID   *                                          *
             7          ID   *    PROJECT No:_ _ _ 192438000            *
             8          ID   *    FILE: _ _ _ _ _ _ULT.H1               *
             9          ID   *    DATE MODELED:_ _ 04/16/24             *
            10          ID   *    MODELED BY:_ _ _ SS                   *
            11          ID   *                                          *
            12          ID   ********************************************
            13          ID
            14          ID   ********************************************
            15          ID   *    RETURN PERIOD:_ _100- & 10- YEAR      *
            16          ID   *    DISTRIBUTION:_ _ 6-HOUR SDN3          *
            17          ID   ********************************************
            18          ID
                        *DIAGRAM
            19          IT       5       0       0     300
            20          IO       5       0       0
            21          IN       5       0       0
            22          JR    PREC    0.56    1.00
                        *

            23          KK   *DOF3
            24          BA   .0016
            25          PB    3.00
            26          PC    .000    .020    .057    .070    .087    .108    .124    .130    .130    .130
            27          PC    .130    .130    .130    .133    .140    .142    .148    .158    .172    .181
            28          PC    .190    .197    .199    .200    .201    .204    .214    .229    .241    .249
            29          PC    .251    .256    .270    .278    .281    .283    .295    .322    .352    .409
            30          PC    .499    .590    .710    .744    .781    .812    .819    .835    .851    .856
            31          PC    .860    .868    .876    .888    .910    .926    .937    .950    .970    .976
            32          PC    .982    .985    .987    .989    .990    .993    .993    .994    .995    .998
            33          PC    .998    .999    1.00
            34          LS       0    92.0
            35          UD    .053
                        *

            36          KK   *DOF1
            37          BA   .0093
            38          LS       0    92.0
            39          UD    .076
                        *

            40          KK   *DOF4
            41          BA   .0027
            42          LS       0    92.0
            43          UD    .079
                        *
```

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

            44          KK   *DOF5
            45          BA   .0011
            46          LS       0    92.0
            47          UD    .050
                        *

            48          KK    *CP1
            49          KM   COMBINES *DOF3, *DOF1, *DOF4, AND *DOF5
            50          KM   SURFACE FLOW IN GRAND MONTECITO PKWY
            51          HC       4
                        *

            52          KK     GMP
            53          BA   .0012
            54          LS       0    98.0
            55          UD    .055
                        *

            56          KK     CP3
            57          KM   COMBINES *CP1 AND GMP
            58          KM   SURFACE FLOW IN GRAND MONTECITO PKWY
            59          HC       2
                        *

            60          KK   *DOF2
            61          BA   .0066
            62          LS       0    92.0
            63          UD    .092
                        *

            64          KK      ON
            65          BA   .0138
            66          LS       0    92.0
            67          UD    .084
                        *

            68          KK     CP2
            69          KM   COMBINES *DOF2 AND ON
            70          KM   STORM DRAIN FLOW
            71          HC       2
                        *
            72          ZZ
```

1

SCHEMATIC DIAGRAM OF STREAM NETWORK



(***) 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   20JUN24  TIME  13:00:47   *                                       *          (916) 756-1104               *
```

```
 *                                       *                                                   *                                      *
 *****************************************                                                   ***************************************




                          *********************************************
                          *                                           *
                          *    DURANGO & GRAND MONTECITO              *
                          *    ULTIMATE CONDITION                     *
                          *                                           *
                          *    PROJECT No:_ _ _ 192438000             *
                          *    FILE: _ _ _ _ _ _ULT.H1                *
                          *    DATE MODELED:_ _ 04/16/24              *
                          *    MODELED BY:_ _ _ SS                    *
                          *                                           *
                          *********************************************

                          *********************************************
                          *    RETURN PERIOD:_ _100- & 10- YEAR       *
                          *    DISTRIBUTION:_ _ 6-HOUR SDN3           *
                          *********************************************


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

      IT         HYDROGRAPH TIME DATA
                        NMIN          5  MINUTES IN COMPUTATION INTERVAL
                       IDATE      1    0  STARTING DATE
                       ITIME       0000  STARTING TIME
                          NQ        300  NUMBER OF HYDROGRAPH ORDINATES
                      NDDATE      2    0  ENDING DATE
                      NDTIME       0055  ENDING TIME
                      ICENT          19  CENTURY MARK

                   COMPUTATION INTERVAL     .08 HOURS
                        TOTAL TIME BASE   24.92 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

      JP         MULTI-PLAN OPTION
                       NPLAN          1  NUMBER OF PLANS

      JR         MULTI-RATIO OPTION
                     RATIOS OF PRECIPITATION
                     .56      1.00
1

               PEAK FLOW AND STAGE (END-OF-PERIOD) SUMMARY FOR MULTIPLE PLAN-RATIO ECONOMIC COMPUTATIONS
                                 FLOWS IN CUBIC FEET PER SECOND,  AREA IN SQUARE MILES
                                                TIME TO PEAK IN HOURS


                                                         RATIOS APPLIED TO PRECIPITATION
 OPERATION       STATION     AREA    PLAN           RATIO 1  RATIO 2
                                                        .56     1.00

 HYDROGRAPH AT
+                  *DOF3       .00     1   FLOW          2.       4.
                                           TIME        3.50     3.50

 HYDROGRAPH AT
+                  *DOF1       .01     1   FLOW          9.      19.
                                           TIME        3.50     3.50

 HYDROGRAPH AT
+                  *DOF4       .00     1   FLOW          3.       5.
                                           TIME        3.50     3.50

 HYDROGRAPH AT
+                  *DOF5       .00     1   FLOW          1.       2.
                                           TIME        3.50     3.50

  4 COMBINED AT
+                   *CP1       .01     1   FLOW         14.      30.
                                           TIME        3.50     3.50

