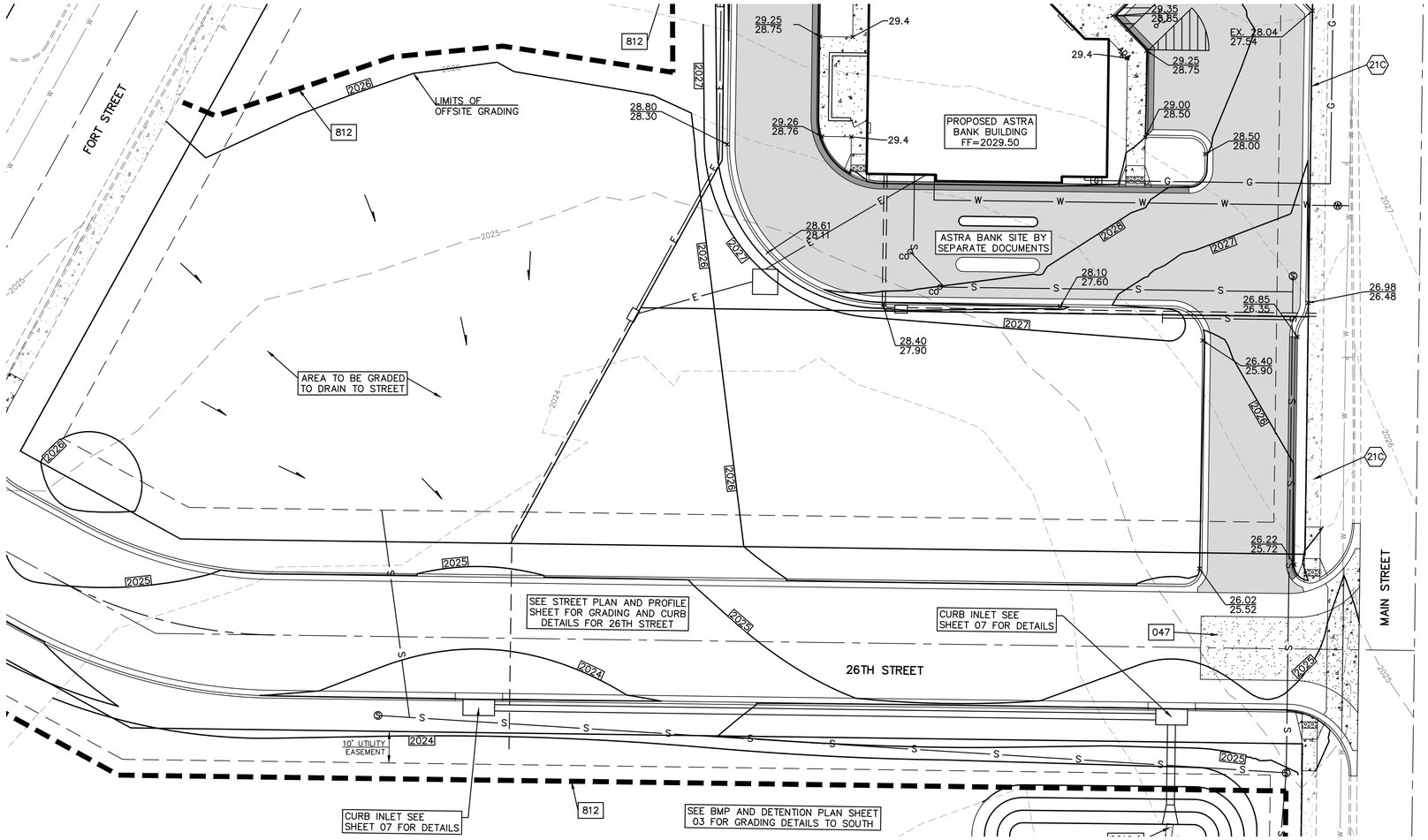
0 10 20 40
SCALE: 1" = 20'

DETAILS – SEE DETAIL SHEET 12 FOR THE FOLLOWING DETAILS
047 CONSTRUCTION ENTRANCE DETAIL
812 SEDIMENTATION FENCE

NOTES:
21C MATCH EXISTING PAVEMENT ELEVATIONS
60 SIDEWALK DRAIN (SEE SITE PLAN)

EROSION & PROPOSED IMPROVEMENTS LEGEND:

82.95 X — SPOT ELEVATION (ADD 2000), TOP OF PAVEMENT
83.65 / 83.15 — TOP OF CURB (ADD 2000) / FLOWLINE OF CURB (ADD 2000)
SW 83.65 / FL 83.15 — SIDEWALK ELEVATION (ADD 2000) / SIDEWALK DRAIN FLOWLINE ELEVATION (ADD 2000)
H.P. — HIGH POINT
FLOW DIRECTION
2028 — EXISTING GROUND CONTOUR (1' INTERVALS)
2028 — PROPOSED FINISHED GROUND CONTOUR (1' INTERVALS)
DRAINAGE DITCH FLOWLINE
SEDIMENTATION FENCE



IF DISCREPANCIES EXIST BETWEEN THE GRADING NOTES BELOW AND THE RECOMMENDATIONS OUTLINED IN THE PROJECT GEOTECHNICAL REPORT, THE RECOMMENDATIONS OUTLINED IN THE GEOTECHNICAL REPORT SHALL GOVERN.

GRADING NOTES:

1. REFERENCE GEOTECHNICAL PROJECT REPORT COMPLETED BY GSI ENGINEERING. DATED, JUNE 7, 2024.

2. THE CONSTRUCTION AREA SHALL BE CLEARED, GRUBBED, AND STRIPPED OF TOPSOIL AND ORGANIC MATTER FROM ALL AREAS TO BE OCCUPIED BY BUILDING AND PAVING. TOPSOIL FOR REPLACEMENT ON SLOPES MAY BE STOCKPILED ON SITE. EXCESS TOPSOIL MAY BE WASTED IN FILL SLOPES PROVIDED THAT NO TOPSOIL WILL BE WASTED WITHIN 10 FEET OF THE EDGE OF THE BUILDING OR PARKING AREA. BURNING OF TIMBER WILL NOT BE PERMITTED UNLESS APPROVAL IS OBTAINED FROM GOVERNING OFFICIALS. STRIPPING EXISTING TOPSOIL AND ORGANIC MATTER SHALL BE TO A MINIMUM DEPTH OF 6 INCHES.

3. AREAS TO RECEIVE FILL SHALL BE SCARIFIED AND THE TOP 9-INCH DEPTH MOISTURE CONDITIONED AND COMPACTED TO 95% STANDARD PROCTOR DENSITY PER GEOTECHNICAL REPORT. ANY UNSUITABLE AREAS SHALL BE UNDERCUT AND REPLACED WITH SUITABLE MATERIAL BEFORE ANY FILL MATERIAL CAN BE APPLIED.

4. OFF-SITE FILL MATERIAL SHALL HAVE A PLASTICITY INDEX BETWEEN 10 AND 20, A LIQUID LIMIT OF 40 OR LESS AND CONTAIN NO ROCK LARGER THAN THREE INCHES. OFF-SITE FILL MATERIAL SHALL BE APPROVED BY THE OWNER PRIOR TO BRINGING ON SITE. REFER TO GEOTECH REPORT.

5. EARTHWORK UNDER THE BUILDING SHALL COMPLY WITH THE PROJECT ARCHITECTURAL PLANS. OTHER FILL MATERIAL SHALL BE MADE IN LIFTS NOT TO EXCEED EIGHT INCHES DEPTH COMPACTED TO 95% STANDARD PROCTOR DENSITY. FILL MATERIAL MAY INCLUDE ROCK FROM ON-SITE EXCAVATION IF CAREFULLY PLACED SO THAT LARGE STONES ARE WELL DISTRIBUTED AND VOIDS ARE COMPLETELY FILLED WITH SMALLER STONES, EARTH, SAND OR GRAVEL TO FURNISH A SOLID EMBANKMENT. NO ROCK LARGER THAN THREE INCHES IN ANY DIMENSION NOR ANY SHALE SHALL BE PLACED IN THE TOP 12 INCHES OF EMBANKMENT.

6. AREAS THAT ARE TO BE CUT TO SUBGRADE LEVELS SHALL BE PROOF ROLLED WITH A MODERATELY HEAVY LOADED DUMP TRUCK OR SIMILAR APPROVED CONSTRUCTION EQUIPMENT TO DETECT UNSUITABLE SOIL CONDITIONS.

7. IN ALL AREAS OF EXCAVATION, IF UNSUITABLE SOIL CONDITIONS ARE ENCOUNTERED, A QUALIFIED GEOTECHNICAL ENGINEER SHALL RECOMMEND TO THE OWNER THE METHODS OF UNDERCUTTING AND REPLACEMENT OF PROPERLY COMPACTED, APPROVED FILL MATERIAL. ALL PROOFROLLING AND UNDERCUTTING SHOULD BE PERFORMED DURING A PERIOD OF DRY WEATHER.

8. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE CONTROL OF DUST AND DIRT RISING AND SCATTERING IN THE AIR DURING CONSTRUCTION AND SHALL PROVIDE WATER SPRINKLING OR OTHER SUITABLE METHODS OF CONTROL. THE CONTRACTOR SHALL COMPLY WITH ALL GOVERNING REGULATIONS PERTAINING TO ENVIRONMENTAL PROTECTION.

9. ALL SLOPES ARE TO BE 3:1 OR FLATTER UNLESS OTHERWISE INDICATED.

10. ALL SLOPES EXCEEDING 3:1 SHALL BE PROTECTED BY RIP RAP, CONCRETE PAVING, OR OTHER METHODS INDICATED ON THESE PLANS, THAT WILL PREVENT EROSION AND PLACED SUCH THAT THE SURFACE IS FLUSH WITH SURROUNDING GROUND AND SHAPED TO CHANNEL WATER IN DIRECTIONS INDICATED.

11. ALL SLOPES AND AREAS DISTURBED BY CONSTRUCTION SHALL BE GRADED SMOOTH AND FOUR INCHES OF TOPSOIL APPLIED. IF ADEQUATE TOPSOIL IS NOT AVAILABLE ON-SITE, THE CONTRACTOR SHALL PROVIDE TOPSOIL, APPROVED BY THE OWNER, AS NEEDED. THE AREA SHALL THEN BE SEEDED, FERTILIZED, MULCHED, WATERED AND MAINTAINED UNTIL HARDY GRASS GROWTH IS ESTABLISHED IN ALL AREAS. ANY AREAS DISTURBED FOR ANY REASON SHALL BE CORRECTED BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER PRIOR TO FINAL ACCEPTANCE OF THE PROJECT.

12. CONTRACTOR SHALL USE SILT FENCE, BALES OF HAY OR OTHER MEANS OF CONTROLLING EROSION ALONG THE EDGE OF THE PROPERTY OR OTHER BOTTOM OF SLOPE LOCATIONS.

13. CONTRACTOR IS TO REMOVE AND DISPOSE OF ALL DEBRIS, RUBBISH AND OTHER MATERIALS RESULTING FROM PREVIOUS AND CURRENT DEMOLITION OPERATIONS.

14. THE CONTRACTOR SHALL TAKE ALL PRECAUTIONS NECESSARY TO AVOID PROPERTY DAMAGE TO ADJACENT PROPERTIES DURING THE CONSTRUCTION PHASES OF THIS PROJECT. THE CONTRACTOR WILL BE HELD SOLELY RESPONSIBLE FOR ANY DAMAGES TO THE ADJACENT PROPERTIES OCCURRING DURING THE CONSTRUCTION PHASES OF THIS PROJECT.

15. IT IS NOT THE DUTY OF THE ENGINEER OR THE OWNER TO REVIEW THE ADEQUACY OF THE CONTRACTOR'S SAFETY MEASURES, IN, ON OR NEAR THE CONSTRUCTION SITE AT ANY TIME DURING CONSTRUCTION.

16. PIPE LENGTHS ARE CENTER TO CENTER OF STRUCTURE OR TO END OF END SECTIONS.

17. HANDICAP STALLS SHALL MEET ADA REQUIREMENTS AND SHALL NOT EXCEED 2% SLOPE IN ANY DIRECTION AT THE BUILDING ENTRY AND ACCESSIBLE PARKING STALLS. SLOPES EXCEEDING 2.0% WILL BE REPLACED AT THE CONTRACTOR'S EXPENSE.

18. SIDEWALKS SHALL MEET ADA REQUIREMENTS AND NOT EXCEED 2% CROSS SLOPE OR 5% RUNNING SLOPE.

NOTE:
1. CONTRACTOR SHALL REFER TO ARCHITECTURAL PLANS FOR EXACT LOCATIONS AND DIMENSIONS OF ENTRANCE, SLOPED PAVING, EXIT PORCHES, RAMPS, TRUCK DOCKS, PRECISE BUILDING DIMENSIONS AND EXACT BUILDING UTILITY ENTRANCE LOCATIONS.

2. THESE PLANS HAVE NOT BEEN VERIFIED WITH FINAL ARCHITECTURAL CONTRACT DRAWINGS. CONTRACTOR SHALL VERIFY AND NOTIFY THE ENGINEER OF ANY DISCREPANCIES. CONTRACTOR IS FULLY RESPONSIBLE FOR REVIEW AND COORDINATION OF ALL DRAWINGS AND CONTRACT DOCUMENTS.

SAFETY NOTICE TO CONTRACTOR
IN ACCORDANCE WITH GENERALLY ACCEPTED CONSTRUCTION PRACTICES, THE CONTRACTOR SHALL BE SOLELY AND COMPLETELY RESPONSIBLE FOR CONDITIONS OF THE JOB SITE, INCLUDING SAFETY OF ALL PERSONS AND PROPERTY DURING PERFORMANCE OF THE WORK. THIS REQUIREMENT WILL APPLY CONTINUOUSLY AND NOT BE LIMITED TO NORMAL WORKING HOURS.

WARRANTY / DISCLAIMER
THE DESIGNS REPRESENTED IN THESE PLANS ARE IN ACCORDANCE WITH ESTABLISHED PRACTICES OF CIVIL ENGINEERING FOR THE DESIGN FUNCTIONS AND USES INTENDED BY THE OWNER AT THIS TIME. HOWEVER, NEITHER KAW VALLEY ENGINEERING, INC NOR ITS PERSONNEL CAN OR DO WARRANTY THESE DESIGNS OR PLANS AS CONSTRUCTED, EXCEPT IN THE SPECIFIC CASES WHERE KAW VALLEY ENGINEERING PERSONNEL INSPECT AND CONTROL THE PHYSICAL CONSTRUCTION ON A CONTEMPORARY BASIS AT THE SITE.

CAUTION – NOTICE TO CONTRACTOR
THE CONTRACTOR IS SPECIFICALLY CAUTIONED THAT THE LOCATION AND/OR ELEVATION OF EXISTING UTILITIES AS SHOWN ON THESE PLANS IS BASED ON RECORDS OF THE VARIOUS UTILITY COMPANIES AND, WHERE POSSIBLE, MEASUREMENTS TAKEN IN THE FIELD. THE INFORMATION IS NOT TO BE RELIED ON AS BEING EXACT OR COMPLETE. THE CONTRACTOR SHALL CALL THE APPROPRIATE UTILITY COMPANY AT LEAST 72 HOURS BEFORE ANY EXCAVATION TO REQUEST EXACT FIELD LOCATION OF UTILITIES. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO RELOCATE ALL EXISTING UTILITIES WHICH CONFLICT WITH PROPOSED IMPROVEMENTS SHOWN ON THE PLANS.
THE CONTRACTOR SHALL EXPOSE EXISTING UTILITIES AT LOCATIONS OF POSSIBLE CONFLICTS PRIOR TO ANY CONSTRUCTION.

THE COORDINATES PROVIDED ON THIS PLAN ARE FOR INFORMATION AND CHECKING PURPOSES ONLY. IT IS THE CONTRACTOR'S RESPONSIBILITY TO CALCULATE CONSTRUCTION STAKING COORDINATES ACCORDING TO THE DIMENSIONS SHOWN ON THESE PLANS. CONTRACTOR SHALL VERIFY THE ACCURACY OF THE COORDINATES SHOWN HEREON BEFORE CONSTRUCTION.

REV	DATE	DESCRIPTION	DSN	DWN	CHK
1	07/31/24	REVISED	MJR	TDA	MJR
0	06/27/24	INITIAL ISSUE	MJR	TDA	MJR

MATTHEW J. ROWE LICENSED 29241 7/31/24 KANSAS PROFESSIONAL ENGINEER

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ENGINEER
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KAW VALLEY ENGINEERING, INC. IS AUTHORIZED TO OFFER ENGINEERING SERVICES IN KANSAS UNDER STATE CERTIFICATE OF AUTHORIZATION # E-11.5. EXPIRES 12/31/24.

ASTRA OPERATIONS BUILDING
27TH, FORT, AND MAIN STREET
HAYS, KANSAS 67601

CIVIL PLANS
GRADING AND EROSION CONTROL PLAN

PROJ. NO. E24D3733
DESIGNER MJR | DRAWN BY TDA
CFN 3733GP
SHEET 02 | REV 1

0 10 20 40

SCALE: 1" = 20'

DETAILS – SEE DETAIL SHEET 12 FOR THE FOLLOWING DETAILS

047 CONSTRUCTION ENTRANCE DETAIL
407 POND OUTLET STRUCTURE WALL
417 DETENTION POND FLUME
812 SEDIMENTATION FENCE

NOTES:

21C MATCH EXISTING PAVEMENT ELEVATIONS

EROSION & PROPOSED IMPROVEMENTS LEGEND:

82.95 SPOT ELEVATION (ADD 2000),
X TOP OF PAVEMENT

83.65 TOP OF CURB (ADD 2000)
83.15 FLOWLINE OF CURB (ADD 2000)

FLOW DIRECTION

2028 EXISTING GROUND CONTOUR (1' INTERVALS)

2028 PROPOSED FINISHED GROUND CONTOUR (1' INTERVALS)

SEDIMENTATION FENCE

IF DISCREPANCIES EXIST BETWEEN THE GRADING NOTES BELOW AND THE RECOMMENDATIONS OUTLINED IN THE PROJECT GEOTECHNICAL REPORT, THE RECOMMENDATIONS OUTLINED IN THE GEOTECHNICAL REPORT SHALL GOVERN.

