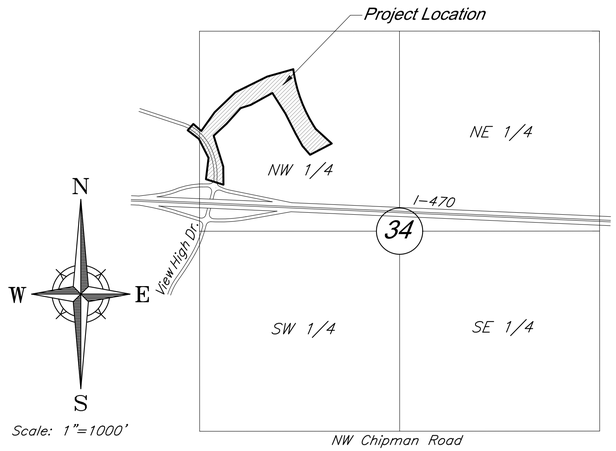
PUBLIC STREET, STORM SEWER AND STREET LIGHTING PLANS
FOR
PARAGON STAR DEVELOPMENT – LEE'S SUMMIT, MO

View High Dr, View High Pkwy, River Rd
Sections 33 & 34–Township 48–Range 32
City of Lee's Summit
Jackson County, Missouri

Design Speed = 40 mph



Scale: 1"=1000'

Summary of Quantities

Item No.	Description	Unit	Approx. Unit Quantity
1	Concrete Surface (7") w/ Aggregate Base (6")	SY	13,858
2	Concrete Curb and Gutter (Type "B")	LF	10,577
3	4" Underdrain	LF	8,627
4	Street Lighting	EA	47
5	8'x5' Curb Inlet	EA	1
6	8'x4' Curb Inlet	EA	3
7	7'x5' Curb Inlet	EA	1
8	7'x3' Curb Inlet	EA	6
9	6'x3' Curb Inlet	EA	5
10	5'x4' Curb Inlet	EA	1
11	5'x3' Curb Inlet	EA	6
12	Storm Sewer (15") (RCP)	LF	985
13	Storm Sewer (18") (RCP)	LF	1,186
14	Storm Sewer (24") (RCP)	LF	370
15	4' MH	EA	4
16	Seeding	Acre	2.91
17	Temporary Gravel Construction Entrance	EA	1
18	Curb Inlet Protection	EA	144
19	Concrete CG-2 (Mountable Curb)(Roundabout)	LF	981
20	Concrete C-1 (Barrier Curb)(Roundabout)	LF	698
21	Brick Pavers (Roundabouts)	SY	3,590
22	Brick Pavers (Street Medians)	SY	2,204
23	5" KCP&L Conduit	LF	5,908
24	4" Telecom conduit	LF	4,570
25	4" SCH 40 PVC	LF	948
26	Cut	CY	18,169
27	Fill	CY	11,609
28	End Section 15" RCP w/ Conc. Toewall	EA	1
29	End Section 18" RCP w/ Conc. Toewall	EA	1
30	End Section 24" RCP w/ Conc. Toewall	EA	1
31	Concrete Sidewalk (6' Wide)	LF	3,654
32	Concrete Sidewalk (10' Wide)	LF	2,345
33	Retaining Wall	SF	337
34	Median Nose	EA	4

PROJECT BENCHMARK

BM #11 – Chiseled "L" on top Northeast corner of concrete guardrail at the Northeast corner of I470 bridge spanning View High Drive.
EL=833.80

KCMO Project Review CLDPIR–2019–00011
KCMO File No. 2019–036

UTILITY CONTACTS

Sanitary Sewers
Mr. Jeff Thorn, PE
City of Lee's Summit Water Utilities
1200 SE Hamblen Road
Lee's Summit, MO 64063
(816) 969–1922
email: jeff.thorn@cityofLS.net

Mr. Jeff Shook
Little Blue Valley Sewer District
21101 East 78 Highway
Independence, MO 64057
(816) 285–1522
email: jshook@lbvsd.net

Water
Mr. Jeff Thorn, PE
City of Lee's Summit Water Utilities
1200 SE Hamblen Road
Lee's Summit, MO 64063
(816) 969–1922
email: jeff.thorn@cityofLS.net

Electric Service
Mr. Nathan Michael
Evergy
P.O. Box 418679
Kansas City, MO 64141
(816) 220–5210
Fax (816) 245–3623
email: Nathan.Michael@kcpl.com

Gas
Mr. Donnie Richards
Missouri Gas Energy
7500 E 35th Terrace
Kansas City, MO 64129
(816) 472–9464
Fax (816) 472–3488
email: donnie.richards@sug.com

Cable Television
Mr. Greg Thomas
Time Warner Cable
8221 W. 119th Street
Overland Park, KS 66213
(913) 643–1950
email: greg.thomas@twcable.com

Telephone
Ms. Glenda Charles
AT&T
1425 Oak Street
Kansas City, MO 64106
(816) 365–1669
Fax (816) 275–1109
email: gc6954@att.com

Missouri One Call System 1–800–344–7483 (DIG–RITE)

VICINITY MAP

Section 33 & 34-T48N-R32W

NOT FOR CONSTRUCTION	
REVIEWED FOR CONSTRUCTION	X

DEVELOPED AND OWNED BY:
PARAGON STAR LLC
801 NORTHWEST COMMERCE CENTER
LEE'S SUMMIT, MISSOURI 64086
PHONE: (816) 802–6801
CONTACT: Mr. Flip Short
EMAIL: fshort@legacytouch.com

PREPARED & SUBMITTED BY:
GEORGE BUTLER ASSOCIATES, INC.
9801 RENNER BOULEVARD
LENEXA, KANSAS 66219
PHONE: 913–492–0400
FAX: 913–577–8312
CONTACT: BRAD BURTON P.E.
EMAIL: BBURTON@GBATEAM.COM

Developers Bonding Statement

I have reviewed these plans and understand what is proposed. The work shall be completed in one contract. Any incidental work not specifically permitted must be preformed by the permit holder.

Developer

This project has been designed, and these plans prepared, to meet or exceed the design criteria of Kansas City, Missouri in current usage, except as indicated below:

Exceptions:
1. None.

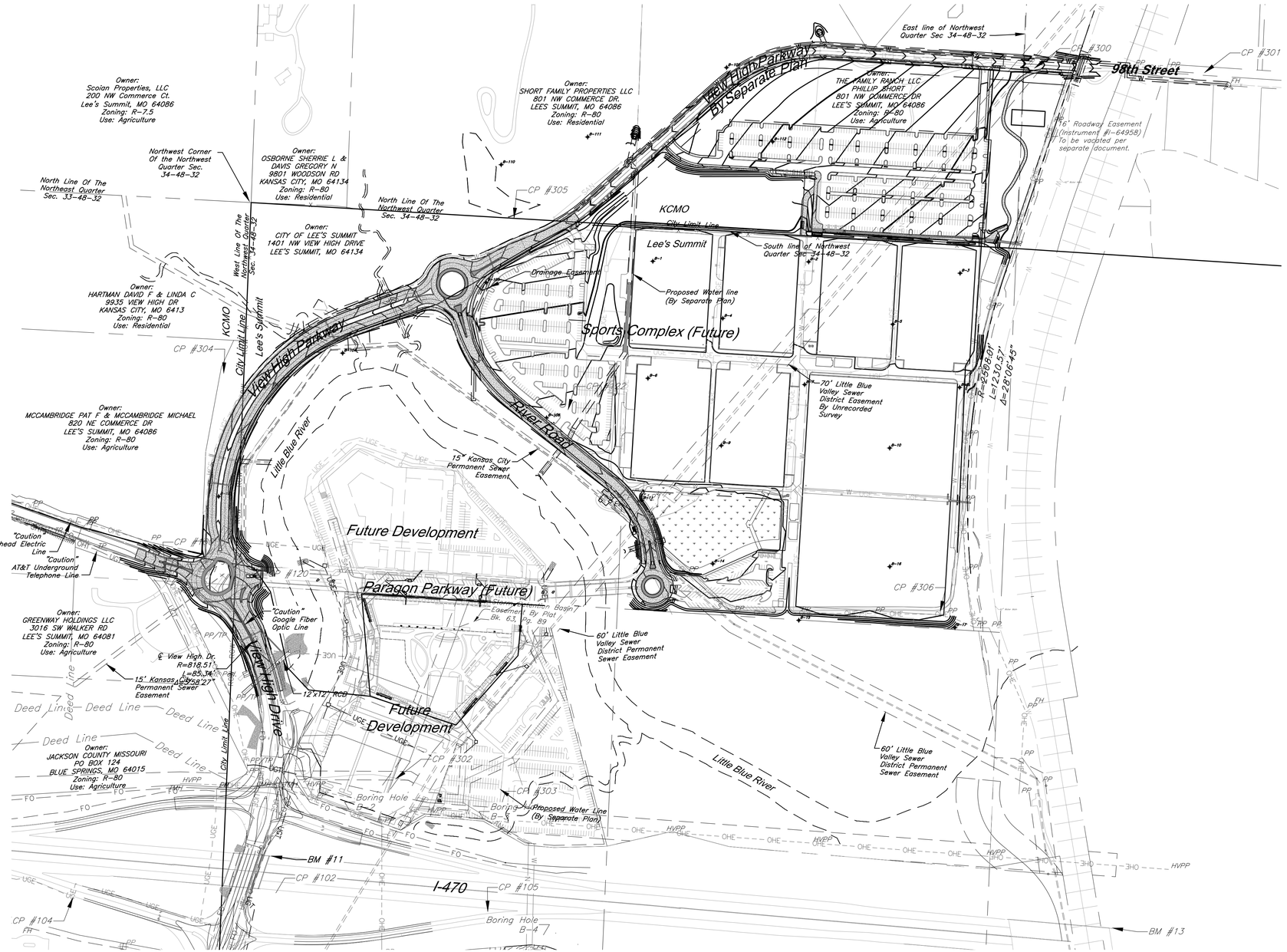
STATE OF MISSOURI
BRADLEY D. BURTON
NUMBER E–25662
REGISTERED PROFESSIONAL ENGINEER
7/17/2020

PROJECT ENGINEER: 7/17/20 DATE:

INDEX OF SHEETS

GBA
architects
engineers
9801 Renner Boulevard
Lenexa, Kansas 66219
913.492.0400
www.gbateam.com

9/2/20 City Comments
6/25/20



Legend

Cable TV Pedestal	Barbed Wire Fence
Power Pole	Centerline
Guy Anchor	Fiber Optic Line
Electrical Manhole	Gas Line
Electric Meter	Guard Rail
Electrical Transformer	Over Head Electric
Electric Pedestal	Over Head Telephone
Power Pole/Telephone Pole	Over Head Cable TV
Power Pole/Light Pole	Property Line
Bollard/Guard Post	Right-of-Way Line
Gas Meter	Sanitary Sewer Line
Gas Valve	Stream
Curb Inlet	Tree Line
Junction Box	Underground Electric
Sanitary Sewer Manhole	Underground Telephone
Sanitary Cleanout	Underground Cable TV
Light Pole	Water Line
Yard Light	Proposed Grades
Boring Hole	Proposed Storm Sewers
Sign	Existing Grades
Property Corner	Existing Storm Sewers
Telephone Manhole	Tree Deciduous
Telephone Pedestal	Fire Hydrant
Telephone Pole	Water Meter
Traffic Signal Controller Box	
Tree Coniferous	

STATE OF MISSOURI
BRADLEY D. BURTON NUMBER E-25862
REGISTERED PROFESSIONAL ENGINEER
9/17/2020

GBA architects engineers
9801 Renner Boulevard
Lenexa, Kansas 66219
913.492.0400
www.gbateam.com

DATE:	6-25-2020
DESIGN BY:	CEL
DRAWN BY:	DRV
PROJECT NO.:	12720
SHEET NO.:	2
TOTAL SHEETS	103

Bradley D. Burton
Professional Engineer
License No. 25862

Street and Storm Sewer Plans

Paragon Star Development

Lee's Summit, Missouri

NO.	DATE	REVISIONS	BY	APPROVED
	9/2/20	City Comments		

FLOODPLAIN NOTE:

According to FEMA Flood Insurance Rate Map (FIRM) Community Panel No. 29095C0404G, effective Date 1/20/17, the tract lies partially within an area designated as Special Flood Hazard Areas. Special Flood Hazard Areas defined on portions of the site include regulatory floodway, Zone AE (with depths identified on site from 810 to 811), and 0.2% Annual Chance Flood Hazard Areas.

A CLOMR has been provided for this project, case number 20-07-0520R, received 2/14/20.

Total Disturbed Area = 10.14 Acres

PROJECT CONTROL

Modified State Plane (Project Ground Coordinates), NAD83
2403 - Missouri West, U.S. Feet
Vertical - NAVD88, U.S. Feet

0.99990648
To get to State Plane:
Coordinates x CAF = State Plane

CP #100 - ½" rebar with GBA cap on South side of View High Drive, 18' West of asphalt field entrance, approximately 975' North along the centerline of View High Drive from the ramp to West bound I-470.
Coordinates:
N: 1009568.88'
E: 2803498.54'
EL: 819.37'
Ties:
1) North 4.15' to the South edge of asphalt of View High Drive
2) East 18.00' to West edge of asphalt field entrance
South 27.50' to west end of 18" cmp culvert for field entrance

CP #120 - ½" rebar with GBA cap at NW corner of View High Drive and access road "Future View High Drive Pkwy"
Coordinates:
N: 1009573.66'
E: 2803729.57'
EL: 811.46'
Ties:
1) NW 3.60' to East edge of asphalt
2) West 51.44' to back of curb at nose of island
NE 56.30' to center of MH lid

CP #121 - ½" rebar with GBA cap approximately 1430'± ENE of access road "Future View High Drive Pkwy" from View High Drive, near MH #1055
Coordinates:
N: 1009788.28'
E: 2805047.90'
EL: 806.65'
Ties:
1) SW 3.65' to center of MH lid
2) WNW 14'± to power pole
3) NW 35.65' to NE corner of chain link fence area

CP #122 - ½" rebar with GBA cap approximately 1380'± NE of access road "Future View High Drive Pkwy" from View High Drive
Coordinates:
N: 1010126.48'
E: 2804884.88'
EL: 813.20'
Ties:
1) West 298'± to center of MH lid
2) South 199'± to center of MH lid

CP #304 - ½" rebar West of future View High Pkwy at top of hill near tree line, approximately 732'± North of access road "Future View High Drive Pkwy" from View High Drive
Coordinates:
N: 1010251.92'
E: 2803699.53'
EL: 839.39'
Ties:
1) NNE 23.10' to South face of twin 10" oak tree
2) SW 5.30' to East face of 10" oak tree
3) NW 14.60' to East face of 9" oak tree

CP #305 - ½" rebar South of dead end of gravel driveway, which connects to Easterly end of E. 97th Street, on top of hill.
Coordinates:
N: 1010784.43'
E: 2804698.47'
EL: 888.55'
Ties:
SE 4.00' to great break at ridge line

PROJECT BENCHMARK

BM #11 - Chiseled "L" on top Northeast corner of concrete guardrail at the Northeast corner of I470 bridge spanning View High Drive. Coordinates: N=1008590.33', E=2803864.07', EL=833.80

BM #13 - Chiseled "L" on NE corner of Interstate 470 and Cedar Creek Bridge Coordinates:N=1008342.79', E=2806758.22', EL=852.04'

200' 0' 200' 400'
SCALE : 1 INCH = 200 FEET

General Layout

STATE OF MISSOURI
BRADLEY D. BURTON
NUMBER E-25862
REGISTERED PROFESSIONAL ENGINEER
9/1/2020

GBA
architects
engineers
9801 Renner Boulevard
Lenexa, Kansas 66219
913.492.0400
www.gbateam.com

DATE:	6-25-2020
DESIGN BY:	CEL
DRAWN BY:	DRV
PROJECT NO.:	12720
SHEET NO.	3
TOTAL SHEETS	103

Bradley D. Burton
Professional Engineer
License No. 25862

Street and Storm Sewer Plans
Paragon Star Development
Lee's Summit, Missouri

NO.	DATE	REVISIONS	BY	APPROVED
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GENERAL NOTES

General Notes:

1. All Construction shall conform to the current City Standards and Specifications of Lee's Summit, MO in effect at the time of the City's approval date shown on the approved plans and incorporated herein by reference.
2. All traffic control shall be the responsibility of the Contractor and shall be in conformance with the Manual of Uniform Traffic Control Devices (MUTCD).
3. Property Corners and/or Section corners disturbed or damaged by construction activities shall be reset by a Registered Land Surveyor licensed in the state of Missouri, at the Contractor's expense.
4. The Contractor shall be responsible for the restoration of the Right-of-Way and for damaged improvements such as curbs, driveways, sidewalks, street light and traffic signal junction boxes, traffic signal equipment, irrigation systems, etc. Damaged improvements shall be repaired in conformance with the latest Lee's Summit, MO standards and to the City's satisfaction.
5. All work shall be confined within easements and/or construction limits as shown on the plans.
6. The Contractor shall, prior to the commencement of work, investigate surface and subsurface conditions to be encountered across the site and notify the Engineer if any discrepancies or changed conditions are noted.
7. This project will include numerous activities occurring on site including storm sewer, sanitary sewer, grading, utility etc. Contractor shall coordinate his work with other contractors on site.
8. All trash and debris identified on site shall be properly handled and disposed of in accordance with state of Missouri regulations.
9. All measurements on these plans are horizontal distances, not slope distances.
10. Items not listed separately in the Summary of Quantities are subsidiary to other items.
11. All site concrete shall be KCMMB – 4,000 PSI unless otherwise noted.
12. All paving shall adhere to Lee's Summit Standards, Section 2200.

Permitting:

13. Excavation for Utility work within the Right of Way requires a Right of Way work permit from the Public Works Department, in addition to all other permits.
14. Contractor is responsible for obtaining all required permits, paying all fees, and for otherwise complying with all applicable regulations governing the work.
15. All work within the floodway, delineated wetland, and regulator stream channels shall adhere to the terms and conditions of the issued CLOMR and Corps of Engineers Section 404 permit permit.

Erosion Control:

16. The Contractor is responsible for providing erosion and sediment control BMP's to prevent sediment from reaching paved areas, storm sewer systems, drainage courses, and adjacent properties. In the event the prevention measures are not effective, the contractor shall remove any debris, silt, or mud and restore the Right-Of-Way, or adjacent properties to original or better condition.
17. Contractor shall ensure that all construction shall conform to the requirements of the Stormwater Pollution Prevention Plan (SWPPP) a copy of which shall be maintained and updated on site by the Contractor.
18. The Contractor shall seed all disturbed areas within the Public Street Right-of-Way unless otherwise noted in the plans.
19. No trees shall be damaged or removed without prior authorization from owner unless otherwise shown on this plan.
20. Inspection and maintenance of the sediment and erosion control BMPs shall be per the project SWPPP, but at a minimum shall be once every 7 days or within 24 hours of a precipitation event of 0.5 inches or greater. Records of inspections shall be kept with the project SWPPP.
21. Trees, where indicated to be removed, shall be completely removed, including root balls.
22. At the contractors option, removed trees may be mulched on site and used as mulch berms in lieu of sediment fence or straw wattles.

Earthwork:

23. The Contractor shall be responsible for removing and disposing of grass and vegetation that is found on site. Contractor shall strip site of organic material to a depth acceptable to the Geotechnical Engineer and prior to the placement of fill. Disposal of all debris shall be performed by the contractor in strict accordance with all applicable codes and ordinances. All clearing and grubbing, stripping, and grading operations shall be performed in accordance with the recommendations as found in the Geotechnical Report, and erosion control and grading plans for this site.

24. Slopes shall be constructed to a maximum slope of 3:1 (Horiz:Vert).
25. Refer to "Geotechnical Engineering Report: Paragon Star – Soccer Fields" Dated 6/27/2016 (Terracon Project #02165149), and "Geotechnical Engineering Report – Paragon Star Roadways and Borrow Site" Dated December 8, 2016 – along with Addendum #1 dated 1/4/17, and Addendum #2 dated 2/13/17, and "Preliminary Geotechnical Report: View High Green Development" Dated May 29, 2013, by Terracon Consultants, Inc., for grading and pavement recommendations and boring logs. All earthwork shall conform to the recommendations of the Report. A copy of the final site soils report and all boring logs will be available for review prior to the commencement of construction. The soils information shown in this set of plans has been provided by Terracon. George Butler Associates, Inc. is not responsible for the adequacy or accuracy of the soils information shown or provided. It is provided for informational purposes only. The content of these plans may change based on recommendations found in the final geo-technical report.
26. Unless otherwise noted, all spot elevations and contours are shown to "finish" grade surface. Contractor shall adjust for any overcut required in paving, parking, landscape, or building pad areas as defined in the Geotechnical Report, these plans, or the project specifications.
27. All temporary slopes and excavations should conform to Occupational Safety and Health Administration (OSHA) standards for the Construction Industry (29 CFR part 1026, subpart P).
28. Cut/Fill – All fills are to be made with suitable structural fill material in accordance with the project's geotechnical report recommendations.

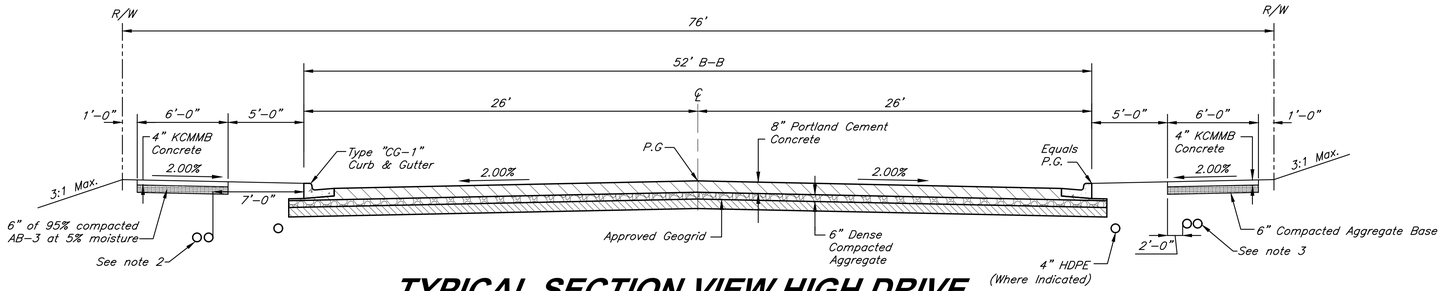
Utility:

29. All Manholes, Catch Basins, Utilty Valves, Meter Pits, and other utility equipment shall be adjusted or rebuilt to grade as required.
30. Prior to beginning work, the Contractor shall notify all utility companies who have facilities in the vicinity of the project area of the work to be performed.
31. All Utility extensions and construction shall conform to the Standards and Specifications of the applicable Utility Companies.

Storm Sewer:

32. All RCP shall be Class III.
33. All HDPE Pipe shall be ADS N-12. Pipe shall meet AASHTO M294.
34. Pipe Lengths are called out from center of structure to center of structure.
35. Drainage across the project site during construction shall be the Contractor's responsibility. Surface drainage shall be controlled to reduce or prevent the flow of surface water onto adjacent grounds. Contractor shall control downstream erosion and silting during construction. Flexibility is given to to the Contractor to make minor grading revisions along roads or between building pads to improve drainage during construction, with prior approval of the engineer.
36. Prior to ordering precast storm sewer structures, Contractor shall provide shop drawings to the Engineer for review and approval.

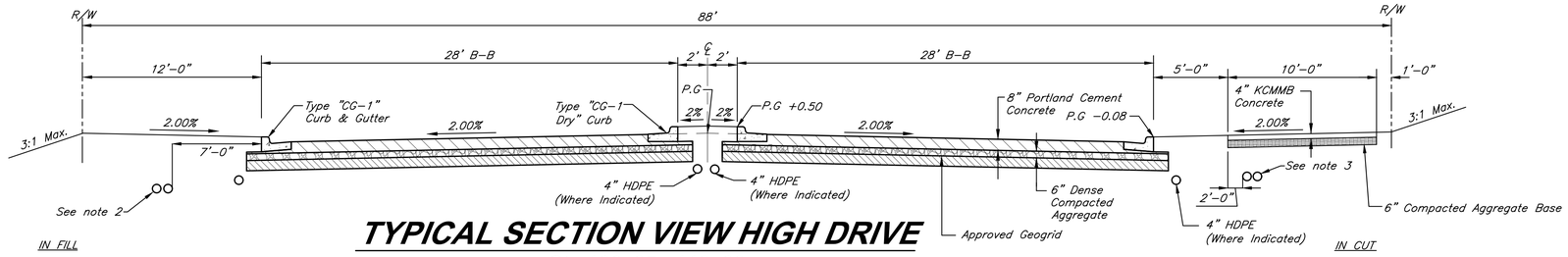
General Notes



TYPICAL SECTION VIEW HIGH DRIVE

Sta 111+00 - 113+50

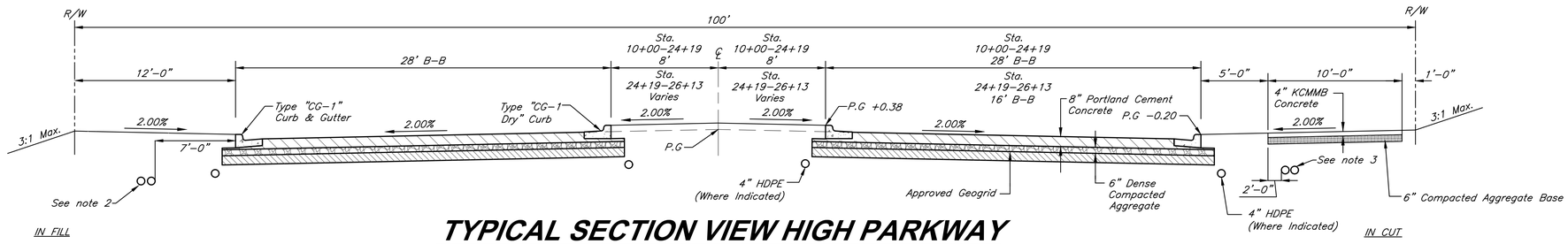
Scale: 1" = 5'



TYPICAL SECTION VIEW HIGH DRIVE

Sta 106+25 - 110+00

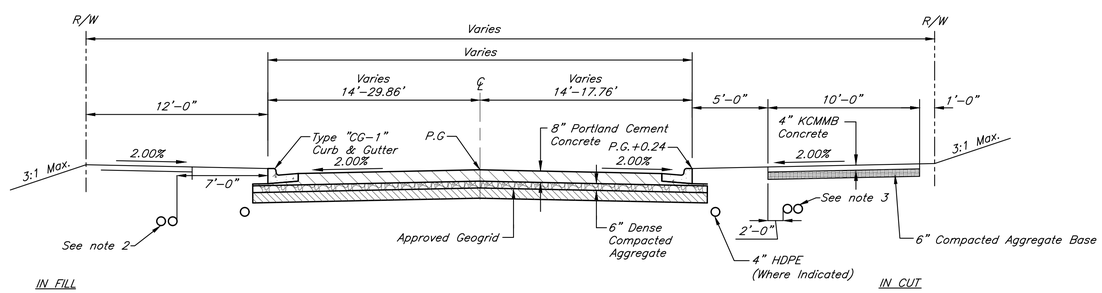
Scale: 1" = 5'



TYPICAL SECTION VIEW HIGH PARKWAY

Sta 10+00 - 26+13

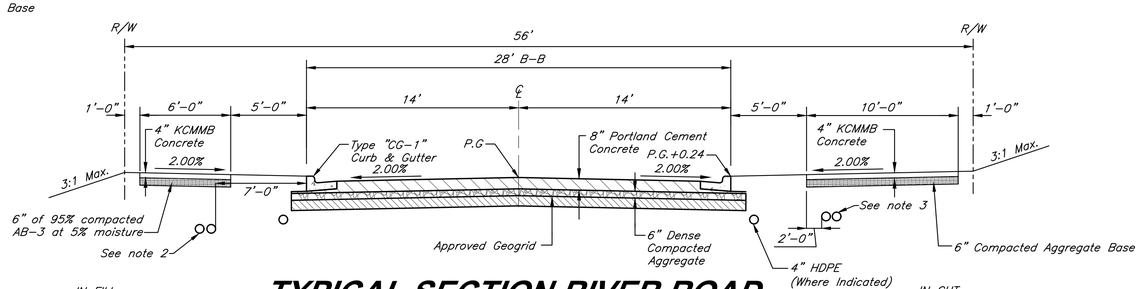
Scale: 1" = 5'



TYPICAL SECTION VIEW HIGH PARKWAY

Sta 26+13 - 29+07

Scale: 1" = 5'



TYPICAL SECTION RIVER ROAD

Sta 10+00 - 23+06

Scale: 1" = 5'

NOTES:

1. All paving shall adhere to Lee's Summit Standards, Section 2200.
2. Install Two 5" PVC Schedule 40 electrical conduit. Minimum 41" depth from final grade to top of conduit with buried electric line plastic caution tape at a depth of 12" per utility standards.
3. Install Two 4" PVC Schedule 40 electrical conduit. Minimum 30" depth from final grade to top of conduit with buried electric line plastic caution tape at a depth of 12" per utility standards.

STATE OF MISSOURI
BRADLEY D. BURTON
NUMBER E-25862
REGISTERED PROFESSIONAL ENGINEER
9/1/2020

GBA architects engineers
9801 Renner Boulevard
Lenexa, Kansas 66219
913.492.0400
www.gbateam.com

DATE:	6-25-2020
DESIGN BY:	CEL
DRAWN BY:	DRV
PROJECT NO.:	12720
SHEET NO.	4
TOTAL SHEETS	103

Bradley D. Burton
Professional Engineer
License No. 25862

Street and Storm Sewer Plans

Paragon Star Development

Lee's Summit, Missouri

NO.	DATE	REVISIONS	BY	APPROVED
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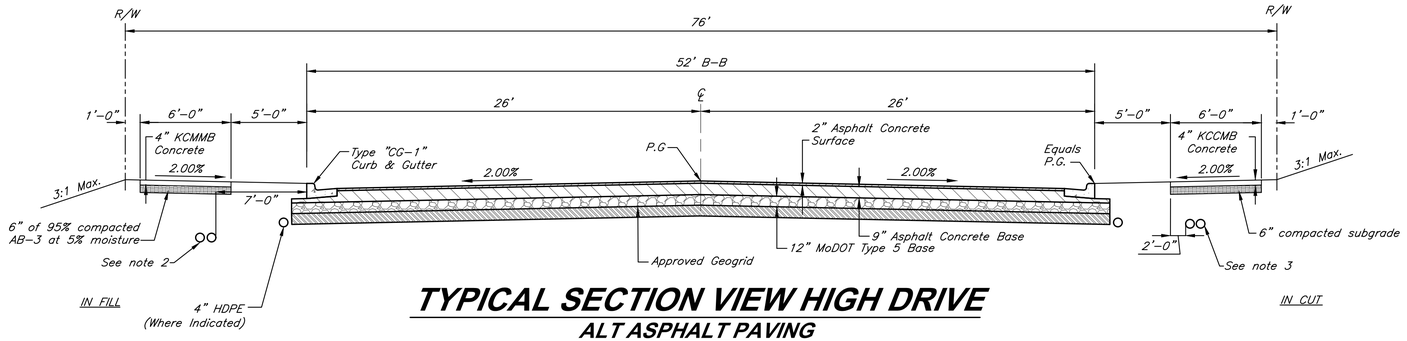
Typical Sections

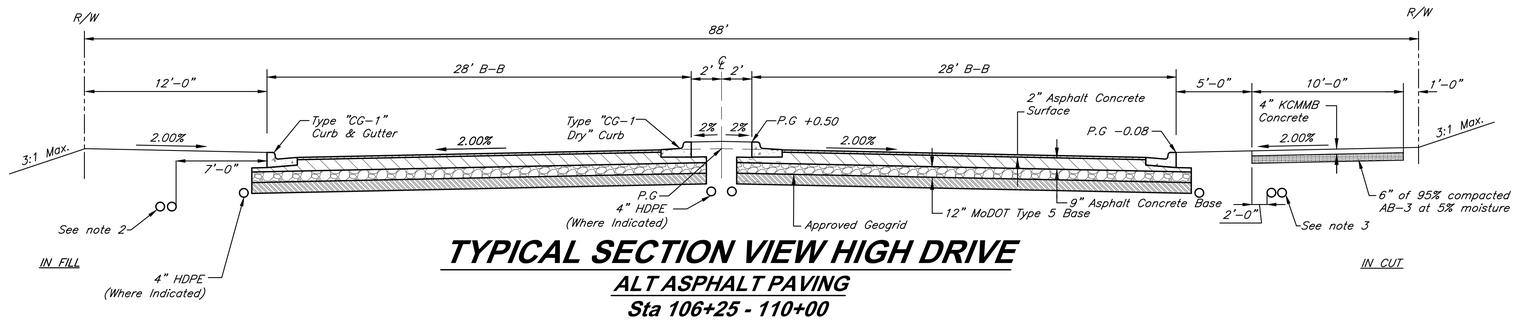


TYPICAL SECTION VIEW HIGH DRIVE

ALT ASPHALT PAVING

Sta 111+00 - 113+50

Scale: 1" = 5'

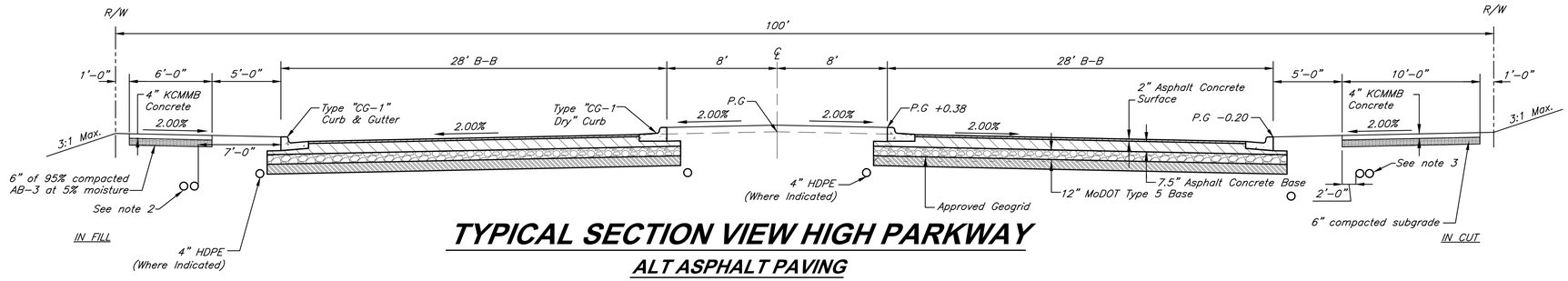


TYPICAL SECTION VIEW HIGH DRIVE

ALT ASPHALT PAVING

Sta 106+25 - 110+00

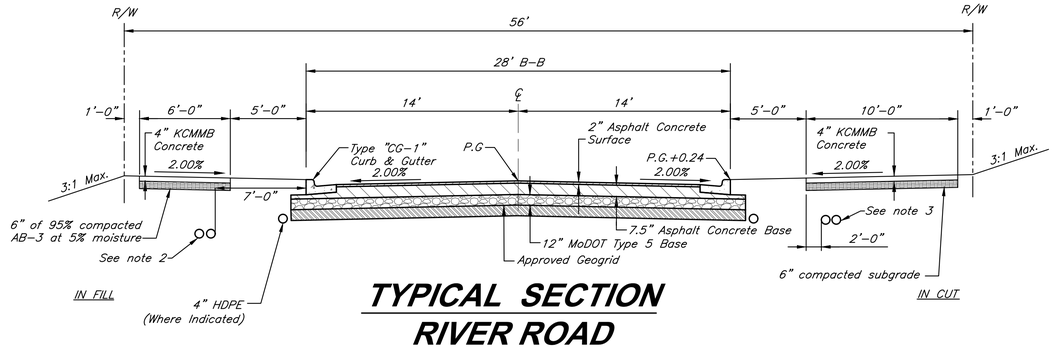
Scale: 1" = 5'



TYPICAL SECTION VIEW HIGH PARKWAY

ALT ASPHALT PAVING

Scale: 1" = 5'



TYPICAL SECTION
RIVER ROAD

ALT ASPHALT PAVING

Scale: 1" = 5'

STATE OF MISSOURI
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DESIGN BY:	CEL
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Street and Storm Sewer Plans

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NOTES:

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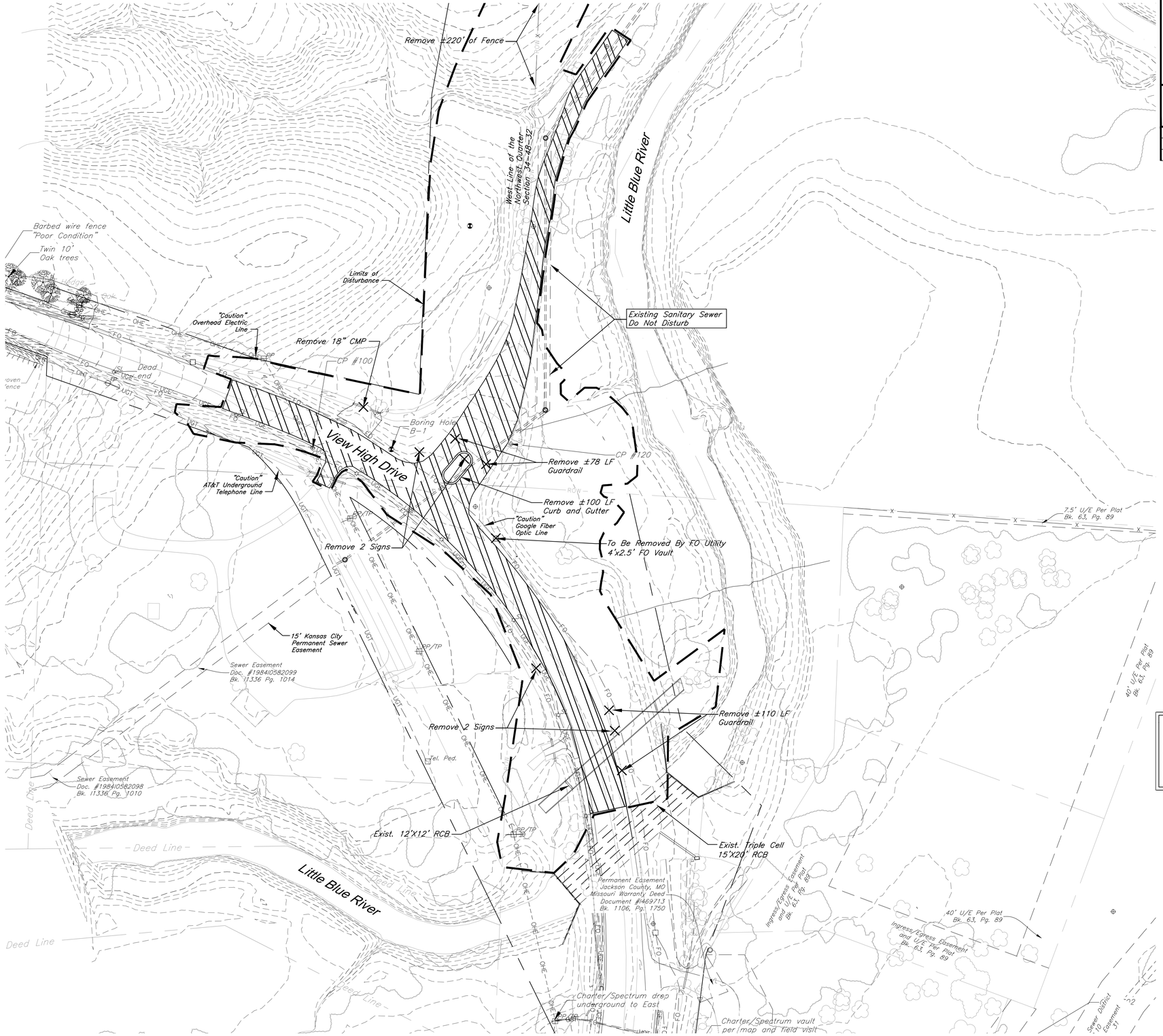
2. Install Two 5" PVC Schedule 40 electrical conduit. Minimum 41" depth from final grade to top of conduit with buried electric line plastic caution tape at a depth of 12" per utility standards.
3. Install Two 4" PVC Schedule 40 electrical conduit. Minimum 30" depth from final grade to top of conduit with buried electric line plastic caution tape at a depth of 12" per utility standards.

Typical Sections Alt.



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Street and Storm Sewer Plans

Paragon Star Development

Lee's Summit, Missouri

NO.	DATE	REVISIONS	BY	APPROVED
	9/2/20	City Comments		

PROJECT BENCHMARKS

BM #11 – Chiseled "L" on top Northeast corner of concrete guardrail at the Northeast corner of I470 bridge spanning View High Drive.
EL=833.80

Notes:

1. All material to be removed shall be disposed of off site by contractor. All disposal shall meet all applicable local, state, and federal guidelines.
2. Trees marked for removal shall be completely removed, including root balls.
3. All pavement and concrete shall be cleanly sawcut prior to removal.
4. All demolition shall be as per these plans and shall adhere to all local, state, and federal laws, ordinances, codes, and statutes governing such demolition.
5. Contractor shall remove any existing facilities as required to complete the construction of all site improvements detailed on these plans.
6. Any Utility relocation shall be performed by respective Utility companies.
7. Stapling, nailing or otherwise attaching materials to trees to be preserved is not allowed.

TO BE REMOVED:

Asphalt	5210 SY
Curb and Gutter	100 LF
Street Signs	4
Fence	220 LF
Guardrail	188 LF
4'x2.5' FO Vault	1
18" CMP	34 LF

LEGEND

- Existing asphalt pavement to be removed
- X Existing site features to be removed
- — — Limits of Disturbance

CAUTION!
Existing Utilities shown per the best information available to the Engineer. Contractor to locate existing utilities and irrigation system prior to construction

Demolition Plan

Owner:
JACKSON COUNTY MISSOURI
PO BOX 124
BLUE SPRINGS, MO 64015
Zoning: R-80
Use: Agriculture

Owner:
GREENWAY HOLDINGS LLC
3016 SW WALKER RD
LEE'S SUMMIT, MO 64081
Zoning: R-80
Use: Agriculture

Owner:
MCCAMBRIDGE PAT F & MCCAMBRIDGE MICHAEL
820 NE COMMERCE DR
LEE'S SUMMIT, MO 64086
Zoning: R-80
Use: Agriculture

Point of Curvature
View High Drive
Station=104+17.65
Northing=1008945.0810
Easting=2803871.4939

Sta. 106+66.33, 53.07' Lt.
View High Drive
Existing 12'x12' RCB Headwall
N-1009177.0769 E-2803797.9812

Permanent Easement
Jackson County, MO
Missouri Warranty Deed
Document #I469713
Bk. 1106, Pg. 1750

Ingress/Egress Easement
and U/E Per Plat
Bk. 63, Pg. 89

Begin Construction
View High Drive
Station=106+25.00
Northing=1009150.5259
Easting=2803858.8759

Existing Triple
15'x20' RCB

Sta. 106+25.00, 45.00 Rt, to
Sta. 107+50.00, 45.00 Rt.
Install MoDot Type D Permanent
Concrete Traffic Barrier.
See Sht. 40 for detail

Sta. 107+22.25, 68.54' Rt.
View High Drive
Existing 12'x12' RCB Headwall
N-1009266.3281 E-2803897.9324

Sta. 107+34.41, 82.93' Rt.
View High Drive
Connect to 4100 Headwall
N-1009283.6073 E-2803907.1489

Sta. 108+32.93, 43.79' Rt.
View High Drive
Construct 7'x5' Curb Inlet
N-1009365.8400 E-2803829.5712

Sta. 106+25.00, 32.00 Lt, to
Sta. 107+50.00, 32.00 Lt.
Install MoDot Type B Permanent
Concrete Traffic Barrier.
See Sht. 37 for detail.

"Caution" Existing
AT&T Underground
Telephone Line

Sta. 108+33.00, 33.00' Lt.
View High Drive
Construct 7'x3' Curb Inlet
N-1009331.5735 E-2803760.8533

Point of Tangent
View High Drive
Station=108+91.18
Northing=1009397.4033
Easting=2803762.5244

"Caution" Existing
Underground
Electric

"Caution" Existing
Google Fiber Optic
Line

10' Concrete
Sidewalk

Sta. 110+58.15, View High Drive=
Sta. 9+62.60, View High Pkwy
See Intersection Detail Sht. 18
N-1009539.9866
E-2803676.5832

Sta. 9+84.48, View High Pkwy=
Sta. 10+00.00, Paragon Parkway
N-1009556.4995
E-2803676.9233

15' Kansas City
Permanent Sewer
Easement

Sta. 112+22.92, 19.64' Lt.
View High Drive
Construct 5'x3' Curb Inlet
N-1009571.6605 E-2803513.7011

"Caution" Existing
Overhead Power
Lines

KCMO MH#10735
Top=814.37

Proposed Underground
Telephone - See Sht. 12

Proposed
Water Line
(By Separate Plan)

Boring Hole
B-1

KCMO MH#1048
Top=814.20

10' Concrete
Sidewalk

15' Kansas City
Permanent Sewer
Easement

Future Underground
Electric

Point of Curvature
View High Drive
Station=112+30.45
Northing=1009592.6680
Easting=2803512.5312

Point of Tangent
View High Drive
Station=112+87.83
Northing=1009610.9933
Easting=2803458.1576

End Construction
View High Drive
Station=113+50.00
Northing=1009631.6909
Easting=2803399.5370

Sta. 113+57.31, 30.51' Rt.
View High Drive
Construct 5'x3' End Section w/ Toe Wall
N-1009662.8968 E-2803402.8075

Construct Median Nose
See Detail Sht. 40

Sta. 112+22.68, 24.62' Rt.
View High Drive
Construct 5'x3' Curb Inlet
N-1009613.7324 E-2803527.4624

Retaining Wall,
See Sht. 18

Sta. 111+20.29, 62.03' Rt.
View High Drive
Construct 4' Diameter Manhole
N-1009618.0413 E-2803636.3840

Private Storm Sewer
204-204A

Proposed Underground
Electric - See Sht. 12

① Curve Data

Δ=34°09'06"
R=818.51'
L=487.88'
T=251.43'

② Curve Data

Δ=1°38'38"
R=2000.00'
L=57.38'
T=28.69'

STATE OF MISSOURI
BRADLEY D. BURTON
NUMBER E-25862
REGISTERED PROFESSIONAL ENGINEER
9/17/2020

GBA
architects
engineers
9801 Renner Boulevard
Lenexa, Kansas 66219
913.492.0400
www.gbateam.com

DATE:	6-25-2020
DESIGN BY:	CEL
DRAWN BY:	DRV
PROJECT NO.:	12720
SHEET NO.	TOTAL SHEETS
7	103

Bradley D. Burton
Professional Engineer
License No. 25862

Street and Storm Sewer Plans
Paragon Star Development
Lee's Summit, Missouri

NO.	DATE	REVISIONS	BY	APPROVED
	9/2/20	City Comments		

PROJECT BENCHMARK

BM #11 – Chiseled "L" on top Northeast corner of concrete guardrail at the Northeast corner of I470 bridge spanning View High Drive.
EL=833.80

Notes:

1. Pipe length called out is from center of structure to center of structure.
2. Storm Sewer Structure Station offset and coordinates based on center of structure. Top elevations are top center of lid.
3. Tops on all in grade inlets shall maintain street slope, low point inlets to be set level.
4. Boring information based on original undisturbed earth – see Geotechnical report.

Horizontal Scale: 1" = 50'
Vertical Scale: 1" = 10'

View High Drive

Design Speed = 40 MPH

HIGH POINT ELEV = 813.42
HIGH POINT STA = 105+78.79
PVI STA = 106+00
PVI ELEV = 813.81
A.D. = -1.65%
K = 121.21

LOW POINT ELEV = 811.77
LOW POINT STA = 108+33.14
PVI STA = 108+75.00
PVI ELEV = 811.06
A.D. = 3.44%
K = 58.14

LOW POINT ELEV = 816.18
LOW POINT STA = 110+85.00
PVI STA = 112+10.00
PVI ELEV = 819.23
A.D. = 3.99%
K = 62.59

BVCS: 105+00
BVCE: 813.16

Sta. 105+93.85 View High Drive
Existing Triple 15'x20' RCB

Sta. 106+25 View High Drive
Begin Roadway Construction

EVCS: 107+00
EVCE: 812.81

BVCS: 107+75.00
BVCE: 812.06

Sta. 107+82.62
Water Main
(by separate plan)

Sta. 106+93.00 View High Drive
Existing 12'x12' RCB

Sta. 108+32.97
Proposed 18" RCP Pipe

EVCS: 109+75.00
EVCE: 813.50

℄ Roundabout

Sta. 110+82.60
Proposed UGE

BVCS: 110+85.00
BVCE: 816.18

Sta. 110+89.27
Proposed UGT

Sta. 111+39.65
Proposed Water Main
(by separate plan)

Sta. 112+65.86
"Caution" OHE Crossing

Sta. 110+62.11 View High Drive
Existing 21" PVC Sanitary Sewer

Sta. 112+22.81
Proposed 15" RCP Pipe

EVCS: 113+35.00
EVCE: 827.28
Sta. 113+50 View High Drive
End Roadway Construction

Plan & Profile (View High Dr)

Sta. 10+95.34, 52.92' Lt.
View High Pkwy
15" RCP end of Pipe. Const. Conc. Headwall,
See Sht. 35 for Detail.
N-1009673.7904 E-2803626.4056

Owner:
MCCAMBRIDGE PAT F & MCCAMBRIDGE MICHAEL
820 NE COMMERCE DR
LEE'S SUMMIT, MO 64086
Zoning: R-80
Use: Agriculture

Sta. 10+95.08, 40.89' Lt.
View High Pkwy
Construct 4' Dia. Manhole
N-1009673.2803 E-2803638.4263

Sta. 12+11.27, 38.99' Lt.
View High Pkwy
Construct 7'x3' Curb Inlet
N-1009789.4115 E-2803642.7203

Sta. 12+93.85, 39.01' Lt.
View High Pkwy
Construct 7'x3' Curb Inlet
N-1009876.2320 E-2803649.5415

Sta. 19+69.70, 39.48' Lt.
View High Pkwy
Construct 6'x4' Curb Inlet
N-1010434.9658 E-2804048.1371

Sta. 18+54.66, 38.98' Lt.
View High Pkwy
Construct 7'x3' Curb Inlet
N-1010371.1162 E-2803944.9431

Curve Data
1
Δ=68°37'01"
R=700.00'
L=838.31'
T=477.66'

Existing Fence To Be Removed See Sheet 6

Proposed Underground Electric – See Sht. 13

15' South Woods, Inc. Permanent Sewer Easement

Drainage Easement

Existing 8'x8' Concrete Box Culvert W/Conc. Headwalls

Proposed Underground Electric – See Sht. 13

Proposed Water Line (By Separate Plan)

Match Sta. 20+75 (See Sheet 9)

Proposed Water Line (By Separate Plan)

Install 4 SY Riprap D50=12" Depth=24" See Construction Details

Retaining Wall, See Sht. 18

Private Storm Sewer 204-204A

Existing 42" RCP Culvert

Existing 48" RCP Culvert

KCMO MH#1049

KCMO MH#1051

KCMO MH#1054

KCMO MH#1063

Proposed Underground Telephone – See Sht. 13

10' Concrete Sidewalk

15' Kansas City Permanent Sewer Easement

Drainage Easement

Sta. 13+84.48, 39.50' Rt.
View High Pkwy
Existing 7'x4' Curb Inlet
N-1009949.1768 E-2803744.4711

Sta. 13+56.19, 38.98' Lt.
View High Pkwy
Construct 5'x3' Curb Inlet
N-1009940.9227 E-2803661.4805

Sta. 12+92.96, 39.00' Rt.
View High Pkwy
Construct 7'x3' Curb Inlet
N-1009864.6986 E-2803726.6943

Sta. 12+13.72, 39.01' Rt.
View High Pkwy
Construct 6'x3' Curb Inlet
N-1009790.1576 E-2803720.7534

Sta. 18+53.08, 39.10' Rt.
View High Pkwy
Construct 4'x3' Curb Inlet
N-1010307.2355 E-2803989.8673

Sta. 19+68.53, 39.00' Rt.
View High Pkwy
Construct 6'x3' Curb Inlet
N-1010364.4158 E-2804082.5371

Sta. 20+25.55, 39.01' Rt.
View High Pkwy
Construct 6'x3' Curb Inlet
N-1010386.7774 E-2804131.4975

Sta. 20+32.89, 83.41' Rt.
View High Pkwy
End Of Pipe @ Existing Piping Penetration in Headwall
N-1010348.0995 E-2804154.2944

Point of Tangent
View High Pkwy
Station=20+50.32
Northing=1010431.8534
Easting=2804139.8243

N69°47'48"E 368.85'

Sta. 9+62.60, View High Pkwy=
Sta. 110+58.15, View High Drive
See Intersection Detail Sht. 18
N-1009539.9866
E-2803676.5832

Point of Curvature
View High Pkwy
Station=12+12.00
Northing=1009789.3364
Easting=2803681.7189

Sta. 9+84.48, View High Pkwy=
Sta. 10+00.00, Paragon Parkway
N-1009561.8649
E-2803677.0338

Little Blue River

City Limit Line

Existing R/W

View High Drive

Paragon Pkwy (Future)

B-101

B-102

B-103

B-104

Soil Boring (Typ.)

Horizontal Scale: 1" = 50'
Vertical Scale: 1" = 10'

STATE OF MISSOURI
BRADLEY D. BURTON
NUMBER E-25862
REGISTERED PROFESSIONAL ENGINEER
9/17/2020

GBA architects engineers
9801 Renner Boulevard
Lenexa, Kansas 66219
913.492.0400
www.gbateam.com

DATE:	6-25-2020
DESIGN BY:	CEL
DRAWN BY:	DRV
PROJECT NO.:	12720
SHEET NO.	8
TOTAL SHEETS	103

Bradley D. Burton
Professional Engineer
License No. 25862

Street and Storm Sewer Plans
Paragon Star Development
Lee's Summit, Missouri

NO.	DATE	REVISIONS	BY	APPROVED
	9/2/20	City Comments		

PROJECT BENCHMARK

BM #11 – Chiseled "L" on top Northeast corner of concrete guardrail at the Northeast corner of I470 bridge spanning View High Drive.
EL=833.80

Notes:

1. Pipe length called out is from center of structure to center of structure.
2. Storm Sewer Structure Station offset and coordinates based on center of structure. Top elevations are top center of lid.
3. Tops on all in grade inlets shall maintain street slope, low point inlets to be set level.
4. Boring information based on original undisturbed earth – see Geotechnical report.

View High Parkway

Design Speed = 40 MPH

Sta. 9+62.60 View High Parkway=
Sta. 110+58.15 View High Drive=
Sta. 10+00.00 Paragon Parkway

Sta. 10+97.12 Proposed DI2
Sta. 11+02.88 Proposed DI1

-1.00%

Mass Grading Surface

0'–10' Lean Clay

LOW POINT ELEV = 812.62
LOW POINT STA = 12+92.43
PVI STA = 12+96.67
PVI ELEV = 812.22
A.D. = 2.12%
K = 70.75

150.00' VC

BVCS: 12+21.67
BVCE: 812.97

B-101 Boring

Sta. 12+93.43 Proposed 24" RCP Pipe

EVCS: 13+71.67
EVCE: 813.06

Sta. 13+74.25 View High Parkway Existing 42" RCP

1.12%

City Limit Line

HIGH POINT ELEV = 814.93
HIGH POINT STA = 16+05.00
PVI STA = 16+21.67
PVI ELEV = 815.86
A.D. = -2.52%
K = 119.05

300.00' VC

Proposed Grade

Existing Ground

B-102 Boring

0'–14.7' Lean Clay
14.7'–18' Sandstone
18'–20.5' Shale
20.5'–21.4' Limestone

-1.40%

LOW POINT ELEV = 811.60
LOW POINT STA = 19+70.65
PVI STA = 20+31.67
PVI ELEV = 810.12
A.D. = 4.72%
K = 63.56

300.00' VC

BVCS: 18+81.67
BVCE: 812.22

B-103 Boring

0'–18.5' Lean Clay
18.5–22' Shale
22'–23.4' Limestone

Sta. 19+69.15 Proposed 24" RCP Pipe

Sta. 20+27.19 View High Parkway Existing 8'x8' RCB

Match Sta. 20+75 (See Sheet 9)

Existing Surface
Proposed Grades

Plan & Profile (View High Pkwy)

DATE:	6-25-2020	
DESIGN BY:	CEL	
DRAWN BY:	DRV	
PROJECT NO.:	12720	
SHEET NO.	9	TOTAL SHEETS 103

STATE OF MISSOURI BRADLEY D. BURTON NUMBER E-25862 REGISTERED PROFESSIONAL ENGINEER 9/17/2020

GBA architects engineers
9801 Renner Boulevard
Lenexa, Kansas 66219
913.492.0400
www.gbateam.com

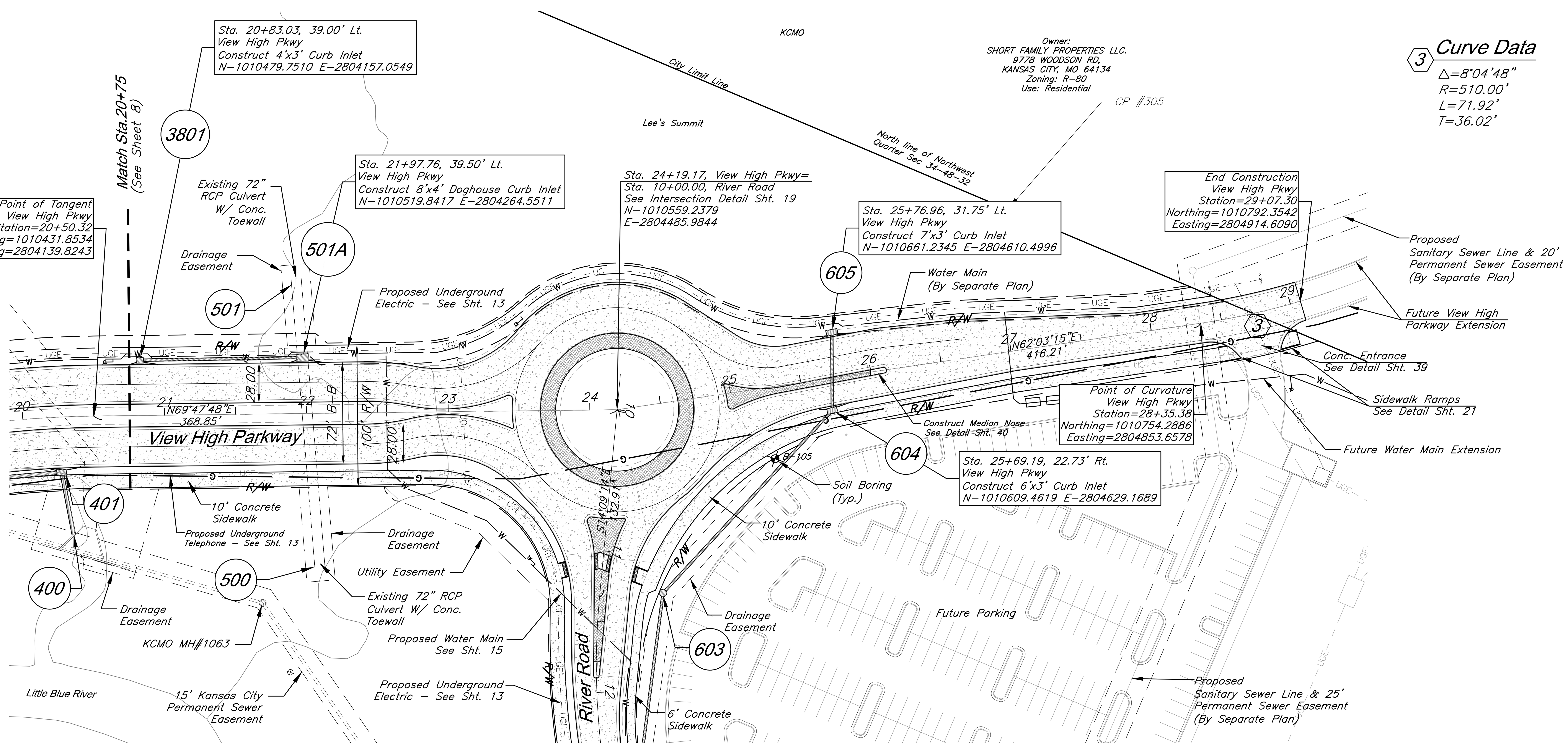
Bradley D. Burton
Professional Engineer
License No. 25862

Street and Storm Sewer Plans

Paragon Star Development

Lee's Summit, Missouri

NO.	DATE	REVISIONS	BY	APPROVED
	9/2/20	City Comments		



Curve Data 3
△=8°04'48"
R=510.00'
L=71.92'
T=36.02'
KCMO
City Limit Line
Lee's Summit
North line of Northwest Quarter Sec 34-48-32
Owner: SHORT FAMILY PROPERTIES LLC. 9778 WOODSON RD. KANSAS CITY, MO 64134 Zoning: R-80 Use: Residential
CP #305
Match Sta.20+75 (See Sheet 8)
Sta. 20+83.03, 39.00' Lt. View High Pkwy Construct 4'x3' Curb Inlet N-1010479.7510 E-2804157.0549
3801
Sta. 21+97.76, 39.50' Lt. View High Pkwy Construct 8'x4' Doghouse Curb Inlet N-1010519.8417 E-2804264.5511
501A
Existing 72" RCP Culvert W/ Conc. Toewall
Point of Tangent View High Pkwy Station=20+50.32 Northing=1010431.8534 Easting=2804139.8243
Drainage Easement
501
Proposed Underground Electric - See Sht. 13
Sta. 24+19.17, View High Pkwy= Sta. 10+00.00, River Road See Intersection Detail Sht. 19 N-1010559.2379 E-2804485.9844
Sta. 25+76.96, 31.75' Lt. View High Pkwy Construct 7'x3' Curb Inlet N-1010661.2345 E-2804610.4996
605
Water Main (By Separate Plan)
End Construction View High Pkwy Station=29+07.30 Northing=1010792.3542 Easting=2804914.6090
Proposed Sanitary Sewer Line & 20' Permanent Sewer Easement (By Separate Plan)
Future View High Parkway Extension
Conc. Entrance See Detail Sht. 39
Sidewalk Ramps See Detail Sht. 21
Future Water Main Extension
N69°47'48"E 368.85'
N62°03'15"E 416.21'
View High Parkway
100' R/W
72' B-B
Point of Curvature View High Pkwy Station=28+35.38 Northing=1010754.2886 Easting=2804853.6578
Construct Median Nose See Detail Sht. 40
604
Sta. 25+69.19, 22.73' Rt. View High Pkwy Construct 6'x3' Curb Inlet N-1010609.4619 E-2804629.1689
401
10' Concrete Sidewalk
Proposed Underground Telephone - See Sht. 13
Drainage Easement
Utility Easement
Soil Boring (Typ.)
B-105
10' Concrete Sidewalk
400
500
Existing 72" RCP Culvert W/ Conc. Toewall
Drainage Easement
KCMO MH#1063
Proposed Water Main See Sht. 15
Drainage Easement
603
Future Parking
Little Blue River
15' Kansas City Permanent Sewer Easement
Proposed Underground Electric - See Sht. 13
River Road
6' Concrete Sidewalk
Proposed Sanitary Sewer Line & 25' Permanent Sewer Easement (By Separate Plan)
Horizontal Scale: 1" = 50'
Vertical Scale: 1" = 10'
0' 50' 100'
10' 5' 0'

PROJECT BENCHMARK

BM #11 - Chiseled "L" on top Northeast corner of concrete guardrail at the Northeast corner of I470 bridge spanning View High Drive. EL=833.80

Notes:

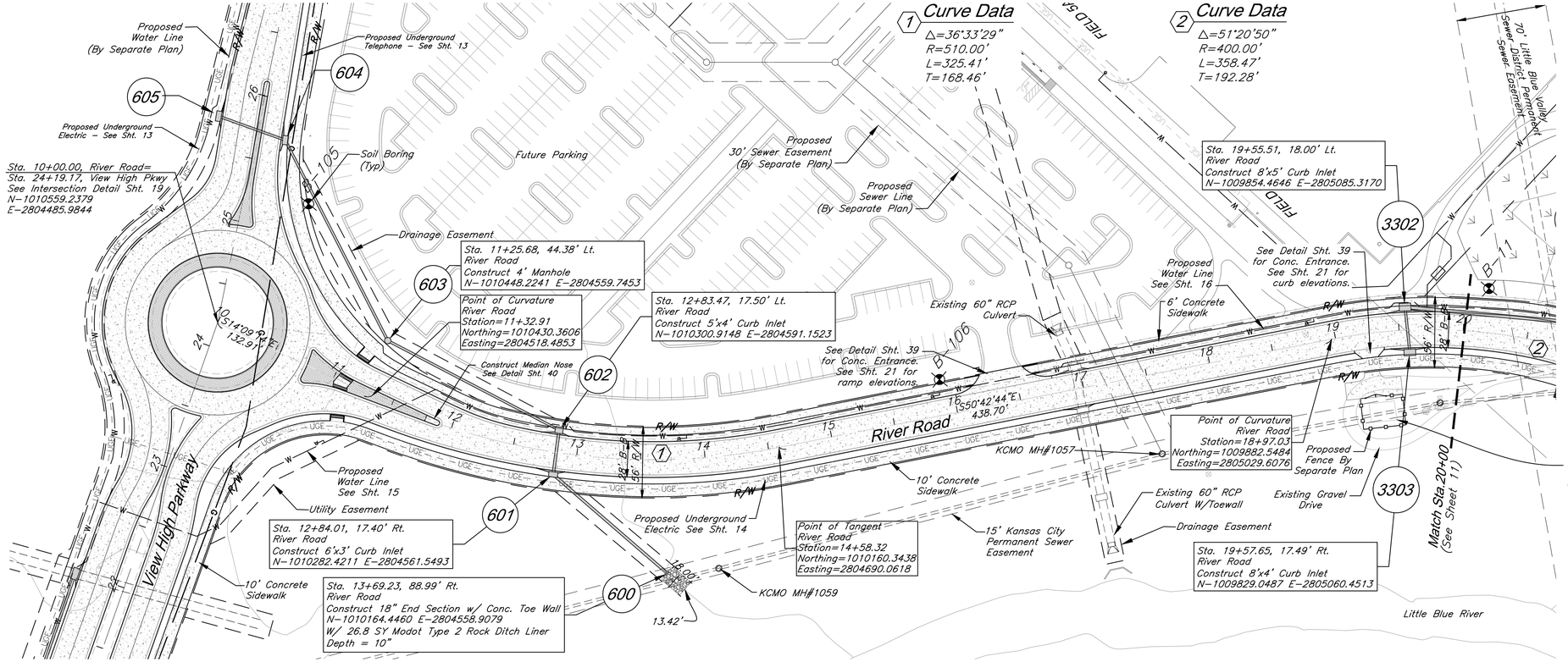
1. Pipe length called out is from center of structure to center of structure. Payment for pipe length is from inside face to inside face of structure.
2. Storm Sewer Structure Station offset and coordinates based on center of structure. Top elevations are top center of lid.
3. Tops on all in grade inlets shall maintain street slope, low point inlets to be set level.
4. Boring information based on original undisturbed earth - see Geotechnical report.

View High Parkway

Design Speed = 40 MPH

LOW POINT ELEV = 811.60
LOW POINT STA = 19+70.65
PVI STA = 20+31.67
PVI ELEV = 810.12
A.D. = 4.72%
K = 63.56
300.00' VC
HIGH POINT ELEV = 820.32
HIGH POINT STA = 23+78.24
PVI STA = 23+03.24
PVI ELEV = 819.14
A.D. = -1.74%
K = 86.21
150.00' VC
Match Sta.20+75 (See Sheet 8)
EVCS: 21+81.67
EVCE: 815.10
Sta. 22+00.64 View High Parkway Existing 72" RCP
22+56.80 Water Main (by separate plan)
Sta. 24+19.17 View High Parkway= Sta. 10+00.00 River Road ℄ Roundabout
Proposed Grade
B-105 Boring
0'-10' Lean Clay
3.32%
1.58%
26+98.40 Water Main (by separate plan)
Sta. 29+07.30 View High Parkway End Roadway Construction
Mass Grading Surface
Sanitary Sewer (by separate plan)
Existing Ground
69.15' 24" RCP Pipe
Sta. 20+27.19 View High Parkway Existing 8'x8' RCB
Sta. 25+72.44 Proposed 15" RCP Pipe
Existing Surface
Proposed Grades
840 830 820 810 800 790
811.63 811.60 811.67 811.83 812.10 812.46 812.92 813.47 814.13 814.89 815.71 816.54 817.34 818.07 818.73 819.32 819.83 820.27 820.67 821.06 821.46 821.85 822.25 822.64 823.04 823.43 823.83 824.22 824.62 825.01 825.41 825.80 826.20 826.59 826.99 827.38 827.78 828.17 828.57
9+50 20+00 20+50 21+00 21+50 22+00 22+50 23+00 23+50 24+00 24+50 25+00 25+50 26+00 26+50 27+00 27+50 28+00 28+50 29+00

Plan & Profile (View High Pkwy)



STATE OF MISSOURI
BRADLEY D. BURTON NUMBER E-25862
REGISTERED PROFESSIONAL ENGINEER
9/1/2020

GBA architects engineers
9801 Renner Boulevard
Lenexa, Kansas 66219
913.492.0400
www.gbateam.com

DATE:	6-25-2020
DESIGN BY:	CEL
DRAWN BY:	DRV
PROJECT NO.:	12720
SHEET NO.	10
TOTAL SHEETS	103

Bradley D. Burton
Professional Engineer
License No. 25862

Street and Storm Sewer Plans

Paragon Star Development

Lee's Summit, Missouri

NO.	DATE	REVISIONS	BY	APPROVED
	9/2/20	City Comments		

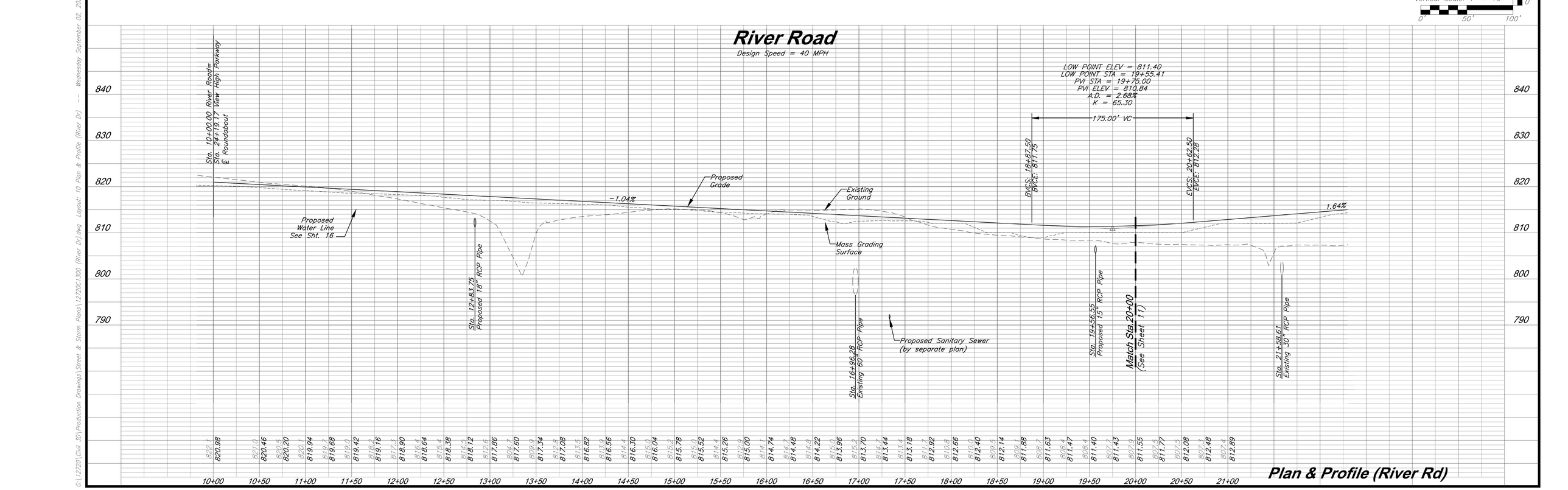
PROJECT BENCHMARKS

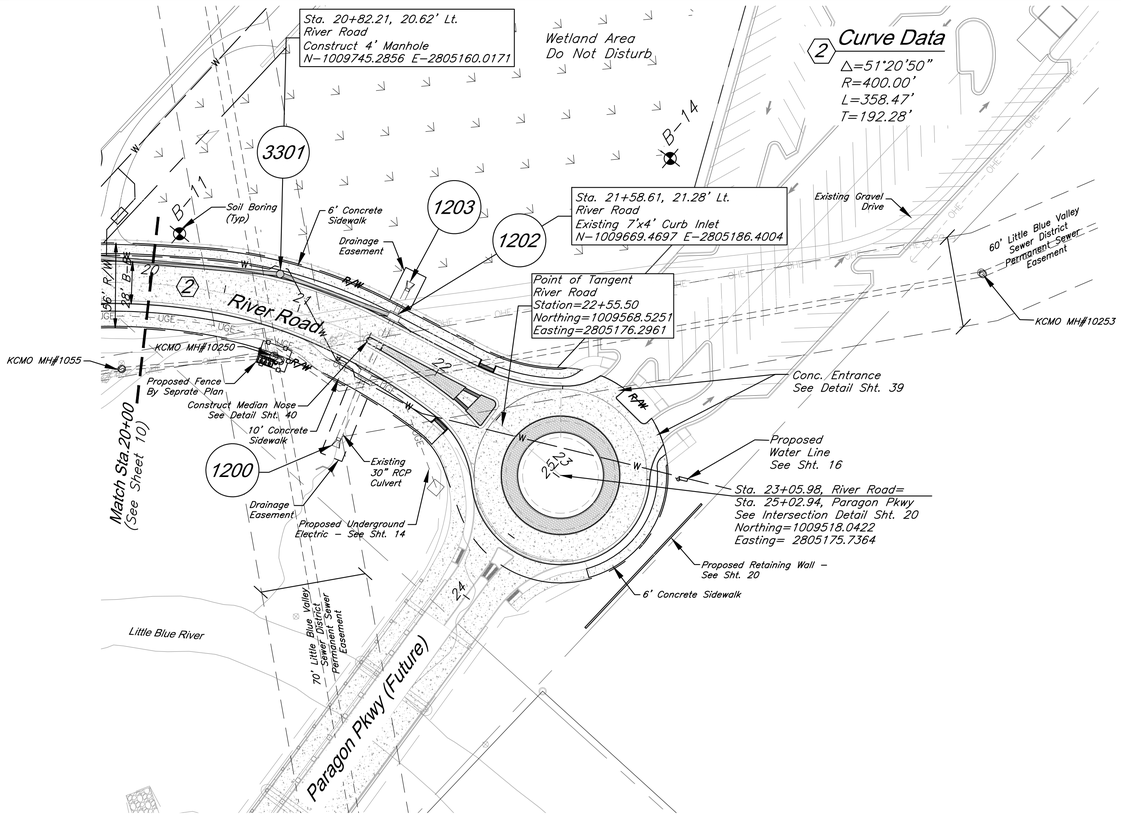
BM #11 – Chiseled "L" on top Northeast corner of concrete guardrail at the Northeast corner of I470 bridge spanning View High Drive. EL=833.80

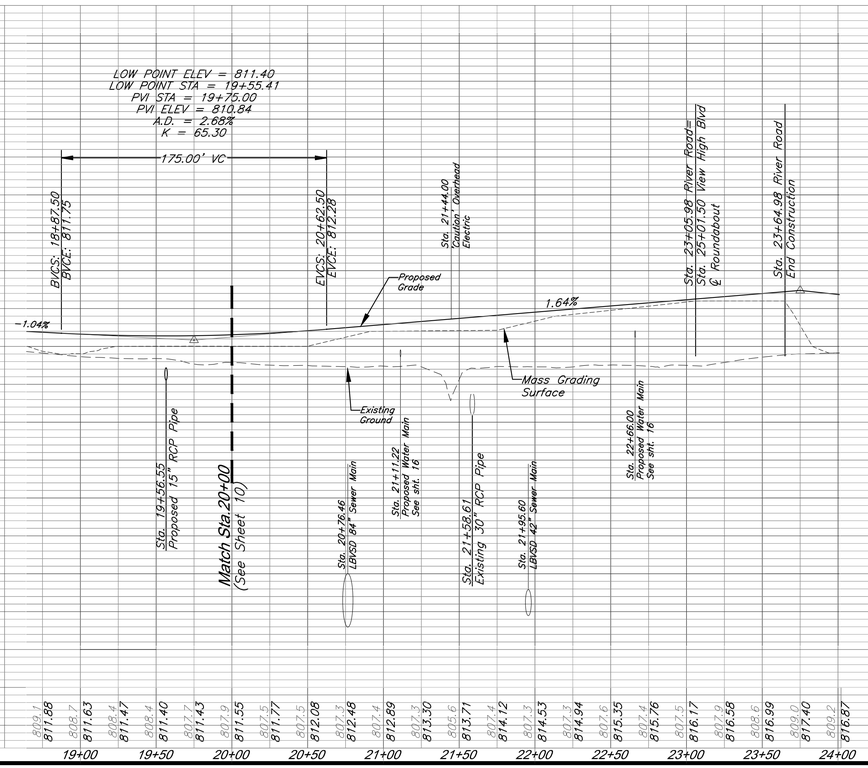
Notes:

1. Pipe length called out is from center of structure to center of structure. Payment for pipe length is from inside face to inside face of structure.
2. Storm Sewer Structure Station offset and coordinates based on center of structure. Top elevations are top center of lid.
3. Tops on all in grade inlets shall maintain street slope, low point inlets to be set level.
4. Boring information based on original undisturbed earth – see Geotechnical report.

Horizontal Scale: 1" = 50'
Vertical Scale: 1" = 10'

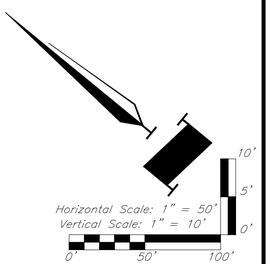






River Road
Design Speed = 40 MPH

Plan & Profile (River Rd)



PROJECT BENCHMARKS

BM #11 – Chiseled "L" on top Northeast corner of concrete guardrail at the Northeast corner of I470 bridge spanning View High Drive.
EL=833.80

Notes:

1. Pipe length called out is from center of structure to center of structure. Payment for pipe length is from inside face to inside face of structure.
2. Storm Sewer Structure Station offset and coordinates based on center of structure. Top elevations are top center of lid.
3. Tops on all in grade inlets shall maintain street slope, low point inlets to be set level.
4. Boring information based on original undisturbed earth – see Geotechnical report.

STATE OF MISSOURI
BRADLEY D. BURTON
NUMBER E-25862
REGISTERED PROFESSIONAL ENGINEER
9/1/2020

GBA architects engineers
9801 Renner Boulevard
Lenexa, Kansas 66219
913.492.0400
www.gbateam.com

DATE:	6-25-2020
DESIGN BY:	CEL
DRAWN BY:	DRV
PROJECT NO.:	12720
SHEET NO.:	11
TOTAL SHEETS	103

Bradley D. Burton
Professional Engineer
License No. 25862

Street and Storm Sewer Plans
Paragon Star Development
Lee's Summit, Missouri

NO.	DATE	REVISIONS	BY	APPROVED
	9/2/20	City Comments		

STATE OF MISSOURI
BRADLEY D. BURTON
NUMBER E-25862
REGISTERED PROFESSIONAL ENGINEER
9/1/2020

GBA
architects
engineers
9801 Renner Boulevard
Lenexa, Kansas 66219
913.492.0400
www.gbateam.com

DATE:	6-25-2020
DESIGN BY:	CEL
DRAWN BY:	DRV
PROJECT NO.:	12720
SHEET NO.	12
TOTAL SHEETS	103

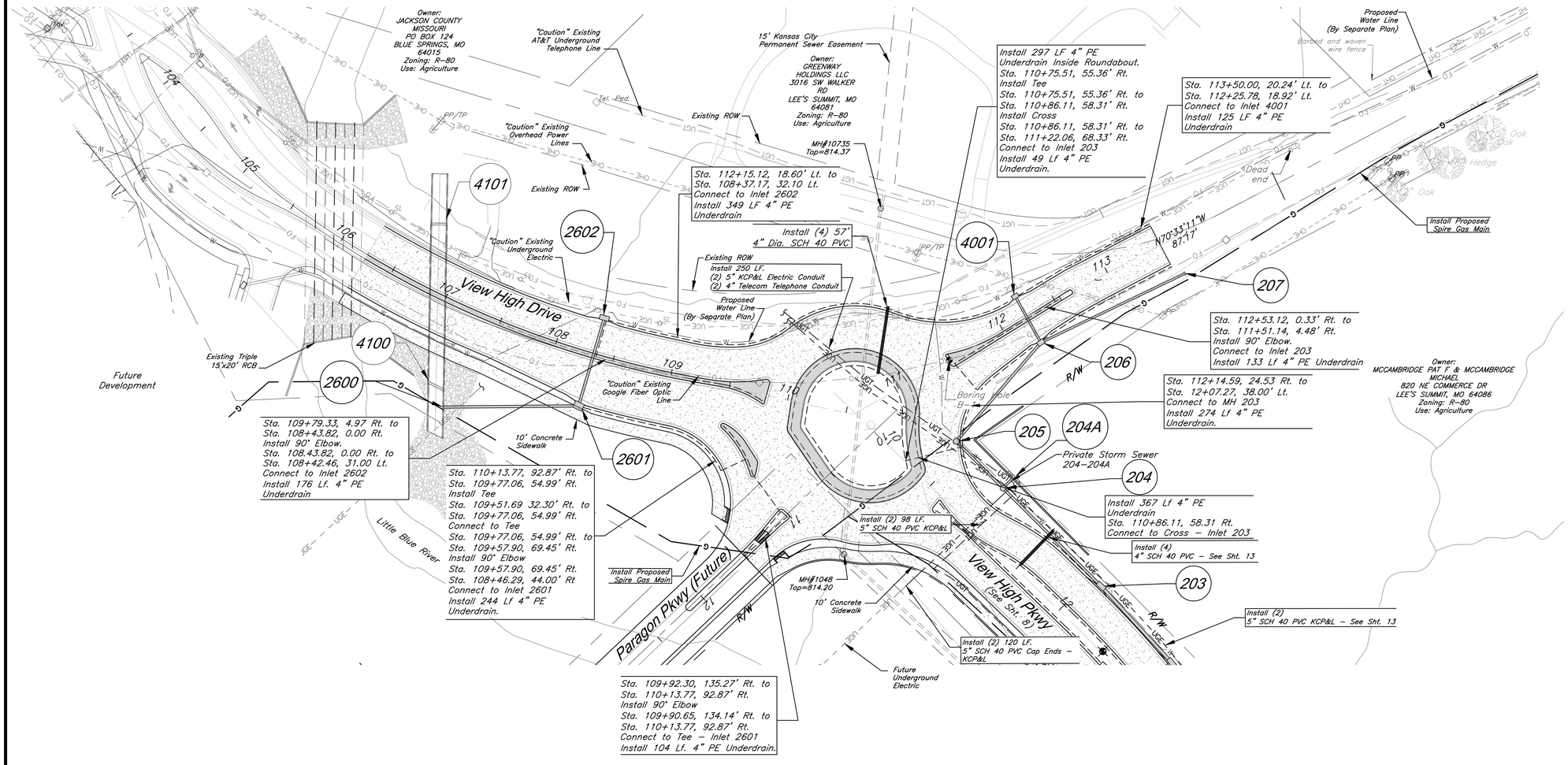
Bradley D. Burton
Professional Engineer
License No. 25862

Street and Storm Sewer Plans

Paragon Star Development

Lee's Summit, Missouri

NO.	DATE	REVISIONS	BY	APPROVED
	9/2/20	City Comments		

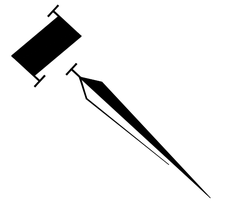


PROJECT BENCHMARK

BM #11 - Chiseled "L" on top Northeast corner of concrete guardrail at the Northeast corner of I470 bridge spanning View High Drive. EL=833.80

Notes:

1. Pipe length called out is from center of structure to center of structure.
2. Storm Sewer Structure Station offset and coordinates based on center of structure. Top elevations are top center of lid.
3. Tops on all in grade inlets shall maintain street slope, low point inlets to be set level.
4. Boring information based on original undisturbed earth - see Geotechnical report.