 HYDROGRAPH AT
+                    GMP       .00     1   FLOW          2.       3.
```

```
                                        TIME         3.50     3.50

  2 COMBINED AT
+                    CP3       .02     1   FLOW          16.      33.
                                           TIME         3.50     3.50

 HYDROGRAPH AT
+                   *DOF2      .01     1   FLOW           6.      13.
                                           TIME         3.50     3.50

 HYDROGRAPH AT
+                     ON       .01     1   FLOW          13.      27.
                                           TIME         3.50     3.50

  2 COMBINED AT
+                    CP2       .02     1   FLOW          19.      40.
                                           TIME         3.50     3.50


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

Appendix C – Hydraulic Calculations

- Normal Depth Calculations – Onsite Streets
- Drop Inlet Calculations
- WSPG Model

Worksheet for ON3S

Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Channel Slope	0.840	%
Discharge	8.00	cfs

Section Definitions

Station (ft)	Elevation (ft)
0+00.00	0.48
0+05.00	0.38
0+06.50	0.00
0+07.50	0.08
0+07.50	0.13
0+42.50	0.83
0+42.50	0.78
0+43.50	0.70
0+45.00	1.08

Roughness Segment Definitions

Start Station	Ending Station	Roughness Coefficient
(0+00.00, 0.48)	(0+45.00, 1.08)	0.016

Options

Current Roughness Weighted Method	Pavlovskii's Method
Open Channel Weighting Method	Pavlovskii's Method
Closed Channel Weighting Method	Pavlovskii's Method

Results

Normal Depth	0.44	ft
Roughness Coefficient	0.016	
Elevation	0.44	ft
Elevation Range	0.00 to 1.08	ft
Flow Area	3.3	ft²
Wetted Perimeter	21.07	ft
Hydraulic Radius	0.15	ft
Top Width	20.97	ft
Normal Depth	0.44	ft
Critical Depth	0.45	ft
Critical Slope	0.693	%
Velocity	2.45	ft/s

Worksheet for ON3S

Results	
Velocity Head	0.09 ft
Specific Energy	0.53 ft
Froude Number	1.097
Flow Type	Supercritical

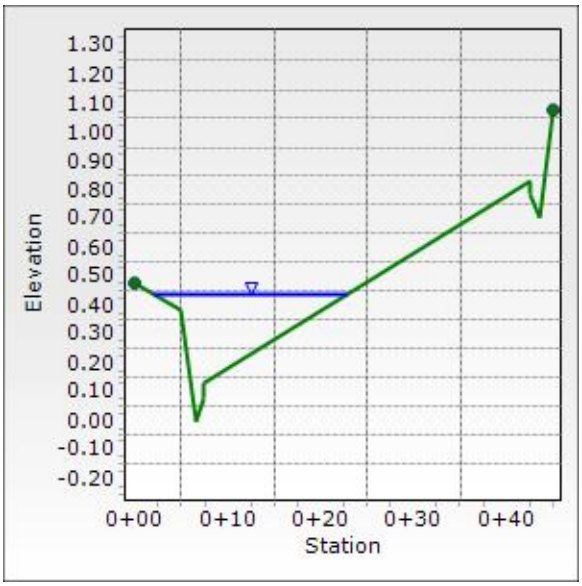
GVF Input Data	
Downstream Depth	0.00 ft
Length	0.00 ft
Number Of Steps	0

GVF Output Data	
Upstream Depth	0.00 ft
Profile Description	N/A
Profile Headloss	0.00 ft
Downstream Velocity	Infinity ft/s
Upstream Velocity	Infinity ft/s
Normal Depth	0.44 ft
Critical Depth	0.45 ft
Channel Slope	0.840 %
Critical Slope	0.693 %

Cross Section for ON3S

Project Description	
Friction Method	Manning Formula
Solve For	Normal Depth

Input Data	
Channel Slope	0.840 %
Normal Depth	0.44 ft
Discharge	8.00 cfs



Worksheet for ON8

Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Channel Slope	1.890	%
Discharge	4.00	cfs

Section Definitions

Station (ft)	Elevation (ft)
0+00.00	0.38
0+01.50	0.00
0+02.50	0.08
0+02.50	0.13
0+20.00	0.48
0+37.50	0.13
0+37.50	0.08
0+38.50	0.00
0+40.00	0.38

Roughness Segment Definitions

Start Station	Ending Station	Roughness Coefficient
(0+00.00, 0.38)	(0+40.00, 0.38)	0.016

Options

Current Roughness Weighted Method	Pavlovskii's Method
Open Channel Weighting Method	Pavlovskii's Method
Closed Channel Weighting Method	Pavlovskii's Method

Results

Normal Depth	0.26	ft
Roughness Coefficient	0.016	
Elevation	0.26	ft
Elevation Range	0.00 to 0.48	ft
Flow Area	1.6	ft²
Wetted Perimeter	17.25	ft
Hydraulic Radius	0.09	ft
Top Width	17.08	ft
Normal Depth	0.26	ft
Critical Depth	0.29	ft
Critical Slope	0.799	%
Velocity	2.57	ft/s

Worksheet for ON8

Results	
Velocity Head	0.10 ft
Specific Energy	0.36 ft
Froude Number	1.502
Flow Type	Supercritical

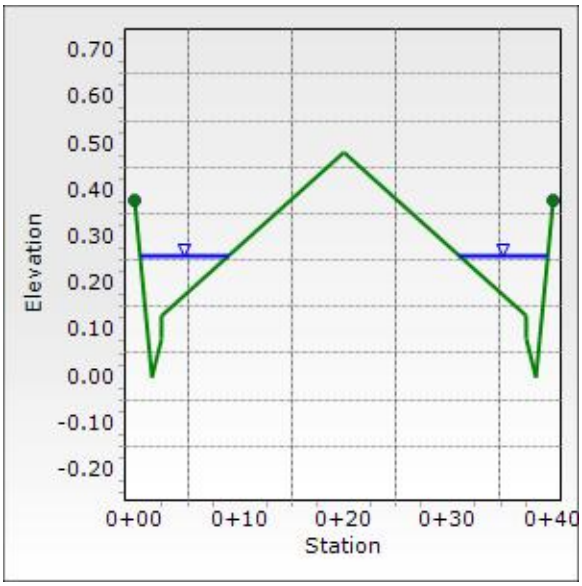
GVF Input Data	
Downstream Depth	0.00 ft
Length	0.00 ft
Number Of Steps	0