GRADING NOTES:

1. REFER TO GRADING NOTES ON SHEET 02.
2. CONTRACTOR TO PLANT NATIVE GRASSES IN BOTTOM OF BASIN PER CITY OF HAYS BMP MANUAL. NATIVE VEGETATION TO BE IN ACCORDANCE WITH ROLLING PLAINS AND BREAKS WHICH CONSISTS OF MIXEDGRASS PRAIRIE (BIG BLUESTEM, LITTLE BLUESTEM, BLUE GRAMA, NEEDLE AND THREAD, SIDE OATS GRAMA, AND WESTERN WHEATGRASS).

NOTE:
1. CONTRACTOR SHALL REFER TO ARCHITECTURAL PLANS FOR EXACT LOCATIONS AND DIMENSIONS OF ENTRANCE, SLOPED PAVING, EXIT PORCHES, RAMPS, TRUCK DOCKS, PRECISE BUILDING DIMENSIONS AND EXACT BUILDING UTILITY ENTRANCE LOCATIONS.

2. THESE PLANS HAVE NOT BEEN VERIFIED WITH FINAL ARCHITECTURAL CONTRACT DRAWINGS. CONTRACTOR SHALL VERIFY AND NOTIFY THE ENGINEER OF ANY DISCREPANCIES. CONTRACTOR IS FULLY RESPONSIBLE FOR REVIEW AND COORDINATION OF ALL DRAWINGS AND CONTRACT DOCUMENTS.

BMP AND DETENTION IMPROVEMENTS TO BE BID AS ALTERNATE #2.

SAFETY NOTICE TO CONTRACTOR

IN ACCORDANCE WITH GENERALLY ACCEPTED CONSTRUCTION PRACTICES, THE CONTRACTOR SHALL BE SOLELY AND COMPLETELY RESPONSIBLE FOR CONDITIONS OF THE JOB SITE, INCLUDING SAFETY OF ALL PERSONS AND PROPERTY DURING PERFORMANCE OF THE WORK. THIS REQUIREMENT WILL APPLY CONTINUOUSLY AND NOT BE LIMITED TO NORMAL WORKING HOURS.

WARRANTY / DISCLAIMER

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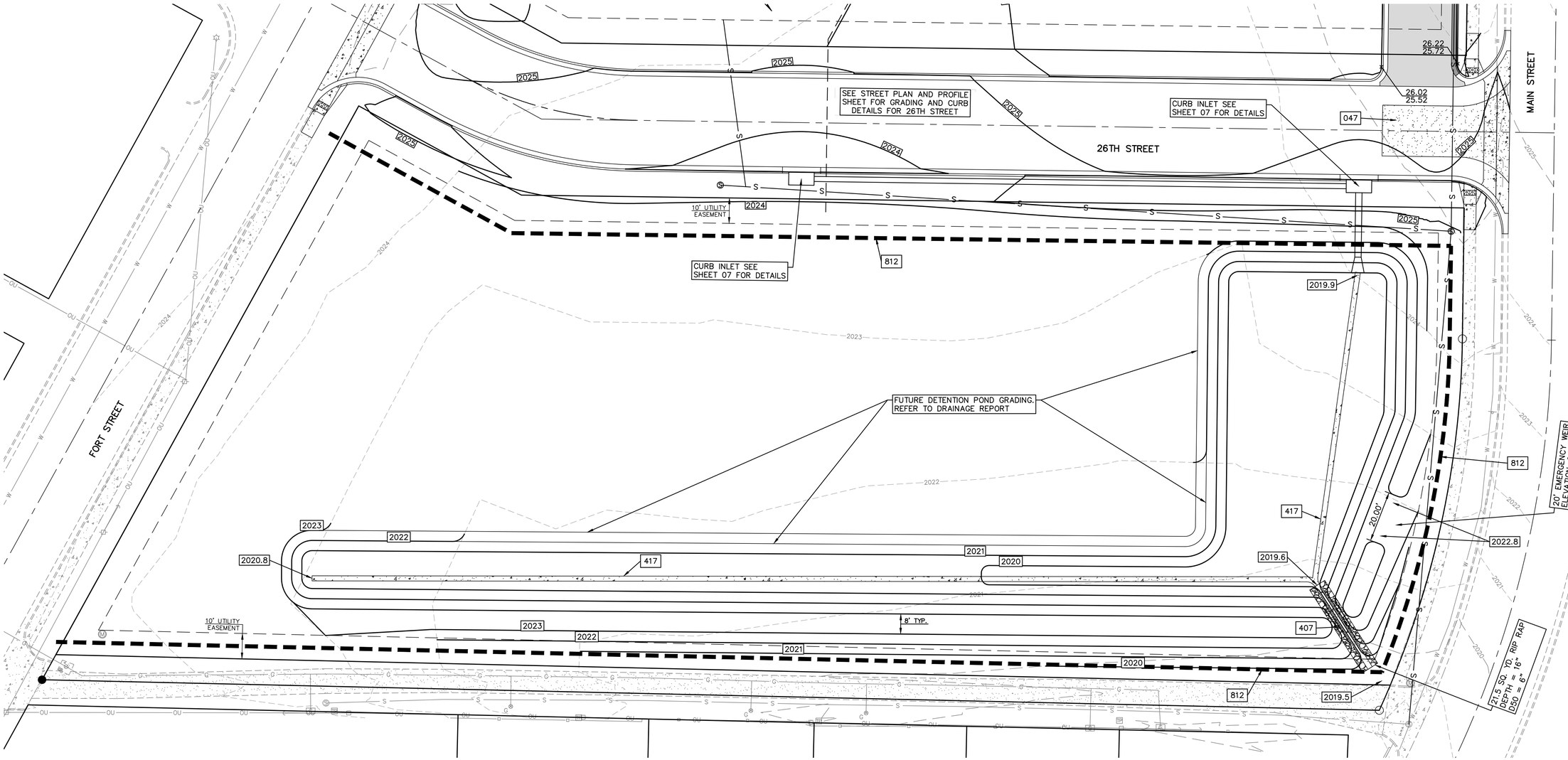
CAUTION – NOTICE TO CONTRACTOR

THE CONTRACTOR IS SPECIFICALLY CAUTIONED THAT THE LOCATION AND/OR ELEVATION OF EXISTING UTILITIES AS SHOWN ON THESE PLANS IS BASED ON RECORDS OF THE VARIOUS UTILITY COMPANIES AND, WHERE POSSIBLE, MEASUREMENTS TAKEN IN THE FIELD. THE INFORMATION IS NOT TO BE RELIED ON AS BEING EXACT OR COMPLETE. THE CONTRACTOR SHALL CALL THE APPROPRIATE UTILITY COMPANY AT LEAST 72 HOURS BEFORE ANY EXCAVATION TO REQUEST EXACT FIELD LOCATION OF UTILITIES. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO RELOCATE ALL EXISTING UTILITIES WHICH CONFLICT WITH PROPOSED IMPROVEMENTS SHOWN ON THE PLANS. **THE CONTRACTOR SHALL EXPOSE EXISTING UTILITIES AT LOCATIONS OF POSSIBLE CONFLICTS PRIOR TO ANY CONSTRUCTION.**

THE COORDINATES PROVIDED ON THIS PLAN ARE FOR INFORMATION AND CHECKING PURPOSES ONLY. IT IS THE CONTRACTOR'S RESPONSIBILITY TO CALCULATE CONSTRUCTION STAKING COORDINATES ACCORDING TO THE DIMENSIONS SHOWN ON THESE PLANS. CONTRACTOR SHALL VERIFY THE ACCURACY OF THE COORDINATES SHOWN HEREON BEFORE CONSTRUCTION.



ENTIRE SHEET IS PER ALTERNATE #2

REV	DATE	DESCRIPTION	DSN	DWN	CHK
1	07/31/24	REVISED	MJR	TDA	MJR
0	06/27/24	INITIAL ISSUE	MJR	TDA	MJR

MATTHEW J. ROWE LICENSED 29241 7/31/24 KANSAS PROFESSIONAL ENGINEER

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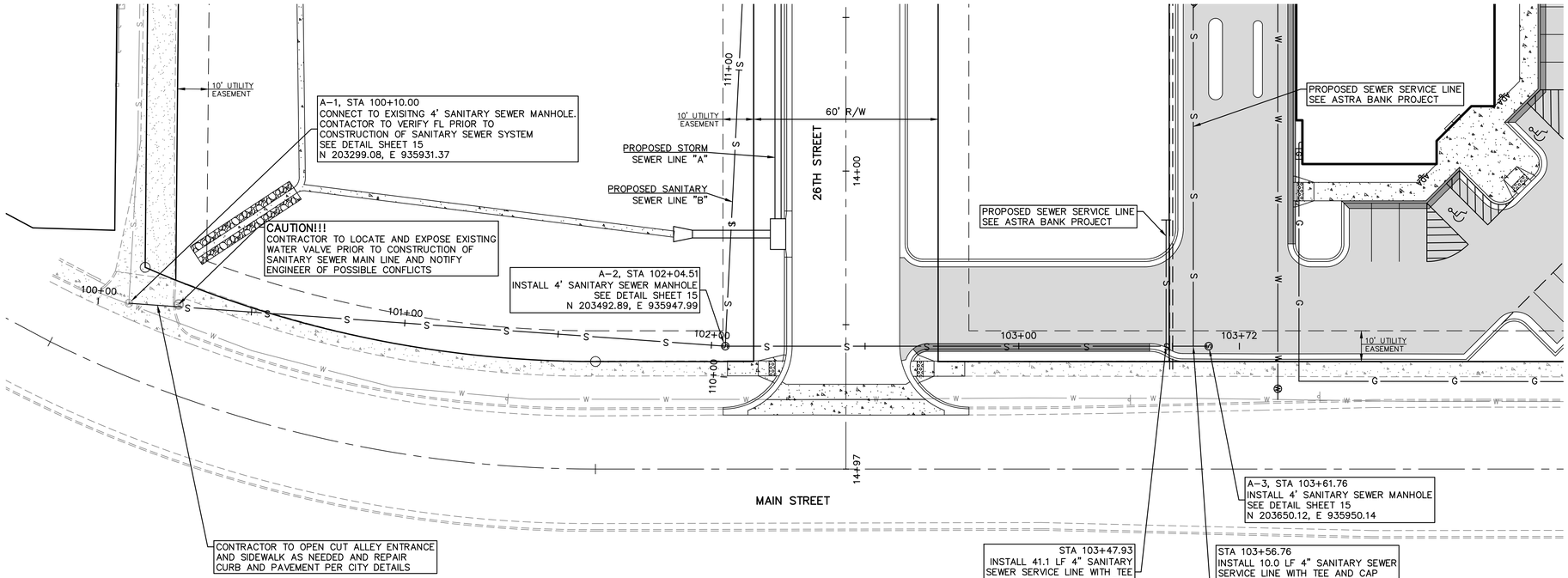
ASTRA OPERATIONS BUILDING
27TH, FORT, AND MAIN STREET
HAYS, KANSAS 67601

CIVIL PLANS
BMP & DETENTION BASIN PLAN

PROJ. NO.	
E24D3733	
DESIGNER	DRAWN BY
MJR	TDA
CFN	
3733GP	
SHEET	REV
03	1



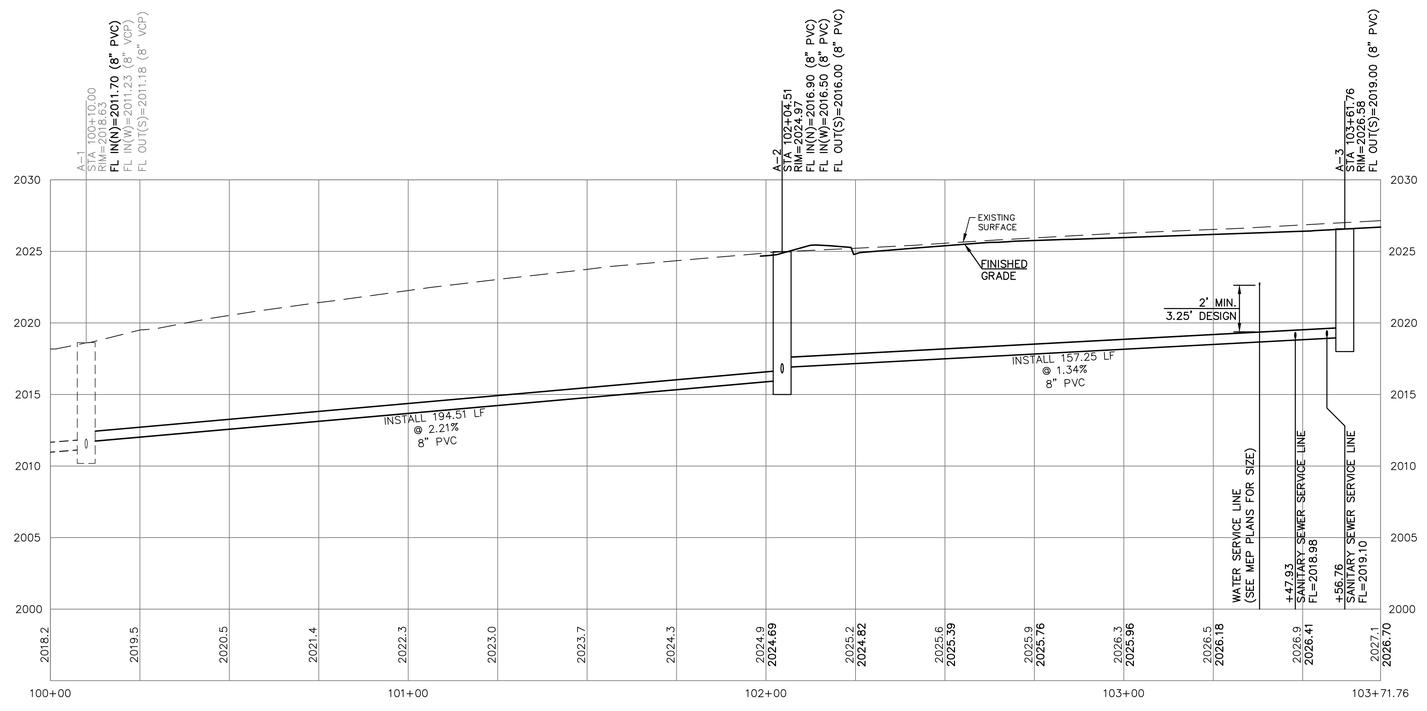
SCALE:
PLAN: 1"=20'
PROFILE: 1"=20' HORIZ.
1"=5' VERT.

SEPARATION OF WATER MAINS AND SANITARY SEWERS:

1. A MINIMUM HORIZONTAL DISTANCE OF 10 FEET SHALL BE MAINTAINED BETWEEN WATER (MAINS AND SERVICE) AND SANITARY SEWER (MAINS AND SERVICE) LINES.
2. WHERE A WATER MAIN MUST CROSS A SEWER LINE, MAINTAIN 2 FEET VERTICAL SEPARATION WITH THE WATER MAIN ABOVE THE SEWER.
3. BUILDERS TO MAINTAIN MINIMUM 10' SEPARATION FROM THE OUTSIDE EDGE OF SANITARY SEWER MANHOLES TO THE OUTSIDE EDGE OF WATER SERVICE LINES WHEN RUNNING SERVICE LINES TO HOUSE.

GENERAL NOTES:

1. ALL SANITARY SEWER SERVICE LINE WILL BE AT A MIN 2% GRADE.
2. ALL NORTHING AND EASTING WAS TAKEN FROM CENTER OF STRUCTURE. REFERENCE DETAIL FOR ACTUAL LID LOCATION.
3. CONSTRUCTION METHODS AND MATERIALS USED IN THE CONSTRUCTION OF THE SANITARY IMPROVEMENTS SHALL BE IN ACCORDANCE WITH THE PROJECT STANDARD TECHNICAL SPECIFICATION. ALL OTHER CONSTRUCTION ITEMS SHALL BE IN ACCORDANCE WITH THE STANDARD TECHNICAL SPECIFICATIONS AND ADDENDUM'S TO THE (STS) ON FILE, CITY OF HAYS, KANSAS.
4. CONTRACTOR TO FURNISH ALL REQUIRED TESTING PER SPECIFICATIONS FOR SANITARY SEWER INSTALLATION.
5. ALL TRENCHES SHALL BE BACKFILLED IN UNIFORM LIFTS NOT TO EXCEED 8 INCHES IN LOOSE MEASUREMENT. EACH LIFT SHALL BE COMPACTED TO THE REQUIRED DENSITY PRIOR TO THE NEXT LIFT BEING PLACED. THE BACKFILL MATERIAL SHALL BE COMPACTED TO 95% OF THE MAXIMUM DRY DENSITY WITHIN 2% OF OPTIMUM MOISTURE STANDARD PROCTOR (ASTM-D698) UNDER AREAS TO BE PAVED. THE BACKFILL MATERIAL SHALL BE COMPACTED TO 90% OF THE MAXIMUM DENSITY AT OPTIMUM MOISTURE PLUS OR MINUS 2% IN AREAS NOT TO BE DEVELOPED. COMPACTION TESTS SHALL BE TAKEN AT EACH PAVEMENT CROSSING AND AT LOCATIONS DESIGNATED BY THE ENGINEER. ALL TRENCH BACKFILL WHICH DOES NOT MEET THE REQUIRED DENSITY, SHALL BE RE-EXCAVATED AND RE-COMPACTED UNTIL THE REQUIRED DENSITY IS OBTAINED. COPIES OF ALL COMPACTION TEST REPORTS SHALL BE PROVIDED TO THE ENGINEER AND TO THE CITY OF HAYS PRIOR TO FINAL ACCEPTANCE BY THE CITY OF HAYS.



