

BOX ELDER COUNTY

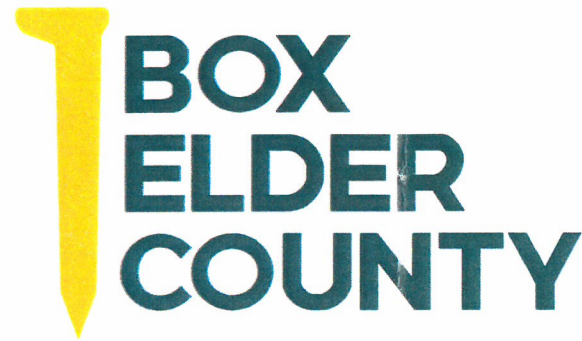
PUBLIC WORKS STANDARD DRAWINGS

FOR DEVELOPMENT, DESIGN, AND CONSTRUCTION

SUBMITTED & RECOMMENDED



Brett M. Jones
 BRETT M. JONES, P.E.
 BOX ELDER COUNTY ENGINEER



INDEX OF DRAWINGS (30 Sheets)

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CS-21	COUNTY ROAD BRIDGE DETAILS

APPROVAL

Stan Summers
 STAN SUMMERS
 BOX ELDER COUNTY COMMISSION CHAIR

DATE

Darin McFarland
 DARIN MCFARLAND
 BOX ELDER COUNTY ROADS DEPARTMENT SUPERVISOR

8/29/2023
 DATE

GENERAL STANDARD NOTES:
 THE COUNTY ADOPTS THE FOLLOWING AS STANDARDS FOR ALL ISSUES RELATED TO THE DESIGN, CONSTRUCTION, AND MAINTENANCE OF IMPROVEMENTS NOT SPECIFICALLY COVERED BY THIS MANUAL:

A. APWA: MANUAL OF STANDARD SPECIFICATIONS (CURRENT EDITION) AND ALL ADOPTED AMENDMENTS

B. APWA: MANUAL OF STANDARD PLANS (CURRENT EDITION)

AS TO ANY PARTICULAR ISSUE, IF A CONFLICT EXISTS BETWEEN ANY OF THE FOREGOING STANDARDS, THE COUNTY STANDARDS TAKE PRECEDENCE.

Scott Lyons
 SCOTT LYONS
 BOX ELDER COUNTY COMMUNITY DEVELOPMENT DIRECTOR

8/29/2023
 DATE

Marla Young
 MARLA YOUNG
 BOX ELDER COUNTY CLERK

8/29/2023
 DATE

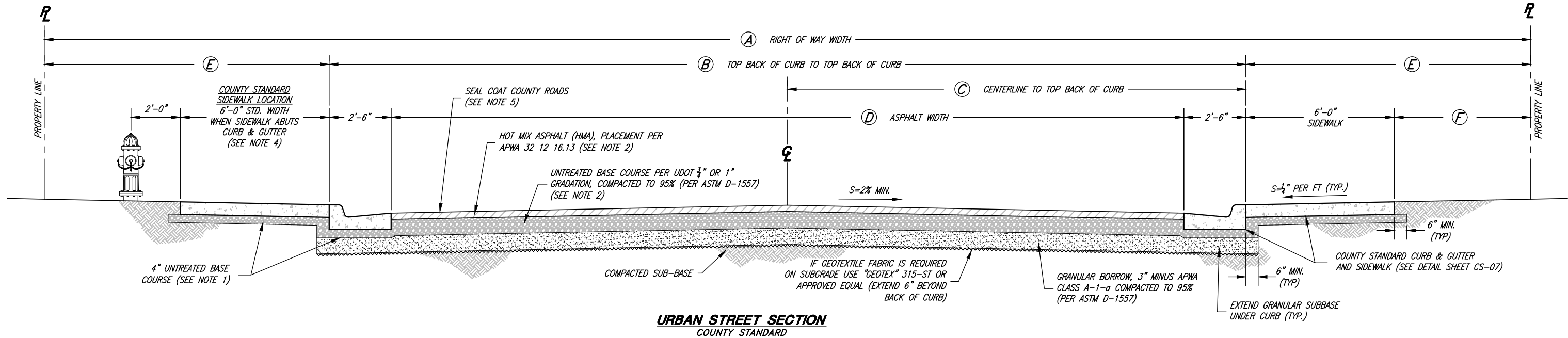


AUGUST 2023

CS-22 AND CS-22a STANDARD DETAIL SHEETS SHALL ONLY BE USED WHEN APPROVED BY THE COUNTY ROADS DEPARTMENT

CS-22 ROLL CURB DETAILS I

CS-22a ROLL CURB DETAILS II



URBAN STREET SECTION
COUNTY STANDARD

GENERAL NOTES:

1. PROVIDE 4" THICKNESS OF 3/4" OR 1" UNTREATED BASE COURSE UNDER SIDEWALK, DRIVEWAY APPROACHES AND CURB & GUTTER, COMPACTED TO 95%, PER ASTM D-1557.
2. THE PAVEMENT THICKNESS SHALL BE CONSIDERED AS COUNTY MINIMUMS AND MAY BE REQUIRED TO BE ADJUSTED WHEN A GREATER DEPTH IS NECESSARY TO PROVIDE STABILITY PER THE GEOTECHNICAL REPORT OR COUNTY ENGINEER.

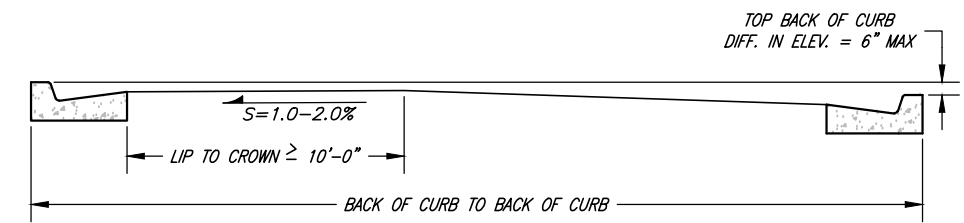
THE PROJECT ENGINEER AND/OR DEVELOPER MAY SUBMIT AN ALTERNATIVE PAVEMENT COMPONENT THICKNESS DESIGN AS DETERMINED BY A GEOTECHNICAL ENGINEER BASED ON A DETAILED SOILS ANALYSIS USING THE MINIMUM DESIGN PARAMETERS AS FOUND IN APPENDIX B, AND APPROVED BY THE COUNTY ENGINEER. THE ABSOLUTE MINIMUM PAVEMENT SECTION IS 3-INCH THICK HMA WITH 8-INCH UTBC.
3. ALL ROAD CUTS SHALL BE PATCHED PER CS-09.
4. THE 6'-0" MIN. SIDEWALK AGAINST THE BACK OF CURB SHOWN ABOVE IS TO BE CONSIDERED THE "URBAN STREET COUNTY STANDARD." OTHER LOCATIONS AND TYPES OF SIDEWALK AS REQUESTED BY THE DEVELOPER MUST BE APPROVED BY THE COUNTY.
5. SEAL COAT CONSISTS OF THE FOLLOWING: UDOT TYPE C CHIP & SEAL W/ CSS-1H FOG SEAL, OR TYPE III SLURRY SEAL COAT, OR OTHER AS DIRECTED BY COUNTY ROADS DEPARTMENT.
 - a. CHIP SEAL PER APWA 32 01 13.64 AND COUNTY MODIFICATIONS, AND
 - b. FOG SEAL PER APWA 32 01 13.50
6. ACCELERATION, DECELERATION AND/OR OTHER AUXILIARY LANES MAY BE REQUIRED FOR DEVELOPMENTS INVOLVING TRUCKING ACTIVITIES OR HIGHER TRAFFIC VOLUMES THAT IMPAIR TRAVEL SPEEDS ON COUNTY ROADS. A TRAFFIC STUDY MAY BE REQUIRED, AS DIRECTED BY THE COUNTY ENGINEER.

PAVED URBAN STREET SECTION

URBAN STREET DESIGNATION	R.O.W. WIDTH (A)	T.B.C. TO T.B.C. (B)	C TO T.B.C. (C)	ASPHALT WIDTH (D)	T.B.C. TO PROPERTY LINE (E)	SIDEWALK TO PROPERTY LINE (F)	HMA	UNTREATED BASE COURSE	GRANULAR BORROW
STANDARD RESIDENTIAL	60'	37'	18.5'	32'	11'-6"	5'-6"	3"	8"	8"
COLLECTOR	66'	46'	23'	41'	10'	4'	3"	8"	10"
ARTERIAL	80'	60'	30'	55'	10'	4'	4"	8"	12"

ROAD SECTION NOTES:

- B1. ROAD SECTION REQUIRED SHALL BE AS DETERMINED BY THE COUNTY ENGINEER & COUNTY ROADS DEPARTMENT BASED UPON ZONING, GENERAL PLAN, SIZE OF DEVELOPMENT, ESTIMATED TRAFFIC VOLUME, & AMOUNT OF OPEN SPACE ASSOCIATED WITH DEVELOPMENTS, AS WELL AS THE PROXIMITY TO HIGH VOLUME ROADS OR COMMERCIAL DEVELOPMENTS.
- B2. IN ORDER TO MAINTAIN THE FLOW OF TRAFFIC AND MINIMIZE THE REQUIRED PAVEMENT WIDTH, LIMITED ACCESS POINTS WILL BE PERMITTED ON ANY DESIGNATED COUNTY ARTERIAL ROADWAYS. FUTURE DRIVE APPROACH CONNECTIONS ON ANY ARTERIAL ROADS SHALL BE AS APPROVED BY THE COUNTY ROADS DEPARTMENT AND THE COUNTY ENGINEER. WHERE POSSIBLE OR WHEN DIRECTED BY THE COUNTY, THE DEVELOPER SHOULD EITHER PROVIDE A SEPARATE LOCAL ACCESS ROAD CONNECTION, WIDEN THE R.O.W. (RIGHT-OF-WAY) AND ADD NECESSARY TURNING LANES, OR PROVIDE SHARED DRIVE APPROACH ACCESS POINTS FOR RESIDENTIAL OR COMMERCIAL DEVELOPMENTS.



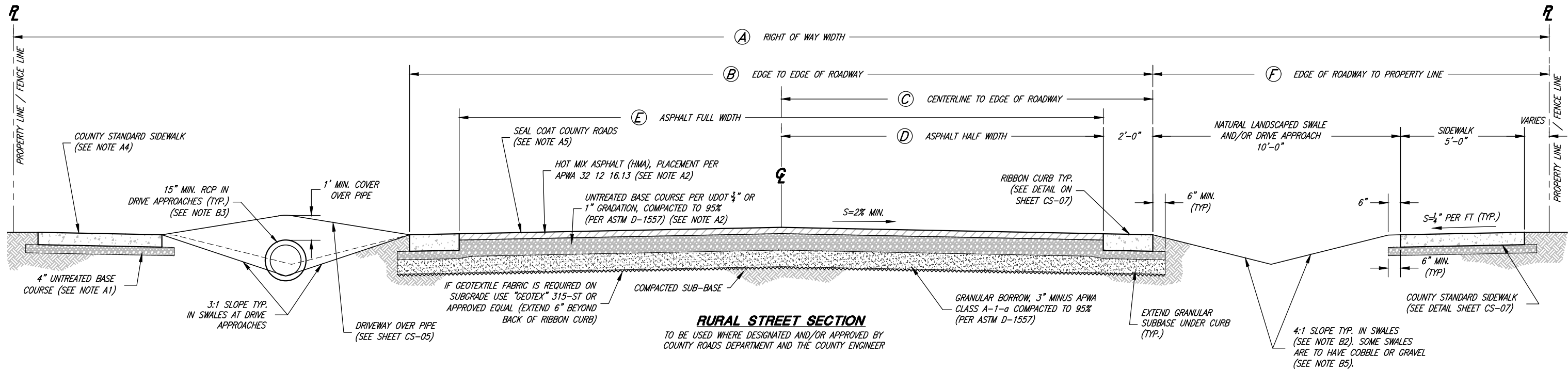
CROWN LOCATION FOR VARIOUS CROSS SLOPES

CROWN NOTES:

- A1. MAXIMUM DIFFERENCE IN ELEVATION BETWEEN CURBS ON OPPOSITE SIDES OF THE STREET SHALL NOT EXCEED 6" AS SHOWN IN DETAIL.
- A2. ALL OTHER PROPOSED STREET CROSS SECTIONS SHALL BE AS APPROVED BY THE COUNTY ENGINEER.



No. 5149637 Brett Marsden Jones COUNTY ENGINEER AUGUST 2023 DATE			SCALE: N. T.S.	DESIGNED <u>BEB</u> DRAWN <u>BEB</u> CHECKED <u>BMJ</u>		CONSULTING ENGINEERS 6080 Fashion Point Drive South Ogden, Utah 84403 (801) 476-9767 www.jonescivil.com		BOX ELDER COUNTY PUBLIC WORKS STANDARD DRAWINGS PAVED URBAN STREET SECTIONS	SHEET: CS-02 OF 1 SHEETS 0
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GENERAL NOTES:

- A1. PROVIDE 4" THICKNESS OF 3/4" OR 1" UNTREATED BASE COURSE UNDER SIDEWALK, DRIVEWAY APPROACHES AND CURB & GUTTER, COMPACTED TO 95%, PER ASTM D-1557.
- A2. THE PAVEMENT THICKNESS SHALL BE CONSIDERED AS COUNTY MINIMUMS AND MAY BE REQUIRED TO BE ADJUSTED BY THE WHEN A GREATER DEPTH IS NECESSARY TO PROVIDE STABILITY PER THE GEOTECHNICAL REPORT OR COUNTY ENGINEER.

THE PROJECT ENGINEER AND/OR DEVELOPER MAY SUBMIT AN ALTERNATIVE PAVEMENT COMPONENT THICKNESS DESIGN AS DETERMINED BY A GEOTECHNICAL ENGINEER BASED ON A DETAILED SOILS ANALYSIS USING THE MINIMUM DESIGN PARAMETERS AS FOUND IN APPENDIX B, AND APPROVED BY THE COUNTY ENGINEER. THE ABSOLUTE MINIMUM PAVEMENT SECTION IS 3-INCH THICK HMA WITH 8-INCH UTBC.
- A3. ALL ROAD CUTS SHALL BE PATCHED PER SHEET CS-09.
- A4. THE 5'-0" SIDEWALK SHOWN ABOVE IS TO BE CONSIDERED THE "RURAL STREET COUNTY STANDARD." OTHER LOCATIONS AND TYPES OF SIDEWALK AS REQUESTED BY THE DEVELOPER MUST BE APPROVED BY THE COUNTY.
- A5. SEAL COAT CONSISTS OF THE FOLLOWING: UDOT TYPE C CHIP & SEAL W/ CSS-1H FOG SEAL, OR TYPE III SLURRY SEAL COAT, OR OTHER AS DIRECTED BY COUNTY ROADS DEPARTMENT.
 - a. CHIP SEAL PER APWA 32 01 13.64 AND COUNTY MODIFICATIONS, AND
 - b. FOG SEAL PER APWA 32 01 13.50
- A6. ACCELERATION, DECELERATION AND/OR OTHER AUXILIARY LANES MAY BE REQUIRED FOR DEVELOPMENTS INVOLVING TRUCKING ACTIVITIES OR HIGHER TRAFFIC VOLUMES THAT IMPAIR TRAVEL SPEEDS ON COUNTY ROADS. A TRAFFIC STUDY MAY BE REQUIRED, AS DIRECTED BY THE COUNTY ENGINEER.

DRAINAGE SWALE NOTES:

- B1. ROADSIDE DRAINAGE SWALES SHALL NOT BE FILLED IN AND SHALL BE MAINTAINED BY THE PROPERTY OWNER.
- B2. ROADSIDE SWALES ARE TO BE GRASSED UNLESS OTHERWISE DIRECTED BY THE COUNTY ROADS DEPARTMENT (SEE NOTE B5)
- B3. THE USE OF CMP, HDPE OR ANOTHER APPROVED CULVERT PIPE MATERIAL IS ONLY ALLOWED WITH PRIOR APPROVAL OF THE COUNTY ENGINEER OR THE COUNTY ROADS DEPARTMENT.
- B4. 4:1 SLOPE TYP. IN SWALES, 3:1 SLOPE TYP. IN SWALES AT DRIVE APPROACHES.
- B5. GUIDELINES WHEN DIRECTED BY COUNTY ROADS DEPARTMENT TO INSTALL A COBBLE SWALE:
 - a. IN AREAS WHERE THE SLOPE OF THE ROAD IS 5% OR STEEPER - PLACE 6" TO 10" NOMINAL DIA. ROCK OVER "GEOTEX" 315-ST FABRIC (OR APPROVED EQUAL)
 - b. IN AREAS WHERE THE SLOPE OF THE ROAD IS LESS THAN 5% - USE 1 1/2" GRAVEL OVER "GEOTEX" 315-ST FABRIC (OR APPROVED EQUAL)

PAVED RURAL STREET SECTION

RURAL STREET DESIGNATION	R.O.W. WIDTH (A)	ROAD EDGE TO ROAD EDGE (B)	CENTERLINE TO ROAD EDGE (C)	ASPHALT HALF WIDTH (D)	ASPHALT FULL WIDTH (E)	ROAD EDGE TO PROPERTY LINE (F)	HMA	UNTREATED BASE COURSE	GRANULAR BORROW
LOCAL	60'	30'	15'	13'	26'	15'	3"	8"	8"
COLLECTOR	66'	34'	17'	15'	30'	16'	3"	8"	10"
ARTERIAL (SEE NOTE 2)	80'	38'	19'	17'	34'	21'	4"	8"	12"

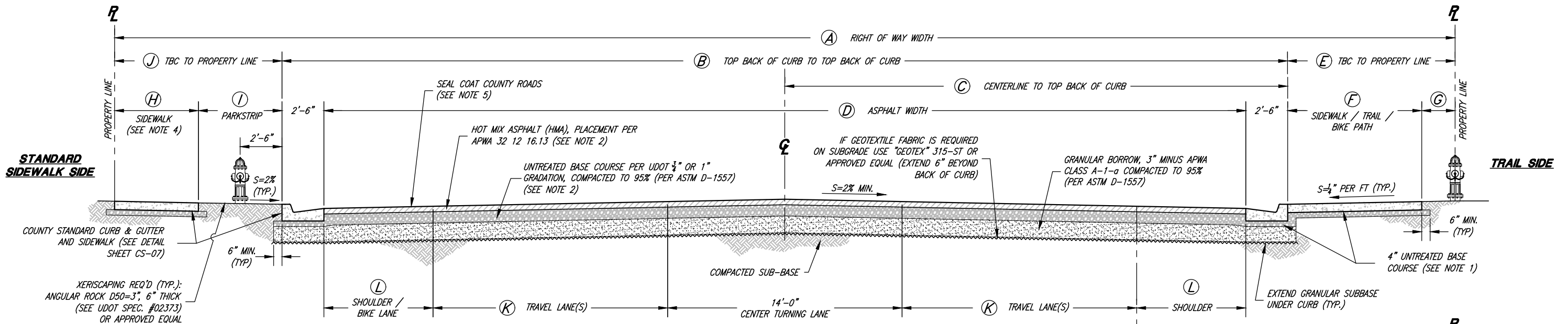
ROAD SECTION NOTES:

- 1. ROAD SECTION REQUIRED SHALL BE AS DETERMINED BY THE COUNTY ENGINEER & COUNTY ROADS DEPARTMENT BASED UPON ZONING, GENERAL PLAN, SIZE OF DEVELOPMENT, ESTIMATED TRAFFIC VOLUME, & AMOUNT OF OPEN SPACE ASSOCIATED WITH DEVELOPMENTS, AS WELL AS THE PROXIMITY TO HIGH VOLUME ROADS OR COMMERCIAL DEVELOPMENTS.
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No. 5149637 Brett Marsden Jones COUNTY ENGINEER AUGUST 2023 DATE			SCALE: N. T.S.	DESIGNED: BEB DRAWN: BEB CHECKED: BMJ	JA JONES & ASSOCIATES	CONSULTING ENGINEERS 6080 Fashion Point Drive South Ogden, Utah 84403 (801) 476-9767 www.jonescivil.com	BOX ELDER COUNTY PUBLIC WORKS STANDARD DRAWINGS	SHEET: CS-02a OF 1 SHEETS 0
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PAVED RURAL STREET SECTIONS



INDUSTRIAL STREET SECTION

TO BE USED WHERE DESIGNATED AND/OR APPROVED BY COUNTY ROADS DEPARTMENT AND THE COUNTY ENGINEER

PAVED INDUSTRIAL STREET SECTION

INDUSTRIAL ROAD DESIGNATION	R.O.W. WIDTH (A)	T.B.C. TO T.B.C. (B)	℄ TO T.B.C. (C)	ASPHALT WIDTH (D)	TBC TO PROPERTY LINE (E)	TRAIL (F)	TRAIL TO PROPERTY LINE (G)	SIDEWALK (H)	PARKSTRIP (I)	TBC TO PROPERTY LINE (J)	TRAVEL LANE(S) (K)	SHOULDER / BIKE LANE (L)	HMA	UNTREATED BASE COURSE	GRANULAR BORROW
STANDARD INDUSTRIAL	80'	60'	30'	55'	10'	8'	2'	5' MIN.	5'	10'	(1) 14'	6'-6"	4"	8"	12"
HIGH VOLUME INDUSTRIAL	100'	77'	38' STANDARD, 39' TRAIL SIDE	72'	12'	10'	2'	5' MIN.	6'	11'	(2) 14'	1'	4"	8"	12"

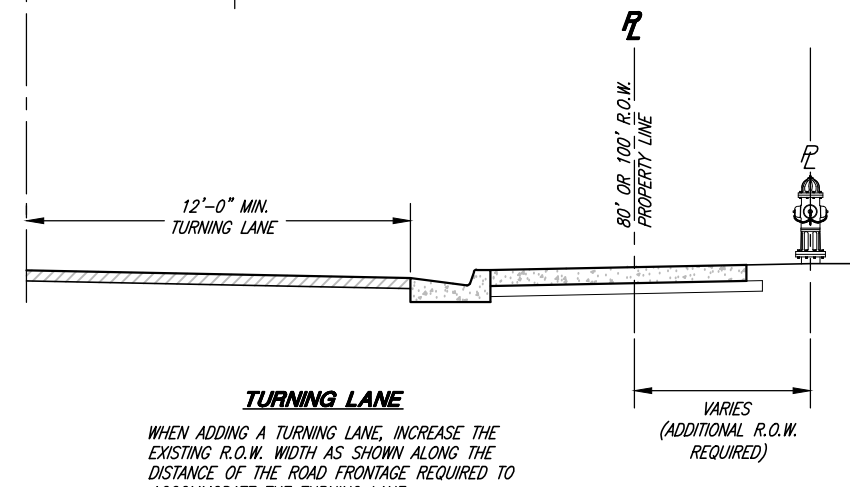
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GENERAL NOTES:

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- 3. ALL ROAD CUTS SHALL BE PATCHED PER CS-09.
- 4. THE 5'-0" SIDEWALK SHOWN ABOVE IS TO BE CONSIDERED THE "INDUSTRIAL STREET COUNTY STANDARD." OTHER LOCATIONS AND TYPES OF SIDEWALK AS REQUESTED BY THE DEVELOPER MUST BE APPROVED BY THE COUNTY. IF SIDEWALK IS LOCATED AGAINST THE TBC, IT MUST BE A MINIMUM OF 6 FEET IN WIDTH.
- 5. SEAL COAT CONSISTS OF THE FOLLOWING: UDOT TYPE C CHIP & SEAL W/ CSS-1H FOG SEAL, OR TYPE III SLURRY SEAL COAT, OR OTHER AS DIRECTED BY COUNTY ROADS DEPARTMENT.
 - a. CHIP SEAL PER APWA 32 01 13.64 AND COUNTY MODIFICATIONS, AND
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TURNING LANE

WHEN ADDING A TURNING LANE, INCREASE THE EXISTING R.O.W. WIDTH AS SHOWN ALONG THE DISTANCE OF THE ROAD FRONTAGE REQUIRED TO ACCOMMODATE THE TURNING LANE.



Brett M. Jones
COUNTY ENGINEER
AUGUST 2023
DATE

REV.	DATE	APPR.

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N. T.S.
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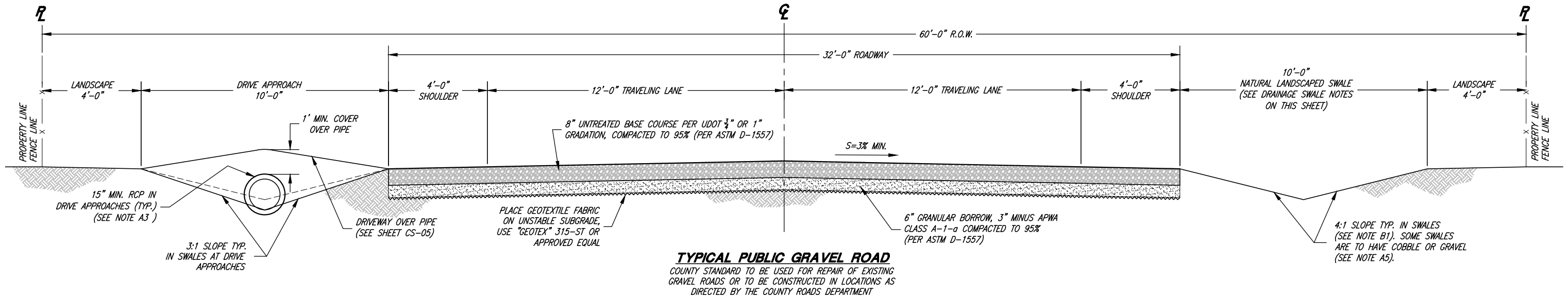


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BOX ELDER COUNTY
PUBLIC WORKS STANDARD DRAWINGS
INDUSTRIAL STREET SECTIONS

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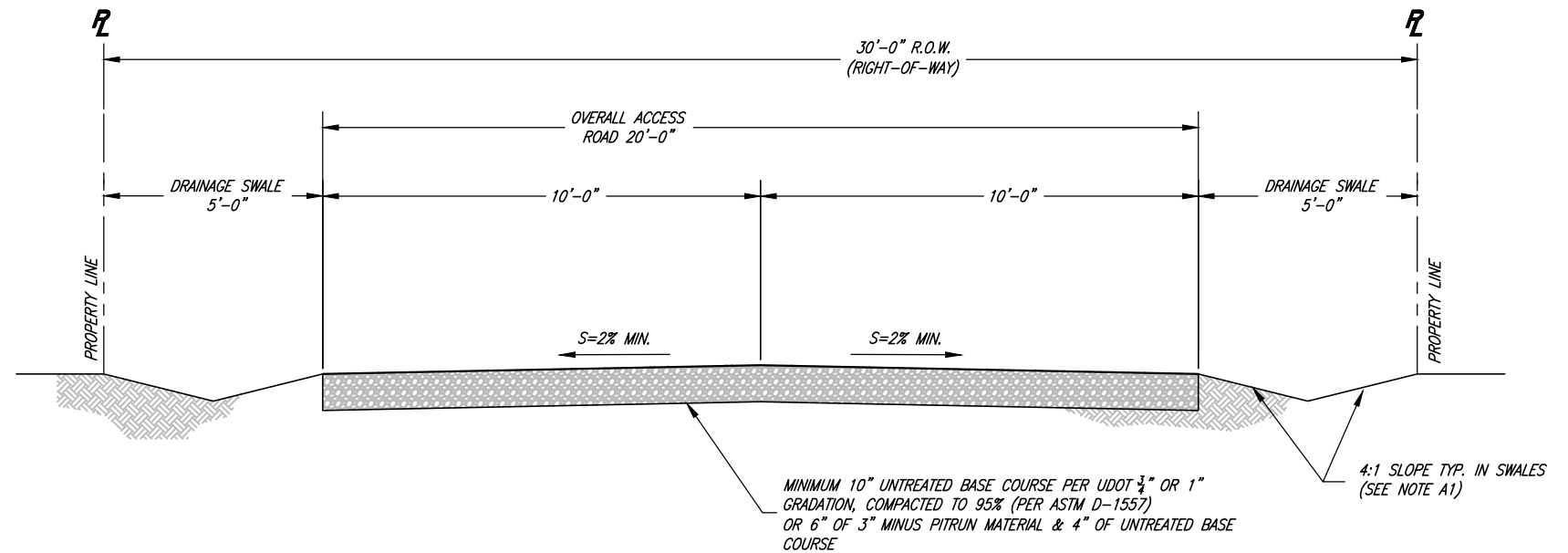


GENERAL NOTES:

1. ROAD SECTION REQUIRED SHALL BE AS DETERMINED BY THE COUNTY ENGINEER & COUNTY ROADS DEPARTMENT BASED UPON ZONING, GENERAL PLAN, SIZE OF DEVELOPMENT, ESTIMATED TRAFFIC VOLUME, & AMOUNT OF OPEN SPACE ASSOCIATED WITH DEVELOPMENTS, AS WELL AS THE PROXIMITY TO HIGH VOLUME ROADS OR COMMERCIAL DEVELOPMENTS.
2. PRIVATE DRIVEWAYS OVER 150' IN LENGTH SHALL BE DESIGNED TO CARRY HL-93 (HS-20) TRAFFIC LOADS. THE DEVELOPER'S ENGINEER SHALL SUBMIT A DESIGN FOR THE ROAD AND CERTIFY IT FOR REVIEW BY THE COUNTY ENGINEER.
3. PRIVATE DRIVEWAYS OVER 150' FEET IN LENGTH REQUIRE APPROVAL FROM THE COUNTY FIRE MARSHAL. DEVELOPMENT MAY BE REQUIRED TO CHANGE DESIGN BASED ON THE AVAILABLE FIRE FLOW.

DRAINAGE SWALE NOTES:

- A1. ROADSIDE DRAINAGE SWALES SHALL NOT BE FILLED IN AND SHALL BE MAINTAINED BY THE PROPERTY OWNER.
- A2. ROADSIDE SWALES ARE TO BE GRASSED, UNLESS OTHERWISE DIRECTED BY THE COUNTY ROADS DEPARTMENT (SEE NOTE A5)
- A3. THE USE OF CMP, HDPE OR ANOTHER APPROVED CULVERT PIPE MATERIAL IS ONLY ALLOWED WITH PRIOR APPROVAL OF THE COUNTY ENGINEER OR THE COUNTY ROADS DEPARTMENT.
- A4. 4:1 SLOPE TYP. IN SWALES, 3:1 SLOPE TYP. IN SWALES AT DRIVE APPROACHES.
- A5. GUIDELINES WHEN DIRECTED BY COUNTY ROADS DEPARTMENT TO INSTALL A COBBLE SWALE:
 - a. IN AREAS WHERE THE SLOPE OF THE ROAD IS 5% OR STEEPER - PLACE 6" TO 10" NOMINAL DIA. ROCK OVER "GEOTEX" 315-ST FABRIC (OR APPROVED EQUAL)
 - b. IN AREAS WHERE THE SLOPE OF THE ROAD IS LESS THAN 5% - USE 1 1/2" GRAVEL OVER "GEOTEX" 315-ST FABRIC (OR APPROVED EQUAL)



PRIVATE ROAD NOTES:

- B1. TO BE USED WHERE APPROVED BY THE COUNTY ROADS DEPARTMENT AND COUNTY ENGINEER
- B2. TO BE USED FOR DRIVEWAYS OVER 150' LONG
- B3. TO BE MAINTAINED BY THE INDIVIDUAL PROPERTY OWNERS
- B4. NEW PRIVATE ROAD CONSTRUCTION SHALL SERVE NO MORE THAN 2 LOTS MAX. (SHARED DRIVE)



Brett M. Jones
 COUNTY ENGINEER
 AUGUST 2023

REV.	DATE	APPR.

SCALE:
 N. T.S.

DESIGNED BEB
 DRAWN BEB
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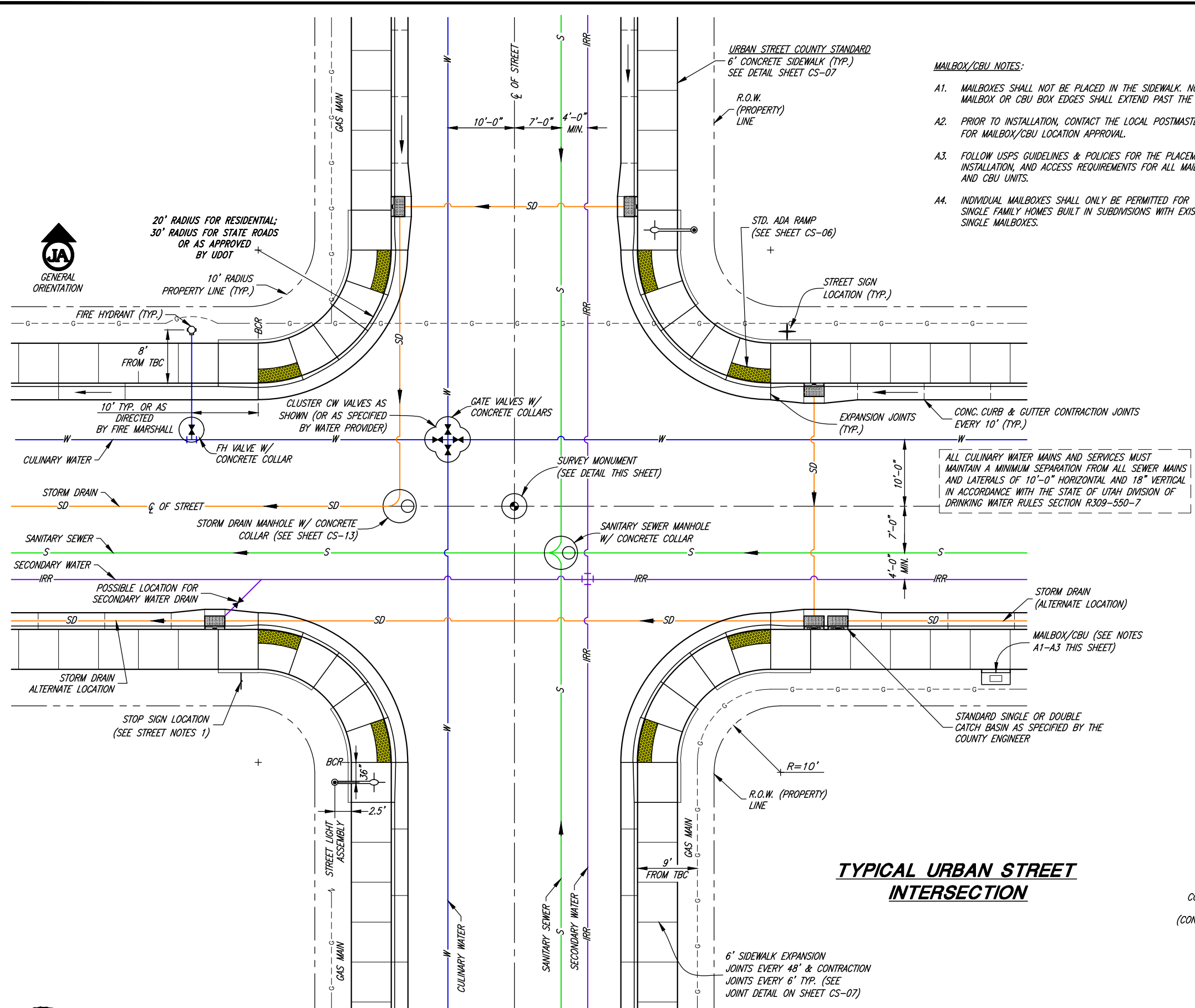


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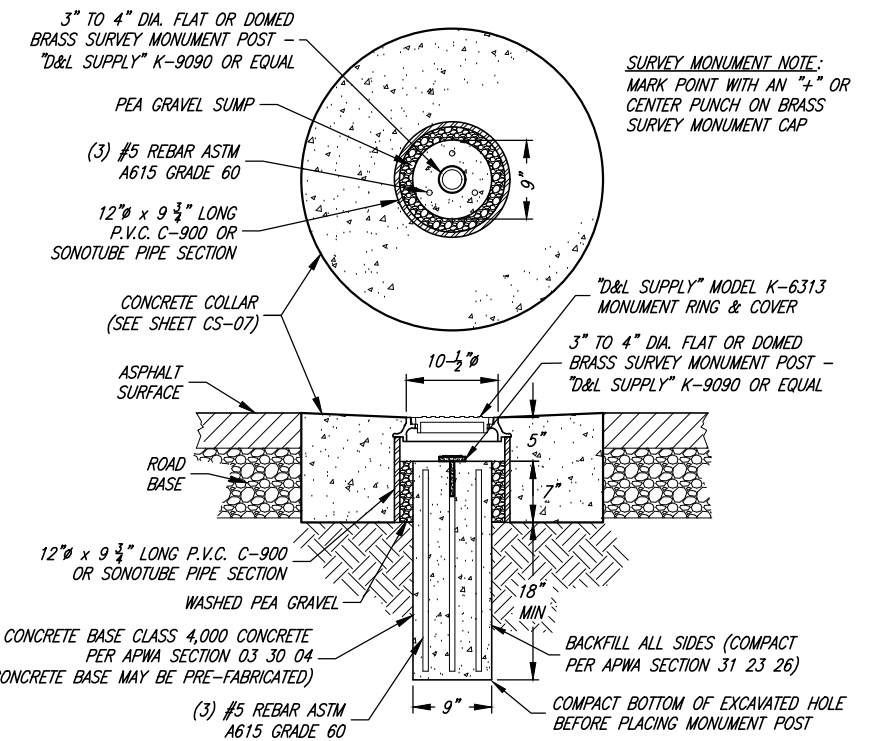
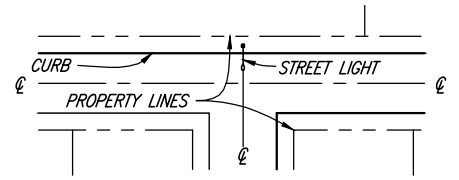
BOX ELDER COUNTY
PUBLIC WORKS STANDARD DRAWINGS
GRAVEL RURAL ROAD SECTIONS

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 OF 1 SHEETS
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- MAILBOX/CBU NOTES:**
- A1. MAILBOXES SHALL NOT BE PLACED IN THE SIDEWALK. NO MAILBOX OR CBU BOX EDGES SHALL EXTEND PAST THE TBC.
 - A2. PRIOR TO INSTALLATION, CONTACT THE LOCAL POSTMASTER FOR MAILBOX/CBU LOCATION APPROVAL.
 - A3. FOLLOW USPS GUIDELINES & POLICIES FOR THE PLACEMENT, INSTALLATION, AND ACCESS REQUIREMENTS FOR ALL MAILBOX AND CBU UNITS.
 - A4. INDIVIDUAL MAILBOXES SHALL ONLY BE PERMITTED FOR SINGLE FAMILY HOMES BUILT IN SUBDIVISIONS WITH EXISTING SINGLE MAILBOXES.