GVF Output Data	
Upstream Depth	0.00 ft
Profile Description	N/A
Profile Headloss	0.00 ft
Downstream Velocity	Infinity ft/s
Upstream Velocity	Infinity ft/s
Normal Depth	0.26 ft
Critical Depth	0.29 ft
Channel Slope	1.890 %
Critical Slope	0.799 %

XS for ON8

Project Description	
Friction Method	Manning Formula
Solve For	Normal Depth

Input Data	
Channel Slope	1.890 %
Normal Depth	0.26 ft
Discharge	4.00 cfs



Worksheet for ON13

Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Channel Slope	1.890 %
Discharge	3.00 cfs

Section Definitions

Station (ft)	Elevation (ft)
0+00.00	0.38
0+01.50	0.00
0+02.50	0.08
0+02.50	0.13
0+15.00	0.38
0+27.50	0.13
0+27.50	0.08
0+28.50	0.00
0+30.00	0.38

Roughness Segment Definitions

Start Station	Ending Station	Roughness Coefficient
(0+00.00, 0.38)	(0+30.00, 0.38)	0.016

Options

Current Roughness Weighted Method	Pavlovskii's Method
Open Channel Weighting Method	Pavlovskii's Method
Closed Channel Weighting Method	Pavlovskii's Method

Results

Normal Depth	0.24 ft
Roughness Coefficient	0.016
Elevation	0.24 ft
Elevation Range	0.00 to 0.38 ft
Flow Area	1.2 ft²
Wetted Perimeter	15.17 ft
Hydraulic Radius	0.08 ft
Top Width	15.00 ft
Normal Depth	0.24 ft
Critical Depth	0.27 ft
Critical Slope	0.828 %
Velocity	2.41 ft/s

Worksheet for ON13

Results	
Velocity Head	0.09 ft
Specific Energy	0.33 ft
Froude Number	1.471
Flow Type	Supercritical

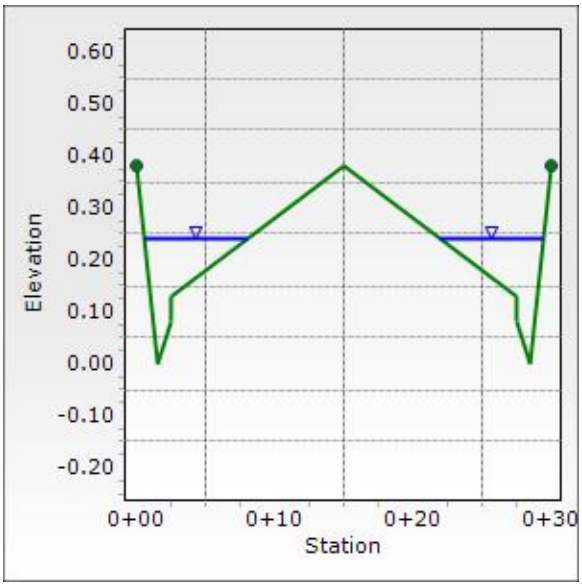
GVF Input Data	
Downstream Depth	0.00 ft
Length	0.00 ft
Number Of Steps	0

GVF Output Data	
Upstream Depth	0.00 ft
Profile Description	N/A
Profile Headloss	0.00 ft
Downstream Velocity	Infinity ft/s
Upstream Velocity	Infinity ft/s
Normal Depth	0.24 ft
Critical Depth	0.27 ft
Channel Slope	1.890 %
Critical Slope	0.828 %

XS for ON13

Project Description	
Friction Method	Manning Formula
Solve For	Normal Depth

Input Data	
Channel Slope	1.890 %
Normal Depth	0.24 ft
Discharge	3.00 cfs



Worksheet for ON14

Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Channel Slope	0.500	%
Discharge	4.90	cfs

Section Definitions

Station (ft)	Elevation (ft)
0+00.00	0.48
0+05.00	0.38
0+06.50	0.00
0+07.50	0.08
0+07.50	0.13
0+42.50	0.83
0+42.50	0.78
0+43.50	0.70
0+45.00	1.08

Roughness Segment Definitions

Start Station	Ending Station	Roughness Coefficient
(0+00.00, 0.48)	(0+45.00, 1.08)	0.016

Options

Current Roughness Weighted Method	Pavlovskii's Method
Open Channel Weighting Method	Pavlovskii's Method
Closed Channel Weighting Method	Pavlovskii's Method

Results

Normal Depth	0.41	ft
Roughness Coefficient	0.016	
Elevation	0.41	ft
Elevation Range	0.00 to 1.08	ft
Flow Area	2.7	ft²
Wetted Perimeter	18.03	ft
Hydraulic Radius	0.15	ft
Top Width	17.92	ft
Normal Depth	0.41	ft
Critical Depth	0.38	ft
Critical Slope	0.715	%
Velocity	1.84	ft/s

Worksheet for ON14

Results	
Velocity Head	0.05 ft
Specific Energy	0.46 ft
Froude Number	0.839
Flow Type	Subcritical

