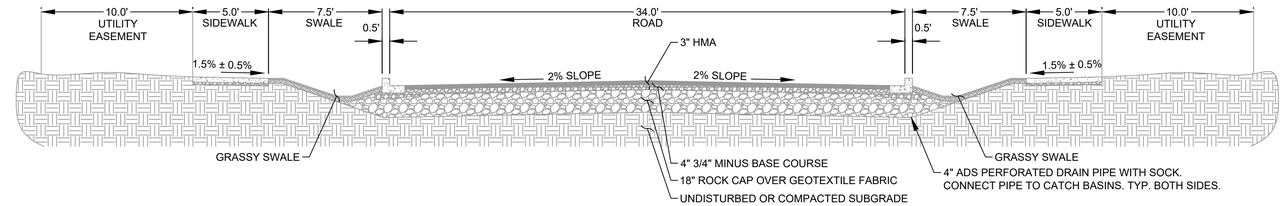
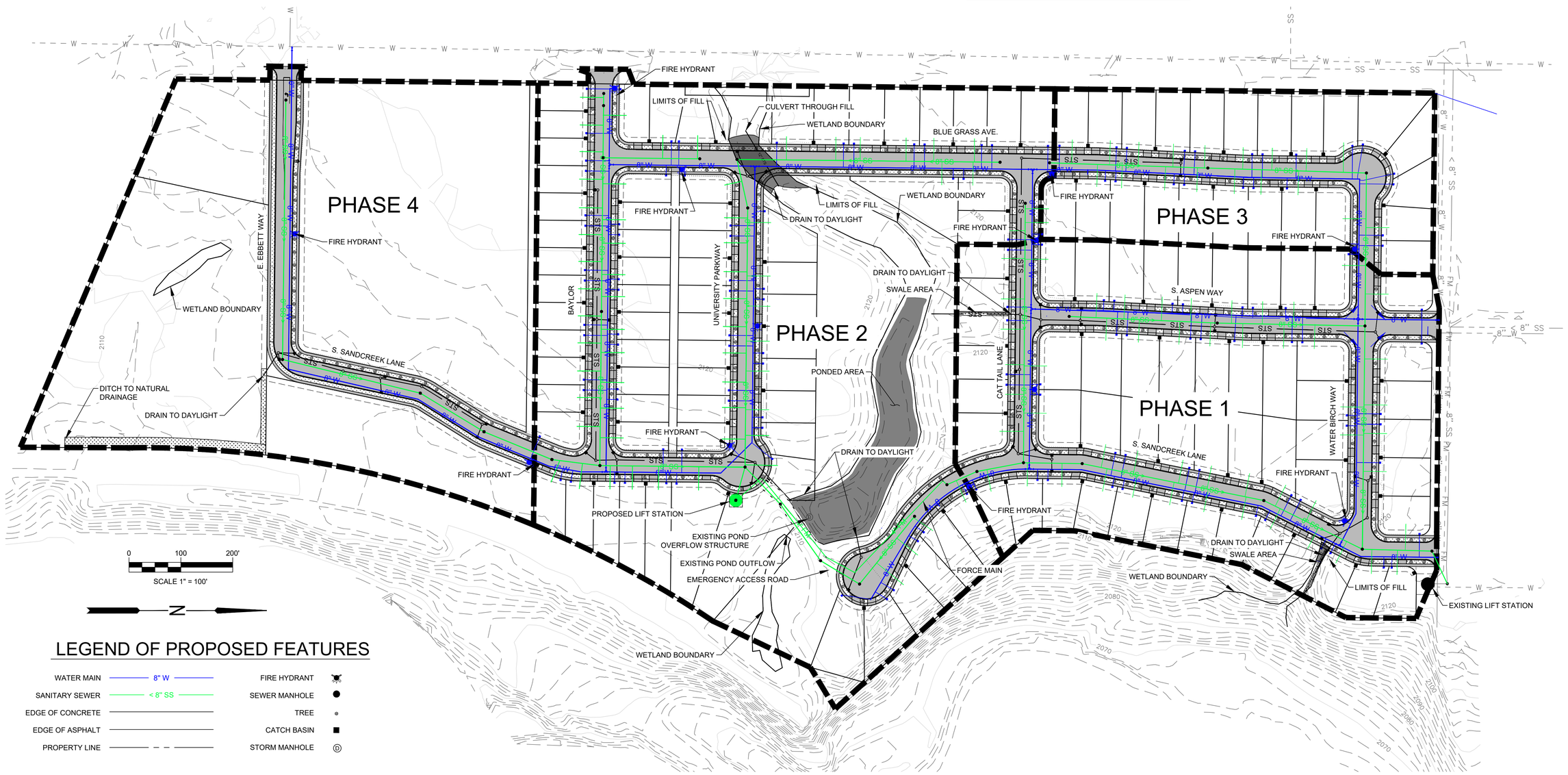


TYPICAL ROAD SECTION



LEGEND OF PROPOSED FEATURES

WATER MAIN	8" W	FIRE HYDRANT	
SANITARY SEWER	< 8" SS	SEWER MANHOLE	
EDGE OF CONCRETE		TREE	
EDGE OF ASPHALT		CATCH BASIN	
PROPERTY LINE		STORM MANHOLE	

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SPOKANE VALLEY, WA 99206
509.838.3810
509.624.0355 FAX

DATE: 5-4-2020
PROJECT NO: 51012.001.01

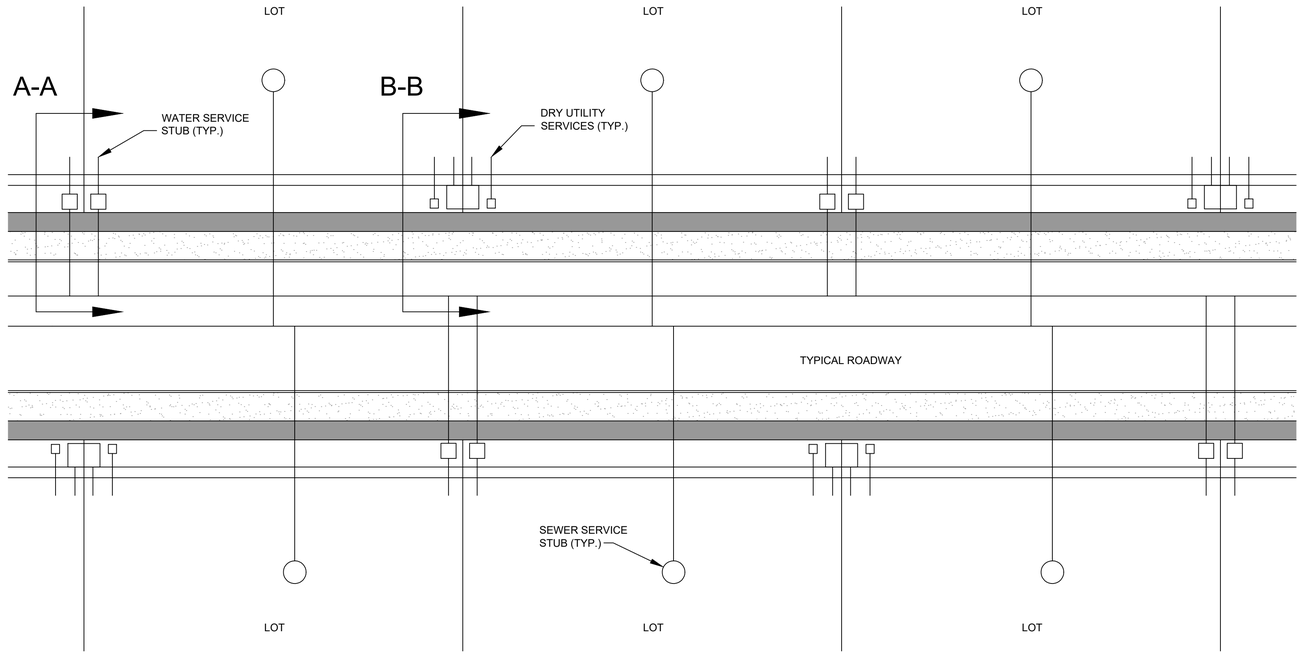
DESIGNED BY: JFQ
DRAWN BY: JFQ
CHECKED BY: RL
SCALE: 1"=100'

UNIVERSITY OF IDAHO PROPERTY
K-M ENTERPRISES/M&W HOLIDINGS
OVERALL SITE

PRELIMINARY LAYOUT

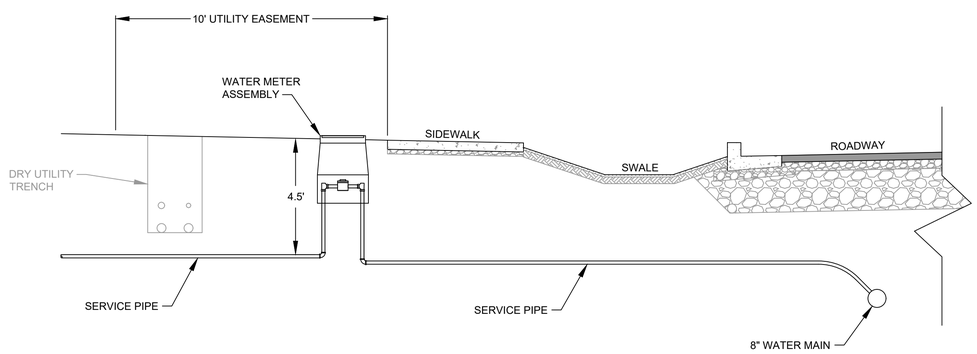
DRAWING NO.

SHEET NO.
1 OF 2



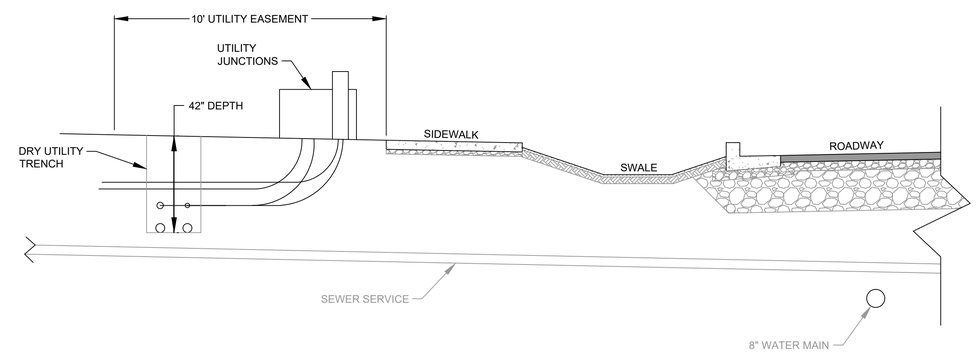
TYPICAL UTILITY PLACEMENT

N.T.S.



TYPICAL WATER MATER SECTION A-A

N.T.S.



TYPICAL DRY UTILITIES SECTION B-B

N.T.S.

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DRAWN BY: JFQ
CHECKED BY: RL
SCALE: AS SHOWN

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OVERALL SITE

PRELIMINARY UTILITY LAYOUT

DRAWING NO.

SHEET NO.
2 OF 2

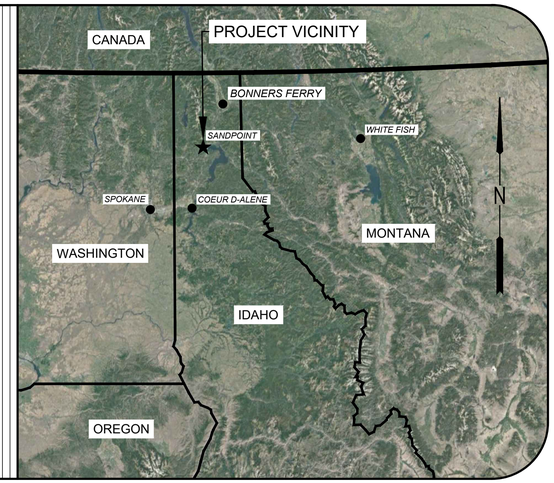
CITY OF SANDPOINT

UNIVERSITY PARK

Know what's below. Call before you dig.

OFFICIALS

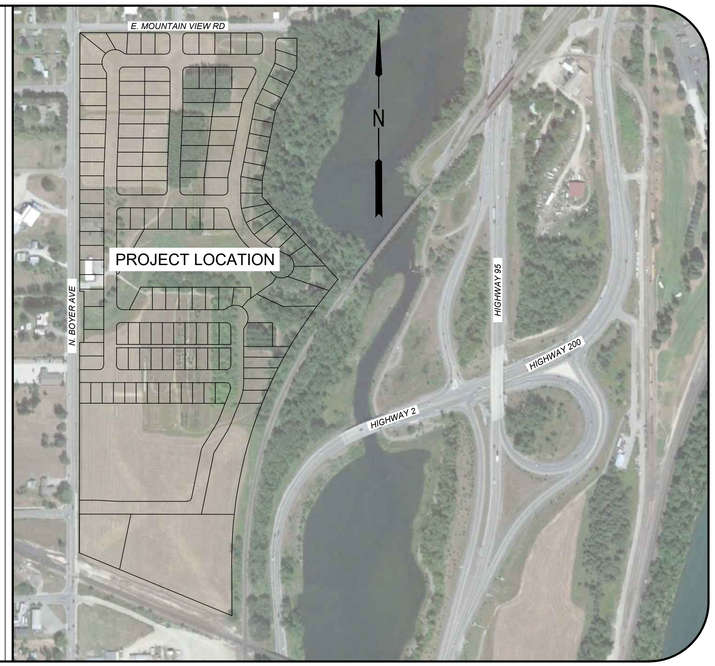
VICINITY MAP



LEGEND

WATER MAIN	8" W
SANITARY SEWER	< 8" SS
EDGE OF CONCRETE	
EDGE OF ASPHALT	
PROPERTY LINE	
FIRE HYDRANT	
SEWER MANHOLE	
TREE	
CATCH BASIN	
STORM MANHOLE	

LOCATION MAP



SHEET INDEX

PHASE	SHEET	TITLE
1	1-9	PLAN AND PROFILE
2	10-20	PLAN AND PROFILE
3	21-23	PLAN AND PROFILE
4	24-28	PLAN AND PROFILE
1-4	29-33	DETAILS

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K-M ENTERPRISES/M&W HOLDINGS
PHASE 1-4 CONSTRUCTION

COVER SHEET

DRAWING NO.

SHEET NO. 1 OF 1

UNIVERSITY PARK

PHASE I

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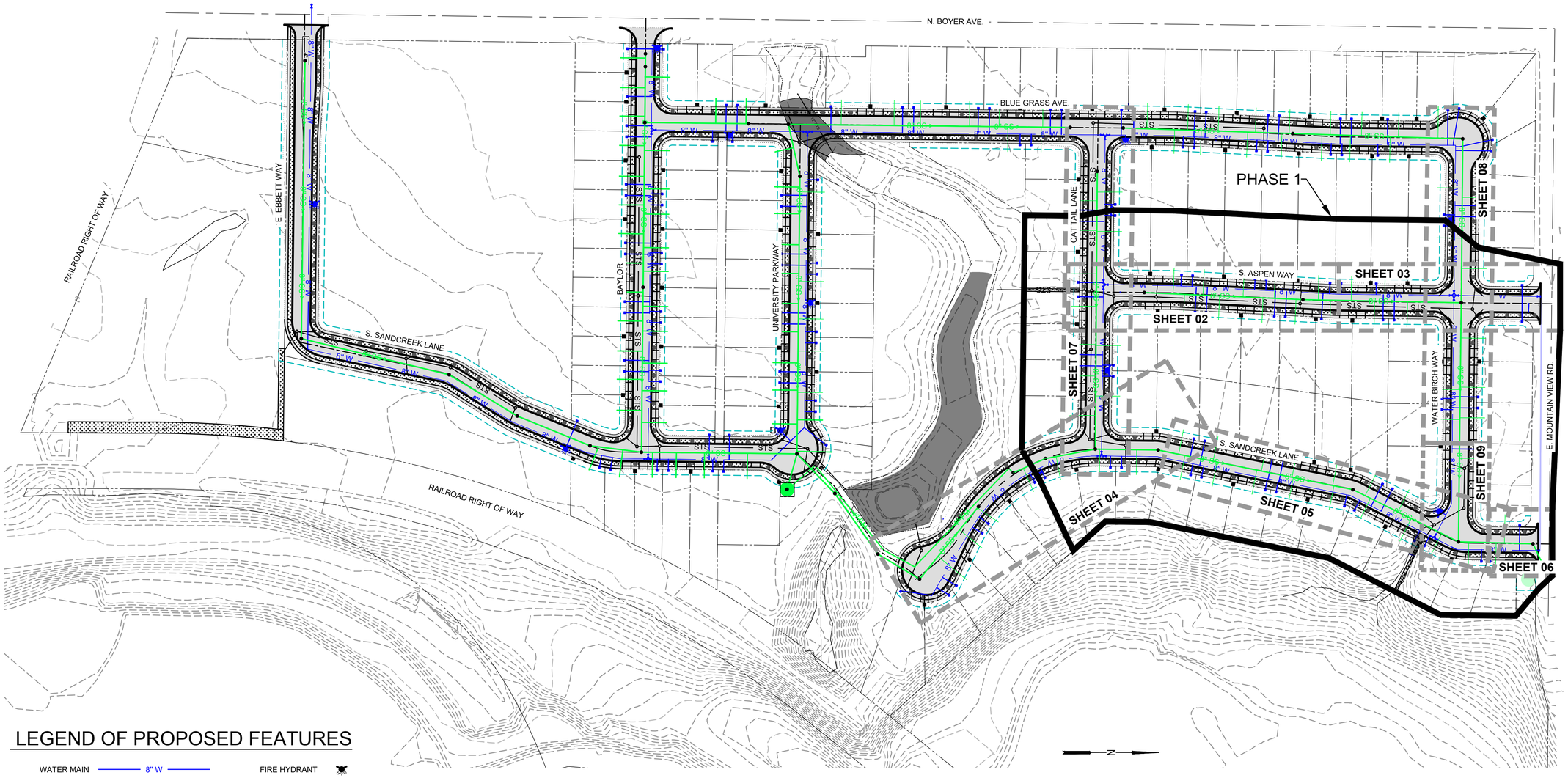

LEGEND OF PROPOSED FEATURES

WATER MAIN	8" W	FIRE HYDRANT	
SANITARY SEWER	< 8" SS	SEWER MANHOLE	
EDGE OF CONCRETE		TREE	
EDGE OF ASPHALT		CATCH BASIN	
PROPERTY LINE		STORM MANHOLE	

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PROJECT NO: 51012.001.01

DESIGNED BY: JFQ
DRAWN BY: JFQ
CHECKED BY: RL
SCALE: AS SHOWN

UNIVERSITY PARK
K-M ENTERPRISES/M&W HOLDINGS
PHASE 1 CONSTRUCTION

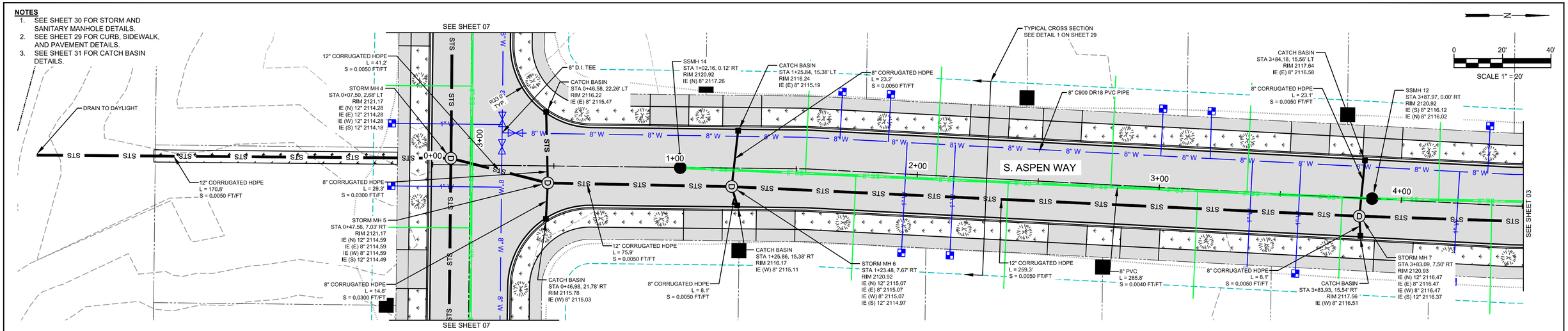
OVERALL SITE PLAN & SHEET INDEX MAP

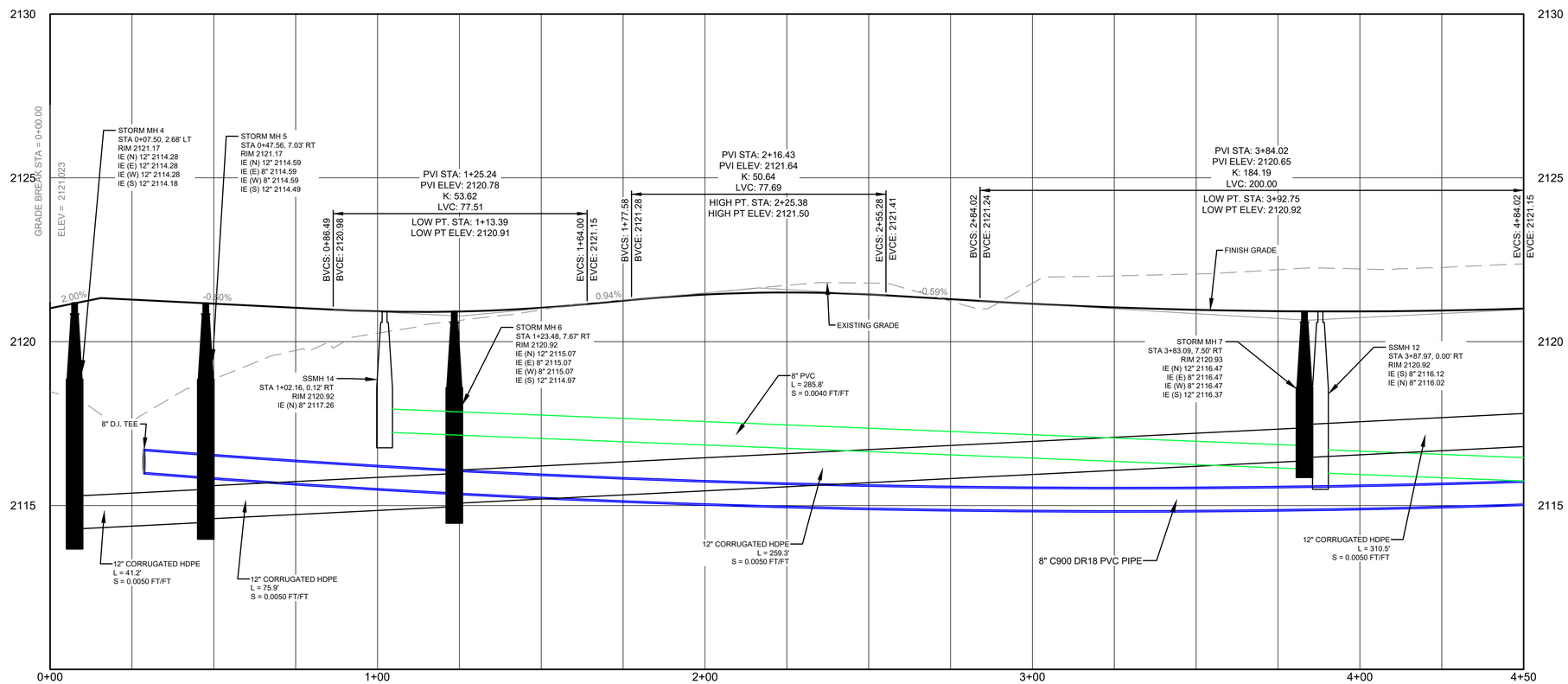
DRAWING NO. C-101

SHEET NO. 1 OF 33

NOTES

1. SEE SHEET 30 FOR STORM AND SANITARY MANHOLE DETAILS.
2. SEE SHEET 29 FOR CURB, SIDEWALK, AND PAVEMENT DETAILS.
3. SEE SHEET 31 FOR CATCH BASIN DETAILS.