- STREET NOTES:**
- ① EXACT LOCATION OF STREET AND REGULATORY SIGNS SHALL BE SPECIFIED BY THE COUNTY ROADS DEPARTMENT.
 - ② PRESSURIZED IRRIGATION SYSTEM LAYOUT AS APPROVED BY THE SECONDARY WATER PROVIDER.
 - ③ CULINARY WATER SYSTEM LAYOUT AS APPROVED BY THE CULINARY WATER PROVIDER.
 - ④ COUNTY OWNED AND MAINTAINED UTILITY LINES SHALL BE LOCATED IN A PUBLIC RIGHT-OF-WAY OR WITHIN A DEDICATED EASEMENT. NO COUNTY UTILITIES MAY BE CONSTRUCTED ON PRIVATE PROPERTY.
 - ⑤
 - a. WHEN LOCATING STREET LIGHTING ALWAYS INSTALL ASSEMBLY WITH MAST ARM AT RIGHT ANGLES TO STREET.
 - b. LOCATE STREET LIGHT IN CLOSE PROXIMITY TO STREET SIGN AND/OR FIRE HYDRANT.
 - c. T-INTERSECTION SHALL BE LIT WITH LIGHT ASSEMBLY LOCATED OPPOSITE OF CENTERLINE OF INTERSECTING STREET. (SEE DIAGRAM BELOW)



SURVEY MONUMENT DETAIL

TYPICAL URBAN STREET INTERSECTION



Brett M. Jones
COUNTY ENGINEER
AUGUST 2023

SCALE: N. T.S.
DESIGNED: BEB
DRAWN: BEB
CHECKED: BMJ

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BOX ELDER COUNTY
PUBLIC WORKS STANDARD DRAWINGS
URBAN STREET INTERSECTION AND STREET MONUMENT DETAILS

SHEET: **CS-03**
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STREET NOTES:

1. EXACT LOCATION OF STREET AND REGULATORY SIGNS SHALL BE SPECIFIED BY THE COUNTY ROADS DEPARTMENT.
2. PRESSURIZED IRRIGATION SYSTEM LAYOUT AS APPROVED BY THE SECONDARY WATER PROVIDER.
3. CULINARY WATER SYSTEM LAYOUT AS APPROVED BY THE CULINARY WATER PROVIDER.
4. COUNTY OWNED AND MAINTAINED UTILITY LINES SHALL BE LOCATED IN A PUBLIC RIGHT-OF-WAY OR WITHIN A DEDICATED EASEMENT. NO COUNTY UTILITIES MAY BE CONSTRUCTED ON PRIVATE PROPERTY.

(CONTINUED BELOW)



20' RADIUS FOR RESIDENTIAL;
30' RADIUS FOR STATE ROADS
OR AS APPROVED
BY UDOT
10' RADIUS
PROPERTY LINE (TYP.)

CONC. RIBBON CURB
CONTRACTION JOINTS EVERY 10' (TYP.)

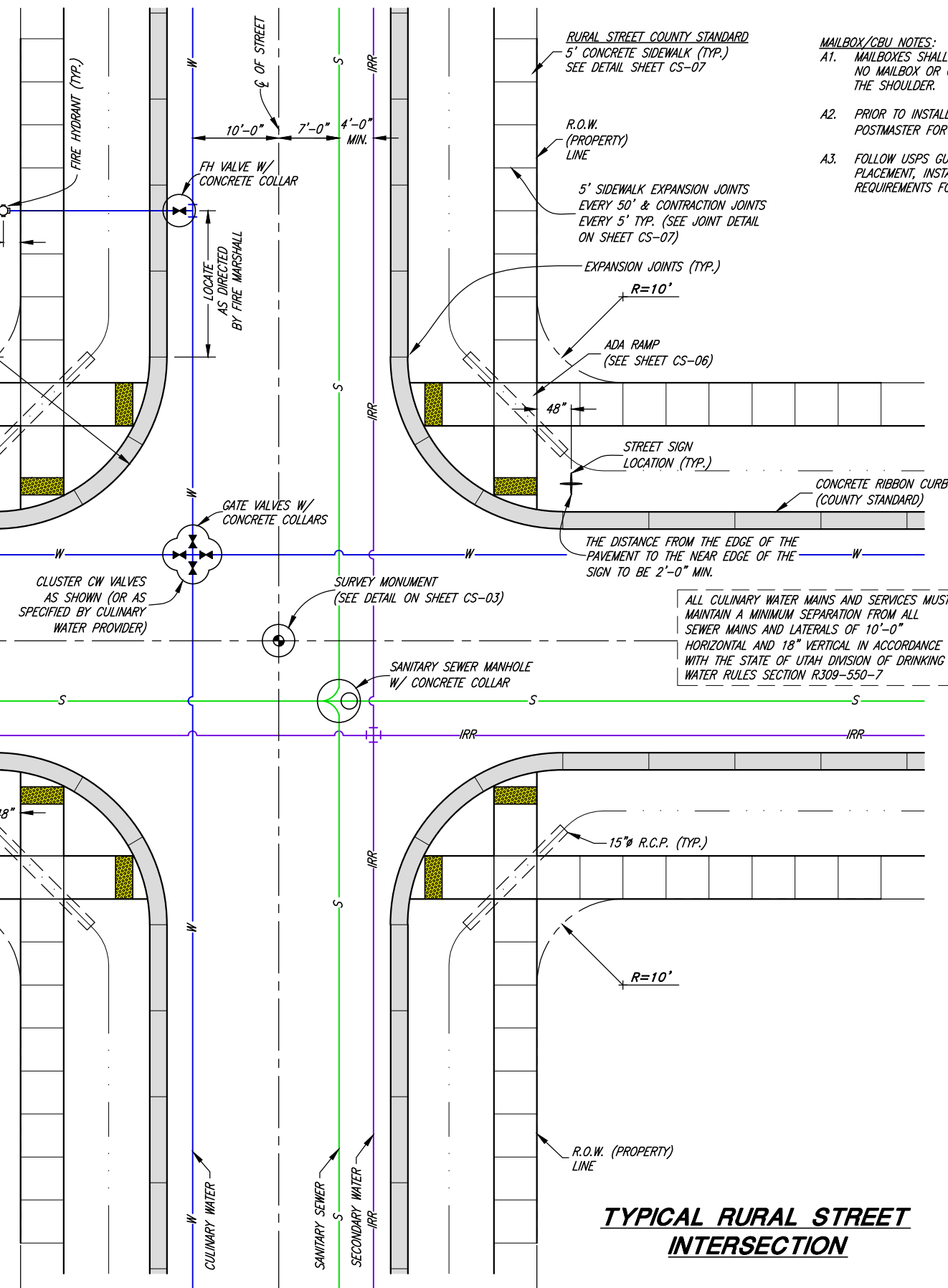
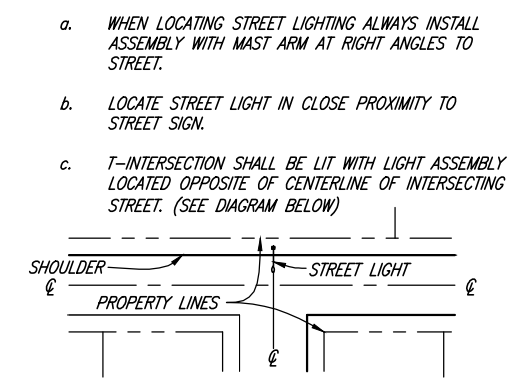
CULINARY WATER

Q OF STREET

SANITARY SEWER

SECONDARY WATER

5. THE COUNTY ROADS DEPARTMENT WILL DESIGNATE THE RURAL INTERSECTIONS THAT SHALL BE PROVIDED WITH STREET LIGHTING. INSTALLATION SHALL BE IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS AND THE SPECIFICATIONS/REQUIREMENTS OF THE POWER PROVIDER.
 - a. WHEN LOCATING STREET LIGHTING ALWAYS INSTALL ASSEMBLY WITH MAST ARM AT RIGHT ANGLES TO STREET.
 - b. LOCATE STREET LIGHT IN CLOSE PROXIMITY TO STREET SIGN.
 - c. T-INTERSECTION SHALL BE LIT WITH LIGHT ASSEMBLY LOCATED OPPOSITE OF CENTERLINE OF INTERSECTING STREET. (SEE DIAGRAM BELOW)

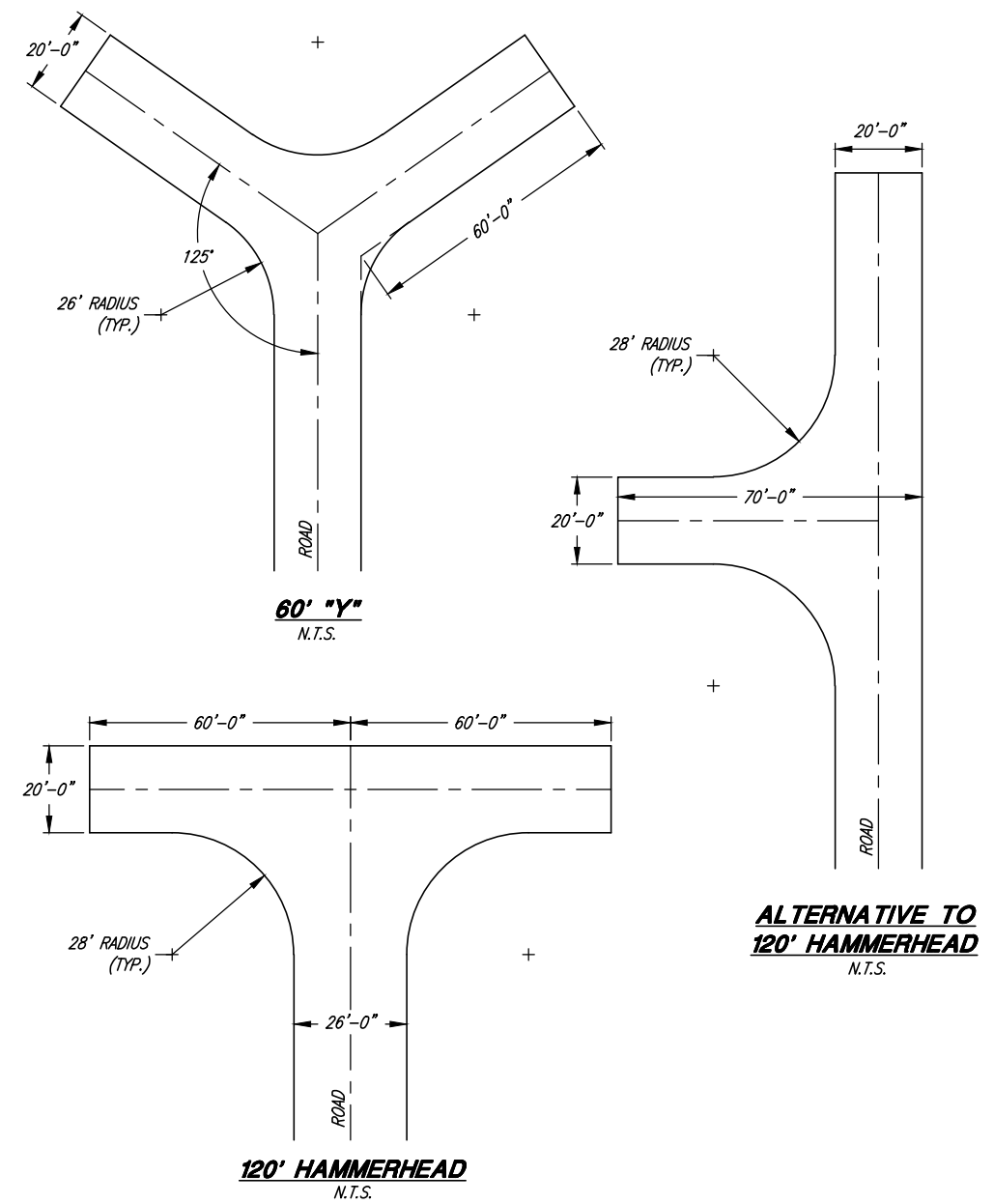


ALL CULINARY WATER MAINS AND SERVICES MUST MAINTAIN A MINIMUM SEPARATION FROM ALL SEWER MAINS AND LATERALS OF 10'-0" HORIZONTAL AND 18" VERTICAL IN ACCORDANCE WITH THE STATE OF UTAH DIVISION OF DRINKING WATER RULES SECTION R309-550-7

TYPICAL RURAL STREET INTERSECTION

MAILBOX/CBU NOTES:

- A1. MAILBOXES SHALL NOT BE PLACED IN THE SIDEWALK. NO MAILBOX OR CBU BOX EDGES SHALL EXTEND INTO THE SHOULDER.
- A2. PRIOR TO INSTALLATION, CONTACT THE LOCAL POSTMASTER FOR MAILBOX/CBU LOCATION APPROVAL.
- A3. FOLLOW USPS GUIDELINES & POLICIES FOR THE PLACEMENT, INSTALLATION, AND ACCESS REQUIREMENTS FOR ALL MAILBOX AND CBU UNITS.



DEAD END FIRE APPARATUS ACCESS ROAD TURNAROUNDS

HOMES LOCATED MORE THAN 150' ARE TO HAVE A 120' HAMMERHEAD, 60' "Y", OR 96' DIA. CUL-DE-SAC.



Brett M. Jones
COUNTY ENGINEER
AUGUST 2023
DATE

REV.	DATE	APPR.

SCALE:
N. T.S.

DESIGNED BEB
DRAWN BEB
CHECKED B.M.J.

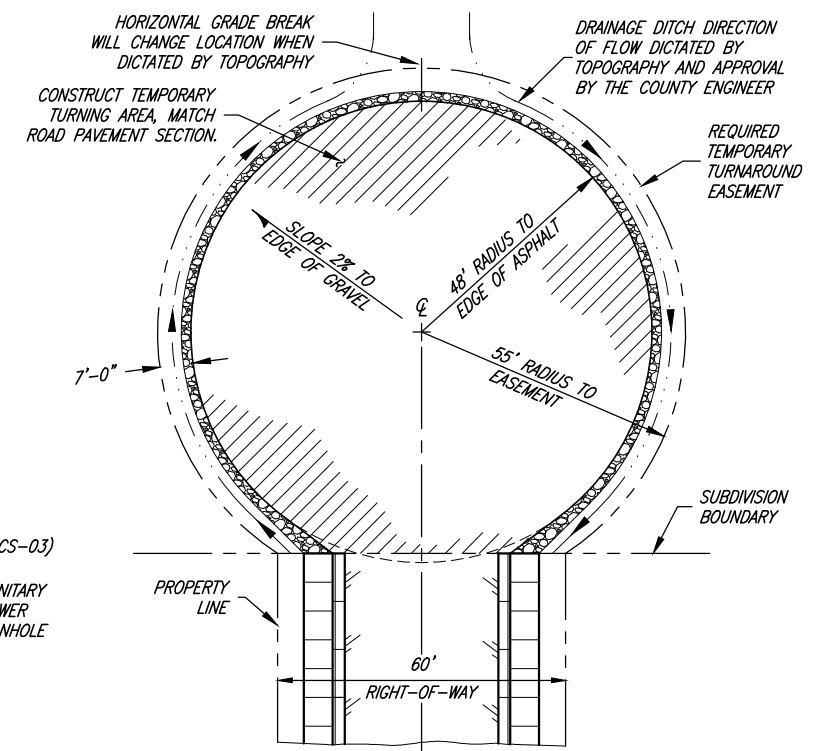
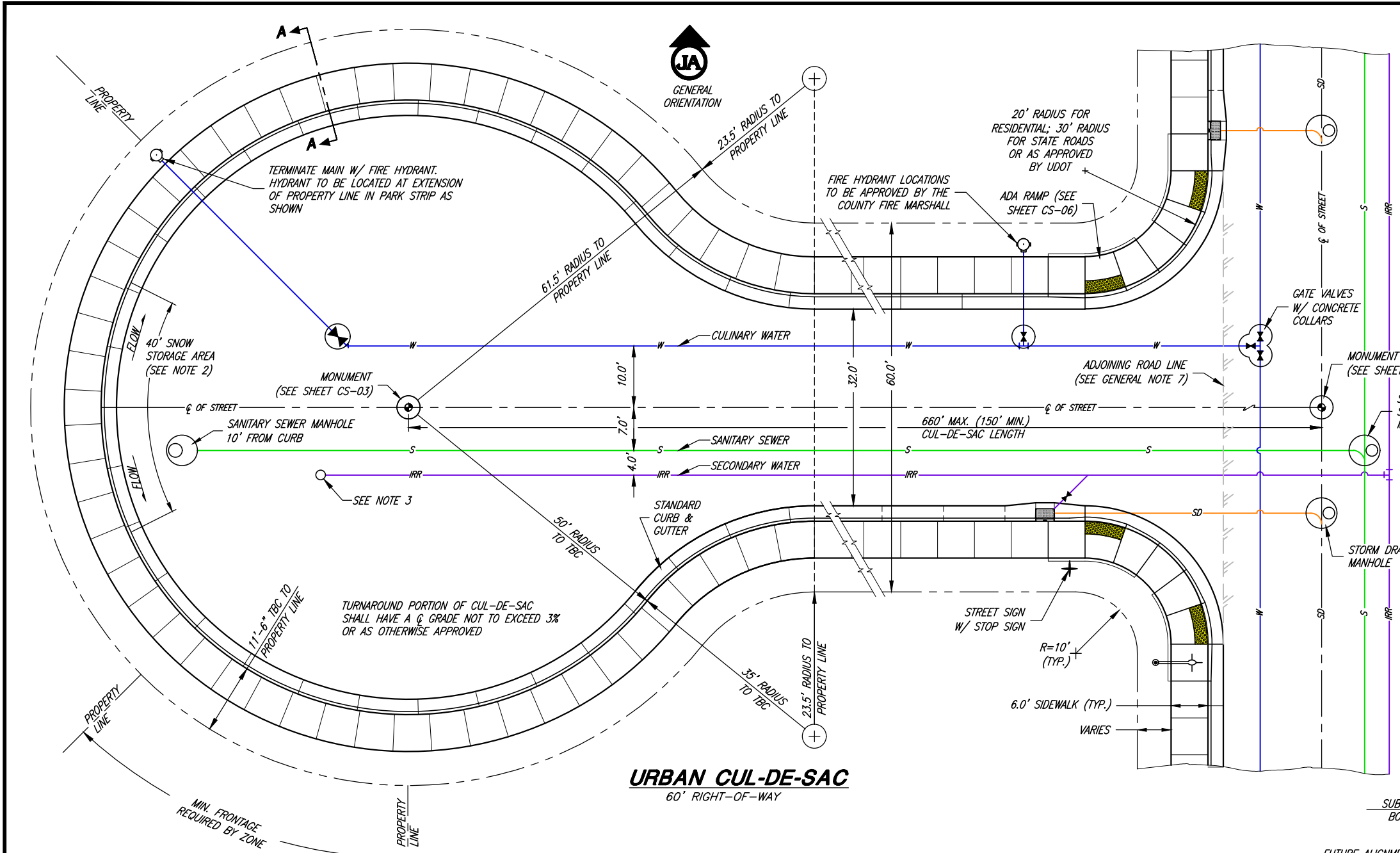


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BOX ELDER COUNTY
PUBLIC WORKS STANDARD DRAWINGS
RURAL STREET INTERSECTION DETAILS & DEAD END ACCESS ROAD TURNAROUNDS

SHEET:
CS-03a
OF 1 SHEETS
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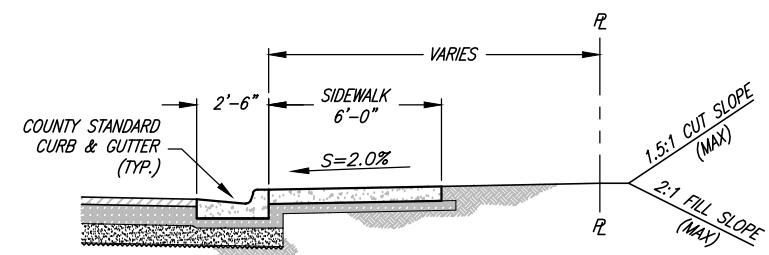
**COUNTY STANDARD
TEMPORARY TURNAROUND**

(FOR OUTSIDE OF SUBDIVISION BOUNDARY AND TO BE MAINTAINED BY PROPERTY OR EASEMENT OWNER)

TURNAROUND NOTES:

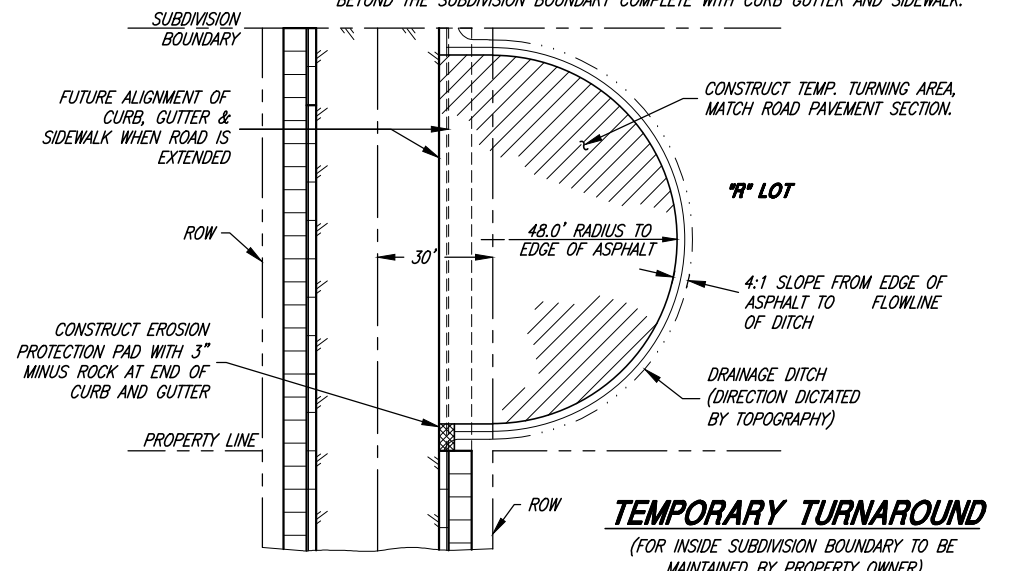
- A. THE DRAINAGE DITCH SHALL HAVE A 4 HORIZ. TO 1 VERT. (4:1) SIDE SLOPE FROM THE EDGE OF GRAVEL TO THE FLOW LINE OF DITCH.
- B. WHEN TURNAROUND CANNOT BE CONSTRUCTED OUTSIDE OF THE SUBDIVISION, IT SHALL BE LOCATED ON A PORTION OF THE SUBDIVISION LOTS (AS NEEDED) WITH THE SUBDIVIDER PLACING IN ESCROW AN AMOUNT OF MONEY SUFFICIENT TO COMPLETE THE STREET IMPROVEMENTS TO THE SUBDIVISION BOUNDARY. THESE FUNDS WILL BE USED AT SUCH TIME THE STREET IS EXTENDED. (SEE DETAIL BELOW)
- C. THE LOT ON WHICH THE TURN AROUND IS CONSTRUCTED SHALL BE RESTRICTED AS FOLLOWS:
 - C1. PLATTED AS AN "R" "RESTRICTED" LOT.
 - C2. THIS LOT CANNOT BE SOLD OR BUILDING PERMITS ISSUED UNTIL THE ROAD IS EXTENDED BEYOND THE SUBDIVISION BOUNDARY COMPLETE WITH CURB GUTTER AND SIDEWALK.

URBAN CUL-DE-SAC
60' RIGHT-OF-WAY



SECTION A-A

REQUIRED GRADING BETWEEN TBC AND PROPERTY LINE



TEMPORARY TURNAROUND

(FOR INSIDE SUBDIVISION BOUNDARY TO BE MAINTAINED BY PROPERTY OWNER)

GENERAL NOTES:

- 1. THE CIRCULAR CUL-DE-SAC LAYOUT ON THIS SHEET IS THE COUNTY STANDARD DESIGN. OTHER ALTERNATE DESIGNS MAY BE CONSIDERED AS APPROVED BY THE COUNTY ENGINEER.
- 2. NO DRIVEWAYS, FIRE HYDRANTS, OR MAIL BOXES ARE PERMITTED WITHIN THE SNOW STORAGE AREA. THE SNOW STORAGE AREA SHALL BE SHOWN ON THE IMPROVEMENT AND/OR CONSTRUCTION PLANS PRIOR TO SUBDIVISION AND/OR CUL-DE-SAC APPROVAL.
- 3. DEVELOPER SHALL PROVIDE A SECONDARY WATER AIR RELIEF OR BLOW-OFF AS DETERMINED BY THE SECONDARY WATER PROVIDER AND IN ACCORDANCE WITH THEIR STANDARDS AND APPROVED BY THE COUNTY ENGINEER.
- 4. ALL TERMINATING SEWER MAINS SHALL END WITH A MANHOLE. SERVICE LATERAL CONNECTIONS SHALL NOT BE ALLOWED IN SEWER MANHOLES.
- 5. CULINARY WATER LINE IN CUL-DE-SAC SHALL TERMINATE WITH A FIRE HYDRANT.
- 6. SIDEWALK CROSS-SLOPE VARIANCE FROM 2% AS APPROVED BY THE COUNTY ENGINEER.
- 7. TYPE III SLURRY ONLY, NO CHIP SEAL ON CUL-DE-SACS. SEAL COAT THE ENTIRE ROAD TO THE ADJOINING ROAD LINE AS SHOWN ABOVE. SAW CUT AND TACK THE EXISTING ASPHALT PRIOR TO PLACING NEW ASPHALT ROADWAY.



Brett M. Jones
COUNTY ENGINEER
AUGUST 2023

REV.	DATE	APPR.

SCALE:
N. T.S.

DESIGNED: BEB
DRAWN: BEB
CHECKED: BMJ

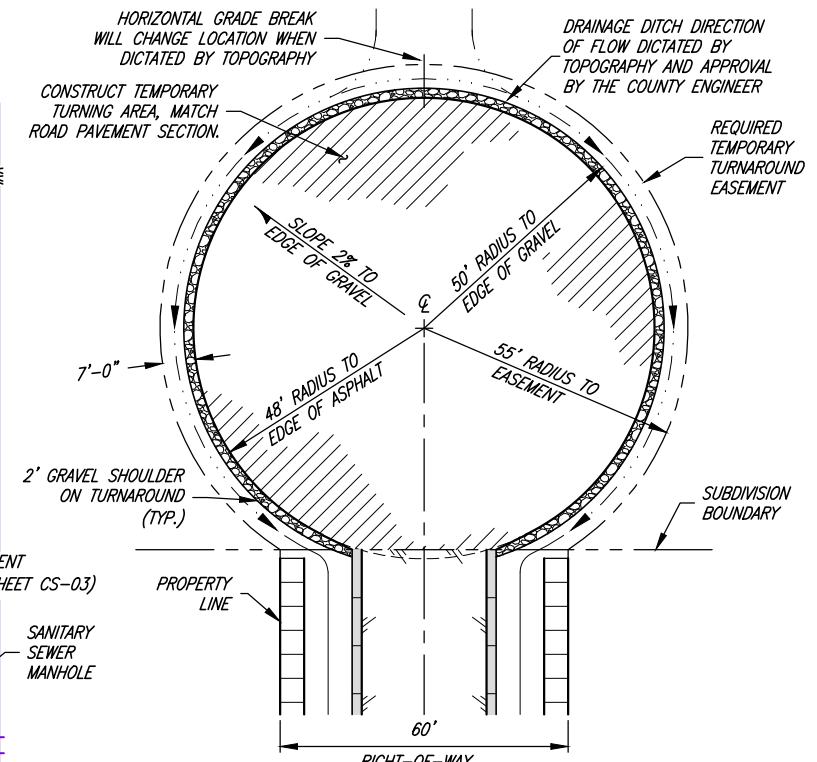
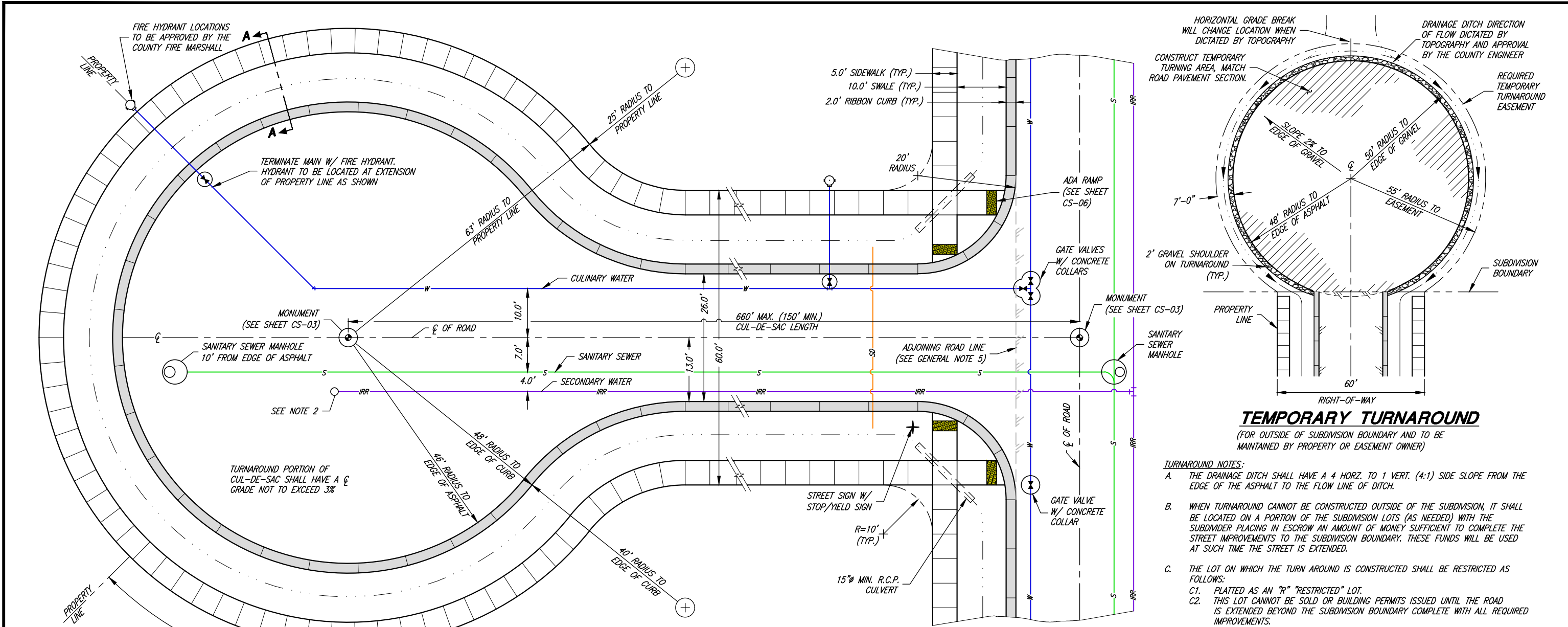


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BOX ELDER COUNTY
PUBLIC WORKS STANDARD DRAWINGS
**URBAN STREET CUL-DE-SAC AND
TEMPORARY TURNAROUND DETAILS**

SHEET:
CS-04
OF 1 SHEETS
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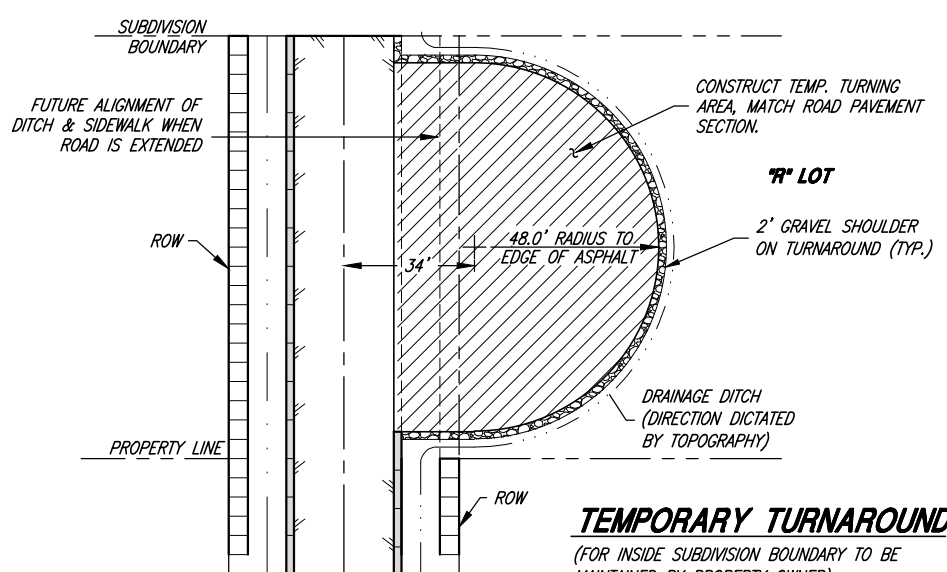
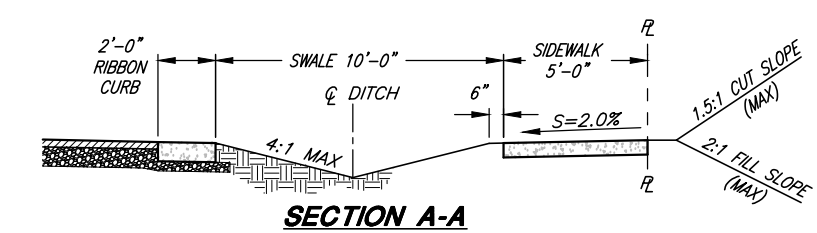


TEMPORARY TURNAROUND

(FOR OUTSIDE OF SUBDIVISION BOUNDARY AND TO BE MAINTAINED BY PROPERTY OR EASEMENT OWNER)

- TURNAROUND NOTES:**
- A. THE DRAINAGE DITCH SHALL HAVE A 4 HORIZ. TO 1 VERT. (4:1) SIDE SLOPE FROM THE EDGE OF THE ASPHALT TO THE FLOW LINE OF DITCH.
 - B. WHEN TURNAROUND CANNOT BE CONSTRUCTED OUTSIDE OF THE SUBDIVISION, IT SHALL BE LOCATED ON A PORTION OF THE SUBDIVISION LOTS (AS NEEDED) WITH THE SUBDIVIDER PLACING IN ESCROW AN AMOUNT OF MONEY SUFFICIENT TO COMPLETE THE STREET IMPROVEMENTS TO THE SUBDIVISION BOUNDARY. THESE FUNDS WILL BE USED AT SUCH TIME THE STREET IS EXTENDED.
 - C. THE LOT ON WHICH THE TURN AROUND IS CONSTRUCTED SHALL BE RESTRICTED AS FOLLOWS:
 - C1. PLATTED AS AN "R" "RESTRICTED" LOT.
 - C2. THIS LOT CANNOT BE SOLD OR BUILDING PERMITS ISSUED UNTIL THE ROAD IS EXTENDED BEYOND THE SUBDIVISION BOUNDARY COMPLETE WITH ALL REQUIRED IMPROVEMENTS.

RURAL CUL-DE-SAC
60' RIGHT-OF-WAY W/ RIBBON CURB

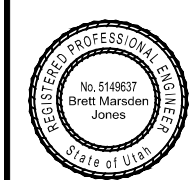


TEMPORARY TURNAROUND

(FOR INSIDE SUBDIVISION BOUNDARY TO BE MAINTAINED BY PROPERTY OWNER)

GENERAL NOTES:

1. DEVELOPER SHALL PROVIDE A SECONDARY WATER AIR RELIEF OR BLOW-OFF AS DETERMINED BY THE SECONDARY WATER PROVIDER AND IN ACCORDANCE WITH THEIR STANDARDS AND APPROVED BY THE COUNTY ENGINEER.
2. ALL TERMINATING SEWER MAINS SHALL END WITH A MANHOLE. SERVICE LATERAL CONNECTIONS SHALL NOT BE ALLOWED IN SEWER MANHOLES.
3. CULINARY WATER LINE IN CUL-DE-SAC SHALL TERMINATE WITH A FIRE HYDRANT.
4. SIDEWALK CROSS-SLOPE VARIANCE FROM 2% AS APPROVED BY THE COUNTY ENGINEER.
5. TYPE III SLURRY ONLY, NO CHIP SEAL ON CUL-DE-SACS. SEAL COAT THE ENTIRE ROAD TO THE ADJOINING ROAD LINE AS SHOWN ABOVE. SAW CUT AND TACK THE EXISTING ASPHALT PRIOR TO PLACING NEW ASPHALT ROADWAY.



Brett M. Jones
COUNTY ENGINEER
AUGUST 2023
DATE

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SCALE:
N. T.S.

