



SDP - Comment Response Letter

Citizen on Constitution  
El Paso County, Colorado

Prepared for:  
**The Citizen on Constitution, LLC**  
**c/o: The Garrett Companies, Inc.**  
**Andrew White**  
**1051 Greenwood Springs Blvd,**  
**Suite 101**  
**Greenwood, IN 46143**  
**Contact: (317) 497-8275**

Prepared by:  
**Kimley-Horn and Associates, Inc.**  
**2 North Nevada Ave, Suite 300**  
**Colorado Springs, Colorado 80903**  
**(719) 284-7281**  
**Contact: Mitchell Hess, P.E.**

Project #: 096481004

Prepared: October 26th, 2022

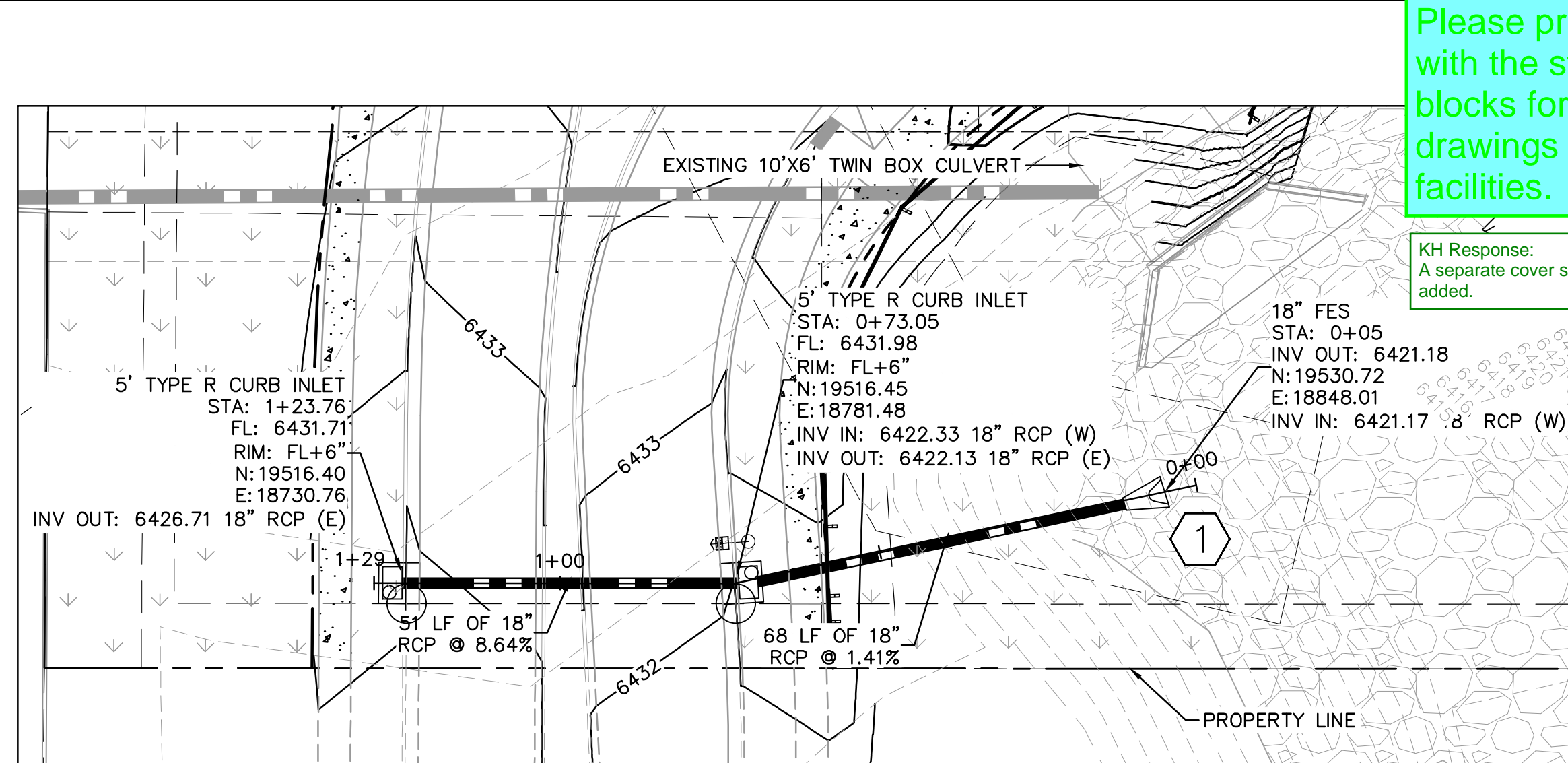
PCD File Number: SF-226

**Kimley»Horn**

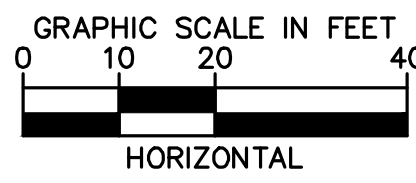
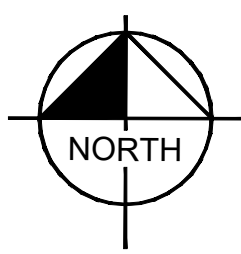


**ONSITE CD'S – PCD ENGINEERING  
COMMENT RESPONSE**

K:\DEN\_Civil\096481004 - El Paso Constitution\CADD\PlanSheets\CD\096481004\UT\_STPP.dwg Hess, Mitchell 9/9/2022 9:30 PM



STORM SEWER LINE A - PLAN VIEW



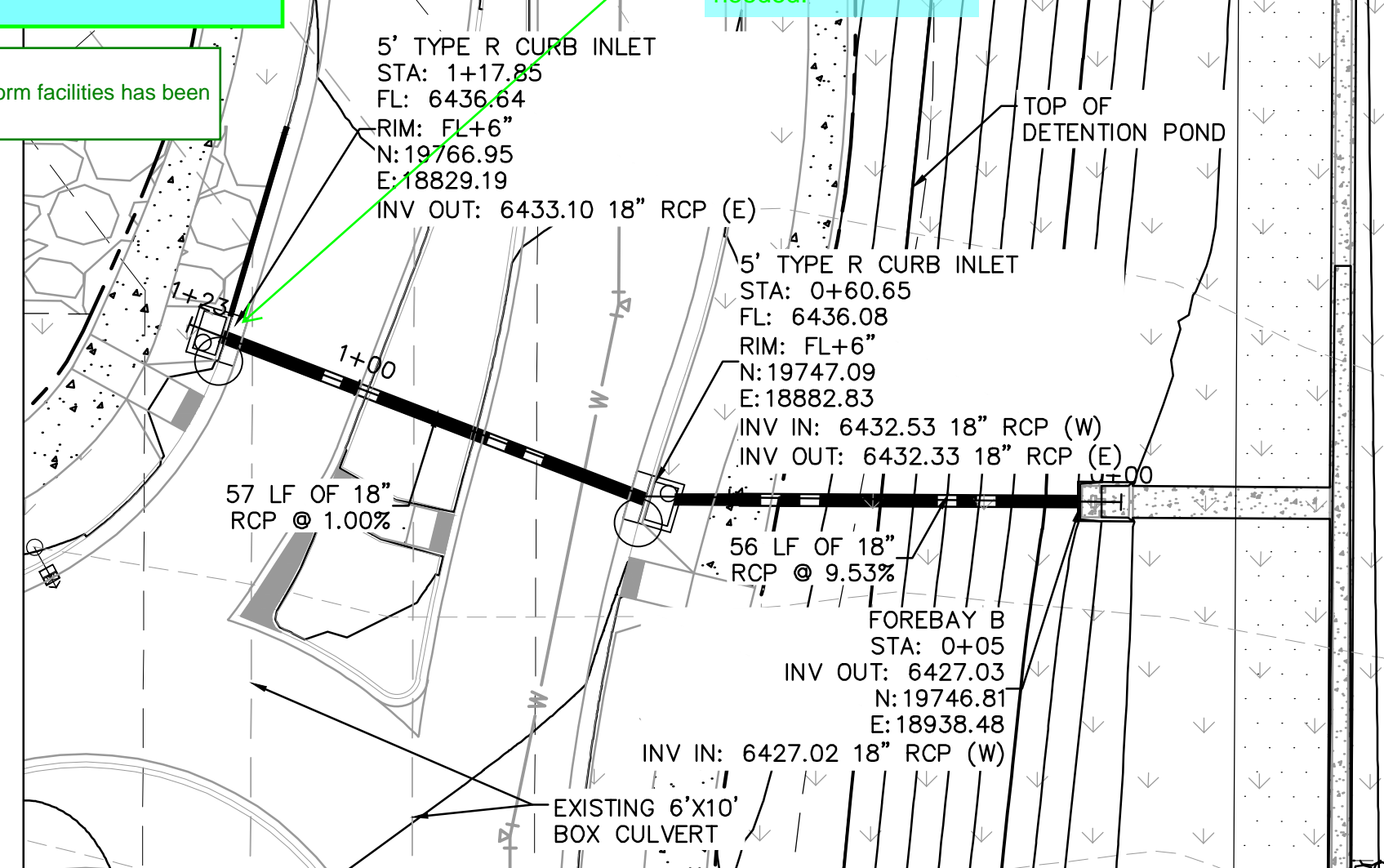
CONTRACTOR TO REPAIR ANY DAMAGE DONE TO EXISTING GROUDED RIPRAP AND ENSURE ALL VEGETATION IS RETURNED TO PRE-DISTURBED CONDITION

Please provide a cover sheet with the standard signature blocks for the construction drawings regarding the storm facilities.

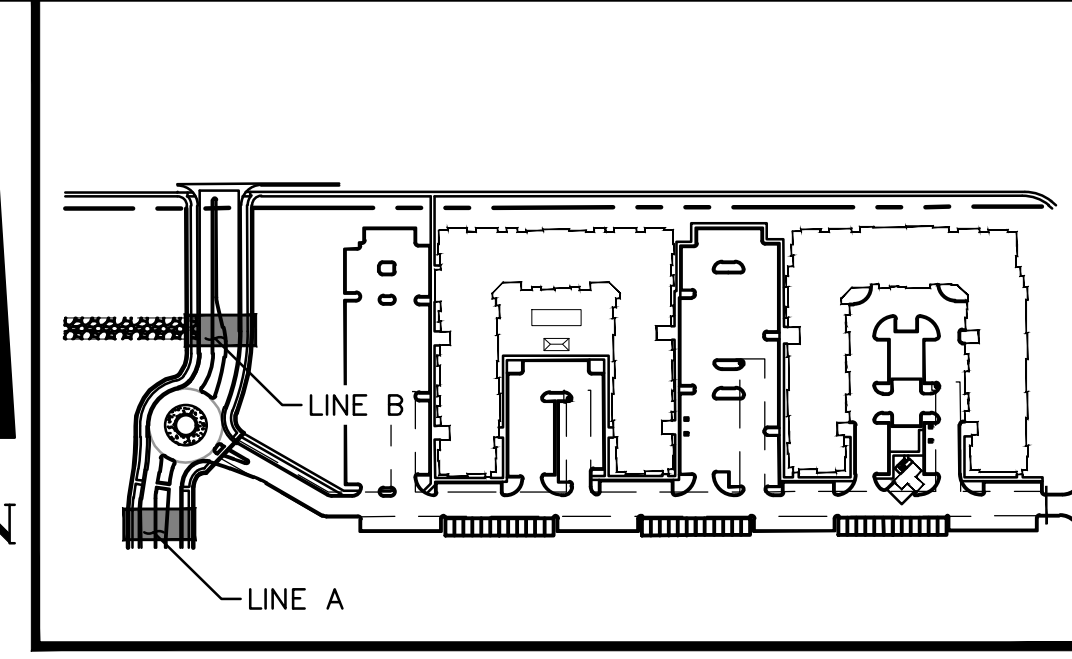
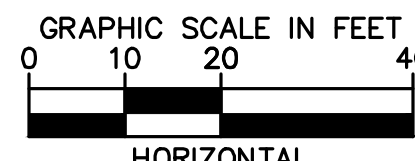
KH Response: A separate cover sheet for the storm facilities has been added.

see comment on the Akers CD's and adjust inlet as needed.

KH Response: The inlet locations have remained the same. The flare of the adjacent curb ramp was corrected to be 1.5' per county standard and a 10' transition has been added between the inlet and mountable curb and gutter.



STORM SEWER LINE B - PLAN VIEW



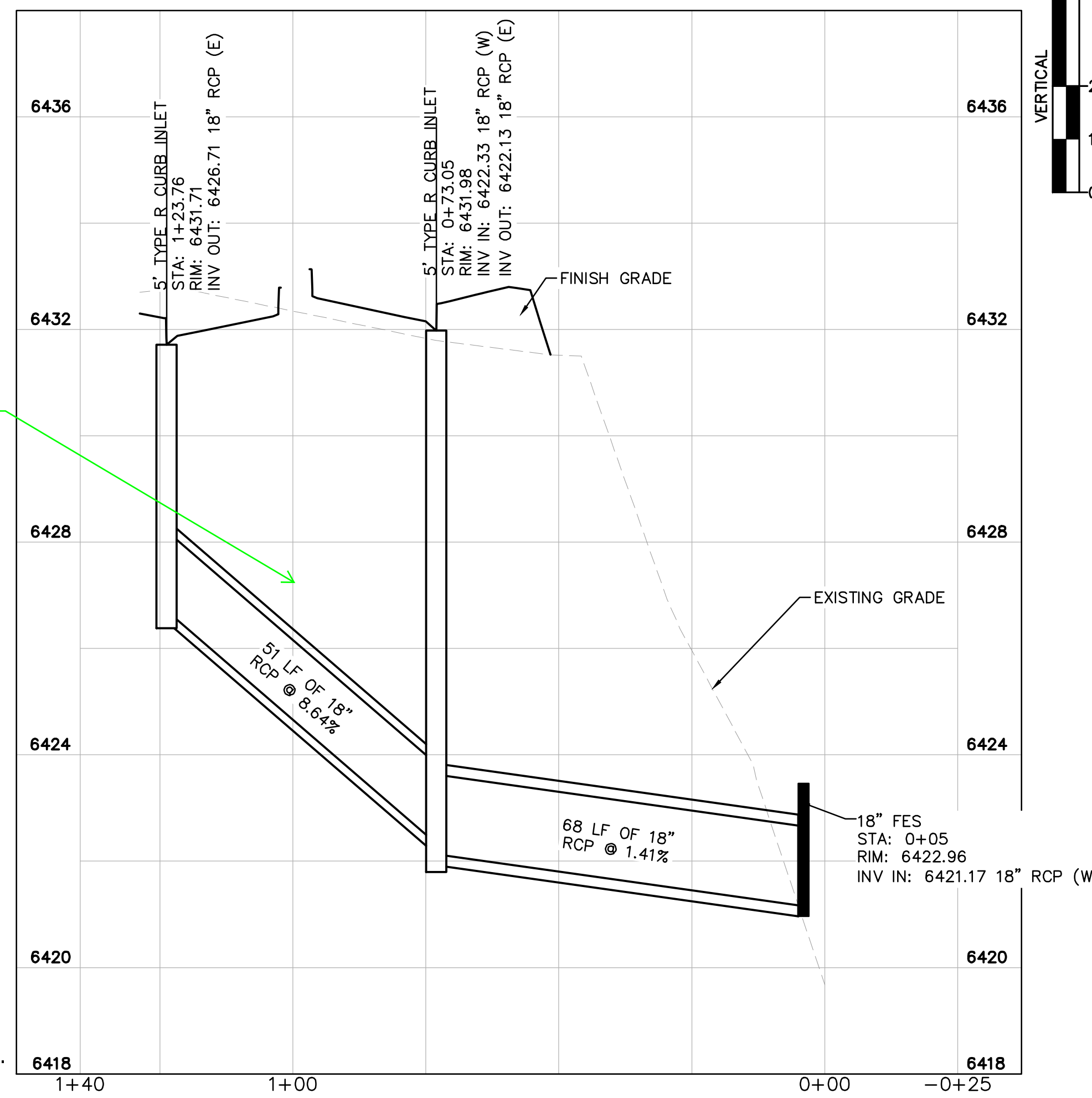
KEY MAP NOT TO SCALE

LEGEND:

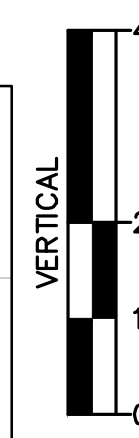
- PROPERTY LINE
EXISTING EASEMENT LINE
PROPOSED EASEMENT LINE
EXISTING STORM SEWER
PROPOSED STORM SEWER
EXISTING WATER LINE
PROPOSED WATER LINE
EXISTING FIRE HYDRANT
PROPOSED FIRE HYDRANT
PROPOSED FIRE DEPARTMENT CONNECTION W/ APPROVED KNOX HARDWARE
EXISTING SANITARY SEWER
PROPOSED SANITARY SEWER
SANITARY SEWER MANHOLE
PROPOSED STORM MANHOLE
EXISTING STORM MANHOLE
PROPOSED CURB INLET
EXISTING CURB INLET
PROPOSED GRATE INLET

STORM SEWER NOTES

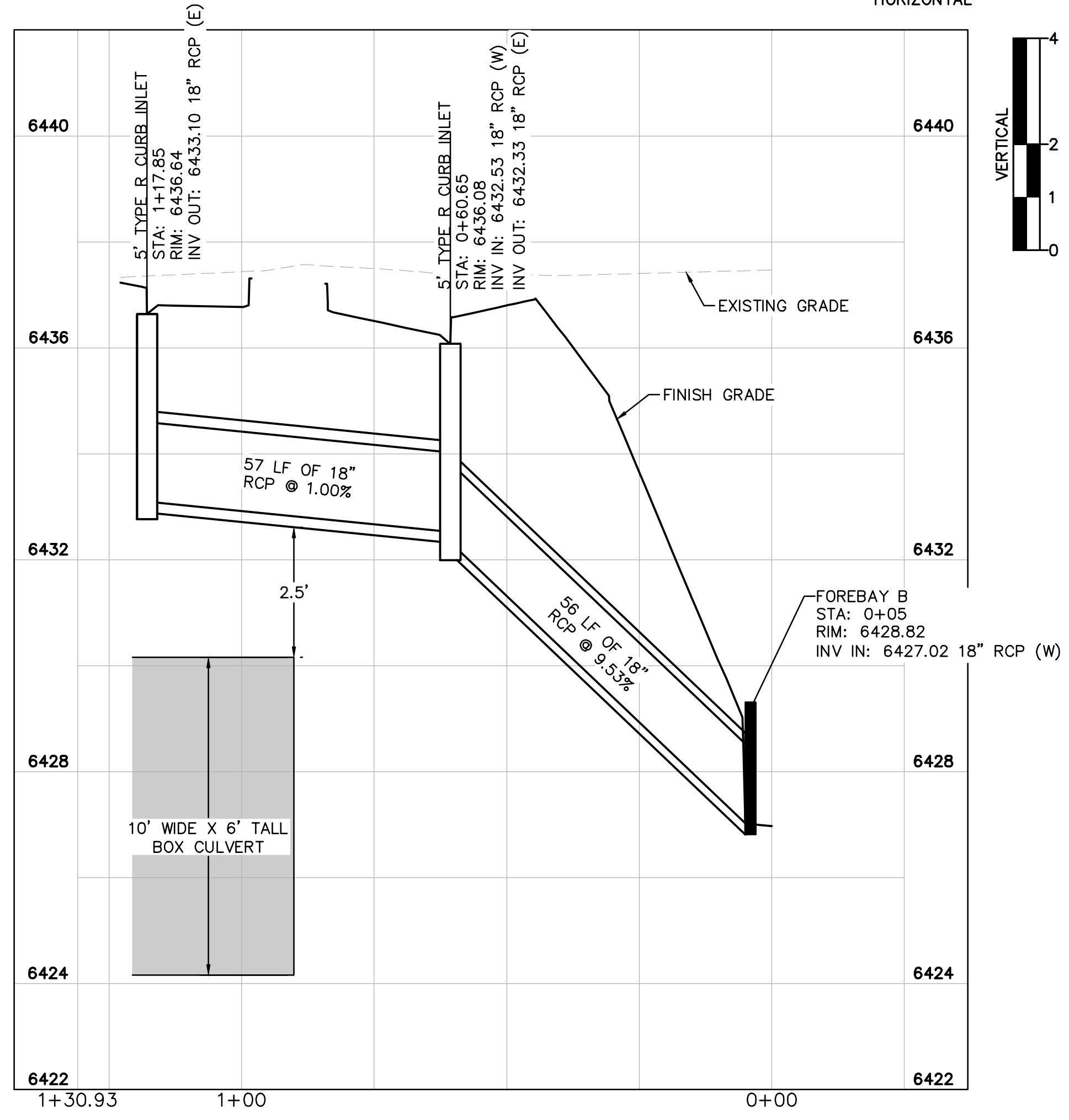
- 1. MANHOLE RIM ELEVATIONS PROVIDED FOR REFERENCE ONLY. CONTRACTOR SHALL INSTALL MANHOLES IN ACCORDANCE WITH APPLICABLE DETAILS BASED UPON FINAL FINISH GRADING AT MANHOLE LOCATION. CONTRACTOR SHALL BE RESPONSIBLE FOR ADJUSTMENTS TO ACCOMMODATE DEVIATIONS IN SITE GRADING AT NO COST TO THE OWNER.
2. CONTRACTOR SHALL MODIFY STANDARD INLET STRUCTURE DIMENSIONS AND STRUCTURAL COMPONENTS TO ACCOMMODATE ASSOCIATED ENTRY AND OUTLET PIPES.
3. ALL STORM SEWER MAINS PIPE, INLETS AND MANHOLES ARE PRIVATELY OWNED AND MAINTAINED BY THE OWNER UP UNTIL THE PUBLIC CONNECTION POINT, UNLESS OTHERWISE NOTED ON THE PLANS.
4. ALL CURB INLET STATIONS ARE BASED ON THE MIDPOINT OF THE CURB INLET AT THE FLOWLINE.
5. ALL CURB INLET FL ELEVATIONS AND STATIONING ARE BASED ON THE MIDPOINT OF THE CURB INLET AT FLOWLINE.
6. ALL STORM SEWER PIPE 12" AND GREATER SHALL BE HDPE UNLESS OTHERWISE NOTED.
7. ALL PRIVATE LANDSCAPE DRAINS SHALL BE NYLOPLAST TYPE OR APPROVED EQUIVALENT. RE: UTILITY DETAILS FOR NYLOPLAST DETAILED DRAWINGS.
8. CONTRACTOR SHALL VERIFY LOCATIONS AND ELEVATIONS OF EXISTING STORM SEWER AT ALL CONNECTION POINTS AND NOTIFY ENGINEER OF ANY DISCREPANCIES PRIOR TO CONSTRUCTION.
9. CONTRACTOR TO MODIFY EXISTING MANHOLE RIM ELEVATIONS TO MATCH PROPOSED FINISH GRADE AS NECESSARY.



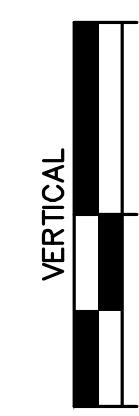
STORM SEWER LINE A - PROFILE VIEW



review 1 comment: show 100 year HGL on all storm profiles.
review 2: unresolved
Review 3: storm profiles not provided.
review 4: Please provide the 100 yr HGL on all storm profiles as indicated in the review 1 comment.
KH Response: 100-yr HGL's have been added to each profile.



STORM SEWER LINE B - PROFILE VIEW



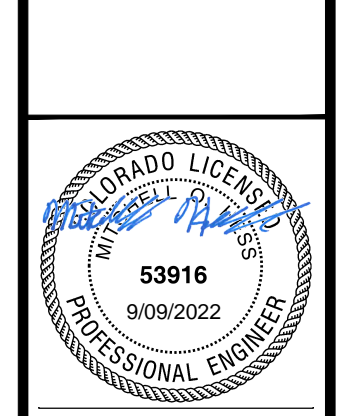
CALL UTILITY NOTIFICATION CENTER OF COLORADO 1-800-922-1987 CALL 3-BUSINESS DAYS IN ADVANCE BEFORE YOU DIG, GRADE, OR EXCAVATE FOR THE MARKING OF UNDERGROUND MEMBER UTILITIES

Table with columns: NO., REVISION, BY, DATE, APPR.