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509.624.0355 FAX

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PROJECT NO: 51012.001.01

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DRAWN BY: JFQ
CHECKED BY: RL
SCALE: H: 1" = 20' V: 1" = 2'

UNIVERSITY PARK
K-M ENTERPRISES/M&W HOLDINGS
PHASE 1 CONSTRUCTION

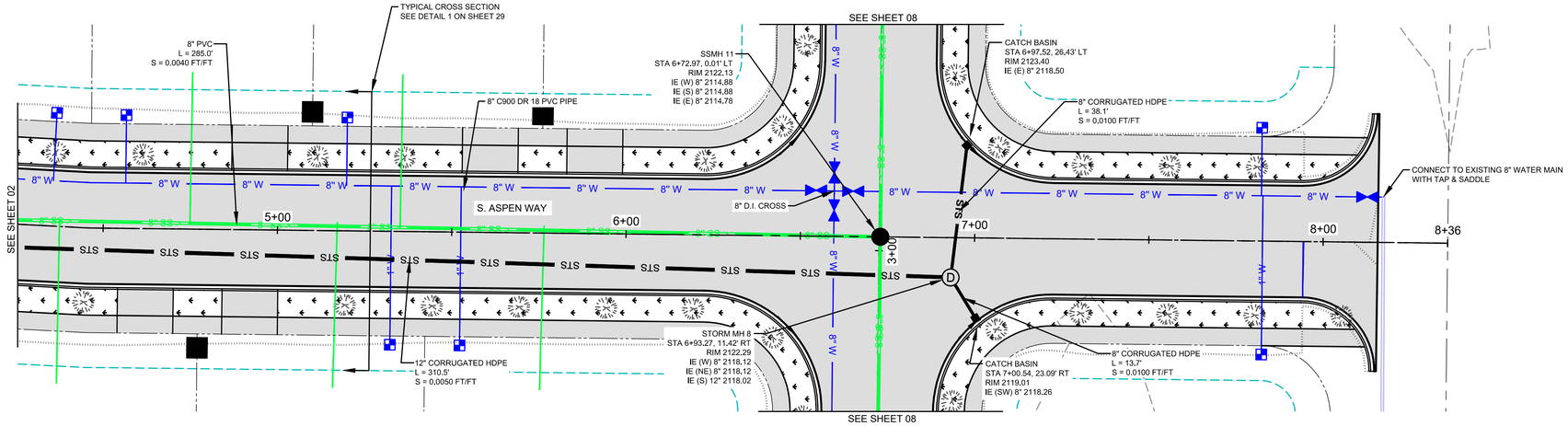
S. ASPEN WAY
PLAN & PROFILE STA 0+00 TO 4+50

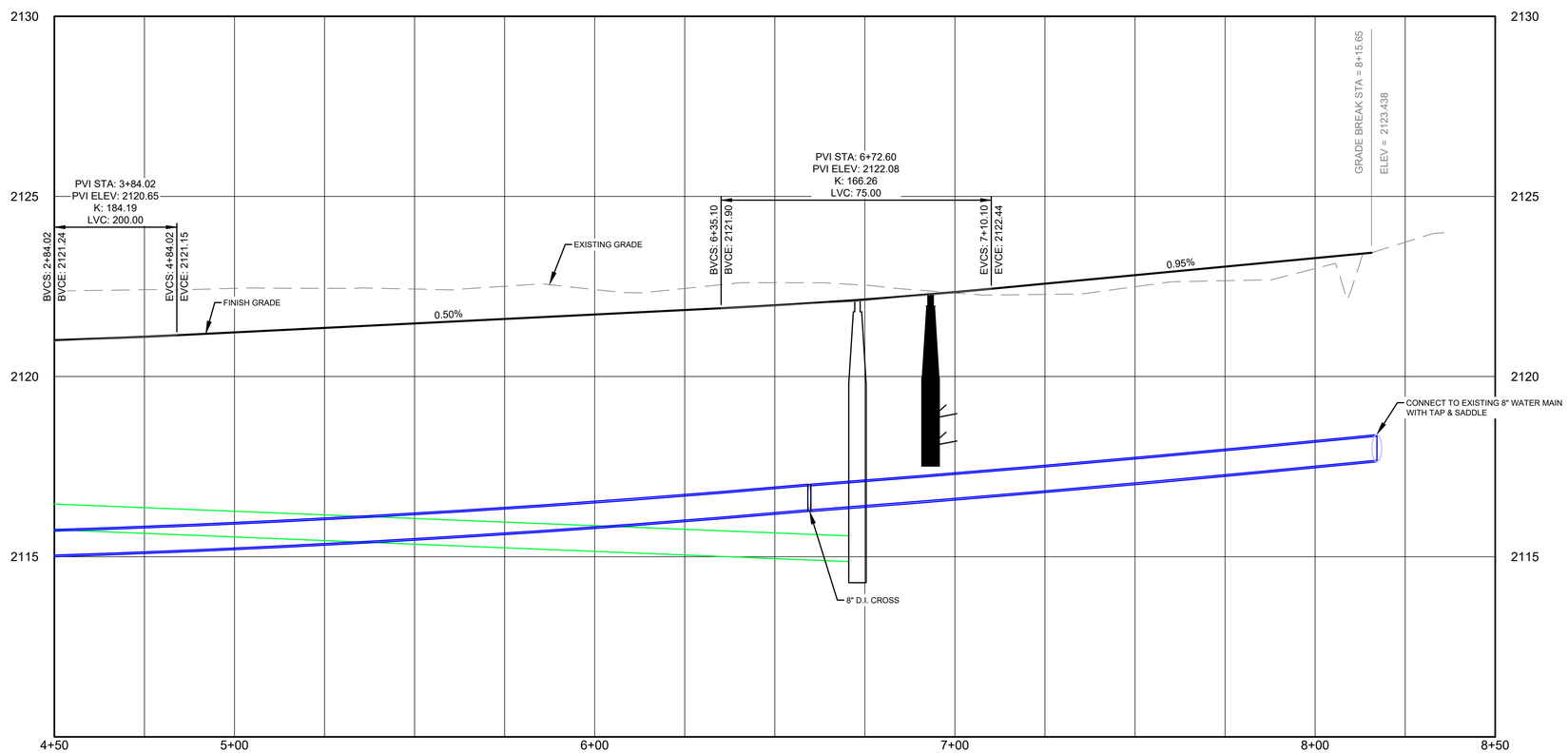
DRAWING NO. C-102

SHEET NO. 2 OF 33

NOTES

1. SEE SHEET 30 FOR STORM AND SANITARY MANHOLE DETAILS.
2. SEE SHEET 29 FOR CURB, SIDEWALK, AND PAVEMENT DETAILS.
3. SEE SHEET 31 FOR CATCH BASIN DETAILS.





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PROJECT NO: 51012.001.01

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CHECKED BY: RL
SCALE: H: 1" = 20' V: 1" = 2'

UNIVERSITY PARK
K-M ENTERPRISES/M&W HOLDINGS
PHASE 1 CONSTRUCTION

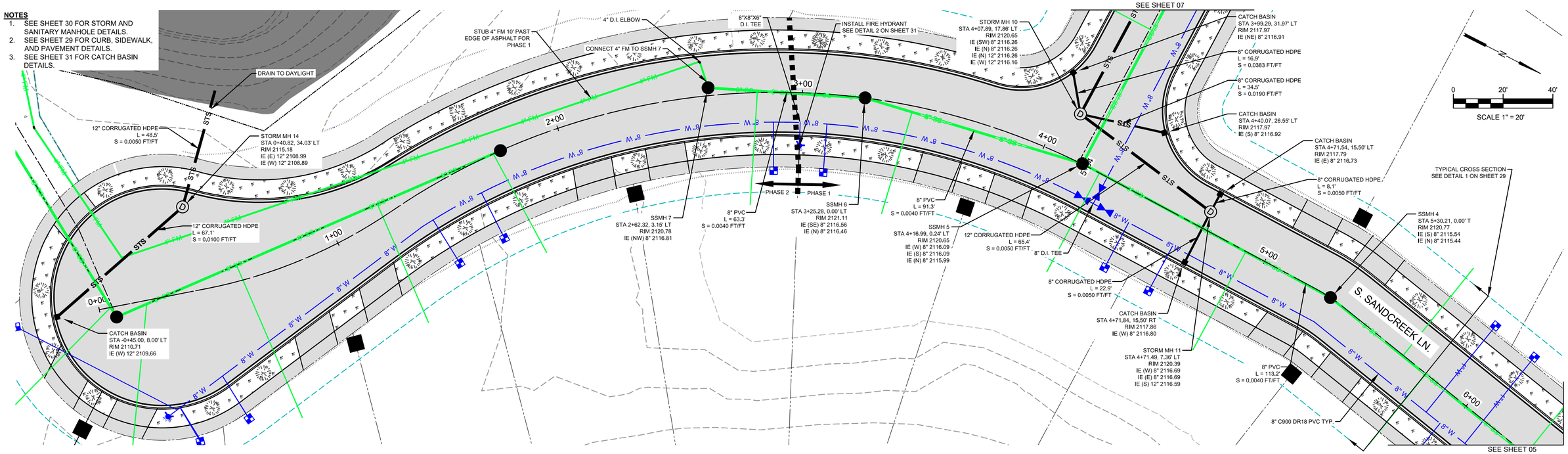
ASPEN WAY
PLAN & PROFILE STA 4+50 TO END

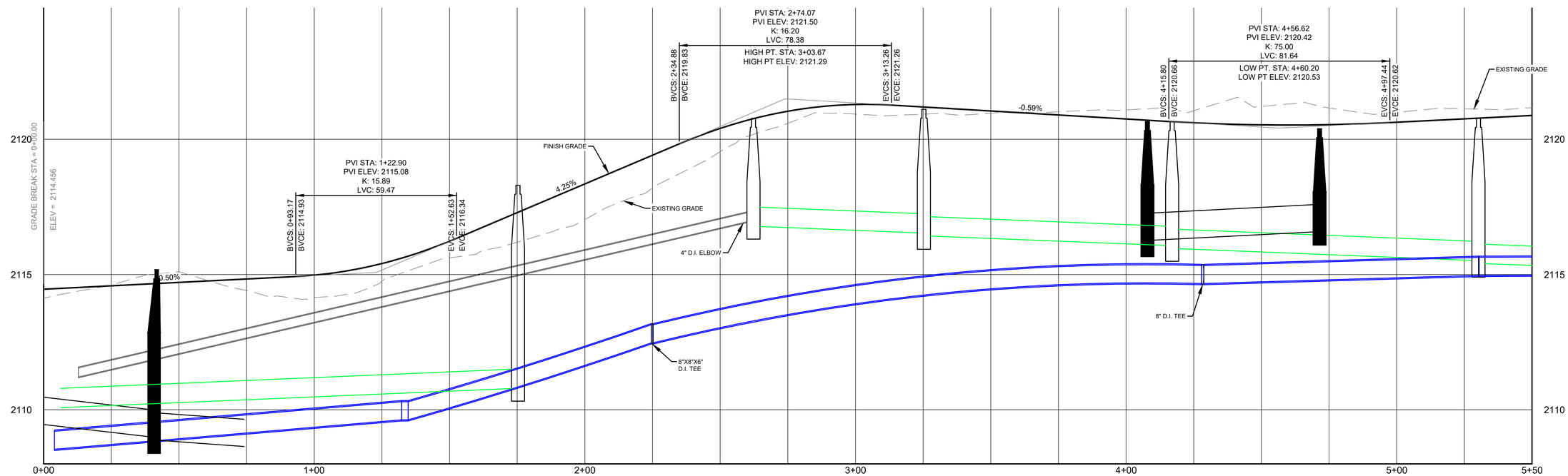
DRAWING NO. C-103

SHEET NO. 3 OF 33

NOTES

1. SEE SHEET 30 FOR STORM AND SANITARY MANHOLE DETAILS.
2. SEE SHEET 29 FOR CURB, SIDEWALK, AND PAVEMENT DETAILS.
3. SEE SHEET 31 FOR CATCH BASIN DETAILS.





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PROJECT NO: 51012.001.01

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DRAWN BY: JFQ
CHECKED BY: RL
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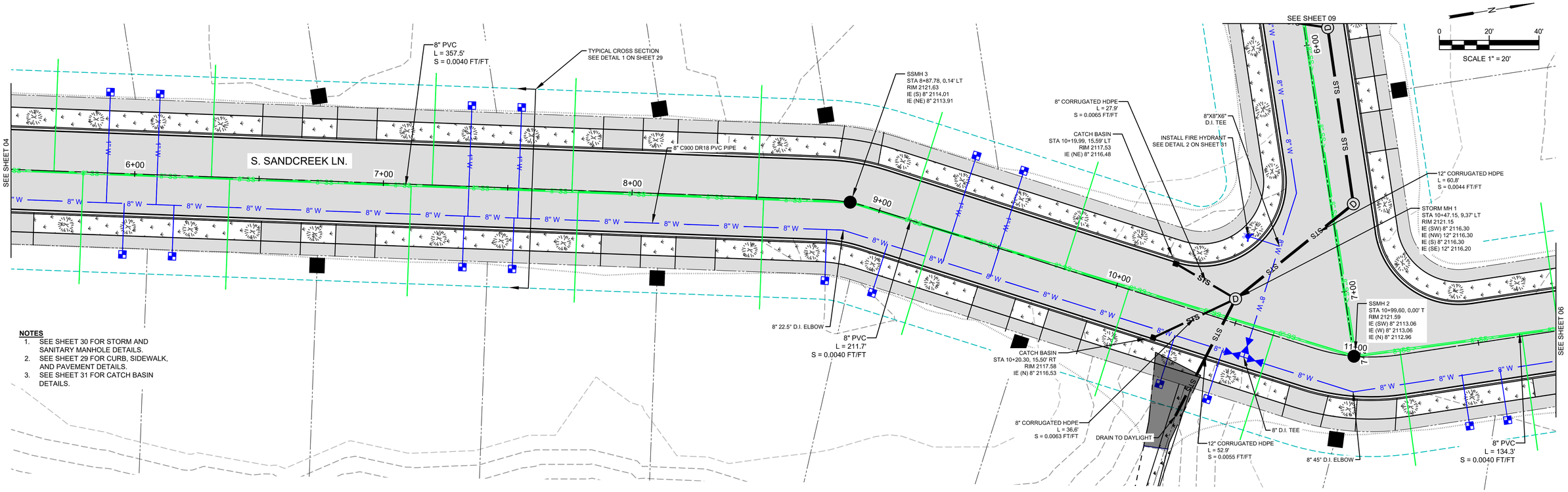
UNIVERSITY PARK
K-M ENTERPRISES/M&W HOLDINGS
PHASE 1 CONSTRUCTION

S. SANDCREEK LN.
PLAN & PROFILE STA 0+00 TO 5+50

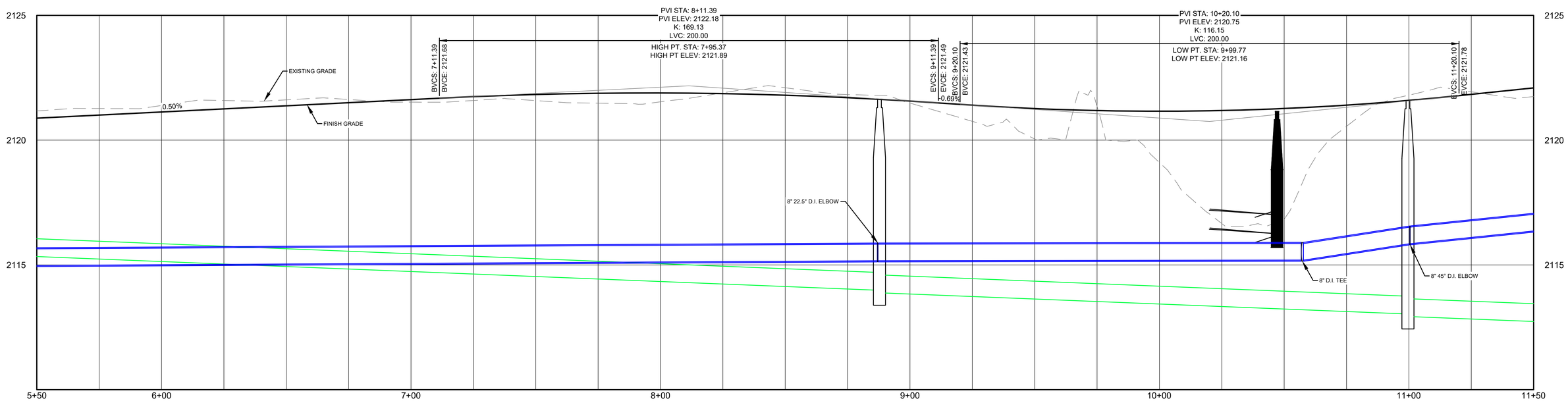
DRAWING NO. C-104

SHEET NO. 4 OF 33



NOTES

1. SEE SHEET 30 FOR STORM AND SANITARY MANHOLE DETAILS.
2. SEE SHEET 29 FOR CURB, SIDEWALK, AND PAVEMENT DETAILS.
3. SEE SHEET 31 FOR CATCH BASIN DETAILS.



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UNIVERSITY PARK
K-M ENTERPRISES/M&W HOLDINGS
PHASE 1 CONSTRUCTION

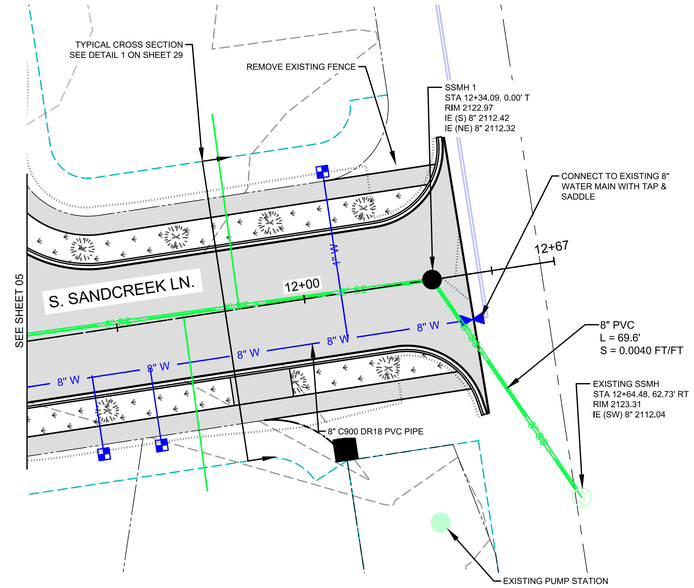
S. SANDCREEK LN.
PLAN & PROFILE STA 5+50 TO 11+50

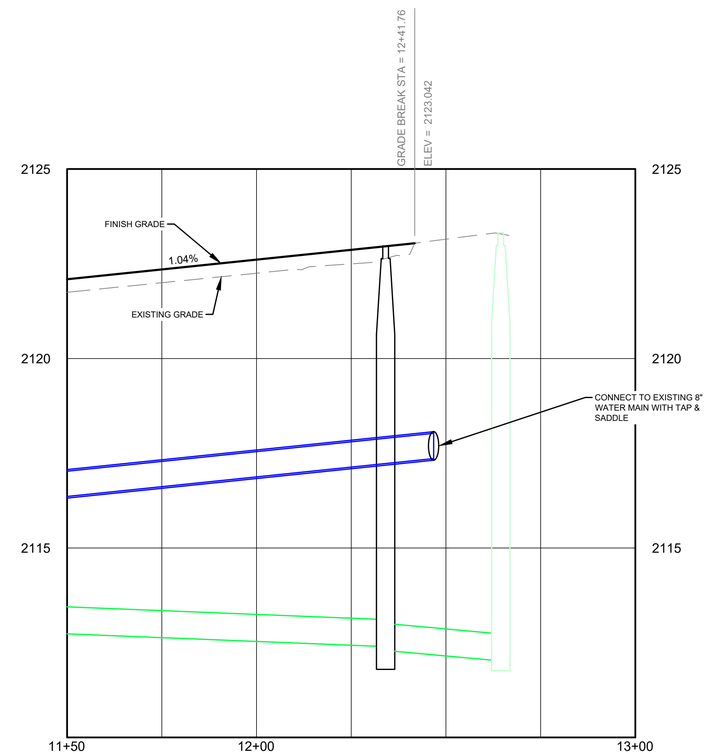
DRAWING NO. C-105

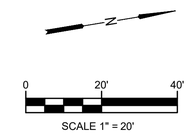
SHEET NO. 5 OF 33

NOTES

1. SEE SHEET 30 FOR STORM AND SANITARY MANHOLE DETAILS.
2. SEE SHEET 29 FOR CURB, SIDEWALK, AND PAVEMENT DETAILS.
3. SEE SHEET 31 FOR CATCH BASIN DETAILS.







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DRAWN BY: JFQ
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SCALE: H: 1" = 20' V: 1" = 2'

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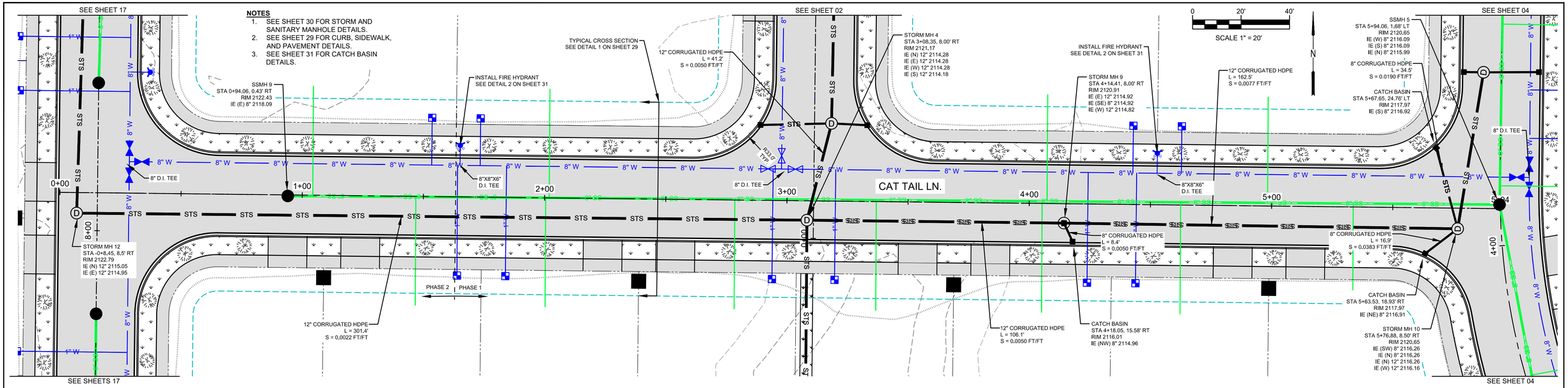
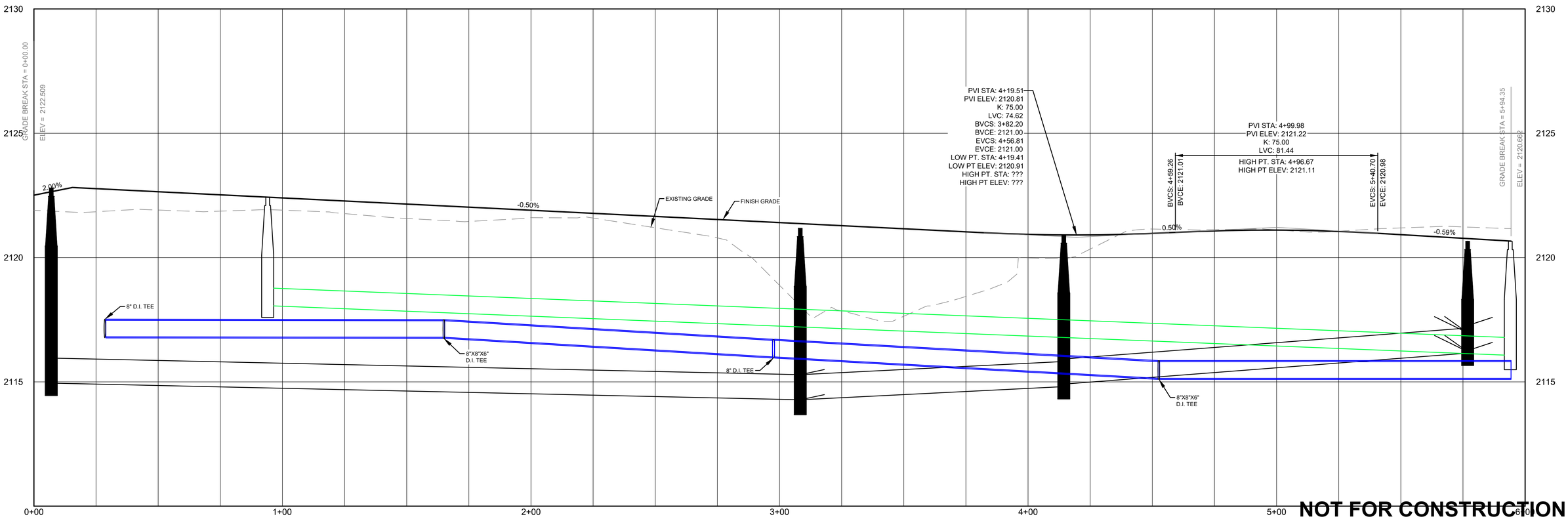
K-M ENTERPRISES/M&W HOLDINGS
PHASE 1 CONSTRUCTION

S. SANDCREEK LN.
PLAN & PROFILE STA 11+50 TO END

DRAWING NO. C-106

SHEET NO. 6 OF 33





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SPOKANE VALLEY, WA 99206
509.838.3810
509.624.0355 FAX

DATE: 5/14/2020
PROJECT NO: 51012.001.01

DESIGNED BY: JFQ
DRAWN BY: JFQ
CHECKED BY: RL
SCALE: H: 1" = 20' V: 1" = 2'

UNIVERSITY PARK
K-M ENTERPRISES/M&W HOLDINGS
PHASE 1 CONSTRUCTION

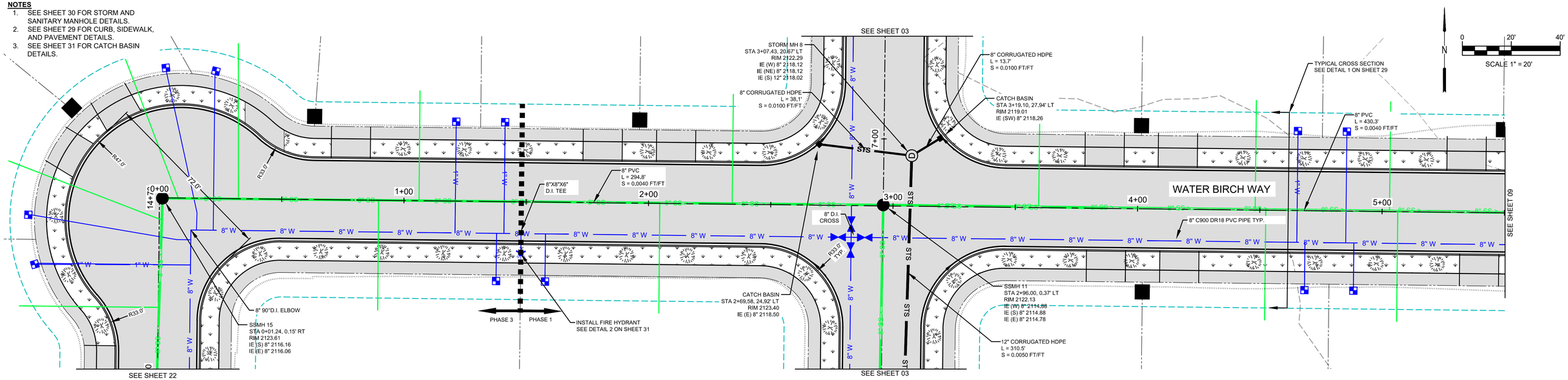
CAT TAIL LN.
PLAN & PROFILE STA 0+00 TO END

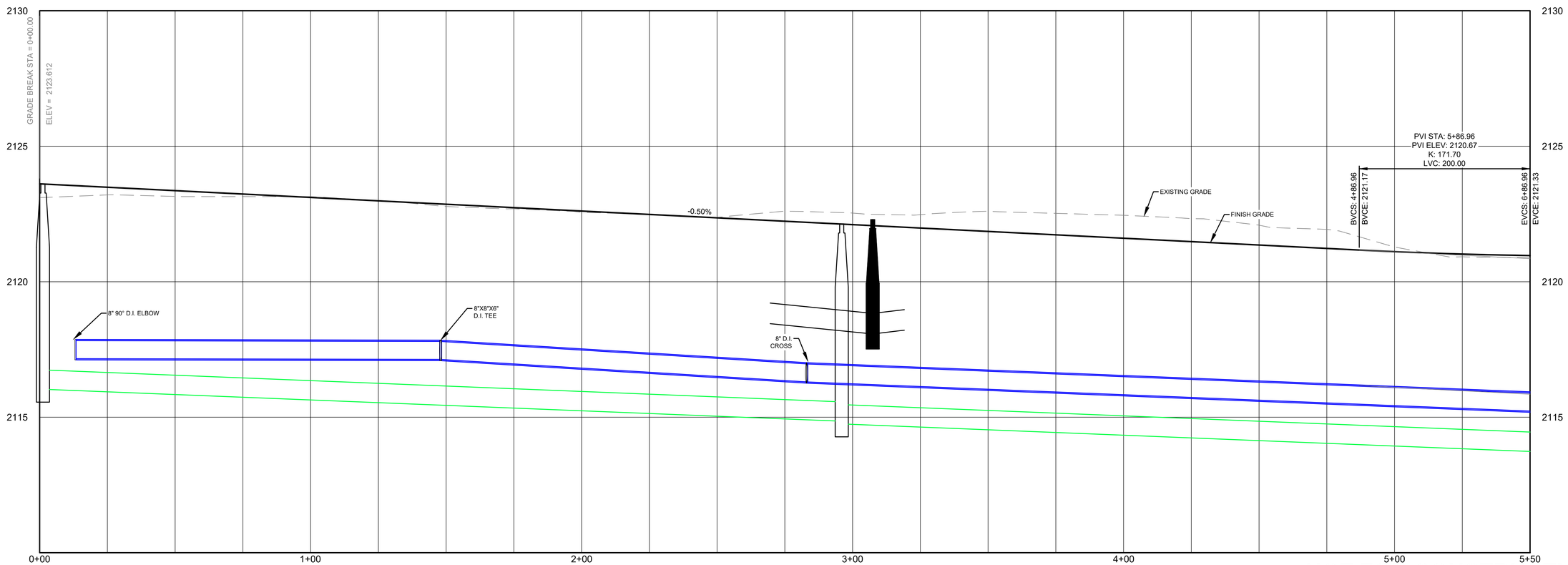
DRAWING NO. C-107

SHEET NO. 7 OF 33

NOTES

1. SEE SHEET 30 FOR STORM AND SANITARY MANHOLE DETAILS.
2. SEE SHEET 29 FOR CURB, SIDEWALK, AND PAVEMENT DETAILS.
3. SEE SHEET 31 FOR CATCH BASIN DETAILS.





