Spearfish City Council
Regular Session Agenda
July 6, 2026 at 5:30 PM
City Council Chambers, 625 5th Street, Spearfish

Join Zoom Meeting
https://us02web.zoom.us/j/87860570069

1. **Call to Order**
2. **Roll Call**
3. **Invocation** (participation welcomed, but not mandatory)
4. **Pledge of Allegiance**
5. **Approve Agenda**
6. **Public Comment -** Public comments are welcome; however, no action can be taken by the Council on comments received for items not on this agenda. Anyone wishing to have the Council consider a new item should complete a Citizen Request Form to be reviewed by city administration.
7. **Declaration of Any Potential Conflicts of Interest**
8. **Consent Agenda**
   A. Approve the minutes of the June 10, 2026, City Council study session.
   B. Approve the minutes of the June 15, 2026, City Council regular session.
   C. Approve the minutes of the June 22, 2026 City Council special session.
   D. Add Grant Koening to the 2026 Rec Center volunteer list.
   E. Approve a Temporary Construction Easement Agreement, between the property owner of 644 E 8th St and the City, required for the Mountain View Elementary Alley Water Line Project #2604.
9. **Items From Visitors**
   A. BHSU Foundation — Request all building permit fees, tap fees, meter costs, and fire suppression fees be waived for the construction of a new 10-plex unit at an amount not to exceed $30,000.
10. **Added or Adjusted Wages**
    A. Approve the following wage additions and adjustments as budgeted for 2026.

Regular Positions	Budgeted	Wage
7 Temporary Rally Officers	Yes	$32.84
Recreation Facility	Yes	$1,344 (2 additional steps) bonus for additional

Superintendent		duties during Parks & Recreation Director Absence for 3.5 months (3/1-6/13/26)
Parks Maintenance and Forestry Superintendent	Yes	$1,374 (2 additional steps) bonus for additional duties during Parks & Recreation Director absence for 3.5 months (3/1-6/13/26)

11. Community Development

A. Ordinance Revisions Associated with Engineering Design Standards.

1. Hold a public hearing and approve the second reading of Ordinance 1419 — An Ordinance Amending The Revised Ordinances of the City of Spearfish, Chapter 50: Utilities Generally.

2. Hold a public hearing and approve the second reading of Ordinance 1420 — An Ordinance Amending The Revised Ordinances of the City of Spearfish, Chapter 52: Water.

3. Hold a public hearing and approve the second reading of Ordinance 1421 — An Ordinance Amending the Revised Ordinances of the City of Spearfish, Chapter 53: Sanitary Sewer Service.

4. Hold a public hearing and approve the second reading of Ordinance 1422 — An Ordinance Amending the Revised Ordinances of the City of Spearfish, Chapter 96: Parks and Recreation.

5. Hold a public hearing and approve the second reading of Ordinance 1423 — An Ordinance Repealing and Replacing The Revised Ordinances of the City of Spearfish, Chapter 151: Flood Prevention and Protection.

6. Hold a public hearing and approve the second reading of Ordinance 1424 - An Ordinance amending The Revised Ordinances of the City of Spearfish, Chapter 153: Public Ways and Property.

7. Hold a public hearing and approve the second reading of Ordinance 1425 — An Ordinance Repealing and Replacing The Revised Ordinances of the City of Spearfish, Chapter 154: Subdivisions.

B. Approve Resolution 2026-09 - A Resolution to Adopt the Engineering Design Standards.

C. Approve an encroachment agreement at 127 W. Grant Street.

D. Approve a special exception for completing public infrastructure before recording of a final plat pursuant to City Code Section 154.023.

12. Finance

A. Adopt Resolution 2026-17 - A Resolution Levying an Annual Special Maintenance Fee for Street Surfaces.

13. Police

A. Authorize staff to continue discussions with the Lawrence County Sheriff's Office to begin the consolidation process for our dispatch centers.

B. Follow up on the Spearfish Police Department enforcement approach for motorized

bikes in Spearfish

14. Public Works

A. Award the lowest responsive and responsible bid for the Airport Apron project to North Star Construction, at a total amount of $4,505,800.77.

B. Award the lowest responsive and responsible bid for the Campground Water Line Project to AusCar X, LLC at a total amount of $450,020.30.

C. Award the lowest responsive and responsible bid for the Yellowstone Place & Wyoming Ct Drainage Project to American Contracting and Consulting, LLC at a total amount of $372,568.10.

D. Approve the Temporary Construction Agreement with Hills View Homes for temporary use of the City-owned property in and adjacent to Sky Ridge Subdivision.

E. Approve the Final Under/Over Change Order #3 for the Rainbow Road Box Culvert project with a net increase of $9,698.82**.**

15. Approve the Bills

A. Approve the Bill List dated July 6, 2026.

B. Approve the salary expense, bank fees and credit card fees for the month of June 2026.

16. Publication of wages per SDCL 6-1-10

A. In accordance with South Dakota state law, human resources will publish a complete list of all added and adjusted wages in the official minutes. The changes are as follows:

Regular Employee	**Position**	**Wage**	**Effective Date**	**Reason**
Joseph Van Driel	WWTF Operator Class II	$31.25	5/24/2026	Class II Certification
Rex McDonald	Parks & Recreation Director	$60.88	6/14/2026	Promotion
Brett Rauterkus	Recreation Facility Superintendent	Bonus $1,344	7/10/2026 (date paid)	Bonus for additional duties during Parks & Recreation Director absence for 3.5 months (3/1-6/13/26)
Rex McDonald	Parks Maintenance & Forestry Superintendent	Bonus $1,374	7/10/2026 (date paid)	Bonus for additional duties during Parks & Recreation Director absence for 3.5 months (3/1-6/13/26)
Seasonal Employee	**Position**	**Wage**	**Effective Date**	**Reason**
Sarah Sue Burich	Parks seasonal laborer	$16.50	6/21/2026	Seasonal hire

17. Mayor and Council Discussion

A. Council president and vice president election.

B. Appoint Amy Davison to the Art in Public Places Advisory Board as the Planning Commission representative.

18. Departmental Discussion

19. Adjournment

ADA Compliance: The City of Spearfish fully subscribes to the provisions of the Americans with Disabilities Act. If you desire to attend this public meeting and are in need of special accommodations, please notify the City Finance Office 12 hours prior to the meeting so that appropriate auxiliary aids and services are available.

City of Spearfish
City Council Study Session Minutes
June 10, 2026, 4:15 p.m.

The City Council Study Session was called to order by Mayor Senden at 4:15 p.m. in the Council Chambers of City Hall on Wednesday, June 10, 2026. The following c o u n c i l members were present: Hafner, Hourigan, Jacobs, Klarenbeek, Myers, and Rath. Absent: none. City staff present were: Public Works Director McMahon, Community Development Director Wysocki, Police Chief Smith, Parks and Recreation Superintendent McDonald, Assistant Planning Director Ecker, Human Resources Director Mathis, Fire Chief Deaver, Assistant Finance Officer Tyler, City Engineer Mathis, Deputy Fire Chief Ziegler, and Human Resource Generalist Gengler.

Draft Agenda - Staff reviewed each item on the draft June 15, 2026, City Council Regular Session agenda and responded to questions from council and residents.

Klarenbeek moved, and Jacobs seconded, and all voted to approve the agenda.

Items for Discussion
The Matthews Opera House & Fine Arts Center
Heath Johnson, Executive Director of The Matthews Opera House & Fine Arts Center presented the community report to the Spearfish city council regarding Matthew's community impact programming reach, and their partnership with the City of Spearfish.

Police Chief Smith to discuss the consolidation of dispatch centers with Lawrence County
Smith led a preliminary discussion on the consolidation of dispatch centers with Lawrence County. Discussion amongst council and staff included comments from Sheriff Dean of Lawrence County, and Doug Markworth.

At 5:10 p.m. a time for public comment was opened regarding the use of motorized and electric vehicles on the rec path, with comments received from Ryan Wordeman, Dylan Clarkson, Heath Eggleston, Pam Milligan, Stan Triplett, Lezlie Snoozy-Kaitfors, and Doug Markworth. At 5:38 p.m. public comment was opened up to all topics with comments received from Stan Triplett, and Lezlie-Snoozy-Kaitfors. No further comments were received, and public comment was closed at 5:48 p.m.

Departmental Discussion
McMahon reminded all that Thursday, June 18th, SDDOT will be holding a public meeting at Hudson Hall, 222 W. Hudson in Spearfish, on the Exit 10 project. McMahon also gave an update on the chip seal project; over the weekend there was an issue with the asphalt binder bleeding through, to mitigate the issue the contractor applied sand to the road, and will be back June 22nd to begin the reapplication of the chip seal from Grant Street to 14A. Wysocki asked council to reach out if they have any questions on the information he emailed to them introducing the recently implemented photo inspection program. Senden noted that the Creekside Nature Trail donation item from the June 1st city council meeting will be brought back at a future city council meeting, and there will be ample time for public comment before action is taken.

No additional discussions were held and with a motion from Rath and a second from Myers the meeting adjourned at 5:50 p.m.

Spearfish City Council
Regular Session Minutes
June 15, 2026 5:30 p.m.
City Council Chambers, 625 5th Street, Spearfish

The Spearfish City Council met at 5:30 p.m. on Monday, June 15, 2026. Mayor Senden was present and called the meeting to order. Roll call was taken with the following members present: Hafner, Hourigan, Jacobs, Klarenbeek, and Myers. Absent: Rath. Also present: Finance Officer DeNeui, Public Works Director McMahon, Community Development Director Wysocki, City Engineer Mathis, Interim City Attorney McDonald, Parks and Recreation Director McDonald, Assistant Planning Director Ecker, and Lieutenant Lee. Prayer of invocation was presented by Mayor Senden. All stood and recited the pledge of allegiance.

Agenda – Jacobs moved, Hourigan seconded, and all voted amend agenda to move item 15B to item 5B. Hourigan moved, Jacobs seconded, and all voted to approve the agenda as amended.