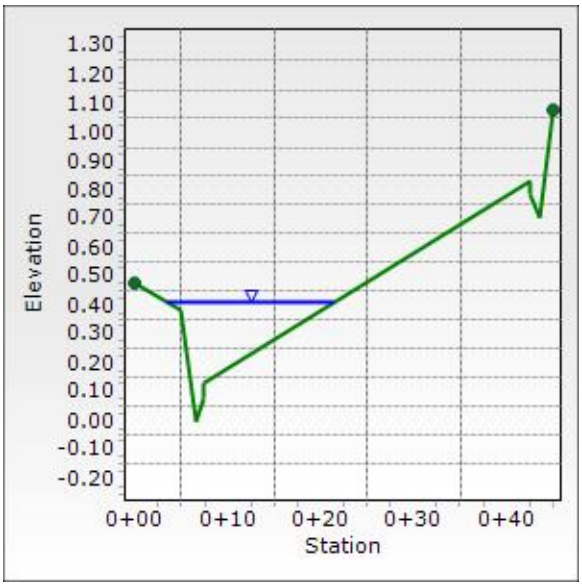
GVF Input Data	
Downstream Depth	0.00 ft
Length	0.00 ft
Number Of Steps	0

GVF Output Data	
Upstream Depth	0.00 ft
Profile Description	N/A
Profile Headloss	0.00 ft
Downstream Velocity	0.00 ft/s
Upstream Velocity	0.00 ft/s
Normal Depth	0.41 ft
Critical Depth	0.38 ft
Channel Slope	0.500 %
Critical Slope	0.715 %

XS for ON14

Project Description	
Friction Method	Manning Formula
Solve For	Normal Depth

Input Data	
Channel Slope	0.500 %
Normal Depth	0.41 ft
Discharge	4.90 cfs



Type CM Drop Inlet Sizing in Sump

DI#3

Known:

D_p=	Ponding Depth at Inlet	0.33	ft
W=	Gutter Width	1.5	ft
L_g=	Length of Grate	12.5	ft
L_c=	Length of Curb Opening	14.5	ft
H_c=	Curb Opening Height	0.5	ft
C_{wc}=	Weir coefficient for curb opening	2.3	
C_{wg}=	Weir coefficient for grate	3.0	
C_o=	Orifice coefficient	0.67	
R_o=	Grate opening factor	0.60	
C_{fg}=	Clogging Factor for Grate	50	%
C_{fc}=	Clogging Factor for Curb Opening	50	%

Grate Capacity Calculations:

P_g=	Active grate weir length (agwl) = 2*W+Lg	15.50	ft
P_{agl}	Adjusted agwl = 2*(1-Cfg/100)*W+Lg	14.00	ft
A_g=	Grate area = W*L_g	18.75	ft^2
A_{aga}=	Adjusted open grate area = Ag*Ro*(1-Cfg/100)	5.63	ft^2
	check - If Dp<1.792*Aaga/Pagl; weir; else orifice	weir	
Q_{ig}=	Flow intercepted by grate If "weir" controls Qig=Cwg*Pagl*$Dp^{1.5}$ If "orifice" controls Qig=Co*Aaga*$(64.4*Dp)^{0.5}$	8.0	cfs

Curb Opening Capacity Calculations

Pc =	Active curb opening weir length (acowl) = Lc+1.8*W	17.20	ft
Pacl =	Adjusted acowl = Lc+1.8*(1-Cfc/100)*W	15.85	ft
Ac=	curb opening area (coa) = Lc*Hc	7.25	ft^2
A_{aca}=	Adjusted coa = Ac*(1-Cfc/100)	3.63	ft^2
	check - If Dp<Hc; weir; else orifice	weir	
Qic=	Flow intercepted by curb opening If "weir" controls Qic=Cwc*Pacl*Dp1.5 If "orifice" controls Qic=Co*Aaca*(64.4*Dp-Hc/2)0.5	7.0	cfs

Total Inlet Calculations

Qti =	Total flow intercepted = Qig+Qic	15.0	cfs
q =	Interception per unit ratio = Q_{ti}/L_g	1.03	cfs/ft

Type CM Drop Inlet Sizing on a C. G.

DI#4

Known:

Q_s=	Half Street Flow	4.9	cfs
S_o=	Longitudinal Slope	0.005	ft/ft
n=	Manning's Roughness Coefficient	0.016	
V_s=	Flow Velocity	1.84	fps
D=	Flow Depth	0.41	ft
S_x=	Street Transverse Slope	0.02	ft/ft
W=	Gutter Width	2	ft
a=	Gutter Depression	5.0	in
L_g=	Length of Grate	7.5	ft
L_c=	Length of Curb Opening	9.5	ft
C_{fg}=	Clogging Factor for Grate	50	%
C_{fc}=	Clogging Factor for Curb Opening	50	%

Grate Capacity Calculations:

R_f=	Frontal flow factor = $1-0.09*(V_s-V_o)$ if $V_s>V_o$; else $R_f=1$	1.00	
	V_o= Splash over velocity=$p+q*(L_g*(1-(C_{fg}/100)))-r*(L_g*(1-(C_{fg}/100)))^2+s*(L_g*(1-(C_{fg}/100)))^3$†	8.71	fps
E_o=	Grate flow ratio = Q_w/Q_s	0.28	
	Q_w= Frontal flow=A_w*V_s	1.36	cfs
	Q_x= Side flow = Q_s-Q_w	3.54	cfs
R_s=	Side flow factor = $1/(1+(0.15*V_s^{1.8})/(S_x*(L_g*(1-C_{fg}/100))^{2.3}))$	0.48	
Q_{ig}=	Flow intercepted = $[R_f*E_o+R_s*(1-E_o)]*Q_s$	3.1	cfs
	†p=1.76;q=3.12;r=0.45;s=0.03 (based on Bar P 1-1/8 grate)		

Curb Opening Capacity Calculations

S_e=	Equivalent cross slope = Sx+Sw*Eo	0.079	ft/ft
S_w=	Gutter cross slope = (0.137+afeet)/W	0.214	ft/ft
L_t=	Total interception L = $0.60*Q_s^{0.42}*So^{0.30}*(1/n*S_e)^{0.6}$	13.06	ft
Q_{ic}=	Flow intercepted = $(1-(1-(L_c*(1-C_{fc}/100))/L_t)^{1.8})*Q_s$	2.7	cfs

Total Inlet Calculations

Q_{ti}=	Total flow intercepted = $Q_{ig}+Q_{ic}$	4.9	cfs
Q_{tq}=	Flow bypass = Q_s-Q_{ti}	0.0	cfs
q=	Interception per unit ratio = Q_{ti}/L_g	0.52	cfs/ft
E_q=	Efficiency = (Qti/Qs)*100	100	%

Type CM Drop Inlet Sizing on a C. G.