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SPOKANE VALLEY, WA 99206
509.838.3810
509.624.0355 FAX

DATE: 5/14/2020
PROJECT NO: 51012.001.01

DESIGNED BY: JFQ
DRAWN BY: JFQ
CHECKED BY: RL
SCALE: H: 1" = 20' V: 1" = 2'

UNIVERSITY PARK
K-M ENTERPRISES/M&W HOLDINGS
PHASE 1 CONSTRUCTION

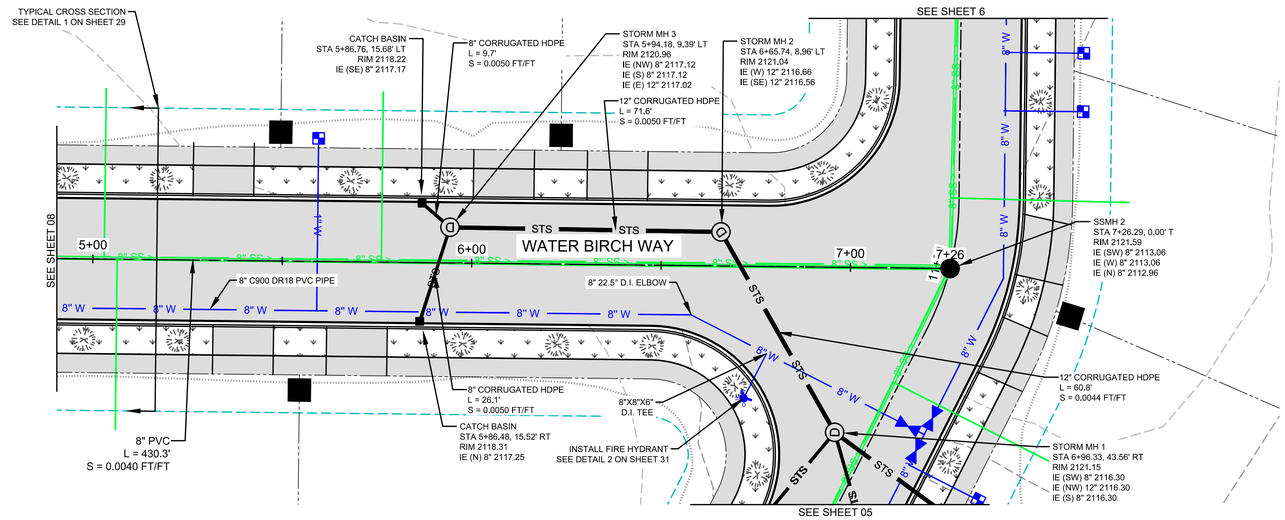
WATER BIRCH WAY
PLAN & PROFILE STA 0+00 TO 5+50

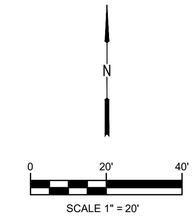
DRAWING NO. C-108

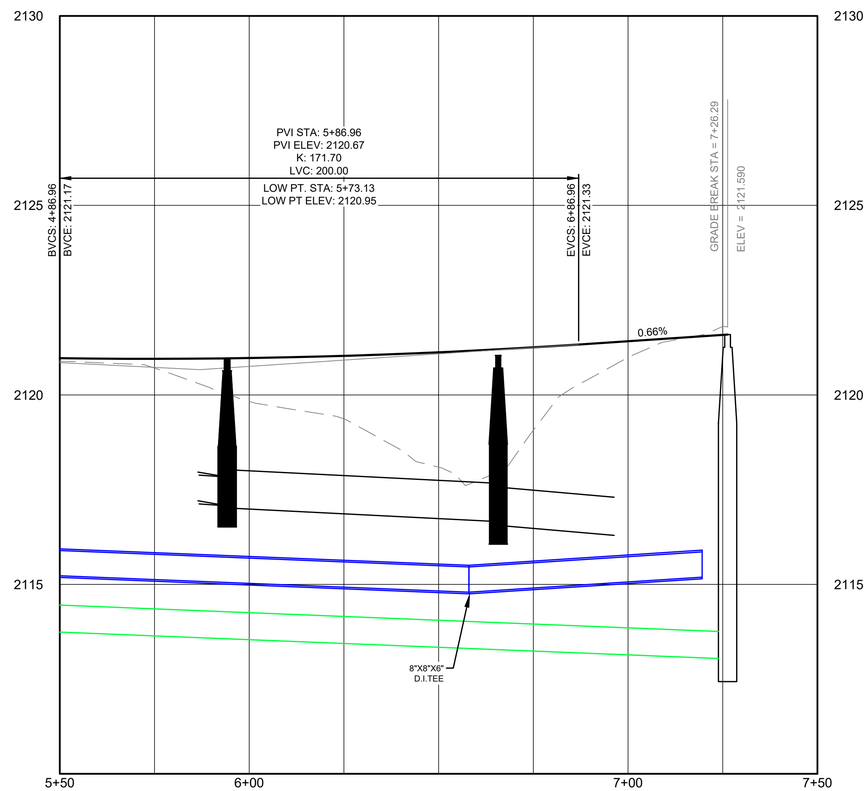
SHEET NO. 8 OF 33

NOTES

1. SEE SHEET 30 FOR STORM AND SANITARY MANHOLE DETAILS.
2. SEE SHEET 29 FOR CURB, SIDEWALK, AND PAVEMENT DETAILS.
3. SEE SHEET 31 FOR CATCH BASIN DETAILS.







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UNIVERSITY PARK
K-M ENTERPRISES/M&W HOLDINGS
PHASE 1 CONSTRUCTION

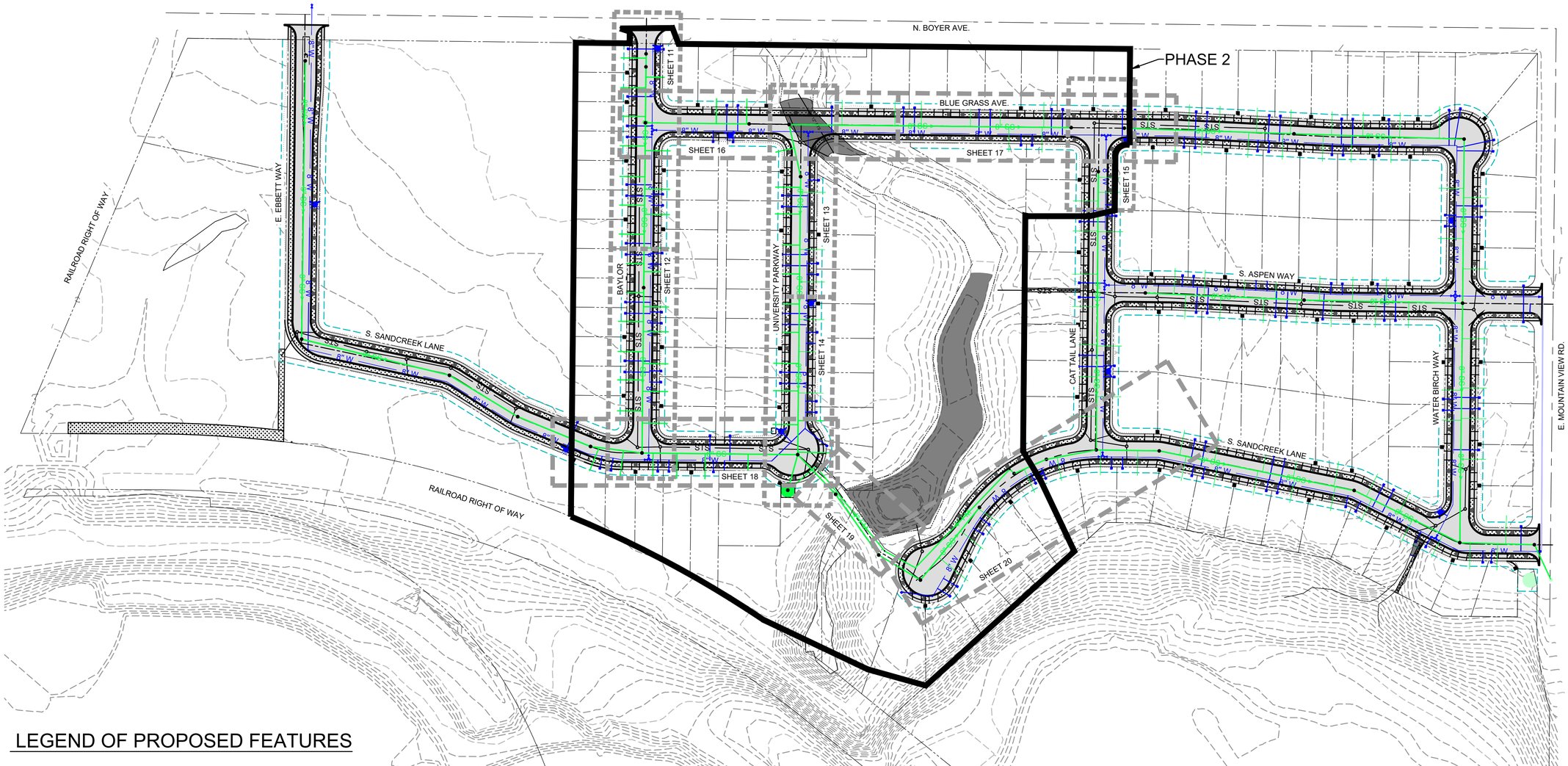
WATER BIRCH WAY
PLAN & PROFILE STA 5+50 TO END

DRAWING NO. C-109

SHEET NO. 9 OF 33

UNIVERSITY PARK

PHASE 2



LEGEND OF PROPOSED FEATURES

WATER MAIN	8" W	FIRE HYDRANT	
SANITARY SEWER	< 8" SS	SEWER MANHOLE	
EDGE OF CONCRETE		TREE	
EDGE OF ASPHALT		CATCH BASIN	
PROPERTY LINE		STORM MANHOLE	

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DESIGNED BY: JFQ

DRAWN BY: JFQ

CHECKED BY: RL

SCALE: AS SHOWN

UNIVERSITY PARK
K-M ENTERPRISES/M&W HOLDINGS
PHASE 2 CONSTRUCTION

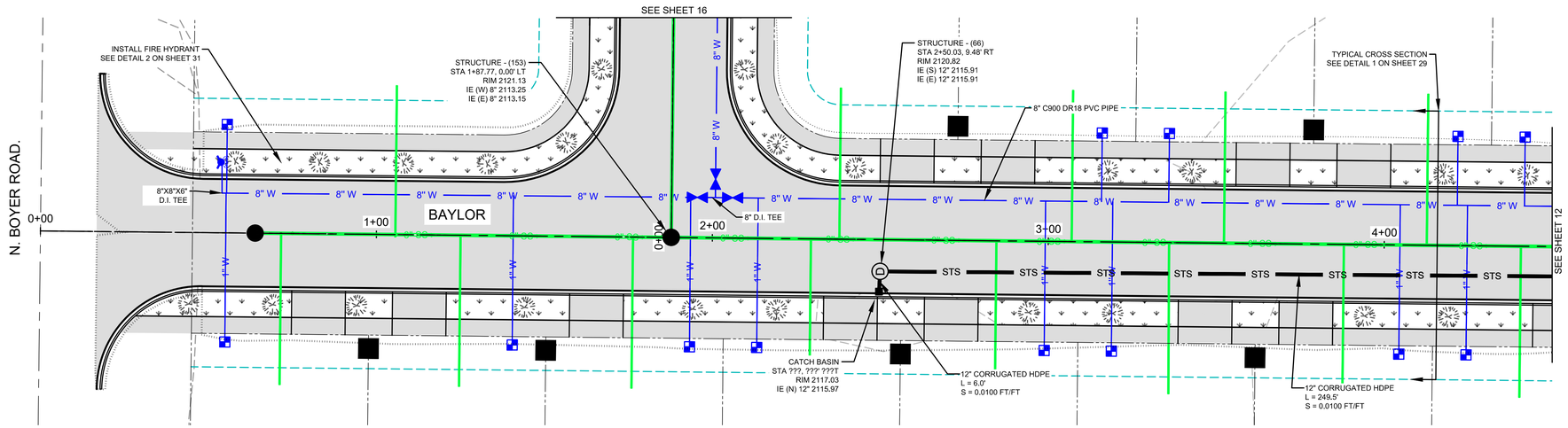
SHEET INDEX MAP

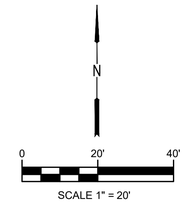
DRAWING NO. G-110

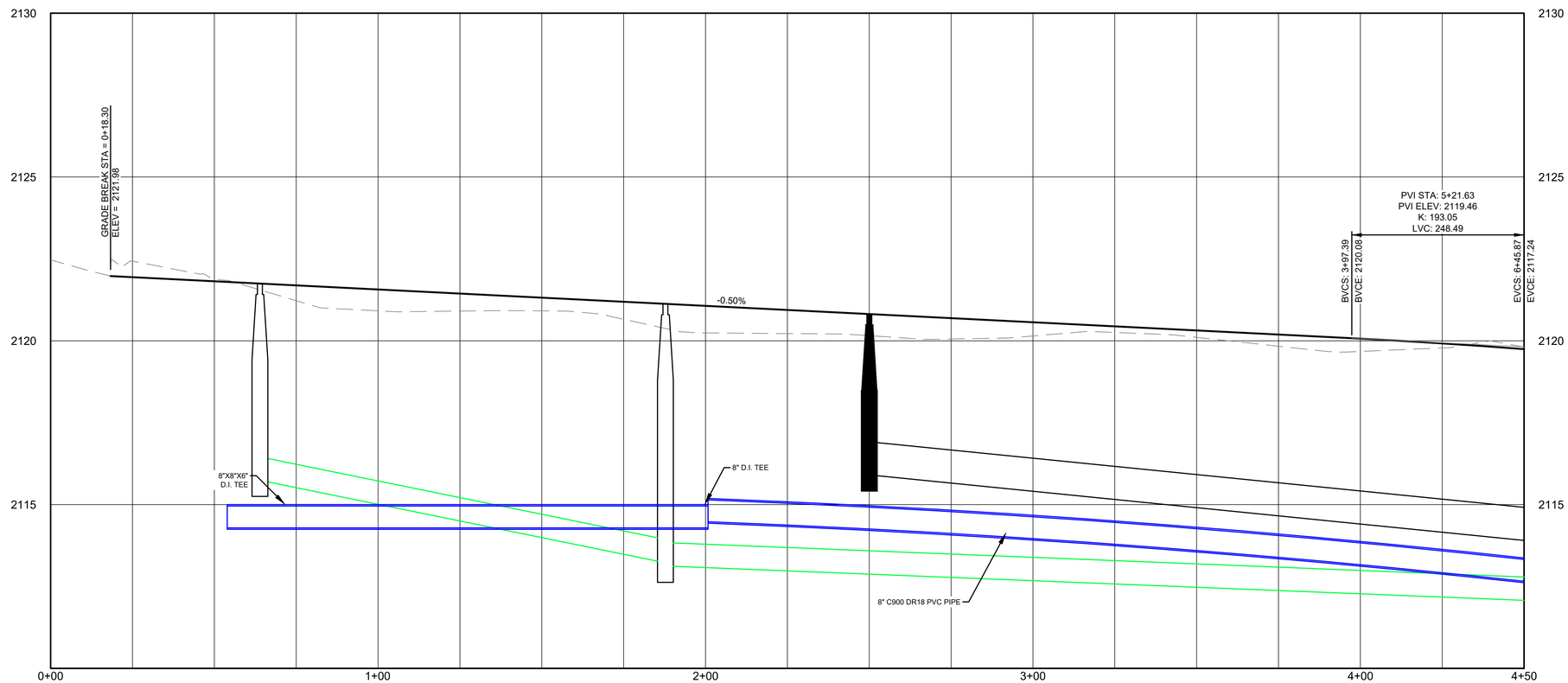
SHEET NO. 10 OF 33

NOTES

1. SEE SHEET 30 FOR STORM AND SANITARY MANHOLE DETAILS.
2. SEE SHEET 29 FOR CURB, SIDEWALK, AND PAVEMENT DETAILS.
3. SEE SHEET 31 FOR CATCH BASIN DETAILS.







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PROJECT NO: 51012.001.01

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UNIVERSITY PARK
K-M ENTERPRISES/M&W HOLDINGS
PHASE 2 CONSTRUCTION

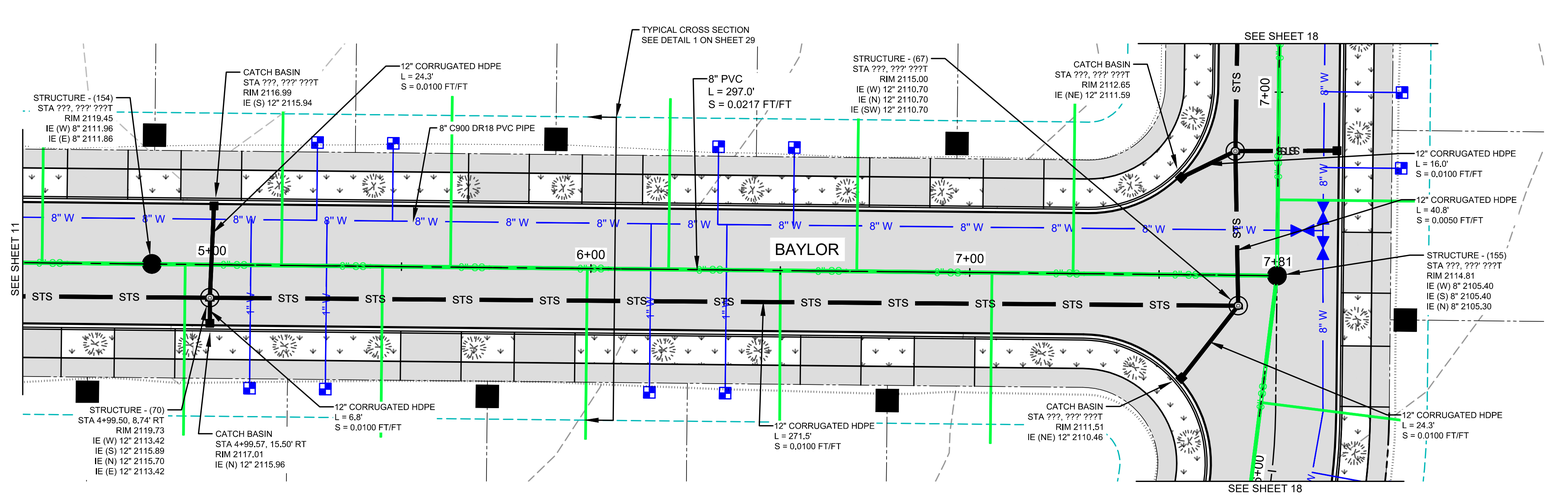
BAYLOR
PLAN & PROFILE STA 0+00 TO 4+50

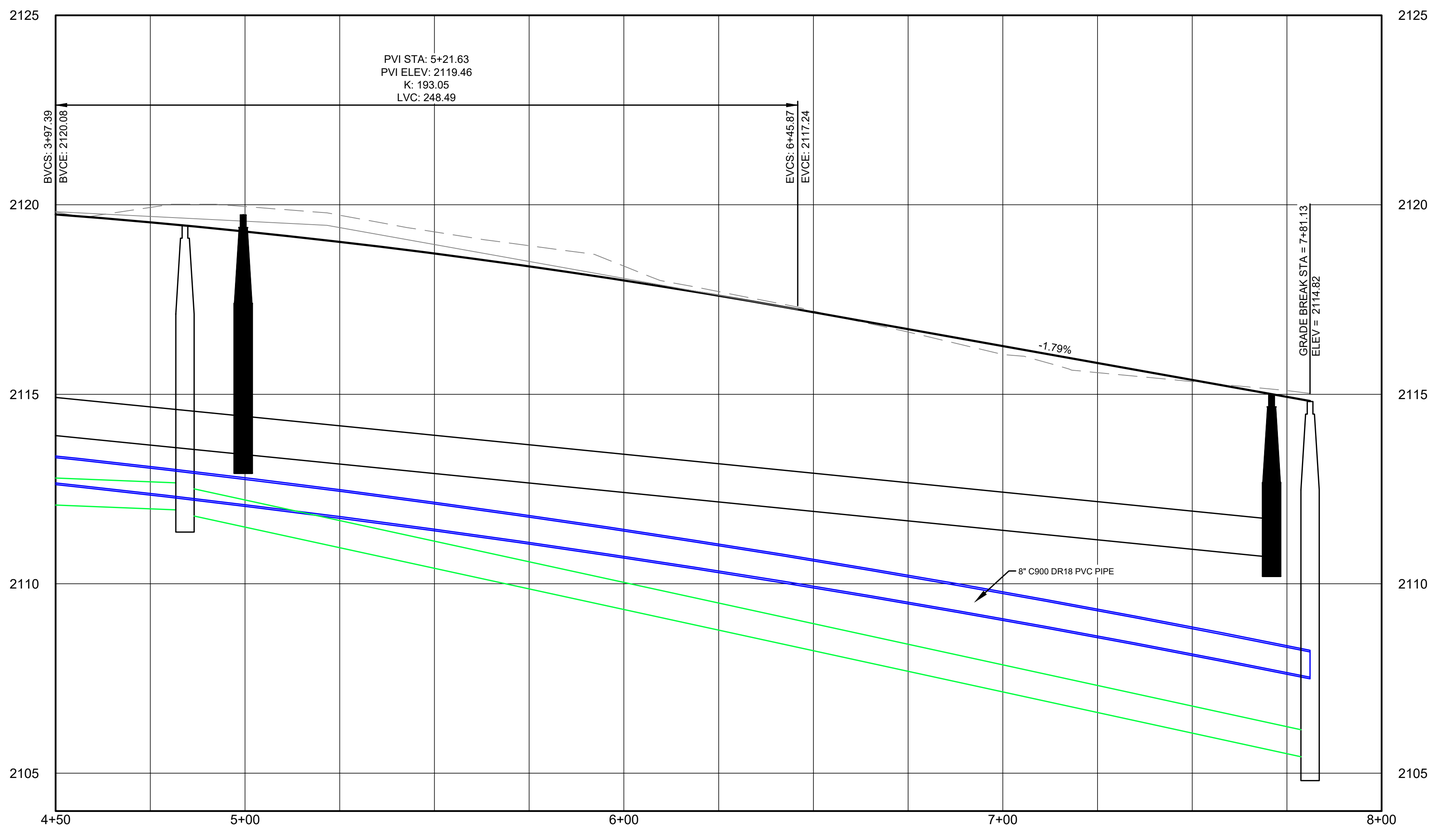
DRAWING NO. C-111

SHEET NO. 11 OF 33

NOTES

1. SEE SHEET 30 FOR STORM AND SANITARY MANHOLE DETAILS.
2. SEE SHEET 29 FOR CURB, SIDEWALK, AND PAVEMENT DETAILS.
3. SEE SHEET 31 FOR CATCH BASIN DETAILS.