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0	06/27/24	INITIAL ISSUE	M.JR	TDA	M.JR

MATTHEW J. ROWE
LICENSED
29241
7/31/24
KANSAS
PROFESSIONAL ENGINEER

MATTHEW J. ROWE
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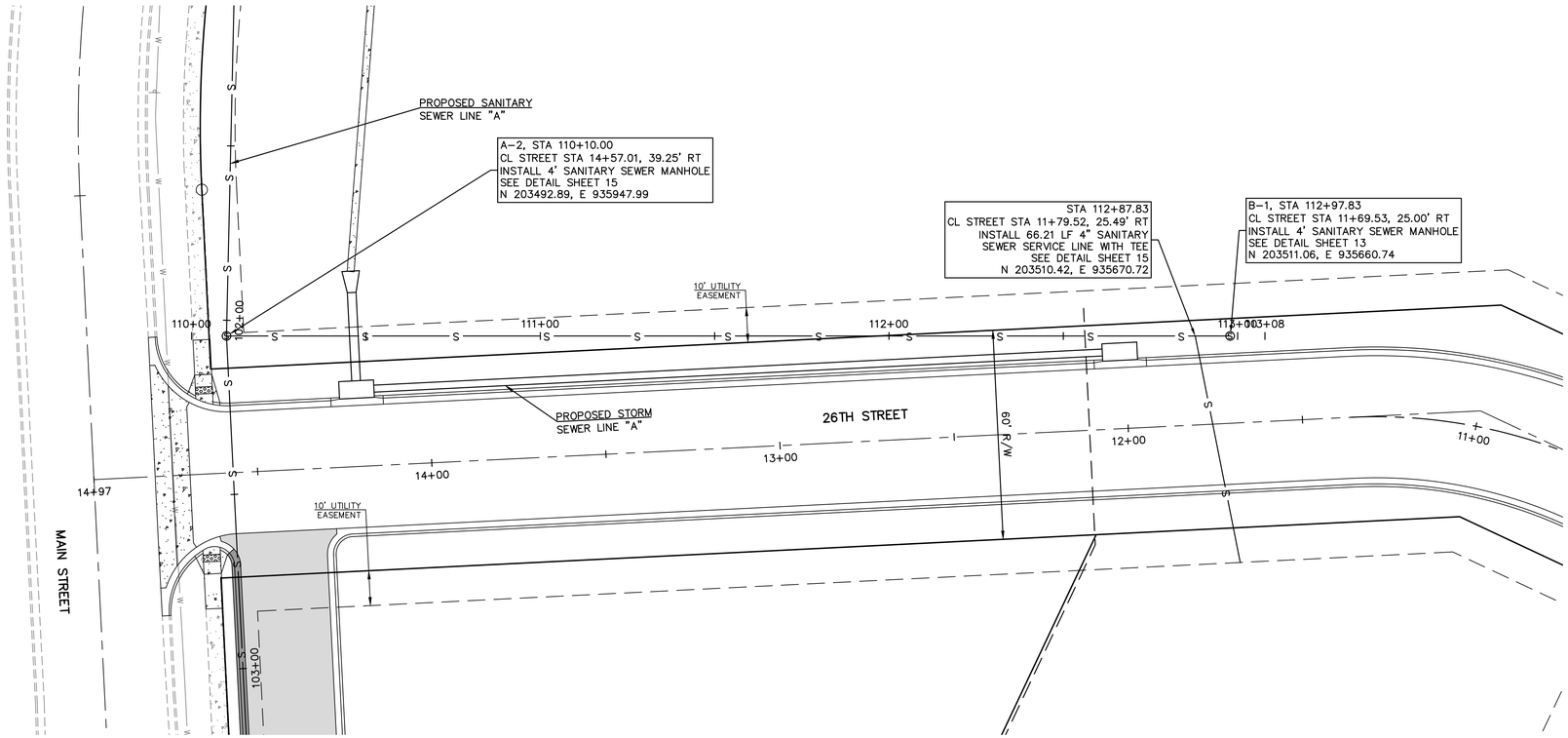
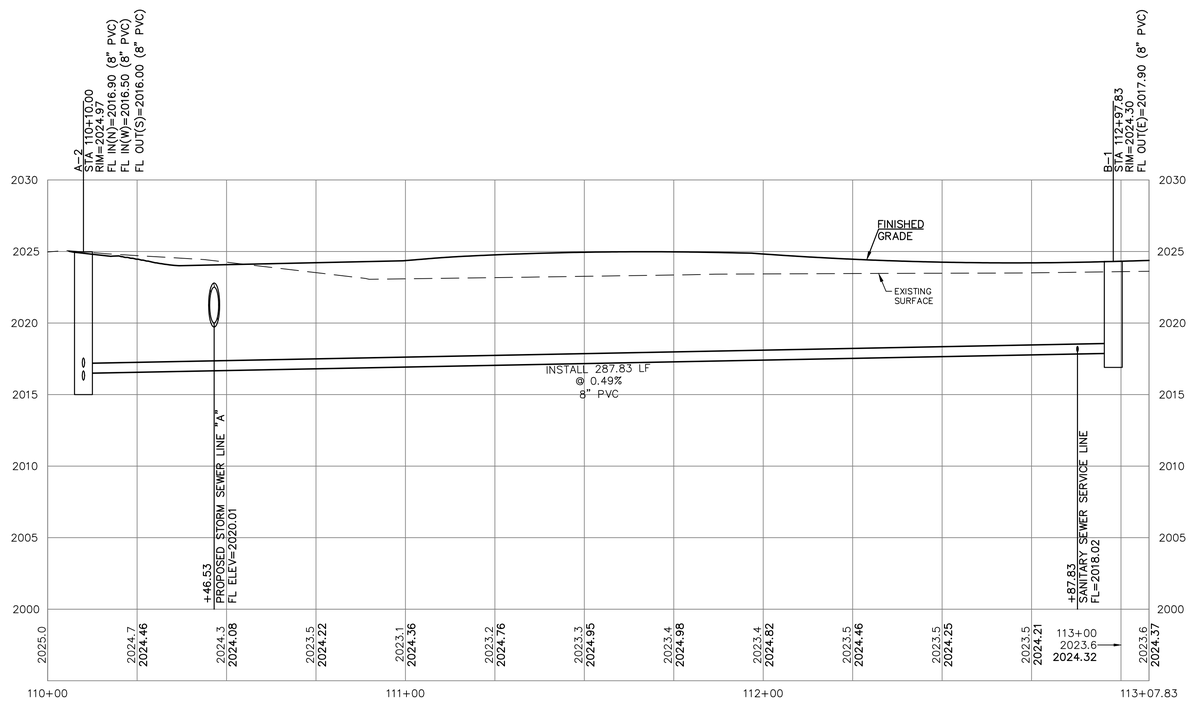
ASTRA OPERATIONS BUILDING
27TH, FORT, AND MAIN STREET
HAYS, KANSAS 67601

CIVIL PLANS
SANITARY SEWER LINE "A" - PLAN & PROFILE

PROJ. NO.	E24D3733	
DESIGNER	MJR	DRAWN BY TDA
CFN	3733SPP	
SHEET	05	REV 1





SCALE:
PLAN: 1"=20'
PROFILE: 1"=20' HORIZ.
1"=5' VERT.

SEPARATION OF WATER MAINS AND SANITARY SEWERS:

1. A MINIMUM HORIZONTAL DISTANCE OF 10 FEET SHALL BE MAINTAINED BETWEEN WATER (MAINS AND SERVICE) AND SANITARY SEWER (MAINS AND SERVICE) LINES.
2. WHERE A WATER MAIN MUST CROSS A SEWER LINE, MAINTAIN 2 FEET VERTICAL SEPARATION WITH THE WATER MAIN ABOVE THE SEWER.
3. BUILDERS TO MAINTAIN MINIMUM 10' SEPARATION FROM THE OUTSIDE EDGE OF SANITARY SEWER MANHOLES TO THE OUTSIDE EDGE OF WATER SERVICE LINES WHEN RUNNING SERVICE LINES TO HOUSE.

GENERAL NOTES:

1. ALL SANITARY SEWER SERVICE LINE WILL BE AT A MIN 2% GRADE.
2. ALL NORTHING AND EASTING WAS TAKEN FROM CENTER OF STRUCTURE. REFERENCE DETAIL FOR ACTUAL LID LOCATION.
3. CONSTRUCTION METHODS AND MATERIALS USED IN THE CONSTRUCTION OF THE SANITARY IMPROVEMENTS SHALL BE IN ACCORDANCE WITH THE STANDARD TECHNICAL SPECIFICATION ON FILE WITH THE KANSAS DEPARTMENT OF HEALTH AND ENVIRONMENT, REFERENCE NUMBER 23121. ALL OTHER CONSTRUCTION ITEMS SHALL BE IN ACCORDANCE WITH THE STANDARD TECHNICAL SPECIFICATIONS AND ADDENDUM'S TO THE (STS) ON FILE, CITY OF HAYS, KANSAS.
4. CONTRACTOR TO FURNISH ALL REQUIRED TESTING PER SPECIFICATIONS FOR SANITARY SEWER INSTALLATION.
5. ALL TRENCHES SHALL BE BACKFILLED IN UNIFORM LIFTS NOT TO EXCEED 8 INCHES IN LOOSE MEASUREMENT. EACH LIFT SHALL BE COMPACTED TO THE REQUIRED DENSITY PRIOR TO THE NEXT LIFT BEING PLACED. THE BACKFILL MATERIAL SHALL BE COMPACTED TO 95% OF THE MAXIMUM DRY DENSITY WITHIN 2% OF OPTIMUM MOISTURE STANDARD PROCTOR (ASTM-D698) UNDER AREAS TO BE PAVED. THE BACKFILL MATERIAL SHALL BE COMPACTED TO 90% OF THE MAXIMUM DENSITY AT OPTIMUM MOISTURE PLUS OR MINUS 2% IN AREAS NOT TO BE DEVELOPED. COMPACTION TESTS SHALL BE TAKEN AT EACH PAVEMENT CROSSING AND AT LOCATIONS DESIGNATED BY THE ENGINEER. ALL TRENCH BACKFILL WHICH DOES NOT MEET THE REQUIRED DENSITY, SHALL BE RE-EXCAVATED AND RE-COMPACTED UNTIL THE REQUIRED DENSITY IS OBTAINED. COPIES OF ALL COMPACTION TEST REPORTS SHALL BE PROVIDED TO THE ENGINEER AND TO THE CITY OF HAYS PRIOR TO FINAL ACCEPTANCE BY THE CITY OF HAYS.

REV	DATE	DESCRIPTION	DSN	DWN	CHK
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MATTHEW J. ROWE
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29241
7/31/24
KANSAS
PROFESSIONAL ENGINEER

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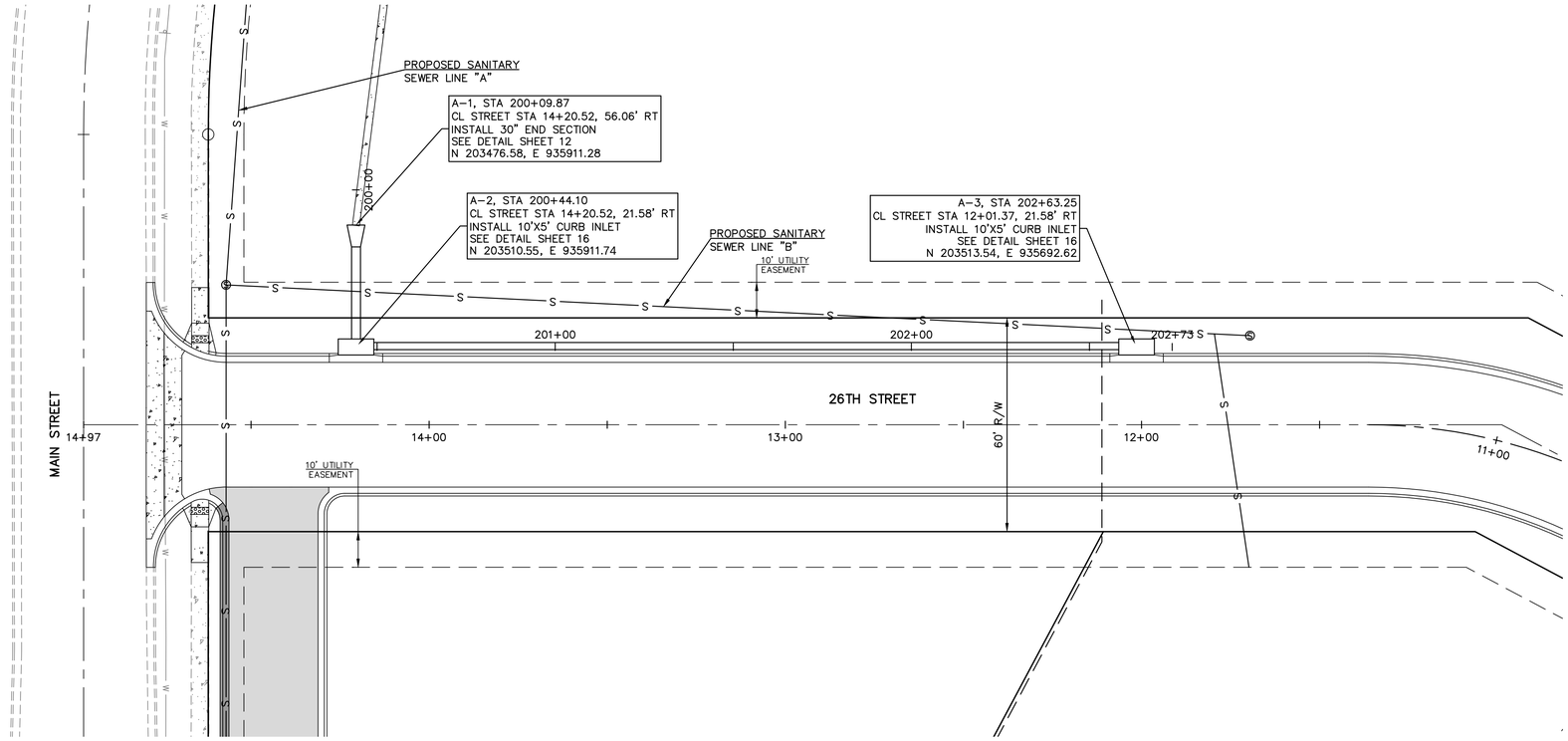
ASTRA OPERATIONS BUILDING
27TH, FORT, AND MAIN STREET
HAYS, KANSAS 67601

CIVIL PLANS
SANITARY SEWER LINE "B" - PLAN & PROFILE

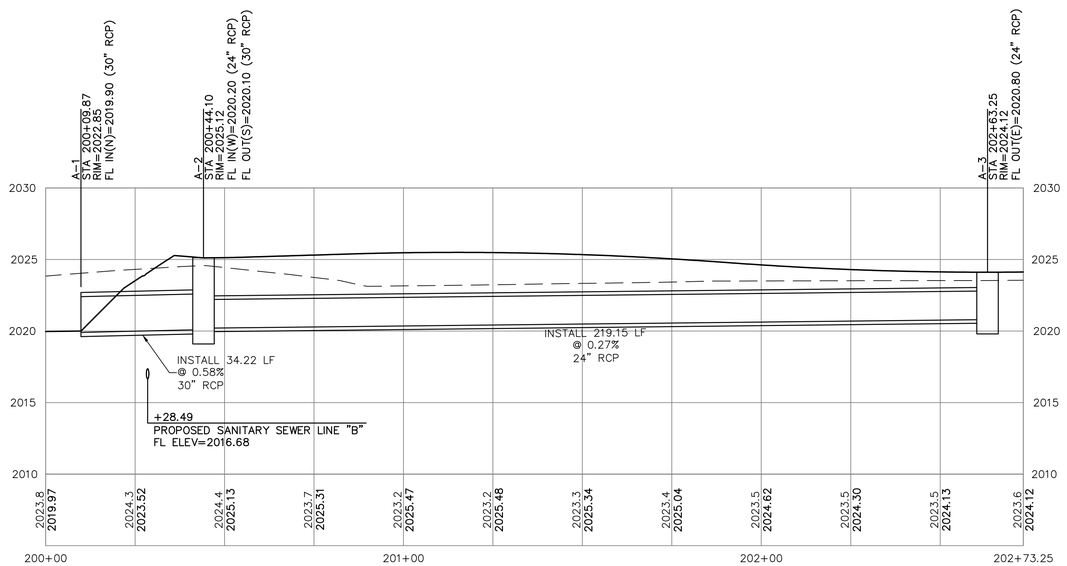
PROJ. NO.	E24D3733
DESIGNER	DRAWN BY
MJR	TDA
CFN	3733SPP
SHEET	REV
06	0

SCALE:
PLAN: 1"=20'
PROFILE: 1"=20' HORIZ.
1"=5' VERT.

NOTE:
STREET STATION AND OFFSET ARE REFERENCED TO CENTER OF STRUCTURE.



NOTES:
1. STREET STATION AND OFFSET ARE REFERENCED TO THE CENTER OF STRUCTURE.
2. PIPE LENGTHS ARE CENTER TO CENTER OF STRUCTURE OR TO END OF END SECTION.