DI#5

Known:

Q_s=	Half Street Flow	5.5	cfs
S_o=	Longitudinal Slope	0.0064	ft/ft
n=	Manning's Roughness Coefficient	0.016	
V_s=	Flow Velocity	2.07	fps
D=	Flow Depth	0.41	ft
S_x=	Street Transverse Slope	0.02	ft/ft
W=	Gutter Width	2	ft
a=	Gutter Depression	5.0	in
L_g=	Length of Grate	5.0	ft
L_c=	Length of Curb Opening	7.0	ft
C_{fg}=	Clogging Factor for Grate	50	%
C_{fc}=	Clogging Factor for Curb Opening	50	%

Grate Capacity Calculations:

R_f=	Frontal flow factor = $1-0.09*(V_s-V_o)$ if $V_s>V_o$; else $R_f=1$	1.00	
	V_o= Splash over velocity=$p+q*(L_g*(1-(C_{fg}/100)))-r*(L_g*(1-(C_{fg}/100)))^2+s*(L_g*(1-(C_{fg}/100)))^3$†	7.22	fps
E_o=	Grate flow ratio = Q_w/Q_s	0.28	
	Q_w= Frontal flow=A_w*V_s	1.52	cfs
	Q_x= Side flow = Q_s-Q_w	3.98	cfs
R_s=	Side flow factor = $1/(1+(0.15*V_s^{1.8})/(S_x*(L_g*(1-C_{fg}/100))^{2.3}))$	0.23	
Q_{ig}=	Flow intercepted = $[R_f*E_o+R_s*(1-E_o)]*Q_s$	2.4	cfs
	†p=1.76;q=3.12;r=0.45;s=0.03 (based on Bar P 1-1/8 grate)		

Curb Opening Capacity Calculations

S_e=	Equivalent cross slope = Sx+Sw*Eo	0.079	ft/ft
S_w=	Gutter cross slope = (0.137+afeet)/W	0.214	ft/ft
L_t=	Total interception L = $0.60*Q_s^{0.42}*So^{0.30}*(1/n*S_e)^{0.6}$	14.75	ft
Q_{ic}=	Flow intercepted = $(1-(1-(L_c*(1-C_{fc}/100))/L_t)^{1.8})*Q_s$	2.1	cfs

Total Inlet Calculations

Q_{ti}=	Total flow intercepted = $Q_{ig}+Q_{ic}$	4.6	cfs
Q_{tq}=	Flow bypass = Q_s-Q_{ti}	0.9	cfs
q=	Interception per unit ratio = Q_{ti}/L_g	0.65	cfs/ft
E_q=	Efficiency = (Qti/Qs)*100	83	%

Type CM Drop Inlet Sizing in Sump

DI#6

Known:

D_p=	Ponding Depth at Inlet	0.42	ft
W=	Gutter Width	1.5	ft
L_g=	Length of Grate	7.5	ft
L_c=	Length of Curb Opening	9.5	ft
H_c=	Curb Opening Height	0.5	ft
C_{wc}=	Weir coefficient for curb opening	2.3	
C_{wg}=	Weir coefficient for grate	3.0	
C_o=	Orifice coefficient	0.67	
R_o=	Grate opening factor	0.60	
C_{fg}=	Clogging Factor for Grate	50	%
C_{fc}=	Clogging Factor for Curb Opening	50	%

Grate Capacity Calculations:

P_g=	Active grate weir length (agwl) = 2*W+Lg	10.50	ft
P_{agl}	Adjusted agwl = 2*(1-Cfg/100)*W+Lg	9.00	ft
A_g=	Grate area = W*L_g	11.25	ft^2
A_{aga}=	Adjusted open grate area = Ag*Ro*(1-Cfg/100)	3.38	ft^2
	check - If Dp<1.792*Aaga/Pagl; weir; else orifice	weir	
Q_{ig}=	Flow intercepted by grate If "weir" controls Qig=Cwg*Pagl*$Dp^{1.5}$ If "orifice" controls Qig=Co*Aaga*$(64.4*Dp)^{0.5}$	7.3	cfs

Curb Opening Capacity Calculations

Pc =	Active curb opening weir length (acowl) = Lc+1.8*W	12.20	ft
Pacl =	Adjusted acowl = Lc+1.8*(1-Cfc/100)*W	10.85	ft
Ac=	curb opening area (coa) = Lc*Hc	4.75	ft^2
A_{aca}=	Adjusted coa = Ac*(1-Cfc/100)	2.38	ft^2
	check - If Dp<Hc; weir; else orifice	weir	
Qic=	Flow intercepted by curb opening If "weir" controls Qic=Cwc*Pacl*Dp1.5 If "orifice" controls Qic=Co*Aaca*(64.4*Dp-Hc/2)0.5	6.7	cfs

Total Inlet Calculations

Qti =	Total flow intercepted = Qig+Qic	14.0	cfs
q =	Interception per unit ratio = Q_{ti}/L_g	1.47	cfs/ft