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UNIVERSITY PARK
K-M ENTERPRISES/M&W HOLDINGS
PHASE 2 CONSTRUCTION

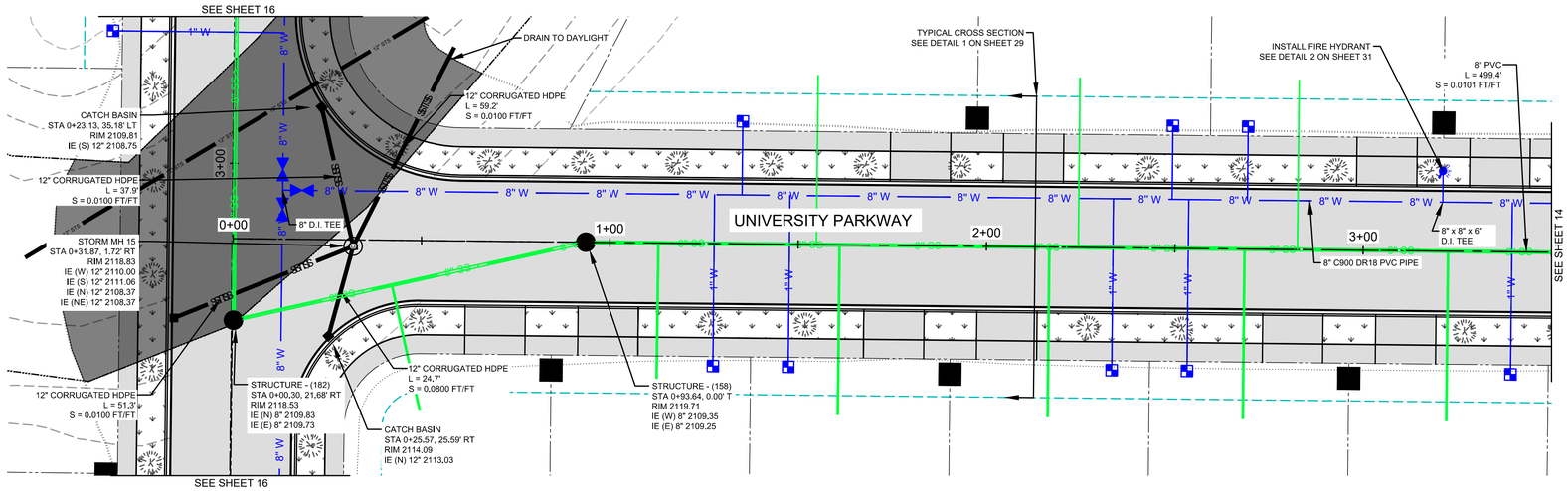
BAYLOR
PLAN & PROFILE STA 4+50 TO END

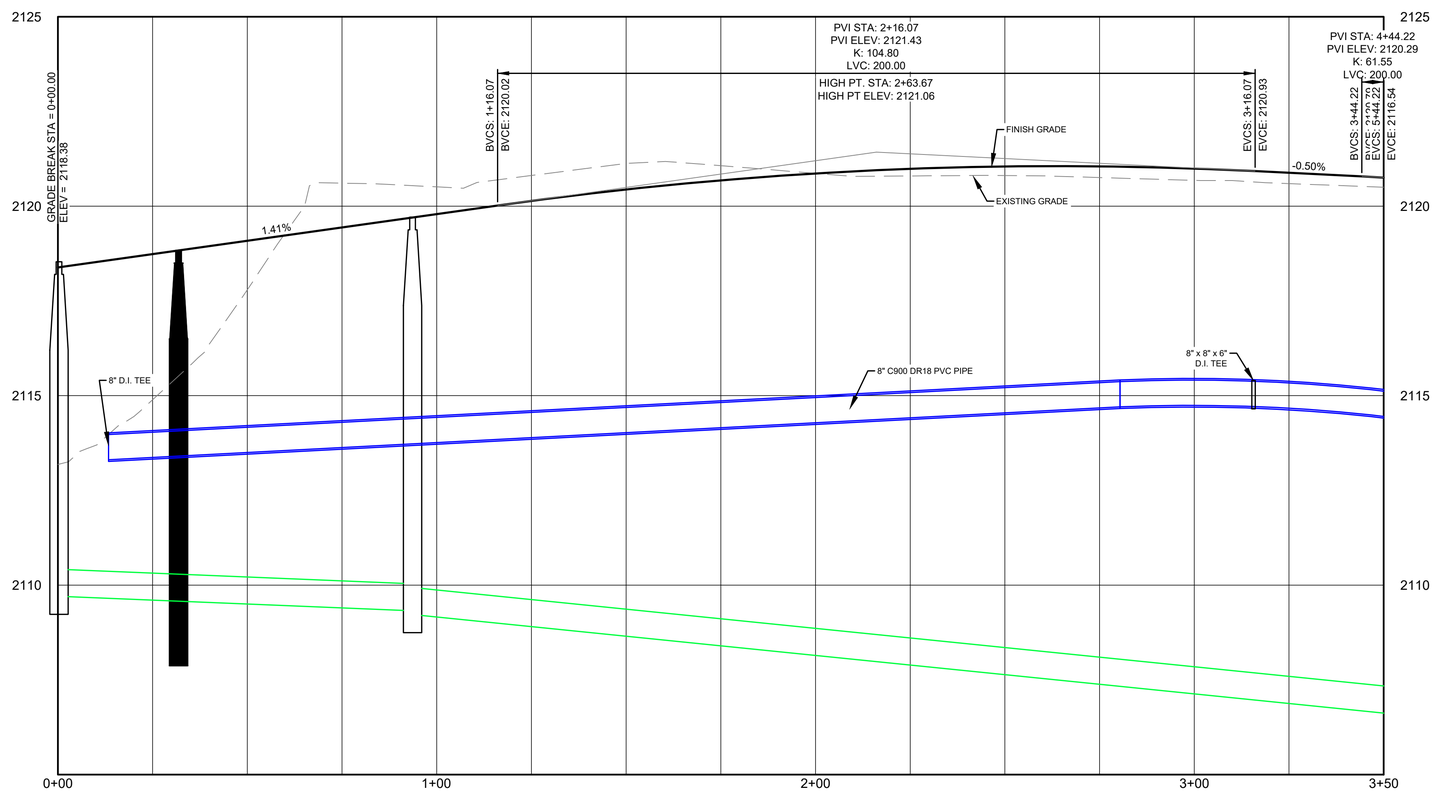
DRAWING NO. C-112

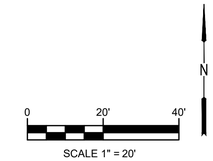
SHEET NO. 12 OF 33

NOTES

1. SEE SHEET 30 FOR STORM AND SANITARY MANHOLE DETAILS.
2. SEE SHEET 29 FOR CURB, SIDEWALK, AND PAVEMENT DETAILS.
3. SEE SHEET 31 FOR CATCH BASIN DETAILS.







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CHECKED BY: RL
SCALE: H: 1" = 20' V: 1" = 2'

UNIVERSITY PARK
K-M ENTERPRISES/M&W HOLDINGS
PHASE 2 CONSTRUCTION

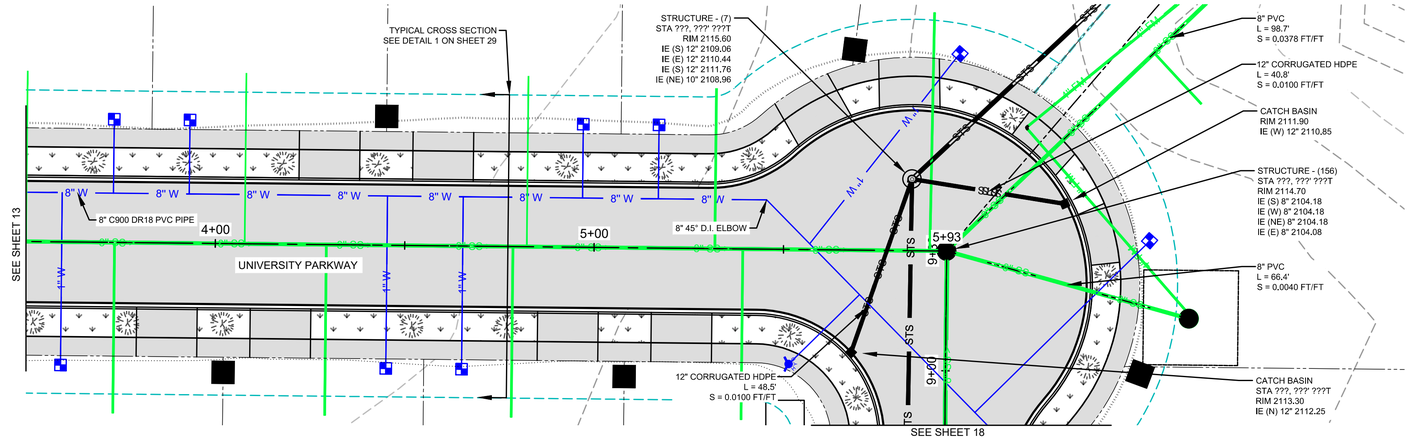
UNIVERSITY PARKWAY
PLAN & PROFILE STA 0+00 TO 3+50

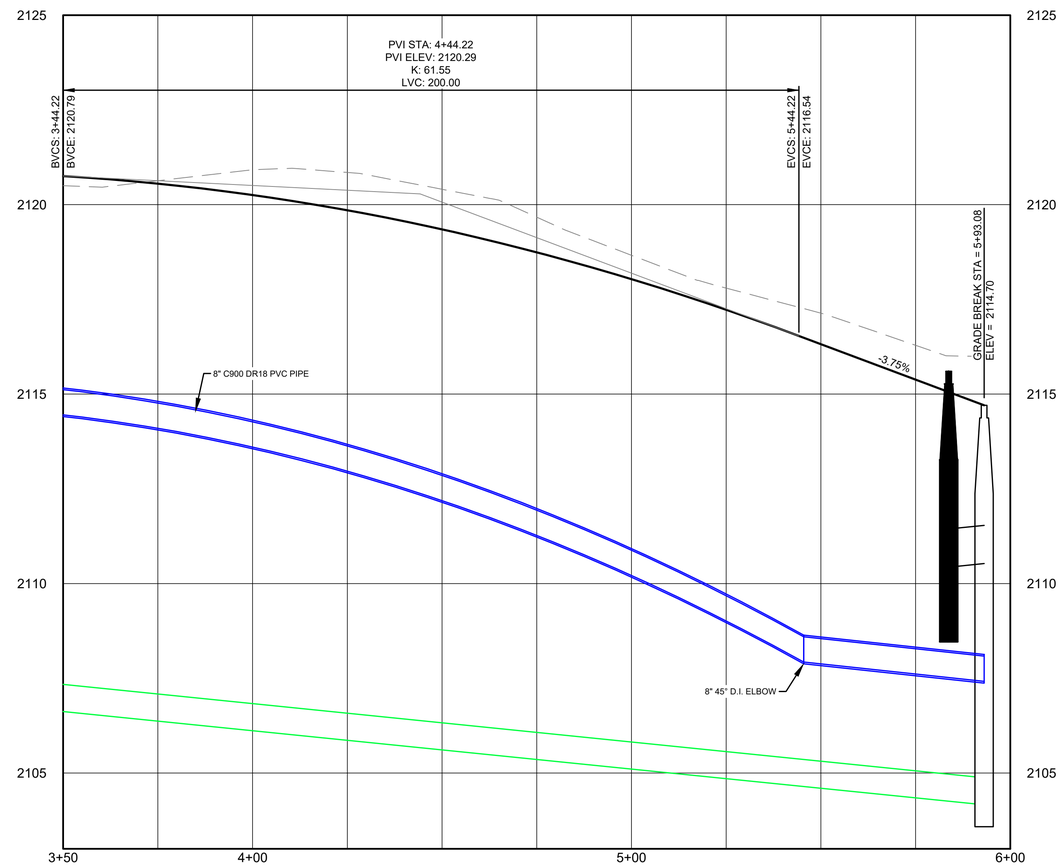
DRAWING NO. C-113

SHEET NO. 13 OF 33

NOTES

1. SEE SHEET 30 FOR STORM AND SANITARY MANHOLE DETAILS.
2. SEE SHEET 29 FOR CURB, SIDEWALK, AND PAVEMENT DETAILS.
3. SEE SHEET 31 FOR CATCH BASIN DETAILS.





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CHECKED BY: RL
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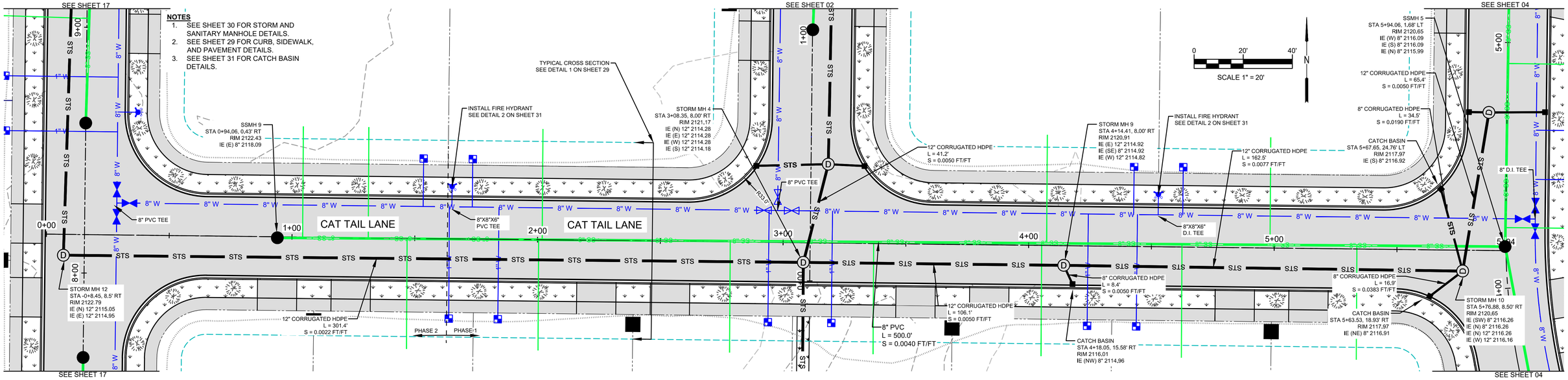
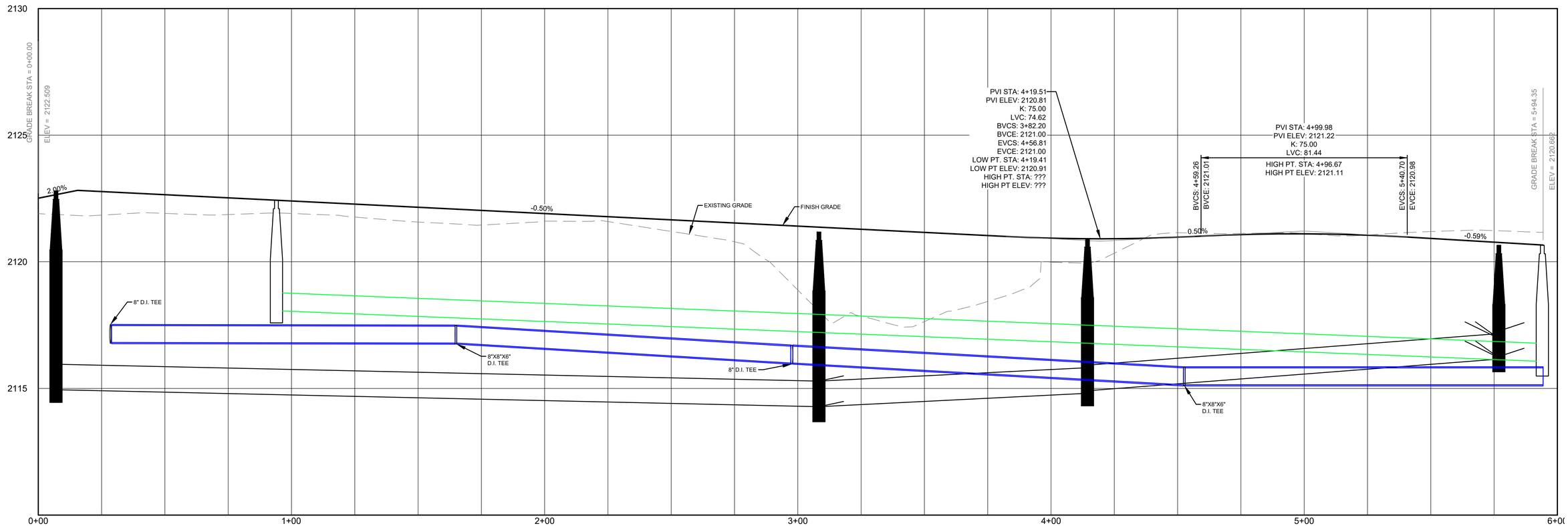
UNIVERSITY PARK
K-M ENTERPRISES/M&W HOLDINGS
PHASE 2 CONSTRUCTION

UNIVERSITY PARKWAY
PLAN & PROFILE STA 3+50 TO END

DRAWING NO. C-114

SHEET NO. 14 OF 33





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509.624.0355 FAX

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PROJECT NO: 51012.001.01

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DRAWN BY: JFQ
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UNIVERSITY PARK
K-M ENTERPRISES/M&W HOLDINGS
PHASE 2 CONSTRUCTION

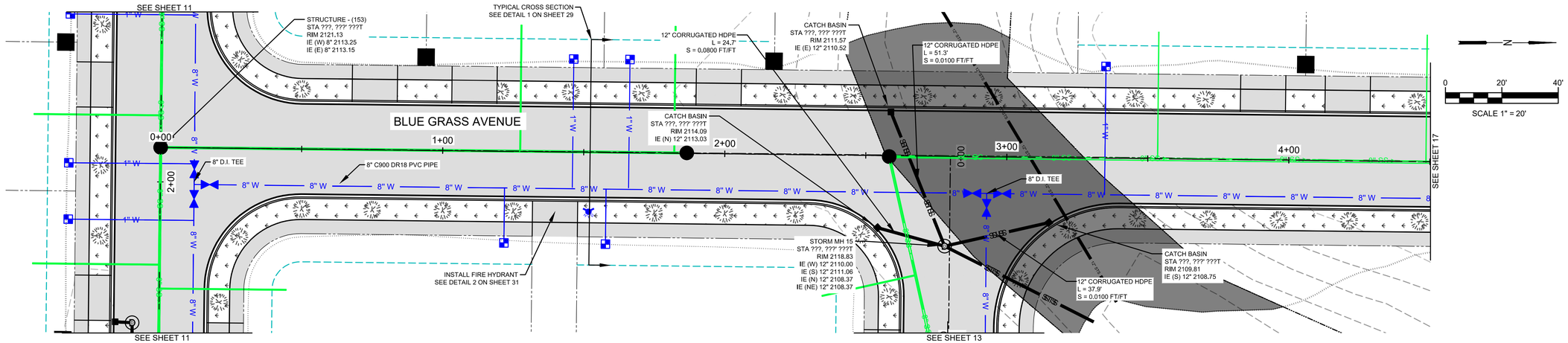
CAT TAIL LANE
PLAN & PROFILE STA 0+00 TO END

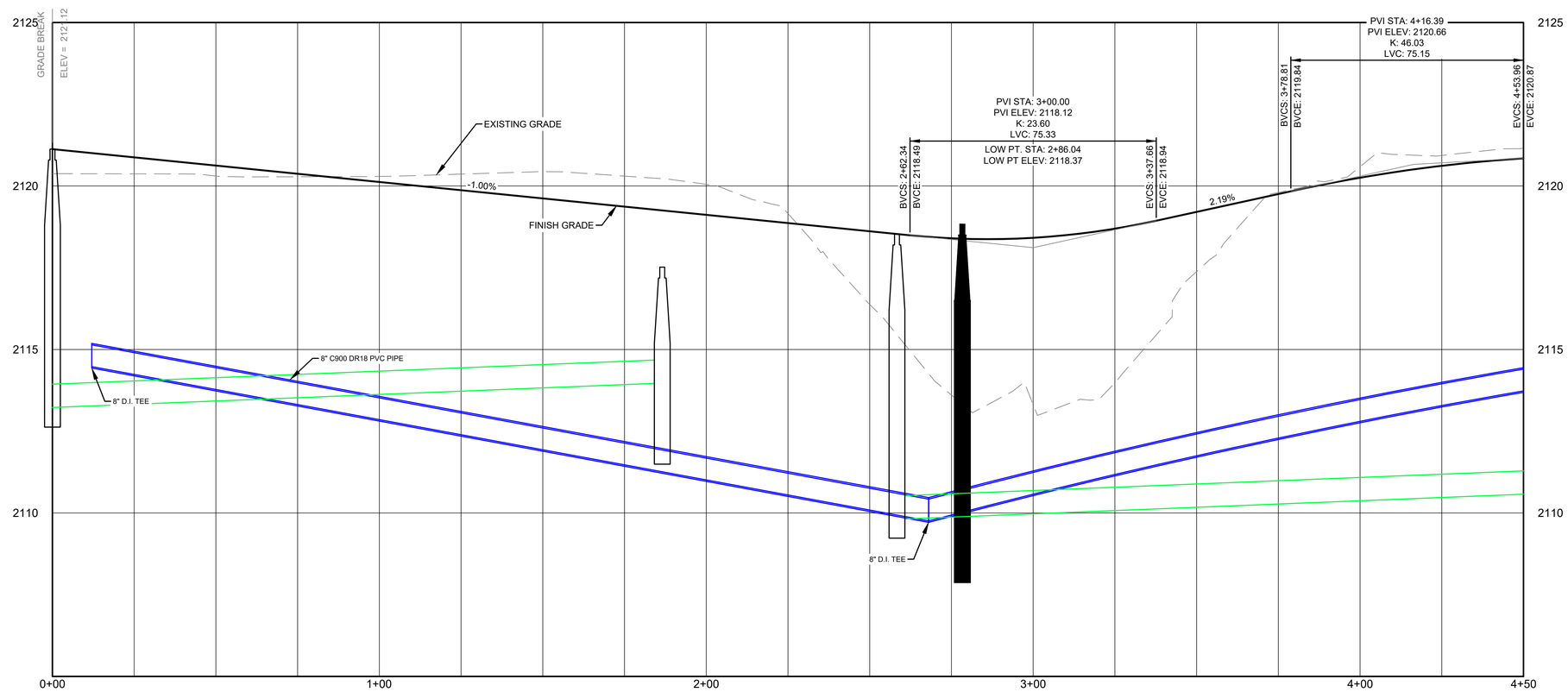
DRAWING NO. C-115

SHEET NO. 15 OF 33

NOTES

1. SEE SHEET 30 FOR STORM AND SANITARY MANHOLE DETAILS.
2. SEE SHEET 29 FOR CURB, SIDEWALK, AND PAVEMENT DETAILS.
3. SEE SHEET 31 FOR CATCH BASIN DETAILS.





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PROJECT NO: 51012.001.01

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DRAWN BY: JFQ
CHECKED BY: RL
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UNIVERSITY PARK
K-M ENTERPRISES/M&W HOLDINGS
PHASE 2 CONSTRUCTION

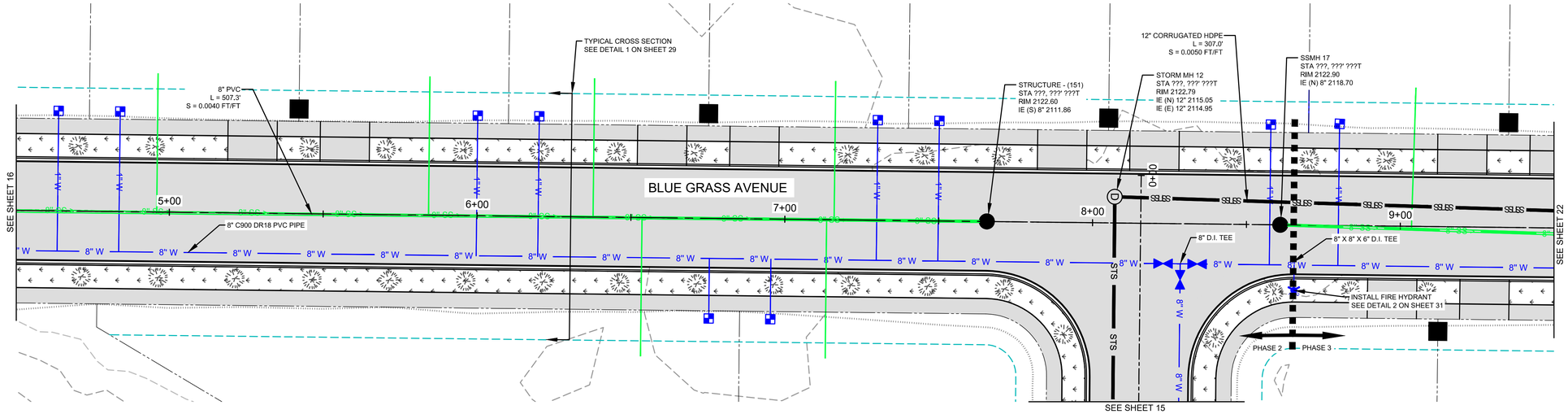
BLUE GRASS AVENUE
PLAN & PROFILE STA 0+00 TO 4+50

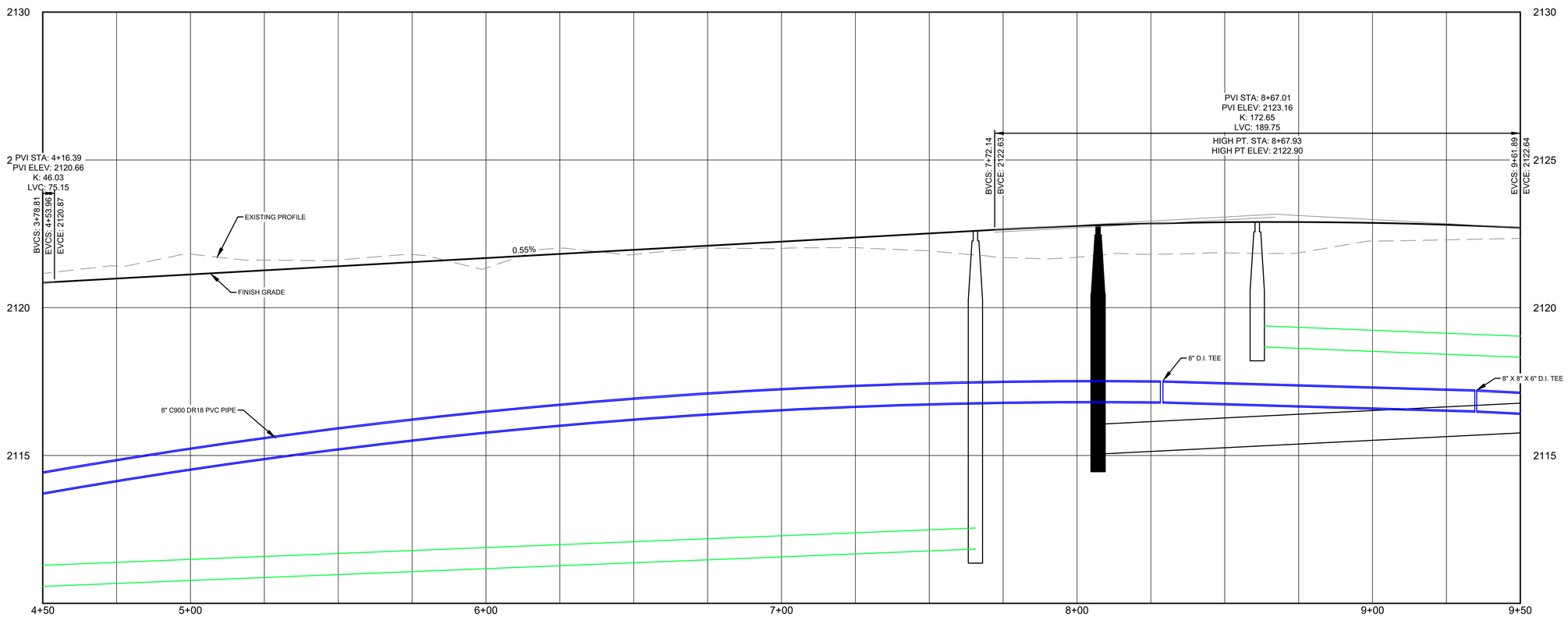
DRAWING NO. C-116

SHEET NO. 16 OF 33

NOTES

1. SEE SHEET 30 FOR STORM AND SANITARY MANHOLE DETAILS.
2. SEE SHEET 29 FOR CURB, SIDEWALK, AND PAVEMENT DETAILS.
3. SEE SHEET 31 FOR CATCH BASIN DETAILS.