Kimley-Horn logo and address: 2022 KIMLEY-HORN AND ASSOCIATES, INC. 2 North Nevada Avenue, Suite 300 Colorado Springs, CO 80903 (303) 228-2300

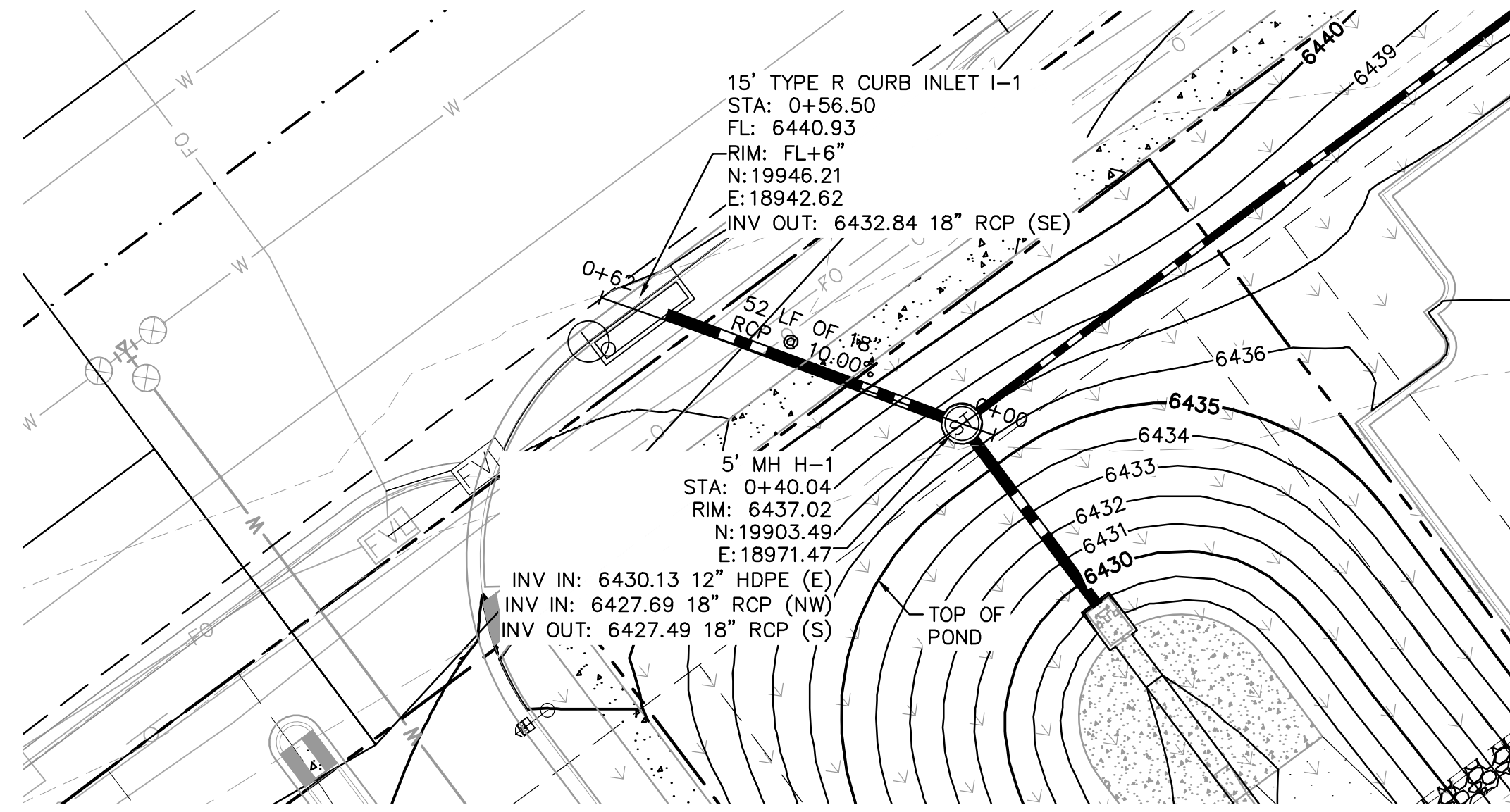
DESIGNED BY: MOH
DRAWN BY: JWM
CHECKED BY: DLS
DATE: 9/15/2022

THE CITIZEN ON CONSTITUTION
EL PASO COUNTY, COLORADO
UTILITY AND WATER SERVICE PLANS
STORM PLAN AND PROFILE LINE A

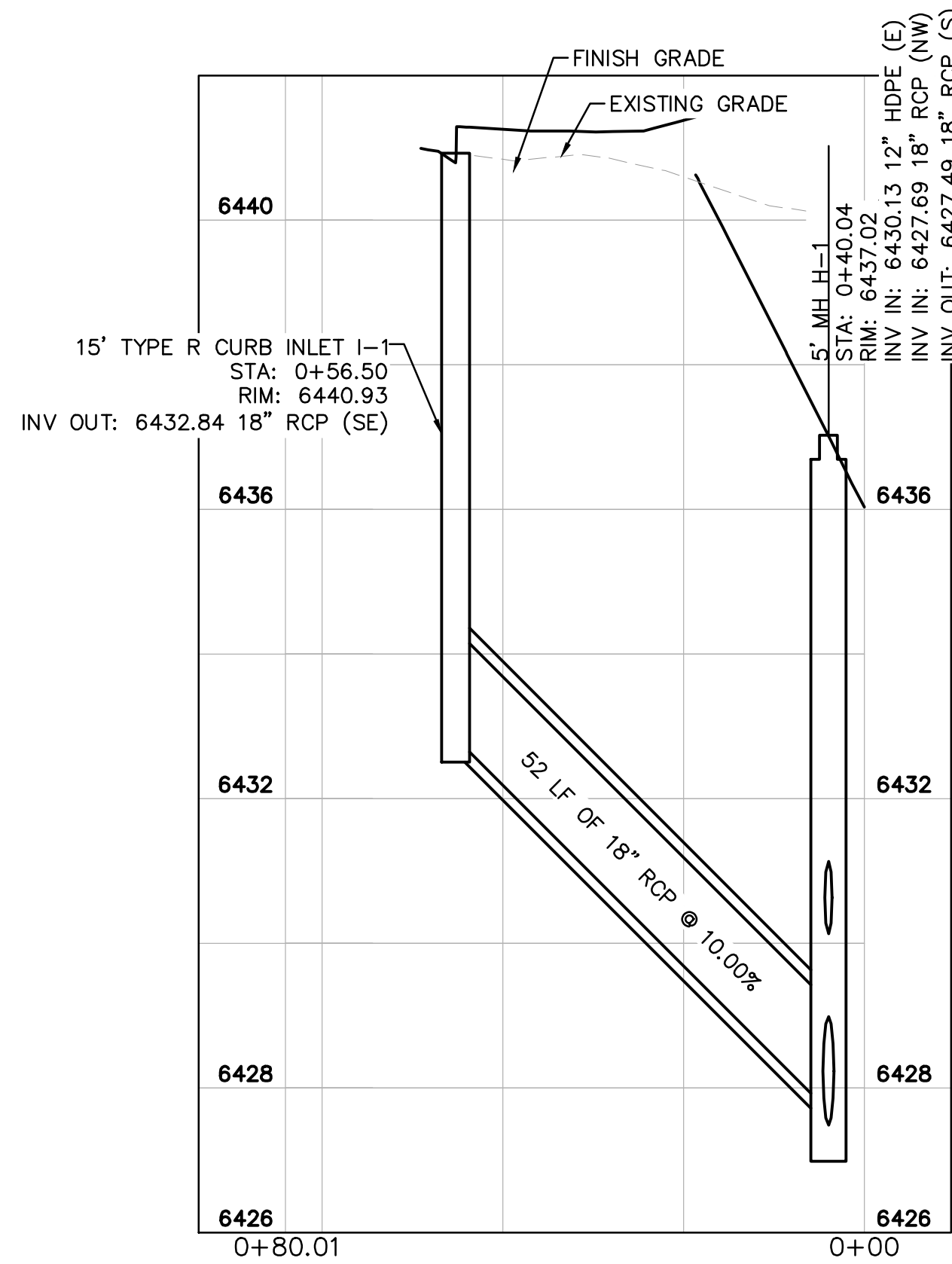
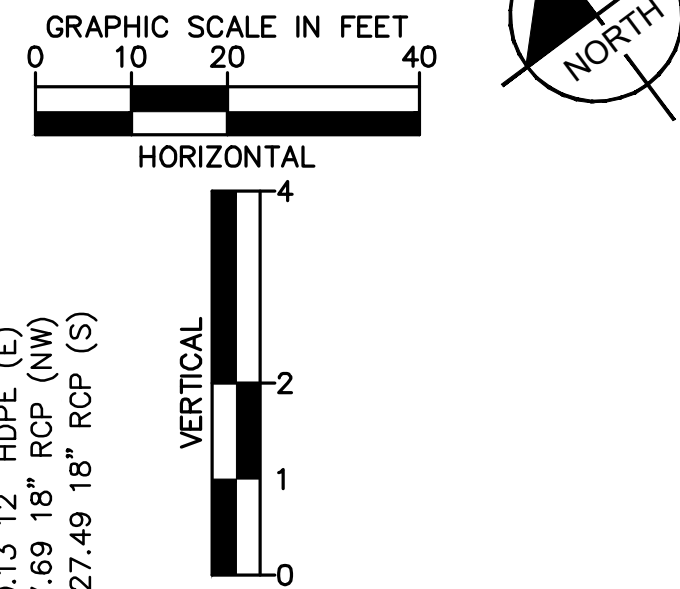


PROJECT NO. 096481004
SHEET

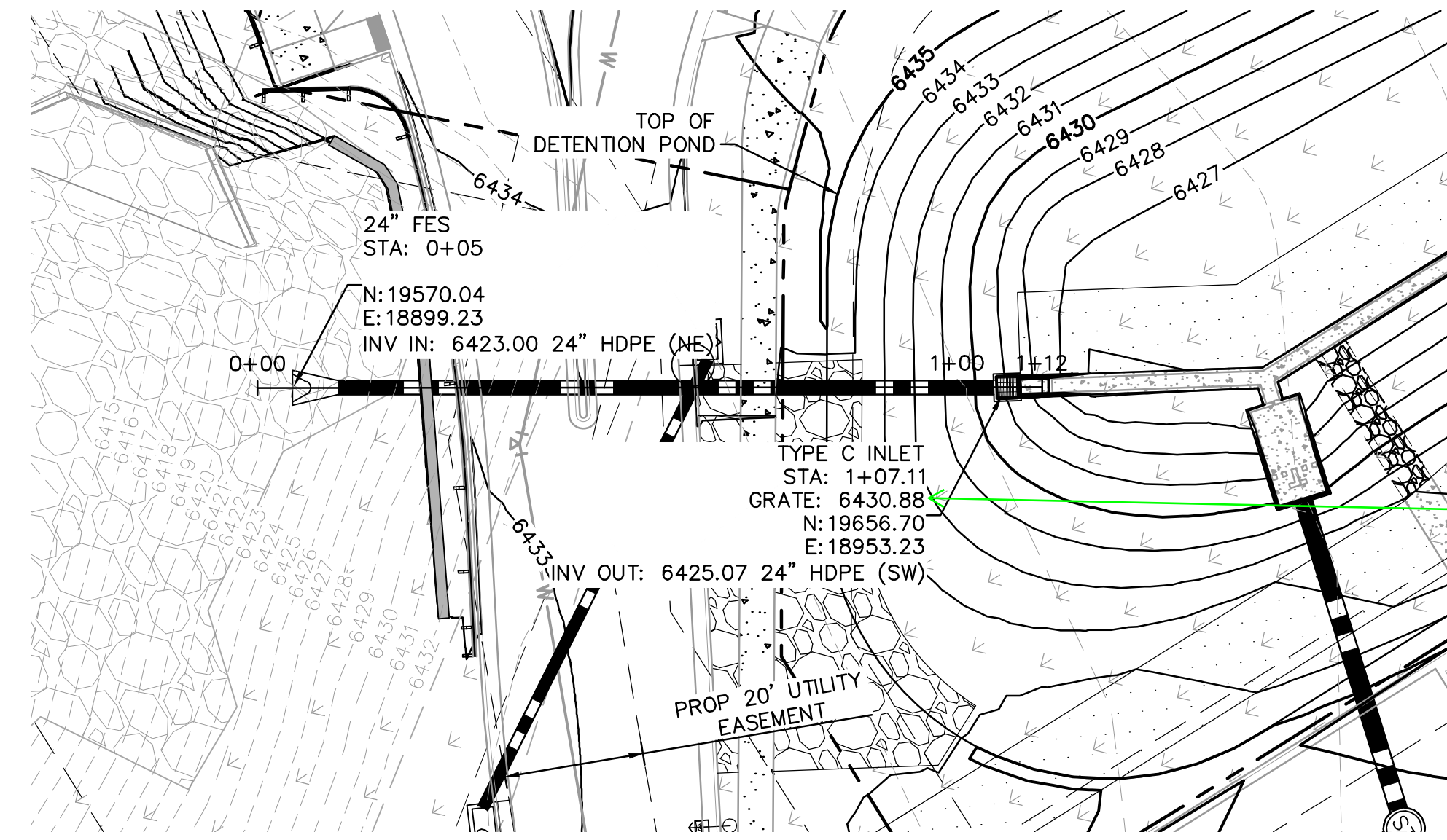
C4.3



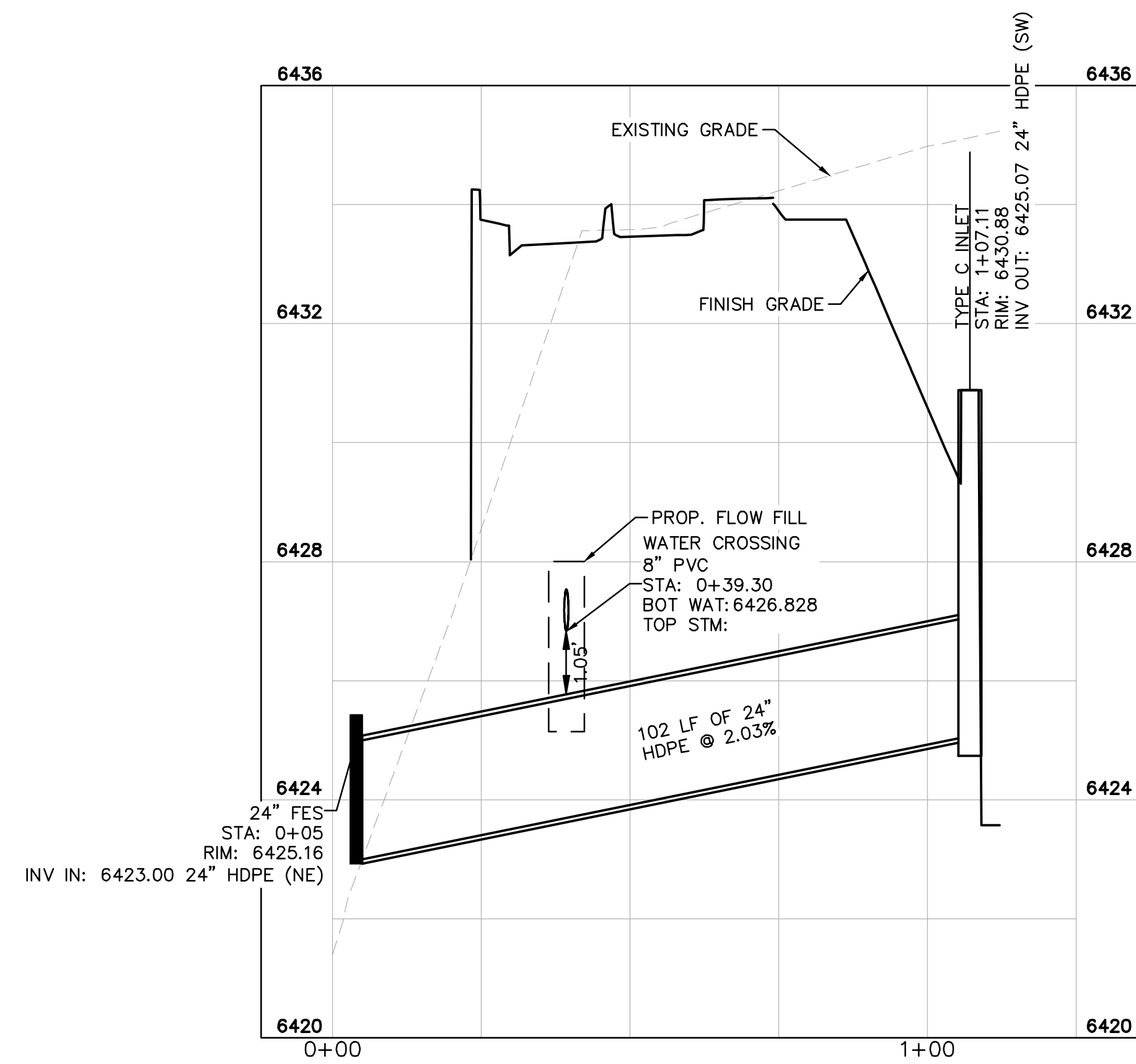
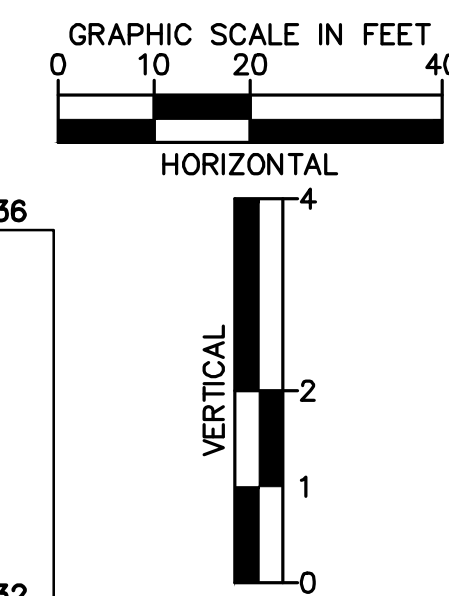
STORM SEWER LINE I - PLAN VIEW



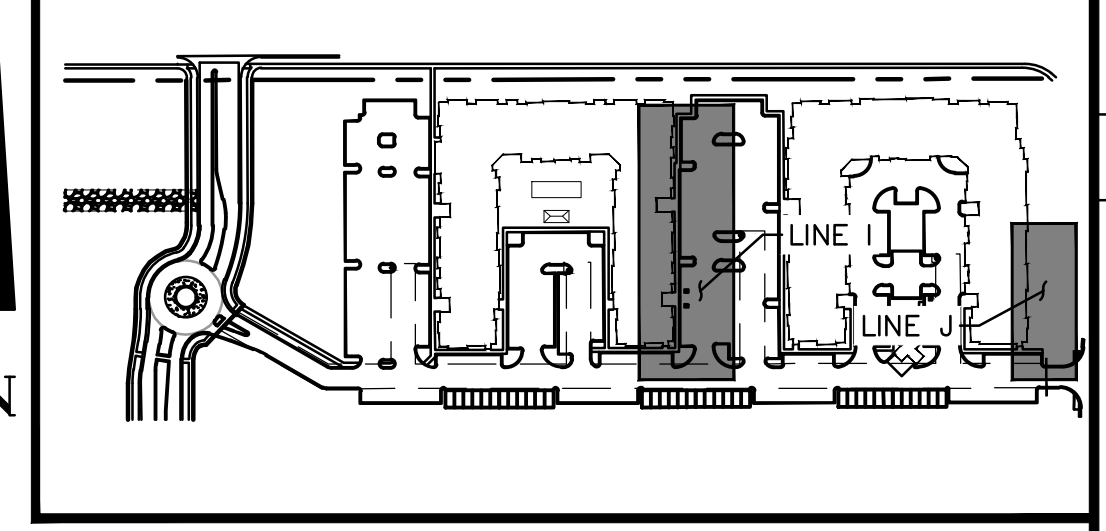
STORM SEWER LINE I - PROFILE VIEW



STORM SEWER LINE J STA 0+00-1+66 PLAN VIEW



STORM SEWER LINE J - PROFILE VIEW



KEY MAP  
NOT TO SCALE

Revise as needed per comment on next sheet.  
KH Response: Grate elevation has been revised to 6431.10 to match UD Detention and the details that follow.

- LEGEND:**
- PROPERTY LINE
  - - - EXISTING EASEMENT LINE
  - - - PROPOSED EASEMENT LINE
  - EXISTING STORM SEWER
  - PROPOSED STORM SEWER
  - EXISTING WATER LINE
  - PROPOSED WATER LINE
  - EXISTING FIRE HYDRANT
  - PROPOSED FIRE HYDRANT
  - PROPOSED FIRE DEPARTMENT CONNECTION W/ APPROVED KNOX HARDWARE
  - EXISTING SANITARY SEWER
  - PROPOSED SANITARY SEWER
  - SANITARY SEWER MANHOLE
  - PROPOSED STORM MANHOLE
  - EXISTING STORM MANHOLE
  - PROPOSED CURB INLET
  - EXISTING CURB INLET
  - PROPOSED GRATE INLET

- STORM SEWER NOTES**
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BY: DATE: APPR:

REVISION: NO.

**Kimley»Horn**

2022 KIMLEY-HORN AND ASSOCIATES, INC.  
2 North Nevada Avenue, Suite 300  
Colorado Springs, CO 80903 (303) 228-2300

DESIGNED BY: MOH  
DRAWN BY: JWM  
CHECKED BY: DLS  
DATE: 9/15/2022

**THE CITIZEN ON CONSTITUTION  
EL PASO COUNTY, COLORADO  
UTILITY AND WATER SERVICE PLANS  
STORM PLAN AND PROFILE LINE I & J**

PROFESSIONAL ENGINEER  
53916  
9/09/2022

PROJECT NO.  
096481004

SHEET  
**C4.12**

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**811** Know what's below.  
Call before you dig.

CALL UTILITY NOTIFICATION  
CENTER OF COLORADO  
1-800-922-1987  
CALL 3-BUSINESS DAYS IN ADVANCE  
BEFORE YOU DIG, GRADE, OR EXCAVATE  
FOR THE MARKING OF UNDERGROUND  
MEMBER UTILITIES

