PRELIMINARY DRAINAGE REPORT

FOR THE

EDI MASTER PLAN

April 5, 2015

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FOR REVIEW ONLY

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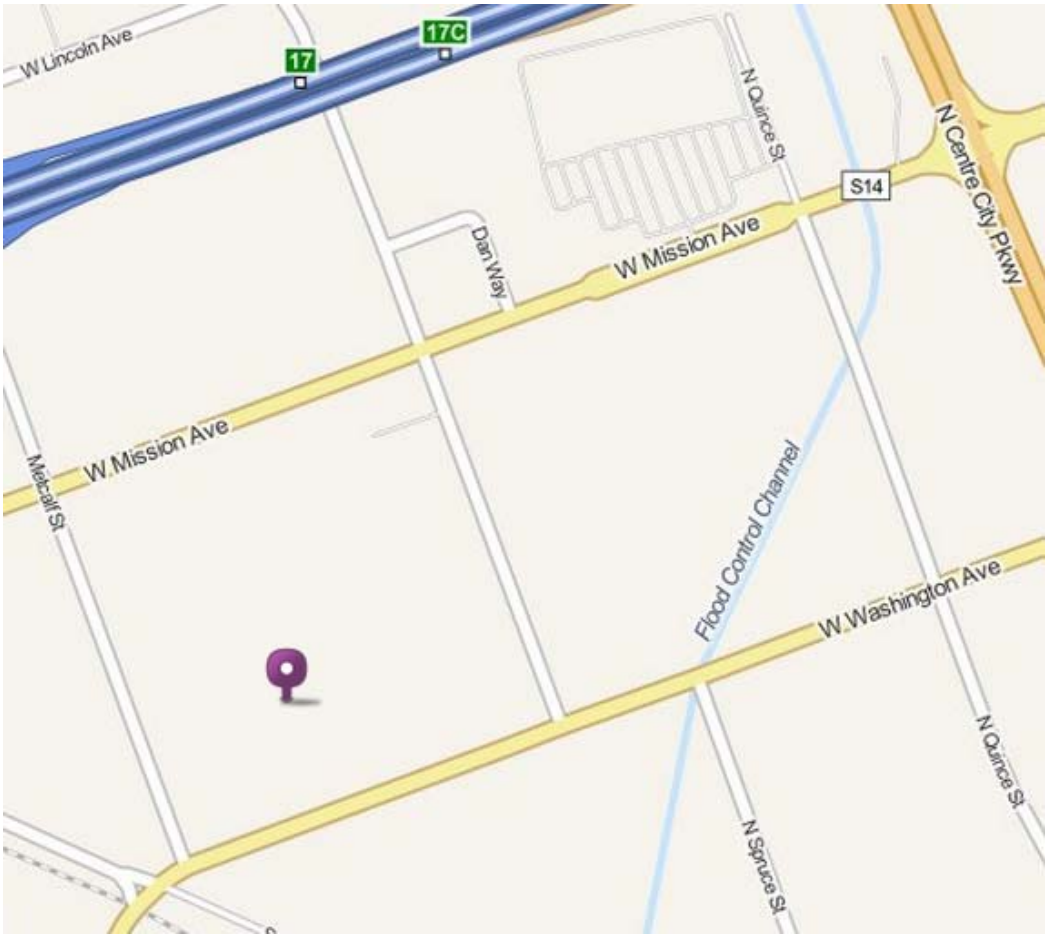
INTRODUCTION

Escondido Disposal, Inc. operates the Escondido Resource Recovery transfer station at 10444 W. Washington Avenue in the city of Escondido (see the Vicinity Map). The overall site also contains adjacent office, industrial, and warehouse buildings and is immediately north of W. Washington Avenue, immediately south of W. Mission Avenue, and approximately mid-block between Metcalf Street and Rock Springs Road. The entire site is currently developed with the industrial and associated uses. EDI proposes to redevelop the site under the EDI Master Plan (see the Site Plan in the map pocket). The Site Plan shows that some of the existing buildings will remain, but will be subject to renovation, while other buildings will be demolished and replaced. In addition, the remainder of the site will be completely revised with new parking spaces, drive aisles, and landscaping.



Vicinity Map

Under existing pre-project conditions, the northerly site runoff is tributary to a storm drain system approximately mid-way up the site that extends west to Metcalf Street. There is an off-site area to the east that is tributary to the northerly half of the site. The off-site runoff is conveyed through the site with the northerly on-site runoff to the existing storm drain system. The southerly site runoff is tributary to an existing storm drain system in West Washington

Avenue. The two storm drain systems confluence at the intersection of Metcalf Street and West Washington Avenue. Under proposed post-project conditions, the entire on- and tributary off-site runoff will directed towards West Washington Avenue where it will be conveyed towards the storm drain confluence location. An additional storm drain will be constructed in West Washington Avenue from the site to the confluence location to handle the added runoff at the south end of the site. This report contains preliminary existing and proposed condition hydrologic analyses for the EDI Master Plan entitlement. The intent of this report is merely to demonstrate feasibility of the proposed drainage improvements.

HYDROLOGIC ANALYSES

Hydrologic analyses were performed to determine the 100-year flow rates associated with ultimate redevelopment pursuant to the EDI Master Plan. The preliminary grading and drainage plan (Site Grading Plan) was prepared by Cherry Engineering. The backup data and results are included in Appendix A. The Drainage – Design Standards from the County of Escondido's May 6, 2009, *Design Standards and Standard Drawings* (Standards), were followed for the analyses. The rational method is specified in the Standards and the input parameters are summarized as follows (the supporting data is included in Appendix A):

- Intensity-Duration: The 100-year intensity-duration curve from Figure 2 of the Standards was used. The 100-year analysis will yield slightly more conservative results than the City's typical 50-year design criteria. The difference between the 50- and 100-year flow rates is small, so the 100-year was chosen because it is the more common standard.

- Drainage areas: The existing condition on-site drainage areas were delineated from the 1-foot contour interval topographic mapping prepared for the project. The proposed condition on-site drainage areas were delineated from Cherry Engineering's grading plan. The off-site drainage area was delineated from the City of Escondido's 2-foot contour interval topographic mapping and Google Earth. A site investigation was performed to assist in delineating the drainage basin boundaries. The overall existing and proposed condition drainage basin boundaries at the site were set equal to allow a comparison of results. The overall on-site boundaries do not include two portions of the existing buildings because these portions will be unchanged under existing and proposed conditions. The two portions are identified on the proposed condition work map as "Existing Building to Remain."

  For the proposed condition analysis, an additional off-site area was modeled to determine the flow rate within the proposed pipe that extends from the site to the receiving storm drain system.

- Runoff coefficients: The runoff coefficients were selected based on Figure 1 in the Standards. An industrial land use was assumed for the pre- and post-project conditions (C=0.95). Note that the rational method output identifies the land use for the drainage subareas as "commercial." The software does not include an industrial category. Although the land use is labeled commercial, the runoff coefficient was entered as 0.95, which is associated with Escondido's industrial land use.

- Flow lengths and elevations: The flow lengths and elevations within were based on the existing topographic mapping and grading plan, as appropriate. Since all of the initial subareas are relatively small, the initial time of concentration was set to 10 minutes, which is the minimum time per the City of Escondido Standards. In order to verify this, the time of concentration for the longest flow path (Node 20 to 22 under existing conditions) was calculated and confirmed to be less than 10 minutes.