ENTIRE SHEET IS PER ALTERNATE #2

REV	DATE	DESCRIPTION	DSN	DWN	CHK
1	07/31/24	REVISED	MJR	TDA	MJR
0	06/27/24	INITIAL ISSUE	MJR	TDA	MJR

MATTHEW J. ROWE LICENSED 29241 7/31/24 KANSAS PROFESSIONAL ENGINEER

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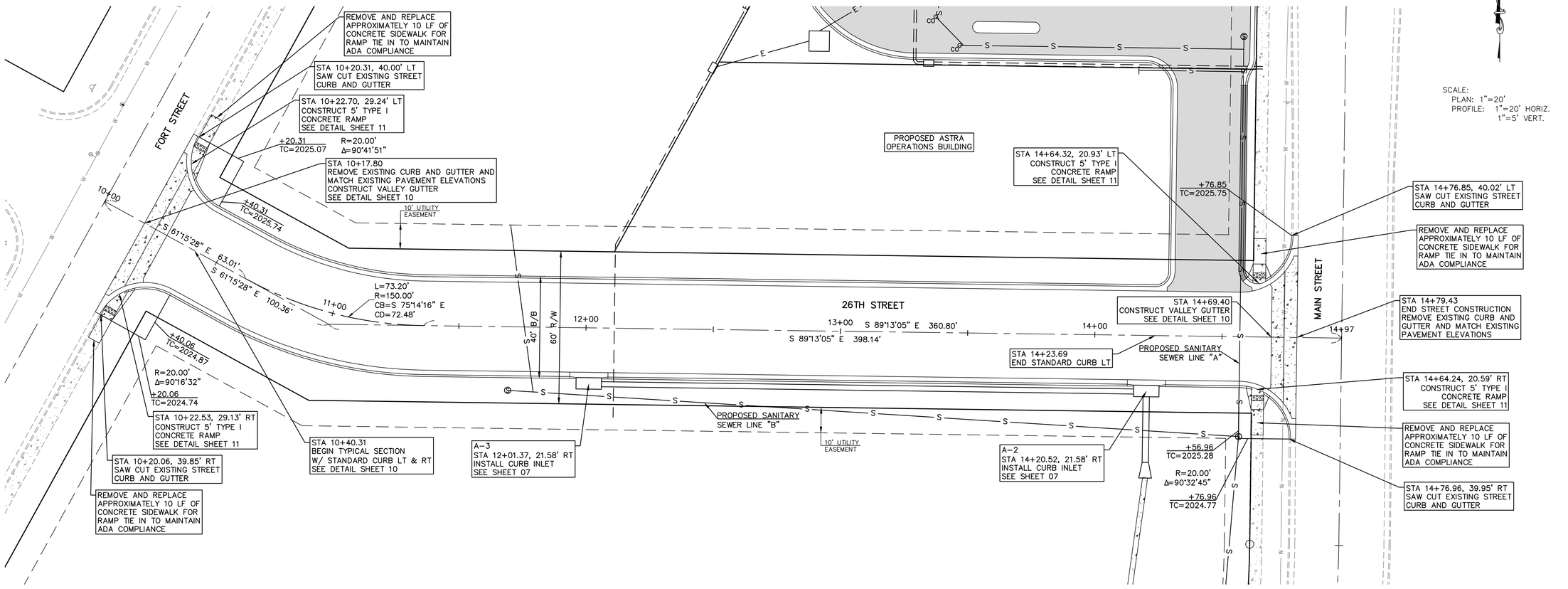
ASTRA OPERATIONS BUILDING
27TH, FORT, AND MAIN STREET
HAYS, KANSAS 67601

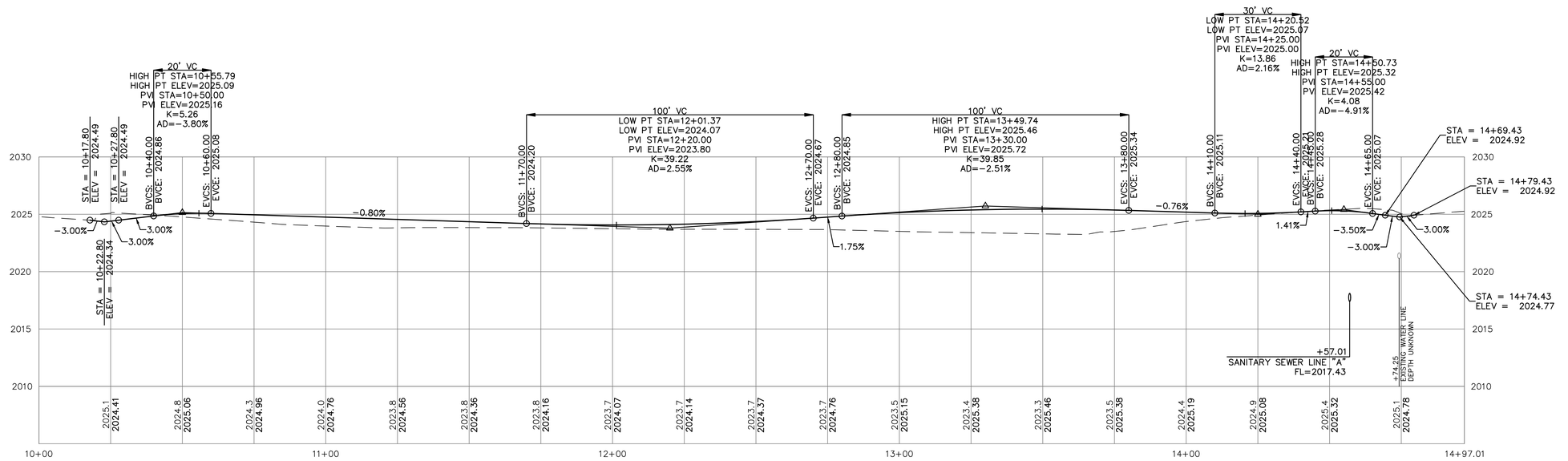
CIVIL PLANS
STORM SEWER LINE "A" - PLAN & PROFILE

PROJ. NO.	E24D3733	
DESIGNER	MJR	DRAWN BY TDA
CFN	3733DPP	
SHEET	07	REV 1



26TH STREET IMPROVEMENTS TO BE BID AS ALTERNATE #1.

NOTES:
1. STREET STATION AND OFFSET ARE REFERENCED TO CENTER OF STRUCTURE.



ENTIRE SHEET IS PER ALTERNATE #1

REV	DATE	DESCRIPTION	DSN	DWN	CHK
			M.JR	TDA	M.JR
			M.JR	TDA	M.JR
1	07/31/24	REVISED	M.JR	TDA	M.JR
0	06/27/24	INITIAL ISSUE	M.JR	TDA	M.JR

MATTHEW J. ROWE
LICENSED
29241
7/31/24
KANSAS
PROFESSIONAL ENGINEER

MATTHEW J. ROWE
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KS # 29241

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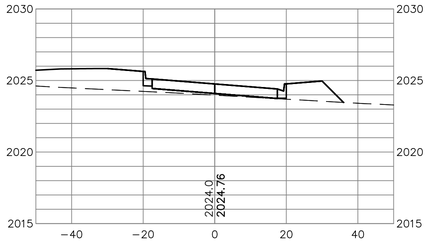
KAW VALLEY ENGINEERING, INC. IS AUTHORIZED TO OFFER ENGINEERING SERVICES BY KANSAS STATE CERTIFICATE OF AUTHORIZATION # E-115. EXPIRES 12/31/24

ASTRA OPERATIONS BUILDING
27TH, FORT, AND MAIN STREET
HAYS, KANSAS 67601

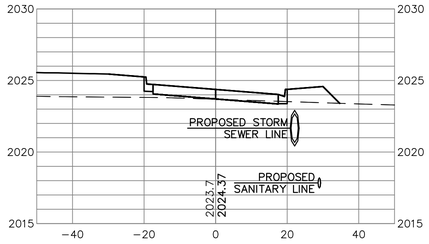
CIVIL PLANS
26TH STREET PLAN & PROFILE

PROJ. NO.	E24D3733	
DESIGNER	MJR	DRAWN BY TDA
CFN	3733STPP	
SHEET	08	REV 1

11+00.00



12+50.00



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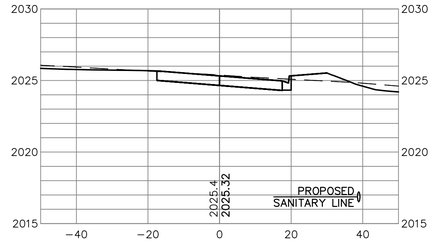

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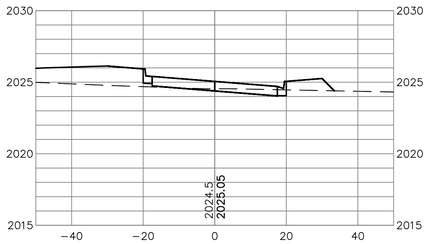
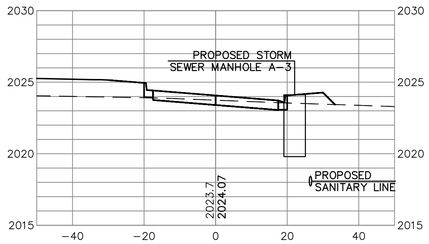


12+00.00



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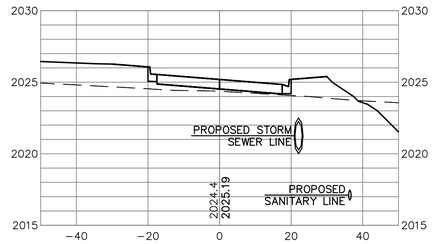

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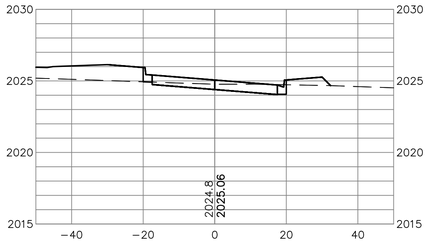
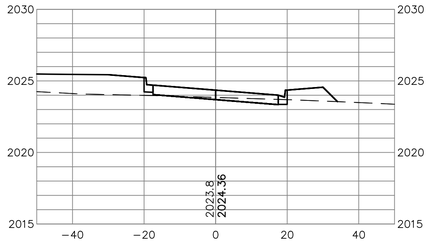


11+50.00



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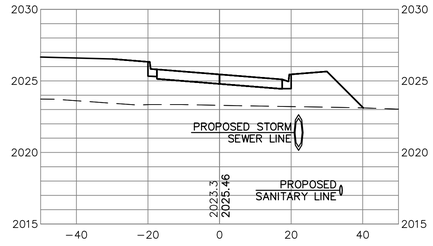

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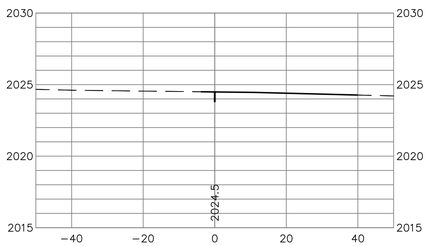

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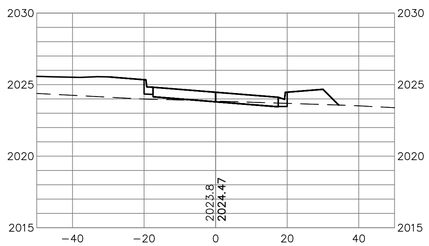

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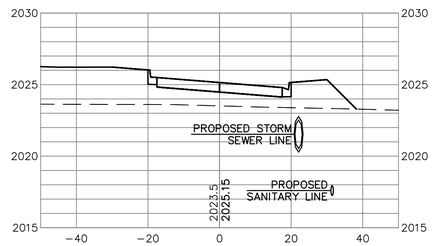
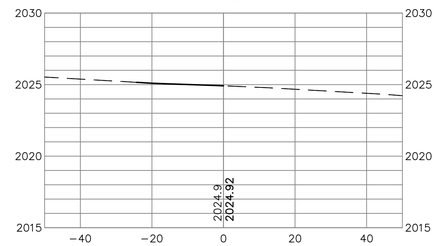


14+79.43



SCALE:
1"=20' HORIZ.
1"=5' VERT.

ENTIRE SHEET IS PER ALTERNATE #1

REV	DATE	DESCRIPTION	DSN	DWN	CHK
1	07/31/24	REVISED	MJR	TDA	MJR
0	06/27/24	INITIAL ISSUE	MJR	TDA	MJR

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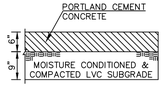
ASTRA OPERATIONS BUILDING
27TH, FORT, AND MAIN STREET
HAYS, KANSAS 67601

CIVIL PLANS
26TH STREET - CROSS SECTIONS

PROJ. NO.	
E24D3733	
DESIGNER	DRAWN BY
MJR	TDA
CFN	
3733XSEC	
SHEET	REV
09	1

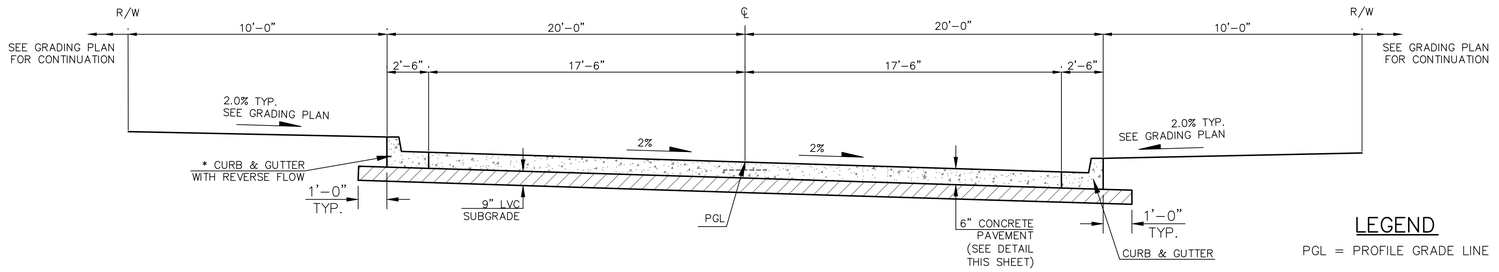


CONCRETE STREET PAVEMENT

N.T.S.

1. PORTLAND CEMENT CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 4000 PSI AT 28 DAYS WITH 6% ENTRAINED AIR ±2% AND SHALL MEET OR EXCEED THE SPECIFICATIONS SET FORTH IN THE LATEST EDITION OF THE KANSAS DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR STATE ROAD & BRIDGE CONSTRUCTION.

2. REFER TO PROJECT GEOTECH REPORT FOR FURTHER DETAILS.



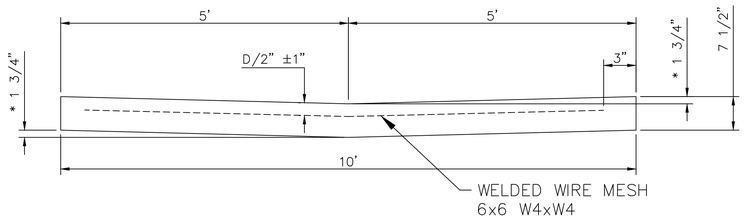
26TH STREET TYPICAL ROADWAY SECTION N.T.S.

* CURB AND GUTTER TO END AT STA. 14+23.69 (LT)
SEE PLANS FOR CONTINUATION

LEGEND

PGL = PROFILE GRADE LINE

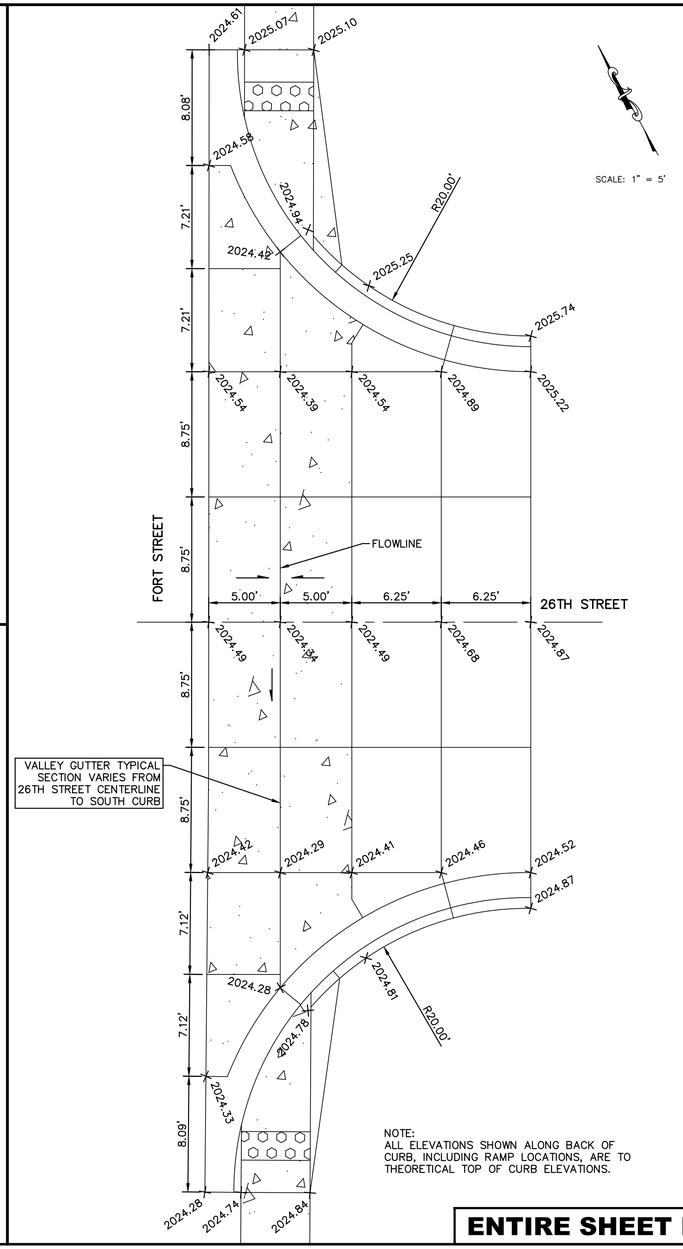
NOTE:
REFER TO SHEET 11 FOR CURB AND GUTTER DETAILS.



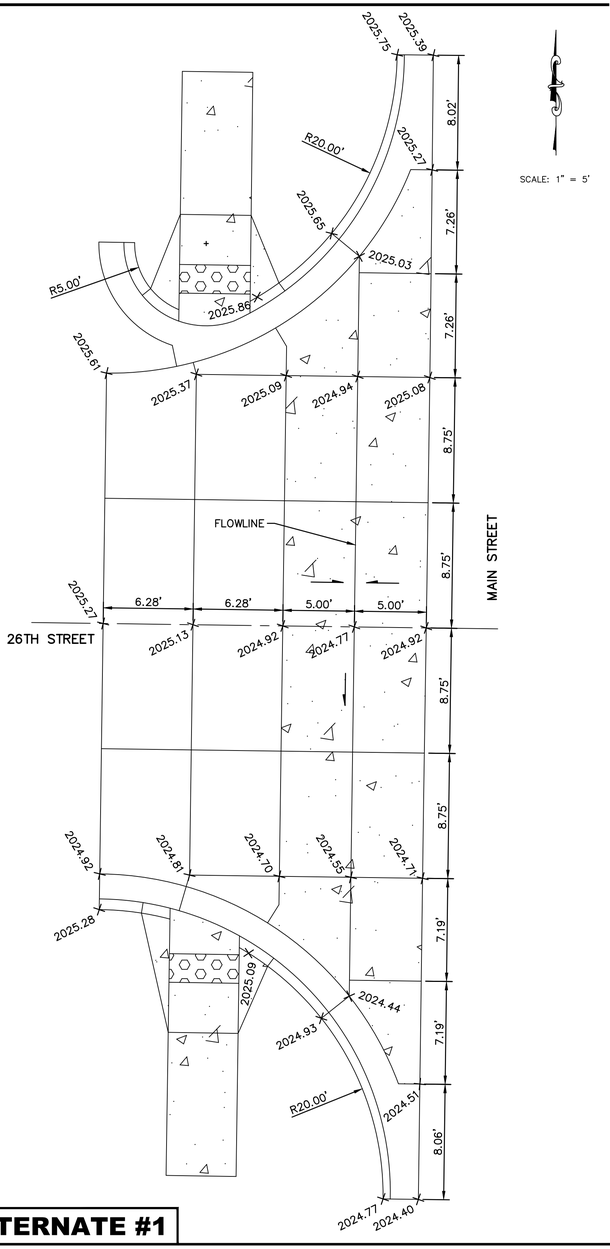
VALLEY GUTTER TYPICAL SECTION

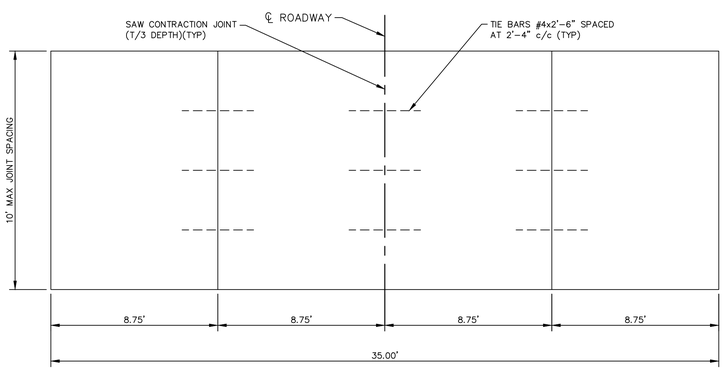
N.T.S.