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T1 DURANGO AND GRAND MONTECITO                                          0
T2 MAIN1
T3 KHA JOB# 092935040 BY:SS/MS
SO   1000.0002473.000 30                        2476.4
R    1035.7202473.357 30      .013                                  .000    .000 0
R    1039.7202473.406 30      .013                                  .000 -90.000 1
R    1140.4352474.846 30      .013                                  .000    .000 0
JX   1144.4352474.895 30 30   .013    9.500         2474.874        -79.3     81.600
R    1200.8392475.459 30      .013                                  .000    .000 0
JX   1204.8392475.510 30 30   .013   15.000         2475.478          8.3      -81.200
R    1417.9042478.856 24      .013                                  .000    .000 0
R    1421.9042478.935 24      .013                                  .000    .000 1
R    1635.0042483.996 24      .013                                  .000    .000 0
R    1640.0042484.145 24      .013                                  .000 -90.000 1
R    1697.0652486.200 24      .013                                  .000    .000 0
SH   1697.0652486.200 24
CD   6  4   0    .000   0.500     .000  .000  .000   .00
CD   8  4   0    .000   0.670     .000  .000  .000   .00
CD  12  4   0    .000   1.000     .000  .000  .000   .00
CD  18  4   0    .000   1.500     .000  .000  .000   .00
CD  24  4   0    .000   2.000     .000  .000  .000   .00
CD  30  4   0    .000   2.500     .000  .000  .000   .00
CD  36  4   0    .000   3.000     .000  .000  .000   .00
CD  42  4   0    .000   3.500     .000  .000  .000   .00
CD  48  4   0    .000   4.000     .000  .000  .000   .00
CD  54  4   0    .000   4.500     .000  .000  .000   .00
CD  60  4   0    .000   5.000     .000  .000  .000   .00
CD  66  4   0    .000   5.500     .000  .000  .000   .00
CD  72  4   0    .000   6.000     .000  .000  .000   .00
Q            14.000   .0
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Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
1000.000	2473.000	3.400	2476.400	38.50	7.84	.96	2477.36	.00	2.10	.00	2.500	.000	.00	0 .0
35.720	.0100					.0088	.31	3.40	.00	1.92	.013	.00	.00	PIPE
1035.720	2473.357	3.358	2476.715	38.50	7.84	.96	2477.67	.00	2.10	.00	2.500	.000	.00	0 .0
4.000	.0123					.0088	.04	3.36	.00	1.77	.013	.00	.00	PIPE
1039.720	2473.406	3.675	2477.081	38.50	7.84	.96	2478.04	.00	2.10	.00	2.500	.000	.00	0 .0
100.715	.0143					.0088	.89	3.68	.00	1.67	.013	.00	.00	PIPE
1140.435	2474.846	3.123	2477.969	38.50	7.84	.96	2478.92	.00	2.10	.00	2.500	.000	.00	0 .0
JUNCT STR	.0123					.0069	.03	.00	.00		.013	.00	.00	PIPE
1144.435	2474.895	3.906	2478.801	29.00	5.91	.54	2479.34	.00	1.84	.00	2.500	.000	.00	0 .0
56.404	.0100					.0050	.28	3.91	.00	1.55	.013	.00	.00	PIPE
1200.839	2475.459	3.624	2479.083	29.00	5.91	.54	2479.63	.00	1.84	.00	2.500	.000	.00	0 .0
JUNCT STR	.0128					.0031	.01	.00	.00		.013	.00	.00	PIPE
1204.839	2475.510	4.130	2479.640	14.00	4.46	.31	2479.95	.00	1.35	.00	2.000	.000	.00	0 .0
179.353	.0157					.0038	.68	4.13	.00	.99	.013	.00	.00	PIPE
1384.192	2478.327	2.000	2480.327	14.00	4.46	.31	2480.64	.00	1.35	.00	2.000	.000	.00	0 .0
6.632	.0157					.0035	.02	2.00	.00	.99	.013	.00	.00	PIPE
1390.825	2478.431	1.909	2480.340	14.00	4.53	.32	2480.66	.00	1.35	.83	2.000	.000	.00	0 .0

HYDRAULIC JUMP

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
1390.825	2478.431	.918	2479.349	14.00	9.95	1.54	2480.89	.00	1.35	1.99	2.000	.000	.00	0 .0
7.828	.0157					.0206	.16	.92	2.09	.99	.013	.00	.00	PIPE
1398.652	2478.554	.918	2479.472	14.00	9.95	1.54	2481.01	.00	1.35	1.99	2.000	.000	.00	0 .0
19.252	.0157					.0220	.42	.92	2.09	.99	.013	.00	.00	PIPE
1417.904	2478.856	.885	2479.741	14.00	10.43	1.69	2481.43	.00	1.35	1.99	2.000	.000	.00	0 .0
4.000	.0198					.0236	.09	.89	2.24	.93	.013	.00	.00	PIPE
1421.904	2478.935	.882	2479.817	14.00	10.49	1.71	2481.53	.00	1.35	1.99	2.000	.000	.00	0 .0
85.339	.0237					.0237	2.03	.88	2.26	.88	.013	.00	.00	PIPE
1507.243	2480.962	.882	2481.844	14.00	10.49	1.71	2483.55	.00	1.35	1.99	2.000	.000	.00	0 .0
85.119	.0237					.0246	2.10	.88	2.26	.88	.013	.00	.00	PIPE
1592.362	2482.983	.864	2483.848	14.00	10.77	1.80	2485.65	.00	1.35	1.98	2.000	.000	.00	0 .0
42.642	.0237					.0273	1.16	.86	2.34	.88	.013	.00	.00	PIPE
1635.004	2483.996	.834	2484.830	14.00	11.29	1.98	2486.81	.00	1.35	1.97	2.000	.000	.00	0 .0
5.000	.0298					.0290	.14	.83	2.51	.83	.013	.00	.00	PIPE
1640.004	2484.145	.834	2484.979	14.00	11.28	1.98	2486.95	.00	1.35	1.97	2.000	.000	.00	0 .0