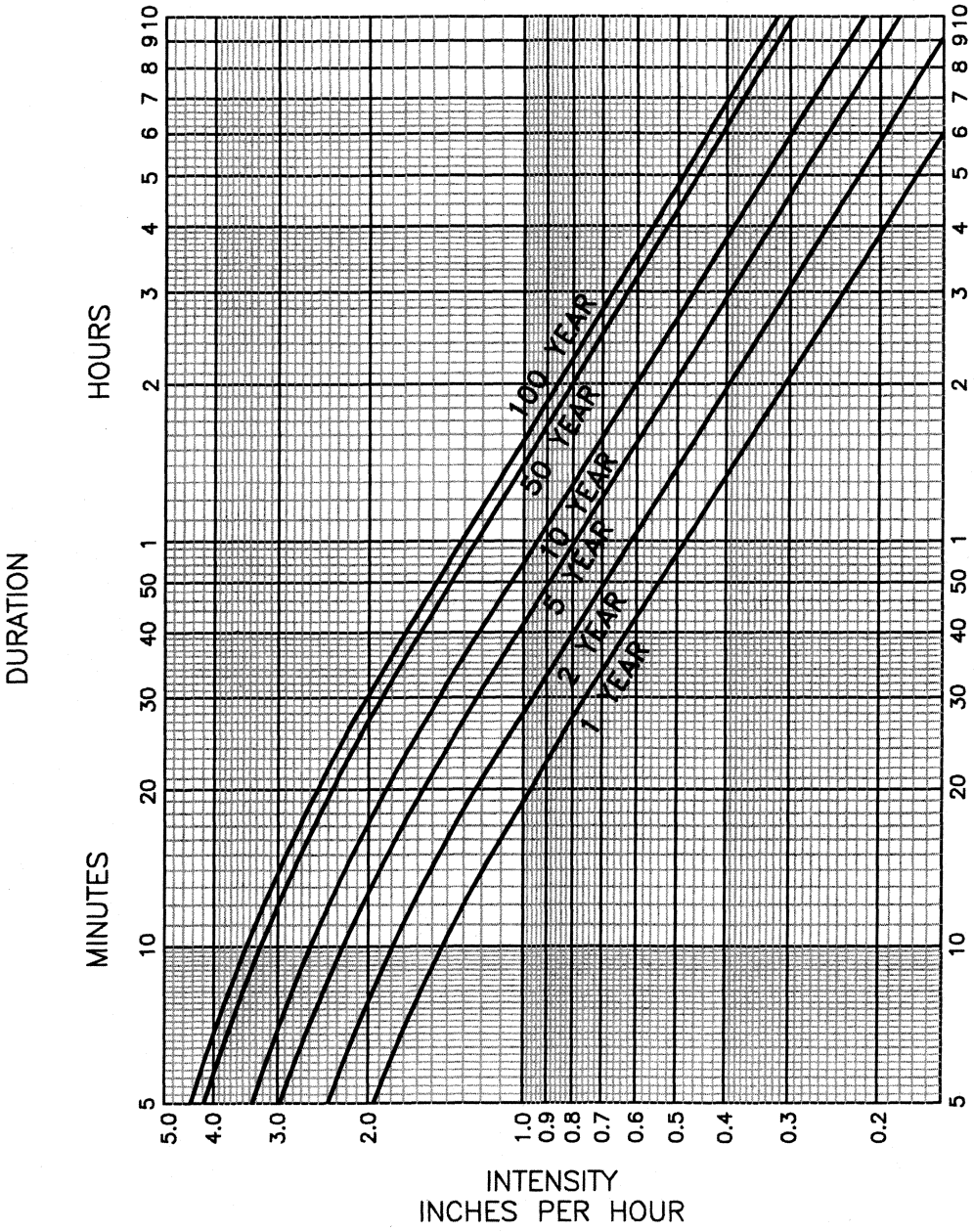
The 100-year rational method results are included in Appendix A. The analyses were performed using the CivilDesign Rational Method Hydrology Program. The City of Escondido 100-year intensity-duration curve was entered into the program. The results indicate that the existing condition 100-year runoff from the northerly and southerly portions of the site are 34.7 (at Node 14) and 17.6 cfs (at Node 22), respectively, or 52.3 cfs total. The proposed condition 100-year runoff at the southerly end of the site is 51.0 cfs (at Node 36) and 1.3 cfs (at Node 52) or 52.3 cfs total. Therefore, the project will not increase the runoff. This is expected since the land use is not changing. The preliminary grading plan shows that the project will increase the landscaping from 31,280 square feet to 61,271 square feet. Therefore, the overall runoff will actually be slightly less after redevelopment.

CONCLUSION

The hydrologic analyses show that the project will not increase the 100-year flow rate. The proposed flows are of a magnitude that can be conveyed by typical storm drain facilities, so a drainage system is feasible. Under proposed conditions, the entire on- and off-site runoff will be conveyed towards the south side of the site. Consequently, an additional off-site storm drain system shall be constructed in West Washington Street from the site towards the existing storm drain confluence at Metcalf Street and West Washington Street. This will collect the additional runoff and cause the on-site and off-site runoff to be conveyed to the same location as under existing conditions. The proposed condition results include the off-site area need to assess the off-site storm drain. The analyses in this report are preliminary and for entitlement purposes only. More detailed analyses will be required for final engineering.

APPENDIX A

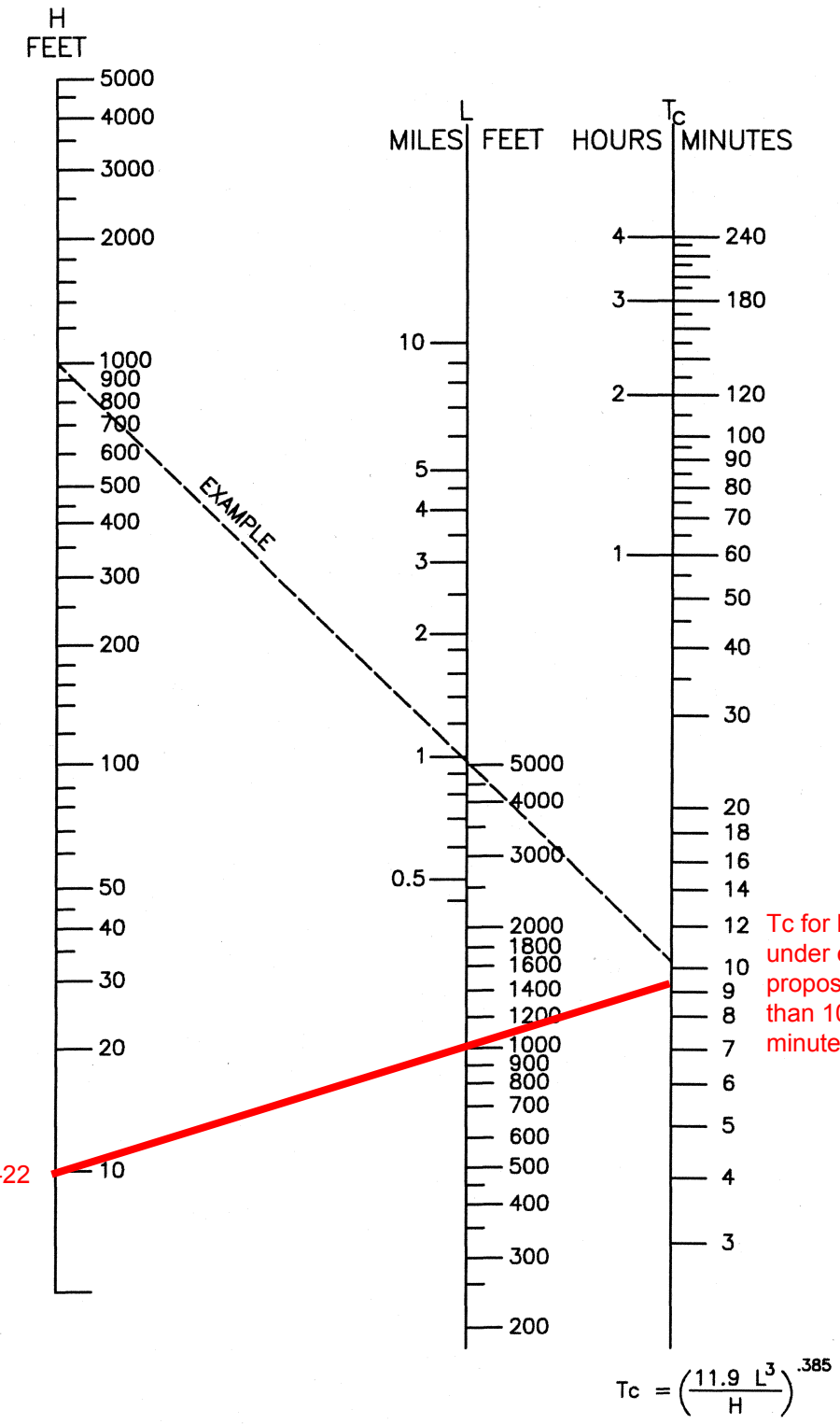
100-YEAR RATIONAL METHOD



ESCONDIDO RUNOFF COEFFICIENTS

PARKS, GOLF COURSES, CEMETERIES	0.25
UNDEVELOPED LAND, OPEN SPACE	0.35
RURAL – OVER 1/2 ACRE LOTS	0.45
SINGLE FAMILY	0.55
MOBILE HOME	0.65
MULTIPLE UNITS	0.70
COMMERCIAL	0.85
INDUSTRIAL	0.95