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DRAWN BY: JFQ
CHECKED BY: RL
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UNIVERSITY PARK
K-M ENTERPRISES/M&W HOLDINGS
PHASE 2 CONSTRUCTION

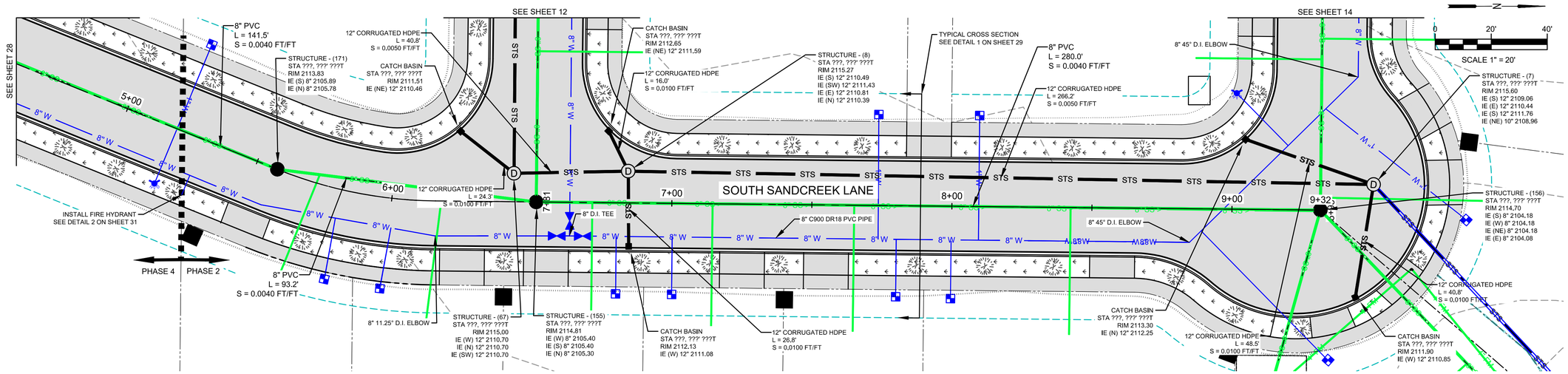
BLUE GRASS AVENUE
PLAN & PROFILE STA 4+50 TO 9+50

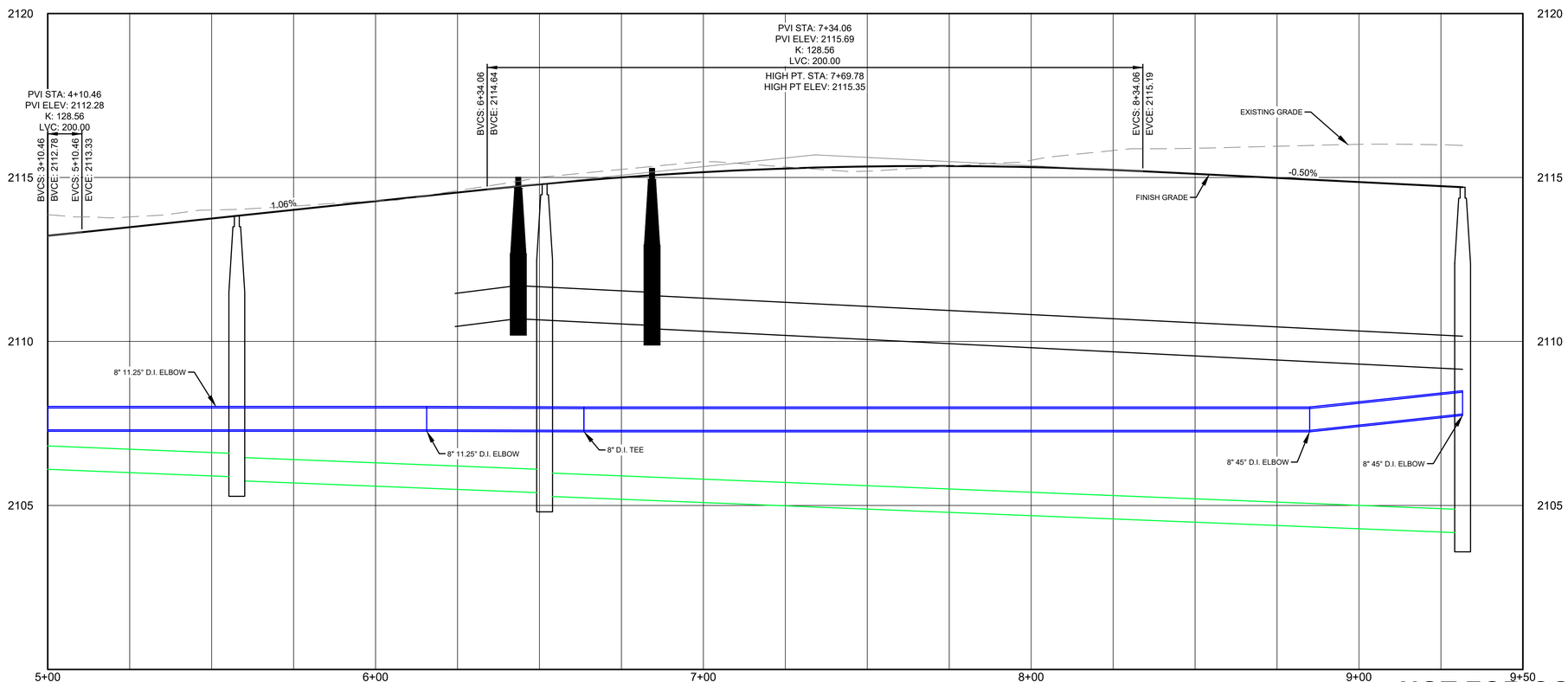
DRAWING NO. C-117

SHEET NO. 17 OF 33

NOTES

1. SEE SHEET 30 FOR STORM AND SANITARY MANHOLE DETAILS.
2. SEE SHEET 29 FOR CURB, SIDEWALK, AND PAVEMENT DETAILS.
3. SEE SHEET 31 FOR CATCH BASIN DETAILS.





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UNIVERSITY PARK
K-M ENTERPRISES/M&W HOLDINGS
PHASE 2 CONSTRUCTION

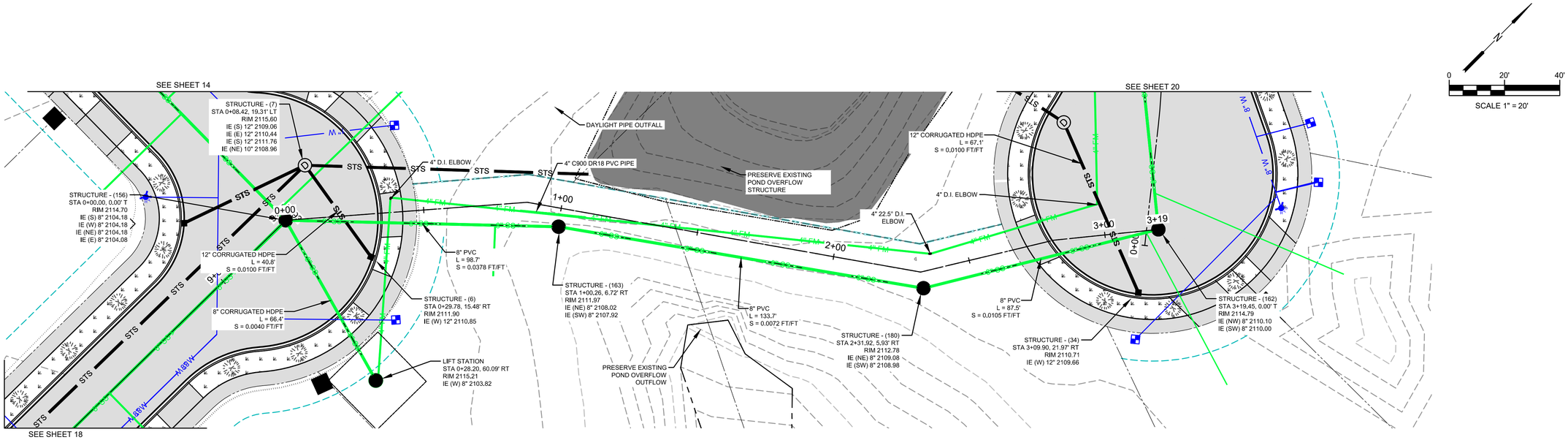
S. SANDCREEK LN.
PLAN & PROFILE STA 5+00 TO END

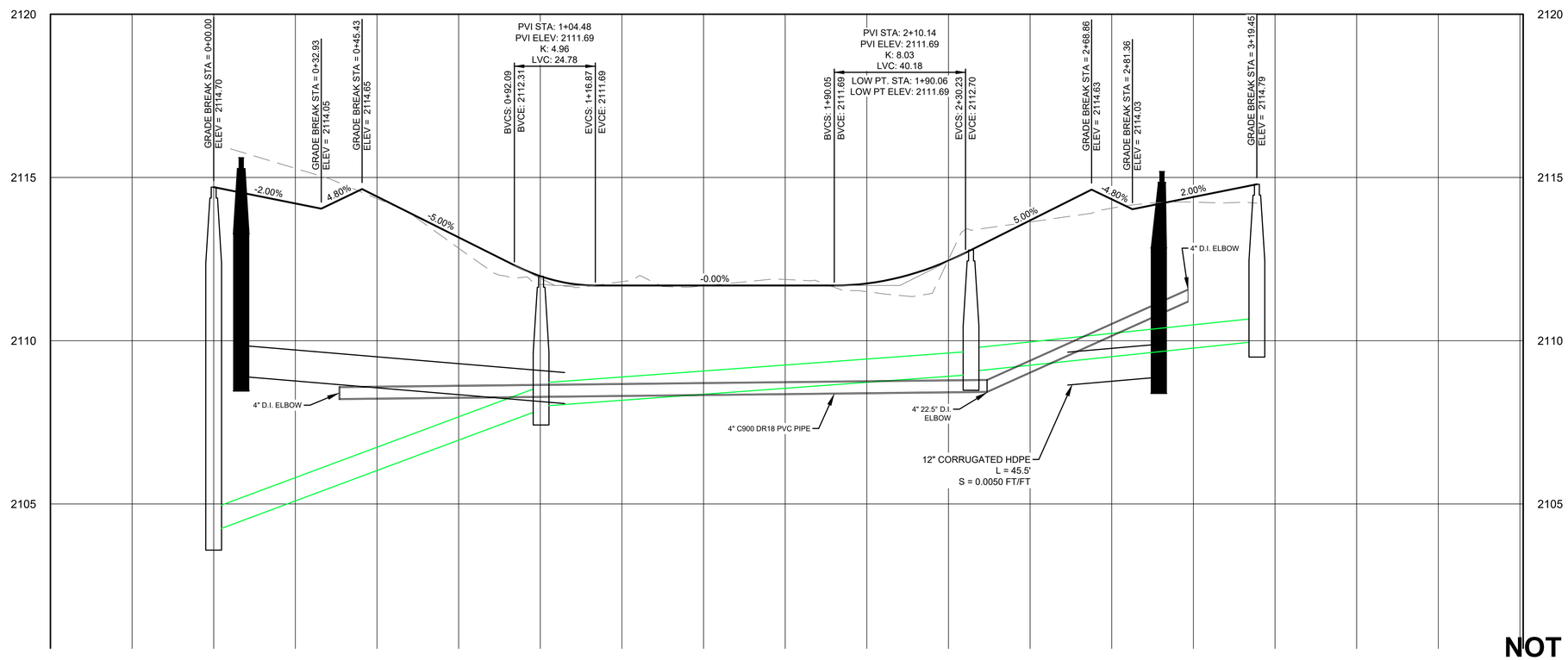
DRAWING NO. C-118

SHEET NO. 18 OF 33

NOTES

1. SEE SHEET 30 FOR STORM AND SANITARY MANHOLE DETAILS.
2. SEE SHEET 29 FOR CURB, SIDEWALK, AND PAVEMENT DETAILS.
3. SEE SHEET 31 FOR CATCH BASIN DETAILS.





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11707 E. MONTGOMERY DRIVE
SPOKANE VALLEY, WA 99206
509.838.3810
509.624.0355 FAX

DATE: 5/14/2020
PROJECT NO: 51012.001.01

DESIGNED BY: JFQ
DRAWN BY: JFQ
CHECKED BY: RL
SCALE: AS SHOWN

UNIVERSITY PARK
K-M ENTERPRISES/M&W HOLDINGS
PHASE 2 CONSTRUCTION

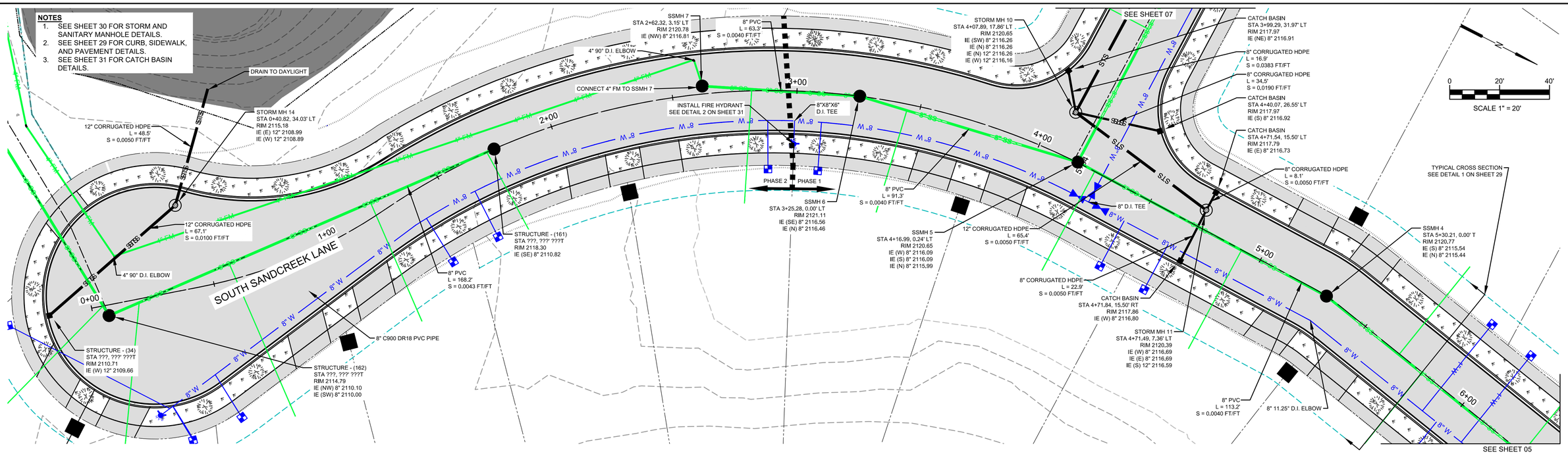
EMERGENCY ACCESS ROAD
PLAN & PROFILE STA 0+00 TO END

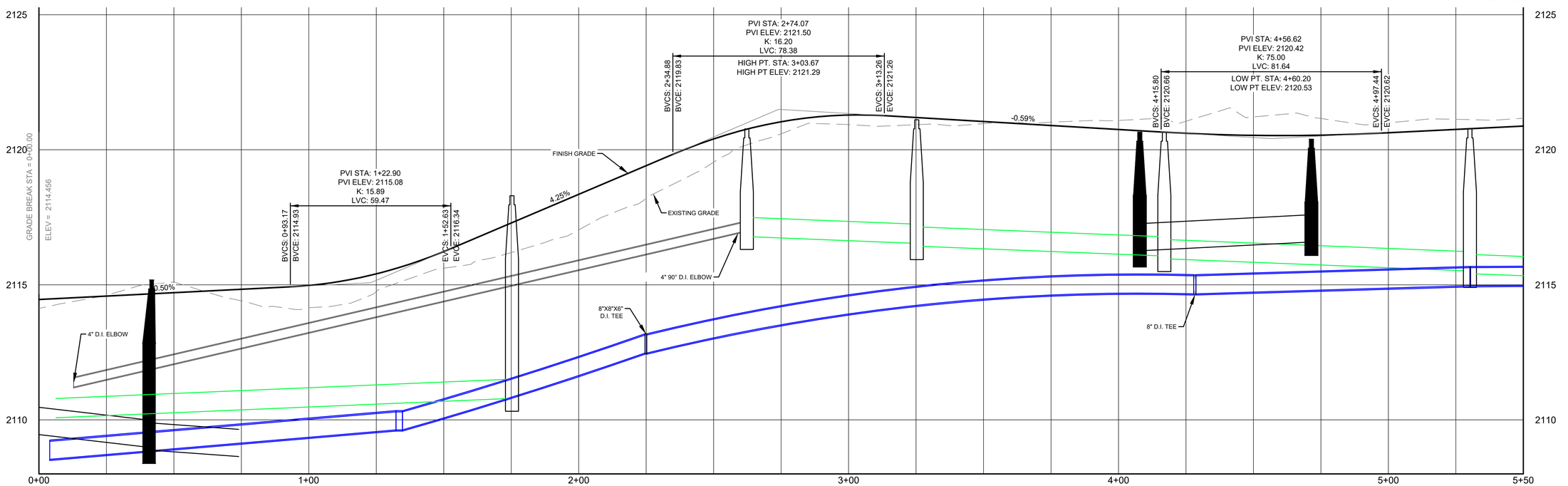
DRAWING NO. C-119

SHEET NO. 19 OF 33

NOTES

1. SEE SHEET 30 FOR STORM AND SANITARY MANHOLE DETAILS.
2. SEE SHEET 29 FOR CURB, SIDEWALK, AND PAVEMENT DETAILS.
3. SEE SHEET 31 FOR CATCH BASIN DETAILS.





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509.624.0355 FAX

DATE: 5/14/2020
PROJECT NO: 51012.001.01

DESIGNED BY: JFQ
DRAWN BY: JFQ
CHECKED BY: RL
SCALE: H: 1" = 20' V: 1" = 2'

UNIVERSITY PARK
K-M ENTERPRISES/M&W HOLDINGS
PHASE 2 CONSTRUCTION

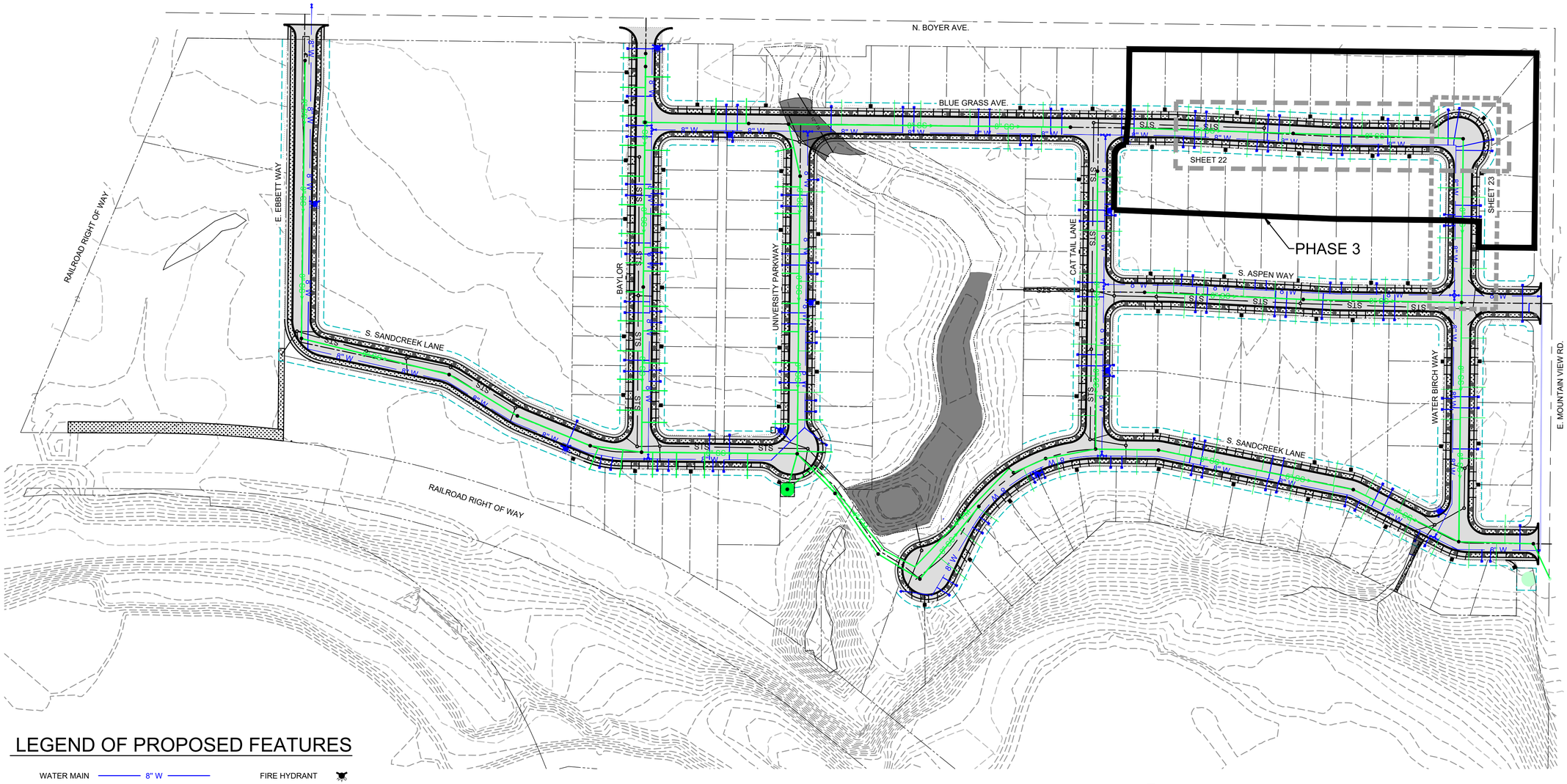
S. SANDCREEK LN.
PLAN & PROFILE STA 0+00 TO 5+50

DRAWING NO. C-120

SHEET NO. 20 OF 33

UNIVERSITY PARK

PHASE 3



LEGEND OF PROPOSED FEATURES

WATER MAIN	8" W	FIRE HYDRANT	
SANITARY SEWER	< 8" SS	SEWER MANHOLE	
EDGE OF CONCRETE		TREE	
EDGE OF ASPHALT		CATCH BASIN	
PROPERTY LINE		STORM MANHOLE	

N

0 100' 200'

SCALE 1" = 100'