* 1 3/4" TYPICAL HEIGHT
DIMENSION VARIES ON WEST INTERSECTION.
SEE SPOT ELEVATIONS ON THIS SHEET.



NOTE:
ALL ELEVATIONS SHOWN ALONG BACK OF CURB, INCLUDING RAMP LOCATIONS, ARE TO THEORETICAL TOP OF CURB ELEVATIONS.





NON-REINFORCED JOINTED PAVEMENT PLAN VIEW

N.T.S.

ENTIRE SHEET IS PER ALTERNATE #1

REV	DATE	DESCRIPTION	DSN	DWN	CHK
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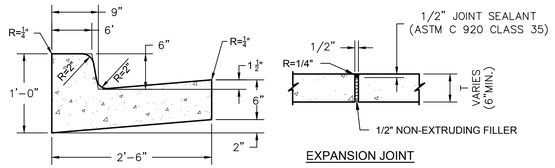
ASTRA OPERATIONS BUILDING
27TH, FORT, AND MAIN STREET
HAYS, KANSAS 67601

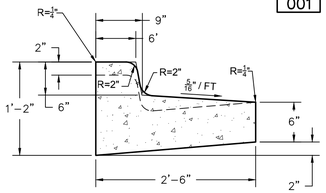
CIVIL PLANS
DETAIL SHEET

PROJ. NO.	
E24D3733	
DESIGNER	DRAWN BY
MJR	TDA
CFN	
3733TYP	
SHEET	REV
10	1

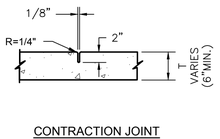


STANDARD TYPE "B" CURB 001

EXPANSION JOINT



TYPE "B - DRY" CURB 002

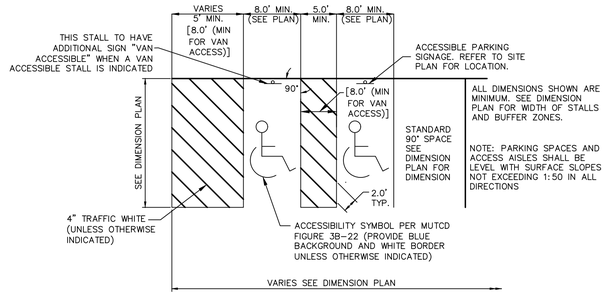


CONTRACTION JOINT

NOTES:
1. IN TRANSITIONS, WATER SHALL FLOW FROM THE GUTTER OF TYPE "B" CURB TO THE LIP OF TYPE "B – DRY" CURB AT 0.5% MIN. SLOPE.
2. GUTTER SLOPE IN HANDICAP ACCESSIBLE STALLS AND ACCESS AISLES SHALL NOT EXCEED 2.0%.

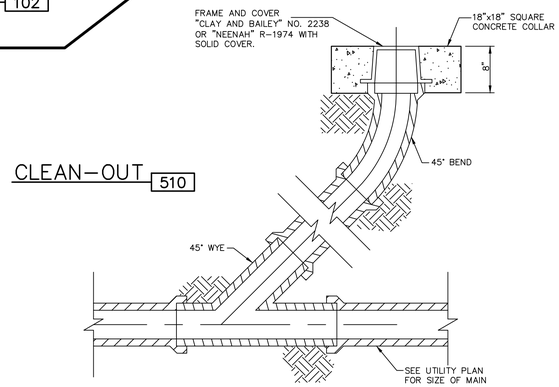
TYPE "B" CURB & GUTTER NOTES:
1. ½" PREMOLDED EXPANSION JOINTS SHALL BE PLACED AT POINTS OF CURVATURE, CURB RETURNS, CURB INLETS AND AT 250' CENTERS. THE EXPANSION JOINTS SHALL BE DOWELED IN ACCORDANCE WITH THE SPECIFICATIONS. CONTRACTION JOINTS SHALL BE 2" DEEP AND PLACED AT 15' INTERVALS EQUALLY SPACED BETWEEN EXPANSION JOINTS.
2. PORTLAND CEMENT CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 4000 PSI AT 28 DAYS WITH 6% ENTRAINED AIR ±2% AND SHALL MEET OR EXCEED THE KANSAS DEPARTMENT OF TRANSPORTATION SPECIFICATIONS.
3. SEE SIDEWALK RAMP DETAILS FOR TYPICAL SIDEWALK RAMP CURB & GUTTER SECTIONS.
4. DETAILS AS SHOWN FOR CONCRETE AND ASPHALT PAVING. WHEN USED WITH CONCRETE PAVING POURED MONOLITHICALLY WITH CURB NO MODIFICATIONS ARE REQUIRED. WHEN CURB AND CONCRETE PAVING ARE TO BE POURED SEPARATELY #4 BARS, 24" LONG ARE TO BE PROVIDED TO TIE CURB TOGETHER WITH CONCRETE PAVING.
5. ALL REINFORCING SHALL BE 60 ksi EPOXY COATED DEFORMED BARS.
6. CURBS TO BE CONSTRUCTED ON MINIMUM 6 INCHES OF COMPACTED WELL GRADED BASE ROCK.

CONCRETE CURB

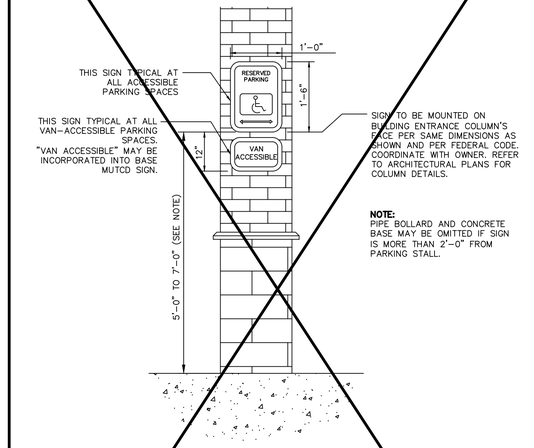


90° SPACE STRIPING

ACCESSIBLE STRIPING 102



CLEAN-OUT 510



ACCESSIBLE PARKING SIGN 120

HEIGHT ABOVE GRADE FOR POLE MOUNTED SIGNS VARIES. TYPICAL INSTALLATION IS 5'-0" ABOVE GRADE. SIGN SHALL BE MOUNTED AT 7'-0" IF IT FALLS WITHIN A WALKING PATH.

REV	DATE	DESCRIPTION	DSN	DWN	CHK
			M.JR	TDA	M.JR
			M.JR	TDA	M.JR
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0	06/27/24	INITIAL ISSUE	M.JR	TDA	M.JR

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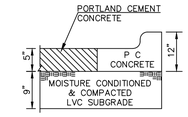
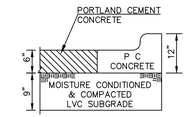
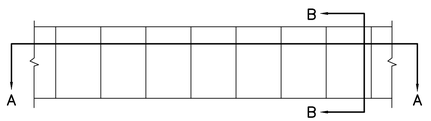


REGULAR DUTY PAVING 040

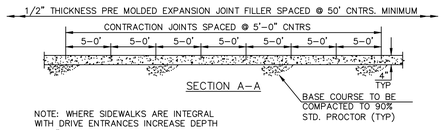


HEAVY DUTY PAVING 041

1. PORTLAND CEMENT CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 4000 PSI AT 28 DAYS WITH 6% ENTRAINED AIR ±2% AND SHALL MEET OR EXCEED THE SPECIFICATIONS SET FORTH IN THE LATEST EDITION OF THE KANSAS DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR STATE ROAD & BRIDGE CONSTRUCTION.
2. REFER TO PROJECT GEOTECH REPORT FOR FURTHER DETAILS.

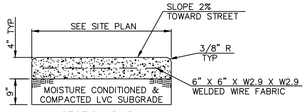


PLAN VIEW



SECTION A–A

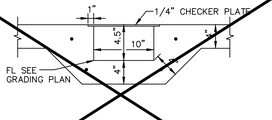
NOTE: WHERE SIDEWALKS ARE INTEGRAL WITH DRIVE ENTRANCES INCREASE DEPTH TO 6" AND PROVIDE REINFORCING USING 6x6 #10 WIRE MINIMUM.



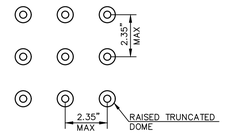
SECTION B–B

CONCRETE SIDEWALK 055

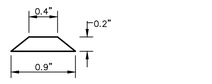
NOTE: CONCRETE SHALL BE CLASS A WITH f'c = 3000 PSI.



SIDEWALK DRAIN 429

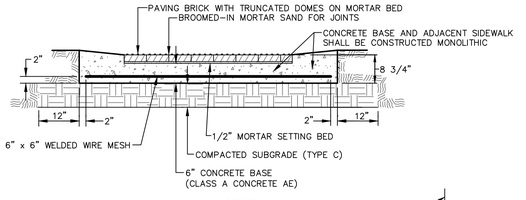


DETECTABLE WARNING SURFACE PATTERN

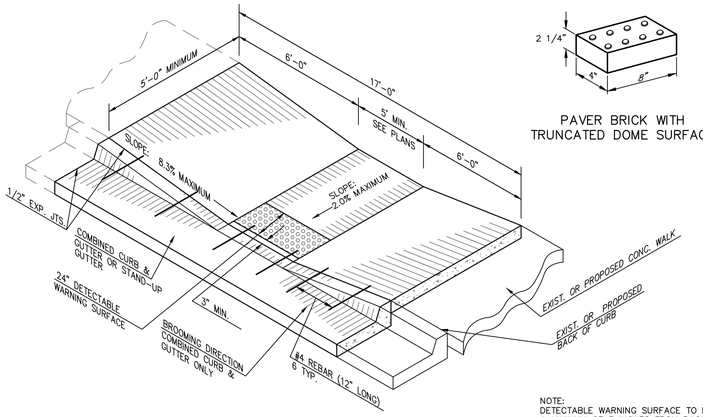


RAISED TRUNCATED DOME DETAIL

PAVER BRICK WITH TRUNCATED DOME SURFACE

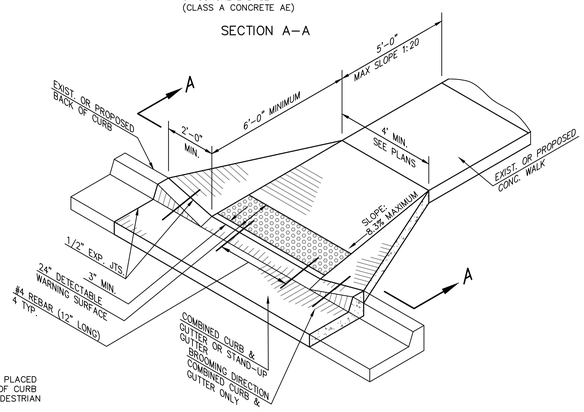


SECTION A–A



ISOMETRIC OF RAMP WITH LANDING

NOTE:
DETECTABLE WARNING SURFACE TO BE PLACED A MINIMUM OF 3 INCHES FROM BACK OF CURB AND ALIGNED IN THE DIRECTION OF PEDESTRIAN TRAVEL.



ISOMETRIC OF RAMP WITH PERPENDICULAR WALK SHOWN

SIDEWALK RAMPS 060

ASTRA OPERATIONS BUILDING
27TH, FORT, AND MAIN STREET
HAYS, KANSAS 67601

CIVIL PLANS
DETAIL SHEET

PROJ. NO.	E24D3733
DESIGNER	MJR
DRAWN BY	TDA
CFN	3733TYP
SHEET	11
REV	1

GENERAL NOTES:

1. PROPERTY LINE IS LIMITS OF CONSTRUCTION EXCEPT AS SHOWN.

2. THE CONTRACTOR SHALL INSTALL EROSION CONTROL MEASURES AS SHOWN ON THE DRAWINGS PRIOR TO BEGINNING EARTHWORK OPERATIONS.

3. THE CONTRACTOR SHALL MAINTAIN ALL SILT CONTROL MEASURES DURING CONSTRUCTION.

4. ALL SILT SHALL REMAIN ON SITE AND SURROUNDING STREETS SHALL BE KEPT CLEAR OF ALL MUD AND DEBRIS.

5. A SEDIMENTATION BARRIER IS TO BE INSTALLED AS SHOWN.

6. ACCUMULATED SEDIMENT SHALL BE REMOVED AND THE SEDIMENTATION BARRIERS MAINTAINED AS NEEDED TO PREVENT SEDIMENTATION BYPASS OF THE BARRIER.

7. SLOPES ARE TO BE LEFT IN A ROUGH CONDITION DURING GRADING.

8. CURB INLET SEDIMENTATION BARRIERS ARE TO BE INSTALLED AROUND INLETS AND WEIRS WHERE SEDIMENTATION IS A CONCERN. INLET BARRIERS SHALL BE EITHER BLOCK AND GRAVEL, OR SECURED STRAW BALES, OR SILT FENCE.

9. SEDIMENT IS TO BE REMOVED FROM STORM WATER DRAINAGE SYSTEMS.

10. RIPRAP IS TO BE INSTALLED AT AREAS OF CONCENTRATED FLOW (I.E. CULVERT OUTLETS).

11. CONTRACTOR IS RESPONSIBLE FOR INSTALLING ANY ADDITIONAL EROSION CONTROL AS HE/SHE DEEMS NECESSARY.

12. THE CONTRACTOR SHALL PROVIDE ALL MATERIALS, TOOLS, EQUIPMENT AND LABOR AS NECESSARY TO INSTALL AND MAINTAIN ADEQUATE EROSION AND SILTATION CONTROLS REQUIRED TO PREVENT SOIL EROSION FROM LEAVING THE PROJECT SITE. IT SHALL BE THE CONTRACTOR'S SOLE RESPONSIBILITY TO ENSURE THAT METHODS UTILIZED ARE ADEQUATE AND COMPLY WITH REQUIREMENTS OF THE SPECIFICATIONS AND GOVERNMENTAL AGENCIES HAVING JURISDICTION OVER THE WORK.

13. TEMPORARY SEDIMENT FENCE/STRAW BALES TO REMAIN UNTIL ADEQUATE VEGETATION IS ESTABLISHED.

14. MUD AND DEBRIS SHALL BE CLEANED UP AT THE CONCLUSION OF EACH WORKING DAY, OR AFTER EACH RAINFALL IF SILT IS PRESENT.

15. INSPECTION, MAINTENANCE AND REPAIR OF EROSION CONTROL DEVICES SHALL BE ON GOING THROUGHOUT THE LIFE OF BUILDING CONSTRUCTION TO KEEP THE DEVICES IN OPERABLE CONDITION AT ALL TIMES. ADDITIONAL MEASURES SHALL BE INSTALLED AS REQUIRED BY ACTUAL FIELD CONDITIONS AND/OR GOVERNING INSPECTION AGENCIES.

16. INSTALL CONSTRUCTION ENTRANCE AT ANY POINT WHERE TRAFFIC WILL BE ENTERING OR LEAVING THE SITE AND AS SHOWN ON PLANS.

17. AT COMPLETION OF SITE GRADING AND OTHER RELATED CONSTRUCTION ACTIVITIES, ALL DISTURBED AREAS WITHIN THE PROJECT SITE SHALL BE SEEDED USING MULCH OR EQUIVALENT STABILIZING BMP, SODDED, OR LANDSCAPED WITHIN 14 DAYS.

18. TOPSOIL IS TO BE PLACED IN AREAS UNSUITABLE FOR VEGETATIVE GROWTH.

19. STRIP TOPSOIL PRIOR TO EXCAVATION, STOCKPILE AND SPREAD ONTO DISKED SUBGRADE (6" MIN) A THICKNESS OF 6 INCHES. REFER TO GEOTECH REPORT.

20. ROCK LINING (RIPRAP) SHALL BE DURABLE STONE CONTAINING A COMBINED TOTAL OF NOT MORE THAN 10 PERCENT OF EARTH, SAND, SHALE AND NON-DURABLE ROCK. AT LEAST 60 PERCENT OF THE MASS SHALL BE OF PIECES HAVING A MINIMUM WEIGHT OF 150 POUNDS OR MORE PER CUBIC FOOT.

21. THE CONTRACTOR SHALL HAVE THE RESPONSIBILITY FOR RESOLVING COMPLAINTS IN THE EVENT THAT COMPLAINTS OR DAMAGE CLAIMS ARE FILED DUE TO DAMAGES OCCURRING ADJACENT TO OR DOWNSTREAM FROM PROPERTY BY SEDIMENT RESULTING FROM EROSION ON THE PROJECT SITE.

22. GOOD HOUSEKEEPING PRACTICES SHALL BE MAINTAINED ON SITE TO KEEP SOLID WASTE FROM ENTRY INTO WATERS.

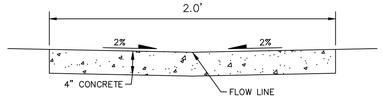
23. ALL FUELING FACILITIES PRESENT ON SITE SHALL ADHERE TO APPLICABLE FEDERAL AND STATE REQUIREMENTS CONCERNING UNDERGROUND STORAGE, ABOVE GROUND STORAGE AND DISPENSERS, INCLUDING SPILL PREVENTION, CONTROL AND COUNTER MEASURES.