APPROVED: Edward J. Domingue DIRECTOR OF ENGINEERING SERVICES DATE: 5/6/09		CITY OF ESCONDIDO DEPARTMENT OF ENGINEERING SERVICES	SCALE: NOT TO SCALE
REVISED	APPROVED	RUNNOFF INTENSITY DURATION CURVE	FIGURE NO. 1



$$Tc = \left(\frac{11.9\ L^3}{H}\right)^{.385}$$

NOTE:

THIS CHART SHALL BE USED FOR ALL BASINS WITHIN THE CITY OF ESCONDIDO LESS 0.5 SQUARE MILE.
THE MINIMUM Tc TO BE USED IS 10 MINUTES

Tc = TIME OF CONCENTRATION (HOURS)
L = LENGTH OF DRAINAGE COURSE (MILES)
H = DIFFERENCE IN ELEVATION FROM FURTHER MOST POINT OF DESIGN (FEET)

APPROVED: Edward N. P... DATE: 5/6/09 DIRECTOR OF ENGINEERING SERVICES	CITY OF ESCONDIDO DEPARTMENT OF ENGINEERING SERVICES	SCALE: NOT TO SCALE
REVISED / APPROVED	RUNOFF TIME CHART	FIGURE NO. 2

UNIVERSAL RATIONAL METHOD HYDROLOGY PROGRAM

CIVILCADD/CIVILDESIGN Engineering Software, (c) 1989- 2005 Version 7.1
Rational Hydrology Study Date: 04/05/15

EDI Master Plan
Existing Conditions
100-Year Flow Rate

********* Hydrology Study Control Information **********

Program License Serial Number 4028

Rational hydrology study storm event year is 100.0
Number of [time,intensity] data pairs = 4

No.	Time	-	Intensity
1	5.000		4.440(In.)
2	10.000		3.450(In.)
3	20.000		2.520(In.)
4	30.000		2.020(In.)

English Input Units Used
English Output Units Used:
Area = acres, Distance = feet, Flow q = ft^3/s, Pipe diam. = inches
Runoff coefficient method used:
Runoff coefficient 'C' value calculated for the
equation Q=KCIA [K=unit constant(1 if English Units, 1/360 if SI Units),
I=rainfall intensity, A=area];
by the following method:
Manual entry of 'C' values

Rational Hydrology Method used:

The rational hydrology method is used where the area
of each subarea in a stream, subarea 'C' value, and rain-
fall intensity for each subarea is used to determine the
subarea flow rate q, of which values are summed for total Q

Stream flow confluence option used:

Stream flow confluence method of 2 - 5 streams:
Note: in all cases, if the time of concentration
or TC of all streams are identical, then q = sum of stream flows
Variables p=peak; i=intensity; Fm=loss rate; a=area; 1...n flows
q = flow rate, t = time in minutes
Peak flow qp is a function of time, TC:
usual case q1>q2 and t1>t2 then qp = q1 + q2*(i1/i2), tp=t1
some cases q1>q2 and t1<t2 then qp = q2 + q1*(t2/t1), tp=t2

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Process from Point/Station       10.000 to Point/Station       12.000
**** INITIAL AREA EVALUATION ****
------------------------------------------------------------------------
COMMERCIAL subarea type
Initial subarea data:
Equations shown use english units, converted if necessary to (SI)
Initial area flow distance =   703.000(Ft.)
Top (of initial area) elevation =   651.000(Ft.)
Bottom (of initial area) elevation =   640.100(Ft.)
Difference in elevation =    10.900(Ft.)
Slope =    0.01550  s(%)=       1.55
Manual entry of initial area time of concentration, TC
Initial area time of concentration =   10.000 min.
Rainfall intensity =      3.450(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.950
Subarea runoff =     21.566(CFS)
Total initial stream area =        6.580(Ac.)


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Process from Point/Station       12.000 to Point/Station       14.000
**** IMPROVED CHANNEL TRAVEL TIME ****
------------------------------------------------------------------------
Upstream point elevation =   640.100(Ft.)
Downstream point elevation =   637.600(Ft.)
Channel length thru subarea  =   453.000(Ft.)
Channel base width    =    0.000(Ft.)
Slope or 'Z' of left channel bank =  50.000
Slope or 'Z' of right channel bank =  50.000
Estimated mean flow rate at midpoint of channel =     28.645(CFS)
Manning's 'N'    = 0.015
Maximum depth of channel  =    4.000(Ft.)
Flow(q) thru subarea =     28.645(CFS)
Depth of flow =   0.457(Ft.), Average velocity =   2.749(Ft/s)
Channel flow top width =   45.655(Ft.)
Flow Velocity =    2.75(Ft/s)
Travel time  =    2.75 min.
Time of concentration =   12.75 min.
Critical depth =      0.459(Ft.)
 Adding area flow to channel
COMMERCIAL subarea type
Rainfall intensity =      3.195(In/Hr) for a   100.0 year storm
Subarea runoff =     13.110(CFS) for      4.320(Ac.)
Total runoff =     34.676(CFS)   Total area =      10.900(Ac.)


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Process from Point/Station       20.000 to Point/Station       22.000
**** INITIAL AREA EVALUATION ****
------------------------------------------------------------------------
COMMERCIAL subarea type
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Initial subarea data:
Equations shown use english units, converted if necessary to (SI)
Initial area flow distance =   998.000(Ft.)
Top (of initial area) elevation =   645.800(Ft.)
Bottom (of initial area) elevation =   636.000(Ft.)
Difference in elevation =     9.800(Ft.)
Slope =    0.00982  s(%)=       0.98
Manual entry of initial area time of concentration, TC
Initial area time of concentration =   10.000 min.
Rainfall intensity =      3.450(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.950
Subarea runoff =     17.633(CFS)
Total initial stream area =        5.380(Ac.)
End of computations, total study area =          16.280 (Ac.)
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UNIVERSAL RATIONAL METHOD HYDROLOGY PROGRAM

CIVILCADD/CIVILDESIGN Engineering Software, (c) 1989- 2005 Version 7.1
Rational Hydrology Study Date: 04/07/15

EDI Master Plan
Proposed Conditions
100-Year Flow Rate

********* Hydrology Study Control Information **********

Program License Serial Number 4028

Rational hydrology study storm event year is 100.0
Number of [time,intensity] data pairs = 4

No.	Time	-	Intensity
1	5.000		4.440(In.)
2	10.000		3.450(In.)
3	20.000		2.520(In.)
4	30.000		2.020(In.)