50' 0' 50' 100'

SCALE : 1 INCH = 50 FEET

Utility Plan (View High Dr)

STATE OF MISSOURI
BRADLEY D. BURTON
NUMBER E-25862
REGISTERED PROFESSIONAL ENGINEER
9/1/2020

GBA architects engineers
9801 Renner Boulevard
Lenexa, Kansas 66219
913.492.0400
www.gbateam.com

DATE:	6-25-2020
DESIGN BY:	CEL
DRAWN BY:	DRV
PROJECT NO.:	12720
SHEET NO.:	13
TOTAL SHEETS	103

Bradley D. Burton
Professional Engineer
License No. 25862

Street and Storm Sewer Plans

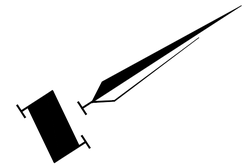
Paragon Star Development

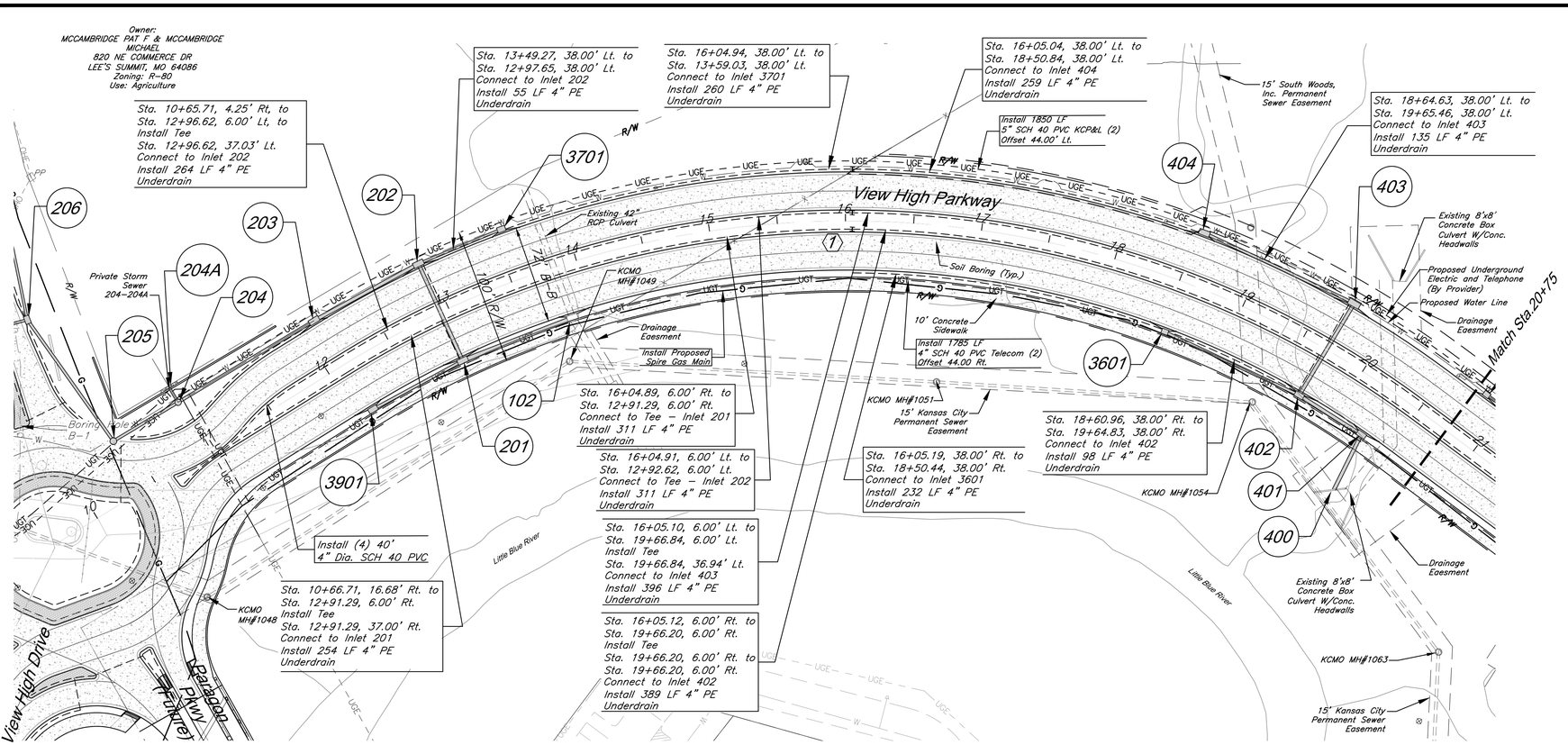
Lee's Summit, Missouri

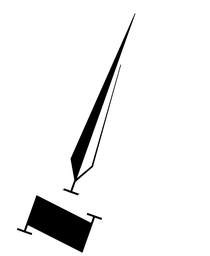
NO.	DATE	REVISIONS	BY	APPROVED
	9/2/20	City Comments		

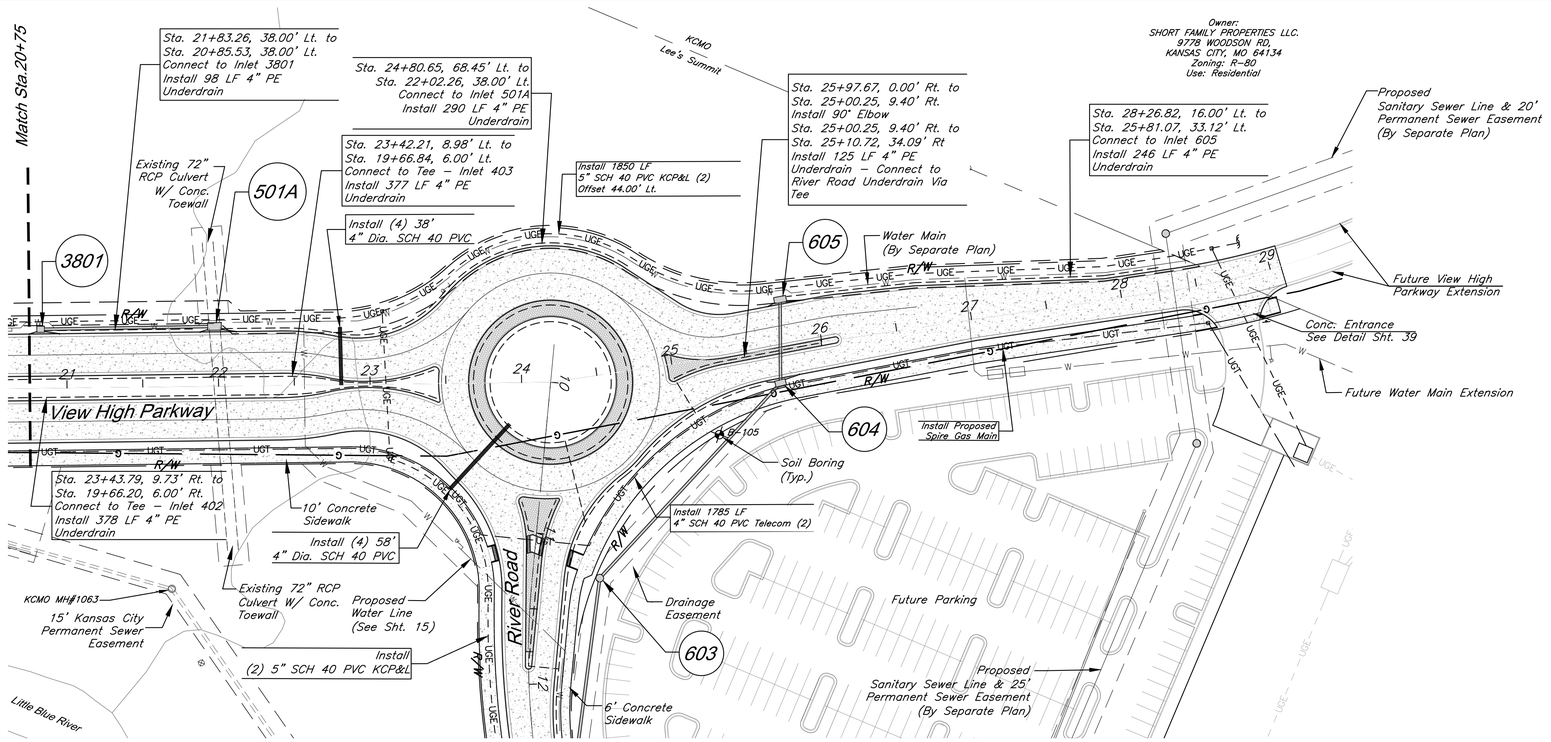
PROJECT BENCHMARK

BM #11 – Chiseled "L" on top Northeast corner of concrete guardrail at the Northeast corner of I470 bridge spanning View High Drive.
EL=833.80

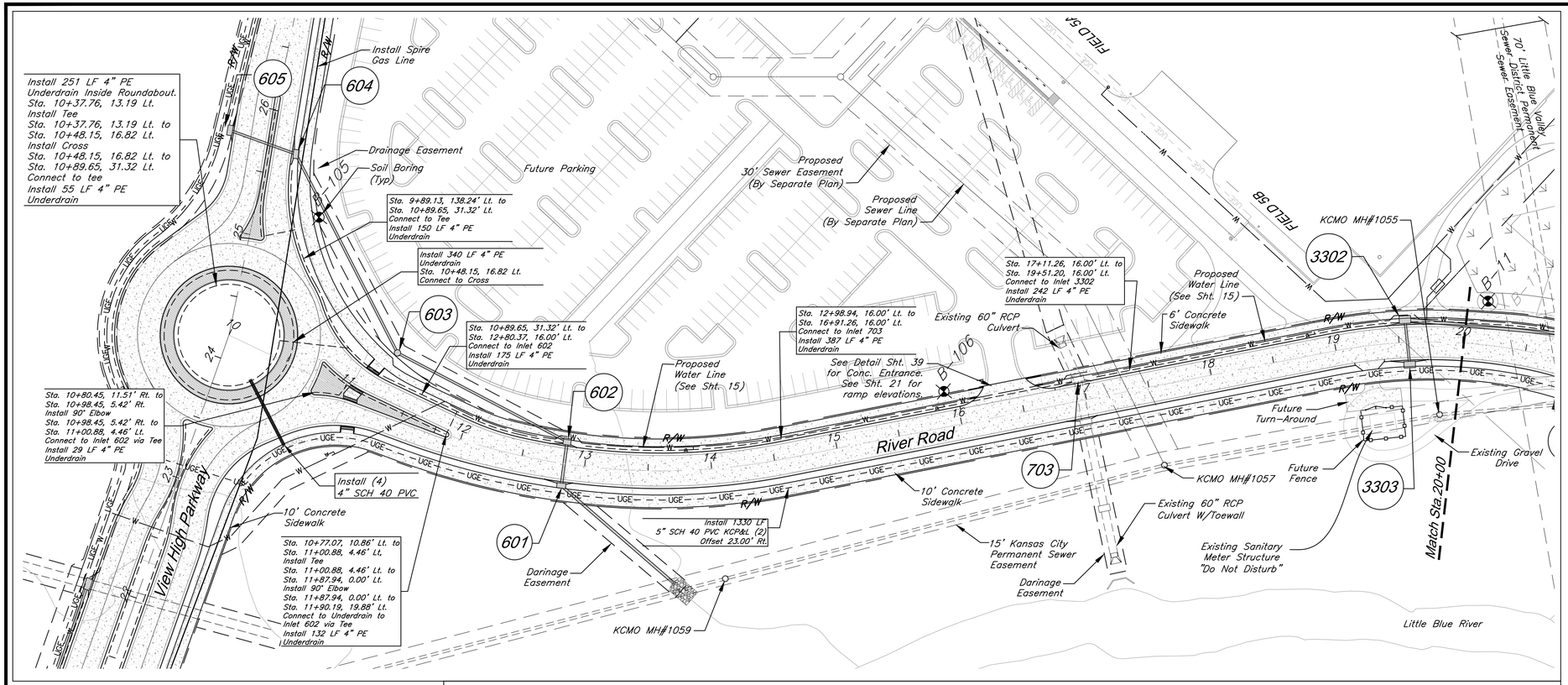


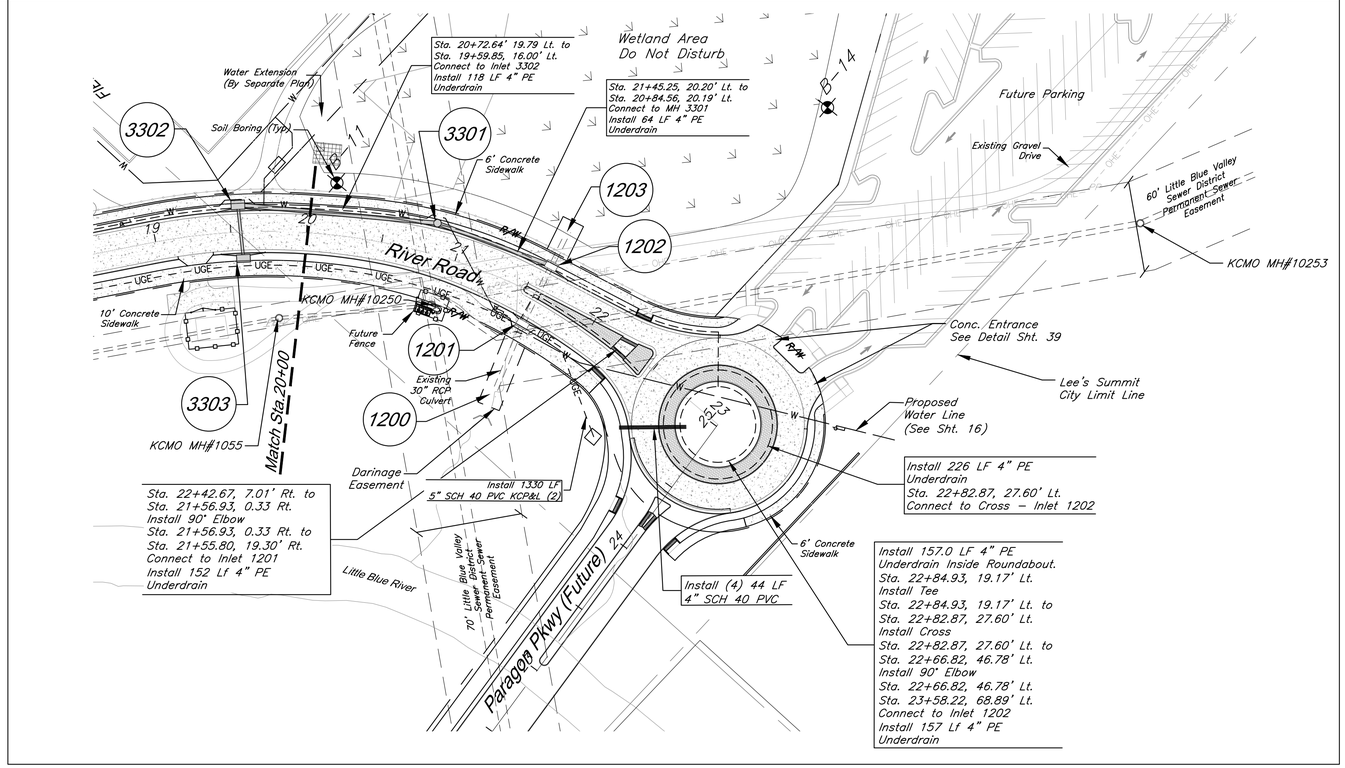






Utility (View High Pkwy)





STATE OF MISSOURI
BRADLEY D. BURTON
NUMBER E-25862
REGISTERED PROFESSIONAL ENGINEER
9/1/2020

GBA architects engineers
9801 Renner Boulevard
Lenexa, Kansas 66219
913.492.0400
www.gbateam.com

DATE:	6-25-2020
DESIGN BY:	CEL
DRAWN BY:	DRV
PROJECT NO.:	12720
SHEET NO.	14
TOTAL SHEETS	103

Bradley D. Burton
Professional Engineer
License No. 25862

Street and Storm Sewer Plans

Paragon Star Development

Lee's Summit, Missouri

NO.	DATE	REVISIONS	BY	APPROVED
	9/2/20	City Comments		

PROJECT BENCHMARKS

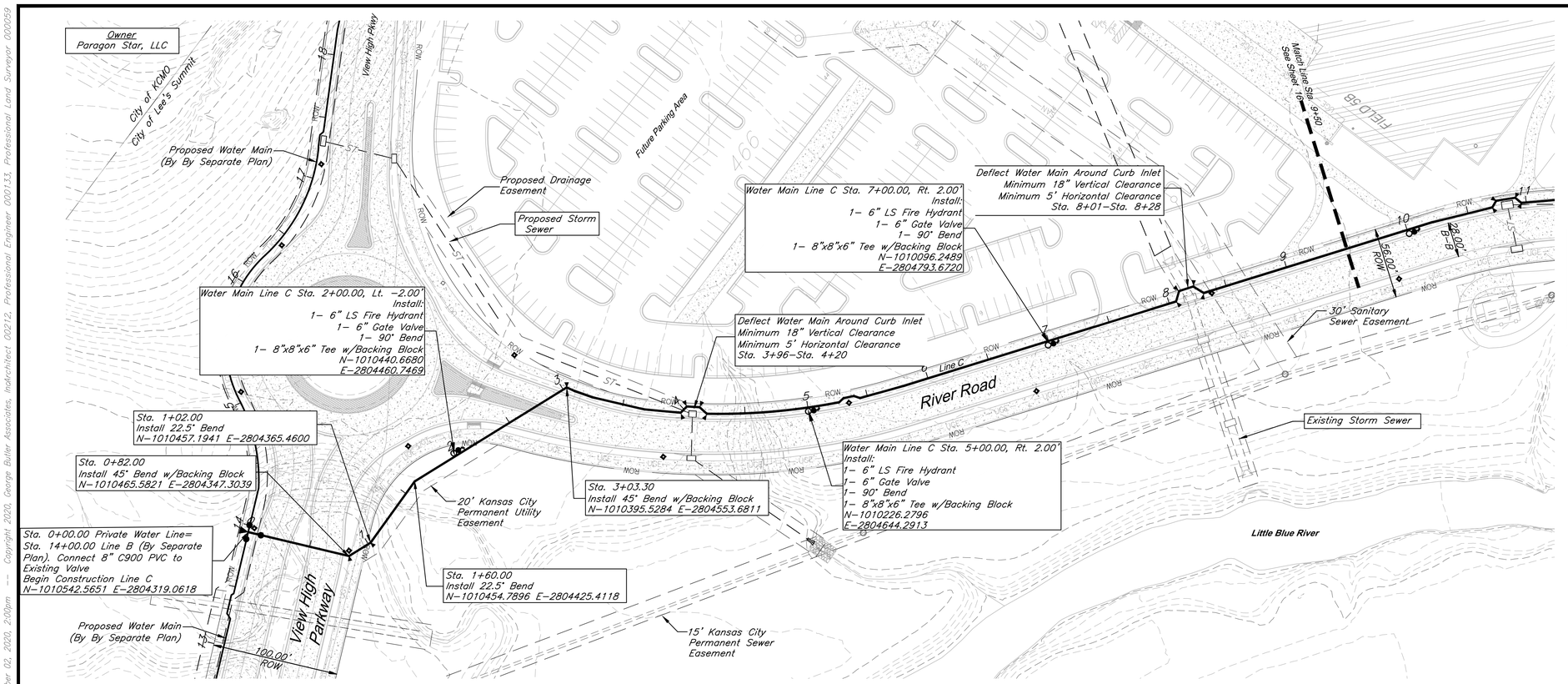
BM #11 – Chiseled "L" on top Northeast corner of concrete guardrail at the Northeast corner of 1470 bridge spanning View High Drive.
EL=833.80

Notes:

1. Pipe length called out is from center of structure to center of structure. Payment for pipe length is from inside face to inside face of structure.
2. Storm Sewer Structure Station offset and coordinates based on center of structure. Top elevations are top center of lid.
3. Tops on all in grade inlets shall maintain street slope, low point inlets to be set level.
4. Boring information based on original undisturbed earth – see Geotechnical report.

50' 0' 50' 100'
SCALE : 1 INCH = 50 FEET

Utility Plan (River Dr)



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BRADLEY D. BURTON
NUMBER E-25862
REGISTERED PROFESSIONAL ENGINEER
9/1/2020

GBA architects engineers
9801 Renner Boulevard
Lenexa, Kansas 66219
913.492.0400
www.gbateam.com

DATE:	6-25-2020
DESIGN BY:	CEL
DRAWN BY:	
PROJECT NO.:	12720
SHEET NO.	15
TOTAL SHEETS	103

Bradley D. Burton
Professional Engineer
License No. 25862

Street and Storm Sewer Plans

Paragon Star Development

Lee's Summit, Missouri

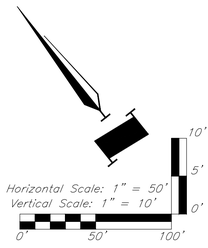
NO.	DATE	REVISIONS	BY	APPROVED
	9/2/20	City Comments		

CAUTION!

Numerous Utilities on Site. Contractor to verify location and elevation of all utilities prior to commencing construction.

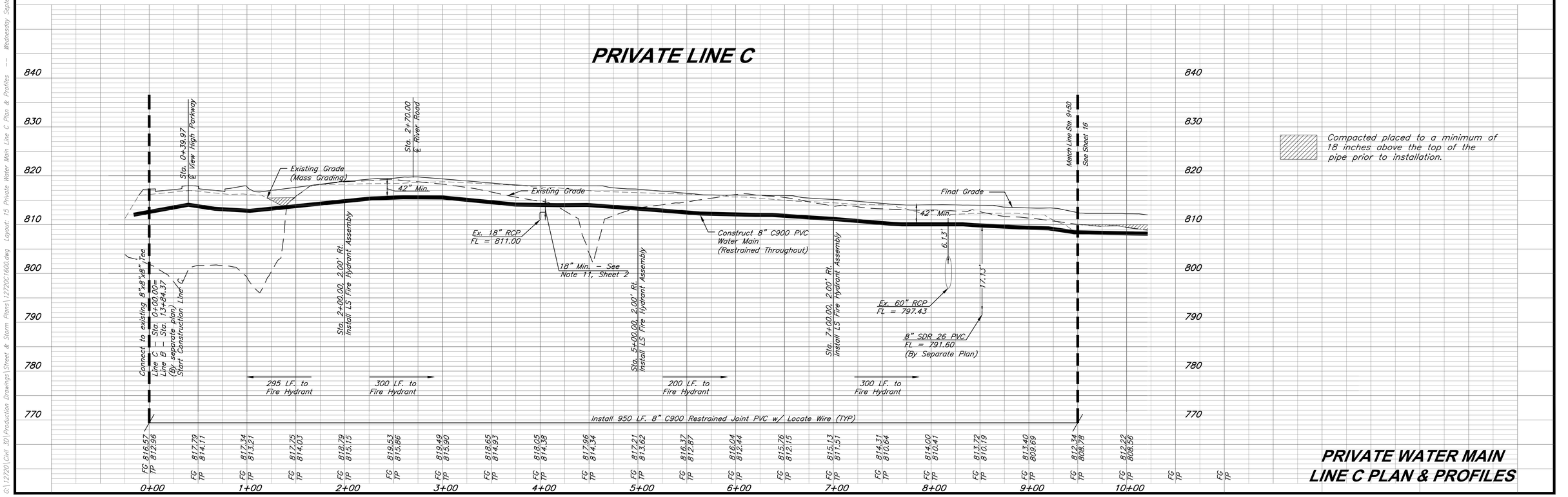
NOTE:

1. Fire Hydrants shall be spaced every 300' in mixed use area and every 600' in residential areas.
2. Waterline shall be installed 4' off of back of curb, except where noted otherwise.
3. Water Main shall maintain 3 feet of separation from Light Poles.
4. Compacted fill shall be placed to a minimum of 18 inches above the top of the pipe prior to installation.

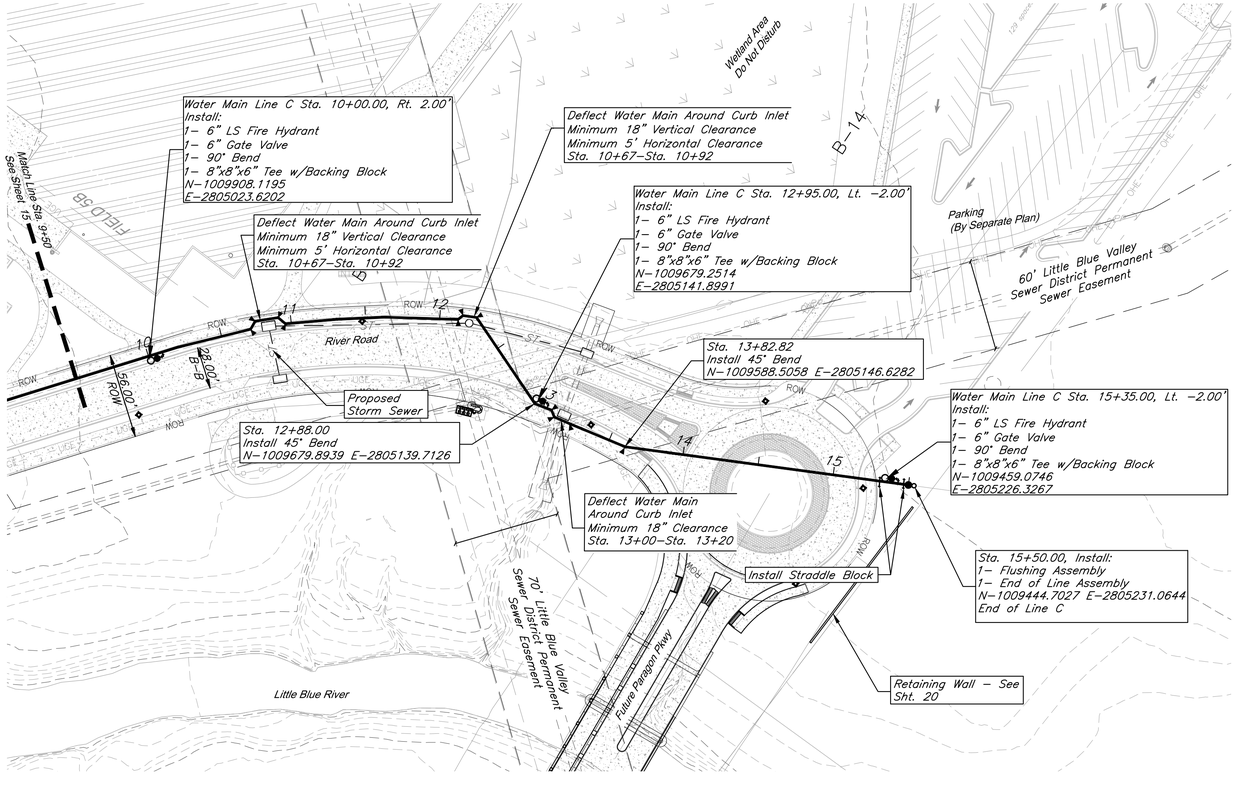


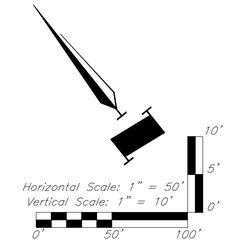
NOTES:
D.E. = Drainage Easement
U.E. = Utility Easement
P.L. = Property Line
R/W = Right-of-Way
FG = Finished Grade
TP = Top of Pipe
LS = Lee's Summit

BENCHMARK:
BM #11 – Chiseled "L" on top Northeast corner of concrete guardrail at the Northeast corner of I470 bridge spanning View High Drive.
EL=833.80



PRIVATE WATER MAIN LINE C PLAN & PROFILES





CAUTION!

Numerous Utilities on Site. Contractor to verify location and elevation of all utilities prior to commencing construction.

NOTES:
D.E. = Drainage Easement
U.E. = Utility Easement
℄ = Property Line
R/W = Right–of–Way
FG = Finished Grade
TP = Top of Pipe
LS = Lee's Summit

BENCHMARK:
BM #11 – Chiseled "L" on top Northeast corner of concrete guardrail at the Northeast corner of I470 bridge spanning View High Drive.
EL=833.80

STATE OF MISSOURI
BRADLEY D. BURTON
NUMBER E–25862
REGISTERED PROFESSIONAL ENGINEER
9/1/2020

GBA architects engineers
9801 Renner Boulevard
Lenexa, Kansas 66219
913.492.0400
www.gbateam.com

Bradley D. Burton
Professional Engineer
License No. 25862

DATE:	6–25–2020
DESIGN BY:	CEL
DRAWN BY:	
PROJECT NO.:	12720
SHEET NO.	16
TOTAL SHEETS	103

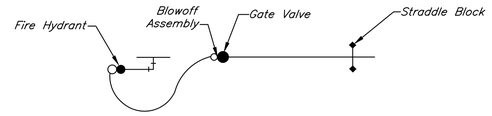
Street and Storm Sewer Plans

Paragon Star Development

Lee's Summit, Missouri

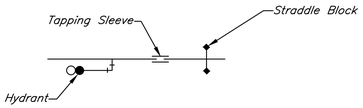
NO.	DATE	REVISIONS	BY	APPROVED
	9/2/20	City Comments		

1. Fire Hydrants shall be spaced every 300' in mixed use area and every 600' in residential areas.
2. Waterline shall be installed 4' off of back of curb, except where noted otherwise.
3. Water Main shall maintain 3 feet of separation from Light Poles.



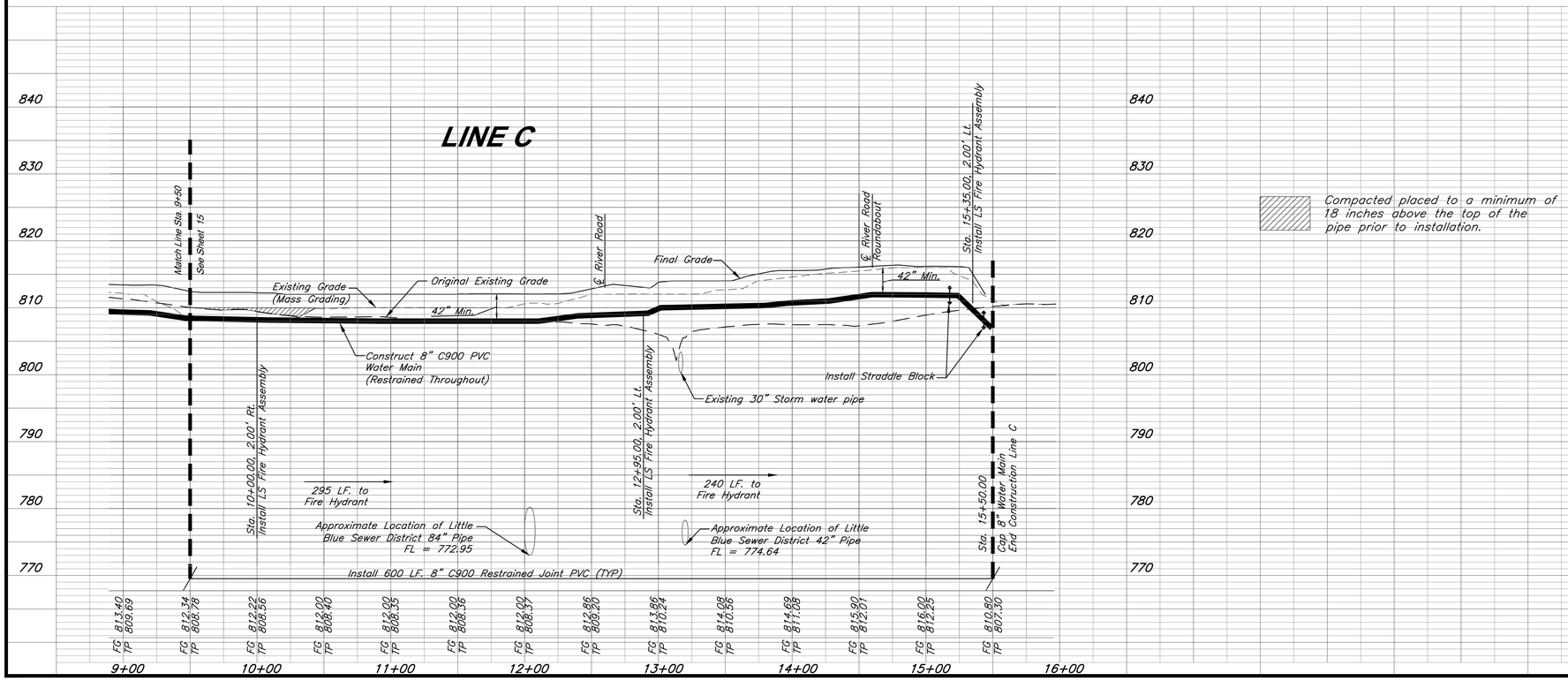
Temporary Connection Detail

Restrain Throughout
Not To Scale



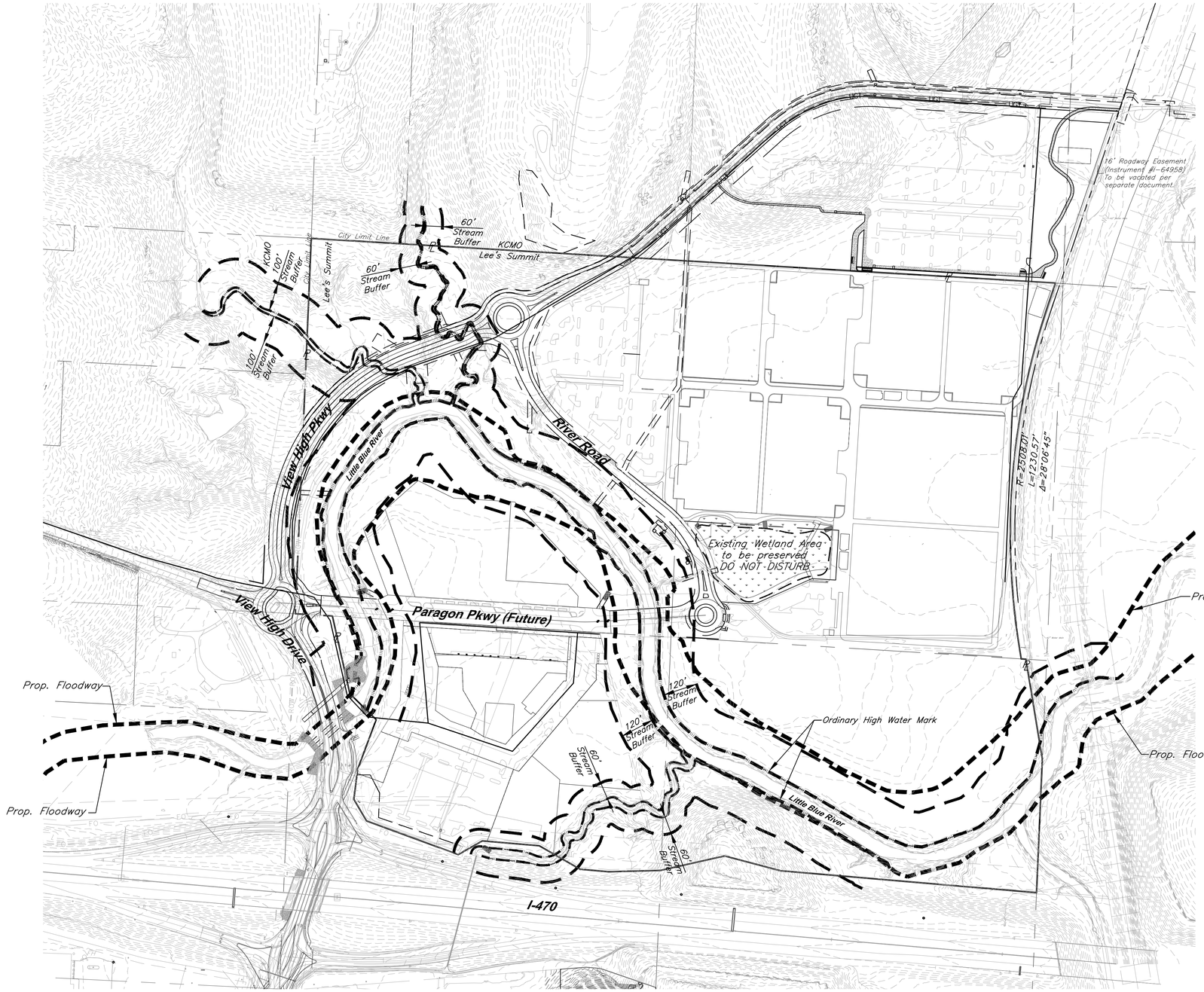
Permanent Connection Detail

Restrain Throughout
Not To Scale



Compacted placed to a minimum of 18 inches above the top of the pipe prior to installation.

PRIVATE WATER MAIN LINE C PLAN & PROFILES



Legend

- Stream Buffer
- Proposed Floodway
- Ordinary High Water Mark

Proposed Floodway and Floodplain, refer to lines established by the FEMA CLOMR dated 2/14/2020, Case No. 20-70-0520R.

200' 0' 200' 400'

SCALE : 1 INCH = 200 FEET

Floodway & Floodplain Plan

STATE OF MISSOURI
BRADLEY D. BURTON
NUMBER E-25862
REGISTERED PROFESSIONAL ENGINEER
9/1/2020

GBA architects engineers
9801 Renner Boulevard
Lenexa, Kansas 66219
913.492.0400
www.gbateam.com

DATE:	6-25-2020
DESIGN BY:	CEL
DRAWN BY:	DRV
PROJECT NO.:	12720
SHEET NO.:	17
TOTAL SHEETS	103

Bradley D. Burton
Professional Engineer
License No. 25862

Street and Storm Sewer Plans
Paragon Star Development
Lee's Summit, Missouri

NO.	DATE	REVISIONS	BY	APPROVED
	9/2/20	City Comments		

STATE OF MISSOURI
BRADLEY D. BURTON
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9/1/2020

GBA
architects
engineers
9801 Renner Boulevard
Lenexa, Kansas 66219
913.492.0400
www.gbateam.com

DATE:	6-25-2020
DESIGN BY:	CEL
DRAWN BY:	DRV
PROJECT NO.:	12720
SHEET NO.	18
TOTAL SHEETS	103

Bradley D. Burton
Professional Engineer
License No. 25862

Street and Storm Sewer Plans

Paragon Star Development

Lee's Summit, Missouri

NO.	DATE	REVISIONS	BY	APPROVED
	9/2/20	City Comments		

PROJECT BENCHMARKS

BM #11 – Chiseled "L" on top Northeast corner of concrete guardrail at the Northeast corner of I470 bridge spanning View High Drive.
EL=833.80

NOTE:

1. All Elevations are to Top of Curb unless otherwise noted.
2. See Sheet 38 for Curb & Gutter Detail.

LEGEND

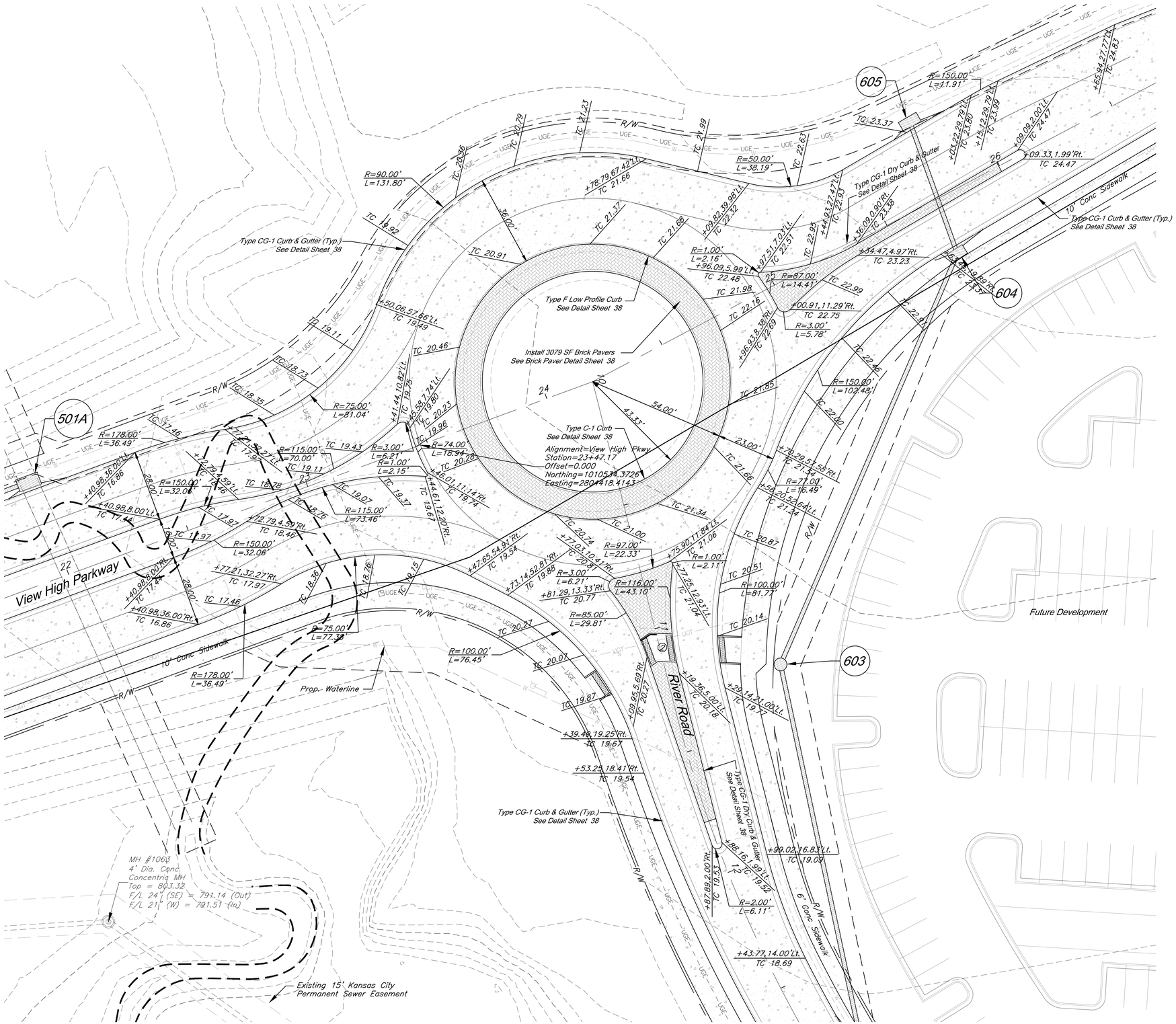
R/W	Right of Way
PT	Point of Tangent
MP	Mid Point
PC	Point of Curvature
PCC	Point of Compound Curvature
PRC	Point of Reverse Curvature
TC	Top of Curb
	Dry Curb (CG-1 DRY)
	Paver

See Intersection Enlargement Sht. 21 For Crosswalk Detail

① View High Pkwy–East

20' 0' 20' 40'
SCALE : 1 INCH = 20 FEET

Intersection Details



STATE OF MISSOURI
BRADLEY D. BURTON
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REGISTERED PROFESSIONAL ENGINEER
9/1/2020

GBA
architects
engineers
9801 Renner Boulevard
Lenexa, Kansas 66219
913.492.0400
www.gbateam.com

DATE:	6-25-2020
DESIGN BY:	CEL
DRAWN BY:	DRV
PROJECT NO.:	12720
SHEET NO.:	19
TOTAL SHEETS	103

Bradley D. Burton
Professional Engineer
License No. 25862

Street and Storm Sewer Plans

Paragon Star Development

Lee's Summit, Missouri

NO.	DATE	REVISIONS	BY	APPROVED
	9/2/20	City Comments		

PROJECT BENCHMARKS

BM #11 – Chiseled "L" on top Northeast corner of concrete guardrail at the Northeast corner of the I470 bridge spanning View High Drive.
EL=833.80

NOTE:

1. All Elevations are to Top of Curb unless otherwise noted.
2. See Sheet 38 for Curb & Gutter Detail.

LEGEND

R/W	Right of Way
PT	Point of Tangent
MP	Mid Point
PC	Point of Curvature
PCC	Point of Compound Curvature
PRC	Point of Reverse Curvature
TC	Top of Curb
	Dry Curb (CG-1 DRY)
	Paver

See Intersection Enlargement
Sht. 21 For Crosswalk Details

② River Road-North

20' 0' 20' 40'
SCALE : 1 INCH = 20 FEET

Intersection Details

STATE OF MISSOURI
BRADLEY D. BURTON
NUMBER E-25862
REGISTERED PROFESSIONAL ENGINEER
9/1/2020

GBA
architects
engineers
9801 Renner Boulevard
Lenexa, Kansas 66219
913.492.0400
www.gbateam.com

DATE:	6-25-2020
DESIGN BY:	CEL
DRAWN BY:	DRV
PROJECT NO.:	12720
SHEET NO.:	20
TOTAL SHEETS	103

Bradley D. Burton
Professional Engineer
License No. 25862

Street and Storm Sewer Plans
Paragon Star Development
Lee's Summit, Missouri

NO.	DATE	REVISIONS	BY	APPROVED
	9/2/20	City Comments		

PROJECT BENCHMARKS

BM #11 – Chiseled "L" on top Northeast corner of concrete guardrail at the Northeast corner of the 1470 bridge spanning View High Drive.
EL=833.80

NOTE:

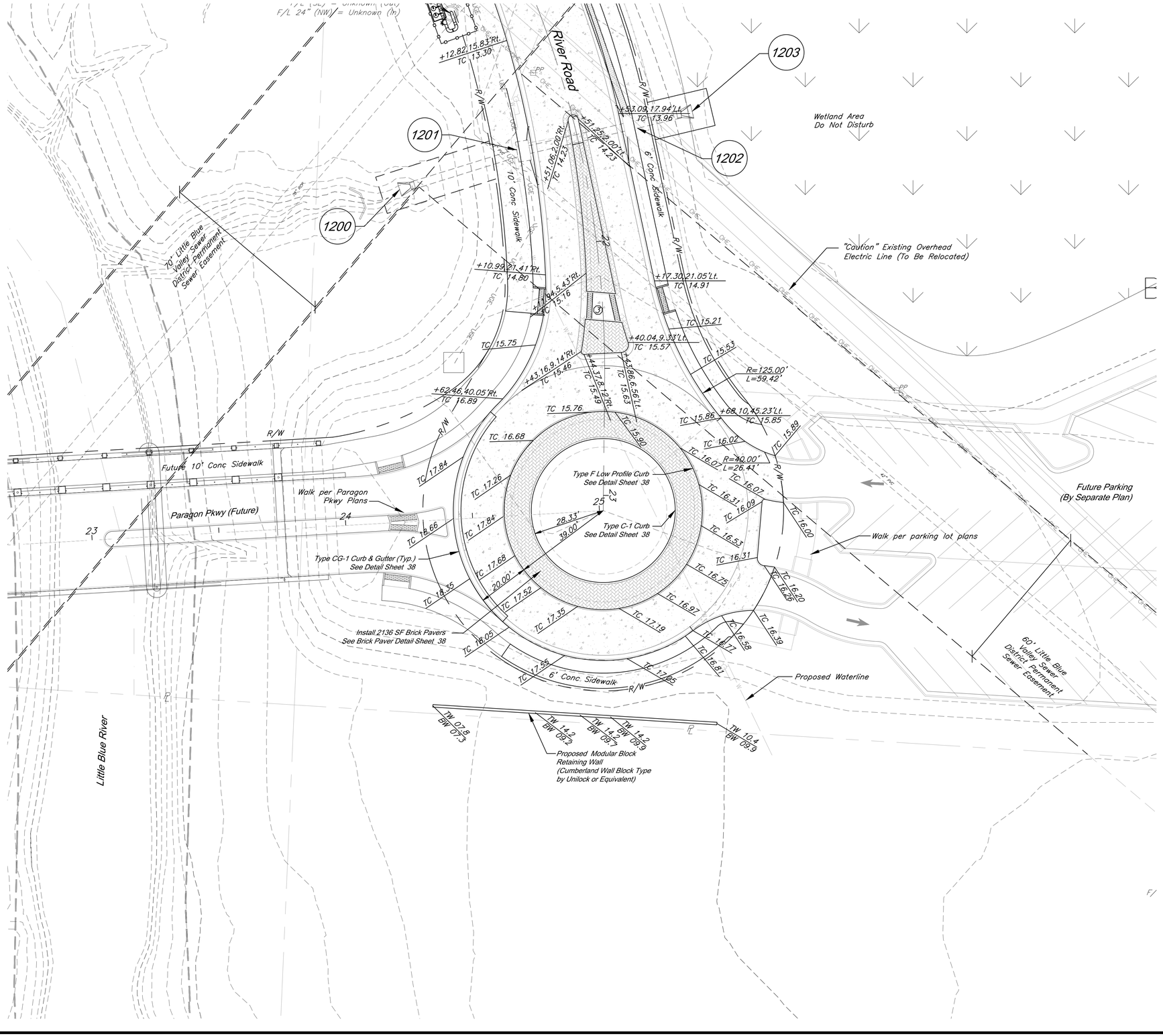
1. All Elevations are to Top of Curb unless otherwise noted.
2. See Sheet 38 for Curb & Gutter Detail.

LEGEND

R/W	Right of Way
PT	Point of Tangent
MP	Mid Point
PC	Point of Curvature
PCC	Point of Compound Curvature
PRC	Point of Reverse Curvature
TC	Top of Curb
	Dry Curb (CG-1 DRY)
	Paver

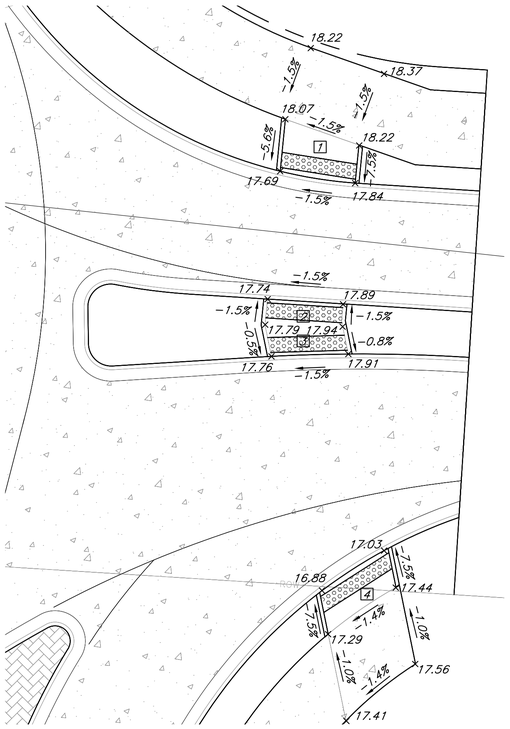
See Intersection Enlargement Sht. 21 For Crosswalk Details

③ River Road–South

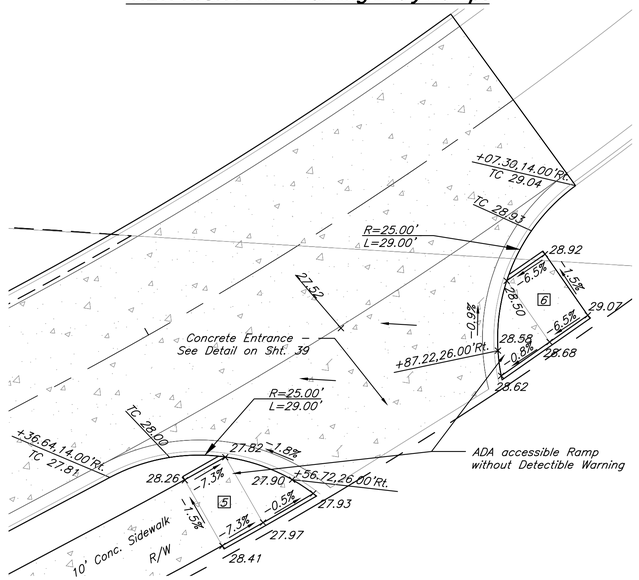


Intersection Details

① VIEW HIGH PKWY-East



VIEW HIGH PKWY-Parking Entry Ramps



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Professional Engineer
License No. 25862

GBA architects engineers
9801 Renner Boulevard
Lenexa, Kansas 66219
913.492.0400
www.gbateam.com

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DESIGN BY:	CEL
DRAWN BY:	DRV
PROJECT NO.:	12720
SHEET NO.:	21
TOTAL SHEETS	103

Street and Storm Sewer Plans

Paragon Star Development

Lee's Summit, Missouri

NO.	DATE	REVISIONS	BY	APPROVED
	9/2/20	City Comments		

LEGEND

R/W Right of Way
TC Top of Curb
[1] Ramp ID
See sheet 38 for details

NOTE:

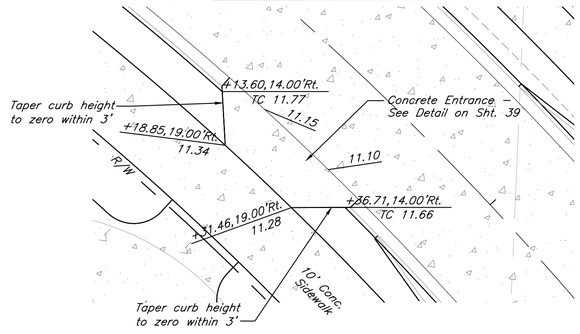
1. All Elevations are to Top of Curb unless otherwise noted.
2. See Sheet 38 for Curb & Gutter Detail.
3. See Sheet 38 for Sidewalk Ramp Details.
4. Install Type "A" S/W Ramp unless otherwise noted.

PROJECT BENCHMARKS

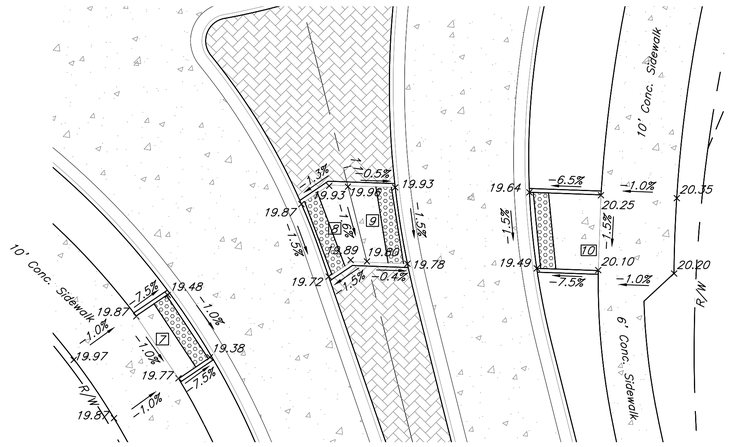
BM #11 – Chiseled "L" on top Northeast corner of concrete guardrail at the Northeast corner of 1470 bridge spanning View High Drive.
EL=833.80

10' 0' 10' 20'
SCALE : 1 INCH = 10 FEET

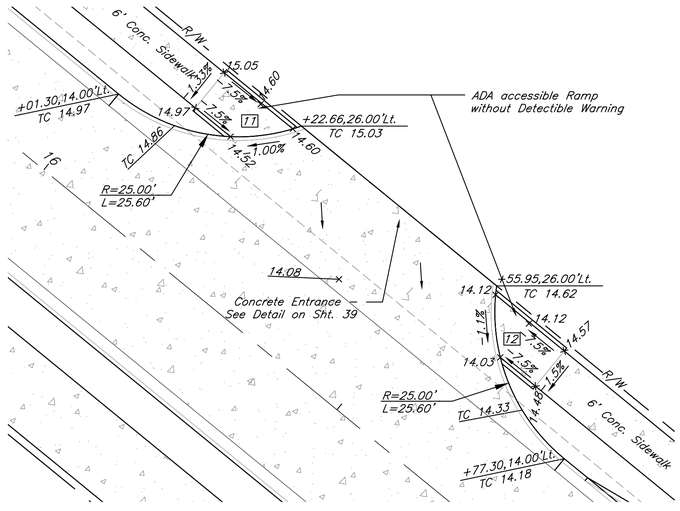
RIVER ROAD-Sta. 19+25.16



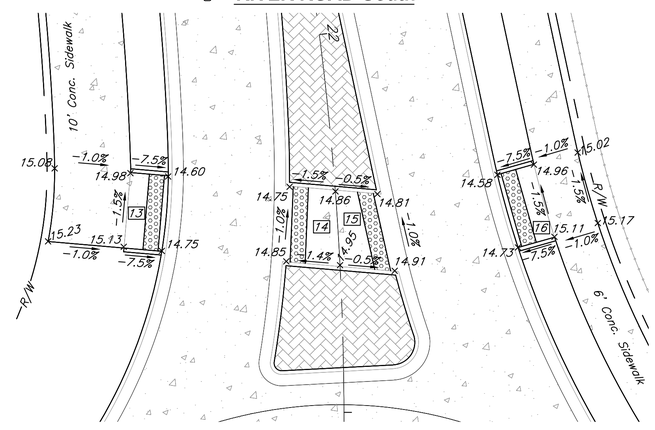
② RIVER ROAD-North



RIVER ROAD-Parking Entry Ramps



③ RIVER ROAD-South



Intersection Enlargements

STATE OF MISSOURI
BRADLEY D. BURTON
NUMBER E-25862
REGISTERED PROFESSIONAL ENGINEER
9/1/2020

GBA
architects
engineers
9801 Renner Boulevard
Lenexa, Kansas 66219
913.492.0400
www.gbateam.com

DATE:	6-25-2020
DESIGN BY:	CEL
DRAWN BY:	DRV
PROJECT NO.:	12720

SHEET NO.	TOTAL SHEETS
22	103

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Professional Engineer
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Street and Storm Sewer Plans

Paragon Star Development

Lee's Summit, Missouri

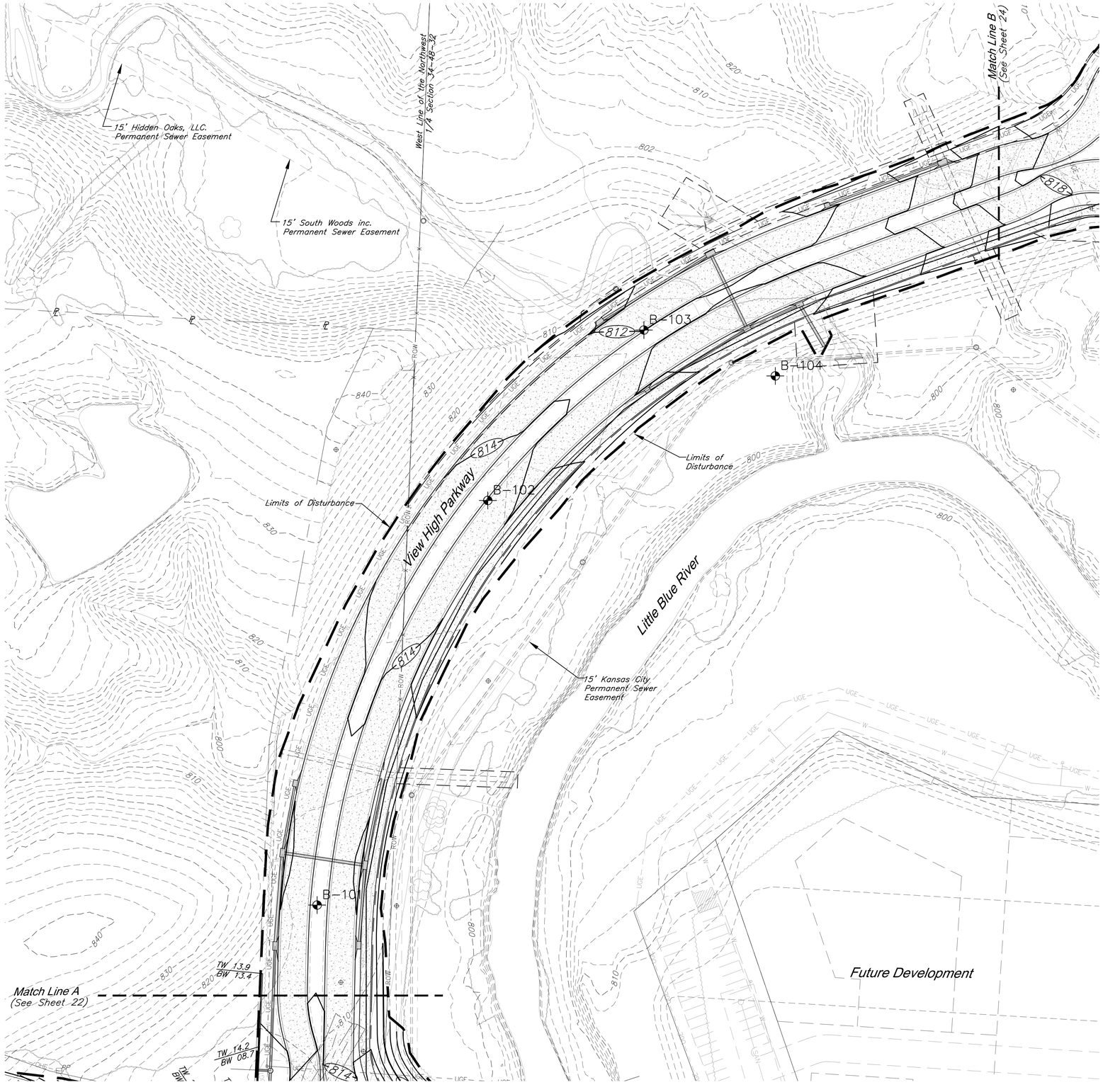
NO.	DATE	REVISIONS	BY	APPROVED
	9/2/20	City Comments		

Legend

- (800) Proposed Contours
- --800-- Existing Contours
- Limits of Disturbance

50' 0' 50' 100'
SCALE : 1 INCH = 50 FEET

Grading Plan



STATE OF MISSOURI
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REGISTERED PROFESSIONAL ENGINEER
9/1/2020

GBA
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9801 Renner Boulevard
Lenexa, Kansas 66219
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DATE:	6-25-2020
DESIGN BY:	CEL
DRAWN BY:	DRV
PROJECT NO.:	12720
SHEET NO.	23
TOTAL SHEETS	103

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License No. 25862

Street and Storm Sewer Plans

Paragon Star Development

Lee's Summit, Missouri

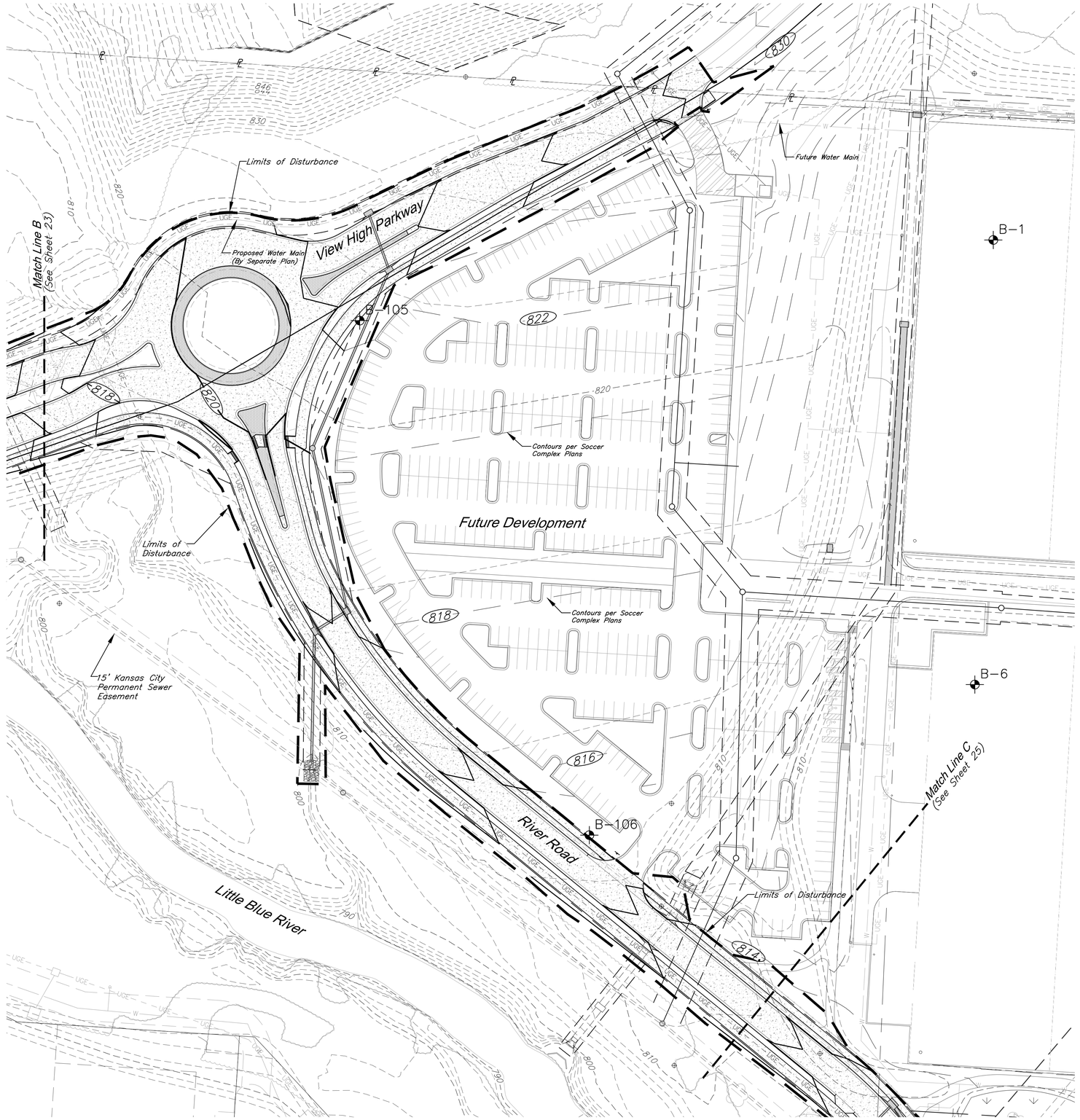
NO.	DATE	REVISIONS	BY	APPROVED
	9/2/20	City Comments		

Legend

- 800 — Proposed Contours
- 800 — Existing Contours
- Limits of Disturbance

50' 0' 50' 100'
SCALE : 1 INCH = 50 FEET

Grading Plan



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REGISTERED PROFESSIONAL ENGINEER
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architects
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9801 Renner Boulevard
Lenexa, Kansas 66219
913.492.0400
www.gbateam.com

DATE:	6-25-2020
DESIGN BY:	CEL
DRAWN BY:	DRV
PROJECT NO.:	12720
SHEET NO.	24
TOTAL SHEETS	103

Bradley D. Burton
Professional Engineer
License No. 25862

Street and Storm Sewer Plans

Paragon Star Development

Lee's Summit, Missouri

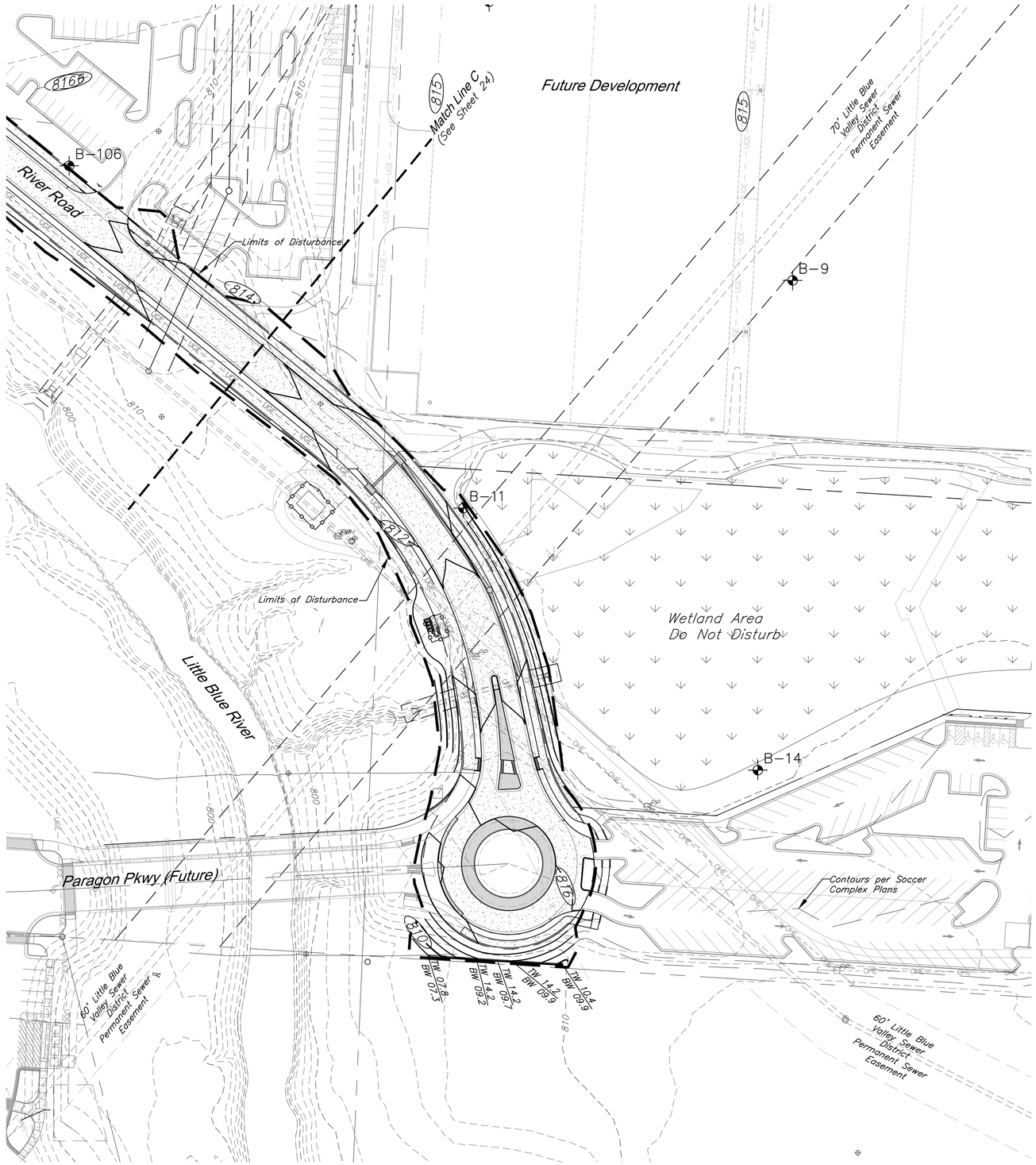
NO.	DATE	REVISIONS	BY	APPROVED
	9/2/20	City Comments		

Legend

- Proposed Contours (800)
- Contours per Soccer Complex Plans (800)
- Existing Contours (800)
- Limits of Disturbance

50' 0' 50' 100'
SCALE : 1 INCH = 50 FEET

Grading Plan



STATE OF MISSOURI
BRADLEY D. BURTON
NUMBER E-25662
REGISTERED PROFESSIONAL ENGINEER
9/1/2020

GBA
architects
engineers
9801 Renner Boulevard
Lenexa, Kansas 66219
913.492.0400
www.gbateam.com

DATE:	6-25-2020
DESIGN BY:	CEL
DRAWN BY:	DRV
PROJECT NO.:	12720
SHEET NO.	25
TOTAL SHEETS	103

Bradley D. Burton
Professional Engineer
License No. 25862

Street and Storm Sewer Plans

Paragon Star Development

Lee's Summit, Missouri

NO.	DATE	REVISIONS	BY	APPROVED
	9/2/20	City Comments		

Legend

- 800 — Proposed Contours
- 800 — Contours per Soccer Complex Plans
- 800 — Existing Contours
- Limits of Disturbance

50' 0' 50' 100'
SCALE : 1 INCH = 50 FEET

Grading Plan

STATE OF MISSOURI
BRADLEY D. BURTON
NUMBER E-25862
REGISTERED PROFESSIONAL ENGINEER
9/1/2020

GBA
architects
engineers
9801 Renner Boulevard
Lenexa, Kansas 66219
913.492.0400
www.gbateam.com

DATE:	6-25-2020
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TOTAL SHEETS	103

Bradley D. Burton
Professional Engineer
License No. 25862

Street and Storm Sewer Plans
Paragon Star Development
Lee's Summit, Missouri

NO.	DATE	REVISIONS	BY	APPROVED
	9/2/20	City Comments		

Erosion Control Legend

- Silt Fence
- Gravel Filter Bags
- Temporary Gravel Construction Entrance
- 800 — Proposed Contours
- 800 — Contours per Soccer Complex Plans
- ----800---- Existing Contours

Total Disturbed Area = 10.14 Acres

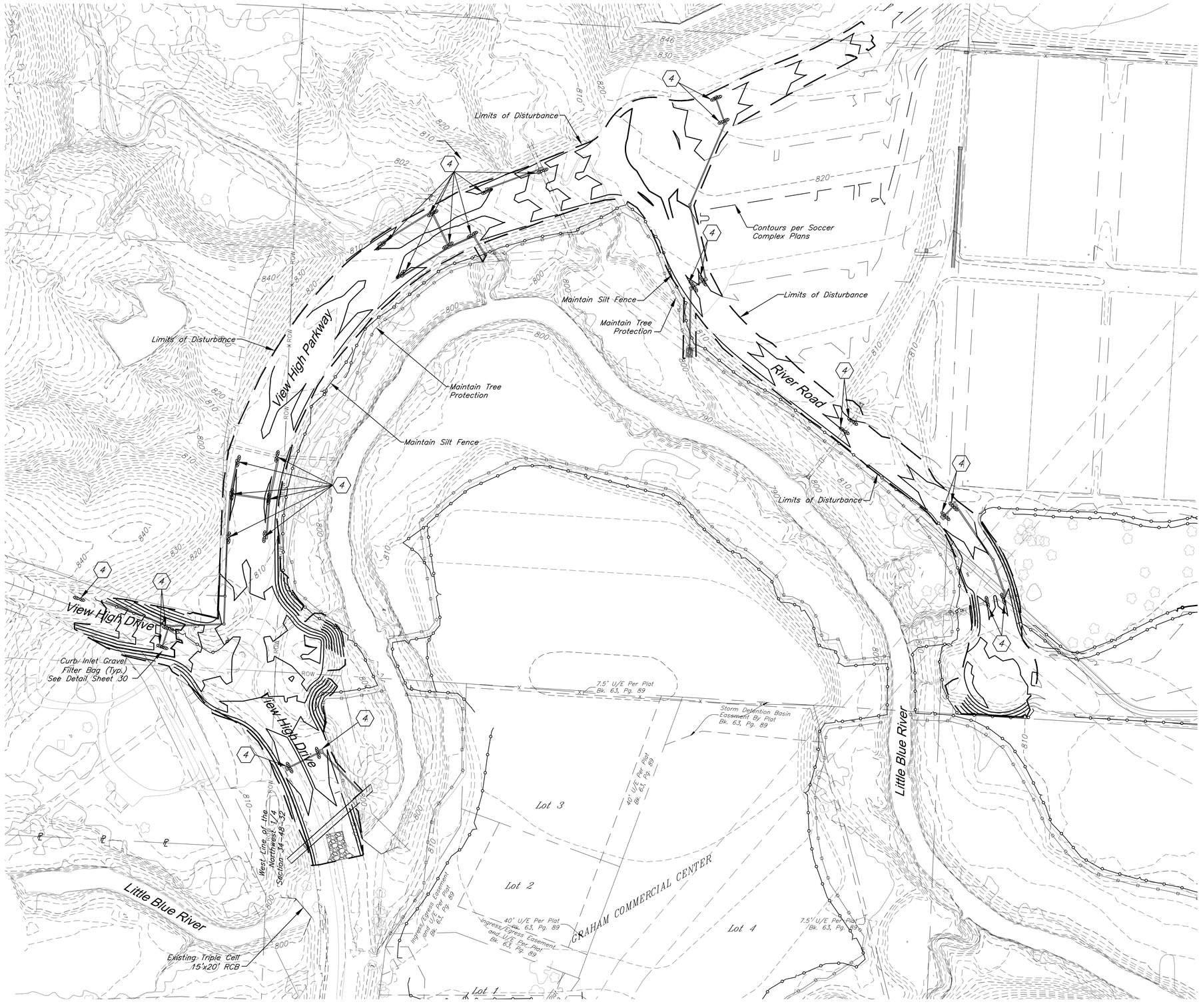
EROSION & SEDIMENT CONTROL PHASING CHART (See Sheets 25 thru 30)

Project Phase	BMP Plan Ref. No.	BMP Description	May Remove after Phase	Notes
A. Prior to Mass Grading	1	Const. Entrance & Staging Area	C	
	2	Maintain Existing Orange Construction Fence	C	
	3	Maintain Existing Perimeter Silt Fence	C	
B. Street Construction	4	Inlet Protection	C	
C. Permanent Stabilization*	5	Seed & Mulch or Blanket or Sod		Erosion control blanket to be installed w/ seed. Check approved seeding dates and install temporary stabilization if out of seeding season. Install blanket according to manufacturer's instructions and stapling pattern.

*Permanent Stabilization will be considered stabilized when 100% of disturbed area is established with perennial vegetation with a density of 70%.

50' 0' 50' 100'
SCALE : 1 INCH = 50 FEET

Pre-Construction Erosion & Sediment Control Plan-Phase 1



STATE OF MISSOURI
BRADLEY D. BURTON
NUMBER E-25862
REGISTERED PROFESSIONAL ENGINEER
9/1/2020

GBA
architects
engineers
9801 Renner Boulevard
Lenexa, Kansas 66219
913.492.0400
www.gbateam.com

DATE:	6-25-2020
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PROJECT NO.:	12720
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Professional Engineer
License No. 25862

Street and Storm Sewer Plans
Paragon Star Development
Lee's Summit, Missouri

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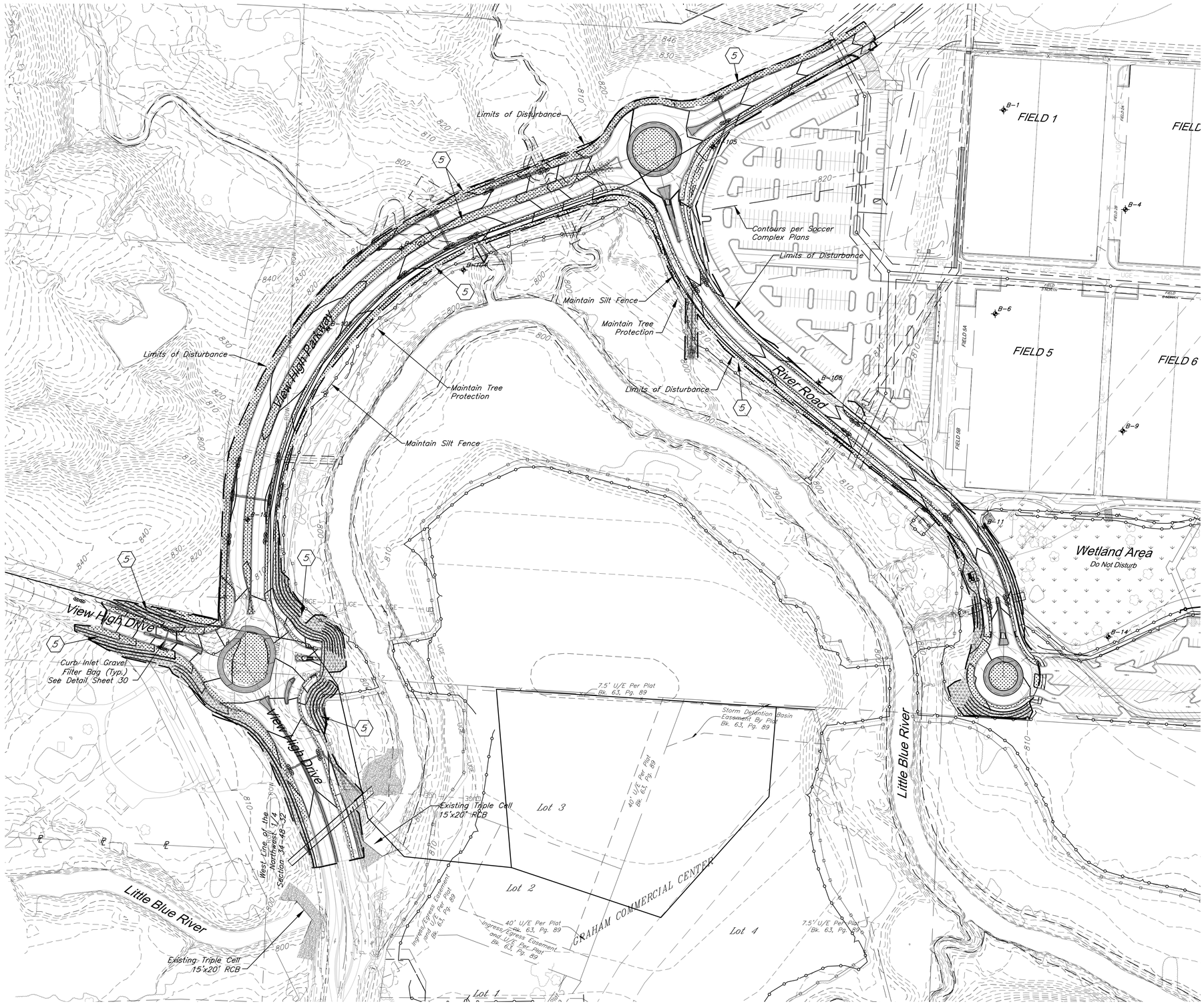
	9/2/20	City Comments		

Erosion Control Legend

- Silt Fence
- Gravel Filter Bags
- Temporary Gravel Construction Entrance
- 800 — Proposed Contours
- 800 — Contours per Soccer Complex Plans
- 800 — Existing Contours
- Limits of Disturbance

50' 0' 50' 100'
SCALE : 1 INCH = 50 FEET

Erosion & Sediment Control Plan-Phase 2



Erosion Control Legend

- Silt Fence
- Gravel Filter Bags
- Temporary Gravel Construction Entrance
- 800 — Proposed Contours
- 800 — Contours per Soccer Complex Plans
- 800 — Existing Contours
- Limits of Disturbance
- Erosion Control Blanket North American Green SC150BN or approved equal
- Establish Turf Type tall fescue with Seed and Straw Mulch

Note: Remove Gravel Filter Bags after Project Phase C. Stabilize all disturbed area in accordance with erosion control notes.

50' 0' 50' 100'
SCALE : 1 INCH = 50 FEET

Post Construction - Erosion & Sediment Control Plan-Phase 3

STATE OF MISSOURI
BRADLEY D. BURTON
NUMBER E-25862
REGISTERED PROFESSIONAL ENGINEER
9/1/2020

Bradley D. Burton
Professional Engineer
License No. 25862

GBA
architects
engineers
9801 Renner Boulevard
Lenexa, Kansas 66219
913.492.0400
www.gbateam.com

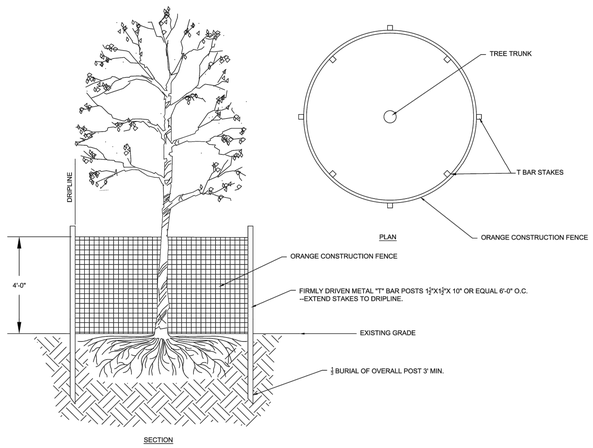
DATE:	6-25-2020
DESIGN BY:	CEL
DRAWN BY:	DRV
PROJECT NO.:	12720
SHEET NO.	28
TOTAL SHEETS	103

Street and Storm Sewer Plans

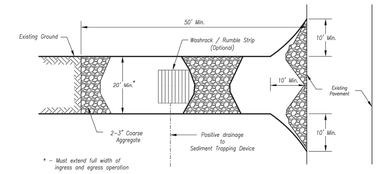
Paragon Star Development

Lee's Summit, Missouri

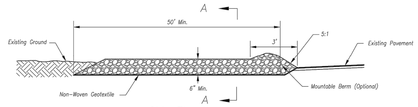
NO.	DATE	REVISIONS	BY	APPROVED
	9/2/20	City Comments		



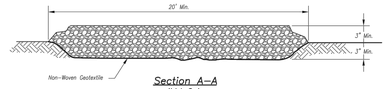
TREE PRESERVATION



Plan View
Not to Scale



Side Elevation
Not to Scale



Section A–A
Not to Scale

Notes for Construction Entrance:

1. Avoid locating on steep slopes, at curves on public roads, or downhill of disturbed area.
2. Remove all vegetation and other unsuitable material from the foundation area, grade, and crown for positive drainage.
3. If slope towards the public road exceeds 2%, construct a 6– to 8–inch high ridge with 3H:1V side slopes across the foundation approximately 15 feet from the edge of the public road to divert runoff from it.
4. Install pipe under the entrance if needed to maintain drainage ditches along public roads.
5. Place stone to dimensions and grade as shown on plans. Leave surface sloped for drainage.
6. Divert all surface runoff and drainage from the entrance to a sediment control device.
7. If conditions warrant, place geotextile fabric on the graded foundation to improve stability.