24. RIGHT OF WAY TO BE STABILIZED AS REQUIRED BY APWA SECTION 2400.

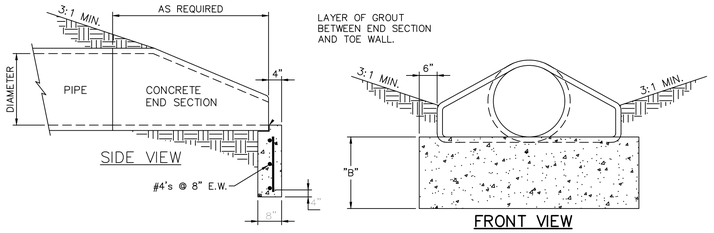
25. EROSION CONTROL IS TO BE PLACED IN PHASING AS CONSTRUCTION PROGRESSES.

26. MINIMAL WASHING OF CONCRETE EQUIPMENT ALLOWED, CHUTE ETC. CONCRETE WASHOUT OF THE DRUM IS NOT ALLOWED. ANY PIT/WASHOUT AREA NEEDS TO BE MAINTAINED IN A NON-DISCHARGING MANNER AND ANY WASTE RESIDUE WILL NEED TO BE CLEANED OUT AND REMOVED AT THE END OF PROJECT.

27. EROSION CONTROL SEDIMENT FENCE TO BE INSTALLED 1'-0" BEHIND CURB & GUTTER UPON COMPLETION OF BACKFILL OF CURB IN ALL AREAS WHERE SLOPES FROM LOT DRAIN TOWARDS CURB. UPON COMPLETION OF FINAL GRADING THE TOES OF ALL EMBANKMENTS IN EXCESS OF TWO FEET IN HEIGHT WILL HAVE EROSION CONTROL SEDIMENT FENCE INSTALLED.



N.T.S. DETENTION POND FLUME TYPICAL SECTION 417



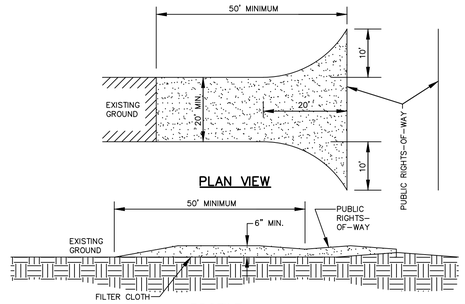
TABLE

TOE WALL DEPTH	
PIPE DIAMETER	"B"
12" – 21"	24"
24" – 48"	30"
54" – 66"	36"

NOTES:

1. THE DEPTH OF THE TOE WALL SHALL BE PER TABLE. IF BEDROCK IS ENCOUNTERED A MINIMUM OF 12" INTO BEDROCK IS REQUIRED.
2. ALL CONCRETE SHALL MEET APWA 2600 SPECIFICATIONS.

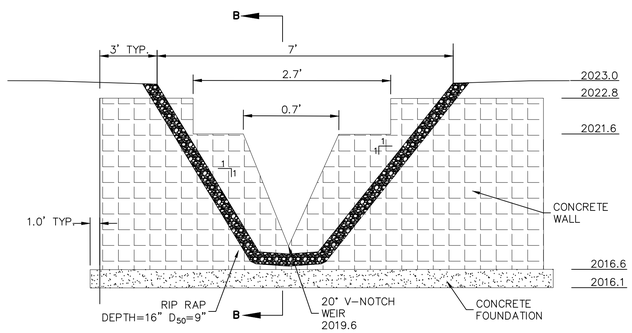
CONCRETE FLARED END SECTION W/ TOE WALL 442



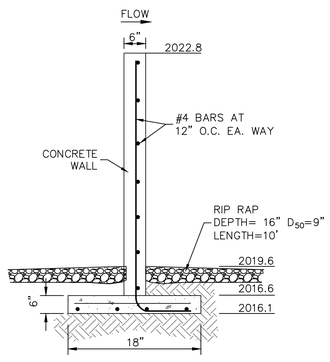
CONSTRUCTION ENTRANCE NOTES:

1. STONE SIZE – USE 2" STONE OR RECLAIMED OR RECYCLED EQUIVALENT.
2. LENGTH – AS REQUIRED, BUT NOT LESS THAN 50 FEET.
3. THICKNESS – NOT LESS THAN (6) INCHES.
4. WIDTH – TWENTY (20) FOOT MINIMUM, BUT NOT LESS THAN THE FULL WIDTH AT POINTS WHERE INGRESS OR EGRESS OCCURS.
5. FILTER CLOTH – WILL BE PLACED OVER THE ENTIRE AREA PRIOR TO PLACING OF STONE.
6. SURFACE WATER – ALL SURFACE WATER FLOWING OR DIVERTED TOWARD CONSTRUCTION ENTRANCES SHALL BE PIPED ACROSS THE ENTRANCE. IF PIPING IS IMPRACTICAL, A MOUNTABLE BERM WITH 3:1 SLOPES WILL BE PERMITTED.
7. MAINTENANCE – THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS-OF-WAY. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL STONE AS CONDITIONS DEMAND AND REPAIR AND/OR CLEANOUT OF ANY MEASURES USED TO TRAP SEDIMENT. ALL SEDIMENT SPILLED, DROPPED, WASHED OR TRACKED ONTO PUBLIC RIGHTS-OF WAY MUST BE REMOVED IMMEDIATELY.
8. WASHING – WHEELS SHALL BE CLEANED TO REMOVE SEDIMENT PRIOR TO ENTRANCE ONTO PUBLIC RIGHTS-OF-WAY. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH STONE AND WHICH DRAINS INTO AN APPROVED SEDIMENT TRAPPING DEVICE.
9. PERIODIC INSPECTION AND MAINTENANCE SHALL BE PROVIDED AS NEEDED AFTER EACH RAIN.

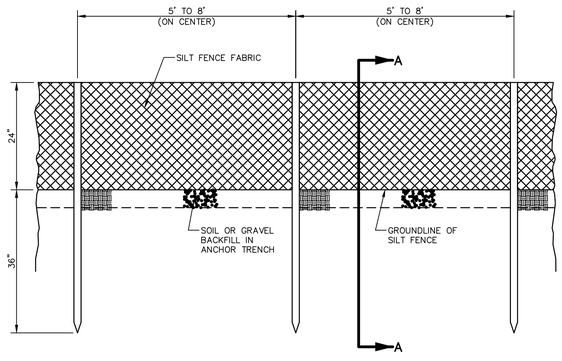
CONSTRUCTION ENTRANCE DETAIL 047



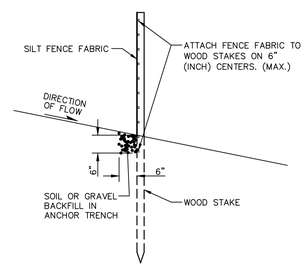
POND OUTLET STRUCTURE WALL 407



SECTION B–B



SEDIMENTATION FENCE 812



SECTION A–A

REV	DATE	DESCRIPTION	DSN	DWN	CHK
			M.JR	TDA	M.JR
0	06/27/24	INITIAL ISSUE			

MATTHEW J. ROWE LICENSED 29241 7/31/24 KANSAS PROFESSIONAL ENGINEER

MATTHEW J. ROWE
ENGINEER
KS # 29241

1627 SUNFLOWER LANE
SALINA, KANSAS 67401
PH. (785) 823-3400
sa@kveng.com | www.kveng.com

KAW VALLEY ENGINEERING

KAW VALLEY ENGINEERING, INC., IS AUTHORIZED TO OFFER ENGINEERING SERVICES IN KANSAS. STATE CERTIFICATE OF AUTHORIZATION # E-11.5. EXPIRES 12/31/24

ASTRA OPERATIONS BUILDING
27TH, FORT, AND MAIN STREET
HAYS, KANSAS 67601

CIVIL PLANS
DETAIL SHEET

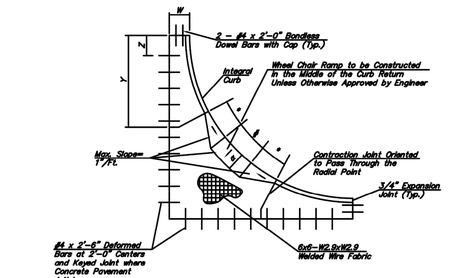
PROJ. NO.	E24D3733
DESIGNER MJR	DRAWN BY TDA
CFN	3733TYP
SHEET 12	REV 0

CITY OF HAYS
PUBLIC WORKS DEPARTMENT
DECEMBER 4, 2007

DESIGNED BY: CW | DRAWN BY: SB | CHECKED BY: JRB | PROJECT NO.: 2007-19

SHEET NO. 03 | TOTAL SHEETS 03

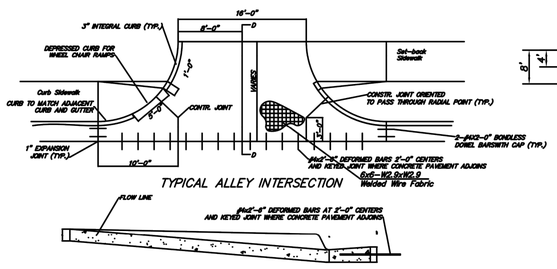
2008 STREET MAINTENANCE
Details



DIMENSIONS FOR WHEEL CHAIR RAMPS		
	6" Curb	4" Curb
x	4'–6"	2'–6"
d	5'–0"	5'–0"
a	2'–3"	1'–6"

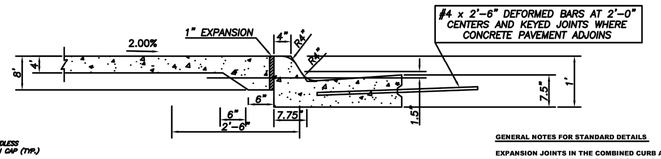
Back of Curb Radius = 15'			
	W	Y	Z
Laybock Curb & Gutter	2'–6"	5'–6"	2'–6"

CURB RETURN

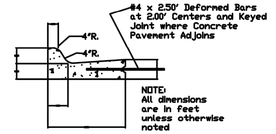


TYPICAL ALLEY INTERSECTION

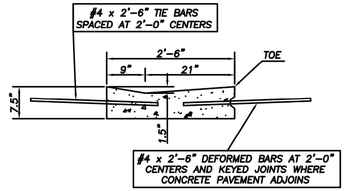
TYPICAL ALLEY INTERSECTION SECTION D–D



6" COMBINED CURB & GUTTER AND SIDEWALK DETAIL



6' COMBINED CURB AND GUTTER



DEPRESSED CURB & GUTTER (TYPE II)

CURB & GUTTER DETAILS

GENERAL NOTES FOR STANDARD DETAILS

EXPANSION JOINTS IN THE COMBINED CURB AND GUTTER ARE TO BE PLACED OPPOSITE EXPANSION JOINTS IN THE PAVEMENT. EXPANSION JOINT IN SIDEWALK AND COMBINED CURB AND GUTTER SHALL BE PLACED EVERY 120' (MIN.) OR AS SHOWN ON PLANS.

WHERE THE CURB AND GUTTER OR GUTTER DOES NOT ABUT CONCRETE PAVEMENT OR CONCRETE BASE COURSE, OMIT TIE BARS AND KEYWAY. PLACE A 1" PRE-MOLDED EXPANSION JOINT FILLER (NONEXTRUDING TYPE B) CUT TO THE DIMENSIONS OF THE COMBINED CURB AND GUTTER OR GUTTER AT THE ENDS OF CURB RETURNS. ALL EXPANSION JOINTS IN THE CURB AND GUTTER SHALL BE SEALED WITH A RUBBERIZED HOT TAR OR SILICONE JOINT SEALANT. ALL EXPOSED EDGE INCLUDEING JOINTS, SHALL BE ROUNDED WITH AN EDGING TOOL.

EXCAVATION FOR SIDEWALKS, CURB AND GUTTER, AND PAVEMENT SHALL BE SUBSIDIARY TO OTHER ITEMS IN THE CONTRACT.

REMOVAL OF SIDEWALK, CURB AND GUTTER, AND PAVEMENT SHALL BE INCLUDED IN THE BID ITEM "CONCRETE REMOVAL".

CURB CUT RAMPS ARE TO BE LOCATED AS SHOWN OR APPROVED BY THE ENGINEER.

THE NORMAL GUTTER LINE PROFILE SHALL BE MAINTAINED THROUGH THE AREA OF THE RAMP.

CARE SHALL BE TAKEN TO ASSURE UNIFORM GRADE ON THE RAMP, FREE OF SAGS AND/OR SHORT GRADE CHANGES.

THE SURFACE TEXTURE OF ALL SIDEWALKS SHALL BE THAT OBTAINED BY A COARSE BROOMING. THE RAMP SHALL HAVE A TRUNCATED DOME DETECTABLE SURFACE AND SHALL HAVE SUFFICIENT COLOR CONTRAST WITH ADJACENT SURFACES TO MEET ADA REQUIREMENTS.

NEW CURB AND GUTTER SECTIONS SHALL BE DOWELED TO THE EXISTING ADJACENT CURB SECTIONS WITH 2-#4 X 2'-0" DEFORMED BARS. DOWEL BARS AT ALL CONSTRUCTION JOINTS TO EXISTING CONCRETE SHALL HAVE ONE END DRILLED AND EPOXY GROUTED INTO CENTER OF THE EXISTING PAVEMENT OR POURED INTO PLACE WITH NEW PAVEMENT. ALL DOWEL BAR CONSTRUCTION WORK SHALL BE SUBSIDIARY TO OTHER BID ITEMS IN THE CONTRACT.

ALL CURB AND GUTTER AND/OR GUTTERS OF ANY TYPE SHALL HAVE A STEEL TROWEL FINISH. SIDEWALKS SHALL BE RAMPED WHERE THE DRIVEWAY CURB IS EXTENDED ACROSS THE WALK.

ALLOWABLE MAXIMUM COMPACTED THICKNESS OF FINE GRADING MATERIAL SHALL BE 1-1/4".

ALL SIDEWALKS AND RAMPS WITHIN PUBLIC RIGHTS-OF-WAY SHALL MEET THE REQUIREMENTS OF THE AMERICANS WITH DISABILITIES ACT ACCESSIBILITY GUIDELINES (ADAAG).

WHEELCHAIR RAMPS IN THE CURB RETURN SHALL BE CONSTRUCTED USING 6" THICK PAVEMENT CLASS CONCRETE (4000 PSI)

IF THE ENGINEER DETERMINES THAT THE EXISTING ASPHALT PAVEMENT IS IN GOOD CONDITION, WITHOUT PITTING AND RAVELING, ALONG THE SAWCUT AFTER REMOVAL OF THE CURB AND GUTTER OR PAVEMENT, THE ASPHALT PATCHING MAY BE ELIMINATED.

IF CURB AND GUTTER, PAVEMENT AND/OR SIDEWALK TO BE REMOVED IS WITHIN 3' OF AN EXISTING JOINT, REMOVE CURB AND GUTTER, PAVEMENT AND/OR SIDEWALK BACK TO EXISTING JOINT.

CURB AND GUTTER SECTION TO BE PAID FOR AS INTEGRAL CURB AND GUTTER FOR SECTIONS POURED MONOLITHICALLY WITH PAVEMENT, AND AS COMBINED CURB AND GUTTER FOR ALL OTHER TYPES OF CURB AND GUTTER SECTIONS.

MAXIMUM RAMP SLOPES SHALL BE 1:12. MAXIMUM RISE IN ELEVATION WITHOUT A 5' LEVEL LANDING (2.00%) SHALL BE 2.5'. AT THE DIRECTION OF THE ENGINEER AND WHERE SPACE LIMITATIONS PROHIBIT CONSTRUCTION OF 1:12 SLOPES AT EXISTING SITES, MAXIMUM SLOPES MAY BE AS FOLLOWS: 1:8 FOR MAXIMUM RISE OF 3 INCHES, 1:10 FOR A MAXIMUM RISE OF 6 INCHES.

AFTER CONSTRUCTION OF CURB RAMPS, RECONSTRUCTION OF SIDEWALKS, CONSTRUCTION OF RETAINING WALL, AND FINAL GRADING; AREAS DISTURBED BY CONSTRUCTION MUST BE TILLED, FERTILIZED, SEEDED AND MULCHED TO MATCH EXISTING GRASS LAWN. FERTILIZER, GRASS SEED AND MULCH MUST BE SUTMITTED TO ENGINEER FOR APPROVAL.

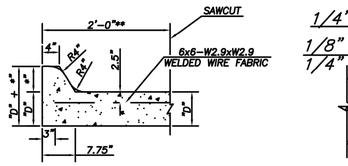
8" WIDE RETAINING WALL SHALL BE CONSTRUCTED WITH THE "ANCHOR WINDSOR STONE RETAINING WALL SYSTEM" OR AN APPROVED EQUAL. PAYMENT SHALL BE PER SQUARE FOOT OF THE OUTSIDE VERTICLE FACE. THE COLOR SHALL BE SELECTED BY THE CITY OF HAYS.

THE CONTRACTOR SHALL TAKE CARE NOT TO DAMAGE THE EXISTING SURFACE ON STREETS, DRIVEWAYS OR SIDEWAKS WITH EQUIPMENT DURING CONSTRUCTION, AND IF DAMAGED, SHALL REPAIR OR REPLACE THE SURFACE TO ITS ORIGINAL CONDITION, AT NO ADDITIONAL COST TO THE OWNER.

EXCAVATION THAT NEEDS TO BE WASTED SHALL BE WASTED BY THE CONTRACTOR OFF THE PROJECT SITE. THESE SITES SHALL BE APPROVED BY THE CITY ENGINEER AS TO SUITABILITY, APPERANCE, AND SITE LOCATION. ALL DISPOSAL SITES MUST BE APPROVED BY THE KANSAS DEPARTMENT OF HEALTH AND ENVIORMENT.

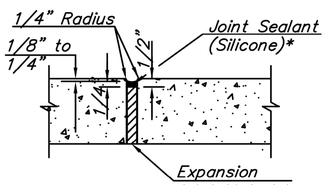
THE CONTRACTOR SHALL BE REQUIRED TO PROTECT ALL EXISTING STRUCTURES AND FOUNDATIONS DURING EXCAVATION & BACKFILL AND INSURE THAT THERE IS NO LATERAL MOVEMENT OF THE SOIL. THIS INCLUDES, BUT IS NOT LIMITED TO COMPACTION EQUIPMENT THAT WILL NOT DAMAGE THE STRUCTURES AND ANY SHORING, BRACING, & DEWATERING OF THE TRENCH.

CONSTRUCTION STAKING SHALL BE SUBSIDIARY TO OTHER BID ITEMS.