English Input Units Used
English Output Units Used:
Area = acres, Distance = feet, Flow q = ft^3/s, Pipe diam. = inches
Runoff coefficient method used:
Runoff coefficient 'C' value calculated for the
equation Q=KCIA [K=unit constant(1 if English Units, 1/360 if SI Units),
I=rainfall intensity, A=area];
by the following method:
Manual entry of 'C' values

Rational Hydrology Method used:

The rational hydrology method is used where the area
of each subarea in a stream, subarea 'C' value, and rain-
fall intensity for each subarea is used to determine the
subarea flow rate q, of which values are summed for total Q

Stream flow confluence option used:

Stream flow confluence method of 2 - 5 streams:
Note: in all cases, if the time of concentration
or TC of all streams are identical, then q = sum of stream flows
Variables p=peak; i=intensity; Fm=loss rate; a=area; 1...n flows
q = flow rate, t = time in minutes
Peak flow qp is a function of time, TC:
usual case q1>q2 and t1>t2 then qp = q1 + q2*(i1/i2), tp=t1
some cases q1>q2 and t1<t2 then qp = q2 + q1*(t2/t1), tp=t2

++
Process from Point/Station 10.000 to Point/Station 12.000
**** INITIAL AREA EVALUATION ****

```
COMMERCIAL subarea type
Initial subarea data:
Equations shown use english units, converted if necessary to (SI)
Initial area flow distance =   703.000(Ft.)
Top (of initial area) elevation =   651.000(Ft.)
Bottom (of initial area) elevation =   640.100(Ft.)
Difference in elevation =    10.900(Ft.)
Slope =    0.01550  s(%)=       1.55
Manual entry of initial area time of concentration, TC
Initial area time of concentration =   10.000 min.
Rainfall intensity =      3.450(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.950
Subarea runoff =     21.566(CFS)
Total initial stream area =        6.580(Ac.)


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Process from Point/Station       14.000 to Point/Station       12.000
**** SUBAREA FLOW ADDITION ****
________________________________________________________________________
COMMERCIAL subarea type
Time of concentration =    10.00 min.
Rainfall intensity =      3.450(In/Hr) for a   100.0 year storm
Subarea runoff =      4.523(CFS) for      1.380(Ac.)
Total runoff =     26.089(CFS)      Total area =       7.960(Ac.)


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Process from Point/Station       12.000 to Point/Station       16.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
________________________________________________________________________
Upstream point/station elevation =   637.100(Ft.)
Downstream point/station elevation =   634.100(Ft.)
Pipe length  =   493.00(Ft.)   Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =    26.089(CFS)
Nearest computed pipe diameter  =     30.00(In.)
Calculated individual pipe flow  =    26.089(CFS)
Normal flow depth in pipe =   20.58(In.)
Flow top width inside pipe =   27.85(In.)
Critical Depth =   20.88(In.)
Pipe flow velocity =      7.27(Ft/s)
Travel time through pipe =    1.13 min.
Time of concentration (TC) =    11.13 min.


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Process from Point/Station       18.000 to Point/Station       16.000
**** SUBAREA FLOW ADDITION ****
________________________________________________________________________
COMMERCIAL subarea type
Time of concentration =    11.13 min.
Rainfall intensity =      3.345(In/Hr) for a   100.0 year storm
Subarea runoff =      7.849(CFS) for      2.470(Ac.)
Total runoff =     33.938(CFS)      Total area =      10.430(Ac.)


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Process from Point/Station       20.000 to Point/Station       16.000
**** SUBAREA FLOW ADDITION ****
________________________________________________________________________
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```
COMMERCIAL subarea type
Time of concentration =    11.13 min.
Rainfall intensity =      3.345(In/Hr) for a   100.0 year storm
Subarea runoff =      1.398(CFS) for      0.440(Ac.)
Total runoff =     35.336(CFS)      Total area =      10.870(Ac.)


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Process from Point/Station       16.000 to Point/Station       22.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
----------------------------------------------------------------------
Upstream point/station elevation =   634.100(Ft.)
Downstream point/station elevation =   632.290(Ft.)
Pipe length  =   361.00(Ft.)   Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =    35.336(CFS)
Nearest computed pipe diameter  =     33.00(In.)
Calculated individual pipe flow  =    35.336(CFS)
Normal flow depth in pipe =   25.50(In.)
Flow top width inside pipe =   27.66(In.)
Critical Depth =   23.74(In.)
Pipe flow velocity =      7.17(Ft/s)
Travel time through pipe =    0.84 min.
Time of concentration (TC) =    11.97 min.


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Process from Point/Station       16.000 to Point/Station       22.000
**** CONFLUENCE OF MINOR STREAMS ****
----------------------------------------------------------------------
Along Main Stream number: 1 in normal stream number 1
Stream flow area =     10.870(Ac.)
Runoff from this stream =     35.336(CFS)
Time of concentration =   11.97 min.
Rainfall intensity =     3.267(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station       24.000 to Point/Station       26.000
**** INITIAL AREA EVALUATION ****
----------------------------------------------------------------------
COMMERCIAL subarea type
Initial subarea data:
Equations shown use english units, converted if necessary to (SI)
Initial area flow distance =   208.000(Ft.)
Top (of initial area) elevation =   644.200(Ft.)
Bottom (of initial area) elevation =   640.000(Ft.)
Difference in elevation =     4.200(Ft.)
Slope =    0.02019  s(%)=       2.02
Manual entry of initial area time of concentration, TC
Initial area time of concentration =   10.000 min.
Rainfall intensity =      3.450(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.950
Subarea runoff =      1.639(CFS)
Total initial stream area =        0.500(Ac.)


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Process from Point/Station       26.000 to Point/Station       28.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
----------------------------------------------------------------------
```

```
Upstream point/station elevation =   640.000(Ft.)
Downstream point/station elevation =   637.500(Ft.)
Pipe length  =   346.00(Ft.)   Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =     1.639(CFS)
Nearest computed pipe diameter  =     12.00(In.)
Calculated individual pipe flow  =     1.639(CFS)
Normal flow depth in pipe =    6.29(In.)
Flow top width inside pipe =   11.99(In.)
Critical Depth =    6.53(In.)
Pipe flow velocity =      3.93(Ft/s)
Travel time through pipe =    1.47 min.
Time of concentration (TC) =    11.47 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station       26.000 to Point/Station       28.000
**** SUBAREA FLOW ADDITION ****
------------------------------------------------------------------------------
COMMERCIAL subarea type
Time of concentration =    11.47 min.
Rainfall intensity =      3.314(In/Hr) for a   100.0 year storm
Subarea runoff =      1.228(CFS) for      0.390(Ac.)
Total runoff =      2.866(CFS)      Total area =       0.890(Ac.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station       29.000 to Point/Station       28.000
**** SUBAREA FLOW ADDITION ****
------------------------------------------------------------------------------
COMMERCIAL subarea type
Time of concentration =    11.47 min.
Rainfall intensity =      3.314(In/Hr) for a   100.0 year storm
Subarea runoff =      0.346(CFS) for      0.110(Ac.)
Total runoff =      3.213(CFS)      Total area =       1.000(Ac.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station       28.000 to Point/Station       22.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
------------------------------------------------------------------------------
Upstream point/station elevation =   633.500(Ft.)
Downstream point/station elevation =   632.300(Ft.)
Pipe length  =    53.00(Ft.)   Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =     3.213(CFS)
Nearest computed pipe diameter  =     12.00(In.)
Calculated individual pipe flow  =     3.213(CFS)
Normal flow depth in pipe =    6.69(In.)
Flow top width inside pipe =   11.92(In.)
Critical Depth =    9.22(In.)
Pipe flow velocity =      7.13(Ft/s)
Travel time through pipe =    0.12 min.
Time of concentration (TC) =    11.59 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station       28.000 to Point/Station       22.000
**** CONFLUENCE OF MINOR STREAMS ****
------------------------------------------------------------------------------
Along Main Stream number: 1 in normal stream number 2
Stream flow area =      1.000(Ac.)
```

```
Runoff from this stream =      3.213(CFS)
Time of concentration =   11.59 min.
Rainfall intensity =     3.302(In/Hr)
Summary of stream data:

Stream   Flow rate      TC            Rainfall Intensity
 No.       (CFS)       (min)                 (In/Hr)