Klarenbeek moved, Hafner seconded, and all voted to direct city staff and legal counsel to work on an ordinance to address issues and concerns of citizens regarding recreation path, bike path, and streets incidents and behaviors. Discussion on this item included comments from Kelly Harnett, Ryan Wordeman, Heath Eggleston, John Dale, Cassie Myers, Alex Johnsen, Aaron Ploog.

Public Comment – A time for public comment was opened at 6:04 p.m. with comments received from John Dale regarding radio frequency (RF) and health, City of Belle Fourche Attorney Kellen Willert and Engineer Brent Hardy regarding protection of water supply, Jeremy Smith regarding civic responsibility, Kelly Harnett regarding the Creekside Nature Trail donation and the 4-way stop sign at Jackson and Jonas, and Stan Triplett regarding the city administrator position and safety on the rec path. No further comments were received, and public comment was closed at 6:23 p.m.

Items from Visitors
Matthews Opera House – Presentation given at the June 10th study session, so no further information or requests.

Consent Agenda – Hourigan moved, Jacobs seconded, and all voted to approve the consent agenda as follows:

A. Approve the minutes of the May 27, 2026, City Council study session.
B. Approve the minutes of the June 1, 2026, City Council regular session.
C. Approve the minutes of the June 1, 2026, Board of Adjustments.
D. Approve the Treasurer's Report dated May 31, 2026.

Other Items
Added or Adjusted Wages – Myers moved, Hourigan seconded, and with Hafner, Hourigan, Jacobs, Klarenbeek, and Myers voting aye motion passed to approve the following wage additions and adjustments as budgeted for 2026.

Regular Positions	Budgeted Position	Wage
Wastewater Treatment Class II	Yes	$31.25
Wildland Engine Boss/Firefighter	Yes	$34.50

Parks & Recreation Director	Yes	$60.88

Agreement – Klarenbeek moved, Hourigan seconded, and all voted to approve a Purchase Agreement allocating sewer capacity for Eastside Acres (Phase I).

Special Exception – Myers moved, Hourigan seconded, and all voted to approve a special exception to § 154.023 Infrastructure Completion Prior to Recording Final Plat for Eastside Acres (Phase I).

Plat – Myers moved, Hourigan seconded, and all voted to approve a final major plat for Maitland Vistas Subdivision within the City's Extraterritorial Jurisdiction.

Ordinance 1419 – Hafner moved, Klarenbeek seconded, and all voted to approve the first reading of Ordinance 1419 - An Ordinance Amending The Revised Ordinances of the City of Spearfish, Chapter 50: Utilities Generally, with the scrivener's error being corrected on section §50.10 to replace the word 'noise' with 'use'.

Ordinance 1420 – Klarenbeek moved, Jacobs seconded, and all voted to approve the first reading of Ordinance 1420 — An Ordinance Amending The Revised Ordinances of the City of Spearfish, Chapter 52: Water.

Ordinance 1421 – Hafner moved, Hourigan seconded, and all voted to approve the first reading of Ordinance 1421 — An Ordinance Amending the Revised Ordinances of the City of Spearfish, Chapter 53: Sanitary Sewer Service.

Ordinance 1422 – Jacobs moved, Hourigan seconded, and all voted to approve the first reading of Ordinance 1422 — An Ordinance Amending the Revised Ordinances of the City of Spearfish, Chapter 96: Parks and Recreation.

Ordinance 1423 – Myers moved, Jacobs seconded, and all voted to approve the first reading of Ordinance 1423 — An Ordinance Repealing and Replacing The Revised Ordinances of the City of Spearfish, Chapter 151: Flood Prevention and Protection.

Ordinance 1424 – Hourigan moved, Hafner seconded, and all voted to approve the first reading of Ordinance 1424 — An Ordinance Amending The Revised Ordinances of the City of Spearfish, Chapter 153: Public Ways and Property.

Ordinance 1425 – Myers moved, Hafner seconded, and all voted to approve the first reading of Ordinance 1425 — An Ordinance Repealing and Replacing The Revised Ordinances of the City of Spearfish, Chapter 154: Subdivisions.

Amendment – Hafner moved, Hourigan seconded, and all voted to approve the Second Amendment to the Development Agreement with Stencil Group II, LLC related to Hill Street Apartments.

Agreement – Klarenbeek moved, Hafner seconded, and all voted to approve Real Estate Purchase Agreement between the City, Spearfish Economic Development Corporation and Hills View Homes

to sell four additional lots to Hills View Homes for additional construction in the Sky Ridge Subdivision.

Resolution 2026-16 – Discussion on this item included comments from Jeremy Smith. Hafner moved to amend the resolution to convey 4 lots, not 6 lots as stated in the resolution, Jacobs seconded, and all voted to approve amended Resolution 2026-16 as follows:

RESOLUTION 2026-16

A RESOLUTION TO TRANSFER REAL PROPERTY FROM THE CITY OF SPEARFISH TO SPEARFISH ECONOMIC DEVELOPMENT CORPORATION

WHEREAS, the City of Spearfish has completed public infrastructure at the Sky Ridge

affordable housing development and individual lots are ready for home construction.

WHEREAS, pursuant to SDCL 9-27-36 and 9-54-1, the City of Spearfish will convey 4 lots to the Spearfish Economic Development Corporation for affordable housing thus serving a public purpose and encouraging and assisting in the location of new business and industry and the expansion of existing business development.

NOW, THEREFORE BE IT RESOLVED by the Common Council of the City of Spearfish, Lawrence County, South Dakota, that the following described territory be conveyed to the Spearfish Economic Development Corporation:

> Lots 6 - 7 of Block 5, and Lots 16 - 17 of Block 6 of Sky Ridge Subdivision, being a part of Tract V-1 of Sky Ridge Subdivision, which is a part of Tract V of Elkhorn Ridge Addition, City of Spearfish, Lawrence County, South Dakota, according to plat recorded as Document No. 2023-04441 in the Office of the Lawrence County Register of Deeds.

under the terms and conditions of the Restated and Amended Development Agreement approved on April 22, 2025, as amended.

Dated this 15th day of June, 2026

CITY OF SPEARFISH

ATTEST:

By: _____
John Senden, Mayor

_____
Michelle DeNeui, City Finance Officer

(SEAL)

Adopted: June 15, 2026
Published: June 20, 2026
Effective: July 10, 2026

License – A public hearing to consider an application from Kami Wrage of Les Deux for a

retail (on-off sale) malt beverage & SD farm wine license and a retail (on-off sale) wine and cider license located at 115 W. Hudson Street was opened at 7:16 p.m. with no comments being received. Hourigan moved, Hafner seconded, and all voted to approve the beer and wine license applications from Les Deux.

Amendment – Hafner moved, Jacobs seconded, and with Hafner, Hourigan, Jacobs, Klarenbeek, and Myers voting aye, motion passed to approve DGR Engineering's Amendment #1 proposal for services on Downtown Mill & Overlay Project #2629, increasing duties to include survey and design of required sidewalk accessibility modifications for compliance with the Americans with Disabilities Act, at a total cost of $27,000. Discussion on this item included comments from Jeremy Smith.

Amendment – Jacobs moved, Hafner seconded, and with Hafner, Hourigan, Jacobs, Klarenbeek, and Myers voting aye, motion passed to approve Foth Infrastructure & Environment, LLC amendment proposal for engineering services on East Low Zone Water System Improvements project, increasing duties to complete the existing scope, at a total cost of $45,000.

Change Order – Hourigan moved, Jacobs seconded, and with Hafner, Hourigan, and Jacobs voting aye, and Klarenbeek, and Myers voting nay, motion failed to pass to approve Change Order #2 for the Colorado Boulevard Sewer Upsize Phase 3 Project with an increase of $15,040.28 and revised final completion date of July 13, 2026. Discussion on this item included comments from Alex Headly.

Bill List – Hourigan moved, Jacobs seconded, and with Hafner, Hourigan, Jacobs, Klarenbeek, and Myers voting aye, motion passed to approve the bill list dated June 15, 2026, as follows:

VENDOR NAME	DESCRIPTION	AMOUNT
911 SUPPLY	PD UNIFORMS-SHIRTS-PANTS-SWEA	$2,732.80
A & B BUSINESS INC	PLOTTER LEASE	$69.49
A & J SUPPLY	DECK-SCREWS -WOOD-PIPE-FLANG	$1,469.29
A&B WELDING SUPPLY	CYLINDER RENTAL-HAZ MAT CHAR	$648.81
A&J SCREENING	SHIRTS FOR LIFEGUARDS/CAMPGR	$313.00
ADOBE INC.	ADOBE LICENSES X 23	$551.77
AMAZON CAPITAL SERVICES	SUMMER READING PRIZES-FUEL PU	$3,507.74
AMERICAN RED CROSS	LIFEGUARDING BUNDLE	$216.00
AMICK SOUND INC	REPAIR SOUND ON REC CENTER SP	$413.88
APPLE.COM	EXTRA STORAGE	$1.05
APWA WORKZONE	JOB POSTINGS	$1,190.00
ATCO INTERNATIONAL	WATER PROOF MATERIALS	$987.20
BECK'S NURSERY CORP	FLOWERS, PLANTS & TREES CITY PR	$1,842.38
BELLE FOURCHE LANDFILL	MAY 2026 TIPPING FEES	$35,968.24
BEST WESTERN BLACK HILLS	LODGING FOR PROSPECT INTERVIE	$275.96
BLACK HILLS ENERGY	APRIL/JUNE 2026	$15,235.11
BHSU	WOMEN IN LEADERSHIP REGISTRA	$1,038.00
BLACK HILLS CHEMICAL CO	STAIN REMOVER-GLOVES-CLEANE	$1,289.50