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SCALE: AS SHOWN

UNIVERSITY PARK
K-M ENTERPRISES/M&W HOLDINGS
PHASE 3 CONSTRUCTION

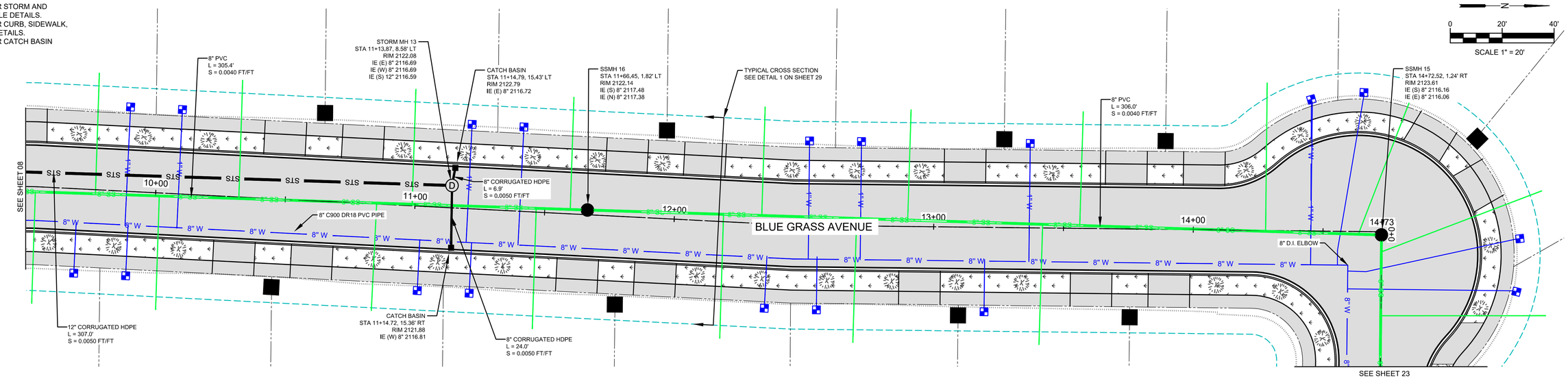
SHEET INDEX MAP

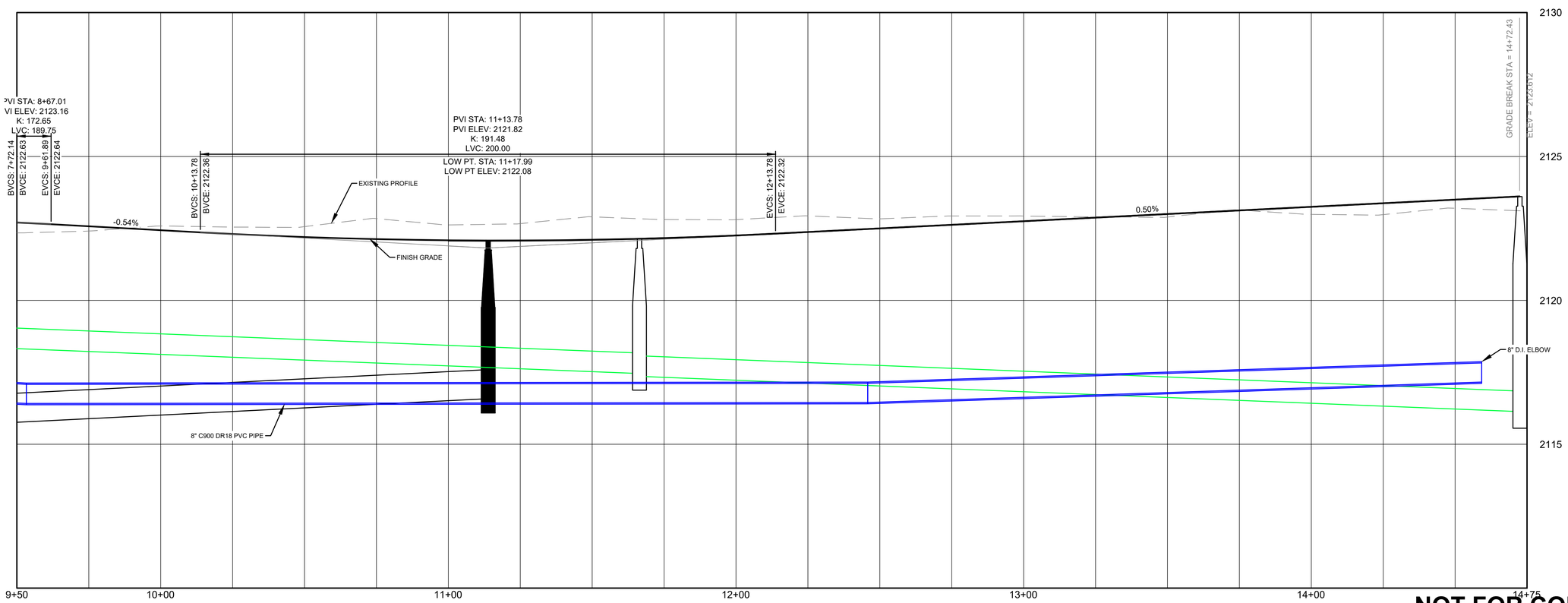
DRAWING NO. C-121

SHEET NO. 21 OF 33

NOTES

1. SEE SHEET 30 FOR STORM AND SANITARY MANHOLE DETAILS.
2. SEE SHEET 29 FOR CURB, SIDEWALK, AND PAVEMENT DETAILS.
3. SEE SHEET 31 FOR CATCH BASIN DETAILS.





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UNIVERSITY PARK
K-M ENTERPRISES/M&W HOLDINGS
PHASE 3 CONSTRUCTION

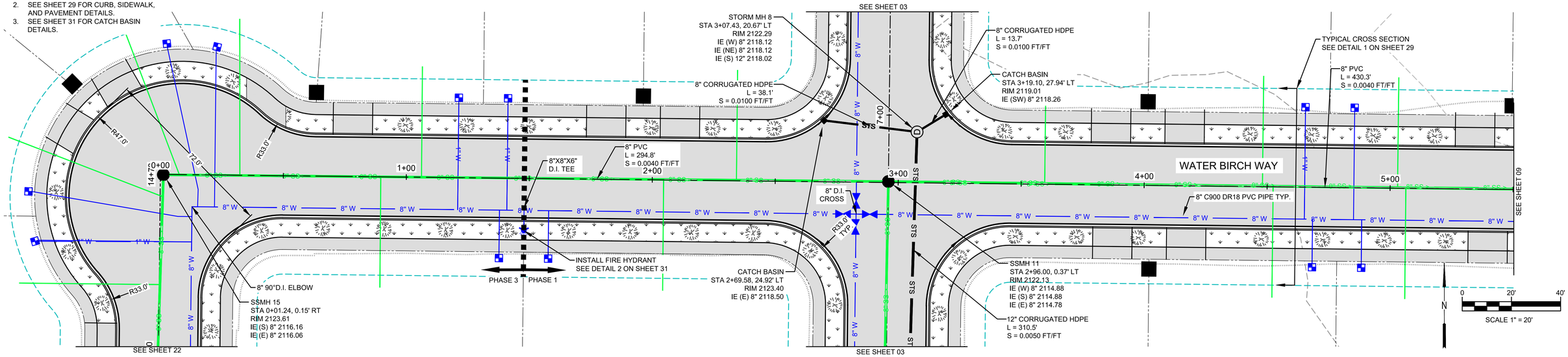
BLUE GRASS AVENUE
PLAN & PROFILE STA 9+50 TO END

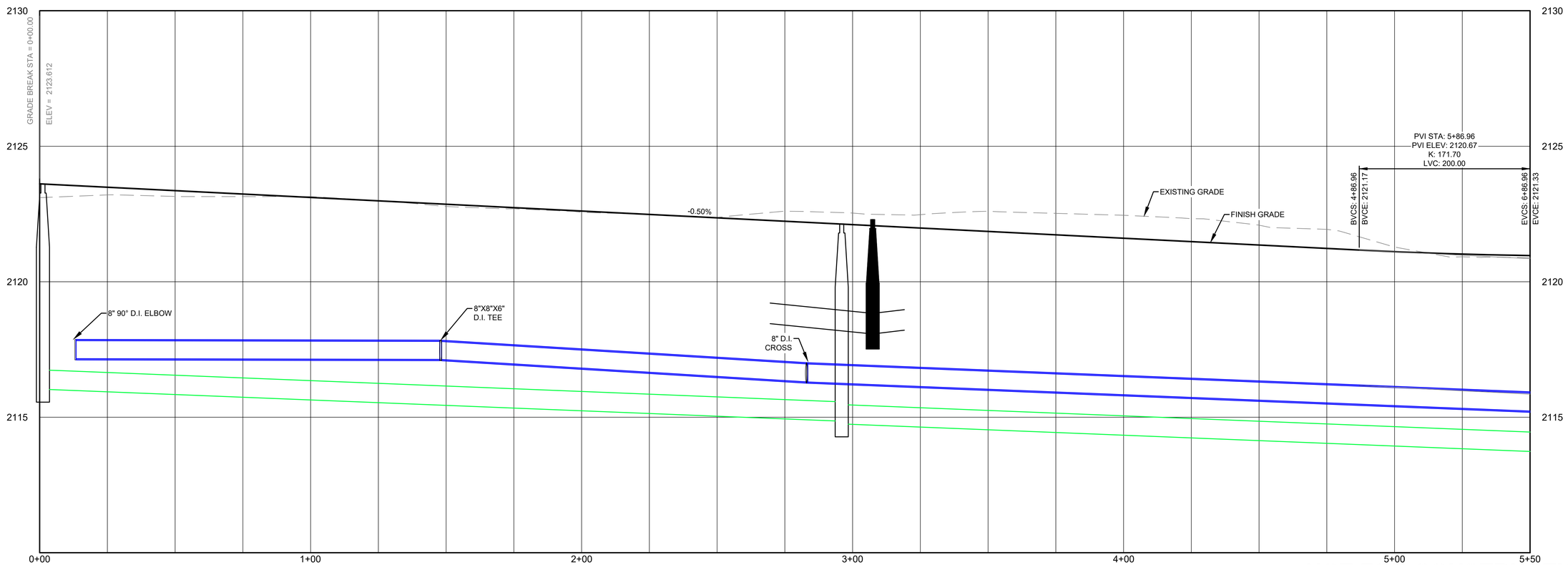
DRAWING NO. C-122

SHEET NO. 22 OF 33

NOTES

1. SEE SHEET 30 FOR STORM AND SANITARY MANHOLE DETAILS.
2. SEE SHEET 29 FOR CURB, SIDEWALK, AND PAVEMENT DETAILS.
3. SEE SHEET 31 FOR CATCH BASIN DETAILS.





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UNIVERSITY PARK
K-M ENTERPRISES/M&W HOLDINGS
PHASE 3 CONSTRUCTION

WATER BIRCH WAY
PLAN & PROFILE 0+00 TO 5+50

DRAWING NO. C-123

SHEET NO. 23 OF 33

UNIVERSITY PARK

PHASE 4

LEGEND OF PROPOSED FEATURES

WATER MAIN	8" W	FIRE HYDRANT	
SANITARY SEWER	< 8" SS	SEWER MANHOLE	
EDGE OF CONCRETE		TREE	
EDGE OF ASPHALT		CATCH BASIN	
PROPERTY LINE		STORM MANHOLE	

N

0 100' 200'

SCALE 1" = 100'

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PROJECT NO: 51012.001.01

DESIGNED BY: JFQ

DRAWN BY: JFQ

CHECKED BY: RL

SCALE: AS SHOWN

UNIVERSITY PARK
K-M ENTERPRISES/M&W HOLDINGS
PHASE 4 CONSTRUCTION

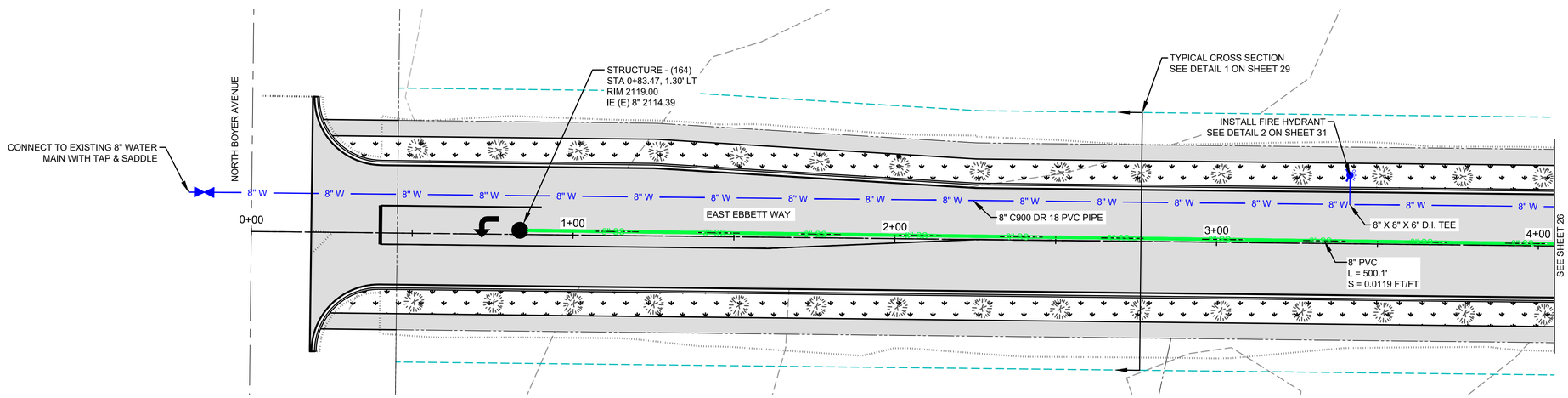
SHEET INDEX MAP

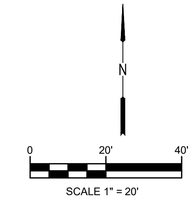
DRAWING NO. C-124

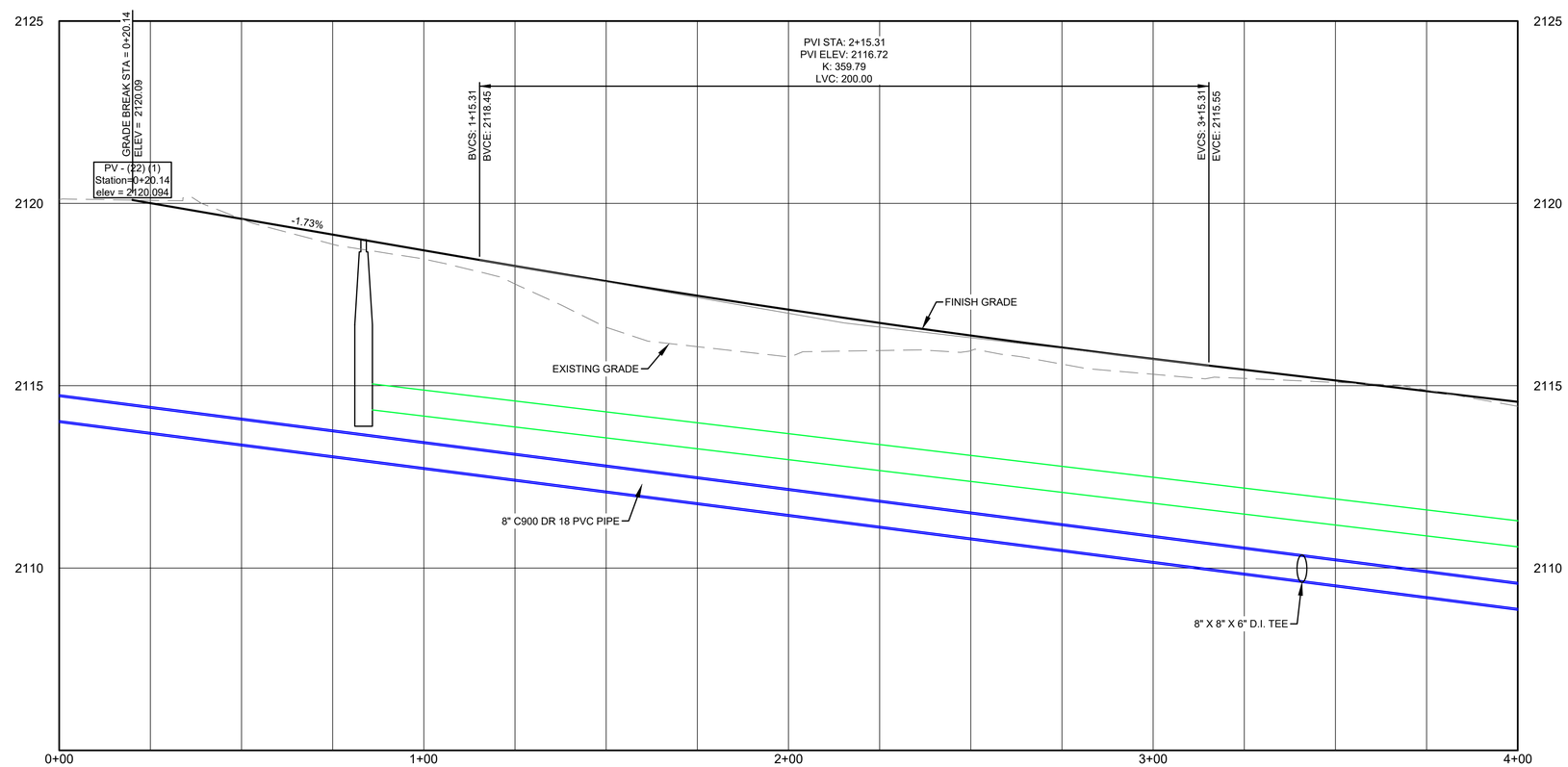
SHEET NO. 24 OF 33

NOTES

1. SEE SHEET 30 FOR STORM AND SANITARY MANHOLE DETAILS.
2. SEE SHEET 29 FOR CURB, SIDEWALK, AND PAVEMENT DETAILS.
3. SEE SHEET 31 FOR CATCH BASIN DETAILS.







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509.624.0355 FAX

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PROJECT NO: 51012.001.01

DESIGNED BY: JFQ
DRAWN BY: JFQ
CHECKED BY: RL
SCALE: H: 1" = 20' V: 1" = 2'

UNIVERSITY PARK
K-M ENTERPRISES/M&W HOLDINGS
PHASE 4 CONSTRUCTION

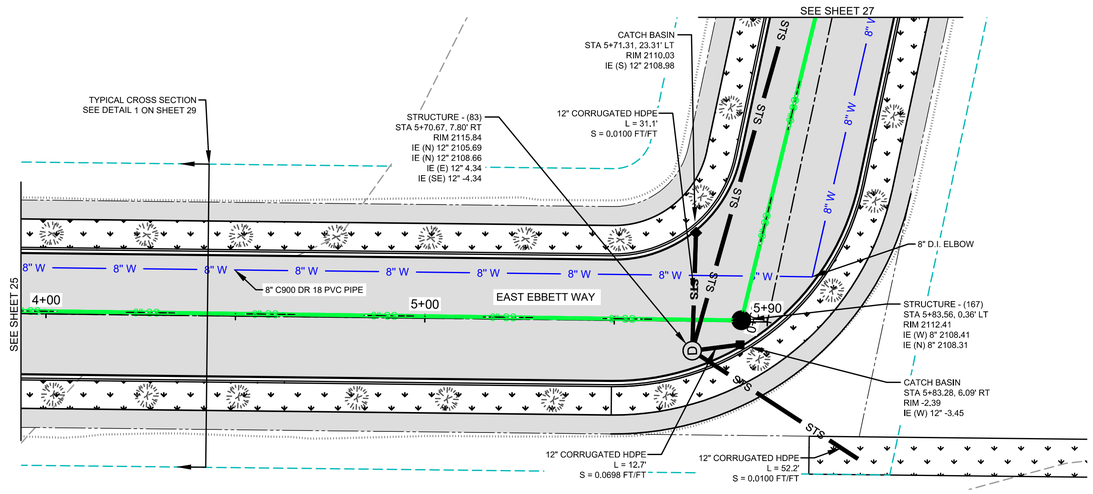
EAST EBBETT WAY
PLAN & PROFILE STA 0+00 TO 4+00

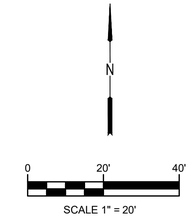
DRAWING NO. C-125

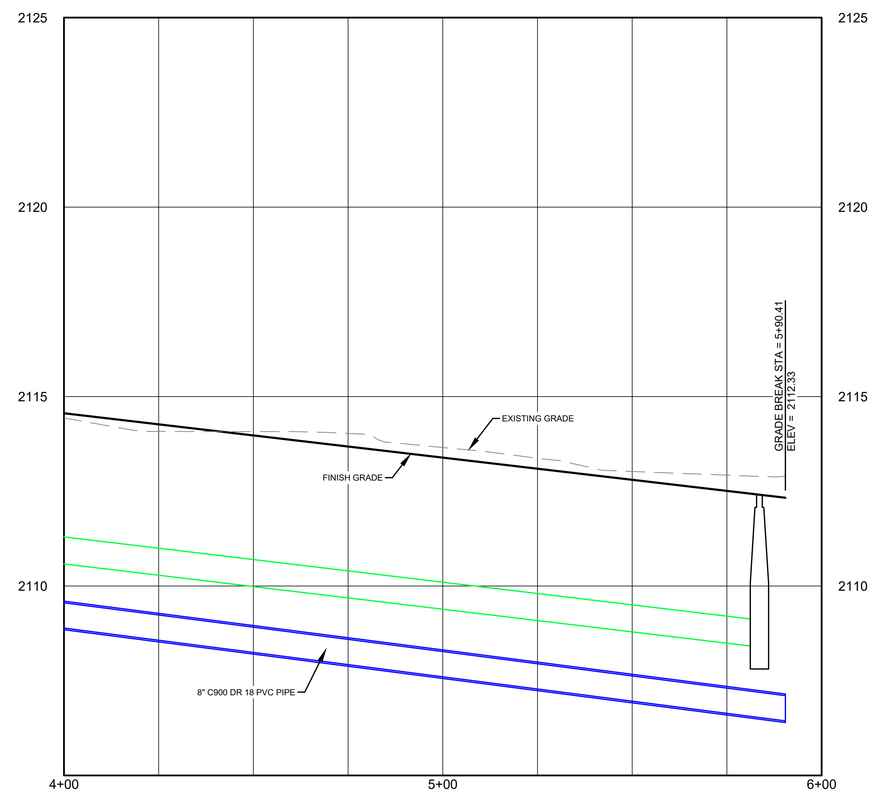
SHEET NO. 25 OF 33

NOTES

1. SEE SHEET 30 FOR STORM AND SANITARY MANHOLE DETAILS.
2. SEE SHEET 29 FOR CURB, SIDEWALK, AND PAVEMENT DETAILS.
3. SEE SHEET 31 FOR CATCH BASIN DETAILS.







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509.624.0355 FAX

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PROJECT NO: 51012.001.01

DESIGNED BY: JFQ
DRAWN BY: JFQ
CHECKED BY: RL
SCALE: H: 1" = 20' V: 1" = 2'

UNIVERSITY PARK
K-M ENTERPRISES/M&W HOLDINGS
PHASE 4 CONSTRUCTION

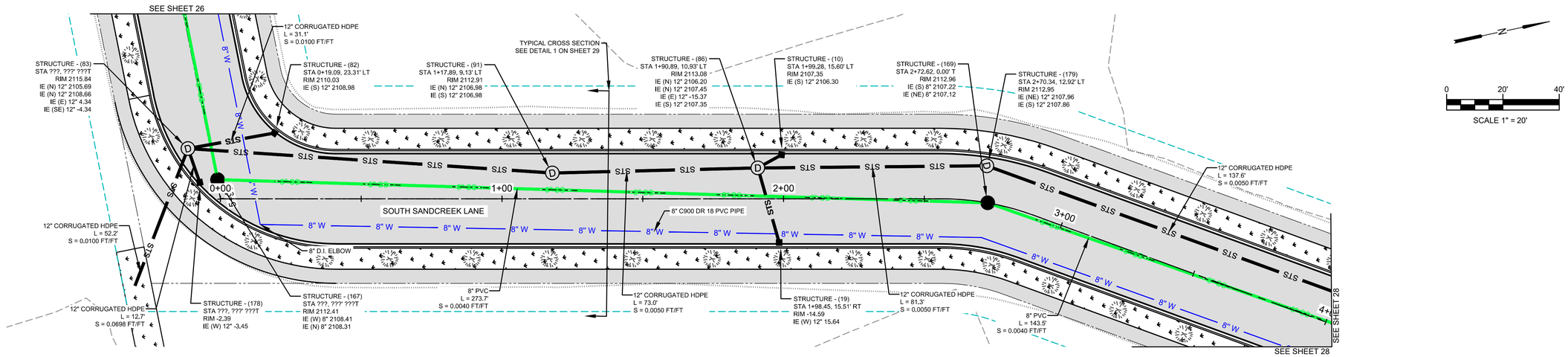
EAST EBBETT WAY
PLAN & PROFILE STA 4+00 TO END

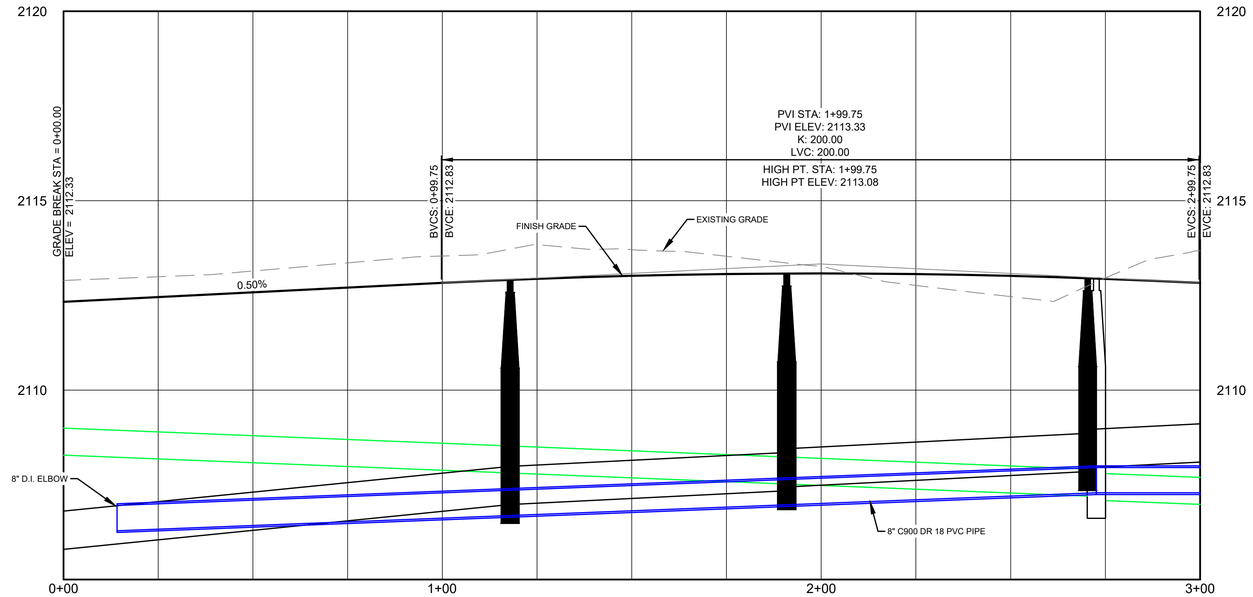
DRAWING NO. C-126

SHEET NO. 26 OF 33

NOTES

1. SEE SHEET 30 FOR STORM AND SANITARY MANHOLE DETAILS.
2. SEE SHEET 29 FOR CURB, SIDEWALK, AND PAVEMENT DETAILS.
3. SEE SHEET 31 FOR CATCH BASIN DETAILS.