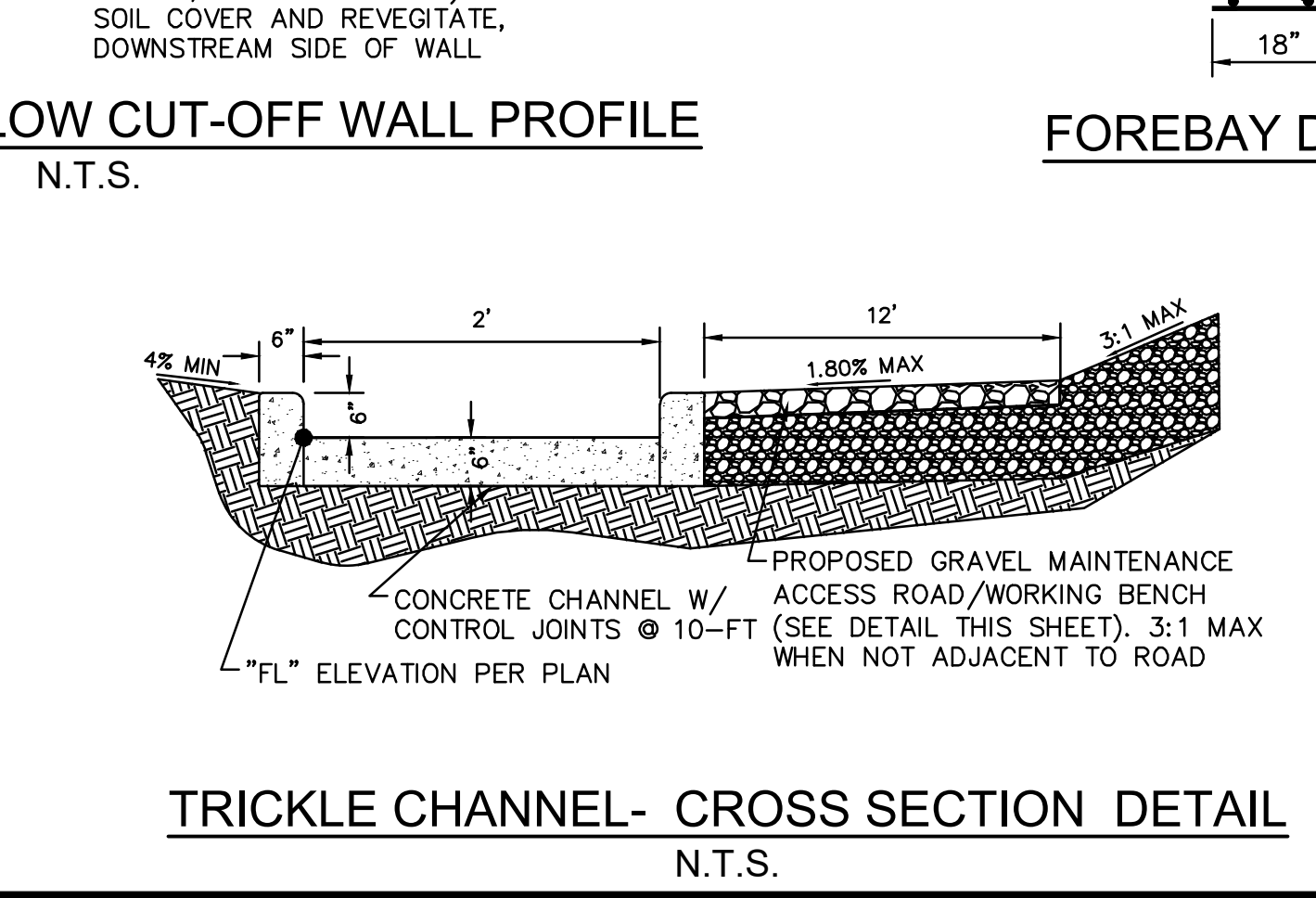
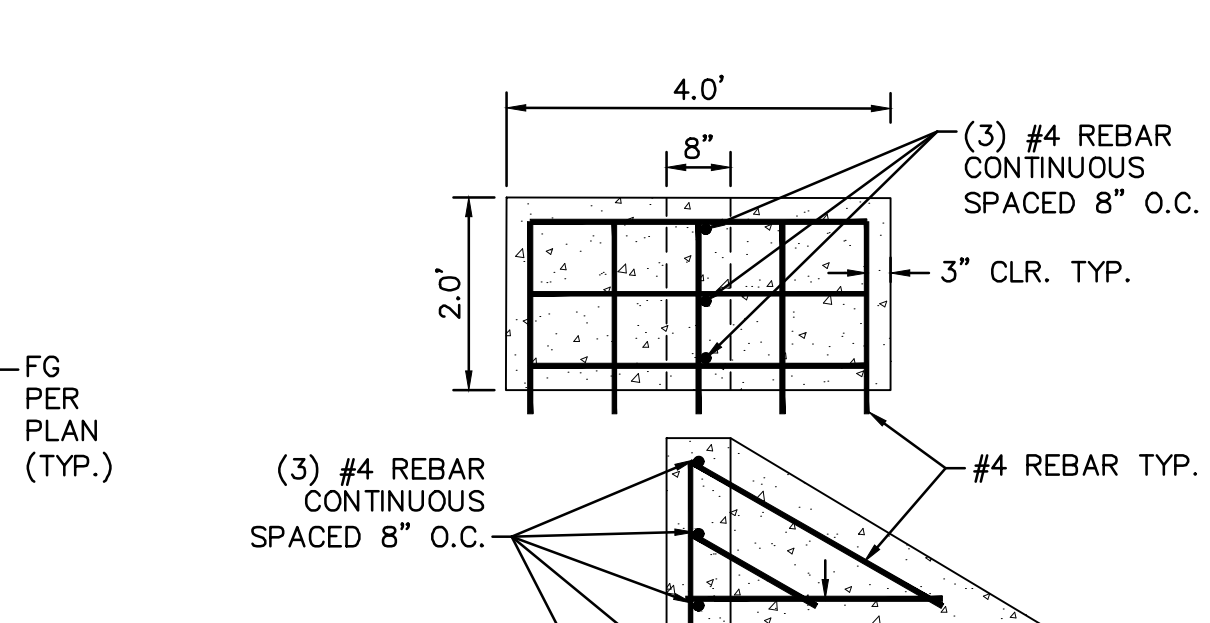
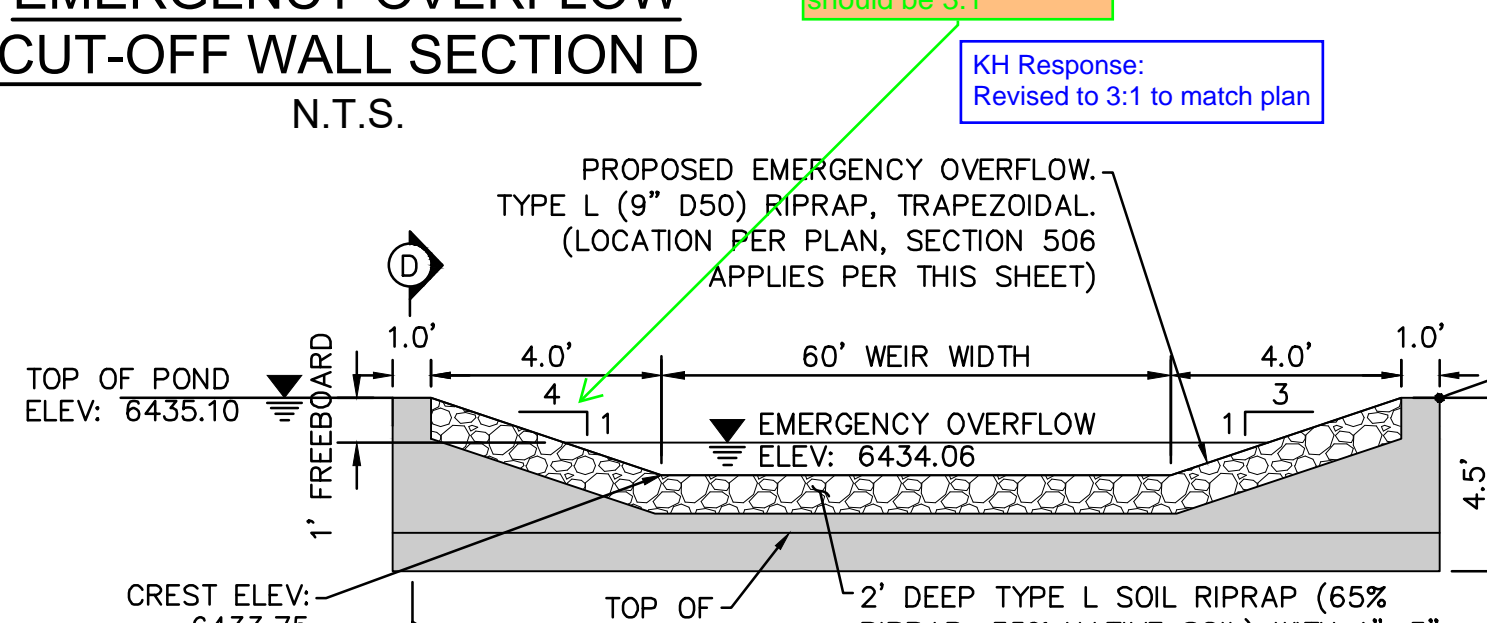
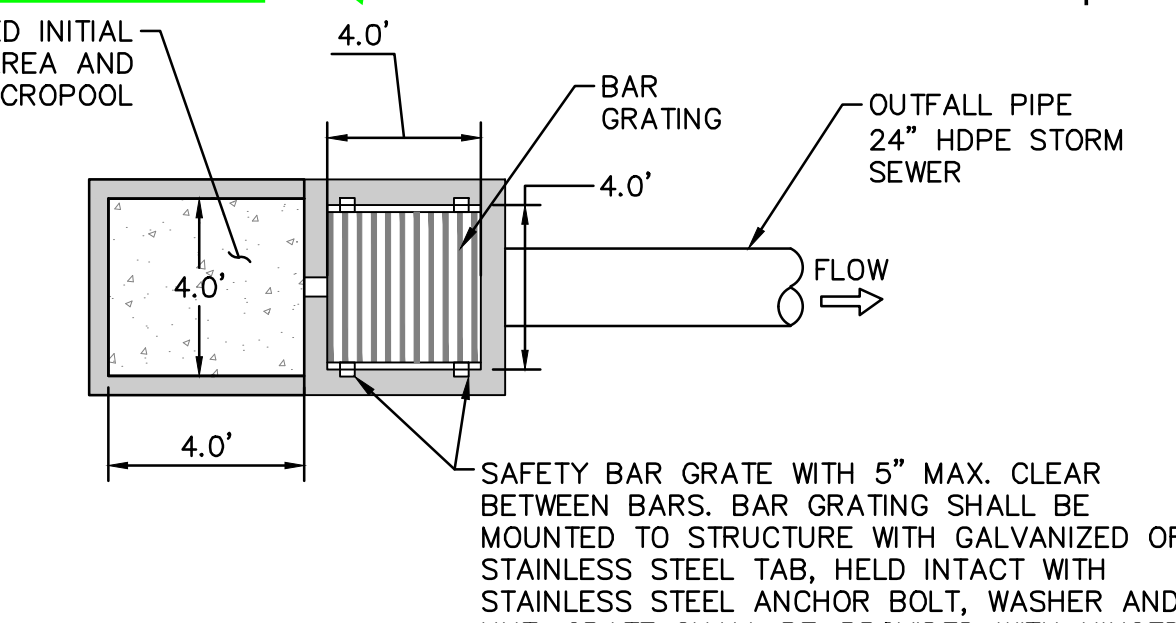
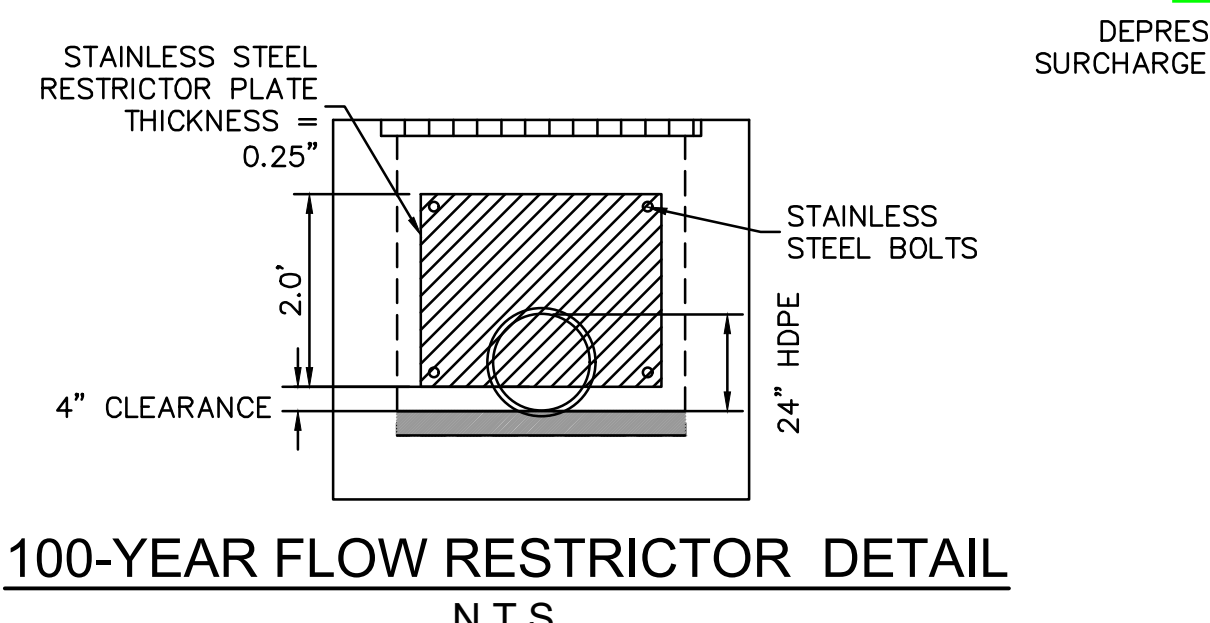
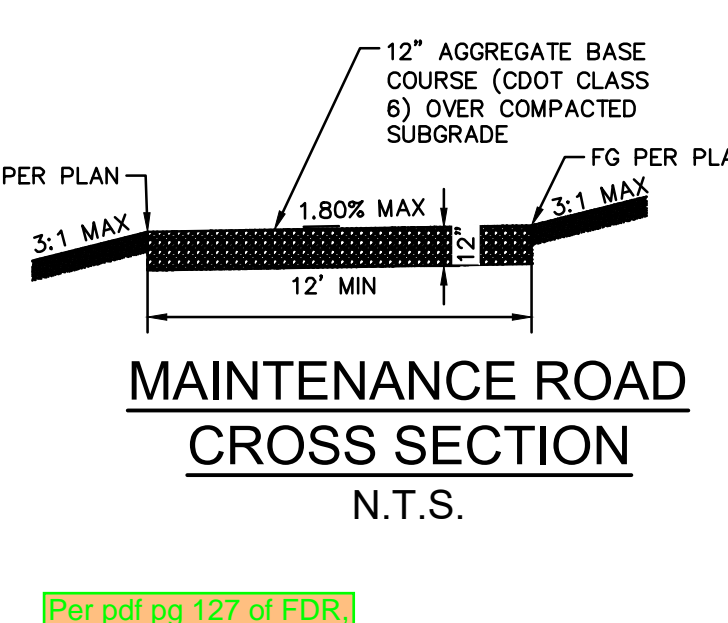
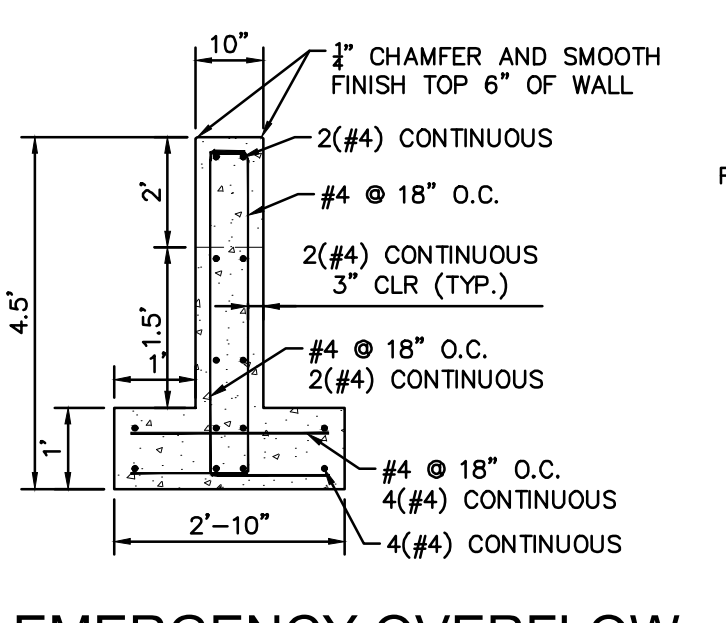
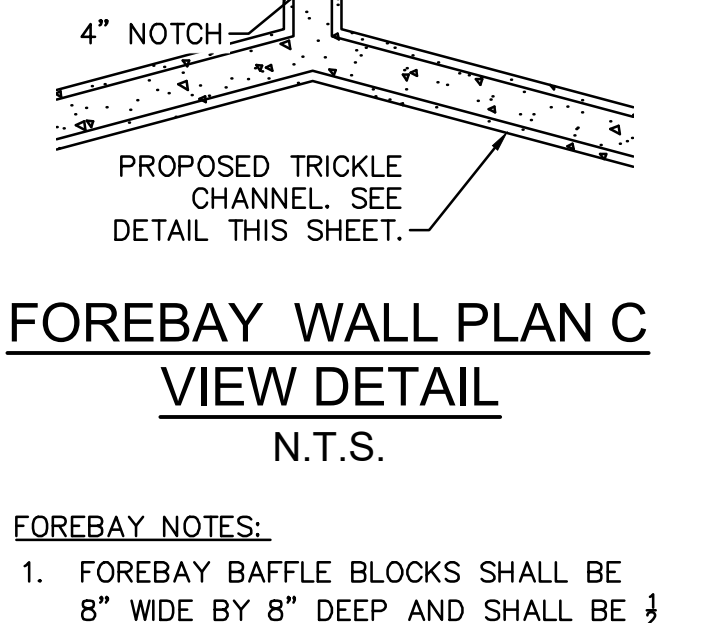
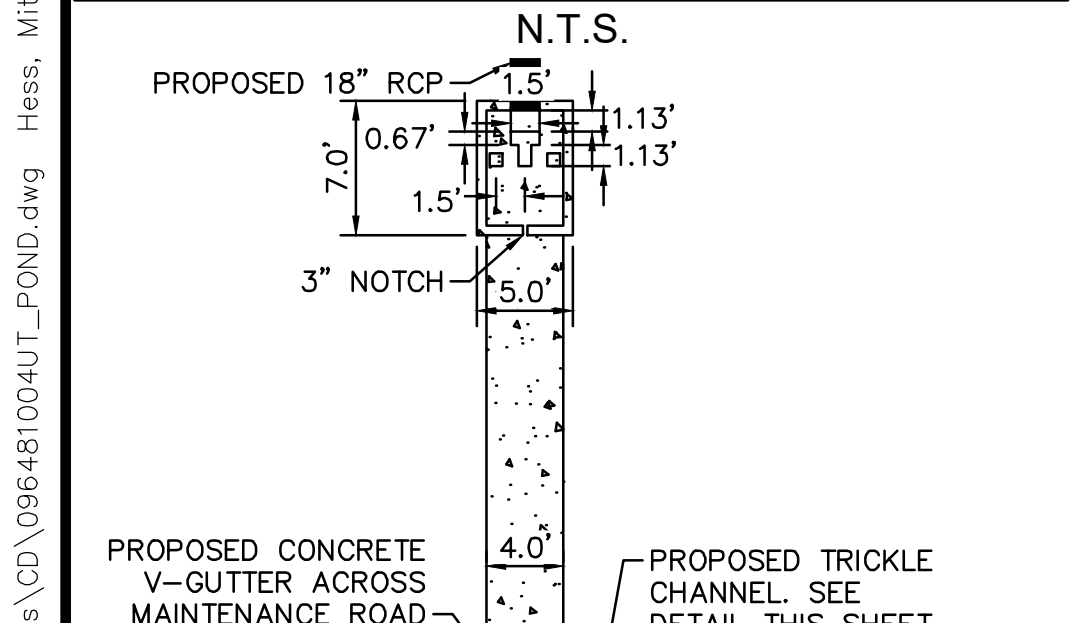
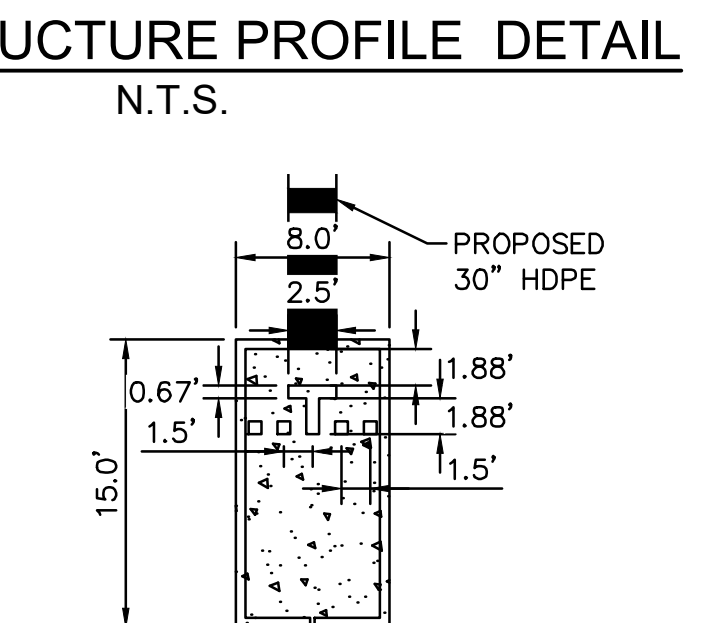
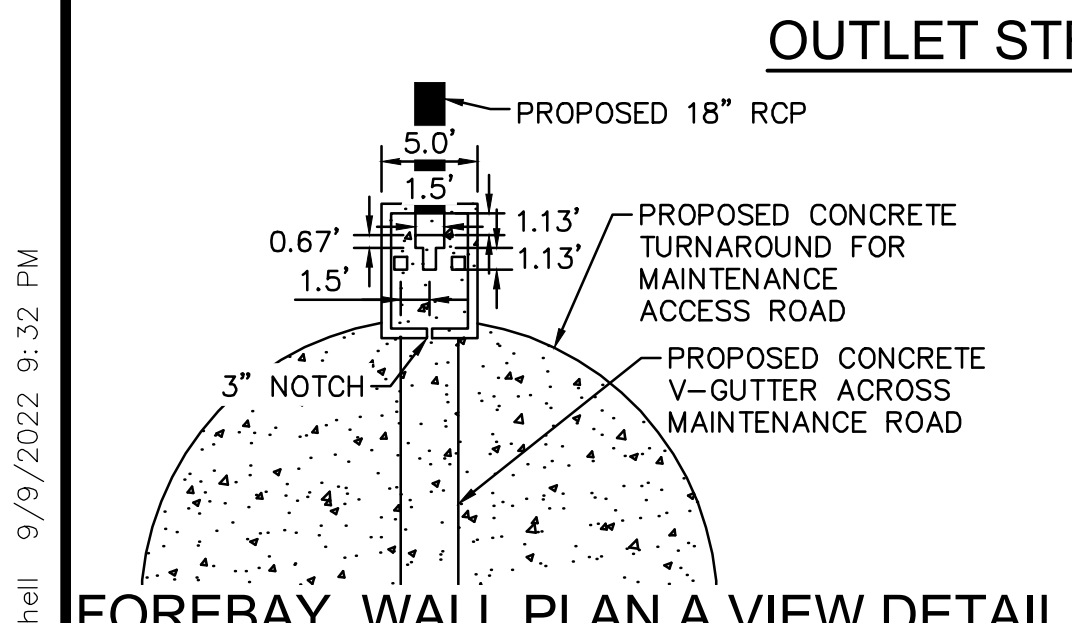
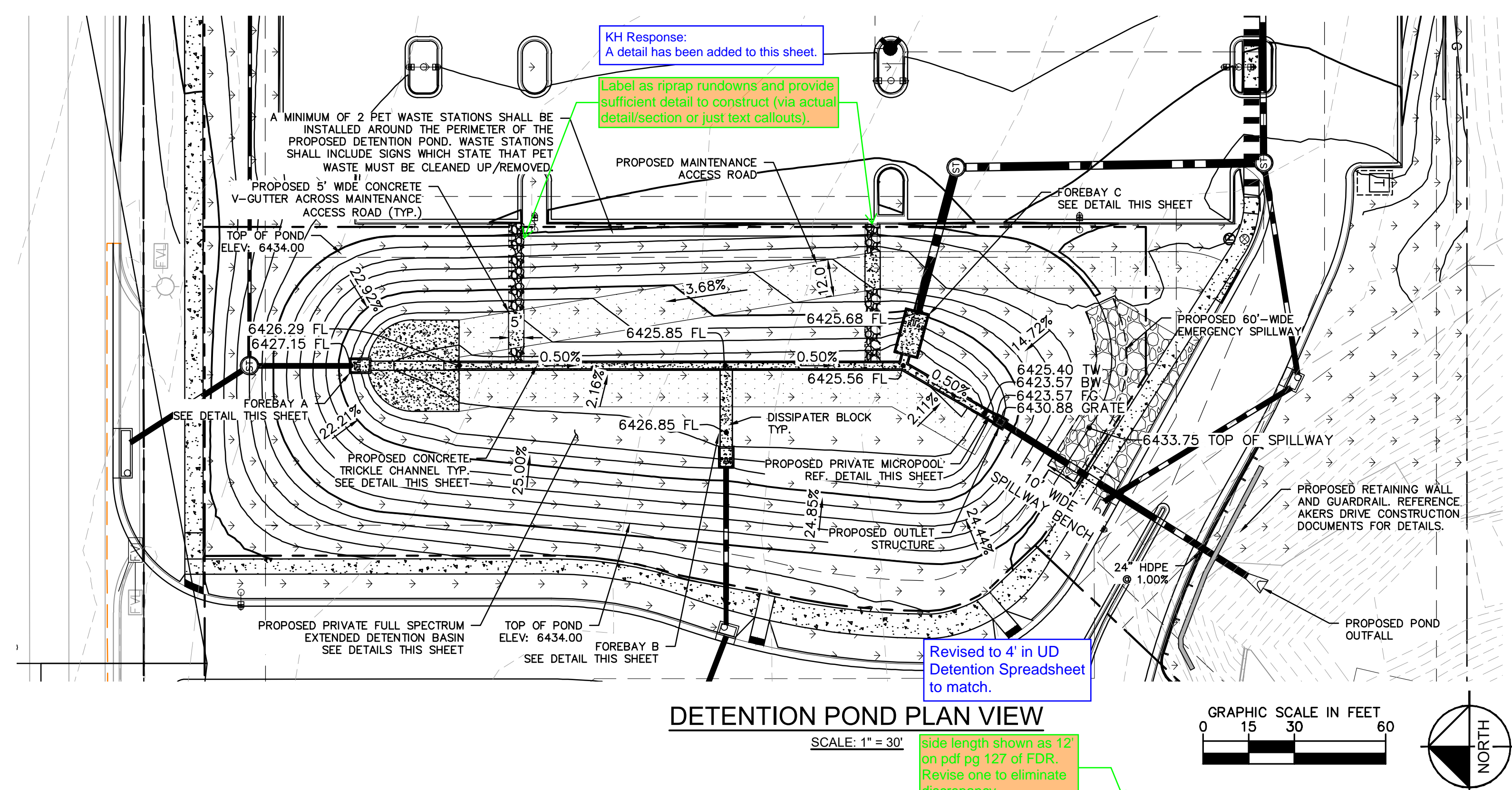
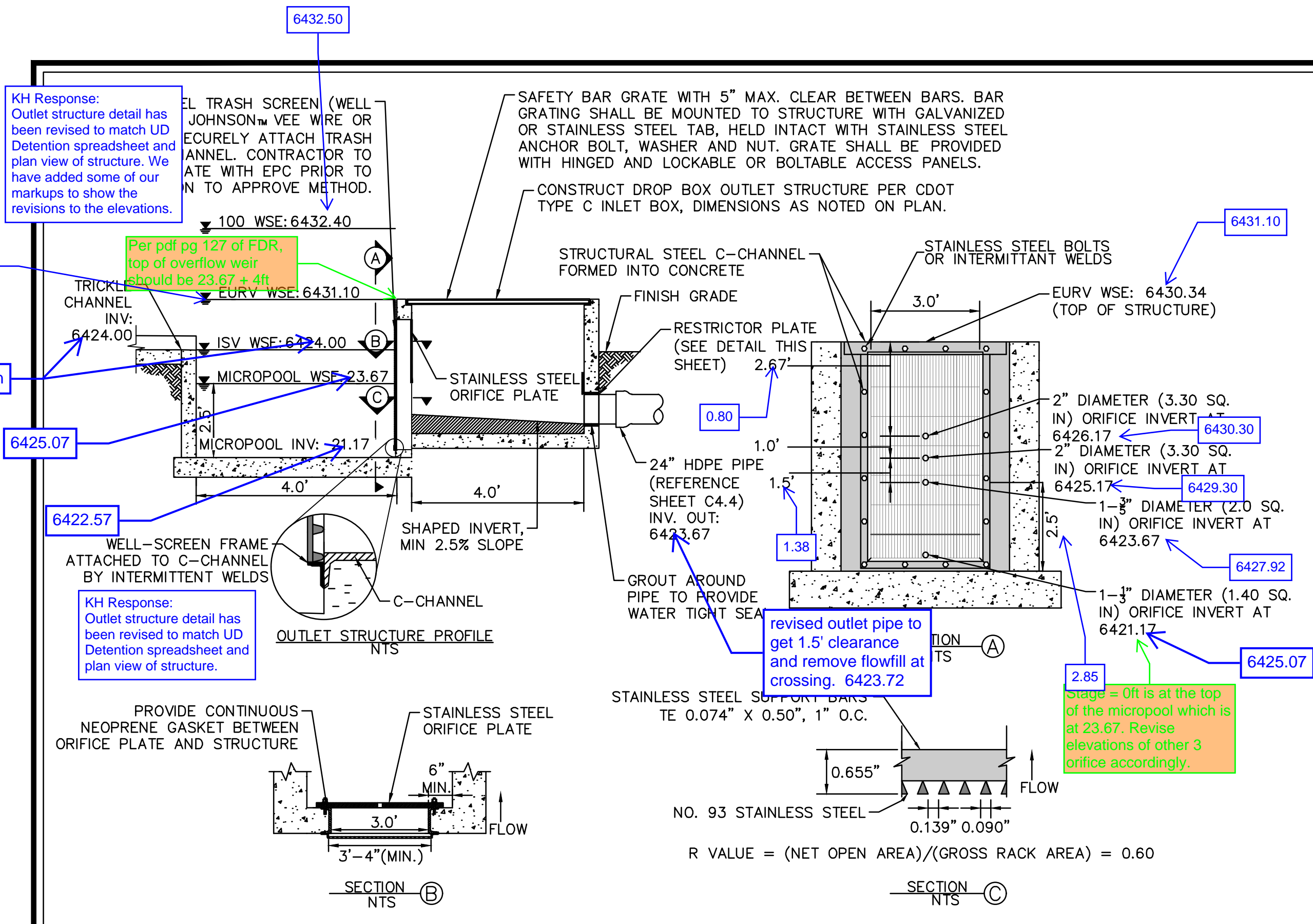


Table 506-2

Pay Item	Stone Size d50 <sup>1</sup> (Inches)	Percent of Material Smaller Than Typical Stone <sup>2</sup>	Typical Stone Dimensions <sup>3</sup> (Inches)	Typical Stone Weight <sup>4</sup> (Pounds)
Riprap 6	6	70-100	12	85
		50-70	9	35
		35-50	6	10
		2-10	2	0.4
Riprap 9	9	70-100	15	160
		50-70	12	85
		35-50	9	35
		2-10	3	1.3
Riprap 12	12	70-100	21	440
		50-70	18	275
		35-50	12	85
		2-10	4	3
Riprap 18	18	100	30	1280
		50-70	24	650
		35-50	18	275
		2-10	6	10
Riprap 24	24	100	42	3500
		50-70	33	1700
		35-50	24	650
		2-10	9	35

<sup>1</sup>d50 = nominal stone size  
<sup>2</sup>based on typical rock mass  
<sup>3</sup>equivalent spherical diameter  
<sup>4</sup>based on a specific gravity = 2.5

Nominal stone size and total thickness of the riprap shall be as shown on the plans.

K:\DEN\Civil\096481004 - El Paso Constitution\CADD\PlanSheets\CD\096481004\UT\_POND.dwg Hess, Mitchell 9/9/2022 9:32 PM

DESIGNED BY: MOH  
DRAWN BY: JWM  
CHECKED BY: DLS  
DATE: 9/15/2022

THE CITIZEN ON CONSTITUTION  
EL PASO COUNTY, COLORADO  
UTILITY AND WATER SERVICE PLANS  
DETENTION POND PLAN AND DETAILS