1       35.336     11.97               3.267
2        3.213     11.59               3.302
Qmax(1) =
         1.000 *    1.000 *    35.336) +
         0.989 *    1.000 *     3.213) + =      38.514
Qmax(2) =
         1.000 *    0.968 *    35.336) +
         1.000 *    1.000 *     3.213) + =      37.429

Total of 2 streams to confluence:
Flow rates before confluence point:
      35.336       3.213
Maximum flow rates at confluence using above data:
       38.514       37.429
Area of streams before confluence:
       10.870        1.000
Results of confluence:
Total flow rate =     38.514(CFS)
Time of concentration =    11.970 min.
Effective stream area after confluence =     11.870(Ac.)


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Process from Point/Station       22.000 to Point/Station       30.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
________________________________________________________________________
Upstream point/station elevation =   632.300(Ft.)
Downstream point/station elevation =   630.880(Ft.)
Pipe length  =   284.00(Ft.)   Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =    38.514(CFS)
Nearest computed pipe diameter  =     33.00(In.)
Calculated individual pipe flow  =    38.514(CFS)
Normal flow depth in pipe =   28.03(In.)
Flow top width inside pipe =   23.60(In.)
Critical Depth =   24.78(In.)
Pipe flow velocity =      7.16(Ft/s)
Travel time through pipe =    0.66 min.
Time of concentration (TC) =    12.63 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station       32.000 to Point/Station       30.000
**** SUBAREA FLOW ADDITION ****
________________________________________________________________________
COMMERCIAL subarea type
Time of concentration =    12.63 min.
Rainfall intensity =      3.205(In/Hr) for a   100.0 year storm
Subarea runoff =      0.761(CFS) for      0.250(Ac.)
Total runoff =     39.275(CFS)      Total area =      12.120(Ac.)
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Process from Point/Station       30.000 to Point/Station       34.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
------------------------------------------------------------------------
Upstream point/station elevation =   630.880(Ft.)
Downstream point/station elevation =   630.800(Ft.)
Pipe length  =    15.00(Ft.)   Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =    39.275(CFS)
Nearest computed pipe diameter  =     33.00(In.)
Calculated individual pipe flow  =    39.275(CFS)
Normal flow depth in pipe =   27.56(In.)
Flow top width inside pipe =   24.48(In.)
Critical Depth =   25.03(In.)
Pipe flow velocity =      7.41(Ft/s)
Travel time through pipe =    0.03 min.
Time of concentration (TC) =    12.66 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station       30.000 to Point/Station       34.000
**** CONFLUENCE OF MINOR STREAMS ****
------------------------------------------------------------------------
Along Main Stream number: 1 in normal stream number 1
Stream flow area =     12.120(Ac.)
Runoff from this stream =     39.275(CFS)
Time of concentration =   12.66 min.
Rainfall intensity =     3.202(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station       36.000 to Point/Station       38.000
**** INITIAL AREA EVALUATION ****
------------------------------------------------------------------------
COMMERCIAL subarea type
Initial subarea data:
Equations shown use english units, converted if necessary to (SI)
Initial area flow distance =   177.000(Ft.)
Top (of initial area) elevation =   642.000(Ft.)
Bottom (of initial area) elevation =   638.300(Ft.)
Difference in elevation =     3.700(Ft.)
Slope =    0.02090  s(%)=       2.09
Manual entry of initial area time of concentration, TC
Initial area time of concentration =   10.000 min.
Rainfall intensity =      3.450(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.950
Subarea runoff =      2.163(CFS)
Total initial stream area =        0.660(Ac.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station       38.000 to Point/Station       40.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
------------------------------------------------------------------------
Upstream point/station elevation =   636.900(Ft.)
Downstream point/station elevation =   636.000(Ft.)
Pipe length  =   180.00(Ft.)   Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =     2.163(CFS)
Nearest computed pipe diameter  =     12.00(In.)
Calculated individual pipe flow  =     2.163(CFS)
Normal flow depth in pipe =    8.57(In.)
```

```
Flow top width inside pipe =   10.85(In.)
Critical Depth =    7.55(In.)
Pipe flow velocity =      3.61(Ft/s)
Travel time through pipe =    0.83 min.
Time of concentration (TC) =    10.83 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station       42.000 to Point/Station       40.000
**** SUBAREA FLOW ADDITION ****
----------------------------------------------------------------------
COMMERCIAL subarea type
Time of concentration =    10.83 min.
Rainfall intensity =      3.373(In/Hr) for a   100.0 year storm
Subarea runoff =      0.096(CFS) for      0.030(Ac.)
Total runoff =      2.259(CFS)      Total area =       0.690(Ac.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station       40.000 to Point/Station       44.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
----------------------------------------------------------------------
Upstream point/station elevation =   636.000(Ft.)
Downstream point/station elevation =   635.000(Ft.)
Pipe length  =   169.00(Ft.)   Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =     2.259(CFS)
Nearest computed pipe diameter  =     12.00(In.)
Calculated individual pipe flow  =     2.259(CFS)
Normal flow depth in pipe =    8.30(In.)
Flow top width inside pipe =   11.09(In.)
Critical Depth =    7.72(In.)
Pipe flow velocity =      3.90(Ft/s)
Travel time through pipe =    0.72 min.
Time of concentration (TC) =    11.55 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station       40.000 to Point/Station       44.000
**** SUBAREA FLOW ADDITION ****
----------------------------------------------------------------------
COMMERCIAL subarea type
Time of concentration =    11.55 min.
Rainfall intensity =      3.305(In/Hr) for a   100.0 year storm
Subarea runoff =      9.672(CFS) for      3.080(Ac.)
Total runoff =     11.931(CFS)      Total area =       3.770(Ac.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station       44.000 to Point/Station       34.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
----------------------------------------------------------------------
Upstream point/station elevation =   635.000(Ft.)
Downstream point/station elevation =   630.800(Ft.)
Pipe length  =   249.00(Ft.)   Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =    11.931(CFS)
Nearest computed pipe diameter  =     18.00(In.)
Calculated individual pipe flow  =    11.931(CFS)
Normal flow depth in pipe =   13.03(In.)
Flow top width inside pipe =   16.09(In.)
Critical Depth =   15.74(In.)
```

```
Pipe flow velocity =      8.70(Ft/s)
Travel time through pipe =    0.48 min.
Time of concentration (TC) =    12.03 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station       44.000 to Point/Station       34.000
**** CONFLUENCE OF MINOR STREAMS ****
----------------------------------------------------------------------
Along Main Stream number: 1 in normal stream number 2
Stream flow area =      3.770(Ac.)
Runoff from this stream =     11.931(CFS)
Time of concentration =   12.03 min.
Rainfall intensity =     3.261(In/Hr)
Summary of stream data:

Stream   Flow rate      TC            Rainfall Intensity
 No.       (CFS)       (min)                 (In/Hr)


1       39.275     12.66               3.202
2       11.931     12.03               3.261
Qmax(1) =
         1.000 *    1.000 *    39.275) +
         0.982 *    1.000 *    11.931) + =      50.991
Qmax(2) =
         1.000 *    0.950 *    39.275) +
         1.000 *    1.000 *    11.931) + =      49.243

Total of 2 streams to confluence:
Flow rates before confluence point:
      39.275      11.931
Maximum flow rates at confluence using above data:
       50.991       49.243
Area of streams before confluence:
       12.120        3.770
Results of confluence:
Total flow rate =     50.991(CFS)
Time of concentration =    12.665 min.
Effective stream area after confluence =     15.890(Ac.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station       34.000 to Point/Station       46.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
----------------------------------------------------------------------
Upstream point/station elevation =   630.800(Ft.)
Downstream point/station elevation =   629.660(Ft.)
Pipe length  =   200.00(Ft.)   Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =    50.991(CFS)
Nearest computed pipe diameter  =     36.00(In.)
Calculated individual pipe flow  =    50.991(CFS)
Normal flow depth in pipe =   29.91(In.)
Flow top width inside pipe =   27.00(In.)
Critical Depth =   27.87(In.)
Pipe flow velocity =      8.12(Ft/s)
Travel time through pipe =    0.41 min.
Time of concentration (TC) =    13.08 min.
```