Maintenance for Construction Entrance:

1. Reshape entrance as needed to maintain function and integrity of installation. Top dress with clean aggregate as needed.

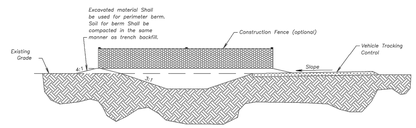
CONSTRUCTION ENTRANCE

Notes for Concrete Washout:

1. Concrete washout areas shall be installed prior to any concrete placement on site.
2. Concrete washout area shall include a flat subsurface pit sized for the liquid and solid waste of concrete to be placed on site. The slopes leading out of the subsurface pit shall be 3:1. The vehicle tracking pad shall be sloped towards the concrete washout area.
3. Vehicle tracking control is required at the access point to all concrete washout areas.
4. Signs shall be placed at the construction site entrance, washout area and elsewhere as necessary to clearly indicate the location(s) of the concrete washout area(s) to operators of concrete truck and pump rigs.
5. A one–piece impervious liner may be required along the bottom and sides of the subsurface pit in sandy or gravelly soils.

Maintenance for Concrete Washout:

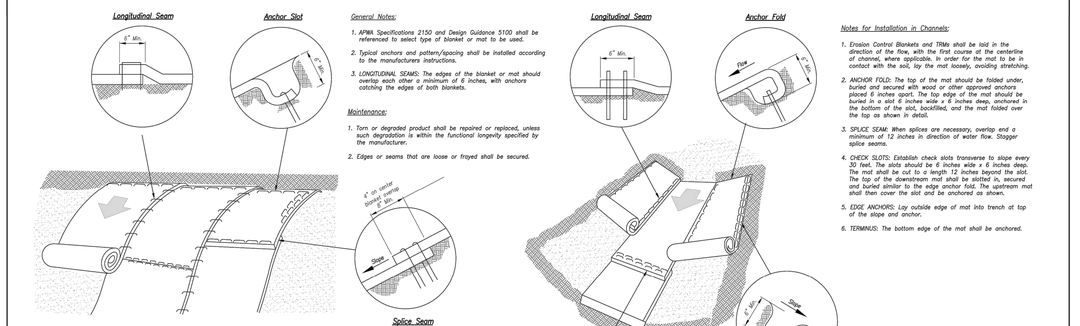
1. Concrete washout materials shall be removed once the materials have filled the washout to approximately 75% full.
2. Concrete washout areas shall be enlarged as necessary to maintain capacity for wasted concrete.
3. Concrete washout water, wasted pieces of concrete and all other debris in the subsurface pit shall be transported from the job site in a water–tight container and disposed of properly.
4. Concrete washout areas shall remain in place until all concrete for the project is placed.
5. When concrete washout areas are removed, excavations shall be filled with suitable compacted backfill and topsoil, any disturbed areas associated with the installation, maintenance, and/or removal of the concrete washout areas shall be stabilized.



CONCRETE WASHOUT

Construction Entrance modified from 2015 Overland Park Standard Details for Erosion and Sediment Control; Concrete Washout modified from 2009 City of Great Bend Standard Drawings.

AMERICAN PUBLIC WORKS ASSOCIATION
Kansas City Metro Chapter
CONSTRUCTION ENTRANCE AND CONCRETE WASHOUT
STANDARD DRAWING NUMBER ESC-01
ADOPTED: 10/24/2016



General Notes:

1. APWA Specifications 2150 and Design Guidance 5100 shall be referenced to select type of blanket or mat to be used.
2. Typical anchors and pattern/spacing shall be installed according to the manufacturers instructions.
3. LONGITUDINAL SEAMS: The edges of the blanket or mat should overlap each other a minimum of 6 inches, with anchors catching the edges of both blankets.

Maintenance:

1. Torn or degraded product shall be repaired or replaced, unless such degradation is within the functional longevity specified by the manufacturer.
2. Edges or seams that are loose or frayed shall be secured.

Notes for Installation on Slopes:

1. Erosion Control Blankets and TRMs shall be laid in the direction of the slope. In order for blanket to be in contact with the soil, lay blanket loosely, avoiding stretching.
2. ANCHOR SLOTS: The top of the blanket should be "slotted in" at the top of the slope and anchored in place with anchors 6 inches apart. The slots should be 6 inches wide x 6 inches deep with the blanket anchored in the bottom of the slot, then backfilled, tamped and seeded.
3. SPLICE SEAM: When splices are necessary, overlap end a minimum of 8 inches in direction of water flow. Stagger splice seams.
4. TERMINAL FOLD: The bottom edge of the blanket shall be turned under a minimum of 4 inches, then anchored in place with anchors 9 inches apart.

Notes for Installation in Channels:

1. Erosion Control Blankets and TRMs shall be laid in the direction of the flow, with the first course at the centerline of channel, where applicable. In order for the mat to be in contact with the soil, lay the mat loosely, avoiding stretching.
2. ANCHOR FOLD: The top of the mat should be folded under, buried and secured with wood or other approved anchors placed 6 inches apart. The top edge of the mat should be buried in a slot 6 inches wide x 6 inches deep, anchored in the bottom of the slot, backfilled, and the mat folded over the top as shown in detail.
3. SPLICE SEAM: When splices are necessary, overlap end a minimum of 12 inches in direction of water flow. Stagger splice seams.
4. CHECK SLOTS: Establish check slots transverse to slope every 30 feet. The slots should be 6 inches wide x 6 inches deep. The mat shall be cut to a length 12 inches beyond the slot. The top of the downstream mat shall be slotted in, secured and buried similar to the edge anchor fold. The upstream mat shall then cover the slot and be anchored as shown.
5. EDGE ANCHORS: Lay outside edge of mat into trench at top of the slope and anchor.
6. TERMINUS: The bottom edge of the mat shall be anchored.

Critical Points:

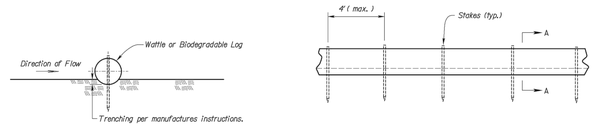
A – Overlap and seams;

B – Projected water line;

C – Channel bottom / side slope vertices;

Modified from 2015 Overland Park Standard Details for Erosion and Sediment Control.

AMERICAN PUBLIC WORKS ASSOCIATION
Kansas City Metro Chapter
EROSION CONTROL BLANKETS AND TURF REINFORMENT MATS
STANDARD DRAWING NUMBER ESC-02
ADOPTED: 10/24/2016



Section A–A

Typical Elevation

WATTLES AND BIODEGRADABLE LOG

Notes for Wattles and Biodegradable Log Slope Protection:

1. The Slope barriers shall be placed along contour lines, with a short section turned upslope at each end of the barrier. The maximum length of the slope barrier shall not exceed 250 feet, and the barrier ends need to be staggered.
2. Install wattles and biodegradable logs per manufacturer's instructions.
3. Spacing of stakes per manufacturer's instructions with 4' max. spacing. Length of stakes shall be a minimum of 2 times the diameter of the log with minimum of 24".

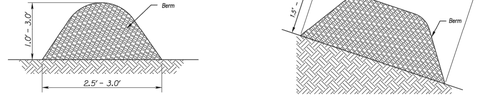


Figure 1
(Perimeter Control)

Figure 2
(Steep Slopes)

MULCH OR COMPOST FILTER BERMS

Notes for Mulch and Compost Filter Beam:

1. The sediment control berm shall be placed uncompacted in a windrow at locations shown on the plans or as directed by the engineer.
2. Parallel to the base of the slope, or around the perimeter of other affected areas, construct a 1 to 3 foot high by 2.5 to 3 foot wide berm (see Figure 1). For maximum water treatment ability or for steep slopes, construct a 1.5 to 3 foot high trapezoidal berm that is a minimum of 4 feet wide at the base (see Figure 2). In extreme conditions, or where specified by the engineer, a second berm shall be constructed at the top of the slope. Engineer will specify berm requirements.
3. If berm is to be left as permanent or part of the natural landscape, the compost berm may be seeded during application for permanent vegetation.
4. Do not use compost or wood mulch berms in any runoff channels or concentrated flow areas.
5. Wood mulch shall consist of tree and shrub debris resulting from clearing and grubbing and shall be ground by the mechanical means such as a chipper, hammermill, tub grinder or other approved method. Mulch sizing varies with a maximum width of 2" and a maximum length of 10".

Maintenance for Mulch and Compost Filter Beam:

1. Berm shall be reshaped and material added as necessary to maintain function and dimensions.
2. Breaches in the berm shall be repaired promptly.

Modified from 2015 Overland Park Standard Details for Erosion and Sediment Control.

AMERICAN PUBLIC WORKS ASSOCIATION
Kansas City Metro Chapter
WATTLES/BIODEGRADABLE LOG AND MULCH/COMPOST FILTER BERM
STANDARD DRAWING NUMBER ESC-04
ADOPTED: 10/24/2016

STATE OF MISSOURI
BRADLEY D. BURTON
NUMBER E-25662
REGISTERED PROFESSIONAL ENGINEER
9/17/2020

GBA
architects
engineers
9801 Renner Boulevard
Lenexa, Kansas 66219
913.492.0400
www.gbateam.com

DATE:	6–25–2020
DESIGN BY:	CEL
DRAWN BY:	DRV
PROJECT NO.:	12720
SHEET NO.:	29
TOTAL SHEETS	103

Bradley D. Burton
Professional Engineer
License No. 25862

Street and Storm Sewer Plans
Paragon Star Development
Lee's Summit, Missouri

NO.	DATE	REVISIONS	BY	APPROVED
	9/2/20	City Comments		

Erosion Control Details

STATE OF MISSOURI
BRADLEY D. BURTON
NUMBER E-25862
REGISTERED PROFESSIONAL ENGINEER
9/17/2020

GBA architects engineers
9801 Renner Boulevard
Lenexa, Kansas 66219
913.492.0400
www.gbateam.com

DATE:	6-25-2020
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SHEET NO.	TOTAL SHEETS
30	103

Bradley D. Burton
Professional Engineer
License No. 25862

Street and Storm Sewer Plans
Paragon Star Development
Lee's Summit, Missouri

NO.	DATE	REVISIONS	BY	APPROVED
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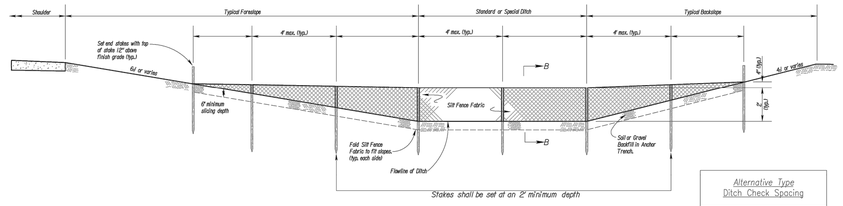
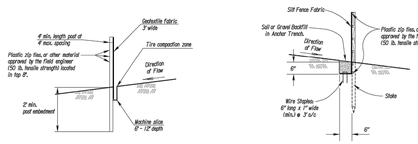
Notes for Silt Fence Ditch Check:

1. Stakes shall be 4' (min.) long and one of the following materials:
   a. Hardwood – 1 ¾" x 1 ¾";
   b. Southern Pine (No. 2) – 2 ¾" x 2 ¾";
   c. Steel U, T, L, or C Section – .95 lbs. per 1'-0";
   d. Synthetic – same strength as wood stakes.
2. Cross pieces shall be of same material as stakes.
3. Attach fence fabric securely on 6" centers (max.).
4. Use of high flow material is acceptable.
5. Refer to plan sheets to estimate the length of silt fence required.
6. Use support fencing when tributary area is greater than 2.4 acres or when ditch gradient is greater than 2 percent.
7. Silt fence sliced in to a 6" minimum depth.
8. Elevation at tie in points shall be a minimum of 4" higher than the center.



Stakes shall be set at an 2' minimum depth

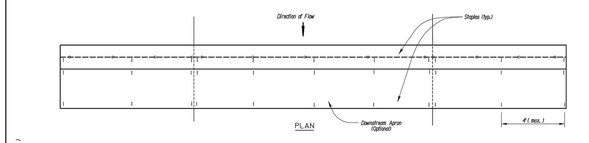
TYPICAL ELEVATION



SECTION B-B

SILT FENCE DITCH CHECK
NO SCALE

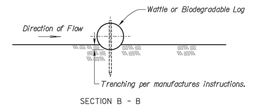
Alternative Type Ditch Check Spacing	
Ditch Centerline Slope (%)	Spacing Interval (Feet)
1.0	200
2.0	100
3.0	65
4.0	50
5.0	40
6.0	33
Note: Use this spacing for all except Rock Ditch Checks.	



TYPICAL ELEVATION

Notes for Wattles and Biodegradable Log Ditch Check:

1. Use as many biodegradable log sections as necessary to ensure water does not flow around end of ditch check.
2. Overlap sections a minimum of 18"
3. Stakes shall be per manufacturer's instructions. Length of stakes shall be a minimum of 2 times the diameter of the log or 24" minimum.
4. Use Erosion Control (Class 1) (Type C) as the downstream apron when directed by the Engineer.
5. Use 9" diameter logs when used with Erosion Control (Class 2) (Any Type) channel lining. Smaller diameter logs may be used with Erosion Control (Class 2) (Any Type) channel lining as directed by the Engineer.

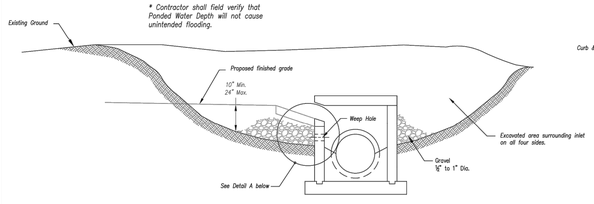


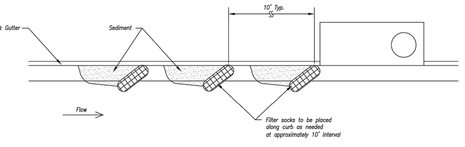
SECTION B - B

WATTLES OR BIODEGRADABLE LOG DITCH CHECKS
OR Filter Sock Ditch Check
NO SCALE

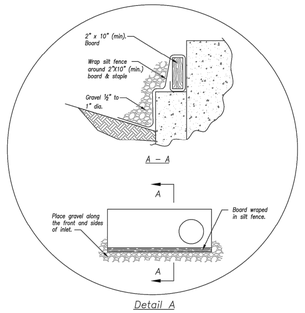
Modified from Kansas Department of Transportation Standard Details for Erosion Control and Sediment Control.

AMERICAN PUBLIC WORKS ASSOCIATION
KANSAS CITY METRO CHAPTER
SILT FENCE AND WATTLE/ BIODEGRADABLE LOG DITCH CHECKS
STANDARD DRAWING NUMBER ESC-09
ADOPTED: 10/24/2016





On Grade Curb Inlet Protection



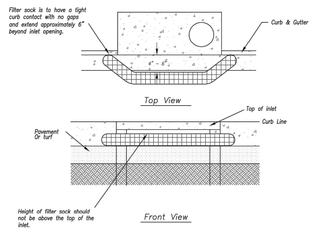
EARLY STAGE CURB INLET
(Open Box and Prior to Pouring Curb and Inlet Throat)

Notes:

1. Immediately following inlet construction and prior to construction of curb and inlet throat, protect inlet opening by installing 2" X 10" (min.) board wrapped in silt fence. Structures shall have excavated storage area on all four sides to allow settling of sediment (Early Stage Curb Inlet).
2. When inlet is completed and curb poured, filter socks or approved equal should be used (Late Stage Curb Inlet). Straw wattles are not approved for curb inlet use.
3. Contractor to field verify ponding water shall not create a traffic hazard.

Maintenance:

1. Remove deposited sediment from excavated storage areas when available storage has been reduced by 20%.
2. Remove deposited sediment from filter socks or similar when any accumulation of sediment is visible.
3. Repair or replace as necessary to maintain function and integrity of installation.

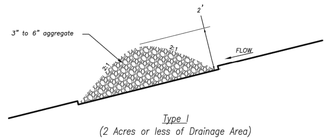


Sump Inlet Sediment Filter

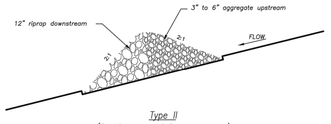
LATE STAGE CURB INLET
(After Pouring Curb and Inlet Throat)

Modified from 2015 Overland Park Standard Details for Erosion and Sediment Control.

AMERICAN PUBLIC WORKS ASSOCIATION
KANSAS CITY METRO CHAPTER
CURB INLET PROTECTION
STANDARD DRAWING NUMBER ESC-06
ADOPTED: 10/24/2016



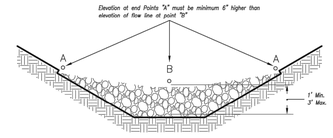
Type I
(2 Acres or less of Drainage Area)
Not to Scale



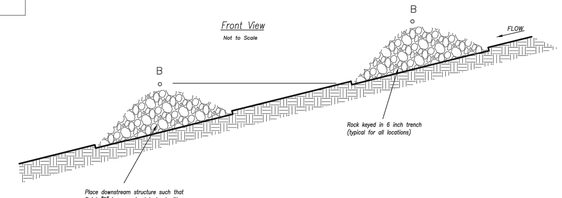
Type II
(2-10 Acres of Drainage Area)
Not to Scale

ROCK DITCH CHECK

Temporary Rock Ditch Check Spacing	
Ditch Centerline Slope (%)	Spacing Interval (Feet)
5.0	60
6.0	50
7.0	43
8.0	36
9.0	33
10.0	29
Note: Use this spacing only for Rock Ditch Checks.	



Front View
Not to Scale



Spacing Between Check Dams (all types)
Not to Scale

Notes:

1. Rock check dams shall be used only for drainage areas less that 10 acres unless approved by the City Engineer.
2. Use rock checks only in situations where the ditch slope exceeds 6%.

Maintenance:

1. Remove and dispose of sediment deposits when the deposit approaches ½ the height of the ditch check.
2. Replace and reshape as necessary to maintain function and integrity of installation.

Modified from 2015 Overland Park Standard Details for Erosion and Sediment Control.

AMERICAN PUBLIC WORKS ASSOCIATION
KANSAS CITY METRO CHAPTER
ROCK DITCH CHECKS
STANDARD DRAWING NUMBER ESC-10
ADOPTED: 10/24/2016

Erosion Control Details

Architect 00212, Professional Engineer 000133, Professional Land Surveyor 000059

STATE OF MISSOURI
BRADLEY D. BURTON
NUMBER E-25862
REGISTERED PROFESSIONAL ENGINEER
9/1/2020

GBA
architects
engineers
9801 Renner Boulevard
Lenexa, Kansas 66219
913.492.0400
www.gbateam.com

DATE:	6-25-2020
DESIGN BY:	CEL
DRAWN BY:	DRV
PROJECT NO.:	12720
SHEET NO.:	31
TOTAL SHEETS	103

Bradley D. Burton
Professional Engineer
License No. 25862

Street and Storm Sewer Plans

Paragon Star Development

Lee's Summit, Missouri

NO.	DATE	REVISIONS	BY	APPROVED
	9/2/20	City Comments		

Legend

- 800 — Proposed Contours
- 800 — Existing Contours
- Drainage Area Boundary

100' 0' 100' 200'
SCALE : 1 INCH = 100 FEET

Storm Drainage Map

Indicates Proposed Storm Sewer	Indicates Storm Sewer for Soccer Complex	Indicates Existing Storm Sewer

25 Year Storm   Culverts have been designed to the 100 year Storm

	Structures		Runoff Calculations									Gutter Spread Calculations 10-Year Storm							Pipe Design								Design Checks												
	From	To	Direct Area (acre)	Line In (acre)	Total Area (acre)	C	K	Tc (min)	Flow Time (min)	Intensity (in/hr)	Design Q (cfs)	Inlet Width (ft.)	Curb Type	Q Inlet (cfs)	Gutter Spread (ft.)	Street Slope (ft./ft.)	Q Captured (cfs)	Q Bypass (cfs)	Description	Pipe length (lin ft)	Pipe Slope Slope, %	Pipe dia (in)	Manning's n Value	Q full (cfs)	Pipe Area, sf	V full fps	Design V fps	Hw/D	outlet head, H	HW, Inlet Control, (ft)	HW, Outlet Control, (ft)	Inlet Top Elevation	upstream flowline	downstream flowline	Invert Drop (ft)	Downstream water elevation	Hydraulic Grade Elev. (Calculated)	Hydraulic Grade (allowable)	Comments
Line 100 (100 Yr)	103		16.70			0.40	1.25	5.90		9.96	83.2								End Section													N/A					806.14	813.50	
		102			16.70	0.40	1.25	5.90	0.18	9.96	83.2								RCP	129.01	1.00	42	0.013	#####	9.62	10.49	11.69	1.5	3.34	803.85	806.14		798.53	797.24		802.80			
	102		0.26	3.56		0.90	1.25	5.90		9.96	2.9								Curb Inlet													813.01			0.3		802.80	811.18	Tie in from Line 200
		101			20.52	0.44	1.25	6.08	0.08	9.89	112.3								RCP	58.18	1.00	48	0.013	#####	12.57	11.46	12.63	1.5	2.27	802.80	797.32		796.94	796.36		795.05			
	101		0.00			0.67	1.25	5.00		10.32	0.0								Junction Box													805.38			7.15		795.05	804.05	
		100			20.52	0.44	1.25	6.16	0.08	9.86	112.0								RCP	58.69	1.00	48	0.013	#####	12.57	11.46	12.63	1.5	2.27	795.05	790.27		789.21	788.62		788.00			
																																					788.00		
Line 100 (25 Yr)	103		16.70			0.40	1.10	5.90		8.22	60.4								End Section													N/A					802.44	813.50	
		102			16.70	0.40	1.10	5.90	0.20	8.22	60.4								RCP	129.01	1.00	42	0.013	#####	9.62	10.49	10.93	1.1	1.76	802.44	802.35		798.53	797.24		800.59			
	102		0.26	3.56		0.90	1.10	5.90		8.22	2.1	7.00	CG-1 (B) Sx.2%	1.6	8	0.01	1.30	0.34	Curb Inlet													813.01			0.3		800.59	811.18	Tie in from Line 200
		101			20.52	0.34	1.10	6.10	0.09	8.15	62.0								RCP	58.18	1.00	48	0.013	#####	12.57	11.46	11.01	0.9	0.69	800.59	793.54		796.94	796.36		792.85			
	101		0.00			0.67	1.10	5.00		8.53	0.0								Junction Box													805.38			7.15		792.85	804.05	
		100			20.52	0.34	1.10	6.18	0.09	8.12	61.8								RCP	58.69	1.00	48	0.013	#####	12.57	11.46	11.00	0.9	0.69	792.85	788.69		789.21	788.62		788.00			
																																					788.00		
Line 200	207		0.32			0.41	1.10	6.00		8.19	1.2								Flared End Section													825.33			0.5		826.21	826.58	
		206			0.32	0.41	1.10	6.00	0.22	8.19	1.2								HDPE	134.00	7.88	15	0.01	23.63	1.23	19.26	10.06	0.7	0.12	826.21	815.49		825.33	814.78		815.37			
	206		0.08	0.11		0.85	1.10	5.00		8.53	0.6	5.00	CG-1 (B) Sx.2%	0.5	4	0.08	0.4	0.10	Curb Inlet													832.17			0.5		815.37	830.34	Tie in from Line 4000
		205			0.51	0.57	1.10	6.22	0.17	8.11	2.6								HDPE	109.01	4.60	18	0.01	29.37	1.77	16.62	10.76	0.7	0.19	815.37	810.04		814.28	809.26		809.86			
	205		0.00			0.00	1.10	5.00		8.53	0.0	5.00	CG-1 (B) Sx.2%	0.1	3	0.02	0.1	0.00	Manhole													821.30			0.5		809.86	819.97	
		204			0.51	0.57	1.10	6.39	0.17	8.06	2.6								HDPE	55.28	1.00	18	0.01	13.69	1.77	7.75	5.49	0.7	0.11	809.86	808.58		808.76	808.21		808.47			
	204		0.00	1.08		0.00	1.10	5.00		8.53	0.0								Manhole													815.62			1.27		808.47	814.29	
		203			1.59	0.46	1.10	6.56	0.28	8.00	6.4								HDPE	116.21	0.80	18	0.01	12.25	1.77	6.93	6.99	1.0	1.19	808.47	808.40		806.94	806.01		807.21			
	203		0.37			0.90	1.10	5.00		8.53	3.1	7.00	CG-1 (B) Sx.2%	2.4	9	0.01	1.9	0.55	Curb Inlet													812.88			0.5		807.21	811.05	
		202			1.96	0.54	1.10	6.39	0.19	8.06	9.4								HDPE	87.09	0.80	24	0.01	26.38	3.14	8.40	7.67	0.8	0.50	807.21	806.84		805.51	804.82		806.34			
	202		0.35	0.47		0.55	1.10	8.24		7.51	1.6	7.00	CG-1 (B) Sx.2%	2.2	10	Sump	2.2	0.00	Curb Inlet													812.43			0.5		806.34	810.60	Tie in from Line 3700
		201			2.78	0.53	1.10	6.58	0.16	8.00	12.9								RCP	78.01	0.80	24	0.013	20.29	3.14	6.46	8.33	1.0	0.88	806.33	806.34		804.32	803.69		805.46			
	201		0.20	0.58		0.90	1.10	5.00		8.53	1.7	7.00	CG-1 (B) Sx.2%	2.7	12	Sump	2.7	0.00	Curb Inlet													812.41			0.5		805.46	810.58	Tie in from Line 3900
		102			3.56	0.61	1.10	6.74	0.12	7.95	19.0								RCP	86.33	2.26	30	0.013	61.83	4.91	12.60	11.98	0.9	0.69	805.46	801.28		803.19	801.24		800.59			Connect to Line 100
																																					800.59		
Line 204A	204A		1.08		1.08	0.40	1.10	5.00		8.53	4.1								End Of Pipe													807.70					808.97	809.20	
		204			1.08	0.40	1.10	5.00	0.02	8.53	4.1								RCP	12.03	2.16	15	0.013	9.52	1.23	7.76	9.19	1.0	0.31	808.97	808.77		807.70	807.44		808.47			Connect to Line 200
Line 300 (100 Yr)	302		221.20			0.40	1.25	17.10		6.94	767.3								RCB Headwall													N/A					809.03	811.00	
		301			221.20	0.40	1.25	17.10	0.13	6.94	767.3								RCB	118.95	0.50	8'x8' RCB	0.013	#####	49.00	15.45	14.79	1.8	4.49	810.58	813.52		795.94	795.35		809.03			
	301						0.67	1.25	5.00		10.32	0.0								35* Bend													N/A			0		809.03	811.00	35 degree bend South
		300			221.20	0.40	1.25	17.23	0.05	6.91	764.5								RCB	47.05	0.50	8'x8' RCB	0.013	#####	49.00	15.45	14.77	1.8	4.49	809.92	793.82		795.35	795.11		789.33			
																																					789.33		
Line 400	404		0.66			0.75	1.10	5.00		8.53	4.6	7.00	CG-1 (B) Sx.2%	3.6	10	0.01	2.669	0.97	Curb Inlet													812.40					808.75	810.57	
		403			0.66	0.75	1.10	5.00	0.29	8.53	4.6								HDPE	121.35	1.00	18	0.01	13.69	1.77	7.75	6.97	0.9	0.65	808.75	807.93		807.47	806.26		807.27			
	403		0.25			0.85	1.10	5.00		8.53	2.0	8.00	CG-1 (B) Sx.2%	3.0	12	Sump	2.989	0.00	Curb Inlet													811.42			0.5		807.27	809.59	
		402			0.91	0.78	1.10	5.29	0.15	8.43	6.6								RCP	78.49	1.50	24	0.013	27.78	3.14	8.84	8.73	0.8	0.23	807.27	806.08		805.76	804.58		805.85			
	402		0.18	0.30		0.85	1.10	5.00		8.53	1.4	6.00	CG-1 (B) Sx.2%	2.2	12	Sump	2.218	0.00	Curb Inlet													811.42			0.5		805.85	809.59	Tie in from Line 3600
		401			1.39	0.80	1.10	5.44	0.05	8.37	10.3								HDPE	53.83	7.32	24	0.01	79.78	3.14	25.40	17.46	0.9	0.44	805.85	801.24		804.08	800.14		800.80			
	401		0.44			0.87	1.10	5.00		8.53	3.6	6.00	CG-1 (B) Sx.2%	2.8	10	0.01	2.151	0.66	Curb Inlet													811.65			1.45		800.80	809.82	
		400			1.83	0.82	1.10	5.49	0.04	8.36	13.8								HDPE	44.90	8.00	24	0.01	83.41	3.14	26.55	19.56	1.1	0.73	800.80	796.73		798.69	795.10		796.00			Connect to RCB Wall
Line 500 (100 Yr)	501		80.40			0.40	1.25	25.00		5.71	229.7								End Section													N/A					805.26	815.50	
		501A			80.40	0.40	1.25	25.00	0.06	5.71	229.7								RCP	56.06	1.50	72	0.013	#####	28.27	18.39	16.10	1.1	1.59	804.43	805.26		797.78	796.94		803.67			
	501A		0.91	0.13		0.45	1.25	25.00		5.71	2.9								Curb Inlet													815.44			0		803.67	814.11	Tie in From Line 3800
		500			81.44	0.40	1.25	25.06	0.15	5.71	233.2								RCP	147.94	1.50	72	0.013	#####	28.27	18.39	16.18	1.1	2.26	803.67	799.98		796.94	794.72		797.72			
	500		0.00			0.00	1.25	25.00		5.71	0.0								End Section																		797.72		
Line 500 (25 Yr)	501		80.40			0.40	1.10	25.00		4.63	164.0								End Section													N/A					803.15	815.50	
		501A			80.40	0.40	1.10	25.00	0.06	4.63	164.0								RCP	56.06	1.50	72	0.013	#####	28.27	18.39	14.44	0.9	0.81	803.14	803.15		797.78	796.94		802.34			
	501A		0.91	0.13		0.45	1.10	25.00		4.63	2.1	8.00	CG-1 (B) Sx.2%	2.5	8	0.03	1.849	0.67	Curb Inlet													815.44			0		802.34	814.11	Tie in From Line 3800
		500			81.44	0.40	1.10	25.06	0.17	4.63	166.4								RCP	147.94	1.50	72	0.013	#####	28.27	18.39	14.51	0.9	1.15	802.34	798.87		796.94	794.72		797.72			
	500		0.00			0.00	1.10	25.00		4.63	0.0								End Section																		797.72		
Line 600	605		0.62			0.45	1.10	6.43		8.05	2.5	7.00	CG-1 (B) Sx.2%	1.9	8	0.02	1.503	0.43	Curb Inlet													823.32					818.86	821.99	
		604			0.62	0.45	1.10	6.43	0.15	8.05	2.5								RCP	57.64	1.00	15	0.013	6.48	1.23	5.28	6.27	0.8	0.26	818.86	818.19		817.86	817.29		817.93			
	604		0.16			0.67	1.10	6.43		8.05	0.9	6.00	CG-1 (B) Sx.2%	0.7	6	0.02	0.744	0.00	Curb Inlet													823.41			0.5		817.93	822.08	
		603			0.78	0.50	1.10	6.58	0.45	8.00	3.4								HDPE	175.55	1.33	15	0.01	9.71	1.23	7.91	6.44	0.9	1.22	817.93	816.30		816.79	814.45		815.08			
	603		0.00			0.00	1.10	6.43		8.05	0.0								Manhole													8120.00			0.5		815.08	8118.67	
		602			0.78	0.50	1.10	7.04	0.39	7.86	3.3								HDPE	150.62	1.20	15	0.01	9.22	1.23	7.52	6.40	0.9	1.03	815.08	814.09		813.95	812.14		813.06			
	602		0.42			0.67	1.10	6.43		8.05	2.5	5.00	CG-1 (B) Sx.2%	2.0	9	0.01	1.527	0.43	Curb Inlet													818.27			0.5		813.06	816.94	
		601			1.20	0.56	1.10	7.43	0.10	7.74	5.7								RCP	34.90	1.00	18	0.013	10.53	1.77	5.96	6.07	0.9	0.42	813.06	811.66		811.64	811.29		811.24			
	601		0.25			0.67	1.10	6.24		8.11	1.5	6.00	CG-1 (B) Sx.2%	1.2	7	0.01	0.935	0.24	Curb Inlet													818.26			1.7		811.24	816.93	
		600			1.45	0.58	1.10	7.53	0.12	7.71	7.1								HDPE	118.00	9.19	18	0.01	41.51	1.77	23.49	17.02	1.1	1.48	811.24	800.23		809.59	798.75		798.75			
Line 700 (100 Yr)	710		17.12			0.51	1.25	18.92		6.61	72.2								End Section													N/A					834.17	836.00	
		709			17.12	0.51	1.25	18.92	0.07	6.61	72.2								RCP	90.20	5.75	48	0.013	#####	12.57	27.48	21.69	1.0	1.12	834.17	829.70		830.18	824.99		828.59			
	709		0.42			0.80	1.25	5.50		10.12	4.2	7.00	CG-1 (B) Sx.2%	2.42	8	0.02	1.84	0.581	Curb Inlet													834.22			0.5		828.59	832.39	
		708			17.54	0.52	1.25	18.99	0.03	6.60	74.8								RCP	36.50	5.00	48	0.013	#####	12.57	25.63	20.84	1.0	0.88	828.59	824.03		824.49	822.67		823.15			
	708		0.22			0.90	1.25	6.21		9.84	2.4	8.00	CG-1 (B) Sx.2%	1.39	7	0.02	1.10	0.290	Curb Inlet													834.16			3.67		823.15	832.33	
		707			17.76	0.52	1.25	19.02	0.16	6.59	76.4								RCP	199.94	5.00	48	0.013	#####	12.57	25.63	20.84	1.0	1.94	823.15	813.69		819.00	809.00		811.75			
	707		0.00			0.80	1.25	5.00		10.32	0.0		CG-1 (B) Sx.2%	0.00	0	0.02	0.00	0.000	Junction Box													816.72			1		811.75	814.89	
		706			17.76	0.52	1.25	19.18	0.27	5.35	61.9								RCP	190.19	0.79	60	0.013	#####	19.63	11.82	11.60	0.7	0.42	811.75	810.36		808.00	806.50		809.94			
	706		0.00			0.80	1.25	5.00		8.53	0.0		CG-1 (B) Sx.2%	0.00	0	0.02	0.00	0.000	Junction Box													816.78			0.5		809.94	814.95	
		705			17.76	0.52	1.25	19.45	0.34	6.52	75.5								RCP	239.94	0.96	60	0.013	#####	19.63	13.03	11.60	0.8	0.72	809.94	808.87		806.00	803.70		808.14			
	705		0.00	9.34		0.67	1.25	5.85		9.98	0.0								Junction Box													814.35			0.5		808.14	813.02	
		704			27.10	0.57	1.25	19.80	0.38	6.47	124.3								RCP	329.02	0.92	60	0.013	#####	19.63	12.78	14.43	1.0	2.40	808.14	807.49		803.20	800.16		805.09			
	704		0.54	3.51		0.86	1.25	5.00		10.32	6.0		CG-1 (B) Sx.2%	3.41		0.02	1.59	1.823	Curb Inlet													813.61			2.3		805.09	812.28	
		703			31.15	0.61	1.25	20.18	0.04	6.40	152.1								RCP	35.47	0.80	60	0.013	#####	19.63	11.90	14.78	1.1	1.39	803.58	805.09		797.84	797.31		803.70			
	703		0.25			0.90	1.25	5.00		10.32	2.9	9.00	CG-1 (B) Sx.2%	2.08	9	0.01	1.64	0.443	Curb Inlet													813.98			0.3		803.70	812.15	
		702			31.40	0.61	1.25	20.22	0.04	6.40	153.8								RCP	35.00	0.80	60	0.013	#####	19.63	11.90	14.80	1.2	1.41	802.81	803.70		797.01	796.73		802.29			
	702		0.29			0.90	1.25	5.00		10.32	3.4	8.00	CG-1 (B) Sx.2%	2.15	9	0.01	1.69	0.466	Curb Inlet													813.98			0.3		802.29	812.15	
		701			31.69	0.62	1.25	20.26	0.08	6.39	155.7								RCP	68.97	0.80	60	0.013	#####	19.63	11.90	14.84	1.2	1.72	802.29	794.83		796.43	795.88		793.11			
	701		0.00			0.90	1.25	5.00		10.32	0.0								Junction Box													808.48			8.63		793.11	807.15	
		700			31.40	0.62	1.25	20.26	0.05	6.39	155.7								RCP	44.31	1.00	60	0.013	#####	19.63	13.30	14.84	1.2	1.52	793.11	790.83		787.25	786.81		789.31			
																																					789.31		
Line 700 (25 Yr)	710		17.12			0.51	1.10	18.92		5.38	51.7								End Section													N/A					833.53	836.00	
		709			17.12	0.51	1.10	18.92	0.08	5.38	51.7								RCP	90.20	5.75	48	0.013	#####	12.57	27.48	19.72	0.8	0.57	833.53	828.46		830.17	824.98		827.89			
	709		0.42			0.80	1.10	5.50		8.35	3.1	7.00	CG-1 (B) Sx.2%	2.42	8	0.02	1.84	0.581	Curb Inlet													834.22			0.5		827.89	832.39	
		708			17.54	0.52	1.10	19.00	0.03	5.37	53.6								RCP	36.50	5.00	48	0.013	#####	12.57	25.63	20.84	0.9	0.45	827.89	822.88		824.48	822.66		822.42			
	708		0.22			0.90	1.10	6.21		8.12	1.8	8.00	CG-1 (B) Sx.2%	1.39	7	0.02	1.10	0.290	Curb Inlet													834.16			3.67		822.42	832.33	
		707			17.76	0.52	1.10	19.03	0.16	5.37	54.7								RCP	199.94	5.00	48	0.013	#####	12.57	25.63	20.84	0.9	0.99	822.42	812.64		818.99	808.99		811.65			
	707		0.00			0.80	1.10	5.00		8.53	0.0		CG-1 (B) Sx.2%	0.00	0	0.02	0.00	0.000	Junction Box													816.72			1		811.65	814.89	
		706			17.76	0.52	1.10	19.19	0.27	5.34	54.5								RCP	190.19	0.79	60	0.013	#####	19.63	11.82	11.60	0.7	0.33	811.65	809.97		807.99	806.49		809.64			
	706		0.00			0.80	1.10	5.00		8.53	0.0		CG-1 (B) Sx.2%	0.00	0	0.02	0.00	0.000	Junction Box													816.78			0.5		809.64	814.95	
		705			17.76	0.52	1.10	19.46	0.34	5.31	54.1								RCP	239.94	0.96	60	0.013	#####	19.63	13.03	11.60	0.7	0.37	809.64	802.87		805.99	803.69		802.50			
	705		0.00	9.34		0.67	1.10	5.85		8.24	0.0								Junction Box													814.35			0.5		807.36	813.02	
		704			27.10	0.57	1.10	19.80	0.38	5.26	89.0								RCP	329.02	0.92	60	0.013	#####	19.63	12.76	14.43	0.8	1.23	807.36	803.73		803.19	800.16		802.50			
	704		0.54	3.51		0.86	1.10	5.00		8.53	4.4		CG-1 (B) Sx.2%	3.41		0.02	1.59	1.823	Curb Inlet													813.61			2.3		802.50	812.28	
		703			31.15	0.61	1.10	20.18	0.04	5.21	108.9								RCP	35.49	0.80	60	0.013	#####	19.63	11.90	14.78	0.9	0.71	802.41	802.50		797.84	797.31		801.79			
	703		0.25			0.90	1.10	5.00		8.53	2.1	9.00	CG-1 (B) Sx.2%	2.08	9	0.01	1.64	0.443	Curb Inlet													813.98			0.3		801.79	812.15	
		702			31.40	0.61	1.10	20.22	0.04	5.20	110.0								RCP	35.00	0.80	60	0.013	#####	19.63	11.90	14.80	0.9	0.72	801.62	801.79		797.01	796.73		801.07			
	702		0.29			0.90	1.10	5.00		8.53	2.4	8.00	CG-1 (B) Sx.2%	2.15	9	0.01	1.69	0.466	Curb Inlet													813.98			0.3		801.07	812.15	
		701			31.69	0.62	1.10	20.26	0.08	5.20	111.4								RCP	68.97	0.80	60	0.013	#####	19.63	11.90	14.84	0.9	0.88	801.07	792.76		796.43	795.88		791.89			
	701		0.00			0.90	1.10	5.00		8.53	0.0								Junction Box													808.48			8.63		791.89	807.15	
		700			31.40	0.62	1.10	20.26	0.05	5.20	111.4								RCP	44.31	1.00	60	0.013	#####	19.63	13.30	14.84	0.9	0.78	791.89	790.09		787.25	786.81		789.31			
																																					789.31		
Line 1200 (100 Yr)	1203		4.52			0.51	1.25	8.33		9.10	26.2								End Section													N/A					810.31	810.00	
		1202			4.52	0.51	1.25	8.33	0.03	9.10	26.2								RCP	25.00	3.02	30	0.013	71.47	4.91	14.56	13.41	1.1	0.76	810.31	806.89		807.50	806.75		806.13			
	1202		0.19	0.60		0.90	1.25	6.35		9.79	2.1	8.00	CG-1 (B) Sx.2%	1.2	7	0.02	0.95	0.24	Curb Inlet													814.01			5.36		806.13	812.18	Tie in from Line 3300
		1201			5.31	0.57	1.25	8.36	0.08	9.09	34.1								RCP	43.24	1.00	30	0.013	41.13	4.91	8.38	9.35	1.4	1.56	804.99	806.13		801.39	800.96		804.57			
	1201		0.27			0.90	1.25	5.00		10.32	3.1	8.00	CG-1 (B) Sx.2%	1.8	8	0.02	1.40	0.39	Curb Inlet													814.00			0.3		804.57	812.17	
		1200			5.58	0.58	1.25	8.44	0.09	9.07	36.8								RCP	51.00	1.00	30	0.013	41.13	4.91	8.38	9.45	1.6	1.95	804.57	801.95		800.66	800.15		800.00			
																																					800.00		
Line 1200 (25 Yr)	1203		4.52			0.51	1.10	8.33		7.48	19.0								End Section													N/A					809.77	810.00	
		1202			4.52	0.51	1.10	8.33	0.03	7.48	19.0								RCP	25.00	3.02	30	0.013	71.47	4.91	14.56	12.55	0.9	0.40	809.77	804.72		807.50	806.75		804.32			
	1202		0.19	0.60		0.90	1.10	6.35		8.07	1.5	8.00	CG-1 (B) Sx.2%	1.2	7	0.02	0.95	0.24	Curb Inlet													814.01			5.36		804.32	812.18	Tie in from Line 3300
		1201			5.31	0.57	1.10	8.36	0.08	7.47	24.7								RCP	43.24	1.00	30	0.013	41.13	4.91	8.38	8.74	1.1	0.82	804.07	804.32		801.39	800.96		803.50			
	1201		0.27			0.90	1.10	5.00		8.53	2.3	8.00	CG-1 (B) Sx.2%	1.8	8	0.02	1.40	0.39	Curb Inlet													814.00			0.3		803.50	812.17	
		1200			5.58	0.58	1.10	8.45	0.10	7.45	26.6								RCP	51.00	1.00	30	0.013	41.13	4.91	8.38	8.74	1.1	1.02	803.50	801.02		800.66	800.15		800.00			
																																					800.00		
Line 2600	2602		0.39			0.90	1.10	9.10		7.28	2.8	7.00	CG-1 (B) Sx.2%	2.3	11	Sump	2.342	0.00	Curb Inlet													811.50					807.31	810.17	
		2601			0.39	0.90	1.10	9.10	0.18	7.28	2.8								RCP	76.79	2.50	18	0.013	16.65	1.77	9.42	6.99	0.7	0.17	807.31	805.45		806.21	804.29		805.29			
	2601		0.48			0.90	1.10	8.76		7.37	3.5	7.00	CG-1 (B) Sx.2%	2.7	12	Sump	2.743	0.00	Curb Inlet													811.69			0.5		805.29	810.36	
		2600			0.87	0.90	1.10	9.28	0.16	7.23	6.2								RCP	113.05	6.10	18	0.013	26.01	1.77	14.72	12.04	1.0	1.11	805.29	797.84		803.79	796.89		796.73			
																																					796.73		Connect to RCB Wingwall
Line 3300	3303		0.30			0.85	1.10	5.00		8.53	2.4	8.00	CG-1 (B) Sx.2%	2.7	11	Sump	2.731	0.00	Curb Inlet													811.67					806.91	810.34	
		3302			0.30	0.85	1.10	5.00	0.12	8.53	2.4								RCP	35.06	1.00	15	0.013	6.48	1.23	5.28	4.87	0.8	0.18	806.91	806.44		805.92	805.57		806.27			
	3302		0.30			0.90	1.10	6.66		7.97	2.4	8.00	CG-1 (B) Sx.2%	2.5	10	Sump	2.543	0.00	Curb Inlet													811.67			0.5		806.27	809.84	
		3301			0.60	0.88	1.10	5.12	0.32	8.49	4.9								HDPE	132.29	1.00	24	0.01	29.49	3.14	9.39	6.94	0.7	0.18	806.27	804.62		804.83	803.51		804.44			
	3301		0.00			0.66	1.10	6.66		7.97	0.0								Manhole													814.14			0.5		804.44	812.81	
		1202			0.60	0.88	1.10	5.44	0.19	8.38	4.8								HDPE	80.28	1.00	24	0.01	29.49	3.14	9.39	6.90	0.7	0.13	804.44	803.33		803.01	802.20		803.20			Connect to Line 1200
	1202																																		0.81		803.20		
Line 3600	3601		0.30			0.85	1.00	5.00		8.53	2.2	4.00	CG-1 (B) Sx.2%	1.9	8	0.01	1.447	0.43	Curb Inlet													812.42					808.52	811.09	
		402	0.30		0.30	0.85	1.00	5.00	0.23	8.53	2.2								HDPE	108.89	2.64	18	0.01	22.25	1.77	12.59	8.01	0.7	0.13	808.52	805.98		807.46	804.58		805.85			Connect to Line 400
Line 3700	3701		0.47			0.55	1.00	5.00		8.53	2.2	5.00	CG-1 (B) Sx.2%	1.9	12	0.01	1.491	0.41	Curb Inlet													812.73					807.05	811.40	
		202			0.47	0.55	1.00	5.00	0.19	8.53	2.2								HDPE	65.78	1.00	12	0.01	4.64	0.79	5.91	5.82	1.0	0.70	806.46	807.05		805.47	804.82		806.34			Connect to Line 200
Line 3800	3802		0.13			0.88	1.10	5.00		8.53	1.1	4.00	CG-1 (B) Sx.2%	1.7	7	0.03	1.288	0.46	Curb Inlet													812.39					806.74	811.06	
		500A			0.13	0.88	1.10	5.00	0.40	8.53	1.1								HDPE	114.75	1.00	12	0.01	4.64	0.79	5.91	4.84	0.7	0.26	806.74	803.93		806.00	804.85		803.67			Connect to Line 500
Line 3900	3901		0.58			0.90	1.00	5.00		8.53	4.5	6.00	CG-1 (B) Sx.2%	3.8	11	0.01	2.829	1.01	Curb Inlet													812.85					806.87	811.02	
		201			0.58	0.90	1.10	5.00	0.14	8.53	4.9								HDPE	74.78	2.50	18	0.01	21.65	1.77	12.25	9.21	0.9	0.50	806.87	805.97		805.56	803.69		805.46			Conect to Line 200
Line 4000	4001		0.11			0.85	1.00	5.00		8.53	0.8	5.00	CG-1 (B) Sx.2%	0.7	4	0.04	0.547	0.14	Curb Inlet													821.02					816.03	819.19	
		206			0.11	0.85	1.10	5.00	0.21	8.53	0.9								RCP	53.19	1.00	12	0.013	3.57	0.79	4.55	4.18	0.7	0.09	816.03	815.47		815.31	814.78		815.37			Conect to Line 200

BRADLEY D. BURTON
NUMBER E-25862
9/17/2020

GBA
architects
engineers

9801 Renner Boulevard
Lenexa, Kansas 66219
913.492.0400
www.gbateam.com

DATE:	6-25-2020
DESIGN BY:	CEL
DRAWN BY:	DRV
PROJECT NO.:	12720
SHEET NO.	32
TOTAL SHEETS	103

Bradley D. Burton
Professional Engineer
License No. 25862

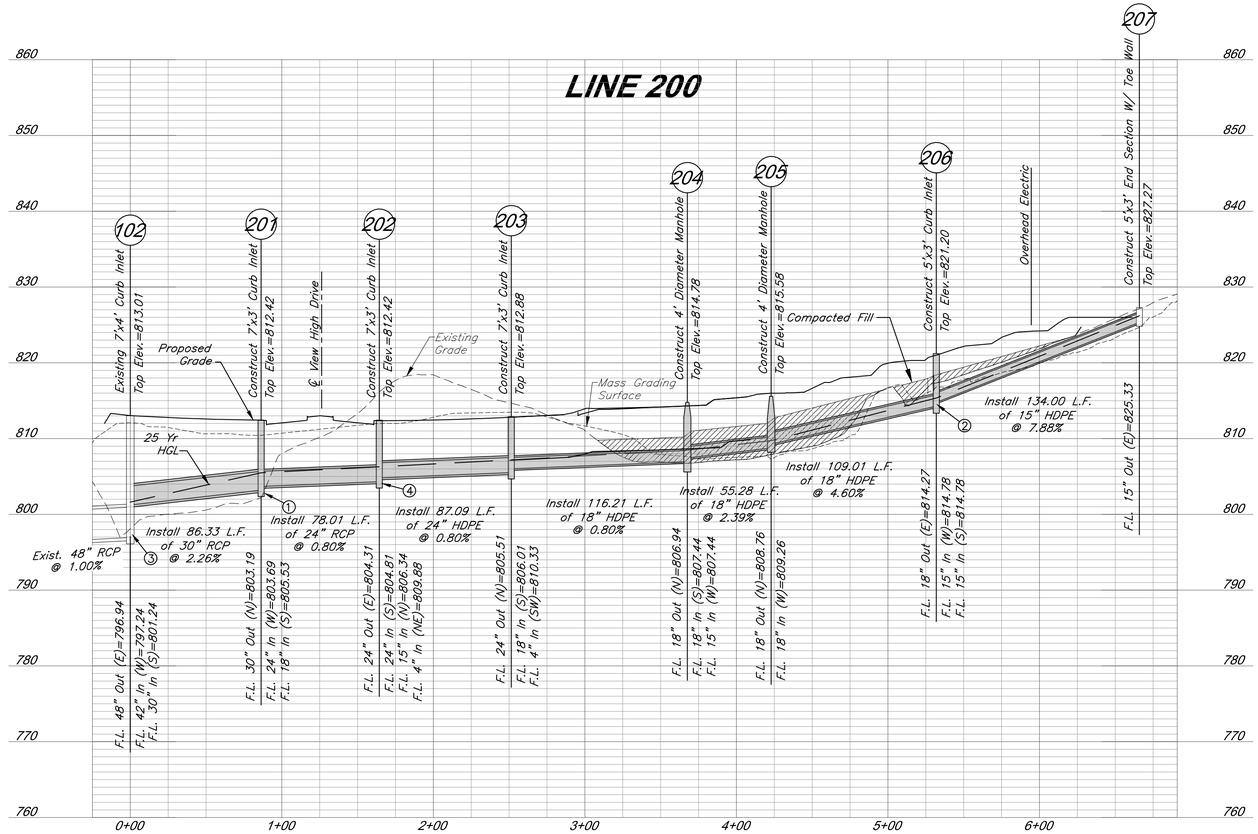
Street and Storm Sewer Plans

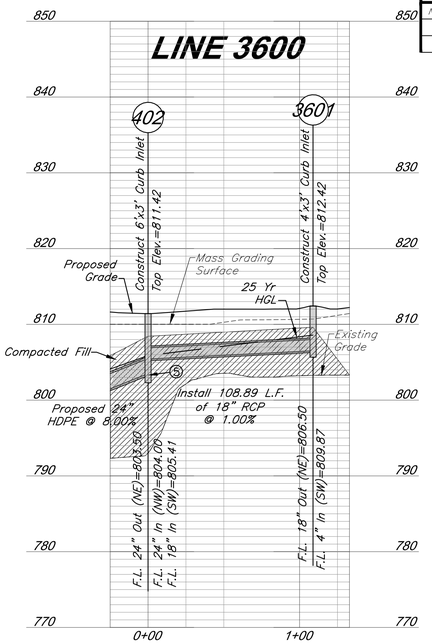
Paragon Star Development

Lee's Summit, Missouri

NO.	DATE	REVISIONS	BY	APPROVED
	9/2/20	City Comments		

Storm Drainage Calculations





Note:

1) Compacted Fill shall be placed to a minimum 18" above the top of pipe prior to installation.

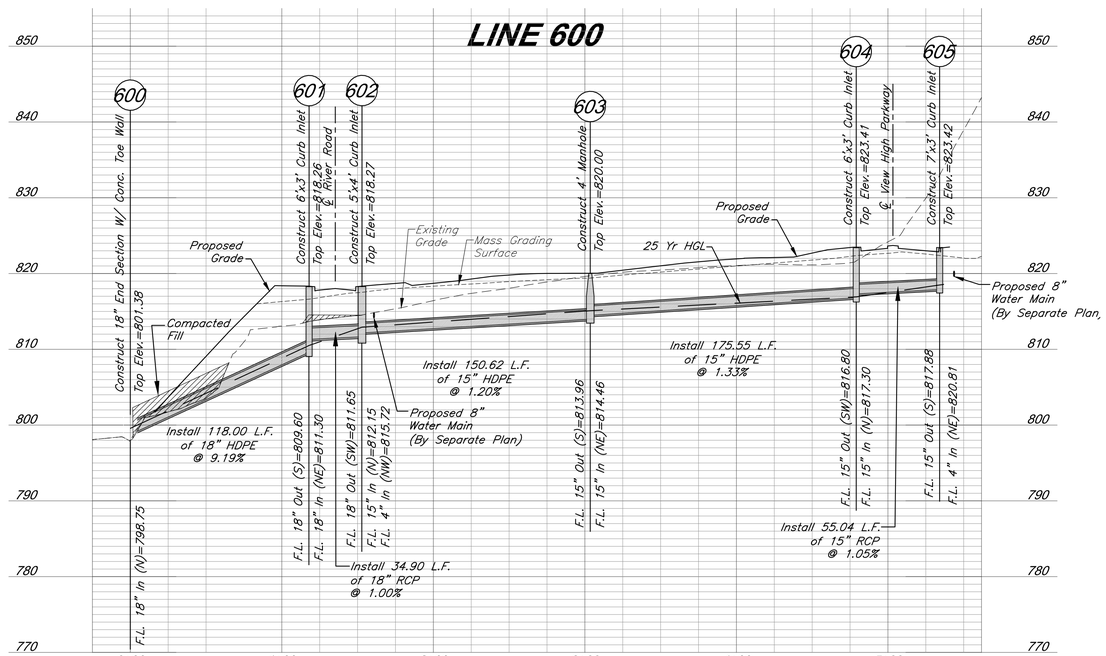
Legend

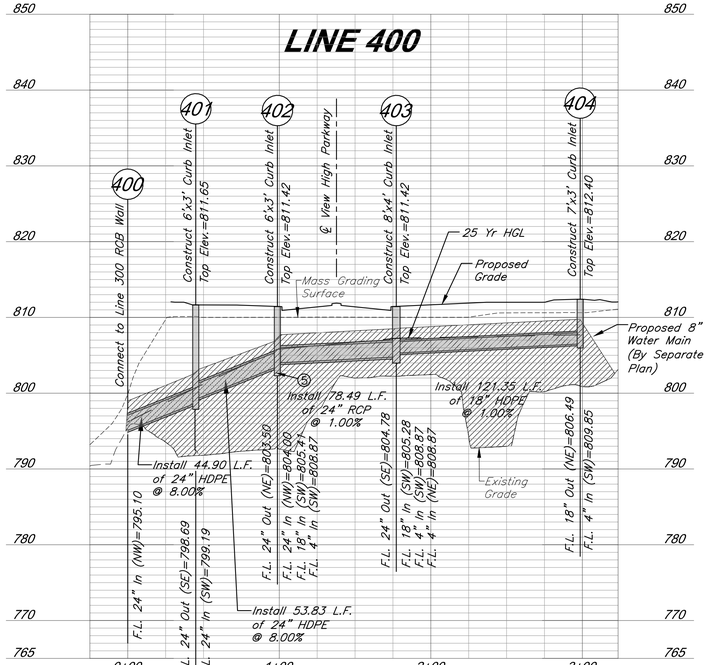
Compacted Fill

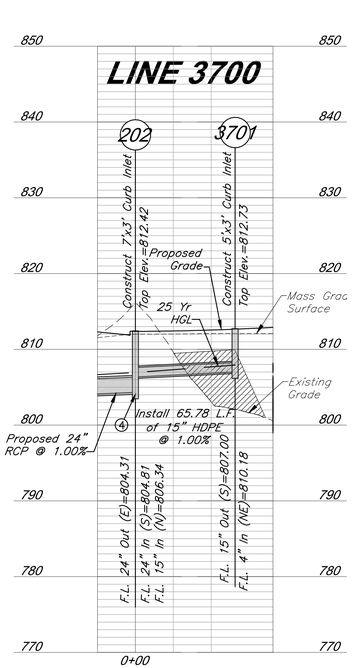
Connections:

1. Line 3900 Sta 0+00.00 = Line 200 Sta 0+86.33
2. Line 4000 Sta 0+00.00 = Line 200 Sta 4+81.43
3. Line 200 Sta 0+00.00 = Line 100 Sta 1+41.87
4. Line 3700 Sta 0+00.00 = Line 200 Sta 1+64.34
5. Line 3600 Sta 0+00.00 = Line 400 Sta 0+98.75

Horizontal Scale: 1" = 50'
Vertical Scale: 1" = 10'
0' 50' 100'
0' 5' 10'







Storm Sewer Profiles

STATE OF MISSOURI
BRADLEY D. BURTON
NUMBER E-25662
REGISTERED PROFESSIONAL ENGINEER
9/1/2020

GBA architects engineers
9801 Renner Boulevard
Lenexa, Kansas 66219
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Lee's Summit, Missouri

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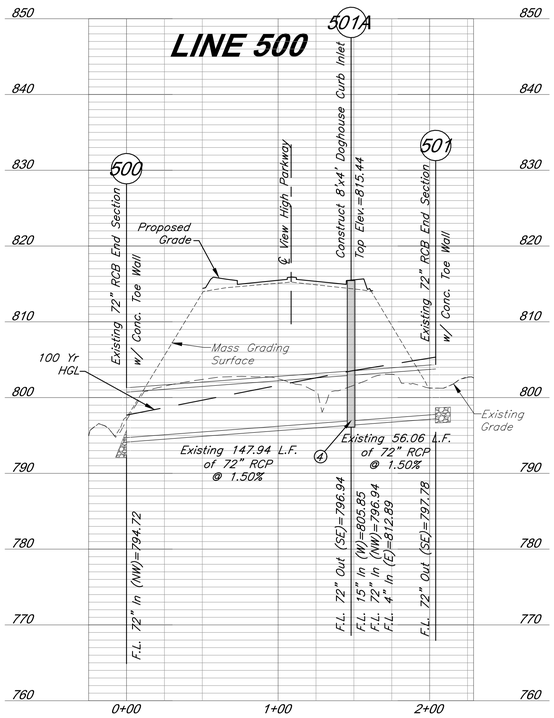

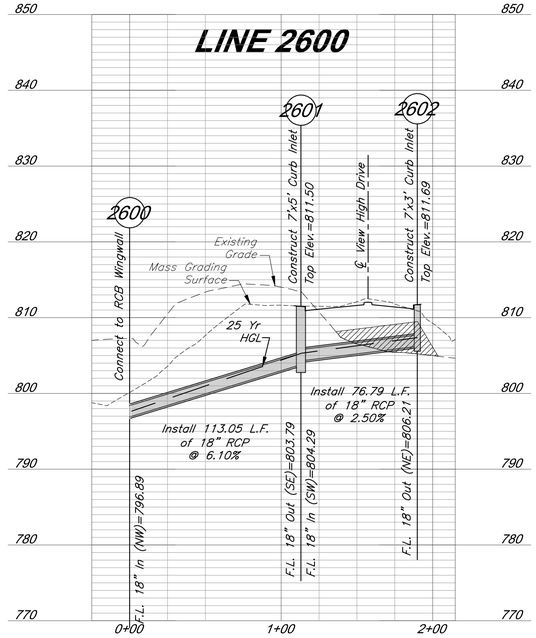

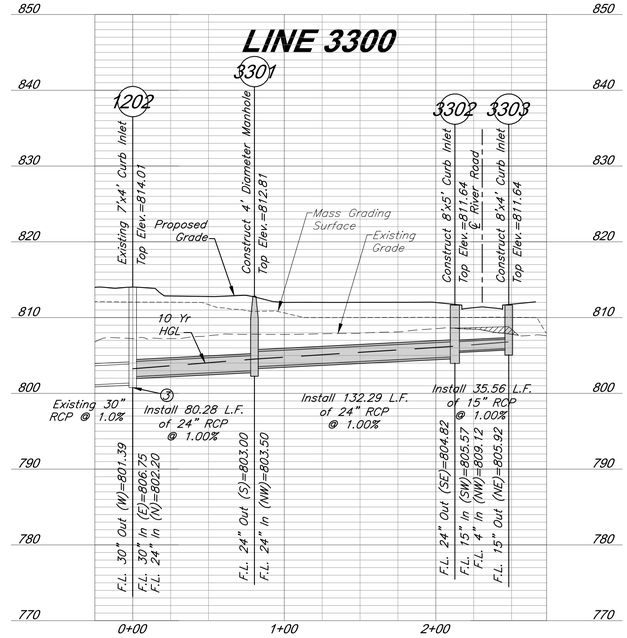

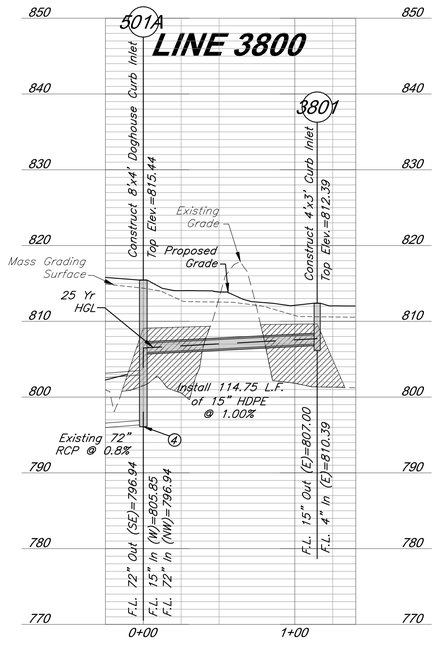

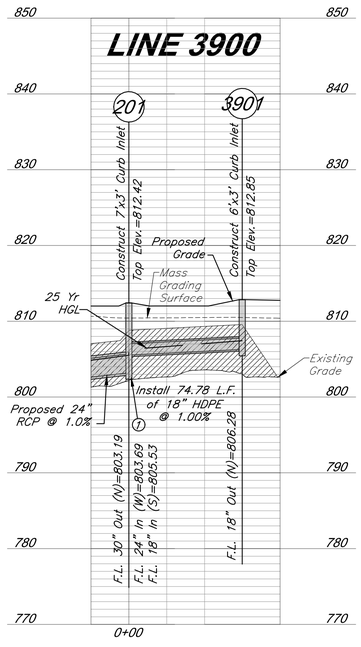

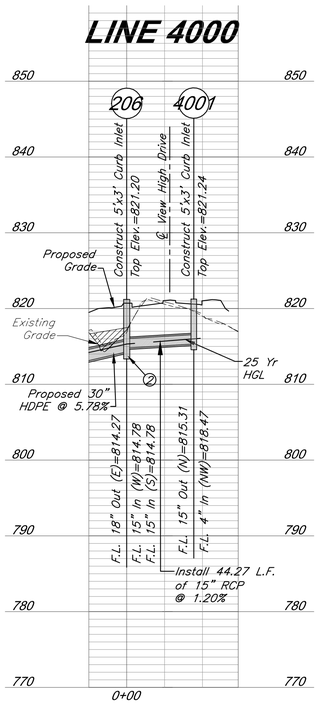

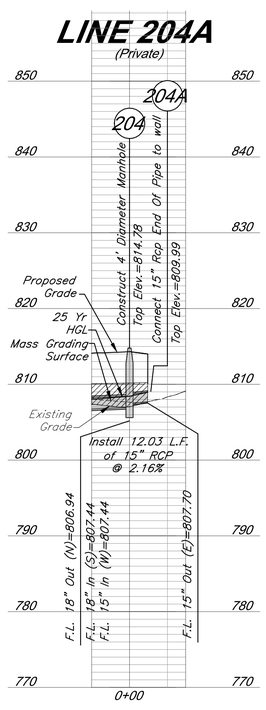

STATE OF MISSOURI
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NUMBER E-25862
REGISTERED PROFESSIONAL ENGINEER
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Street and Storm Sewer Plans

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Lee's Summit, Missouri

NO.	DATE	REVISIONS	BY	APPROVED
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Note:

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Compacted Fill

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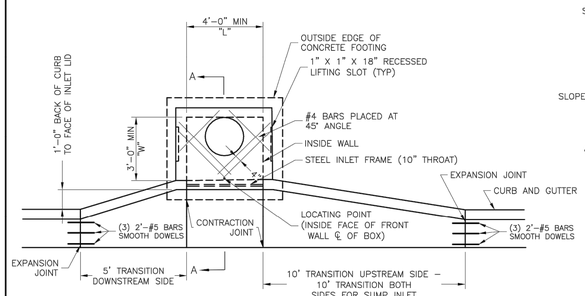
3. Line 3300 Sta 0+00.00 = Line 1200 Sta 1+19.13
4. Line 3800 Sta 0+00.00 = Line 500 Sta 1+48.20

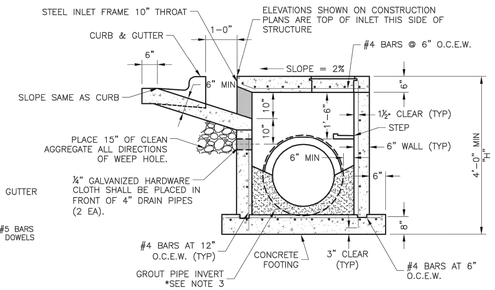
Horizontal Scale: 1" = 50'
Vertical Scale: 1" = 10'

10' 5' 0'
0' 50' 100'

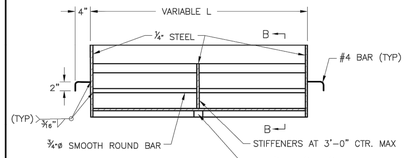
Storm Sewer Profiles



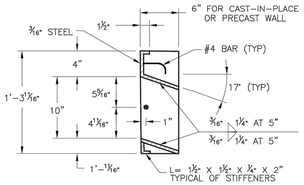
PLAN VIEW



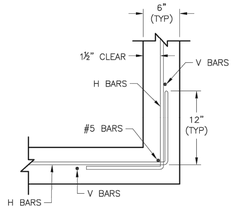
SECTION A–A



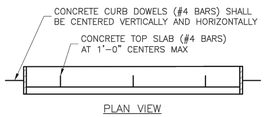
FRONT ELEVATION



SECTION B–B



WALL CORNER DETAIL



PLAN VIEW

STEEL FRAME NOTES:
1. ALL WELDS SHALL BE PERFORMED IN ACCORDANCE WITH APPROPRIATE AWS SPECIFICATIONS AND PROCEDURES.
2. ALL WELDS ON EXPOSED SURFACES SHALL BE DRESSED SO AS TO PROVIDE A PLEASING FINISHED APPEARANCE.
3. THE ENTIRE FRAME SHALL BE PAINTED A SINGLE COAT OF CHEM–PRIME #37H–78 PRIMER (GRAY) OR EQUAL.

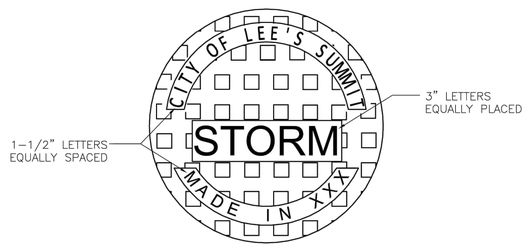
GENERAL NOTES:
1. THE FIRST DIMENSION LISTED IN THE CONSTRUCTION NOTES IS THE "L" DIMENSION. THE SECOND DIMENSION IS THE "W" DIMENSION.
2. FLOW LINES LISTED ON THE PROJECT PLANS ARE LISTED AT THE INSIDE FACE OF THE WALL.
3. FLOOR OF INLET GROUTED AND SHAPED TO MATCH PIPE INVERT TO PROVIDE SMOOTH FLOW.
4. LOCATE MH RING AND COVER ON BLANK WALL IF POSSIBLE.
5. STEPS SHALL BE SPACED AT 1'–4" O.C. VERTICALLY ON BLANK WALL IF POSSIBLE.
6. BEVEL ALL EXPOSED EDGES WITH ¾"CHAMFER OR ½" TOOLED EDGE.
7. ON–GRADE INLETS SHALL CONFORM TO THE STREET GRADE AND SUMP INLETS SHALL BE LEVEL.
8. PRECAST LIDS SHALL BE PINNED, SEALED WITH NON–SHRINKABLE GROUT AND REMOVABLE FOR FUTURE MAINTENANCE.
9. LIFTING RINGS SHALL BE REMOVED AND SEALED WITH NON–SHRINKABLE GROUT
10. FOR RING AND COVER SEE THE STORMWATER APPROVED PRODUCT LIST.

LEE'S SUMMIT MISSOURI
PUBLIC WORKS ENGINEERING DIVISION | 220 SE GREEN STREET | LEE'S SUMMIT, MO 64063

Project: STANDARD DETAILS CITY OF LEE'S SUMMIT, MO LEE'S SUMMIT, JACKSON COUNTY, MO
Sheet Name: CURB INLET DETAL

Drawn By: MJF
Checked By: DL
Date: 04/17
Proj.#:

STM-1



STANDARD 24" MANHOLE COVER
MINIMUM WEIGHT = 160 LB
NOTE: PICK HOLES NOT SHOWN

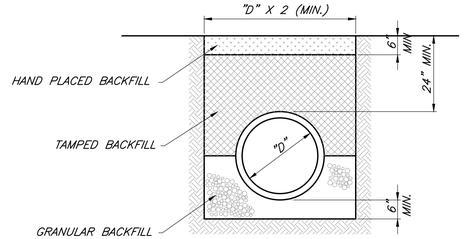
*COVER AND FRAME MODEL INFORMATION REFER TO THE STORMWATER APPROVED PRODUCT LIST.

LEE'S SUMMIT MISSOURI
PUBLIC WORKS ENGINEERING DIVISION | 220 SE GREEN STREET | LEE'S SUMMIT, MO 64063

STORM MANHOLE COVER DETAIL

Date: 04/17
Drawn By: MJF
Checked By: DL

STM-6



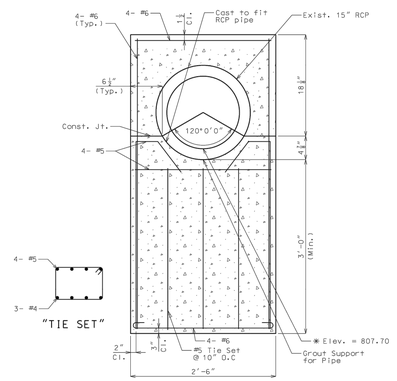
FIRST CLASS BEDDING (RCP)

NOTES:

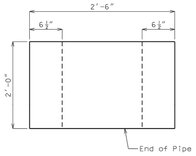
1. GRANULAR FILL SHALL BE 1/2" CLEAN ROCK, PLACED IN 6" LIFTS AND COMPACTED BY SLICING WITH A SHOVEL.
2. TAMPED FILL SHALL BE FINELY DIVIDED, JOB EXCAVATED MATERIAL FREE OF DEBRIS, ORGANIC MATERIAL, AND STONES, COMPACTED TO TYPE AA MR–5 COMPACTION.
3. HAND PLACED FILL SHALL BE FINELY DIVIDED MATERIAL, FREE OF DEBRIS AND STONES, COMPACTED TO TYPE AA MR–5 COMPACTION.
4. ALL PIPE SHALL BE INSPECTED PRIOR TO BACKFILL. ALL PIPE COVERED PRIOR TO INSPECTION SHALL BE UNCOVERED AT THE CONTRACTORS EXPENSE.

PIPE BEDDING DETAILS

Not to Scale



ELEVATION



PLAN

PIPE SUPPORT

Use KCMMB 4K concrete for pipe support. Provide 1½" clear unless otherwise noted

4000 PSI Grout placed under RCP pipe for the full length of pipe. Locate pipe support so that end of the pipe is flush with the front edge of the support. Use grout per 2019 Missouri Standard Specifications for Highway Construction Section 1066. Payment for all materials, labor, excavation and incidentals used to construct the pipe support including grout shall be subsidiary to other items.

Contractor shall verify flowline and pipe dimensions prior to ordering materials or forming of Pipe Support. The Engineer shall be notified immediately if any discrepancies in elevations or plan are discovered. The bottom of the Pipe Support shall be set a minimum of 3 feet below grade.

STRUCTURE 204A CONCRETE HEADWALL DETAIL

Not to Scale

STATE OF MISSOURI
BRADLEY D. BURTON
NUMBER E-25862
REGISTERED PROFESSIONAL ENGINEER
9/2/2020

GBA architects engineers
9801 Renner Boulevard
Lenexa, Kansas 66219
913.492.0400
www.gbateam.com

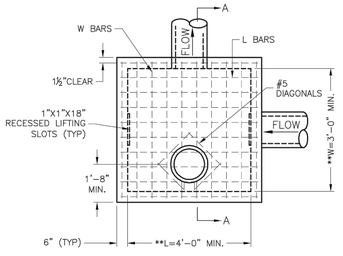
DATE:	6-25-2020
DESIGN BY:	CEL
DRAWN BY:	DRV
PROJECT NO.:	12720
SHEET NO.	35
TOTAL SHEETS	103

Bradley D. Burton
Professional Engineer
License No. 25862

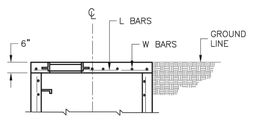
Street and Storm Sewer Plans
Paragon Star Development
Lee's Summit, Missouri

NO.	DATE	REVISIONS	BY	APPROVED
	9/2/20	City Comments		

Storm Sewer Details



PLAN

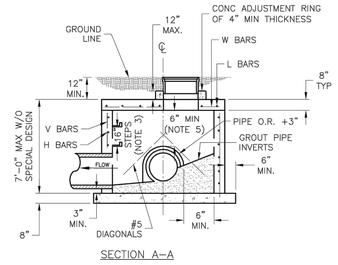


SLAB TOP ALTERNATE FOR JUNCTION BOX (SHALLOW)

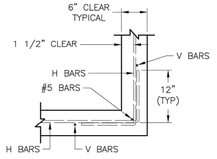
** INCREASE IN MULTIPLES OF 6" (7'-0") MAX WITHOUT SPECIAL DESIGN. (SEE PROJECT PLANS FOR DETAILS)

REINFORCING

BARS	BAR SIZE	SPACING (IN.)
H	4	12
V	4	12
L	5	6
W	5	6



SECTION A–A



WALL CORNER DETAIL

GENERAL NOTES:

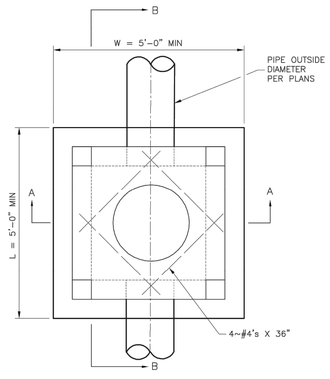
1. LOCATE RING AND COVER ON BLANK WALL.
2. USE ¾" CHAMFER STRIP OR ½" R EDGER TOOL ON ALL EXPOSED CONCRETE CORNERS.
3. STEPS REQUIRED AT 16" O.C. WHEN DEPTH FROM TOP OF CASTING TO INVERT EXCEEDS 4' ON BLANK WALL IF POSSIBLE.
4. BOXOUTS WILL NOT BE ALLOWED TO PROJECT THROUGH THE CORNERS OF THE STRUCTURE AND THE MINIMUM DISTANCE BETWEEN BOXOUTS IS 6".
5. THE MINIMUM REINFORCING SHALL BE 1 H–BAR OVER A CAST–IN–PLACE PIPE AND 2 H–BARS OVER A PRECAST BOXOUT.
8. PRECAST LIDS SHALL BE PINNED, SEALED WITH NON–SHRINKABLE GROUT AND REMOVABLE FOR FUTURE MAINTENANCE.
9. REINFORCING OF COVERS IN STREETS REQUIRE SPECIAL DESIGN.
10. FOR RING AND COVER SEE THE STORMWATER APPROVED PRODUCT LIST.

LEE'S SUMMIT MISSOURI
PUBLIC WORKS ENGINEERING DIVISION | 220 SE GREEN STREET | LEE'S SUMMIT, MO 64063

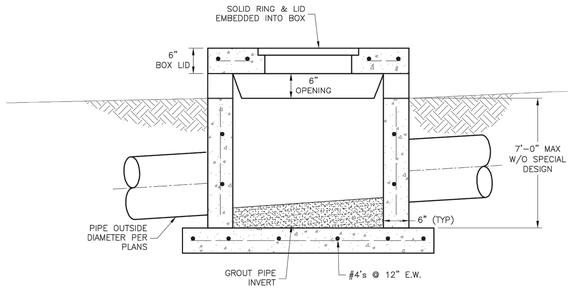
Project: STANDARD DETAILS CITY OF LEE'S SUMMIT, MO LEE'S SUMMIT, JACKSON COUNTY, MO
Sheet Name: JUNCTION BOX DETAIL

Drawn By: MJF
Checked By: DL
Date: 04/17
Proj. #:

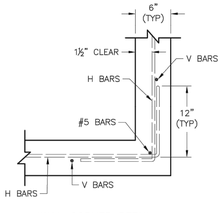
STM-3



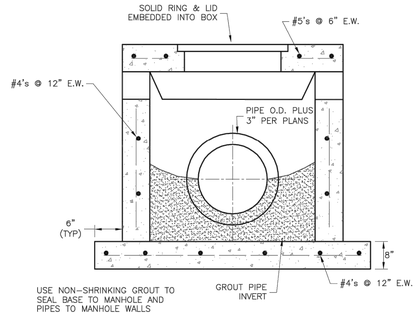
PLAN VIEW



SECTION B–B



WALL CORNER DETAIL



SECTION A–A

GENERAL NOTES:

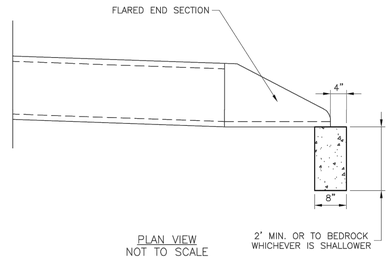
1. LOCATE RING AND COVER OVER OUTLET ON BLANK WALL.
2. USE ¾" CHAMFER ON ALL EXPOSED CONCRETE CORNERS.
3. FLOOR OF INLET GROUTED AND SHAPED TO MATCH PIPE INVERT TO PROVIDE SMOOTH FLOW.
4. STEPS REQUIRED AT 16" O.C. WHEN DEPTH FROM TOP OF CASTING TO INVERT EXCEEDS 3' ON BLANK WALL IF POSSIBLE.
5. BOXOUTS WILL NOT BE ALLOWED TO PROJECT THROUGH THE CORNERS OF THE STRUCTURE.
6. THE MINIMUM REINFORCING SHALL BE 1 H–BAR OVER A CAST–IN–PLACE PIPE AND 2 H–BARS OVER A PRECAST BOXOUT.
7. SHOW FIELD INLET ORIENTATION ON PLANS PLUS NUMBER AND SIDE OF OPENINGS.
8. PRECAST LIDS SHALL BE PINNED, SEALED WITH NON–SHRINKABLE GROUT AND REMOVABLE FOR FUTURE MAINTENANCE.
9. FOR RING AND COVER SEE THE STORMWATER APPROVED PRODUCT LIST.

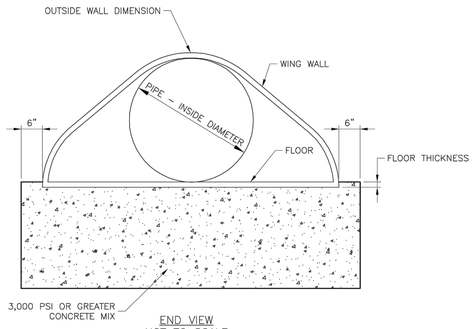
LEE'S SUMMIT MISSOURI
PUBLIC WORKS ENGINEERING DIVISION | 220 SE GREEN STREET | LEE'S SUMMIT, MO 64063

Project: STANDARD DETAILS CITY OF LEE'S SUMMIT, MO LEE'S SUMMIT, JACKSON COUNTY, MO
Sheet Name: FIELD INLET DETAIL

Drawn By: MJF
Checked By: DL
Date: 04/17
Proj. #:

STM-2



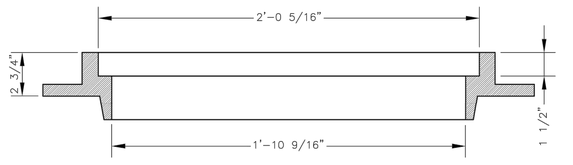


LEE'S SUMMIT MISSOURI
PUBLIC WORKS ENGINEERING DIVISION | 220 SE GREEN STREET | LEE'S SUMMIT, MO 64063

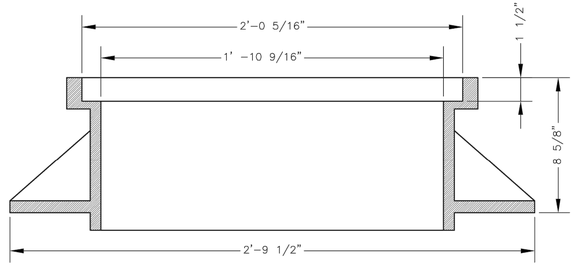
FLARED END SECTION SUPPORT DETAIL

Date: 04/17
Drawn By: MJF
Checked By: DL

STM-5



SLAB MANHOLE FRAME
LEE'S SUMMIT PART NO.: LS103A
MINIMUM WEIGHT = 145 LB



STANDARD 24" MANHOLE FRAME
LEE'S SUMMIT PART NO.: LS101A
MINIMUM WEIGHT = 250 LB

*COVER AND FRAME MODEL INFORMATION REFER TO THE STORMWATER APPROVED PRODUCTS LIST.