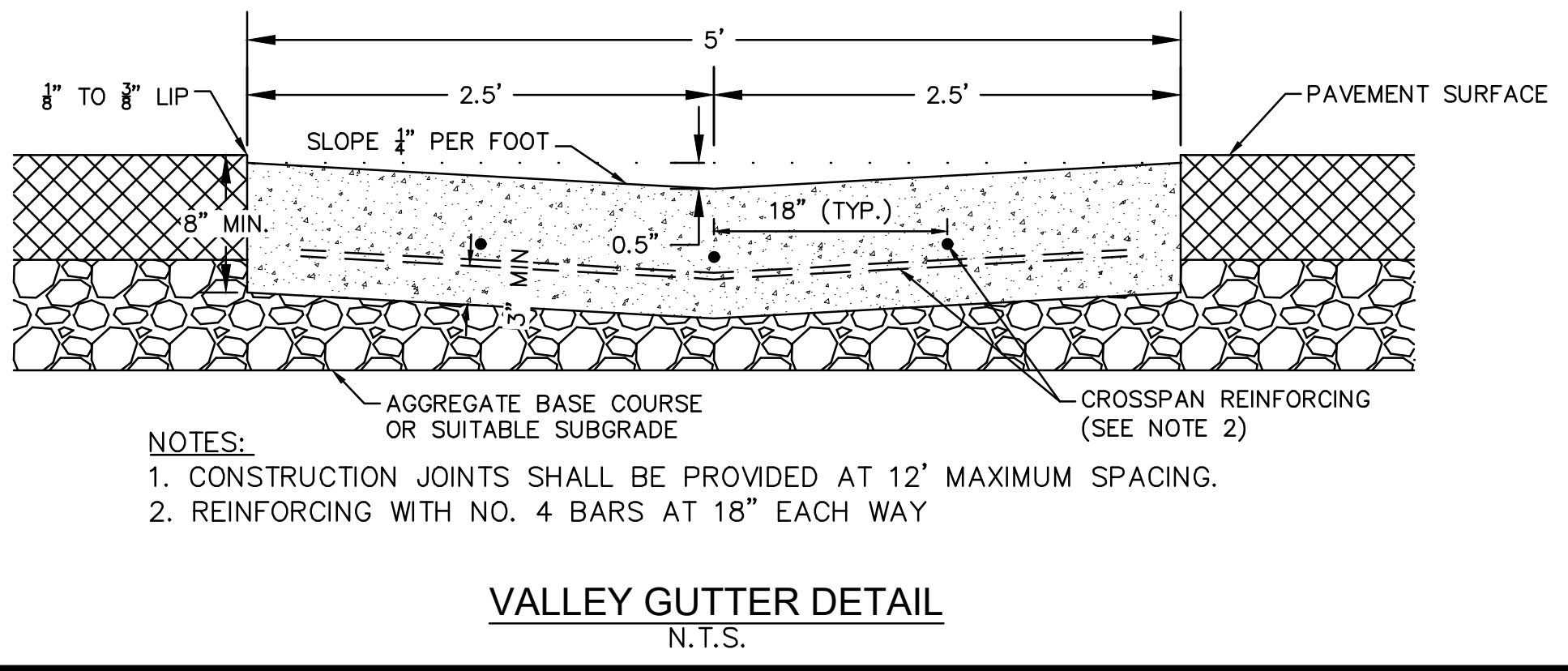
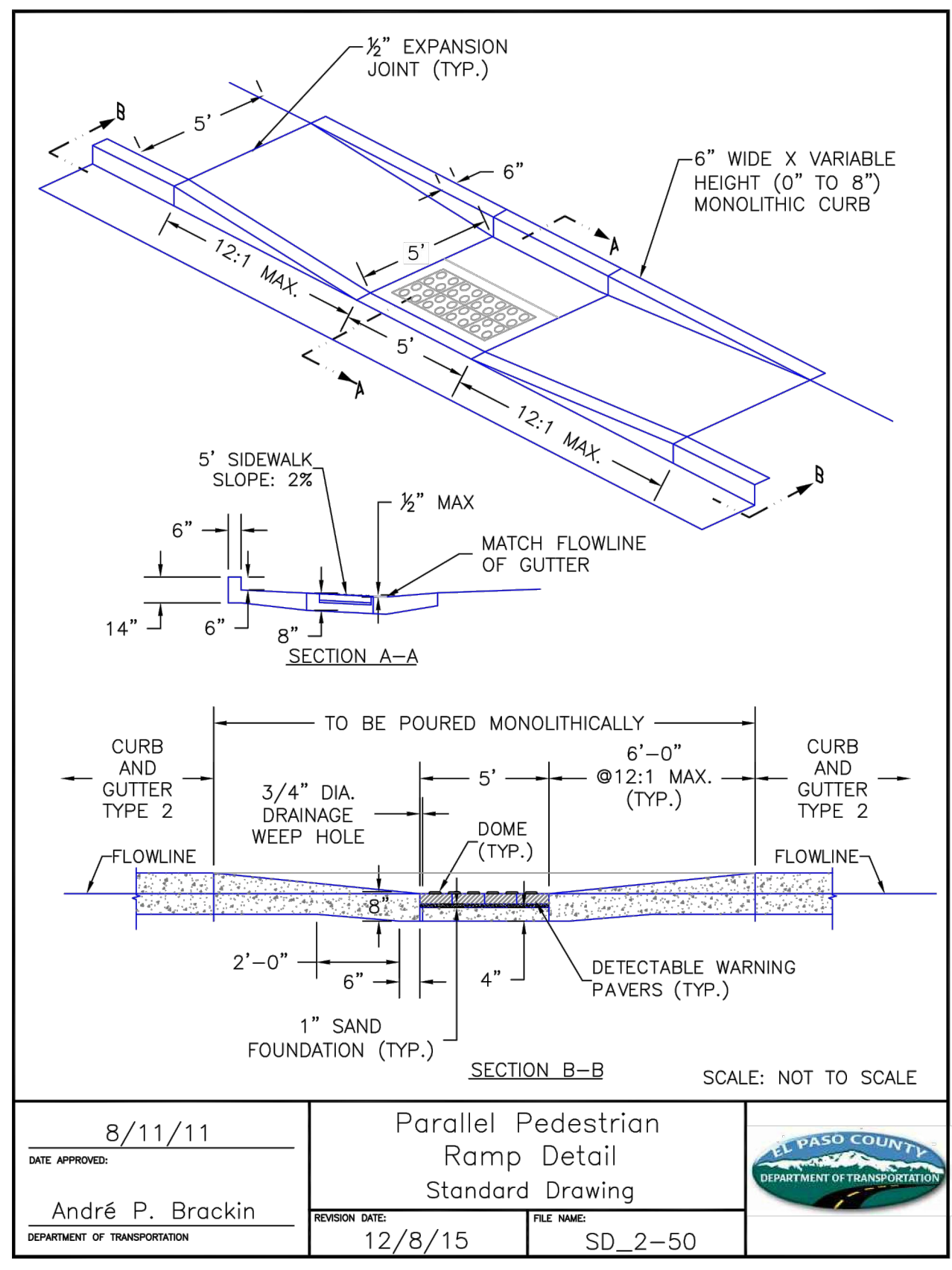
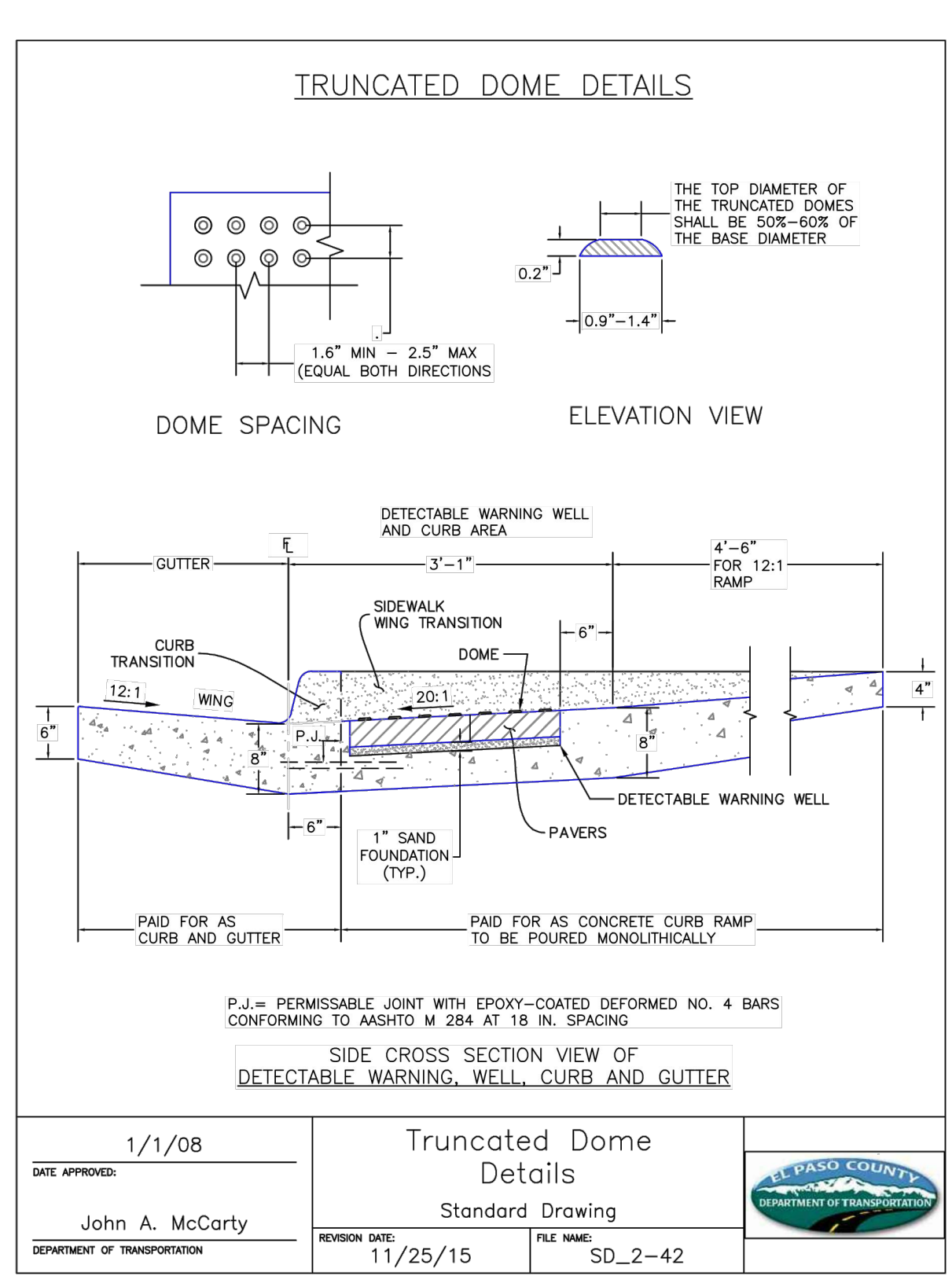
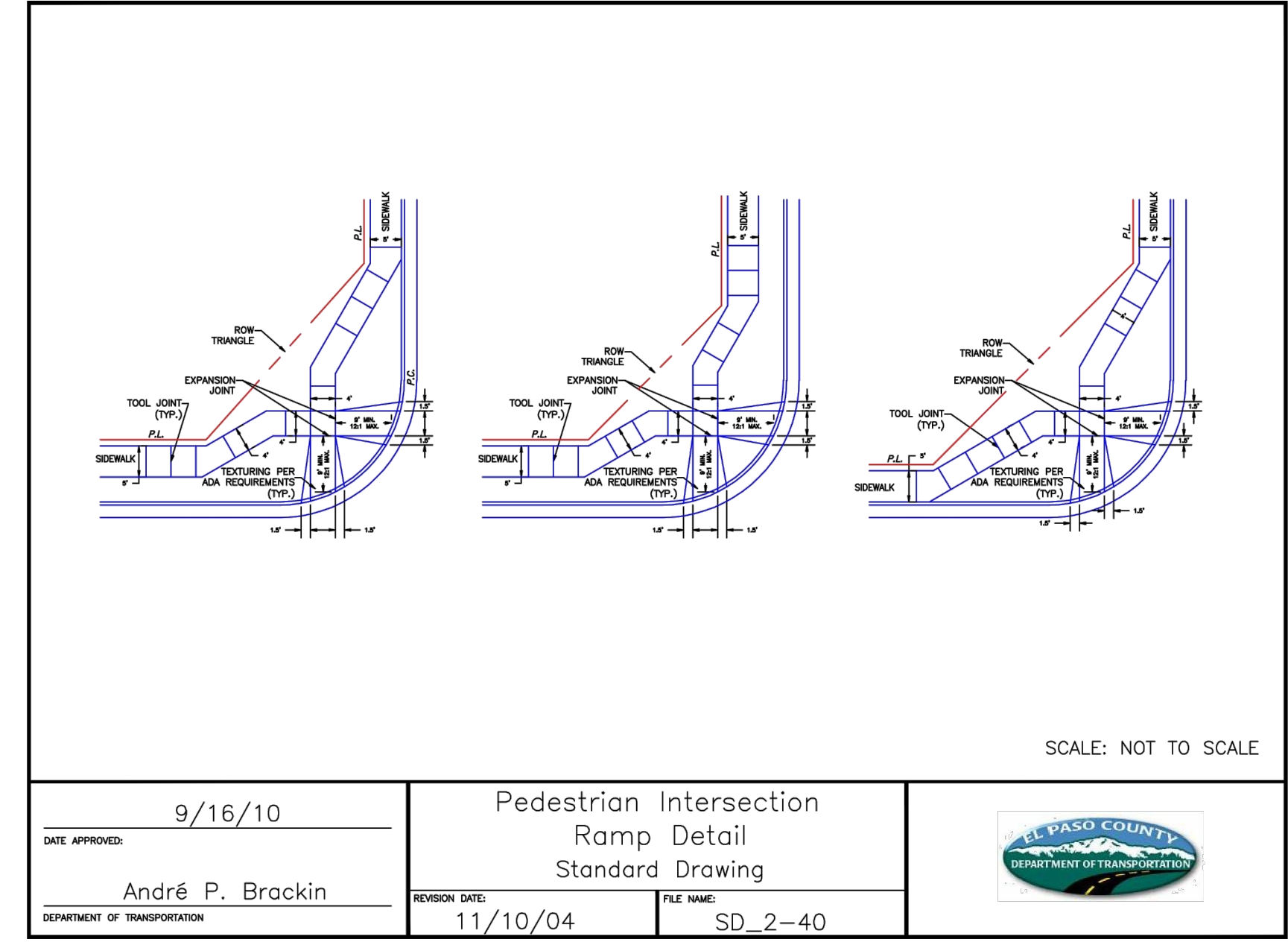
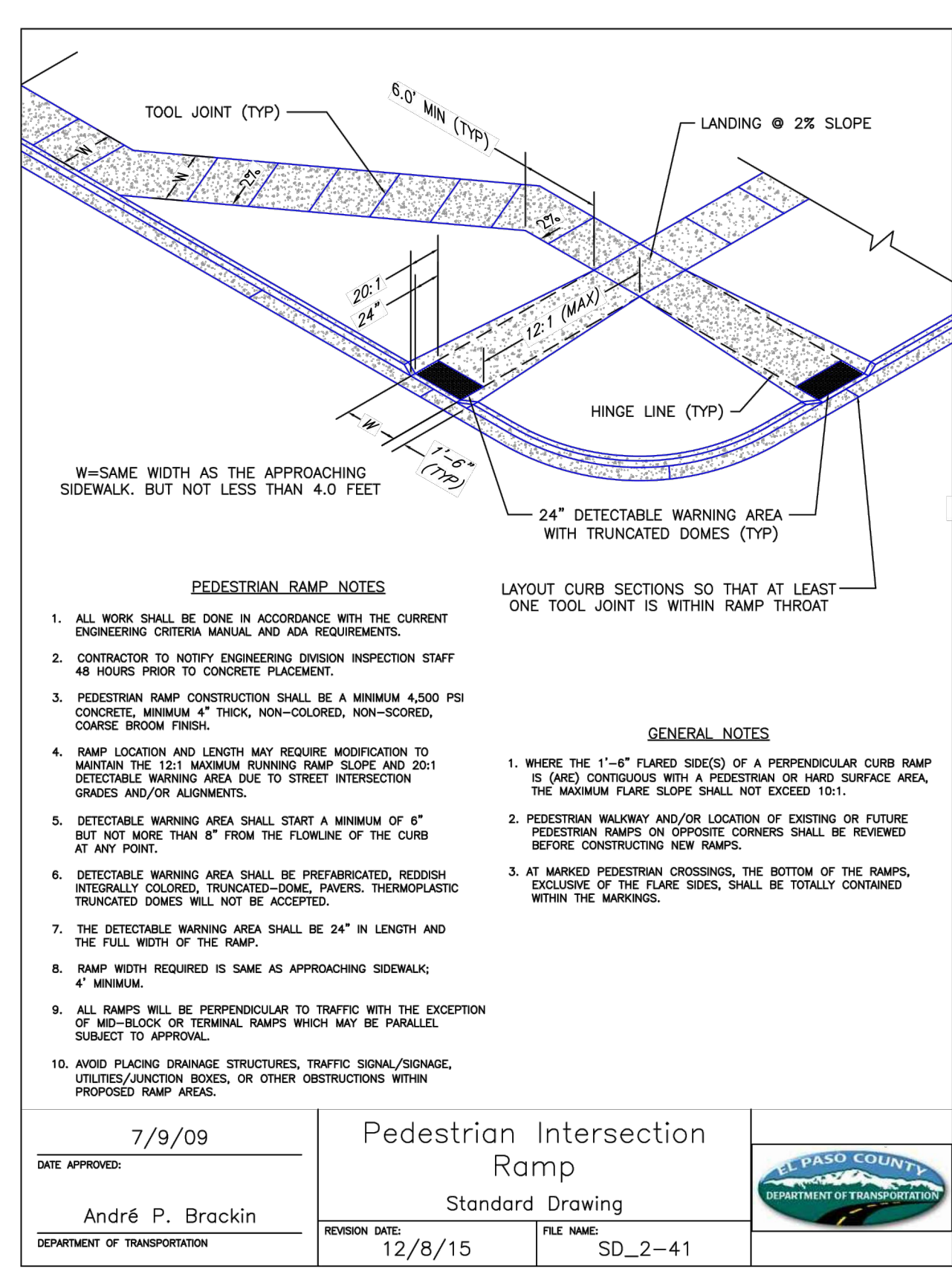
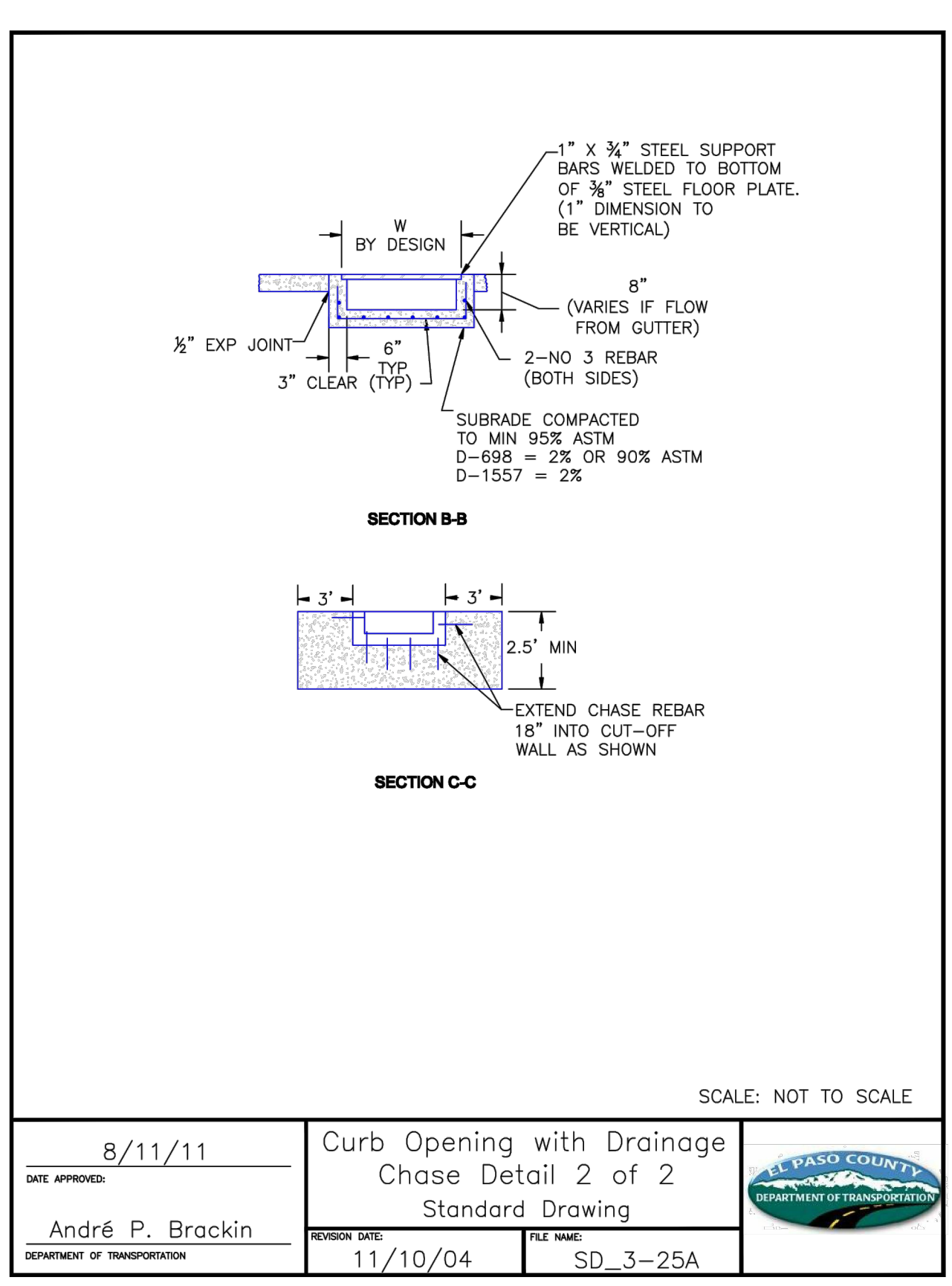
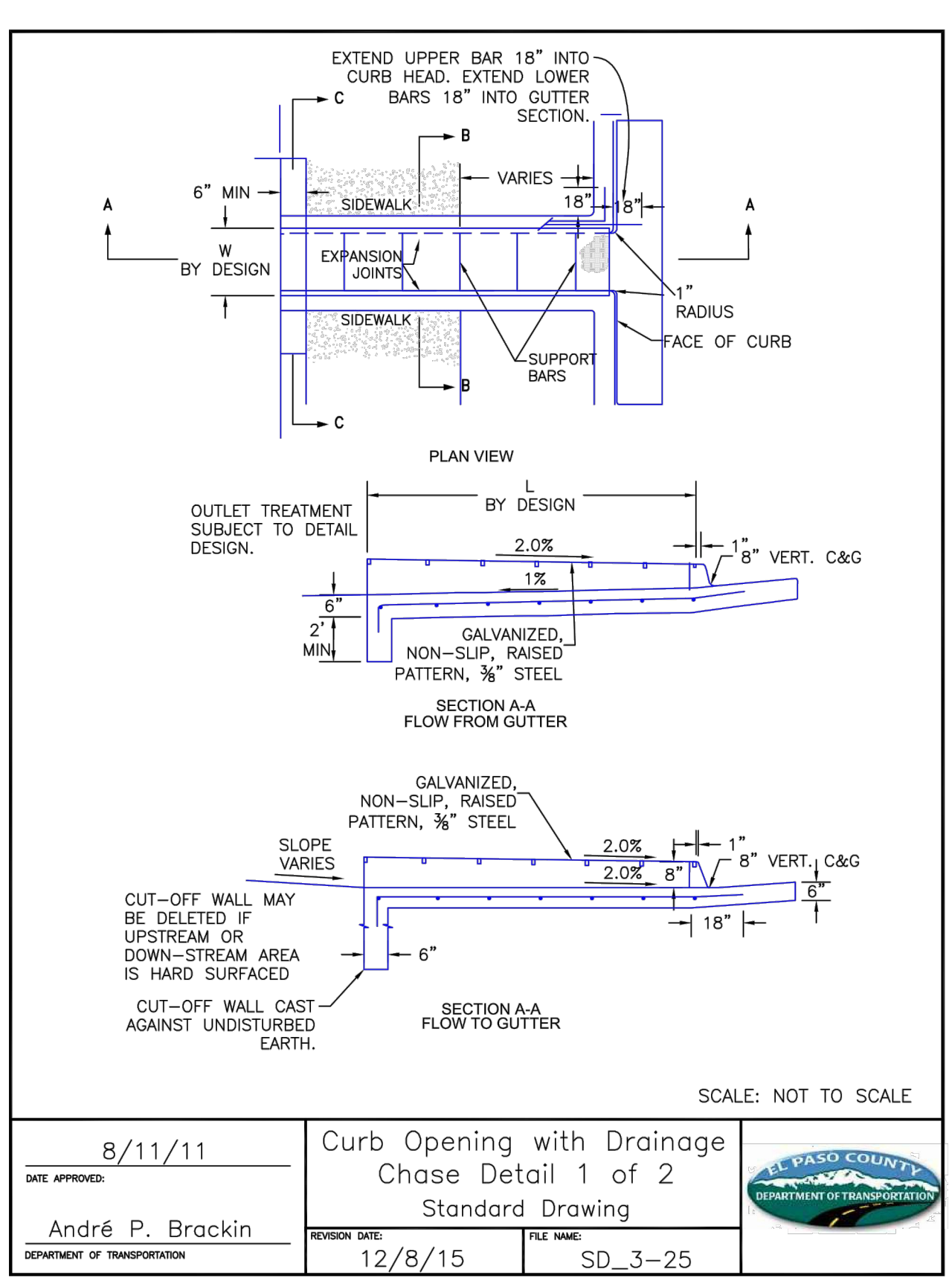
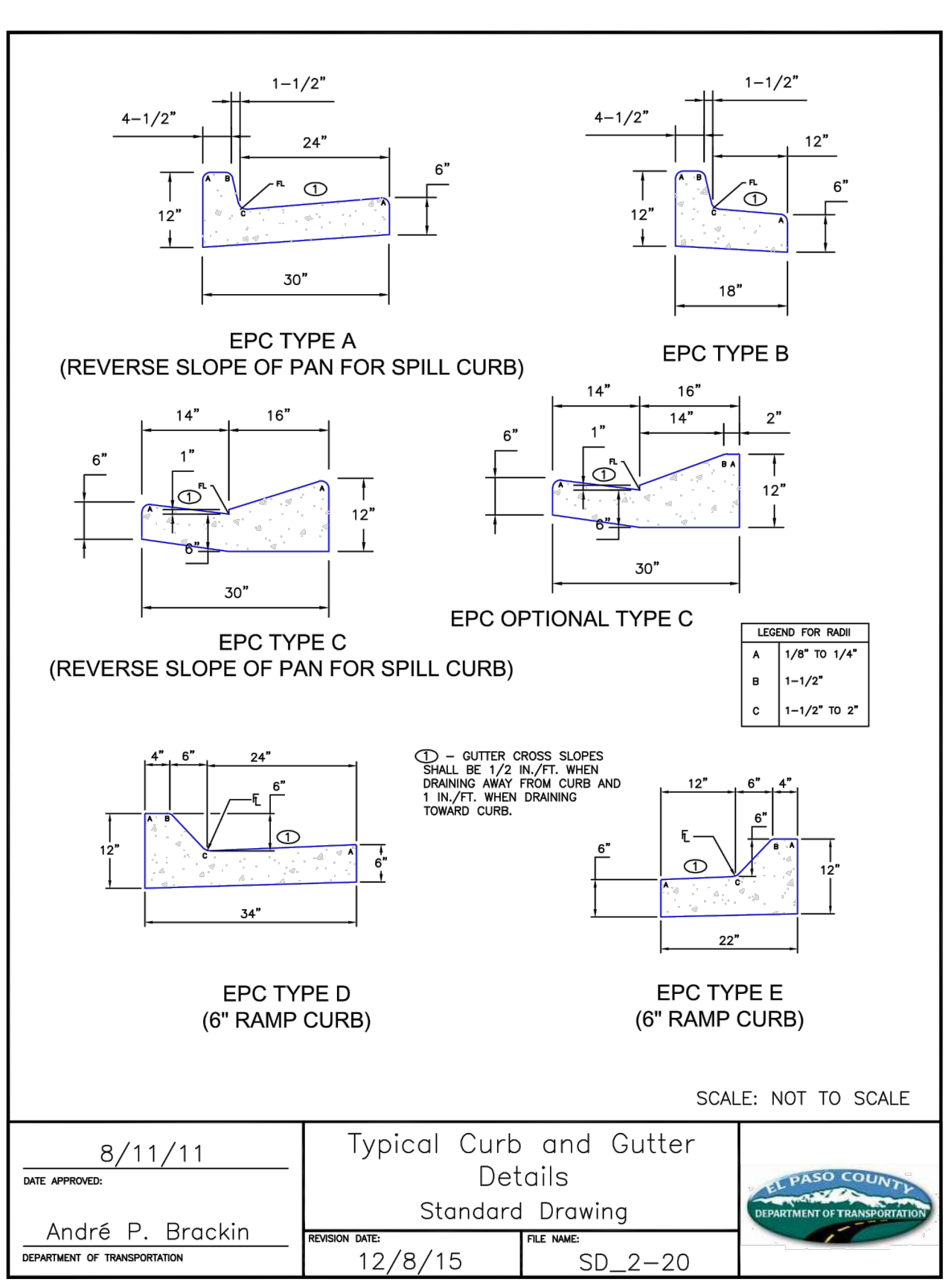
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2 North Nevada Avenue, Suite 300  
Colorado Springs, CO 80903 (303) 228-2300

PROFESSIONAL ENGINEER  
53916  
9/9/2022

PROJECT NO.  
096481004

SHEET  
C4.13

NO. REVISION BY DATE APPR.



KHA Comment: Make sure these are all the most up to date versions.

KH Response: Standard Details have been updated to the most up-to-date versions included in Appendix F of the ECM. Please note that the table in Appendix F has incorrect revision dates for Standard Details SD\_3-25 and SD\_3-25A.

K:\DEN\_Civil\096481004 - El Paso Constitution\CADD\References\096481004T-SDP.dwg Hess, Mitchell 9/9/2022 9:33 PM

NO.	REVISION	BY	DATE	APPR.

**Kimley»Horn**  
 2022 KIMLEY-HORN AND ASSOCIATES, INC.  
 2 North Nevada Avenue, Suite 300  
 Colorado Springs, CO 80903 (303) 528-2500

DESIGNED BY: MOH  
 DRAWN BY: JWM  
 CHECKED BY: MOH  
 DATE: 9/09/2022

THE CITIZEN ON CONSTITUTION  
 EL PASO COUNTY, COLORADO  
 SITE DEVELOPMENT PLAN  
 CONSTRUCTION DETAILS

EL PASO COUNTY  
 PROFESSIONAL ENGINEER  
 53916  
 9/09/2022

PROJECT NO.  
 096481004

SHEET  
**C5.0**

**DRAINAGE REPORT – PCD ENGINEERING  
COMMENT RESPONSE**





Conditions Drainage Map.

2.15 per drainage plan and calculations. Please revise.

KH Response:  
The report has been revised to match calculations and drainage map.

Sub-Basin OS3 consists of an offsite basin to the northeast of the Property. Drainage flows overland from north to south and conveys to the northern line of Sub-basin EX2 at Design Point OS3. Direct runoff during the 5-year and 100-year events are 0.20 cfs and 1.33 cfs, respectively. Runoff from this basin into the Sub-basin EX2, which is impervious value for this basin is 2%.

KH Response:  
The report has been revised to match calculations and drainage map.

KH Response:  
The report has been revised to match calculations and drainage map.

0.97 cfs per drainage plan and calculations. please revise.

Cumulative flows per the drainage plan and calculations are 0.86cfs and 1.60 cfs. Please revise.

**PROPOSED RATIONAL SUB-BASIN DESCRIPTIONS**

Sub-Basin A1 consists of landscaping and a gravel emergency access road and is the westmost portion of the site which will have minimal grading to tie into the rest of the multi-family development on site. Runoff from this basin will be directed to design point A1 and will follow the historical drainage pattern by sheet flowing from north to south and eventually flowing to the existing gulch. This sub-basin has an area of 0.87 acres. The impervious value for this basin is 2%. The basin will generate runoff of 0.26 cfs and 1.92 cfs in the minor and major storm event. Cumulative flows from this basin, including the flows from Sub-Basins OA1 and OA2, are 0.75 and 2.15 cfs, respectively. Please see below discussion in the Municipal Separate Storm Sewer System (MS4) discussion for additional information on how stormwater quality is being addressed for basins that run offsite.

Sub-Basin A2 consists of a portion of landscaping and the existing gulch on the south side of the site. Runoff from this basin will follow the historical drainage pattern by sheet flowing to adjacent southern property and eventually flowing to the gulch. This sub-basin has an area of 0.41 acres. The impervious value for this basin is 42%. The basin will generate runoff of 0.89 cfs and 2.27 cfs in the minor and major storm event. Please see below discussion in the Municipal Separate Storm Sewer System (MS4) discussion for additional information on how stormwater quality is being addressed for basins that run offsite.