BLACK HILLS EQUIPMENT RE	COMBO KIT-BATTERY CHARGER	$399.99
BLACK HILLS LIBRARY CONSO	CAFE SUBSCRIPTION	$94.53
BLACK HILLS PIONEER	MAY LEGALS	$1,483.60
BLACK HILLS PURE INC	WATER FOR CITY HALL	$43.50
BLACK HILLS WINDSHIELD	ROCK CHIP FIRE ENGINE 3	$410.00
BLACKBIRD EXPRESSO	MAYOR W/ COMM DEV/ LE APPREC	$110.11
BLUEBEAM INC	SUBSCRIPTION X 2	$990.00
BOGUE INC.	AUTOMATIC DUMP MINI TRUCK	$13,300.00
BOMGAARS	PUMP SPRAYER-DRILL BIT-IMPACT-S	$2,535.94
BUILDERS FIRSTSOURCE	WOOD REC CENTER	$52.40
BUTLER MACHINERY CO	COUPLING	$261.25
BUTTE ELECTRIC COOP	3/27-4/27 2026 ELECTRIC SERVICES	$55,040.58
CASH-WA DISTRIBUTING CO	CONCESSIONS REC CENTER	$3,689.70
CBH COOPERATIVE	FUEL FOR MAY 2026	$44,069.25
CONSOLIDATED ELECTRICAL	COIL-CABLE-BOX INSULATED-SPRI	$476.54
TRITECH SOFTWARE SYSTEM	PROJECT MANAGEMENT SERVICES	$2,340.00
CENTURY LINK LUMEN	APRIL/MAY 2026 FD & PD	$494.78
CHALLENGE COIN USA	CHALLENGE COINS PD	$45.23
CHEWY	K9 DAVOS FOOD	$172.75
CHILDREN'S HOME SOCIETY	FORENSIC INTERVIEWS	$150.00
CITY BREW	LE APPRECIATION WEEK	$60.00
CIVICPLUS, LLC	DOC ACCESS PLATFORM SCANS	$4,177.55
CLIMATE CONTROL SYSTEMS	WATER TANK FOR CHILLER	$32,851.00
COCA-COLA BOTTLING CO	COFFEE FOR CITY BUILDINGS	$4,262.00
COMBAT BRANDS, LLC	FITNESS EQUIPMENT	$2,987.46
COMMON GROUNDS	MAYOR REC STAFF - LE APPRECIATI	$154.08
COPY COUNTRY INC	BOOKLET CAMPGROUND WATERLI	$365.10
CORE & MAIN LP	METER AND METER PARTS-ADAPTE	$46,290.45
CULLIGAN SOFT WATER COR	WATER FOR WWTP	$108.75
CUSTOM PRODUCTS CORP	ANCHOR PLATES-HEX HEAD-SKID	$3,303.71
BEGG BOROUGH STEEL LLC	CLUTCH HOUSING W/BEARING-TRI	$1,001.05
DAKOTA FLUID POWER INC	ROD REPAIR PLOW-CYLINDER REP	$860.43
DANR WASTE MANAGEMENT	DRINKING/SURFACE WATER FEE	$2,650.00
DEPT OF AG AND NATURAL	COMMERCIAL APPLICATOR LICENS	$35.88
SHERRY EWING	CONCESSIONS FOR REC CENTER	$782.40
DOMINO'S PIZZA	PD PIZZA	$65.39
DAKOTA REDI-MIX, INC	E CO BLVD RDWY IMPRV	$111,446.42
E BAY	RELAY FOR HYDRO PLANT-BASE AS	$260.49
ECOLAB PEST ELIMINATION	PEST CONTROL CITY WIDE	$616.70
ENERGY LABORATORIES INC	WATER SAMPLE TESTING WWTP	$4,089.00
EUROFINS	COMPLIANCE WATER TESTING	$1,639.76
EXPLORE FITNESS & ADVEN	MAY 2026 FITNESS	$1,512.00
EZ CONCRETE	CUT AND TEAR CURB/GUTTER	$3,775.00

FALSE BOTTOM CONSTRUCTI	ADA RAMP	$1,938.78
FEDEX	SHIPPING FOR PD	$171.61
FIB-AP PURCHASE CARDS	MAY 2026 P CARD $218,426.06	$0.00
BDG INC	SUCTION HOSE-SPIRAL CLAMP	$272.75
FRONTIER ICE COMPANY LL	ICE FOR CAMPGROUND	$154.35
FUXA, LAURA	MAY 2026 FITNESS	$48.00
GALLS LLC	ALS CONCEALMENT HOLSTER	$547.55
VIEHAUSER ENTERPRISES	SALLYPORT DOOR INSTALL PD	$1,532.90
GODFREY BRAKE	SPRING-ROD-WASHER-SHACKLE KI	$1,100.32
GPNA	LOOKOUT MTN CONSERVATION	$6,727.50
GRAINGER INC	CART-FLUSHMATE-WAX RING-MET	$3,413.28
GREAT WESTERN TIRE INC	REPAIR STEER TIRE	$48.95
GROSSENBURG IMPLEMENT	FUEL PUMP AND GUARD	$802.61
GUADALAJARA RESTAURANT	MAYOR WITH P/W DIRECTOR	$29.47
GUARDIAN ALLIANCE TECH	SOFTWARE FOR PD	$550.00
HARBOR FREIGHT- RAPID	CREEPERS	$119.97
HAUGO BROADCASTING INC	WATERPARK ADVERTISEMENT	$660.00
HAVEMEIER, KENNETH	CDL REIMBURSEMENT	$45.00
HAWKINS INC	CHEMICAL FOR POOL-AQUA HAWK	$10,189.13
HDR ENGINEERING INC	SPF CO BLVD RDWY IMPRV	$2,488.18
HOLIDAY INN	LODGING FOR PD	$2,671.80
HOME FRONT PROTECTIVE	REGISTRATION FOR PD DOM VIOLE	$175.00
HORSE CREEK LUMBER	FIREWOOD BUNDLES CAMPGROUN	$741.00
INTERNATIONAL CODE COU	FIRE DEPT CODES	$123.19
IIA LIFTING SERVICES	ANNUAL SAFETY INSPECTION	$1,485.48
IMS INFRASTRUCTURE MANA	STREET MANAGEMENT	$16,647.37
INGRAM LIBRARY SERVICES	BOOKS FOR LIBRARY	$289.41
INTERSTATE ENGINEERING	BOX CULVERT INSTALL RAINBOW R	$12,954.95
ISA-ARBOR.COM	ANNUAL MEMBERSHIP	$280.00
I & S GROUP, INC.	SPF CREEK PRESERVATION PH2	$2,845.00
JDOG	ABATEMENT -CODE ENFORCEMEN	$675.00
JENNER EQUIPMENT CO	RPR HYDRAULIC-BRISTLES-HOSE-WI	$4,379.05
JOHNSON CONTROLS FIRE	EXHAUST FANS INOP AT REC CENT	$1,117.74
JOHNSON CONTROLS BUILDI	EXHAUST FANS INOP AT REC CENT	$695.79
WASTE CONNECTIONS OF SD	EMPTY RUS CONTAINERS	$1,272.00
KILLIANS FOOD & DRINK	PARKS/REC PROSPECT INTERVIEW	$83.35
MEAD HOLDING COMPANY, I	GRINDER-LADDER-PAINT-CONCRE	$2,589.77
LITTLE CAESARS	OFFICERS VS CREEKSIDE ELEM KID	$412.28
MID-AMERICAN RESEARCH C	NITRILE GLOVES	$912.00
SPEARFISH MCDONALDS	PD INCIDENT FOOD	$36.27
MCKIRDY-WILSEY, EMMA	MAY 2026 FITNESS	$150.00
MCMASTER CARR, INC	EMERGENCY BACKUP LIGHT	$353.55
MONTANA-DAKOTA UTILITIE	4/8/26-5/5/26 GAS USE	$3,937.50

LLJMWT, LLC	IRRIGATION SUPPLIES	$301.38
MOELLER, CHRIS DBA BH A	ROADKILL REMOVAL MAY 2026	$204.00
MONUMENT HEALTH	EMPLOYEE SCREENING	$4,330.09
MY FITNESS REWARDS	APRIL REC CENTER PROGRAM	$21.00
NATIONAL TACTICAL OFFIC	REGISTRATION X2	$528.00
JERRYS TRANSMISSION SER	VALVE	$324.47
NORTH STAR CONSTRUCTION	RAINBOW ROAD CULVER PE 5	$47,857.77
NORTHERN HILLS DOOR	REPLACE BENT OPERATOR ARM	$135.00
HANNAHS GOLF CARS LLC	TAKE OFF WHEEL ASSEMBLY	$45.00
NOVA COLOR	PAINT FOR CAMPGROUND	$148.46
NUTRIEN AG SOLUTIONS IN	TURF FERTILIZER-GRASS SEED	$2,805.00
PRO WINDMILL INC	PEST CONTROL CITY PROPERTIES	$590.00
ON-SITE FIRST AID & SAFETY	RE STOCK FIRST AID-AED BATTERY	$407.50
OPTISIGNS INC	YEARLY SUBSCRIPTION CAMPGROU	$120.00
OVERHEAD DOOR OF RC	RESET TWO FIRE DOORS	$397.96
PARTSONE WYOSD, LLC	STOCK TOOLS FOR NEW RIG	$2,273.70
PETTY CASH	PLAT REIMBURSEMENTS	$92.00
PRIORITY DISPATCH CORP	PRIORITY DISPATCH SYSTEM	$4,032.00
QUADIENT FINANCE USA, I	MAIL POSTAGE REFILL 2/24-6/1	$1,500.00
QUALITY QUICK PRINT	BOOK MARKS LIBRARY	$185.00
QUIK SIGNS INC	POSTER-SIGNS PW-BUSINESS CARDS	$367.22
RACE WHEELS, LLC	MENTAL HEALTH MAY 2026	$4,250.00
REED, THERESA DAWN	CLN DWNTN RESTROOMS MAY 2026	$465.00
RICK SHINABARGER	CDL REIMBURSEMENT	$45.00
RUNNING SUPPLY INC	TOOLS FOR SERVICE TRUCKS	$2,327.61
SAFEWAY	PW APPRECIATION -PD INCIDENT D	$156.47
SANFORD HEALTH OCCMED	EMPLOYEE TESTING	$140.00
SANITATION PRODUCTS	REGULATOR PRESSURE COMP	$103.29
SCHEELS ALL SPORTS	SHOES FOR PD	$145.00
SD ELECTRICAL COMMISSION	ELECTRICAL PERMITS	$150.00
SDML	FO TRAINING	$40.00
SETCOM CORP	HELMET KIT AND SUPER MIC	$1,514.97
SHATTER TACTICAL	SHATTERBALL FOR PD	$167.02
SHERWIN WILLIAMS CO	PAINT FOR STREETS DEPT & REC CE	$2,414.51
SIGN SOLUTIONS USA, LLC	STREET SIGNS	$101.34
SOUTH DAK STATE TREASUR	MAY 2026 SALES TAX	$19,197.01
SPEARFISH AUTO SUPPLY	BATTERY-COUPLER-FILTERS-CALIP	$4,276.67
STAR PLUMBING SERVICE	REPLACE BALL VALVE-POOL BOILE	$772.86
STARLINK	MAY/JUNE SERVICES HYDRO	$50.00
SUMMIT SIGNS & SUPPLY	SIGNS FOR VEHICLES	$175.00
SUPERIOR SANITATION LLC	MAY PORTABLE RESTROOM RENTA	$768.00
SUPERIOR WATER	SALT DELIVERY	$685.61
SYSCO FOOD SERVICES OF	CONCESSIONS FOR WATERPARK	$2,169.03