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DRAWN BEB
CHECKED BMJ



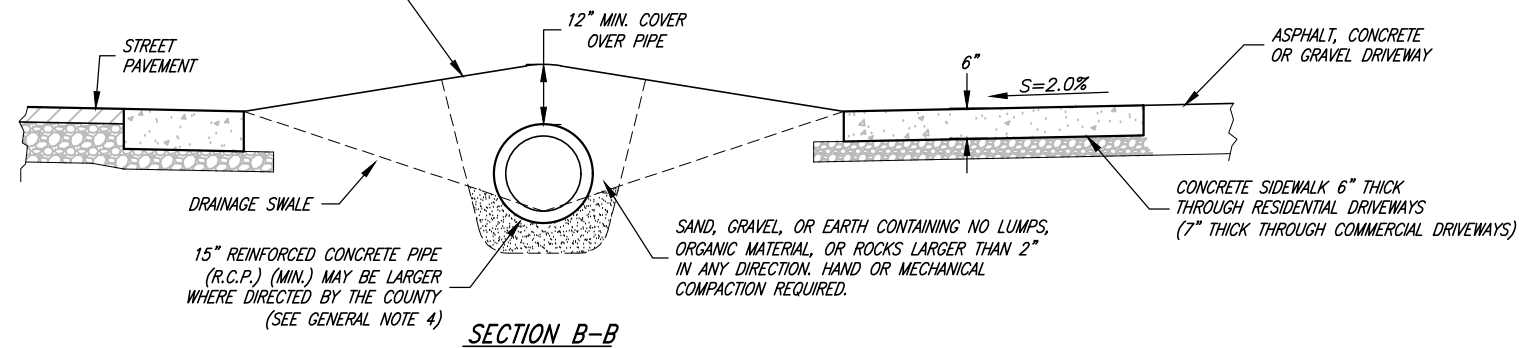
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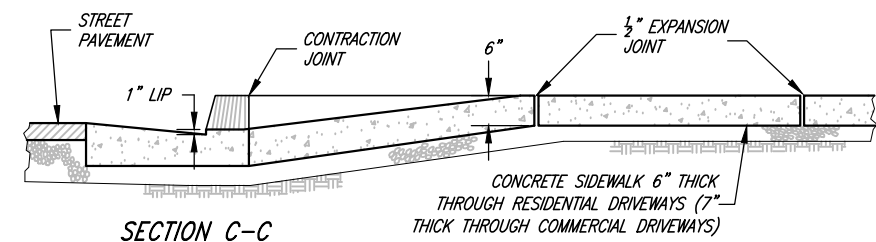
BOX ELDER COUNTY
PUBLIC WORKS STANDARD DRAWINGS
RURAL STREET CUL-DE-SAC AND
TEMPORARY TURNAROUND DETAILS

SHEET:
CS-04a
OF 1 SHEETS
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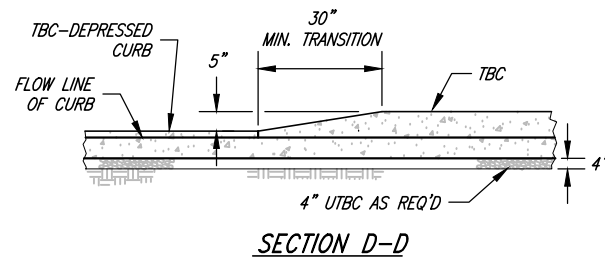
****RESIDENTIAL APPROACH: ASPHALT OR MIN. 12" COMPACTED ROADBASE (NO CONCRETE OR PAVERS)
COMMERCIAL APPROACH: ASPHALT ONLY**



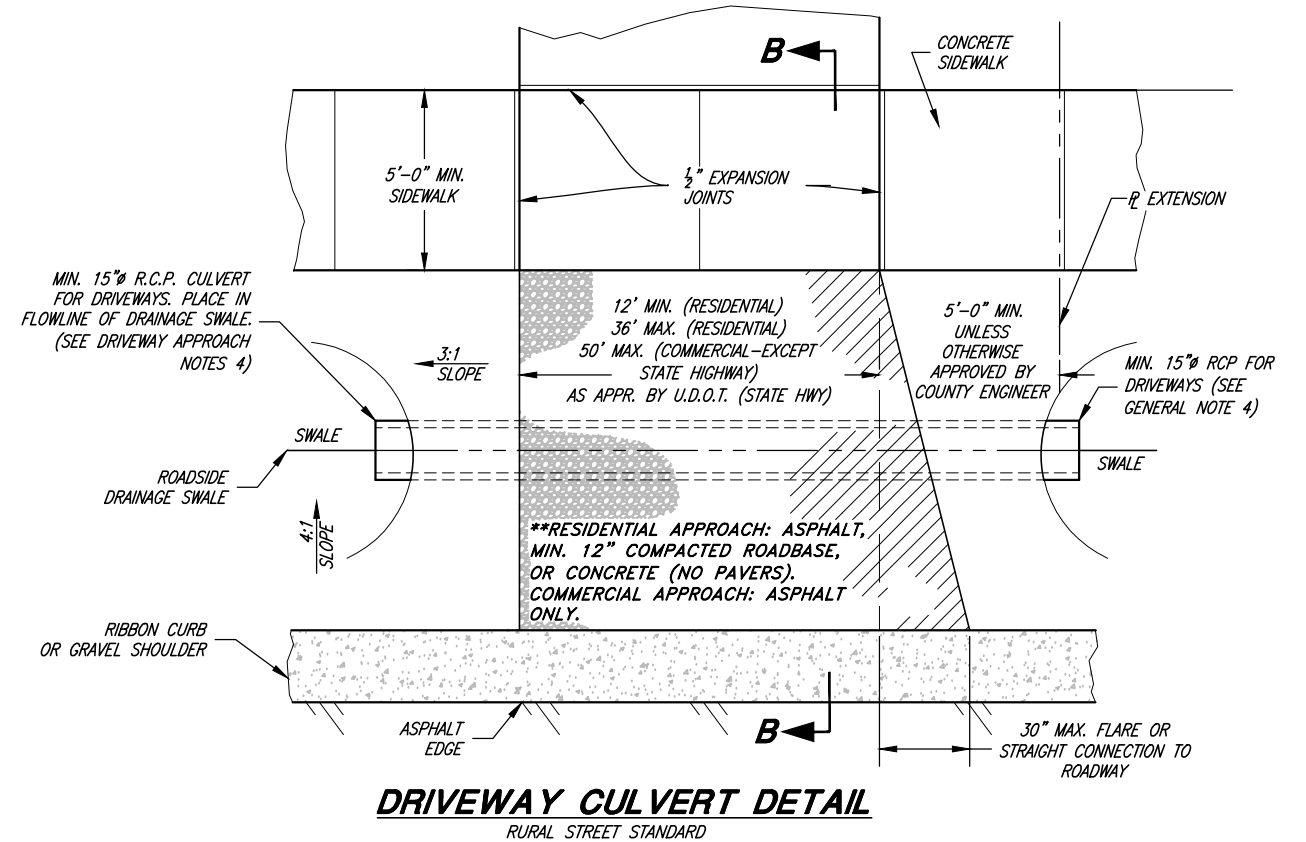
SECTION B-B



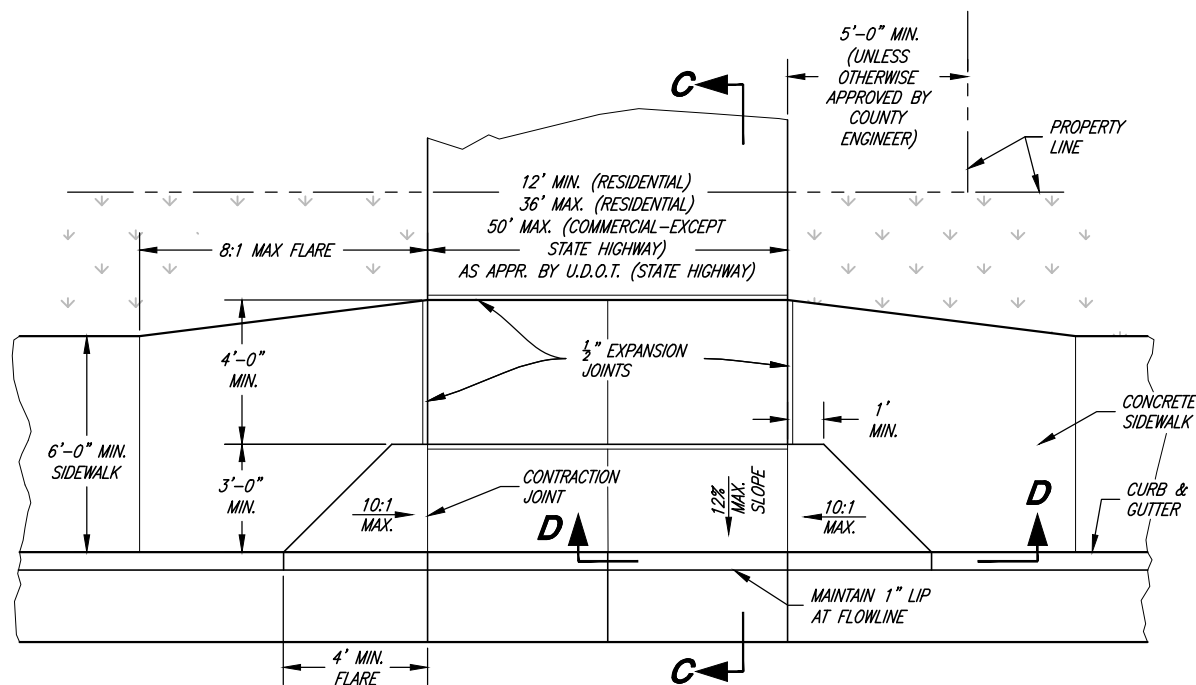
SECTION C-C



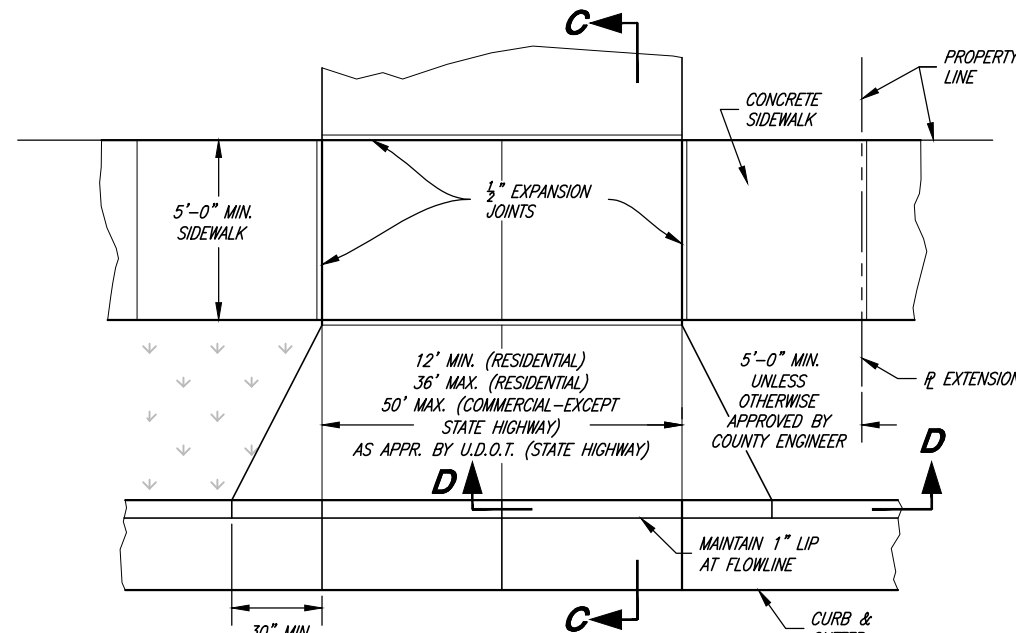
SECTION D-D



DRIVEWAY CULVERT DETAIL
RURAL STREET STANDARD



DRIVEWAY APPROACH W/ ADJACENT SIDEWALK
URBAN STREET STANDARD (WITHOUT PARK STRIP)



DRIVEWAY APPROACH W/ PARKSTRIP
INDUSTRIAL STREET STANDARD AND FOR REPLACEMENTS OF EXIST. APPROACHES OF THE SAME STYLE

- DRIVEWAY APPROACH NOTES:**
1. IN NEW SUBDIVISIONS WHERE FUTURE DRIVEWAY LOCATIONS ARE UNKNOWN, THE CURB DRIVEWAY APPROACH SHALL BE MADE BY SAW CUTTING THE BACK OF THE EXISTING CURB TO THE REQUIRED DRIVEWAY WIDTH. ALL SAW CUTTING SHALL BE ACCOMPLISHED BY A COUNTY APPROVED LICENSED CONTRACTOR.
 2. SCORE SIDEWALK 1/4 OF SIDEWALK THICKNESS AT EACH 5'-0" OR 6'-0" SECTION. EXPANSION JOINTS AT EACH 50'-0" (5'-0" SIDEWALK) OR 48'-0" (6'-0" SIDEWALK), PROVIDE ADDITIONAL CONTRACTION JOINTS ON OVERSIZED DRIVEWAYS AT 5'-0" MAX. SPACING
 3. APPROACHES SHALL NOT BE ALLOWED ON CORNER LOTS WITHIN THE CLEAR VIEW AREA.
 4. THE USE OF CMP, HDPE OR ANOTHER APPROVED CULVERT PIPE MATERIAL IS ONLY ALLOWED WITH PRIOR APPROVAL OF THE COUNTY ENGINEER OR THE COUNTY ROAD DEPARTMENT.



Brett M. Jones
COUNTY ENGINEER
AUGUST 2023

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SCALE: N. T.S.
DESIGNED: BEB
DRAWN: BEB
CHECKED: BMJ



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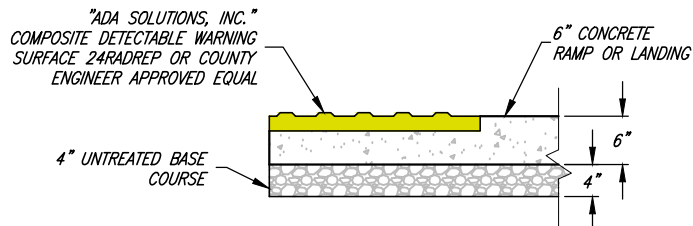


BOX ELDER COUNTY
PUBLIC WORKS STANDARD DRAWINGS
TYPICAL DRIVE APPROACH DETAILS

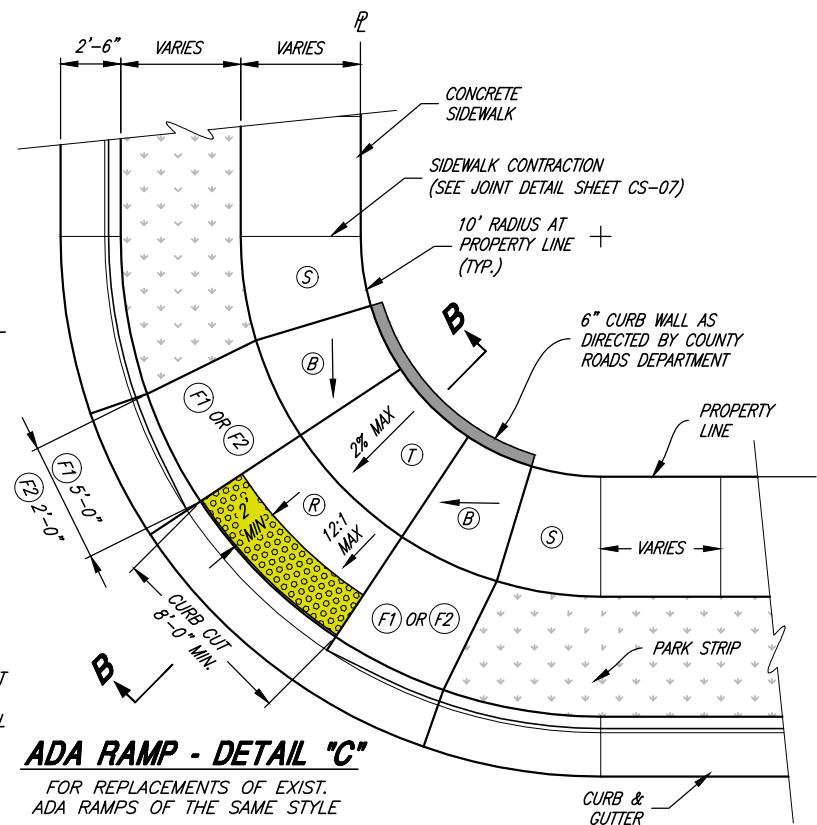
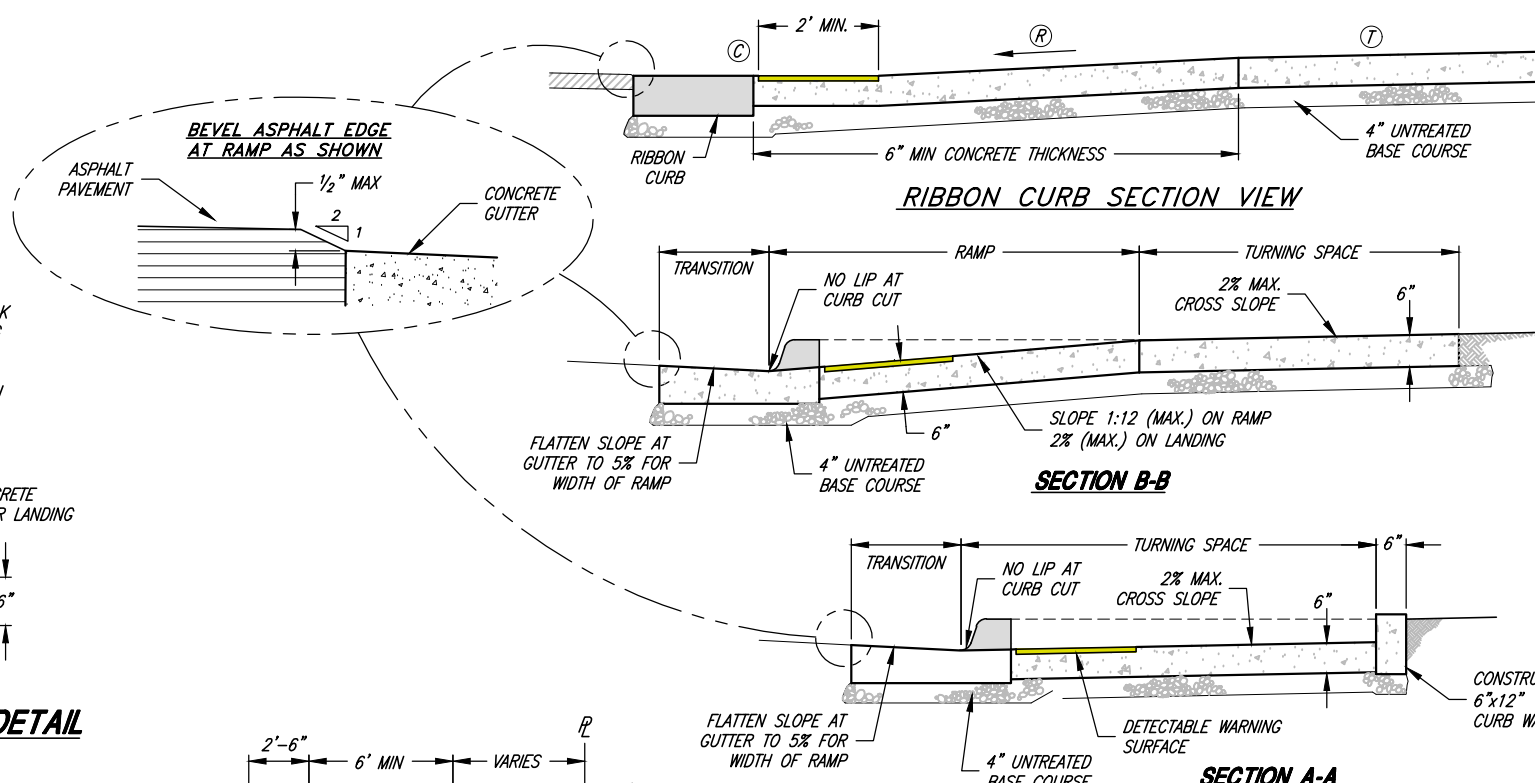
SHEET: **CS-05**
OF 1 SHEETS
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DETECTABLE WARNING SURFACE NOTES:

1. LOCATE THE DETECTABLE WARNING SURFACE SO THE OUTSIDE CORNER NEAREST THE STREET IS WITHIN 1 INCH OF THE BACK OF CURB (TBC). PROVIDE 2'-FOOT MINIMUM DEPTH.
2. PROVIDE DETECTABLE WARNING SURFACE FOR FULL WIDTH OF CURB CUT.
3. THE DETECTABLE WARNING SURFACE DOMES SHALL BE ORIENTED SUCH THAT THE ROWS ARE PARALLEL WITH THE DIRECTION OF PEDESTRIAN TRAVEL TO THE RAMP ON THE OPPOSITE SIDE OF THE STREET.
4. THE STANDARD COLOR FOR THE DETECTABLE WARNING SURFACE SHALL BE YELLOW OR PRE-APPROVED CONTRASTING COLOR. WHEN THE EXISTING SIDEWALK COLOR IS NOT STANDARD CONCRETE, THE COLOR OF THE DETECTABLE WARNING SURFACE SHALL BE DETERMINED BY THE COUNTY ROADS DEPARTMENT.
5. WHEN A DETECTABLE WARNING SURFACE DOME IS CUT, THE REMAINING PORTION OF THE DOME SHALL BE BEVELED TO A MAXIMUM SLOPE OF 1:2.



DETECTABLE WARNING SURFACE DETAIL



ADA RAMP - DETAIL 'C'

FOR REPLACEMENTS OF EXIST. ADA RAMPS OF THE SAME STYLE

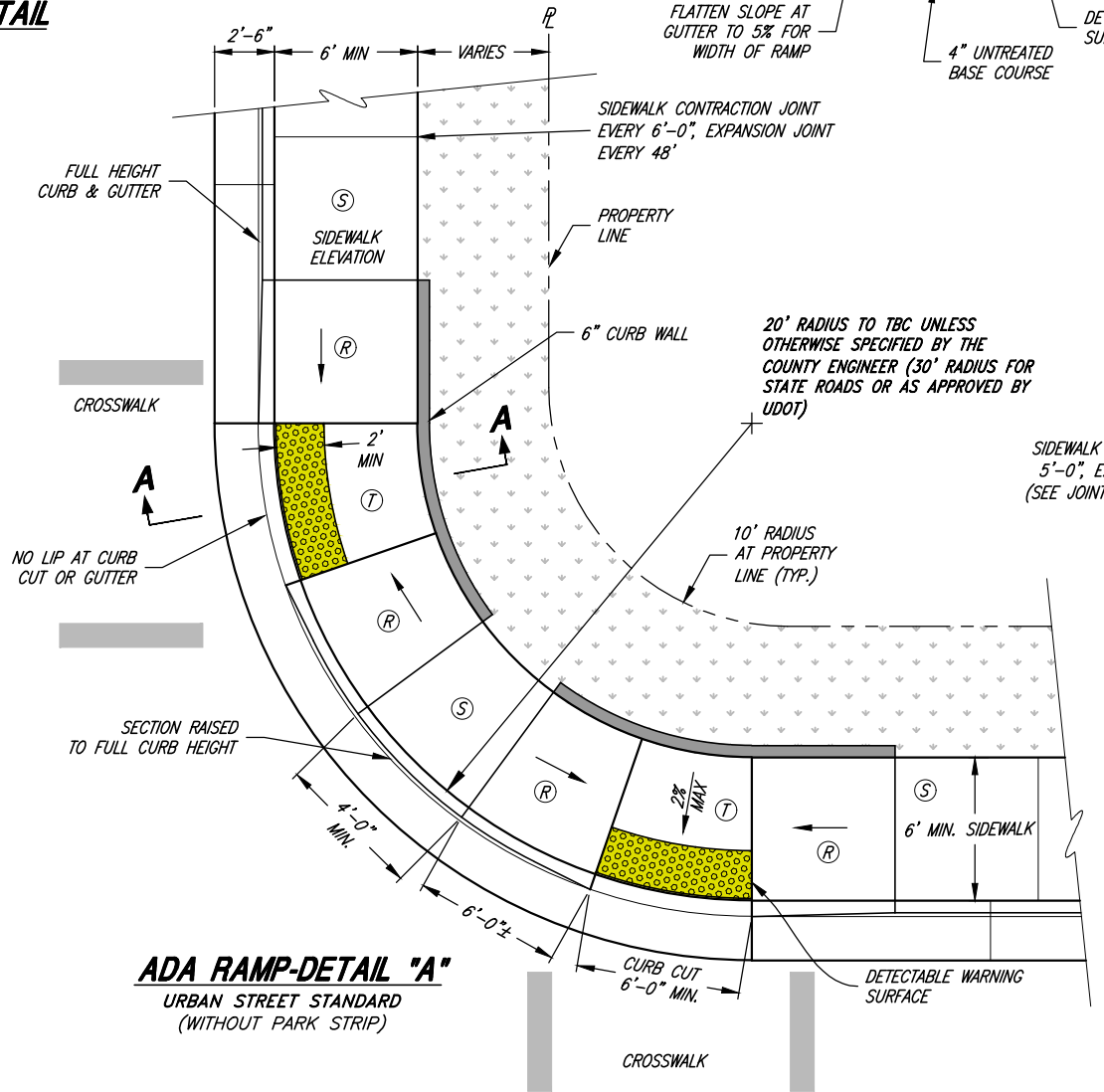
ADA RAMP NOTES:

- A. WHERE DESIGNATED BY THE COUNTY, ALTERNATE UDOT OR APWA RAMP DESIGNS MAY BE USED WITH PRIOR APPROVAL OF THE COUNTY ENGINEER AND THE COUNTY ROADS DEPARTMENT. SUBMIT ENGINEERED CONSTRUCTION PLANS TO COUNTY ENGINEER FOR REVIEW AND ACCEPTANCE PRIOR TO CONSTRUCTION.
- B. SITE CONDITIONS WILL VARY. CONFIGURATION OF RAMP, LANDING, AND TRANSITION MAY BE CHANGED, BUT THEY MUST MEET DIMENSIONS AND SLOPES AS SHOWN IN THE MOST RECENT EDITION OF THE U.D.O.T. STANDARDS & SPECIFICATIONS (SHEETS PA1 THROUGH PA5). THE USE OF FLARES, CURB WALLS, ETC. ARE AT THE DISCRETION OF THE ENGINEER.
- C. LOCATE CURB CUT WITHIN CROSSWALK.
- D. RAMP GRADE BREAK MUST BE PERPENDICULAR TO THE RUNNING SLOPE.
- E. DIRECTIONAL (DUAL PARALLEL) RAMPS ARE REQUIRED ON COLLECTOR, ARTERIAL, AND INDUSTRIAL ROADS.

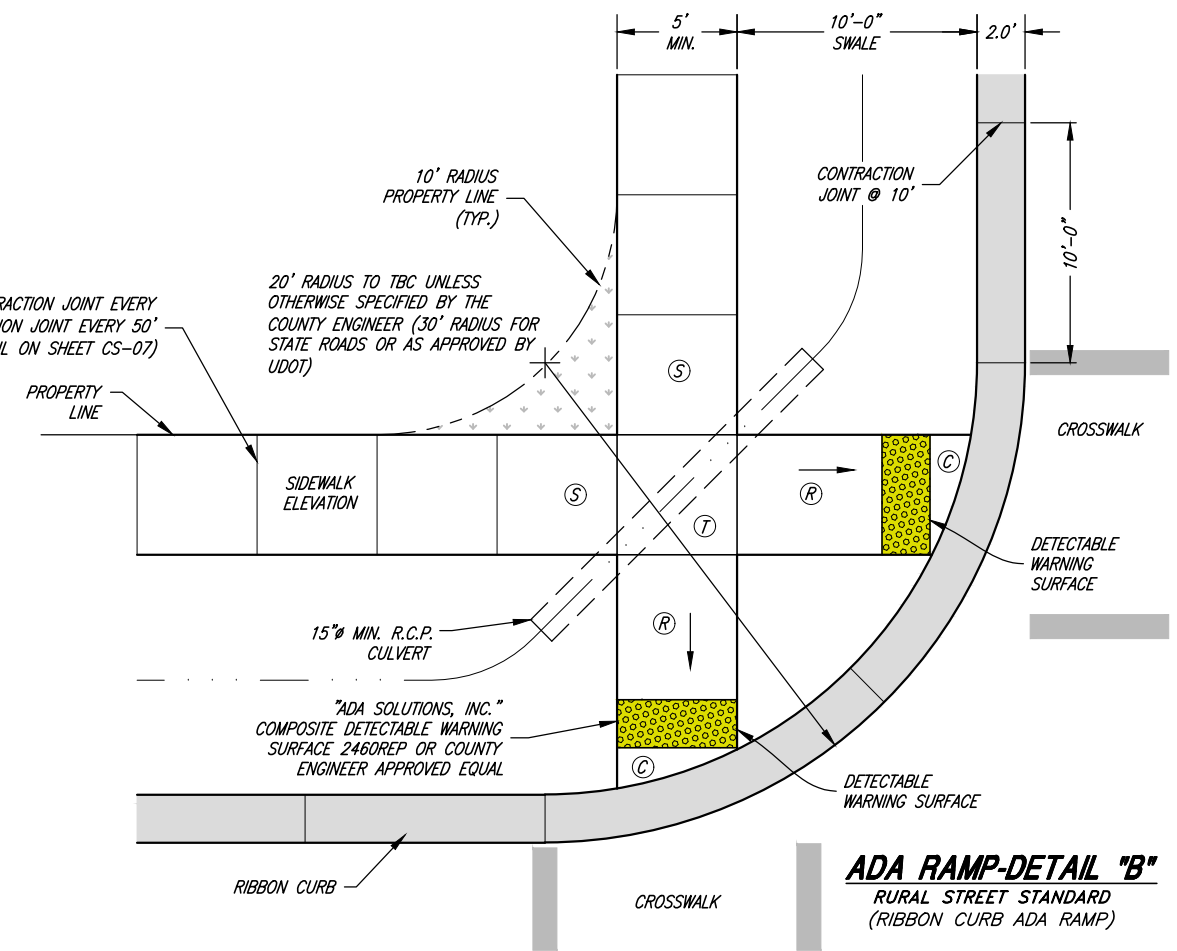
SLOPE TABLE			
	ITEM	MAX RUNNING SLOPE*	MAX. CROSS SLOPE*
T	TURNING SPACE ²	2% (1V:48H)	2% (1V:48H)
R	RAMP	8.3% (1V:12H)	2% (1V:48H)
S	SIDEWALK	5% (1:20) ¹	2% (1V:48H)
F1	TRAVERSABLE SURFACE	10% (1V:10H)	--
F2	NON-TRAVERSABLE SURFACE	25% (1V:4H)	--
B	BLENDED TRANSITION	5% (1V:20H) 2% MIN.	2% (1V:48H)
C	CLEAR SPACE	5% (1V:20H)	2% (1V:48H)

* RUNNING SLOPE IS IN THE DIRECTION OF PEDESTRIAN TRAVEL. CROSS SLOPE IS PERPENDICULAR TO PEDESTRIAN TRAVEL.

- ¹ 5% MAX OR NATURAL SLOPE OF LAND
- ² NOT TO EXCEED 2% IN ANY DIRECTION



ADA RAMP-DETAIL 'A'
URBAN STREET STANDARD
(WITHOUT PARK STRIP)



ADA RAMP-DETAIL 'B'
RURAL STREET STANDARD
(RIBBON CURB ADA RAMP)



Brett M. Jones
COUNTY ENGINEER
AUGUST 2023
DATE

REV.	DATE	APPR.

SCALE:
N. T.S.
DESIGNED: BEB
DRAWN: BEB
CHECKED: BMJ

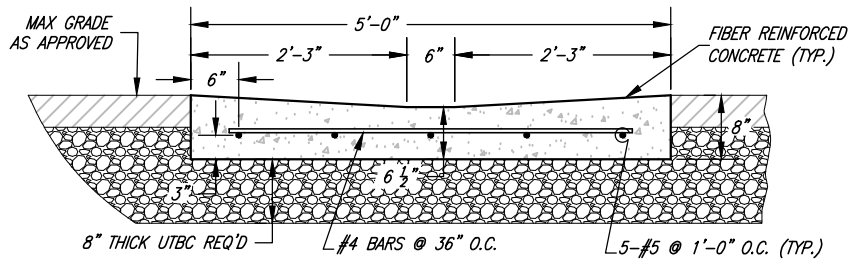


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BOX ELDER COUNTY
PUBLIC WORKS STANDARD DRAWINGS
TYPICAL ADA RAMP DETAILS

SHEET:
CS-06
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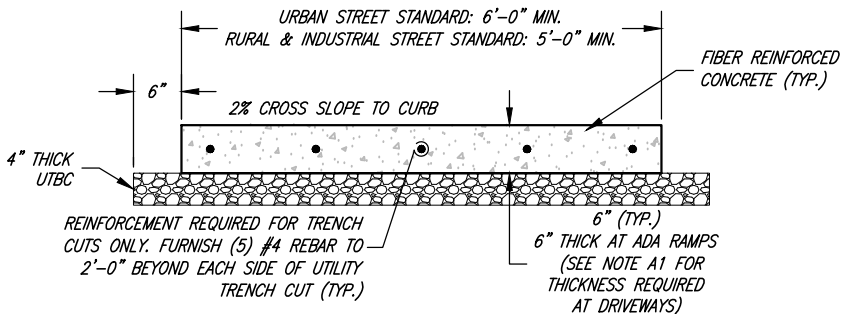


CROSS DRAIN SECTION

(FOR REPLACEMENTS ONLY - NO NEW CONSTRUCTION)

CROSS DRAIN NOTES:

- D1. CONTRACTION JOINTS @ 5ft, EXPANSION JOINTS @ EDGE OF APRON.
- D2. CROSS DRAINS SHALL BE CONSTRUCTED WITH CLASS 4,000 FIBER REINFORCED CONCRETE. VARIANCE AS APPROVED BY THE COUNTY ROAD DEPARTMENT.

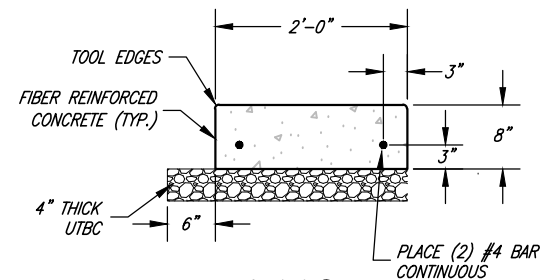


SIDEWALK SECTION

(COUNTY STANDARD)

SIDEWALK SECTION NOTES:

- A1. 6" THICKNESS IN RESIDENTIAL AND 7" IN COMMERCIAL DRIVEWAYS
- A2. EXPANSION JOINTS @ 50 ft. (5'-0" SIDEWALK), AND 48' (6'-0" SIDEWALK)
- A3. CONTRACTION JOINTS (CRACK CONTROL JOINTS) SPACING SHALL MATCH SIDEWALK WIDTH AND SHALL BE AT LEAST ONE FOURTH OF THE SLAB THICKNESS.
- A4. SIDEWALKS SHALL BE CONSTRUCTED WITH CLASS 4,000 FIBER REINFORCED CONCRETE. VARIANCE AS APPROVED BY THE COUNTY ROADS DEPARTMENT.
- A5. CONCRETE SIDEWALK TO BE A MIN. 6'-0" IN WIDTH WHEN PLACED AGAINST THE BACK OF CURB.

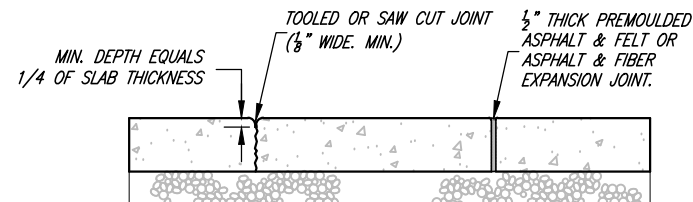


RIBBON CURB & GUTTER SECTION

COUNTY STANDARD FOR RURAL ROADS (CONCRETE EDGE FOR ASPHALT)

CURB SECTION NOTES:

- B1. CONTRACTION JOINTS @ 10ft, EXPANSION JOINTS @ 50ft
- B2. WHERE CURBS ARE SAW CUT THEY SHALL SLOPE TOWARD THE STREET AT 1/4" PER FOOT.
- B3. WHEN REPLACING CURB DUE TO CONSTRUCTION ACTIVITY, NEW CURB MUST EXTEND 5' MIN. PAST TRENCH ON EACH SIDE.
- B4. CURB SHALL BE CONSTRUCTED WITH CLASS 4,000 FIBER REINFORCED CONCRETE. VARIANCE AS APPROVED BY THE COUNTY ROADS DEPARTMENT.
- B5. THE SLOPE FOR CURB & GUTTER MUST BE A MINIMUM OF 0.5%.
- B6. THE SPECIFIED CURB STYLES ON THESE DRAWINGS ARE COUNTY STANDARDS. HOWEVER, THE USE OF A ROLL STYLE CURB AND GUTTER SHALL BE DETERMINED ON A CASE-BY-CASE BASIS AS APPROVED BY THE COUNTY ROADS DEPARTMENT. (SEE SHEETS CS-22 AND CS-22a FOR CONSTRUCTION DETAILS RELATED TO ROLL CURB AND GUTTER)



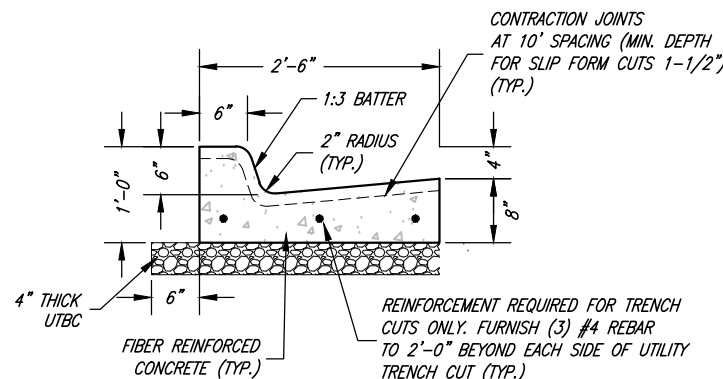
CONTRACTION JOINT EXPANSION JOINT

(CRACK CONTROL JOINT)

JOINT DETAIL

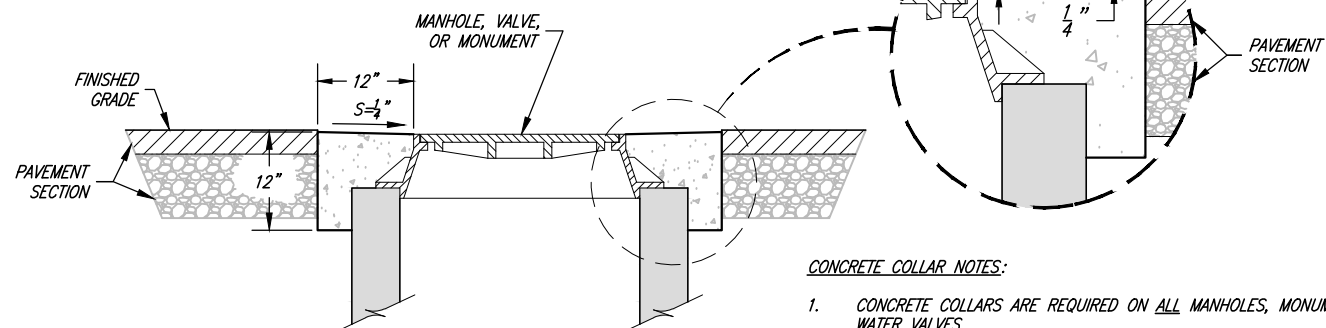
GENERAL NOTES:

- C1. INSTALLATION TOLERANCES ON CURB & GUTTER AND SIDEWALK PER APWA 32 16 1.3, 3.7
- C2. GRINDING OF CONCRETE, TO MEET TOLERANCES, WILL NOT BE ALLOWED.
- C3. FIBER REINFORCED CONCRETE - FIBER MESH SHALL BE ADDED TO ALL CONCRETE (1 lb PER CUBIC YARD).



STANDARD CURB & GUTTER SECTION

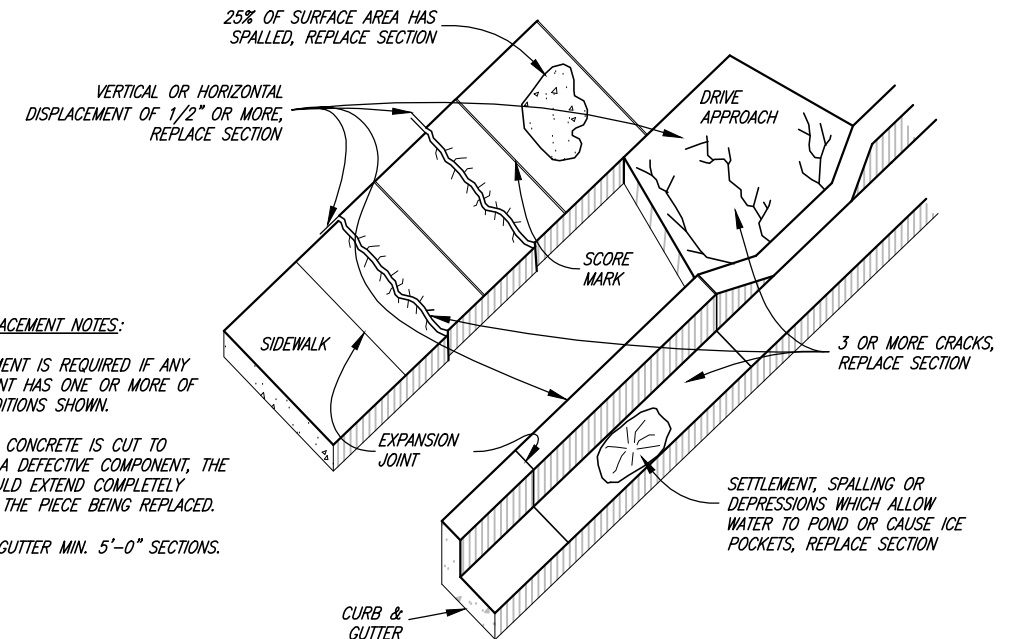
COUNTY STANDARD FOR URBAN ROADS



CONCRETE COLLAR DETAIL

CONCRETE COLLAR NOTES:

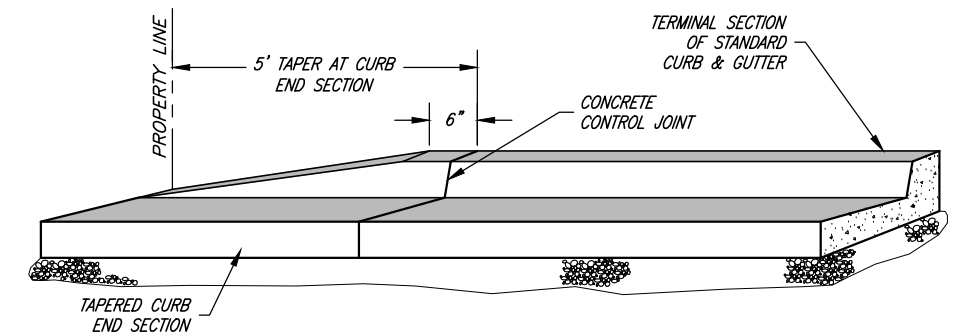
- 1. CONCRETE COLLARS ARE REQUIRED ON ALL MANHOLES, MONUMENTS AND WATER VALVES.
- 2. ALL CONCRETE COLLARS TO BE INSTALLED WITHIN 14 DAYS AFTER PAVING.
- 3. FIBER MESH SHALL BE ADDED TO ALL CONCRETE COLLARS (1 lb PER CUBIC YARD).