LEE'S SUMMIT MISSOURI
PUBLIC WORKS ENGINEERING DIVISION | 220 SE GREEN STREET | LEE'S SUMMIT, MO 64063

STORM MANHOLE FRAME DETAIL

Date: 04/17
Drawn By: MJF
Checked By: DL

STM-7

STATE OF MISSOURI
BRADLEY D. BURTON
NUMBER E-25662
REGISTERED PROFESSIONAL ENGINEER
9/17/2020

GBA architects engineers
9801 Renner Boulevard
Lenexa, Kansas 66219
913.492.0400
www.gbateam.com

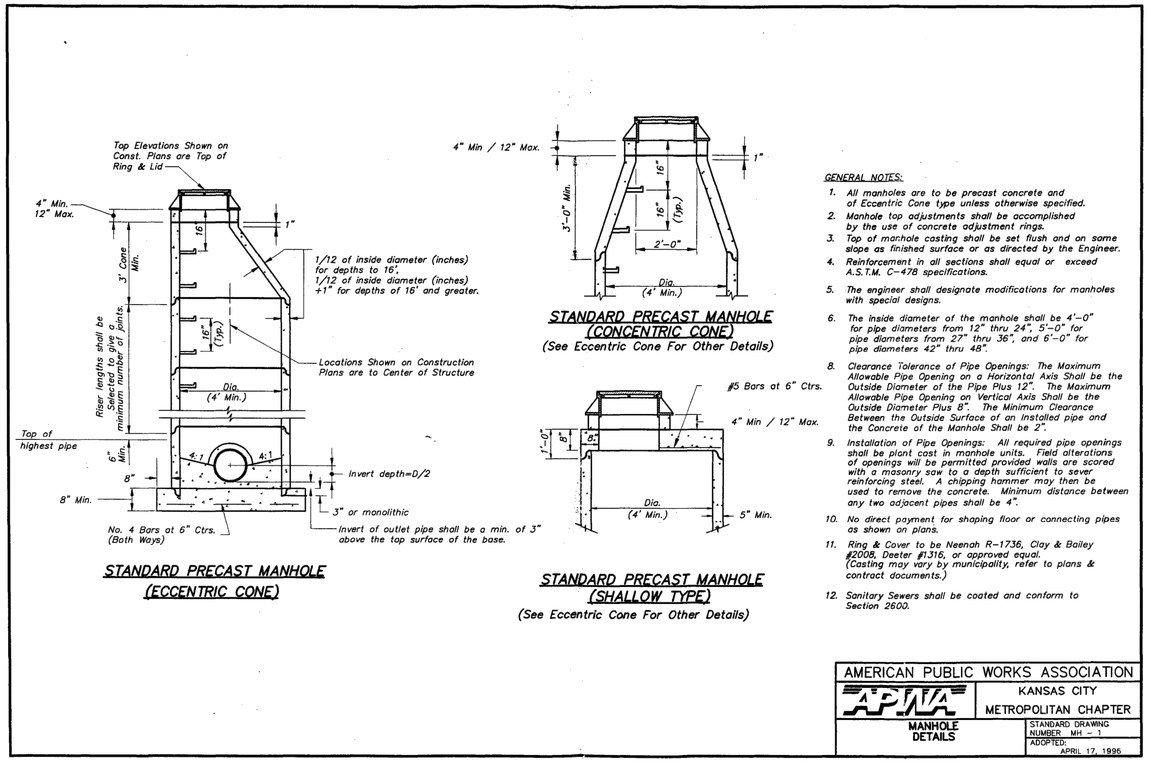
DATE:	6-25-2020
DESIGN BY:	CEL
DRAWN BY:	DRV
PROJECT NO.:	12720
SHEET NO.:	36
TOTAL SHEETS:	103

Bradley D. Burton
Professional Engineer
License No. 25862

Street and Storm Sewer Plans
Paragon Star Development
Lee's Summit, Missouri

NO.	DATE	REVISIONS	BY	APPROVED
	9/2/20	City Comments		

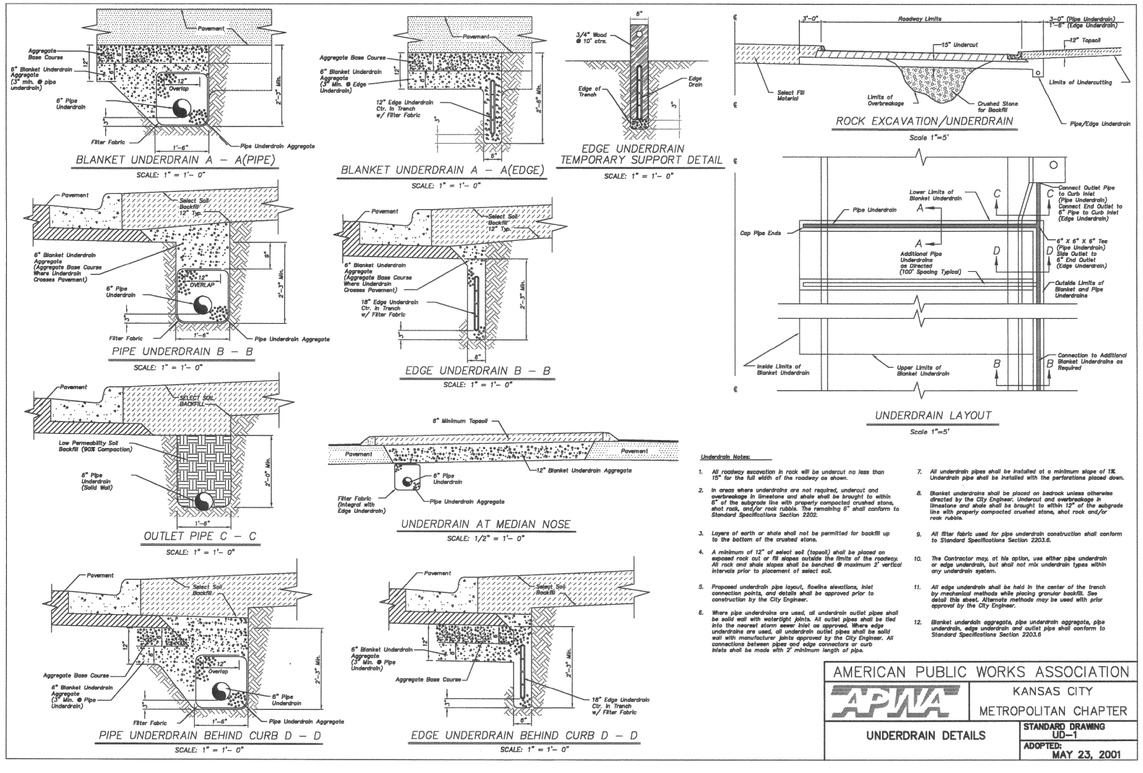
Storm Sewer Details



GENERAL NOTES:

1. All manholes are to be precast concrete and of Eccentric Cone type unless otherwise specified.
2. Manhole top adjustments shall be accomplished by the use of concrete adjustment rings.
3. Top of manhole casting shall be set flush and on same slope as finished surface or as directed by the Engineer.
4. Reinforcement in all sections shall equal or exceed A.S.T.M. C-478 specifications.
5. The engineer shall designate modifications for manholes with special designs.
6. The inside diameter of the manhole shall be 4'-0" for pipe diameters from 12" thru 24", 5'-0" for pipe diameters from 27" thru 36", and 6'-0" for pipe diameters 42" thru 48".
8. Clearance Tolerance of Pipe Openings: The Maximum Allowable Pipe Opening on a Horizontal Axis Shall be the Outside Diameter of the Pipe Plus 12". The Maximum Allowable Pipe Opening on Vertical Axis Shall be the Outside Diameter Plus 8". The Minimum Clearance Between the Outside Surface of an Installed pipe and the Concrete of the Manhole Shall be 2".
9. Installation of Pipe Openings: All required pipe openings shall be plant cast in manhole units. Field alterations of openings will be permitted provided walls are scored with a masonry saw to a depth sufficient to sever reinforcing steel. A chipping hammer may then be used to remove the concrete. Minimum distance between any two adjacent pipes shall be 4".
10. No direct payment for shaping floor or connecting pipes as shown on plans.
11. Ring & Cover to be Neenah R-1736, Clay & Bailey #2008, Deeter #1316, or approved equal. (Casting may vary by municipality, refer to plans & contract documents.)
12. Sanitary Sewers shall be coated and conform to Section 2600.

AMERICAN PUBLIC WORKS ASSOCIATION
APWA — KANSAS CITY METROPOLITAN CHAPTER
MANHOLE DETAILS
STANDARD DRAWING NUMBER MH - 1
ADOPTED: APRIL 17, 1996



Underdrain Notes:

1. All roadway excavation in rock will be undercut no less than 15" for the full width of the roadway as shown.
2. In areas where underdrains are not required, undercut and overbreakage in limestone and shale shall be brought to within 6" of the subgrade line with properly compacted crushed stone, steel rock, and/or rock rubble. The remaining 6" shall conform to Standard Specifications Section 2202.
3. Layers of earth or shale shall not be permitted for backfill up to the bottom of the crushed stone.
4. A minimum of 12" of select soil (topsoil) shall be placed on exposed rock cut or fill slopes outside the limits of the roadway. All rock and shale slopes shall be benched @ maximum 2' vertical intervals prior to placement of select soil.
5. Proposed underdrain pipe layout, flowline elevations, inlet connection points, and details shall be approved prior to construction by the City Engineer.
6. Where pipe underdrains are used, all underdrain outlet pipes shall be solid wall with watertight joints. All outlet pipes shall be tied into the nearest storm sewer inlet as approved. Where edge underdrains are used, all underdrain outlet pipes shall be solid wall with manufacturer joints approved by the City Engineer. All connections between pipes and edge connectors or curb inlets shall be made with 3' minimum length of pipe.
7. All underdrain pipes shall be installed at a minimum slope of 1%. Underdrain pipe shall be installed with the perforations placed down.
8. Blanket underdrains shall be placed on bedrock unless otherwise directed by the City Engineer. Undercut and overbreakage in limestone and shale shall be brought to within 12" of the subgrade line with properly compacted crushed stone, shot rock and/or rock rubble.
9. All filter fabric used for pipe underdrain construction shall conform to Standard Specifications Section 2203.6.
10. The Contractor may, at his option, use either pipe underdrain or edge underdrain, but shall not mix underdrain types within any underdrain system.
11. All edge underdrain shall be held in the center of the trench by mechanical methods while placing granular backfill. See detail this sheet. Alternate methods may be used with prior approval by the City Engineer.
12. Blanket underdrain aggregate, pipe underdrain aggregate, pipe underdrain, edge underdrain and outlet pipe shall conform to Standard Specifications Section 2203.8

AMERICAN PUBLIC WORKS ASSOCIATION
APWA — KANSAS CITY METROPOLITAN CHAPTER
UNDERDRAIN DETAILS
STANDARD DRAWING UD-1
ADOPTED: MAY 23, 2001

STATE OF MISSOURI
BRADLEY D. BURTON
NUMBER E-25862
REGISTERED PROFESSIONAL ENGINEER
9/1/2020

GBA
architects
engineers
9801 Renner Boulevard
Lenexa, Kansas 66219
913.492.0400
www.gbateam.com

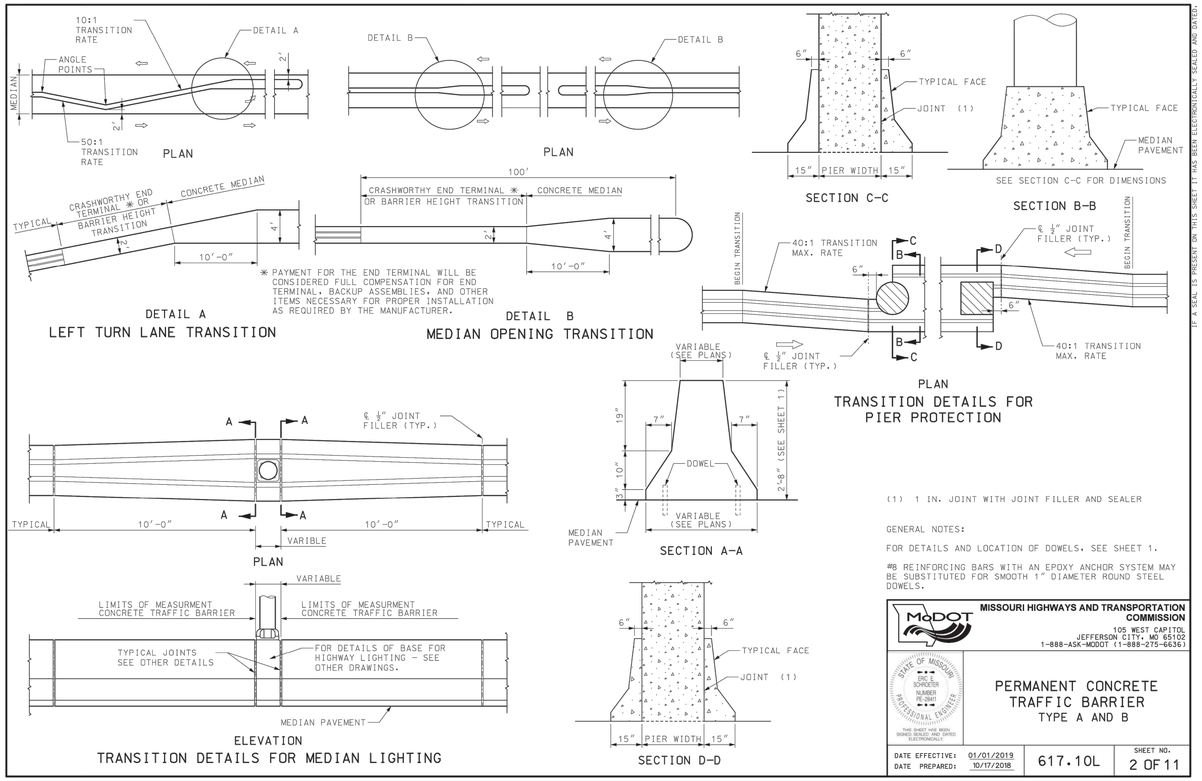
DATE:	6-25-2020
DESIGN BY:	CEL
DRAWN BY:	DRV
PROJECT NO.:	12720
SHEET NO.:	37
TOTAL SHEETS	103

Bradley D. Burton
Professional Engineer
License No. 25862

Street and Storm Sewer Plans
Paragon Star Development
Lee's Summit, Missouri

NO.	DATE	REVISIONS	BY	APPROVED
	9/2/20	City Comments		

Storm Sewer Details

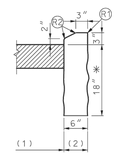


IF A SEAL IS PRESENT ON THIS SHEET IT HAS BEEN ELECTRONICALLY SEALED AND DATED

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)

PERMANENT CONCRETE TRAFFIC BARRIER
TYPE A AND B

DATE EFFECTIVE:	01/01/2019	617.10L	SHEET NO. 2 OF 11
DATE PREPARED:	10/17/2018		



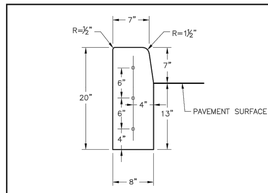
LEGEND
- (B) TIE BARS - 30" X #5 Ø AT 30" CTRS.
- (C) PERMISSIBLE CONSTRUCTION JOINT. IF CONSTRUCTED IN THIS MANNER TIE BARS MUST BE USED.
- (D) #4 Ø TIE BAR AT 24" CENTERS LENGTH OF THE TIE BARS EQUALS THICKNESS OF PAVEMENT PLUS HEIGHT OF CURB, LESS 3 INCHES.
- (K) TONGUE & GROOVE JOINT WITH TIE BAR - SEE DETAIL.
- (P) TOP OF PAVEMENT OR CONCRETE BASE.
- (R1) ROUND TO ½" RADIUS. (EXCEPT FOR SAWED JOINTS)
- (R2) ROUND TO ¾" RADIUS.

* DEPTH MAY BE REDUCED IF KEYED 6" IN ROCK.

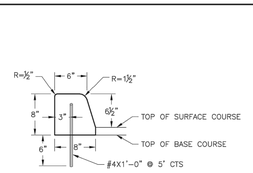
LOW PROFILE CURB

	Section A-A	Section B-B		Section C-C
Ramp ID	Ramp Extension (FT)	Ramp Width (FT)	Sidewalk Curb	Ramp Opening (FT)
1	0	10	Yes	10
2	N/A	10	Yes	10
3	N/A	10	Yes	11.5
4	0	10	Yes	10
5	1	10	Yes	12.67
6	1	10	Yes	12.67
7	0	10	Yes	10
8	N/A	10	Yes	10
9	N/A	10	Yes	10
10	0	10	Yes	10
11	1	6	Yes	8.33
12	1	6	Yes	8.33
13	0	10	Yes	10
14	N/A	10	Yes	10
15	N/A	10	Yes	10.5
16	0	10	Yes	10

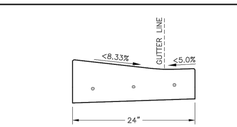
Note: Ramp ID shown on sheet 21.



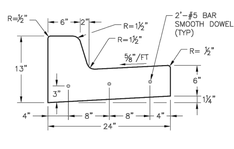
STRAIGHT CURB
(TYPE C-1)



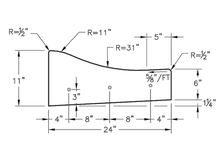
DOWELLED CURB
(TYPE DC)



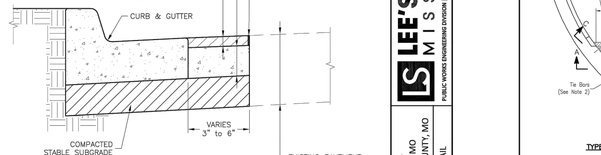
CURB & GUTTER DETAIL AT RAMP
(ADA SLOPE REQUIREMENTS)



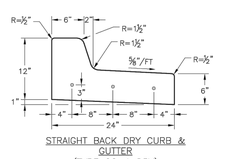
STRAIGHT BACK CURB & GUTTER
(TYPE CG-1)



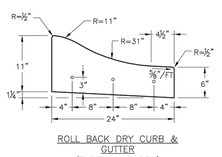
ROLL BACK CURB & GUTTER
(TYPE CG-2)



CURB REPLACEMENT DETAIL



STRAIGHT BACK DRY CURB & GUTTER
(TYPE CG-1 DRY)



ROLL BACK DRY CURB & GUTTER
(TYPE CG-2 DRY)

GENERAL NOTES

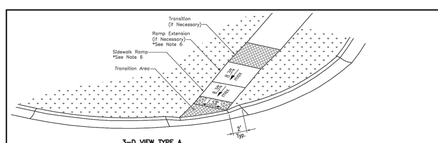
1. ¾" ISOLATION JOINTS WITH 3 (2'-#5 BAR) SMOOTH DOWELS SHALL BE PLACED AT RADIUS POINTS AND AT 150' INTERVALS. THESE DOWEL BARS SHALL BE GREASED AND WRAPPED ON ONE END WITH EXPANSION TUBES.
2. 3" DEEP CONTRACTION JOINTS SHALL BE INSTALLED AT APPROXIMATELY 10' INTERVALS. THESE JOINTS SHALL PASS ACROSS THE ENTIRE CURB SECTION.
3. CONCRETE FILL SHALL HAVE UNIFORM AND SMOOTH FINISH
4. KCMMB 4K CONCRETE SHALL BE USED FOR ALL CURB.
5. ASPHALTIC CONCRETE SURFACE COURSE SHALL CONFORM TO STANDARD SPECIFICATIONS SECTION 2205.2.
6. CURBS FOR NEW STREETS SHALL BE BUILT ON ASPHALT OR AGGREGATE BASE AS SHOWN IN TYPICAL SECTION DETAIL.
7. WHITE CURING COMPOUND MUST BE APPLIED UNIFORMLY TO THE CONCRETE SURFACE IMMEDIATELY AFTER FINAL FINISHING.

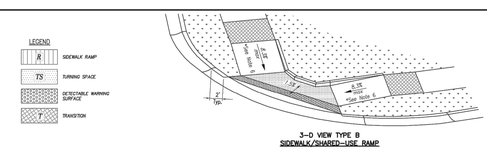
LEE'S SUMMIT MISSOURI
PUBLIC WORKS ENGINEERING DIVISION | 220 SE GREEN STREET | LEE'S SUMMIT, MO 64063

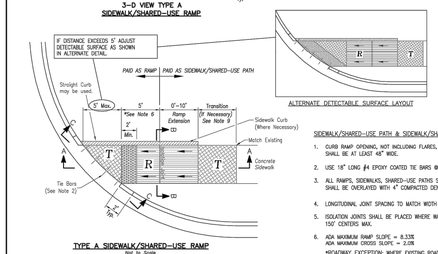
STANDARD DETAILS
CITY OF LEE'S SUMMIT, MO
LEE'S SUMMIT, JACKSON COUNTY, MO
CURB & GUTTER DETAIL

Drawn By: MJF
Checked By: DL
Date: 04/17
Proj. #:

GEN-4







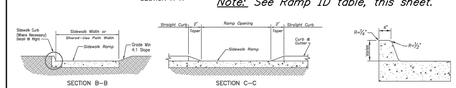
LEGEND
- R SIDEWALK RAMP
- TS TURNING SPACE
- DETECTABLE WARNING SURFACE
- T TRANSITION

SIDEWALK/SHARED-USE PATH & SIDEWALK/SHARED-USE RAMP NOTES:

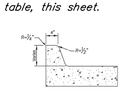
1. CURB RAMP OPENING, NOT INCLUDING FLARES, SHALL MATCH EXISTING SIDEWALK WIDTH AND OPENING SHALL BE AT LEAST 48" WIDE.
2. USE 18" LONG #4 EPOXY COATED TIE BARS @ 24" O.C. EMBED TIE BARS 9" IN EACH DIRECTION.
3. ALL RAMPS, SIDEWALKS, SHARED-USE PATHS SUBGRADE MUST BE OF STABLE, COMPACTED EARTH AND SHALL BE OVERLAYED WITH 4" COMPACTED DENSE GRADED AGGREGATE BASE.
4. LONGITUDINAL JOINT SPACING TO MATCH WIDTH OF SIDEWALK.
5. ISOLATION JOINTS SHALL BE PLACED WHERE WALK ABUTS DRIVEWAYS AND SIMILAR STRUCTURES, AND 150' CENTERS MAX.
6. ADA MAXIMUM RAMP SLOPE = 8.33%
ADA MAXIMUM CROSS SLOPE = 2.0%
*ROADWAY EXCEPTION: WHERE EXISTING ROAD PROFILE GRADE DOES NOT ALLOW RAMP TO MEET RAMP SLOPE REQUIREMENT OF 8.33% OR LESS, THE RAMP SHALL BE EXTENDED TO A LENGTH OF 15 FEET TO MATCH EXISTING SIDEWALK. CROSS SLOPE OF RAMP SHALL BE 1.5%, ±0.2%.
7. TURNING SPACES SHALL BE 1.5%, ±0.5%, SLOPE IN ANY DIRECTION. TURNING SPACES SHALL HAVE A MINIMUM 4'x4' TURNING AREA. TURNING SPACES, WITH A SIDEWALK CURB, SHALL HAVE A 5' TURNING AREA PERPENDICULAR TO THE SIDEWALK CURB.
8. FOR RETROFIT WORK, SLOPES TO BE DETERMINED IN FIELD BY CONTRACTOR AND APPROVED BY CITY INSPECTOR
9. RAMP EXTENSION AREA SHALL NOT BE USED AS TRANSITION TO EXISTING SIDEWALK. ANY TRANSITIONS REQUIRED TO MATCH RAMPS TO EXISTING SIDEWALK SHALL REQUIRE REMOVAL AND REPLACEMENT OF SIDEWALK BEYOND THE RAMP AREA. SIDEWALK TRANSITION LENGTH SHALL BE EQUAL TO OR GREATER THAN THE WIDTH OF THE EXISTING SIDEWALK. RAMP EXTENSIONS SHALL BE A CONTINUOUS SLOPE.
10. ALL SIDEWALK AND RAMP CONSTRUCTION SHALL MEET CURRENT PUBLIC RIGHT OF WAY ACCESSIBILITY GUIDELINES (PROWAG).

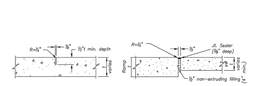
SECTION A-A

Note: See Ramp ID table, this sheet.

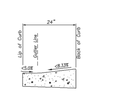


TYPE A & B SIDEWALK RAMP
Not to Scale

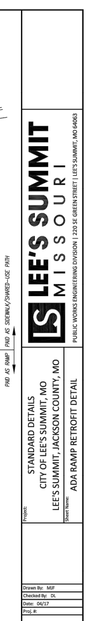




JOINT DETAILS
Not to Scale



CURB & GUTTER DETAIL AT RAMP
Not to Scale



TYPE B SIDEWALK/SHARED-USE RAMP
Not to Scale

LEE'S SUMMIT MISSOURI
PUBLIC WORKS ENGINEERING DIVISION | 220 SE GREEN STREET | LEE'S SUMMIT, MO 64063

STANDARD DETAILS
CITY OF LEE'S SUMMIT, MO
LEE'S SUMMIT, JACKSON COUNTY, MO
ADA RAMP RETROFIT DETAIL

Drawn By: MJF
Checked By: DL
Date: 04/17
Proj. #:

GEN-3A

STATE OF MISSOURI
BRADLEY D. BURTON
NUMBER E-25662
REGISTERED PROFESSIONAL ENGINEER
9/17/2020

GBA architects engineers
9801 Renner Boulevard
Lenexa, Kansas 66219
913.492.0400
www.gbateam.com

Bradley D. Burton
Professional Engineer
License No. 25862

DATE:	6-25-2020
DESIGN BY:	CEL
DRAWN BY:	DRV
PROJECT NO.:	12720
SHEET NO.	TOTAL SHEETS
38	103

Street and Storm Sewer Plans
Paragon Star Development
Lee's Summit, Missouri

NO.	DATE	REVISIONS	BY	APPROVED
	9/2/20	City Comments		

Construction Details

STATE OF MISSOURI
BRADLEY D. BURTON
NUMBER E-25862
REGISTERED PROFESSIONAL ENGINEER
9/1/2020

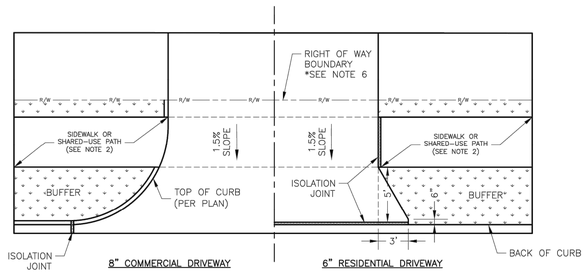
GBA
architects engineers
9801 Renner Boulevard
Lenexa, Kansas 66219
913.492.0400
www.gbateam.com

DATE:	6-25-2020
DESIGN BY:	CEL
DRAWN BY:	DRV
PROJECT NO.:	12720
SHEET NO.	39
TOTAL SHEETS	103

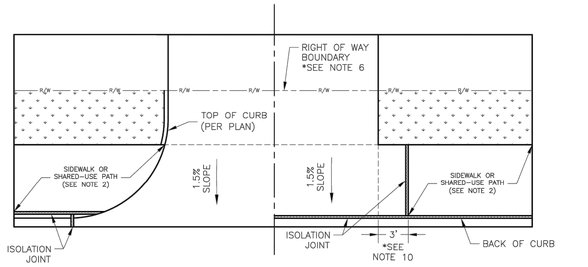
Bradley D. Burton
Professional Engineer
License No. 25862

Street and Storm Sewer Plans
Paragon Star Development
Lee's Summit, Missouri

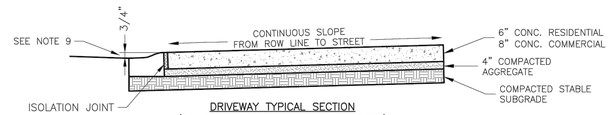
NO.	DATE	REVISIONS	BY	APPROVED
	9/2/20	City Comments		



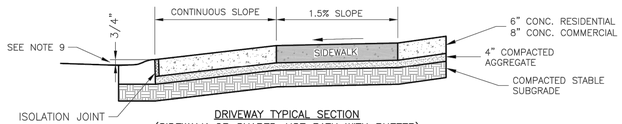
DRIVEWAY WITH BUFFER
NOT TO SCALE



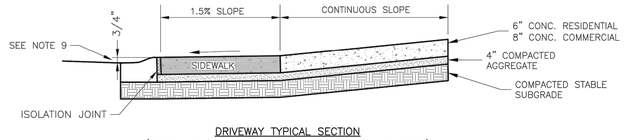
DRIVEWAY WITHOUT BUFFER
NOT TO SCALE



DRIVEWAY TYPICAL SECTION
(NO SIDEWALK OR SHARED-USE PATH)
NOT TO SCALE



DRIVEWAY TYPICAL SECTION
(SIDEWALK OR SHARED-USE PATH WITH BUFFER)
NOT TO SCALE



DRIVEWAY TYPICAL SECTION
(SIDEWALK OR SHARED-USE PATH WITHOUT BUFFER)
NOT TO SCALE

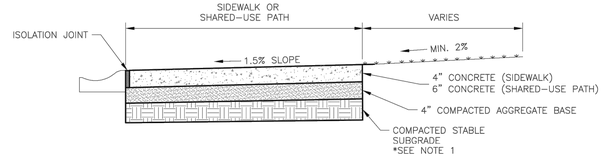
GENERAL NOTES
1. SUBGRADE SHALL BE STABLE, COMPACTED EARTH AND SHALL BE OVERLAYED WITH 4" COMPACTED DENSE GRADED AGGREGATE BASE.
2. ALL DRIVE APPROACHES SHALL MEET CURRENT PUBLIC RIGHT OF WAY ACCESSIBILITY GUIDELINES (PROWAG) FOR SLOPE REQUIREMENTS WHEN SIDEWALK IS REQUIRED (SEE ADA RAMP RETROFIT DETAIL GEN-3B, SIDEWALK/SHARED USE PATH RAMP AT DRIVEWAY DETAIL).
3. JOINT AT BACK OF CURB LINE SHALL BE AN ISOLATION JOINT FOR RESIDENTIAL DRIVEWAYS.
4. KCMMB 4K CONCRETE MIX IS REQUIRED FOR ALL CURBS.
5. COMMERCIAL DRIVEWAYS, IN THE PUBLIC RIGHT OF WAY, SHALL BE KCMMB 4K CONCRETE MIX.
6. RESIDENTIAL DRIVEWAYS, IN THE PUBLIC RIGHT OF WAY, KCMMB 4K CONCRETE MIX IS RECOMMENDED. OTHER CONCRETE MIXES NEEDS TO BE APPROVED BY CITY INSPECTOR.
7. A JOINT MUST BE INSTALLED AT THE RIGHT OF WAY BOUNDARY FOR PROPERTY DELINEATION.
8. WHITE CURING COMPOUND MUST BE APPLIED UNIFORMLY TO THE CONCRETE SURFACE IMMEDIATELY AFTER FINAL FINISHING.
9. ¾" FROM TOP OF CURB TO FLOWLINE AT DRIVEWAY (TYPE CG-1 CURB ONLY). MUST MAINTAIN ORIGINAL FLOWLINE OF CURB.
10. SIDEWALK ADJOINING CURB SHALL BE 6" THICK, EXTENDING 3' FROM THE DRIVEWAY.
11. THE MAXIMUM WIDTH OF A RESIDENTIAL DRIVEWAY IS 36 FEET WITHIN THE RIGHT OF WAY.

LEE'S SUMMIT MISSOURI
PUBLIC WORKS ENGINEERING DIVISION | 220 SE GREEN STREET | LEE'S SUMMIT, MO 64063

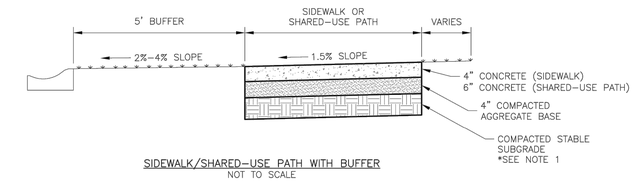
Project: STANDARD DETAILS
CITY OF LEE'S SUMMIT, MO
LEE'S SUMMIT, JACKSON COUNTY, MO
Sheet Name: DRIVEWAY DETAIL

Drawn By: MJF
Checked By: DL
Date: 04/17
Revisions:

GEN-1



SIDEWALK/SHARED-USE PATH WITHOUT BUFFER
NOT TO SCALE



SIDEWALK/SHARED-USE PATH WITH BUFFER
NOT TO SCALE

GENERAL NOTES:
1. SUBGRADE MUST BE OF STABLE, COMPACTED EARTH AND SHALL BE OVERLAYED WITH 4" COMPACTED DENSE GRADED AGGREGATE BASE.
2. 1.5% CROSS SLOPE MUST BE MAINTAINED THROUGH DRIVEWAYS.
3. KCMMB 4K CONCRETE MIX SHALL BE REQUIRED FOR ALL SIDEWALKS/SHARED-USE PATHS OR AS APPROVED BY THE CITY INSPECTOR.
4. ALL SIDEWALK/SHARED-USE PATHS SHALL MEET CURRENT PUBLIC RIGHT OF WAY ACCESSIBILITY GUIDELINES (PROWAG).
5. AN ISOLATION JOINT SHALL BE PLACED AT A MAXIMUM OF 150 FT. CONSTRUCTION JOINTS SHALL BE PLACED THE SAME WIDTH OF SIDEWALK/SHARED-USE PATHS, BUT NO GREATER THAN 10 FT.
6. AN ISOLATION JOINT SHALL BE PLACED WHERE THE SIDEWALK/SHARED-USE PATHS MEETS A RESIDENTIAL DRIVEWAY.
7. SHARED-USE PATHS WIDTH SHALL BE 10 FT. WIDE.
8. SIDEWALK/SHARED-USE PATHS FINISHING SHALL BE FULL BROOM FINISH OR AS DIRECTED BY CITY INSPECTOR.
9. WHITE CURING COMPOUND MUST BE APPLIED UNIFORMLY TO THE CONCRETE SURFACE IMMEDIATELY AFTER FINAL FINISHING.

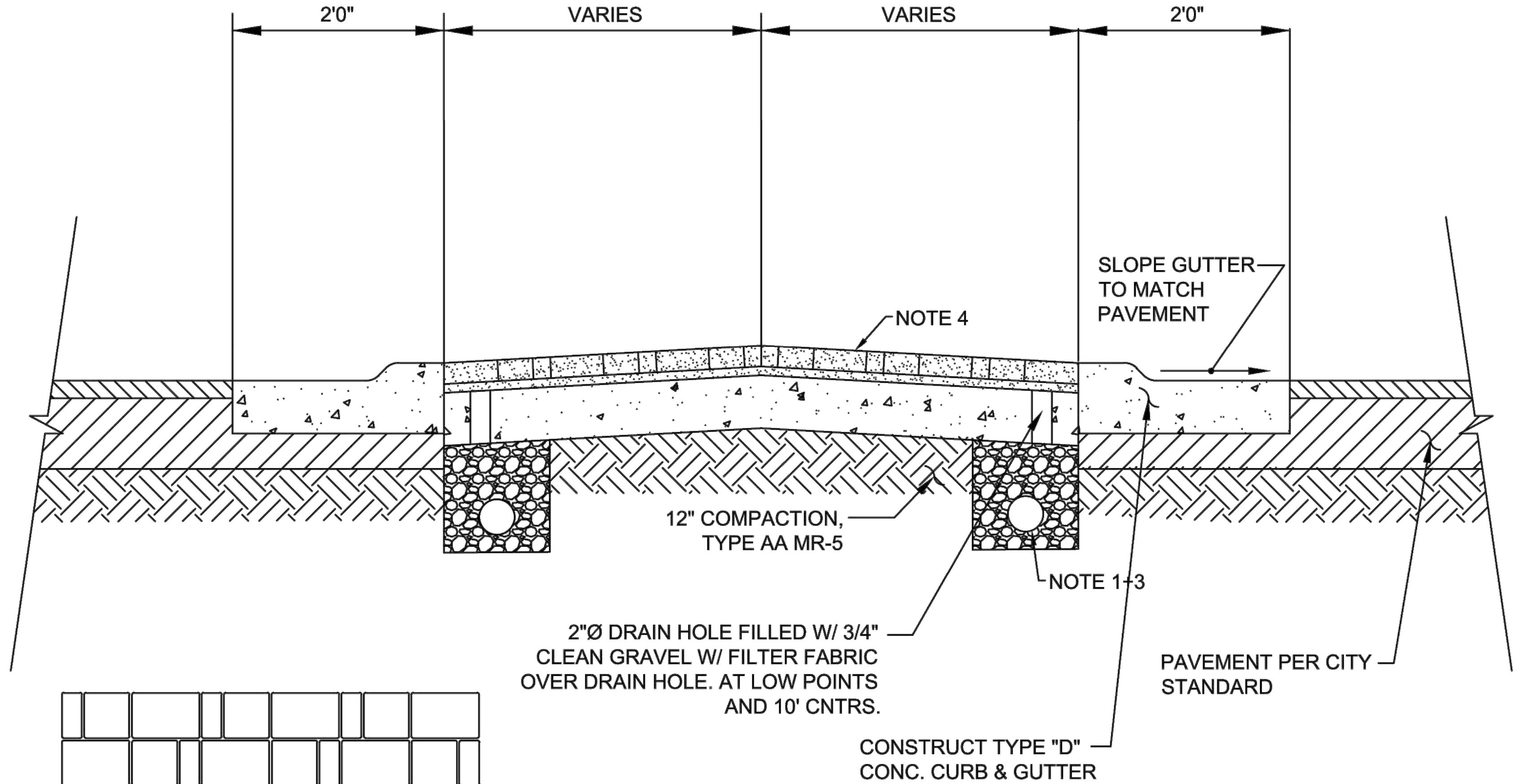
LEE'S SUMMIT MISSOURI
PUBLIC WORKS ENGINEERING DIVISION | 220 SE GREEN STREET | LEE'S SUMMIT, MO 64063

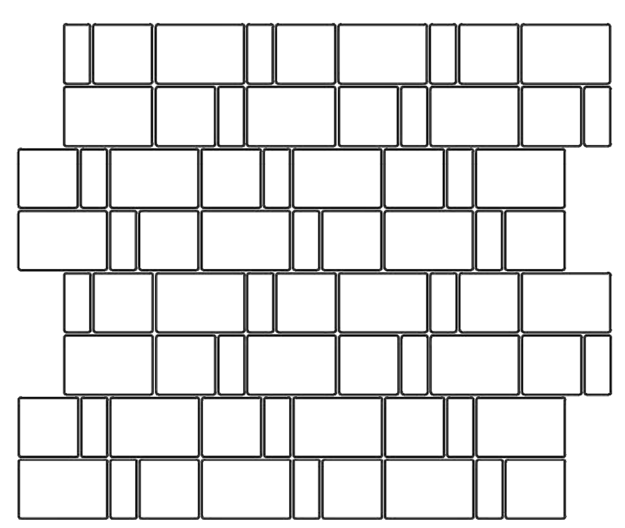
SIDEWALK/SHARED-USE PATH DETAIL

Date: 04/17
Drawn By: MJF
Checked By: DL

GEN-2

Construction Details





++PAVING PATTERN
NO SCALE

MOUNTABLE MEDIAN PAVER DETAIL

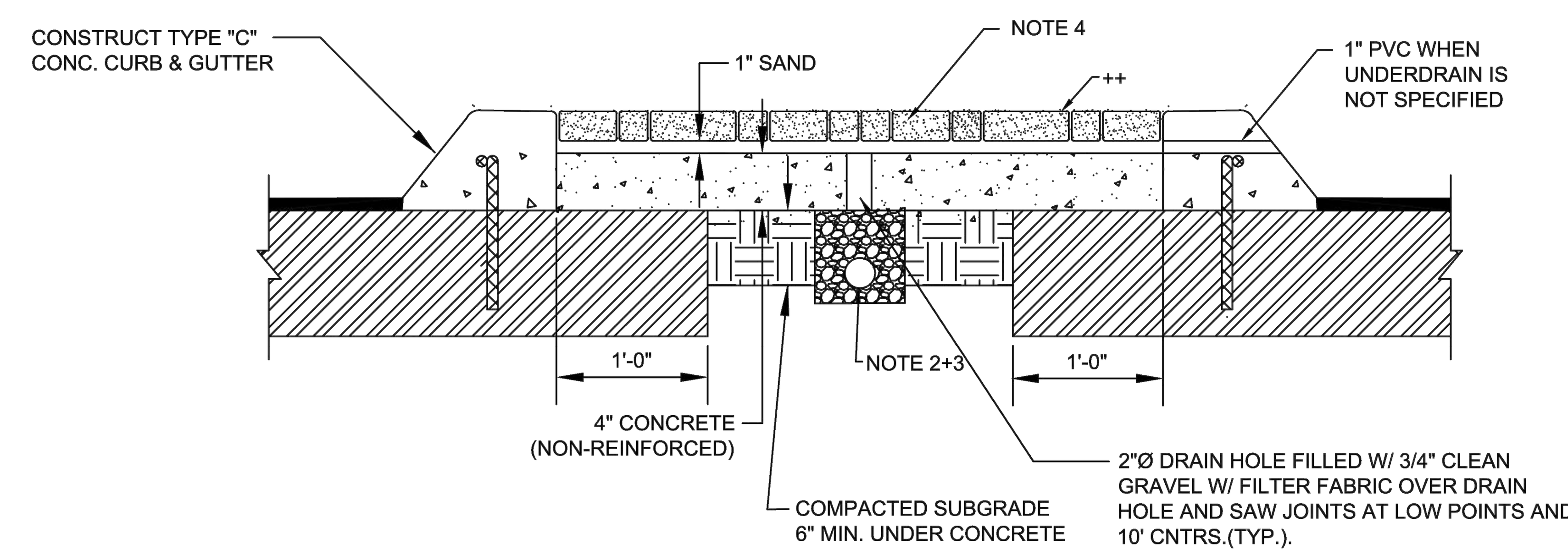
NOTES:

1. UNDERDRAIN SHALL BE INSTALLED AROUND THE PERIMETER OF THE MEDIAN AND CONNECTED TO THE STORM DRAIN SYSTEM.

2. UNDERDRAIN SHALL BE INSTALLED TO THE CENTER OF THE MEDIAN AND CONNECTED TO THE STORM DRAIN SYSTEM.

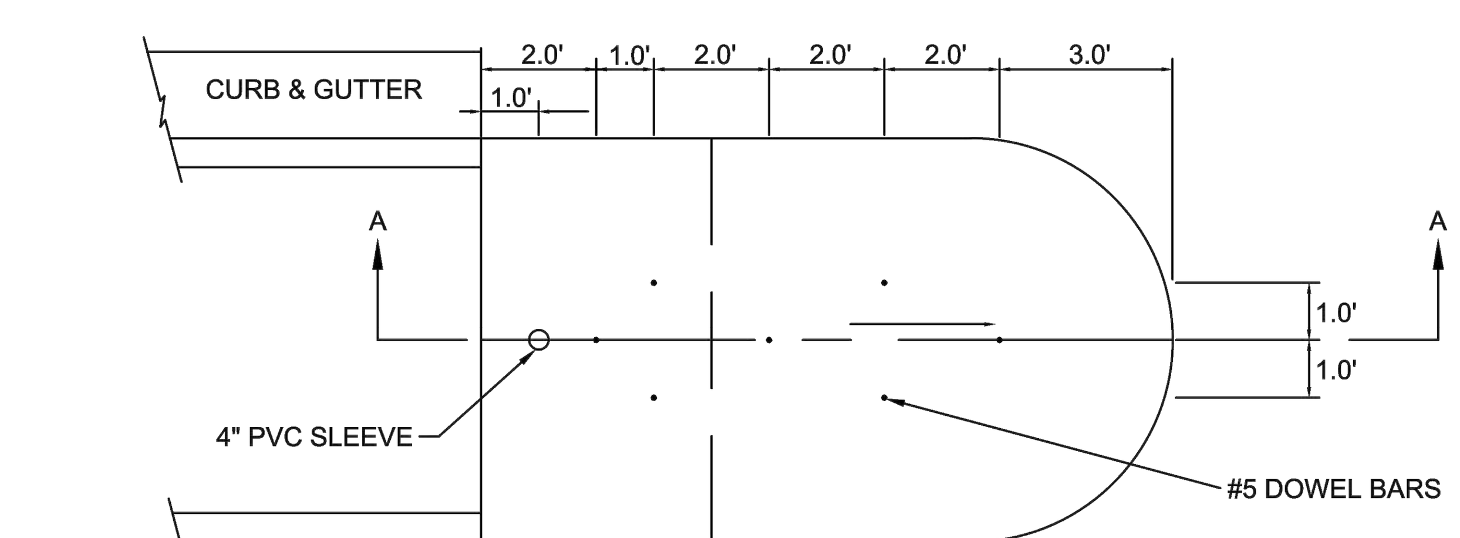
3. CONCRETE PAVERS, PAVESTONE "COBBLE STONE" OR EQUAL
4-9/16"x2-1/4"x2-3/8"
4-9/16"x4-9/16"x2-3/8"
4-9/16"x6-13/16"x2-3/8"

PAVER COLOR
VARIABLE. CONTACT ENGINEERING

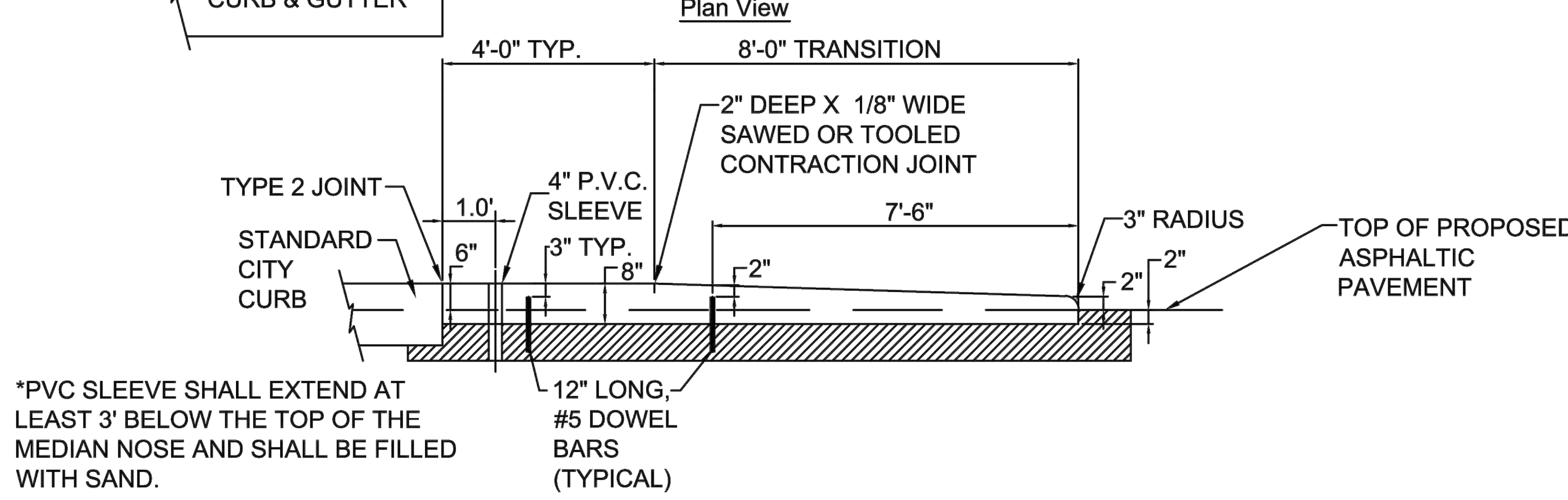


SECTION
NO SCALE

MEDIAN PAVER DETAIL



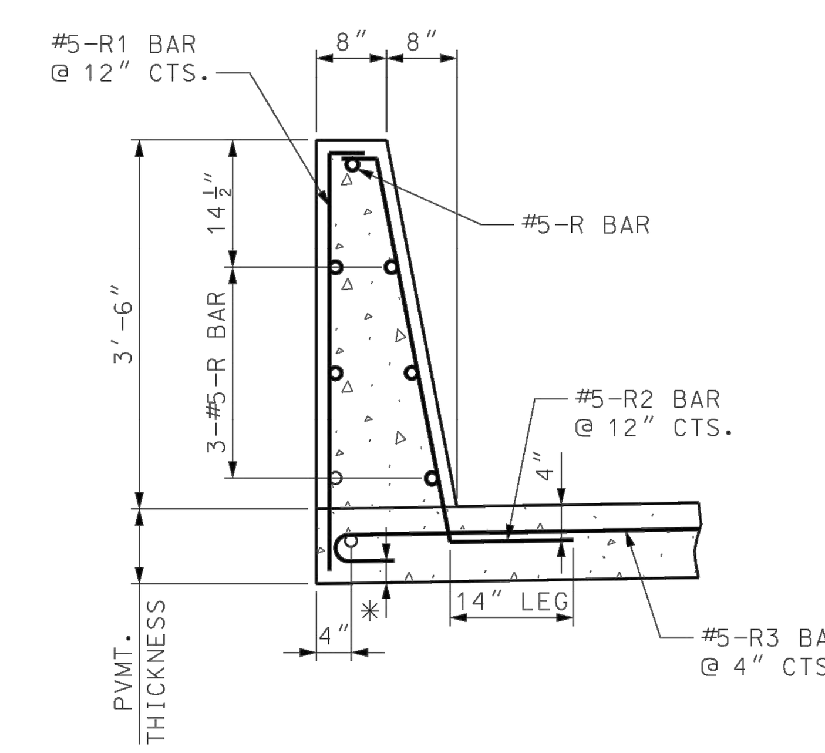
Plan View



*PVC SLEEVE SHALL EXTEND AT LEAST 3' BELOW THE TOP OF THE MEDIAN NOSE AND SHALL BE FILLED WITH SAND.

SECTION A-A

MEDIAN NOSE DETAIL



PART SECTION THROUGH BARRIER

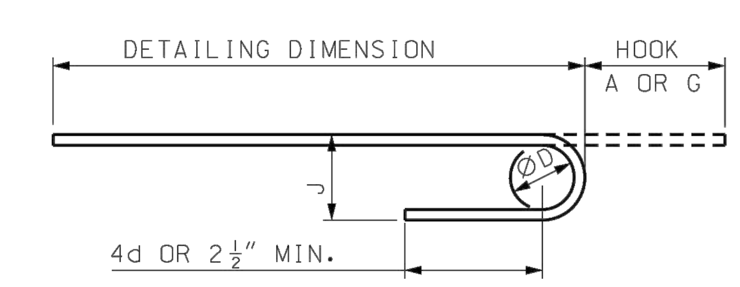
NOTES:

ALL REINFORCEMENT SHALL BE GRADE 60 EPOXY COATED.

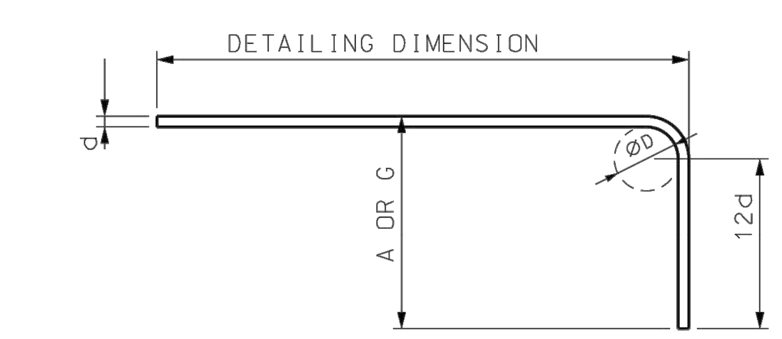
NO DIRECT PAYMENT WILL BE MADE FOR REINFORCING STEEL.

MINIMUM CLEARANCE TO REINFORCING STEEL SHALL BE 1½", UNLESS OTHERWISE SHOWN.

✳ TILT TRANSVERSE PAVEMENT REINFORCEMENT HOOKS FROM VERTICAL ALIGNMENT TO MAINTAIN 1½" MINIMUM CLEARANCE.



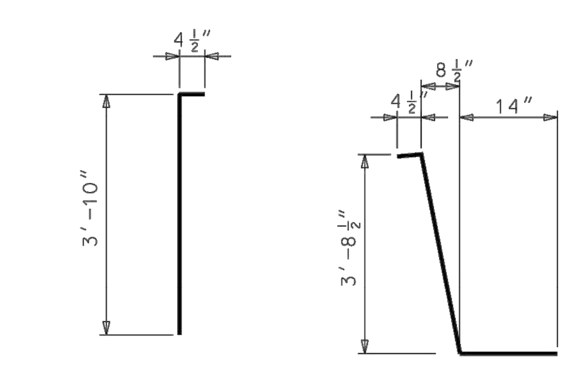
180° HOOKS



90° HOOKS

END HOOK DIMENSIONS				
BAR SIZE	D	ALL GRADES		
		180° HOOKS		90° HOOKS
	(IN.)	A OR G	J	A OR G
#5	3¾"	7"	5"	10"
#6	4½"	8"	6"	12"

ALL STANDARD HOOKS AND BENDS OTHER THAN 180° TO BE BENT WITH THE SAME PROCEDURE AS FOR 90° STANDARD HOOKS.

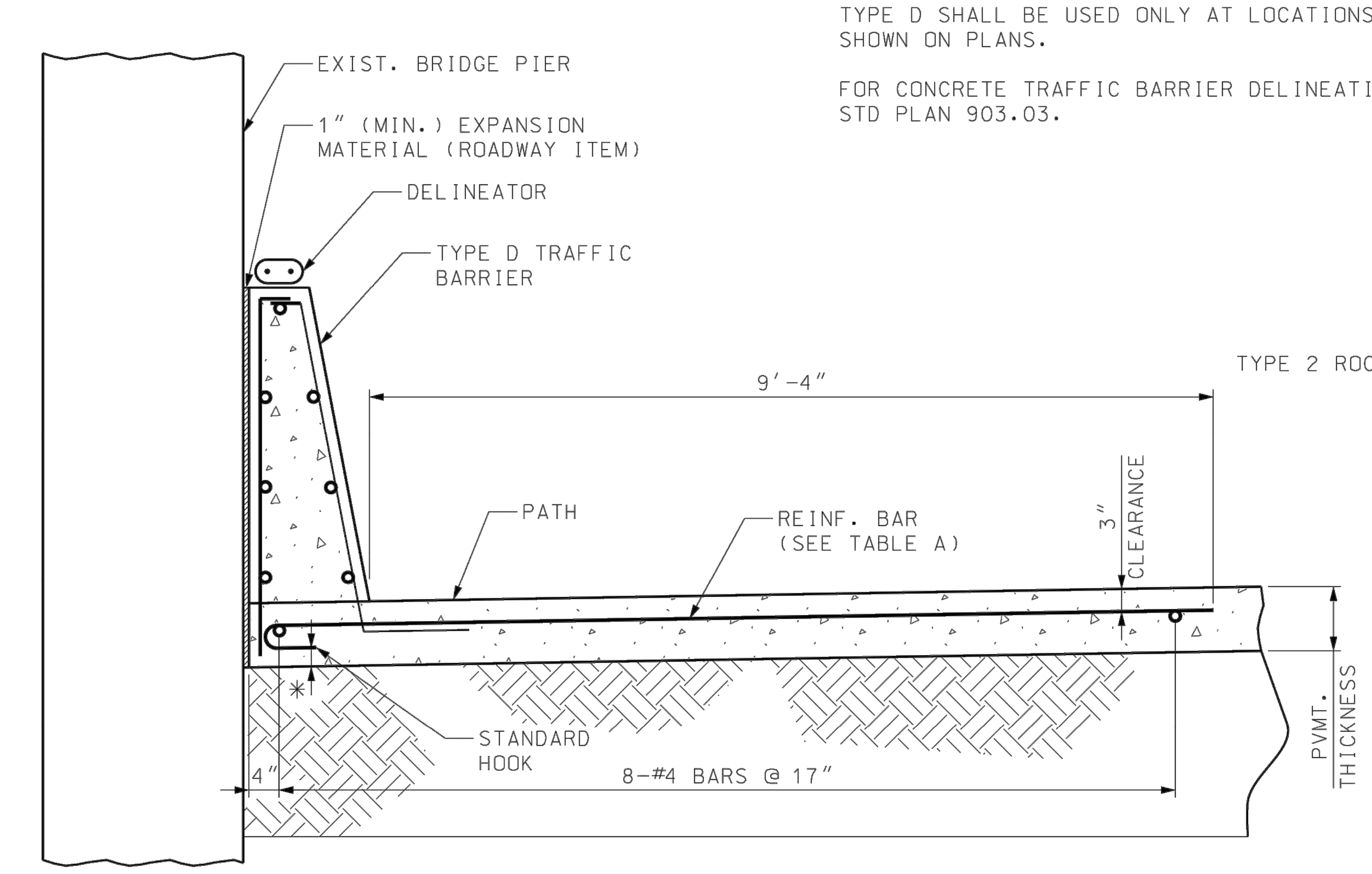


#5 R1 #5 R2

NOTES:

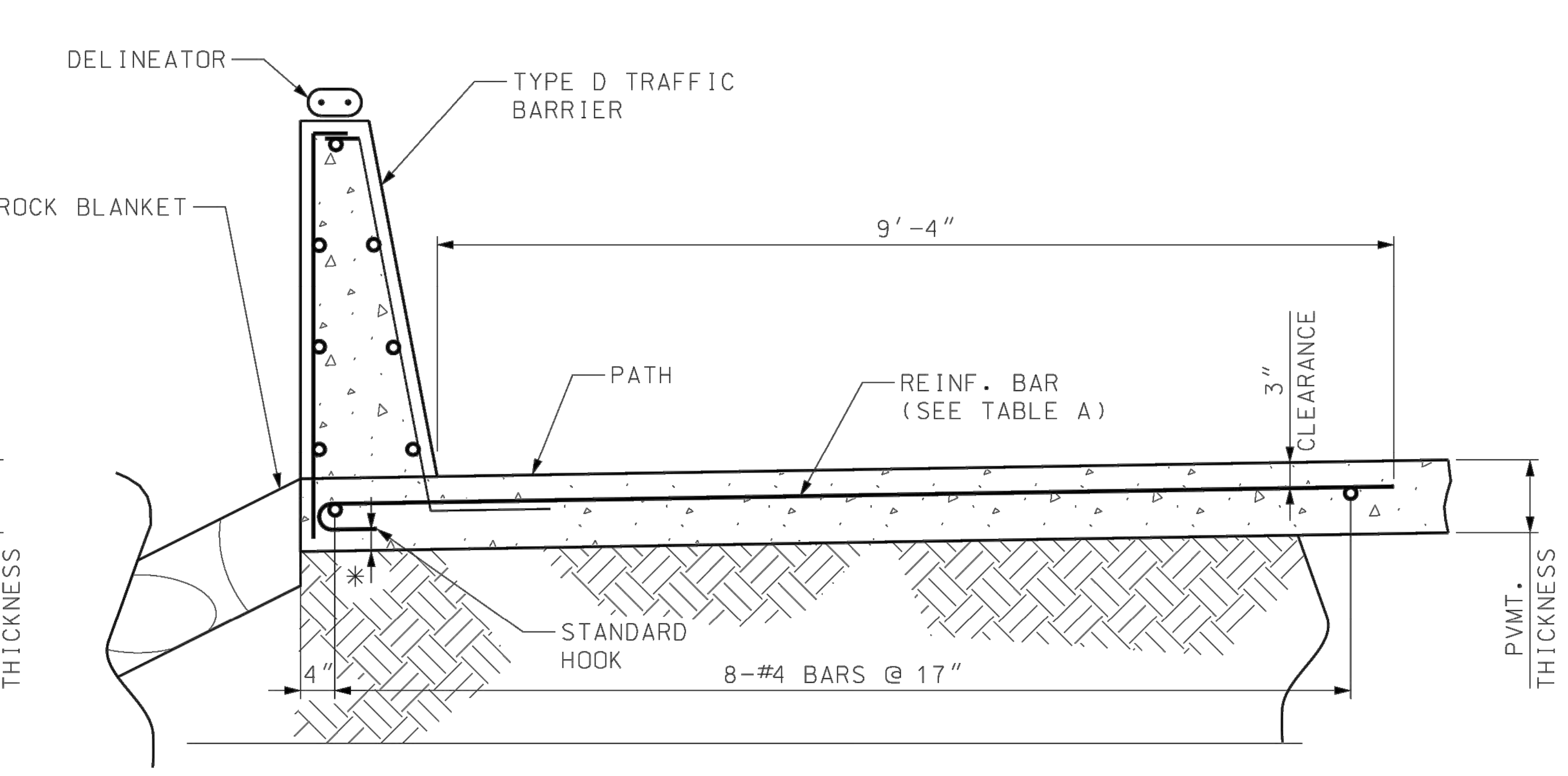
TYPE D SHALL BE USED ONLY AT LOCATIONS SHOWN ON PLANS.

FOR CONCRETE TRAFFIC BARRIER DELINEATION DETAILS SEE STD PLAN 903.03.



TYPE D TRAFFIC BARRIER AT EXIST. BRIDGE PIER

VIEW HIGH DRIVE
STA. 99+31.84 TO STA. 100+67.64



TYPE D TRAFFIC BARRIER ON SHARED USE PATH

VIEW HIGH DRIVE
STA. 105+75.75 TO STA. 107+50.00

NOT TO SCALE

SPECIAL SHEET
BARRIER DETAILS

RIGHT-OF-WAY PLANS NOT APPROVED FOR CONSTRUCTION

DATE PREPARED	08/30/2019
ROUTE	I-470
STATE	MO
DISTRICT	KC
SHEET NO.	$BARR3$
COUNTY	JACKSON
JOB NO.	
CONTRACT ID.	
PROJECT NO.	
BRIDGE NO.	A2150

DESCRIPTION | DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)

9801 Renner Blvd. Ste. 300
Lenexa, KS 66219
913.492.0400
gbateam.com

GEORGE BUTLER ASSOCIATES, INC.
PRO. ENGINEER 000133
ARCHITECT 000212
PRO. LAND SURVEYOR 000059

ANNE SCHROER
PROFESSIONAL ENGINEER
E-2008029268

G:\12720\Micro\Highways\XXX_SS_BARRIER_DETAILS_3_I1_I470_VH.dgn 2:07:40 PM 9/17/2019 REV.

STATE OF MISSOURI
BRADLEY D. BURTON
NUMBER E-25862
REGISTERED PROFESSIONAL ENGINEER
9/17/2020

GBA
architects
engineers
9801 Renner Boulevard
Lenexa, Kansas 66219
913.492.0400
www.gbateam.com

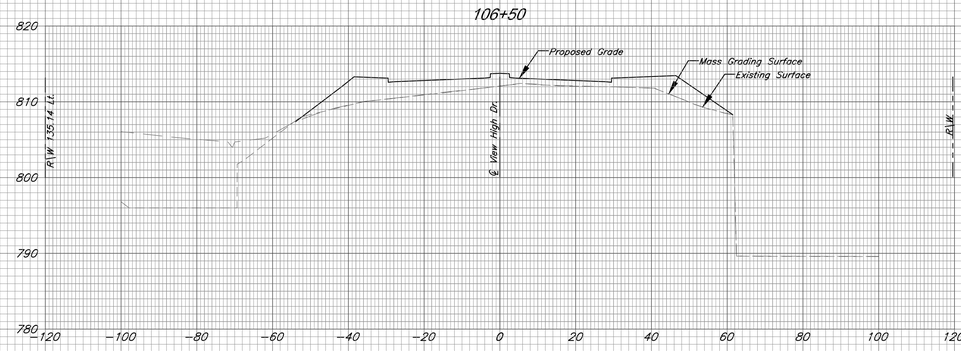
DATE:	6-25-2020
DESIGN BY:	CEL
DRAWN BY:	DRV
PROJECT NO.:	12720
SHEET NO.	40
TOTAL SHEETS	103

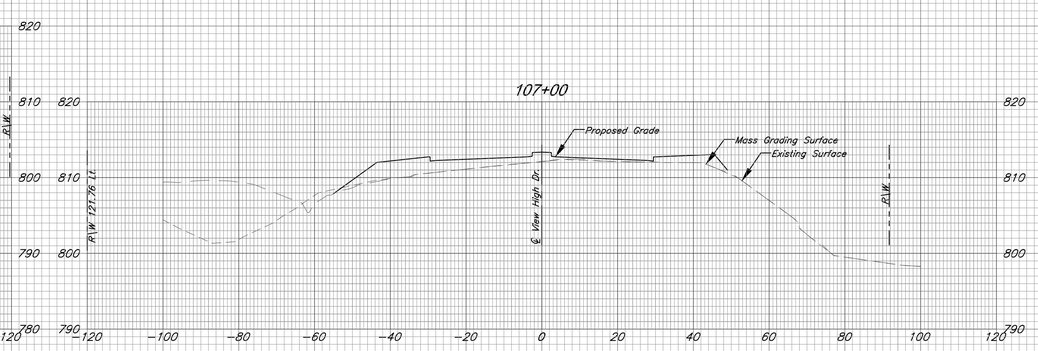
Bradley D. Burton
Professional Engineer
License No. 25862

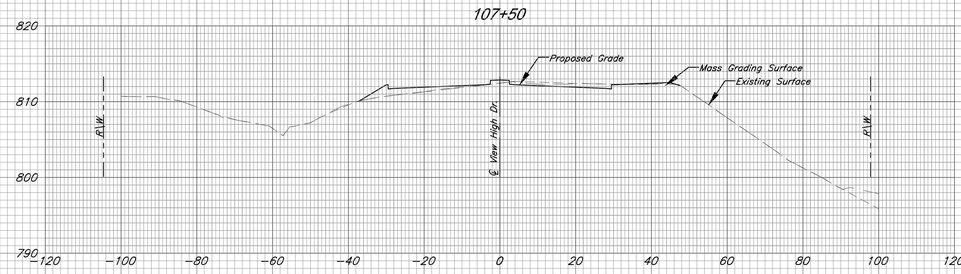
Street and Storm Sewer Plans
Paragon Star Development
Lee's Summit, Missouri

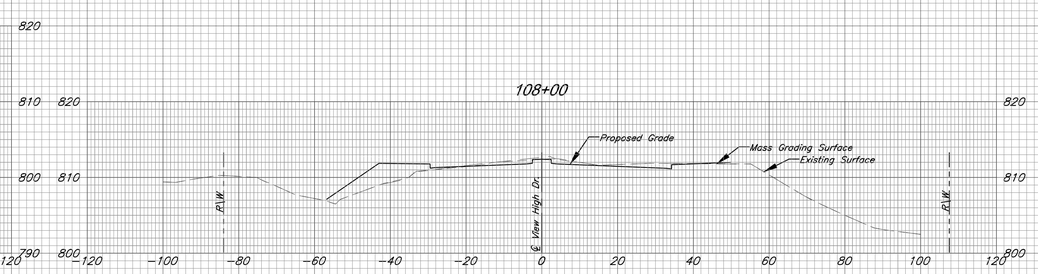
NO.	DATE	REVISIONS	BY	APPROVED
	9/2/20	City Comments		

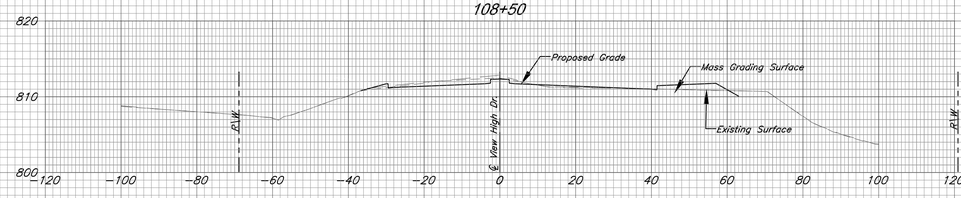
Construction Details

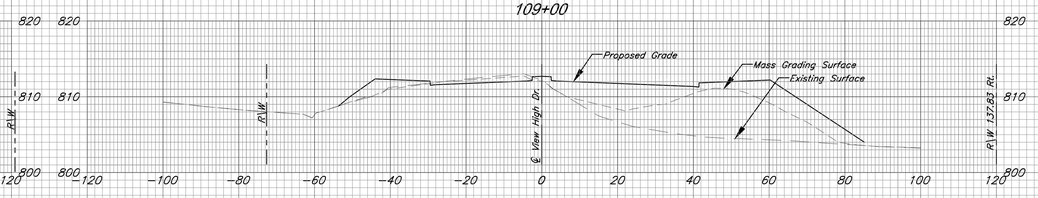


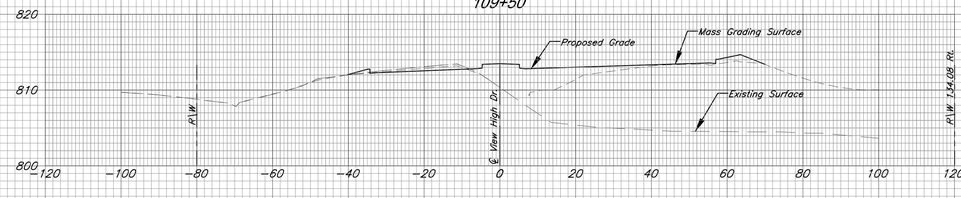


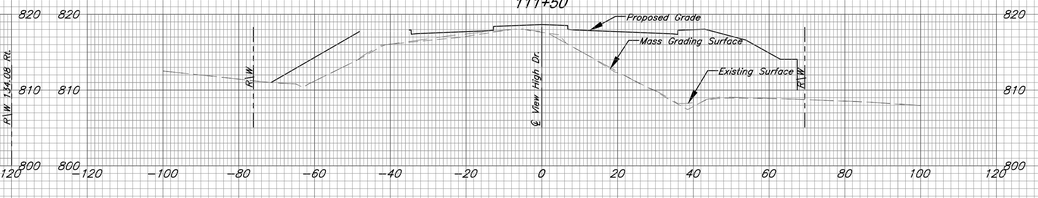


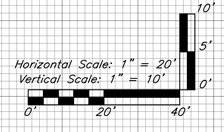












View High Drive Cross Sections

STATE OF MISSOURI
BRADLEY D. BURTON
NUMBER E-25862
REGISTERED PROFESSIONAL ENGINEER
9/11/2020

GBA
architects
engineers
9801 Renner Boulevard
Lenexa, Kansas 66219
913.492.0400
www.gbateam.com

DATE:	6-25-2020
DESIGN BY:	CEL
DRAWN BY:	DRV
PROJECT NO.:	12720
SHEET NO.	41
TOTAL SHEETS	103

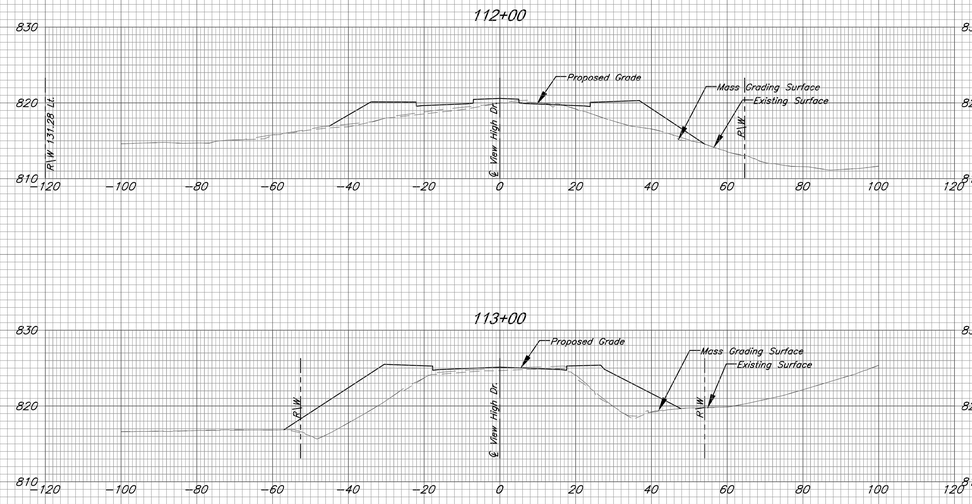
Bradley D. Burton
Professional Engineer
License No. 25862

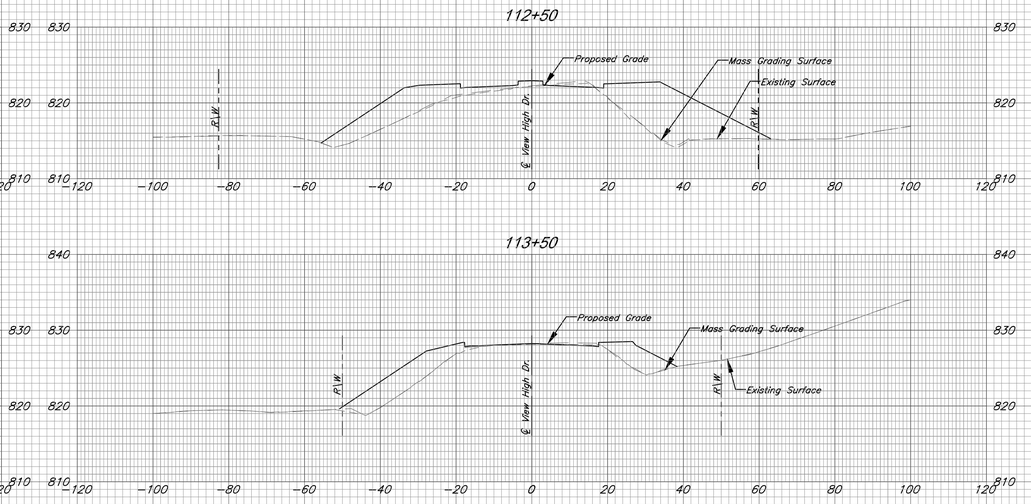
Street and Storm Sewer Plans

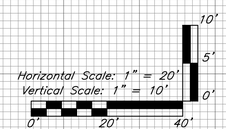
Paragon Star Development

Lee's Summit, Missouri

NO.	DATE	REVISIONS	BY	APPROVED
	9/2/20	City Comments		







STATE OF MISSOURI
BRADLEY D. BURTON
NUMBER E-25862
REGISTERED PROFESSIONAL ENGINEER
9/1/2020

GBA
architects
engineers
9801 Renner Boulevard
Lenexa, Kansas 66219
913.492.0400
www.gbateam.com

DATE:	6-25-2020
DESIGN BY:	CEL
DRAWN BY:	DRV
PROJECT NO.:	12720
SHEET NO.	42
TOTAL SHEETS	103

Bradley D. Burton
Professional Engineer
License No. 25862

Street and Storm Sewer Plans

Paragon Star Development

Lee's Summit, Missouri

NO.	DATE	REVISIONS	BY	APPROVED
	9/2/20	City Comments		

View High Drive Cross Sections

Horizontal Scale: 1" = 20'
Vertical Scale: 1" = 10'

10' 5' 0'
0' 20' 40'

STATE OF MISSOURI
BRADLEY D. BURTON
NUMBER E-25862
REGISTERED PROFESSIONAL ENGINEER
9/1/2020

GBA
architects
engineers
9801 Renner Boulevard
Lenexa, Kansas 66219
913.492.0400
www.gbateam.com

DATE:	6-25-2020
DESIGN BY:	CEL
DRAWN BY:	DRV
PROJECT NO.:	12720
SHEET NO.	43
TOTAL SHEETS	103

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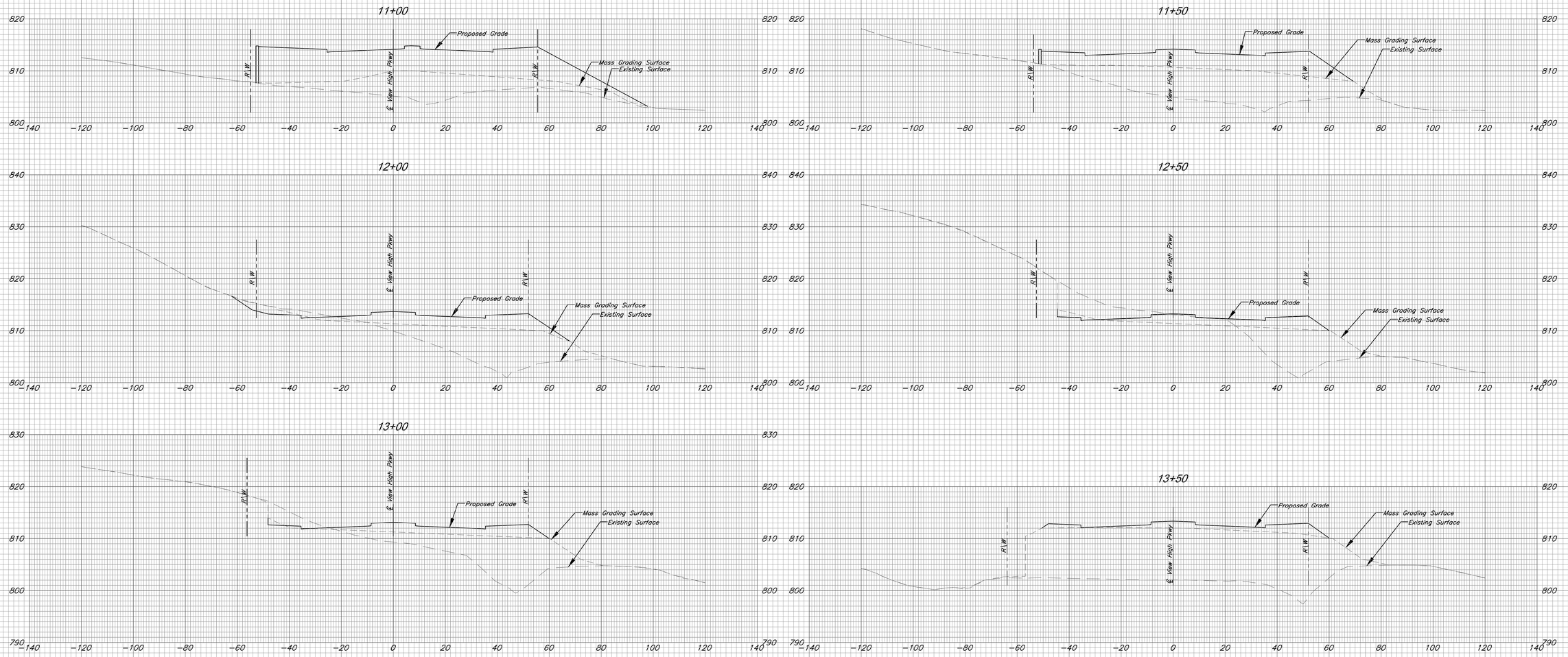
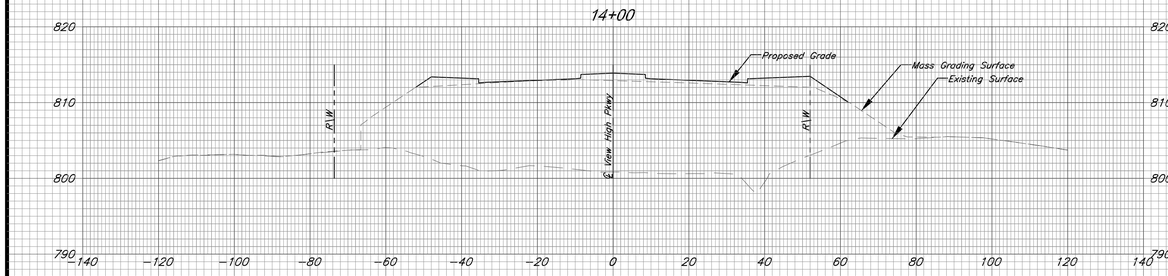
License No. 25862

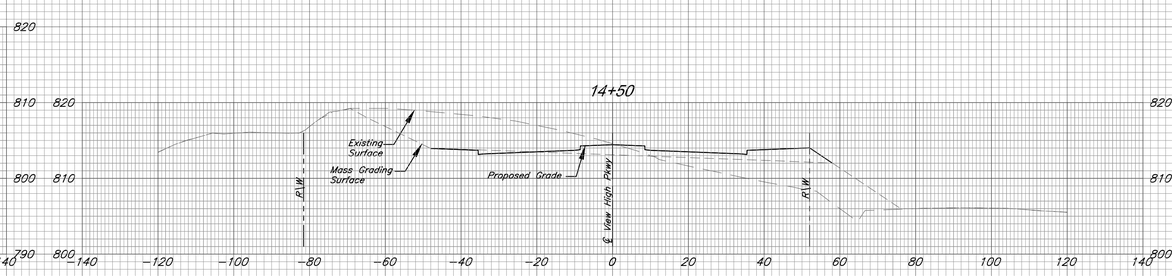
Street and Storm Sewer Plans
Paragon Star Development
Lee's Summit, Missouri

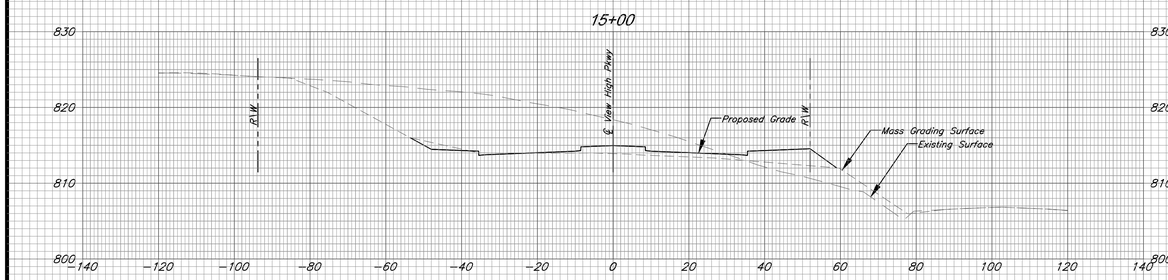
NO.	DATE	REVISIONS	BY	APPROVED
	9/2/20	City Comments		

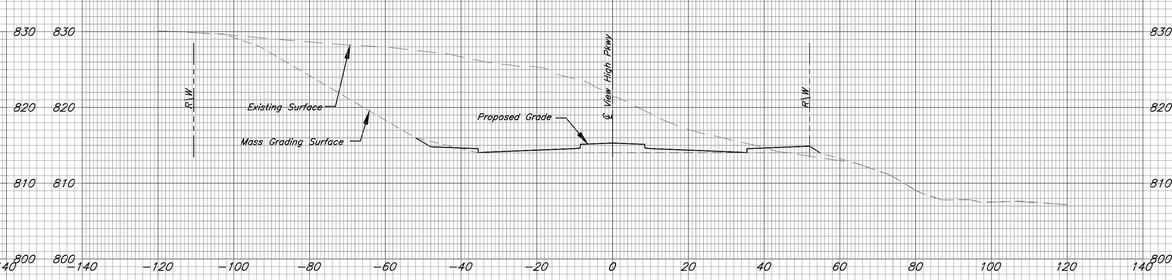


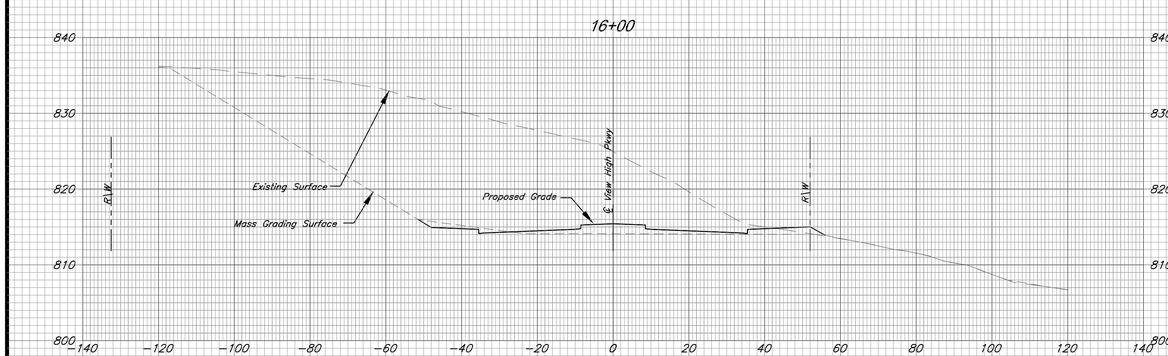
View High Parkway Cross Sections

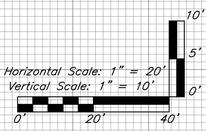












STATE OF MISSOURI
BRADLEY D. BURTON
NUMBER E-25862
REGISTERED PROFESSIONAL ENGINEER
9/1/2020

GBA
architects
engineers
9801 Renner Boulevard
Lenexa, Kansas 66219
913.492.0400
www.gbateam.com

DATE:	6-25-2020
DESIGN BY:	CEL
DRAWN BY:	DRV
PROJECT NO.:	12720
SHEET NO.	44
TOTAL SHEETS	103

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Professional Engineer
License No. 25862

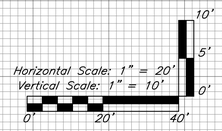
Street and Storm Sewer Plans

Paragon Star Development

Lee's Summit, Missouri

NO.	DATE	REVISIONS	BY	APPROVED
	9/2/20	City Comments		

View High Parkway Cross Sections



STATE OF MISSOURI
BRADLEY D. BURTON
NUMBER E-25662
REGISTERED PROFESSIONAL ENGINEER
9/1/2020

GBA
architects
engineers
9801 Renner Boulevard
Lenexa, Kansas 66219
913.492.0400
www.gbateam.com

DATE:	6-25-2020
DESIGN BY:	CEL
DRAWN BY:	DRV
PROJECT NO.:	12720
SHEET NO.:	45
TOTAL SHEETS	103

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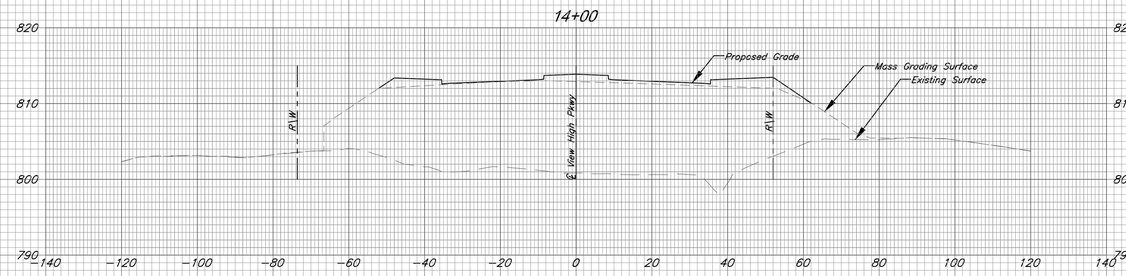
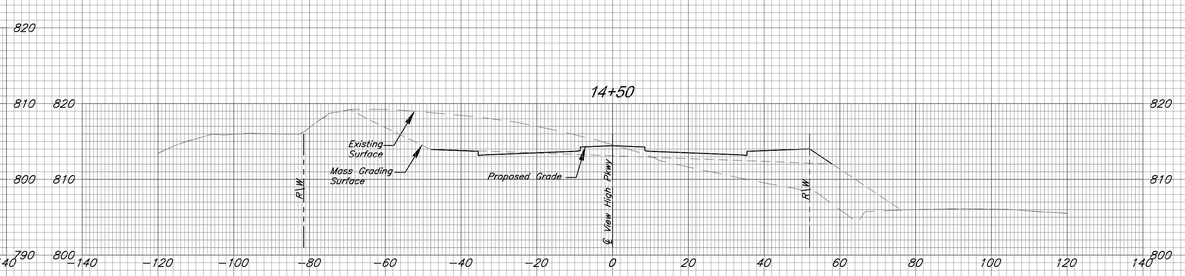
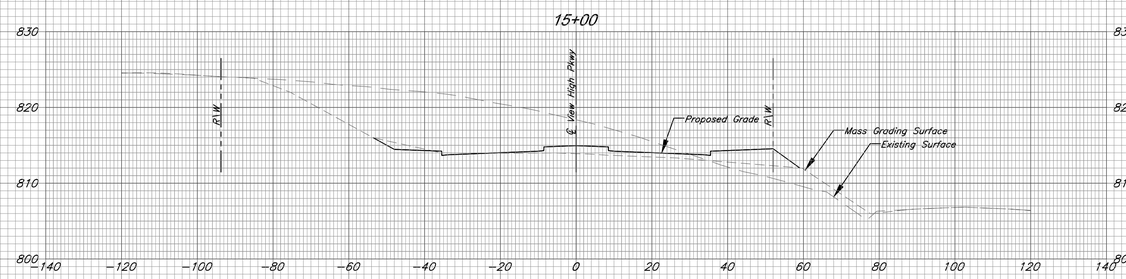
Professional Engineer
License No. 25862