TABULA ROSA INC	CRITICAL INCIDENT DEBRIEFING	$350.00
TACO JOHNS	PW APPRECIATION BREAKFAST	$218.42
THE FARMHOUSE	MAYOR LUNCH WITH ATTORNEY	$23.69
THOMSON REUTERS WEST	ATTORNEY & PD SUBSCRIPTION	$768.87
TIME EQUIPMENT RENTAL &	LED LIGHT	$270.00
TRANSUNION	DATA PROGRAM FOR PD	$377.10
TUBE PRO INC	TUBES FOR WATER PARK	$2,753.50
TURBIVILLE INDUSTRIAL E	REPAIRED MOTOR	$175.60
ULINE INC	MOBILE WORK CENTER	$567.52
UNITED STATES POSTAL SE	BULK POSTAGE REFILL	$10,000.00
USA BLUE BOOK	GLOVES-ELECTRODE-SULFATE	$599.69
USA TODAY	MAY 2026 SUBSCRIPTION	$41.34
CITY OF SPEARFISH	4/30-5/31 2026 W/S/G	$45,522.20
VANWAY TROPHY & AWARD	AWARD FOR PD	$234.30
VARIOUS FUEL VENDORS FO	FUEL FOR PD TRAVEL	$337.54
CLARITY TELECOM LLC	APRIL 2026 PHONE INTERNET SERVI	$7,392.88
VERIZON WIRELESS	MAR/APRIL 2026	$5,892.76
VISIT SPEARFISH INC	OPERATING GRANT	$27,000.00
WALL STREET JOURNAL	MAY 2026 SUBSCRIPTIONS	$81.76
WALMART.COM	SUMMER REC SUPPLIES-BLOWER-	$2,673.60
WATERS HARDWARE	PRESSURE GAUGE-STARTER-PAINT	$1,246.18
WEST RIVER TRAILER	HYD POWER UNIT FOR RUS	$10,032.19
WESTERN PEAKS LOGISTICS	SHIPPING FOR WATER SAMPLES	$231.76
WESTIN HOTEL	LODGING FOR PD	$815.80
WHITE'S QUEEN CITY MOTO	SILVERADO 3500 FOR MOTOR POOL	$46,591.00
WOLFF'S PLUMBING & HEAT	BYPASS HYDRONIC-RELIEF VALVE-	$6,465.15
ZIMMERMAN, TYLER	BOOT REIMBURSEMENT	$74.99
	TOTAL	$780,390.62

Salary Expense – Hafner moved, Hourigan seconded, and with Hafner, Hourigan, Jacobs, Klarenbeek, and Myers voting aye, motion passed to approve the salary expense, bank fees and credit card fees for the month of May 2026.

MAY 2026 Salary Expense & Credit Card Fees

	Gross Wages/Benefits		Gross Wages	Benefits	
Mayor/Council	$14,751.69	0.90%	$13,703.37	$1,048.32	1.03%
City Administrator	14,551.90	0.89%	12,189.60	2,362.30	0.92%
City Attorney	19,207.80	1.17%	17,862.05	1,345.75	1.34%
Finance	54,521.61	3.32%	44,319.42	10,202.19	3.33%
Human Resources	27,770.17	1.69%	22,740.00	5,030.17	1.71%
Gov't Bldgs	38,550.95	2.35%	30,542.98	8,007.97	2.30%
Public Works Admin	97,268.25	5.93%	79,343.52	17,924.73	5.97%
Engineering	50,847.12	3.10%	41,640.00	9,207.12	3.13%

Police		339,897.43	20.72%	269,015.82	70,881.61	20.23%
Fire		80,041.98	4.88%	65,005.62	15,036.36	4.89%
Bldg Inspection		41,032.49	2.50%	32,752.80	8,279.69	2.46%
Streets & Snow		80,961.57	4.94%	64,952.84	16,008.73	4.88%
Electrical		14,589.66	0.89%	11,414.40	3,175.26	0.86%
Cemetery		15,372.05	0.94%	13,002.08	2,369.97	0.98%
Animal Control		8,179.93	0.50%	6,339.18	1,840.75	0.48%
Recreation/Aquatic		157,745.33	9.62%	133,945.21	23,800.12	10.07%
Parks		86,525.74	5.28%	70,496.28	16,029.46	5.30%
Library		61,305.64	3.74%	49,853.92	11,451.72	3.75%
Plan & Zone		55,672.24	3.39%	45,592.84	10,079.40	3.43%
Motor Pool		46,372.03	2.83%	36,865.64	9,506.39	2.77%
Wildland Fire		839.30	0.05%	724.43	114.87	0.05%
Police Comm		66,490.13	4.05%	53,606.67	12,883.46	4.03%
Water		49,395.24	3.01%	38,459.00	10,936.24	2.89%
Electric Production		31,128.45	1.90%	25,436.88	5,691.57	1.91%
Sewer		46,283.43	2.82%	35,960.48	10,322.95	2.70%
WWTP		56,959.53	3.47%	45,335.62	11,623.91	3.41%
Airport		6,235.64	0.38%	4,643.22	4,505.60	0.35%
Solid Waste		58,348.08	3.56%	47,283.69	11,064.39	3.55%
Campground		19,447.51	1.19%	17,048.70	2,398.81	1.28%
Totals		$1,640,292.89	100.00%	$1,330,076.26	$313,129.81	100.00%
Banking Fees APRIL		102.79				
Credit Card Fees APRIL	$	11,327.07				
Grand Total		$1,651,619.96				

Mayor and Council Discussion

Appointment – Myers moved, Hafner seconded, and all voted to appoint Diana Reth, Anton Peterson, Anna Robinson, Bonnie Halsey, Terry Flamboe, and J. Desy Schoenewies to the Art in Public Places Advisory Committee.

Donation – Mayor Senden reviewed that the Creekside Trail Donation was tabled from the June 1st to the June 15th city council meeting. Recommendation would be to refer this item to the Parks, Recreation and Forestry Advisory Board's July 16th meeting. From there it would move to the city council's July 29th study session. Following discussions, Hourigan moved to refer the previously tabled item back to the Parks, Recreation, and Forestry Advisory Board. The motion died for lack of a second.

Departmental Discussion

McMahon updated council about the Public Works Department's intent to install a 4-way stop at the intersection of Jackson Boulevard and Jonas Boulevard. McMahon also reminded all about upcoming public meeting hosted by the SDDOT on June 18th at Hudson Hall, 222 W. Hudson in Spearfish, on the Exit 10 project. Wysocki mentioned that the Pine Island Bike Race this past weekend had some harsh weather to contend with, but it was an epic race. McDonald reminded

council that the Spearfish Creek Preservation project, phase II, is kicking off and staff is currently gathering input from the community, and the city will be holding an open house on June 23rd at the Pavillion from 3:30 -6:00 p.m. followed by a second open house later this summer. DeNeui announced that the auditors are wrapping up the audit and a draft will be coming forward in the next few weeks. Senden noted the city is getting ready for the 250th celebration of our nation's history this summer and looking forward to a great 4th of July celebration.

There being no further business, Hafner moved, Jacobs seconded, and all voted to adjourn at 7:47 p.m.

Dated this 15th day of June, 2026.

Attest:

By:_____
John Senden, Mayor

_____
Michelle DeNeui, City Finance Officer

Published once at the approximate cost of _____.

Spearfish City Council
Special Session Minutes
June 22, 2026 5:30 p.m.

The Spearfish City Council met at 5:30 p.m. on Monday, June 22, 2026. Mayor Senden was present and called the meeting to order. Roll call was taken with the following members present: Hourigan, Jacobs, Klarenbeek, Myers, and Rath. Absent: Hafner. Also present: Finance Officer DeNeui, Public Works Director McMahon, and Assistant Public Works Director Caron.

Myers moved, Klarenbeek seconded, and all voted to reconsider Change Order #2 for the Colorado Boulevard Sewer Upsize Phase 3 Project that was recently before the Council.

Klarenbeek moved, Rath seconded, and all voted to amend the agenda to add item 4B. Approve Change Order #2 for the Colorado Boulevard Sewer Upsize Phase 3 Project with an increase of $15,040.28 and revised final completion date of July 13, 2026.

Hourigan moved, Jacobs seconded, and all voted to approve the agenda as amended.

McMahon led a discussion on Change Order #2 for the Colorado Boulevard Sewer Upsize Phase 3 Project with an increase of $15,040.28 and revised final completion date of July 13, 2026.

Change Order - Hourigan moved, Rath seconded, and with Hourigan, Jacobs, Klarenbeek, Myers, and Rath voting aye, motion passed to approve Change Order #2 for the Colorado Boulevard Sewer Upsize Phase 3 Project with an increase of $15,040.28 and revised final completion date of July 13, 2026.