CONCRETE REPLACEMENT NOTES:

- A. REPLACEMENT IS REQUIRED IF ANY COMPONENT HAS ONE OR MORE OF THE CONDITIONS SHOWN.
- B. ANY TIME CONCRETE IS CUT TO REPLACE A DEFECTIVE COMPONENT, THE CUT SHOULD EXTEND COMPLETELY THROUGH THE PIECE BEING REPLACED.
- C. CURB & GUTTER MIN. 5'-0" SECTIONS.

DEFECTIVE CONCRETE REPLACEMENT CRITERIA



CURB END SECTION

CURB END SECTION NOTE:

CONSTRUCT CURB END SECTION FOR IMPROVED SAFETY AND TO PREVENT SNOW PLOW DAMAGE. CONTRACTOR REQUIRED TO SAW-CUT AND REMOVE TAPERED CURB END SECTION AND CONSTRUCT NEW CURB AND GUTTER WHEN CURB IS EXTENDED. ASPHALT SHALL ALSO BE SAW CUT ONE FOOT FROM LIP OF GUTTER AND PATCHED.



Brett M. Jones
COUNTY ENGINEER
AUGUST 2023

REV.	DATE	APPR.

SCALE: N. T.S.
DESIGNED: BEB
DRAWN: BEB
CHECKED: BMJ

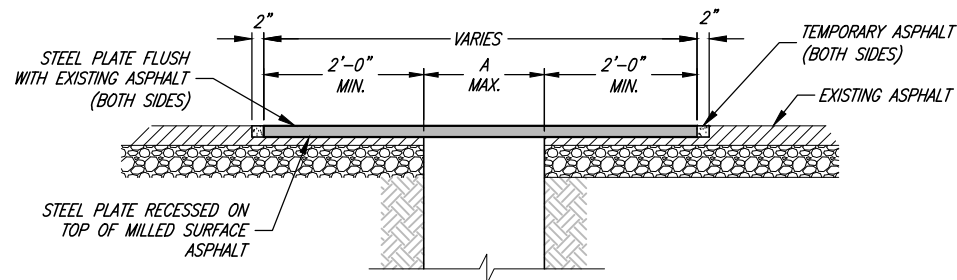


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BOX ELDER COUNTY
PUBLIC WORKS STANDARD DRAWINGS
TYPICAL SIDEWALK, CURB & GUTTER, CONCRETE COLLAR, AND DEFECTIVE CONCRETE REPLACEMENT DETAILS

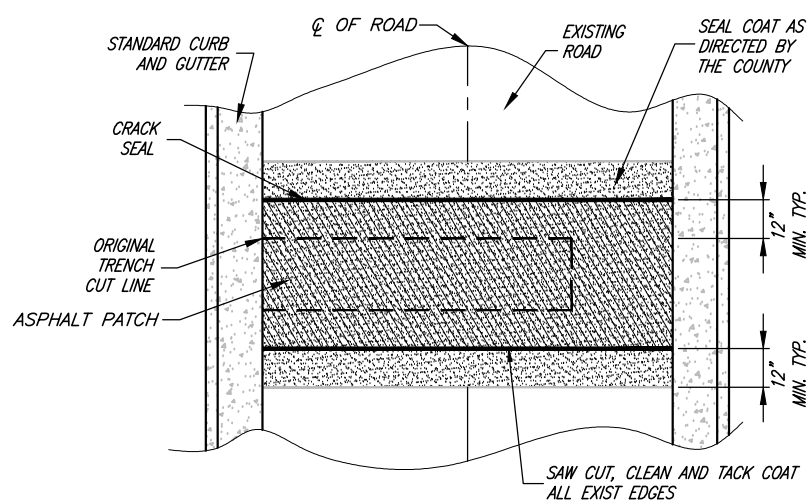
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OF 1 SHEETS
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STANDARD TRENCH PLATING DETAIL

TRENCH PLATING NOTES:

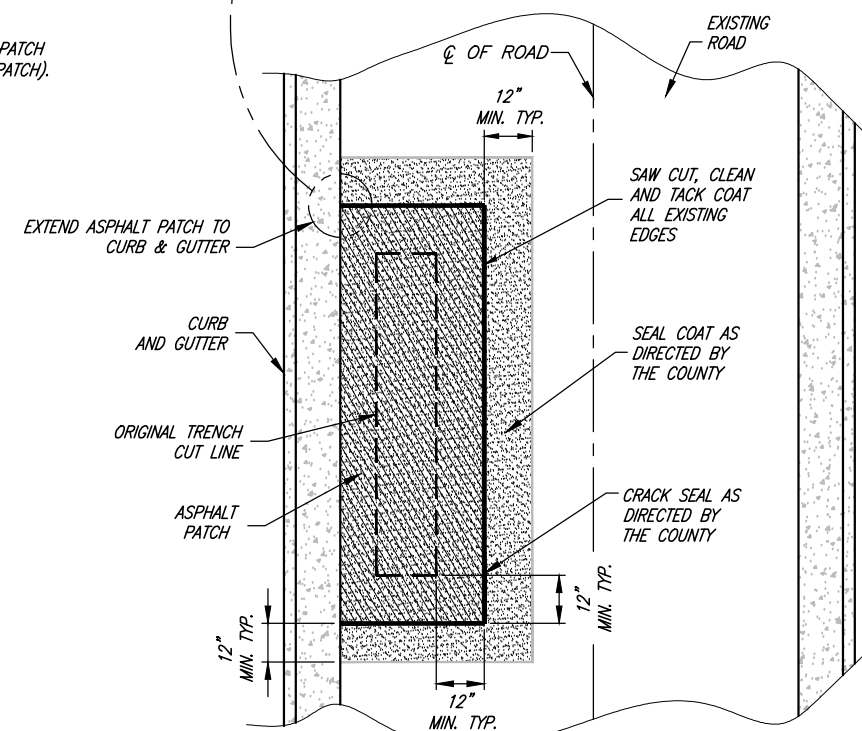
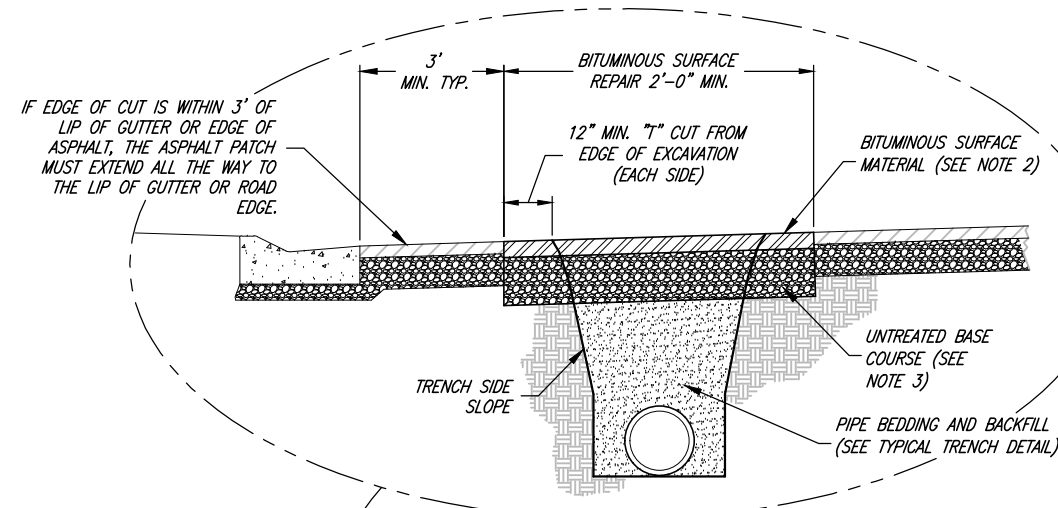
- B1. THE STEEL PLATE SHALL BE RECESSED BY MILLING INTO THE EXISTING ASPHALT TO SET FLUSH WITH THE SURFACE OF THE EXISTING ASPHALT. FULL DEPTH CUTTING OF PAVEMENT SECTION OUTSIDE OF TRENCH IS NOT PERMITTED. MILLING DEPTH SHALL MATCH THICKNESS OF THE PLATE. THE GAP BETWEEN THE EDGE OF THE PLATE AND THE ADJACENT EXISTING ASPHALT PAVEMENT MUST BE FILLED WITH TEMPORARY ASPHALT.
- B2. STEEL PLATE MUST BE ABLE TO WITHSTAND HL-93 (HS-20) TRAFFIC LOADINGS WITHOUT ANY MOVEMENTS.
- B3. PLATES SHALL BE FABRICATED FROM ASTM A36 STEEL (MIN.)
- B4. PLATES SHALL BE SECURED FROM LATERAL MOVEMENT AND VERTICAL VIBRATION (ASSOCIATED NOISE) WHILE IN USE BY TEMPORARY ASPHALT (COLD MIX.)
- B5. APPROPRIATE SIGNAGE REQUIRED



TYPICAL HORIZONTAL ASPHALT PATCH PLAN

ASPHALT PATCH NOTES:

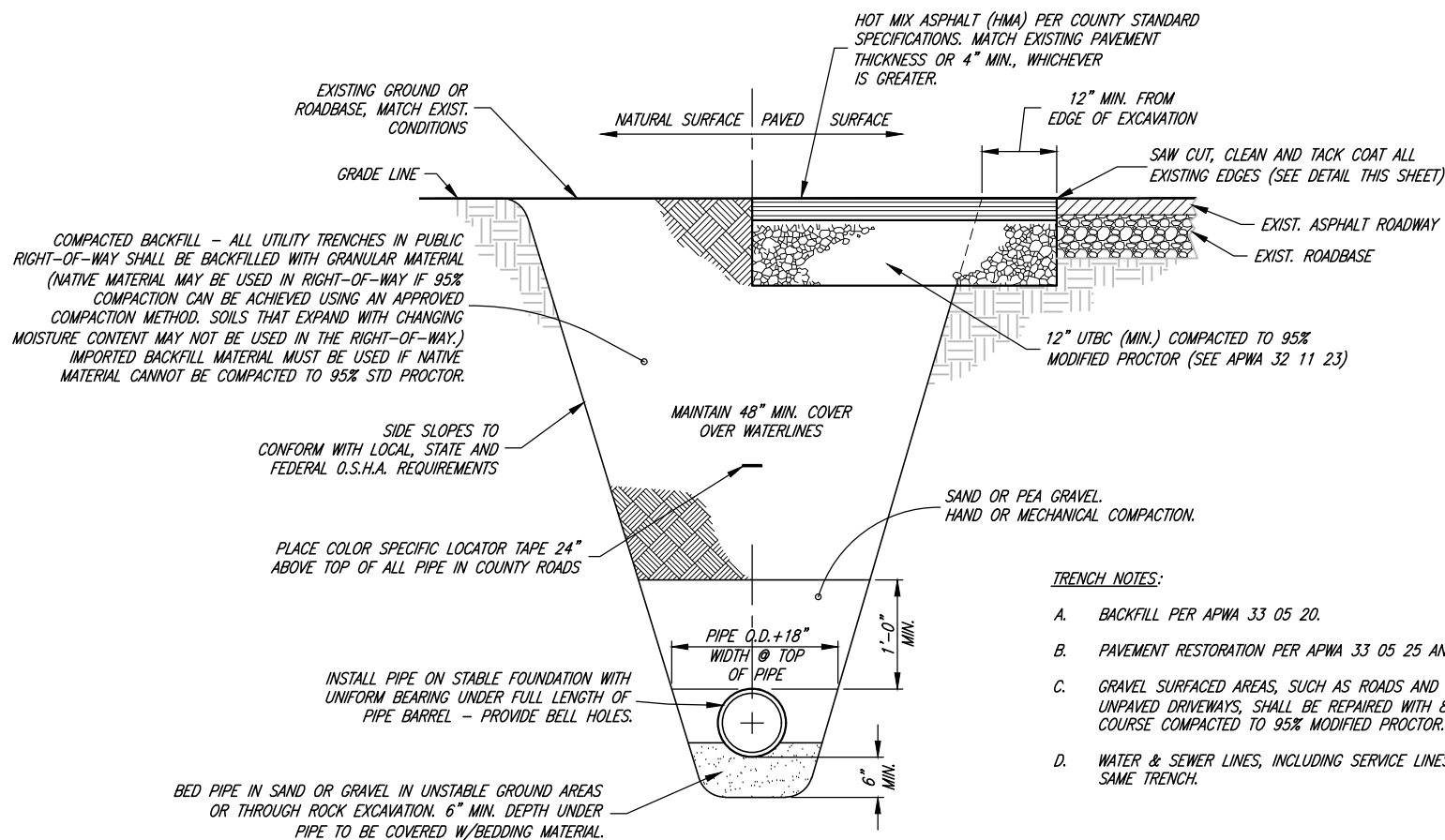
- A1. ON ANY ROAD PAVED OR OVERLAYED WITHIN THE LAST 10 YEARS, THE PATCH MUST BE COMPLETED PER APWA PLAN 255 (BITUMINOUS PAVEMENT T-PATCH).
- A2. NO ANGLED ASPHALT PATCHING ALLOWED.



TYPICAL PARALLEL ASPHALT PATCH PLAN

ASPHALT PATCH NOTES:

- 1. SAW CUT BITUMINOUS ASPHALT SURFACE 12" WIDER THAN TRENCH ON EACH SIDE FOR FINAL TRENCH REPAIR WHERE BITUMINOUS SURFACE EXISTS.
- 2. BITUMINOUS SURFACE IS TO BE 4" THICK OR TO MATCH EXISTING THICKNESS, WHICHEVER IS GREATER.
- 3. UNTREATED BASE COURSE MATERIAL IS TO BE 12" DEEP OR TO MATCH EXISTING THICKNESS, WHICHEVER IS GREATER.
- 4. TRENCH TO BE PAVED WITHIN 7 DAYS OF UTILITY INSTALLATION. CONTRACTOR RESPONSIBLE TO MAINTAIN TRENCH UNTIL PAVED.



TYPICAL TRENCH SECTION

TRENCH NOTES:

- A. BACKFILL PER APWA 33 05 20.
- B. PAVEMENT RESTORATION PER APWA 33 05 25 AND COUNTY MODIFICATIONS.
- C. GRAVEL SURFACED AREAS, SUCH AS ROADS AND SHOULDERS, PARKING AREAS, AND UNPAVED DRIVEWAYS, SHALL BE REPAIRED WITH 8" THICK (MIN.) 1" UNTREATED BASE COURSE COMPACTED TO 95% MODIFIED PROCTOR.
- D. WATER & SEWER LINES, INCLUDING SERVICE LINES, SHALL NOT BE INSTALLED IN THE SAME TRENCH.



Brett M. Jones
COUNTY ENGINEER
AUGUST 2023
DATE

REV.	DATE	APPR.

SCALE:
N. T.S.
DESIGNED *BEB*
DRAWN *BEB*
CHECKED *B.M.J.*

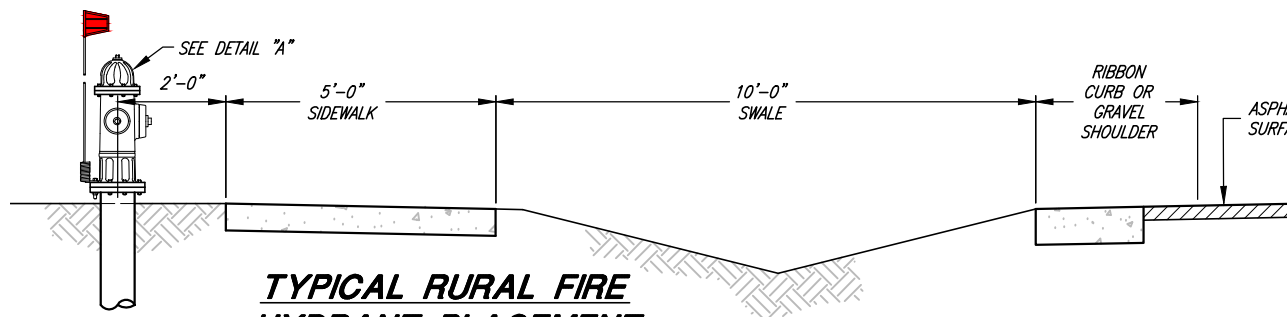


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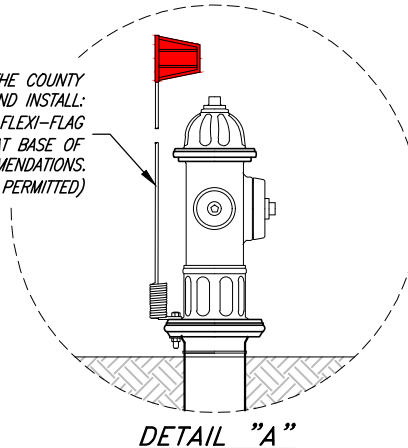
BOX ELDER COUNTY
PUBLIC WORKS STANDARD DRAWINGS
UTILITY TRENCH AND ASPHALT PATCH PLAN DETAILS

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CS-09
OF 1 SHEETS
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TYPICAL RURAL FIRE HYDRANT PLACEMENT

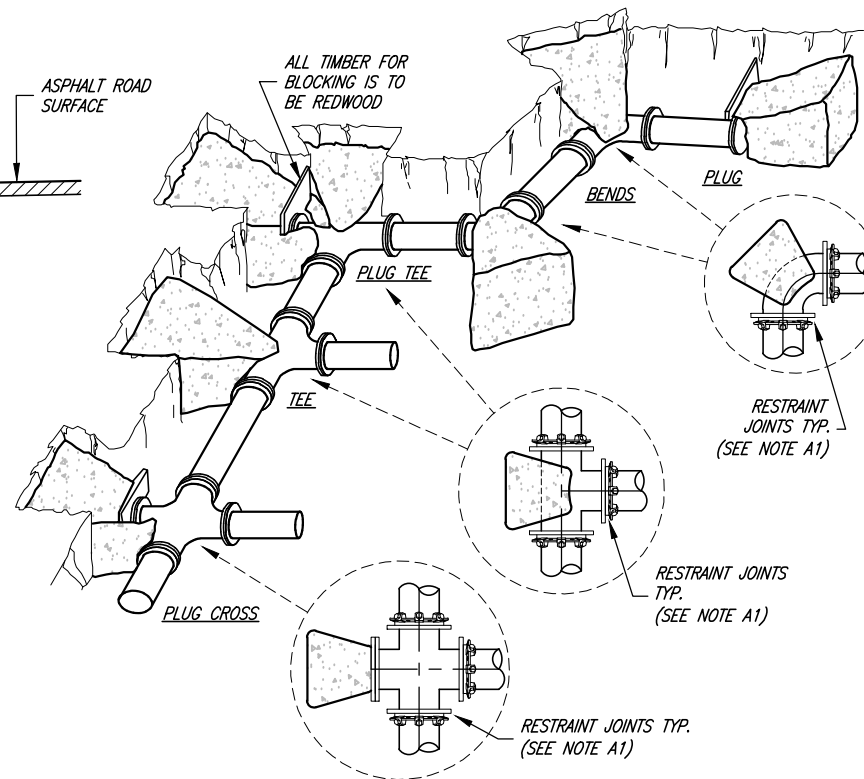
WHERE REQ'D ON RURAL ROADS, BY THE COUNTY ROADS DEPARTMENT, FURNISH AND INSTALL: "POLLARDWATER" GALVANIZED STEEL FLEXI-FLAG HYDRANT MARKER, 5.3", INSTALLED AT BASE OF HYDRANT PER MANUFACTURER RECOMMENDATIONS. (FIBERGLASS POLES ARE NOT PERMITTED)



DETAIL "A"

FIRE HYDRANT NOTES:

- D1. FIRE HYDRANTS ARE TO BE INSTALLED IN LOCATIONS AS REQUIRED BY THE FIRE CODE AND APPROVED BY THE COUNTY FIRE MARSHALL.
- D2. CLEAR DISTANCE AROUND THE HYDRANT (FENCES, BOULDERS, BOLLARDS, WALLS, STRUCTURES, ETC.) SHALL COMPLY WITH THE CURRENT FIRE CODE OR BE A MINIMUM OF 3 FEET, WHICHEVER IS GREATER.
- D3. FIRE HYDRANT DRAINS SHALL NOT BE CONNECTED TO, OR LOCATED WITHIN, 10 FEET OF SANITARY SEWERS. WHERE POSSIBLE, HYDRANT DRAINS SHALL NOT BE LOCATED WITHIN 10 FEET OF STORM DRAINS.
- D4. PIPES, JOINTS, FITTINGS, VALVES, & FIRE HYDRANTS SHALL CONFORM TO ANSI / NSF 61.



TYPICAL RETAINER GLANDS & THRUST BLOCKING

THRUST PER PSI OF WATER PRESSURE AT VARIOUS FITTINGS

PIPE SIZE (IN.)	DEAD END OR TEE (LB.)	90° ELBOW (LB.)	45° ELBOW (LB.)	22-1/2° ELBOW (LB.)
4	19	27	15	7
6	39	55	30	15
8	67	94	51	26
10	109	154	84	43
12	155	218	119	61
14	210	296	161	82
16	272	383	209	106
18	351	494	269	137
20	434	611	333	169
24	623	878	487	244
30	947	1,332	722	377
36	1,356	1,905	1,032	542

NOTES:

- C1. IN USING THE ABOVE TABLE, USE THE MAXIMUM INTERNAL PRESSURE ANTICIPATED (I.E. HYDROSTATIC TEST PRESSURE, POSSIBLE SURGE PRESSURE DUE TO PUMP SHUT OFF, ETC.).
- C2. SEE SOILS REPORT FOR BEARING STRENGTH OF SOIL. IN THE ABSENCE OF A SOILS REPORT, AN AVERAGE SOIL (SPADABLE MEDIUM CLAY) CAN BE ASSUMED TO HAVE A BEARING STRENGTH OF 2,000 P.S.F.

EXAMPLE:

8-INCH 90° ELBOW, PRESSURE 200 LB./SQ. IN.
 FROM TABLE: THRUST = 94 X 200 = 18,800 LB.
 ASSUME BEARING STRENGTH = 2,000 LB./SQ. FT.

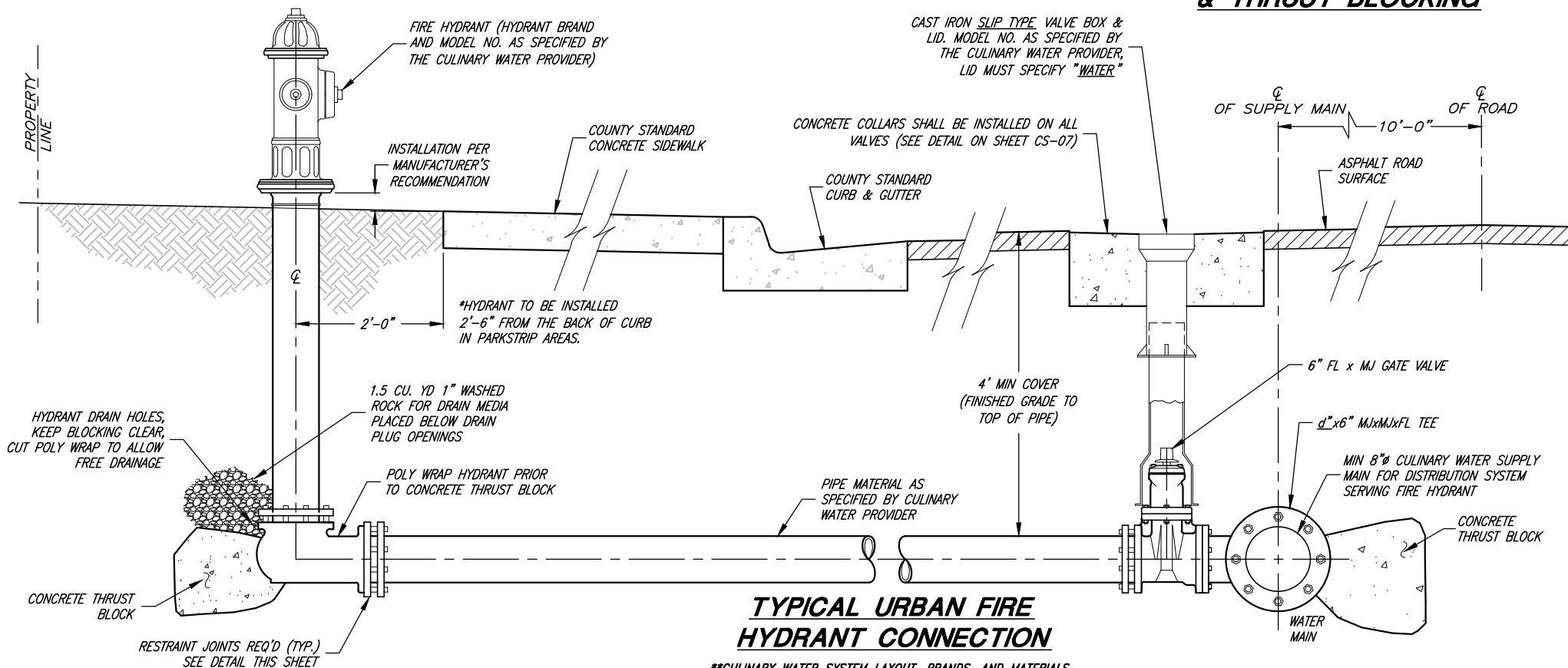
$$\frac{18,800}{2,000} = 9.4 \text{ SQ. FT. AREA OF BEARING REQUIRED FOR THRUST BLOCK}$$

PIPE RESTRAINT

- A1. FOR NOMINAL PIPE DIAMETERS 8" AND GREATER, ALL BENDS, CROSSES, TEES, REDUCERS, AND VALVES SHALL BE INSTALLED WITH RESTRAINING JOINTS ("MEGA-LUG", "ALPHA" OR APPROVED EQUAL).
- A2. DESIGN SHALL ALSO BE REQUIRED TO ENSURE ADEQUATE RESTRAINT FOR PIPING JOINTS NEAR FITTINGS BASED ON PIPE DIAMETER AND PIPE PRESSURE.

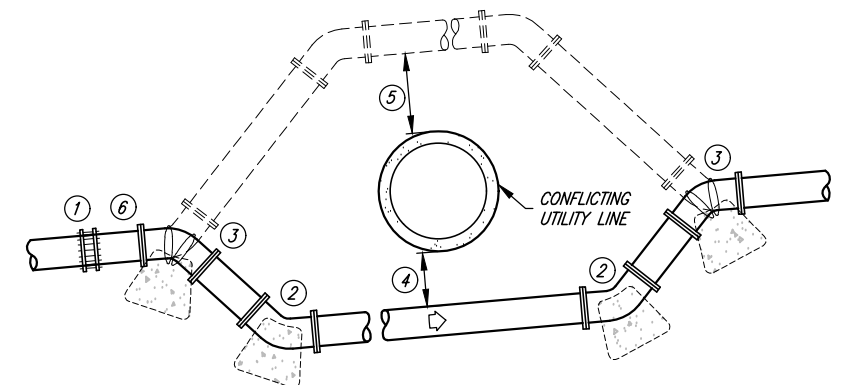
THRUST BLOCKING NOTES:

- B1. CONCRETE SHALL NOT BE PLACED WITHIN 1-1/2" OF JOINTS AND BOLTS. COVER ALL METAL CONTACT AREAS WITH A POLY WRAP PRIOR TO CONCRETE PLACEMENT.
- B2. IN THE ABSENCE OF A SOILS REPORT, ALL THRUST BLOCKS SHALL BE SIZED ON THE BASIS OF A MAXIMUM LATERAL BEARING VALUE FOR 2,000 P.S.F. AND A THRUST RESULTING FROM 200% OF THE WATER LINE STATIC LINE TEST.
- B3. THRUST BLOCKS ARE REQUIRED AT ALL BENDS OF 22-1/2° OR MORE. 11-1/4° BENDS SHALL HAVE RETAINER GLANDS.
- B4. CONCRETE SHALL HAVE A COMPRESSIVE STRENGTH OF NOT LESS THAN 3,000 PSI IN 28 DAYS.



TYPICAL URBAN FIRE HYDRANT CONNECTION

CULINARY WATER SYSTEM LAYOUT, BRANDS, AND MATERIALS AS APPROVED BY THE CULINARY WATER PROVIDER.



TYPICAL WATERLINE LOOP

- ① TRANSITION COUPLING; "ROMAC" ALPHA, "ROMAC" MACRO, OR CULINARY WATER PROVIDER APPROVED EQUAL
- ② MJ 45° BEND W/RETAINER GLANDS
- ③ CONSTRUCT THRUST BLOCKS AT EACH 45° BEND W/(3) #6 REBAR SECURING BLOCK TO FITTING (EPOXY COATING)
- ④ MINIMUM OF 12" SEPARATION BETWEEN THE WATERLINE AND CONFLICTING UTILITY PIPE TO BE CROSSED, EXCEPT LOOPS INVOLVING SEWER MAINS. SEE NOTE 5 FOR SEWER CROSSINGS.
- ⑤ CULINARY WATER LINES MUST CROSS ABOVE SEWER LINES WITH A REQUIRED MINIMUM OF 18" VERTICAL SEPARATION. EXCEPTIONS MUST BE APPROVED BY THE UTAH DIVISION OF DRINKING WATER (DDW).
- ⑥ AN AIR/VACUUM RELIEF VALVE MAY BE REQUIRED ON A CASE-BY-CASE BASIS AS DIRECTED BY THE CULINARY WATER PROVIDER.



Brett M. Jones
 COUNTY ENGINEER
 AUGUST 2023

REV.	DATE	APPR.

SCALE: N. T.S.
 DESIGNED: BEB
 DRAWN: BEB
 CHECKED: BMJ

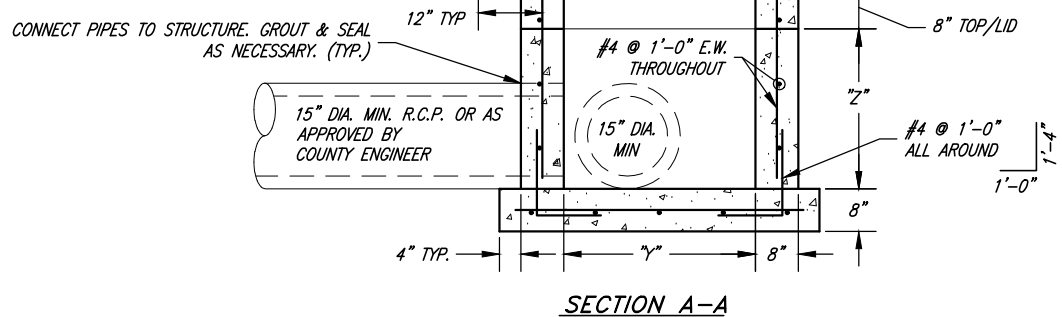
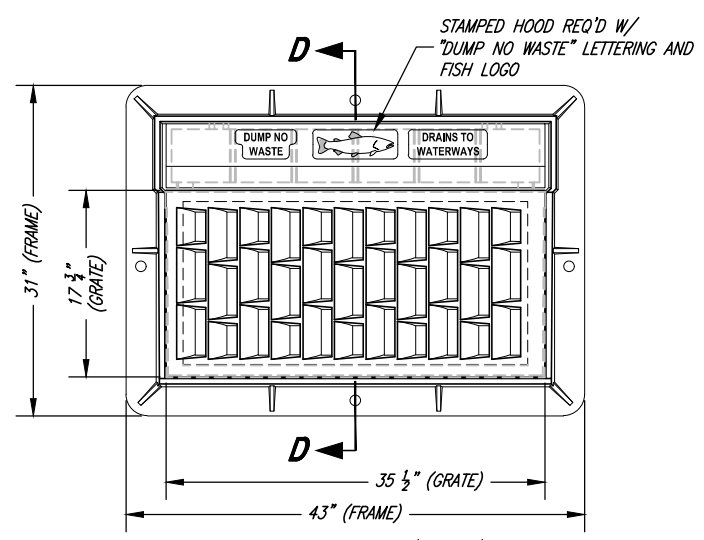
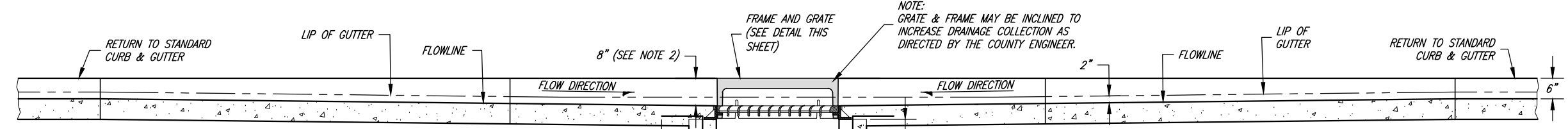
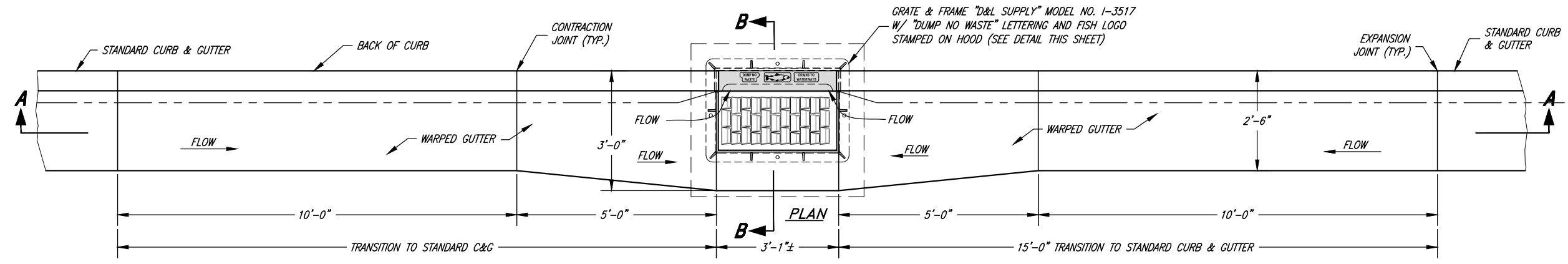


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BOX ELDER COUNTY
PUBLIC WORKS STANDARD DRAWINGS
FIRE HYDRANT, THRUST BLOCK, AND WATERLINE LOOP DETAILS

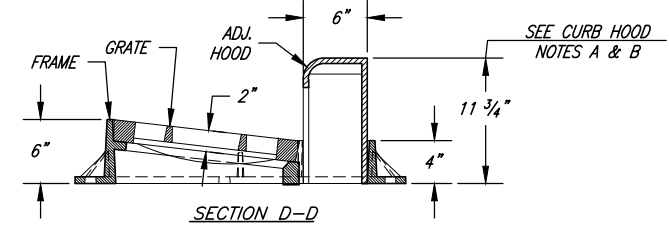
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CS-10
 OF 1 SHEETS
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SINGLE HOODED CATCH BASIN

GENERAL NOTES:

1. ALL CATCH BASIN BOX SIZES REFLECT DIMENSIONS FOR THE MINIMUM 15" PIPE SIZE. BOX DIMENSIONS MUST INCREASE PROPORTIONALLY TO ACCOMMODATE LARGER PIPE SIZES.
2. DEPTH MAY VARY FROM 6" TO 10" AS DIRECTED BY THE COUNTY ENGINEER.
3. CAST-IN-PLACE CONCRETE CATCH BASINS CAN BE REPLACED WITH PRECAST CONCRETE CATCH BASINS WITH HL-93 DECK LOADING AND COMPARABLE SIZE.
4. ALL BOXES SHALL BE FORMED ON THE INSIDE AND OUTSIDE OF THE BOX AND INSPECTED BY THE COUNTY PRIOR TO THE PLACING OF CONCRETE.
5. DOUBLE CATCH BASINS WILL BE REQUIRED IN LOCATIONS SPECIFIED BY THE COUNTY ENGINEER (TYPICALLY IN LOW SPOTS, IN DOWNHILL CUL-DE-SACS, OR WHERE ADDITIONAL INLET CAPACITY IS NEEDED). FOR CONSTRUCTION OF DOUBLE CATCH BASIN, SEE DETAILS AND NOTES ON SHEET CS-11a.
6. STORM DRAIN LINES SHALL BE 15 INCH MINIMUM DIAMETER REINFORCED CONCRETE PIPE (RCP), OF APPROPRIATE CLASS. OTHER MATERIALS SHALL BE AS APPROVED BY THE COUNTY ENGINEER AND THE COUNTY ROADS DEPARTMENT ON A CASE-BY-CASE BASIS.
7. ALTERNATE STRUCTURE (E.G. COMBO BOXES) MAY BE USED WITH APPROVAL OF THE COUNTY ENGINEER. STRUCTURES SHALL FOLLOW APWA STANDARD PLANS AND BE A COMMON SIZE.

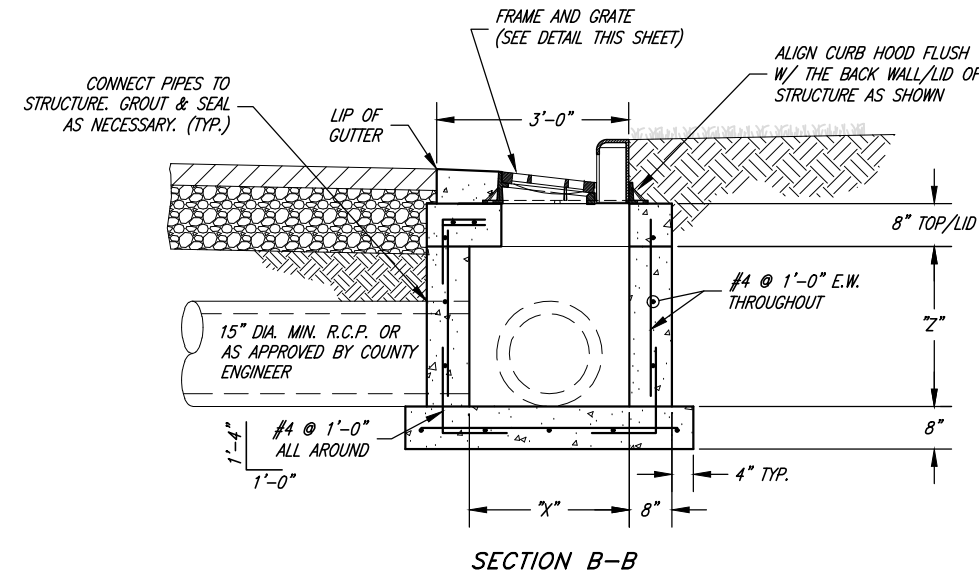


CURB HOOD INLET FRAME & TYPE "L" GRATE

"D&L SUPPLY" I-3517	
PRODUCT NUMBER:	
GRATE:	I-3517-02
ADJ. HOOD:	I-3516-13
FRAME:	I-3516-R8

CURB HOOD NOTES:

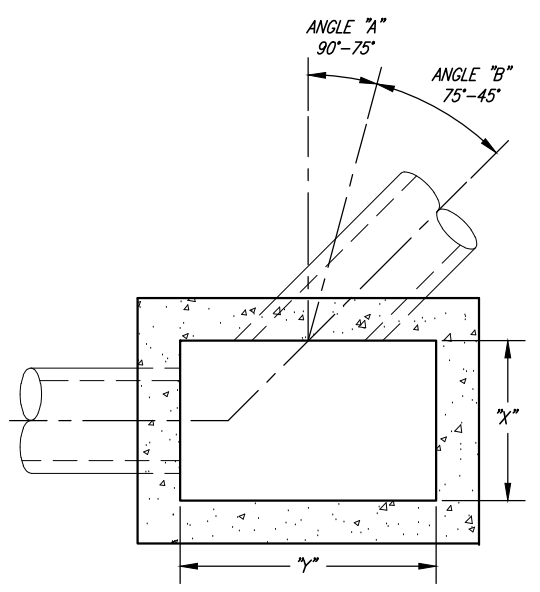
- A. 13 1/8" APPROXIMATE MAXIMUM HEIGHT FOR THE ADJUSTABLE HOOD.
- B. 9 9/16" APPROXIMATE MINIMUM HEIGHT FOR THE ADJUSTABLE HOOD.