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509.838.3810
509.624.0355 FAX

DATE: 5/14/2020

PROJECT NO: 51012.001.01

DESIGNED BY: JFQ
DRAWN BY: JFQ
CHECKED BY: RL
SCALE: H: 1" = 20' V: 1" = 2'

UNIVERSITY PARK
K-M ENTERPRISES/M&W HOLDINGS
PHASE 4 CONSTRUCTION

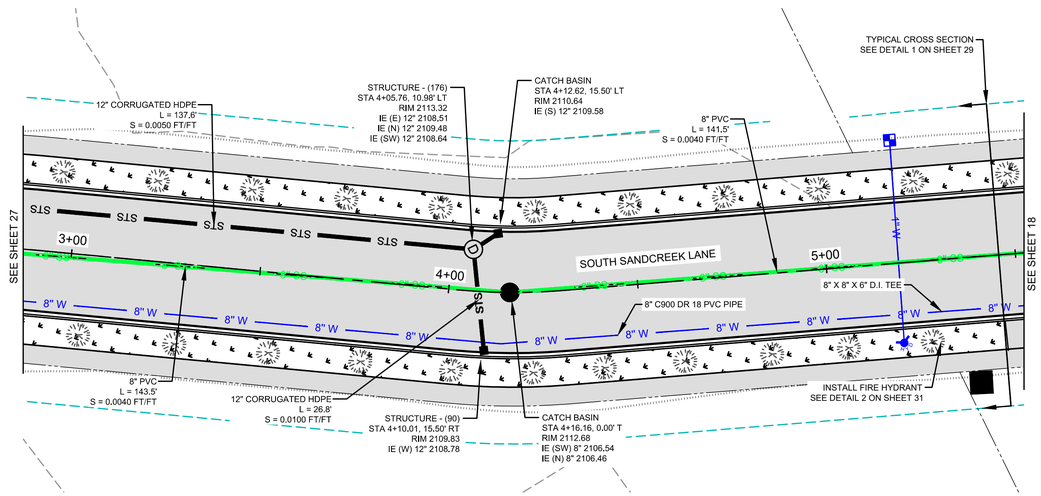
SOUTH SANDCREEK LANE
PLAN & PROFILE STA 0+00 TO 3+00

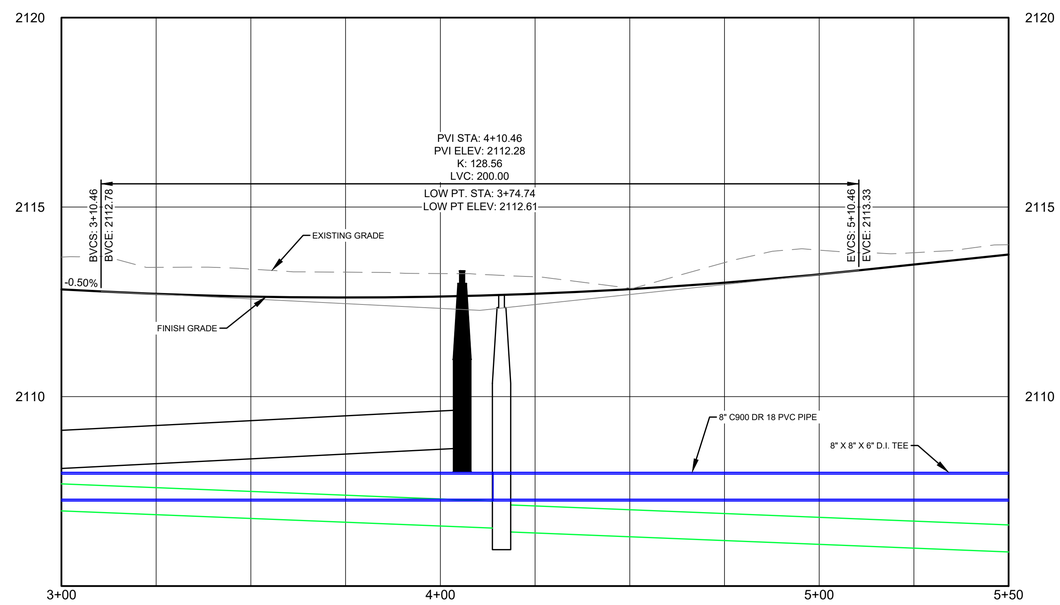
DRAWING NO. C-127

SHEET NO. 27 OF 33

NOTES

1. SEE SHEET 30 FOR STORM AND SANITARY MANHOLE DETAILS.
2. SEE SHEET 29 FOR CURB, SIDEWALK, AND PAVEMENT DETAILS.
3. SEE SHEET 31 FOR CATCH BASIN DETAILS.





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SPOKANE VALLEY, WA 99206
509.838.3810
509.624.0355 FAX

DATE: 5/14/2020

PROJECT NO: 51012.001.01

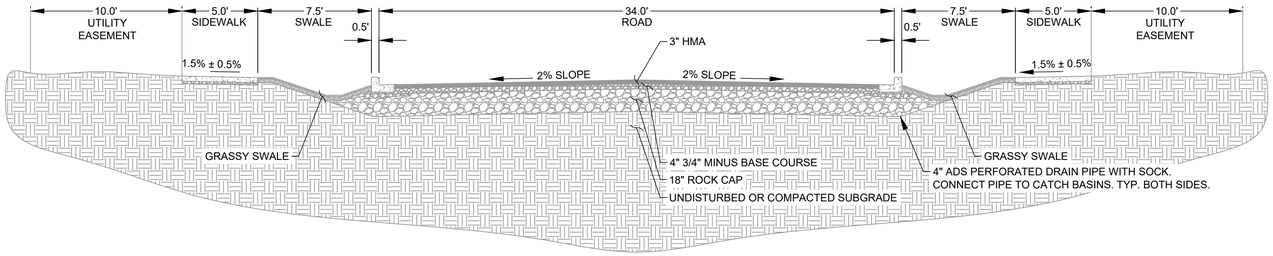
DESIGNED BY: JFQ
DRAWN BY: JFQ
CHECKED BY: RL
SCALE: H: 1" = 20' V: 1" = 2'

UNIVERSITY PARK
K-M ENTERPRISES/M&W HOLDINGS
PHASE 4 CONSTRUCTION

SOUTH SANDCREEK LANE
PLAN & PROFILE STA 3+00 TO 5+50

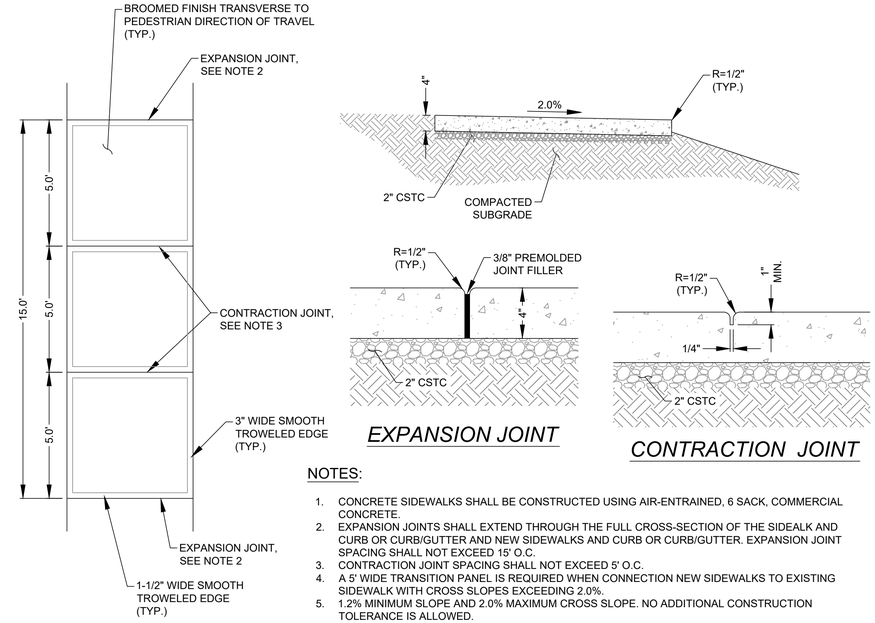
DRAWING NO. C-128

SHEET NO. 28 OF 33



TYPICAL ROAD SECTION

N.T.S. 1 / 29



EXPANSION JOINT

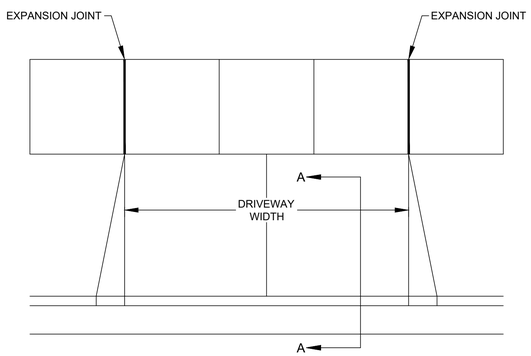
CONTRACTION JOINT

NOTES:

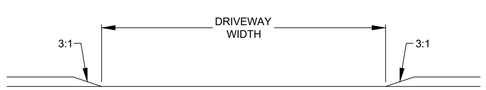
1. CONCRETE SIDEWALKS SHALL BE CONSTRUCTED USING AIR-ENTRAINED, 6 SACK, COMMERCIAL CONCRETE.
2. EXPANSION JOINTS SHALL EXTEND THROUGH THE FULL CROSS-SECTION OF THE SIDEALK AND CURB OR CURB/GUTTER AND NEW SIDEWALKS AND CURB OR CURB/GUTTER. EXPANSION JOINT SPACING SHALL NOT EXCEED 15' O.C.
3. CONTRACTION JOINT SPACING SHALL NOT EXCEED 5' O.C.
4. A 5' WIDE TRANSITION PANEL IS REQUIRED WHEN CONNECTION NEW SIDEWALKS TO EXISTING SIDEWALK WITH CROSS SLOPES EXCEEDING 2.0%.
5. 1.2% MINIMUM SLOPE AND 2.0% MAXIMUM CROSS SLOPE. NO ADDITIONAL CONSTRUCTION TOLERANCE IS ALLOWED.
6. SIDEWALK SHALL BE MEDIUM TO FINE BROOM FINISH.

CONCRETE SIDEWALK

N.T.S. 2 / 29



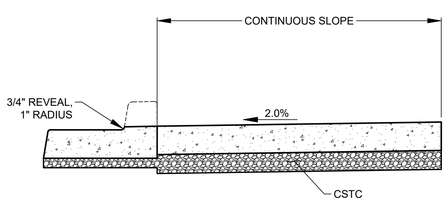
PLAN VIEW



PROFILE VIEW

NOTES:

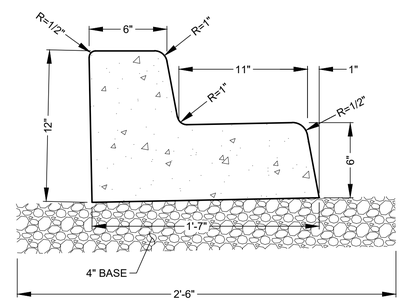
1. THE SHADED AREA REQUIRES A 6" MIN. DEPTH OF AIR-ENTRAINED, 6 SACK, COMMERCIAL CONCRETE OVER 4" OF COMPACTED CSTC.
2. EXPANSION JOINTS SHALL BE 3/8" PREMOLDED JOINT FILLER EXTENDING THROUGH THE FULL CONCRETE SECTION.
3. RAMP MAXIMUM RUNNING SLOPE SHALL NOT REQUIRE THE RAMP LENGTH TO EXCEED 15' TO AVOID CHASING THE SLOPE INDEFINITELY. RAMP LENGTH SHALL BE INCREASED INCREMENTALLY FROM 6' TO 11' TO 15' TO COMPLY WITH MAXIMUM RAMP RUNNING SLOPE. NO ADDITIONAL CONSTRUCTION TOLERANCE IS ALLOWED.
4. IN SHADED ARE, CONTRACTION JOINTS SHALL BE HAND TOOLED 1/4" WIDE BY 2" MINIMUM DEPTH.
5. BROOMED FINISH ON SIDEWALK SHALL BE APPLIED PERPENDICULAR TO THE PEDESTRIAN DIRECTION OF TRAVEL.
6. 1.2% MINIMUM CROSSE SLOPE AND 2.0% MAXIMUM CROSS SLOPE. NO ADDITIONAL CONSTRUCTION TOLERANCE IS ALLOWED.



SECTION A-A

DRIVEWAY DROP

N.T.S. 3 / 29

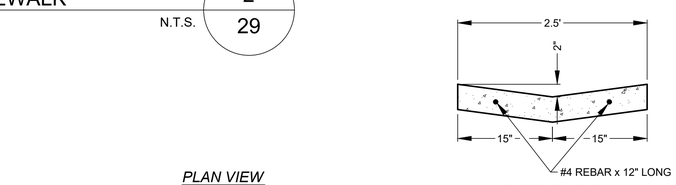


NOTES:

1. CONCRETE CURB AND CURB/GUTTER SHALL BE CONSTRUCTED AS PER THE CITY OF SANDPOINT STANDARD DRAWINGS.
2. BASE 4" OF 3/4" MINUS CRUSHED AGGREGATE COMPACTED TO 95% OF STANDARD PROCTOR.
3. MATERIALS AND CONSTRUCTION IN COMPLIANCE WITH ISPWC.

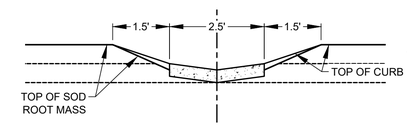
19" CURB & GUTTER

N.T.S. 4 / 29



SECTION B-B

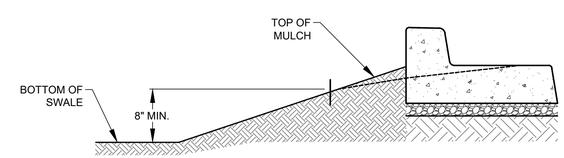
PLAN VIEW



PROFILE VIEW

NOTES:

1. MAINTAIN 2" EXPOSURE BETWEEN TOP OF MULCH AND TOP OF CURB DROP INLET.
2. CURB INLETS AND SWALE DRAIN PAD SHALL BE CONSTRUCTED USING AIR-ENTRAINED, 6 SACK, COMMERCIAL CONCRETE.



SECTION A-A

CURB DROP INLET

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509.624.0355 FAX

DATE: 5/14/2020

PROJECT NO: 51012.001.01

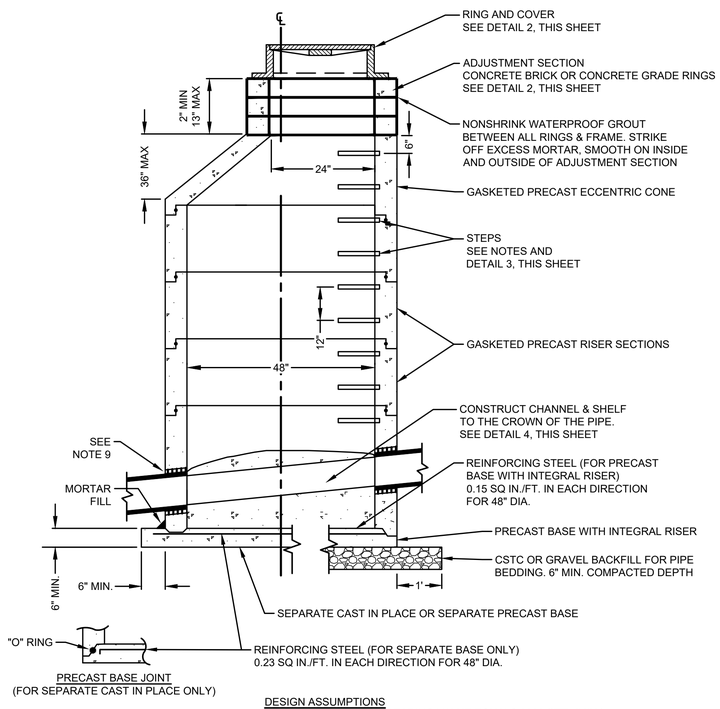
DESIGNED BY: JFQ
DRAWN BY: JFQ
CHECKED BY: RL
SCALE: AS SHOWN

UNIVERSITY PARK
K-M ENTERPRISES/M&W HOLDINGS
PHASE 1-4 CONSTRUCTION

PAVEMENT DETAILS

DRAWING NO. C-501

SHEET NO. 29 OF 33



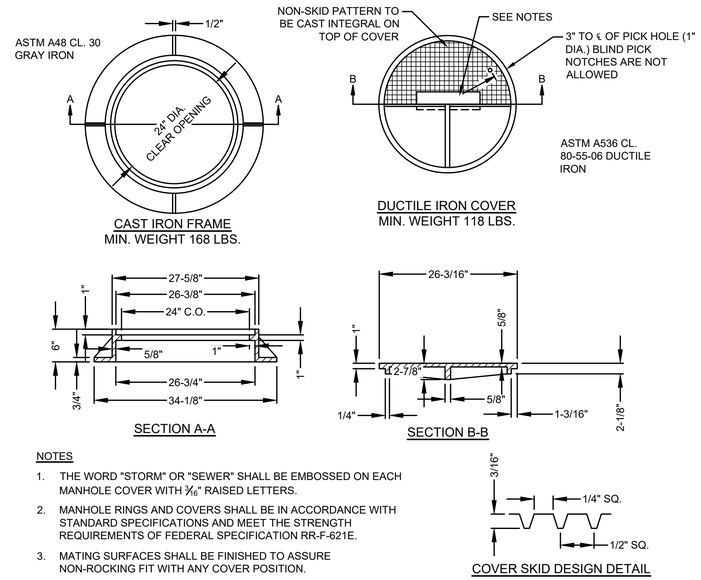
DESIGN ASSUMPTIONS
HEIGHT 8' TO 12' - SOIL BEARING VALUE EQUALS 3300 #/FT (MIN.)
HEIGHT 12' TO 25' - SOIL BEARING VALUE EQUALS 3800 #/FT (MIN.)

NOTES

1. MANHOLES TO BE CONSTRUCTED IN ACCORDANCE WITH AASHTO M-199 (ASTM C-478) UNLESS OTHERWISE SHOWN ON PLANS OR NOTED IN THE STANDARD SPECIFICATIONS, AND IN ACCORDANCE WITH CURRENT WSDOT\ APWA STANDARD SPECIFICATIONS.
2. ALL REINFORCED CAST IN PLACE CONCRETE SHALL BE CLASS 4000. NON-REINFORCED CONCRETE IN CHANNEL AND SHELF SHALL BE CLASS 3000. ALL PRECAST CONCRETE SHALL BE CLASS 4000.
3. PRECAST BASES SHALL BE FURNISHED WITH CUTOUTS OR KNOCKOUTS. KNOCKOUTS SHALL HAVE A WALL THICKNESS OF 2" MINIMUM.
4. KNOCKOUT OR CUTOUT HOLE SIZE IS EQUAL TO PIPE OUTER DIAMETER PLUS MANHOLE WALL THICKNESS. MAXIMUM PIPE SIZE IS 21" FOR 48" MANHOLE. (MAX. PIPE SIZE MAY BE LIMITED BY PIPE CONFIGURATION.) MINIMUM DISTANCE BETWEEN HOLES IS 8".
5. ALL BASE REINFORCING SHALL HAVE A MINIMUM YIELD STRENGTH OF 60,000 PSI AND BE PLACED IN THE UPPER HALF OF THE BASE WITH 1" MINIMUM CLEARANCE
6. NO STEPS SHALL BE PLACED IN THE ADJUSTMENT SECTION.
7. ALL MANHOLES SHALL HAVE STEPS.
8. THE MANHOLE OPENING SHALL BE ORIENTED DIRECTLY OVER THE INVERT OF THE LARGEST INLET PIPE.
9. USE A-LOK, KOR-N-SEAL. INSERT A TEE, DURASEAL III, OR APPROVED EQUAL MANHOLE ADAPTORS.

MANHOLE DETAIL

N.T.S. 1/11

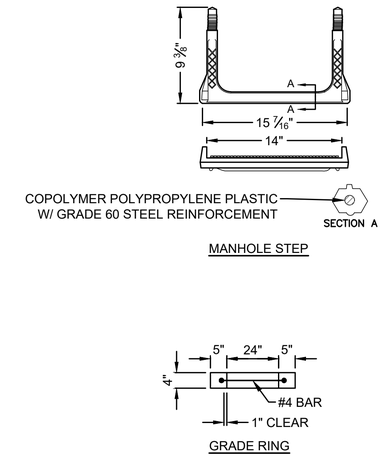


NOTES

1. THE WORD "STORM" OR "SEWER" SHALL BE EMBOSSED ON EACH MANHOLE COVER WITH 3/16" RAISED LETTERS.
2. MANHOLE RINGS AND COVERS SHALL BE IN ACCORDANCE WITH STANDARD SPECIFICATIONS AND MEET THE STRENGTH REQUIREMENTS OF FEDERAL SPECIFICATION RR-F-621E.
3. MATING SURFACES SHALL BE FINISHED TO ASSURE NON-ROCKING FIT WITH ANY COVER POSITION.

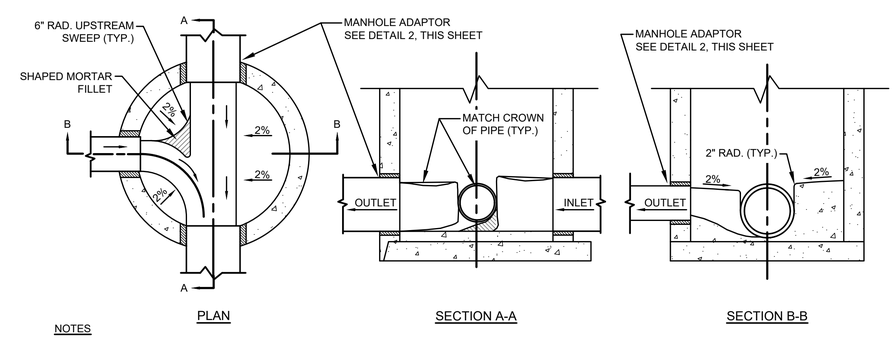
MANHOLE FRAME & COVER

N.T.S. 2/11



MANHOLE CONSTRUCTION DETAILS

N.T.S. 3/11



NOTES

1. THE SHELF AND CHANNEL SHALL HAVE A SMOOTH FINISH.
2. CONSTRUCT SHELF TO THE CROWN LINE OF PIPE.

MANHOLE CHANNEL DETAILS

N.T.S. 4/11

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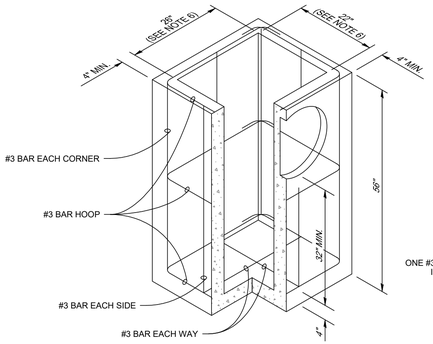
PHASE 1-4 CONSTRUCTION

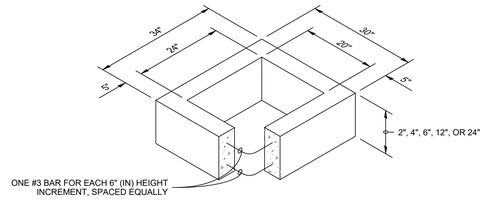
SEWER DETAILS

DRAWING NO. C-502

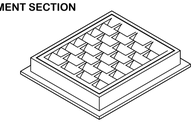
SHEET NO. 30 OF 33



PRECAST BASE SECTION



RECTANGULAR ADJUSTMENT SECTION



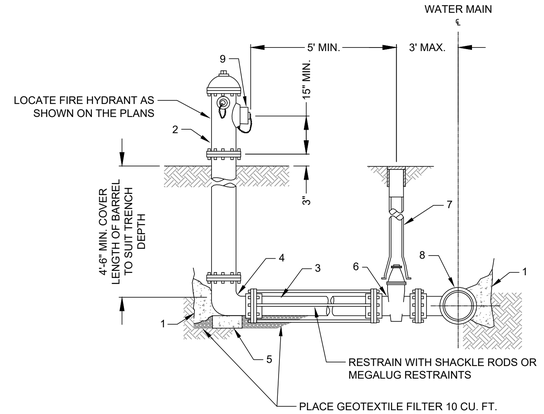
FRAME AND VANED GRATE

NOTES:

1. THE KNOCKOUT DIAMETER SHALL NOT BE GREATER THAN 18". KNOCKOUTS SHALL HAVE A WALL THICKNESS OF 2" MINIMUM TO 2.5" MAXIMUM. PROVIDE A 1.5" MIN. GAP BETWEEN THE KNOCKOUT WALL AND THE OUTSIDE OF THE PIPE. AFTER THE PIPE IS INSTALLED, FILL THE GAP WITH NON-SHRINK GROUT.
2. THE MAXIMUM DEPTH FROM THE FINISHED GRADE TO THE LOWEST PIPE INVERT SHALL BE 5'.
3. THE FRAME AND GRATE MAY BE INSTALLED WITH FLANGE DOWN, OR INTEGRALLY CAST INTO THE ADJUSTMENT SECTION WITH FLANGE UP.
4. THE PRECAST BASE SECTION MAY HAVE A ROUNDED FLOOR, AND THE WALLS MAY BE SLOPED AT A RATE OF 1:24 OR STEEPER.
5. THE OPENING SHALL BE MEASURED AT THE TOP OF THE PRECAST BASE SECTION.
6. ALL PICKUP HOLES SHALL BE GROUTED FULL AFTER THE BASIN HAS BEEN PLACED.