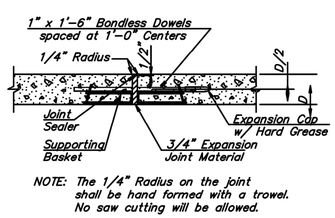


NOTE: "D"=PAVEMENT THICKNESS
* VARIES TO MATCH EXISTING CURB
** FOR SIDEWALK RAMP CURB CUTS IN EXISTING CURB & GUTTERS

INTEGRAL CURB

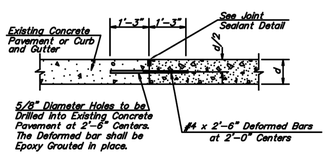


EXPANSION JOINT SEALANT



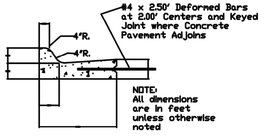
NOTE: The 1/4" Radius on the joint shall be hand formed with a trowel. No saw cutting will be allowed.

EXPANSION JOINT DETAIL

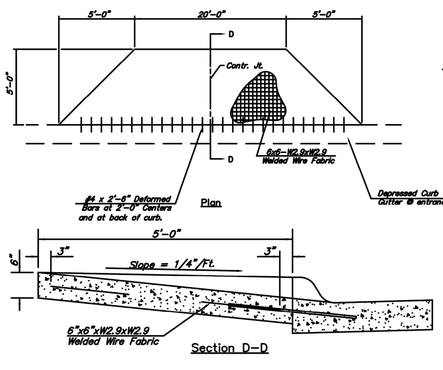


NOTE: At Doweled Joints, a saw cut 1 1/4" deep and 3/8" wide shall be made and sealed as per Joint Sealant Detail.

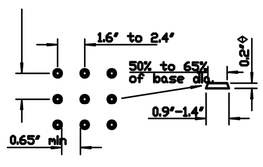
DOWELED JOINT DETAIL



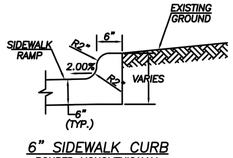
6' COMBINED CURB AND GUTTER



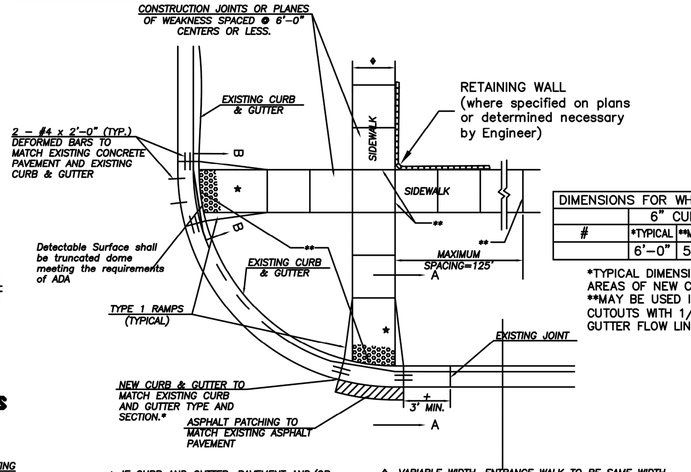
TYPICAL CONCRETE ENTRANCE



TRUNCATED DOME DIMENSIONS for SQUARE PATTERN (Parallel Alignment)



6" SIDEWALK CURB
POURED MONOLITHICALLY WITH SIDEWALK.



+ IF CURB AND GUTTER, PAVEMENT AND/OR SIDEWALK TO BE REMOVED IS WITHIN 3' OF AN EXISTING JOINT, REMOVE CURB AND GUTTER, PAVEMENT AND/OR SIDEWALK BACK TO EXISTING JOINT.

* CURB & GUTTER SECTION TO BE PAID FOR AS INTEGRAL CURB & GUTTER FOR SECTIONS POURED MONOLITHICALLY WITH PAVEMENT, AND AS COMBINED CURB & GUTTER FOR ALL OTHER TYPES OF CURB & GUTTER SECTIONS.

** EXPANSION JOINT LOCATED AS SHOWN

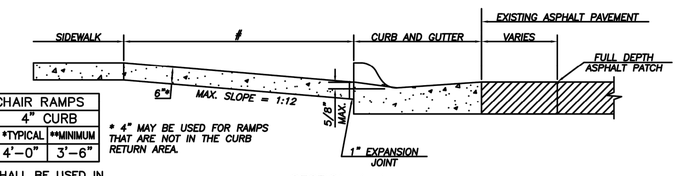
♦ VARIABLE WIDTH. ENTRANCE WALK TO BE SAME WIDTH AS APPROACH WALK. SIDEWALK WIDTH OF 4'–0" MAY BE USED WHERE EXISTING CONDITIONS PROHIBIT USE OF 5'–0". MAXIMUM CROSS SLOPE ON SIDEWALK IS 2.00%.

★ MAXIMUM RAMP SLOPES SHALL BE 1:12. MAXIMUM RISE IN ELEVATION WITHOUT A 5' LEVEL LANDING (2.00%) SHALL BE 2.5'. AT THE DIRECTION OF THE ENGINEER AND WHERE SPACE LIMITATIONS PROHIBIT CONSTRUCTION OF 1:12 SLOPES AT EXISTING SITES, MAXIMUM SLOPES MAY BE AS FOLLOWS: 1:8 FOR MAXIMUM RISE OF 3 INCHES 1:10 FOR A MAXIMUM RISE OF 6 INCHES

SIDEWALK RAMP TYPE I

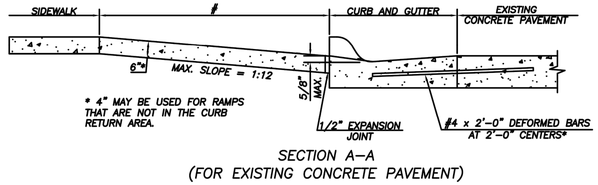
DIMENSIONS FOR WHEEL CHAIR RAMPS				
	6" CURB		4" CURB	
#	*TYPICAL	**MINIMUM	*TYPICAL	**MINIMUM
	6'–0"	5'–6"	4'–0"	3'–6"

*TYPICAL DIMENSIONS SHALL BE USED IN AREAS OF NEW CONSTRUCTION.
**MAY BE USED IN EXISTING CURB CUTOUTS WITH 1/2"(MIN.) RISE FROM GUTTER FLOW LINE TO BACK OF CURB.



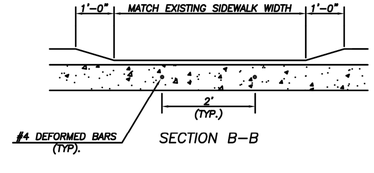
* 4" MAY BE USED FOR RAMPS THAT ARE NOT IN THE CURB RETURN AREA.

SECTION A–A
(FOR EXISTING ASPHALT PAVEMENT)



* 4" MAY BE USED FOR RAMPS THAT ARE NOT IN THE CURB RETURN AREA.

SECTION A–A
(FOR EXISTING CONCRETE PAVEMENT)



SECTION B–B

REV	DATE	DESCRIPTION	DSN	DWN	CHK
0	06/27/24	INITIAL ISSUE	MJR	TDA	MJR

MATTHEW J. ROWE LICENSED 29241 7/31/24 KANSAS PROFESSIONAL ENGINEER

MATTHEW J. ROWE
ENGINEER
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1627 SUNFLOWER LANE
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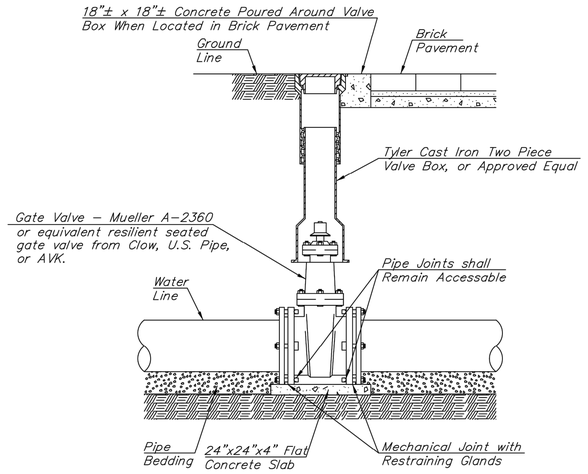
KAW VALLEY ENGINEERING, INC. IS AUTHORIZED TO OFFER ENGINEERING SERVICES AS A KANSAS STATE CERTIFICATE OF AUTHORIZATION # E-1153. EXPIRES 12/31/24

ASTRA OPERATIONS BUILDING
27TH, FORT, AND MAIN STREET
HAYS, KANSAS 67601

CIVIL PLANS
DETAIL SHEET

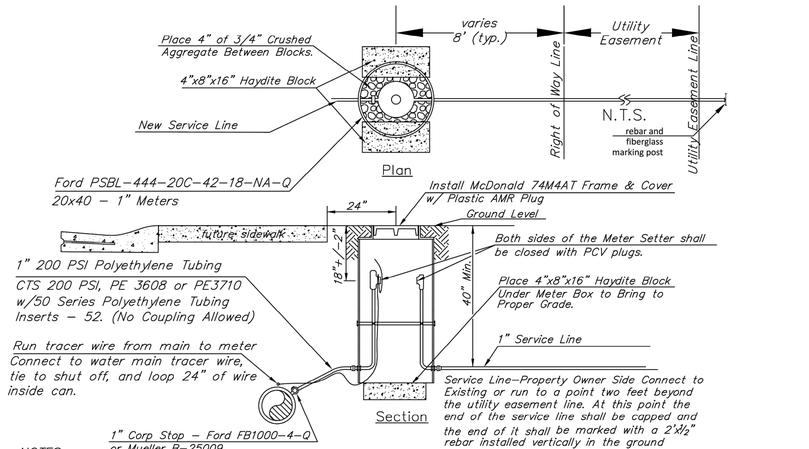
PROJ. NO. E24D3733
DESIGNER MJR | DRAWN BY TDA
CFN 3733TYP
SHEET 13 | REV 0

Details 02



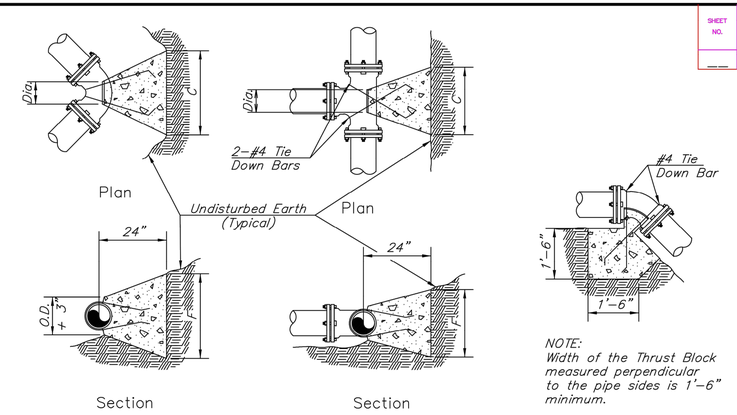
VALVE BOX DETAIL

All valves and fittings shall be Mechanical Joint with Restraining Glands for PVC Pipe conforming to ANSI/AWWA C111/A21.11 (MEGALUG 2000PV or equal)



NOTES:
1. All taps to be made with APWA tapered threads.
2. Service saddles for PVC Pipe shall be Ford S90 series or Mueller H or S 13000 Series CC Tapered Thread.
3. Meter Adapters shall be Mueller H-10879 or Ford A-24.
4. Pack Joint connectors shall be C44-44Q.
5. Set meter can so that cover is within ¼" of final grade.

METER SET DETAIL



Horizontal Bend

Vertical Bend

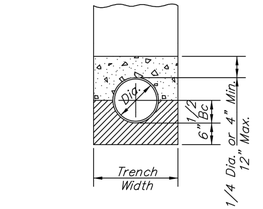
NOTE:
Width of the Thrust Block measured perpendicular to the pipe sides is 1'–6" minimum.

THRUST BLOCK DIMENSIONS								
TEES					BENDS			
RUN	BRANCH	C	F	V	SIZE	C	F	V
6" – 16"	6"	24"	18"	4.1	6"–45°	18"	18"	2.4
6" – 16"	8"	24"	24"	4.9	6"–90°	24"	24"	3.7
6" – 16"	10"	30"	30"	6.6	8"–45°	24"	21"	3.6
6" – 16"	12"	36"	36"	8.8	8"–90°	30"	30"	5.4
					10"–45°	36"	24"	5.7
					10"–90°	42"	36"	8.5
					12"–45°	33"	33"	6.8
					12"–90°	48"	42"	11.1

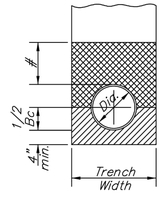
V = Minimum cubic feet of concrete required.

NOTE:
1. *Concrete shall have compressive strength at twenty–eight (28) days not less than 3,000 p.s.i..*
2. *Pipe Joints shall remain accessible.*
3. *Thrust Blocks shall be at all tees, bends, plugs, caps, fire hydrants and valves, or as required by the Engineer.*
4. *No separate payment shall be made for thrust blocking, but the cost shall be subsidiary to the line pay items.*
5. *4" fittings to be considered as 6" fittings for thrust block requirements.*
6. *11 1/4° bends and 22 1/2° bends to be considered as 45° bends for thrust block purposes.*
7. *All mechanical joint fittings shall be restrained using restraining glands for PVC pipe conforming to AWWA C111 and be MEGALUG 2000PV or equal. All bends still require thrust blocks.*
8. *Plugs or other dead ends shall be considered as a tee for thrust block purposes.*

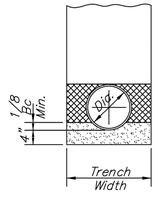
THRUST BLOCK DETAILS



CLASS "A" Conc. Arch
(Where noted on Plans)



CLASS "B"
(For PVC & VCP)



CLASS "C"
(For DIP)

LEGEND

Bc	Outside Diameter of Pipe
Dia.	Nominal Pipe Size
	Final Backfill
	Initial Backfill
	Sand–Gravel Fill
	Granular Fill
	Concrete *

* *For use only where directed by the Engineer.*

\# *1/8 of total trench backfill cover depth, or 12" minimum depth.*

BEDDING NOTES

Granular Fill to be Crushed Stone with not less than 95% passing the 3/4" sieve and not less than 95% to be retained on the #4 sieve, with not more than 2% passing the #200 sieve. The material shall be well graded with the majority of the largest particle size not exceeding 1/2 inch.

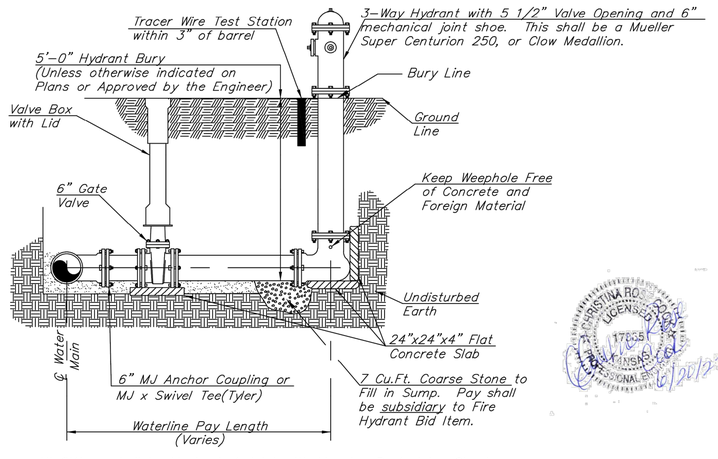
Sand–Gravel Fill shall be from an approved sand source and shall be free from debris, organic material, and stones. Granular fill may be substituted for sand–gravel fill.

Initial backfill shall be finely divided job excavated material free from debris, organic material and stones, compacted to 90% maximum density as determined by by A.S.T.M. designation: D698. Granular Fill may be substituted for all or part of the Initial Backfill.

Final Backfill may be job excavated material and shall have no rock or stones having a dimension larger than 6" within 3' of the top of the pipe. Final backfill shall be compacted as noted on the Plans.

Flowable fill may be used as a substitute for Compacted Backfill.

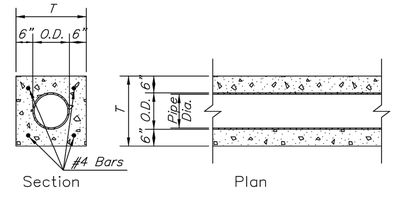
STANDARD PIPE EMBEDMENTS



All fittings shall be Mechanical Joint with Megalug Restraining Glands

See Specifications for additional information.

TYPICAL FIRE HYDRANT ASSEMBLY DETAIL



For use where indicated on detailed Plans or as directed by the Engineer.

** PLACED WHERE WATERLINE GOES UNDER SANITARY SEWER*

Scale: 1" = 2'

CONCRETE ENCASEMENT DETAIL

NOTE: See Sheet ____ for Tracer Wire Detail, required if PVC pipe is used.

NO.	DATE	REVISIONS	BY	CHECKED
1	4/25/2022	Meter Set Detail Update	OPM	JRB

CITY OF HAYS, KANSAS

WATER LINE DETAILS

CITY OF HAYS

DESIGNED BY	DATE	PROJECT NO.	
DRAWN BY	DATE	JOB NO. _____	
CHECKED BY	DATE	SCALE AS NOTED	SHEET ___ OF ___

SHEET NO.	TOTAL SHEETS
____	____

REV	DATE	DESCRIPTION	DSN	DWN	CHK
0	06/27/24	INITIAL ISSUE	M.JR	TDA	M.JR

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EXPIRES 12/31/24

ASTRA OPERATIONS BUILDING
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CIVIL PLANS
DETAIL SHEET

PROJ. NO. E24D3733
DESIGNER MJR | DRAWN BY TDA
CFN 3733TYP
SHEET 14 | REV 0

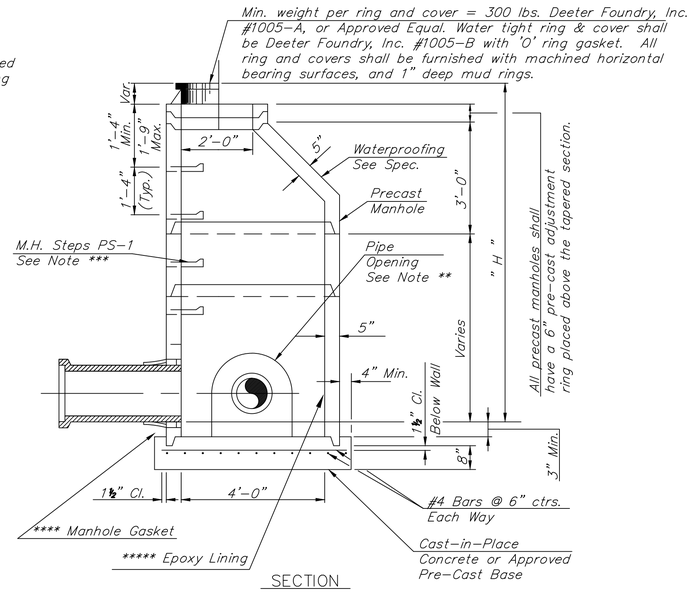
The connection to the existing manhole shall be gasketed and grouted with a non-shrink grout and the connecting joint of the pipe shall be concrete encased with six inches of concrete. The sewer shall be encased to the first joint or a minimum of 3' beyond the manhole.