SECTION B-B

CATCH BASIN DIMENSION TABLE

PIPE SIZE (IN.)	SINGLE CATCH BASIN		"Z" MIN.
	"X"	"Y" (ANGLE A)	
15	2'-6"	3'-0"	2'-0"
18	2'-6"	3'-0"	2'-6"
21	4'-0"	4'-0"	3'-0"
24	4'-0"	4'-0"	3'-0"
30	4'-0"	4'-0"	3'-6"
36	4'-0"	5'-0"	4'-0"
42	6'-0"	6'-0"	5'-0"
48	6'-0"	6'-0"	5'-6"



Brett M. Jones
COUNTY ENGINEER
AUGUST 2023

REV.	DATE	APPR.

SCALE: N. T.S.

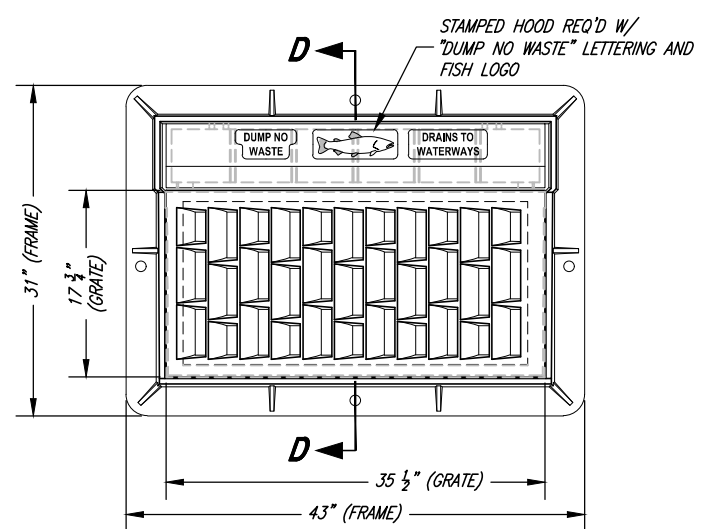
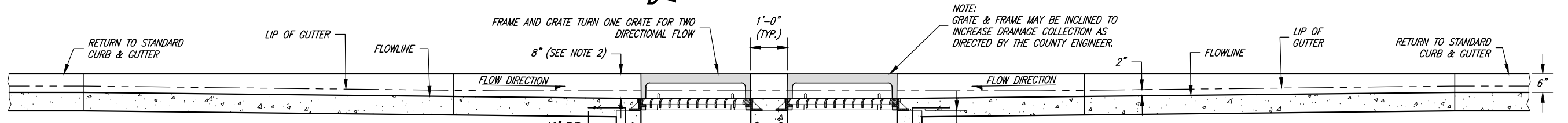
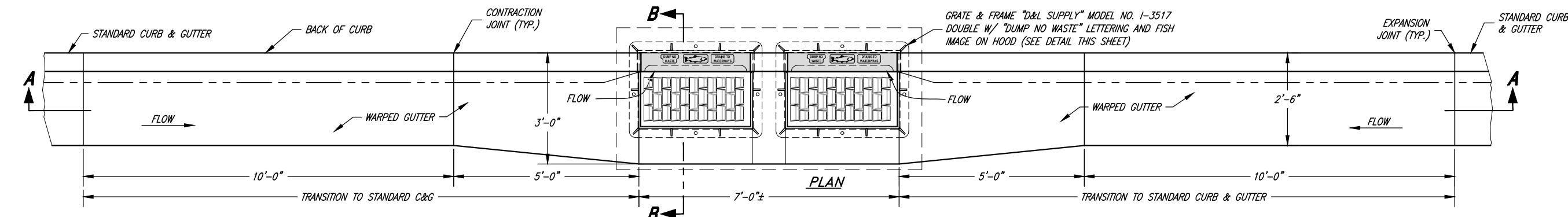
DESIGNED: BEB
DRAWN: BEB
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BOX ELDER COUNTY
PUBLIC WORKS STANDARD DRAWINGS
SINGLE CATCH BASIN DETAILS

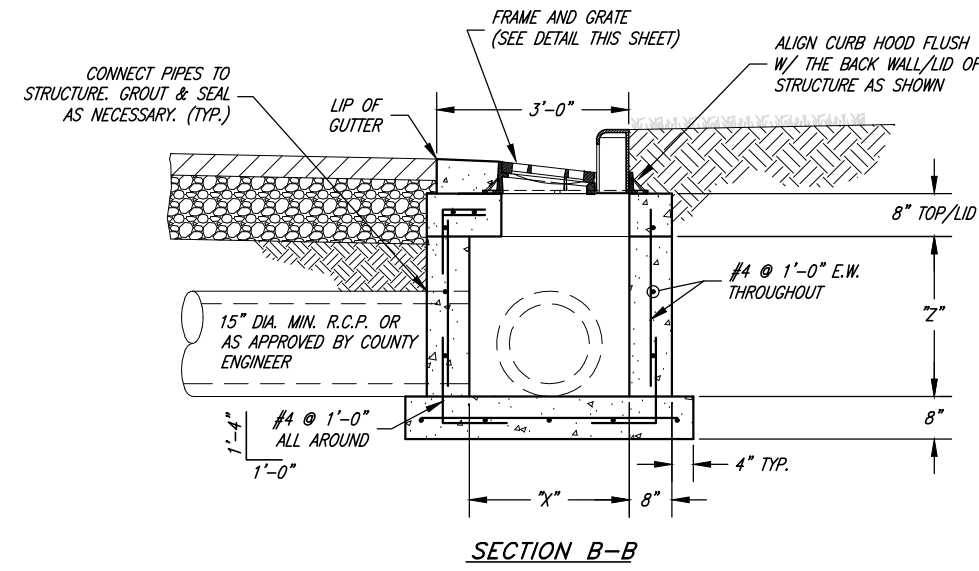
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OF 1 SHEETS
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CURB HOOD INLET FRAME & TYPE "L" GRATE

"D&L SUPPLY" I-3517	
PRODUCT NUMBER:	
GRATE:	I-3517-02
ADJ HOOD:	I-3516-13
FRAME:	I-3516-R8

- CURB HOOD NOTES:**
- A. 13 1/8" APPROXIMATE MAXIMUM HEIGHT FOR THE ADJUSTABLE HOOD.
 - B. 9 9/16" APPROXIMATE MINIMUM HEIGHT FOR THE ADJUSTABLE HOOD.

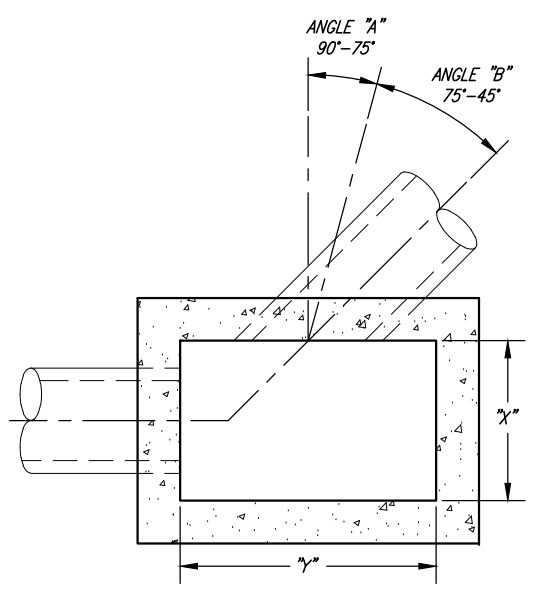


GENERAL NOTES:

1. ALL CATCH BASIN BOX SIZES REFLECT DIMENSIONS FOR THE MINIMUM 15" PIPE SIZE. BOX DIMENSIONS MUST INCREASE PROPORTIONALLY TO ACCOMMODATE LARGER PIPE SIZES.
2. DEPTH MAY VARY FROM 6" TO 10" AS DIRECTED BY THE COUNTY ENGINEER.
3. CAST-IN-PLACE CONCRETE CATCH BASINS CAN BE REPLACED WITH PRECAST CONCRETE CATCH BASINS WITH HL-93 DECK LOADING AND COMPARABLE SIZE.
4. ALL BOXES SHALL BE FORMED ON THE INSIDE AND OUTSIDE OF THE BOX AND INSPECTED BY THE COUNTY PRIOR TO THE PLACING OF CONCRETE.
5. DOUBLE CATCH BASINS WILL BE REQUIRED IN LOCATIONS SPECIFIED BY THE COUNTY ENGINEER (TYPICALLY IN LOW SPOTS, IN DOWNHILL CUL-DE-SACS, OR WHERE ADDITIONAL INLET CAPACITY IS NEEDED).
6. STORM DRAIN LINES SHALL BE 15 INCH MINIMUM DIAMETER REINFORCED CONCRETE PIPE (RCP), OF APPROPRIATE CLASS. OTHER MATERIALS SHALL BE AS APPROVED BY THE COUNTY ENGINEER AND THE COUNTY ROADS DEPARTMENT ON A CASE-BY-CASE BASIS.
7. ALTERNATE STRUCTURE (E.G. COMBO BOXES) MAY BE USED WITH APPROVAL OF THE COUNTY ENGINEER. STRUCTURES SHALL FOLLOW APWA STANDARD PLANS AND BE A COMMON SIZE.

CATCH BASIN DIMENSION TABLE

PIPE SIZE (IN.)	"X"	DOUBLE CATCH BASIN "Y" MIN. (ANGLE A)	"Y" MIN. (ANGLE B)	"Z" MIN.
15	2'-6"	6'-11"	6'-11"	2'-0"
18	2'-6"	6'-11"	6'-11"	2'-6"
21	4'-0"	6'-11"	6'-11"	3'-0"
24	4'-0"	6'-11"	6'-11"	3'-0"
30	4'-0"	6'-11"	6'-11"	3'-6"
36	4'-0"	6'-11"	6'-11"	4'-0"
42	6'-0"	6'-11"	8'-0"	5'-0"
48	6'-0"	6'-11"	8'-0"	5'-6"



 COUNTY ENGINEER AUGUST 2023		
REV.	DATE	APPR.

SCALE:	N. T.S.
DESIGNED:	BEB
DRAWN:	BEB
CHECKED:	BMJ

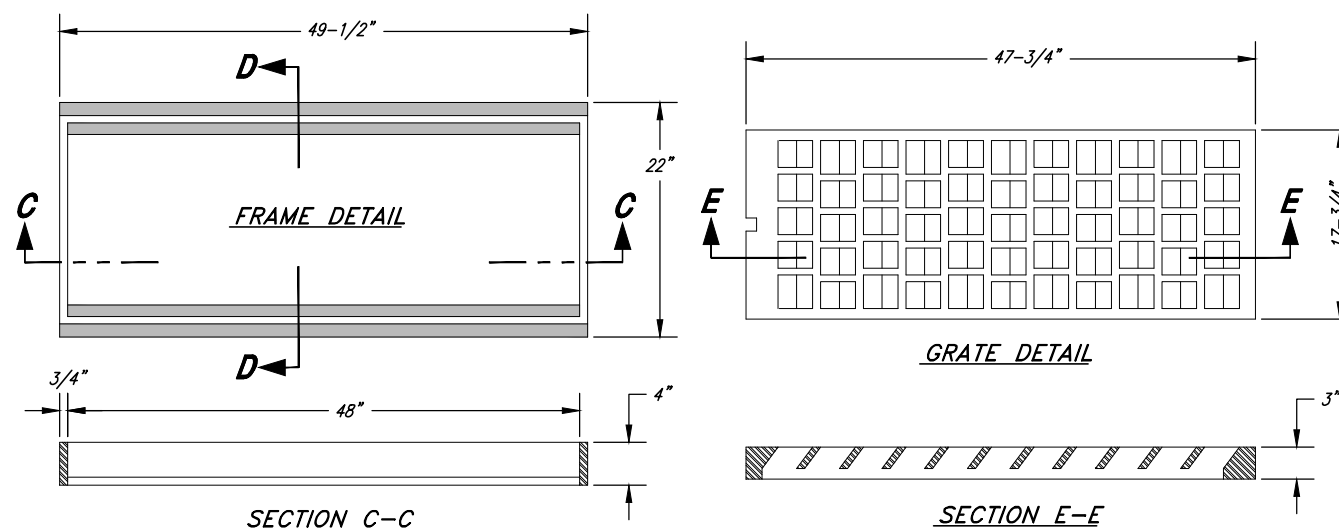
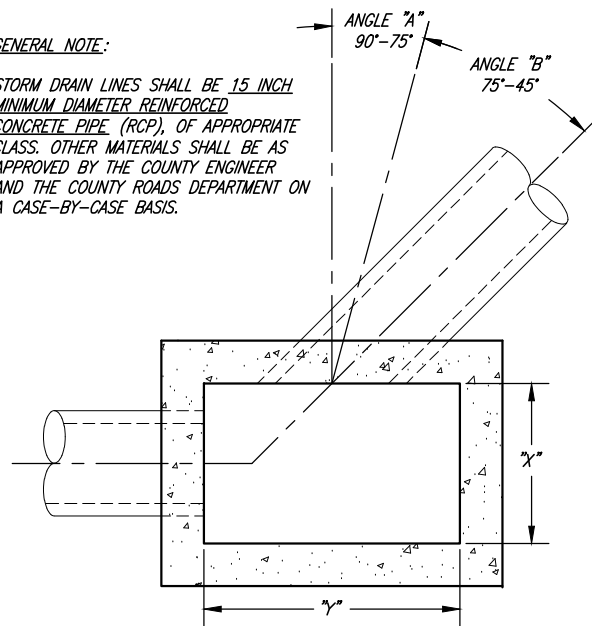
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BOX ELDER COUNTY
 PUBLIC WORKS STANDARD DRAWINGS
DOUBLE CATCH BASIN DETAILS

GENERAL NOTE:

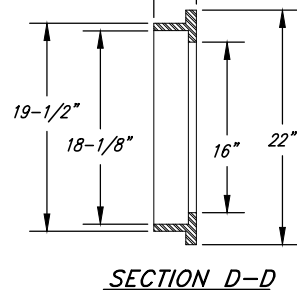
STORM DRAIN LINES SHALL BE 15 INCH MINIMUM DIAMETER REINFORCED CONCRETE PIPE (RCP), OF APPROPRIATE CLASS. OTHER MATERIALS SHALL BE AS APPROVED BY THE COUNTY ENGINEER AND THE COUNTY ROADS DEPARTMENT ON A CASE-BY-CASE BASIS.



FRAME & GRATE DETAILS

DRAINAGE DITCH INLET BOX DIMENSION TABLE

PIPE SIZE (IN.)	INLET BOX			"Z" MIN.
	"X"	"Y" (ANGLE A)	"Y" (ANGLE B)	
15	2'-6"	4'-0"	4'-0"	2'-0"
18	2'-6"	4'-0"	4'-0"	2'-6"
21	4'-0"	4'-0"	4'-0"	3'-0"
24	4'-0"	4'-0"	5'-0"	3'-0"
30	4'-0"	4'-0"	6'-0"	3'-6"
36	4'-0"	4'-0"	6'-0"	4'-0"
42	6'-0"	6'-0"	7'-0"	5'-0"
48	6'-0"	6'-0"	8'-0"	5'-6"

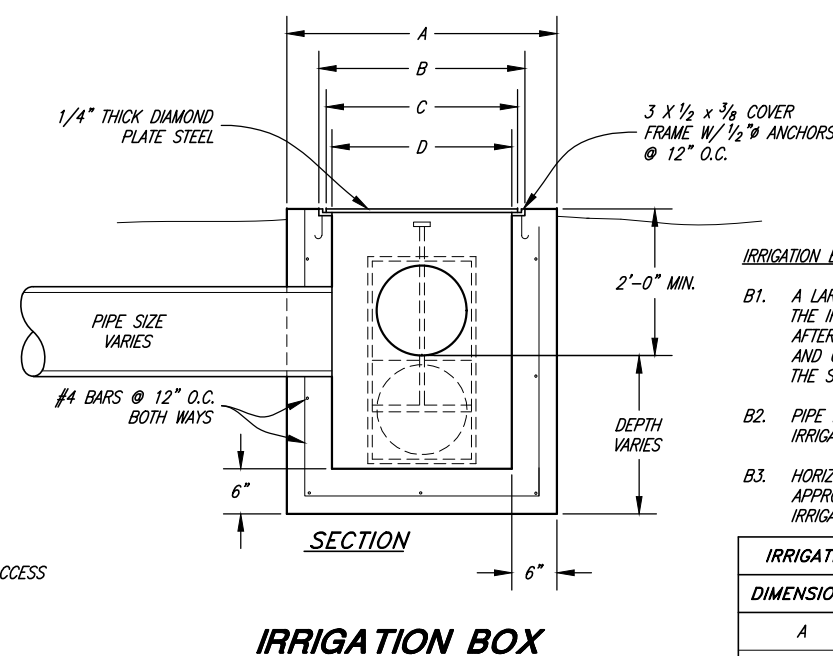
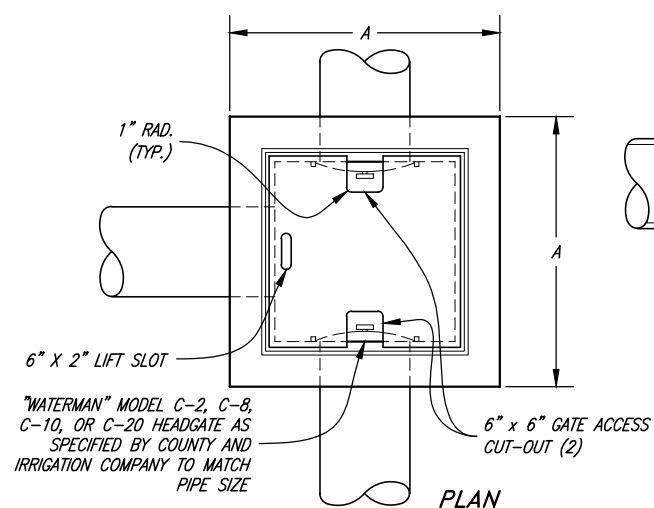
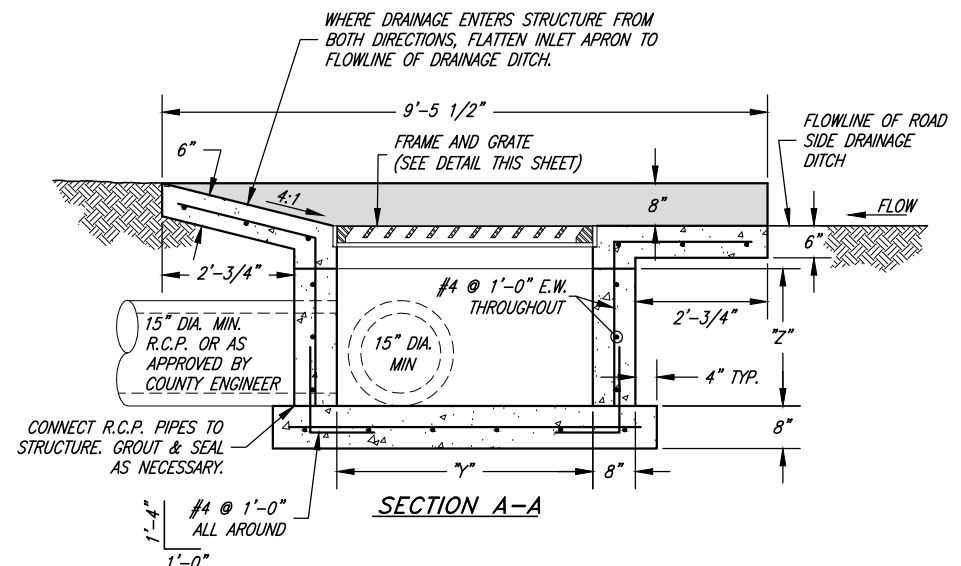
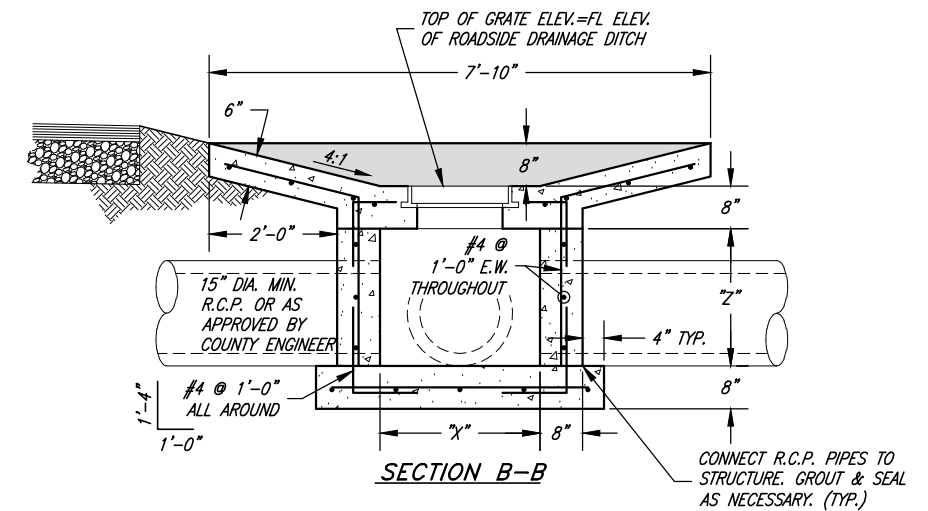


FRAME AND GRATE NOTES:

- A1. GRATE AND FRAME SHALL BE AS MANUFACTURED BY "D&L SUPPLY" I-1803
- A2. BICYCLE SAFE GRATE REQUIRED.
- A3. "OR EQUAL" GRATES AND FRAMES WILL BE CONSIDERED AS APPROVED BY THE COUNTY ENGINEER.

INLET BOX NOTES:

- 1. ALL BOX SIZES REFLECT DIMENSIONS FOR THE MINIMUM 15" PIPE SIZE. BOX DIMENSIONS MUST INCREASE PROPORTIONALLY TO ACCOMMODATE LARGER PIPE SIZES. (SEE TABLE THIS SHEET)
- 2. CAST-IN-PLACE CONCRETE STRUCTURES CAN BE REPLACED WITH PRECAST CONCRETE STRUCTURES WITH HL-93 DECK LOADING AND COMPARABLE SIZE.
- 3. ALL CAST-IN-PLACE BOXES SHALL BE FORMED ON THE INSIDE AND OUTSIDE OF THE BOX AND INSPECTED BY THE COUNTY PRIOR TO THE PLACING OF CONCRETE.

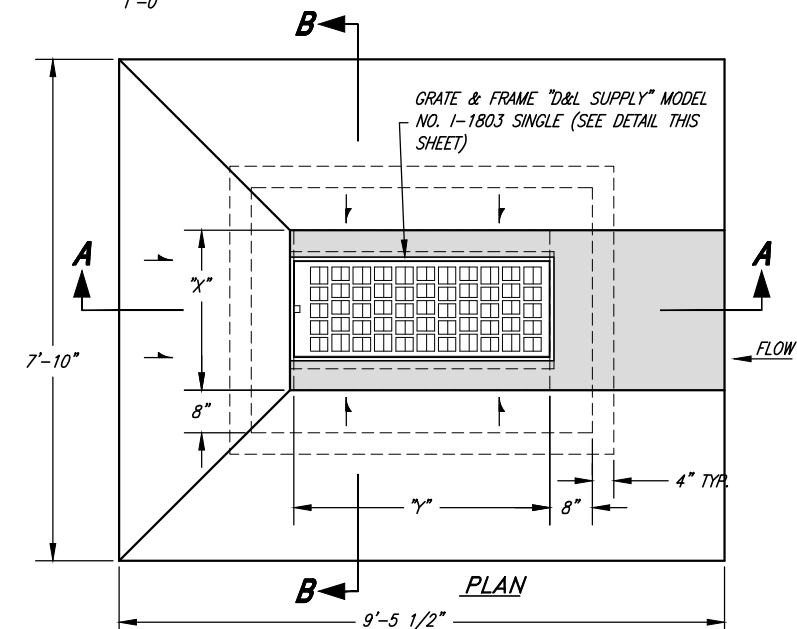


IRRIGATION BOX NOTES:

- B1. A LARGER IRRIGATION BOX MAY BE REQUIRED BY THE IRRIGATION DISTRICT OR COUNTY ENGINEER AFTER EVALUATION OF THE SIZE OF THE PIPES AND GATES TO BE ATTACHED OR CONNECTED TO THE STRUCTURE.
- B2. PIPE MATERIALS & SIZE SHALL BE APPROVED BY IRRIGATION COMPANY.
- B3. HORIZONTAL & VERTICAL ALIGNMENT TO BE APPROVED BY COUNTY ROADS DEPARTMENT & IRRIGATION COMPANY.

IRRIGATION BOX DIMENSION TABLE

DIMENSION	TYPE I	TYPE II
A	3'-0"	4'-0"
B	2'-1 1/2"	3'-1 1/2"
C	2'-1"	3'-1"
D	2'-0"	3'-0"



DRAINAGE DITCH / SWALE INLET BOX



Brett M. Jones
COUNTY ENGINEER
AUGUST 2023
DATE

REV.	DATE	APPR.

SCALE:

N. T.S.

DESIGNED BEB
DRAWN BEB
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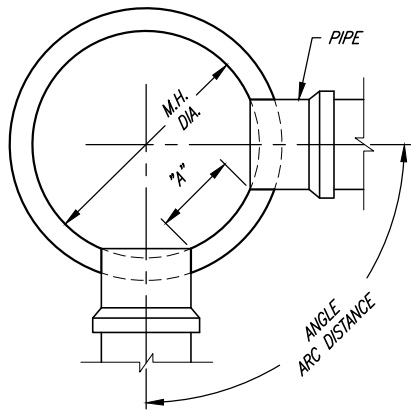
BOX ELDER COUNTY
PUBLIC WORKS STANDARD DRAWINGS
DRAINAGE INLET BOX, GENERAL GRATE AND FRAME, & IRRIGATION BOX DETAILS

SHEET:
CS-12
OF 1 SHEETS
0

PIPE SIZES		JUNCTION MANHOLE (ANGLE / ARC DISTANCE)										
M.H. SIZE	IN-LINE M.H. 180"	90°	85°	80°	75°	70°	65°	60°	55°	50°	45°	
4" M.H.	15"-24"	15"-18"	15"-18"	15"	15"	---	---	---	---	---	---	---
5" M.H.	27"-30"	21"-24"	21"-24"	18"-21"	18"-21"	15"-18"	15"-18"	15"	---	---	---	---
6" M.H.	36"-48"	27"-30"	27"-30"	24"-27"	24"	21"-24"	21"	18"	15"-18"	15"	---	---
7" M.H.	54"	36"	36"	30"	27"-30"	27"	24"	21"-24"	21"	18"	15"	---
8" M.H.	60"	42"	42"	36"	36"	30"	27"-30"	27"	24"	21"	18"	15"

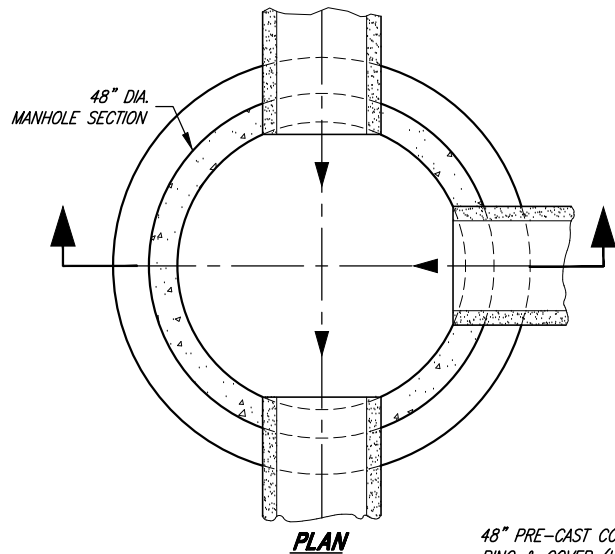
MANHOLE SIZING NOTES:

- SUGGESTED "A" DISTANCE IS 6" OR GREATER FOR 48", 60" AND 72" DIAMETER MANHOLES
- SUGGESTED "A" DISTANCE IS 8" OR GREATER FOR 84" AND 96" DIAMETER MANHOLES

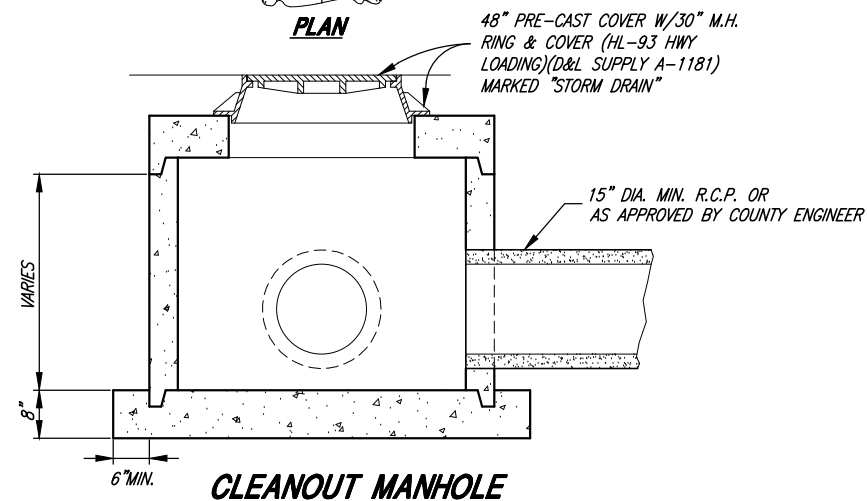


GENERAL NOTES:

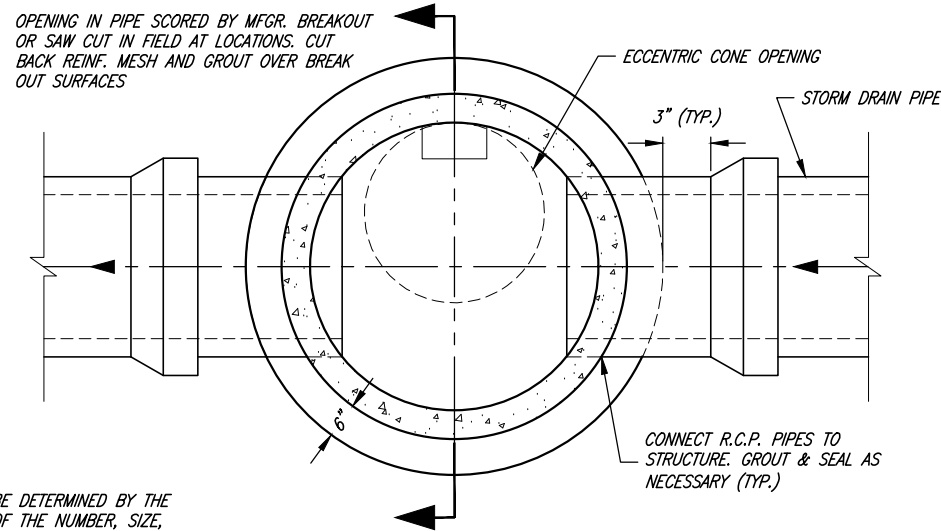
- STORM DRAIN MANHOLE DIAMETER TO BE DETERMINED BY THE COUNTY ENGINEER AFTER EVALUATION OF THE NUMBER, SIZE, AND PIPE ENTRY ANGLE OF THE PIPES THAT CONNECT TO THE MANHOLE.
- NO MORE THAN 12" OF GRADE RINGS TO BE ALLOWED ON ANY MANHOLE
- PLYWOOD COVERS SHALL BE USED AT MANHOLE FLOOR TO COVER FLOWLINE DURING CONSTRUCTION AND MAINTENANCE ACTIVITIES.
- ALL INTERIOR JOINTS SHALL BE SMOOTH AND EVENLY GROUTED WITH NON-SHRINK GROUT MIX.
- MANHOLE STEPS UNIFORMLY SPACED (1'-0" MAX) ON ALL MANHOLES. POLYPROPYLENE COVERED STEEL STEPS, MODEL PSI-PF AS MANUFACTURED BY "M.A. INDUSTRIES" OR APPROVED EQUAL - STEPS SHALL BE WATERPROOF.
- STORM DRAIN LINES SHALL BE 15 INCH MINIMUM DIAMETER REINFORCED CONCRETE PIPE (RCP), OF APPROPRIATE CLASS. OTHER MATERIALS SHALL BE AS APPROVED BY THE COUNTY ENGINEER AND THE COUNTY ROADS DEPARTMENT ON A CASE-BY-CASE BASIS.
- FLAT MANHOLE RINGS & COVERS (SLAB CONSTRUCTION) ARE NOT ALLOWED ON ANY MANHOLE CONE SECTION.
- THE USE OF STORM DRAIN UTILITY VAULTS (BOXES) WITH STD. 30" C.I. RING & COVER ("D&L SUPPLY" A-1181 MARKED "STORM DRAIN") AND A CONCRETE COLLAR IS ACCEPTED WHEN APPROVED BY THE COUNTY.



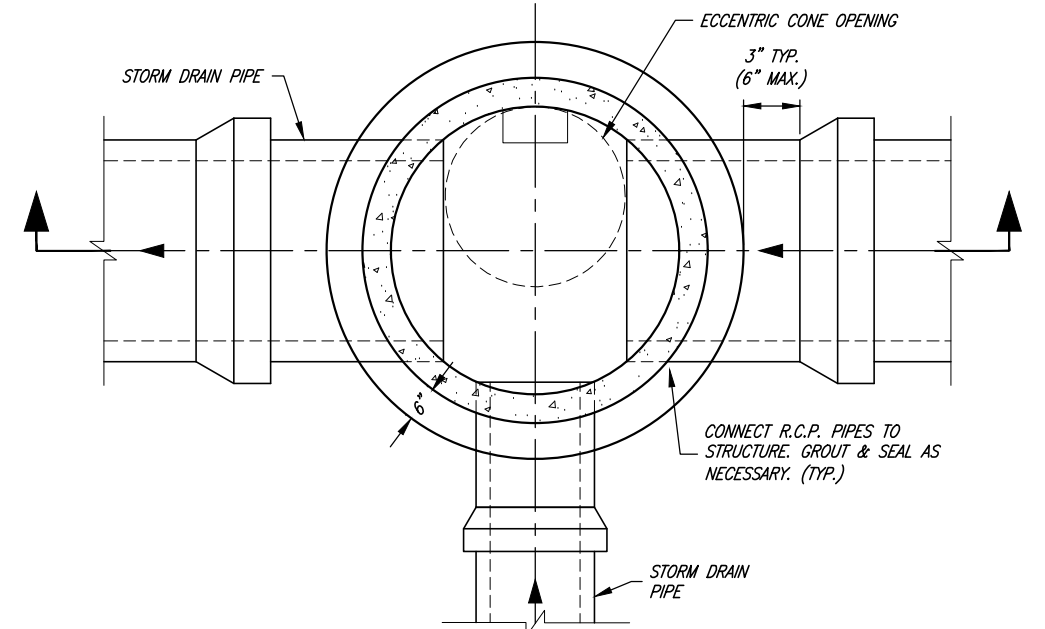
PLAN



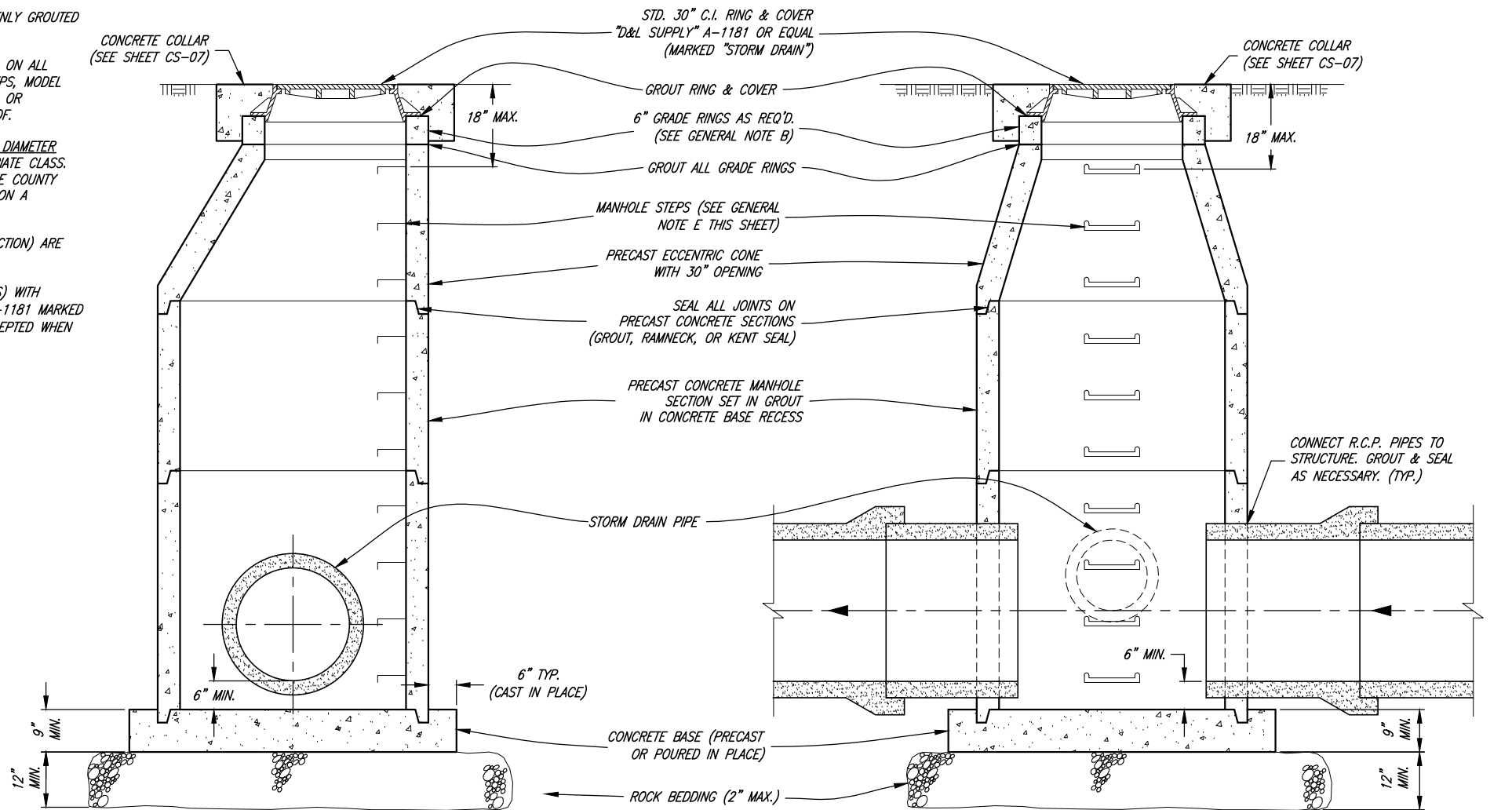
CLEANOUT MANHOLE



TYPICAL LINE MANHOLE



TYPICAL JUNCTION MANHOLE



DESIGNED	BEB
DRAWN	BEB
CHECKED	BMJ

SCALE:	N. T.S.
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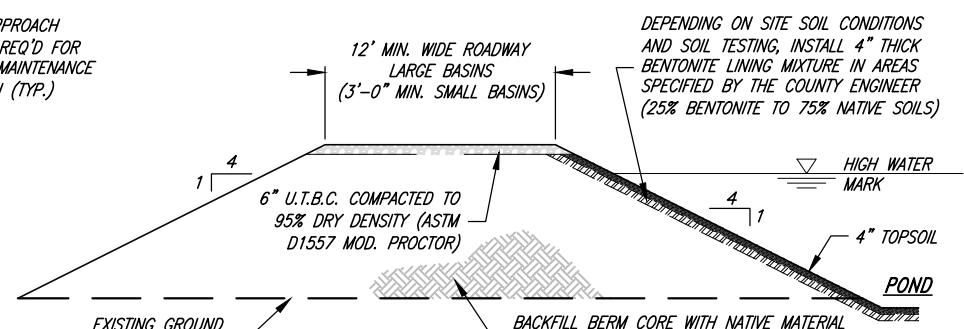
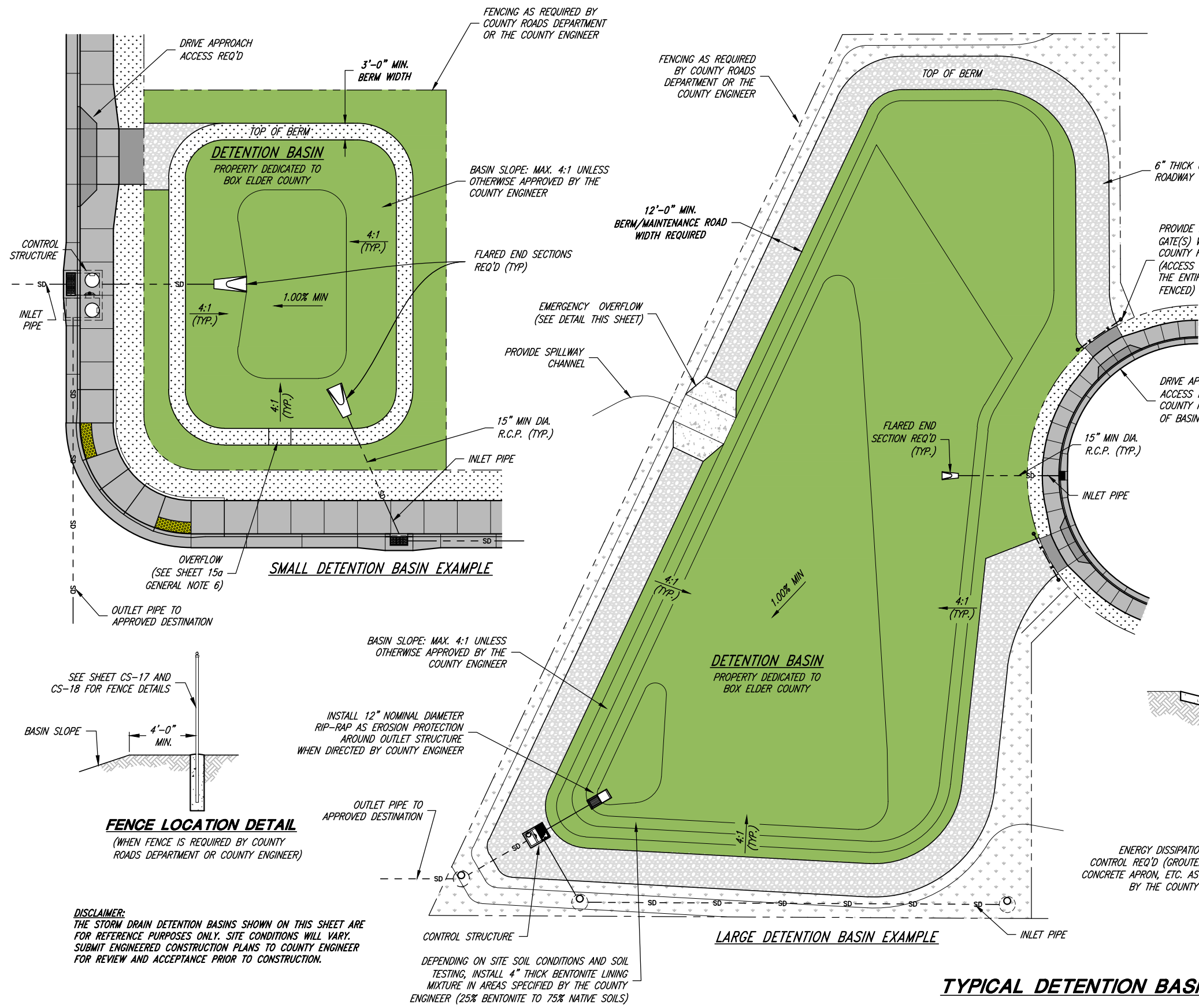
J&A JONES & ASSOCIATES
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 6080 Fashion Point Drive
 South Ogden, Utah 84403 (801) 476-9767
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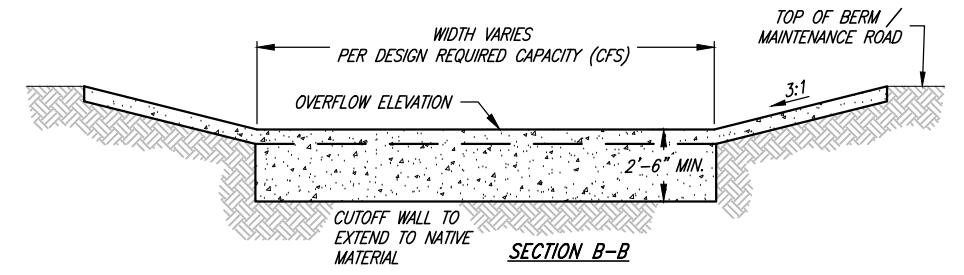
BOX ELDER COUNTY
PUBLIC WORKS STANDARD DRAWINGS
TYPICAL STORM DRAIN MANHOLE & CLEANOUT DETAILS

