



## Grandview Reserve Master Development Drainage Plan

September 2020

HR Green Project No: 191850

**Prepared For:**

4 SITE INVESTMENTS, LLC

Mr. Peter Martz or Paul Howard

1271 Kelly Johnson Blvd., Ste. 100

Colorado Springs, CO 80920

719-499-8416

**Prepared By:**

HR Green Development, LLC

Contact: Chris McFarland, PE

cmcfarland@hrgreen.com

720-602-4956

**Engineering Review**

*10/13/2020 9:49:08 AM*

*dsdrice*

JeffRice@elpasoco.com

**(719) 520-7877**

**EPC Planning & Community  
Development Department**

## Engineer's Statement

This report and plan for the drainage design of the development , Grandview Reserve, was prepared by me (or under my direct supervision) and is correct to the best of my knowledge and belief. Said report and plan has been prepared in accordance with the *El Paso County Drainage Criteria* Manual and is in conformity with the master plan of the drainage basin. I understand that El Paso County does not and will not assume liability for drainage facilities designed by others. I accept responsibility for any liability caused by any negligent acts, errors or omissions on my part in preparing this report.



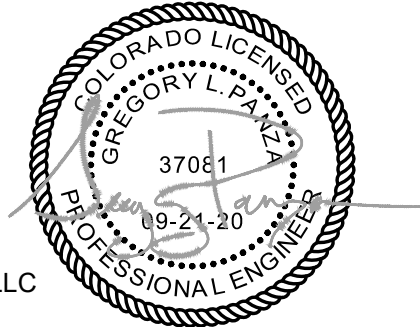
9-21-20

Greg Panza, PE

Date

State of Colorado No. 37081

For and on behalf of HR Green Development, LLC



## Developer's Statement

I, the developer, have read and will comply with all of the requirements specified in this drainage report and plan.

4 Site Investments LLC

By:

Sign and complete

Title:

Address:

## El Paso County:

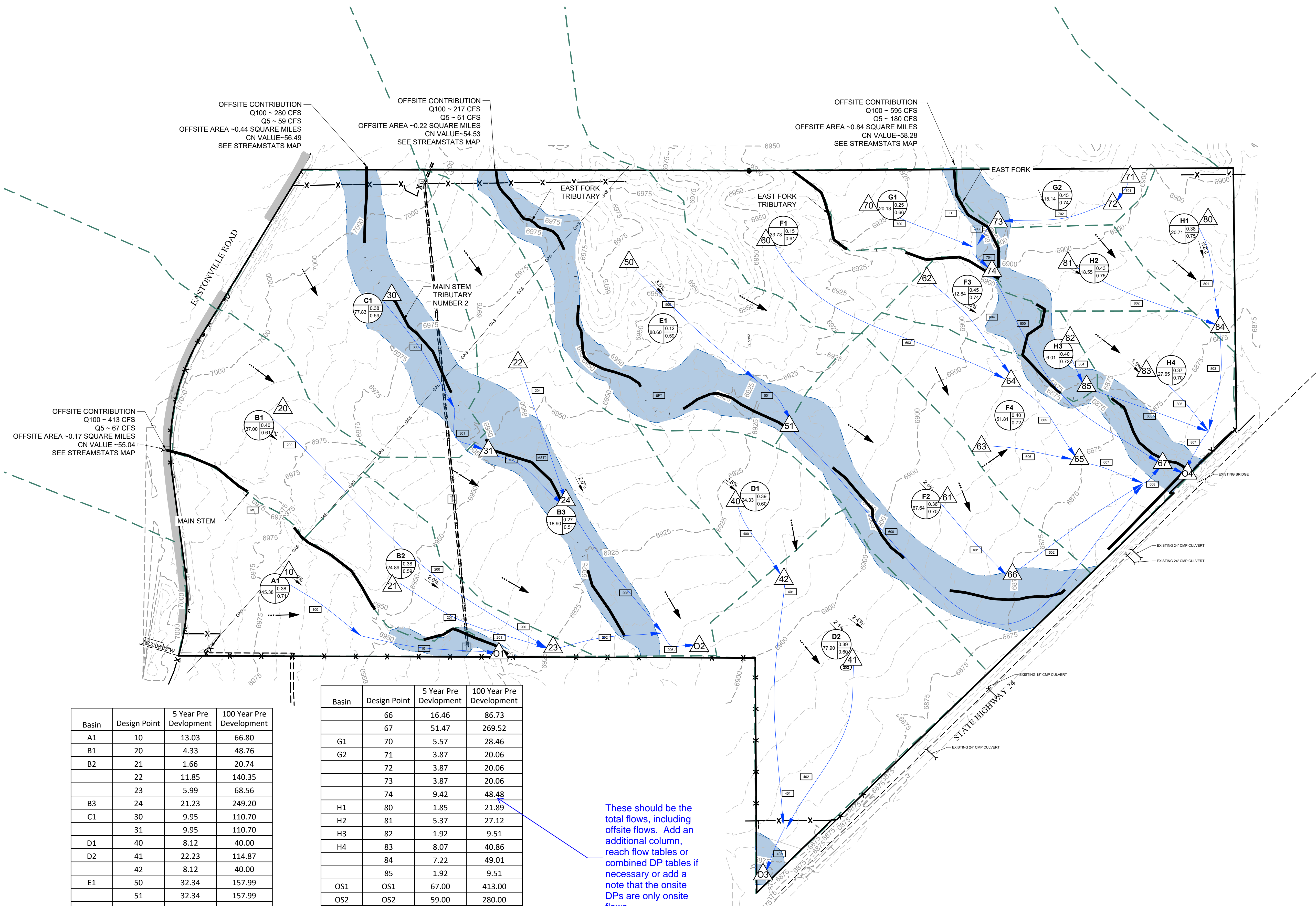
Filed in accordance with the requirements of the El Paso County Land Development Code, Drainage Criteria Manual, Volumes 1 and 2 and the Engineering Criteria Manual, as amended.