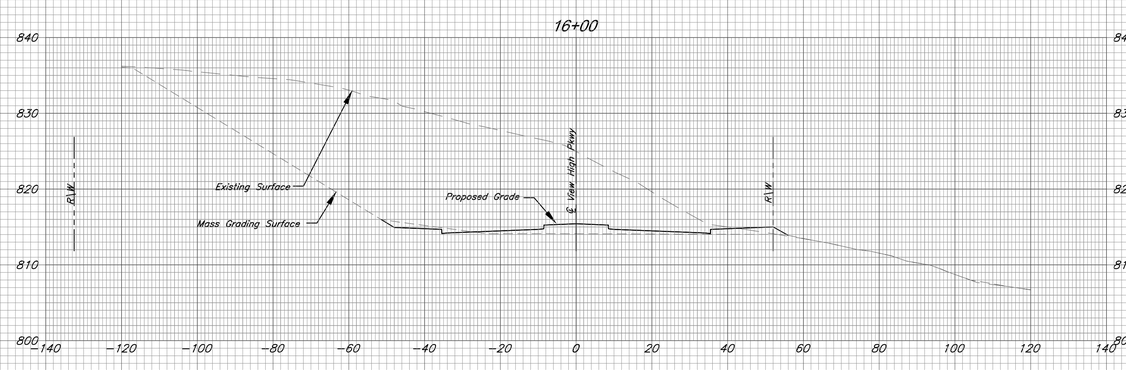
Street and Storm Sewer Plans
Paragon Star Development
Lee's Summit, Missouri

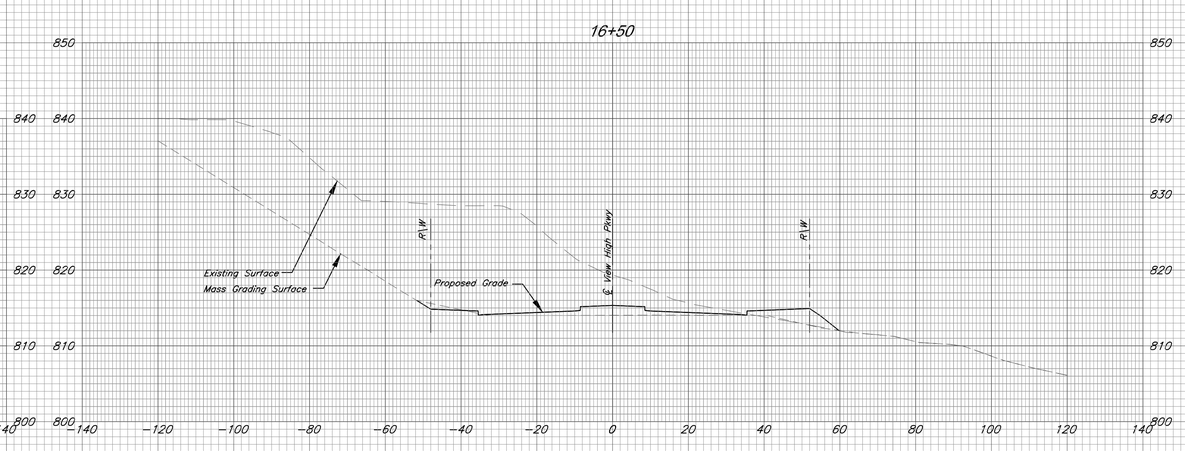
NO.	DATE	REVISIONS	BY	APPROVED
	9/2/20	City Comments		



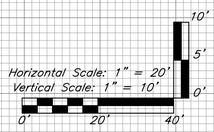








View High Parkway Cross Sections



STATE OF MISSOURI
BRADLEY D. BURTON
NUMBER E-25862
REGISTERED PROFESSIONAL ENGINEER
9/1/2020

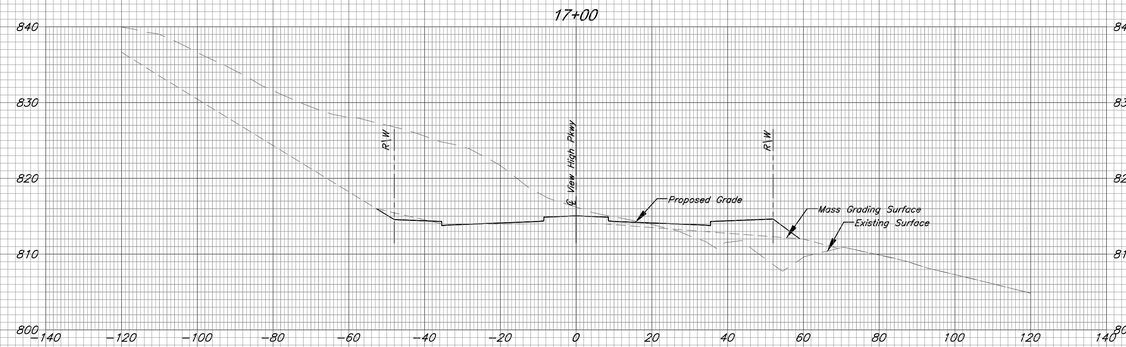
GBA
architects
engineers
9801 Renner Boulevard
Lenexa, Kansas 66219
913.492.0400
www.gbateam.com

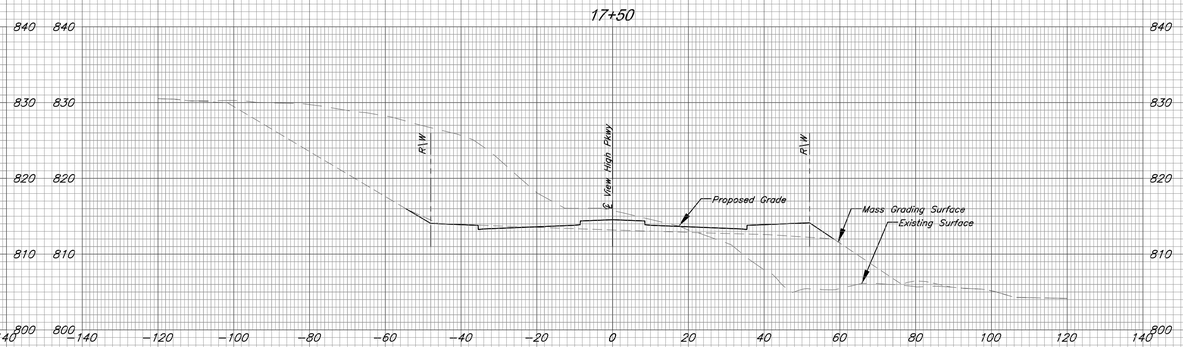
DATE:	6-25-2020
DESIGN BY:	CEL
DRAWN BY:	DRV
PROJECT NO.:	12720
SHEET NO.:	46
TOTAL SHEETS	103

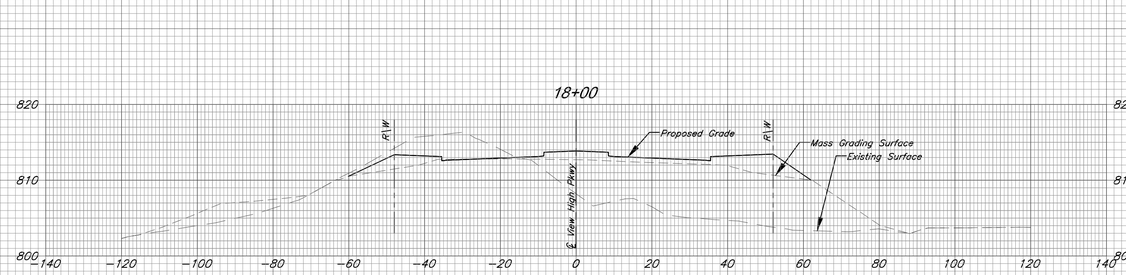
Bradley D. Burton
Professional Engineer
License No. 25862

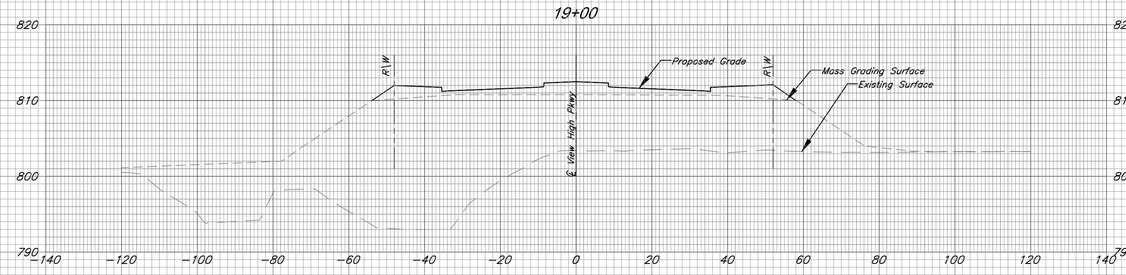
Street and Storm Sewer Plans
Paragon Star Development
Lee's Summit, Missouri

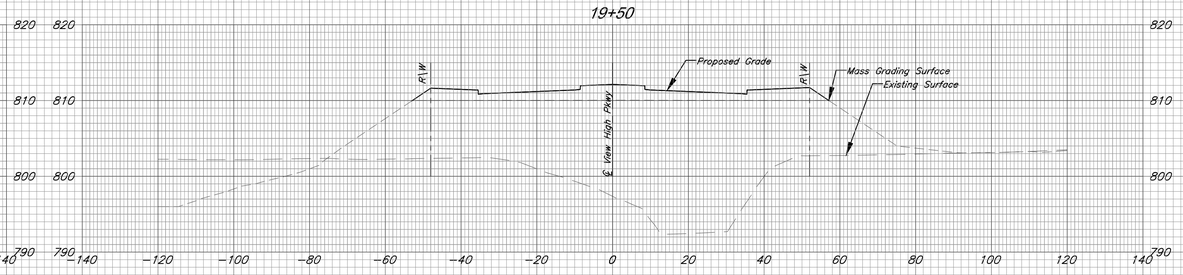
NO.	DATE	REVISIONS	BY	APPROVED
	9/2/20	City Comments		











View High Parkway Cross Sections

Horizontal Scale: 1" = 20'
Vertical Scale: 1" = 10'

10' 5' 0'
0' 20' 40'

STATE OF MISSOURI
BRADLEY D. BURTON
NUMBER E-25862
REGISTERED PROFESSIONAL ENGINEER
9/1/2020

GBA
architects
engineers
9801 Renner Boulevard
Lenexa, Kansas 66219
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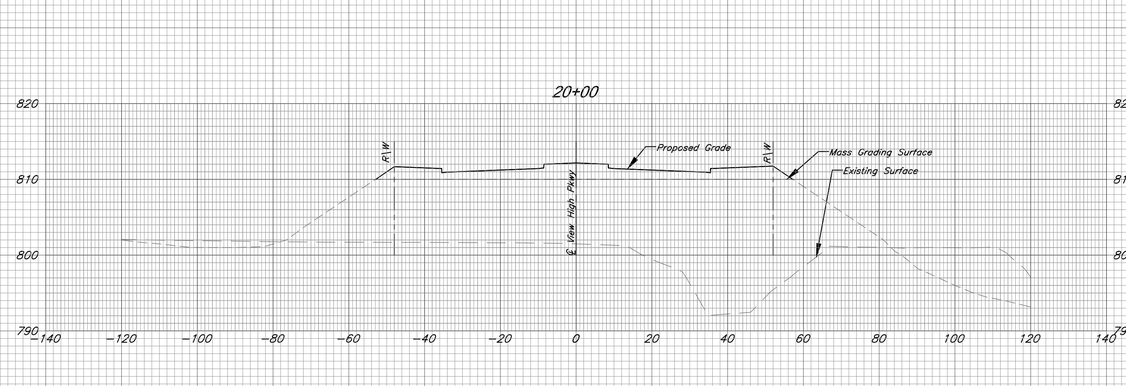
www.gbateam.com

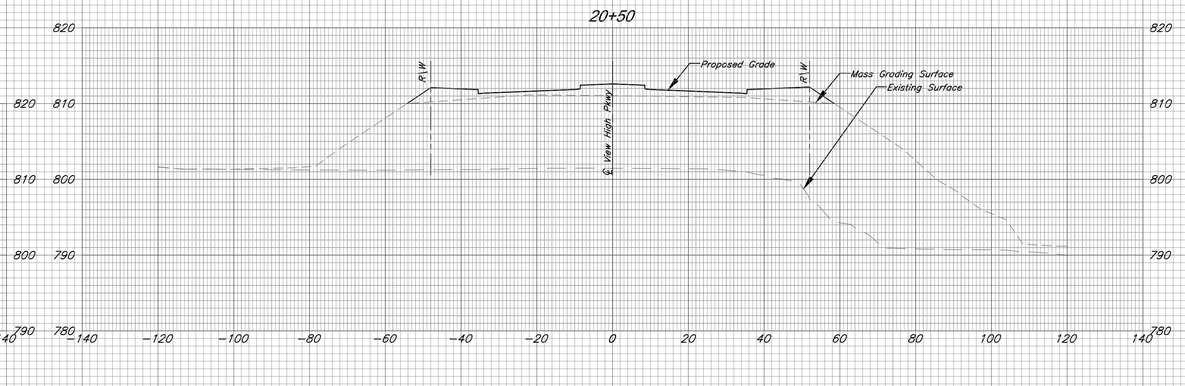
DATE:	6-25-2020
DESIGN BY:	CEL
DRAWN BY:	DRV
PROJECT NO.:	12720
SHEET NO.:	47
TOTAL SHEETS	103

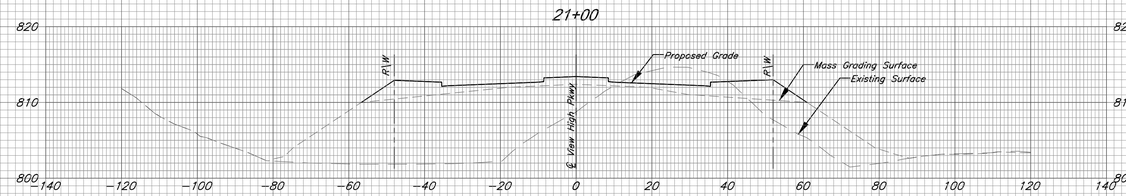
Bradley D. Burton
Professional Engineer
License No. 25862

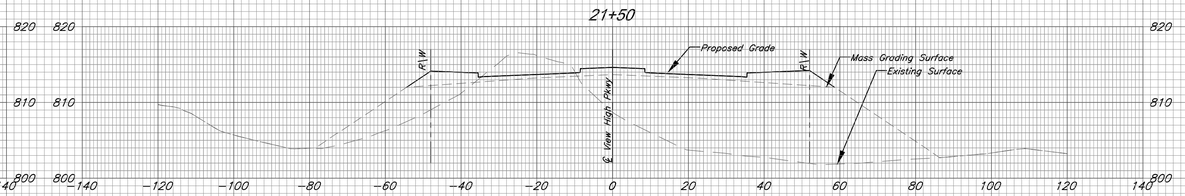
Street and Storm Sewer Plans
Paragon Star Development
Lee's Summit, Missouri

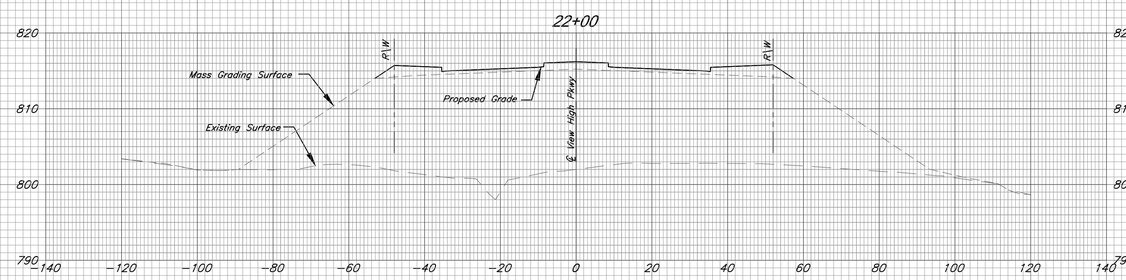
NO.	DATE	REVISIONS	BY	APPROVED
	9/2/20	City Comments		

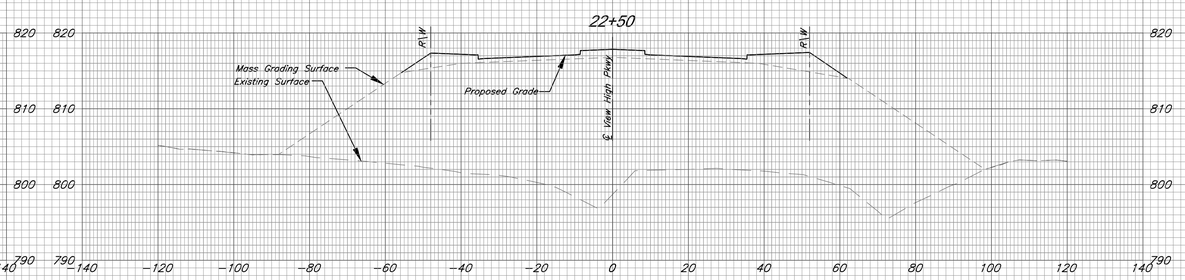


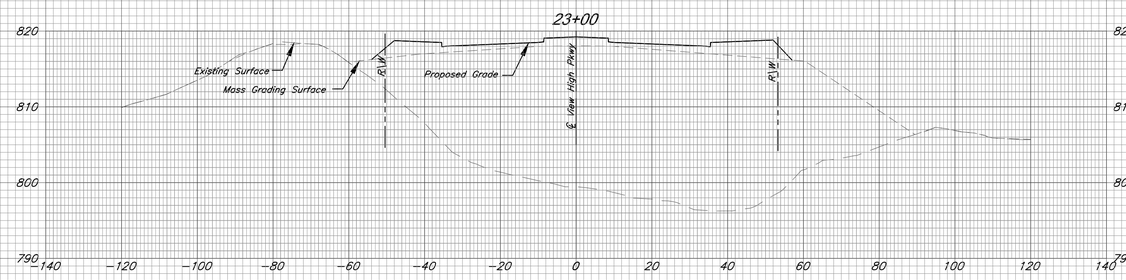


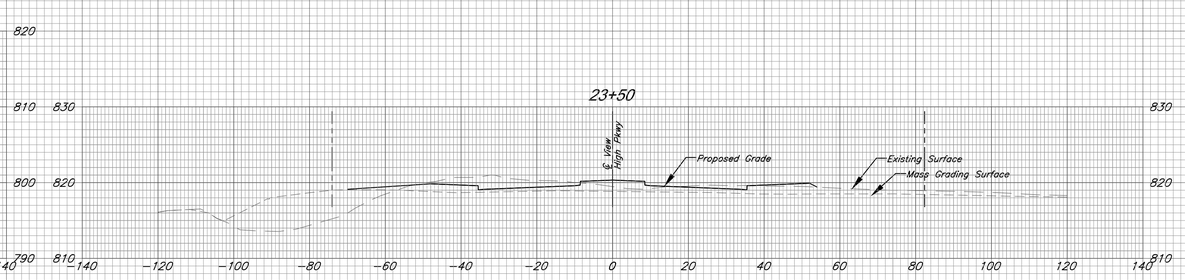












View High Parkway Cross Sections

Horizontal Scale: 1" = 20'
Vertical Scale: 1" = 10'

10' 5' 0'
0' 20' 40'

STATE OF MISSOURI
BRADLEY D. BURTON
NUMBER E-25862
REGISTERED PROFESSIONAL ENGINEER
9/1/2020

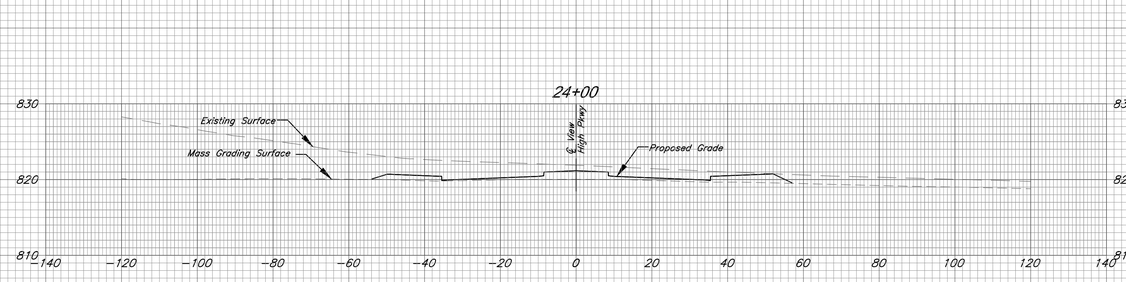
GBA
architects
engineers
9801 Renner Boulevard
Lenexa, Kansas 66219
913.492.0400
www.gbateam.com

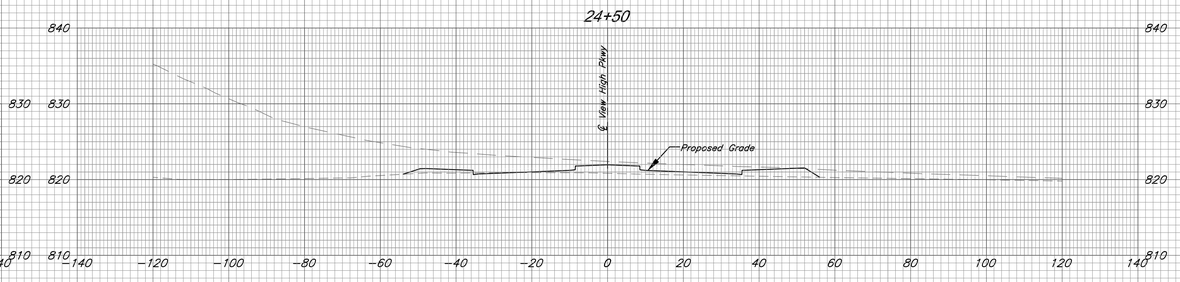
DATE:	6-25-2020
DESIGN BY:	CEL
DRAWN BY:	DRV
PROJECT NO.:	12720
SHEET NO.	48
TOTAL SHEETS	103

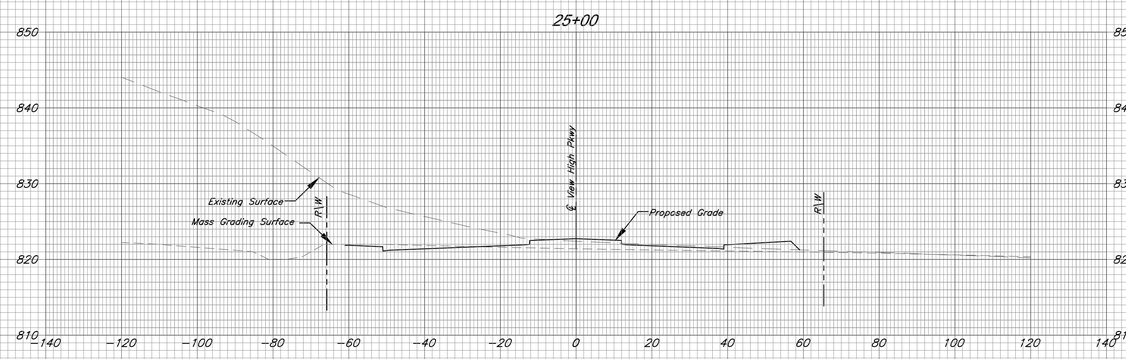
Bradley D. Burton
Professional Engineer
License No. 25862

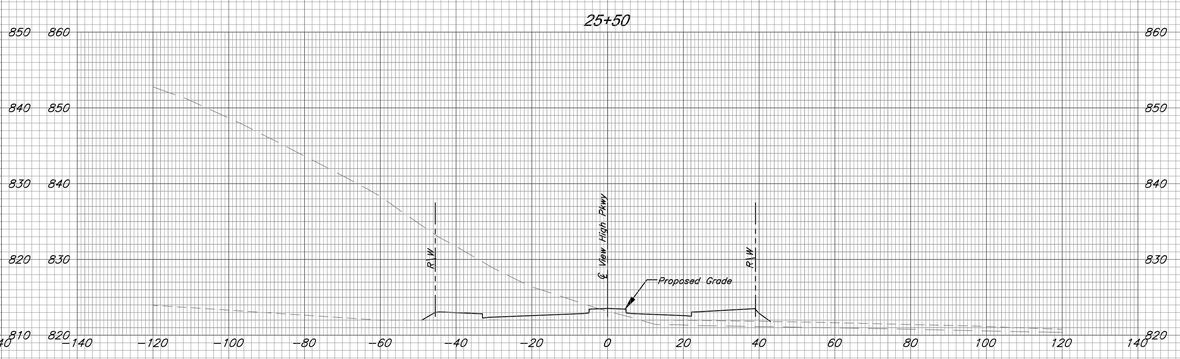
Street and Storm Sewer Plans
Paragon Star Development
Lee's Summit, Missouri

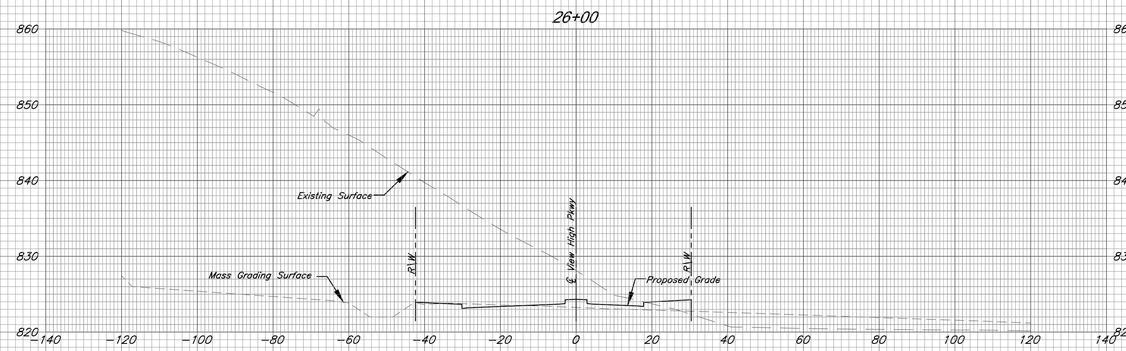
NO.	DATE	REVISIONS	BY	APPROVED
	9/2/20	City Comments		



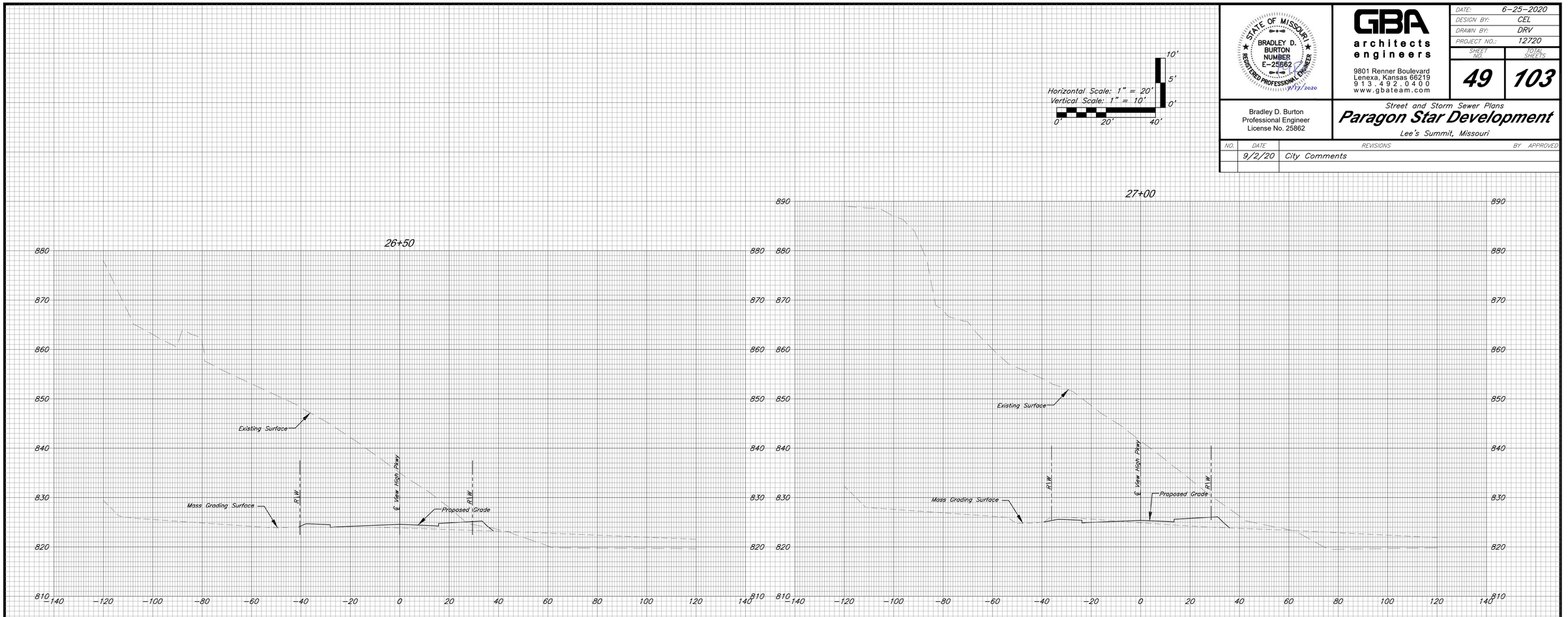








View High Parkway Cross Sections



Horizontal Scale: 1" = 20'
Vertical Scale: 1" = 10'
10'
5'
0'
0'
20'
40'

STATE OF MISSOURI
BRADLEY D. BURTON
NUMBER E-25862
REGISTERED PROFESSIONAL ENGINEER
9/1/2020

GBA
architects
engineers
9801 Renner Boulevard
Lenexa, Kansas 66219
913.492.0400
www.gbateam.com

DATE:	6-25-2020
DESIGN BY:	CEL
DRAWN BY:	DRV
PROJECT NO.:	12720
SHEET NO.	49
TOTAL SHEETS	103

Bradley D. Burton
Professional Engineer
License No. 25862

Street and Storm Sewer Plans

Paragon Star Development

Lee's Summit, Missouri

NO.	DATE	REVISIONS	BY	APPROVED
	9/2/20	City Comments		

View High Parkway Cross Sections

Horizontal Scale: 1" = 20'
Vertical Scale: 1" = 10'

0' 20' 40'

10' 5' 0'

STATE OF MISSOURI
BRADLEY D. BURTON
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REGISTERED PROFESSIONAL ENGINEER
9/1/2020

GBA
architects
engineers
9801 Renner Boulevard
Lenexa, Kansas 66219
913.492.0400
www.gbateam.com

DATE:	6-25-2020
DESIGN BY:	CEL
DRAWN BY:	DRV
PROJECT NO.:	12720
SHEET NO.	50
TOTAL SHEETS	103

Bradley D. Burton
Professional Engineer
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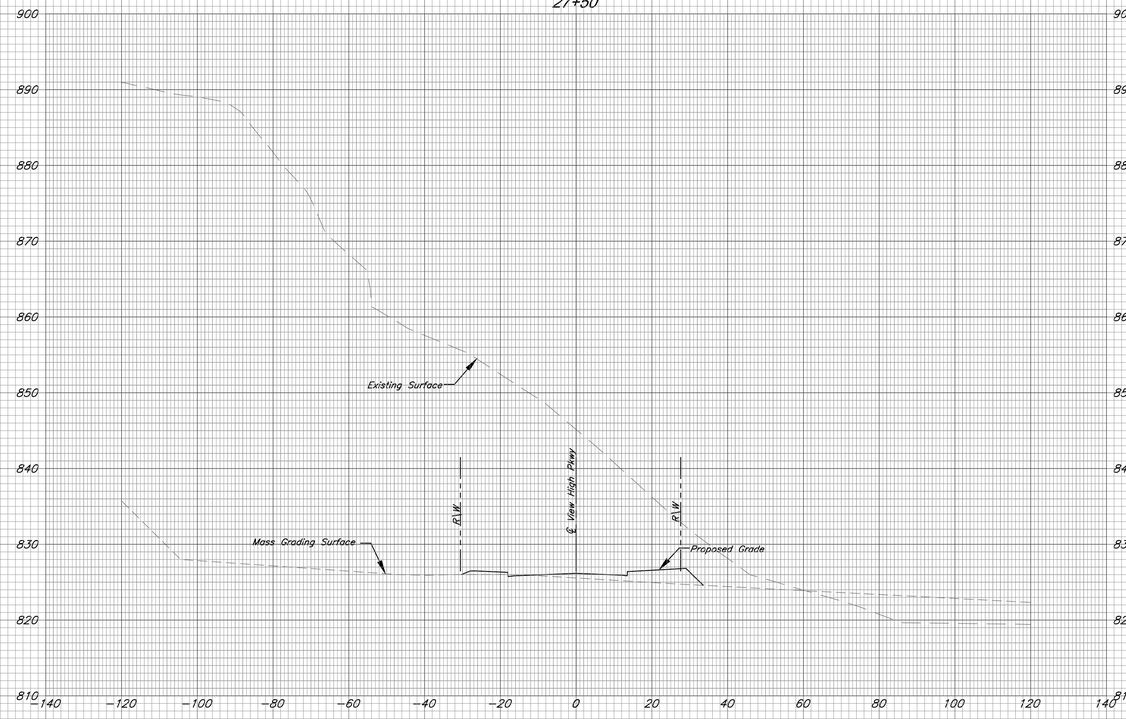
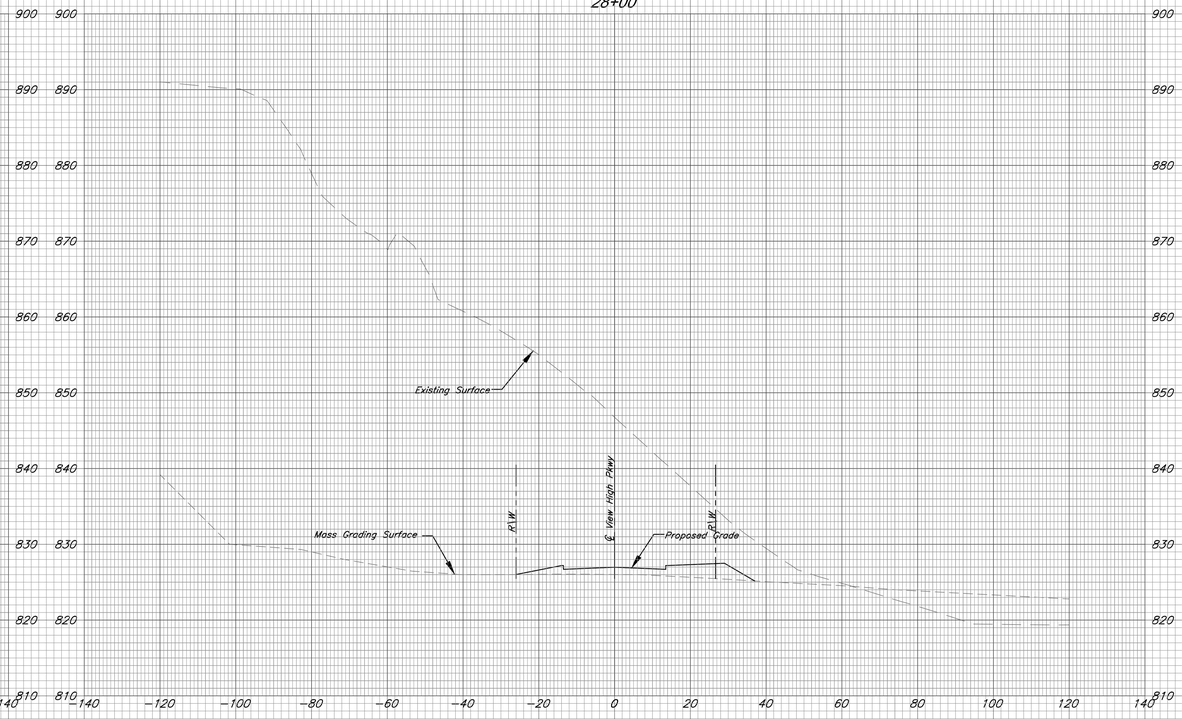
Street and Storm Sewer Plans
Paragon Star Development
Lee's Summit, Missouri

NO.	DATE	REVISIONS	BY	APPROVED
	9/2/20	City Comments		

27+50



28+00



View High Parkway Cross Sections

Horizontal Scale: 1" = 20'
Vertical Scale: 1" = 10'

0' 20' 40'

10' 5' 0'

STATE OF MISSOURI
BRADLEY D. BURTON
NUMBER E-25862
REGISTERED PROFESSIONAL ENGINEER
9/1/2020

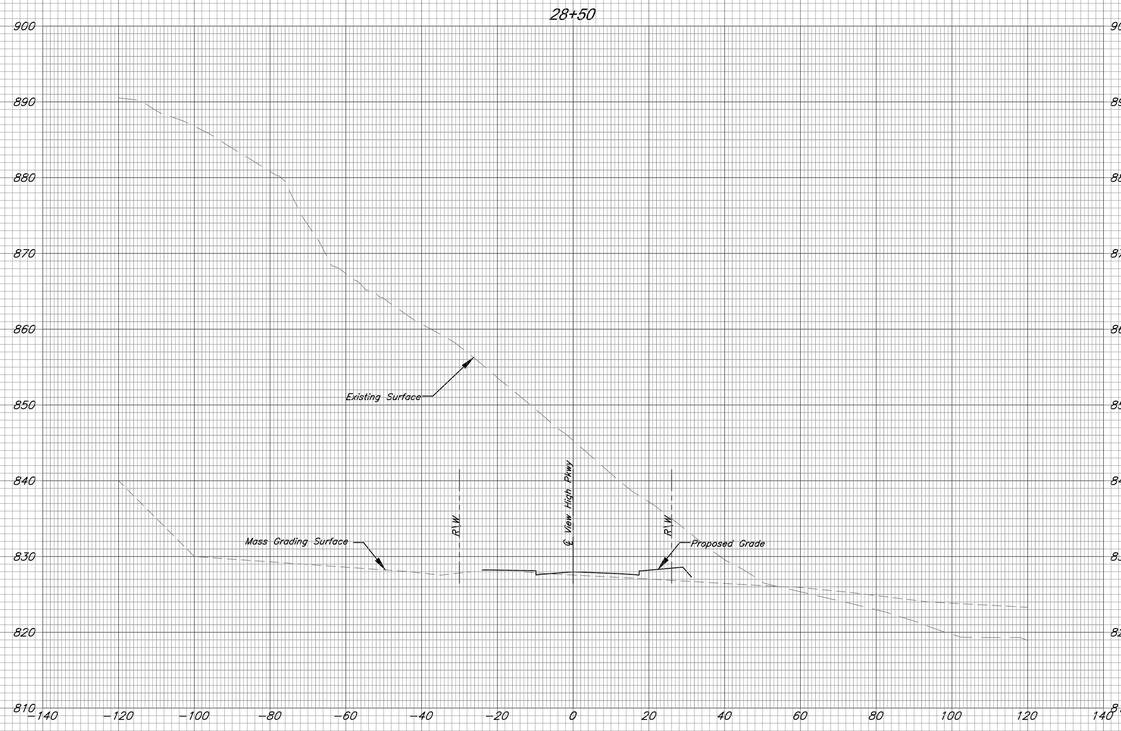
GBA
architects
engineers
9801 Renner Boulevard
Lenexa, Kansas 66219
913.492.0400
www.gbateam.com

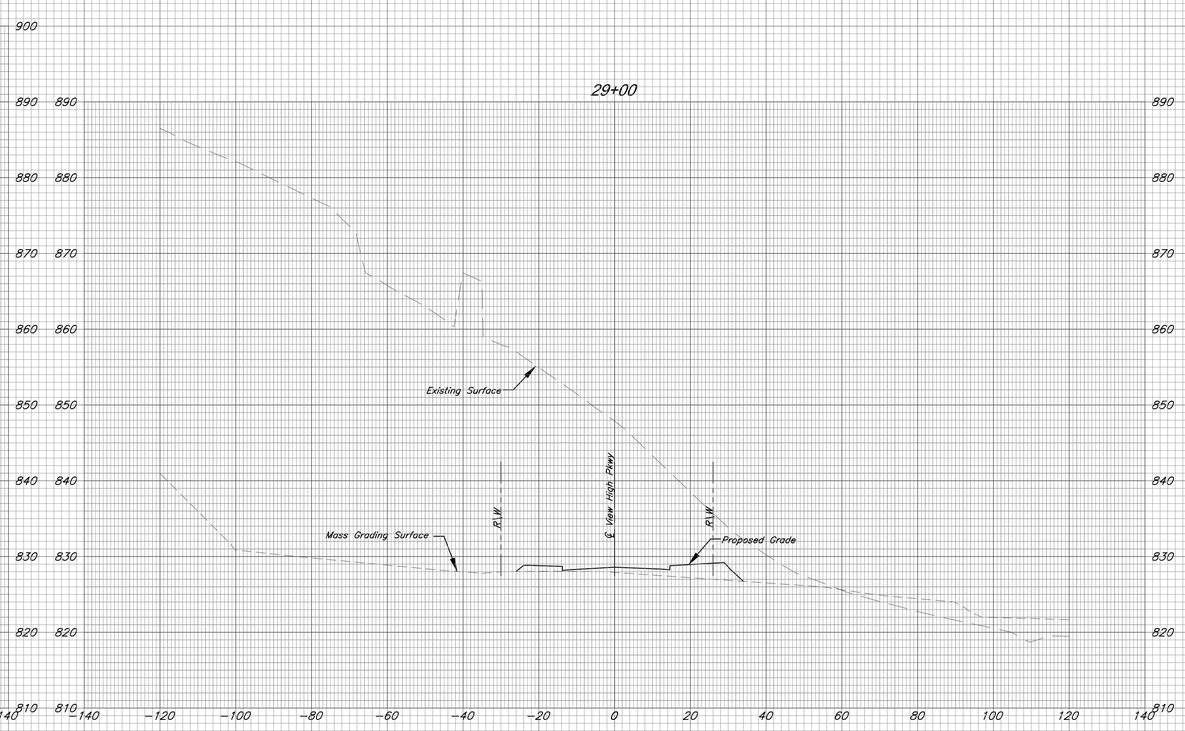
DATE:	6-25-2020
DESIGN BY:	CEL
DRAWN BY:	DRV
PROJECT NO.:	12720
SHEET NO:	51
TOTAL SHEETS	103

Bradley D. Burton
Professional Engineer
License No. 25862

Street and Storm Sewer Plans
Paragon Star Development
Lee's Summit, Missouri

NO.	DATE	REVISIONS	BY	APPROVED
	9/2/20	City Comments		





View High Parkway Cross Sections

Horizontal Scale: 1" = 20'
Vertical Scale: 1" = 10'

10' 5' 0'
0' 20' 40'

STATE OF MISSOURI
BRADLEY D. BURTON
NUMBER E-25862
REGISTERED PROFESSIONAL ENGINEER
9/1/2020

GBA
architects
engineers
9801 Renner Boulevard
Lenexa, Kansas 66219
913.492.0400
www.gbateam.com

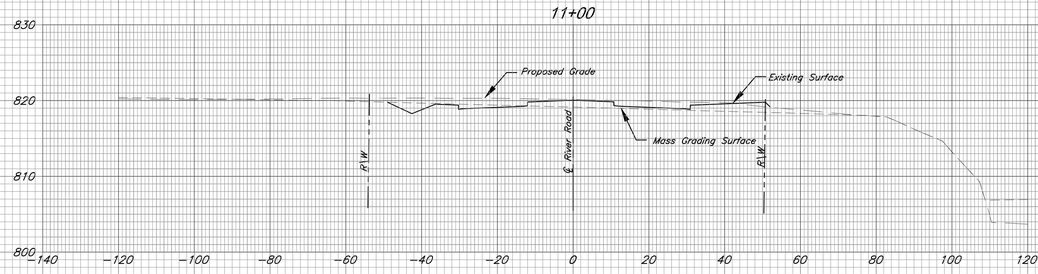
DATE:	6-25-2020
DESIGN BY:	CEL
DRAWN BY:	DRV
PROJECT NO.:	12720
SHEET NO.:	52
TOTAL SHEETS	103

Bradley D. Burton
Professional Engineer
License No. 25862

Street and Storm Sewer Plans
Paragon Star Development
Lee's Summit, Missouri

NO.	DATE	REVISIONS	BY	APPROVED
	9/2/20	City Comments		

11+00



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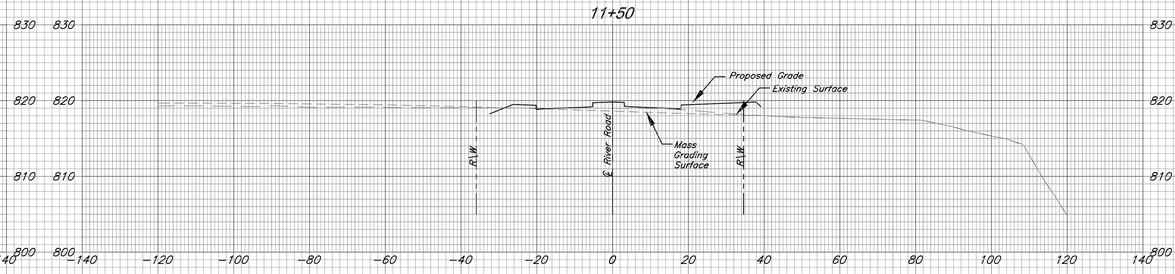

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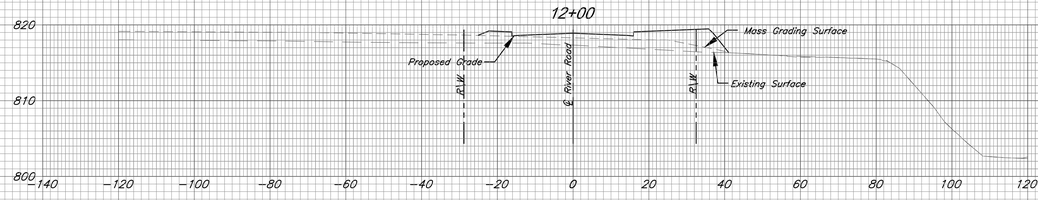

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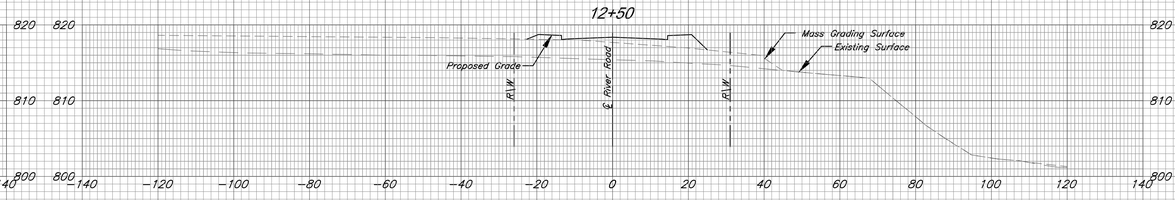

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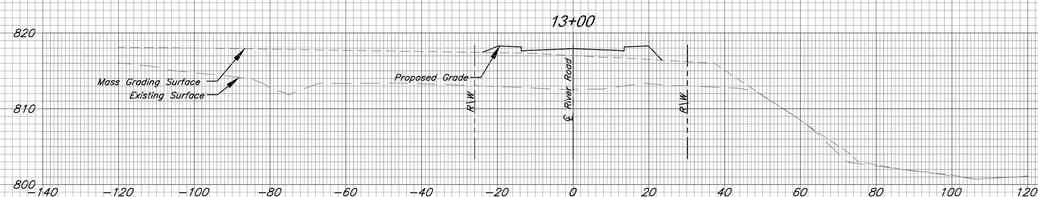

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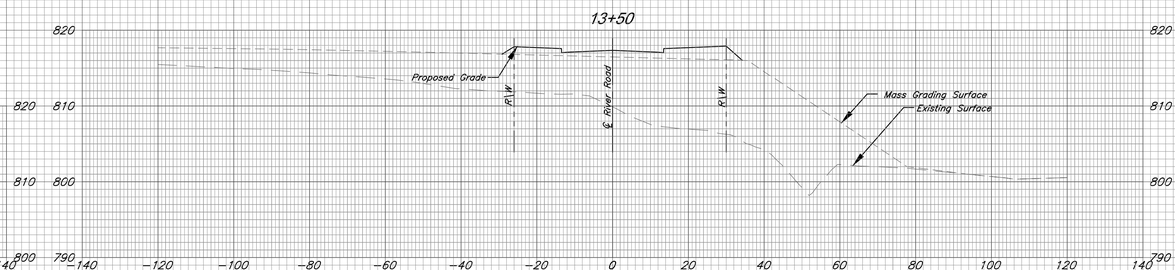

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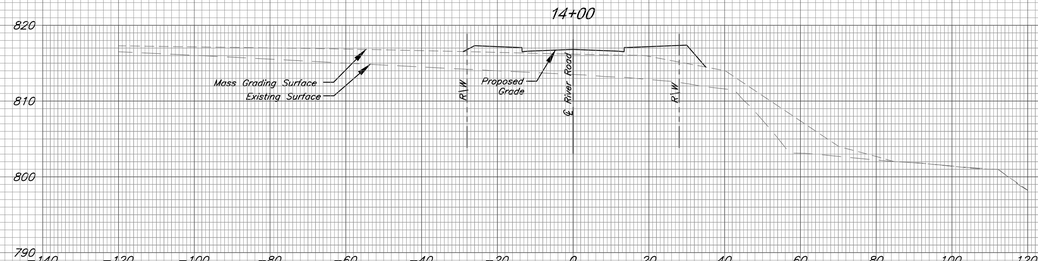

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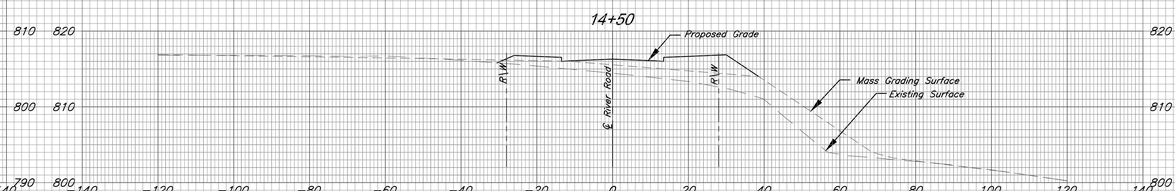


River Road Cross Sections

Horizontal Scale: 1" = 20'
Vertical Scale: 1" = 10'

10'
5'
0'
0' 20' 40'

STATE OF MISSOURI
BRADLEY D. BURTON
NUMBER E-25862
REGISTERED PROFESSIONAL ENGINEER
9/1/2020

GBA
architects
engineers
9801 Renner Boulevard
Lenexa, Kansas 66219
913.492.0400
www.gbateam.com

DATE:	6-25-2020
DESIGN BY:	CEL
DRAWN BY:	DRV
PROJECT NO.:	12720
SHEET NO.	53
TOTAL SHEETS	103

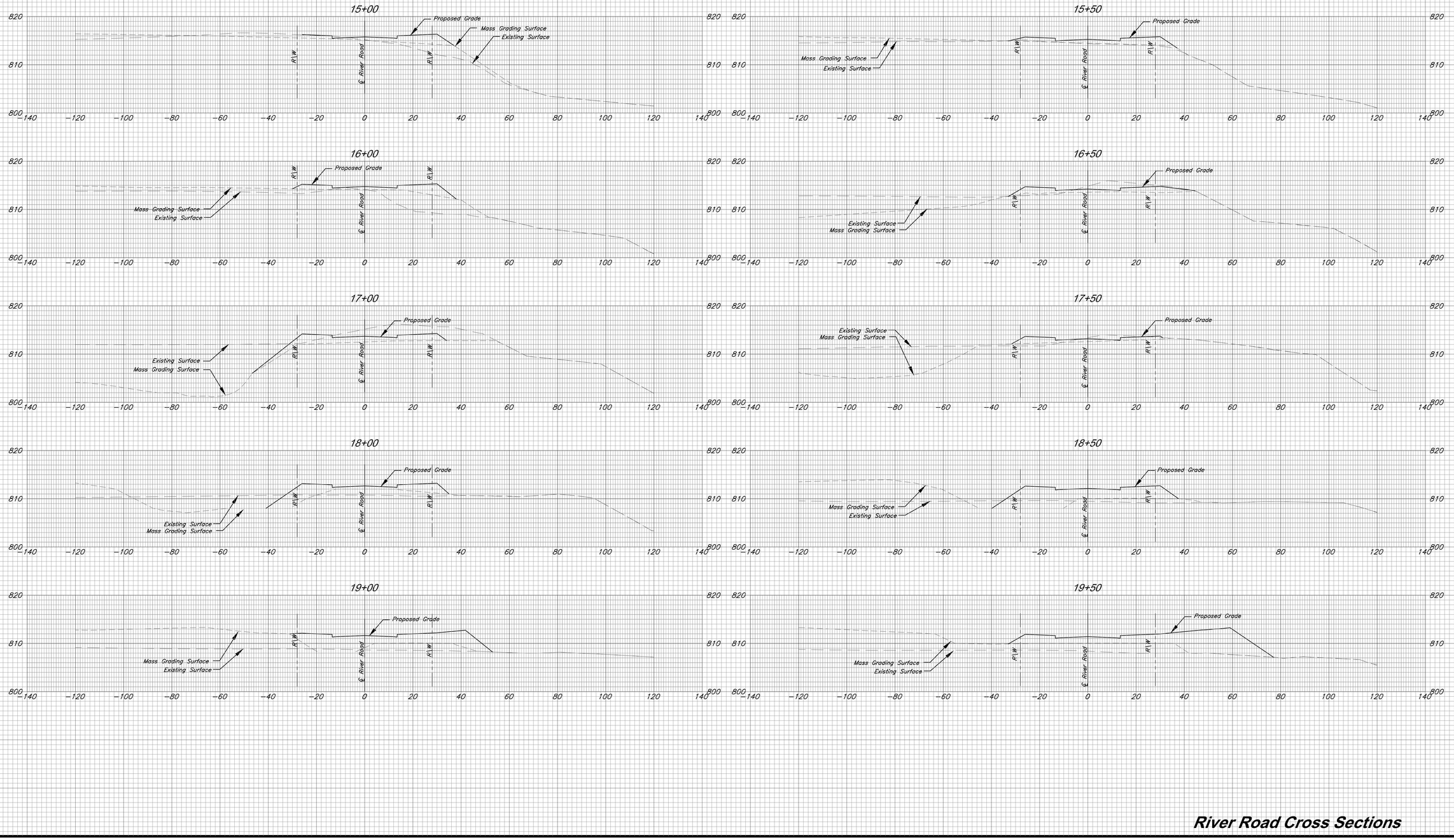
Bradley D. Burton
Professional Engineer
License No. 25862

Street and Storm Sewer Plans

Paragon Star Development

Lee's Summit, Missouri

NO.	DATE	REVISIONS	BY	APPROVED
	9/2/20	City Comments		



River Road Cross Sections

STATE OF MISSOURI
BRADLEY D. BURTON
NUMBER E-25662
REGISTERED PROFESSIONAL ENGINEER
9/11/2020

GBA
architects
engineers
9801 Renner Boulevard
Lenexa, Kansas 66219
913.492.0400
www.gbateam.com

DATE:	6-25-2020
DESIGN BY:	CEL
DRAWN BY:	DRV
PROJECT NO.:	12720
SHEET NO.	54
TOTAL SHEETS	103

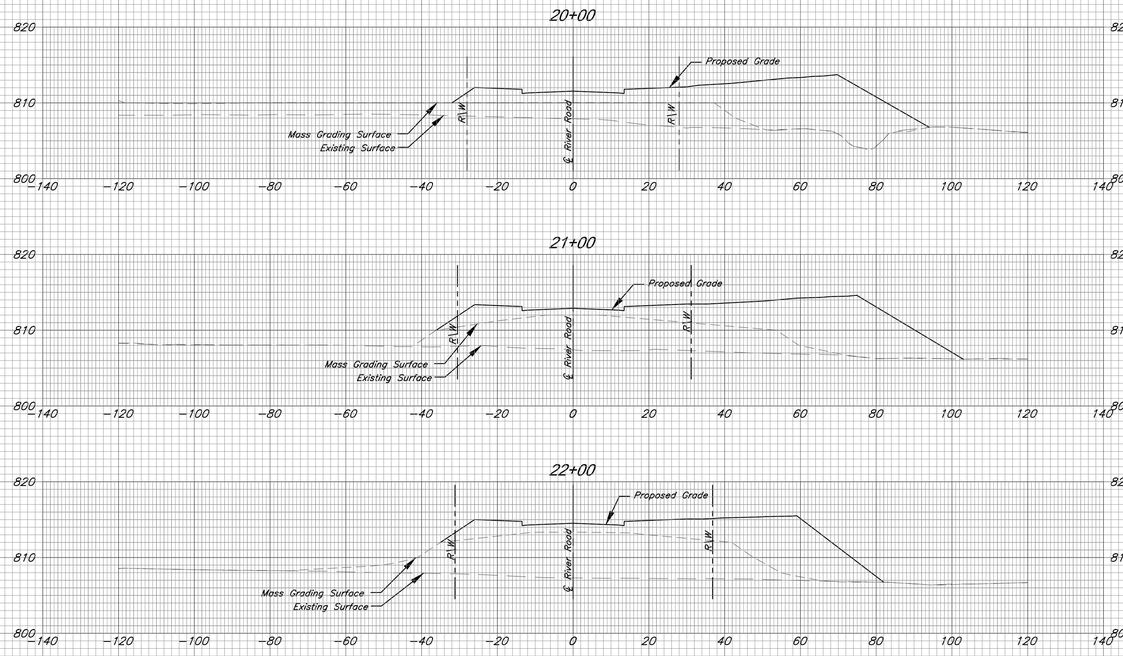
Bradley D. Burton
Professional Engineer
License No. 25862

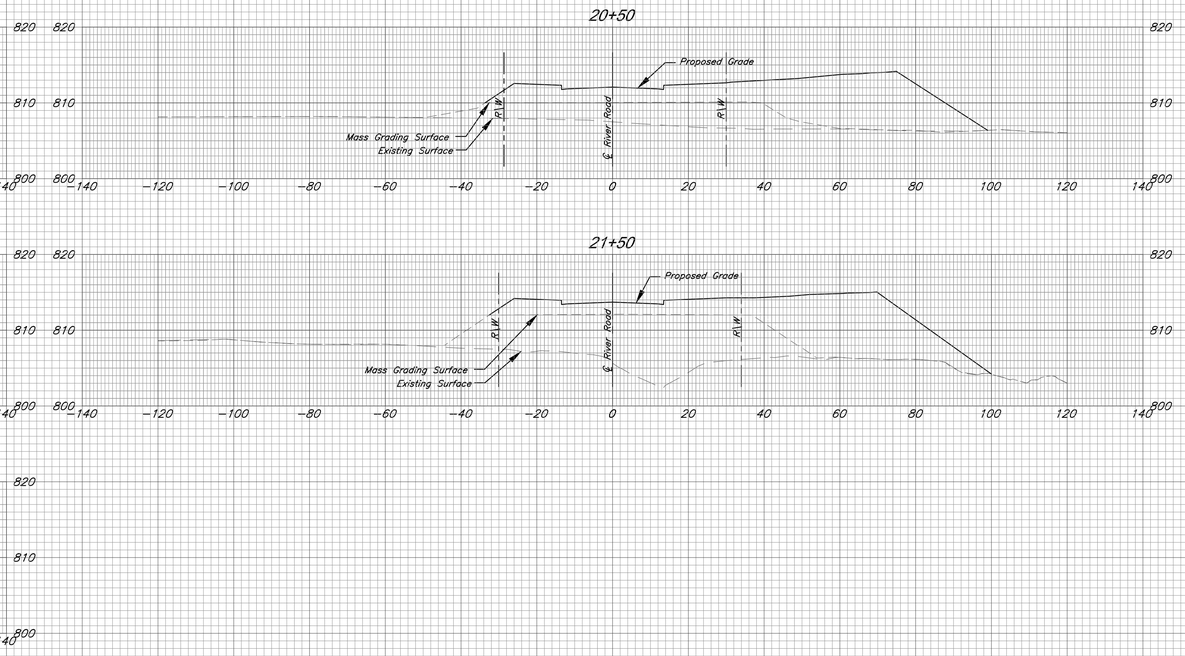
Street and Storm Sewer Plans

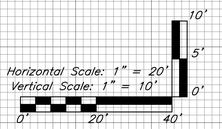
Paragon Star Development

Lee's Summit, Missouri

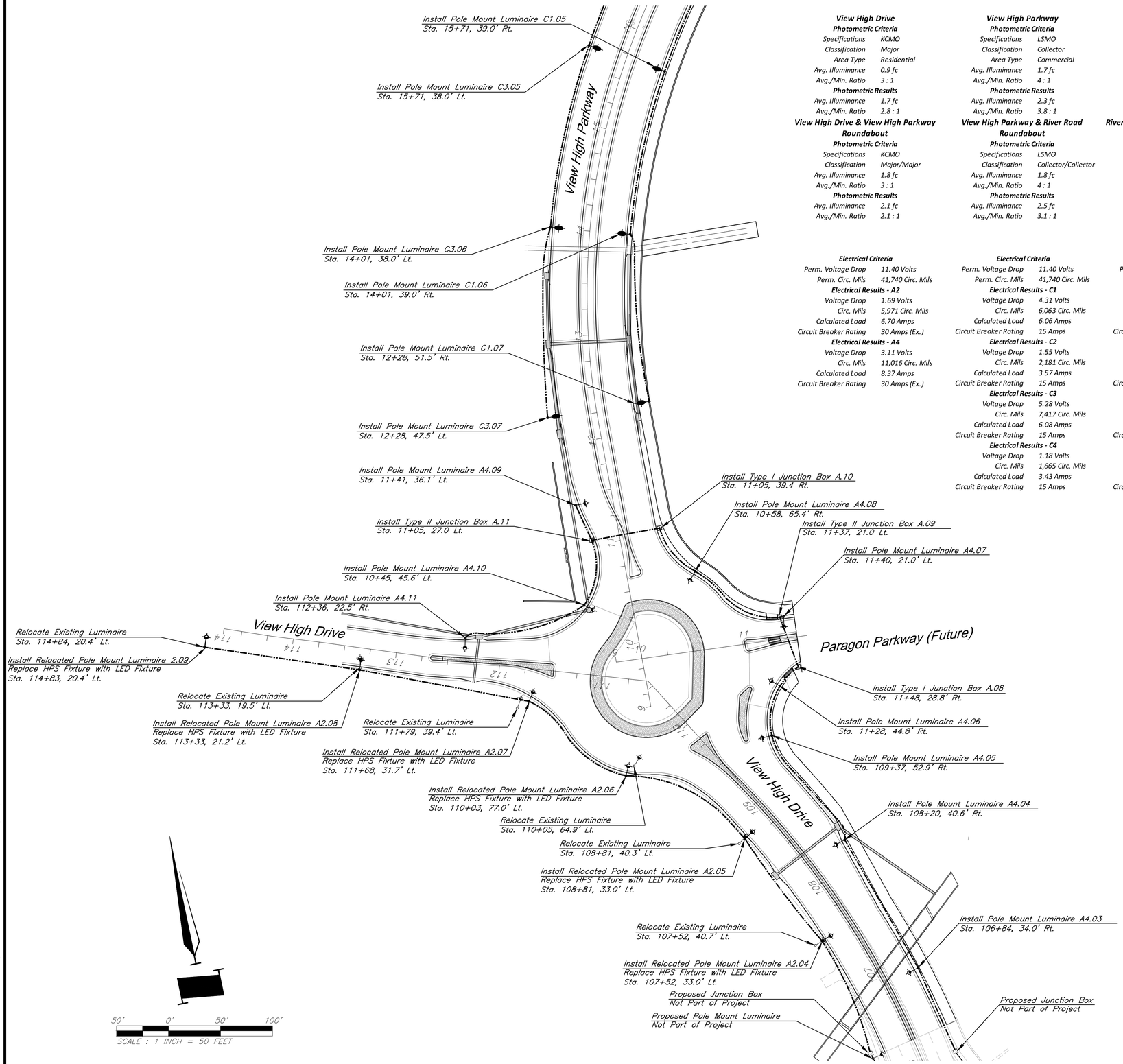
NO.	DATE	REVISIONS	BY	APPROVED
	9/2/20	City Comments		







River Road Cross Sections



View High Drive

Photometric Criteria

Specifications	KCMO
Classification	Major
Area Type	Residential
Avg. Illuminance	0.9 fc
Avg./Min. Ratio	3 : 1

Photometric Results

Avg. Illuminance	1.7 fc
Avg./Min. Ratio	2.8 : 1

View High Drive & View High Parkway Roundabout

Photometric Criteria

Specifications	KCMO
Classification	Major/Major
Avg. Illuminance	1.8 fc
Avg./Min. Ratio	3 : 1

Photometric Results

Avg. Illuminance	2.1 fc
Avg./Min. Ratio	2.1 : 1

Electrical Criteria

Perm. Voltage Drop	11.40 Volts
Perm. Circ. Mils	41,740 Circ. Mils

Electrical Results - A2

Voltage Drop	1.69 Volts
Circ. Mils	5,971 Circ. Mils
Calculated Load	6.70 Amps
Circuit Breaker Rating	30 Amps (Ex.)

Electrical Results - A4

Voltage Drop	3.11 Volts
Circ. Mils	11,016 Circ. Mils
Calculated Load	8.37 Amps
Circuit Breaker Rating	30 Amps (Ex.)

View High Parkway

Photometric Criteria

Specifications	LSMO
Classification	Collector
Area Type	Commercial
Avg. Illuminance	1.7 fc
Avg./Min. Ratio	4 : 1

Photometric Results

Avg. Illuminance	2.3 fc
Avg./Min. Ratio	3.8 : 1

View High Parkway & River Road Roundabout

Photometric Criteria

Specifications	LSMO
Classification	Collector/Collector
Avg. Illuminance	1.8 fc
Avg./Min. Ratio	4 : 1

Photometric Results

Avg. Illuminance	2.5 fc
Avg./Min. Ratio	3.1 : 1

Electrical Criteria

Perm. Voltage Drop	11.40 Volts
Perm. Circ. Mils	41,740 Circ. Mils

Electrical Results - C1

Voltage Drop	4.31 Volts
Circ. Mils	6,063 Circ. Mils
Calculated Load	6.06 Amps
Circuit Breaker Rating	15 Amps

Electrical Results - C2

Voltage Drop	1.55 Volts
Circ. Mils	2,181 Circ. Mils
Calculated Load	3.57 Amps
Circuit Breaker Rating	15 Amps

Electrical Results - C3

Voltage Drop	5.28 Volts
Circ. Mils	7,417 Circ. Mils
Calculated Load	6.08 Amps
Circuit Breaker Rating	15 Amps

Electrical Results - C4

Voltage Drop	1.18 Volts
Circ. Mils	1,665 Circ. Mils
Calculated Load	3.43 Amps
Circuit Breaker Rating	15 Amps

River Road

Photometric Criteria

Specifications	LSMO
Classification	Collector
Area Type	Commercial
Avg. Illuminance	1.7 fc
Avg./Min. Ratio	4 : 1

Photometric Results

Avg. Illuminance	2.2 fc
Avg./Min. Ratio	3.1 : 1

River Road & Paragon Parkway (Future) Roundabout

Photometric Criteria

Specifications	LSMO
Classification	Collector/Collector
Avg. Illuminance	1.8 fc
Avg./Min. Ratio	4 : 1

Photometric Results

Avg. Illuminance	3.7 fc
Avg./Min. Ratio	4.1 : 1

Electrical Criteria

Perm. Voltage Drop	11.40 Volts
Perm. Circ. Mils	41,740 Circ. Mils

Electrical Results - B1

Voltage Drop	2.26 Volts
Circ. Mils	3,180 Circ. Mils
Calculated Load	3.44 Amps
Circuit Breaker Rating	15 Amps

Electrical Results - B2

Voltage Drop	2.05 Volts
Circ. Mils	2,884 Circ. Mils
Calculated Load	3.44 Amps
Circuit Breaker Rating	15 Amps

Electrical Results - B3

Voltage Drop	0.05 Volts
Circ. Mils	76 Circ. Mils
Calculated Load	0.86 Amps
Circuit Breaker Rating	15 Amps

Electrical Results - B4

Voltage Drop	0.48 Volts
Circ. Mils	682 Circ. Mils
Calculated Load	1.71 Amps
Circuit Breaker Rating	15 Amps

LEGEND

- Pole Mount Luminaire (35' Mt. Ht., 8' Arm Length, AEL Autobahn ATB2–60BLEDE70–MVOLT–R2–20–NL–P7–SH, Type 2 Distribution)
- Pole Mount Luminaire (30' Mt. Ht., 6' Arm Length, LED2–ARW–150W–T2M, Type 2 Distribution)
- Pole Mount Luminaire (30' Mt. Ht., 6' Arm Length, LED2–ARW–150W–T3M, Type 3 Distribution)
- Pole Mount Luminaire (Not Part of Project)
- Secondary Service Point
- Street Light Control Center
- Existing Street Light Control Center
- Junction Box
- Existing Junction Box
- HDPE Conduit
- Existing HDPE Conduit

GENERAL NOTES:

Existing foundations to be removed a minimum of 24" below grade and surface restored to surrounding conditions.

Circuit A2 and A4 cable and conduit shall be connected to adjacent interchange project lighting in adjacent project junction boxes. If adjacent project lighting is not already present, then Circuit A2 and A4 shall be capped and daylighted. Circuits to be powered and controlled from adjacent interchange project.

View High Dr lighting system currently is, and shall continue to be, owned and operated by the City of Kansas City, Missouri.

STATE OF MISSOURI
CHRISTOPHER NOVOSEL
NUMBER PE-2018024421
PROFESSIONAL ENGINEER
9-17-2020

GBA
architects
engineers
9801 Renner Boulevard
Lenexa, Kansas 66219
913.492.0400
www.gbateam.com

DATE:	6-25-2020
DESIGN BY:	CMN
DRAWN BY:	CMN
PROJECT NO.:	12720
SHEET NO.	55
TOTAL SHEETS	103

Christopher Novosel
Professional Engineer
License No. 2018024421

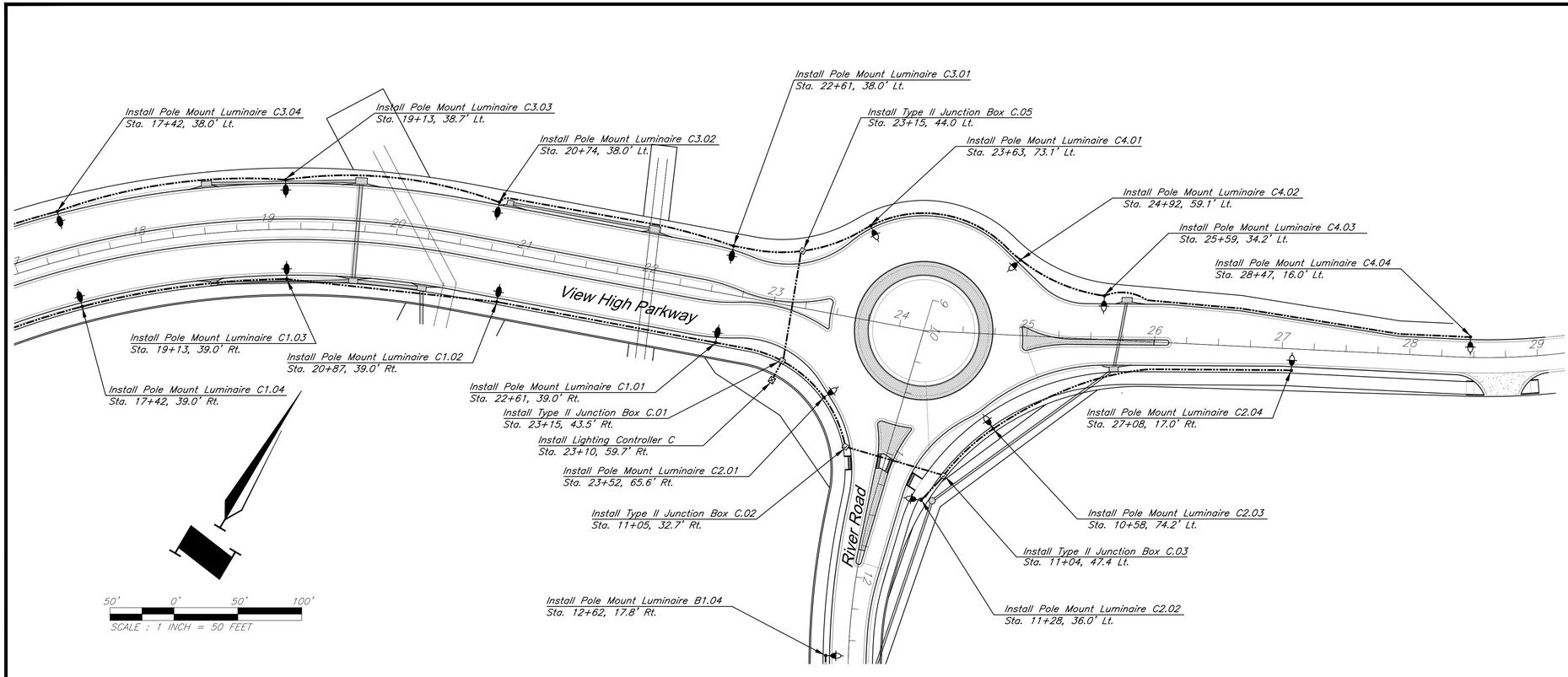
Street and Storm Sewer Plans

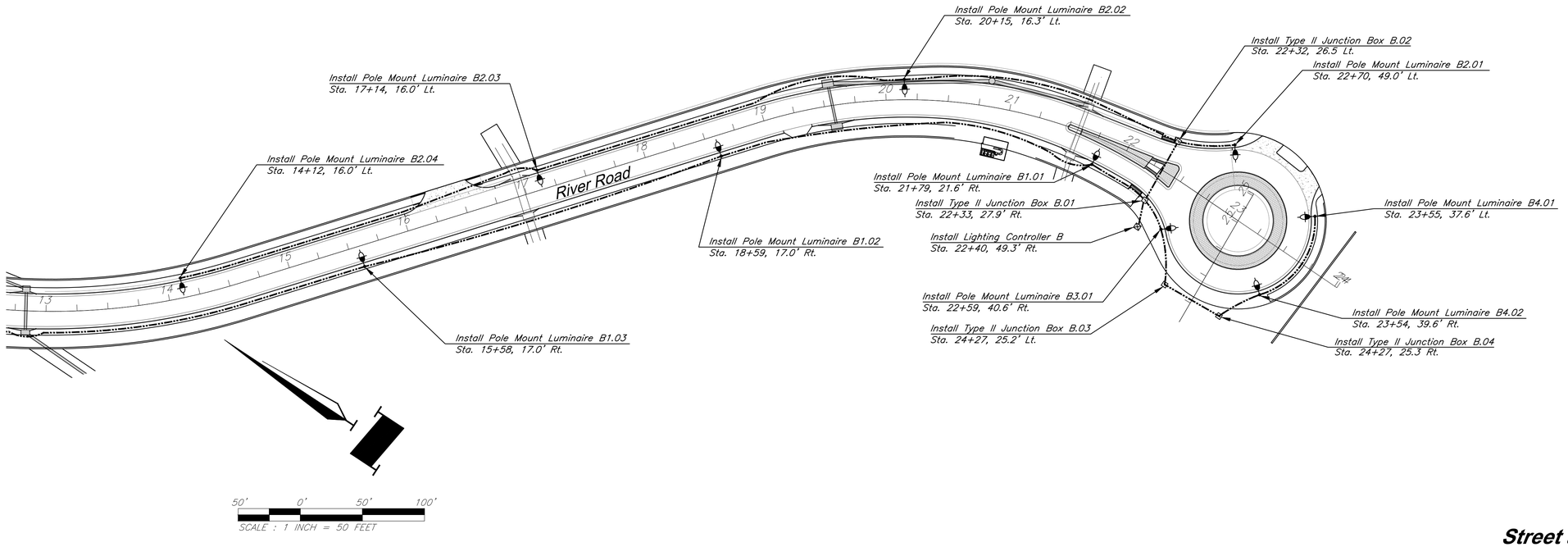
Paragon Star Development

Lee's Summit, Missouri

NO.	DATE	REVISIONS	BY	APPROVED

Street and Lighting Plan





LEGEND

- Pole Mount Luminaire (35' Mt. Ht., 8' Arm Length, 250W LED Equivalent, Type 2 Distribution)
- Pole Mount Luminaire (30' Mt. Ht., 6' Arm Length, LED2-ARW-150W-T2M, Type 2 Distribution)
- Pole Mount Luminaire (30' Mt. Ht., 6' Arm Length, LED2-ARW-150W-T3M, Type 3 Distribution)
- Pole Mount Luminaire (Not Part of Project)
- Secondary Service Point
- Street Light Control Center
- Existing Street Light Control Center
- Junction Box
- Existing Junction Box
- HDPE Conduit
- Existing HDPE Conduit

STATE OF MISSOURI
CHRISTOPHER NOVOSEL
NUMBER PE-2018024421
PROFESSIONAL ENGINEER
9-17-2020

GBA architects engineers
9801 Renner Boulevard
Lenexa, Kansas 66219
913.492.0400
www.gbateam.com

DATE:	6-25-2020
DESIGN BY:	CMN
DRAWN BY:	CMN
PROJECT NO.:	12720
SHEET NO.:	56
TOTAL SHEETS	103

Christopher Novosel
Professional Engineer
License No. 2018024421

Street and Storm Sewer Plans

Paragon Star Development

Lee's Summit, Missouri

NO.	DATE	REVISIONS	BY	APPROVED

Street and Lighting Plan

KCMO GENERAL LIGHTING NOTES

All work shall comply with the Kansas City, MO, Department of Public Works Standard Construction and Materials Specification, Division II Section 2800, Division V Section 5800, supplemental changes and other APWA sections required to restore the City's 'right-of-way' to its original condition.

1.Roadway and Area classifications are Major/Residential. Pavement classification is R3 with a LLF of 0.68 (Major/Residential).

2.The streetlight layout was based on the following:

250W LED (Type C) equivalent: Autobahn #ATB2-60BLEDE70-MVOLT-R2-20-NL-P7-SH (130W LED), Multi-volt, Type II Optics, 20kV SPD, 7 Pin Receptacle, and Dimmable Driver with Shorting Cap or approved equal.

3.Poles shall be a Valmont or approved equal, round tapered galvanized steel. The mounting heights and arms shall be 35ft with an 8ft arm. Poles shall meet APWA Section 2802.18. Poles shall match appearance of existing street lighting poles in the project area.

4.All distribution cable shall be installed in Schedule 40, 2'PVC conduit or in preassembled 'cable-in-duct', except where shown on plans. All conduit runs shall be place 2ft from back of cub where possible and at a minimum depth of 24'.

5.Per APWA Section 5800, all street light poles, materials and controller must be installed within the City's 'Right-of-Way', except where shown on plans.

6.Distribution cable shall be as noted per plans, Type RHH/RHW/USE, 600 Volt, copper stranded and color coded black, red (or black) and green (APWA 2802.10) for a grounded 240Volt system (single phase).

7.Cable used within the poles shall be 3-#10, Type RHW/USE, 600 Volts rated, copper stranded, U.L. listed and color-coded red, black and green according to the NEC.

8.Provide and install in each pole base, 3 single-pole, set-screw, in-line, breakaway, fuseholders. Use Bussman (or approved equal) Model No. HEB-JW-RYC and HEB-JW-RLC-J (last pole). For the 2 "hot" breakaway conductors, place a 10 Amp KTK fuse in each breakaway fuseholder and a NNB Copper Slug in the system ground fuseholder."

9.Individual and system grounds shall be installed on all circuits (pole grounding rods and a ground wire from pole to pole). Grounding shall comply with Section 2803.8 of standards noted above.

10.All conduit crossings shall be indicated with an aluminum marker in the top of curb. Aluminum markers to be furnished and installed by the contractor.

11.The contractor is responsible for making his own determination as to type and location of underground and overhead utilities as may be necessary to avoid damage. The contractor shall verify location of underground pipelines, conduits, structures and overhead lines by contacting the owners of the utilities.

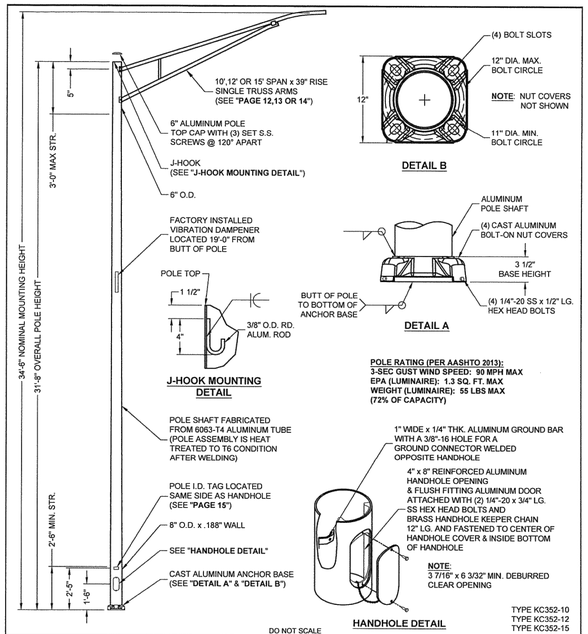
12.The Contractor shall be responsible for all restoration of the construction site to City specifications. The contractor shall also be responsible for all cost associated with any damage, including but not limited to landscaping, sprinkler systems, water, sewer, curbs and sidewalk, gas main, etc.., caused by the construction.

13.All workmanship and materials shall be subject to inspection and approval by the Streetlighting, Public Works Department. Coordinate a final joint inspection with Sara Hurst at (816) 513-9882.

14.Luminaire and Controller Cabinet Labels: The labels shall be KCMO-2X16-ADDS or equal. Contact William Frick & Company at (847) 918-3700. The Contractor shall furnish and install luminaire and controller cabinet identification labels according to the construction plans. Identification labels shall consist of three letters and four numerals in vertical orientation with the letters at the top so as to read downward. Legend shall be 2 inch series 'C' upper case black characters on silver retro-reflective sheeting with pressure sensitive adhesive backing, as prescribed for use on standard highways signs in the FHWA Manual of Uniform Traffic Control Devices. Labels must be coordinated with the Streetlighting Section at (816) 513-9500.

Steel poles shall be labeled by affixing self-adhesive decal directly on the pole. The label shall be position on the vertical axis of the pole facing the street and 8-10 feet above the pavement surface. Labels on cabinets shall be positioned near the top of the door adjacent to the door hinge.

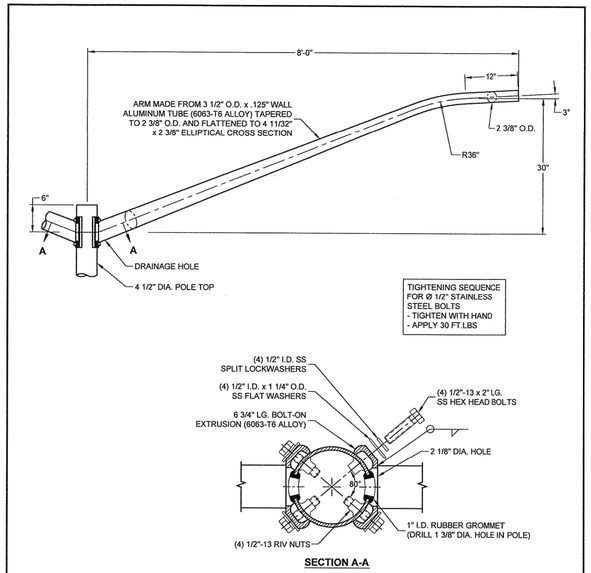
15.The contractor shall install a cable retainer assembly mounted between a luminaire type pole and foundation anchor. The retainer is designed to secure the electrical conductors to prevent conductor theft. Contact PELCO at (405) 562-4680 for information and material.