GENERAL NOTES:

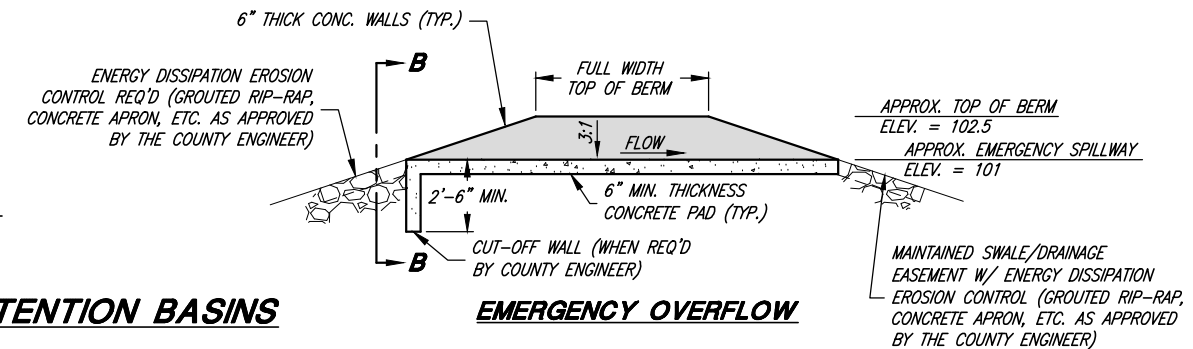
1. ALL BASINS REGARDLESS OF LOCAL OR REGIONAL SHALL BE DESIGNED TO ACCOMMODATE A 100 YEAR STORM EVENT.
2. A DAM SAFETY (UTAH DIVISION OF WATER RIGHTS) HAZARD PERMIT MAY BE REQUIRED.
3. STRUCTURE DESIGN AND FLOW CALCULATIONS MUST BE APPROVED BY COUNTY ENGINEER PRIOR TO CONSTRUCTION.
4. STORM DRAIN LINES SHALL BE 15 INCH MINIMUM DIAMETER REINFORCED CONCRETE PIPE (RCP), OF APPROPRIATE CLASS. OTHER MATERIALS SHALL BE AS APPROVED BY THE COUNTY ENGINEER AND THE COUNTY ROADS DEPARTMENT ON A CASE-BY-CASE BASIS.
5. ALL DETENTION BASINS SHALL BE LANDSCAPED AS DIRECTED BY THE COUNTY ROAD DEPARTMENT. THE TYPE OR STYLE OF LANDSCAPING TO BE DETERMINED ON A CASE-BY-CASE BASIS PER THE AVAILABILITY OF AN IRRIGATION SUPPLY SYSTEM.
6. LOW FLOWS MUST BE PIPED CONTINUOUSLY TO THE CONTROL STRUCTURE. NO OPEN FLOW IS PERMITTED THROUGH THE BASIN.
7. INCLINED GRATES ARE REQUIRED ON ALL PIPES/INLETS WHERE OPEN CHANNELS, DITCHES, OR PONDS DISCHARGE DIRECTLY INTO THE STORM DRAIN SYSTEM.
8. AN INTERNAL SPILLWAY MAY BE CONSTRUCTED INSIDE THE STRUCTURE DEPENDING ON SITE CONDITIONS AND ELEVATIONS.
9. BASIN STRUCTURES ARE DETERMINED BY THE SIZE OF THE DETENTION BASIN OR AS REQUIRED BY THE COUNTY ENGINEER. (SEE SHEET CS-15 OR CS-15a)
 - a. SMALL DETENTION BASIN: LESS THAN OR EQUAL TO 1 ACRE FOOT
 - b. LARGE DETENTION BASIN: GREATER THAN 1 ACRE FOOT



TYPICAL BERM / MAINTENANCE ROADWAY SECTION
(N.T.S.)



SECTION B-B



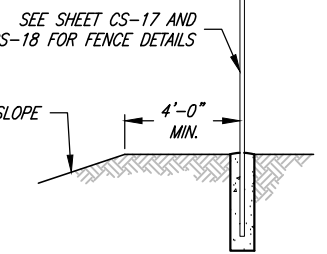
EMERGENCY OVERFLOW

TYPICAL DETENTION BASINS

SMALL DETENTION BASIN EXAMPLE

DETENTION BASIN
PROPERTY DEDICATED TO BOX ELDER COUNTY

LARGE DETENTION BASIN EXAMPLE



FENCE LOCATION DETAIL

(WHEN FENCE IS REQUIRED BY COUNTY ROADS DEPARTMENT OR COUNTY ENGINEER)

DISCLAIMER:
THE STORM DRAIN DETENTION BASINS SHOWN ON THIS SHEET ARE FOR REFERENCE PURPOSES ONLY. SITE CONDITIONS WILL VARY. SUBMIT ENGINEERED CONSTRUCTION PLANS TO COUNTY ENGINEER FOR REVIEW AND ACCEPTANCE PRIOR TO CONSTRUCTION.



Brett M. Jones
COUNTY ENGINEER
AUGUST 2023

REV.	DATE	APPR.

SCALE:
N. T.S.

DESIGNED: BEB
DRAWN: BEB
CHECKED: B.M.J.



CONSULTING ENGINEERS
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South Ogden, Utah 84403 (801) 476-9767
www.jonescivil.com



BOX ELDER COUNTY
PUBLIC WORKS STANDARD DRAWINGS

TYPICAL STORM DRAIN DETENTION BASIN DETAILS

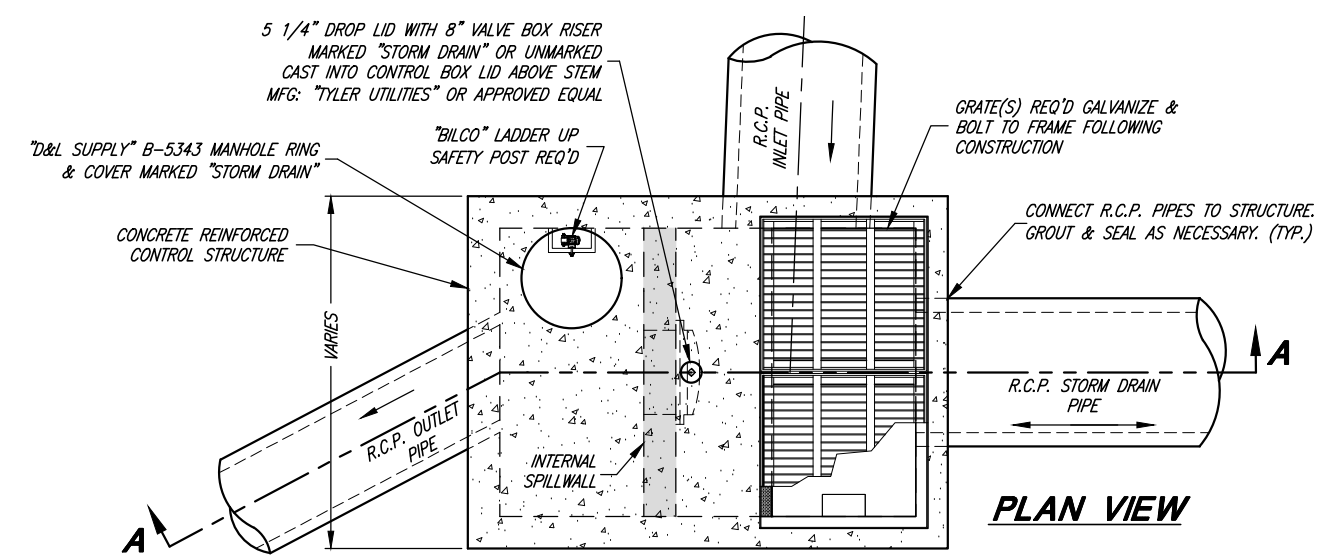
SHEET:
CS-14
OF 1 SHEETS
0

GENERAL NOTES:

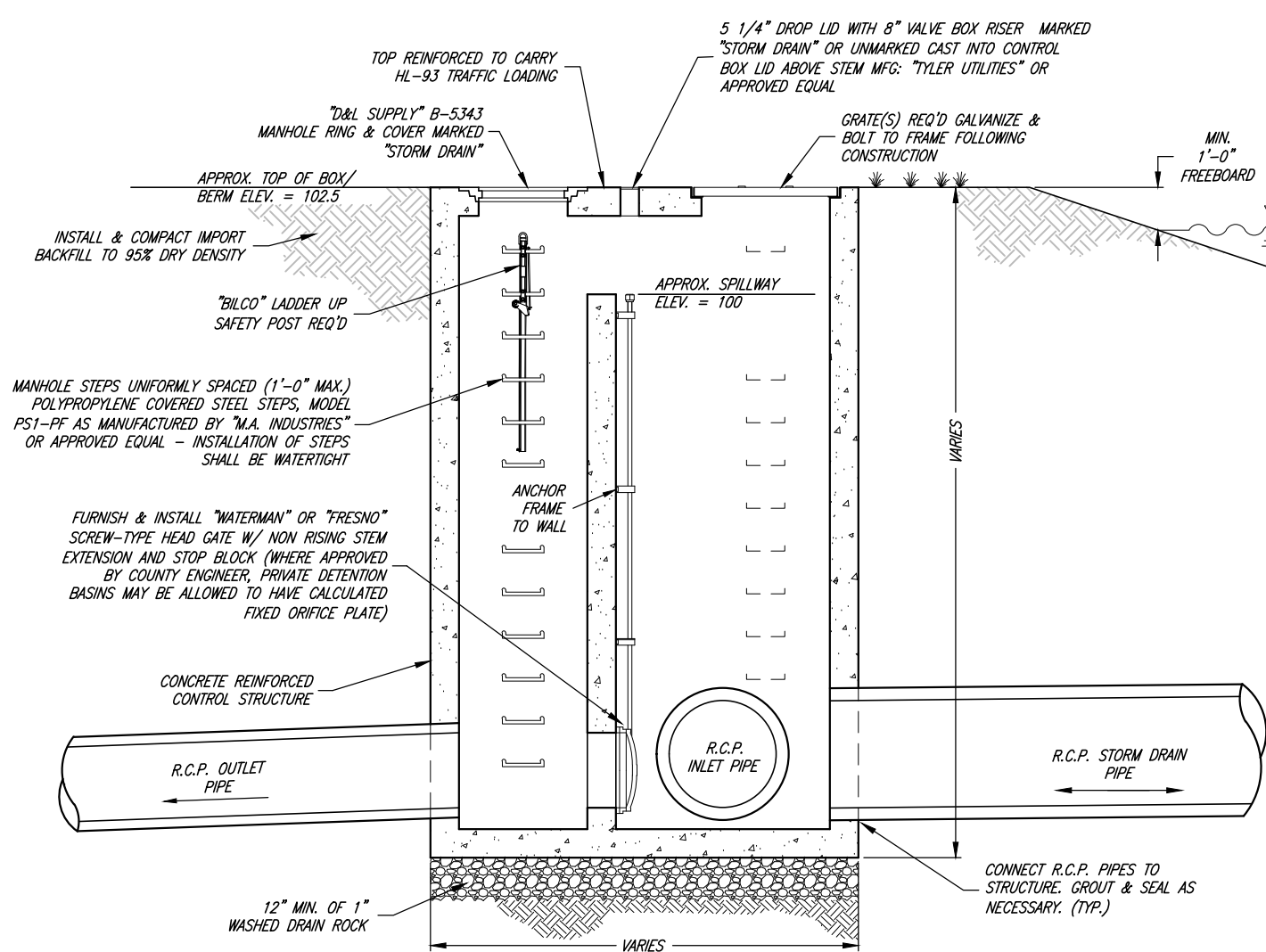
1. STRUCTURE DESIGN AND FLOW CALCULATIONS MUST BE APPROVED BY COUNTY ENGINEER PRIOR TO CONSTRUCTION.
2. STORM DRAIN LINES SHALL BE 15 INCH MINIMUM DIAMETER REINFORCED CONCRETE PIPE (RCP), OF APPROPRIATE CLASS. OTHER MATERIALS SHALL BE AS APPROVED BY THE COUNTY ENGINEER AND THE COUNTY ROADS DEPARTMENT ON A CASE-BY-CASE BASIS.
3. GRATES SHALL BE REMOVABLE FOR MAINTENANCE PURPOSES
4. TRASH RACK GRATE SHALL BE HOT DIPPED GALVANIZED WITH BARS AT MAXIMUM 3 INCH SPACING.
5. INCLINED GRATES ARE REQUIRED ON ALL PIPES/INLETS WHERE OPEN CHANNELS, DITCHES, OR PONDS DISCHARGE DIRECTLY INTO THE STORM DRAIN SYSTEM.
6. AN INTERNAL SPILLWAY MAY BE CONSTRUCTED INSIDE THE STRUCTURE DEPENDING ON SITE CONDITIONS AND ELEVATIONS.

STRUCTURAL NOTES:

- A. PRECAST CONCRETE STRUCTURE CAN BE REPLACED WITH CAST-IN-PLACE CONCRETE VAULT. SUBMIT ENGINEERED CONSTRUCTION PLANS WITH REBAR DETAILS TO COUNTY ENGINEER FOR REVIEW AND ACCEPTANCE PRIOR TO CONSTRUCTION.
- B. ADD REINFORCEMENT AROUND OPENINGS EQUAL TO REINFORCEMENT DISPLACED BY OPENING.
- C. THE PRECAST VAULT MANUFACTURER IS RESPONSIBLE FOR DESIGN RELATED TO TRAFFIC LOADING AND THRUST. VERIFICATION OF PROPER DESIGN MUST BE PROVIDED TO THE COUNTY BY THE DEVELOPER, CONTRACTOR, OR PROPERTY OWNER AS THE CASE MAY BE.
- D. REINFORCEMENT TO CONFORM WITH ASTM A 615 GRADE 60
- E. CONCRETE SHALL HAVE A 28-DAY COMPRESSIVE STRENGTH OF 5,000 PSI
- F. USE AN AIR-ENTRAINING AGENT ON ALL CONCRETE EXPOSED TO THE WEATHER.
- G. HL-93 LOADING

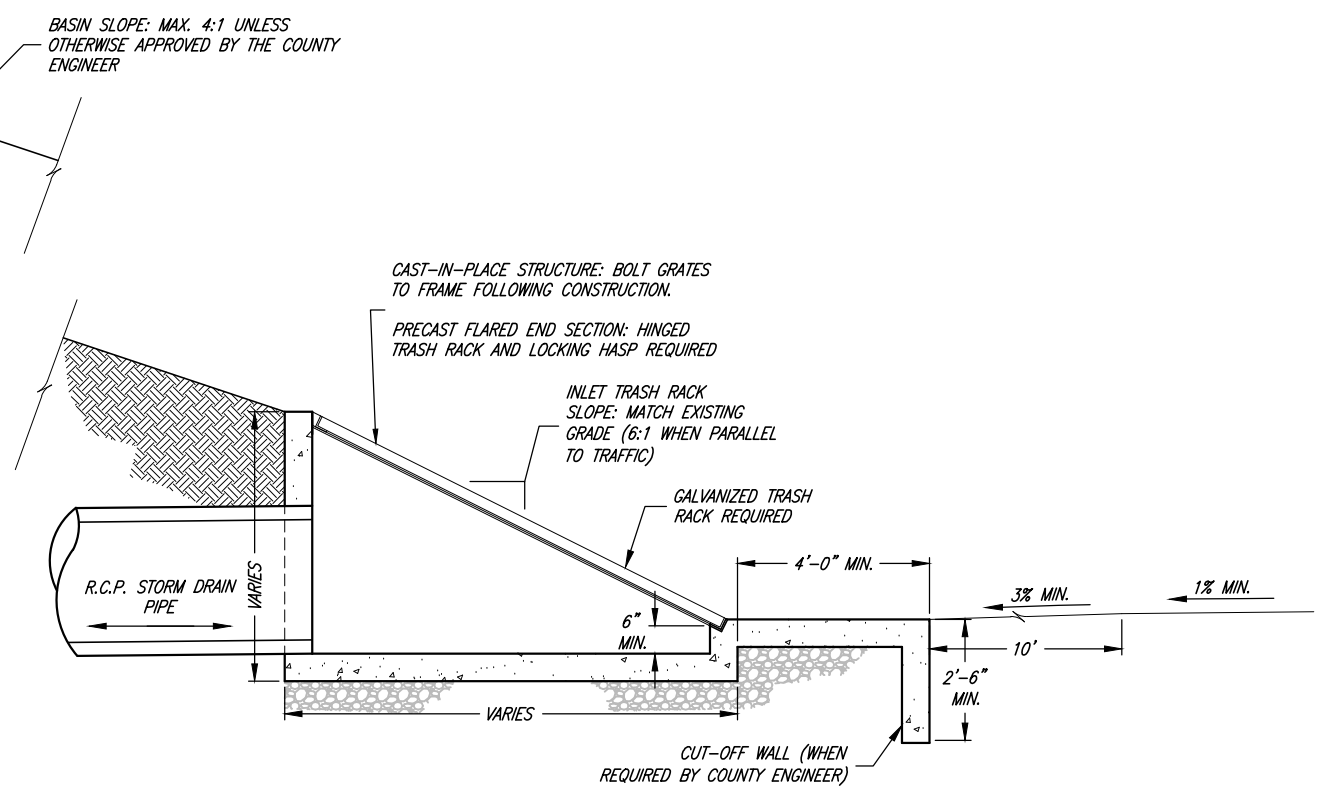


DETENTION INLET/OUTLET CONTROL STRUCTURE
(PRECAST OR CAST-IN-PLACE)



SECTION A-A

LARGE STORM DRAIN DETENTION BASIN CONTROL STRUCTURE DETAILS



INCLINED GRATE STORM DRAIN INLET



Brett M. Jones
COUNTY ENGINEER
AUGUST 2023
DATE

REV.	DATE	APPR.

SCALE:
N. T. S.

DESIGNED BEB
DRAWN BEB
CHECKED BMJ



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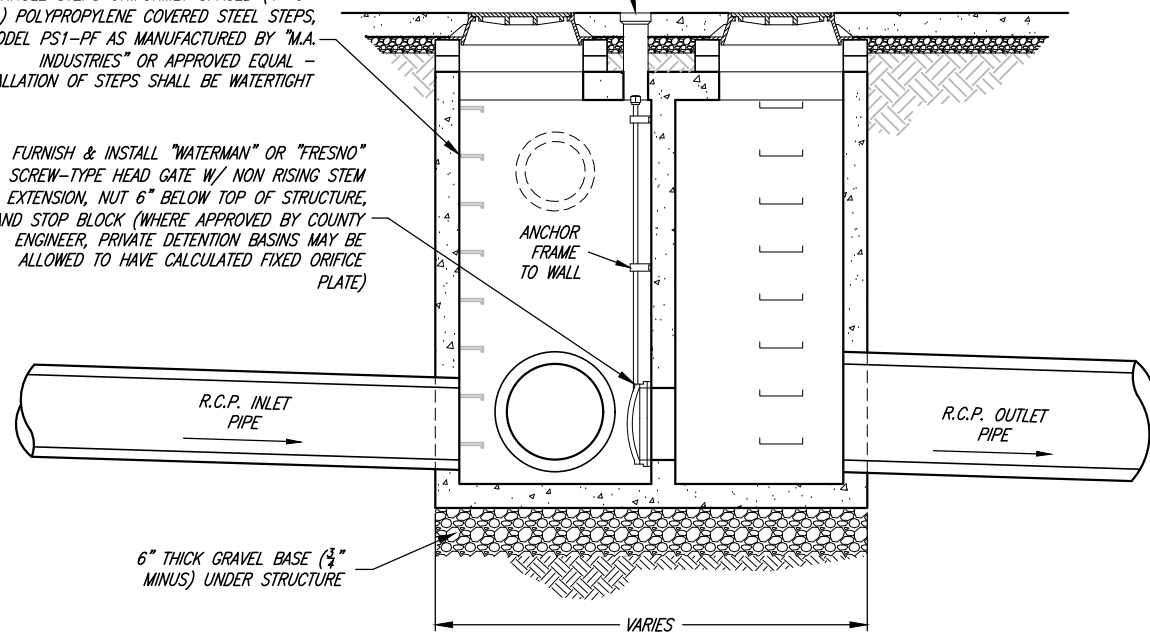
BOX ELDER COUNTY
PUBLIC WORKS STANDARD DRAWINGS
LARGE STORM DRAIN DETENTION BASIN CONTROL STRUCTURE DETAILS

SHEET:
CS-15
OF 1 SHEETS
0

VALVE BOX AND LID MARKED "STORM DRAIN"
OR UNMARKED CAST INTO CONTROL BOX LID ABOVE STEM
MFG: "TYLER UTILITIES" OR APPROVED EQUAL

MANHOLE STEPS UNIFORMLY SPACED (1'-0"
MAX.) POLYPROPYLENE COVERED STEEL STEPS,
MODEL PS1-PF AS MANUFACTURED BY "M.A.
INDUSTRIES" OR APPROVED EQUAL -
INSTALLATION OF STEPS SHALL BE WATERTIGHT

FURNISH & INSTALL "WATERMAN" OR "FRESNO"
SCREW-TYPE HEAD GATE W/ NON RISING STEM
EXTENSION, NUT 6" BELOW TOP OF STRUCTURE,
AND STOP BLOCK (WHERE APPROVED BY COUNTY
ENGINEER, PRIVATE DETENTION BASINS MAY BE
ALLOWED TO HAVE CALCULATED FIXED ORIFICE
PLATE)



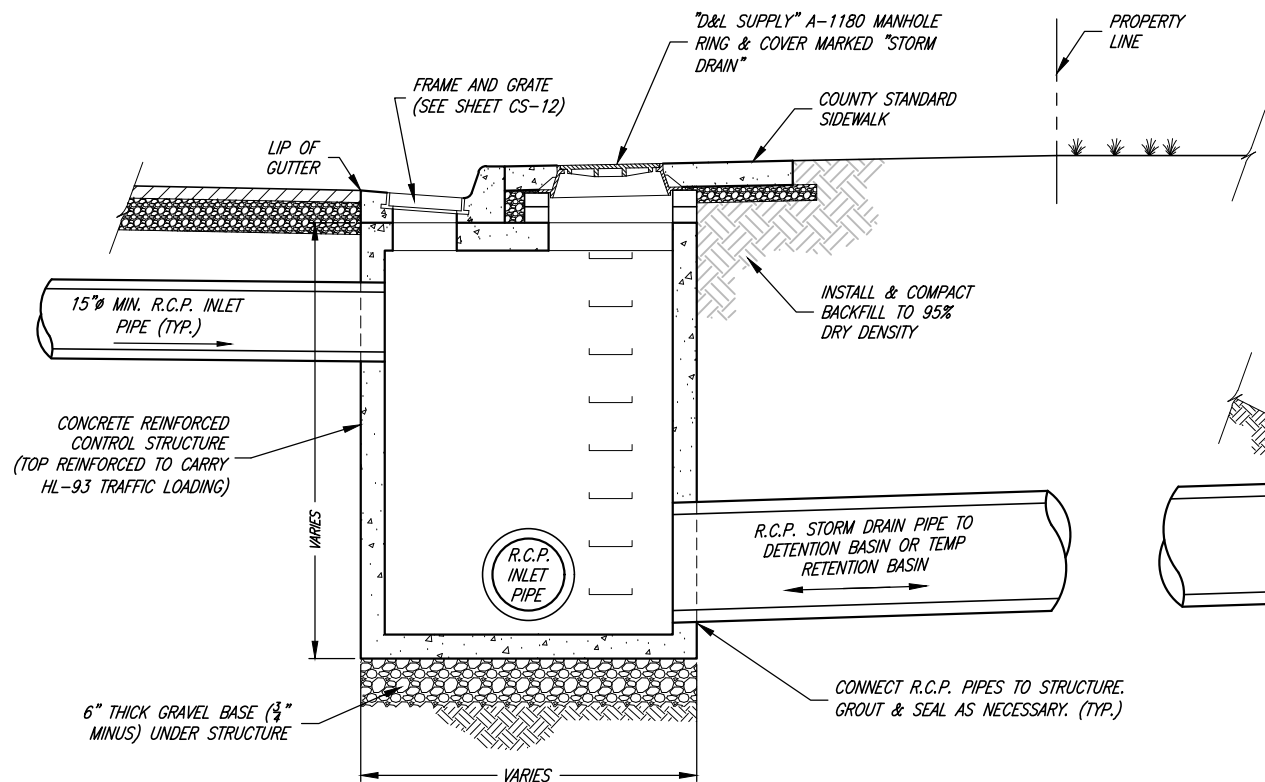
SECTION B-B

GENERAL NOTES:

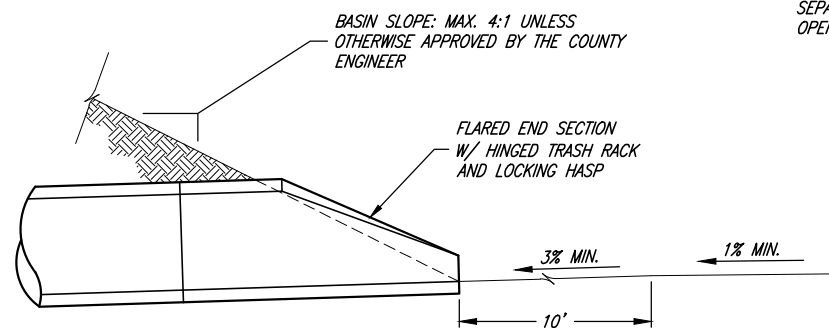
1. STRUCTURE DESIGN AND FLOW CALCULATIONS MUST BE APPROVED BY COUNTY ENGINEER PRIOR TO CONSTRUCTION.
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3. GRATES SHALL BE REMOVABLE FOR MAINTENANCE PURPOSES
4. TRASH RACK GRATE SHALL BE HOT DIPPED GALVANIZED WITH BARS AT MAXIMUM 3 INCH SPACING.
5. INCLINED GRATES ARE REQUIRED ON ALL PIPES/INLETS WHERE OPEN CHANNELS, DITCHES, OR PONDS DISCHARGE DIRECTLY INTO THE STORM DRAIN SYSTEM.
6. AN INTERNAL SPILLWAY MAY BE CONSTRUCTED INSIDE THE STRUCTURE DEPENDING ON SITE CONDITIONS AND ELEVATIONS.

STRUCTURAL NOTES:

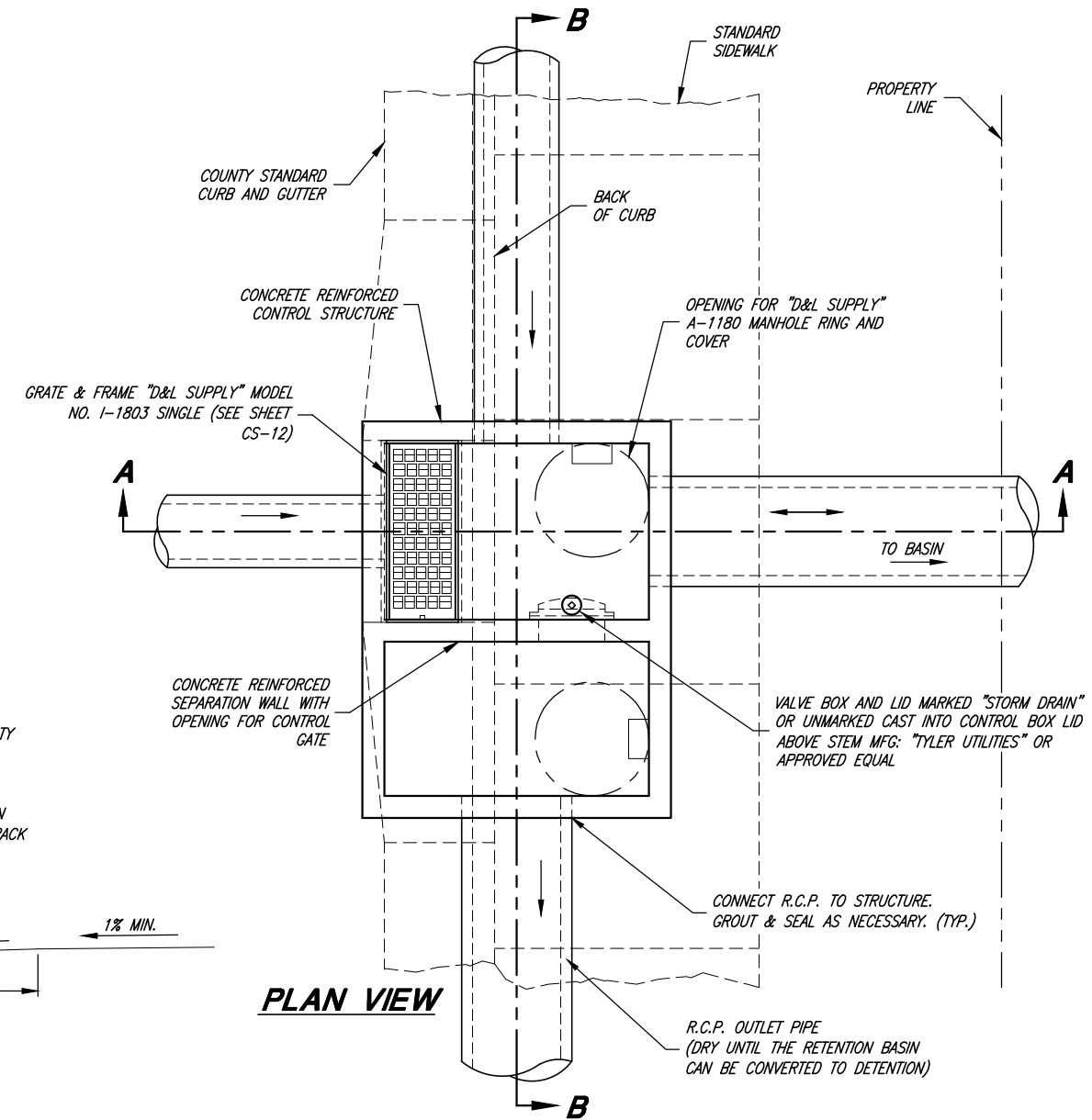
- A. PRECAST CONCRETE STRUCTURE CAN BE REPLACED WITH CAST-IN-PLACE CONCRETE VAULT. SUBMIT ENGINEERED CONSTRUCTION PLANS WITH REBAR DETAILS TO COUNTY ENGINEER FOR REVIEW AND ACCEPTANCE PRIOR TO CONSTRUCTION.
- B. ADD REINFORCEMENT AROUND OPENINGS EQUAL TO REINFORCEMENT DISPLACED BY OPENING.
- C. THE PRECAST VAULT MANUFACTURER IS RESPONSIBLE FOR DESIGN RELATED TO TRAFFIC LOADING AND THRUST. VERIFICATION OF PROPER DESIGN MUST BE PROVIDED TO THE COUNTY BY THE DEVELOPER, CONTRACTOR, OR PROPERTY OWNER AS THE CASE MAY BE.
- D. REINFORCEMENT TO CONFORM WITH ASTM A 615 GRADE 60
- E. CONCRETE SHALL HAVE A 28-DAY COMPRESSIVE STRENGTH OF 5,000 PSI
- F. USE AN AIR-ENTRAINING AGENT ON ALL CONCRETE EXPOSED TO THE WEATHER.
- G. HL-93 LOADING



SECTION A-A



SMALL STORM DRAIN DETENTION BASIN CONTROL STRUCTURE DETAILS



PLAN VIEW

INLET/OUTLET CONTROL STRUCTURE

(PRECAST OR CAST-IN-PLACE)



Brett M. Jones
COUNTY ENGINEER
AUGUST 2023
DATE

REV.	DATE	APPR.

SCALE:
N. T.S.