9.341	.0360					.0281	.26	.83	2.51	.79	.013	.00	.00	PIPE					
1649.345	2484.481	.849	2485.330	14.00	11.02	1.89	2487.22	.00	1.35	1.98	2.000	.000	.00	0	.0				
13.383	.0360					.0255	.34	.85	2.42	.79	.013	.00	.00	PIPE					

Program Package Serial Number: 1911

WATER SURFACE PROFILE LISTING Date: 6-20-2024 Time: 2: 2:29

DURANGO AND GRAND MONTECITO 0

MAIN1

KHA JOB# 092935040 BY:SS/MS

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
1662.728	2484.963	.880	2485.843	14.00	10.51	1.72	2487.56	.00	1.35	1.99	2.000	.000	.00	0 .0
9.080	.0360					.0224	.20	.88	2.26	.79	.013	.00	.00	PIPE
1671.807	2485.290	.913	2486.203	14.00	10.02	1.56	2487.76	.00	1.35	1.99	2.000	.000	.00	0 .0
6.606	.0360					.0197	.13	.91	2.11	.79	.013	.00	.00	PIPE
1678.414	2485.528	.947	2486.475	14.00	9.56	1.42	2487.89	.00	1.35	2.00	2.000	.000	.00	0 .0
4.995	.0360					.0174	.09	.95	1.97	.79	.013	.00	.00	PIPE
1683.409	2485.708	.983	2486.691	14.00	9.11	1.29	2487.98	.00	1.35	2.00	2.000	.000	.00	0 .0
3.843	.0360					.0153	.06	.98	1.83	.79	.013	.00	.00	PIPE
1687.252	2485.846	1.020	2486.866	14.00	8.69	1.17	2488.04	.00	1.35	2.00	2.000	.000	.00	0 .0
2.977	.0360					.0135	.04	1.02	1.71	.79	.013	.00	.00	PIPE
1690.229	2485.953	1.060	2487.013	14.00	8.28	1.07	2488.08	.00	1.35	2.00	2.000	.000	.00	0 .0
2.297	.0360					.0119	.03	1.06	1.59	.79	.013	.00	.00	PIPE
1692.525	2486.036	1.101	2487.137	14.00	7.90	.97	2488.11	.00	1.35	1.99	2.000	.000	.00	0 .0
1.740	.0360					.0105	.02	1.10	1.47	.79	.013	.00	.00	PIPE
1694.265	2486.099	1.145	2487.244	14.00	7.53	.88	2488.12	.00	1.35	1.98	2.000	.000	.00	0 .0
1.272	.0360					.0093	.01	1.14	1.37	.79	.013	.00	.00	PIPE
1695.538	2486.145	1.191	2487.335	14.00	7.18	.80	2488.14	.00	1.35	1.96	2.000	.000	.00	0 .0
.865	.0360					.0082	.01	1.19	1.27	.79	.013	.00	.00	PIPE

Program Package Serial Number: 1911

WATER SURFACE PROFILE LISTING Date: 6-20-2024 Time: 2: 2:29

DURANGO AND GRAND MONTECITO 0

MAIN1

KHA JOB# 092935040 BY:SS/MS

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
1696.402	2486.176	1.239	2487.416	14.00	6.85	.73	2488.14	.00	1.35	1.94	2.000	.000	.00	0 .0
.499	.0360					.0073	.00	1.24	1.18	.79	.013	.00	.00	PIPE
1696.901	2486.194	1.291	2487.485	14.00	6.53	.66	2488.15	.00	1.35	1.91	2.000	.000	.00	0 .0
.163	.0360					.0064	.00	1.29	1.09	.79	.013	.00	.00	PIPE
1697.065	2486.200	1.348	2487.547	14.00	6.22	.60	2488.15	.00	1.35	1.88	2.000	.000	.00	0 .0

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T1 DURANGO AND GRAND MONTECITO                                          0
T2 MAIN_LAT1
T3 KHA JOB# 092935040 BY:SS/MS
SO   1000.0002475.478 30                        2479.9
R    1032.7722475.806 30      .013                                .000    .000 0
R    1036.7722475.901 30      .013                                .000 -64.300 1
R    1055.3232476.596 30      .013                                .000    .000 0
SH   1055.3232476.596 30
CD   6  4   0    .000   0.500     .000  .000  .000   .00
CD   8  4   0    .000   0.670     .000  .000  .000   .00
CD  12  4   0    .000   1.000     .000  .000  .000   .00
CD  18  4   0    .000   1.500     .000  .000  .000   .00
CD  24  4   0    .000   2.000     .000  .000  .000   .00
CD  30  4   0    .000   2.500     .000  .000  .000   .00
CD  36  4   0    .000   3.000     .000  .000  .000   .00
CD  42  4   0    .000   3.500     .000  .000  .000   .00
CD  48  4   0    .000   4.000     .000  .000  .000   .00
CD  54  4   0    .000   4.500     .000  .000  .000   .00
CD  60  4   0    .000   5.000     .000  .000  .000   .00
CD  66  4   0    .000   5.500     .000  .000  .000   .00
CD  72  4   0    .000   6.000     .000  .000  .000   .00
Q             15.000   .0
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Program Package Serial Number: 1911

WATER SURFACE PROFILE LISTING Date: 6-20-2024 Time: 1:57:44

DURANGO AND GRAND MONTECITO 0

MAIN_LAT1

KHA JOB# 092935040 BY:SS/MS

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
1000.000	2475.478	4.422	2479.900	15.00	3.06	.14	2480.04	.00	1.31	.00	2.500	.000	.00	0 .0
32.772	.0100					.0013	.04	4.42	.00	1.05	.013	.00	.00	PIPE
1032.772	2475.806	4.138	2479.944	15.00	3.06	.14	2480.09	.00	1.31	.00	2.500	.000	.00	0 .0
4.000	.0237					.0013	.01	4.14	.00	.83	.013	.00	.00	PIPE
1036.772	2475.901	4.086	2479.987	15.00	3.06	.14	2480.13	.00	1.31	.00	2.500	.000	.00	0 .0
18.551	.0375					.0013	.02	4.09	.00	.74	.013	.00	.00	PIPE
1055.323	2476.596	3.416	2480.012	15.00	3.06	.14	2480.16	.00	1.31	.00	2.500	.000	.00	0 .0