A time for public comment was opened at 5:36 p.m. with no comments being received.

There being no further business, Myers moved, Jacobs seconded, and all voted to adjourn at 5:36 p.m.

Dated this 22th day of June, 2026.

Attest:

By:_____
John Senden, Mayor

_____
Michelle DeNeui, City Finance Officer

Published once at the approximate cost of _____.

Agenda Item Report

Public Works Item # 8.E.

Meeting: Regular Session Agenda **Meeting Date:** July 6, 2026
Department: Consent Agenda

Request:
Approve a Temporary Construction Easement Agreement, between the property owner of 644 E 8th St and the City, required for the Mountain View Elementary Alley Water Line Project #2604.

Background Information:
The temporary construction easement is located at 644 E 8th St, and is directly across the alley from the school. This easement has been granted by the adjacent property owner to the city to allow for work to ensure proper surface drainage in the alley following the completion of the project. This easement gives the contractor the ability to maneuver around the site without disrupting work areas, as the property line abuts the project area.

The original version of this Temporary Construction Easement Agreement was signed by the Mayor on April 21st. However, the document has since been reworded at the request of the property owner, and therefore must be resigned by the Mayor.

The property owner requested the Duration portion of the agreement be changed to state the exact termination dates of the agreement, as opposed to the typical language that states "the agreement shall terminate upon the final completion the Project". No changes were made to the meaning of the agreement, the language was simply modified for clarity.

Fiscal Impact: None

Recommended City Council Action: Approve

Staff Contact Information:
Adam McMahon, 605-717-1127, a.mcmahon@spearfish.gov

Attachments:
1. Temp Const Easement R1 - 644 E 8th St

Prepared By:
City of Spearfish
625 North Fifth Street
Spearfish, SD 57783
605-642-1333

TEMPORARY CONSTRUCTION EASEMENT

This **TEMPORARY CONSTRUCTION EASEMENT AND AGREEMENT** (hereinafter "Agreement") is made and entered in this 20 day of April, 2026, by and between **VINCE ROMO & LINDA ROMO**, (hereinafter referred to as "**Owner**") and the **CITY OF SPEARFISH** a municipal corporation and political subdivision of the State of South Dakota, 625 North Fifth Street, Spearfish, South Dakota 57783 (hereinafter "Spearfish").

WHEREAS, **Owner** is the owner of real property described as

The E 20' of Lots 11 & 12 Block 32 Original Town Spearfish, Lawrence County, South Dakota

(hereinafter "Property"); and,

WHEREAS, Spearfish requires a temporary construction easement on the Property for the purpose of storm water utility and drainage improvements and all associated requirements for such as more fully described in the final design and bid documents (hereinafter "Project"); and,

NOW, THEREFORE, for and in consideration of the sum of One Dollar ($1.00) and other good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, **Owner** does hereby grant to Spearfish a Temporary Construction Easement (hereinafter "Easement") under the following terms and conditions within the Property.

1. **Description**. The location and boundaries of this Easement are illustrated by Exhibit A Temporary Construction Easement which is attached hereto and incorporated herein by reference (hereinafter referred to as the "Easement Area").

2. **Purpose**. Spearfish and its contractors shall have the right of ingress and egress upon the Property and Easement Area to place and use the necessary equipment for the Project. Spearfish and its contractors shall have the right of access to the Property and to otherwise be on the Property to do all things necessary to perform the Project to final completion in accordance with the final design of the Project and the Project bid documents.

3. **Property Conditions**. Spearfish agrees it and its contractors will perform all work in a workmanlike manner and, as nearly as reasonably possible and except as may be required for the protection of the Property, the surface of the ground will be restored to original

grades upon the final completion of the Project.

4. **Indemnification**. The City agrees to indemnify and hold **Owner** harmless from and against actions, suits, damages, liability, or other proceedings that may arise out of the actual or alleged negligence of Spearfish as the result of Spearfish's use of this Easement under this Agreement. However, this section does not require Spearfish to be responsible for or to defend against claims or damages arising solely from errors or omissions of **Owner** or its officers, agents, or employees.

5. **Duration**. The Easement and any rights herein conveyed by **Owner** to Spearfish will terminate on **September 21st, 2028**. Normally, the Easement and any rights conveyed would terminate upon the final completion of the Project; however, **Owner** has requested that the easement terminate upon a given date. The stated date is the anticipated end of the two-year warranty period. The contractual substantial completion date of this project is August 21st, 2026, and the overall completion date is September 21st, 2026. The end of the warranty period is subject to change based upon the actual date that the work has been found to be complete and acceptable.

(separate signature page follows)

Owner

Signature

Vince Romo

Print Name

State of South Dakota)
) ss.
County of Lawrence)

On this 29th day of May, 2026, before me, the undersigned officer, personally appeared Vince Romo, known to me or satisfactorily proven to be the person described in the foregoing instrument, and acknowledged that he executed the same in the capacity therein stated and for the purposes therein contained.

In Witness Whereof, I have set my hand and official seal.

(Seal)

Angie Faulkner
NOTARY PUBLIC SOUTH DAKOTA
SEAL SEAL

Notary Public

My Commission Expires: MY COMMISSION EXPIRES SEPTEMBER 14, 2028

Owner

Linda Romo
Signature

Linda Romo
Print Name

State of South Dakota)
) ss.
County of Lawrence)

On this 29th day of May, 2026, before me, the undersigned officer, personally appeared Linda Romo, known to me or satisfactorily proven to be the person described in the foregoing instrument, and acknowledged that he executed the same in the capacity therein stated and for the purposes therein contained.

In Witness Whereof, I have set my hand and official seal.

(Seal)

Angie Faulkner
SEAL NOTARY PUBLIC SOUTH DAKOTA SEAL

Angie Faulkner
Notary Public

My Commission Expires: MY COMMISSION EXPIRES SEPTEMBER 14, 2028

CITY OF SPEARFISH

(Seal)

_____
John Senden, Its Mayor

Attest:

_____
Michelle DeNeui, Finance Officer

State of South Dakota)
) ss.
County of Lawrence)

On this ____ day of _____, 2026, before me, the undersigned officer, personally appeared John Senden and Michelle DeNeui, known to me or satisfactorily proven to be the persons described in the foregoing instrument, and acknowledged that they executed the same in the capacity therein stated and for the purposes therein contained.

In Witness Whereof, I have set my hand and official seal.

(Seal)

_____
Notary Public

My Commission Expires: _____

Agenda Item Report

Finance Item # 9.A.

Meeting: Regular Session Agenda **Meeting Date:** July 6, 2026
Department: Items From Visitors

Request:
BHSU Foundation — Request all building permit fees, tap fees, meter costs, and fire suppression fees be waived for the construction of a new 10-plex unit at an amount not to exceed $30,000.

Background Information:
BHSU Foundation is requesting the fees be waived for a new 10-plex unit to be constructed on Saint Joe Street near the University President's home. Preliminary estimation of the fees is attached and totals $21,400.14 without fire suppression or fire alarm system fees.

Fiscal Impact: Historically, the City has waived permit fees for BHSU, Spearfish School District, and other non-profit organizations on large and minor construction projects. Records could not be found indicating the waiving of permit fees for the Joy Center construction, as of yet. Approval of this request will reduce revenue to the City in the General Fund, Water Fund, and Sewer Fund.

Recommended City Council Action: Approve

Staff Contact Information:
Michelle DeNeui, 605-642-1325, m.deneui@spearfish.gov

Attachments:
1. BHSU Foundation 10 plex fees

Fee Name	Total Fee	Paid	Due	Actions
Building Permit Fee (Remaining 35%)	$3,103.15	$0.00	$3,103.15	
2" Water Tap (Water Availability Charge)	$4,800.00	$0.00	$4,800.00	
2" Sewer Tap (Sewer Availability Charge)	$4,800.00	$0.00	$4,800.00	
2" OMNI C2+ (Water Meter)	$1,703.00	$0.00	$1,703.00	
510m Dual Port (Remote Reading Device)	$214.00	$0.00	$214.00	
1" IPERL (Smart Water Meter)	$267.00	$0.00	$267.00	
Plumbing Permit - Commercial Multi-Family	$300.00	$0.00	$300.00	
Mechanical Permit - Commercial Air Conditioner/Furnace/Water Heater Multi Family	$400.00	$0.00	$400.00	
Mechanical Permit - Exhaust	$50.00	$0.00	$50.00	
Permit Deposit (65%)	$5,762.99	$0.00	$5,762.99	
Select a Fee + Add Fee				
Total	**$21,400.14**	**$0.00**	**$21,400.14**	Pay all

Agenda Item Report

Community Development Item # 11.A.

Meeting: Regular Session Agenda **Meeting Date:** July 6, 2026
Department: Community Development

Request:
Ordinance Revisions Associated with Engineering Design Standards.

Background Information:
Engineering Design Standards (EDS) are intended to "protect the public health, safety, and welfare in the provision and maintenance of public improvements within the city." The development of these standards was led by the city's Engineering Division in close coordination with other departments, and with input from external consultants, elected and appointed officials, the development community, and design professionals. The EDS consolidates design specifications and requirements into a single document, formalizes operational procedures, with the goal of providing design professionals and developers with clear expectations and options. The standards are organized into the following sections which can be accessed here: https://www.spearfish.gov/899/Standards-and-Specifications.

Section 100 - General Provisions
Section 200 - Streets
Section 300 - Wastewater Collection
Section 400 - Water Distribution
Section 500 - Storm Drainage
Section 600 - Grading and Environmental
Section 700 - Street Lighting and Dry Utilities Distribution
Section 800 - Development Process and Submittal Requirements

Elements of the design standards are found throughout the city's Code of Ordinances. The proposed ordinance revisions update language within the several chapters of the city code to align with the standards by removing technical engineering requirements and incorporating references to the standards.