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Process from Point/Station       34.000 to Point/Station       46.000
**** CONFLUENCE OF MAIN STREAMS ****
------------------------------------------------------------------------
The following data inside Main Stream is listed:
In Main Stream number: 1
Stream flow area =     15.890(Ac.)
Runoff from this stream =     50.991(CFS)
Time of concentration =   13.08 min.
Rainfall intensity =     3.164(In/Hr)
Program is now starting with Main Stream No. 2


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station       50.000 to Point/Station       52.000
**** INITIAL AREA EVALUATION ****
------------------------------------------------------------------------
COMMERCIAL subarea type
Initial subarea data:
Equations shown use english units, converted if necessary to (SI)
Initial area flow distance =   148.000(Ft.)
Top (of initial area) elevation =   642.500(Ft.)
Bottom (of initial area) elevation =   639.500(Ft.)
Difference in elevation =     3.000(Ft.)
Slope =    0.02027  s(%)=       2.03
Manual entry of initial area time of concentration, TC
Initial area time of concentration =   10.000 min.
Rainfall intensity =      3.450(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.950
Subarea runoff =      1.278(CFS)
Total initial stream area =        0.390(Ac.)


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Process from Point/Station       50.000 to Point/Station       52.000
**** CONFLUENCE OF MINOR STREAMS ****
------------------------------------------------------------------------
Along Main Stream number: 2 in normal stream number 1
Stream flow area =      0.390(Ac.)
Runoff from this stream =      1.278(CFS)
Time of concentration =   10.00 min.
Rainfall intensity =     3.450(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station       60.000 to Point/Station       62.000
**** INITIAL AREA EVALUATION ****
------------------------------------------------------------------------
COMMERCIAL subarea type
Initial subarea data:
Equations shown use english units, converted if necessary to (SI)
Initial area flow distance =   997.000(Ft.)
Top (of initial area) elevation =   648.500(Ft.)
Bottom (of initial area) elevation =   639.000(Ft.)
Difference in elevation =     9.500(Ft.)
Slope =    0.00953  s(%)=       0.95
Manual entry of initial area time of concentration, TC
Initial area time of concentration =   10.000 min.
Rainfall intensity =      3.450(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.950
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Subarea runoff =     16.093(CFS)
Total initial stream area =        4.910(Ac.)


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Process from Point/Station       60.000 to Point/Station       62.000
**** CONFLUENCE OF MINOR STREAMS ****
________________________________________________________________________
Along Main Stream number: 2 in normal stream number 2
Stream flow area =      4.910(Ac.)
Runoff from this stream =     16.093(CFS)
Time of concentration =   10.00 min.
Rainfall intensity =     3.450(In/Hr)
Summary of stream data:

Stream   Flow rate      TC            Rainfall Intensity
 No.       (CFS)       (min)                (In/Hr)


1        1.278     10.00               3.450
2       16.093     10.00               3.450
Qmax(1) =
         1.000 *    1.000 *     1.278) +
         1.000 *    1.000 *    16.093) + =      17.371
Qmax(2) =
         1.000 *    1.000 *     1.278) +
         1.000 *    1.000 *    16.093) + =      17.371

Total of 2 streams to confluence:
Flow rates before confluence point:
       1.278      16.093
Maximum flow rates at confluence using above data:
       17.371       17.371
Area of streams before confluence:
        0.390        4.910
Results of confluence:
Total flow rate =     17.371(CFS)
Time of concentration =    10.000 min.
Effective stream area after confluence =      5.300(Ac.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station       62.000 to Point/Station       66.000
**** STREET FLOW TRAVEL TIME + SUBAREA FLOW ADDITION ****
________________________________________________________________________
Top of street segment elevation =   639.000(Ft.)
End of street segment elevation =   635.200(Ft.)
Length of street segment  =   467.000(Ft.)
Height of curb above gutter flowline  =    6.0(In.)
Width of half street (curb to crown)  =  30.000(Ft.)
Distance from crown to crossfall grade break  =  10.000(Ft.)
Slope from gutter to grade break (v/hz) =   0.020
Slope from grade break to crown (v/hz)  =   0.020
Street flow is on [1] side(s) of the street
Distance from curb to property line  =  10.000(Ft.)
Slope from curb to property line (v/hz) =   0.020
Gutter width =   1.500(Ft.)
Gutter hike from flowline =  1.500(In.)
 Manning's N in gutter =  0.0150
 Manning's N from gutter to grade break =  0.0180
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 Manning's N from grade break to crown =  0.0180
Estimated mean flow rate at midpoint of street =     18.321(CFS)
Depth of flow =   0.596(Ft.), Average velocity =   2.783(Ft/s)
Warning: depth of flow exceeds top of curb
Distance that curb overflow reaches into property =    4.81(Ft.)
Streetflow hydraulics at midpoint of street travel:
Halfstreet flow width =  25.059(Ft.)
Flow velocity =   2.78(Ft/s)
Travel time =    2.80 min.     TC =   12.80  min.
 Adding area flow to street
COMMERCIAL subarea type
Rainfall intensity =      3.190(In/Hr) for a   100.0 year storm
Subarea runoff =      1.758(CFS) for      0.580(Ac.)
Total runoff =     19.128(CFS)      Total area =       5.880(Ac.)
Street flow at end of street =     19.128(CFS)
Half street flow at end of street =     19.128(CFS)
Depth of flow =   0.604(Ft.), Average velocity =   2.805(Ft/s)
Warning: depth of flow exceeds top of curb
Distance that curb overflow reaches into property =    5.20(Ft.)
Flow width (from curb towards crown)=  25.451(Ft.)


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Process from Point/Station       66.000 to Point/Station       46.000
**** PIPEFLOW TRAVEL TIME (User specified size) ****
________________________________________________________________________
Upstream point/station elevation =   630.540(Ft.)
Downstream point/station elevation =   629.660(Ft.)
Pipe length  =   112.00(Ft.)   Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =    19.128(CFS)
Given pipe size =     24.00(In.)
Calculated individual pipe flow  =    19.128(CFS)
Normal flow depth in pipe =   18.75(In.)
Flow top width inside pipe =   19.84(In.)
Critical Depth =   18.88(In.)
Pipe flow velocity =      7.27(Ft/s)
Travel time through pipe =    0.26 min.
Time of concentration (TC) =    13.05 min.


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Process from Point/Station       66.000 to Point/Station       46.000
**** CONFLUENCE OF MAIN STREAMS ****
________________________________________________________________________
The following data inside Main Stream is listed:
In Main Stream number: 2
Stream flow area =      5.880(Ac.)
Runoff from this stream =     19.128(CFS)
Time of concentration =   13.05 min.
Rainfall intensity =     3.166(In/Hr)
Summary of stream data:

Stream   Flow rate      TC            Rainfall Intensity
 No.       (CFS)       (min)                (In/Hr)


1       50.991     13.08               3.164
2       19.128     13.05               3.166
Qmax(1) =
         1.000 *    1.000 *    50.991) +
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```
         0.999 *    1.000 *    19.128) + =      70.107
Qmax(2) =
         1.000 *    0.998 *    50.991) +
         1.000 *    1.000 *    19.128) + =      70.033

Total of 2 main streams to confluence:
Flow rates before confluence point:
      50.991      19.128
Maximum flow rates at confluence using above data:
       70.107       70.033
Area of streams before confluence:
       15.890        5.880


Results of confluence:
Total flow rate =     70.107(CFS)
Time of concentration =    13.075 min.
Effective stream area after confluence  =     21.770(Ac.)