DESIGNED BEB
DRAWN BEB
CHECKED BMJ

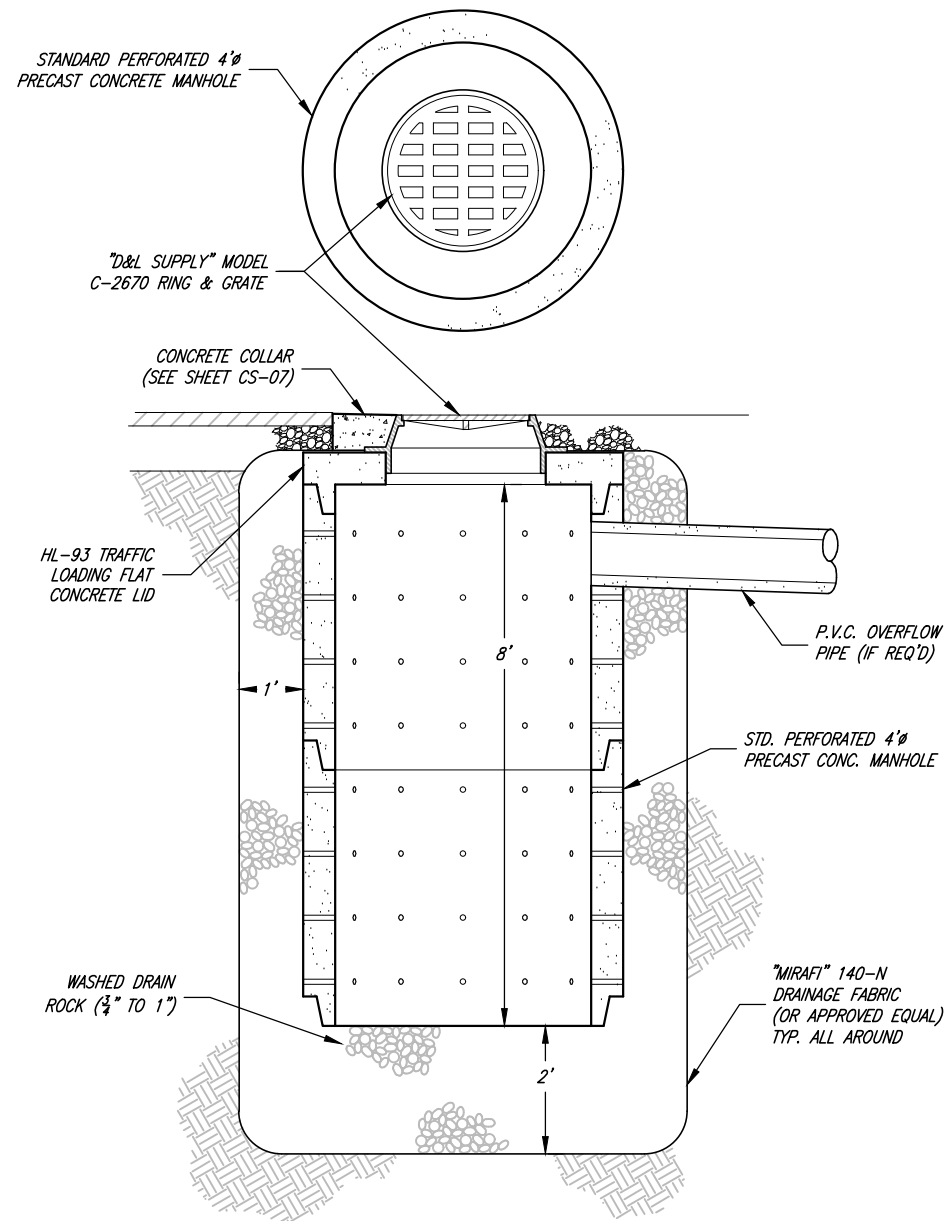


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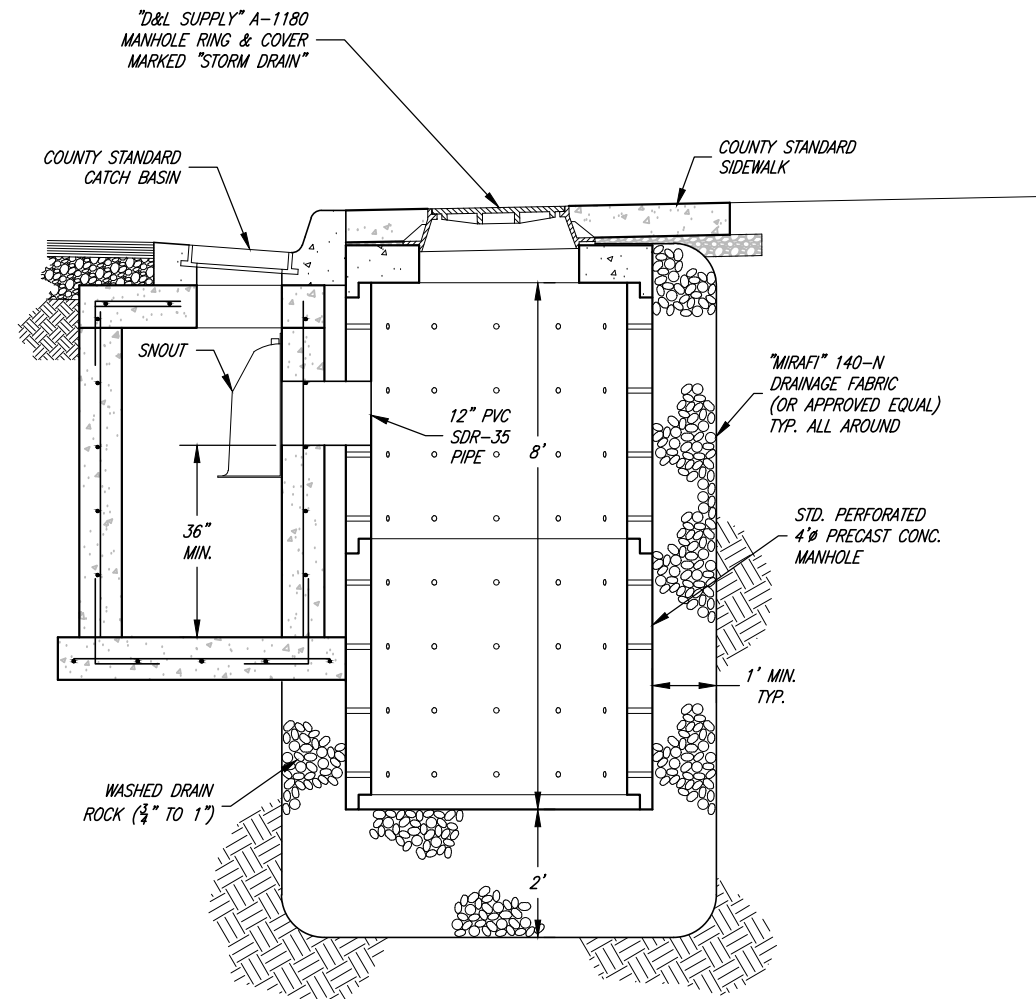


BOX ELDER COUNTY
PUBLIC WORKS STANDARD DRAWINGS
SMALL STORM DRAIN DETENTION BASIN CONTROL STRUCTURE DETAILS

SHEET:
CS-15a
OF 1 SHEETS
0



TYPICAL SUMP DETAIL
WHERE APPROVED BY THE COUNTY ENGINEER



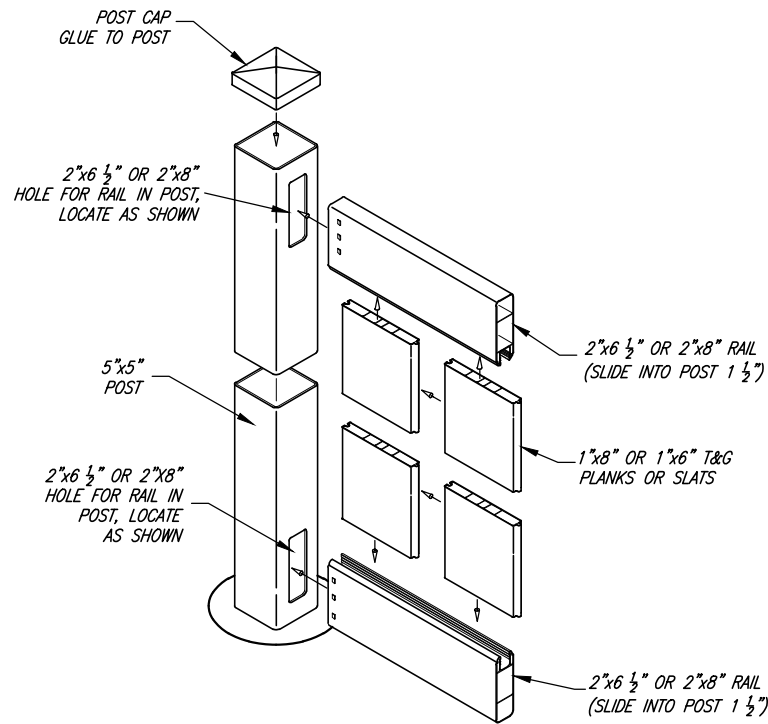
CURB INLET SUMP DETAIL
WHERE APPROVED BY THE COUNTY ENGINEER

GENERAL NOTE:

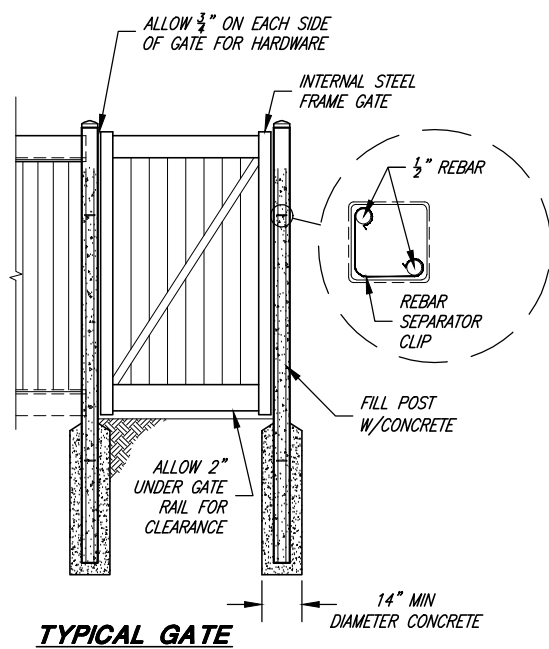
SUMPS ARE NOT ALLOWED IN THE COUNTY'S STORM DRAIN SYSTEM, EXCEPT AS APPROVED BY THE COUNTY ENGINEER ON A CASE-BY-CASE BASIS.



No. 5149637 Brett Marsden Jones COUNTY ENGINEER Brett M. Jones AUGUST 2023 DATE			SCALE: N. T.S.	DESIGNED <u>BEB</u> DRAWN <u>BEB</u> CHECKED <u>BMJ</u>		CONSULTING ENGINEERS 6080 Fashion Point Drive South Ogden, Utah 84403 (801) 476-9767 www.jonescivil.com		BOX ELDER COUNTY PUBLIC WORKS STANDARD DRAWINGS TYPICAL SUMP DETAILS	SHEET: CS-16 OF 1 SHEETS 0
REV.	DATE	APPR.							



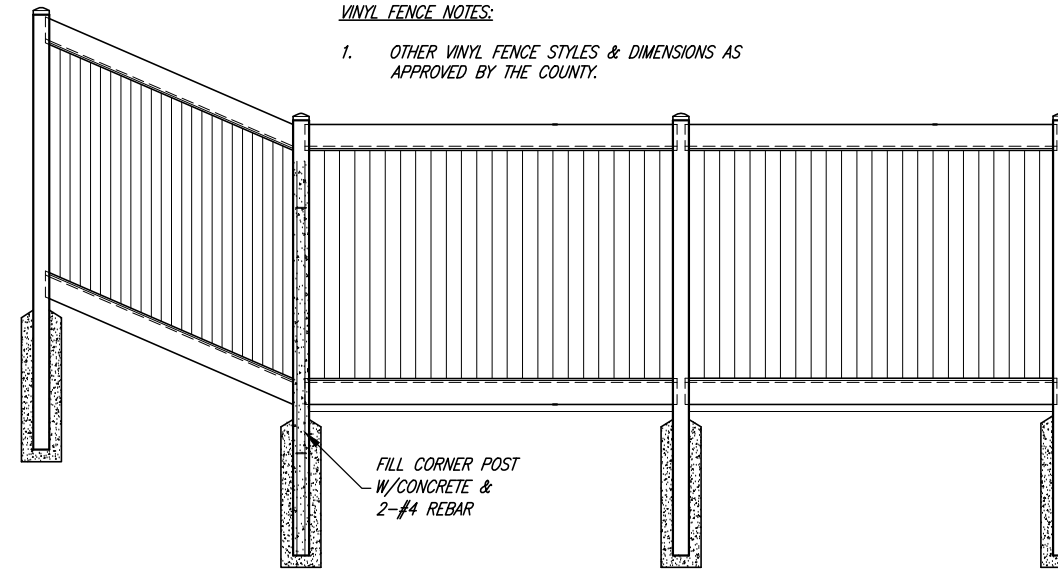
TYPICAL VINYL FENCE INSTALLATION DETAIL



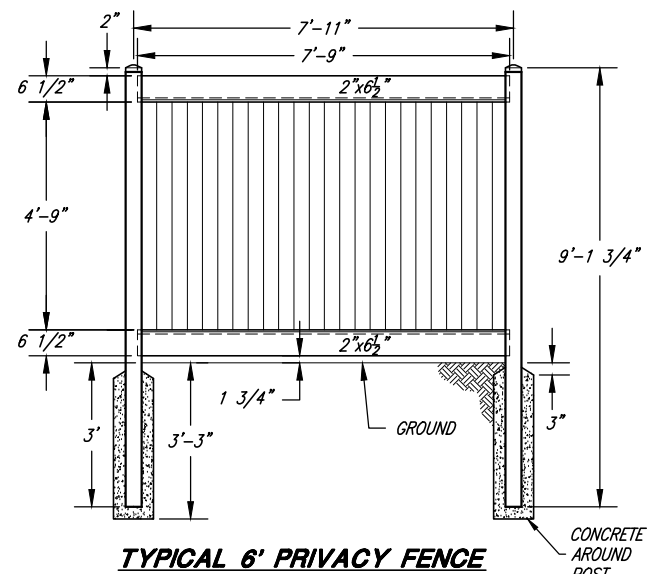
TYPICAL GATE

VINYL FENCE NOTES:

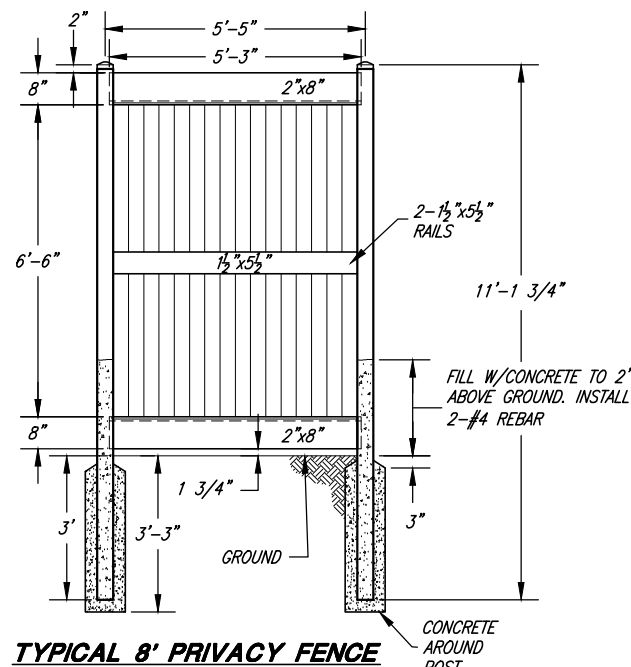
1. OTHER VINYL FENCE STYLES & DIMENSIONS AS APPROVED BY THE COUNTY.



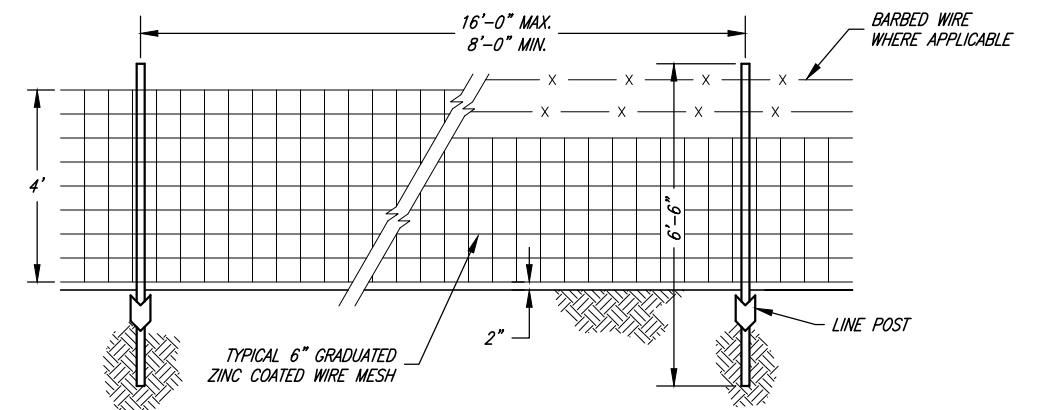
CORNER POST DETAIL



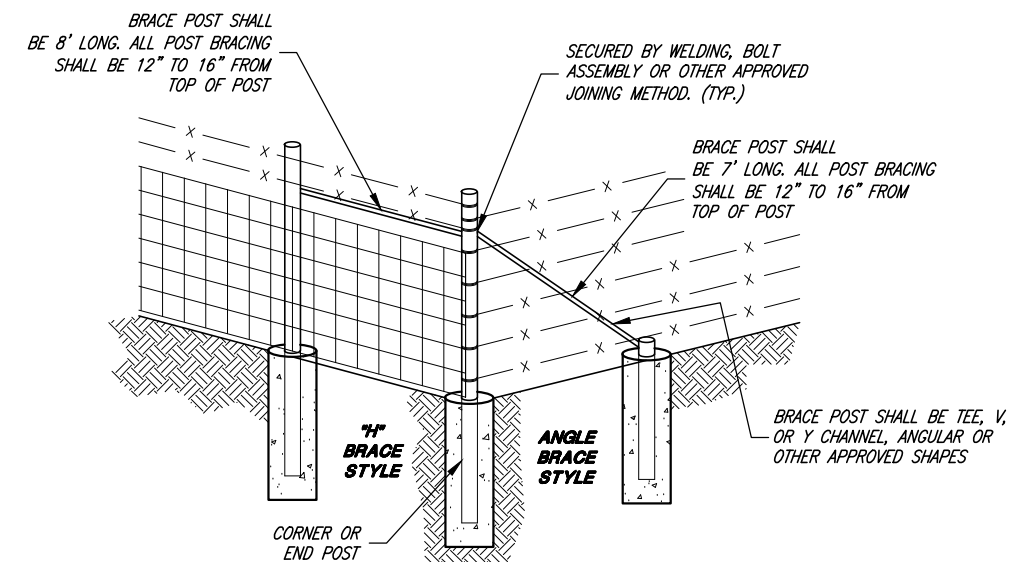
TYPICAL 6' PRIVACY FENCE



TYPICAL 8' PRIVACY FENCE



TYPICAL WIRE MESH FENCE



TYPICAL CORNER / END POST BRACING DETAIL

NOTE: THIS SHEET SPECIFIES VARIOUS FENCING TYPES TO BE CONSTRUCTED WHEN CALLED FOR BY THE COUNTY ENGINEER.



Brett M. Jones
COUNTY ENGINEER
AUGUST 2023
DATE

REV.	DATE	APPR.

SCALE: N. T.S.
DESIGNED: BEB
DRAWN: BEB
CHECKED: BMJ

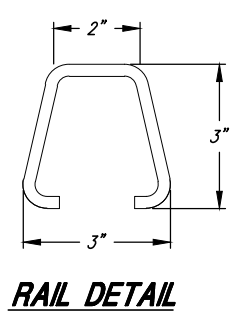
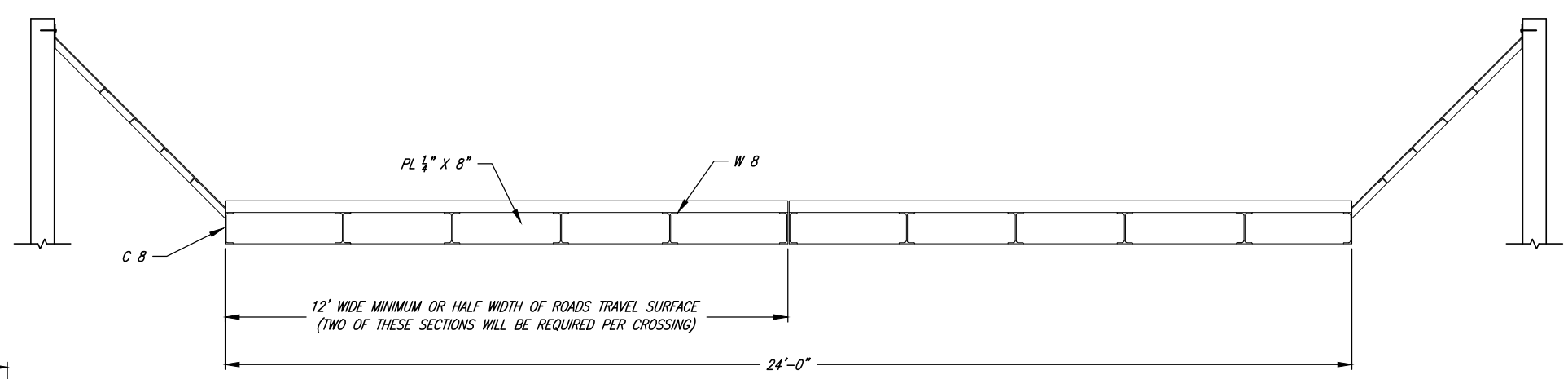
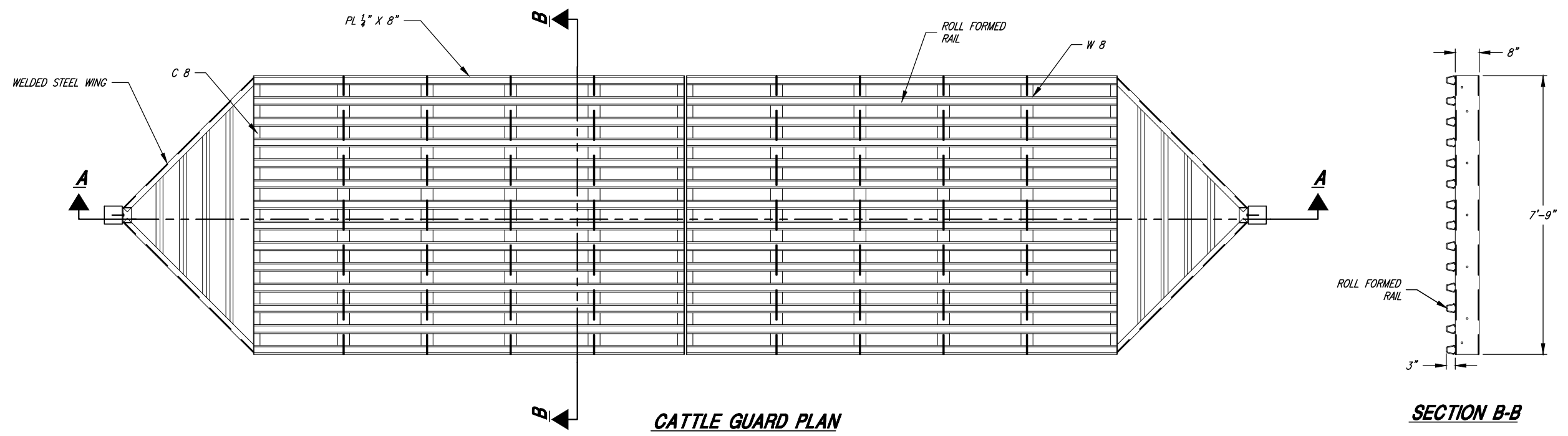


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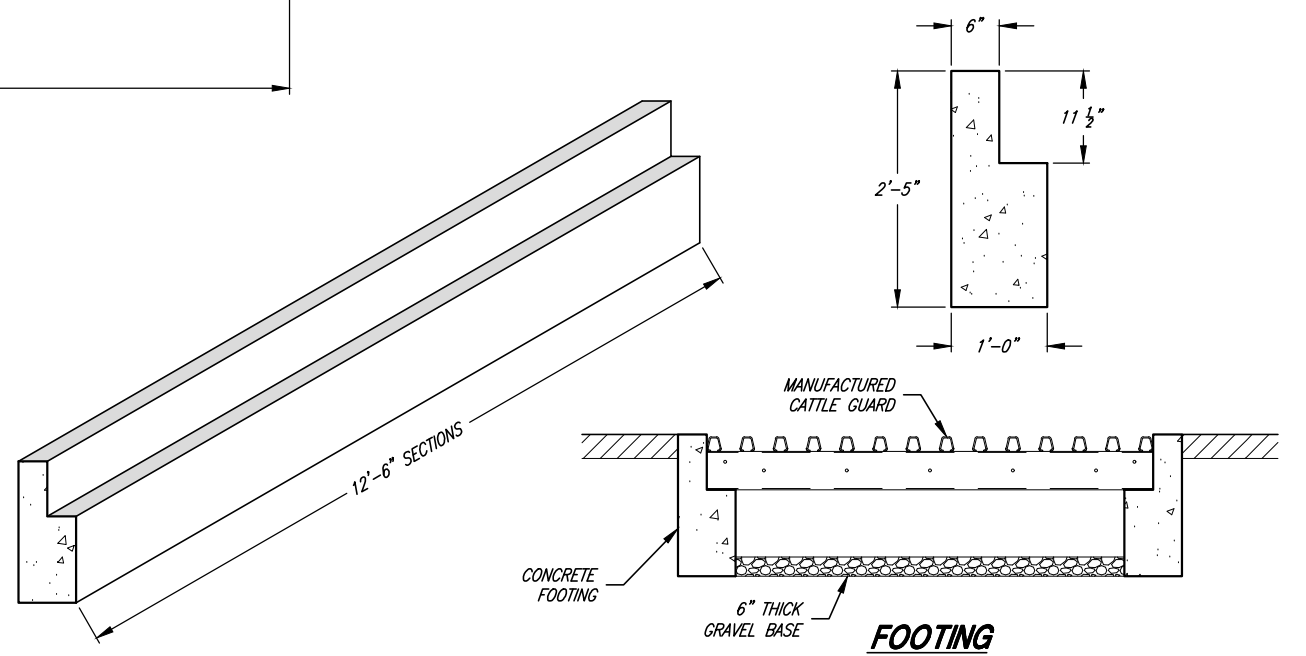


BOX ELDER COUNTY
PUBLIC WORKS STANDARD DRAWINGS
VINYL AND WIRE FENCING DETAILS

SHEET: **CS-18**
OF 1 SHEETS
0



- CATTLE GUARD NOTES:**
- A. THE UDOT CATTLE GUARD DESIGN MAY BE USED WITH THE PRIOR APPROVAL OF THE COUNTY ENGINEER AND THE COUNTY ROADS DEPARTMENT. SUBMIT ENGINEERED CONSTRUCTION PLANS TO THE COUNTY ENGINEER FOR REVIEW AND ACCEPTANCE PRIOR TO CONSTRUCTION.
 - B. SITE CONDITIONS WILL VARY. CONFIGURATION OF THE CATTLE GUARD MAY BE CHANGED, BUT THE PLANS MUST MEET THE DIMENSIONS AND DESIGN SPECIFICATIONS AS SHOWN IN THE MOST RECENT EDITION OF THE U.D.O.T. STANDARDS & SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION (SHEETS SW 1A THROUGH SW 1G).



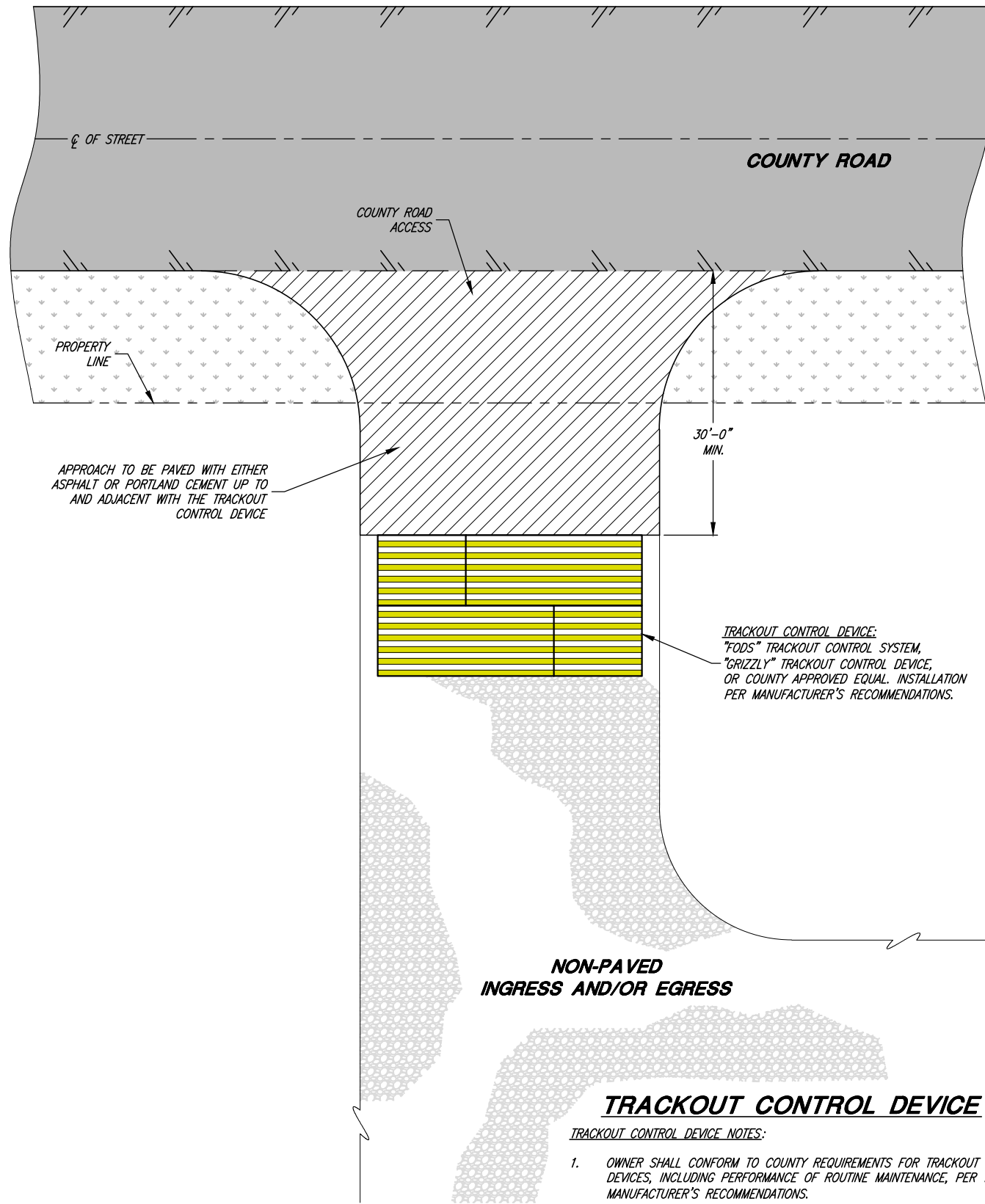
No. 5149637 Brett Marsden Jones COUNTY ENGINEER August 2023 DATE		
REV.	DATE	APPR.

SCALE:	N. T.S.
DESIGNED:	BEB
DRAWN:	BEB
CHECKED:	BMJ

JA JONES & ASSOCIATES
 CONSULTING ENGINEERS
 6080 Fashion Point Drive
 South Ogden, Utah 84403 (801) 476-9767
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BOX ELDER COUNTY
 PUBLIC WORKS STANDARD DRAWINGS
CATTLE GUARD DETAILS

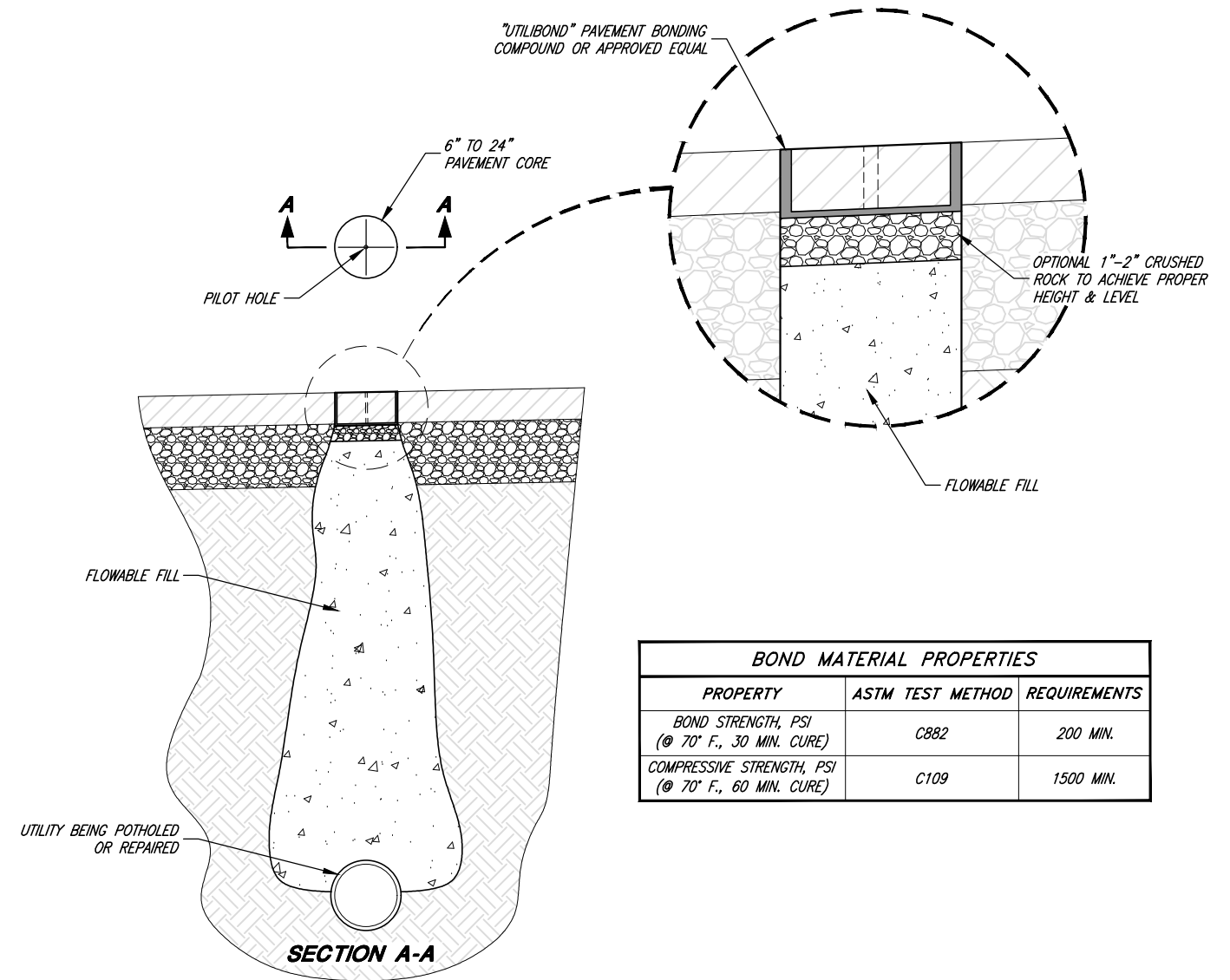


TRACKOUT CONTROL DEVICE:
 "FODS" TRACKOUT CONTROL SYSTEM,
 "GRIZZLY" TRACKOUT CONTROL DEVICE,
 OR COUNTY APPROVED EQUAL. INSTALLATION
 PER MANUFACTURER'S RECOMMENDATIONS.

TRACKOUT CONTROL DEVICE

TRACKOUT CONTROL DEVICE NOTES:

- OWNER SHALL CONFORM TO COUNTY REQUIREMENTS FOR TRACKOUT CONTROL DEVICES, INCLUDING PERFORMANCE OF ROUTINE MAINTENANCE, PER THE MANUFACTURER'S RECOMMENDATIONS.
- NON-PAVED SURFACE - SHALL BE DEFINED AS NOT COVERED WITH A FIRM, LEVEL SURFACE OF ASPHALT OR CONCRETE.



BOND MATERIAL PROPERTIES		
PROPERTY	ASTM TEST METHOD	REQUIREMENTS
BOND STRENGTH, PSI (@ 70° F., 30 MIN. CURE)	C882	200 MIN.
COMPRESSIVE STRENGTH, PSI (@ 70° F., 60 MIN. CURE)	C109	1500 MIN.

UTILITY POTHOLING DETAIL

KEYHOLE METHOD

UTILITY POTHOLE NOTES:

- CONTRACTOR SHALL PLACE A TEMPORARY PAINT MARK ON THE PAVEMENT TO ASSURE CORE IS REPLACED IN THE SAME ORIENTATION.
- CORING SHALL BE COMPLETED PERPENDICULAR TO THE HORIZON (NOT THE PAVEMENT), AND SHALL EXTEND THE FULL ASPHALT DEPTH. CORING SHALL BE COMPLETED USING A KEYHOLE CORING SAW CAPABLE OF REMOVING AN INTACT CORE OF PAVEMENT.
- CORES SHALL NOT BE LESS THAN 6 INCHES IN DIAMETER AND NO MORE THAN 24 INCHES IN DIAMETER.
- SOIL SHALL BE REMOVED USING AIR/VACUUM EXTRACTION METHODS AND DISPOSED PROPERLY OFF SITE.
- FLOWABLE FILL SHALL BE USED TO BACKFILL THE HOLE TO WITHIN ONE TO TWO INCHES OF THE BOTTOM OF THE EXISTING PAVEMENT.
- COMPACTED GRAVEL IF NECESSARY SHALL BE USED TO BRING THE POTHOLE TO THE BOTTOM OF PAVEMENT GRADE. THE TEMPORARY PAINT MARK SHALL BE USED TO ALIGN THE CORE TO ITS ORIGINAL POSITION AND THE GRAVEL SHALL BE USED TO LEVEL THE CORE SO THE FINISH GRADE IS FLUSH WITH THE SURROUNDING ASPHALT.
- PAVEMENT BONDING COMPOUND SHALL BE USED TO RESTORE THE CORE TO ITS ORIGINAL CONDITION COMPLETELY FLUSH WITH THE SURROUNDING ASPHALT. THE COMPOUND SHALL BE Poured IN THE POTHOLE AND THE CORE PLACE IN AFTER CAUSING THE PAVEMENT BONDING COMPOUND TO FLOW TO THE SURFACE. ALL EXCESS BONDING AGENT SHALL BE REMOVED.
- CORES SHALL BE ALLOWED TO CURE FOR A MINIMUM OF ONE HOUR PRIOR TO OPENING TO TRAFFIC.



Brett M. Jones
 COUNTY ENGINEER
 AUGUST 2023
 DATE

REV.	DATE	APPR.

SCALE:
 N. T.S.