Jennifer Irvine, P.E.

County Engineer/ECM Administrator

Date

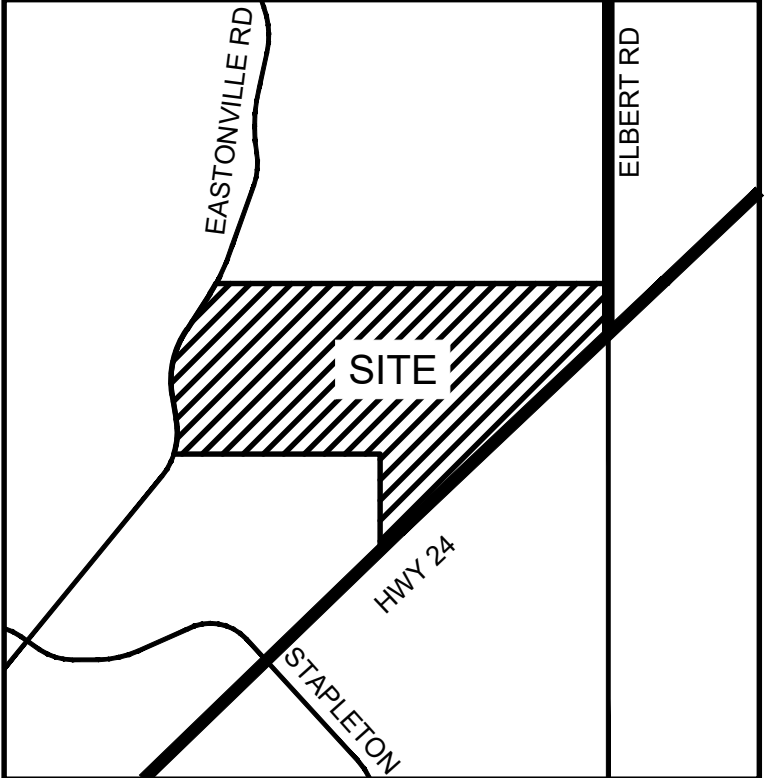




Basin	Design Point	5 Year Pre Development	100 Year Pre Development
A1	10	13.03	66.80
B1	20	4.33	48.76
B2	21	1.66	20.74
	22	11.85	140.35
	23	5.99	68.56
B3	24	21.23	249.20
C1	30	9.95	110.70
	31	9.95	110.70
D1	40	8.12	40.00
D2	41	22.23	114.87
	42	8.12	40.00
E1	50	32.34	157.99
	51	32.34	157.99
F1	60	9.70	49.45
F2	61	16.46	86.73
F3	62	3.65	18.42
F4	63	12.98	67.82
	64	13.35	67.87
	65	26.04	135.62