Staff will give a brief review of the chapters containing revisions and the key revisions from each chapter. The powerpoint presentation delivered during the first reading at the 06/15/26 City Council meeting is attached for reference.

Fiscal Impact:

Recommended City Council Action: No Action

Staff Contact Information:
Peter Wysocki, 605-642-1335, p.wysocki@spearfish.gov

Attachments:
1. Presentation of Ordinance Revisions

SPEARFISH CITY COUNCIL
REGULAR MEETING ACTION ITEMS
JUNE 15TH, 2026

PURPOSE

Update code language to align with Engineering Design Standards (EDS):

- Removes technical engineering requirements
- Incorporates references to the standards

Additional minor edits:

- Revises department and personnel names
- Removes erroneous references
- Adds references to Master Fee Schedule

FIRST READING

Ordinance 1419 — An Ordinance Amending The Revised Ordinances of the City of Spearfish, Chapter 50: Utilities Generally.

Ordinance 1420 — An Ordinance Amending The Revised Ordinances of the City of Spearfish, Chapter 52: Water.

Ordinance 1421 — An Ordinance Amending the Revised Ordinances of the City of Spearfish, Chapter 53: Sanitary Sewer Service.

Ordinance 1422 — An Ordinance Amending the Revised Ordinances of the City of Spearfish, Chapter 96: Parks and Recreation.

Ordinance 1423 — Ordinance Repealing and Replacing The Revised Ordinances of the City of Spearfish, Chapter 151: Flood Prevention and Protection.

Ordinance 1424 — An Ordinance Amending The Revised Ordinances of the City of Spearfish, Chapter 153: Public Ways and Property.

Ordinance 1425 — An Ordinance Repealing and Replacing The Revised Ordinances of the City of Spearfish, Chapter 154: Subdivisions.

ORDINANCE 1419. AN ORDINANCE AMENDING THE REVISED ORDINANCES OF THE CITY OF SPEARFISH, CHAPTER 50: UTILITIES GENERALLY

KEY AMENDMENTS INCLUDE:

- Adds EDS to the list of codes and regulations applying to the chapter
- Removes vague language about city utility use.
- References EDS for design of water and sewer systems
- Lists CDD as the reviewer of the design plans, as Council approval comes after this phase.
- Adds language stating that agreement(s) are required for city utility use – i.e. outside of city limits may require a service agreement.

Questions and First Reading

ORDINANCE 1420: AN ORDINANCE AMENDING THE REVISED ORDINANCES OF THE CITY OF SPEARFISH, CHAPTER 52: WATER

KEY AMENDMENTS INCLUDE:

- Adds EDS to the list of codes and regulations.
- Private and shared well language moved from subdivisions to this chapter.
- Water lines to be abandoned using process described in EDS.

Questions and First Reading

ORDINANCE 1421: AN ORDINANCE AMENDING THE REVISED ORDINANCES OF THE CITY OF SPEARFISH, CHAPTER 53: SANITARY SEWER SERVICE.

KEY AMENDMENTS INCLUDE:

- Adds EDS to the list of codes and regulations
- Private wastewater collection and treatment system regulations moved from subdivision to this chapter.

Questions and First Reading

ORDINANCE 1422: AN ORDINANCE AMENDING THE REVISED ORDINANCES OF CHAPTER 96: PARKS AND RECREATION.

KEY AMENDMENTS INCLUDE:

- Adds reference to Spearfish Parks & Recreation Master Plan within section 96.01 System Established.
- Changes management of park and recreation from the Public Works Administrator to the Parks and Recreation Director.

Questions and First Reading

ORDINANCE 1423: AN ORDINANCE AMENDING THE REVISED ORDINANCES OF CHAPTER 151: FLOOD PREVENTION AND PROTECTION.

KEY AMENDMENTS INCLUDE:

- Brings Spearfish's Ordinance in line with the update FEMA template ordinance for South Dakota.
- Organizes regulations by flood zone.
- Reduces the 20-year Substantial Improvement timeline to a 5-year total.

Questions and First Reading

ORDINANCE 1424: AN ORDINANCE AMENDING THE REVISED ORDINANCES OF CHAPTER 153: PUBLIC WAYS AND PROPERTY.

KEY AMENDMENTS INCLUDE:

- Removes specific design and construction requirements for driveways, curb, gutter, sidewalks, street lighting, etc. And replacing with the requirement these improvements now be in conformance with the city's engineering design standards.
- Adds allowable uses of the public right-of-way by owners or lessees of abutting property without an encroachment agreement. These uses include landscaping, driveways and sidewalks (as permitted by the city).
- Removes church signs allowed within the public right-of-way. This conflicted with the city's right-of-way encroachment ordinance or sign permitting ordinance.
- Clarifies the city's permitting requirements for sidewalks and driveways.

Questions and First Reading

ORDINANCE 1425: AN ORDINANCE AMENDING THE REVISED ORDINANCES OF CHAPTER 154: SUBDIVISIONS.

- Planning Commission held a public hearing and reviewed multiple versions
- Staff held a stakeholder input meeting with local surveyors, Planning Commissioner, and developers
- Commission recommended approval of this version in a 4-1 vote with the following revision:

  Subdivisions shall ~~be designed to be consistent with~~ utilize and consider the Master Transportation Plan, Master Utility Plans, Parks and Recreation Master Plan and the Comprehensive Plan

ORDINANCE 1425: AN ORDINANCE AMENDING THE REVISED ORDINANCES OF CHAPTER 154: SUBDIVISIONS.

KEY AMENDMENTS INCLUDE:

- Reorganized for clarity
- Removes existing design standards
  - References EDS which apply to streets, drainage, utilities, traffic impact studies
- Removes private water and wastewater collection language
  - References chapters 52 and 53
  - Maintains minimum lot sizes for these facilities
  - Removes zoning requirements and references land use instead

Questions and First Reading

NEXT STEPS

July 6th City Council Meeting

- Resolution adopting Engineering Design Standards
- 2nd reading of each ordinance with public hearings

EDS Effective date: 20 days after publication of ordinances

Agenda Item Report

Community Development Item # 11.A.1.

Meeting: Regular Session Agenda **Meeting Date:** July 6, 2026
Department: Community Development

Request:
Hold a public hearing and approve the second reading of Ordinance 1419 — An Ordinance Amending The Revised Ordinances of the City of Spearfish, Chapter 50: Utilities Generally.

Background Information:
This ordinance amends Chapter 50 to include revisions related to Engineering Design Standards and other minor corrections related to errors and outdated information. A scrivener's error was identified at the first reading of the ordinance and has been corrected.

Fiscal Impact:

Recommended City Council Action: Approve

Staff Contact Information:
Abbey Larson, 605-717-1131, a.larson@spearfish.gov

Attachments:
1. Ordinance 1419 - An Ordinance Amending The Revised Ordinances of the City of Spearfish, Chapter 50 Utilities Generally

ORDINANCE NO. 1419

AN ORDINANCE AMENDING THE REVISED ORDINANCES OF THE CITY OF SPEARFISH, TITLE V PUBLIC WORKS, CHAPTER 50: UTILITIES GENERALLY.

WHEREAS, the City of Spearfish developed the City of Spearfish Engineering Design Standards ("the standards") which detail policy, methods, practice, and procedures related to the design and development of infrastructure; and

WHEREAS, the standards are intended to protect the public health, safety, and welfare in the provision and maintenance of public, and certain private improvements, within the City of Spearfish; and

WHEREAS, the development of the standards included opportunities for public input from developers, elected officials, design professionals, and community members at large; and

WHEREAS, Resolution 2026-09 formally adopts the standards; and

WHEREAS, existing language within the revised Ordinances of the City of Spearfish includes conflicting, outdated, erroneous, and duplicate information as the standards; and

WHEREAS, the Spearfish Planning Commission held a public hearing on April 7th, 2026, recommended approval of the revisions within this ordinance.

NOW THEREFORE, BE IT ORDAINED by the Common Council of the City of Spearfish that Title V Public Works, Chapter 50 of the Revised Ordinances of the City of Spearfish is hereby amended—with ~~strikethrough~~ indicating text to be deleted, <u>underline</u> indicating text to be added, and the remainder of the Article left unaffected—as follows:

[…]

CHAPTER 50: UTILITIES GENERALLY

Section

General Provisions

50.01 Definition

50.02 Scope of title

50.03 Service to comply with technical regulations

50.04 Inspections outside city

50.05 Termination of service authorized

50.06 Application required

50.07 Use of service assumed

50.08 Right of entry

50.09 Damage, trespass

50.10 Unlawful use

50.11 Interruption of service

50.12 Sale of service by customer

50.13 Connections to service

50.14 Petroleum products prohibited

50.15 Utility user classifications

50.16 Extension of lines

50.17 Multi-unit residential property

50.18 Service line maintenance

50.19 Cost of service line maintenance

50.20 Contractors required to be certified

50.21 Authority to enter contracts

Billing Procedure

50.35 When payment due

50.36 Suspension of utility service; notice; lien created; reinstatement

50.37 Relocation of service to new address; voluntary discontinuance of service

Rates and Charges

50.50 Tap fees

50.51 Deposits required

50.52 Deposits not to pay interest

50.53 Refunds of deposit

50.54 Extension fee

GENERAL PROVISIONS

§ 50.01 DEFINITION.

For the purpose of this chapter, the following definition shall apply unless the context clearly indicates or requires a different meaning.

UTILITY. Water, sewer, garbage collection and/or any other utility service furnished by the city to consumers thereof.

(Prior Code, § 18-1)

§ 50.02 SCOPE OF TITLE.

All pertinent provisions of this chapter are hereby made a part of the terms and conditions whereby the city shall furnish any utility service to any person; or whereby the city shall make any utility connection or perform any work of any kind in connection with the furnishings of any utility service. The city may, for its convenience, install metering devices in connection with any utility service.

(Prior Code, § 18-2)

§ 50.03 SERVICE TO COMPLY WITH TECHNICAL REGULATIONS.

Any utility service furnished under the provisions of this chapter shall be in accordance with and in compliance with all applicable technical provisions of this code, city Engineering Design Standards, state law and city ordinances, rules and regulations.