DO NOT SCALE

valmont	TITLE: S ANCHOR BASE ALUMINUM POLE
Valmont Industries, Inc. Structures Division 20805 Eaton Ave Farmington, Minnesota 55024-7932 Phone: (651) 463-8990 (800) 899-7577 Fax: (651) 463-3349	MODEL NO.: 310860806T4A MATERIAL: ALUMINUM ALLOY FINISH: 100 GRIT SATIN POLISH PROJECT: SOLD TO: CITY OF KANSAS CITY, MO SHIP TO: P.O. NO: REP: POWER EQUIPMENT SALES
CONFIDENTIAL The information contained in this drawing is privileged and confidential, and may be protected from disclosure. Please be aware that any use or dissemination of this drawing may be subject to legal restriction or sanction.	REV DATE REVISION DESCRIPTION BY

QTY:
DWN BY: HJT
CHKD BY:
APPR BY: JSB
DATE: 06-26-18
DWG NO: DSKC
PAGE: 5 / 15



DO NOT SCALE

valmont	TITLE: S 8' x 30" x 3.5" SGL OR DBL MAST ARM 4.5"
Valmont Industries, Inc. Structures Division 20805 Eaton Ave Farmington, Minnesota 55024-7932 Phone: (651) 463-8990 (800) 899-7577 Fax: (651) 463-3349	MODEL NO.: (1) OR (2) MA0830B45D MATERIAL: ALUMINUM ALLOY FINISH: 100 GRIT SATIN POLISH PROJECT: SOLD TO: CITY OF KANSAS CITY, MO SHIP TO: P.O. NO: REP: POWER EQUIPMENT SALES
CONFIDENTIAL The information contained in this drawing is privileged and confidential, and may be protected from disclosure. Please be aware that any use or dissemination of this drawing may be subject to legal restriction or sanction.	REV DATE REVISION DESCRIPTION BY

QTY:
DWN BY: HJT
CHKD BY:
APPR BY: JSB
DATE: 06-26-18
DWG NO: DSKC
PAGE: 10 / 15

KCMO Street Lighting Details

PACIFIC UTILITY PRODUCTS
2950 E. PHILADELPHIA ST. ONTARIO CA 91761

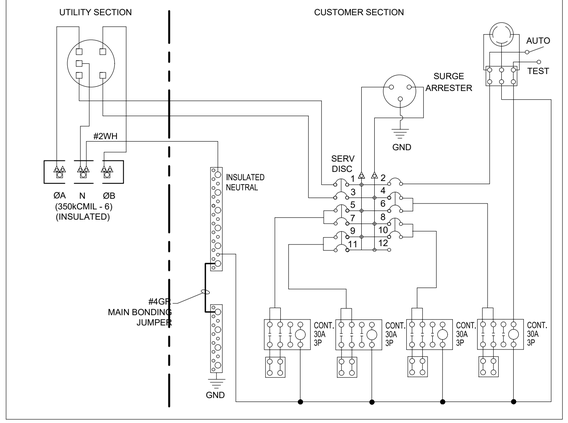
FAL147001A
S.O. SE

INDUSTRIAL CONTROL - RAINPROOF / OUTDOOR TYPE 3R
SUITABLE FOR USE AS SERVICE EQUIPMENT
BONDED NEUTRAL REMOVE BONDING MEANS FOR TEST PURPOSES ONLY

CAT.NO. USP16R-M2100-112C-KDOT-MOD 120/240VAC 1-PHASE 60Hz 3-WIRE 100 AMPS

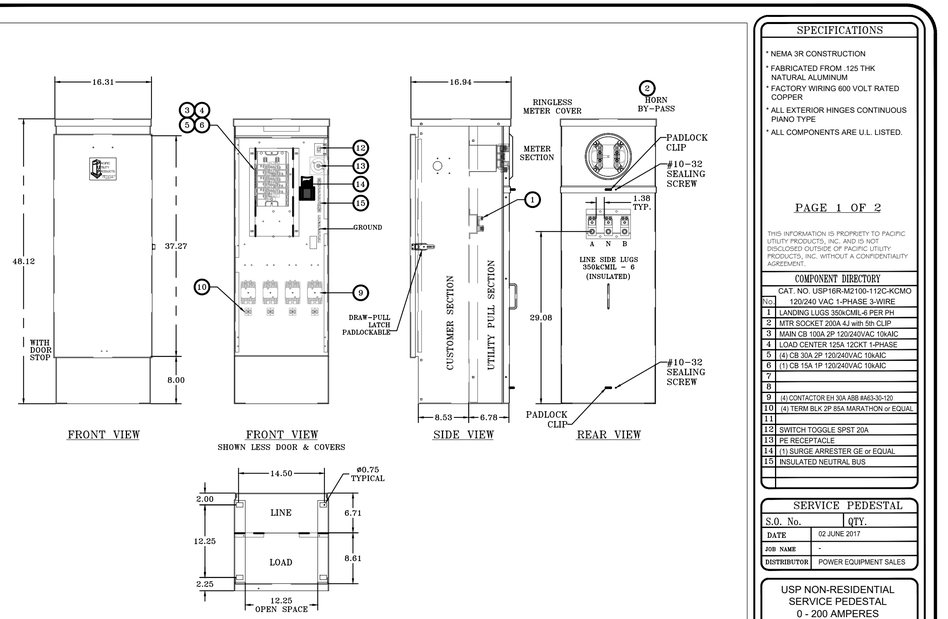
SHORT CIRCUIT RATING: 10,000 RMS SYMMETRICAL AMPS @ 240 VAC MAX.
HOWEVER, THIS SHORT CIRCUIT RATING IS LIMITED TO THE LOWEST INTERRUPTING CAPACITY ON ANY DEVICE INSTALLED.

*MAIN SERVICE DISCONNECT:100 AMPS CUTLER-HAMMER TYPE BR, BRH.
*CIRCUIT BREAKERS 90 AMPS OR LESS: CUTLER-HAMMER TYPE BR, BRH, BD, BQ, GFCB. REPLACEMENT BREAKER(S) MUST BE SAME TYPE AND RATING.
*AUTOMATIC TRIP IS INDICATED BY HANDLE POSITION MIDWAY BETWEEN (ON) AND (OFF). TO RESTORE POWER MOVE HANDLE TO (OFF), THEN (ON).
*METER SOCKET: DURHAM, 200 AMPS CONTINUOUS.
*LOAD CENTER IS SUITABLE FOR USE WITH 60/75 DEGREE C COPPER OR ALUMINUM WIRE.
*LOAD CENTER IS LIMITED TO A MAXIMUM OF 12 INSTALLED CIRCUITS THAT UTILIZE A NEUTRAL CONNECTION, EITHER SINGLE POLE, MULTI-POLE, OR A COMBINATION OF EACH.
*SHIPPING TENDS TO LOOSEN ELECTRICAL CONNECTIONS - TIGHTEN ALL CONNECTIONS BEFORE ENERGIZING UNIT.



NO.	AMP.	POLE	DESCRIPTION
1-3	100	2	SERVICE DISCONNECT
5-7	30	2	LIGHTING
9-11	30	2	LIGHTING
2	15	1	PE CONTROL
4-6	30	2	LIGHTING
8-10	30	2	LIGHTING

*** TORQUE INFORMATION
□ 350MCM - 6 CU/AL 325 IN.LB.
△ #14-1/0 CU/AL 50 IN.LB.
*** NEUTRAL & EQUIPMENT GROUND-SINGLE CONDUCTOR
○ #14-1/0 CU/AL #3-1/0 50 IN.LB.
#6-4 45 IN.LB.
#8 40 IN.LB.
#14-10 25 IN.LB.
◦ #14-6 CU/AL #6 35 IN.LB.
#8 25 IN.LB.
#14-10 20 IN.LB.
*** EQUIPMENT GROUND-MULTIPLE CONDUCTOR
○ (2 OR 3) #10,12,14 CU/AL 45 IN.LB.
◦ (2) #12,14 CU/AL 20 IN.LB.
*** FIELD INSTALLED DEVICES-TORQUE TO VALUES INDICATED ON OR WITH DEVICE



FAL147001A

REVISED BY: BF 1/25/2018

SPECIFICATIONS

* NEMA 3R CONSTRUCTION
* FABRICATED FROM .125 THK NATURAL ALUMINUM
* FACTORY WIRING 600 VOLT RATED COPPER
* ALL EXTERIOR HINGES CONTINUOUS PIANO TYPE
* ALL COMPONENTS ARE U.L. LISTED.

PAGE 1 OF 2

COMPONENT DIRECTORY

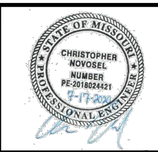
No.	CAT. NO. USP16R-M2100-112C-KCMO 120/240 VAC 1-PHASE 3-WIRE
1	LANDING LUGS 350kCMIL-6 PER PH
2	MTR SOCKET 200A 4J with 5th CLIP
3	MAIN CB 100A 2P 120/240VAC 10kAIC
4	LOAD CENTER 125A 12CKT 1-PHASE
5	(4) CB 30A 2P 120/240VAC 10kAIC
6	(1) CB 15A 1P 120/240VAC 10kAIC
7	
8	
9	(4) CONTACTOR EH 30A A9B #A63-30-120
10	(4) TERM BLK 2P 85A MARATHON or EQUAL
11	
12	SWITCH TOGGLE SPST 20A
13	PE RECEPTACLE
14	(1) SURGE ARRESTER GE or EQUAL
15	INSULATED NEUTRAL BUS

SERVICE PEDESTAL

S.O. No.	QTY.
DATE	02 JUNE 2017
JOB NAME	-
DISTRIBUTOR	POWER EQUIPMENT SALES

USP NON-RESIDENTIAL
SERVICE PEDESTAL
0 - 200 AMPERES
0 - 600 VOLTS

PACIFIC
UTILITY
PRODUCTS
2950 E. PHILADELPHIA ST.
ONTARIO CALIFORNIA 91761



GBA
architects
engineers
9801 Renner Boulevard
Lenexa, Kansas 66219
913.492.0400
www.gbateam.com

DATE:	6-25-2020
DESIGN BY:	CMN
DRAWN BY:	CMN
PROJECT NO.:	12720
SHEET NO.	57
TOTAL SHEETS	103

Christopher Novosel
Professional Engineer
License No. 2018024421

Street and Storm Sewer Plans
Paragon Star Development
Lee's Summit, Missouri

NO.	DATE	REVISIONS	BY	APPROVED

STATE OF MISSOURI
CHRISTOPHER NOVOSEL
NUMBER PE-2018024421
PROFESSIONAL ENGINEER
9-17-2020

GBA architects engineers
9801 Renner Boulevard
Lenexa, Kansas 66219
913.492.0400
www.gbateam.com

Christopher Novosel
Professional Engineer
License No. 2018024421

DATE:	6-25-2020
DESIGN BY:	DJM
DRAWN BY:	CMN
PROJECT NO.:	12720
SHEET NO.	58
TOTAL SHEETS	103

Street and Storm Sewer Plans

Paragon Star Development

Lee's Summit, Missouri

NO.	DATE	REVISIONS	BY	APPROVED

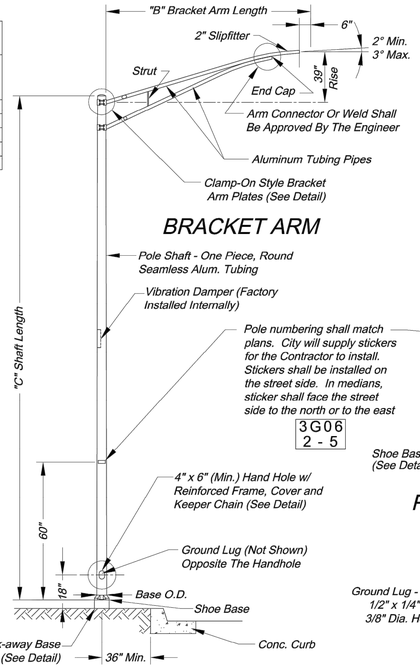
STREET LIGHT POLE, BRACKET ARM, AND BREAK-AWAY BASE

POLE TYPE	MOUNTING HEIGHT (A)	BRACKET ARMS		POLE SHAFT				SHOE BASE	ANCHOR BOLTS		
		LENGTH (B)		BASE O.D.	TOP O.D.	MIN. WALL THICKNESS	SHAFT LENGTH (C)	BOLT CIRCLE (BC)	DIAMETER	LENGTH	HOOK
		ARM 1	ARM 2								
P14	14'	-	-	6"	3"	0.156"	14'-0"	9.5"	0.75" 10NC	25"	3"
P30S	30'	6' or 10'	-	8"	6"	0.188"	26'-6" ±2"	11.0"	1.00" 8NC	36"	4"
P30D	30'	6' or 10'	6' or 10'	8"	6"	0.219"	26'-6" ±2"	11.0"	1.00" 8NC	36"	4"
P40S	40'	6', 10' or 15'	-	8"	6"	0.219"	36'-6" ±2"	11.5"	1.00" 8NC	36"	4"
P40D	40'	6', 10' or 15'	6', 10' or 15'	10"	6"	0.219"	36'-6" ±2"	14.5"	1.00" 8NC	48"	4"

NOTES:
1. All poles, arms, and miscellaneous equipment shall conform to these details and as specified by the latest city standard specifications.
2. Pole shaft shall have a satin ground finish.
3. All hardware (bolts, nuts, washers but not including anchor bolts) not otherwise specifically designated in the specifications or details shall be 300-series stainless steel conforming to ASTM A193 or A194.
4. Anchor bolts shall be used with concrete bases. Anchor bolts shall be steel with 50,000 PSI minimum yield; top 10" min. galvanized; including 8 nuts and 8 flat washers galvanized to ASTM A153 standards. Galvanized hex head bolts (see pole foundation sheet) shall be used with screw-in anchor bases. 4 bolts, 4 nuts and 8 flat washers to provided with each anchor.
5. All welding is to be done with 4043 weld wire. All arms and shafts are to be heat-treated to T6 temper after welding.
6. Anchor bolts shall project above the concrete base as per manufacturer's recommended practices, 2 ½ " to 3".
7. The aluminum street light pole assembly, including anchorage and luminaire, shall comply with the latest city standard specifications and the American Association of State Highway and Transportation Officials (AASHTO) load wind loading.
8. All poles and arms shall be clearly identified by the manufacturer's name, abbreviation, or symbol engraved on the shaft, shoe base, hand hole, or other means such as to be readily visible after installation.

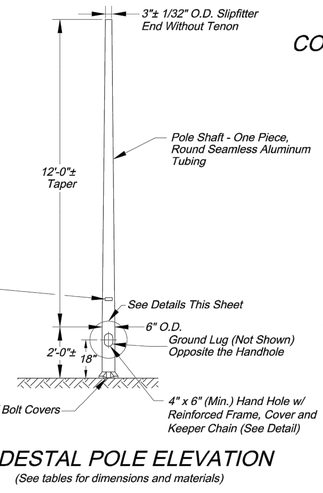
MATERIAL DATA

COMPONENT	ALUMINUM ALLOY DESIGNATION	SPECIFICATION
Shoe Base	356-T6, Cast	ASTM B26 or B108
Breakaway Base	356-T6, Cast	ASTM B108
Bolt Covers	356 or 360, Cast	ASTM B26 or B108
Pole Shaft	6063-T6, Extruded	ASTM B221 or B241
Ground Lug	6061-T5 or 6063-T6, Plate	ASTM B221
Reinforced Handhole Frame	356-T6 or 6061-T6	ASTM B26, B108 or B221
Handhole Cover	6063-T6	ASTM B209, B221 or B241
Bracket Arm & Tubing Pipes	6063-T6	ASTM B221, B241 or B249
Bracket Arm Mounting Plates	6061-T6 or 6063-T6 Extruded	ASTM B221
Bracket Arm Strut & Arm Connector	6061-T6 or 6063-T6 Extruded	ASTM B221, B241 or B249
Pole Cap	356, Cast	ASTM B26 or B108
Anchor Bolts	N/A	Galvanized per ASTM A153

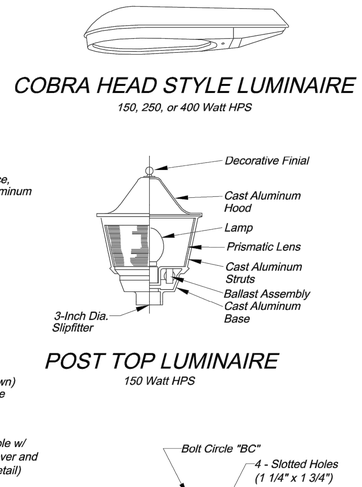


BRACKET ARM

POLE ELEVATION
(See tables for dimensions and materials)

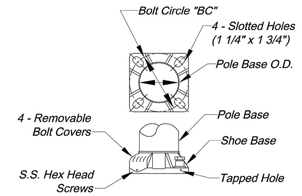


PEDESTAL POLE ELEVATION
(See tables for dimensions and materials)

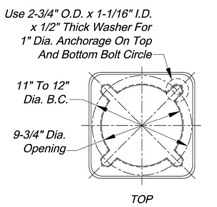


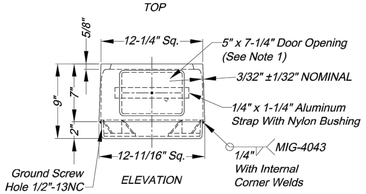
COBRA HEAD STYLE LUMINAIRE
150, 250, or 400 Watt HPS

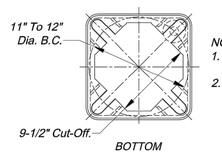
POST TOP LUMINAIRE
150 Watt HPS



SHOE BASE

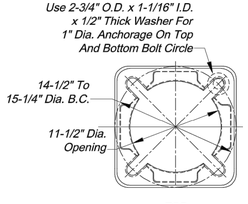


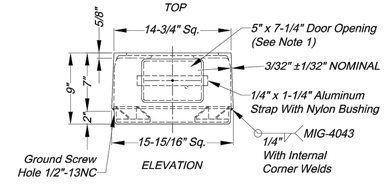


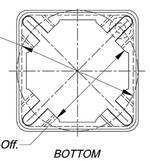


NOTES:
1. Door shall be on the same side of the pole as the hand hole.
2. Base Conforms to Breakaway Criteria Of AASHTO Standard Specifications For Structural Supports For Highway Signs, Luminaires And Traffic Signals (1994).

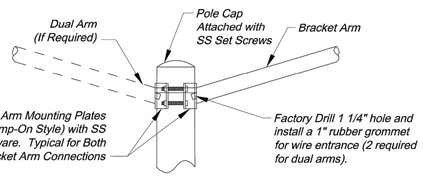
11" BREAK-AWAY BASE



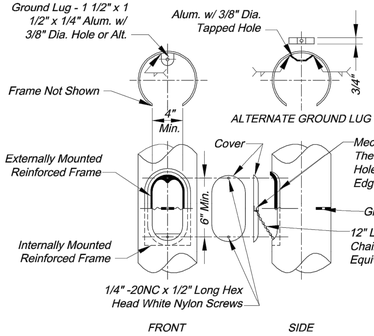




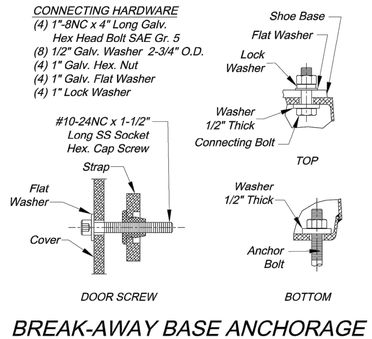
15" BREAK-AWAY BASE



BRACKET ARM MOUNTING



HAND HOLE



BREAK-AWAY BASE ANCHORAGE

CITY OF LEE'S SUMMIT
PUBLIC WORKS DEPARTMENT
ENGINEERING DIVISION
220 SE GREEN STREET
LEE'S SUMMIT, MISSOURI 64063
PHONE: (816) 969-1800 FAX: (816) 969-1809

Project:

POLE AND LUMINAIRE DETAILS

Sheet Name: STANDARD DRAWING SL-1

Drawn By: JH
Checked By: JW
Date: 08/21/2009

1 OF 5

1

STATE OF MISSOURI
CHRISTOPHER NOVOSEL
NUMBER PE-2018024421
PROFESSIONAL ENGINEER
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GBA
architects
engineers
9801 Renner Boulevard
Lenexa, Kansas 66219
913.492.0400
www.gbateam.com

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License No. 2018024421

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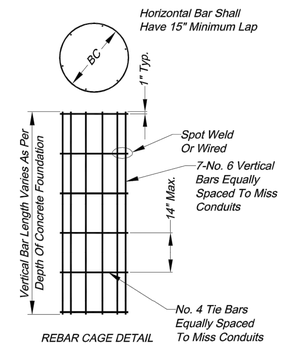
DRAWN BY:	CMN
PROJECT NO.:	12720
SHEET NO.	59
TOTAL SHEETS	103

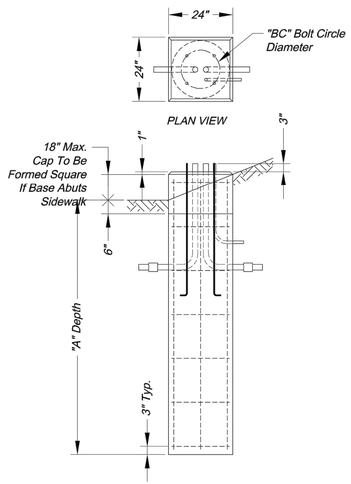
Street and Storm Sewer Plans
Paragon Star Development
Lee's Summit, Missouri

NO.	DATE	REVISIONS	BY	APPROVED

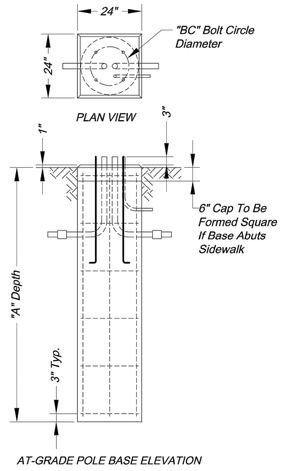
POLE TYPE	BRACKET ARM	DEPTH (A)	BOLT CIRCLE (BC)
P14	---	48"	9.5"
P30S or P30D	Single or Dual	72"	11.0"
P40S	Single	94"	11.5"
P40D	Dual	94"	14.5"



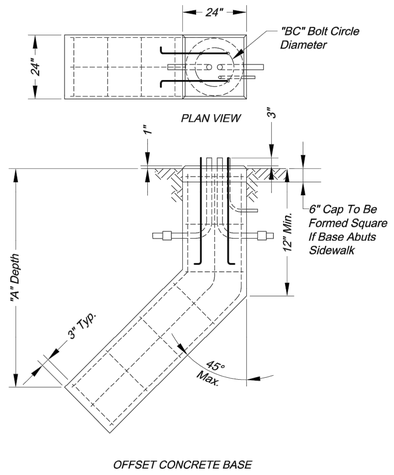
REBAR CAGE DETAIL



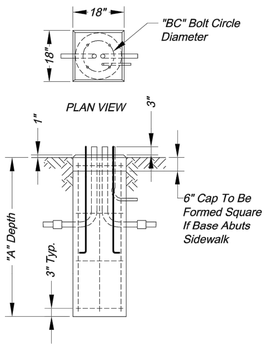
RAISED POLE BASE ELEVATION



AT-GRADE POLE BASE ELEVATION



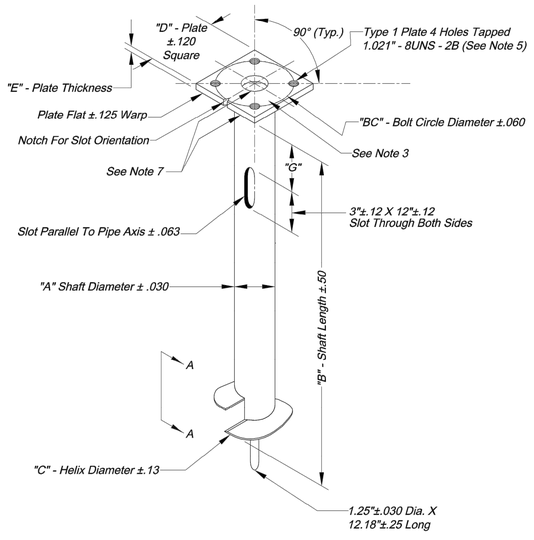
OFFSET CONCRETE BASE



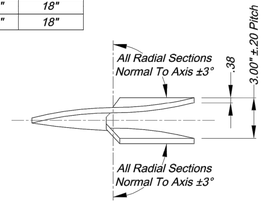
PEDESTAL POLE BASE

CONCRETE BASE DETAILS

BASE TYPE	POLE TYPE	MINIMUM TORQUE RATING (lbs. ft.)	MAXMUM TORQUE RATING (lbs. ft.)	SHAFT DIA. (A)	SHAFT LENGTH (B)	HELIX DIA. (C)	PLATE SIZE (D)	PLATE THICKNESS (E)	BOLT CIRCLE (BC)	SLOT LOCATION (G)
B14	P14	2,000	15,000	6"	48"	12"	10"	0.75"	9.5"	12"
B30	P30S & P30D	2,000	15,000	6"	60"	12"	12"	1.0"	11.0"	18"
B40S	P40S	2,000	20,000	8"	60"	14"	12"	1.0"	11.5"	18"
B40D	P40D	2,000	20,000	8"	60"	14"	15"	1.25"	14.5"	18"

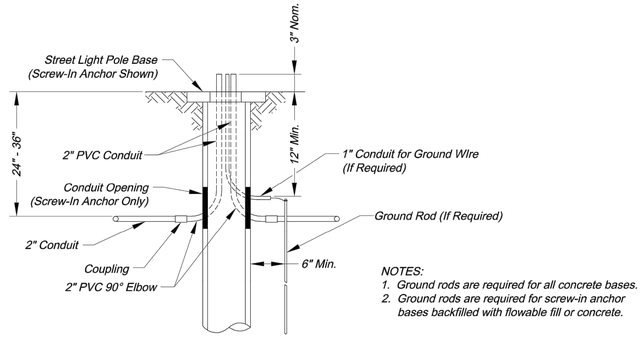


SCREW-IN ANCHOR BASE DETAILS



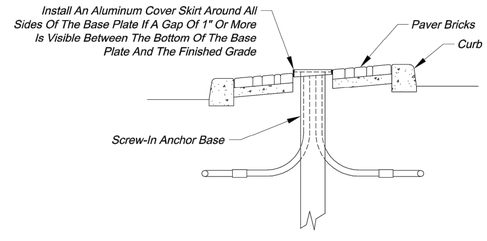
Helix Must Be Formed By Matching Metal Die
SECTION A-A

NOTES:
1. Finish: Hot dip galvanize per ASTM-A153 (latest revision).
2. Baseplate to be perpendicular to shaft axis (±1°) and hole and concentric (±.188 I.D. Fim) to shaft axis.
3. All bases shall be identified by the manufacturer's initials and the anchor type (1 or 2) permanently stamped into the top plate with 1/2" letters., the Julian date of manufacture shall be permanently stamped in 1/4" numerals.
4. Pilot point and shaft axes to be concentric (±.125 Fim) and in line (±2°).
5. Tap 1" holes on the specified bolt circle perpendicular to the baseplate. Clean and chase the threads after hot-dip galvanizing so that a bolt may be installed.
6. Preheat (room temperature 70°F), tumbleblast, handgrind, and clean baseplate, helix, and core on all weld areas.
7. Flame cut irregularities permissible:
   (1) Valleys not to exceed 3/32 in. below nominal surface level.
   (2) Peaks or positive irregularities not to exceed 1/32 in. above nominal surface level or intersections of nominal surfaces.
8. Manufacturer to have in effect industry recognized written quality control for all materials and manufacturing processes.
9. All material is to be new, unused and mill traceable meeting the following specifications:
   - Baseplate: ASTM A36-(latest revision) hot rolled steel plate (conform to AASHTO technical bul. #270).
   - Shaft: Steel pipe piles, seemless or straight welded, grade 2 per ASTM A252. Alternate material: pipe type E or S, grade B per ASTM A53.
   - Helix: ASTM A635-(latest revision) hot rolled steel plate
   - Pilot Point: ASTM A575-(latest revision) hot rolled steel
   - Bolt: ASTM A325 or Grade 5 SAE J429 - 1" diameter hot dip galvanized hex head bolt. Bolt shall include one each lock and flat washer.
10. The design and performance integrity of the foundation shall be verified by full-scale tests by qualified engineers independent of the manufacturer. Certified test reports shall be provided upon request.
11. Flame cut notch or projection will be on the base plate to indicate slot orientation.



NOTES:
1. Ground rods are required for all concrete bases.
2. Ground rods are required for screw-in anchor bases backfilled with flowable fill or concrete.

CONDUIT ENTRANCE AND GROUNDING



COVERSKIRT REQUIREMENTS

CITY OF LEE'S SUMMIT
PUBLIC WORKS DEPARTMENT
ENGINEERING DIVISION
220 SE GREEN STREET
LEE'S SUMMIT, MISSOURI 64063
PHONE: (816) 969-1800 FAX: (816) 969-1809

Project:
POLE BASE DETAILS
Sheet Name: STANDARD DRAWING SL-2

Drawn By: JH
Checked By: JW
Date: 08/21/2009

2 OF 5

2

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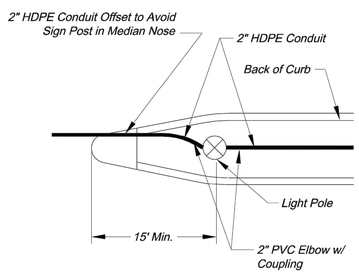
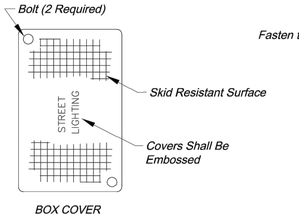
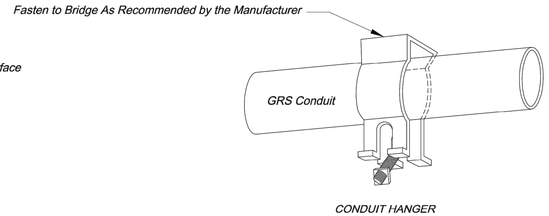


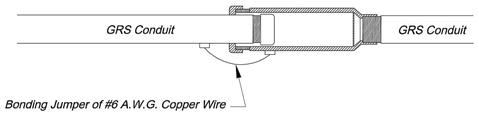
STREET LIGHT POLE IN MEDIAN



BOX COVER



CONDUIT HANGER



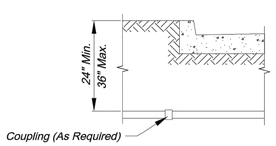
EXPANSION FITTING

GRS CONDUIT DETAILS

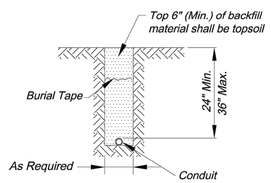
NOTES:
1. All conduits installed above ground shall be GRS.
2. Conduit attached to bridges shall have expansion fittings installed at each end of the bridge and at each expansion joint on the bridge.
3. All GRS conduits shall be electrically bonded by a grounding bushing and ground wire as detailed.
4. Install the conduit and connector assembly to permit a 1/2" minimum longitudinal travel in either direction.

CONDUIT MARKING DETAIL

NOTES:
1. An aluminum marker shall be placed in the top of the curb directly over the conduit.
2. Markers shall be installed by drilling the curb and expoxying the marker in place. If installed in a sidewalk or curb ramp, the top of the marker shall be flush with the concrete surface.
3. No direct payment shall be made for conduit markers; they are subsidiary to the installation of conduit.



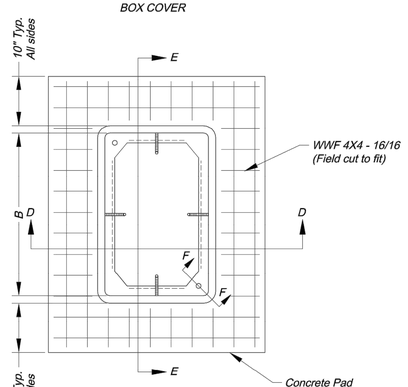
BORED CONDUIT



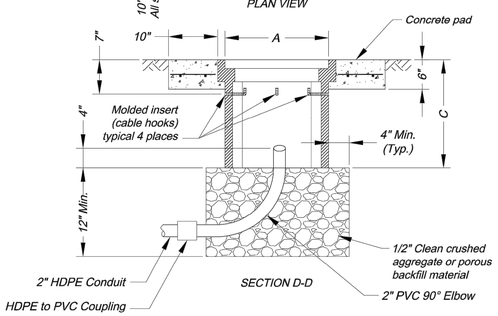
TRENCHED OR PLOWED CONDUIT

CONDUIT LOCATIONS

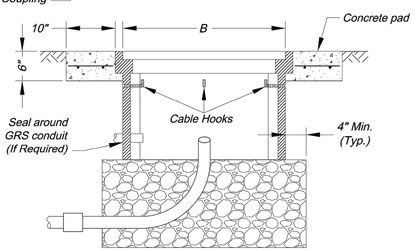
NOTES:
1. Backfill under paved surfaces shall be flowable fill.
2. The conduit shall not be covered unless inspected and approved by the City Engineer, so as to ensure proper depth, correct conduit material, and proper conduit end treatment.



PLAN VIEW



SECTION D-D

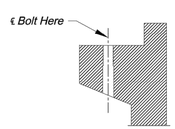


SECTION E-E

PULL OR JUNCTION BOX DETAILS

Number of Entering/Exiting Conduits	Box Type	Minimum Box Dimensions		
		A	B	C
1 - 2	Type 1 Junction Box	12"	12"	12"
3 - 4	Type 2 Junction Box	12"	18"	12"
> 4	Class 1 Pull Box	17"	30"	22"

All dimensions shown are nominal



SECTION F-F

NOTES:
1. Lift opening required on all covers.
2. Preformed box walls may be either flared or vertical. The bottom of boxes shall be open to below.
3. If an extension is used with a preformed box, the lip of the extension may be interior or exterior. The extension shall be compatible and from the same manufacturer.
4. Cable hooks are to be included with Class 1 Pull Boxes only.
5. A Class 1 Pull Box shall be installed adjacent to each 4-Circuit Power Supply.

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PUBLIC WORKS DEPARTMENT
ENGINEERING DIVISION
220 SE GREEN STREET
LEE'S SUMMIT, MISSOURI 64063
PHONE: (816) 969-1800 FAX: (816) 969-1809

Project:

BOX AND CONDUIT DETAILS

Sheet Name: STANDARD DRAWING SL-3

Drawn By: JH
Checked By: JW
Date: 08/21/2009

3 OF 5

3

Lee's Summit Street Lighting Details 4 of 5

GBA architects engineers
9801 Renner Boulevard
Lenexa, Kansas 66219
913.492.0400
www.gbateam.com

DATE:	6-25-2020
DESIGN BY:	DJM
DRAWN BY:	CMN
PROJECT NO.:	12720
SHEET NO.	61
TOTAL SHEETS	103

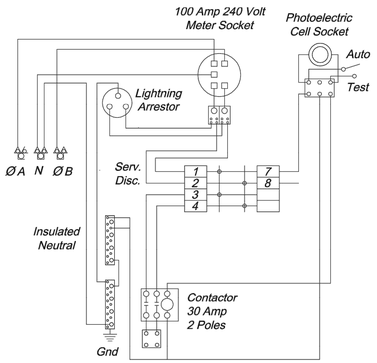
Christopher Novosel
Professional Engineer
License No. 2018024421

Street and Storm Sewer Plans

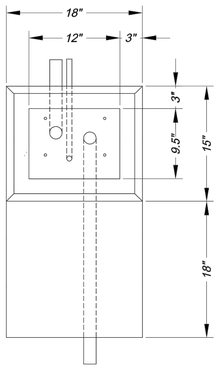
Paragon Star Development

Lee's Summit, Missouri

NO.	DATE	REVISIONS	BY	APPROVED

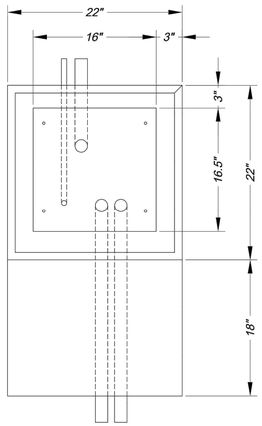


WIRING SCHEMATIC

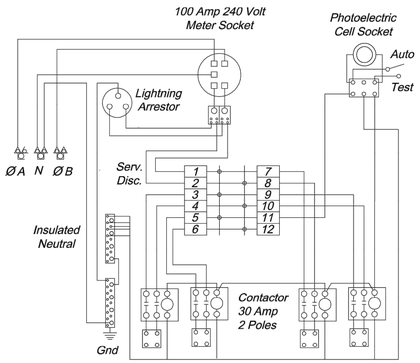


PLAN VIEW

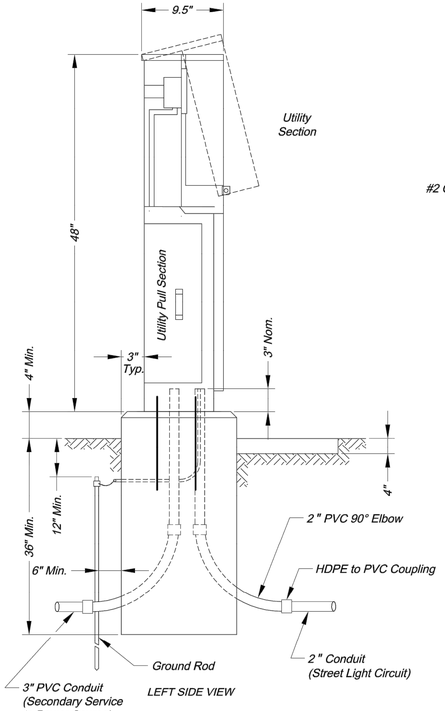
FUSED CONTACTORS ARE NOT PERMITTED



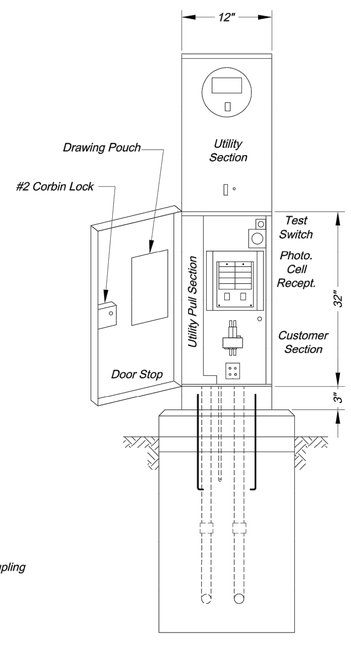
PLAN VIEW



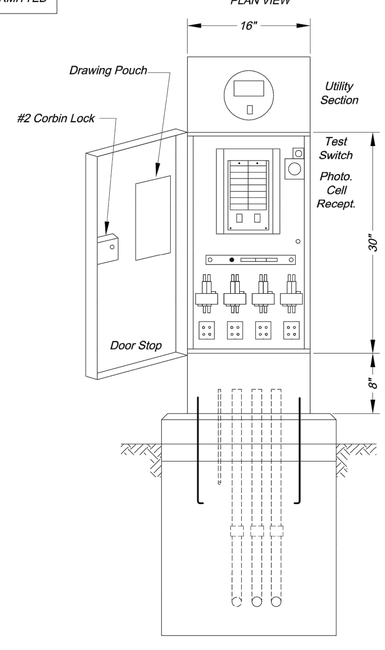
WIRING SCHEMATIC



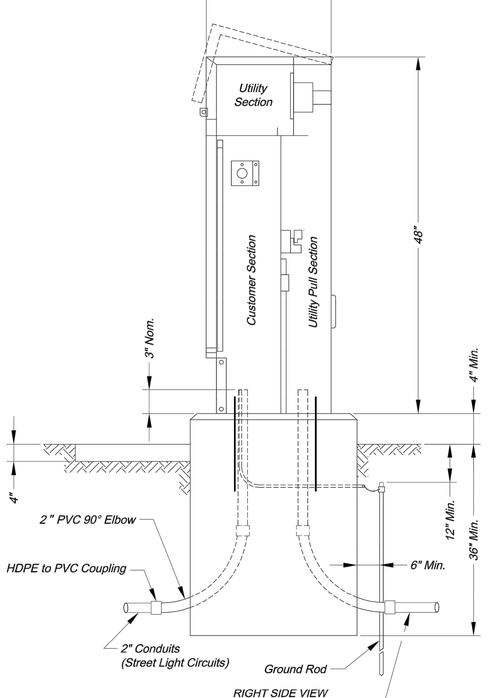
LEFT SIDE VIEW



FRONT VIEW



FRONT VIEW



RIGHT SIDE VIEW

1 - CIRCUIT POWER SUPPLY

4 - CIRCUIT POWER SUPPLY

NOTES:
1. Photoelectric cell should be oriented to the north or east.
2. Seal around joint between cabinet and base with lifetime silicone caulk.
3. All exposed edges of the base should have a 1" chamfer
4. If base is adjacent to a traffic signal controller, raised portion of base (above finished grade) should be constructed to the same height as the signal controller base.
5. The street address with the power supply number below it should be labeled on the upper portion of the cabinet facing the street. The City will supply stickers for the Contractor to install.

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PUBLIC WORKS DEPARTMENT
ENGINEERING DIVISION
220 SE GREEN STREET
LEE'S SUMMIT, MISSOURI 64063
PHONE: (816) 969-1800 FAX: (816) 969-1809

Project:

POWER SUPPLY DETAILS

Street Name: STANDARD DRAWING SL-4

Drawn By: JH
Checked By: JW
Date: 08/21/2009

4 OF 5

4

CHRISTOPHER NOVOSEL
NUMBER PE-2018024421
PROFESSIONAL ENGINEER
STATE OF MISSOURI
9-17-2020

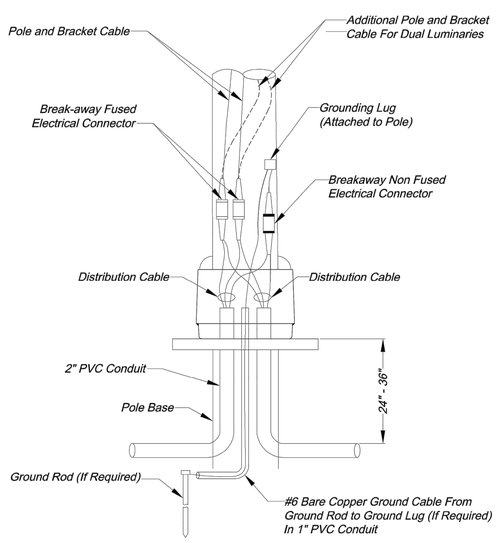
GBA
architects
engineers
9801 Renner Boulevard
Lenexa, Kansas 66219
913.492.0400
www.gbateam.com

Christopher Novosel
Professional Engineer
License No. 2018024421

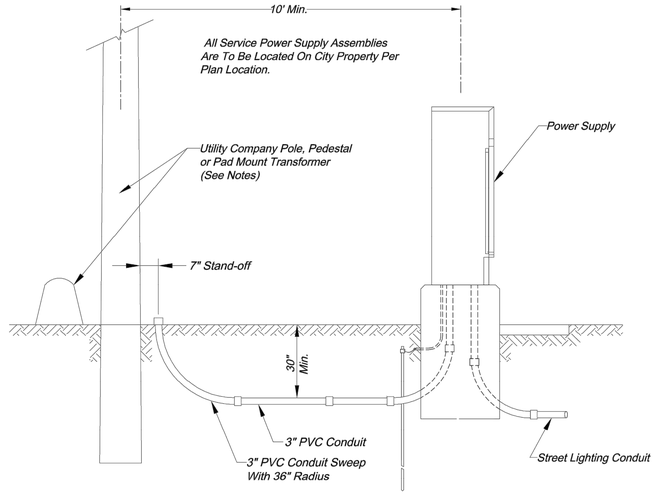
DATE:	6-25-2020
DESIGN BY:	DJM
DRAWN BY:	CMN
PROJECT NO.:	12720
SHEET NO.	62
TOTAL SHEETS	103

Street and Storm Sewer Plans
Paragon Star Development
Lee's Summit, Missouri

NO.	DATE	REVISIONS	BY	APPROVED

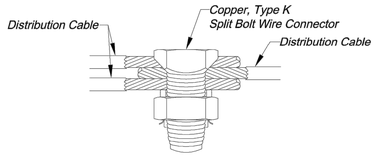


POLE WIRING DETAILS



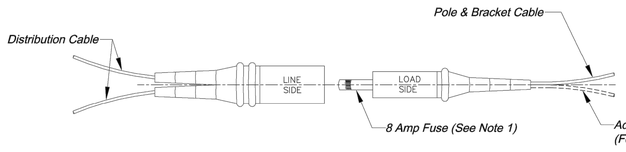
SECONDARY SERVICE CONNECTION DETAILS

NOTES:
1. Contractor shall install a conduit stub 24" to 6" above ground at utility poles. Conduit shall be stubbed to the side of the pole that will allow a direct run up the pole to the transformer without crossing other utility lines or cables. The end of the conduit shall be capped.
2. Contractor shall install conduit in a trench to within 24" of pedestals or pad mount transformers and leave a 36" x 36" x 36" access hole in the ground. Contractor shall keep open trench covered and promptly backfill access hole when service is completed.

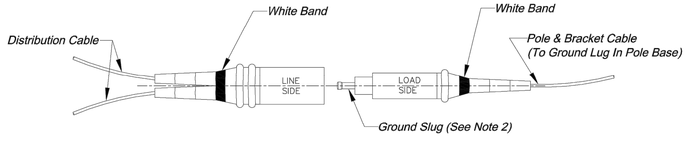


SPLICE KIT DETAILS

NOTES:
1. To be used only in junction or pull boxes where circuits branch or "tee".
2. All splices shall be protected with a resin splice kit (not shown) installed in accordance with the manufacturer's recommendations.

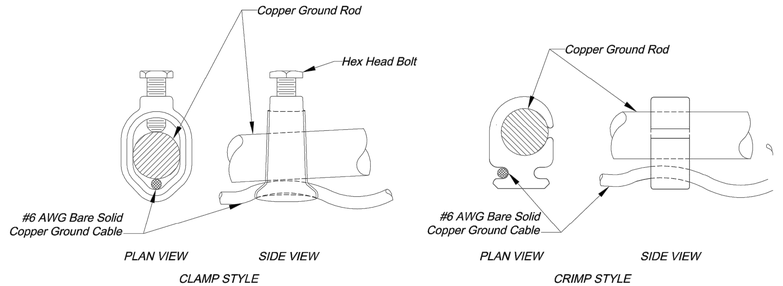


BREAK-AWAY FUSED ELECTRICAL CONNECTORS



BREAK-AWAY NON FUSED ELECTRICAL CONNECTOR

NOTES:
1. Fuse remains in "Load Side" after break-away.
2. Ground "Slug" remains in "Load Side" after break-way.
3. Connectors shall have set screw type terminals to attach cables.



GROUND ROD CONNECTION DETAILS

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PUBLIC WORKS DEPARTMENT
ENGINEERING DIVISION
220 SE GREEN STREET
LEE'S SUMMIT, MISSOURI 64063
PHONE: (816) 969-1800 FAX: (816) 969-1809

Project:

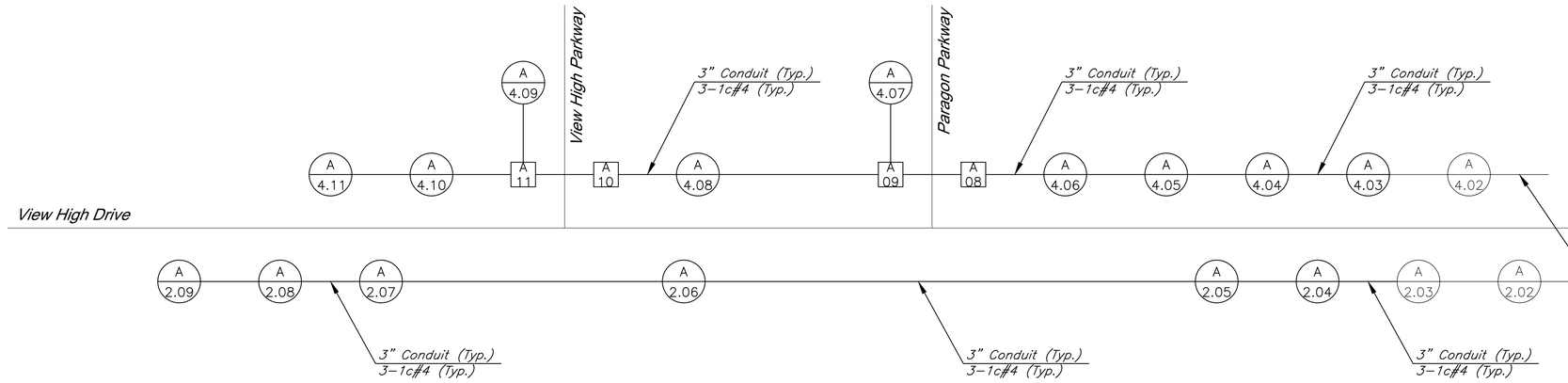
ELECTRICAL DETAILS

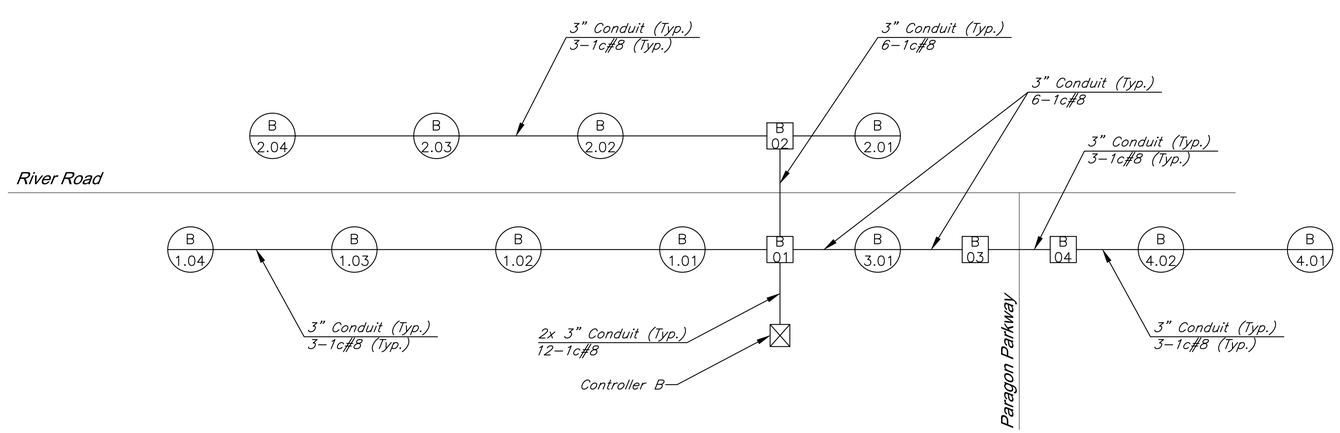
Sheet Name: STANDARD DRAWING SL-5

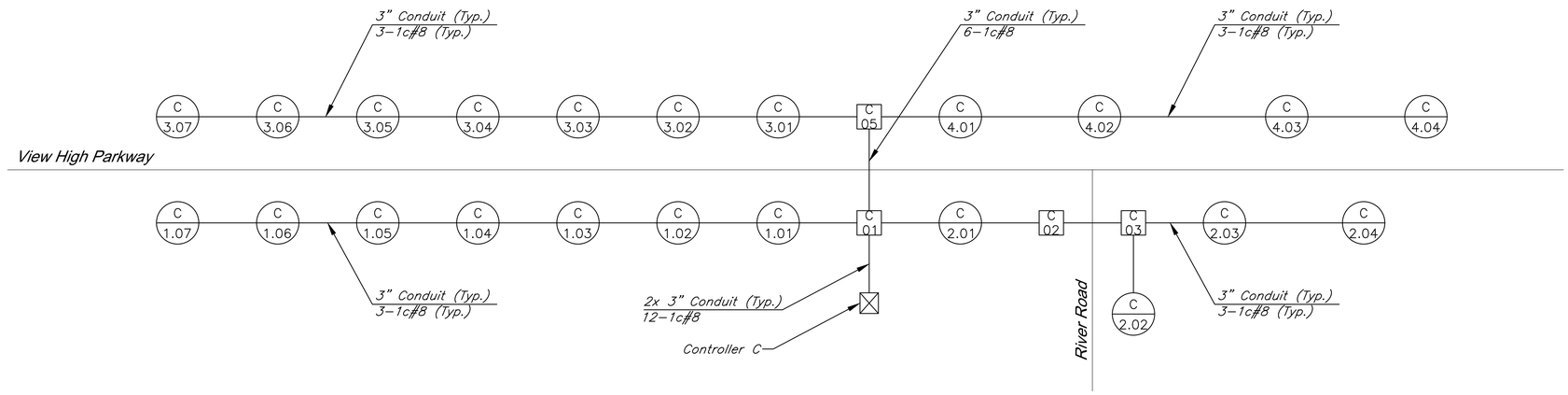
Drawn By: JH
Checked By: JW
Date: 08/21/2009

5 OF 5

5







LEGEND

- A 2.01 — Controller / Circuit/Luminaire Number
- 01 — Junction Box
- Secondary Service Point
- Control Center
- 01 — Existing Junction Box
- Existing Secondary Service Point
- Existing Control Center
- A 2.01 — Existing Luminaire

STATE OF MISSOURI
CHRISTOPHER NOVOSEL
NUMBER PE-2018024421
PROFESSIONAL ENGINEER
9-17-2020

GBA
architects
engineers
9801 Renner Boulevard
Lenexa, Kansas 66219
913.492.0400
www.gbateam.com

DATE:	6-25-2020
DESIGN BY:	CEL
DRAWN BY:	DRV
PROJECT NO.:	12720
SHEET NO.	63
TOTAL SHEETS	103

Christopher Novosel
Professional Engineer
License No. 2018024421

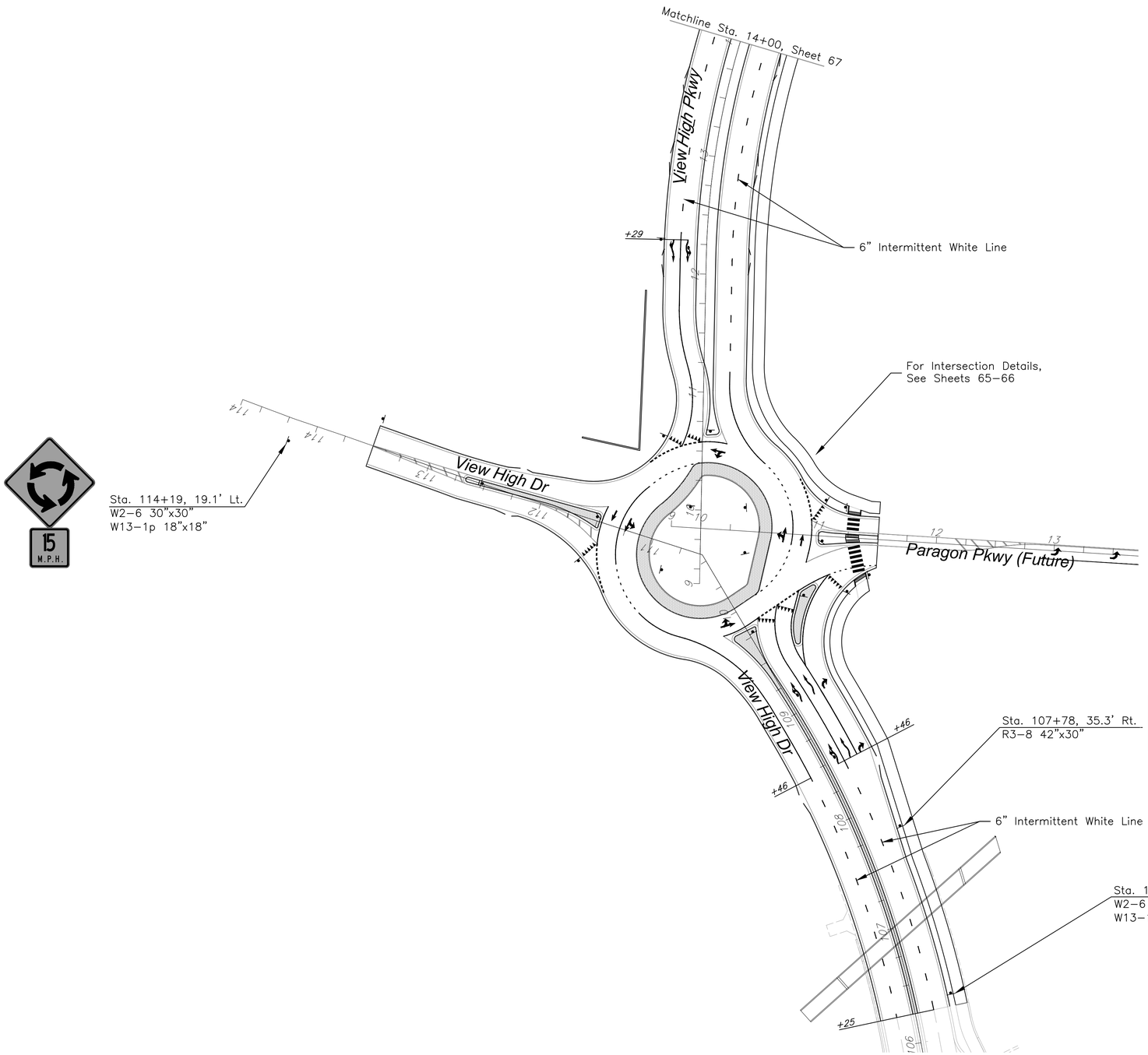
Street and Storm Sewer Plans

Paragon Star Development

Lee's Summit, Missouri

NO.	DATE	REVISIONS	BY	APPROVED

Street Lighting Wiring Diagram



CHRISTOPHER NOVOSEL
NUMBER PE-2018024421
PROFESSIONAL ENGINEER
STATE OF MISSOURI
9-17-2020

GBA
architects
engineers
9801 Renner Boulevard
Lenexa, Kansas 66219
913.492.0400
www.gbateam.com

DATE:	6-25-2020
DESIGN BY:	SPC
DRAWN BY:	EGK
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SHEET NO.	64
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Street and Storm Sewer Plans

Paragon Star Development

Lee's Summit, Missouri

NO.	DATE	REVISIONS	BY	APPROVED

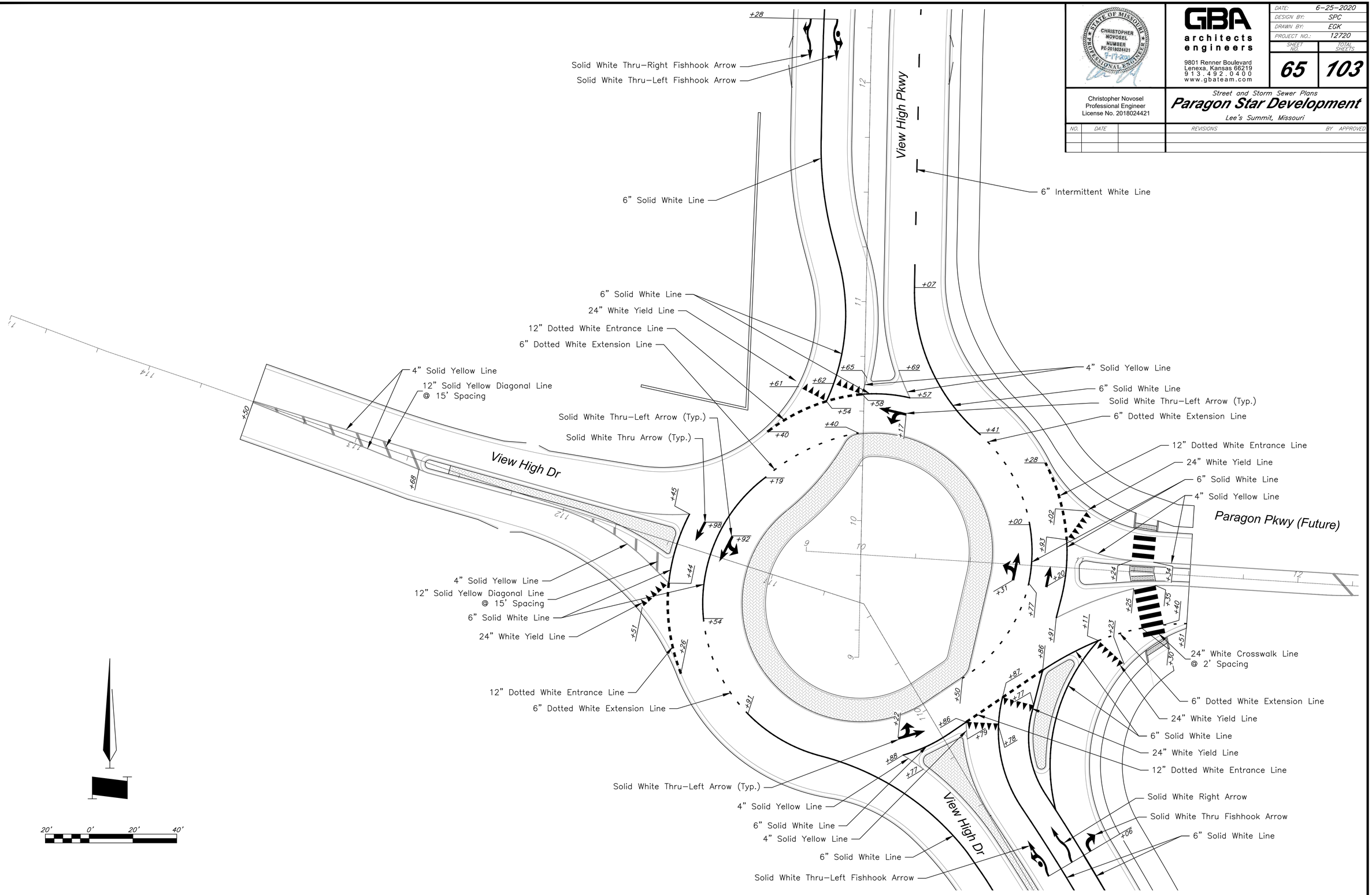
GENERAL NOTES:

All pavement marking within or under the jurisdiction of the City of Lee's Summit shall be preformed thermoplastic for pavement marking symbols, including stop lines, yield lines, diagonal lines, lane use arrows, and crosswalk lines, or high-build paint for longitudinal lines.

All pavement marking within or under the jurisdiction of the City of Kansas City, Missouri shall conform to the latest specifications of the City.

All portions of View High Drive within the City of Lee's Summit but which are maintained by the City of Kansas City, Missouri by executed agreement shall follow the latest specifications of the City of Kansas City, Missouri.

Pavement Marking & Signing Plan View High Drive



Pavement Marking & Signing Plan View High Drive

STATE OF MISSOURI
CHRISTOPHER NOVOSEL
NUMBER PE-2018024421
PROFESSIONAL ENGINEER
9-17-2020

GBA
architects
engineers
9801 Renner Boulevard
Lenexa, Kansas 66219
913.492.0400
www.gbateam.com

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Street and Storm Sewer Plans

Paragon Star Development

Lee's Summit, Missouri

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License No. 2018024421
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9-17-2020
STATE OF MISSOURI
PROFESSIONAL ENGINEER

GBA
architects
engineers
9801 Renner Boulevard
Lenexa, Kansas 66219
913.492.0400
www.gbateam.com

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NO.	DATE	REVISIONS	BY	APPROVED

Street and Storm Sewer Plans

Paragon Star Development

Lee's Summit, Missouri

Sta. 12+28, 38.8' Lt.
R3-8 30"x30"

Sta. 113+50, 24.5' Rt.
R2-1 (35) 24"x30"

SPEED LIMIT 35

Sta. 112+52, 0.3' Lt.
R4-7 24"x30"
OM1-3 18"x18"

Sta. 10+62, 33.0' Lt.
R1-2 48"x48"x48"

Sta. 10+02, 9.0' Lt.
R6-4 30"x24"

Sta. 10+67, 6.5' Rt.
D3 48"x9"
R1-2 48"x48"x48"

VIEW HIGH PKWY

Sta. 10+36, 20.0' Lt. (Paragon Pkwy)
R6-4 30"x24"

Sta. 10+39, 18.1' Rt. (Paragon Pkwy)
R6-4 30"x24"

Sta. 11+05, 30.6' Lt. (Paragon Pkwy)
R1-2 48"x48"x48"

Sta. 11+21, 25.6' Lt.
(Paragon Pkwy)
W11-2 36"x36"
W16-7pL 24"x12"

Sta. 11+45, 30.3' Rt.
(Paragon Pkwy)
W11-2 36"x36"
W16-7pL 24"x12"

Sta. 11+27, 45.5' Rt.
(Paragon Pkwy)
R1-2 48"x48"x48"

Sta. 11+03, 4.1' Rt.
(Paragon Pkwy)
D3 48"x9"

PARAGON PKWY

Sta. 109+83, 56.4' Rt.
R1-2 48"x48"x48"

VIEW HIGH DR

Sta. 111+51, 3.5' Rt.
D3 48"x9"

Sta. 111+55, 36.8' Lt.
R1-2 48"x48"x48"

Sta. 110+85, 22.6' Lt.
R6-4 30"x24"

Sta. 109+78, 3.5' Rt.
D3 48"x9"
R1-2 48"x48"x48"

View High Pkwy

View High Dr

Paragon Pkwy (Future)

20' 0' 20' 40'

Pavement Marking & Signing Plan View High Drive

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GBA
architects
engineers
9801 Renner Boulevard
Lenexa, Kansas 66219
913.492.0400
www.gbateam.com

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Street and Storm Sewer Plans

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Lee's Summit, Missouri

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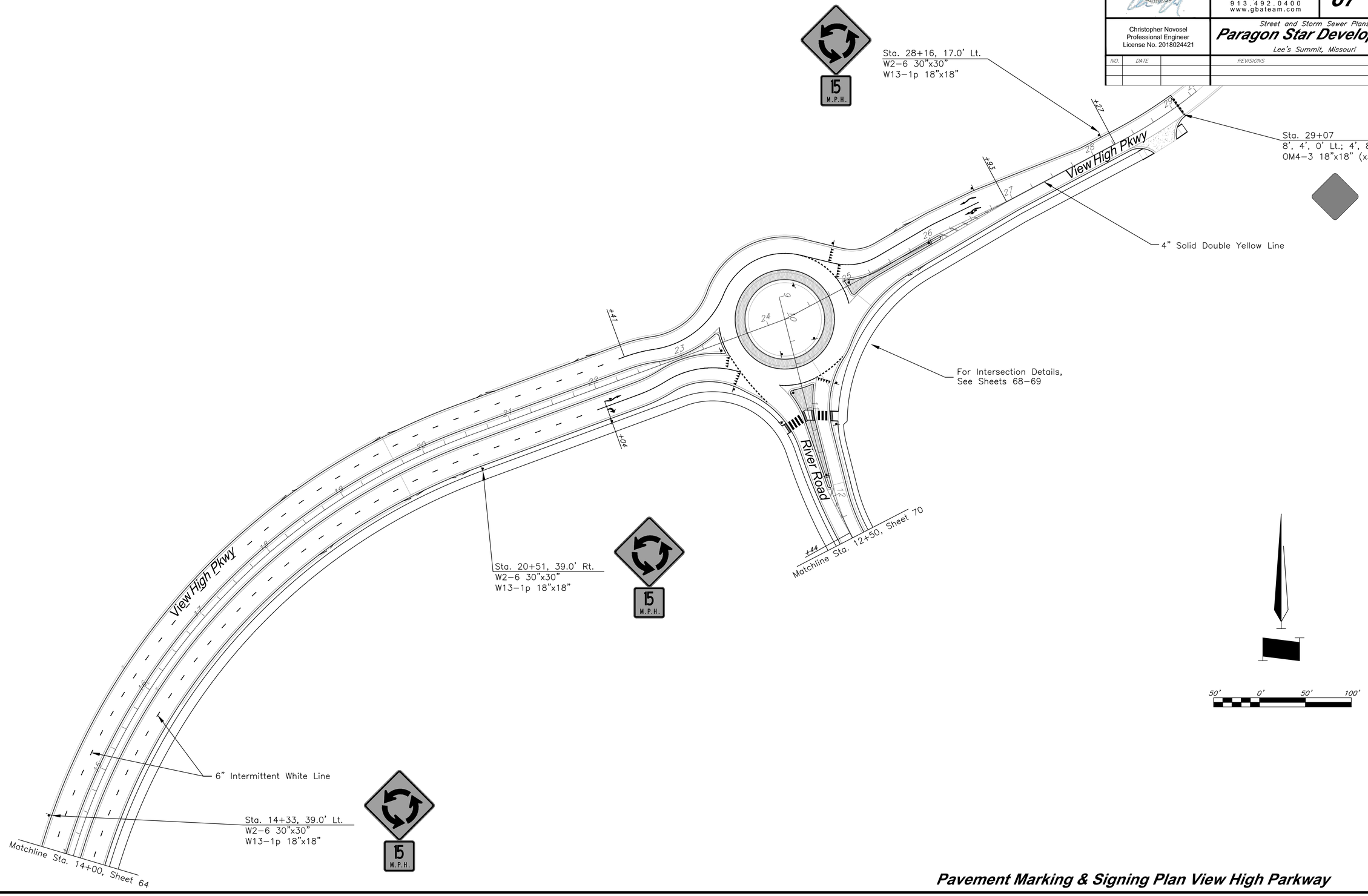
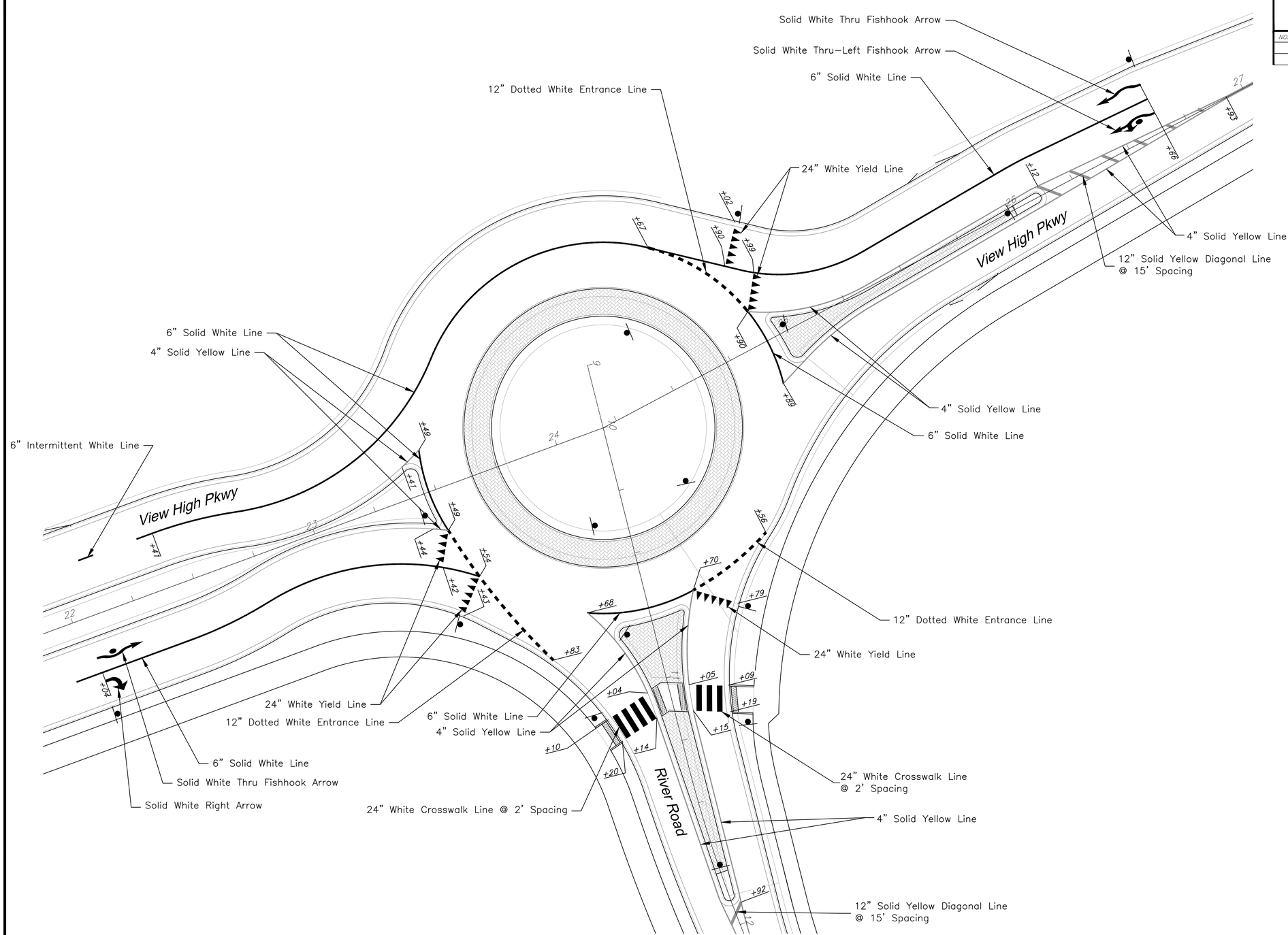


Pavement Marking & Signing Plan View High Parkway



Pavement Marking & Signing Plan View High Parkway

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CHRISTOPHER NOVOSEL
NUMBER PE-2018024421
PROFESSIONAL ENGINEER
9-17-2020

GBA
architects
engineers
9801 Renner Boulevard
Lenexa, Kansas 66219
913.492.0400
www.gbateam.com

DATE:	6-25-2020
DESIGN BY:	SPC
DRAWN BY:	EGK
PROJECT NO.:	12720
SHEET NO.	68
TOTAL SHEETS	103

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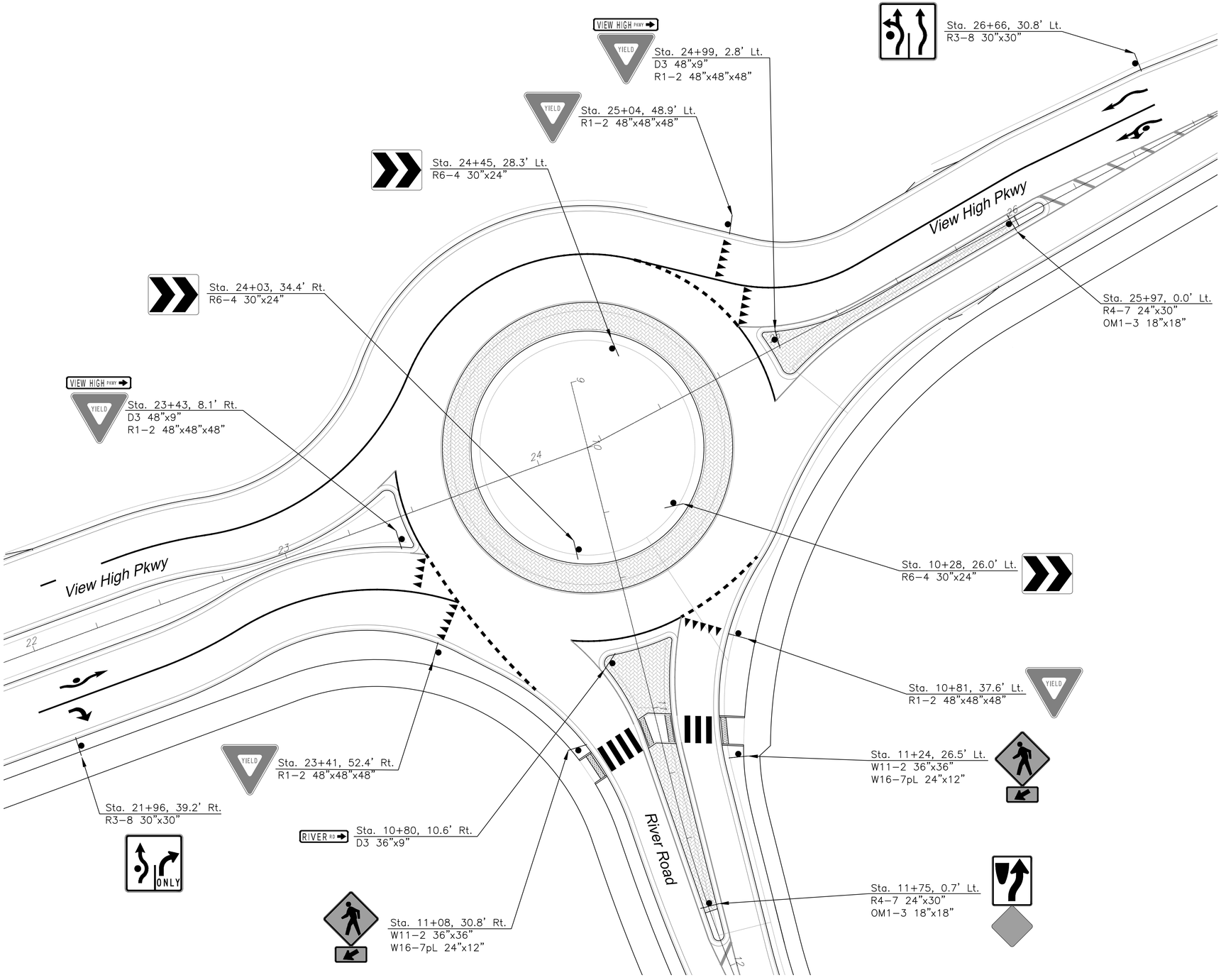
Professional Engineer
License No. 2018024421

Street and Storm Sewer Plans

Paragon Star Development

Lee's Summit, Missouri

NO.	DATE	REVISIONS	BY	APPROVED



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CHRISTOPHER NOVOSEL
NUMBER PE-2018024421
PROFESSIONAL ENGINEER
9-17-2020

GBA
architects
engineers
9801 Renner Boulevard
Lenexa, Kansas 66219
913.492.0400
www.gbateam.com

DATE:	6-25-2020
DESIGN BY:	SPC
DRAWN BY:	EGK
PROJECT NO.:	12720
SHEET NO.	69
TOTAL SHEETS	103

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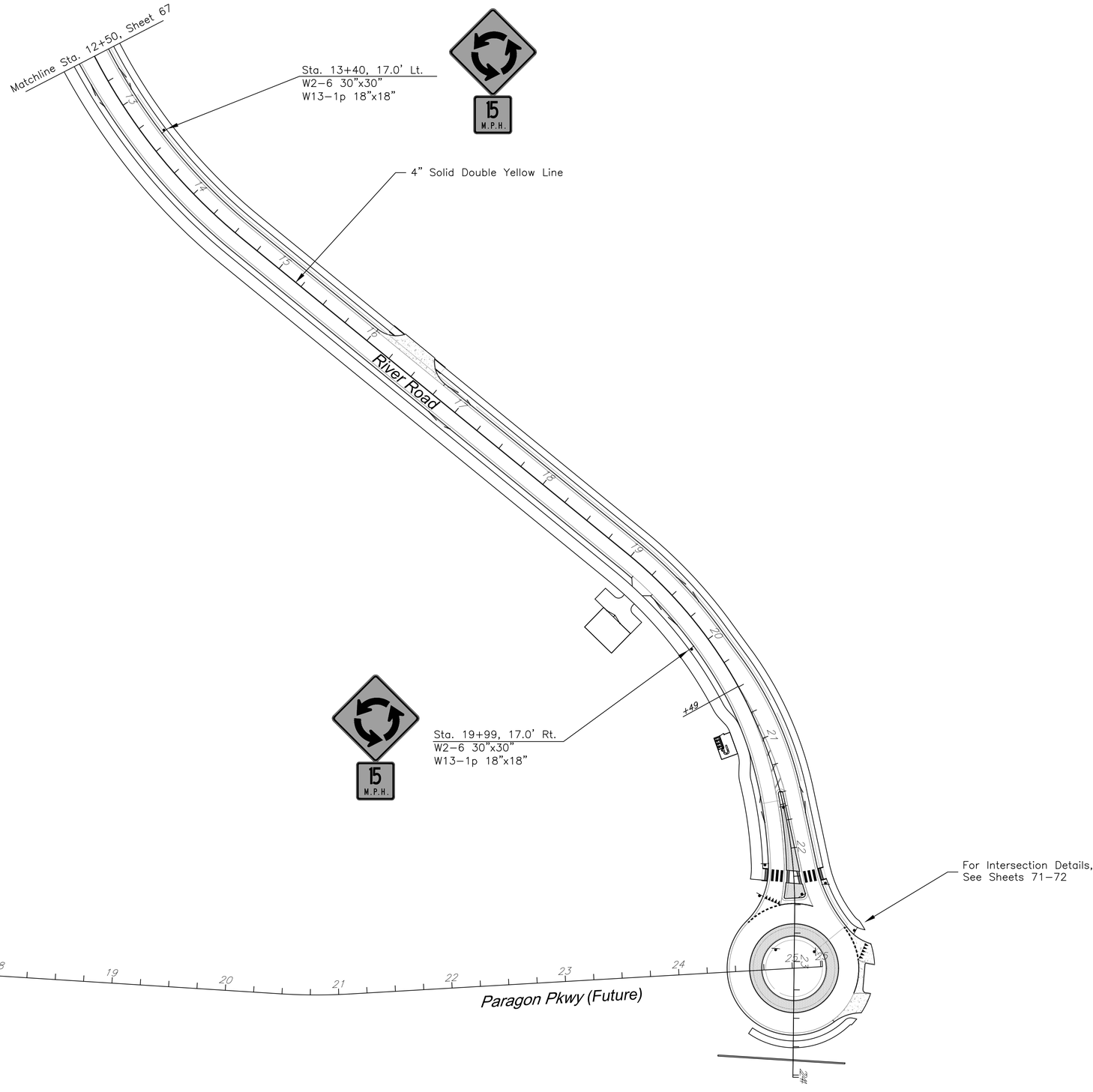
Street and Storm Sewer Plans

Paragon Star Development

Lee's Summit, Missouri

NO.	DATE	REVISIONS	BY	APPROVED

Pavement Marking & Signing Plan View High Parkway



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9-17-2020

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architects
engineers
9801 Renner Boulevard
Lenexa, Kansas 66219
913.492.0400
www.gbateam.com

DATE:	6-25-2020
DESIGN BY:	SPC
DRAWN BY:	EGK
PROJECT NO.:	12720
SHEET NO.	70
TOTAL SHEETS	103

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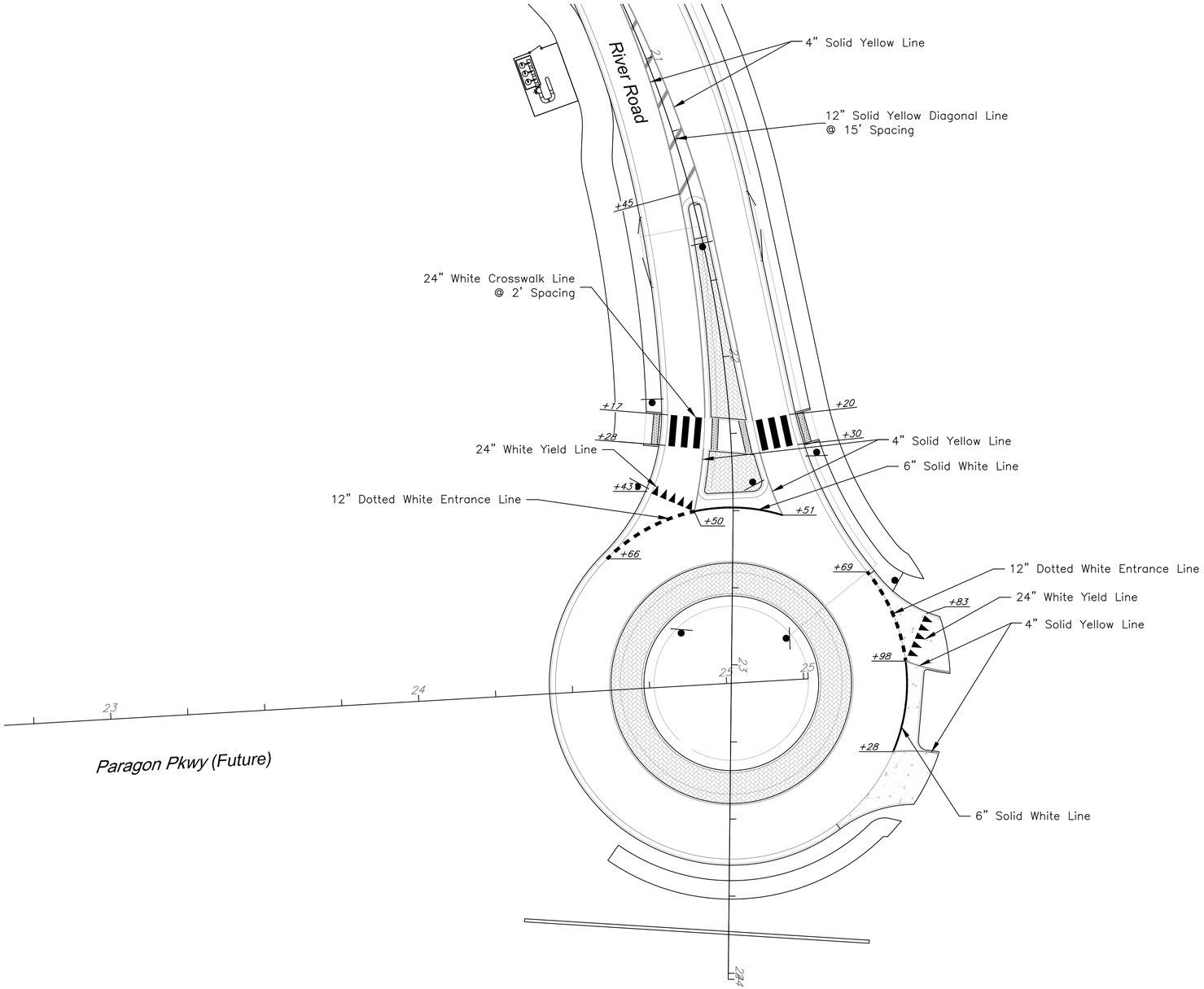
Street and Storm Sewer Plans

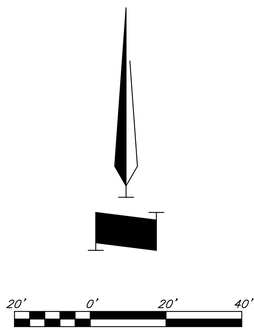
Paragon Star Development

Lee's Summit, Missouri

NO.	DATE	REVISIONS	BY	APPROVED

Pavement Marking & Signing Plan River Road





Pavement Marking & Signing Plan River Road

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9-17-2020

GBA
architects
engineers
9801 Renner Boulevard
Lenexa, Kansas 66219
913.492.0400
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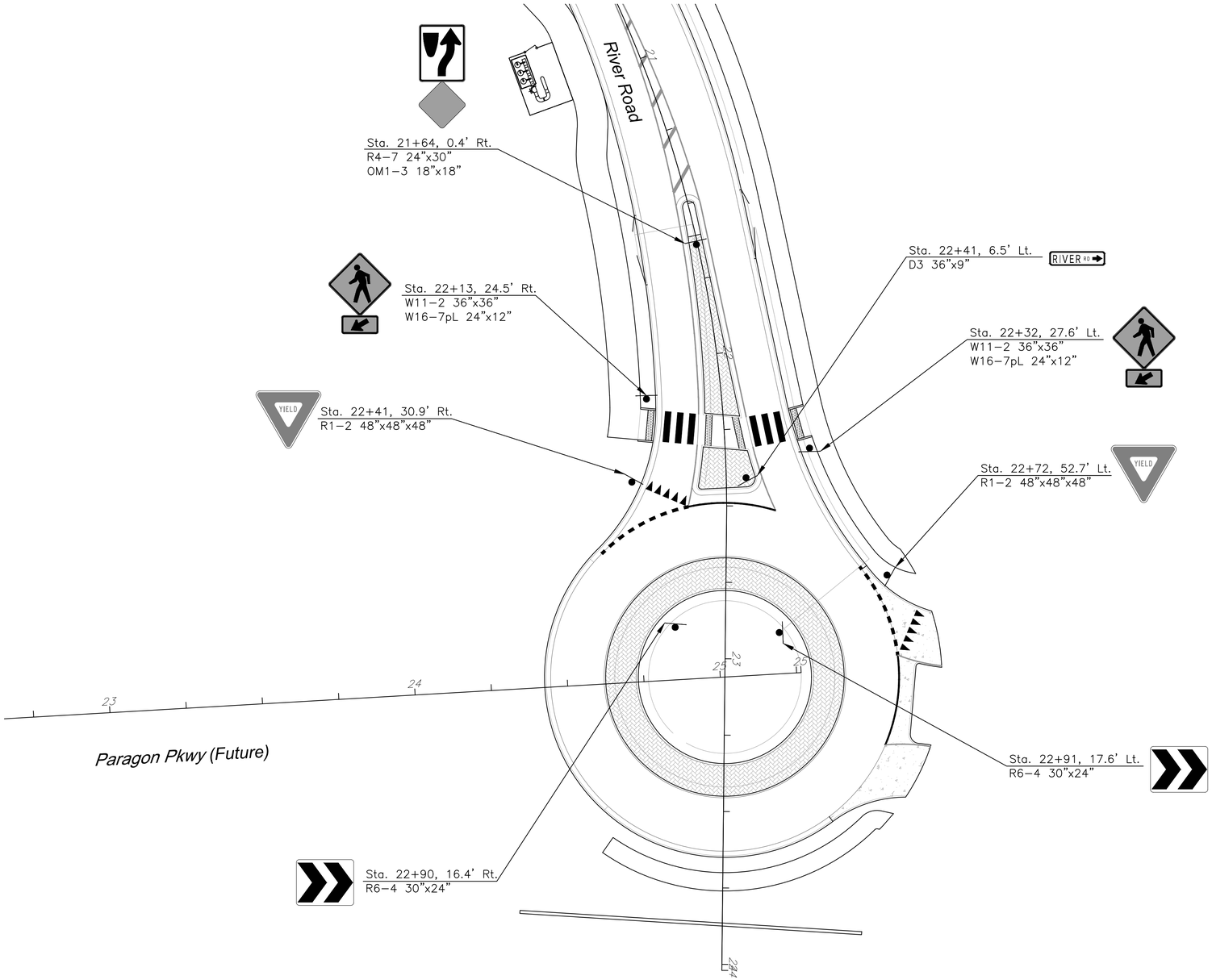
DATE:	6-25-2020
DESIGN BY:	SPC
DRAWN BY:	EGK
PROJECT NO.:	12720
SHEET NO.	71
TOTAL SHEETS	103

Christopher Novosel
Professional Engineer
License No. 2018024421

Street and Storm Sewer Plans
Paragon Star Development
Lee's Summit, Missouri

NO.	DATE	REVISIONS	BY	APPROVED



CHRISTOPHER NOVOSEL
NUMBER PE-2018024421
PROFESSIONAL ENGINEER
STATE OF MISSOURI
9-17-2020

GBA
architects
engineers
9801 Renner Boulevard
Lenexa, Kansas 66219
913.492.0400
www.gbateam.com

Christopher Novosel
Professional Engineer
License No. 2018024421

DATE:	6-25-2020
DESIGN BY:	SPC
DRAWN BY:	EGK
PROJECT NO.:	12720
SHEET NO.	72
TOTAL SHEETS	103

Street and Storm Sewer Plans

Paragon Star Development

Lee's Summit, Missouri

NO.	DATE	REVISIONS	BY	APPROVED

Pavement Marking & Signing Plan River Road

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GBA
architects
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9801 Renner Boulevard
Lenexa, Kansas 66219
913.492.0400
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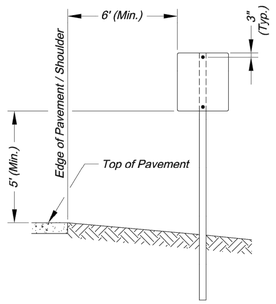
Professional Engineer
License No. 2018024421

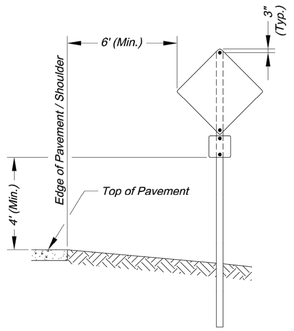
DATE:	6-25-2020
DESIGN BY:	DJM
DRAWN BY:	CMN
PROJECT NO.:	12720
SHEET NO.:	73
TOTAL SHEETS	103

Street and Storm Sewer Plans
Paragon Star Development
Lee's Summit, Missouri

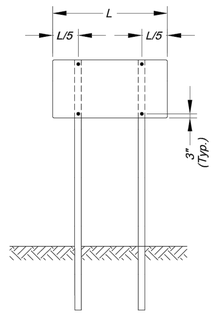
NO.	DATE	REVISIONS	BY	APPROVED



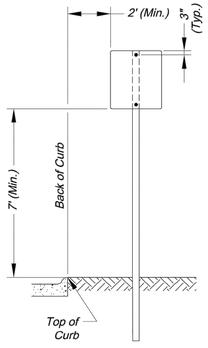
SIGN INSTALLATION FOR NON-CURBED STREET



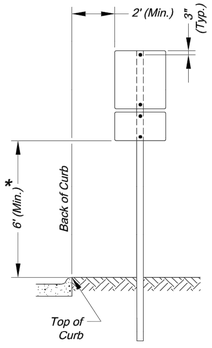
SIGN INSTALLATION WITH AUXILARY SIGN FOR NON-CURBED STREET



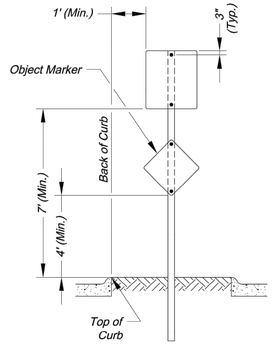
SIGN INSTALLATION WITH TWO SIGN POSTS



SIGN INSTALLATION FOR CURBED STREET



SIGN INSTALLATION WITH AUXILARY SIGN FOR CURBED STREET

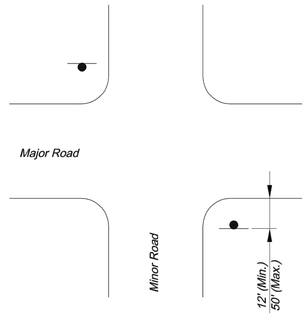


SIGN INSTALLATION FOR RAISED MEDIANS

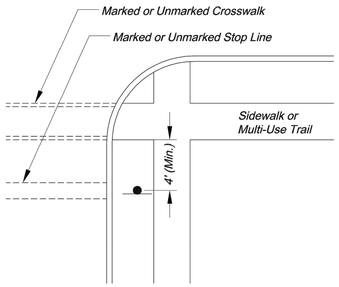
SIGN MOUNTING DETAILS

* The height to the bottom of a sign when it is located in a pedestrian walkway or extends into a walkway shall be a minimum of 80 inches above the walkway.