Note** Openings for sewer pipes to be as follows:
Formed Openings: A one inch keyway shall be formed around the pipe opening.
Roughed Openings: Reinforcing shall be left in place around the sewer pipe to reinforce the grout. Concrete shall be left rough to provide bond for grout.

Note*** All manhole steps shall be cast iron steps having a minimum weight of 14 pounds per step, or plastic covered reinforcing bar steps such as M.A. Industries, Inc. Model PS-1 or approved equal. Steps shall be a minimum of 10 inches wide and have a minimum depth of 10 inches. All steps shall extend 5 inches from manhole walls.

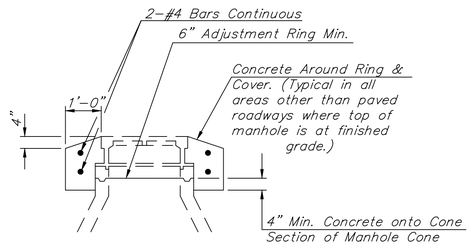
Note**** All manhole openings in new manholes shall be gasketed openings unless otherwise approved. The gasket shall be an A-LOK type X-Cel or approved equal.

Note***** All manholes shall be lined with a two part epoxy polyamide coating such as No. 332.98 Wilkopon HB Gray or approved equal that has good moisture, chemical and abrasion resistance, good hardness and excellent adhesion to steel and concrete.

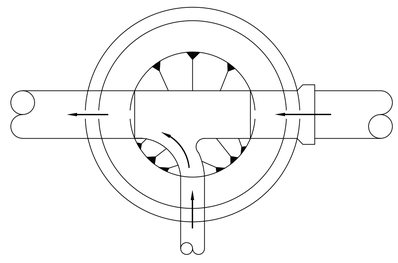


SECTION

TYPE I MANHOLE

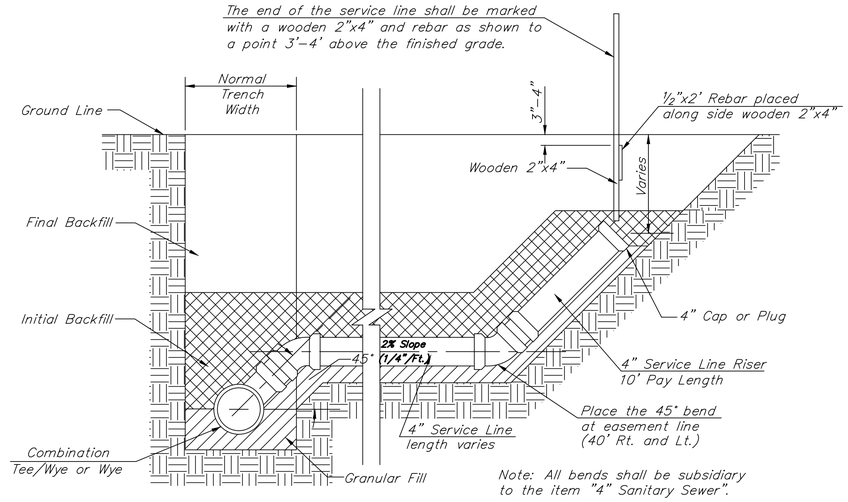


CONCRETE PROTECTION COLLAR



Shape invert and "U" channel for smooth transitions conforming to lower half cross section of sewer line with a smooth troweled finish and provide a slope not less than two (2) or more than four (4) inches from wall to "U" channel.

INVERT DETAIL



SERVICE CONNECTION BRANCH AND LINE

GENERAL NOTES

Precast risers, cones, flat top slabs, reducing flat slabs, floors and grade rings shall be manufactured according to the most recent ASTM C-478 Specifications. Cone section shall be the eccentric type.

All manhole construction shall be watertight. All joints shall be filled with mortar or plastic joint compound as approved by the Engineer.

Any erection holes, step holes, or other holes through the wall of the manhole shall be covered with a 3" concrete grout and cover an area 6" in all directions from said hole, and then waterproofed as per specs.

When so ordered by the Engineer the top of the manhole shall be sloped slightly to approximately fit the ground line or other conditions.

Grade rings shall be formed with tongue and groove or lugs and notches. Grade rings shall be set in mortar or plastic joint compound as approved by the Engineer.

When field conditions require "H" to be adjusted, additional grade rings may be used as directed by the Engineer.

All dimensions relative to the reinforcing steel are to the center of the bar unless otherwise noted.

Steps shall be installed in all manholes when specified on the plans. The 16 inch step spacing is typical and may be adjusted to clear joints in manholes. (18 inch Max. spacing)

All concrete bases for precast manholes shall be 3,000 psi concrete. Concrete bases shall be a minimum of 8" thick below the wall of the manhole.

All drop pipe for drop manholes shall be the same diameter as the inlet sewer pipe.

Whenever the subgrade for any manhole or drop manhole is of an unsatisfactory material, same shall be removed and replaced with a crushed rock bedding and compacted to the satisfaction of the Engineer.

Form or steel trowel all inverts in manholes or drop manholes.

All standard manhole or drop manhole bases shall be placed directly on or against rock or hard shale where same is encountered. No fill material of any kind will be permitted in overbreakage.

All concrete encasement in rock shall be poured against the face of the rock. No payment shall be made for extra concrete used in overbreakage of the dimensions as shown on the typical section of concrete encasement.

Manhole rings and covers to be machined.

All precast manhole details shall be subject to the approval of the Engineer.

All castings shall be gray iron and shall comply with ASTM A-48 Class 30.

Minimum spacing between sewer lines entering a manhole must be 4" clear.

Note: Detail proved by City of Hays, Kansas.

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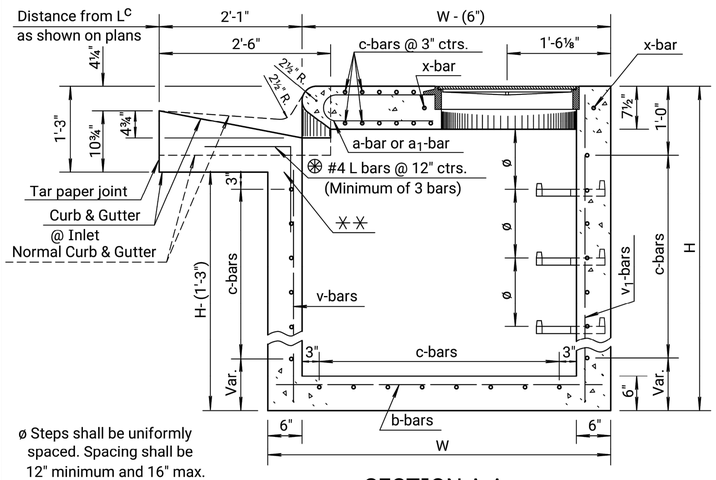
ASTRA OPERATIONS BUILDING
27TH, FORT, AND MAIN STREET
HAYS, KANSAS 67601

CIVIL PLANS
DETAIL SHEET

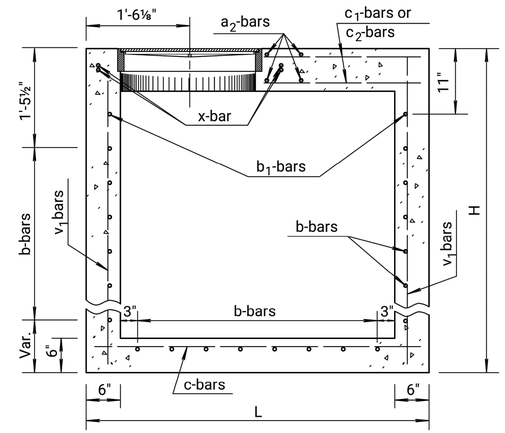
PROJ. NO.	E24D3733	
DESIGNER	MJR	DRAWN BY TDA
CFN	3733TYP	
SHEET	15	REV 0

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	056-KA-6154-01	2022	17	93

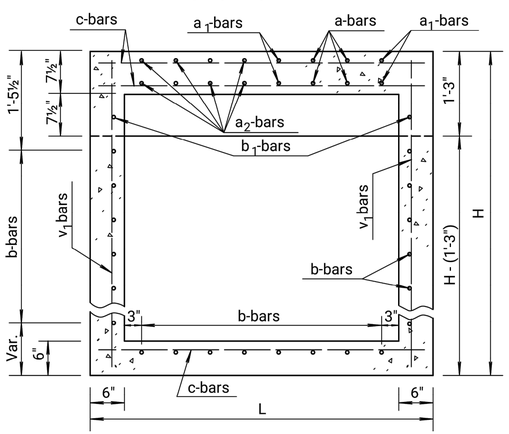


ø Steps shall be uniformly spaced. Spacing shall be 12" minimum and 16" max.

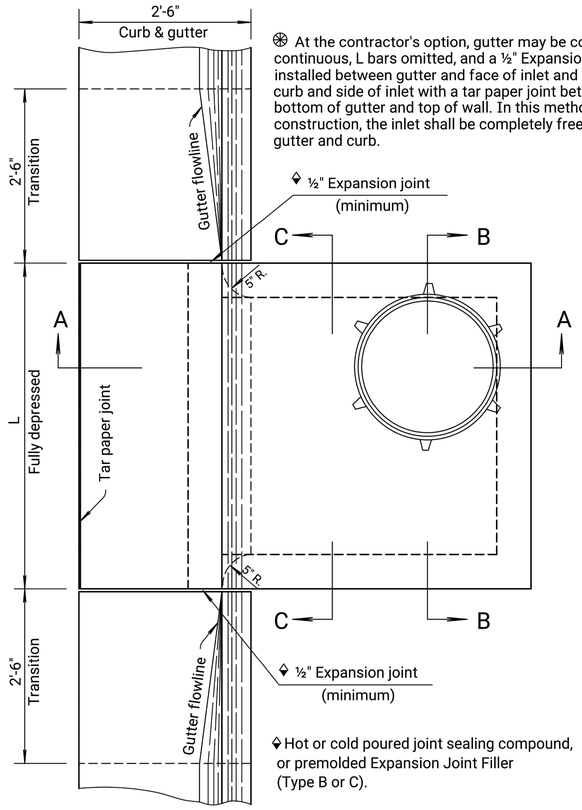
SECTION A-A



SECTION B-B



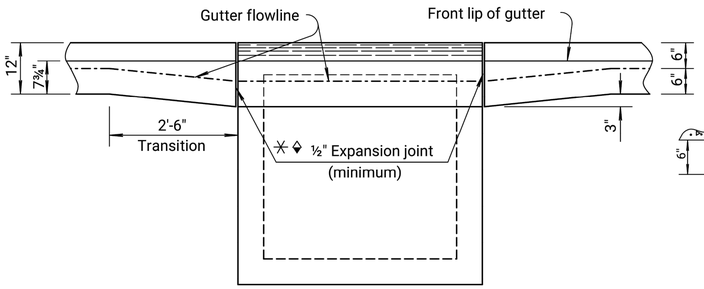
SECTION C-C



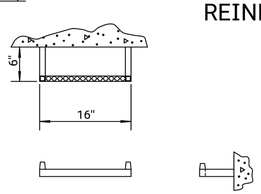
At the contractor's option, gutter may be constructed continuous, L bars omitted, and a ½" Expansion joint installed between gutter and face of inlet and between curb and side of inlet with a tar paper joint between bottom of gutter and top of wall. In this method of construction, the inlet shall be completely free of the gutter and curb.

♦ Hot or cold poured joint sealing compound, or premolded Expansion Joint Filler (Type B or C).

PLAN

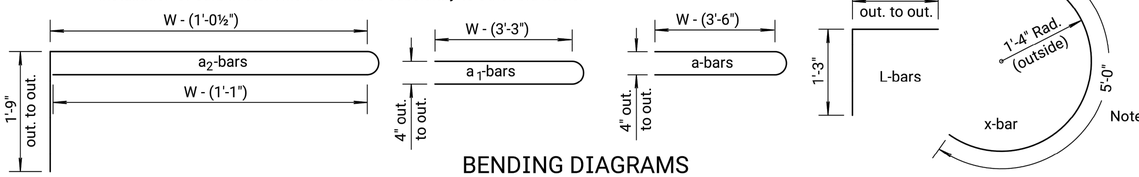


ELEVATION



STEP DETAILS

Note: Transition gutter from normal depth of 6" to 9" at inlet in 2'-6". Curb and Gutter sections shall be shaped as shown where required by the installation of curb inlets. This work will be subsidiary to other bid items.

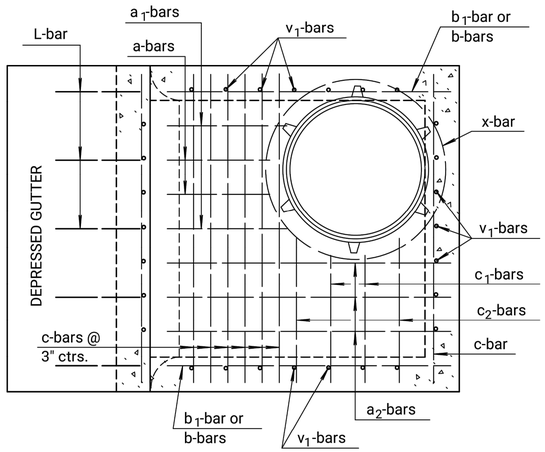


BENDING DIAGRAMS

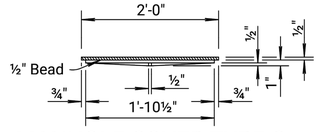
Note: Reinforcing steel for L bars is not included in the steel quantity and is subsidiary to the other inlet items.

GENERAL NOTES

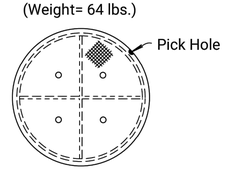
Use Concrete Grade 3.0 throughout. All exposed edges shall be finished with an edging tool.
At the contractors option Concrete Grade 3.0 (AE) or mix used in concrete pavement may be used throughout.
In general, pipes will enter and leave manhole at various positions. Where possible bend bars around pipes.
Floor of manhole to be shaped as shown in various "EXAMPLES" with unreinforced Concrete Grade 3.0.
Manhole opening and steps, where used, shall be placed to afford easy access to top of shaped invert. Top reinforcing bars to be adjusted accordingly.
All castings shall be gray iron and shall comply with the KDOT Standard Specifications.
When so ordered by the Engineer, the top of the manhole shall be sloped slightly to approximately fit the ground line or other conditions.
Dimensions and weights of cast iron as shown on this sheet are minimum. Larger dimensions and/or heavier weights of cast iron may be used.
Steps shall be installed in all storm sewer inlets when specified in the plans or when "H" is equal to or greater than six feet. Steps shall comply with the KDOT Standard Specification.
No reduction in concrete quantities shall be made for pipe openings.
When directed by the Engineer, a small opening in the back of the inlet shall be provided in order to drain a low area. Reinforcing bars shall extend through the opening. No reduction in concrete quantities will be made for this opening.
No addition in concrete quantities shall be made for shaping floor of inlet.
No reduction in pay length of curb, gutter, or curb & gutter will be made through the inlet area.
The weight of castings includes no allowance for fillets and overruns.
Curb and Gutter sections shall be shaped as shown where required by the installation of curb inlets. This work shall be subsidiary to other bid items.
See sheet entitled "Reinforcing Steel for Inlets and Manholes" for details and quantities.
For additional notes and details on Light Type Cast Iron Manhole Cover and Ring Type C and Cast Iron Steps, see Standard Drawing RD633 "Reinforced Concrete Manhole".
All reinforcing steel shall be #4 at 6" centers except where noted. Minimum clear distance to reinforcement shall be 1½".

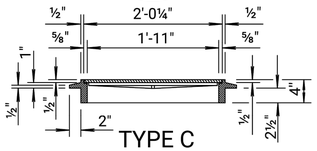


REINFORCING STEEL TOP VIEW

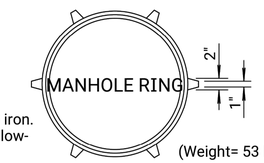


MANHOLE COVER TYPE C
(Weight= 64 lbs.)





TYPE C



NOTE: All manhole castings are cast iron. Weight of castings includes no allowance for fillets and overruns.

(Weight= 53 lbs.)

✳ LIGHT TYPE
MANHOLE COVER & RING

✳ Rings with four equally spaced lugs will be permitted.

NO.	DATE	REVISIONS	BY	APP'D
7	10-31-17	Joint Filler Type C Added	A.L.R.	S.W.K.
6	1-28-05	Changed Class to Grade concrete	S.W.K.	J.O.B.
5	12-1 1-97	Revised step spacing	R.J.S.	J.O.B.
4	3-20-96		R.J.S.	J.O.B.

KANSAS DEPARTMENT OF TRANSPORTATION

TYPE 22
CURB INLET

RD646

FHWA APPROVAL	3-5-18	APP'D. Scott W. King	
DESIGNED	DETAILED	QUANTITIES	TRACED
DESIGN CK.	DETAIL CK.	QUAN.CK.	TRACE CK.

REV	DATE	DESCRIPTION	DSN	DWN	CHK
0	06/27/24	INITIAL ISSUE	MJR	TDA	MJR

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ASTRA OPERATIONS BUILDING
27TH, FORT, AND MAIN STREET
HAYS, KANSAS 67601

CIVIL PLANS
DETAIL SHEET

PROJ. NO.	E24D3733	
DESIGNER	MJR	DRAWN BY TDA
CFN	3733TYP	
SHEET	16	REV 0