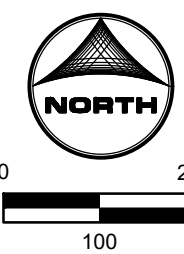
Basin	Design Point	5 Year Pre Development	100 Year Pre Development
	66	16.46	86.73
	67	51.47	269.52
G1	70	5.57	28.46
G2	71	3.87	20.06
	72	3.87	20.06
	73	3.87	20.06
	74	9.42	48.48
H1	80	1.85	21.89
H2	81	5.37	27.12
H3	82	1.92	9.51
H4	83	8.07	40.86
	84	7.22	49.01
	85	1.92	9.51
OS1	OS1	67.00	413.00
OS2	OS2	59.00	280.00
OS3	OS3	61.00	217.00
OS4	OS4	180.00	595.00
	Outfall1	80.03	479.80
	Outfall2	85.96	597.41
	Outfall3	30.00	154.35
	Outfall4	341.05	1335.77

These should be the total flows, including offsite flows. Add an additional column, reach flow tables or combined DP tables if necessary or add a note that the onsite DPs are only onsite flows.



- LEGEND:**
- PROPOSED MAJOR CONTOUR: 5250
  - PROPOSED MINOR CONTOUR: 5250
  - EXISTING MAJOR CONTOUR: 5250
  - EXISTING MINOR CONTOUR: 5250
  - PROPOSED STORM DRAIN PIPE: 18"
  - EXISTING STORM DRAIN PIPE: 18"
  - PROPOSED DRAINAGE CHANNEL: 18"
  - PROPOSED ROAD: 18"
  - PROPERTY LINE: 18"
  - DIRECTIONAL FLOW ARROW: 18"
  - EMERGENCY OVERFLOW ARROW: 18"
  - EXISTING 100-YR FLOODWAY: 18"
  - EXISTING 100-YR FLOODPLAIN: 18"
  - PROPOSED 100-YR FLOODPLAIN: 18"
  - WATERSHED BOUNDARY: 18"
  - MAJOR BASIN LINE: 18"
  - 100YR ZONE A FLOODPLAIN: 18"
  - PROPOSED DETENTION LOCATION: 18"
  - POTENTIAL WATER QUALITY LOCATION: 18"
  - SWMM CONVEYANCE ELEMENT: 18"
  - PROPOSED PEAK FLOW RATE (CFS): 850
  - DESIGN POINT: 18"
  - PROPOSED BASIN LABEL: 18"
  - AREA (AC.): 18"
  - LAND USE: 18"