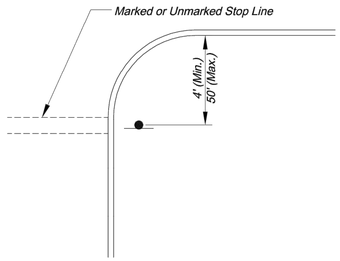
NOTE:
1. Generally, the sign mounting height should not be more than 1' greater than the minimum mounting height.



NON-CURBED INTERSECTION INSTALLATION

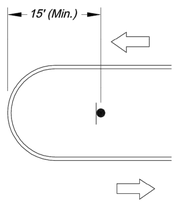


INTERSECTION WITH SIDEWALK / MULTI-USE TRAIL INSTALLATION



CURBED INTERSECTION INSTALLATION

CONTROL SIGN LOCATION



TYPICAL MEDIAN SIGN LOCATION

MEDIAN SIGN LOCATION

NOTES:
1. A 4" P.V.C. sleeve shall be installed in new concrete medians at each location where a sign is to be installed.
2. For existing concrete medians, a 4" hole shall be cored into the concrete.

CITY OF LEE'S SUMMIT
PUBLIC WORKS DEPARTMENT
ENGINEERING DIVISION
220 SE GREEN STREET
LEE'S SUMMIT, MISSOURI 64063
PHONE: (816) 969-1800 FAX: (816) 969-1809

Project:
SIGN MOUNTING DETAILS
Sheet Name: STANDARD DRAWING SN-1

Drawn By: AS
Checked By: JW
Date: 08/26/2009
Project#

1 OF 3
1

STATE OF MISSOURI
CHRISTOPHER NOVOSEL
NUMBER PE-2018024421
PROFESSIONAL ENGINEER
9-17-2020

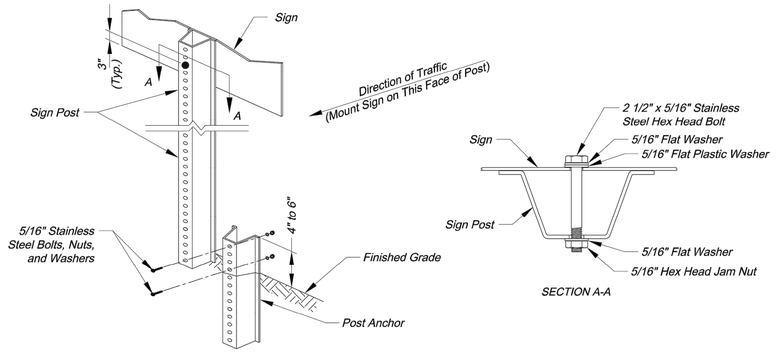
GBA
architects
engineers
9801 Renner Boulevard
Lenexa, Kansas 66219
913.492.0400
www.gbateam.com

DATE:	6-25-2020
DESIGN BY:	DJM
DRAWN BY:	CMN
PROJECT NO.:	12720
SHEET NO.:	74
TOTAL SHEETS	103

Christopher Novosel
Professional Engineer
License No. 2018024421

Street and Storm Sewer Plans
Paragon Star Development
Lee's Summit, Missouri

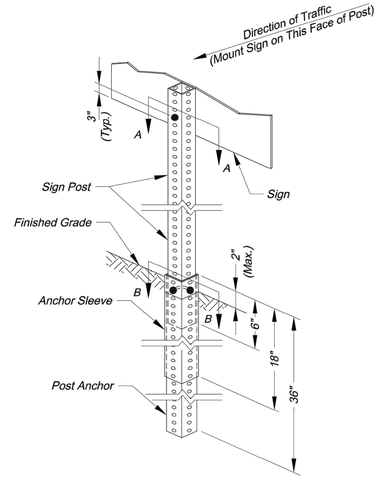
NO.	DATE	REVISIONS	BY	APPROVED



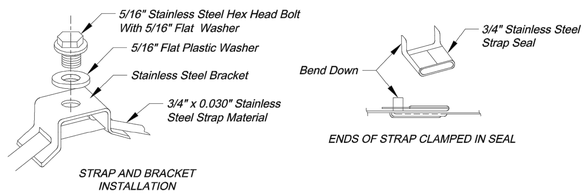
U-STEEL POST DETAILS

U-STEEL POST NOTES:
1. *Splice shall be positioned entirely between finished grade line and 18" above finished grade line. Only one splice will be allowed per post.*
2. *U-Steel post shall be 3 lb./ft., galvanized according to ASTM A123.*
3. *U-Steel post can be used for installation of signs with an area of less than 2.5 square feet.*
4. *All posts shall be embedded a minimum of 3 feet.*

PERMANENT SIGNING GENERAL NOTES:
1. *All signing shall be in accordance with the latest edition of the Manual on Uniform Traffic Control Devices (MUTCD).*
2. *The Contractor is responsible for avoiding any and all utilities when installing sign posts, whether the utility is indicated on the plans or not.*
3. *All workmanship and materials shall be subject to the inspection and approval of the Public Works Department of the City of Lee's Summit.*
4. *The Contractor shall stake the location of all sign posts to be installed. The City Inspector shall inspect the staking prior to installation. Minor relocation to avoid conflicts may be allowed with the approval of the City Traffic Engineer or designee.*
5. *Signs shown to be installed on the side of metal poles shall be mounted with stainless steel straps or wing brackets as detailed. No signs are to be installed on wood poles. See Traffic Signal Standard Drawings for the installation of signs on mast arms.*
6. *All post mounted signs shall be installed with breakaway anchors according to the Standard Drawings.*
7. *All existing signs will be used in place during construction and protected from damage unless otherwise indicated in the plans. If the Contractor damages any existing sign or posts during construction, the Contractor will be required to replace the damaged materials with new signs or posts of the same type and size at the Contractor's expense. The Contractor shall be responsible for removing and storing any signs that are to be reinstalled on the project. All equipment shall be reinstalled in good condition.*
8. *Existing permanent signs and posts removed by the Contractor for construction purposes which are not to be reinstalled shall be delivered to the City's Public Works Maintenance Facility (1971 SE Hamblen Road). The Contractor shall be responsible for removing and storing equipment in good condition and is fully responsible for the equipment until it is delivered.*
9. *All Stop, Yield, or street name signs shall be maintained in a conspicuous location for the driving public. All Stop and Yield signs removed for construction purposes can be temporarily erected in reflectorized drums (no less than 7 feet above the pavement surface) until they can be reinstalled. Any temporary Stop or Yield sign installation to be left in place overnight will require prior approval from the City Inspector.*

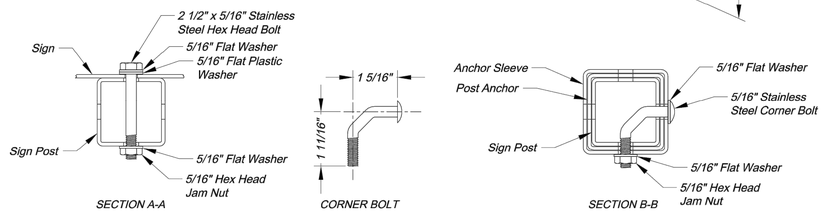


SQUARE STEEL POST INSTALLATION SEQUENCE:
1. *Sign post anchor driven partially into the ground using a drive cap with a sledge or power equipment.*
2. *Anchor sleeve slipped over anchor and drive into the ground together with the sign post anchor.*
3. *Insert sign post into the post anchor and bolt in place.*



STRAP TYPE SIGN SUPPORT DETAILS

METAL POLE SIGN MOUNTING NOTES:
1. *Signs on metal poles shall be attached with two brackets and stainless steel bands.*
2. *Holes in sign for attachment to the mounting brackets shall be offset a minimum of 2 inches from the edge of the sign.*
3. *Holes in sign shall be located such that the sign is level.*
4. *All strap, bracket, and seal materials should be Type 201 stainless steel.*



SQUARE STEEL POST DETAILS

SQUARE STEEL POST NOTES:
1. *Square steel sign posts and break-away anchor shall consist of the following materials:*
   Sign Post - 14 Ga. 2" x 2" Square Steel Post
   Post Anchor - 12 Ga. 2 ¼" x 2 ¼" x 36" Square Steel Post
   Anchor Sleeve - 12 Ga. 2 ½" x 2 ½" x 18" Square Steel Post
2. *14 Gauge posts must meet a certified minimum yield strength of 60,000 psi.*
3. *In all installations the first hole above the finished grade line on the sign post, anchor, and anchor sleeve must be in line for the insertion of the corner bolt.*
4. *The maximum area for one sign post is 9.0 square feet. A sign or combination of signs with an area greater than 9.0 square feet will require two posts. Also, signs with a width greater than 36" (not including 36" x 36" diamond shaped signs) will require two posts.*

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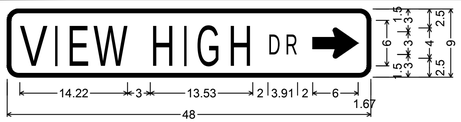
ENGINEERING DIVISION
220 SE GREEN STREET
LEE'S SUMMIT, MISSOURI 64063
PHONE: (816) 969-1800 FAX: (816) 969-1809

Project:
SIGN POST DETAILS
Sheet Name: STANDARD DRAWING SN-2

Drawn By: AS
Checked By: JW
Date: 08/26/2009
Project#

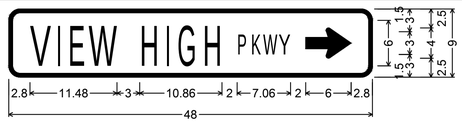
2 OF 3

2



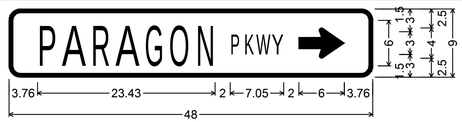
D3-1;
1.50" Radius, 0.50" Border, White on, Green;
"VIEW HIGH", C 75% spacing; "DR", C;
Standard Arrow Custom 6.00" X 4.00" 0';
Table of distances between letter and object lefts

1.67	V	4.42	I	1.79	E	3.51	W	7.50	H	4.23	I	1.79	G
4.23	H	5.28	D	2.27	R	3.64	→	6.00	1.67				



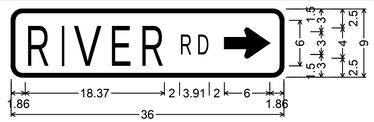
D3-1;
1.50" Radius, 0.50" Border, White on, Green;
"VIEW HIGH", B 75% spacing; "PKWY", B;
Standard Arrow Custom 6.00" X 4.00" 0';
Table of distances between letter and object lefts

2.80	V	3.44	I	1.59	E	2.70	W	6.75	H	3.37	I	1.59	G
3.37	H	4.53	P	1.83	K	1.61	W	2.02	Y	3.60	→	6.00	2.80



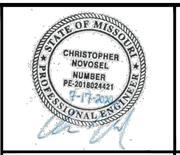
D3-1;
1.50" Radius, 0.50" Border, White on, Green;
"PARAGON", B 75% spacing; "PKWY", B;
Standard Arrow Custom 6.00" X 4.00" 0';
Table of distances between letter and object lefts

3.76	P	3.20	A	3.86	R	3.21	A	3.86	C	3.21	O	3.56	N
4.53	P	1.82	K	1.62	W	2.02	Y	3.59	→	6.00	3.76		



D3-1;
1.50" Radius, 0.50" Border, White on, Green;
"RIVER", C; "RD", C;
Standard Arrow Custom 6.00" X 4.00" 0';
Table of distances between letter and object lefts

1.86	R	4.55	I	1.85	V	4.67	E	4.02	R	5.28	R	2.27	D
3.64	→	6.00	1.86										



Christopher Novosel
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9801 Renner Boulevard
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913.492.0400
www.gbateam.com

DATE:	6-25-2020
DESIGN BY:	DJM
DRAWN BY:	CMN
PROJECT NO.:	12720
SHEET NO.	75
TOTAL SHEETS	103

Street and Storm Sewer Plans
Paragon Star Development
Lee's Summit, Missouri

NO.	DATE	REVISIONS	BY	APPROVED

Pavement Marking & Signing Details

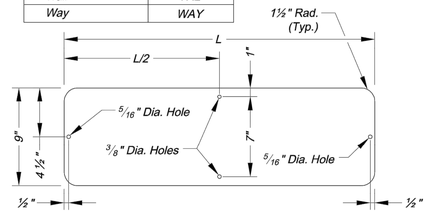
STANDARD ABBREVIATION LISTS

Named Streets	
Avenue	AVE
Boulevard	BLVD
Circle	CIR
Creek	CR
Court	CT
Crossing	XING
Drive	DR
Highway	HWY
Lane	LN
Parkway	PKWY
Place	PL
Road	RD
Street	ST
Terrace	TER
Trail	TRL
Way	WAY

Numbered Streets	
First	ST
Second	ND
Third	RD
Fourth to Tenth	TH

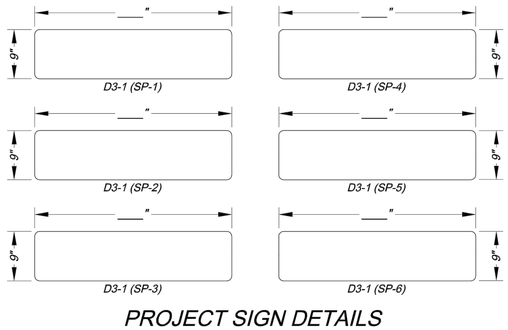
STREET NAME SIGN QUANTITIES

Sign Designation	Sign Size	Sign Area (Sq. Ft.)	Number	Quantity (Sq. Ft.)
~~D3-1 (SP-1) View High Dr~~	~~48"x 9"~~	Sq. Ft.	2	6.0
~~D3-1 (SP-2) View High Pkwy~~	~~48"x 9"~~	3.0	3	9.0
~~D3-1 (SP-3) Paragon Pkwy~~	~~48"x 9"~~	3.0	1	3.0
~~D3-1 (SP-4) River Rd~~	~~36"x 9"~~	2.25	2	4.5
D3-1 (SP-5)	9" x			
D3-1 (SP-6)	9" x			

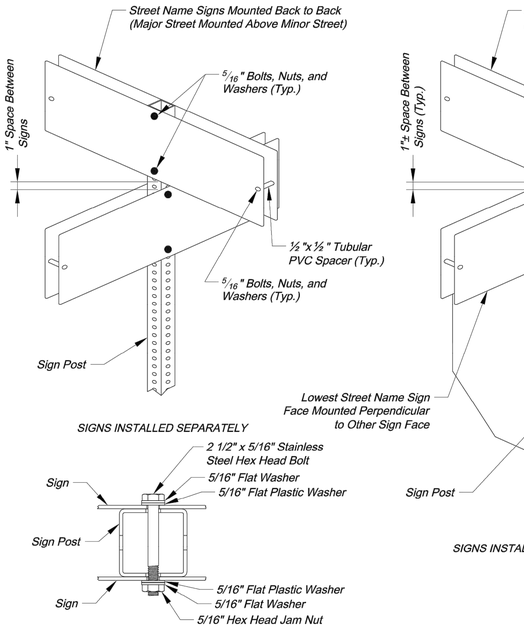


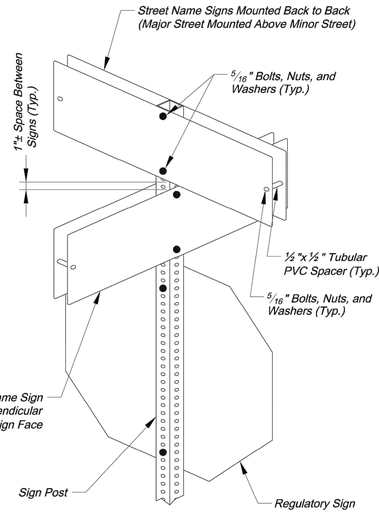
STREET NAME SIGN BLANK DETAILS

For Mounting on Square Steel Posts

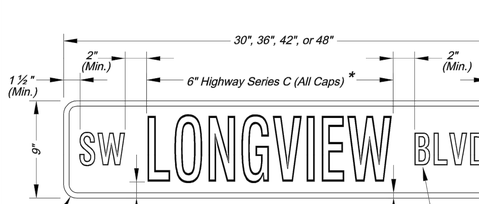


PROJECT SIGN DETAILS SEE ABOVE

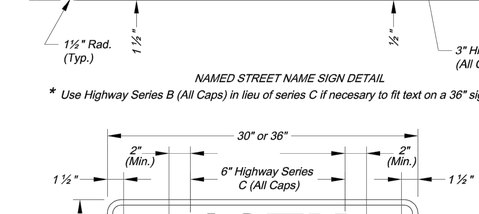




SQUARE STEEL POST MOUNTING DETAILS

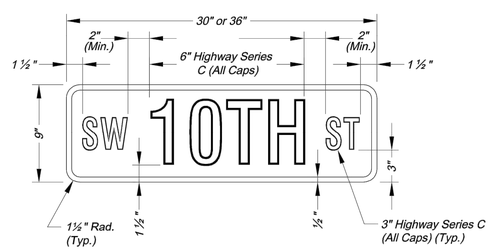


ARROW DETAIL

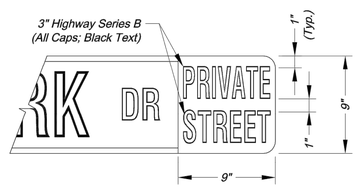


NAMED STREET NAME SIGN DETAIL

* Use Highway Series B (All Caps) in lieu of series C if necesary to fit text on a 36" sign blank.



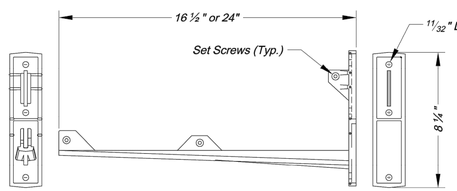
NUMBERED STREET NAME SIGN DETAIL



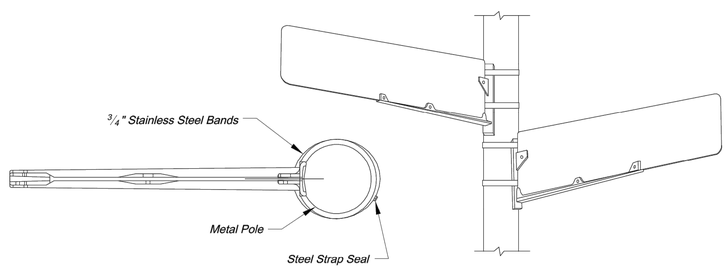
PRIVATE STREET TAG DETAIL

NOTES:
1. For all street name signs, the legend shall be white and the background shall be green.
2. Arrows shall be added to street name signs where the name of a street changes at an intersection. Street name signs with arrows are to be installed on each side of the intersection to indicate the change in names. Arrows shall be white.
3. The "PRIVATE STREET" tag should be added to the end of street name signs to indicate where a street that is outside the right-of-way intersects a public street. The background for the "PRIVATE STREET" tag shall be yellow.

STREET NAME SIGN FACE DETAILS



NOTES:
1. Wing bracket shall be an L-shaped cantilever of T-beam rigid frame 380-3 aluminum alloy construction.
2. Mount each wing bracket to metal pole using two ¾" wide stainless steel straps.
3. One wing bracket shall be installed per each sign. Cross brackets are not allowed.



WING BRACKET MOUNTING DETAILS

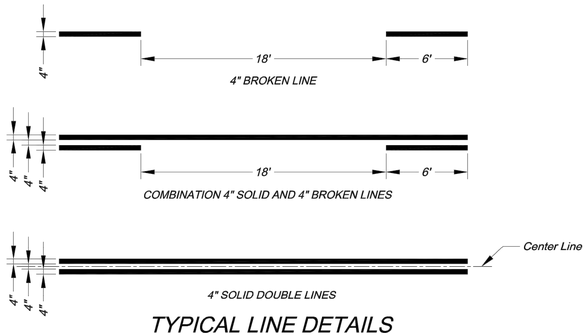
CITY OF LEE'S SUMMIT
PUBLIC WORKS DEPARTMENT
ENGINEERING DIVISION
220 SE GREEN STREET
LEE'S SUMMIT, MISSOURI 64063
PHONE: (816) 969-1800 FAX: (816) 969-1809

Project:
STREET NAME SIGN DETAILS
Sheet Name: STANDARD DRAWING SN-3

Drawn By: AS
Checked By: JW
Date: 08/26/2009
Project#
3 OF 3

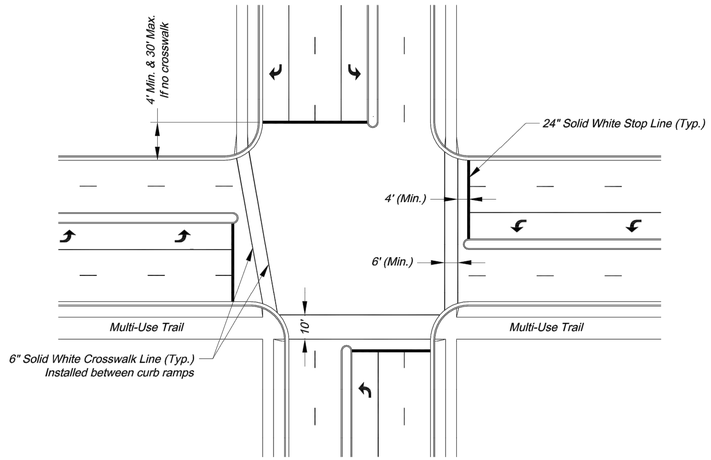
3

Pavement Marking & Signing Details



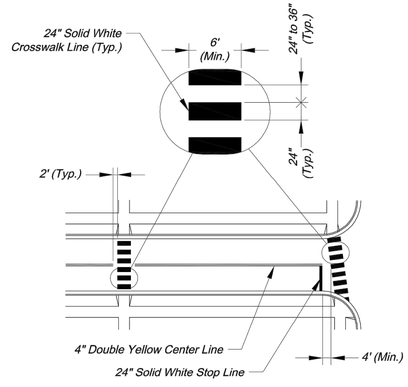
TYPICAL LINE DETAILS

NOTES:
1. All edge line, center line, and lane line pavement markings shall be 4" wide unless otherwise noted.
2. Edge lines shall be continuous solid white or yellow lines. Right side edge lines shall be solid white. Median or left side edge lines on divided roadways are to be solid yellow. Edge lines and center lines shall be continuous across driveways.

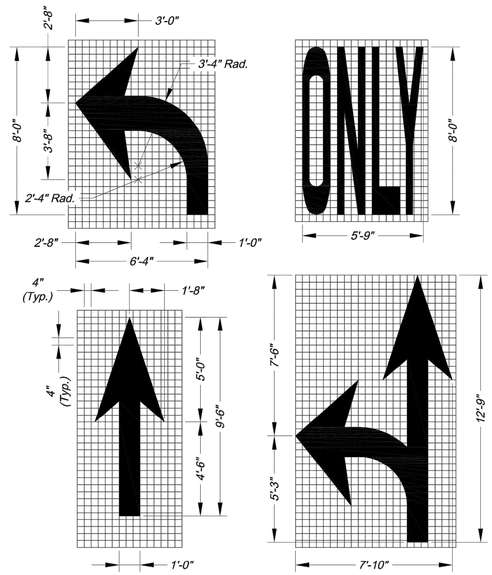


TYPICAL INTERSECTION MARKINGS

NOTES:
1. Transverse crosswalk lines shall be installed such that the distance between lines is at least 6 or 10 feet.
2. Stop lines are required at signalized intersections, on multi-lane stop controlled approaches, or in front of crosswalks at controlled intersections.

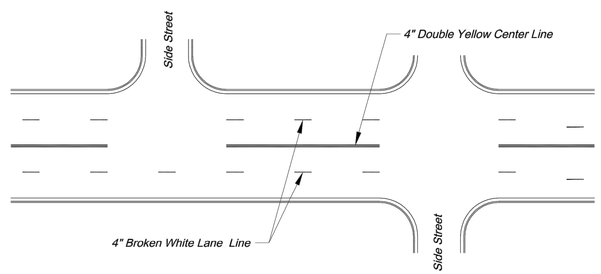


TYPICAL MIDBLOCK OR SCHOOL CROSS WALK

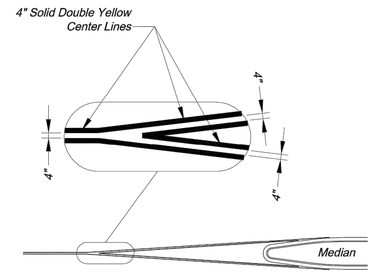


ARROW AND SYMBOL DETAILS

NOTES:
1. All arrow and symbol markings shall be white, and shall be centered in their respective traffic lanes.
2. Right-turn and combination right-turn/straight arrows are reverse of arrows shown.



TYPICAL MARKINGS FOR FOUR-LANE UNDIVIDED ROADWAY



TYPICAL MEDIAN NOSE CENTER LINE DETAIL

PAVEMENT MARKING GENERAL NOTES:
1. All pavement markings shall be in accordance with the latest edition of the Manual on Uniform Traffic Control Devices (MUTCD).
2. All words and symbols shall conform to the latest edition of Standard Alphabets for Highway Signs and Pavement Markings printed by the U.S. Department of Transportation, Federal Highway Administration.
3. Pavement markings, either temporary or permanent are required at all times if the roadway is open to traffic.
4. All pavement markings that conflict with the desired markings shall be completely removed. Removals shall not leave the road surface scarred with an image that misleads traffic. Any excess damage or scarring of pavement shall be repaired at the Contractor's expense.
5. The proposed permanent markings shall be laid out by the Contractor in advance of the marking installation. Markings shall not be applied until the layout has been approved by the City Traffic Engineer.
6. Center lines shall be marked on all undivided arterial streets, and any other undivided street with more than two lanes and/or a speed limit of 30 mph or more.
7. Edge lines shall be marked on all non-curbed streets.

STATE OF MISSOURI
CHRISTOPHER NOVOSEL
NUMBER PE-2018024421
PROFESSIONAL ENGINEER
9-17-2020

GBA architects engineers
9801 Renner Boulevard
Lenexa, Kansas 66219
913.492.0400
www.gbateam.com

DATE:	6-25-2020
DESIGN BY:	DJM
DRAWN BY:	CMN
PROJECT NO.:	12720
SHEET NO.	76
TOTAL SHEETS	103

Christopher Novosel
Professional Engineer
License No. 2018024421

Street and Storm Sewer Plans
Paragon Star Development
Lee's Summit, Missouri

NO.	DATE	REVISIONS	BY	APPROVED

CITY OF LEE'S SUMMIT
PUBLIC WORKS DEPARTMENT
ENGINEERING DIVISION
220 SE GREEN STREET
LEE'S SUMMIT, MISSOURI 64063
PHONE: (816) 969-1800 FAX: (816) 969-1809

Project: ROADWAY MARKING DETAILS
Sheet Name: STANDARD DRAWING PM-1

Drawn By: AS
Checked By: JW
Date: 09/09/2009
Project#

1 OF 2
1

STATE OF MISSOURI
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NUMBER PE-2018024421
PROFESSIONAL ENGINEER
9-17-2020

GBA
architects
engineers
9801 Renner Boulevard
Lenexa, Kansas 66219
913.492.0400
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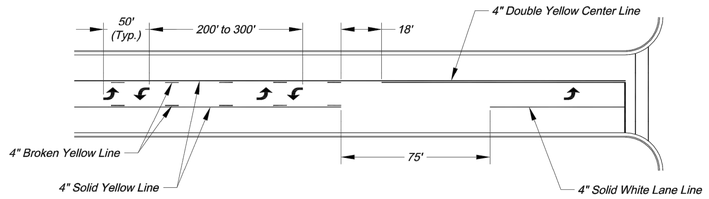
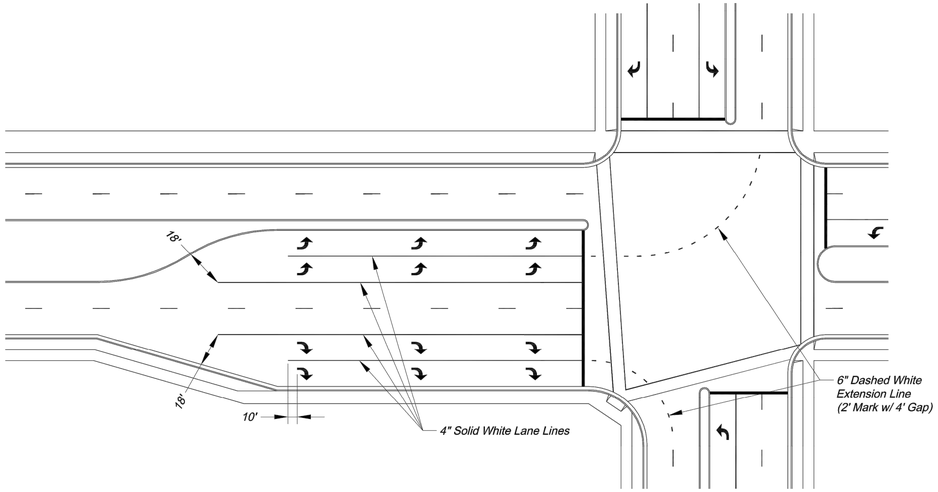
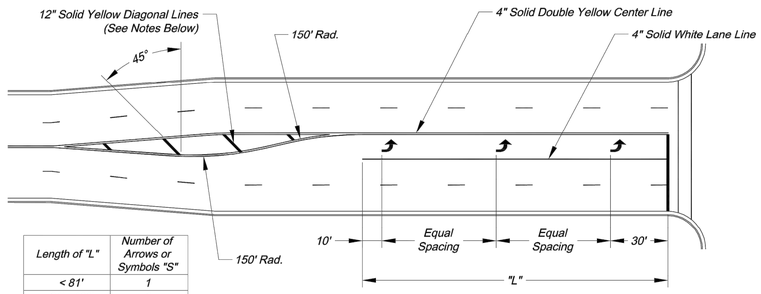


TYPICAL MARKINGS FOR TWO-WAY LEFT-TURN LANE



TYPICAL DUAL TURN LANE MARKINGS

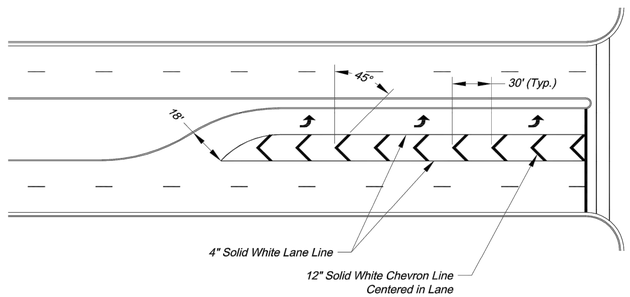
NOTE:
1. Dashed extension lines shall not extend through crosswalks.



Length of "L"	Number of Arrows or Symbols "S"
< 81'	1
81' - 120'	2
121' - 200'	3
201' - 280'	4
281' - 360'	5
361' - 440'	6

TYPICAL TURN LANE MARKINGS

NOTES:
1. Diagonal lines are required between centerlines if the width of the area between the center lines is greater than 12' and/or the length of the area between center lines is greater than 250'.
2. Diagonal lines should be spaced at 5' increments, equal to the posted speed limit.
3. Equal Spacing is calculated as (L - 40) / (S - 1).
4. When a through lane of traffic terminates as a mandatory turn lane, Arrow and "ONLY" symbols should be marked in the turn lane, in alternating order. The first and last symbols should be Arrows.



TYPICAL STRIPED OUT TURN LANE MARKINGS

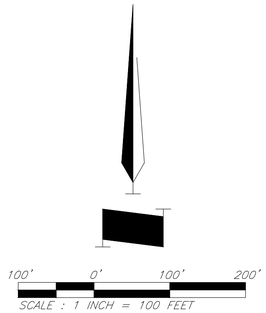
CITY OF LEE'S SUMMIT
PUBLIC WORKS DEPARTMENT
ENGINEERING DIVISION
220 SE GREEN STREET
LEE'S SUMMIT, MISSOURI 64063
PHONE: (816) 969-1800 FAX: (816) 969-1809

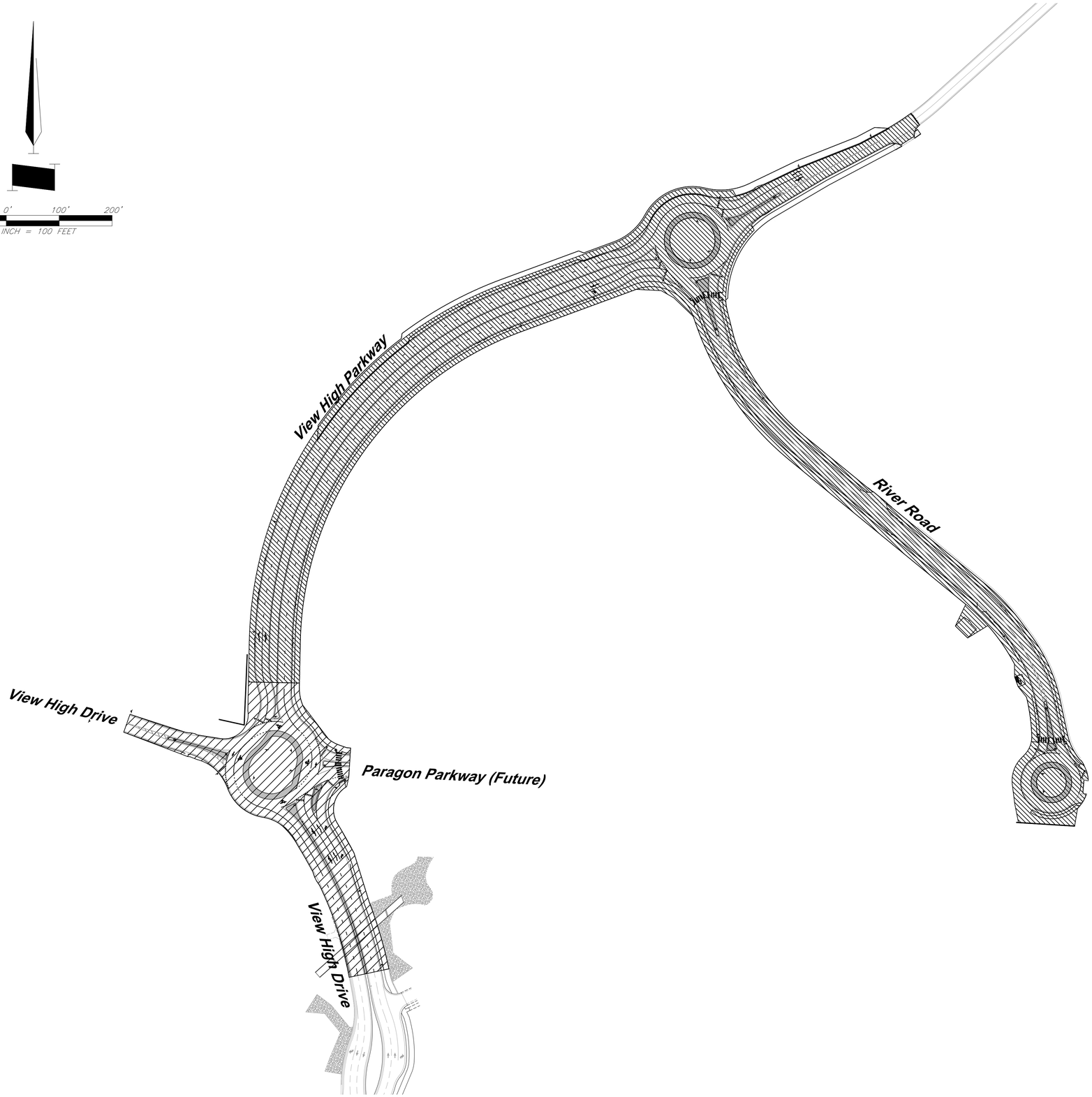
Project:
INTERSECTION MARKING DETAILS
Sheet Name:
STANDARD DRAWING PM-2

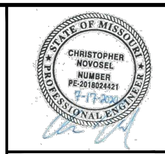
Drawn By: AS
Checked By: JW
Date: 09/09/2009
Project#

2 OF 2

2







GBA
architects
engineers
9801 Renner Boulevard
Lenexa, Kansas 66219
913.492.0400
www.gbateam.com

DATE:	6-25-2020
DESIGN BY:	DJM
DRAWN BY:	CMN
PROJECT NO.:	12720
SHEET NO.	78
TOTAL SHEETS	103

Christopher Novosel
Professional Engineer
License No. 2018024421

Street and Storm Sewer Plans

Paragon Star Development

Lee's Summit, Missouri

NO.	DATE	REVISIONS	BY	APPROVED

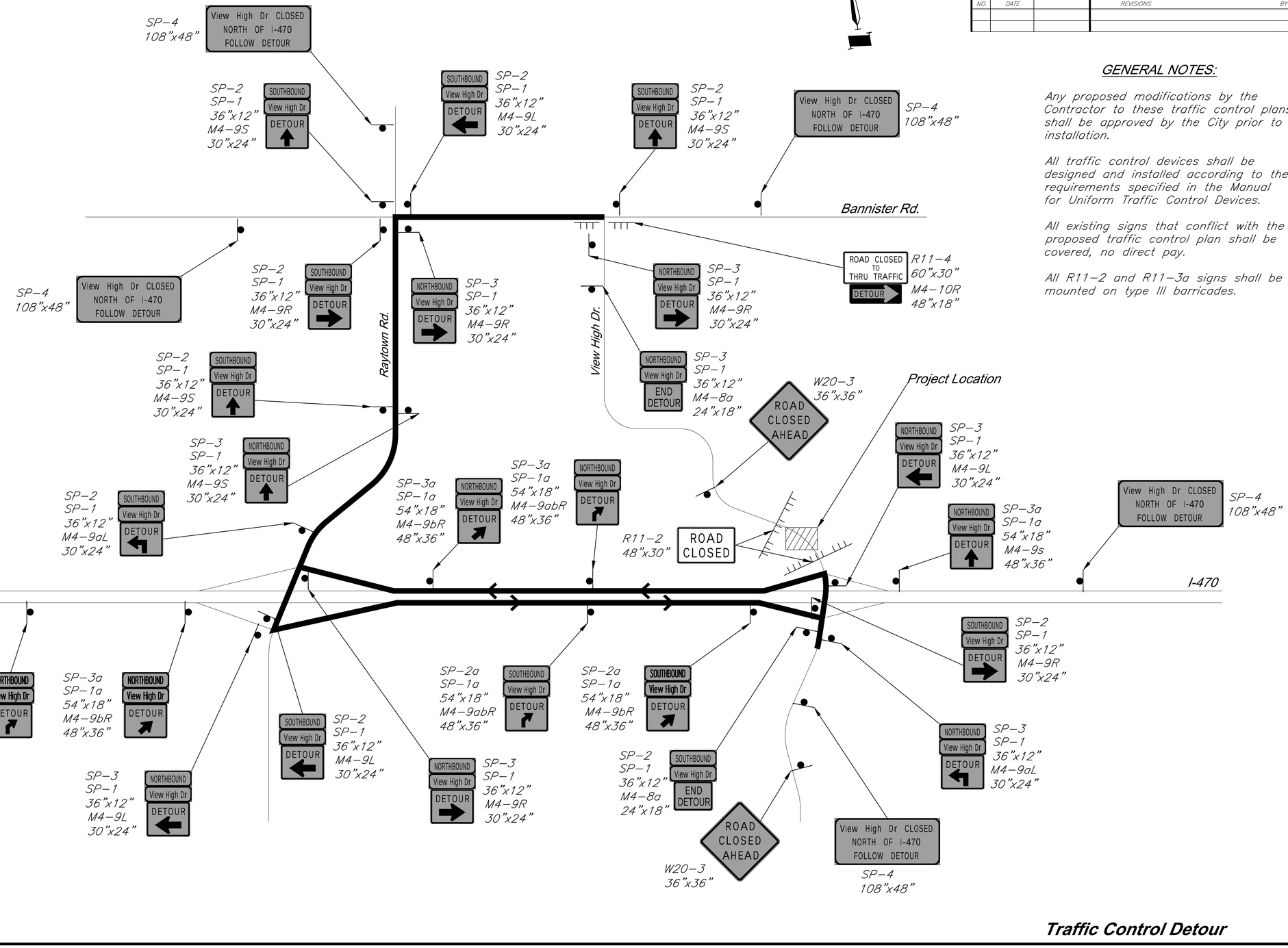
Phase 1 Work Area

Phase 2 Work Area

Construction Sequencing Plan

LEGEND

- Construction Area
- Temporary Construction Sign
- Type III Barricade
- ADA–Compliant Type II Barricade
- Channelizer
- Arrow Display



GENERAL NOTES:

Any proposed modifications by the Contractor to these traffic control plans shall be approved by the City prior to installation.

All traffic control devices shall be designed and installed according to the requirements specified in the Manual for Uniform Traffic Control Devices.

All existing signs that conflict with the proposed traffic control plan shall be covered, no direct pay.

All R11–2 and R11–3a signs shall be mounted on type III barricades.

STATE OF MISSOURI
CHRISTOPHER NOVOSEL
NUMBER PE-2018024421
PROFESSIONAL ENGINEER
9-17-2020

GBA
architects
engineers
9801 Renner Boulevard
Lenexa, Kansas 66219
913.492.0400
www.gbateam.com

DATE:	6–25–2020
DESIGN BY:	###
DRAWN BY:	###
PROJECT NO.:	12720
SHEET NO.	79
TOTAL SHEETS	103

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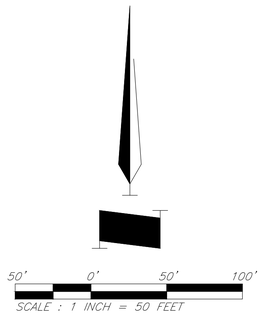
Street and Storm Sewer Plans

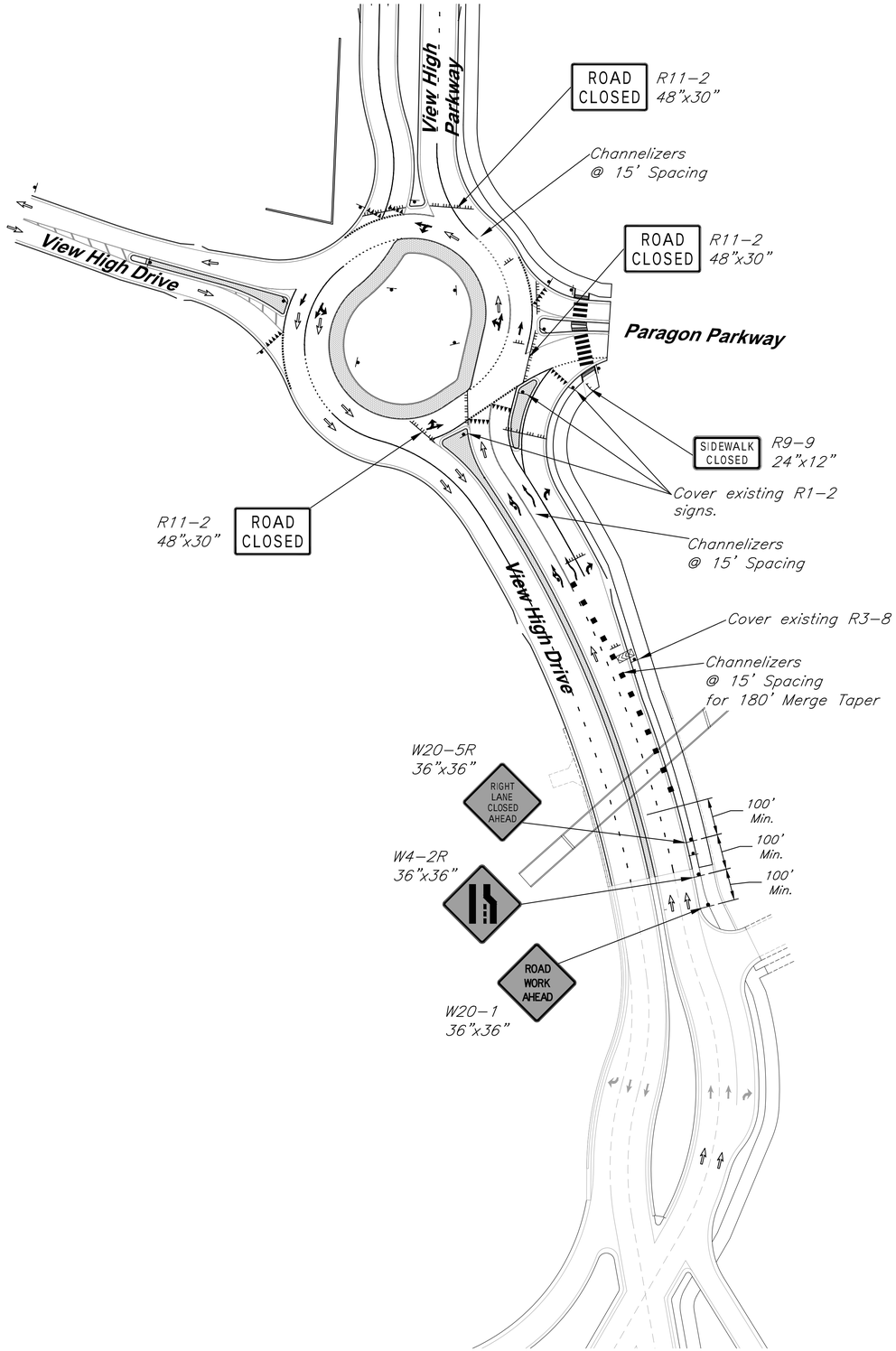
Paragon Star Development

Lee's Summit, Missouri

NO.	DATE	REVISIONS	BY	APPROVED

Traffic Control Detour





CHRISTOPHER NOVOSEL NUMBER PE-2018024421 PROFESSIONAL ENGINEER STATE OF MISSOURI
9-17-2020

GBA architects engineers
9801 Renner Boulevard
Lenexa, Kansas 66219
913.492.0400
www.gbateam.com

DATE:	6-25-2020
DESIGN BY:	###
DRAWN BY:	###
PROJECT NO.:	12720
SHEET NO.:	80
TOTAL SHEETS:	103

Christopher Novosel
Professional Engineer
License No. 2018024421

Street and Storm Sewer Plans

Paragon Star Development

Lee's Summit, Missouri

NO.	DATE	REVISIONS	BY	APPROVED

LEGEND

- Construction Area
- Temporary Construction Sign
- Type III Barricade
- ADA-Compliant Type II Barricade
- Channelizer
- Arrow Display
- Direction of Travel

GENERAL NOTES:

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Traffic Control Plan

Temporary Traffic Control Details

Christopher Novosel
Professional Engineer
License No. 2018024421

GBA architects engineers
9801 Renner Boulevard
Lenexa, Kansas 66219
913.492.0400
www.gbateam.com

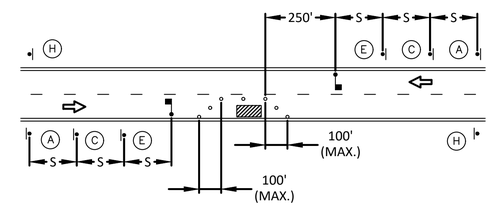
DATE:	6-25-2020
DESIGN BY:	###
DRAWN BY:	###
PROJECT NO.:	12720
SHEET NO.:	81
TOTAL SHEETS	103

Street and Storm Sewer Plans
Paragon Star Development
Lee's Summit, Missouri

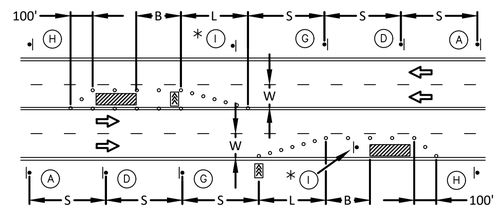
NO.	DATE	REVISIONS	BY	APPROVED

SYMBOL LEGEND

- WORK AREA
- SIGN
- BARRICADE
- DIRECTION OF TRAVEL
- CHANNELIZER
- ARROW PANEL
- FLAGGER

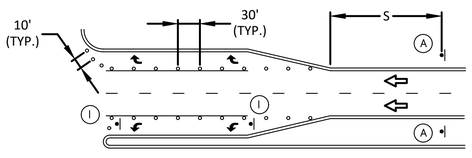


LANE CLOSURE - TWO LANE STREET



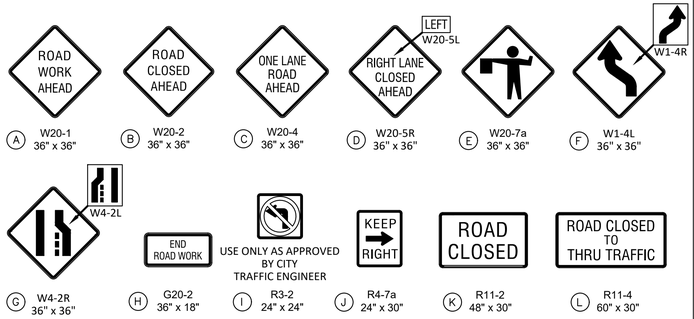
LANE CLOSURE - FOUR LANE STREET

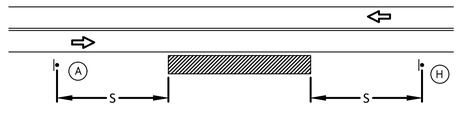
* INSTALL SIGNS EVERY 200 FEET THROUGHOUT THE CLOSED LANE OR AS NEEDED



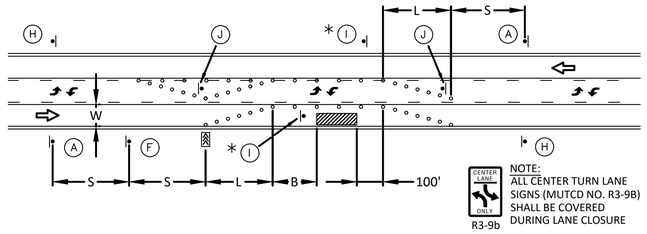
TURN LANE CLOSURE

SIGN LEGEND





TYPICAL SIGNING FOR WORK ADJACENT TO THE STREET



NOTE:
ALL CENTER TURN LANE SIGNS (MUTCD NO. R3-9B) SHALL BE COVERED DURING LANE CLOSURE

LANE CLOSURE - THREE LANE STREET

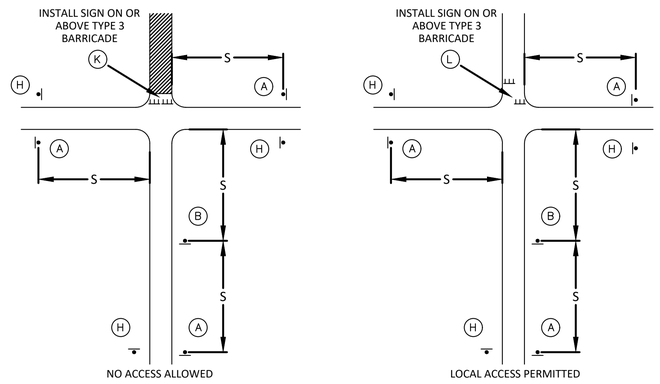
* INSTALL SIGNS EVERY 200 FEET THROUGHOUT THE CLOSED LANE OR AS NEEDED

SIGN SPACING "S"	
SPEED LIMIT (MPH)	SPACING (FEET)
25	100
30-35	250
≥ 40	350

TAPER DIMENSIONS (FEET)				
SPEED LIMIT (MPH)	MINIMUM TAPER LENGTH "L", PER LANE WIDTH "W"			MINIMUM NUMBER OF CHANNELIZERS
	10	11	12	
25	105	115	125	6
30	150	165	180	7
35	205	225	245	8
40	270	295	320	9
45	450	495	540	13

GUIDELINES FOR LENGTH OF LONGITUDINAL BUFFER SPACE "B"	
SPEED LIMIT (MPH)	LENGTH (FEET)
25	35
30	55
35	85
40	120
45	170

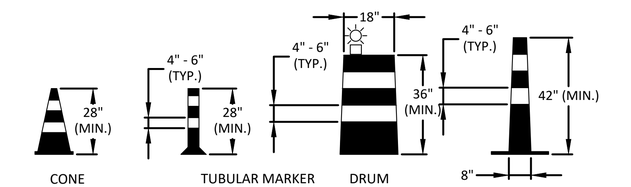
MAXIMUM CHANNELIZER SPACING		
SPEED LIMIT (MPH)	WITHIN TAPER (FEET)	OUTSIDE TAPER (FEET)
25	25	50
30	30	60
35	35	70
40	40	80
45	45	90



TYPICAL STREET CLOSURE

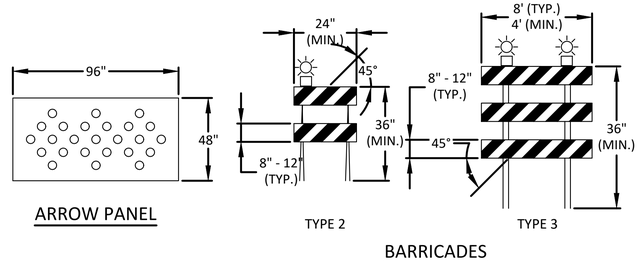
GENERAL NOTES:

1. ALL SIGNS, BARRICADES, CHANNELIZERS, MARKINGS AND OTHER TRAFFIC CONTROL DEVICES SHALL CONFORM TO THE LATEST EDITION OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD).
2. ALL TRAFFIC CONTROL DEVICES SHALL BE STANDARD IN SIZE, SHAPE, COLOR, AND MESSAGE, IN GOOD CONDITION, AND RETRO-REFLECTORIZED. ALL SIGNS SHALL BE SECURELY MOUNTED WITH HEIGHT AND LATERAL LOCATION AS DESCRIBED IN THE MUTCD.
3. WARNING LIGHTS SHALL BE USED ON BARRICADES IN PLACE AT NIGHT AND ON WARNING SIGNS WHICH ALERT DRIVERS ABOUT A CHANGE IN ALIGNMENT, TRAFFIC CONTROL, LANE CLOSURE, OR ROAD CLOSURE.
4. FLAGGERS SHALL BE USED WHERE INDICATED ON THE PLANS, WHERE CONSTRUCTION VEHICLES INTERACT WITH NORMAL TRAFFIC, OR WHERE CONSTRUCTION ACTIVITIES IMPOSE A RESTRICTION ON TRAFFIC, AS DIRECTED BY THE CITY TRAFFIC ENGINEER. WHERE FLAGGERS ARE USED, ADVANCE SIGNING SHALL BE ERECTED AS SHOWN IN THE DETAILS OR AS SPECIFIED IN THE MUTCD. FLAGGERS SHALL MEET THE REQUIREMENTS IN THE MUTCD IN REGARD TO CHARACTER, TRAINING, ATTIRE, AND BEHAVIOR.
5. TRIM-LINES ARE THE CITY'S PREFERRED CHANNELIZING DEVICE. CONES MAY NOT BE USED AT NIGHTTIME.
6. TRAFFIC CONTROL DEVICES NOT IN USE OR NOT APPLICABLE SHALL BE EITHER COVERED OR REMOVED FROM THE WORK AREA.
7. THE CONTRACTOR SHALL USE BARRICADES, STREET PLATES, OR FENCING AS NEEDED TO EFFECTIVELY SHIELD PEDESTRIAN AND VEHICULAR TRAFFIC FROM EXPOSED OBJECTS, EXCAVATIONS, AND CONSTRUCTION ACTIVITIES.
8. ACCESS SHALL BE MAINTAINED TO ALL DRIVEWAYS AND SIDE STREETS UNLESS NOTED OTHERWISE ON THE PLANS.
9. NO STREET SHALL BE CLOSED WITHOUT THE APPROVAL OF THE CITY TRAFFIC ENGINEER. THE CONTRACTOR SHALL NOTIFY THE CITY TRAFFIC ENGINEER AT LEAST 7 DAYS IN ADVANCE OF ANY STREET CLOSURE. IF A DETOUR ROUTE AROUND THE CLOSURE IS TO BE PROVIDED, ALL DETOUR SIGNING SHALL BE AS SHOWN ON A PLAN APPROVED BY THE CITY TRAFFIC ENGINEER.
10. CONSTRUCTION VEHICLES PARKED ALONG STREETS SHALL BE LOCATED WITHIN THE WORK AREA (TRAFFIC CONTROL) OR WHERE OTHERWISE NORMALLY PERMITTED. CONSTRUCTION MATERIALS, INCLUDING TRAFFIC CONTROL AND VEHICLES SHALL NOT RESTRICT SIGHT DISTANCE FOR VEHICLES EXITING AT STREETS OR DRIVES.
11. CONSTRUCTION MATERIALS SHALL BE KEPT OFF OF SIDEWALKS, CONSOLIDATED IN ONE LOCATION WITHIN CITY RIGHT-OF-WAY, AND REMOVED DAILY UNLESS OTHERWISE APPROVED BY THE INSPECTOR. DIRT, MUD, AND OTHER CONSTRUCTION DEBRIS ON STREETS AND SIDEWALKS SHALL BE REMOVED IMMEDIATELY.
12. THE CONTRACTOR SHALL NOT PERFORM ANY WORK THAT WILL RESTRICT VEHICULAR TRAFFIC IN ANY WAY BETWEEN THE HOURS OF 7:00 A.M. AND 9:00 A.M. OR 4:00 P.M. AND 6:00 P.M. MONDAY THROUGH FRIDAY UNLESS OTHERWISE INDICATED IN THE SPECIFICATIONS.
13. ALL TRAVEL LANES SHOULD BE AT LEAST 11 FEET WIDE UNLESS OTHERWISE AUTHORIZED BY THE CITY TRAFFIC ENGINEER. A "NARROW LANES" SIGN SHALL BE INSTALLED IN ADVANCE OF A LANE WIDTH REDUCTION TO LESS THAN 11 FEET.
14. ALL EDGE DROP-OFFS OF MORE THAN 2 INCHES AND LESS THAN 4 INCHES SHOULD BE PROTECTED BY A WEDGE OR BARRIER AND ALL EDGE DROP-OFFS GREATER THAN 4 INCHES SHALL HAVE EDGE PROTECTION (SEE TRAFFIC CONTROL SPECIFICATIONS FOR EDGE TREATMENT REQUIREMENTS).
15. THE "WORKERS" SYMBOLIC SIGN (MUTCD NO. W21-1A) MAY BE USED INSTEAD OF THE "ROAD WORK AHEAD" SIGN FOR WORK WITH A DURATION OF 12 HOURS OR LESS. THE "END ROAD WORK" SIGN IS NOT REQUIRED TO BE INSTALLED AFTER THE "WORKERS" SIGN.
16. NO TRAFFIC SIGNAL SHALL BE ALTERED OR MODIFIED IN ANY WAY WITHOUT A PLAN APPROVED BY THE CITY TRAFFIC ENGINEER.
17. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING ALL TRAFFIC CONTROL DEVICES ON AN AROUND-THE-CLOCK BASIS, WHETHER OR NOT WORK IS ACTIVELY BEING PURSUED AND ANY DEFICIENCIES NOTED SHALL BE CORRECTED IMMEDIATELY.
18. THE TRAFFIC CONTROL REQUIREMENTS SHOWN ON THESE PLANS ARE MINIMUM REQUIREMENTS ONLY AND DO NOT ATTEMPT TO ADDRESS IN DEPTH THE VARIETY OF SITUATIONS THAT MAY OCCUR ONCE CONSTRUCTION HAS STARTED. IN NO WAY DO THE REQUIREMENTS SHOWN ON THESE PLANS RELIEVE THE CONTRACTOR OF HIS RESPONSIBILITY FOR SELECTING THE PROPER TRAFFIC CONTROL DEVICES AND IMPLEMENTATION PROCEDURES THAT WILL ASSURE THE SAFETY OF DRIVERS, PEDESTRIANS, AND WORKERS AT ALL TIMES.
19. SHOULD THE CONTRACTOR FAIL TO ENFORCE THE TRAFFIC CONTROL PLAN OR FAIL TO CLEAN, REPLACE OR OTHERWISE MAINTAIN THE TRAFFIC CONTROL DEVICES WHEN DIRECTED TO DO SO BY THE CITY TRAFFIC ENGINEER OR REPRESENTATIVE, THE CITY MAY TAKE ONE OR MORE OF THE FOLLOWING ACTIONS:
    A. EMPLOY ANOTHER AGENCY TO CORRECT DEFICIENCIES IN TRAFFIC CONTROL DEVICES AND DEDUCT THE COST FROM THE CONTRACTOR'S PAY ESTIMATE.
    B. STOP THE WORK UNTIL DEFICIENCIES ARE CORRECTED.
    C. SUSPEND ALL PAY ESTIMATES UNTIL DEFICIENCIES ARE CORRECTED, OR
    D. PLACE THE CONTRACTOR IN DEFAULT.



CHANNELIZERS

NOTE:
WHITE BANDS ON BARRICADES AND CHANNELIZERS SHALL BE MADE FROM HIGH INTENSITY SHEETING MATERIAL.



BARRICADES

LEE'S SUMMIT MISSOURI
PUBLIC WORKS ENGINEERING DIVISION | 220 SE GREEN STREET | LEE'S SUMMIT, MO 64063

Project: TRAFFIC STANDARD DETAILS
CITY OF LEE'S SUMMIT, MO
CITY OF LEE'S SUMMIT, JACKSON COUNTY, MO

Sheet Name: TRF – 1 TRAFFIC CONTROL DETAILS

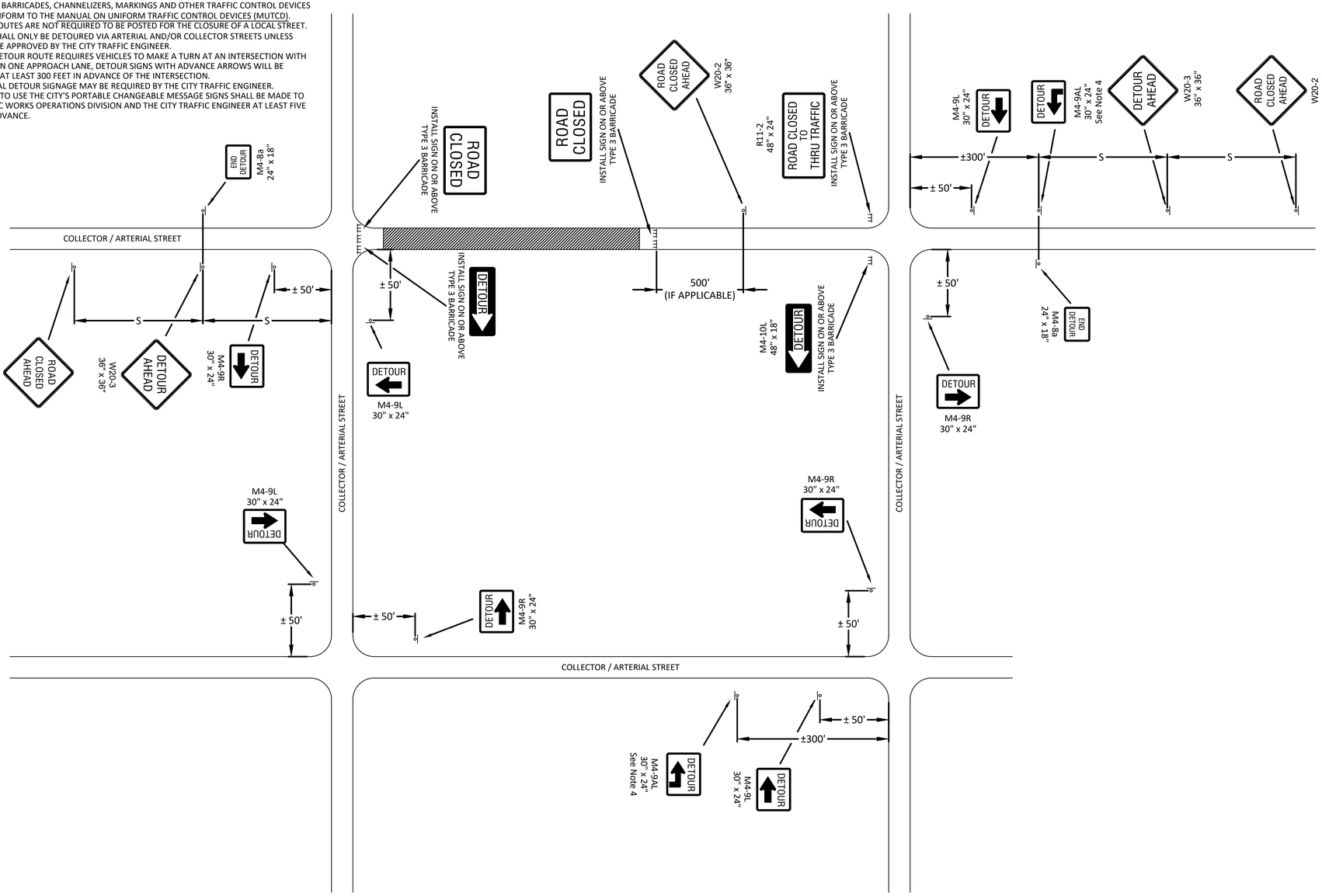
Drawn By: TWS
Checked By: .
Date: 6/2016
Proj. #: .

TRF-1

Temporary Traffic Control Details

DETOUR GENERAL NOTES:

1. ALL SIGNS, BARRICADES, CHANNELIZERS, MARKINGS AND OTHER TRAFFIC CONTROL DEVICES SHALL CONFORM TO THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD).
2. DETOUR ROUTES ARE NOT REQUIRED TO BE POSTED FOR THE CLOSURE OF A LOCAL STREET.
3. TRAFFIC SHALL ONLY BE DETOURED VIA ARTERIAL AND/OR COLLECTOR STREETS UNLESS OTHERWISE APPROVED BY THE CITY TRAFFIC ENGINEER.
4. WHEN A DETOUR ROUTE REQUIRES VEHICLES TO MAKE A TURN AT AN INTERSECTION WITH MORE THAN ONE APPROACH LANE, DETOUR SIGNS WITH ADVANCE ARROWS WILL BE REQUIRED AT LEAST 300 FEET IN ADVANCE OF THE INTERSECTION.
5. ADDITIONAL DETOUR SIGNAGE MAY BE REQUIRED BY THE CITY TRAFFIC ENGINEER.
6. REQUESTS TO USE THE CITY'S PORTABLE CHANGEABLE MESSAGE SIGNS SHALL BE MADE TO THE PUBLIC WORKS OPERATIONS DIVISION AND THE CITY TRAFFIC ENGINEER AT LEAST FIVE DAYS IN ADVANCE.



CHRISTOPHER NOVOSEL
NUMBER PE-2018024421
PROFESSIONAL ENGINEER
STATE OF MISSOURI
9-17-2020

GBA
architects
engineers
9801 Renner Boulevard
Lenexa, Kansas 66219
913.492.0400
www.gbateam.com

Christopher Novosel
Professional Engineer
License No. 2018024421

DATE:	6-25-2020
DESIGN BY:	###
DRAWN BY:	###
PROJECT NO.:	12720
SHEET NO.:	82
TOTAL SHEETS	103

Street and Storm Sewer Plans

Paragon Star Development

Lee's Summit, Missouri

NO.	DATE	REVISIONS	BY	APPROVED

LS LEE'S SUMMIT MISSOURI
PUBLIC WORKS ENGINEERING DIVISION | 220 SE GREEN STREET | LEE'S SUMMIT, MO 64063

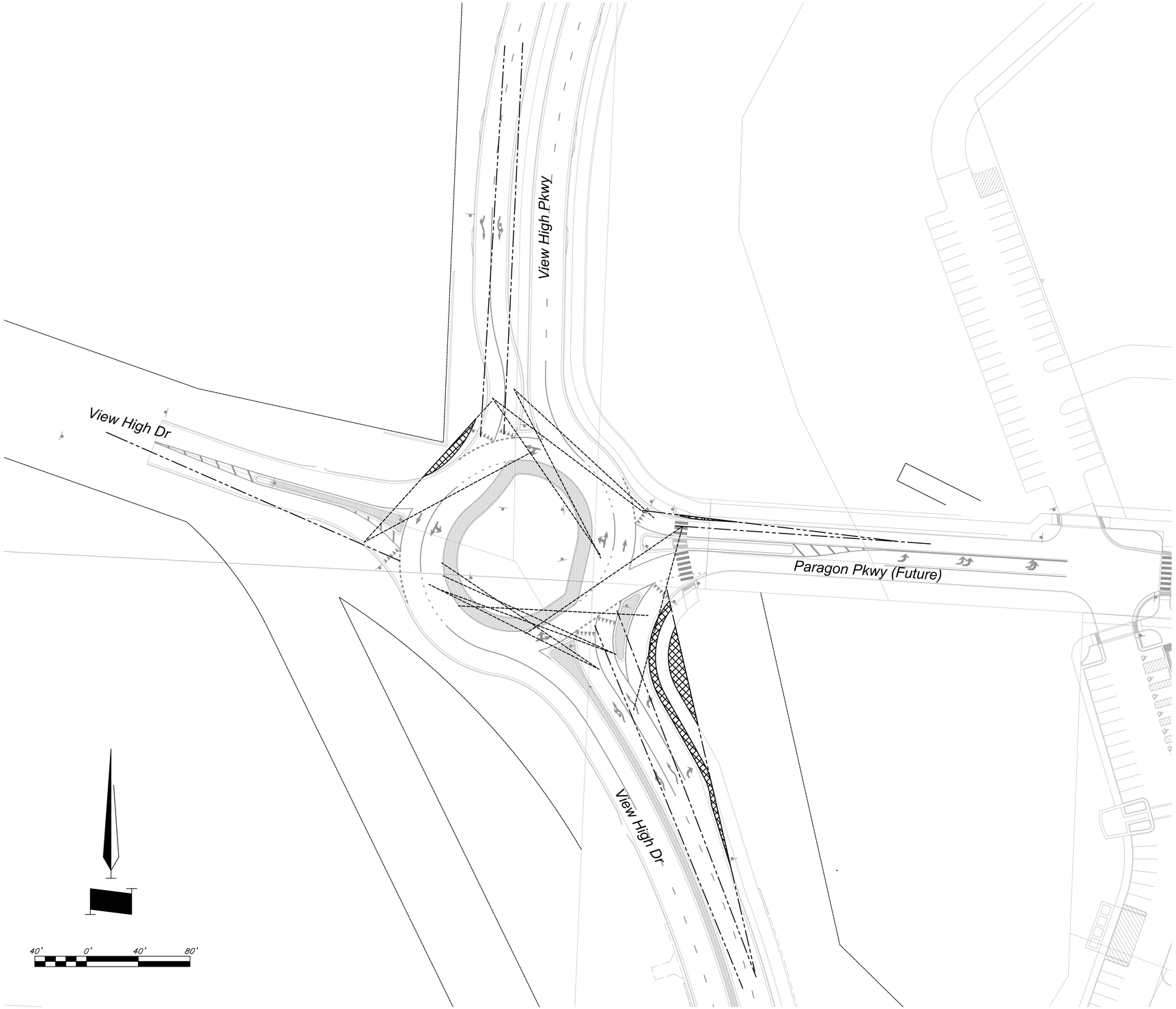
Project: . . CITY OF LEE'S SUMMIT, JACKSON COUNTY, MO

Sheet Name: TRF-2 TYPICAL DETOUR DETAIL

Drawn By: TWS
Checked By: .
Date: 6/2016
Proj. #: .