DESIGNED BEB
 DRAWN BEB
 CHECKED BMJ



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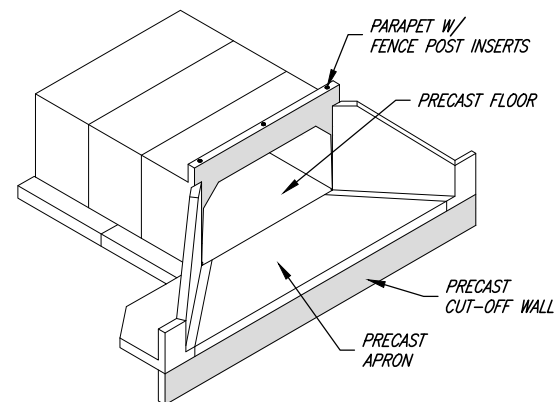


BOX ELDER COUNTY
PUBLIC WORKS STANDARD DRAWINGS
TRACKOUT CONTROL DEVICE AND UTILITY POTHOLING DETAILS

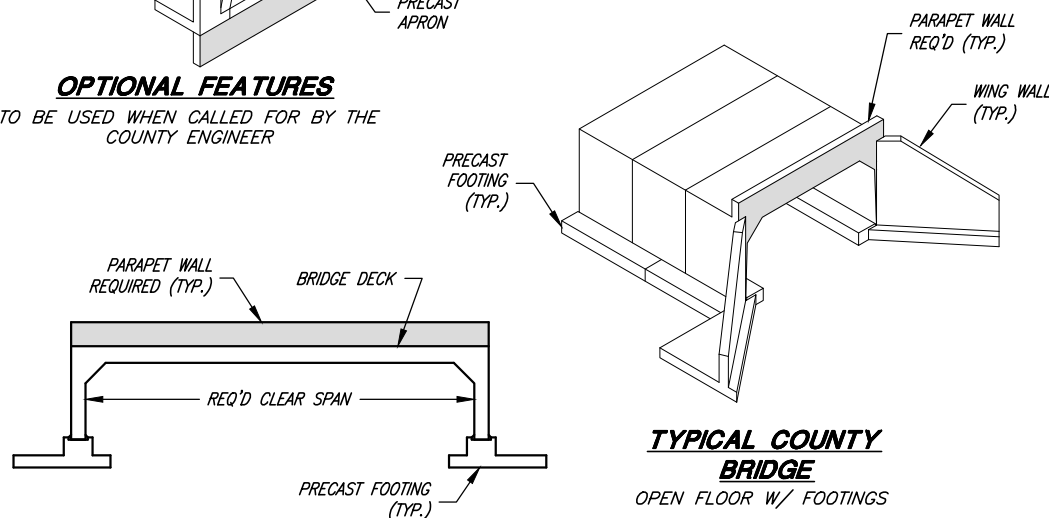
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BRIDGE NOTES:

1. ANY BRIDGE TO BE CONSTRUCTED FOR VEHICULAR OR PEDESTRIAN TRAFFIC SHALL BE DESIGNED ACCORDING TO THE ADOPTED STANDARDS FOR THE SAME AS IMPLEMENTED BY THE UTAH DEPARTMENT OF TRANSPORTATION (UDOT).
2. BRIDGES SHALL CONSIST OF FREE SPAN STRUCTURES, BOX CULVERTS, MULTIPLE BOX CULVERTS, AND PRECAST BRIDGES.
3. ALL BRIDGES REGARDLESS OF SIZE SHALL BE DESIGNED TO ACCOMMODATE A 100 YEAR STORM EVENT WITH A MINIMUM OF TWO FEET OF FREEBOARD.
4. STRUCTURAL DESIGN, CONSTRUCTION PLANS, AND FLOW CALCULATIONS SHALL BEAR THE SEAL OF A PROFESSIONAL ENGINEER LICENSED IN THE STATE OF UTAH.
5. STRUCTURE DESIGN AND FLOW CALCULATIONS SHALL BE SUBMITTED TO AND MUST BE APPROVED BY THE COUNTY ENGINEER PRIOR TO CONSTRUCTION.
6. STAMPED DETAILED CONSTRUCTION PLANS AND DRAWINGS OF ALL IMPROVEMENTS SHALL BE SUBMITTED TO THE BOX ELDER COUNTY ROADS DEPARTMENT FOR REVIEW AND APPROVAL PRIOR TO ISSUANCE OF PERMIT(S).
7. PRECAST STRUCTURES ARE THE PREFERRED CHOICE OF THE COUNTY ROADS DEPARTMENT
8. PRECAST CONCRETE BRIDGE STRUCTURE STRUCTURAL DESIGN TO BE PERFORMED BY THE PRECAST SUPPLIER. SUBMIT ENGINEERED CONSTRUCTION PLANS/DETAILS TO THE COUNTY ENGINEER FOR REVIEW AND ACCEPTANCE PRIOR TO FABRICATION.
9. HL-93 LOADING
10. SITE CONDITIONS WILL VARY. WHERE DESIGNATED/APPROVED BY THE COUNTY ROADS DEPARTMENT (ON A CASE-BY-CASE BASIS) AN ALTERNATE UDOT BRIDGE DESIGN MAY BE USED WHEN REPAIRING/REPLACING AN EXISTING STRUCTURE OR IN SPECIAL CIRCUMSTANCES WHERE THE 30' MIN CLEAR ZONE IS UNABLE TO BE ACHIEVED (SEE NOTE A BELOW). THE BRIDGE DESIGN MAY BE CHANGED, BUT THE STRUCTURE/PLANS MUST MEET THE DIMENSIONS AND DESIGN SPECIFICATIONS AS SHOWN IN THE MOST RECENT EDITION OF THE UDOT STANDARDS & SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION. DESIGN TO BE APPROVED BY THE COUNTY ENGINEER PRIOR TO CONSTRUCTION.
 - a. WHEN THE 30' MIN. CLEAR ZONE IS UNABLE TO BE ACHIEVED, A UDOT STYLE BARRIER, CRASH CUSHION, AND/OR GUARD RAIL DESIGN SHALL BE USED. SUBMIT ENGINEERED CONSTRUCTION PLANS TO THE COUNTY ENGINEER AND COUNTY ROADS DEPARTMENT FOR REVIEW AND ACCEPTANCE PRIOR TO CONSTRUCTION.
 - b. ALL SAFETY AND MARKER SIGNAGE SHALL CONFORM TO THE REQUIREMENTS OF THE CURRENT "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES"
 - c. FUTURE DRIVEWAY ACCESS ROADS TO ALLOW FOR ADEQUATE SAFE DISTANCE OF 31' FOOT STANDARD GUARDRAIL

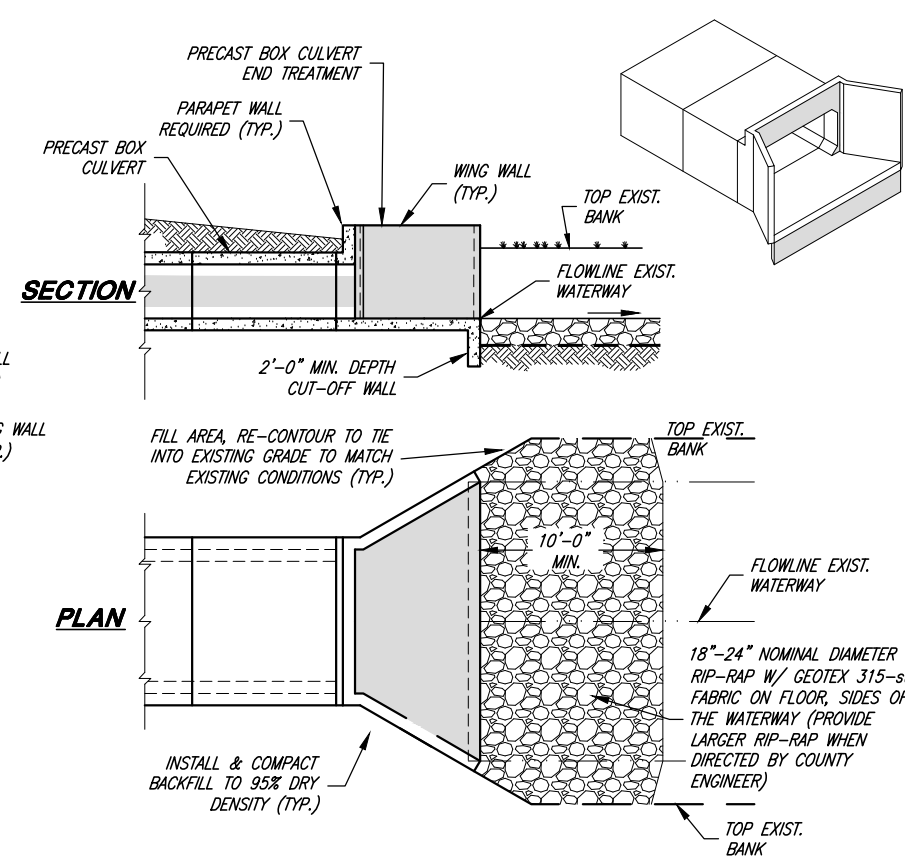


OPTIONAL FEATURES
TO BE USED WHEN CALLED FOR BY THE COUNTY ENGINEER

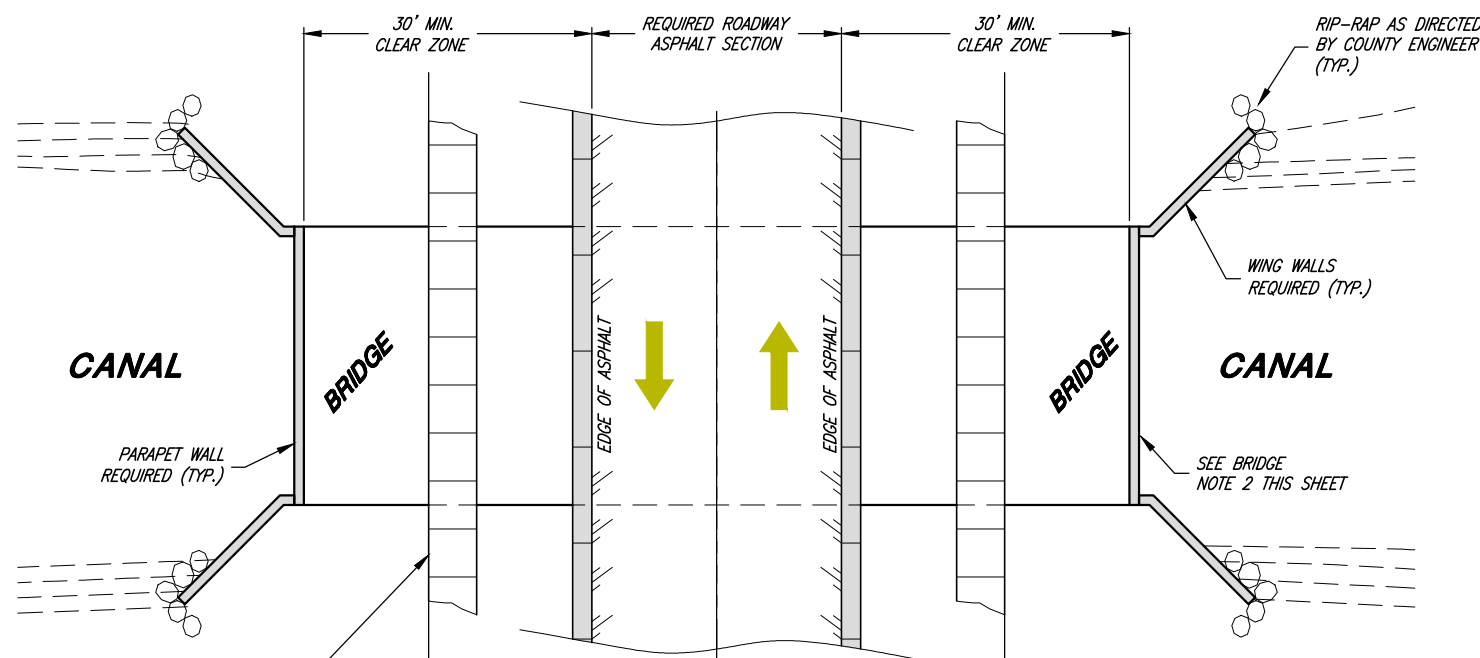


TYPICAL COUNTY BRIDGE
OPEN FLOOR W/ FOOTINGS

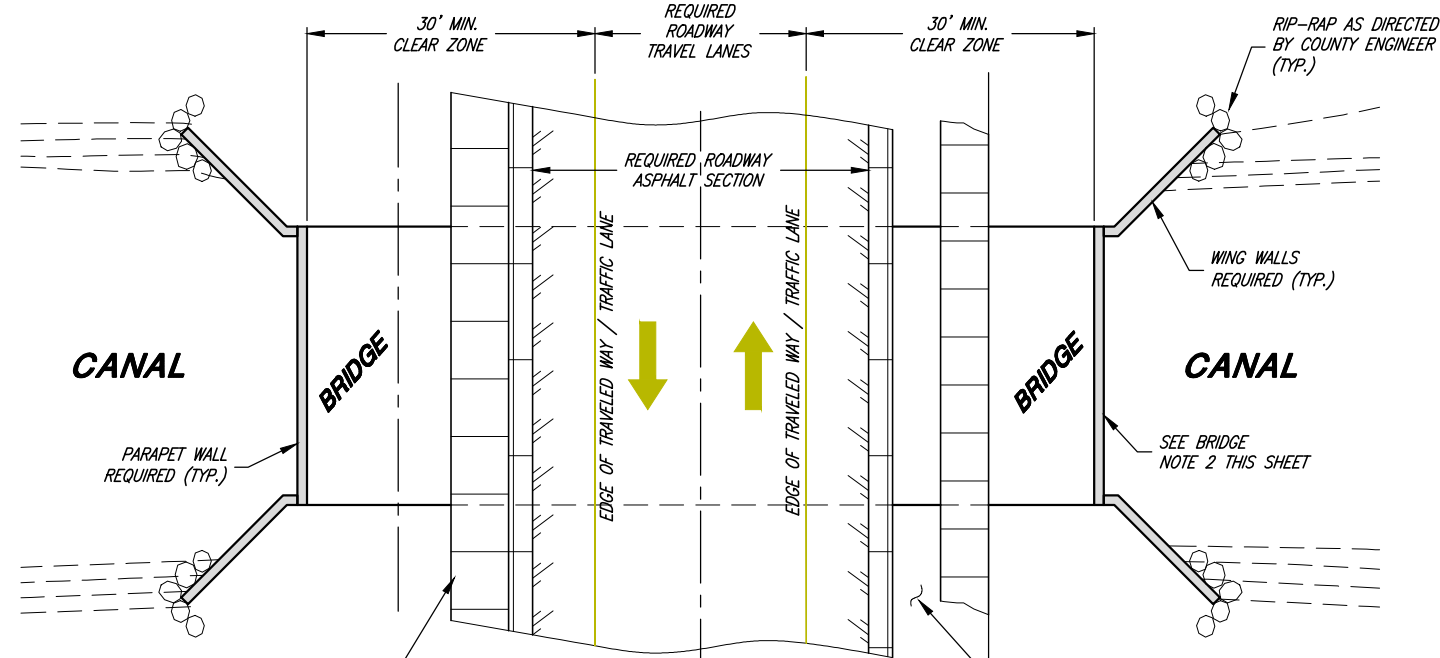
TYPICAL BRIDGE W/ END TREATMENT



TYPICAL BOX CULVERT W/ END TREATMENT



RURAL BRIDGE/CULVERT DETAIL
TO BE USED WHERE DESIGNATED AND/OR APPROVED BY COUNTY ROADS DEPARTMENT (60' RIGHT-OF-WAY)



URBAN BRIDGE/CULVERT DETAIL
COUNTY STANDARD (60' RIGHT-OF-WAY)

NOTE:
ANY VARIANCE FROM STANDARD REQUIRES APPROVAL FROM COUNTY ROADS DEPARTMENT.



Brett M. Jones
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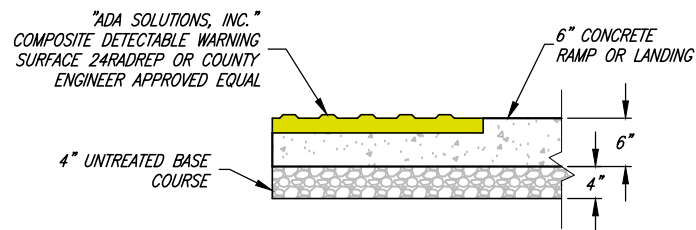


BOX ELDER COUNTY
PUBLIC WORKS STANDARD DRAWINGS
COUNTY ROAD BRIDGE DETAILS

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DETECTABLE WARNING SURFACE NOTES:

1. LOCATE THE DETECTABLE WARNING SURFACE SO THE OUTSIDE CORNER NEAREST THE STREET IS WITHIN 1 INCH OF THE BACK OF CURB (TBC). PROVIDE 2-FOOT MINIMUM DEPTH.
2. PROVIDE DETECTABLE WARNING SURFACE FOR FULL WIDTH OF CURB CUT.
3. THE DETECTABLE WARNING SURFACE DOMES SHALL BE ORIENTED SUCH THAT THE ROWS ARE PARALLEL WITH THE DIRECTION OF PEDESTRIAN TRAVEL TO THE RAMP ON THE OPPOSITE SIDE OF THE STREET.
4. THE STANDARD COLOR FOR THE DETECTABLE WARNING SURFACE SHALL BE YELLOW OR PRE-APPROVED CONTRASTING COLOR. WHEN THE EXISTING SIDEWALK COLOR IS NOT STANDARD CONCRETE, THE COLOR OF THE DETECTABLE WARNING SURFACE SHALL BE DETERMINED BY THE COUNTY ENGINEER OR AUTHORIZED REPRESENTATIVE.
5. WHEN A DETECTABLE WARNING SURFACE DOME IS CUT, THE REMAINING PORTION OF THE DOME SHALL BE BEVELED TO A MAXIMUM SLOPE OF 1:2.



DETECTABLE WARNING SURFACE DETAIL

ADA RAMP NOTES:

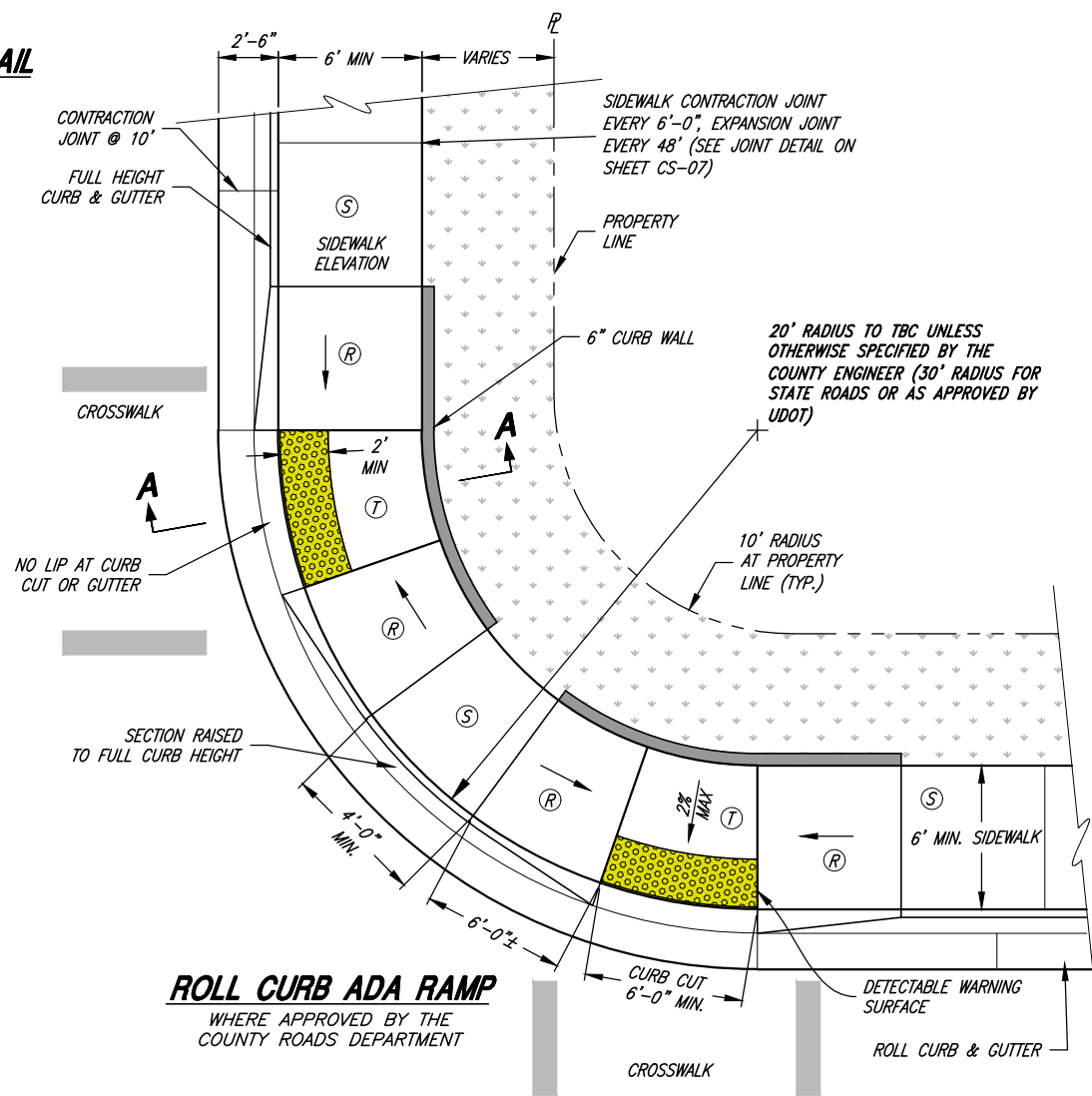
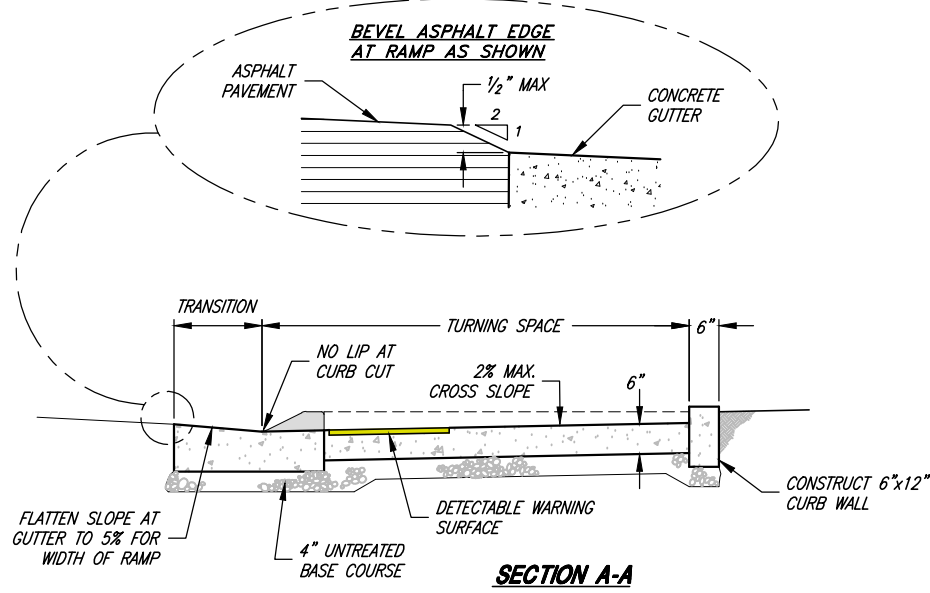
- A. WHERE DESIGNATED BY THE COUNTY, ALTERNATE UDOT OR APWA RAMP DESIGNS MAY BE USED WITH THE PRIOR APPROVAL OF THE COUNTY ENGINEER AND THE COUNTY ROADS DEPARTMENT. SUBMIT ENGINEERED CONSTRUCTION PLANS TO COUNTY ENGINEER FOR REVIEW AND ACCEPTANCE PRIOR TO CONSTRUCTION.
- B. SITE CONDITIONS WILL VARY. CONFIGURATION OF RAMP, LANDING, AND TRANSITION MAY BE CHANGED, BUT THEY MUST MEET DIMENSIONS AND SLOPES AS SHOWN IN THE MOST RECENT EDITION OF THE U.D.O.T. STANDARDS & SPECIFICATIONS (SHEETS PA1 THROUGH PA5). THE USE OF FLARES, CURB WALLS, ETC. ARE AT THE DISCRETION OF THE ENGINEER.
- C. LOCATE CURB CUT WITHIN CROSSWALK.
- D. RAMP GRADE BREAK MUST BE PERPENDICULAR TO THE RUNNING SLOPE.

SLOPE TABLE			
	ITEM	MAX RUNNING SLOPE*	MAX. CROSS SLOPE*
(T)	TURNING SPACE ²	2% (1V:48H)	2% (1V:48H)
(R)	RAMP	8.3% (1V:12H)	2% (1V:48H)
(S)	SIDEWALK	5% (1:20) ¹	2% (1V:48H)
(F1)	TRAVERSABLE SURFACE	10% (1V:10H)	--
(F2)	NON-TRAVERSABLE SURFACE	25% (1V:4H)	--
(B)	BLENDED TRANSITION	5% (1V:20H) 2% MIN.	2% (1V:48H)

* RUNNING SLOPE IS IN THE DIRECTION OF PEDESTRIAN TRAVEL. CROSS SLOPE IS PERPENDICULAR TO PEDESTRIAN TRAVEL.

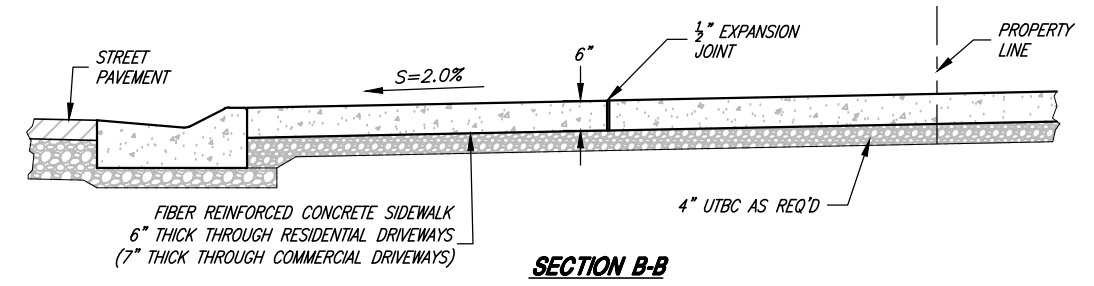
¹ 5% MAX OR NATURAL SLOPE OF LAND

² NOT TO EXCEED 2% IN ANY DIRECTION



ROLL CURB ADA RAMP

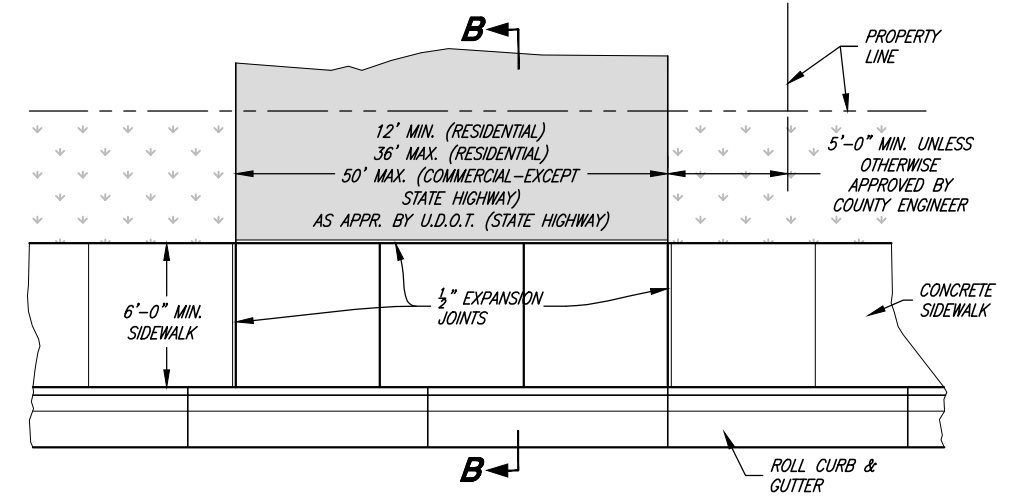
WHERE APPROVED BY THE COUNTY ROADS DEPARTMENT



SECTION B-B

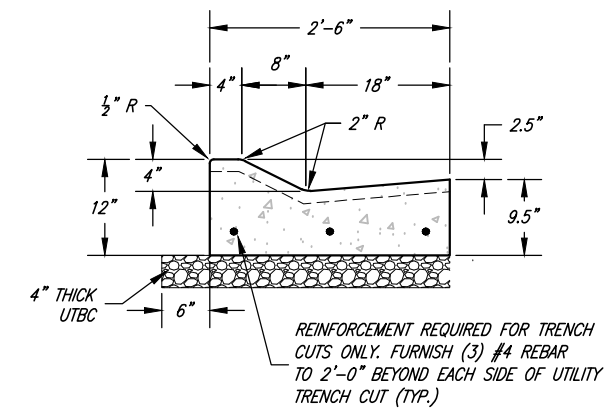
DRIVEWAY APPROACH NOTES:

- A1. SCORE SIDEWALK 1/2 OF SIDEWALK THICKNESS AT EACH 5'-0" OR 6'-0" SECTION. EXPANSION JOINTS AT EACH 50'-0" (5'-0" SIDEWALK) OR 48'-0" (6'-0" SIDEWALK), PROVIDE ADDITIONAL CONTRACTION JOINTS ON OVERSIZED DRIVEWAYS.
- A2. APPROACHES SHALL NOT BE ALLOWED ON CORNER LOTS WITHIN THE CLEAR VIEW AREA.



ROLL CURB & GUTTER DRIVEWAY APPROACH

WHERE APPROVED BY THE COUNTY ROADS DEPARTMENT



ROLL CURB & GUTTER SECTION

REQUIRES PRE-APPROVAL BY THE COUNTY ROADS DEPARTMENT PRIOR TO CONSTRUCTION (UDOT TYPE M1, APWA TYPE F)

CURB SECTION NOTES:

- B1. CONTRACTION JOINTS @ 10ft EXPANSION JOINTS @ 50ft
- B2. WHEN REPLACING CURB DUE TO CONSTRUCTION ACTIVITY, NEW CURB MUST EXTEND 5' MIN. PAST TRENCH ON EACH SIDE.
- B3. CURB SHALL BE CONSTRUCTED WITH CLASS 4,000 FIBER REINFORCED CONCRETE. VARIANCE AS APPROVED BY THE COUNTY ROADS DEPARTMENT.
- B4. THE SLOPE FOR CURB & GUTTER MUST BE A MINIMUM OF 0.5%.



Brett M. Jones
COUNTY ENGINEER
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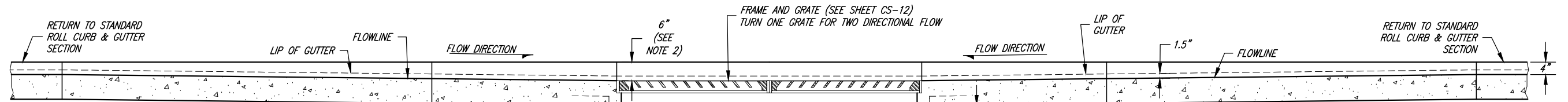
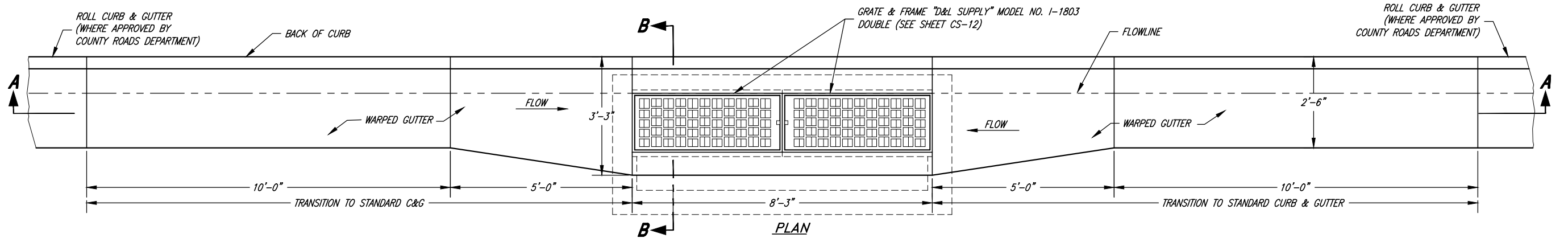
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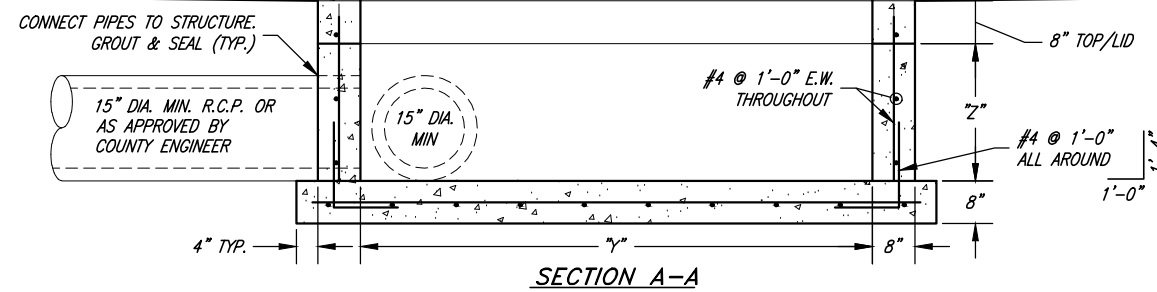
BOX ELDER COUNTY
PUBLIC WORKS STANDARD DRAWINGS
ROLL CURB DETAILS I

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STANDARD CATCH BASIN DIMENSION TABLE

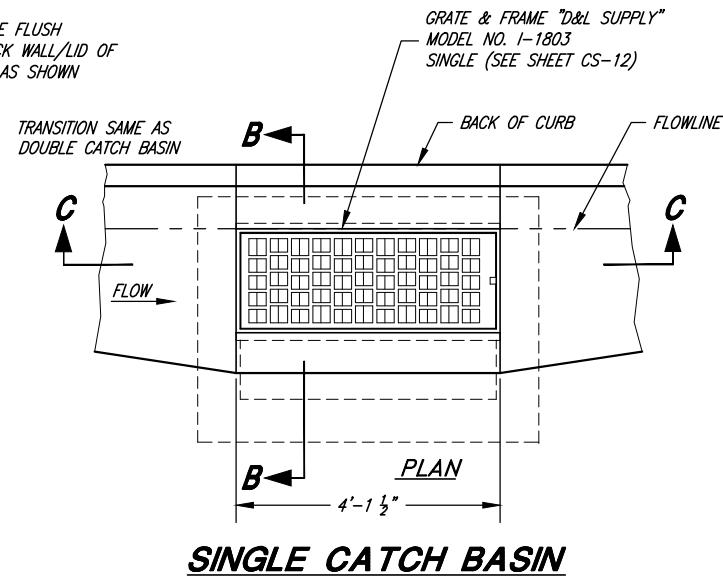
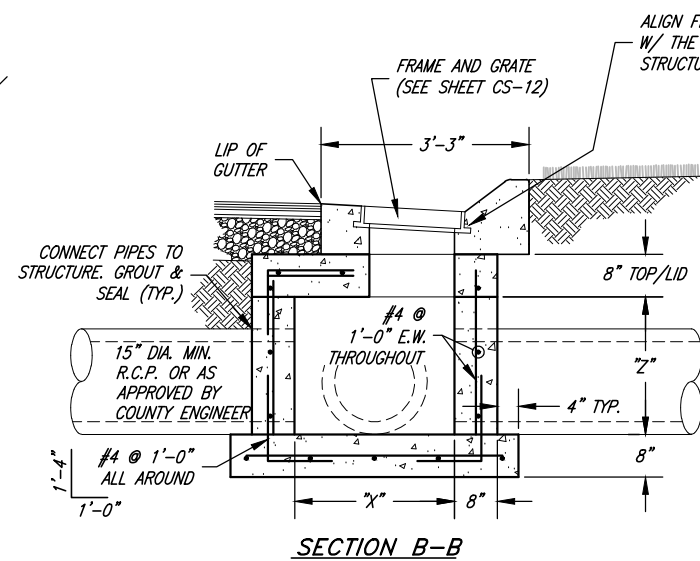
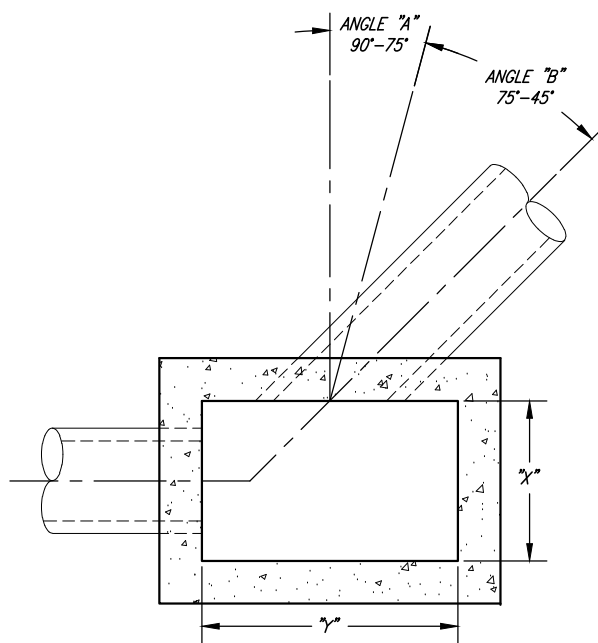
PIPE SIZE (IN.)	"X"	SINGLE CATCH BASIN		DOUBLE "Y"	"Z" MIN.
		"Y" (ANGLE A)	"Y" (ANGLE B)		
15	2'-6"	4'-0"	4'-0"	8'-0"	2'-0"
18	2'-6"	4'-0"	4'-0"	8'-0"	2'-6"
21	4'-0"	4'-0"	4'-0"	8'-0"	3'-0"
24	4'-0"	4'-0"	5'-0"	8'-0"	3'-0"
30	4'-0"	4'-0"	6'-0"	8'-0"	3'-6"
36	5'-0"	5'-0"	6'-0"	8'-0"	4'-0"
42	6'-0"	6'-0"	7'-0"	8'-0"	5'-0"
48	6'-0"	6'-0"	8'-0"	8'-0"	5'-6"



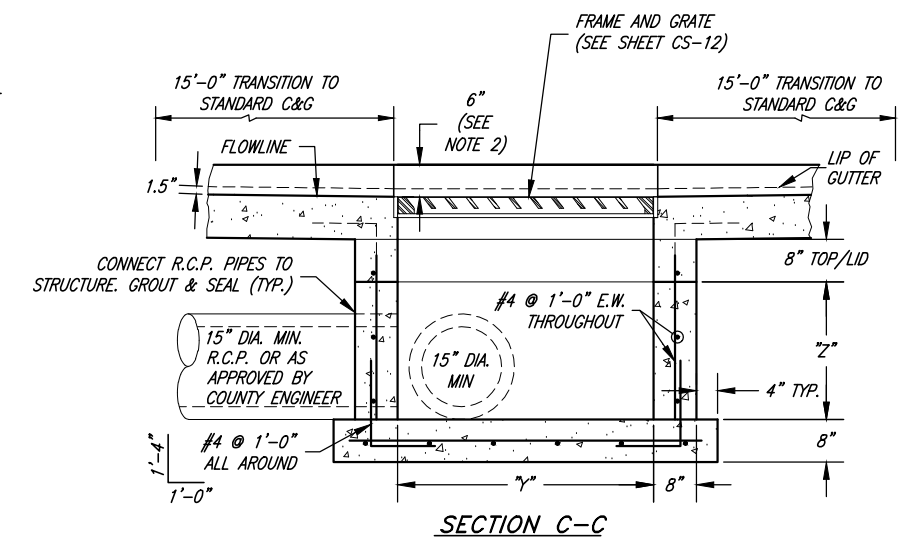
DOUBLE CATCH BASIN

GENERAL NOTES:

1. ALL CATCH BASIN BOX SIZES REFLECT DIMENSIONS FOR THE MINIMUM 15" PIPE SIZE. BOX DIMENSIONS MUST INCREASE PROPORTIONALLY TO ACCOMMODATE LARGER PIPE SIZES.
2. DEPTH MAY VARY FROM 4" TO 8" AS DIRECTED BY THE COUNTY ENGINEER.
3. CAST-IN-PLACE CONCRETE CATCH BASINS CAN BE REPLACED WITH PRECAST CONCRETE CATCH BASINS WITH HL-93 DECK LOADING AND COMPARABLE SIZE.
4. ALL CAST-IN-PLACE BOXES SHALL BE FORMED ON THE INSIDE AND OUTSIDE OF THE BOX AND INSPECTED BY THE COUNTY PRIOR TO THE PLACING OF CONCRETE.
5. DOUBLE CATCH BASINS WILL BE REQUIRED IN LOCATIONS SPECIFIED BY THE COUNTY ENGINEER (TYPICALLY IN LOW SPOTS, IN DOWNHILL CUL-DE-SACS, OR WHERE ADDITIONAL INLET CAPACITY IS NEEDED).
6. STORM DRAIN LINES SHALL BE 15 INCH MINIMUM DIAMETER REINFORCED CONCRETE PIPE (RCP), OF APPROPRIATE CLASS. OTHER MATERIALS SHALL BE AS APPROVED BY THE COUNTY ENGINEER AND THE COUNTY ROADS DEPARTMENT ON A CASE-BY-CASE BASIS.
7. ALTERNATE STRUCTURE (E.G. COMBO BOXES) MAY BE USED WITH APPROVAL OF THE COUNTY ENGINEER. STRUCTURES SHALL FOLLOW APWA STANDARD PLANS AND BE A COMMON SIZE.



SINGLE CATCH BASIN



SECTION C-C



Brett M. Jones
COUNTY ENGINEER
AUGUST 2023
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BOX ELDER COUNTY
PUBLIC WORKS STANDARD DRAWINGS
ROLL CURB DETAILS II

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