(Prior Code, § 18-3)

§ 50.04 INSPECTIONS OUTSIDE CITY.

In order to protect the city's utility systems, the city shall not make any taps or connections to such systems outside the city limits until the proposed customer's facilities and premises have been inspected and approved by the appropriate inspector of the city, which inspection shall be made only after deposit of the stipulated fee for such inspection.

(Prior Code, § 18-4)

§ 50.05 TERMINATION OF SERVICE AUTHORIZED.

The city shall have the right to disconnect or refuse to connect or reconnect any utility service for the following reasons:

(A) Failure to meet the applicable provisions of law;

(B) Violation of the rules and regulations pertaining to utility service;

(C) Nonpayment of bills;

(D) Willful or negligent waste of service due to improper or imperfect pipes, fixtures, appliances or otherwise;

(E) Molesting any meter, seal or other equipment controlling or regulating the supply of utility service;

(F) Theft or diversion and/or use of service without payment therefor; and

(G) Vacancy of premises.

(H) Refusal to allow Public Works Department staff access to the premises for repair of a meter or reading device.

(Prior Code, § 18-5)

§ 50.06 APPLICATION REQUIRED.

Any person desiring any utility service furnished by the city shall make application ~~for the same~~ to ~~the City Auditor~~ City Utility Services. Such application shall contain the applicant's name, address and the uses for which such service is desired. A separate application shall be made for each premises to be serviced. The applicant shall abide by the rules and regulations established by the city relative to utility service in effect at the time of his or her application and as they may be revised from time to time.

(Prior Code, § 18-6)

§ 50.07 USE OF SERVICE ASSUMED.

(A) All premises connected to any utility service of the city shall be assumed to be using such service and the owner or occupant shall be charged therefor so long as such service shall remain connected with the utility service.

(B) In the event premises, commercial, residential or other, are not served by independent service lines capable of being shut off, the charges for the services to such residences or premises shall be the responsibility of the owner of the property.

(Prior Code, § 18-7) (Ord. 561, passed 3-19-1984)

§ 50.08 RIGHT OF ENTRY.

Any authorized inspector of the city shall have free access at any reasonable time to all premises supplied with any utility service by the city for the purpose of examination in order to protect the utility service from abusive use. All service meters must be installed/located for easy accessibility by any authorized inspector or maintenance personnel. All meters in new and remodel construction shall be installed so a minimum clearance of 12 inches from the inlet port, 12 inches from the outlet port and 36 inches from one side of the meter is maintained for maintenance access.

(Prior Code, § 18-8) (Ord. 868, passed 9-7-1999; Ord. 1163, passed 10-15-2012)

§ 50.09 DAMAGE, TRESPASS.

(A) It shall be unlawful for any person not having authority to do so to open any water hydrant or tamper with any utility service furnished by the city to consumers or to in any other way molest, damage or trespass upon any equipment or premises belonging to the city connected with any utility service.

(B) It is unlawful for any person to maliciously, willfully or negligently break, damage, destroy, uncover, deface or tamper with any structure, appurtenance or equipment which is a part of the

wastewater facilities. Any person violating this provision shall be subject to a charge of disorderly conduct.

(Prior Code, § 18-9) (Ord. 511, passed 9-20-1982) Penalty, see § 10.99

§ 50.10 UNLAWFUL NOISE.

No person, other than employees of the city, shall be authorized to connect, turn on, turn off or disconnect any utility service offered by the city, or remove, replace or repair any equipment connected to any such utility service unless such person has received permission from the Public Works Department to do so.

(Prior Code, § 18-10) (Ord. 1046, passed 1-2-2007) Penalty, see § 10.99

§ 50.11 INTERRUPTION OF SERVICE.

Consumers of any utility service furnished by the city are hereby notified that the supply of such utility may be temporarily shut off at any time. Notice shall be given, if feasible, of the contemplated shutoff, but accidents may render this impossible; hence the city hereby warns those dependent upon the utility service or any purpose of this hazard. Immediately upon finding the supply shutoff, it becomes the duty of the occupant of the premises to take prompt precautions to prevent damages.

(Prior Code, § 18-11)

§ 50.12 SALE OF SERVICE BY CUSTOMER.

It shall be unlawful for any person to resell any utility service obtained from the city to others except upon written agreement with the Common Council.

(Prior Code, § 18-12) Penalty, see § 10.99

§ 50.13 CONNECTIONS TO SERVICE.

Connections, disconnections, repairs, replacements or removals for any public utility service shall be inspected by the Public Works Department.

(Prior Code, § 18-13) (Ord. 1046, passed 1-2-2007)

§ 50.14 PETROLEUM PRODUCTS PROHIBITED.

The use of the sewer system of the city, including the sanitary sewer system and the storm sewer system, for the disposal of crude oil, refined oil or any and all other petroleum products, is hereby prohibited.

(Prior Code, § 18-14) Penalty, see § 10.99

§ 50.15 UTILITY USER CLASSIFICATIONS.

(A) Class 1, residential. A residential utility user is defined as a single-family unit. Trailers, mobile homes, units in multiple-family dwellings, up to and including four-plex units, are considered residential units when each unit is metered separately.

(B) Class 2, commercial. Commercial utility user units are defined as those units offering goods or services to general public. Some users include, but are not limited to, restaurants, merchandise store, filling stations, motels, hotels, apartments, rental units and trailer parks.

(C) Class 3, industrial. Industrial utility users are defined as those involved in manufacturing or wholesaling. Industrial users are commercial users not involved in the distribution or sale of goods and services to the general public.

(D) Class 4, excessive use units. Excessive use units are defined as those commercial or industrial units whose consumption of water exceeds 225,000 gallons per month.

(Prior Code, § 18-15) (Ord. 714, passed 12-2-1991)

§ 50.16 EXTENSION OF LINES.

~~The city shall run water or sewer lines outside the municipal limits solely at the city's discretion.~~ Any person, corporation, partnership, association, governmental agency or any division or subdivision of government which desires to construct water or sewer lines outside the corporate limits of the city and desires to connect the water or sewer lines to the city's water and/or sewer system shall submit a copy of the plans and specifications for the lines, conforming with the Engineering Design Standards, to the Community Development Department for review and approval. ~~to the Common Council for approval.~~ Such plans and specifications must be approved by the Common Council before construction can begin. All parties connected onto such lines shall be regulated and charged connection fees and other fees as set forth and regulated by the city in the current Master Fee Schedule. Certain agreements for connection and use of city utilities are required.

(Prior Code, § 18-16)

§ 50.17 MULTI-UNIT RESIDENTIAL PROPERTY.

From and after December 1, 1999, all multi-unit residential properties that are serviced by a single metered service line (i.e., one water service meter for more than one individual unit) must be held in the name of the property owner.

(Prior Code, § 18-17) (Ord. 868, passed 9-7-1999)

§ 50.18 SERVICE LINE MAINTENANCE.

(A) It shall be the responsibility of the property owner to maintain water and sanitary sewer service lines from and including the tapping saddle or boot to the structure or property served.

(B) If the curb stop is not in working order, the city will notify property owner by certified mail. If not repaired within two weeks, the city will repair and bill the cost to the property owner. Written agreement will also be accepted between city and property owner to repair within adequate arranged time.

(C) In the event water turn off access is needed, the customer will have 24 hours to move vehicles or other obstructions from the curb stop. Failure to do so will result in a curb stop obstruction fine, and the city reserves the right to have the vehicle or other obstruction removed at the owner's expense.

(Prior Code, § 18-18) (Ord. 996, passed 11-5-2004; Ord. 1147, passed 11-21-2011)

§ 50.19 COST OF SERVICE LINE MAINTENANCE.

The ~~Water/Sewer Utilities Superintendent~~ Public Works Department shall establish a policy, with the consent of the Common Council, for cost associated with repair and maintenance of water and sewer service lines, repair coordination, payment of contractors and ~~time lines~~ timelines for repairs of leaks. The policy shall clearly state costs which are the responsibility of the property owner and those costs that will remain the responsibility of the city.

(Prior Code, § 18-19) (Ord. 1163, passed 10-15-2012)

§ 50.20 CONTRACTORS REQUIRED TO BE CERTIFIED.

Any person who installs, does maintenance on, makes connections to or replaces water or sewer services or lines to the city's system shall hold a city contractor's license and be licensed by the State Plumbing Commission or certified by State Department of Environment and Natural Resources:

(A) Plumbing contractor;

(B) Plumbing journeyman;

(C) Sewer and water contractor;

(D) Sewer and water installer; and

(E) Water distribution operator.

(Prior Code, § 18-20) (Ord. 1163, passed 10-15-2012)

§ 50.21 AUTHORITY TO ENTER CONTRACTS.

Pursuant to SDCL § 9-47-29 (water systems) and SDCL § 9-48-15 (sanitary sewer systems), as from time to time amended, the Common Council is hereby authorized to enter into contracts with private real estate developers to provide for proportionate recapture of costs and expenses for the original installation of utility service trunklines according to criteria hereafter established by the Common Council by resolution for qualification, application, payment, repayment and recapture.

(Prior Code, § 18-301) (Ord. 947, passed 2-3-2003)

BILLING PROCEDURE

§ 50.35 WHEN PAYMENT DUE.

All customer payments for city utility services must be received by the city on or before 4:00 p.m. on the twenty-first day following the date printed on the bill. If, however, that due date falls on a Saturday, Sunday or a legal holiday observed by the city, payment must be received on or before 4:00 p.m. the next business day. If payment is not received by the due date, a 5% penalty will be added to the bill.

(Prior Code, § 18-281) (Ord. 1202, passed 11-17-2014)

§ 50.36 SUSPENSION OF UTILITY SERVICE; NOTICE; LIEN CREATED; REINSTATEMENT.