CATCH BASIN

N.T.S. — 1 / 12

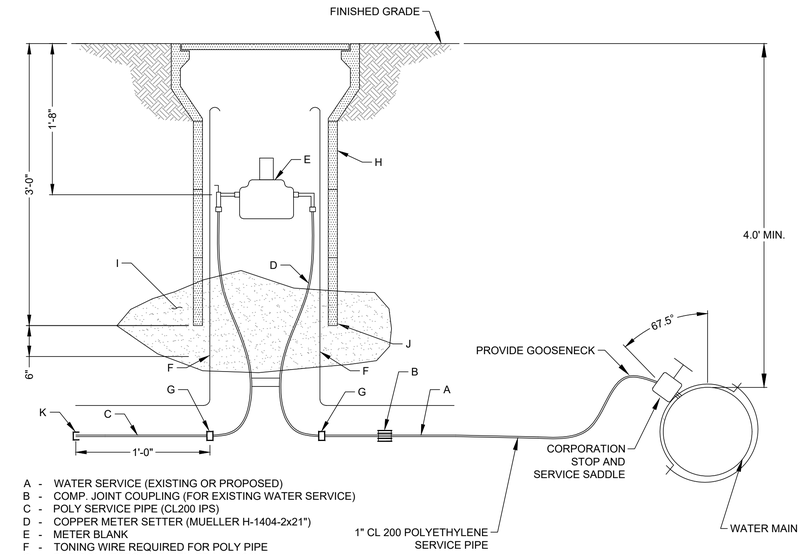


LIST OF MATERIALS

1. CAST IN PLACE CONCRETE THRUST BLOCKS (SEE DETAIL 5, THIS SHEET).
2. FIRE HYDRANT, 5¼" M.V.O. MIN., 6" FLG. SHOE, TWO 2½" HOSE CONNECTIONS AND ONE 4½" PUMPER CONNECTION (N.S.T.), BREAK AWAY FLANGE.
3. 6" DIA. x VARIABLE LENGTH DUCTILE IRON PIPE.
4. FLxMJ HYDRANT SHOE WITH TWO 5/16" DRAIN HOLES.
5. CONCRETE PAD, 15"x15"x4" MIN.
6. 6" GATE VALVE WITH 2" SQ. OPERATING NUT.
7. CAST IRON VALVE BOX, ADJUSTABLE HEIGHT.
8. TEE.
9. STORZ CONNECTOR.

FIRE HYDRANT

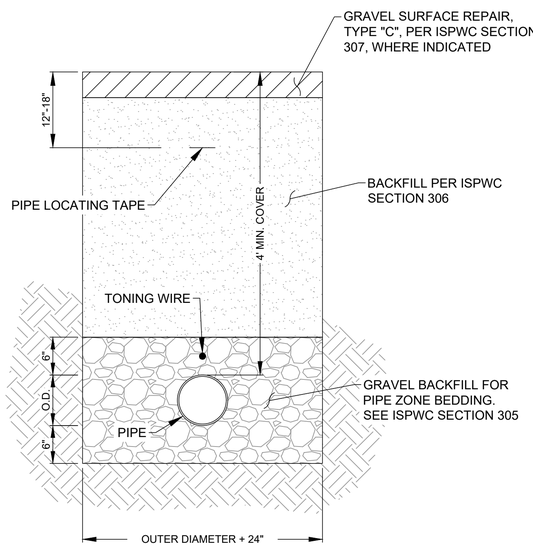
N.T.S. — 2 / 12



A - WATER SERVICE (EXISTING OR PROPOSED)
B - COMP. JOINT COUPLING (FOR EXISTING WATER SERVICE)
C - POLY SERVICE PIPE (CL200 IPS)
D - COPPER METER SETTER (MUELLER H-1404-2x21")
E - METER BLANK
F - TONING WIRE REQUIRED FOR POLY PIPE
G - END CONNECTORS (MUELLER H-14229N)
H - METER BOX
I - COMPACTED GRANULAR MATERIAL
J - PROVIDE SUPPORT WITH BRICKS IF NECESSARY
K - CAP SERVICE PIPE

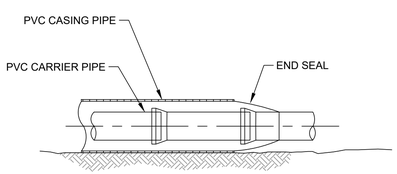
WATER SERVICE AND FUTURE WATER METER

N.T.S. — 3 / 12



TRENCH DETAIL

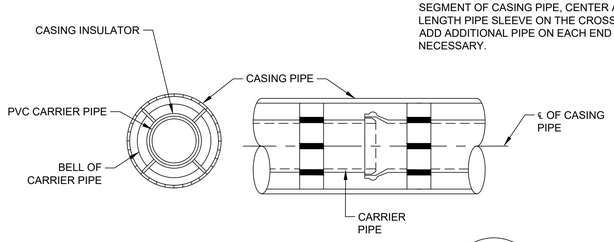
N.T.S. — 4 / 12



PIPE SEAL DETAIL

NOTE:

FOR SLEEVE LENGTHS LONGER THAN A SINGLE SEGMENT OF CASING PIPE, CENTER A FULL LENGTH PIPE SLEEVE ON THE CROSSING AND ADD ADDITIONAL PIPE ON EACH END AS NECESSARY.



PIPE CASING

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DATE: 5/14/2020
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DESIGNED BY: JFQ
DRAWN BY: JFQ
CHECKED BY: RL
SCALE: AS SHOWN

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PHASE 1-4 CONSTRUCTION

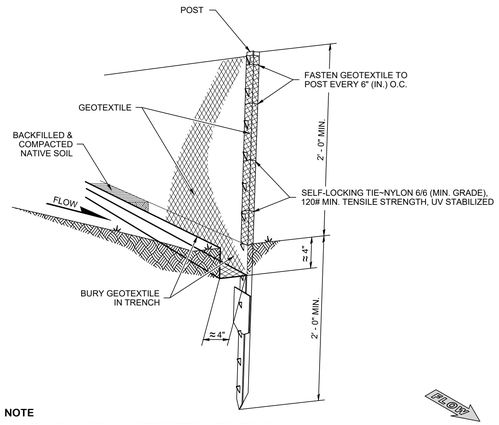
STORM & WATER DETAILS

DRAWING NO. C-503

SHEET NO. 31 OF 33

NOTES:

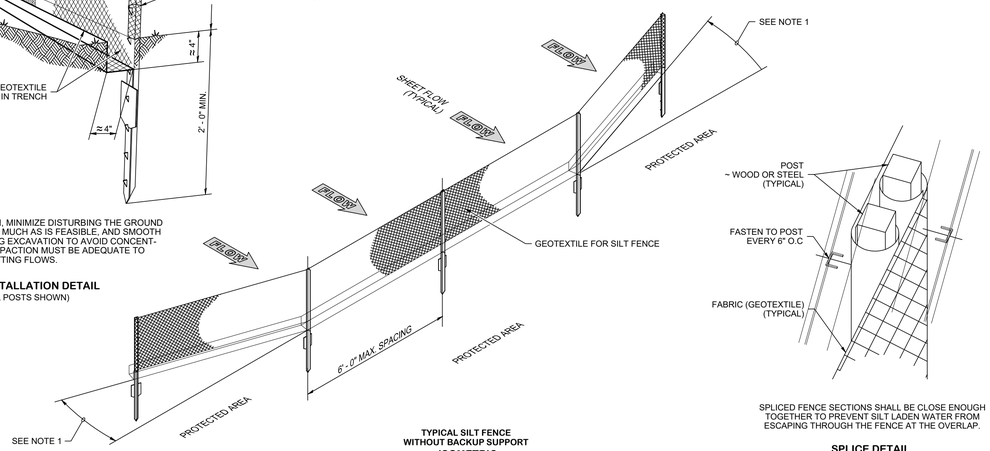
1. INSTALL THE ENDS OF THE SILT FENCE TO POINT SLIGHTLY UPSLOPE TO PREVENT SEDIMENT FROM FLOWING AROUND THE ENDS OF THE FENCE.
2. SPLICES SHALL NEVER BE PLACED IN LOW SPOTS OR SUMP LOCATIONS. IF SPLICES ARE LOCATED IN LOW OR SUMP AREAS, THE FENCE MAY NEED TO BE REINSTALLED UNLESS THE ENGINEER APPROVES THE INSTALLATION.
3. INSTALL SILT FENCING PARALLEL TO MAPPED CONTOUR LINES.



NOTE

DURING EXCAVATION, MINIMIZE DISTURBING THE GROUND AROUND TRENCH AS MUCH AS IS FEASIBLE, AND SMOOTH SURFACE FOLLOWING EXCAVATION TO AVOID CONCENT-RATING FLOWS. COMPACTION MUST BE ADEQUATE TO PREVENT UNDERCUTTING FLOWS.

TYPICAL INSTALLATION DETAIL
(STEEL POSTS SHOWN)



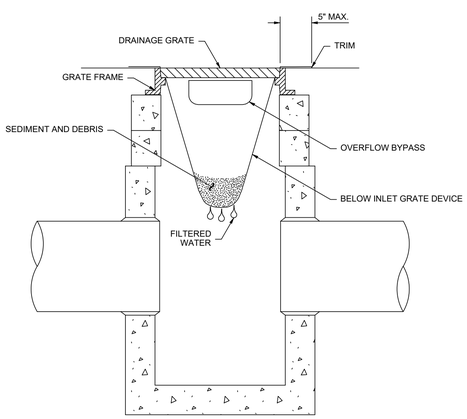
TYPICAL SILT FENCE WITHOUT BACKUP SUPPORT
ISOMETRIC
(STEEL POSTS SHOWN)

SPLICED FENCE SECTIONS SHALL BE CLOSE ENOUGH TOGETHER TO PREVENT SILT LADEN WATER FROM ESCAPING THROUGH THE FENCE AT THE OVERLAP.

SPLICE DETAIL
(WOOD POSTS SHOWN)

SILT FENCE

N.T.S. 1/13



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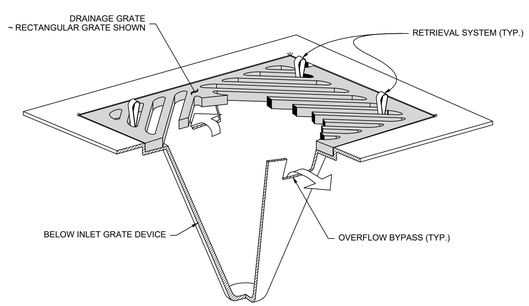
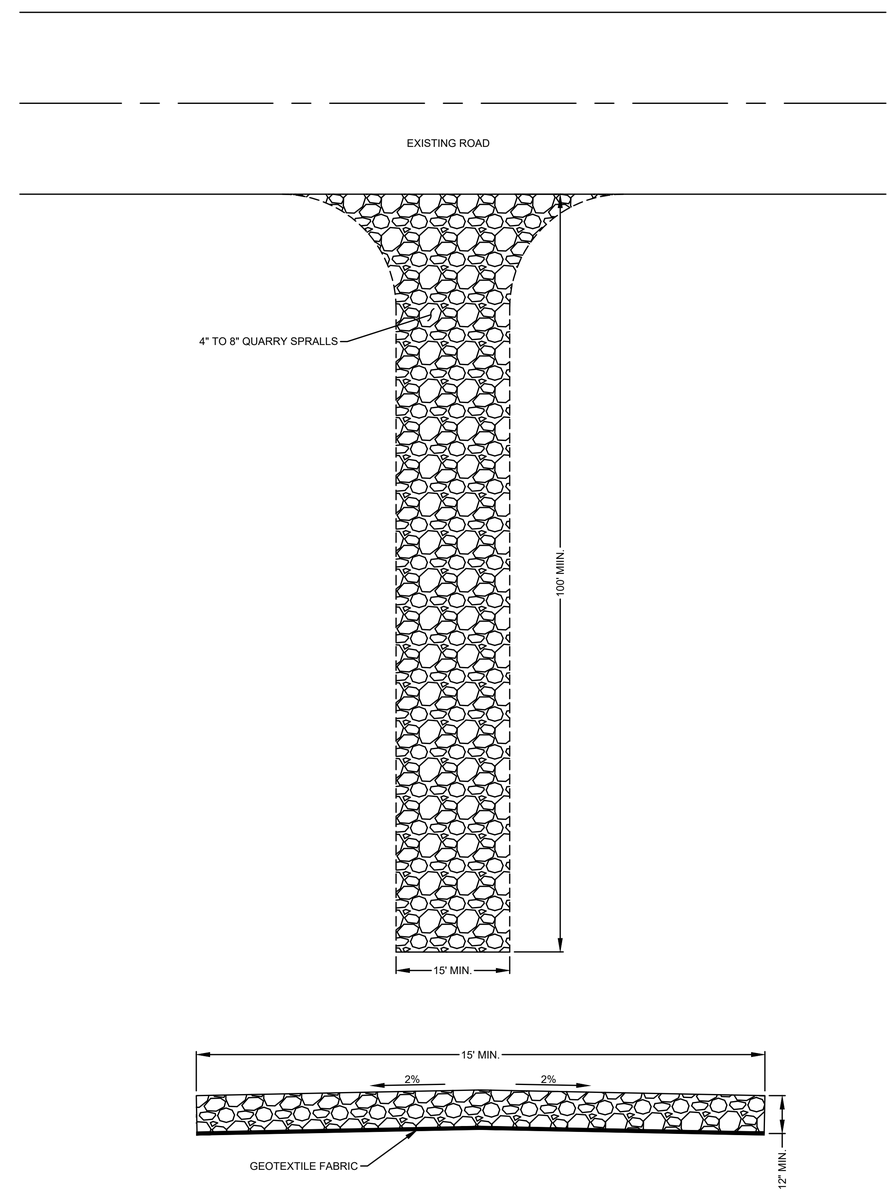


NOTES:

1. SIZE THE BELOW INLET GRATE DEVICE (BIGD) FOR THE STORM WATER STRUCTURE IT WILL SERVICE.
2. THE BIGD SHALL HAVE A BUILT-IN HIGH-FLOW RELIEF SYSTEM (OVERFLOW BYPASS).
3. THE RETRIEVAL SYSTEM MUST ALLOW REMOVAL OF THE BIGD WITHOUT SPILLING THE COLLECTED MATERIAL.

STORM DRAIN INLET PROTECTION

N.T.S. 2/13



STABILIZED CONSTRUCTION ENTRANCE

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CHECKED BY: RL
SCALE: AS SHOWN

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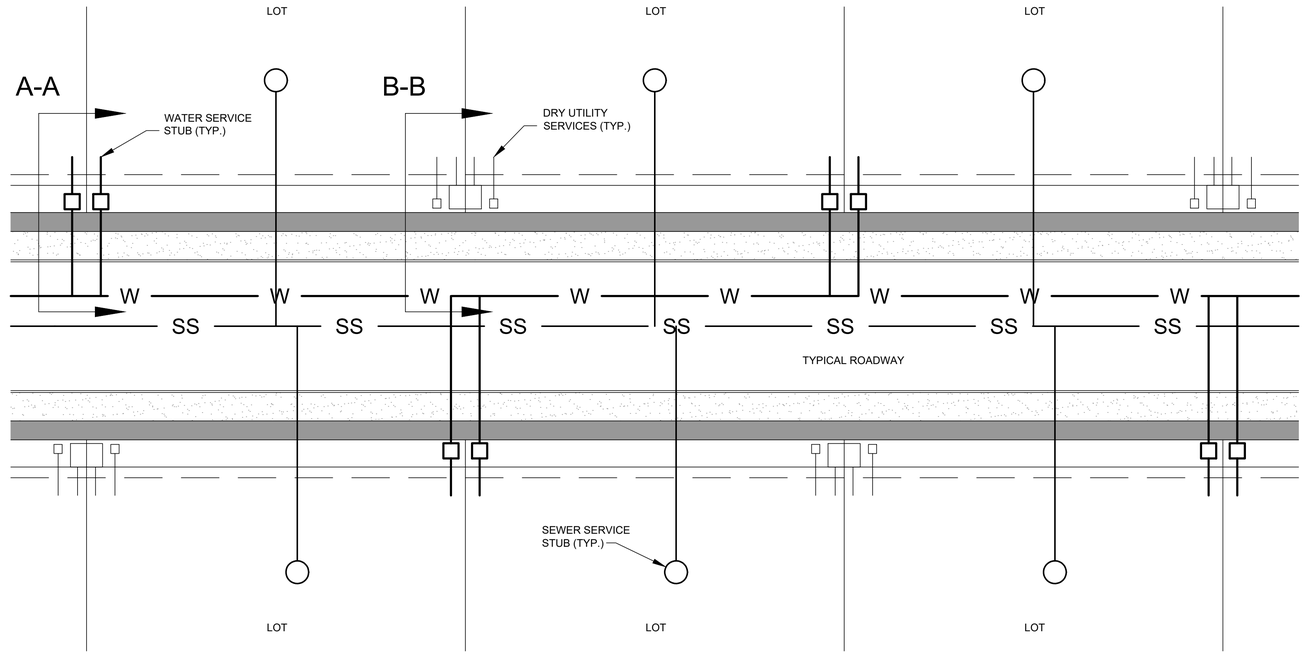
PHASE 1-4 CONSTRUCTION

TESC DETAILS

DRAWING NO. C-504

SHEET NO. 32 OF 33



TYPICAL UTILITY PLACEMENT

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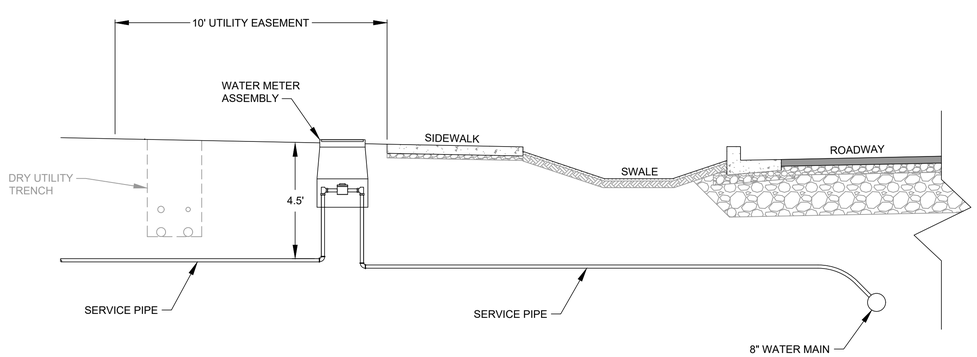
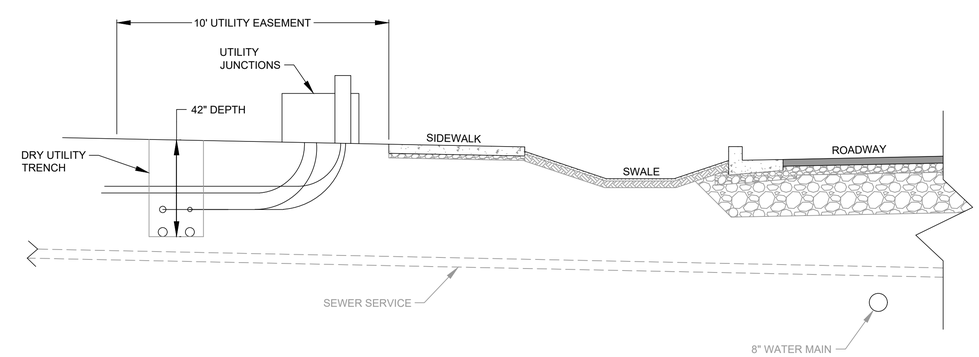


TYPICAL WATER MATER SECTION A-A

N.T.S.



TYPICAL DRY UTILITIES SECTION B-B

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DATE: 5/14/2020
PROJECT NO: 51012.001.01

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UNIVERSITY PARK
K-M ENTERPRISES/M&W HOLDINGS
PHASE 1-4 CONSTRUCTION

UTILITY LAYOUT

DRAWING NO. C-505

SHEET NO. 33 OF 33

CENTURY WEST ENGINEERING

TECHNICAL MEMORANDUM

May 8, 2020

PROFESSIONAL ENGINEER LICENSED 11821 STATE OF IDAHO DANIEL G. REMMICK 5/8/20

TO: City of Sandpoint

FROM: Daniel G. Remmick, P.E.; Century West Engineering

SUBJECT: Sand Creek Lift Station; Capacity for Additional Development

1. Introduction

The Sand Creek Lift Station is located in the northern reaches of Sandpoint near the intersection of East Mountain View Road and Sandcreek Lane, approximately 1,000 feet east of Boyer Avenue. The lift station was originally constructed in 1994. It consists of a 6-foot diameter concrete wet well containing two submersible solids-handling pumps. The wet well is topped with a concrete slab containing a two-leaf steel access hatch. The entire lift station is covered by a stick-frame building. The lift station provides service to 28 existing homes on or near Aspen Way, by way of gravity sewers in Aspen Way and East Mountain View Road.

2. Field Testing

Pump down testing was conducted on March 18, 2020 to verify the capacity of the lift station. The City Public Utilities staff provided access to the lift station and assisted in the testing. The flow rate of each pump was determined by recording the elapsed time to pump a known volume of water. The lift station is equipped with a Milltronics MultiRanger Plus ultra-sonic measuring device, which provides precise measurements of the water level in the wet well. With a known diameter of 6 feet, the volume of water between the pump-on and pump-off water levels is 666.1 gallons. Pump 1 discharged the volume in 1.75 minutes, demonstrating a pumping rate of 380.7 GPM. Pump 2 discharged the same volume in 1.94 minutes, showing a slightly lower rate of 345.2 GPM. Although the pumps are the same, the difference in flow rate is likely due to a worn pump impellor, or similar condition that is reducing the efficiency of Pump 2.

Table 1. Field Test Results

Pump	Elapsed Time (Minutes)	Pumping Rate (GPM)
Pump 1	1.75	380.7
Pump 2	1.94	345.2

3. Average Flow Rate

With a confirmed pumping rate, the average annual flow can be calculated from the run-time meters for each pump, which are recorded frequently by Public Works staff. Between January 30, 2019 and January

29, 2020 Pump 1 operated for a total of 54.0 hours. During the same period, Pump 2 operated 64.9 hours. Together, this calculates to an Average Daily Flow of 7081.5 Gallons per Day through the lift station. For the existing 28 residential connections, this results in an average of 252.9 gallons per day (GPD) per residential connection. This rate is consistent with national averages for residential connections.

4. Future Capacity

The capacity of a lift station is limited by the peak flow that can be handled with the largest pump off-line. This provides a fail-safe so that if one pump fails, the smaller pump can still meet peak demand. For the existing lift station pumps, the limit on the peak flow is 345 GPM.

Peak flow into the lift station cannot be measured directly, but is typically determined by a multiplier of the average flow. The reference *Water Supply and Wastewater Disposal* provides a formula for calculating the peaking factor based on population: $(18 + \sqrt{P})/(4 + \sqrt{P})$ where P is the population in thousands. Projections of University Park buildout plus existing connections indicate the lift station will serve a population of 912 persons. This results in a peaking factor of 3.825. By this factor, and the average flow rate of existing connections, the Sand Creek Lift Station would have capacity to serve a total of 514 Equivalent Residential Units (ERUs).

5. Planned Development

Development of University Park, on what was previously the University of Idaho property east of Boyer Ave. will take place is several phases, with different development types anticipated for each phase. The project is also naturally divided by a drainage channel that splits the development into the north side and south side. The north side will consist of 93 single family homes. To estimate flow rates, it is assumed that each resident will contribute 100 gallons of wastewater per day. This is the top-end of the 80-100 gallon per person per day guideline in the Washington Department of Ecology *Criteria for Sewage Works Design*. Using the U.S. Census average of 2.71 residents per single family home, the average wastewater flow per residential connection is 271 gallons per day. This is higher than the observed flow rate for existing connections, but provides a factor of safety. For the 93 connections in the north side, the peak flow is 67.0 GPM.

The south side will include 51 single family homes, resulting in a peak flow of 36.7 GPM. The south side will also include 160 multi-family dwelling units. U.S. Census data indicates an average of 2.48 residents per multi-family dwelling unit, resulting in an average daily flow of 248 gallons per unit, and a peak flow of 108.1 GPM. The south side also includes 10,000 square feet of commercial space. The *Criteria for Sewage Works Design* recommends a flow rate of 300 gallons per day per 1,000 square feet of commercial space, resulting in an average daily flow of 3,000 gallons, and a peak of 8.0 GPM. A storage unit complex is also planned for this area. Wastewater flows will be limited to a single office, which will be considered equivalent to a single-family residence with an average daily flow of 271 gallons per day, and a peak of 0.72 GPM. In addition, there may be up to five open lots, which will be assumed to each

have wastewater flows equivalent to a single family residence for a total of 1,355 gallons per day, and a peak of 3.6 GPM.

The total for all flows in all phases results in a peak of 221.4 GPM, and an average total of 82,788 gallons per day. The categories and peak flows are summarized in the table below.

Table 2. Planned Development Peak Flow

Category	No. of Units	Flow per Unit (GPD)	Total Peak Flow (GPM)
North Single Family	93	271	67.0
South Single Family	51	271	36.7
South Multi-Family	160	248	105.4
South Commercial	10,000 Sq Ft	300/1,000	8.0
South Storage Units	1	271	0.7
Other Open Lots	5	271	3.6
		Total	**221.4**

6. Conclusion

The existing Sand Creek Lift Station has far greater capacity than is currently being used. With the existing equipment, the lift station has the capacity to handle a peak flow of 345 GPM, with only one pump operating. Existing connections served by the lift station have a peak flow of only 18.8 GPM. The planned future development of University Park has a buildout peak of 221.4 GPM. The total of existing and planned development has a combined peak of 240.2 GPM. This leaves the lift station with a minimum unused capacity of 104.8 GPM. The lift station has adequate capacity to serve the proposed development with significant remaining capacity for other future connections.

Table 3. Sand Creek LS Excess Capacity

Category	Peak Flow (GPM)
Sand Creek LS Peak Capacity	345
Existing Connections	18.8
Planned Connections	221.4
Total Excess Capacity	**104.8**