Sub-Basin B1 consists of a portion of landscaping, roadway, and sidewalk. Runoff from this basin will be directed into design point B1 where it will be captured by inlet B1 and directed to the West Pond located in sub-basin C1 via storm drain system. Inlet B1 has been adequately sized to convey anticipated onsite flows from this sub-basin. This sub-basin has an area of 0.13 acres. The impervious value for this basin is 83%. The basin will generate runoff of 0.51 cfs and 2.15 cfs in the minor and major storm event. Cumulative flows from this basin, including the flows from Sub-Basin OB1, are 0.78 and 1.47 cfs, respectively.

Sub-Basin B2 consists of a portion of landscaping, roadway, and sidewalk. Runoff from this basin will be directed into design point B2 where it will be captured by inlet B2 and directed to the West Pond located in sub-basin C1 via storm drain system. Inlet B2 has been sized to accept the 5-year flow completely and will allow approximately 0.2 cfs to bypass onto inlet D1a in the 100-year event. This sub-basin has an area of 0.17 acres. The impervious value for this basin is 79%. The basin will generate runoff of 0.62 cfs and 1.20 cfs in the minor and major storm event. Cumulative flows from this basin, including the flows from Sub-Basin OB2, are 0.96 and 1.82 cfs, respectively.

Sub-Basin E2 consists of a portion of landscaping and roof area. Runoff from this basin will be captured by inlet E2 and directed to the West Pond located in sub-basin C1 via storm drain system. Inlet E2 has been adequately sized to convey anticipated onsite flows from this sub-basin. This sub-basin has an area of 0.21 acres. The impervious value for this basin is 39%. The basin will generate runoff of 0.38 cfs and 0.98 cfs in the minor and major storm event. Cumulative flows from this basin, including the flows from Sub-Basin OE2, are 0.57 and 1.56 cfs, respectively.

Sub-Basin E3 consists of a portion of landscaping and roof area. Runoff from this basin will be captured by inlet E3 and directed to the West Pond located in sub-basin C1 via storm drain system. Inlet E3 has been adequately sized to convey anticipated onsite flows from this sub-basin. This sub-basin has an area of 0.22 acres. The impervious value for this basin is 40%. The basin will generate runoff of 0.41 cfs and 1.04 cfs in the minor and major storm event. Cumulative flows from this basin, including the flows from Sub-Basin OE3, are 0.60 and 1.63 cfs, respectively.

Sub-Basin E4 consists of a portion of landscaping and roof area. Runoff from this basin will be captured by inlet E4 and directed to the West Pond located in sub-basin C1 via storm drain system. Inlet E4 has been adequately sized to convey anticipated onsite flows from this sub-basin. This sub-basin has an area of 0.18 acres. The impervious value for this basin is 46%. The basin will generate runoff of 0.38 cfs and 0.92 cfs in the minor and major storm event. Cumulative flows from this basin, including the flows from Sub-Basin OE4, are 0.53 and 1.34 cfs, respectively.

Sub-Basin OA1 consists of landscaping offsite to the north of the Property. Runoff from this basin will be directed into design point A1 and travels through Basin A1 to follow the historical drainage pattern by sheet flowing from north to south and eventually flowing to the existing gulch. This sub-basin has an area of 0.05 acres. The impervious value for this basin is 46%. The basin will generate runoff of 0.1 cfs and 0.24 cfs in the minor and major storm event.

Sub-Basin OA2 consists of landscaped area, sidewalks, and 1,870 square feet of asphalt roadway within Urban Collection at Palmer Village offsite to the west of the Property. Runoff from this basin will be directed to design point A1 and travels through Basin A1 to follow the historic drainage pattern by sheet flowing north to south and eventually flowing to the existing gulch. Runoff values for basin OA2 were obtained from the approved Final Drainage Report for Urban Collection at Palmer Village by JR Engineering dated April 2021. The Final Drainage Report states that basins B14, B15, and B16 total 0.45 acres and will generate runoff of 0.50 cfs and 1.60 cfs in the minor and major storm events. Design Points 28, 29, and 30 correspond to basins B14, B15, and B16 on the Final Drainage Report.

Does not match what is shown on Drainage Map

Sub-Basin OB1 consists of a portion Constitution Avenue to the north of the Property. Runoff from this basin will be directed into design point B1 and Basin B1 to a curb inlet at design point B1. This sub-basin has an area of 0.08 acres. The impervious value for this basin is 96%. The basin will generate runoff of 0.63 cfs in the minor and major storm event.

KH Response:  
0.6 cfs and 1.90 cfs are used to match the previously approved drainage report for the adjacent property. The runoff values in the previously approved report are inconsistent so the most conservative values are used.

Sub-Basin OB2 consists of a portion of Constitution Avenue to the north of the Property. Runoff from this basin will be directed into design point B2 and travels via curb and gutter through Basin B2 to a curb inlet at design point B2. This sub-basin has an area of 0.08 acres. The impervious value for this basin is 90%. The basin will generate runoff of 0.34 cfs and 0.62 cfs in the minor and major storm event.

Citizen on Constitution - Drainage Report												
Proposed Runoff Calculations												
(Rational Method Procedure)												
Design Storm 5 Year												
BASIN INFORMATION				DIRECT RUNOFF				CUMULATIVE RUNOFF				NOTES
DESIGN POINT	DRAIN BASIN	AREA ac.	RUNOFF COEFF	T(c) min	C x A	I in/hr	Q cfs	T(c) min	C x A	I in/hr	Q cfs	
A1*	A1*	0.87	0.08	12.5	0.07	3.75	0.26				0.75	A1 + OA1 + OA2
A2*	A2*	0.41	0.42	5.0	0.17	5.16	0.89					
B1	B1	0.13	0.76	5.0	0.10	5.16	0.51				0.86	B1 + OB1
B2	B2	0.17	0.72	5.0	0.12	5.16	0.62				0.96	B2 + OB2
B3*	B3*	0.35	0.77	5.0	0.26	5.16	1.36					
B4*	B4*	0.18	0.77	5.0	0.14	5.16	0.72					
B5*	B5*	0.03	0.69	5.0	0.02	5.16	0.11					
C1	C1	0.84	0.10	5.0	0.08	5.16	0.43				0.60	C1 + OC1
C2	C2	0.26	0.66	5.0	0.17	5.16	0.89				0.97	C2 + OC2
C3	C3	0.62	0.81	5.0	0.51	5.16	2.61					
D1	D1	0.58	0.87	5.0	0.51	5.16	2.61					
D1a	D1a	0.18	0.79	5.0	0.14	5.16	0.73					
D2	D2	1.08	0.79	5.0	0.86	5.16	4.42					
D3	D3	0.30	0.48	5.2	0.14	5.09	0.72					
D4	D4	0.30	0.48	5.2	0.14	5.09	0.73					
D5	D5	0.51	0.79	5.0	0.40	5.16	2.08					
D6	D6	0.81	0.80	5.0	0.64	5.16	3.32					
D7	D7	0.39	0.75	5.0	0.30	5.16	1.53					
D8	D8	0.54	0.75	5.0	0.40	5.16	2.07					
D9	D9	0.43	0.72	5.0	0.31	5.16	1.58					
D10	D10	0.37	0.71	5.0	0.26	5.16	1.33					
D11	D11	0.50	0.79	5.0	0.39	5.16	2.03					
D12	D12	0.66	0.29	5.0	0.19	5.16	0.99				0.99	D12 + OD12
E1	E1	0.18	0.40	5.0	0.07	5.16	0.37				0.49	E1 + OE1
E2	E2	0.21	0.35	5.0	0.07	5.16	0.38				0.57	E2 + OE2
E3	E3	0.22	0.36	5.0	0.08	5.16	0.41				0.60	E3 + OE3
E4	E4	0.18	0.40	5.0	0.07	5.16	0.38				0.53	E4 + OE4
OA1*	OA1*	0.05	0.45	6.8	0.02	4.71	0.10					
OA2*^	OA2*^	0.45	0.00		0.00	4.00					0.50	Flows from previous FDR
OB1	OB1	0.08	0.87	5.0	0.07	5.16	0.35					
OB2	OB2	0.08	0.82	5.0	0.07	5.16	0.34					
OC1	OC1	0.08	0.41	5.0	0.03	5.16	0.17					
OC2	OC2	0.06	0.27	5.0	0.02	5.16	0.08					
OD12	OD12	0.01	0.08	5.5	0.00	5.02	0.01					
OE1	OE1	0.09	0.27	5.0	0.02	5.16	0.13					
OE2	OE2	0.14	0.27	5.0	0.04	5.16	0.19					
OE3	OE3	0.14	0.27	5.0	0.04	5.16	0.19					
OE4	OE4	0.09	0.30	5.0	0.03	5.16	0.14					
OF1	OF1	1.12	0.90	14.4	1.01	3.52	3.56					
OF2	OF2	0.42	0.08	8.1	0.03	4.45	0.15					
OS1*	OS1*	0.25	0.76	5.0	0.19	5.16	0.99					

KH Response:  
 Markups in blue are  
 Kimley-Horn markups showing  
 what changed and changes we  
 made to address other  
 comments from the county.

Updated to 0.6 cfs to  
 match plan

Citizen on Constitution - Drainage Report												
Proposed Runoff Calculations												
Design Storm 100 Year												
(Rational Method Procedure)												
BASIN INFORMATION				DIRECT RUNOFF				CUMULATIVE RUNOFF				NOTES
DESIGN POINT	DRAIN BASIN	AREA ac.	RUNOFF COEFF	T(c) min	C x A	I in/hr	Q cfs	T(c) min	C x A	I in/hr	Q cfs	
A1*	A1*	0.87	0.35	12.5	0.31	6.29	1.92				3.09	A1 + OA1 + OA2
A2*	A2*	0.41	0.60	5.0	0.25	8.65	2.15					
B1	B1	0.13	0.85	5.0	0.11	8.65	0.97				1.60	B1 + OB1
B2	B2	0.17	0.83	5.0	0.14	8.65	1.20				1.82	B2 + OB2
B3*	B3*	0.35	0.86	5.0	0.30	8.65	2.57					
B4*	B4*	0.18	0.86	5.0	0.16	8.65	1.36					
B5*	B5*	0.03	0.80	5.0	0.02	8.65	0.21					
C1	C1	0.84	0.36	5.0	0.31	8.65	2.64				3.07	C1 + OC1
C2	C2	0.26	0.78	5.0	0.20	8.65	1.76				2.01	C2 + OC2
C3	C3	0.62	0.89	5.0	0.55	8.65	4.79					
D1	D1	0.58	0.93	5.0	0.55	8.65	4.72					
D1a	D1a	0.18	0.88	5.0	0.16	8.65	1.37					
D2	D2	1.08	0.88	5.0	0.94	8.65	8.17					
D3	D3	0.30	0.63	5.2	0.19	8.54	1.59					
D4	D4	0.30	0.63	5.2	0.19	8.54	1.63					
D5	D5	0.51	0.87	5.0	0.45	8.65	3.85					
D6	D6	0.81	0.88	5.0	0.71	8.65	6.11					
D7	D7	0.39	0.84	5.0	0.33	8.65	2.88					
D8	D8	0.54	0.84	5.0	0.45	8.65	3.92					
D9	D9	0.43	0.81	5.0	0.35	8.65	3.00					
D10	D10	0.37	0.80	5.0	0.29	8.65	2.54					
D11	D11	0.50	0.87	5.0	0.44	8.65	3.78					
D12	D12	0.66	0.50	5.0	0.33	8.65	2.86				2.90	D12 + OD12
E1	E1	0.18	0.58	5.0	0.10	8.65	0.88				1.27	E1 + OE1
E2	E2	0.21	0.54	5.0	0.11	8.65	0.98				1.56	E2 + OE2
E3	E3	0.22	0.55	5.0	0.12	8.65	1.04				1.63	E3 + OE3
E4	E4	0.18	0.58	5.0	0.11	8.65	0.92				1.34	E4 + OE4
OA1*	OA1*	0.05	0.63	6.8	0.03	7.90	0.24					
OA2*^	OA2*^	0.45	0.00	10.7	0.00	6.71					1.66	Flows from previous FDR
OB1	OB1	0.08	0.94	5.0	0.07	8.65	0.63					
OB2	OB2	0.08	0.90	5.0	0.07	8.65	0.62					
OC1	OC1	0.08	0.59	5.0	0.05	8.65	0.42					
OC2	OC2	0.06	0.49	5.0	0.03	8.65	0.25					
OD12	OD12	0.01	0.35	5.5	0.01	8.43	0.04					
OE1	OE1	0.09	0.49	5.0	0.05	8.65	0.39					
OE2	OE2	0.14	0.49	5.0	0.07	8.65	0.58					
OE3	OE3	0.14	0.49	5.0	0.07	8.65	0.59					
OE4	OE4	0.09	0.51	5.0	0.05	8.65	0.41					
OF1	OF1	1.12	0.96	14.4	1.08	5.90	6.36					
OF2	OF2	0.42	0.35	8.1	0.15	7.46	1.09					
OS1*	OS1*	0.25	0.85	5.0	0.22	8.65	1.87					

KH Response:  
 Markups in blue are  
 Kimley-Horn markups showing  
 what changed and changes we  
 made to address other  
 comments from the county.

Updated to 1.9  
 cfs to match plan



KH Response:  
Markups in blue are  
Kimley-Horn markups showing  
what changed and changes we  
made to address other  
comments from the county.

SUMMARY - PROPOSED RUNOFF TABLE						
DESIGN POINT	BASIN DESIGNATION	BASIN AREA (ACRES)	DIRECT 5-YR RUNOFF (CFS)	DIRECT 100-YR RUNOFF (CFS)	CUMULATIVE 5-YR RUNOFF (CFS)	CUMULATIVE 100-YR RUNOFF (CFS)
A1*	A1*	0.87	0.26	1.92	0.75	3.09
A2*	A2*	0.41	0.89	2.15	0.89	2.15
B1	B1	0.13	0.51	0.97	0.86	1.60
B2	B2	0.17	0.62	1.20	0.96	1.82
B3*	B3*	0.35	1.36	2.57	1.36	2.57
B4*	B4*	0.18	0.72	1.36	0.72	1.36
B5*	B5*	0.03	0.11	0.21	0.11	0.21
C1	C1	0.84	0.43	2.64	0.60	3.07
C2	C2	0.26	0.89	1.76	0.97	2.01
C3	C3	0.62	2.61	4.79	2.61	4.79
D1	D1	0.58	2.61	4.72	2.61	4.72
D1a	D1a	0.18	0.73	1.37	0.73	1.37
D2	D2	1.08	4.42	8.17	4.42	8.17
D3	D3	0.30	0.72	1.59	0.72	1.59
D4	D4	0.30	0.73	1.63	0.73	1.63
D5	D5	0.51	2.08	3.85	2.08	3.85
D6	D6	0.81	3.32	6.11	3.32	6.11
D7	D7	0.39	1.53	2.88	1.53	2.88
D8	D8	0.54	2.07	3.92	2.07	3.92
D9	D9	0.43	1.58	3.00	1.58	3.00
D10	D10	0.37	1.33	2.54	1.33	2.54
D11	D11	0.50	2.03	3.78	2.03	3.78
D12	D12	0.66	0.99	2.86	0.99	2.90
E1	E1	0.18	0.37	0.88	0.49	1.27
E2	E2	0.21	0.38	0.98	0.57	1.56
E3	E3	0.22	0.41	0.60	0.60	1.63
E4	E4	0.18	0.38	0.60	1.90	1.34
OA1*	OA1*	0.05	0.10	0.24	0.10	0.24
OA2*^	OA2*^	0.45	0.00	0.00	0.50	1.60
OB1	OB1	0.08	0.35	0.63	0.35	0.63
OB2	OB2	0.08	0.34	0.62	0.34	0.62
OC1	OC1	0.08	0.17	0.42	0.17	0.42
OC2	OC2	0.06	0.08	0.25	0.08	0.25
OD12	OD12	0.01	0.01	0.04	0.01	0.04
OE1	OE1	0.09	0.13	0.39	0.13	0.39
OE2	OE2	0.14	0.19	0.58	0.19	0.58
OE3	OE3	0.14	0.19	0.59	0.19	0.59
OE4	OE4	0.09	0.14	0.41	0.14	0.41
OF1	OF1	1.12	3.56	6.36	3.56	6.36
OF2	OF2	0.42	0.15	1.09	0.15	1.09
OS1*	OS1*	0.25	0.99	1.87	0.99	1.87

\*flows from sub-basin are undetained

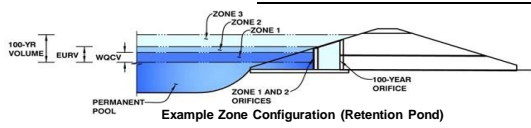
^sub-basin area and flows were obtained from previously approved drainage report from adjacent property

# DETENTION BASIN STAGE-STORAGE TABLE BUILDER

MHFD-Detention, Version 4.04 (February 2021)

Project: **Citizen On Constitution (El Paso)**

Basin ID: **West Pond**



**Watershed Information**

Selected BMP Type =	<b>EDB</b>
Watershed Area =	11.25 acres
Watershed Length =	1,200 ft
Watershed Length to Centroid =	600 ft
Watershed Slope =	0.020 ft/ft
Watershed Imperviousness =	71.00% percent
Percentage Hydrologic Soil Group A =	66.5% percent
Percentage Hydrologic Soil Group B =	33.5% percent
Percentage Hydrologic Soil Groups C/D =	0.0% percent
Target WQCV Drain Time =	40.0 hours
Location for 1-hr Rainfall Depths =	User Input

After providing required inputs above including 1-hour rainfall depths, click 'Run CUHP' to generate runoff hydrographs using the embedded Colorado Urban Hydrograph Procedure.

**Optional User Overrides**

	acre-feet
1.19	inches
	inches
	inches
	inches
	inches

**Define Zones and Basin Geometry**

Zone 1 Volume (WQCV) =	0.262	acre-feet
Zone 2 Volume (EURV - Zone 1) =	0.708	acre-feet
Zone 3 Volume (100-year - Zones 1 & 2) =	0.496	acre-feet
Total Detention Basin Volume =	1.466	acre-feet
Initial Surcharge Volume (ISV) =	user	ft <sup>3</sup>
Initial Surcharge Depth (ISD) =	user	ft
Total Available Detention Depth (H <sub>total</sub> ) =	user	ft
Depth of Trickle Channel (H <sub>TC</sub> ) =	user	ft
Slope of Trickle Channel (S <sub>TC</sub> ) =	user	ft/ft
Slopes of Main Basin Sides (S <sub>main</sub> ) =	user	H:V
Basin Length-to-Width Ratio (R <sub>L/W</sub> ) =	user	

Initial Surcharge Area (A <sub>ISV</sub> ) =	user	ft <sup>2</sup>
Surcharge Volume Length (L <sub>ISV</sub> ) =	user	ft
Surcharge Volume Width (W <sub>ISV</sub> ) =	user	ft
Depth of Basin Floor (H <sub>FLOOR</sub> ) =	user	ft
Length of Basin Floor (L <sub>FLOOR</sub> ) =	user	ft
Width of Basin Floor (W <sub>FLOOR</sub> ) =	user	ft
Area of Basin Floor (A <sub>FLOOR</sub> ) =	user	ft <sup>2</sup>
Volume of Basin Floor (V <sub>FLOOR</sub> ) =	user	ft <sup>3</sup>
Depth of Main Basin (H <sub>MAIN</sub> ) =	user	ft
Length of Main Basin (L <sub>MAIN</sub> ) =	user	ft
Width of Main Basin (W <sub>MAIN</sub> ) =	user	ft
Area of Main Basin (A <sub>MAIN</sub> ) =	user	ft <sup>2</sup>
Volume of Main Basin (V <sub>MAIN</sub> ) =	user	ft <sup>3</sup>
Calculated Total Basin Volume (V <sub>total</sub> ) =	user	acre-feet

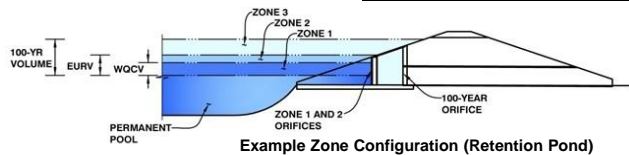
Stage - Storage Description	Stage (ft)	Optional Override Stage (ft)	Length (ft)	Width (ft)	Volume (ft <sup>3</sup> )	Area (ft <sup>2</sup> )	Depth (ft)
<b>Top of Micropool</b>	--	0.00	--	--	0	0	0
6425.4	--	0.10	--	--	105	0.001	12
6425.5	--	0.20	--	--	216	0.005	28
6425.6	--	0.30	--	--	306	0.007	54
6425.7	--	0.40	--	--	366	0.008	88
6425.8	--	0.50	--	--	443	0.010	129
6425.9	--	0.60	--	--	581	0.013	180
6426	--	0.70	--	--	794	0.018	249
6426.1	--	0.80	--	--	1,075	0.025	342
6426.2	--	0.90	--	--	1,409	0.032	466
6426.3	--	1.00	--	--	1,874	0.043	630
6426.4	--	1.10	--	--	2,385	0.055	843
6426.5	--	1.20	--	--	2,845	0.065	1,105
6426.6	--	1.30	--	--	3,303	0.076	1,412
6426.7	--	1.40	--	--	3,778	0.087	1,766
6426.8	--	1.50	--	--	4,309	0.099	2,170
6426.9	--	1.60	--	--	4,843	0.111	2,628
6427	--	1.70	--	--	5,343	0.123	3,137
6427.1	--	1.80	--	--	5,842	0.134	3,697
6427.2	--	1.90	--	--	6,190	0.142	4,298
6427.3	--	2.00	--	--	6,514	0.150	4,933
6427.4	--	2.10	--	--	6,828	0.157	5,601
6427.5	--	2.20	--	--	7,114	0.163	6,298
6427.6	--	2.30	--	--	7,380	0.169	7,022
6427.7	--	2.40	--	--	7,628	0.175	7,773
6427.8	--	2.50	--	--	7,861	0.180	8,547
6427.9	--	2.60	--	--	8,064	0.185	9,343
6428	--	2.70	--	--	8,268	0.190	10,160
6428.1	--	2.80	--	--	8,472	0.194	10,997
6428.2	--	2.90	--	--	8,677	0.199	11,854
6428.3	--	3.00	--	--	8,883	0.204	12,732
6428.4	--	3.10	--	--	9,090	0.209	13,631
6428.5	--	3.20	--	--	9,298	0.213	14,550
6428.6	--	3.30	--	--	9,507	0.218	15,491
6428.7	--	3.40	--	--	9,720	0.223	16,452
6428.8	--	3.50	--	--	9,934	0.228	17,435
6428.9	--	3.60	--	--	10,149	0.233	18,439
6429	--	3.70	--	--	10,364	0.238	19,464
6429.1	--	3.80	--	--	10,582	0.243	20,512
6429.2	--	3.90	--	--	10,812	0.248	21,581
6429.3	--	4.00	--	--	11,033	0.253	22,674
6429.4	--	4.10	--	--	11,255	0.258	23,788
6429.5	--	4.20	--	--	11,478	0.264	24,925
6429.6	--	4.30	--	--	11,703	0.269	26,084
6429.7	--	4.40	--	--	11,928	0.274	27,265
6429.8	--	4.50	--	--	12,155	0.279	28,469
6429.9	--	4.60	--	--	12,382	0.284	29,696
6430	--	4.70	--	--	12,610	0.289	30,946
6430.1	--	4.80	--	--	12,841	0.295	32,218
6430.2	--	4.90	--	--	13,075	0.300	33,514
6430.3	--	5.00	--	--	13,309	0.306	34,834
6430.4	--	5.10	--	--	13,545	0.311	36,176
6430.5	--	5.20	--	--	13,781	0.316	37,543
6430.6	--	5.30	--	--	14,019	0.322	38,933
6430.7	--	5.40	--	--	14,258	0.327	40,346
6430.8	--	5.50	--	--	14,497	0.333	41,784
6430.9	--	5.60	--	--	14,739	0.338	43,246
6431	--	5.70	--	--	14,981	0.344	44,732
6431.1	--	5.80	--	--	15,225	0.350	46,242
6431.2	--	5.90	--	--	15,470	0.355	47,777
6431.3	--	6.00	--	--	15,716	0.361	49,336
6431.4	--	6.10	--	--	15,963	0.366	50,920
6431.5	--	6.20	--	--	16,212	0.372	52,529
6431.6	--	6.30	--	--	16,461	0.378	54,163
6431.7	--	6.40	--	--	16,712	0.384	55,821
6431.8	--	6.50	--	--	16,964	0.389	57,505
6431.9	--	6.60	--	--	17,219	0.395	59,214
6432	--	6.70	--	--	17,474	0.401	60,949
6432.1	--	6.80	--	--	17,729	0.407	62,709
6432.2	--	6.90	--	--	17,985	0.413	64,495
6432.3	--	7.00	--	--	18,242	0.419	66,306
6432.4	--	7.10	--	--	18,499	0.425	68,143
6432.5	--	7.20	--	--	18,757	0.431	70,006
6432.6	--	7.30	--	--	19,018	0.437	71,895
6432.7	--	7.40	--	--	19,281	0.443	73,810
6432.8	--	7.50	--	--	19,545	0.449	75,751
6432.9	--	7.60	--	--	19,811	0.455	77,719
6433	--	7.70	--	--	20,079	0.461	79,713
6433.1	--	7.80	--	--	20,348	0.467	81,734
6433.2	--	7.90	--	--	20,618	0.473	83,783
6433.3	--	8.00	--	--	20,892	0.480	85,858
6433.4	--	8.10	--	--	21,167	0.486	87,961
6433.5	--	8.20	--	--	21,446	0.492	90,092
6433.6	--	8.30	--	--	21,727	0.499	92,251
6433.7	--	8.40	--	--	22,010	0.505	94,437
6433.8	--	8.50	--	--	22,296	0.512	96,653
6433.9	--	8.60	--	--	22,584	0.518	98,897
6434	--	8.70	--	--	22,876	0.525	101,170
6434.1	--	8.80	--	--	23,172	0.532	103,472
6434.2	--	8.90	--	--	23,472	0.539	105,804
6434.3	--	9.00	--	--	23,775	0.546	108,167
6434.4	--	9.10	--	--	24,082	0.553	110,560
6434.5	--	9.20	--	--	24,396	0.560	112,984
6434.6	--	9.30	--	--	24,716	0.567	115,439
6434.7	--	9.40	--	--	25,044	0.575	117,927
6434.8	--	9.50	--	--	25,384	0.583	120,449
6434.9	--	9.60	--	--	25,734	0.591	122,987
6435	--	9.70	--	--	26,094	0.599	125,550
6435.1	--	9.80	--	--	26,464	0.607	128,139

**KH Response:**  
 Markups in blue are Kimley-Horn markups showing what changed and changes we made to address other comments from the county. We marked up the top of micropool elevation on this page so it's easier to understand what elevation stage 0 is.

# DETENTION BASIN OUTLET STRUCTURE DESIGN

MHFD-Detention, Version 4.04 (February 2021)

**Project: Citizen On Constitution (El Paso)**  
**Basin ID: West Pond**



	Estimated Stage (ft)	Estimated Volume (ac-ft)	Outlet Type
Zone 1 (WQCV)	3.05	0.262	Orifice Plate
Zone 2 (EURV)	5.74	0.708	Orifice Plate
Zone 3 (100-year)	7.07	0.496	Weir&Pipe (Restrict)
<b>Total (all zones)</b>		<b>1.466</b>	

**KH Response:**  
 Markups in blue are Kimley-Horn markups showing what changed and changes we made to address other comments from the county.