TRF-2

Architect 00212, Professional Engineer 000133, Professional Land Surveyor 000059



Legend

- Stopping Sight Distance
- Intersection Sight Distance
- Low Growth Landscaping Only

STATE OF MISSOURI
CHRISTOPHER NOVOSEL
NUMBER PE-2018024421
PROFESSIONAL ENGINEER
9-17-2020

GBA
architects
engineers
9801 Renner Boulevard
Lenexa, Kansas 66219
913.492.0400
www.gbateam.com

DATE:	6-25-2020
DESIGN BY:	SPC
DRAWN BY:	DGL
PROJECT NO.:	12720
SHEET NO.	83
TOTAL SHEETS	103

Christopher Novosel
Professional Engineer
License No. 2018024421

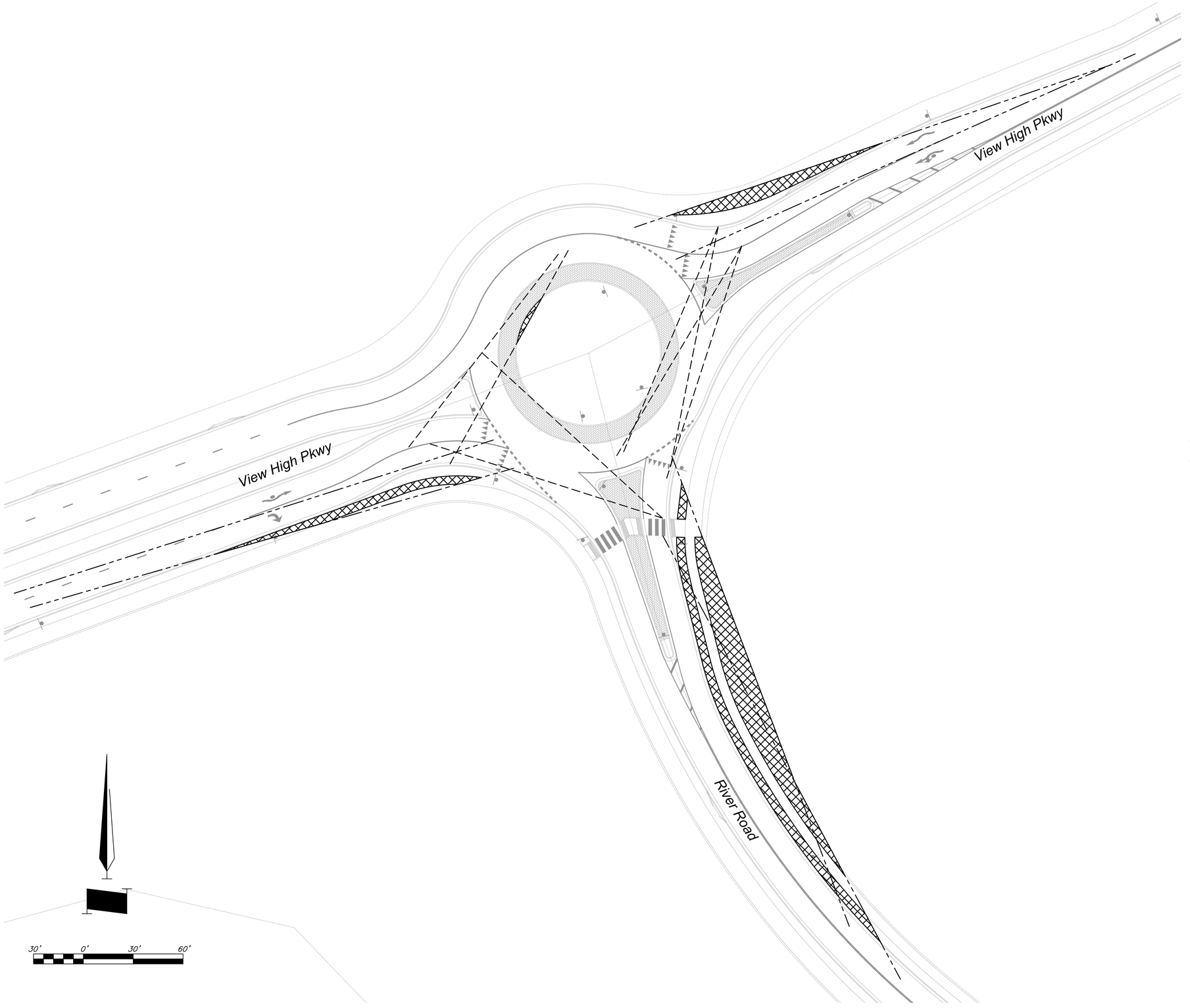
Street and Storm Sewer Plans

Paragon Star Development

Lee's Summit, Missouri

NO.	DATE	REVISIONS	BY	APPROVED

Stopping Sight Distances and Sight Triangles



Legend

Stopping Sight Distance

Intersection Sight Distance

Low Growth Landscaping Only

STATE OF MISSOURI
CHRISTOPHER NOVOSEL
NUMBER PE-2018024421
PROFESSIONAL ENGINEER
9-17-2020

GBA
architects
engineers
9801 Renner Boulevard
Lenexa, Kansas 66219
913.492.0400
www.gbateam.com

DATE:	6-25-2020
DESIGN BY:	SPC
DRAWN BY:	DGL
PROJECT NO.:	12720
SHEET NO:	84
TOTAL SHEETS	103

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Professional Engineer
License No. 2018024421

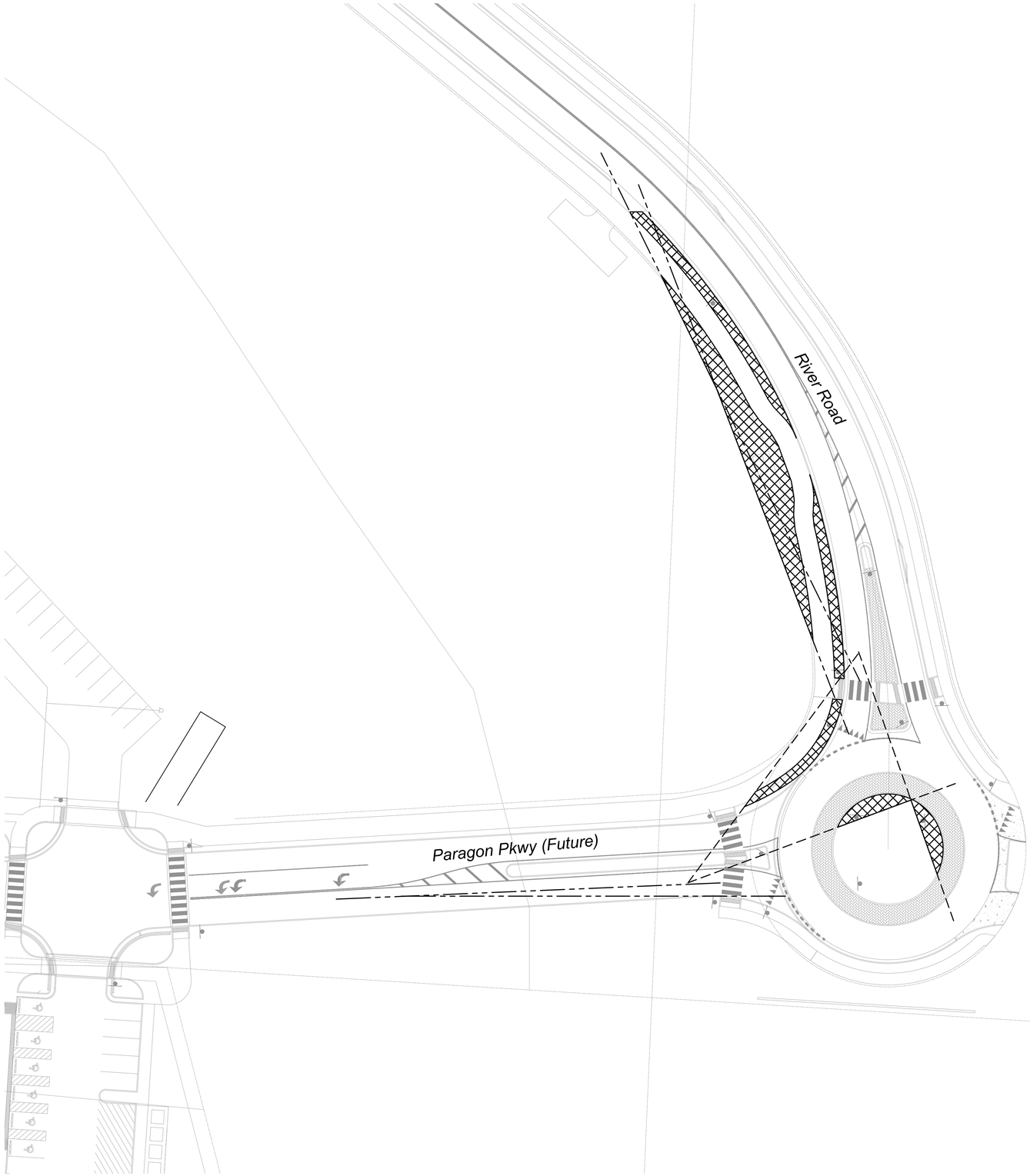
Street and Storm Sewer Plans

Paragon Star Development

Lee's Summit, Missouri

NO.	DATE	REVISIONS	BY	APPROVED

Stopping Sight Distances and Sight Triangles



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architects
engineers
9801 Renner Boulevard
Lenexa, Kansas 66219
913.492.0400
www.gbateam.com

DATE:	6-25-2020
DESIGN BY:	SPC
DRAWN BY:	DGL
PROJECT NO.:	12720
SHEET NO.	TOTAL SHEETS
85	103

Christopher Novosel
Professional Engineer
License No. 2018024421

Street and Storm Sewer Plans

Paragon Star Development

Lee's Summit, Missouri

NO.	DATE	REVISIONS	BY	APPROVED

Legend

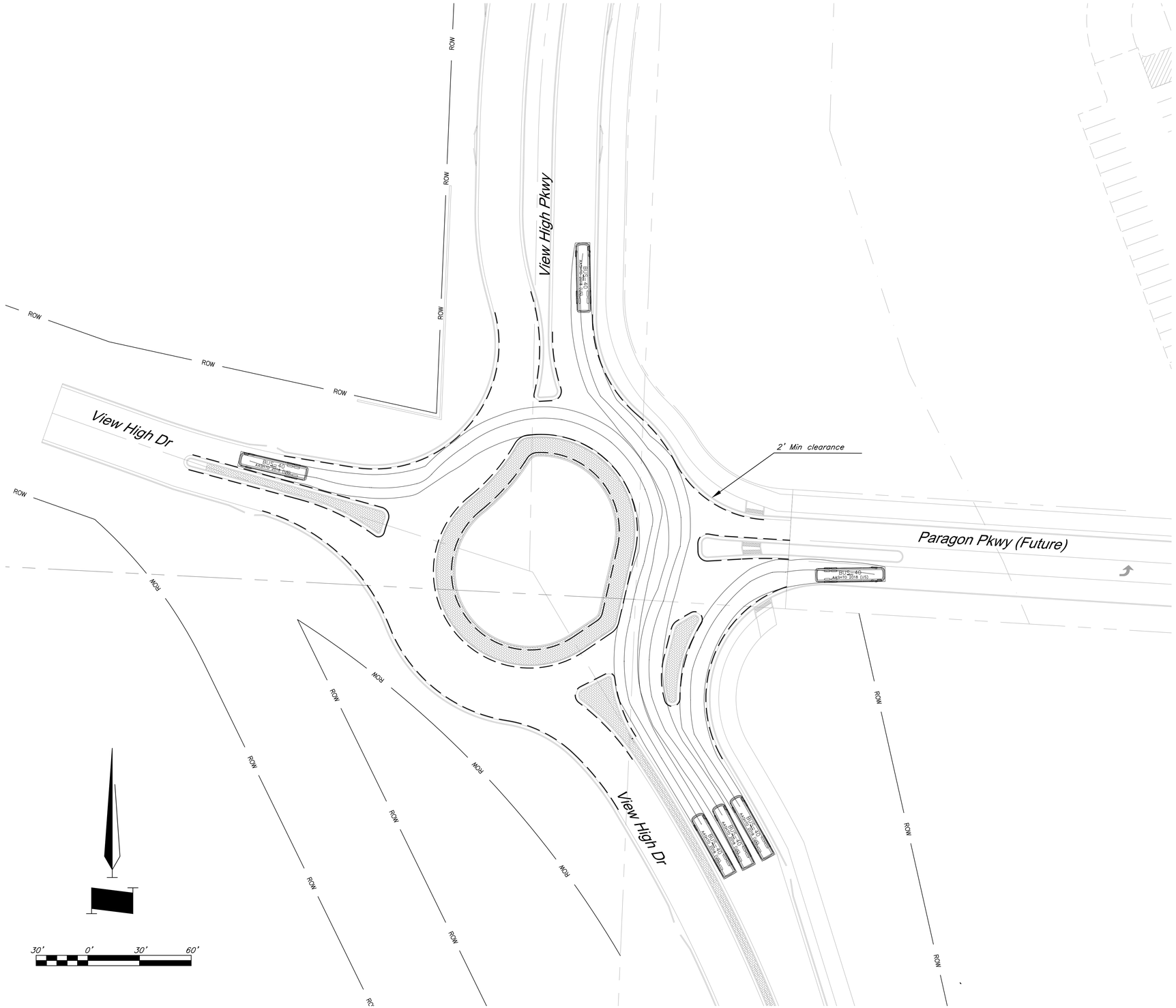
Stopping Sight Distance

Intersection Sight Distance

Low Growth Landscaping Only

30' 0' 30' 60'

Stopping Sight Distances and Sight Triangles



STATE OF MISSOURI
BRADLEY D. BURTON
NUMBER E-25662
REGISTERED PROFESSIONAL ENGINEER
9/11/2020

GBA
architects
engineers
9801 Renner Boulevard
Lenexa, Kansas 66219
913.492.0400
www.gbateam.com

DATE:	6-25-2020
DESIGN BY:	SPC
DRAWN BY:	DGL
PROJECT NO.:	12720
SHEET NO.	86
TOTAL SHEETS	103

Bradley D. Burton
Professional Engineer
License No. 25862

Street and Storm Sewer Plans
Paragon Star Development
Lee's Summit, Missouri

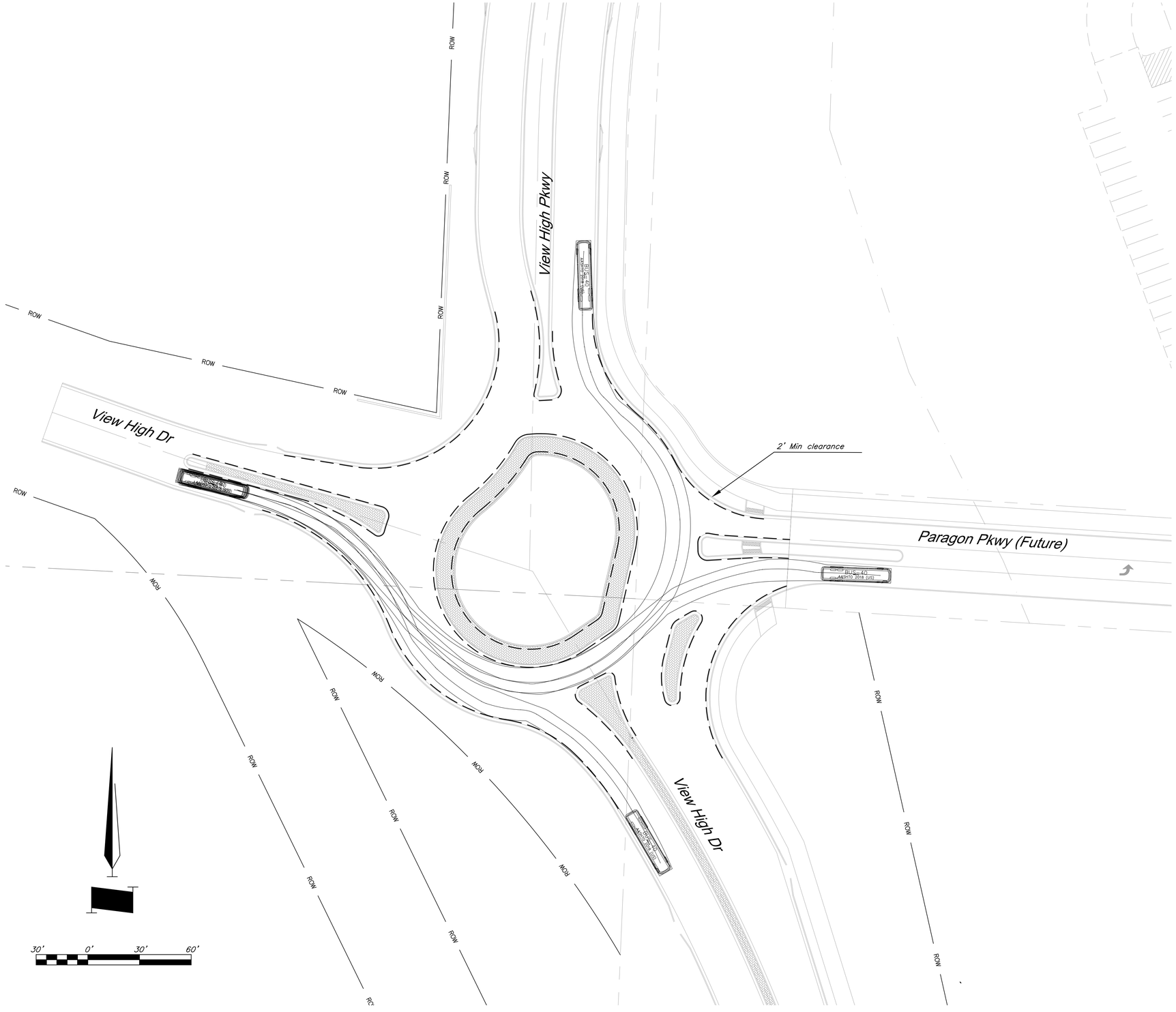
NO.	DATE	REVISIONS	BY	APPROVED
	9/2/20	City Comments		

Legend

2' offset from face of curb

Turning Movements using Design Vehicle 1 – BUS.
Movements to a 2' clearance from tire track and curb.

Turning Movements - Northbound 1



STATE OF MISSOURI
BRADLEY D. BURTON
NUMBER E-25662
REGISTERED PROFESSIONAL ENGINEER
9/1/2020

GBA
architects
engineers
9801 Renner Boulevard
Lenexa, Kansas 66219
913.492.0400
www.gbateam.com

DATE:	6-25-2020
DESIGN BY:	SPC
DRAWN BY:	DGL
PROJECT NO.:	12720
SHEET NO.	TOTAL SHEETS
87	103

Bradley D. Burton
Professional Engineer
License No. 25862

Street and Storm Sewer Plans

Paragon Star Development

Lee's Summit, Missouri

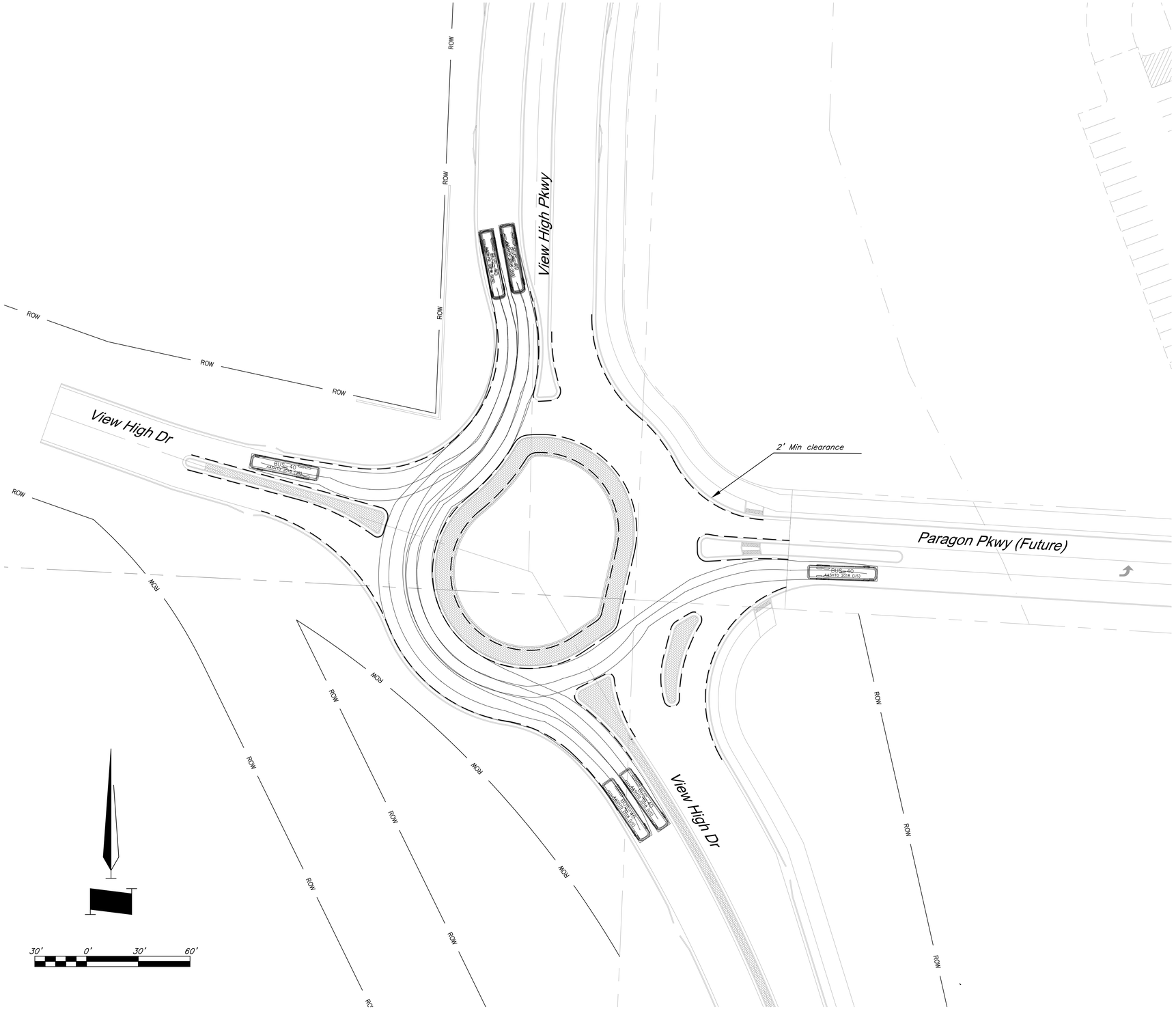
NO.	DATE	REVISIONS	BY	APPROVED
	9/2/20	City Comments		

Legend

2' offset from face of curb

Turning Movements using Design Vehicle 1 – BUS.
Movements to a 2' clearance from tire track and curb.

Turning Movements - Eastbound 1



STATE OF MISSOURI
BRADLEY D. BURTON
NUMBER E-25862
REGISTERED PROFESSIONAL ENGINEER
9/11/2020

GBA
architects
engineers
9801 Renner Boulevard
Lenexa, Kansas 66219
913.492.0400
www.gbateam.com

DATE:	6-25-2020
DESIGN BY:	SPC
DRAWN BY:	DGL
PROJECT NO.:	12720
SHEET NO.	88
TOTAL SHEETS	103

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Professional Engineer
License No. 25862

Street and Storm Sewer Plans

Paragon Star Development

Lee's Summit, Missouri

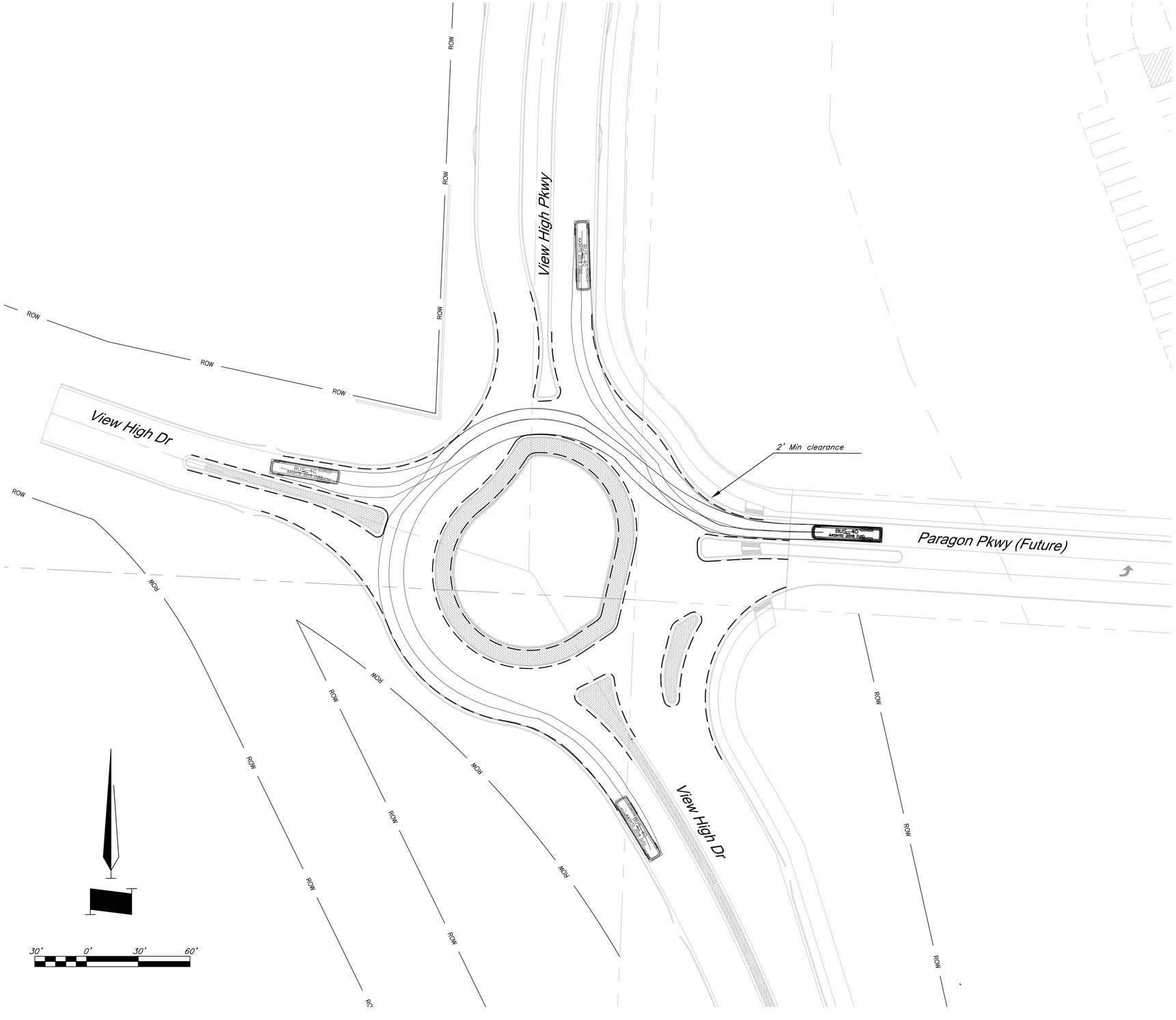
NO.	DATE	REVISIONS	BY	APPROVED
	9/2/20	City Comments		

Legend

2' offset from face of curb

Turning Movements using Design Vehicle 1 – BUS.
Movements to a 2' clearance from tire track and curb.

Turning Movements - Southbound 1



STATE OF MISSOURI
BRADLEY D. BURTON
NUMBER E-25662
REGISTERED PROFESSIONAL ENGINEER
9/1/2020

GBA
architects
engineers
9801 Renner Boulevard
Lenexa, Kansas 66219
913.492.0400
www.gbateam.com

DATE:	6-25-2020
DESIGN BY:	SPC
DRAWN BY:	DGL
PROJECT NO.:	12720
SHEET NO.	89
TOTAL SHEETS	103

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License No. 25862

Street and Storm Sewer Plans

Paragon Star Development

Lee's Summit, Missouri

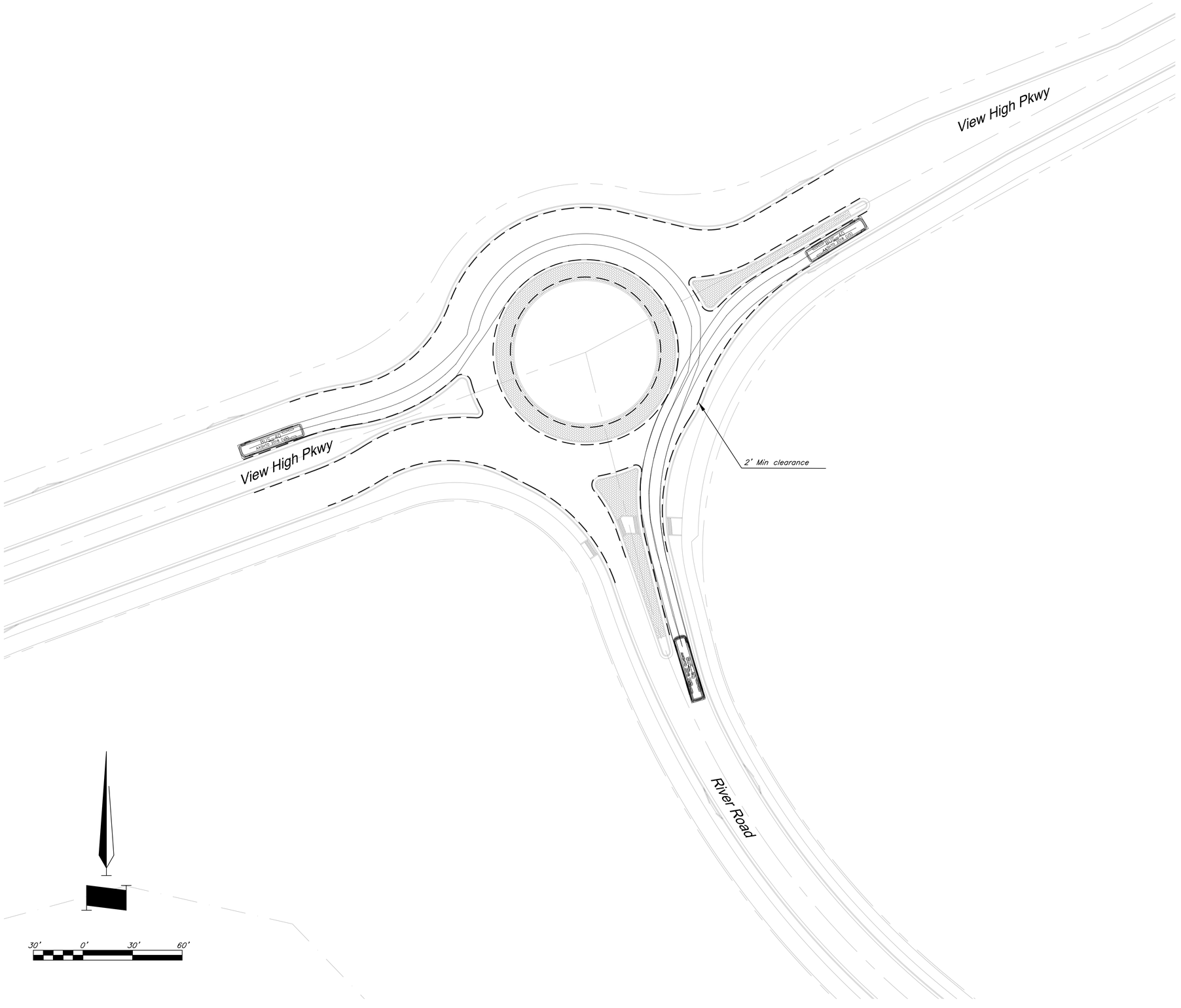
NO.	DATE	REVISIONS	BY	APPROVED
	9/2/20	City Comments		

Legend

— — — — 2' offset from face of curb

Turning Movements using Design Vehicle 1 – BUS.
Movements to a 2' clearance from tire track and curb.

Turning Movements - Westbound 1



STATE OF MISSOURI
BRADLEY D. BURTON
NUMBER E-25862
REGISTERED PROFESSIONAL ENGINEER
9/1/2020

GBA
architects
engineers
9801 Renner Boulevard
Lenexa, Kansas 66219
913.492.0400
www.gbateam.com

DATE:	6-25-2020
DESIGN BY:	SPC
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PROJECT NO.:	12720
SHEET NO.	90
TOTAL SHEETS	103

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License No. 25862

Street and Storm Sewer Plans

Paragon Star Development

Lee's Summit, Missouri

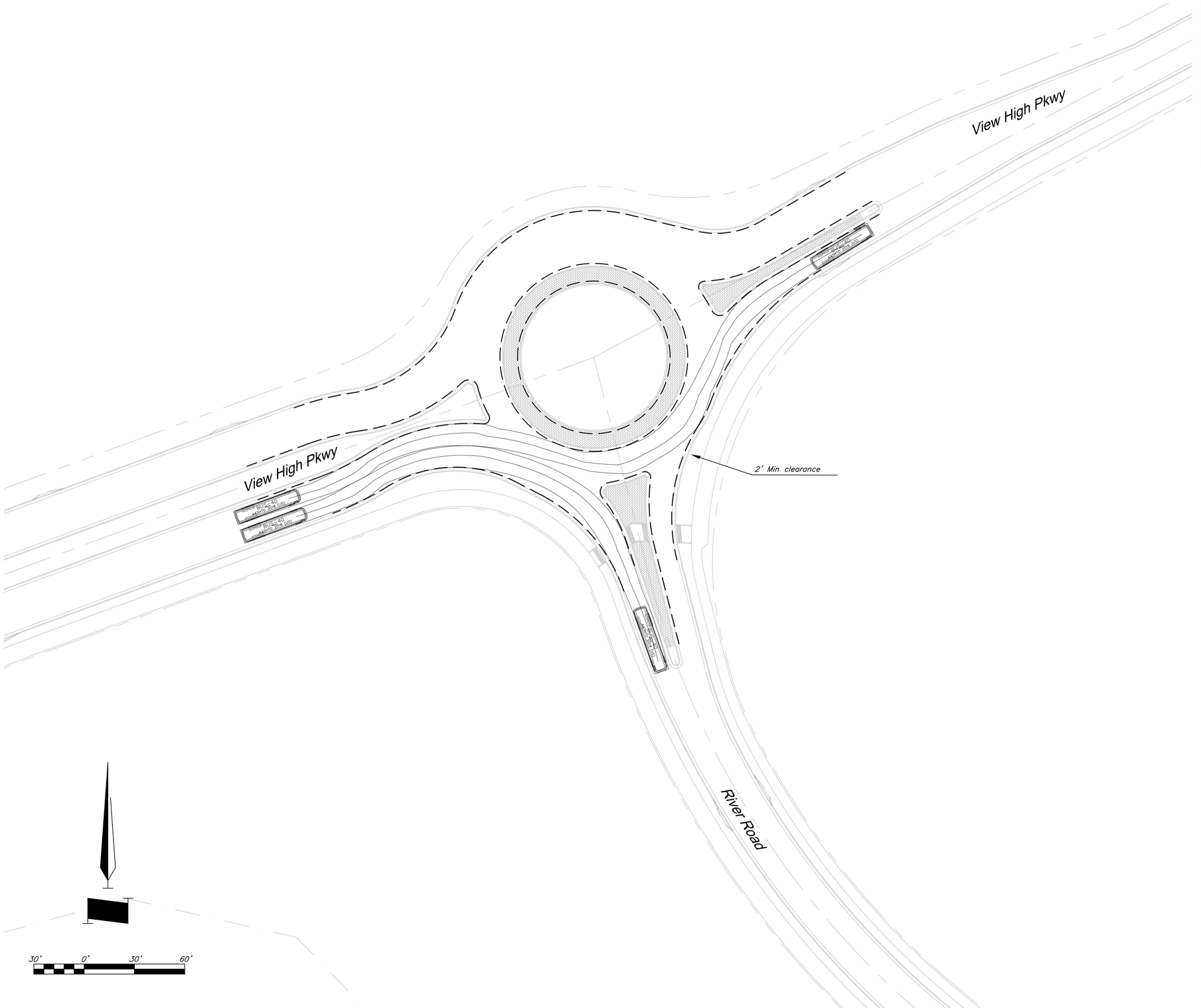
NO.	DATE	REVISIONS	BY	APPROVED
	9/2/20	City Comments		

Legend

— — — — 2' offset from face of curb

Turning Movements using Design Vehicle 1 – BUS.
Movements to a 2' clearance from tire track and curb.

Turning Movements - Northbound 2



STATE OF MISSOURI
BRADLEY D. BURTON
NUMBER E-25862
REGISTERED PROFESSIONAL ENGINEER
9/1/2020

GBA
architects
engineers
9801 Renner Boulevard
Lenexa, Kansas 66219
913.492.0400
www.gbateam.com

DATE:	6-25-2020
DESIGN BY:	SPC
DRAWN BY:	DGL
PROJECT NO.:	12720
SHEET NO.	91
TOTAL SHEETS	103

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Professional Engineer
License No. 25862

Street and Storm Sewer Plans

Paragon Star Development

Lee's Summit, Missouri

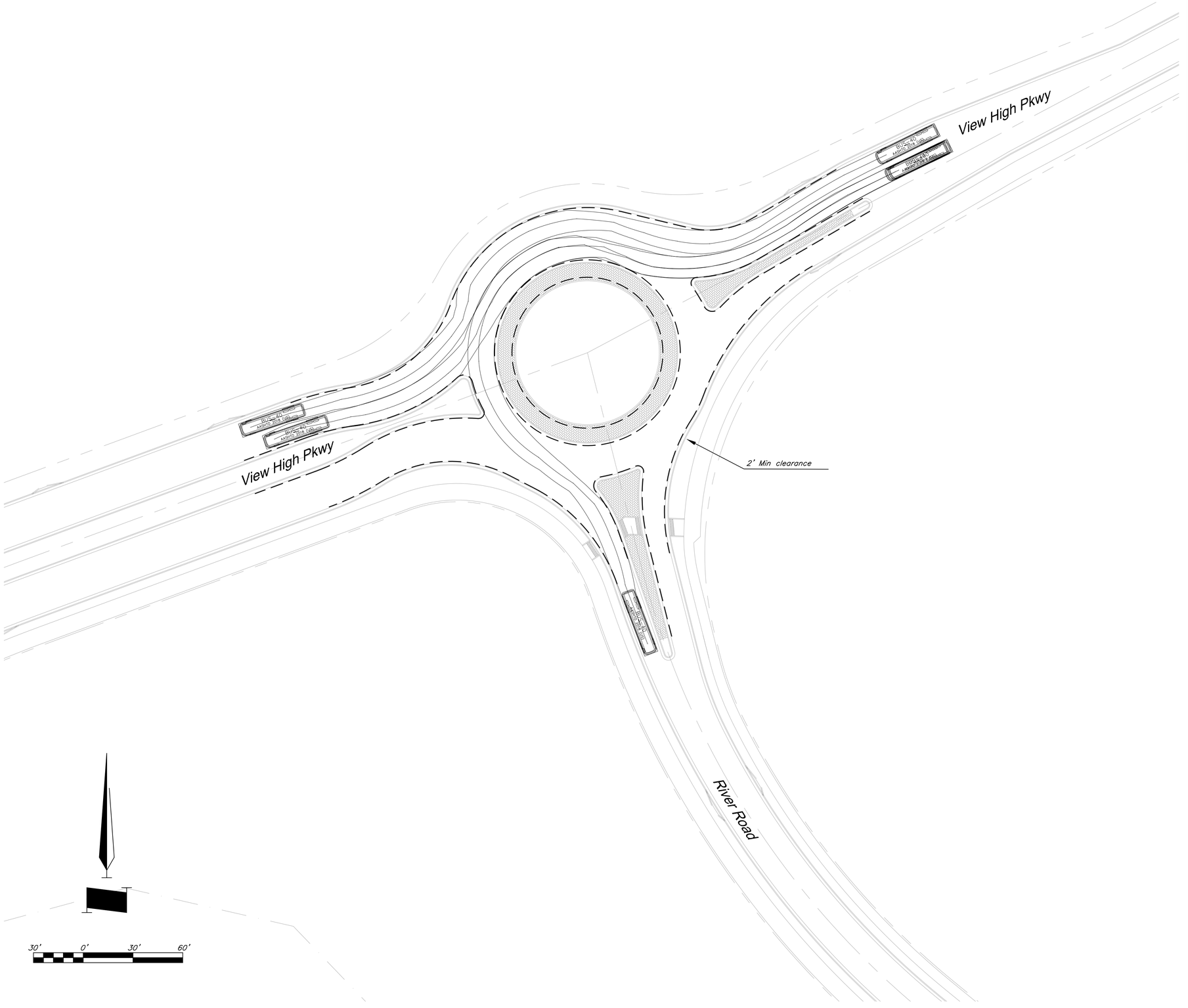
NO.	DATE	REVISIONS	BY	APPROVED
	9/2/20	City Comments		

Legend

— — — — 2' offset from face of curb

Turning Movements using Design Vehicle 1 – BUS.
Movements to a 2' clearance from tire track and curb.

Turning Movements - Eastbound 2



STATE OF MISSOURI
BRADLEY D. BURTON
NUMBER E-25862
REGISTERED PROFESSIONAL ENGINEER
9/1/2020

GBA
architects
engineers
9801 Renner Boulevard
Lenexa, Kansas 66219
913.492.0400
www.gbateam.com

DATE:	6-25-2020
DESIGN BY:	SPC
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PROJECT NO.:	12720
SHEET NO.	92
TOTAL SHEETS	103

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Professional Engineer
License No. 25862

Street and Storm Sewer Plans

Paragon Star Development

Lee's Summit, Missouri

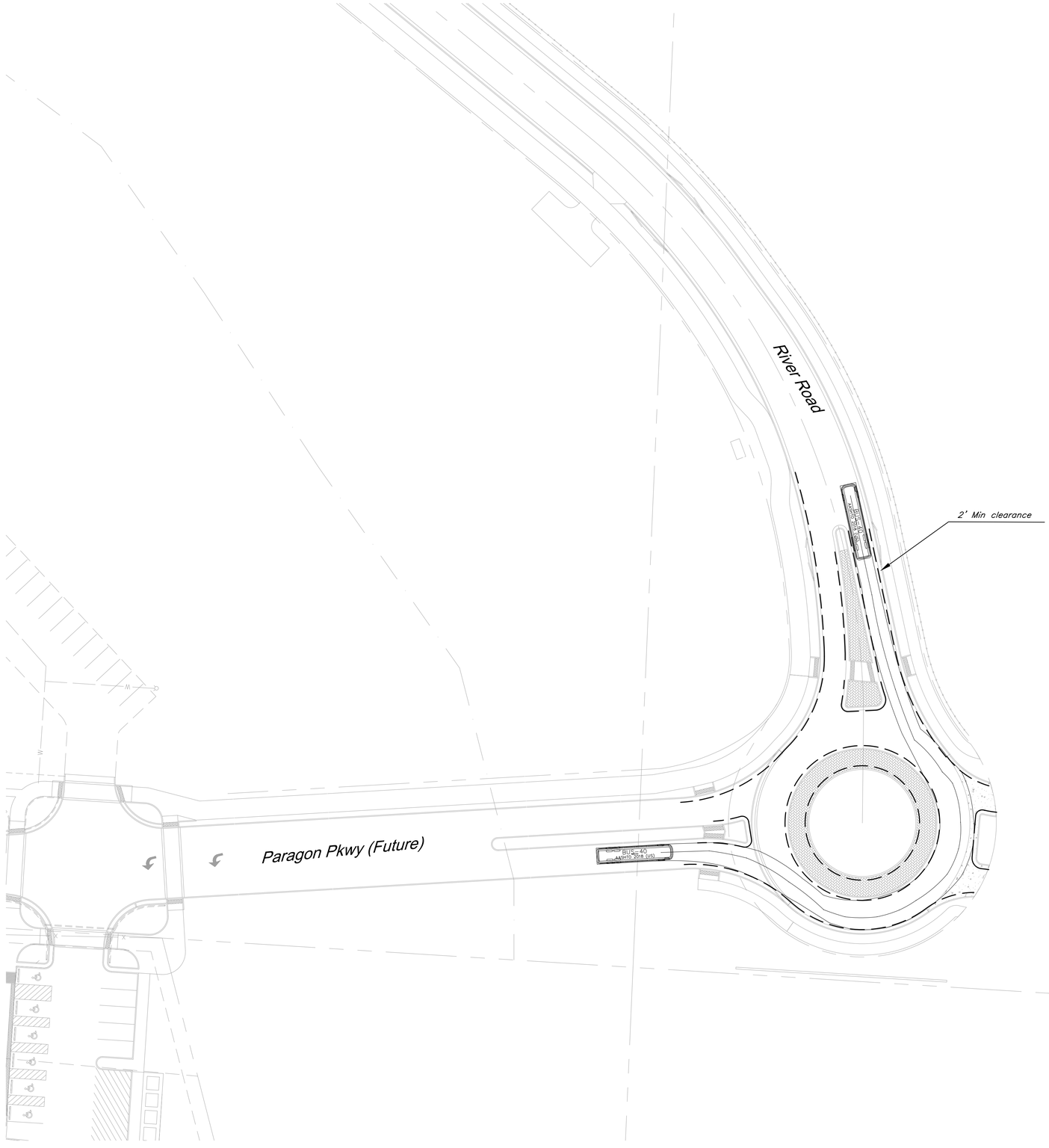
NO.	DATE	REVISIONS	BY	APPROVED
	9/2/20	City Comments		

Legend

— — — — 2' offset from face of curb

Turning Movements using Design Vehicle 1 – BUS.
Movements to a 2' clearance from tire track and curb.

Turning Movements - Westbound 2



STATE OF MISSOURI
BRADLEY D. BURTON
NUMBER E-25862
REGISTERED PROFESSIONAL ENGINEER
9/1/2020

GBA
architects
engineers
9801 Renner Boulevard
Lenexa, Kansas 66219
913.492.0400
www.gbateam.com

DATE:	6-25-2020
DESIGN BY:	SPC
DRAWN BY:	DGL
PROJECT NO.:	12720
SHEET NO.	TOTAL SHEETS
93	103

Bradley D. Burton
Professional Engineer
License No. 25862

Street and Storm Sewer Plans
Paragon Star Development
Lee's Summit, Missouri

NO.	DATE	REVISIONS	BY	APPROVED
	9/2/20	City Comments		

Legend

— — — — 2' offset from face of curb

Turning Movements using Design Vehicle 1 – BUS.
Movements to a 2' clearance from tire track and curb.

30' 0' 30' 60'

Turning Movements - Eastbound 3

Architect 00212, Professional Engineer 000133, Professional Land Surveyor 000059

STATE OF MISSOURI
BRADLEY D. BURTON
NUMBER E-25862
REGISTERED PROFESSIONAL ENGINEER
9/1/2020

GBA
architects
engineers
9801 Renner Boulevard
Lenexa, Kansas 66219
913.492.0400
www.gbateam.com

DATE:	6-25-2020
DESIGN BY:	SPC
DRAWN BY:	DGL
PROJECT NO.:	12720
SHEET NO.	TOTAL SHEETS
94	103

Bradley D. Burton
Professional Engineer
License No. 25862

Street and Storm Sewer Plans

Paragon Star Development

Lee's Summit, Missouri

NO.	DATE	REVISIONS	BY	APPROVED
	9/2/20	City Comments		

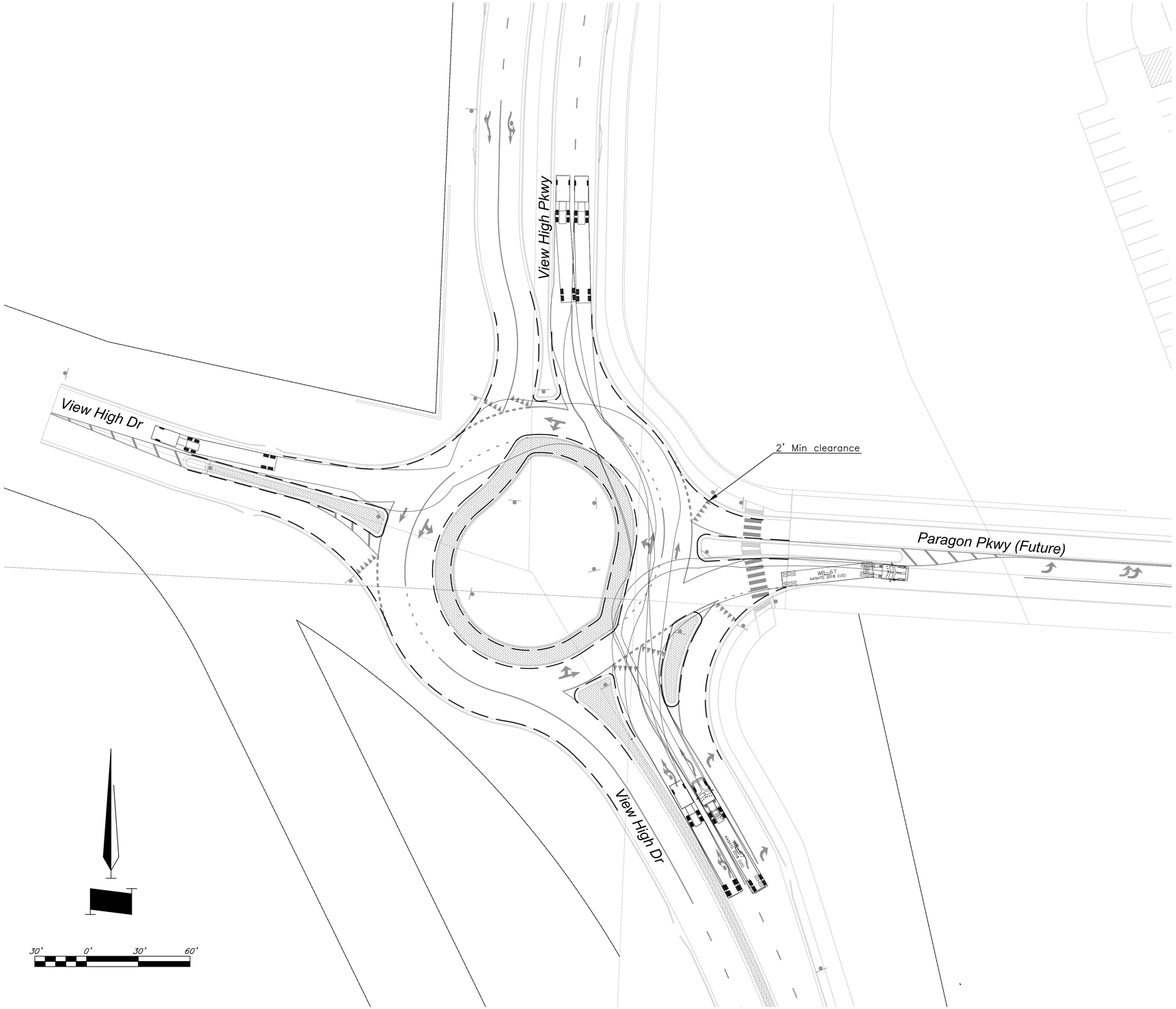
Legend

— — — — 2' offset from face of curb

Turning Movements using Design Vehicle 1 – BUS.
Movements to a 2' clearance from tire track and curb.

30' 0' 30' 60'

Turning Movements - Southbound 3



Legend

— — — — 2' offset from face of curb

Turning Movements using Design Vehicle 2 – WB-67.
Movements must maintain a 2' clearance from tire track and curb, minimum.

Turning Movements - Northbound 1

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BRADLEY D. BURTON
NUMBER E-25862
REGISTERED PROFESSIONAL ENGINEER
9/1/2020

GBA
architects
engineers
9801 Renner Boulevard
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DATE:	6-25-2020
DESIGN BY:	SPC
DRAWN BY:	DGL
PROJECT NO.:	12720
SHEET NO.:	95
TOTAL SHEETS	103

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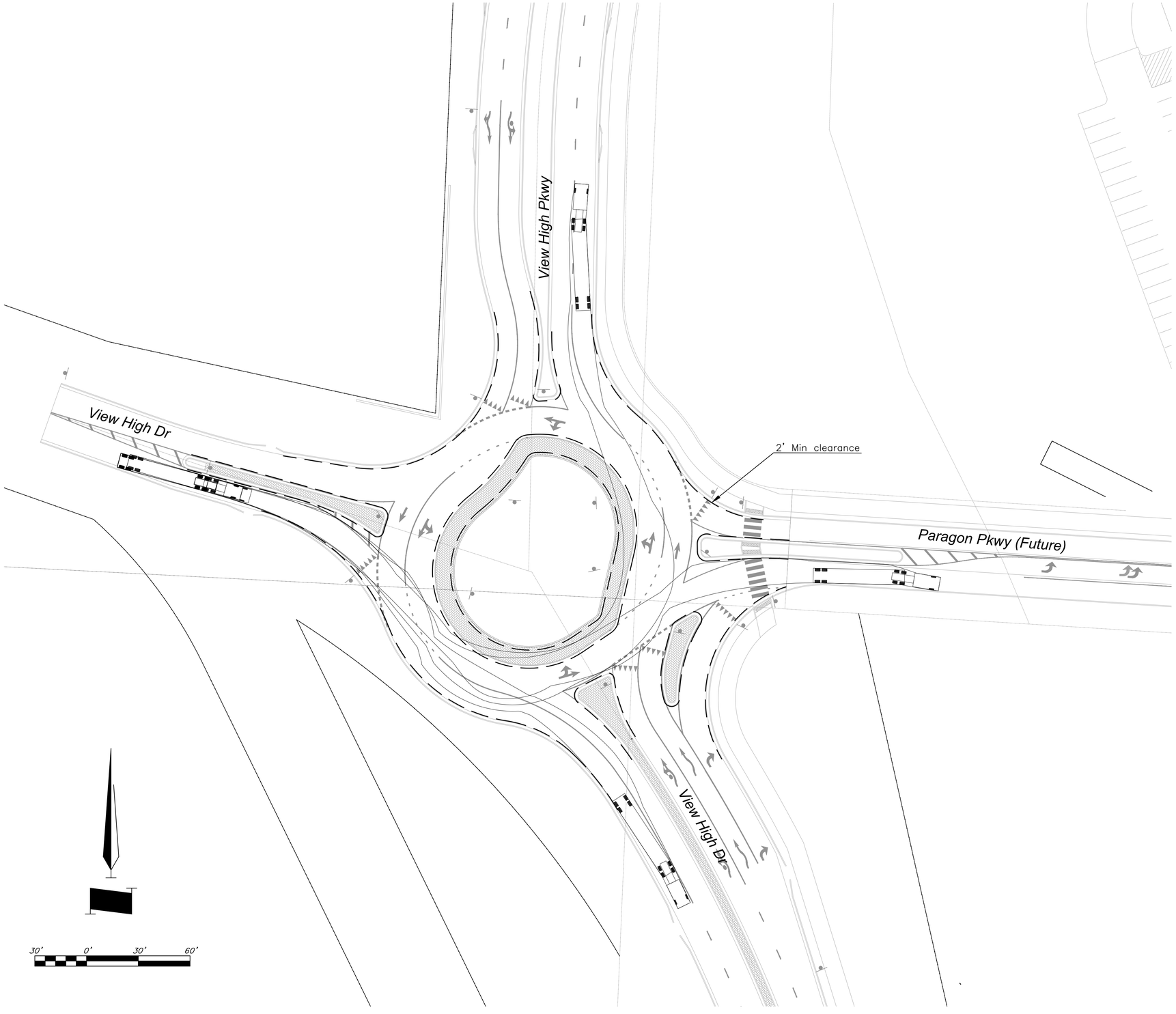
Professional Engineer
License No. 25862

Street and Storm Sewer Plans
Paragon Star Development
Lee's Summit, Missouri

NO.	DATE	REVISIONS	BY	APPROVED
	9/2/20	City Comments		



Legend

— — — — 2' offset from face of curb

Turning Movements using Design Vehicle 2 – WB–67.
Movements must maintain a 2' clearance from tire track and curb, minimum.

STATE OF MISSOURI
BRADLEY D. BURTON
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REGISTERED PROFESSIONAL ENGINEER
9/1/2020

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architects
engineers
9801 Renner Boulevard
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DATE:	6-25-2020
DESIGN BY:	SPC
DRAWN BY:	DGL
PROJECT NO.:	12720
SHEET NO.	96
TOTAL SHEETS	103

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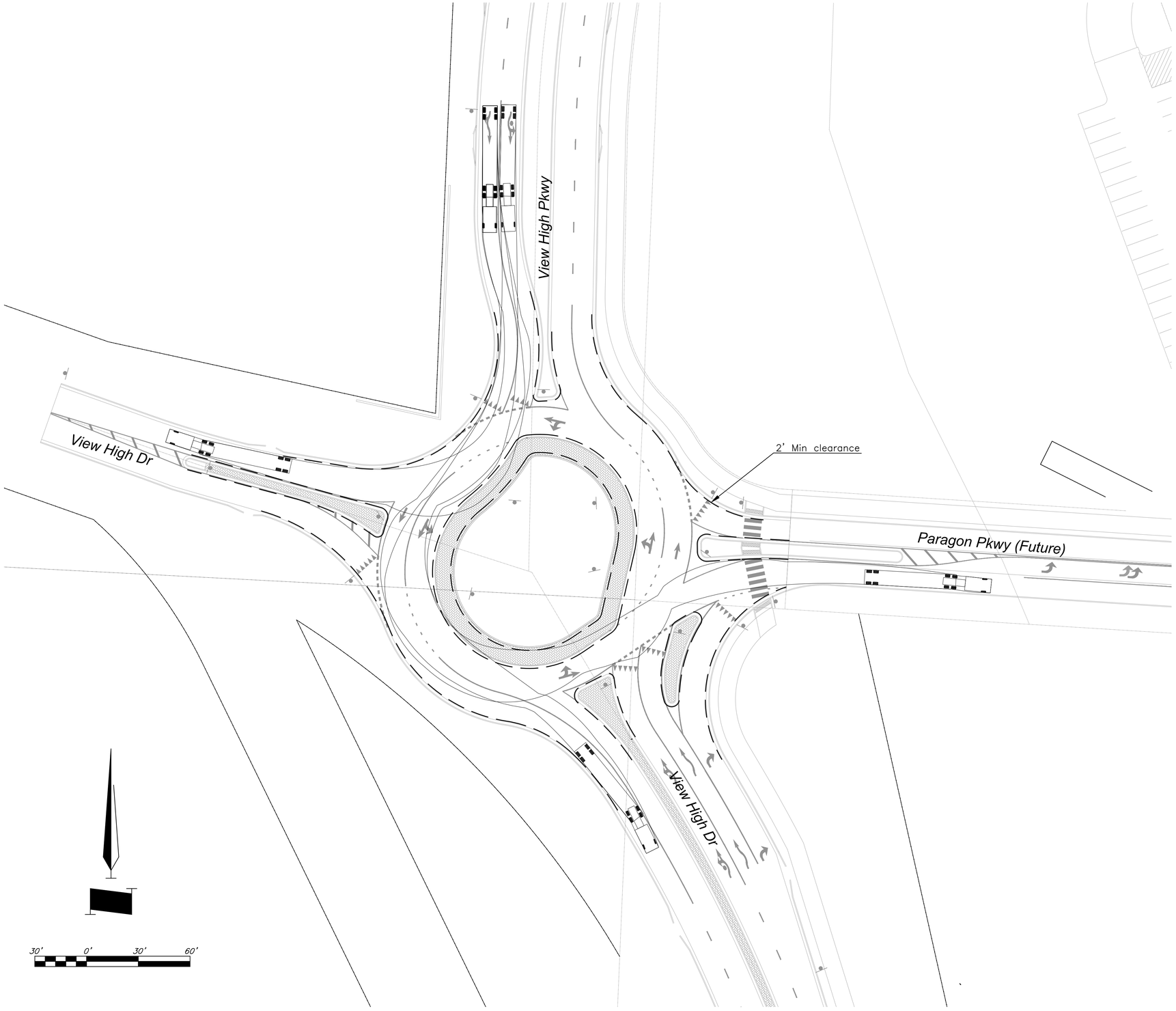
Professional Engineer
License No. 25862

Street and Storm Sewer Plans
Paragon Star Development
Lee's Summit, Missouri

NO.	DATE	REVISIONS	BY	APPROVED
	9/2/20	City Comments		

Turning Movements - Eastbound 1



STATE OF MISSOURI
BRADLEY D. BURTON
NUMBER E-25662
REGISTERED PROFESSIONAL ENGINEER
9/1/2020

GBA
architects
engineers
9801 Renner Boulevard
Lenexa, Kansas 66219
913.492.0400
www.gbateam.com

DATE:	6-25-2020
DESIGN BY:	SPC
DRAWN BY:	DGL
PROJECT NO.:	12720
SHEET NO.	97
TOTAL SHEETS	103

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Professional Engineer
License No. 25862

Street and Storm Sewer Plans
Paragon Star Development
Lee's Summit, Missouri

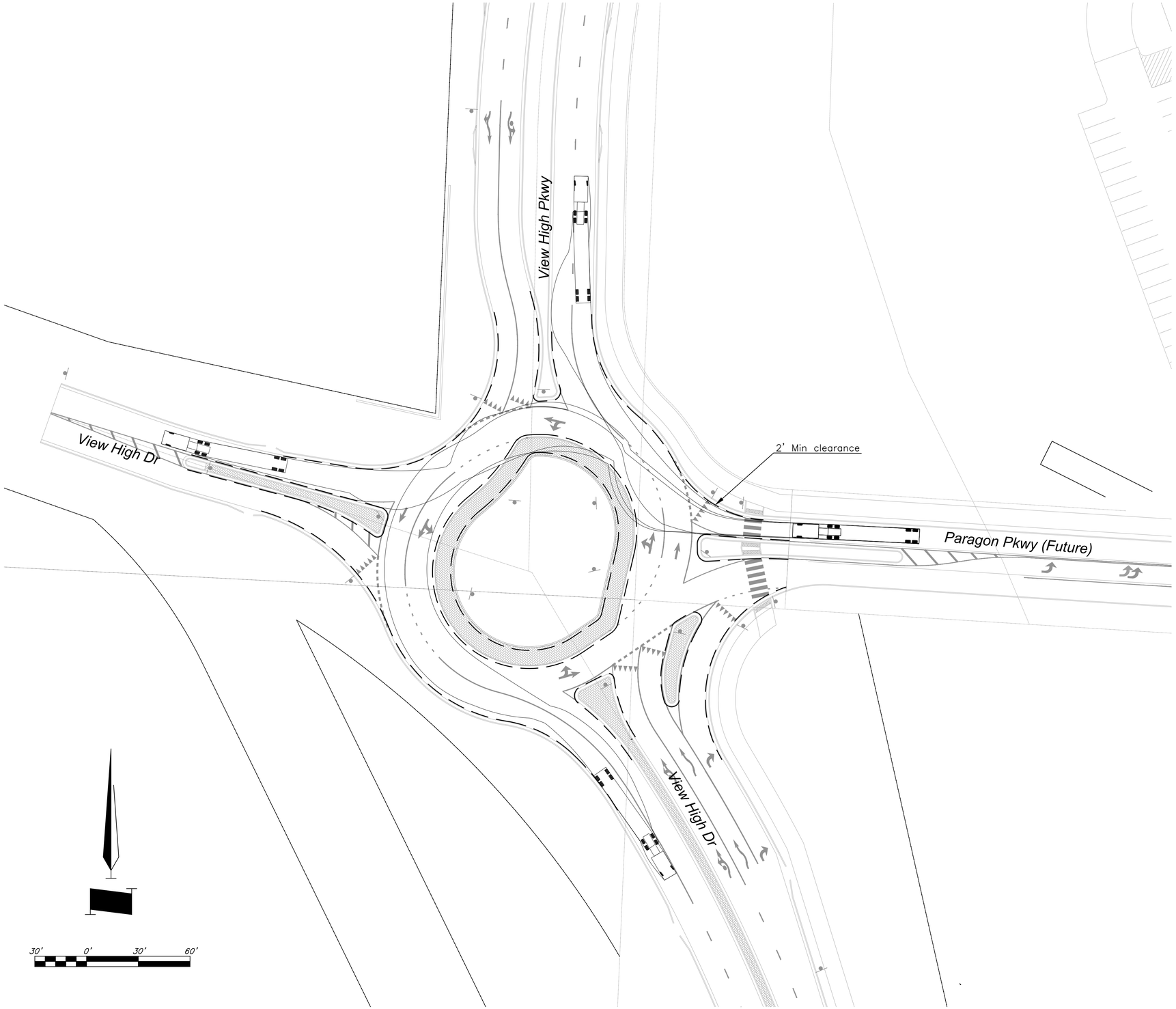
NO.	DATE	REVISIONS	BY	APPROVED
	9/2/20	City Comments		

Legend

— — — — 2' offset from face of curb

Turning Movements using Design Vehicle 2 – WB–67.
Movements must maintain a 2' clearance from tire track and curb, minimum.

Turning Movements - Southbound 1



STATE OF MISSOURI
BRADLEY D. BURTON
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REGISTERED PROFESSIONAL ENGINEER
9/1/2020

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architects
engineers
9801 Renner Boulevard
Lenexa, Kansas 66219
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DATE:	6-25-2020
DESIGN BY:	SPC
DRAWN BY:	DGL
PROJECT NO.:	12720
SHEET NO.	98
TOTAL SHEETS	103

Bradley D. Burton
Professional Engineer
License No. 25862

Street and Storm Sewer Plans
Paragon Star Development
Lee's Summit, Missouri

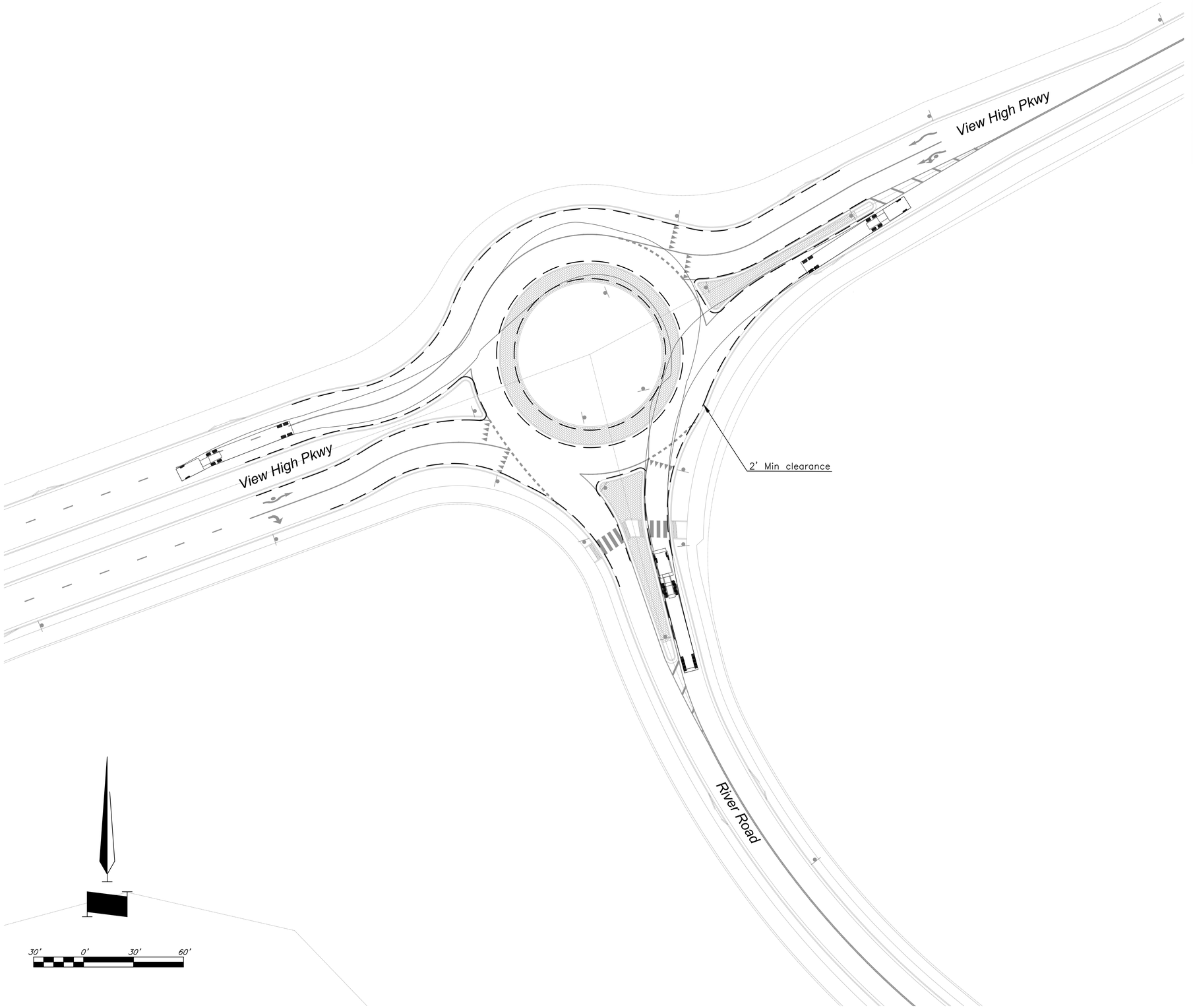
NO.	DATE	REVISIONS	BY	APPROVED
	9/2/20	City Comments		

Legend

— — — — 2' offset from face of curb

Turning Movements using Design Vehicle 2 – WB-67.
Movements must maintain a 2' clearance from tire track and curb, minimum.

Turning Movements - Westbound 1



STATE OF MISSOURI
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9/1/2020

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GBA
architects
engineers
9801 Renner Boulevard
Lenexa, Kansas 66219
913.492.0400
www.gbateam.com

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DESIGN BY:	SPC
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PROJECT NO.:	12720
SHEET NO.	99
TOTAL SHEETS	103

Street and Storm Sewer Plans

Paragon Star Development

Lee's Summit, Missouri

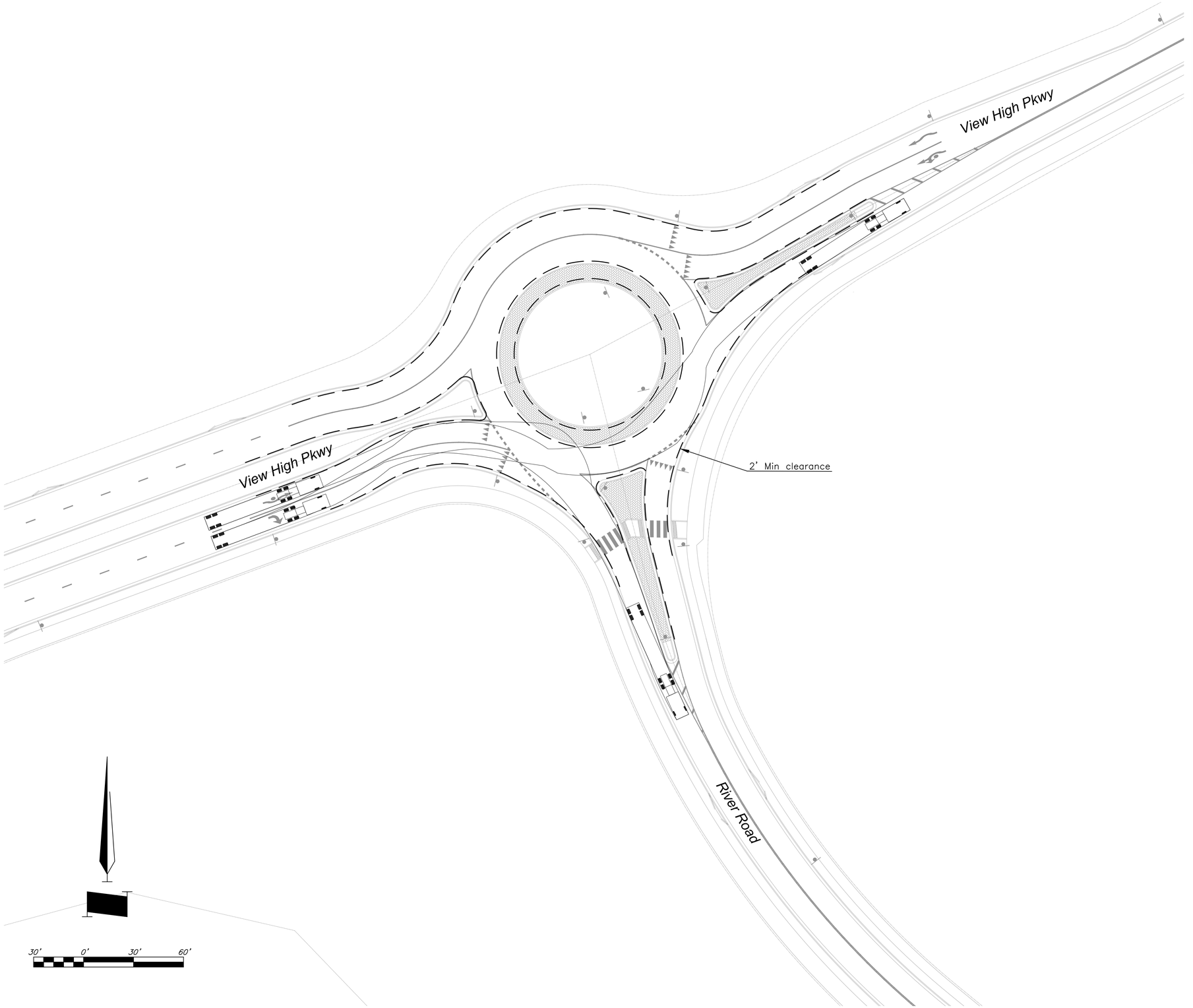
NO.	DATE	REVISIONS	BY	APPROVED
	9/2/20	City Comments		

Legend

— — — — 2' offset from face of curb

Turning Movements using Design Vehicle 2 – WB-67.
Movements must maintain a 2' clearance from tire track and curb, minimum.

Turning Movements - Northbound 2



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REGISTERED PROFESSIONAL ENGINEER
9/1/2020

GBA
architects
engineers
9801 Renner Boulevard
Lenexa, Kansas 66219
913.492.0400
www.gbateam.com

DATE:	6-25-2020
DESIGN BY:	SPC
DRAWN BY:	DGL
PROJECT NO.:	12720
SHEET NO.	100
TOTAL SHEETS	103

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License No. 25862

Street and Storm Sewer Plans
Paragon Star Development
Lee's Summit, Missouri

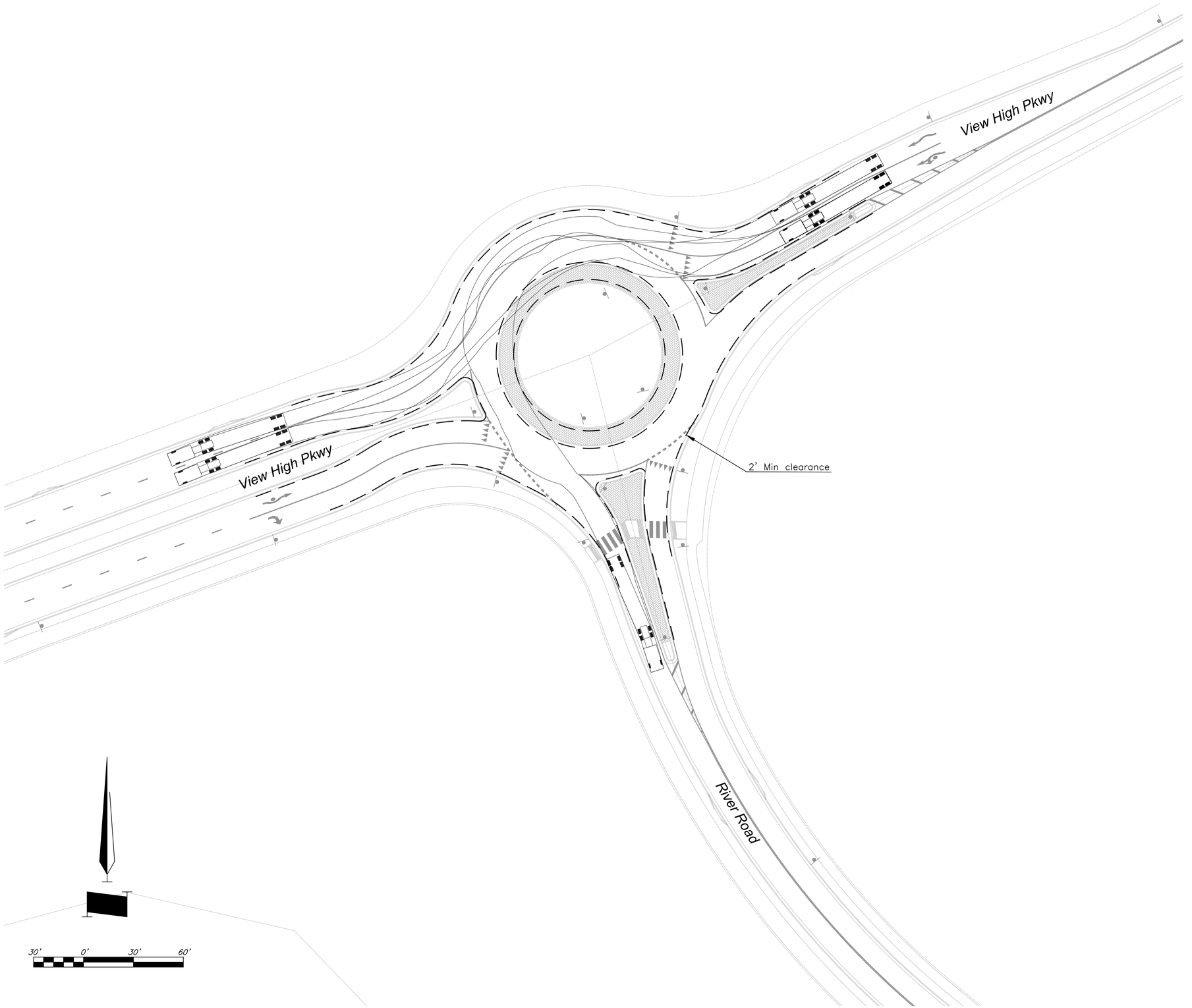
NO.	DATE	REVISIONS	BY	APPROVED
	9/2/20	City Comments		

Legend

— — — — 2' offset from face of curb

Turning Movements using Design Vehicle 2 – WB–67.
Movements must maintain a 2' clearance from tire track and curb, minimum.

Turning Movements - Eastbound 2



Legend

— — — — 2' offset from face of curb

Turning Movements using Design Vehicle 2 – WB–67.
Movements must maintain a 2' clearance from tire track and curb, minimum.

STATE OF MISSOURI
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NUMBER E-25862
REGISTERED PROFESSIONAL ENGINEER
9/1/2020

GBA
architects
engineers
9801 Renner Boulevard
Lenexa, Kansas 66219
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DATE:	6-25-2020
DESIGN BY:	SPC
DRAWN BY:	DGL
PROJECT NO.:	12720
SHEET NO.	101
TOTAL SHEETS	103

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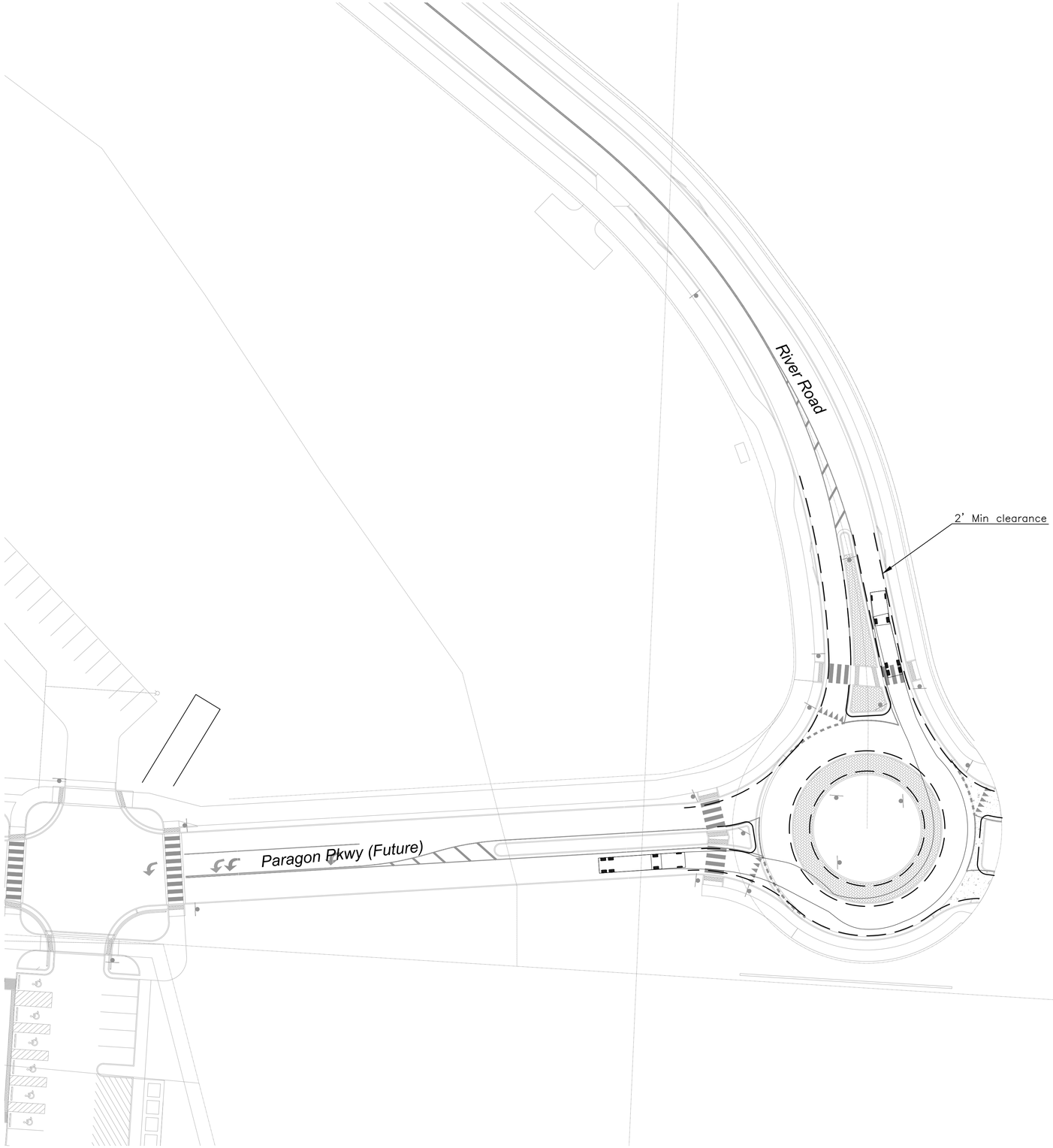
License No. 25862

Street and Storm Sewer Plans
Paragon Star Development
Lee's Summit, Missouri

NO.	DATE	REVISIONS	BY	APPROVED
	9/2/20	City Comments		

Turning Movements - Westbound 2



STATE OF MISSOURI
BRADLEY D. BURTON
NUMBER E-25862
REGISTERED PROFESSIONAL ENGINEER
9/1/2020

GBA
architects
engineers
9801 Renner Boulevard
Lenexa, Kansas 66219
913.492.0400
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DATE:	6-25-2020
DESIGN BY:	SPC
DRAWN BY:	DGL
PROJECT NO.:	12720
SHEET NO.	102
TOTAL SHEETS	103

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License No. 25862

Street and Storm Sewer Plans
Paragon Star Development
Lee's Summit, Missouri

NO.	DATE	REVISIONS	BY	APPROVED
	9/2/20	City Comments		

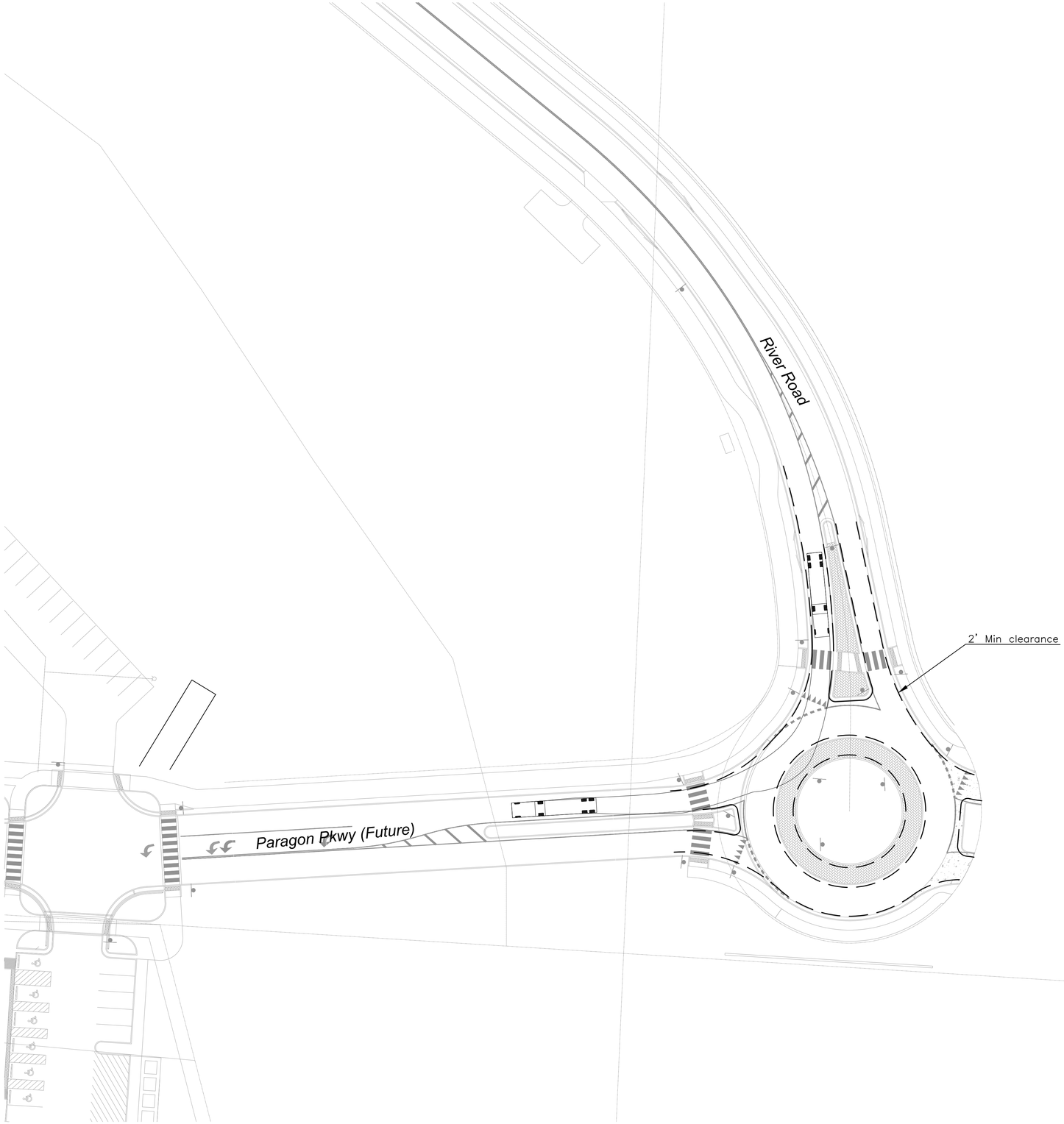
Legend

— — — — 2' offset from face of curb

Turning Movements using Design Vehicle 2 – WB–67.
Movements must maintain a 2' clearance from tire track and curb, minimum.

30' 0' 30' 60'

Turning Movements - Eastbound 3



STATE OF MISSOURI
BRADLEY D. BURTON
NUMBER E-25862
REGISTERED PROFESSIONAL ENGINEER
9/1/2020

Bradley D. Burton
Professional Engineer
License No. 25862

GBA
architects
engineers
9801 Renner Boulevard
Lenexa, Kansas 66219
913.492.0400
www.gbateam.com

DATE:	6-25-2020
DESIGN BY:	SPC
DRAWN BY:	DGL
PROJECT NO.:	12720
SHEET NO.	103
TOTAL SHEETS	103

Street and Storm Sewer Plans

Paragon Star Development

Lee's Summit, Missouri

NO.	DATE	REVISIONS	BY	APPROVED
	9/2/20	City Comments		

Legend

— — — — 2' offset from face of curb

Turning Movements using Design Vehicle 2 – WB-67.
Movements must maintain a 2' clearance from tire track and curb, minimum.

30' 0' 30' 60'

Turning Movements - Southbound 3