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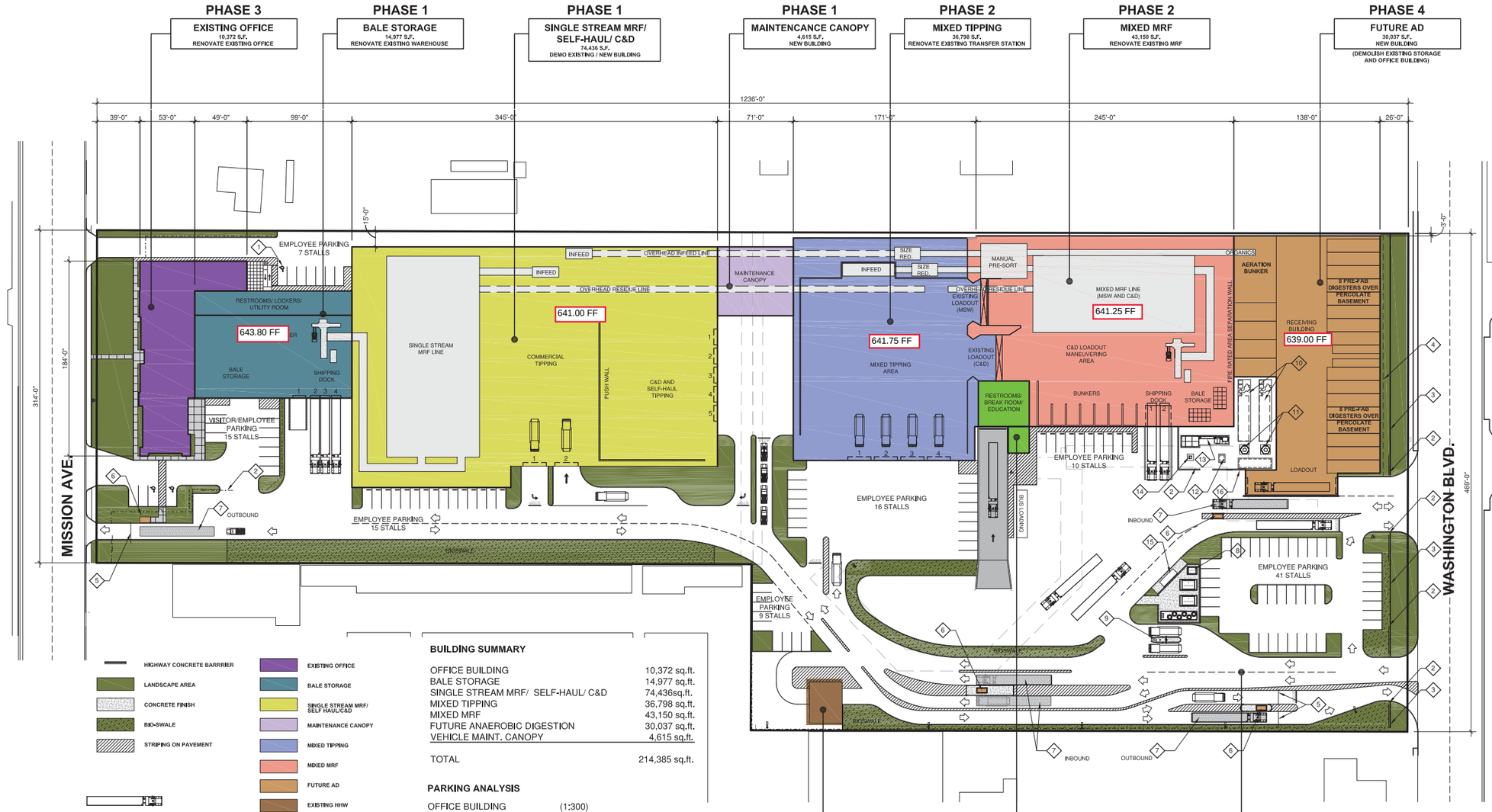
Process from Point/Station       46.000 to Point/Station       68.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
________________________________________________________________________
Upstream point/station elevation =   629.660(Ft.)
Downstream point/station elevation =   628.740(Ft.)
Pipe length  =   114.50(Ft.)   Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =    70.107(CFS)
Nearest computed pipe diameter  =     39.00(In.)
Calculated individual pipe flow  =    70.107(CFS)
Normal flow depth in pipe =   30.28(In.)
Flow top width inside pipe =   32.50(In.)
Critical Depth =   31.90(In.)
Pipe flow velocity =     10.15(Ft/s)
Travel time through pipe =    0.19 min.
Time of concentration (TC) =    13.26 min.
End of computations, total study area =          21.770 (Ac.)
```



KEYNOTES

1. ADA PARKING
2. WROUGHT IRON SLIDING GATE
3. 8' HIGH DECORATIVE CMU WALL
4. PERFORATED METAL SCREEN WALL ABOVE
5. ARM GATE
6. SCALE HOUSE
7. SCALE
8. CNG EQUIPMENT
9. CNG FUELING AREA
10. BIO-FILTER
11. H2S VESSEL
12. GENERATOR
13. BIO-GAS / CHILLER SKID
14. FLARE
15. 1,500 GALLON ABOVE GROUND DIESEL STORAGE TANK
16. 8' HIGH CMU SCREEN WALL

BUILDING SUMMARY

OFFICE BUILDING	10,372 sq.ft.
BALE STORAGE	14,977 sq.ft.
SINGLE STREAM MRF/ SELF-HAUL/ C&D	74,436sq.ft.
MIXED TIPPING	36,798 sq.ft.
MIXED MRF	43,150 sq.ft.
FUTURE ANAEROBIC DIGESTION	30,037 sq.ft.
VEHICLE MAINT. CANOPY	4,615 sq.ft.
TOTAL	214,385 sq.ft.