**User Input: Orifice at Underdrain Outlet (typically used to drain WQCV in a Filtration BMP)**  
 Underdrain Orifice Invert Depth =  ft (distance below the filtration media surface)  
 Underdrain Orifice Diameter =  inches

**Calculated Parameters for Underdrain**  
 Underdrain Orifice Area =  ft<sup>2</sup>  
 Underdrain Orifice Centroid =  feet

**User Input: Orifice Plate with one or more orifices or Elliptical Slot Weir (typically used to drain WQCV and/or EURV in a sedimentation BMP)**  
 Invert of Lowest Orifice =  ft (relative to basin bottom at Stage = 0 ft)  
 Depth at top of Zone using Orifice Plate =  ft (relative to basin bottom at Stage = 0 ft)  
 Orifice Plate: Orifice Vertical Spacing =  inches  
 Orifice Plate: Orifice Area per Row =  inches

**Calculated Parameters for Plate**  
 WQ Orifice Area per Row =  ft<sup>2</sup>  
 Elliptical Half-Width =  feet  
 Elliptical Slot Centroid =  feet  
 Elliptical Slot Area =  ft<sup>2</sup>

**User Input: Stage at top of Each Orifice Row (numbered from lowest to highest)**

**6.03**

	Row 1 (required)	Row 2 (optional)	Row 3 (optional)	Row 4 (optional)	Row 5 (optional)	Row 6 (optional)	Row 7 (optional)	Row 8 (optional)
Stage of Orifice Centroid (ft)	0.00	2.50	4.00	5.00				
Orifice Area (sq. inches)	1.40	2.00	3.30	3.30				

	Row 9 (optional)	Row 10 (optional)	Row 11 (optional)	Row 12 (optional)	Row 13 (optional)	Row 14 (optional)	Row 15 (optional)	Row 16 (optional)
Stage of Orifice Centroid (ft)								
Orifice Area (sq. inches)								

**User Input: Vertical Orifice (Circular or Rectangular)**  
 Invert of Orifice =  ft (relative to basin bottom at Stage = 0 ft)  
 Depth at top of Zone using Orifice =  ft (relative to basin bottom at Stage = 0 ft)  
 Vertical Orifice Diameter =  inches

**Calculated Parameters for Vertical Orifice**  
 Vertical Orifice Area =  ft<sup>2</sup>  
 Vertical Orifice Centroid =  feet

**Shown as 4' on sheet C4.13 of CDs. Revise one to eliminate discrepancy.**

**User Input: Overflow Weir (Dropbox with Flat or Sloped Grate and Outlet Pipe OR Rectangular/Trapezoidal Weir (and No Outlet Pipe))**  
 Overflow Weir Front Edge Height, H<sub>o</sub> =  ft (relative to basin bottom at Stage = 0 ft)  
 Overflow Weir Front Edge Length =  feet  
 Overflow Weir Grate Slope =  H:V  
 Horiz. Length of Weir Sides =  feet  
 Overflow Grate Type =   
 Debris Clogging % =  %

**KH Response: Revised to 4' to match plan**

**Calculated Parameters for Overflow Weir**  
 Weir Upper Edge, H<sub>1</sub> =  feet  
 Weir Slope Length =  feet  
 Grate Open Area / 100-yr Orifice Area =  ft<sup>2</sup>  
 Overflow Grate Open Area w/o Debris =  ft<sup>2</sup>  
 Overflow Grate Open Area w/ Debris =  ft<sup>2</sup>

**Does not match what is shown on sheet C4.13 of CDs.**

**User Input: Outlet Pipe w/ Flow Restriction Plate (Circular Orifice, Restrictor Plate, or Rectangular Orifice)**  
 Depth to Invert of Outlet Pipe =  ft (distance below basin bottom at Stage = 0 ft)  
 Outlet Pipe Diameter =  inches  
 Restrictor Plate Height Above Pipe Invert =  inches

**8.68**

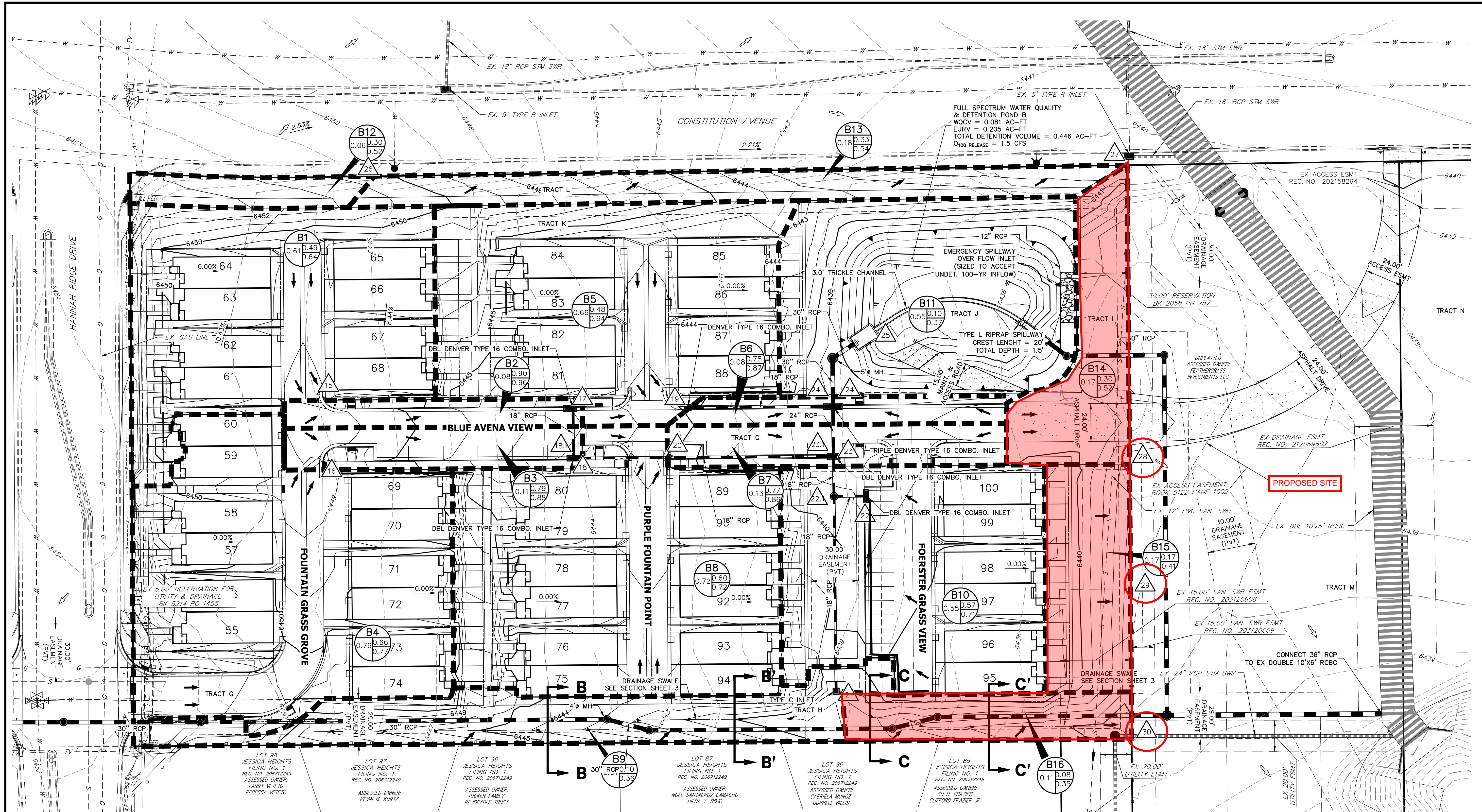
**Calculated Parameters for Outlet Pipe w/ Flow Restriction Plate**  
 Outlet Orifice Area =  ft<sup>2</sup>  
 Outlet Orifice Centroid =  feet  
 Half-Central Angle of Restrictor Plate on Pipe =  radians

**User Input: Emergency Spillway (Rectangular or Trapezoidal)**  
 Spillway Invert Stage =  ft (relative to basin bottom at Stage = 0 ft)  
 Spillway Crest Length =  feet  
 Spillway End Slopes =  H:V  
 Freeboard above Max Water Surface =  feet

**Calculated Parameters for Spillway**  
 Spillway Design Flow Depth =  feet  
 Stage at Top of Freeboard =  feet  
 Basin Area at Top of Freeboard =  acres  
 Basin Volume at Top of Freeboard =  acre-ft

**Routed Hydrograph Results** *The user can override the default CUHP hydrographs and runoff volumes by entering new values in the Inflow Hydrographs table (Columns W through AF).*

	WQCV	EURV	2 Year	5 Year	10 Year	25 Year	50 Year	100 Year	500 Year
Design Storm Return Period	N/A	N/A	1.19	1.52	1.75	2.00	2.25	2.55	3.14
One-Hour Rainfall Depth (in)	N/A	N/A	0.746	0.986	1.177	1.437	1.663	1.974	2.537
CUHP Runoff Volume (acre-ft)	0.262	0.970	0.746	0.986	1.177	1.437	1.663	1.974	2.537
Inflow Hydrograph Volume (acre-ft)	N/A	N/A	0.746	0.986	1.177	1.437	1.663	1.974	2.537
CUHP Predevelopment Peak Q (cfs)	N/A	N/A	0.1	0.2	1.4	4.4	6.2	9.3	14.2
OPTIONAL Override Predevelopment Peak Q (cfs)	N/A	N/A		5.4	7.8			16.9	
Predevelopment Unit Peak Flow, q (cfs/acre)	N/A	N/A	0.01	0.48	0.69	0.39	0.55	1.50	1.27
Peak Inflow Q (cfs)	N/A	N/A	11.8	15.3	18.1	23.0	26.7	32.2	41.4
Peak Outflow Q (cfs)	0.1	3.9	3.3	3.5	3.7	3.9	4.1	4.4	4.7
Ratio Peak Outflow to Predevelopment Q	N/A	N/A	N/A	0.7	0.5	0.9	0.7	0.3	0.3
Structure Controlling Flow	Plate	Outlet Plate 1	Outlet Plate 1	Outlet Plate 1	Outlet Plate 1	Outlet Plate 1	Outlet Plate 1	Outlet Plate 1	Outlet Plate 1
Max Velocity through Gate 1 (fps)	N/A	0.10	0.09	0.1	0.1	0.1	0.1	0.1	0.1
Max Velocity through Gate 2 (fps)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Time to Drain 97% of Inflow Volume (hours)	40	54	56	55	54	53	52	51	49
Time to Drain 99% of Inflow Volume (hours)	42	58	59	59	59	59	59	59	59
Maximum Ponding Depth (ft)	3.05	5.74	4.18	4.62	5.06	5.85	6.35	7.10	8.18
Area at Maximum Ponding Depth (acres)	0.20	0.34	0.25	0.27	0.30	0.34	0.37	0.41	0.48
Maximum Volume Stored (acre-ft)	0.262	0.973	0.513	0.631	0.754	1.006	1.184	1.481	1.957



FULL SPECTRUM WATER QUALITY & DETENTION POND B  
 WQCV = 0.081 AC-FT  
 EURV = 0.205 AC-FT  
 TOTAL DETENTION VOLUME = 0.446 AC-FT  
 Q100 RELEASE = 1.5 CFS

Tributary Sub-basin	Area (acres)	Percent Impervious	C <sub>s</sub>	C <sub>100</sub>	t <sub>c</sub> (min)	Q <sub>s</sub> (cfs)	Q <sub>100</sub> (cfs)
B1	0.61	55%	0.50	0.65	6.3	1.4	3.2
B2	0.08	100%	0.90	0.96	5.0	0.4	0.6
B3	0.12	87%	0.79	0.88	5.0	0.5	0.9
B4	0.76	75%	0.66	0.77	5.9	2.5	4.9
B5	0.66	53%	0.49	0.64	6.2	1.6	3.5
B6	0.08	84%	0.77	0.87	5.0	0.3	0.6
B7	0.13	88%	0.80	0.89	5.0	0.5	1.0
B8	0.72	68%	0.60	0.72	5.5	2.2	4.4
B9	0.31	2%	0.10	0.36	5.6	0.1	0.9
B10	0.55	65%	0.59	0.72	6.4	1.6	3.2
B11	0.55	3%	0.10	0.37	5.6	0.3	1.7
B12	0.06	36%	0.37	0.57	5.0	0.1	0.3
B13	0.18	39%	0.40	0.59	7.0	0.3	0.9
B14	0.17	21%	0.25	0.48	5.6	0.2	0.7
B15	0.17	11%	0.17	0.42	5.0	0.2	0.6
B16	0.11	0%	0.08	0.35	5.0	0.1	0.3

Design Point	Q <sub>s</sub> (cfs)	Q <sub>100</sub> (cfs)
15	1.4	3.2
16	2.5	4.9
17	1.7	3.6
18	2.8	5.4
18.1	4.2	7.8
19	1.9	4.8
20	2.2	4.4
21	0.1	0.9
22	1.6	3.2
22.1	1.7	3.5
23	2.6	5.6
23.1	8.2	16.5
24	1.0	3.2
24.1	10.2	21.5
25	10.4	22.9
26	0.3	1.7
27	0.1	0.3
28	0.3	0.9
29	0.2	0.7
30	0.1	0.3

- LEGEND**
- I.D.: BASIN DESIGNATION
  - A: BASIN AREA
  - B: C<sub>s</sub>
  - C: C<sub>100</sub>
  - DESIGN POINT
  - BASIN DELINEATION
  - EXISTING INDEX CONTOURS
  - EXISTING INTERMEDIATE CONTOURS
  - PROPOSED INDEX CONTOURS
  - PROPOSED INTERMEDIATE CONTOURS
  - PROPOSED SANITARY SEWER
  - PROPOSED STORM SEWER
  - PROPOSED WATER LINE
  - W DIRECTION
  - LW DIRECTION

KH Response: Per response in report, the values in the DP summary table have been used as they are more conservative than the values in the basin summary table

**811**  
Know what's below. Call before you dig.

ORIGINAL SCALE: 1" = 30'

**ENGINEER'S STATEMENT**  
 PREPARED UNDER MY DIRECT SUPERVISION AND ON BEHALF OF JR ENGINEERING

GLENN D. ELLIS, P.E.  
 COLORADO P.E. 38861  
 FOR AND ON BEHALF OF JR ENGINEERING

UNTIL SUCH TIME AS THESE DRAWINGS ARE APPROVED BY THE AGENCIES, OR ENGINEERING APPROVES THEIR USES DESIGNATED BY WRITTEN AUTHORIZATION.

PREPARED FOR  
**RICHMOND AMERICAN HOMES**  
 4350 S. MONACO STREET  
 DENVER, CO 80237  
 (720) 977-3827  
 JASON.FOCK@MDCH.COM

**J.R. ENGINEERING**  
 A Westman Company  
 Centennial 300-740-9888 • Colorado Springs 719-588-2593  
 Fort Collins 970-491-9888 • www.jrengineering.com

BY	DATE	NO.	REVISION

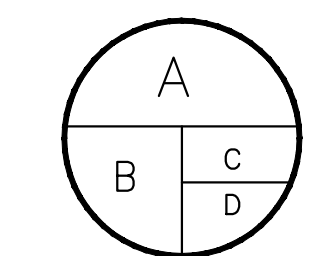
H-SCALE: 1"=30'  
 V-SCALE: N/A  
 DATE: 01/27/21  
 DESIGNED BY: RPD  
 DRAWN BY: RPD  
 CHECKED BY: RPD

URBAN COLLECTION AT PALMER VILLAGE EAST DRAINAGE MAP

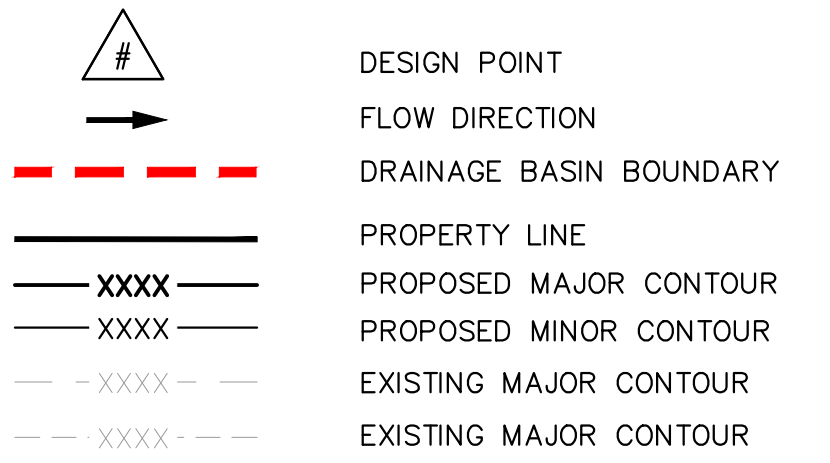
SHEET 2 OF 4  
 JOB NO. 25149.01



**LEGEND**



A = BASIN DESIGNATION  
 B = AREA (ACRES)  
 C = 100-YR COMPOSITE RUNOFF COEFFICIENT  
 D = 100-YR DESIGN STORM RUNOFF (CFS)

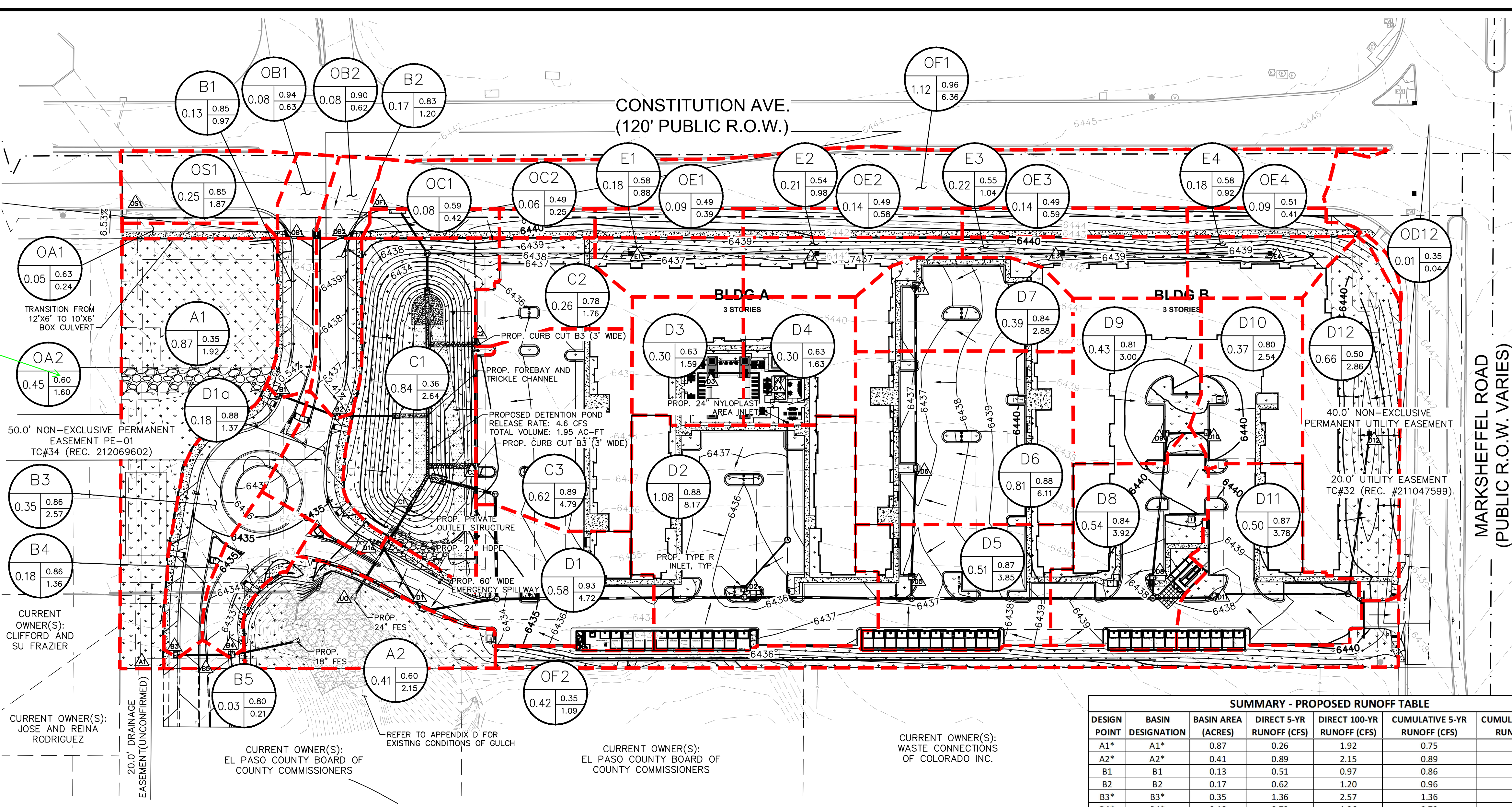


**NOTES**

- THESE DETAILED PLANS AND SPECIFICATIONS WERE PREPARED UNDER MY DIRECTION AND SUPERVISION. SAID DETAILED PLANS AND SPECIFICATIONS HAVE BEEN PREPARED ACCORDING TO THE ESTABLISHED CRITERIA FOR DETAILED DRAINAGE PLANS AND SPECIFICATIONS, AND SAID DETAILED PLANS AND SPECIFICATIONS ARE IN CONFORMITY WITH THE MASTER PLAN OF THE DRAINAGE BASIN. SAID DETAILED DRAINAGE PLANS AND SPECIFICATIONS MEET THE PURPOSES FOR WHICH THE PARTICULAR DRAINAGE FACILITY(S) IS DESIGNED. I ACCEPT RESPONSIBILITY FOR ANY LIABILITY CAUSED BY ANY NEGLIGENT ACTS, ERRORS OR COMMISSIONS ON MY PART IN PREPARATION OF THE DETAILED DRAINAGE PLANS AND SPECIFICATIONS.
- PLAN REVIEW BY EL PASO COUNTY IS PROVIDED ONLY FOR GENERAL CONFORMANCE WITH DESIGN CRITERIA. EL PASO COUNTY IS NOT RESPONSIBLE FOR THE ACCURACY AND ADEQUACY OF THE DESIGN, DIMENSIONS, AND/OR ELEVATIONS WHICH SHALL BE CONFIRMED AT THE JOB SITE. EL PASO COUNTY, THROUGH APPROVAL OF THIS DOCUMENT, ASSUMES NO RESPONSIBILITY FOR COMPLETENESS AND/OR ACCURACY OF THIS DOCUMENT.

KH Response:  
 Markups in blue are Kimley-Horn markups showing what changed and changes we made to address other comments from the county.

0.6, 1.9



**SUMMARY - PROPOSED RUNOFF TABLE**

DESIGN POINT	BASIN DESIGNATION	BASIN AREA (ACRES)	DIRECT 5-YR RUNOFF (CFS)	DIRECT 100-YR RUNOFF (CFS)	CUMULATIVE 5-YR RUNOFF (CFS)	CUMULATIVE 100-YR RUNOFF (CFS)
A1*	A1*	0.87	0.26	1.92	0.75	3.09
A2*	A2*	0.41	0.89	2.15	0.89	2.15
B1	B1	0.13	0.51	0.97	0.86	1.60
B2	B2	0.17	0.62	1.20	0.96	1.82
B3*	B3*	0.35	1.36	2.57	1.36	2.57
B4*	B4*	0.18	0.72	1.36	0.72	1.36
B5*	B5*	0.03	0.11	0.21	0.11	0.21
C1	C1	0.84	0.43	2.64	0.60	3.07
C2	C2	0.26	0.89	1.76	0.97	2.01
C3	C3	0.62	2.61	4.79	2.61	4.79
D1	D1	0.58	2.61	4.72	2.61	4.72
D1a	D1a	0.18	0.73	1.37	0.73	1.37
D2	D2	1.08	4.42	8.17	4.42	8.17
D3	D3	0.30	0.72	1.59	0.72	1.59
D4	D4	0.30	0.73	1.63	0.73	1.63
D5	D5	0.51	2.08	3.85	2.08	3.85
D6	D6	0.81	3.32	6.11	3.32	6.11
D7	D7	0.39	1.53	2.88	1.53	2.88
D8	D8	0.54	2.07	3.92	2.07	3.92
D9	D9	0.43	1.58	3.00	1.58	3.00
D10	D10	0.37	1.33	2.54	1.33	2.54
D11	D11	0.50	2.03	3.78	2.03	3.78
D12	D12	0.66	0.99	2.86	0.99	2.90
E1	E1	0.18	0.37	0.88	0.49	1.27
E2	E2	0.21	0.38	0.98	0.57	1.56
E3	E3	0.22	0.41	1.04	0.60	1.63
E4	E4	0.18	0.38	0.92	0.53	1.34
OA1*	OA1*	0.05	0.10	0.24	0.10	0.24
OA2**	OA2**	0.45	0.00	0.00	0.56	1.60
OB1	OB1	0.08	0.35	0.63	0.35	0.63
OB2	OB2	0.08	0.34	0.62	0.34	0.62
OC1	OC1	0.08	0.17	0.42	0.17	0.42
OC2	OC2	0.06	0.08	0.25	0.08	0.25
OD12	OD12	0.01	0.01	0.04	0.01	0.04
OE1	OE1	0.09	0.13	0.39	0.13	0.39
OE2	OE2	0.14	0.19	0.58	0.19	0.58
OE3	OE3	0.14	0.19	0.59	0.19	0.59
OE4	OE4	0.09	0.14	0.41	0.14	0.41
OF1	OF1	1.12	3.56	6.36	3.56	6.36
OF2	OF2	0.42	1.15	1.09	0.15	1.09
OS1*	OS1*	0.25	0.99	1.87	0.99	1.87

\*flows from sub-basin are undetained  
 \*\*sub-basin area and flows were obtained from previously approved drainage report from adjacent property

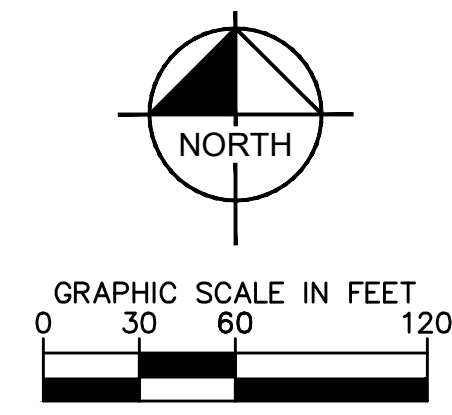
**ONSITE PBMP SUMMARY TABLE**

BASIN	PBMP TRIBUTARY AREA (ACRES)	PBMP
B1, B2, C1-C4, D1-D12, E1-E4, OB1-2, OC1-2, OD12, OE1-4, OF1	11.17	EDB
A1, A2	1.29	EXCLUDED PER ECM APPENDIX I.7.1.B.7
OF2, B3, B4, B5	0.98	EXCLUDED PER ECM APPENDIX I.7.1.C.1

**RUNOFF SUMMARY: EXISTING VS PROPOSED**

	5-YEAR STORM (CFS)	100-YEAR STORM (CFS)
TOTAL EXISTING ON-SITE FLOWS:	8.17	33
EXISTING ON-SITE FLOWS AT DP EX1:	5.35	16.9
EXISTING ON-SITE FLOWS AT DP EX2:	2.8	18.81
*PROPOSED TOTAL ON-SITE FLOWS AT DP UO:	7.33	13.78
NET RESULT:	1.98	-3.12

\*PROPOSED FLOWS INCLUDE POND DISCHARGE AND BASINS A1, A2, B3, B4, B5  
 \*\*ADDITIONAL FLOWS THROUGH THE SITE WITHIN EXISTING GULCH EQUAL TO APPROXIMATELY 1076 CFS IN THE 100-YEAR EVENT PER "HYDROLOGY ANALYSIS EAST FORK SAND CREEK TRIBUTARY 6 (MP96001)". THIS INCLUDES THE FLOWS ENTERING THE CULVERT FROM THE NORTH SIDE OF CONSTITUTION, NOT THE OVERLAND FLOWS ENTERING THE GULCH TO THE SOUTH OF CONSTITUTION FROM THE EXISTING SITE.



**Kimley-Horn**  
 2022 KIMLEY-HORN AND ASSOCIATES, INC.  
 2 North Nevada Avenue, Suite 300  
 Colorado Springs, CO 80903 (303) 228-2300

DESIGNED BY: MOH  
 DRAWN BY: JWM  
 CHECKED BY: DLS  
 DATE: 9/09/2022

THE CITIZEN ON CONSTITUTION  
 EL PASO COUNTY, COLORADO  
 GRADING EROSION CONTROL AND  
 CONSTRUCTION DOCUMENTS  
 PROPOSED DRAINAGE MAP

PROJECT NO.  
 096481004

SHEET  
**C7.1**

BY: DATE: APPR:  
 REVISION: NO.