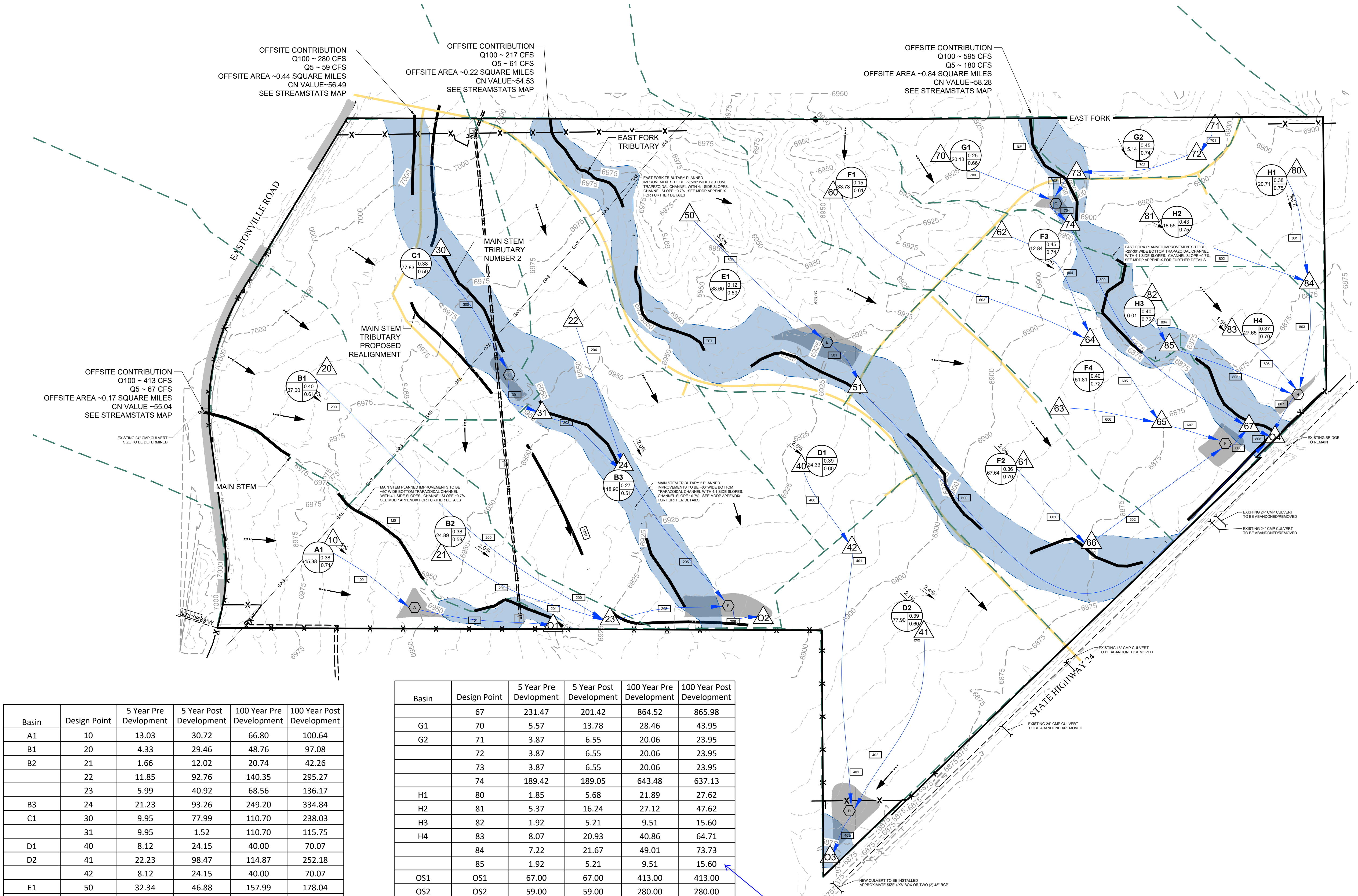
NOTES:



Job No.: 191897.01  
Prepared By: TBI  
Date: 04/14/2020

EXISTING EX1



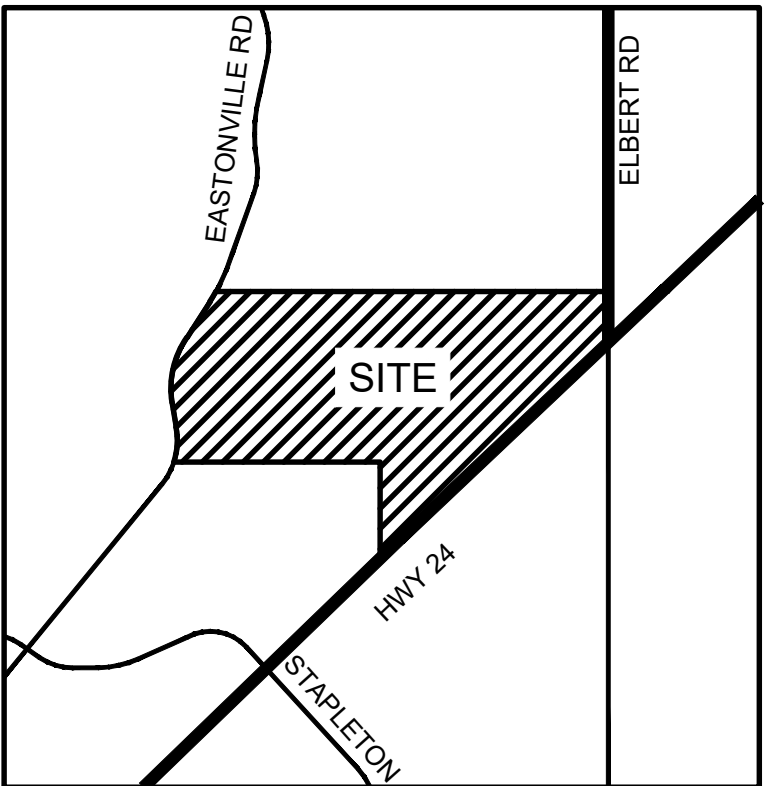


Basin	Design Point	5 Year Pre Development	5 Year Post Development	100 Year Pre Development	100 Year Post Development
A1	10	13.03	30.72	66.80	100.64
B1	20	4.33	29.46	48.76	97.08
B2	21	1.66	12.02	20.74	42.26
	22	11.85	92.76	140.35	295.27
	23	5.99	40.92	68.56	136.17
B3	24	21.23	93.26	249.20	334.84
C1	30	9.95	77.99	110.70	238.03
	31	9.95	1.52	110.70	115.75
D1	40	8.12	24.15	40.00	70.07
D2	41	22.23	98.47	114.87	252.18
	42	8.12	24.15	40.00	70.07
E1	50	32.34	46.88	157.99	178.04
	51	93.34	85.04	374.99	381.75
F1	60	9.70	16.28	49.45	58.95
F2	61	16.46	60.11	86.73	170.90
F3	62	3.65	11.36	18.42	32.93
F4	63	12.98	42.32	67.82	124.89
	64	13.35	26.88	67.87	90.88
	65	26.04	69.12	135.62	215.63
	66	16.46	60.11	86.73	170.90

Basin	Design Point	5 Year Pre Development	5 Year Post Development	100 Year Pre Development	100 Year Post Development
	67	231.47	201.42	864.52	865.98
G1	70	5.57	13.78	28.46	43.95
G2	71	3.87	6.55	20.06	23.95
	72	3.87	6.55	20.06	23.95
	73	3.87	6.55	20.06	23.95
	74	189.42	189.05	643.48	637.13
H1	80	1.85	5.68	21.89	27.62
H2	81	5.37	16.24	27.12	47.62
H3	82	1.92	5.21	9.51	15.60
H4	83	8.07	20.93	40.86	64.71
	84	7.22	21.67	49.01	73.73
	85	1.92	5.21	9.51	15.60
OS1	OS1	67.00	67.00	413.00	413.00
OS2	OS2	59.00	59.00	280.00	280.00
OS3	OS3	61.00	61.00	217.00	217.00
OS4	OS4	180.00	180.00	595.00	595.00
	Outfall1	80.03	67.69	479.80	466.95
	Outfall2	85.96	61.68	597.41	536.11
	Outfall3	30.00	8.58	154.35	160.70
	Outfall4	341.05	276.10	1335.77	1291.25

These should be the total flows, including offsite flows. Add an additional column, reach flow tables or combined DP tables if necessary or add a note that the onsite DPs are only onsite flows.

This is > than existing of 154. Add a note or footnote that it will be adjusted to meet criteria with the Preliminary Drainage Report.



**LEGEND:**

PROPOSED MAJOR CONTOUR — 5250 —

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EXISTING MAJOR CONTOUR — 5250 —

EXISTING MINOR CONTOUR — 5250 —

PROPOSED STORM DRAIN PIPE —

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WATERSHED BOUNDARY —

MAJOR BASIN LINE —

100YR ZONE A FLOODPLAIN —

PROPOSED DETENTION LOCATION —

POTENTIAL WATER QUALITY LOCATION —

SWMM CONVEYANCE ELEMENT —

PROPOSED PEAK FLOW RATE (CFS) —

DESIGN POINT —

PROPOSED BASIN LABEL —

AREA (AC.) —

LAND USE

LOW DENSITY

MEDIUM DENSITY

HIGH/MED DENSITY

HIGH DENSITY

CHURCH

COMMERCIAL

ELEMENTARY SCHOOL

COMMUNITY PARK

**NOTES:**

PRELIMINARY CHANNEL GEOMETRY (BY OTHERS)

MAIN STEM

BOTTOM WIDTH: 60'

SIDE SLOPES: 4:1

MAIN STEM TRIBUTARY 2

BOTTOM WIDTH: 60'

SIDE SLOPES: 4:1

EAST FORK TRIBUTARY 1 REACH 2

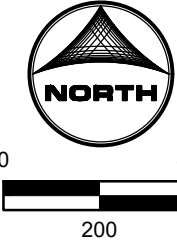
BOTTOM WIDTH: 38'

SIDE SLOPES: 4:1

EAST FORK TRIBUTARY 1 REACH 1

BOTTOM WIDTH: 25'

SIDE SLOPES: 4:1



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Prepared By: TBI  
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PROPOSED DR1