PARKING ANALYSIS

OFFICE BUILDING (1:300)	
10,372 sq.ft. / 300	34 STALLS
BALE STORAGE (1:3,000)	
14,977 sq.ft. / 3,000	5 STALLS
SINGLE STREAM MRF/ SELF-HAUL / C&D (1:3,000)	
74,436 sq.ft. / 3,000	25 STALLS
MIXED TIPPING FLOOR (1:3,000)	
36,798 sq.ft. / 3,000	12 STALLS
MIXED MRF (1:3,000)	
43,150 sq.ft. / 3,000	15 STALLS
FUTURE ANAEROBIC DIGESTION (1:3,000)	
30,037 sq.ft. / 3,000	10 STALLS
TOTAL REQUIRED	101 STALLS
PROVIDED	112 STALLS

EDI MASTER PLAN

ESCONDIDO, CALIFORNIA

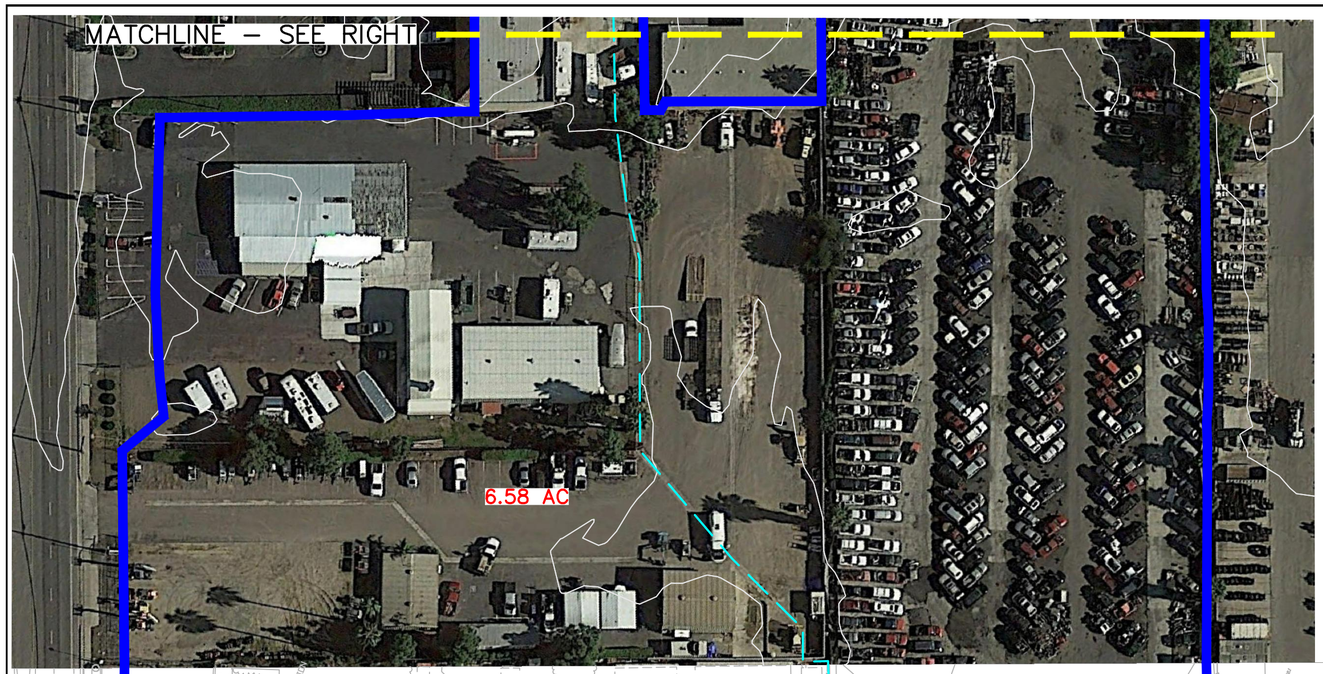
OVERALL SITE PLAN

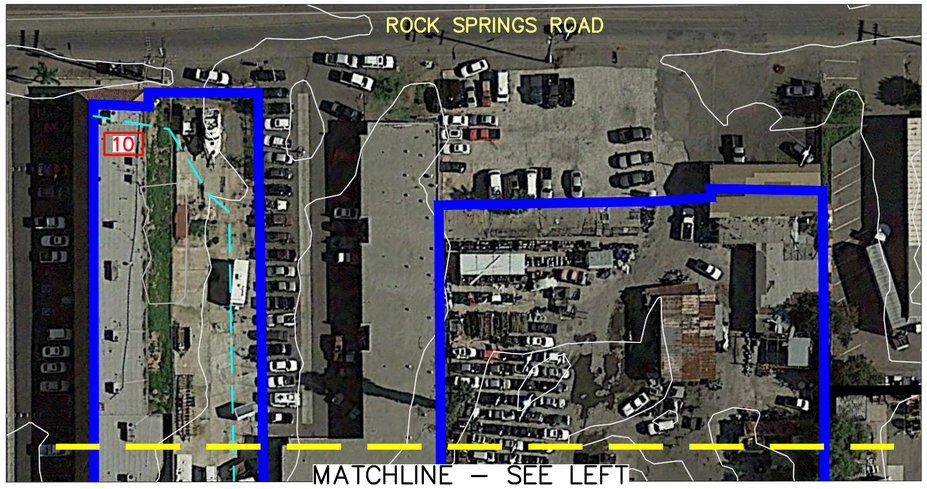
JOB # 4715

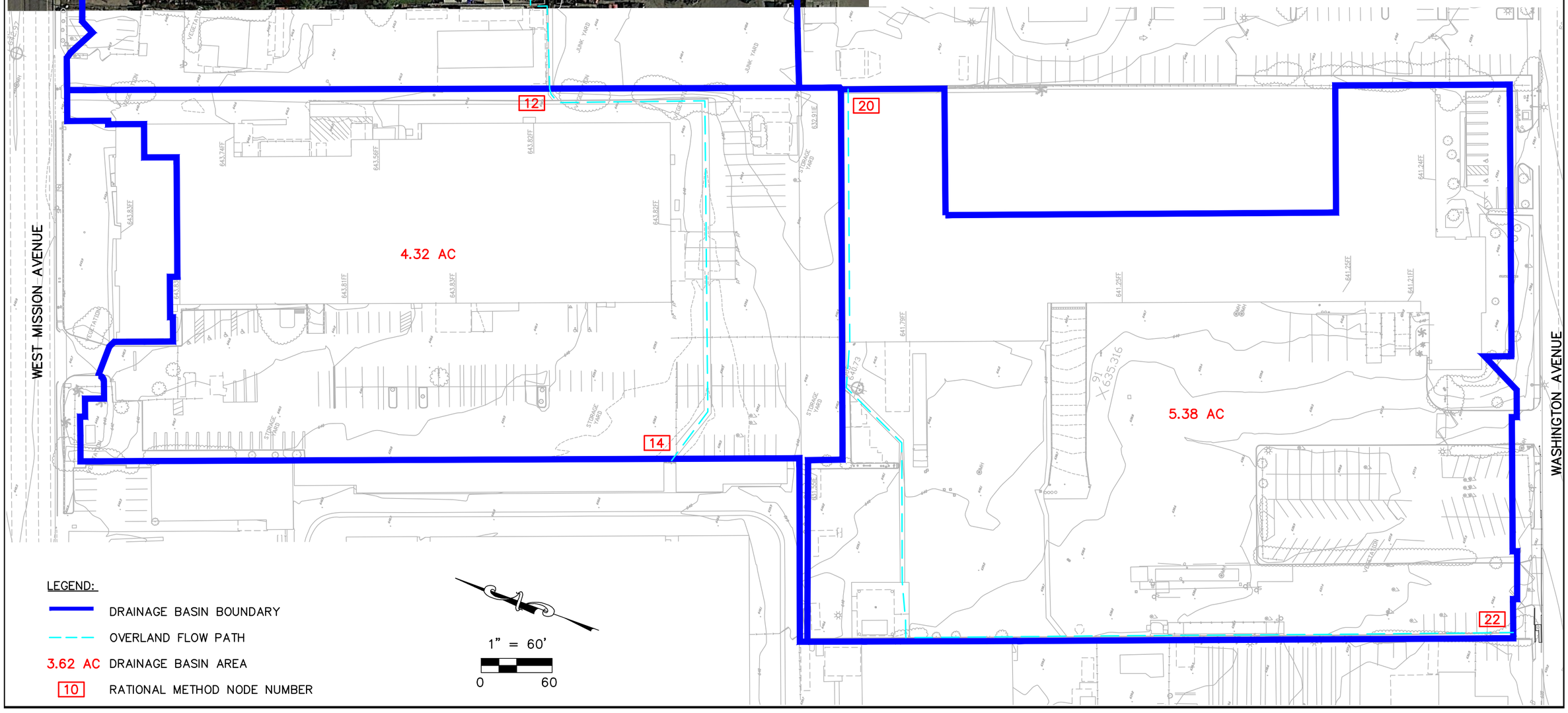
JANUARY 19 2015

JRMA ARCHITECTS ENGINEERS PLANNERS

EXISTING CONDITION
RATIONAL METHOD WORK MAP







LEGEND:

- DRAINAGE BASIN BOUNDARY
- OVERLAND FLOW PATH
- 3.62 AC DRAINAGE BASIN AREA
- 10 RATIONAL METHOD NODE NUMBER

1" = 60'

0 60

ROCK SPRINGS ROAD

WEST MISSION AVENUE

WASHINGTON AVENUE

EXISTING BUILDING TO REMAIN

EXISTING BUILDING TO REMAIN

10

6.58 AC

30

4.91 AC

62

14

12

12

1.38 AC

20

EXISTING BUILDING TO REMAIN

50

0.39 AC

52

0.58 AC

4.32 AC

0.44 AC

24

36

20

42

0.66 AC

0.03 AC

2.47 AC

0.50 AC

0.11 AC

5.38 AC

38

0.25 AC

32

40

18

16

14

26

29

0.39 AC

28

3.08 AC

22

30

22

44

34

66

46

68

LEGEND:

- DRAINAGE BASIN BOUNDARY
- OVERLAND FLOW PATH
- PROPOSED DRAINAGE FACILITY
- 3.62 AC DRAINAGE BASIN AREA
- 10 RATIONAL METHOD NODE NUMBER
- PROPOSED BIORETENTION BASIN

1" = 60'

0 60

PROPOSED CONDITION
RATIONAL METHOD WORK MAP