**AKERS DR. CD'S – TRAFFIC STUDY  
COMMENT RESPONSE**

## Daniel Torres

---

**From:** Hess, Mitchell <Mitchell.Hess@kimley-horn.com>  
**Sent:** Tuesday, August 16, 2022 3:53 PM  
**To:** Daniel Torres  
**Cc:** Menke, Joseph  
**Subject:** RE: Citizen on Constitution - SDP and Traffic Study

**CAUTION: This email originated from outside the El Paso County technology network. Do not click links or open attachments unless you recognize the sender and know the content is safe. Please call IT Customer Support at 520-6355 if you are unsure of the integrity of this message.**

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Thank you for your email Dan. The traffic study is for both the Final Plat and the SDP. Can we just have it approved with the Final Plat and removed from the SDP submittal? It doesn't make sense to have it re-reviewed for the same project.

Thank you for reminding me of the left-turn comment. We will have that adjusted in the Traffic Report.

**Mitchell Hess, P.E. (CO & WY)**

**Kimley-Horn** | 2 N Nevada Ave., Suite 300, Colorado Springs, CO 80903  
Direct: 719 284 7281 | [www.kimley-horn.com](http://www.kimley-horn.com)

---

**From:** Daniel Torres <DanielTorres@elpasoco.com>  
**Sent:** Tuesday, August 16, 2022 3:18 PM  
**To:** Hess, Mitchell <Mitchell.Hess@kimley-horn.com>  
**Cc:** Menke, Joseph <Joseph.Menke@kimley-horn.com>  
**Subject:** RE: Citizen on Constitution - SDP and Traffic Study

Hi Mitchell,

As the final plat is further ahead than the PPR project I believe that comment was intended for you to look at the final plat project for any comments that I may have had.

Regarding the traffic study, I believe that the traffic study needs to be amended due to the changes to the roundabout. In our previous meeting I indicated that the north bound left turn recommendations at Akers/Constitution did not match what was proposed on the CD's. Please be sure that this is updated so that they are consistent with each other. If amending the previous traffic study submitted (from the rezone project, P218), then please revise the title on the cover page to reflect that. Also, a separate traffic memo may be submitted identifying the changes made to the original study.

Respectfully,



**Daniel Torres**

Engineer III

Planning & Community Development

719.520.6305 (Office) | 719.208.6783 (Cell)

<https://planningdevelopment.elpasoco.com/>

---

**From:** Hess, Mitchell <[Mitchell.Hess@kimley-horn.com](mailto:Mitchell.Hess@kimley-horn.com)>  
**Sent:** Monday, August 15, 2022 5:03 PM  
**To:** Daniel Torres <[DanielTorres@elpasoco.com](mailto:DanielTorres@elpasoco.com)>  
**Cc:** Menke, Joseph <[Joseph.Menke@kimley-horn.com](mailto:Joseph.Menke@kimley-horn.com)>  
**Subject:** Citizen on Constitution - SDP and Traffic Study

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Good afternoon Daniel.

I hope your day has been going well. We received the following comment (see screenshot below) on the traffic study for Citizen on Constitution on the SDP Portion of the Project. All of the traffic comments (outside of deviations submitted with the plat) were addressed in April as part of the Final Plat Submittal. Can you please confirm what comment may be outstanding on the Traffic Study? I could not find any outstanding comments on my end.

Thank you for your time.



## Master Traffic Impact Study

See comment on the final plat application (SF226) regarding the traffic study

KH Response: Per coordination with staff, the revised report cover sheet was updated to identify that it is an amendment to the Master Traffic Impact Study.

# Citizen on Constitution El Paso County, Colorado

PCD File No. P218

Prepared for:

The Garrett Companies, Inc.



Mitchell Hess, P.E. (CO & WY)

Kimley-Horn | 2 N Nevada Ave., Suite 300, Colorado Springs, CO 80903

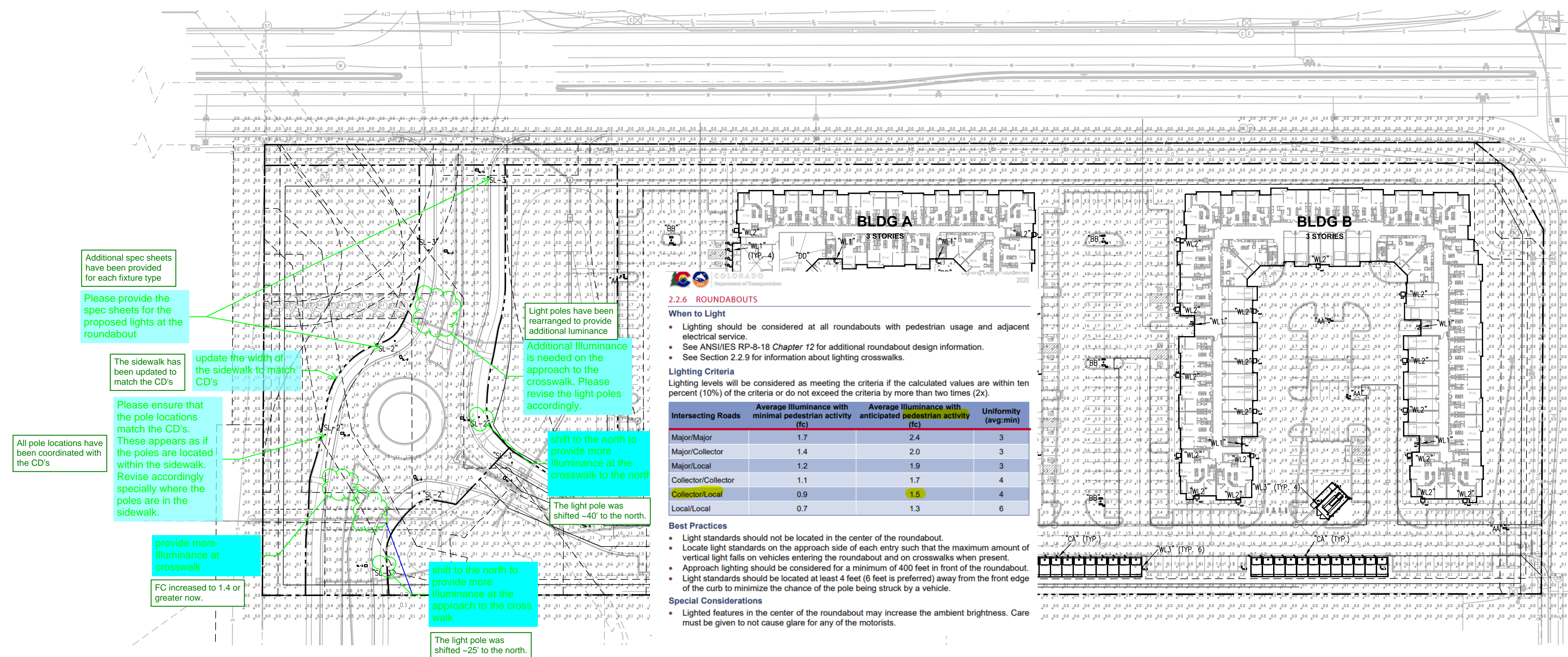
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**PHOTOMETRIC PLAN – PCD ENGINEERING  
COMMENT RESPONSE**

# THE CITIZEN ON CONSTITUTION SITE DEVELOPMENT PLAN

A PORTION OF THE NORTHEAST QUARTER OF SECTION 5, TOWNSHIP 14 SOUTH, RANGE 65 WEST OF THE 6TH P.M.,  
CITY OF COLORADO SPRINGS, COUNTY OF EL PASO, STATE OF COLORADO



Additional spec sheets have been provided for each fixture type

Please provide the spec sheets for the proposed lights at the roundabout

The sidewalk has been updated to match the CD's

update the width of the sidewalk to match CD's

Please ensure that the pole locations match the CD's. These appears as if the poles are located within the sidewalk. Revise accordingly specially where the poles are in the sidewalk.

All pole locations have been coordinated with the CD's

provide more illuminance at crosswalk  
FC increased to 1.4 or greater now.

shift to the north to provide more illuminance at the approach to the cross walk

The light pole was shifted -25' to the north.

Light poles have been rearranged to provide additional luminance  
Additional illuminance is needed on the approach to the crosswalk. Please revise the light poles accordingly.

shift to the north to provide more illuminance at the crosswalk to the north

The light pole was shifted -40' to the north.

## 2.2.6 ROUNDABOUTS

### When to Light

- Lighting should be considered at all roundabouts with pedestrian usage and adjacent electrical service.
- See ANSI/IES RP-8-18 Chapter 12 for additional roundabout design information.
- See Section 2.2.9 for information about lighting crosswalks.

### Lighting Criteria

Lighting levels will be considered as meeting the criteria if the calculated values are within ten percent (10%) of the criteria or do not exceed the criteria by more than two times (2x).

Intersecting Roads	Average Illuminance with minimal pedestrian activity (fc)	Average Illuminance with anticipated pedestrian activity (fc)	Uniformity (avg:min)
Major/Major	1.7	2.4	3
Major/Collector	1.4	2.0	3
Major/Local	1.2	1.9	3
Collector/Collector	1.1	1.7	4
Collector/Local	0.9	1.5	4
Local/Local	0.7	1.3	6

### Best Practices

- Light standards should not be located in the center of the roundabout.
- Locate light standards on the approach side of each entry such that the maximum amount of vertical light falls on vehicles entering the roundabout and on crosswalks when present.
- Approach lighting should be considered for a minimum of 400 feet in front of the roundabout.
- Light standards should be located at least 4 feet (6 feet is preferred) away from the front edge of the curb to minimize the chance of the pole being struck by a vehicle.

### Special Considerations

- Lighted features in the center of the roundabout may increase the ambient brightness. Care must be given to not cause glare for any of the motorists.

PHOTOMETRIC STATISTICS (fc)				
Description	Avg	Max	Min	Average/Min
Roundabout	1.6	2.7	0.4	4.0:1
Collector Roads	1	2	0.3	3.4:1
Site	0.9	18.3	0	-

1 SITE PLAN  
1"=60'-0" PHOTOMETRIC



08-19-22

NO.	REVISION	BY	DATE	APPR.

3838 SW Summerfield Drive, Suite A  
Overland Park, Kansas 66210  
Telephone: (785) 233-3252  
Email: [lsand@lsand.com](mailto:lsand@lsand.com)  
LS&A PROJECT NO: 220704

**LS&A**  
Lalimer Summers & Associates, P.A.  
CONSULTING ENGINEERS

DESIGNED BY: DBE  
DRAWN BY: CAD  
CHECKED BY: DBE  
DATE: 04/18/2022

THE CITIZEN ON CONSTITUTION  
EL PASO COUNTY, COLORADO  
SITE DEVELOPMENT PLAN  
SITE PLAN - PHOTOMETRICS

PRELIMINARY  
FOR REVIEW ONLY  
NOT FOR CONSTRUCTION  
**Kimley-Horn**  
Kimley-Horn and Associates, Inc.

PROJECT NO.  
096481004

SHEET

E0-02

**LANDSCAPE PLAN – PCD ENGINEERING  
COMMENT RESPONSE**



LANDSCAPE DEVELOPMENT PLANS

# THE CITIZEN ON CONSTITUTION

## PCD PROJECT NUMBER: PPR-22-29

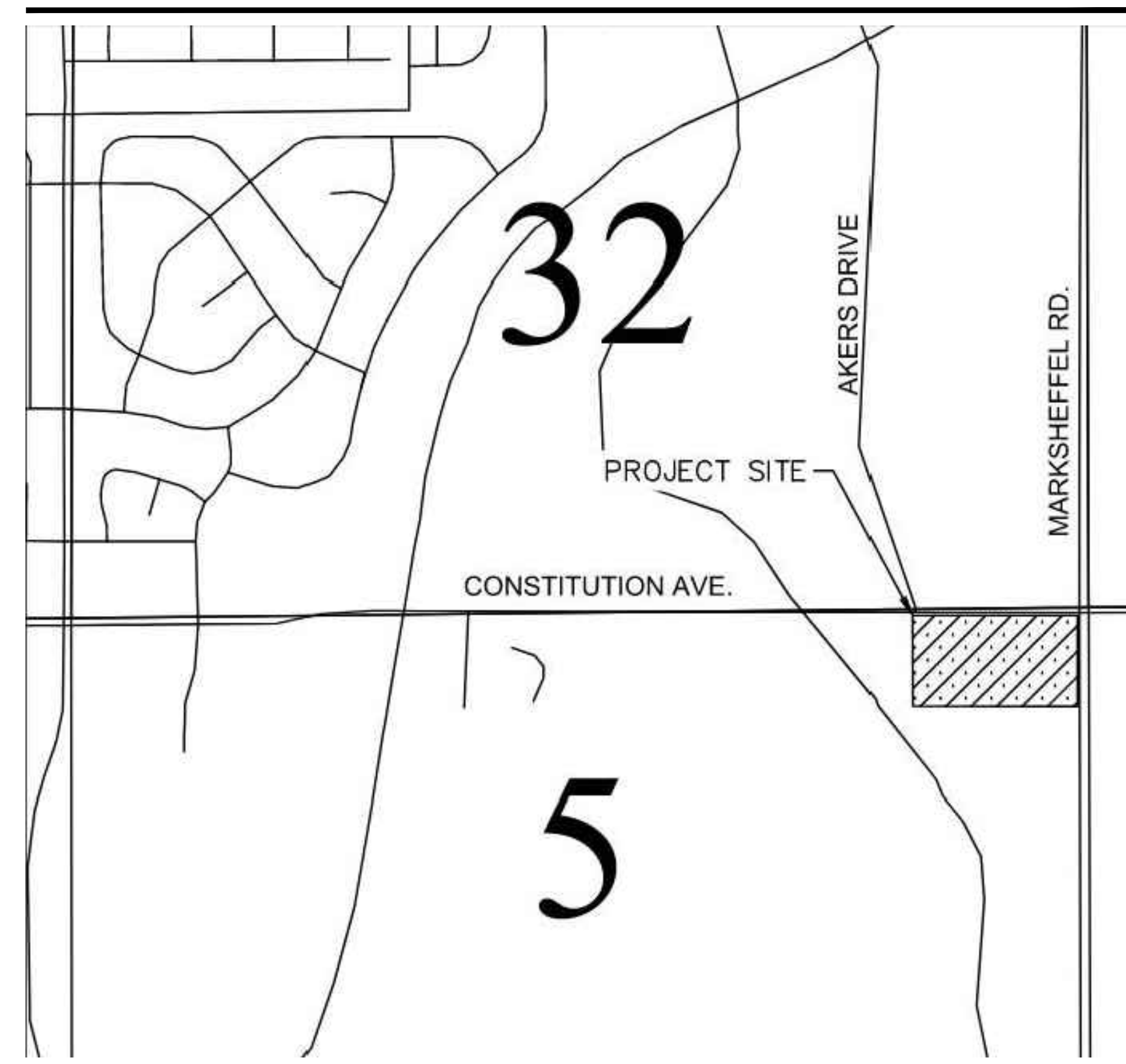
A PORTION OF THE NORTHEAST QUARTER OF SECTION 5, TOWNSHIP 14 SOUTH, RANGE 65 WEST OF THE 6TH P.M.,  
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DATE: 08.19.2022

### SHEET INDEX

FINAL LANDSCAPE & IRRIGATION PLANS	
SHEET NUMBER	SHEET TITLE
--	COVER SHEET
L600	OVERALL LANDSCAPE PLAN
L601	LANDSCAPE PLAN
L602	LANDSCAPE PLAN
L603	LANDSCAPE PLAN
L604	LANDSCAPE PLAN
L605	LANDSCAPE PLAN
L606	LANDSCAPE PLAN
L607	COURTYARD ENLARGEMENT
L608	NOTES AND TABULATIONS
L609	LANDSCAPE DETAILS
L610	LANDSCAPE DETAILS
L611	FENCE AND DOG PARK DETAILS

### VICINITY MAP



SCALE: NTS  
(NOT TO SCALE)

### PROJECT TEAM

#### OWNER/DEVELOPER

THE GARRETT COMPANIES  
1051 GREENWOOD SPRINGS BLVD  
GREENWOOD, INDIANA 46143  
317.886.7923

#### DIRECTOR OF CIVIL ENGINEERING

KARL STOUT  
1051 GREENWOOD SPRINGS BLVD  
GREENWOOD, INDIANA 46143  
317.886.7926

#### LANDSCAPE ARCHITECT

THE GARRETT COMPANIES  
1051 GREENWOOD SPRINGS BLVD  
GREENWOOD, INDIANA 46143  
765.748.9506  
CONTACT NAME: NICK SMITH

#### CIVIL ENGINEERING MANAGER

ANDREW WHITE  
1051 GREENWOOD SPRINGS BLVD  
GREENWOOD, INDIANA 46143  
317.497.8275

#### IRRIGATION DESIGN

SETH HEIDMAN IRRIGATION DESIGN  
6009 W. PARKER RD. #149-221  
PLANO, TEXAS 75093  
972.816.5141  
CONTACT NAME: SETH HEIDMAN

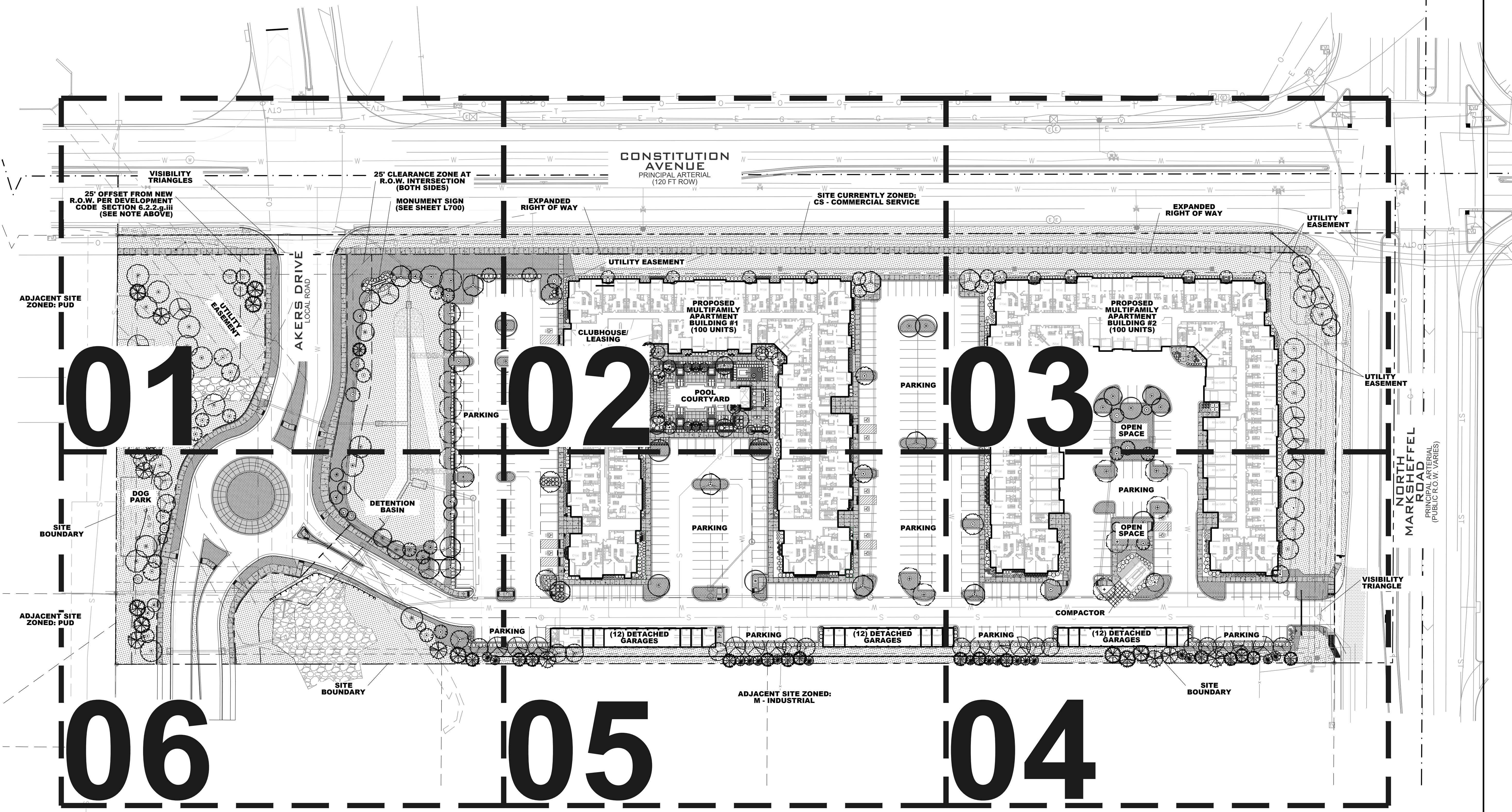


08/19/2022



PCD PROJECT NUMBER: PPR-22-029

25' SETBACK ALONG THE R.O.W.  
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 AND ALL TREES OF THE SALIX AND POPULUS GENUS, EXCEPT ASPEN (POPULUS  
 TREMULOIDES), SHALL NOT BE PLANTED WITHIN 25 FEET OF A RIGHT-OF-WAY.



**NOT FOR CONSTRUCTION**

PROJECT #: 21-06  
 DRAWN BY: TB / PR

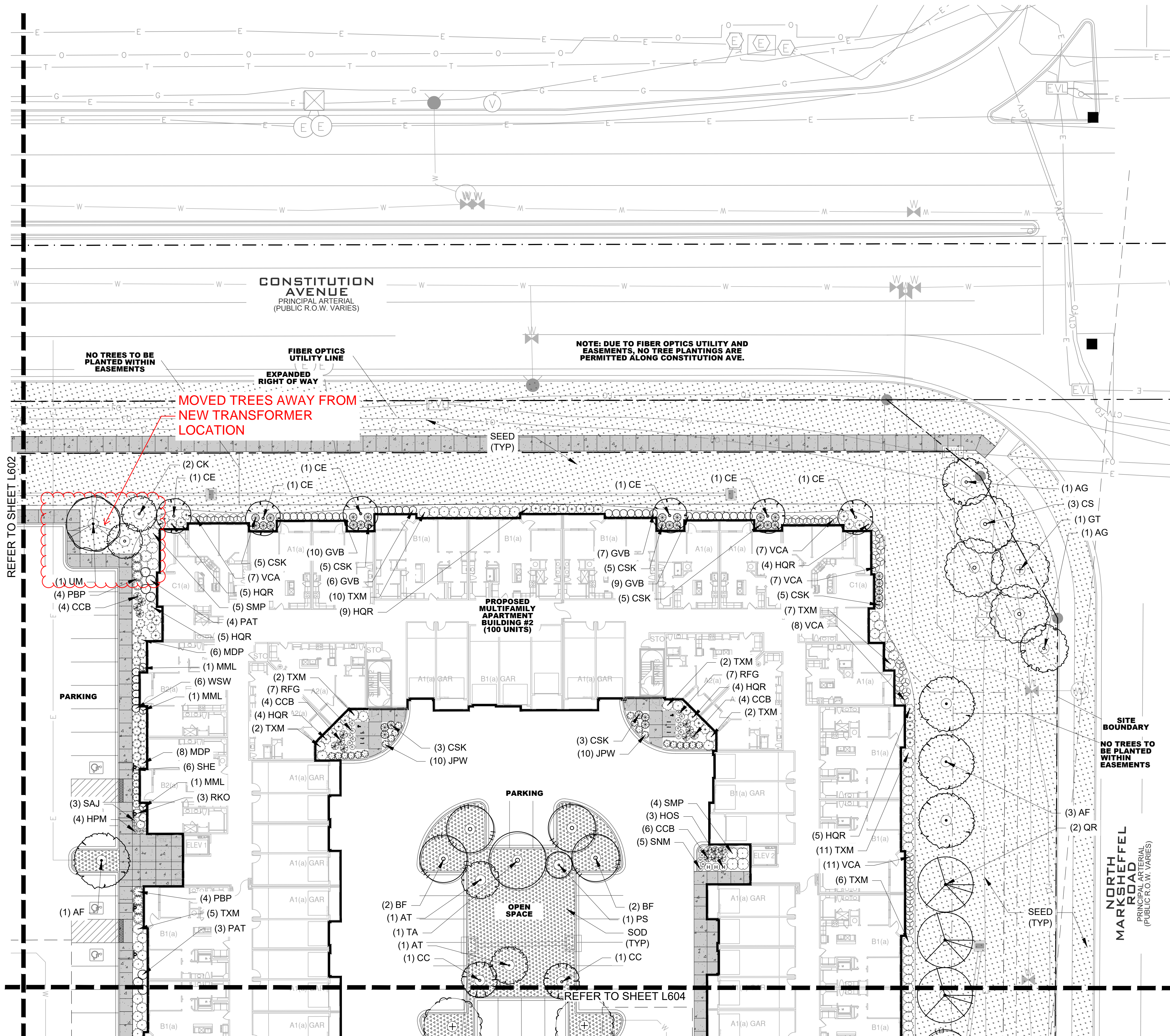
PERMIT SUBMITTAL 03/25/2022  
 SITE DEVELOPMENT PLAN 05/23/2022  
 COUNTY COMMENTS 08/19/2022

REVISION SCHEDULE

#	DATE	DESCRIPTION

**THE CITIZEN ON CONSTITUTION**  
 OVERALL SITE  
 A PORTION OF THE NORTHEAST QUARTER OF SECTION 5,  
 TOWNSHIP 14 SOUTH, RANGE 66 WEST OF THE 6TH P.M.  
 EL PASO COUNTY, COLORADO  
 PCD PROJECT NUMBER: PPR-22-29  
 LANDSCAPE PLANS





**PLANT SCHEDULE**

SYMBOL	TAG	QTY.	COMMON NAME	BOTANIC NAME
<b>DECIDUOUS CANOPY TREES</b>				
AF	15	AUTUMN BLAZE MAPLE	ACER X FREEMANII 'AUTUMN BLAZE'	
AG	8	OHIO BUCKEYE	AESCULUS GLABRA	
BF	12	NATIVE RIVERBIRCH	BETULA FONTINALIS	
CS	16	WESTERN CATALPA	CATALPA SPECIOSA	
CO	7	WESTERN HACKBERRY	CELTIS OCCIDENTALIS	
GT	12	IMPERIAL HONEYLOCUST	GLEDITSIA TRICANTHOS INERMIS 'IMPERIAL'	
PT	18	QUAKING ASPEN	POPULUS TREMULOIDES	
QR	17	RED OAK	QUERCUS RUBRA	
TA	12	REDMOND LINDEN	TILIA AMERICANA 'REDMOND'	
UM	14	ACCOLADE ELM	ULMUS MORTON 'ACCOLADE'	
SUBTOTAL 131				
<b>ORNAMENTAL TREES</b>				
AT	11	HOT WINGS TATARIAN MAPLE	ACER TATARICUM 'GARANN'	
AX	15	AUTUMN BRILLIANCE SERVICEBERRY	AMELACHIER X GRANDIFLORA X 'AUTUMN BRILLIANCE'	
CE	15	EASTERN REDBUD	CERCIS CANADENSIS	
CK	9	KOUSA DOGWOOD	CORNUS KOUSA	
CC	13	THORNLESS COCKSPUR HAWTHORN	CRATAEGUS CRUS GALLII 'INERMIS'	
PS	16	PINK FLAIR CHERRY	PRUNUS SARGENTII 'PINK FLAIR'	
SUBTOTAL 79				
<b>EVERGREEN TREES</b>				
AC	11	CONCOLOR FIR	ABIES CONCOLOR	
PC	10	LODGEPOLE PINE	PINUS CONTORTA	
PF	16	VANDERWOLF'S PINE	PINUS FLEXILIS 'VANDERWOLF'S PYRAMID'	
JS	17	MOONGLOW JUNIPER	JUNIPERUS SCOPULORUM 'MOONGLOW'	
SUBTOTAL 54				
<b>DECIDUOUS &amp; EVERGREEN SHRUBS (TO INCLUDE PARKING LOT SCREENING &amp; FOUNDATION SHRUBS)</b>				
CCB	56	BLUE MIST CARYOPTERIS	CARYOPTERIS X CLANDONENSIS 'BLUE MIST'	
CSK	178	ARCTIC FIRE DOGWOOD	CORNUS STOLONIFERA 'FARROW'	
COR	58	BAILEYS REDOSIER DOGWOOD	CORNUS STOLONIFERA 'BAILEY'	
WSW	46	SPILLED WINE WEIGELA	WEIGELA FLORIDA 'SPILLED WINE'	
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HQR	74	RUBY SLIPPERS HYDRANGEA	HYDRANGEA QUERCIFOLIA 'RUBY SLIPPERS'	
PAT	34	BLUE SPIRES RUSSIAN SAGE	PEROVSKIA ATRIPLICIFOLIA 'BLUE SPIRES'	
GVB	135	GREEN VELVET BOXWOOD	BUXUS X 'GREEN VELVET'	
PAG	64	GNOME FIRETHORN	PYRACANTHA ANGUSTIFOLIA 'GNOME'	
RKO	50	KNOCK OUT PINK ROSE	ROSA 'KNOCK OUT PINK ROSE'	
SJG	55	'GOLDFLAME' SPIREA	SPIREA JAPONICA 'GOLDFLAME'	
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TXM	204	DENSE YEW	TAXUS X MEDIA 'DENSIFORMIS'	
VCA	72	DWARF KOREANSPICE VIBURNUM	VIBURNUM CARLESII 'COMPACTUM'	
SUBTOTAL 1,074				
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PBP	42	CREeping WESTERN SAND CHERRY	PRUNUS BESSEYI 'PAWNEE BUTTES'	
SUBTOTAL 252				
<b>ORNAMENTAL GRASSES</b>				
BLU	38	BLUE AVENA GRASS	HELICOTRICHON SEMPERVIRENS	
MML	19	MORNING LIGHT MAIDEN GRASS	MISCANTHUS SINENSIS 'MORNING LIGHT'	
SHE	59	SHENANDOAH SWITCHGRASS	PANICUM VIRGATUM 'SHENANDOAH'	
FRG	53	FEATHER REED GRASS	CALAMAGROSTIS ACUTIFOLIA 'KARL FOERSTER'	
BAM	129	BLONDE AMBITION GRASS	BOUTELOUA GRACILIS	
PRD	52	PRAIRIE DROPSEED GRASS	SPOROBOLUS HETEROLEPSIS	
SUBTOTAL 350				
<b>PERENNIALS</b>				
CGE	44	EARLY SUNRISE COREOPSIS	COREOPSIS GRANDIFLORA 'EARLY SUNRISE'	
HOS	43	PATRIOT HOSTA	HOSTA X 'PATRIOT'	
HPM	72	PARDON ME DAYLILY	HEMEROCALLIS 'PARDON ME'	
RFG	35	BLACK EYED SUSAN	RUDBECKIA FULGIDA 'GOLDSTRUM'	
SAJ	51	AUTUMN JOY SEDUM	SEDUM 'AUTUMN JOY'	
SNM	39	MAY NIGHT SALVIA	SALVIA NEMEROSA 'MAY NIGHT'	
SUBTOTAL 284				
<b>TURF GRASSES</b>				
SOD	36,604	ECOLOTURF™ SOD	VERSATILE BLUEGRASS/FESCUE SOD MIX (SEE NOTE BELOW)	
SEED	134,984	TURF SEED MIX	"50/50 KENTUCKY BLUEGRASS/PERENNIAL RYEGRASS" TURF MIX; SEE NOTE BELOW)	
SUBTOTAL: 171,588 SQ. FT.				