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T1 DURANGO AND GRAND MONTECITO                                          0
T2 MAIN2
T3 KHA JOB# 092935040 BY:SS/MS
SO   1000.0002474.874 24                        2479.0
R    1049.8202476.304 24      .013                                 .000    .000 0
JX   1053.8202476.381 18 18   .013    4.9           2474.874        45.0      0.000
R    1210.8722477.952 18      .013                                 .000    .000 0
R    1214.8722477.994 18      .013                                 .000  61.400 1
R    1233.9472478.186 18      .013                                 .000    .000 0
SH   1233.9472478.186 18
CD   6  4   0    .000   0.500     .000  .000  .000   .00
CD   8  4   0    .000   0.670     .000  .000  .000   .00
CD  12  4   0    .000   1.000     .000  .000  .000   .00
CD  18  4   0    .000   1.500     .000  .000  .000   .00
CD  24  4   0    .000   2.000     .000  .000  .000   .00
CD  30  4   0    .000   2.500     .000  .000  .000   .00
CD  36  4   0    .000   3.000     .000  .000  .000   .00
CD  42  4   0    .000   3.500     .000  .000  .000   .00
CD  48  4   0    .000   4.000     .000  .000  .000   .00
CD  54  4   0    .000   4.500     .000  .000  .000   .00
CD  60  4   0    .000   5.000     .000  .000  .000   .00
CD  66  4   0    .000   5.500     .000  .000  .000   .00
CD  72  4   0    .000   6.000     .000  .000  .000   .00
Q             4.600   .0
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Program Package Serial Number: 1911

WATER SURFACE PROFILE LISTING Date: 6-20-2024 Time: 2: 0: 0

DURANGO AND GRAND MONTECITO 0

MAIN2

KHA JOB# 092935040 BY:SS/MS

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
1000.000	2474.874	4.126	2479.000	9.50	3.02	.14	2479.14	.00	1.10	.00	2.000	.000	.00	0 .0
49.820	.0287					.0018	.09	4.13	.00	.68	.013	.00	.00	PIPE
1049.820	2476.304	2.784	2479.088	9.50	3.02	.14	2479.23	.00	1.10	.00	2.000	.000	.00	0 .0
JUNCT STR	.0193					.0018	.01	2.78	.00		.013	.00	.00	PIPE
1053.820	2476.381	2.805	2479.186	4.60	2.60	.11	2479.29	.00	.82	.00	1.500	.000	.00	0 .0
157.052	.0100					.0019	.30	2.80	.00	.69	.013	.00	.00	PIPE
1210.872	2477.952	1.535	2479.487	4.60	2.60	.11	2479.59	.00	.82	.00	1.500	.000	.00	0 .0
4.000	.0105					.0019	.01	1.53	.00	.68	.013	.00	.00	PIPE
1214.872	2477.994	1.527	2479.521	4.60	2.60	.11	2479.63	.00	.82	.00	1.500	.000	.00	0 .0
3.332	.0101					.0019	.01	1.53	.00	.69	.013	.00	.00	PIPE
1218.204	2478.027	1.500	2479.527	4.60	2.60	.11	2479.63	.00	.82	.00	1.500	.000	.00	0 .0
15.377	.0101					.0018	.03	1.50	.00	.69	.013	.00	.00	PIPE
1233.581	2478.182	1.361	2479.543	4.60	2.73	.12	2479.66	.00	.82	.87	1.500	.000	.00	0 .0
.366	.0101					.0017	.00	1.36	.35	.69	.013	.00	.00	PIPE
1233.947	2478.186	1.358	2479.543	4.60	2.73	.12	2479.66	.00	.82	.88	1.500	.000	.00	0 .0

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T1 DURANGO AND GRAND MONTECITO                                          0
T2 MAIN2_LAT1
T3 KHA JOB# 092935040 BY:SS/MS
SO   1000.0002476.362 18                        2479.2
R    1026.1752477.158 18      .013                                 .000    .000 0
SH   1026.1752477.158 18
CD   6  4   0    .000   0.500     .000  .000  .000   .00
CD   8  4   0    .000   0.670     .000  .000  .000   .00
CD  12  4   0    .000   1.000     .000  .000  .000   .00
CD  18  4   0    .000   1.500     .000  .000  .000   .00
CD  24  4   0    .000   2.000     .000  .000  .000   .00
CD  30  4   0    .000   2.500     .000  .000  .000   .00
CD  36  4   0    .000   3.000     .000  .000  .000   .00
CD  42  4   0    .000   3.500     .000  .000  .000   .00
CD  48  4   0    .000   4.000     .000  .000  .000   .00
CD  54  4   0    .000   4.500     .000  .000  .000   .00
CD  60  4   0    .000   5.000     .000  .000  .000   .00
CD  66  4   0    .000   5.500     .000  .000  .000   .00
CD  72  4   0    .000   6.000     .000  .000  .000   .00
Q              4.900   .0
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Program Package Serial Number: 1911

WATER SURFACE PROFILE LISTING Date: 6-20-2024 Time: 1:43:49

DURANGO AND GRAND MONTECITO 0

MAIN2_LAT1

KHA JOB# 092935040 BY:SS/MS

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
1000.000	2476.362	2.838	2479.200	4.90	2.77	.12	2479.32	.00	.85	.00	1.500	.000	.00	0 .0
26.175	.0304					.0022	.06	2.84	.00	.53	.013	.00	.00	PIPE
1026.175	2477.158	2.099	2479.257	4.90	2.77	.12	2479.38	.00	.85	.00	1.500	.000	.00	0 .0

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