GROSS SITE AREA: 9.82 ACRES (427,759 SQ FT)  
 REQUIRED OPEN SPACE: 64,164 SQ FT  
 PROVIDED OPEN SPACE: 124,126 SQ FT  
 REQUIRED TREES: 128.3 TREES  
 PROVIDED TREES: 128 OPEN SPACE TREES

REFERENCE SHEET L608 FOR COMPLETE LANDSCAPE PLANT SCHEDULE, NOTES, & TABULATIONS. REFERENCE SHEETS L609 - L611 FOR LANDSCAPE DETAILS.

NOTE: A FINAL LANDSCAPE AND IRRIGATION PLAN SHALL BE SUBMITTED AND REVIEWED CONCURRENT WITH BUILDING PERMIT SUBMITTAL AND APPROVED PRIOR TO ISSUANCE OF A BUILDING PERMIT.

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**NOT FOR CONSTRUCTION**

PROJECT #: 21-06  
 DRAWN BY: TB / PR

PERMIT SUBMITTAL: 03/25/2022  
 SITE DEVELOPMENT PLAN: 05/23/2022  
 COUNTY COMMENTS: 08/19/2022

REVISION SCHEDULE	
#	DATE

**THE CITIZEN ON CONSTITUTION**

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 TOWNSHIP 14 SOUTH, RANGE 65 WEST OF THE 6TH P.M.  
 EL PASO COUNTY, COLORADO  
 PCD PROJECT NUMBER: PPR-22-29  
 LANDSCAPE PLANS

LANDSCAPE PLAN

L603





THE GARRETT COMPANIES  
LANDSCAPE ARCHITECTURE

317-886-7923  
1051 GREENWOOD SPRINGS BLVD #101  
GREENWOOD, IN 46143  
www.thegarrettco.com



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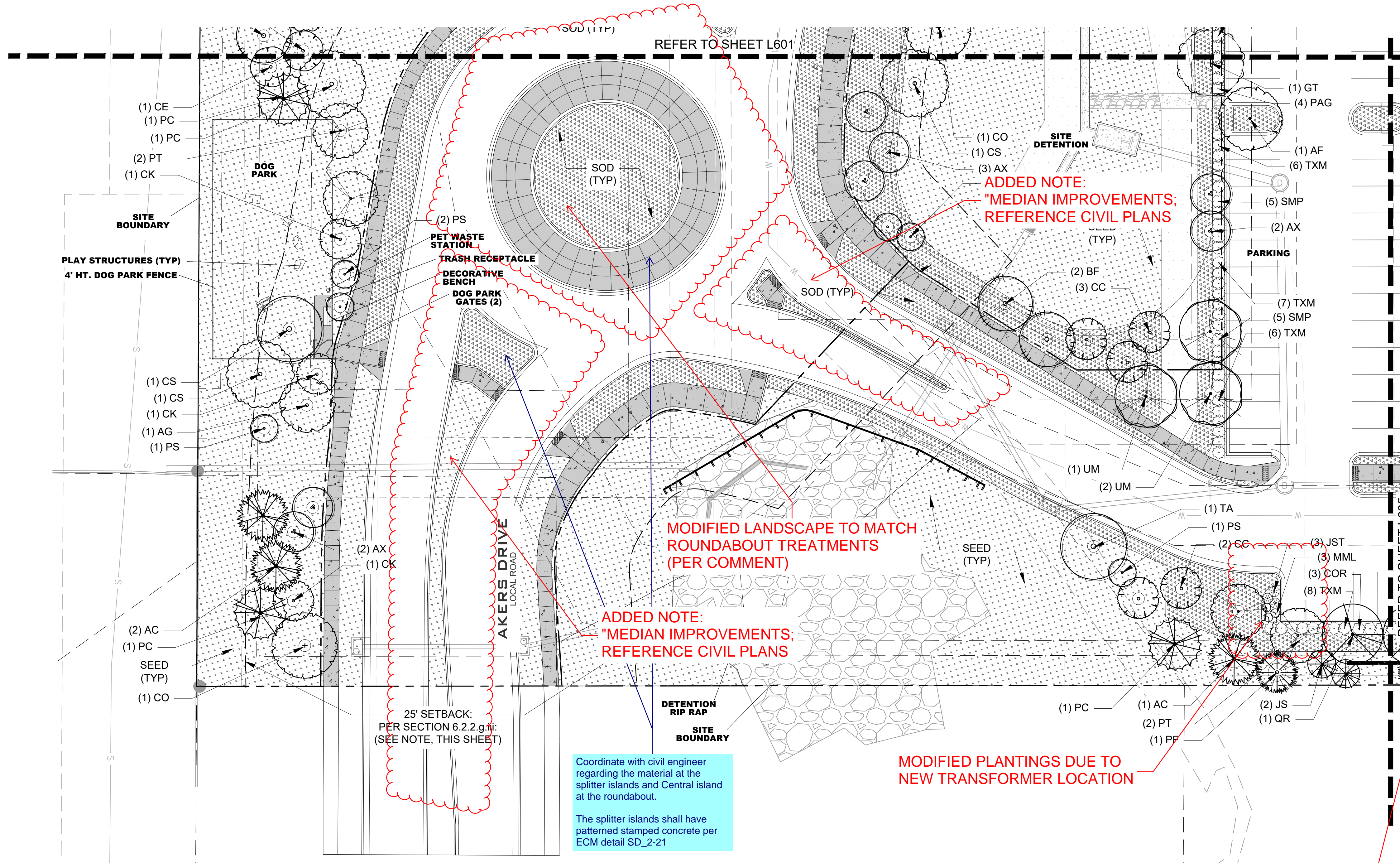
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LANDSCAPE PLAN

L606

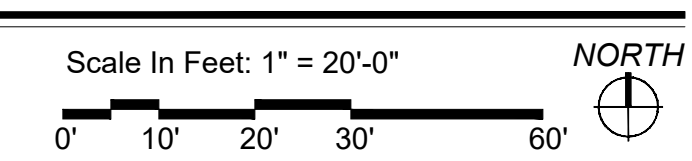
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GROSS SITE AREA: 9.82 ACRES (427,759 SQ FT)				
REQUIRED OPEN SPACE: 64,164 SQ FT			PROVIDED OPEN SPACE: 124,126 SQ FT	
REQUIRED TREES: 128.3 TREES			PROVIDED TREES: 128 OPEN SPACE TREES	



REFERENCE SHEET L608 FOR COMPLETE LANDSCAPE PLANT SCHEDULE, NOTES, & TABULATIONS. REFERENCE SHEETS L609 - L611 FOR LANDSCAPE DETAILS.

NOTE: A FINAL LANDSCAPE AND IRRIGATION PLAN SHALL BE SUBMITTED AND REVIEWED CONCURRENT WITH BUILDING PERMIT SUBMITTAL AND APPROVED PRIOR TO ISSUANCE OF A BUILDING PERMIT.

**25' SETBACK ALONG THE R.O.W.**  
PER SECTION 6.2.2.g.iii OF THE EL PASO COUNTY DEVELOPMENT ORDINANCE: "USE OF BOX ALDER, SALIX, AND POPULUS LIMITED. BOX ELDER (ACER NEGUNDOA) AND ALL TREES OF THE SALIX AND POPULUS GENUS, EXCEPT ASPEN (POPULUS TREMULOIDES), SHALL NOT BE PLANTED WITHIN 25 FEET OF A RIGHT OF WAY."

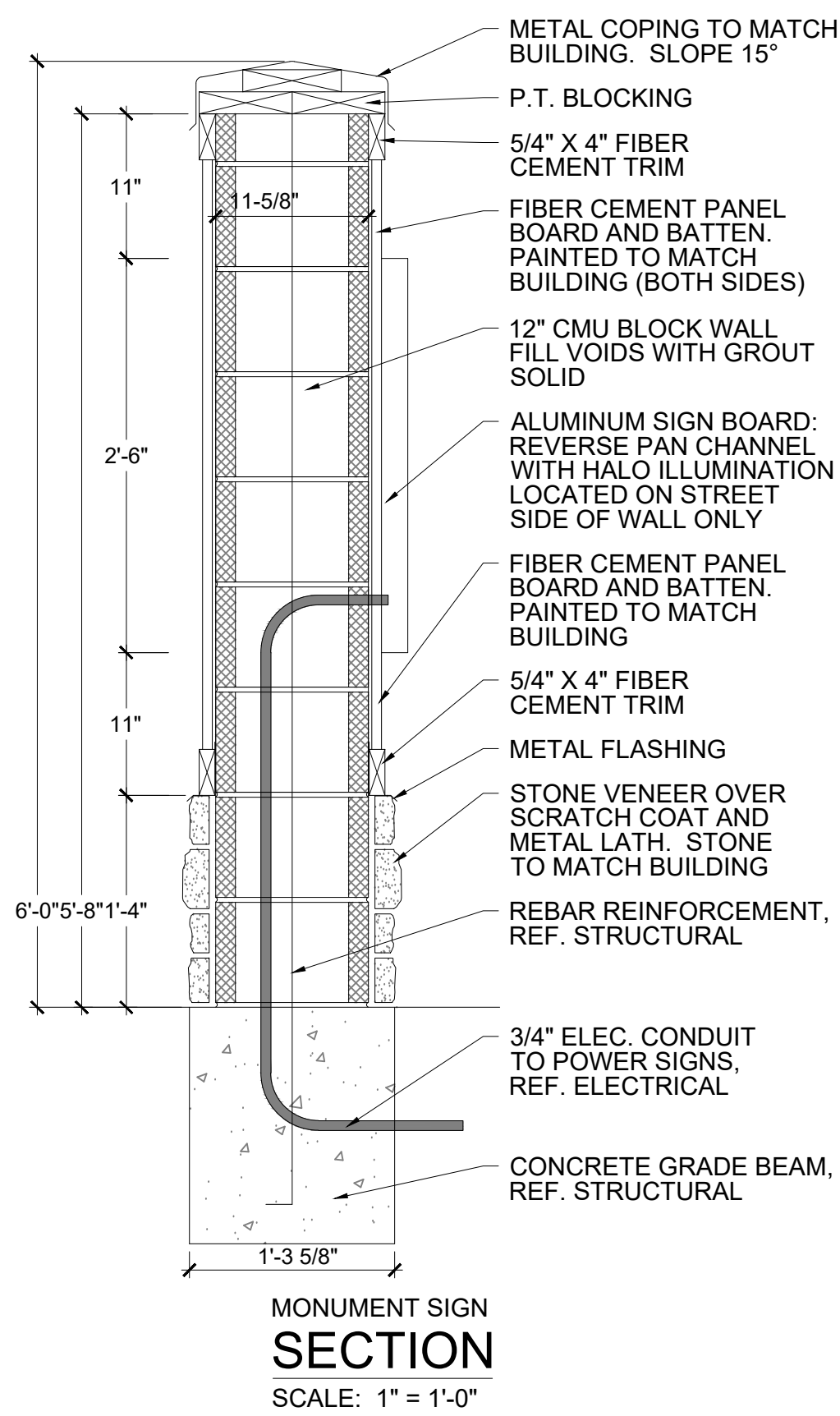


**SITE DEVELOPMENT PLAN – PCD PLANNING  
COMMENT RESPONSE**

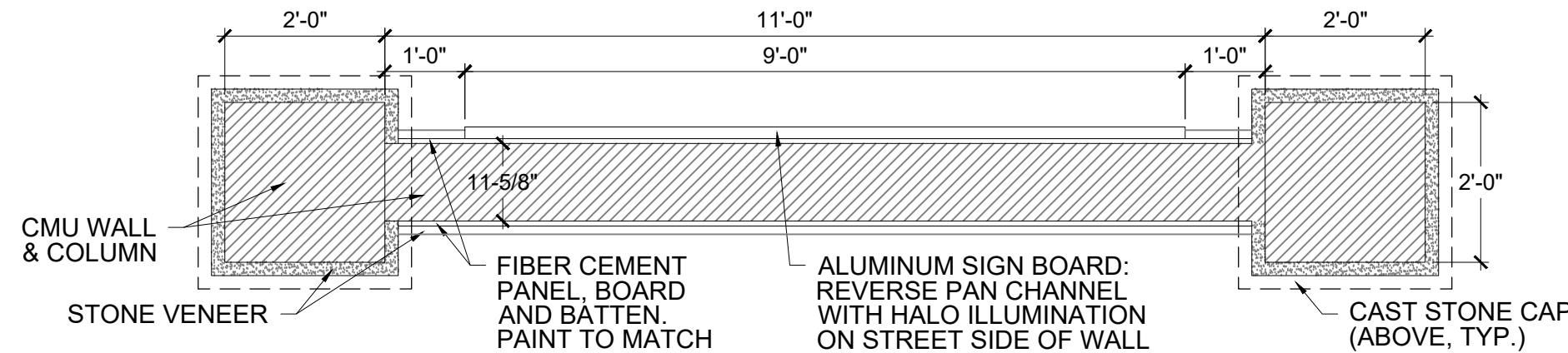


**SIGN PLAN – PCD PLANNING  
COMMENT RESPONSE**

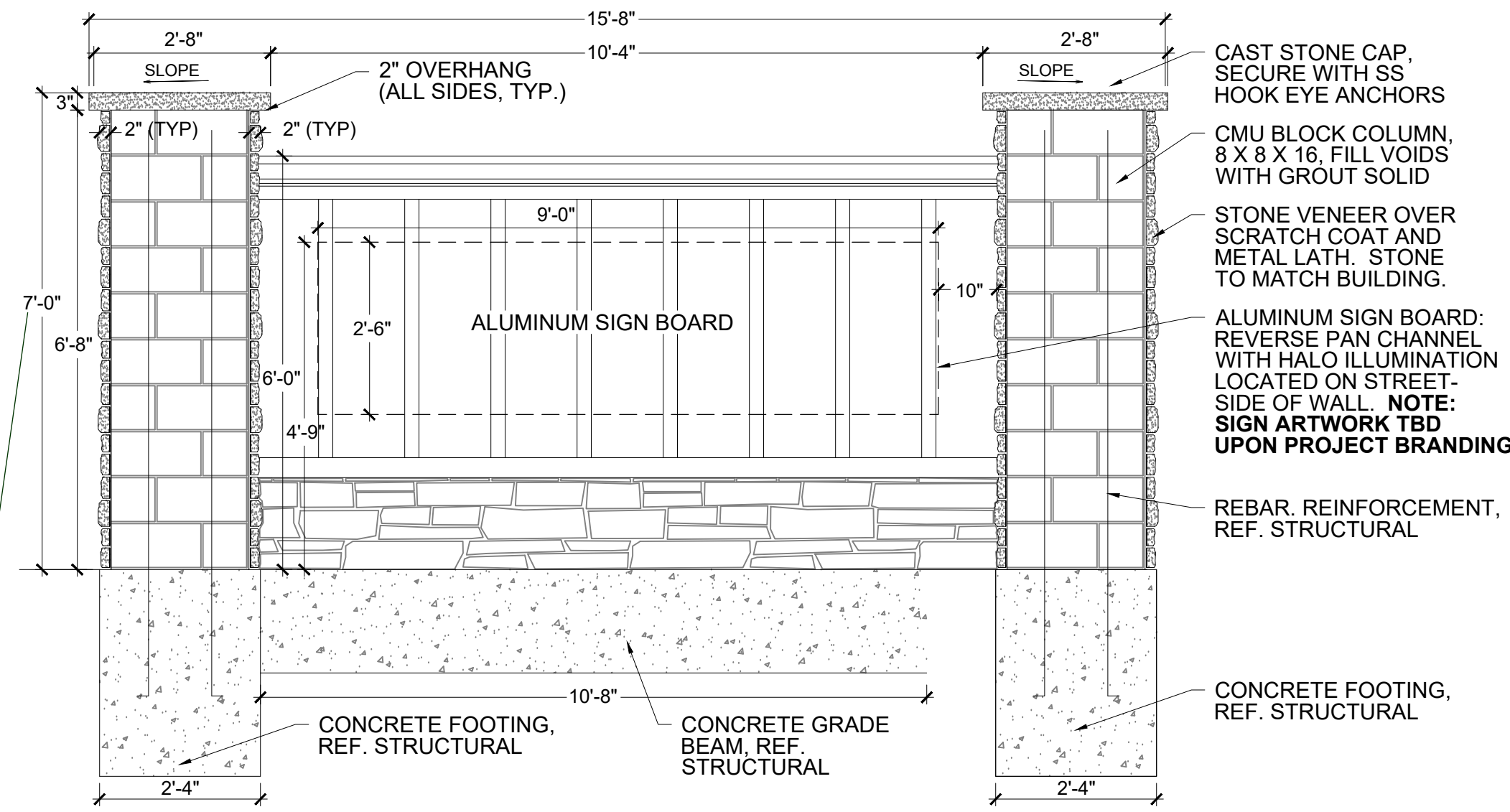




MONUMENT SIGN SECTION  
SCALE: 1" = 1'-0"



MONUMENT SIGN PLAN  
SCALE: 1/2" = 1'-0"



MONUMENT SIGN SECTION/ELEVATION  
SCALE: 1/2" = 1'-0"

When a fence is over 6 ft a building permit is required, it is considered a structure. Section 6.2.1.D.1

Noted. Thank You!

**SIGN NOTES AND CALCULATIONS:**

- SIGN LOCATION AND DIMENSIONS ARE TO BE IN ACCORDANCE WITH LAND DEVELOPMENT CODE, CHAPTER 6: GENERAL DEVELOPMENT STANDARDS, SECTION 6.2.10.
- SIGNS SHALL NOT ENCROACH ON PUBLIC PROPERTY OR THE PUBLIC RIGHT OF WAY.
- SIGNS SHALL BE LOCATED AS TO NOT BLOCK SIGHT VISIBILITY ANGLES, AND SHALL NOT ENCROACH ON ANY UTILITY OR DRAINAGE EASEMENTS.
- UP TO TWO (2) SIGNS INDICATING THE NAME OF THE DEVELOPMENT SHALL BE ALLOWED AT EACH ROAD ENTRANCE.
- LOW-PROFILE SIGNS SHALL BE PROVIDED, NOT EXCEEDING 40 SQ FT IN AREA OR 6-FT IN HEIGHT.
  - SIGN AREA IS MEASURED BY THE HEIGHT AND WIDTH OF THE SIGN FACE, ITSELF AND DOES NOT INCLUDE THE SUPPORTING BASE OR STRUCTURE.
  - SIGN HEIGHT SHALL BE MEASURED TO THE TOP OF THE MAIN SIGN FACE AND SUPPORTING WALL.
- SIGN SHALL BE LOCATED NO CLOSER THAN 25' FROM THE ADJACENT RIGHT OF WAY.

**SIGN CALCULATIONS:**

SIGN AREA: 2'-6" HEIGHT X 9'-0" WIDTH = 27 SQUARE FEET

**SIGN LIGHTING:**

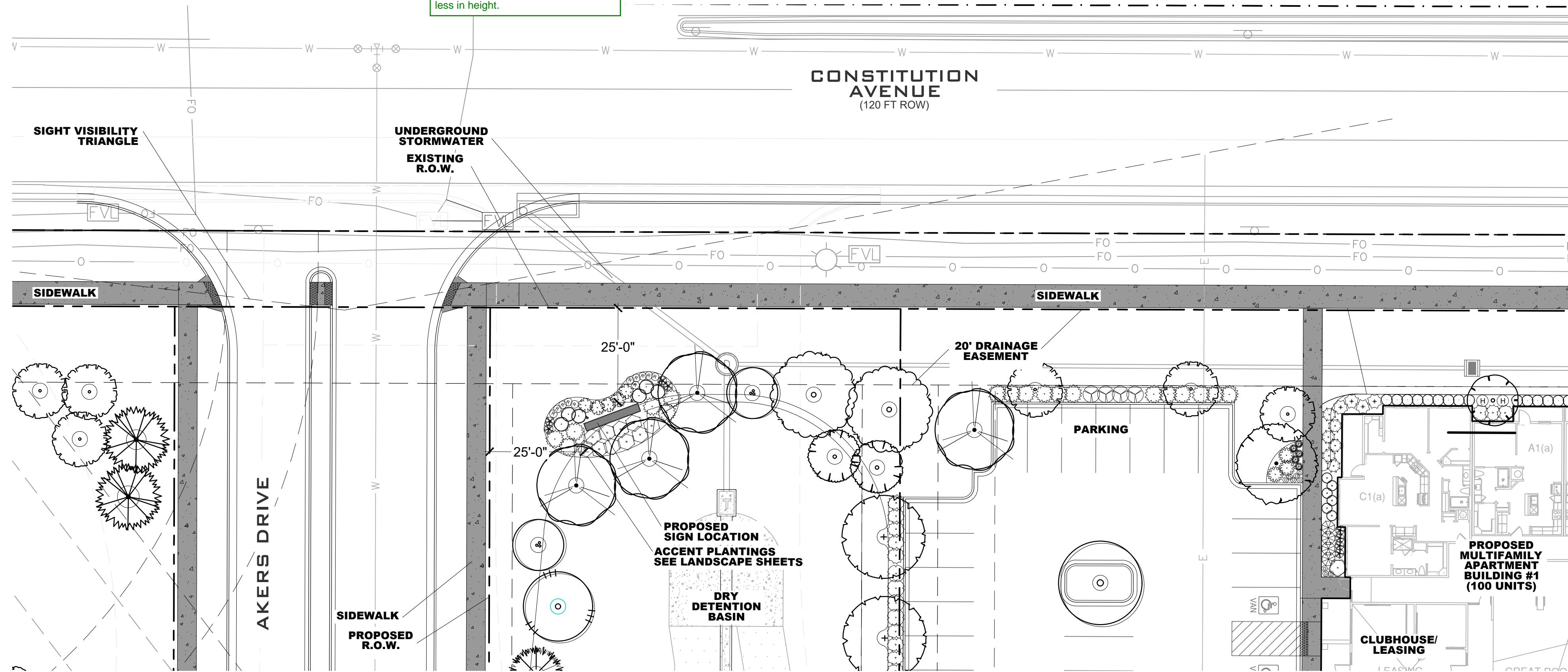
- REVERSE-CHANNEL LETTERING SHALL UTILIZE L.E.D. BACKLIGHTING WITH A CONSTANT LIGHT SOURCE TO AVOID FLICKERING OR STROBE EFFECT.
- SIGN COLUMNS AND BASE SHALL BE ILLUMINATED USING EXTERNAL DIRECTIONAL LIGHTING TO ACCENT MATERIALS AND FINISHES; LIGHTING SHALL BE SHIELDED AND DIRECTED TO AVOID ANY SPILL OVER OR GLARE TO ADJACENT R.O.W. OR RESIDENCES.
- PER LDC SECTION 6.2.3, NO LIGHT SHALL EXCEED 10 FOOT CANDLES AGAINST ANY PORTION OF THE SIGN STRUCTURE OR PANEL.
- SECONDARY LIGHT SOURCES SHALL PROVIDE A LIGHT WASH ALONG THE STONE VENEER AND COLUMNS TO ACCENT SIGNAGE STRUCTURE. LIGHT FIXTURES SHALL BE SHIELDED FROM STREETS AND SIDEWALKS TO ELIMINATE GLARE OR "SPILL OVER" LIGHTING.
- LIGHT SOURCES SHALL BE CONTROLLED VIA A PHOTO-CELL OR DIGITAL TIMER TO MAXIMIZE POWER EFFICIENCY.

1  
L611 PLAN, SECTION & ELEVATION

SCALE VARIES

A sign permit will be a separate process and you will need to meet all criteria from section 6.2.9

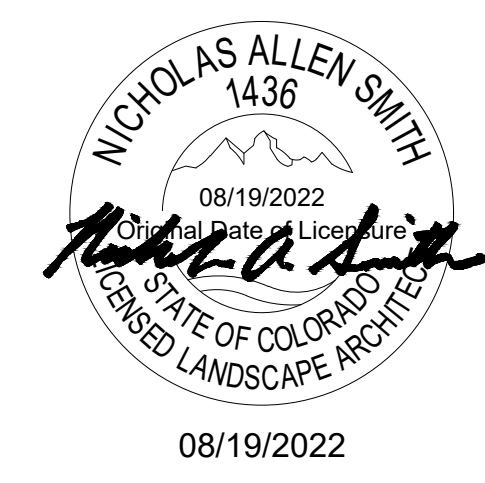
Response:  
The sign has been revised to be 6-ft or less in height.



2  
L611 MONUMENT SIGN LAYOUT PLAN VIEW



317-866-7923  
1051 GREENWOOD SPRINGS BLVD #101  
GREENWOOD, IN 46143  
www.thegarrettco.com



**NOT FOR CONSTRUCTION**

PROJECT #:	21-06
DRAWN BY:	TB / PR
PERMIT SUBMITTAL	03.25.2022
SITE DEVELOPMENT PLAN	05.23.2022
COUNTY COMMENTS	08.19.2022

REVISION SCHEDULE		
#	DATE	DESCRIPTION

**THE CITIZEN ON CONSTITUTION**  
OVERALL SITE  
A PORTION OF THE NORTHEAST QUARTER OF SECTION 5,  
TOWNSHIP 14 SOUTH, RANGE 65 WEST OF THE 6TH P.M.  
EL PASO COUNTY, COLORADO  
PCD PROJECT NUMBER: PPR-22-29  
LANDSCAPE PLANS

**SIGN DETAILS**