(A) A customer utility account will be deemed delinquent on the twenty-third day following the date printed on the second consecutive monthly bill if neither monthly bill has been paid. The city will notify customers of a delinquency by mail, which notice shall include the total amount due and the date service may be suspended. Water service may be suspended ~~on the eighth day~~ on or after the date printed on the delinquency notice unless full payment, including all past due and current charges, is received. Wastewater collection, wastewater treatment and garbage pickup service will

continue uninterrupted. To avoid water service suspension, customers may make arrangements with the Utility Billing Department prior to the payment due date indicated on the delinquency notice.

(B) Unpaid utility bills ~~shall become a lien or property tax assessment upon any and all property for which utility service is provided~~ will be sent to a collection agency, and such bill ~~and lien~~ shall be enforceable against the owner of the property.

(C) Suspended water service will not be reinstated until all utility bills, fees, charges, rentals and ~~meter deposits~~ have been paid in full. Reinstatement will occur within 12 hours of full payment.

(D) Monthly ~~connection~~ fees will continue to be assessed even after service is suspended due to nonpayment.

(E) In the event the account holder and the property owner are not the same person and the account holder becomes delinquent on three consecutive occasions, a notice and final bill will be sent to the account holder and the property owner. At the end of the then current billing cycle, the account will be transferred into the property owner's name and will become the property owner's obligation.

(F) The Finance Officer shall develop an administrative utility collection procedure policy to implement procedures concerning this section.

(G) (1) It is the policy of the city to discontinue utility service to customers by reason of nonpayment of bills only after notice and a meaningful opportunity to be heard on disputed bills. The city's form for application for utility service and all bills shall contain, in addition to the title, address, room number and telephone number of the official in charge of billing, clearly visible and easily readable provisions to the effect:

(a) That all bills are due and payable on or before the date set forth on the bill;

(b) That if any bill is not paid by or before that date, a second bill will be ~~mailed~~ sent containing a cutoff notice that if the bill is not paid within ten days of the mailing of the second bill, service will be discontinued for nonpayment; and

(c) That any customer disputing the correctness of his or her bill shall have a right to a hearing at which time he or she may be represented in person and by counsel or any other person of his or her choosing and may present orally or in writing his or her complaint and contentions to the city official in charge of utility billing. This official shall be authorized to order that the customer's service not be discontinued and shall have the authority to make a final determination of the customer's complaint.

(2) Requests for delays or waiver of payment will not be entertained; only questions of proper and correct billing will be considered. In the absence of payment of the bill rendered or resort to the hearing procedure provided herein, service will be discontinued at the time specified, but in no event until the charges have been due and unpaid for at least 30 days.

(3) When it becomes necessary for the city to discontinue utility service to a customer for nonpayment of bills, service will be reinstated only after all bills for service then due have been paid, along with a turn-on charge ~~in the sum of $20~~ as set forth in the current Master Fee Schedule.

(Prior Code, § 18-282) (Ord. 1202, passed 11-17-2014; Ord. 1208, passed 3-3-2015)

§ 50.37 RELOCATION OF SERVICE TO NEW ADDRESS; VOLUNTARY DISCONTINUANCE OF SERVICE.

A utility customer shall give notice to the city's Utility Billing Department three days before relocating or discontinuing city utility services. Failure to give such notice shall cause the customer to be responsible for any charges that may accrue until such notice has been given.

(Prior Code, § 18-284) (Ord. 1202, passed 11-17-2014) Penalty, see § 10.99

RATES AND CHARGES

§ 50.50 TAP FEES.

The City Administrator is hereby required to establish and maintain an administrative policy entitled "the tap fee policy," which describes how the city will handle tap fees. Tap fees to be set by resolution and can be found in city schedule of fees.

(Prior Code, § 18-216) (Ord. 1309, passed 2-3-2020)

§ 50.51 DEPOSITS REQUIRED.

Every applicant for new utility service is required to pay a security deposit. The amount of the deposit is contained within the master fee schedule, which is set and amended by resolution. Deposits will be returned following three years of payment history in the form of a credit on the monthly utility bill. Existing utility customers with a payment history of at least three years are not required to pay a deposit when adding or changing service locations.

(Prior Code, § 18-217) (Ord. 760, passed 8-1-1994; Ord. 1016, passed 8-15-2005; Ord. 1207, passed 3-3-2015)

§ 50.52 DEPOSITS NOT TO PAY INTEREST.

The amount of money deposited with the city as a deposit for utility services shall not bear interest.

(Prior Code, § 18-218)

§ 50.53 REFUNDS OF DEPOSIT.

Refunds of deposits made for utility services shall be made at the discretion of the City Finance Officer after three years of continuous, timely payment of bills. Application of deposit may be made in partial or total settlement of accounts when supply is cut off for nonpayment of bill, or for any infraction or violation of any ordinance, rule or regulation of the city, relative to utility service offered by the city.

(Prior Code, § 18-219) (Ord. 760, passed 8-1-1994; Ord. 1127, passed 10-18-2010)

§ 50.54 EXTENSION FEE.

The city is authorized to charge extension fees pursuant to the terms of utility trunkline cost recapture agreements.

(Prior Code, § 18-220) (Ord. 962, passed 7-21-2003)

****

Severability. The provisions of this ordinance are severable. If any provision of this ordinance or the application thereof to any person or circumstance is held to be invalid, such invalidity shall not affect the remaining provisions or other applications of this ordinance which can be given effect without the invalid provision or application.

Effective Date. This Ordinance will become effective twenty (20) days following publication, which will occur after the ordinance receives second and final reading and approval by the City Council and is signed by the Mayor.

Dated this ____ day of ___, 2026.

CITY OF SPEARFISH

(Seal)

By:_____
John Senden, Its Mayor

Attest:

_____
Michelle DeNeui, Finance Officer

First Reading: June 15, 2026
Second Reading: July 6, 2026
Published: _____, 2026
Effective: _____, 2026

Agenda Item Report

Community Development Item # 11.A.2.

Meeting: Regular Session Agenda **Meeting Date:** July 6, 2026
Department: Community Development

Request:
Hold a public hearing and approve the second reading of Ordinance 1420 — An Ordinance Amending The Revised Ordinances of the City of Spearfish, Chapter 52: Water.

Background Information:
This ordinance amends Chapter 52 to include revisions related to Engineering Design Standards and other minor corrections related to errors and outdated information.

Fiscal Impact:

Recommended City Council Action: Approve

Staff Contact Information:
Abbey Larson, 605-717-1131, a.larson@spearfish.gov

Attachments:
1. Ordinance 1420 - An Ordinance Amending the Revised Ordinances of the City of Spearfish, Chapter 52 Water

ORDINANCE 1420

AN ORDINANCE AMENDING THE REVISED ORDINANCES OF THE CITY OF SPEARFISH, TITLE V PUBLIC WORKS, CHAPTER 52: WATER.

WHEREAS, the City of Spearfish developed the City of Spearfish Engineering Design Standards ("the standards") which detail policy, methods, practice, and procedures related to the design and development of infrastructure; and

WHEREAS, the standards are intended to protect the public health, safety, and welfare in the provision and maintenance of public, and certain private improvements, within the City of Spearfish; and

WHEREAS, the development of the standards included opportunities for public input from developers, elected officials, design professionals, and community members at large; and

WHEREAS, Resolution 2026-09 formally adopts the standards; and

WHEREAS, existing language within the revised Ordinances of the City of Spearfish includes conflicting, outdated, erroneous, and duplicate information as the standards; and

NOW THEREFORE, BE IT ORDAINED by the Common Council of the City of Spearfish that Title V Public Works, Chapter 52 of the Revised Ordinances of the City of Spearfish is hereby amended—with ~~strikethrough~~ indicating text to be deleted, <u>underline</u> indicating text to be added, and the remainder of the Article left unaffected—as follows:

[. . .]

CHAPTER 52: WATER

Section

General Provisions

52.01 Water service lines

52.02 Public hydrants required

52.03 Water meter generally

52.04 Lawn meters

52.05 Reading dials for meters

52.06 Water conservation program and policy

52.07 Outdoor water use

52.08 Amendment of regulations by resolution

52.09 Abandoned water lines

52.10 Water meters

Rates and Charges

52.25 Water service fees by class

52.26 Demand charge on meters

52.27 Estimated charges

52.28 Mobile homes

52.29 High usage inspection

52.30 Service availability rate

52.31 Master meters

GENERAL PROVISIONS

§ 52.01 WATER SERVICE LINES.

Each residential unit or commercial unit within the city shall have a service line sized, designed, and connected with the municipal water system in accordance with this section., State Plumbing Code, and the Engineering Design Standards. ~~Such service lines shall be of material meeting the specifications as set forth by the Water and Wastewater Utilities Superintendent and approved by the City Engineer, and of such size as to meet the minimum requirements of the State Plumbing Code, being ARSD 20:54, and the requirements set forth in the Standard Specifications for Installation and Repair of Water and Sewer Service Lines, as adopted by the city and as may be amended from time to time.~~

(Prior Code, § 18-36) (Ord. 561, passed 3-19-1984; Ord. 797, passed 3-18-1996; Ord. 1180, passed 7-1-2013; Ord. 1181, passed 9-3-2013)

Statutory reference:

Water supply system, see SDCL §§ 9-47-1 et seq.

§ 52.02 PRIVATE AND SHARED WELLS.

(A) Private or shared wells may be permitted for existing lots of record and new subdivisions where municipal water service is unavailable, extension of the City's infrastructure is determined to be impractical by the Public Works Department, and the land use is residential or agricultural.

(B) Lots utilizing private wells shall be a minimum of 8 acres; site-specific conditions may require a greater area.

(C) Shared wells serving multiple lots or dwelling units may be permitted with the establishment of a homeowner's association, maintenance agreement, and easements.

(D) Private or shared wells for residential use shall not be permitted within areas identified for future municipal water service expansion in the City's master utility plans, unless otherwise approved by the City Council based on demonstrated hardship pursuant to 154.051-154.052.

§ 52.02 PUBLIC HYDRANTS REQUIRED.

All hydrants erected in this city for fire purposes are hereby declared to be public hydrants, and no persons other than members of the Fire Department or the City Water Department shall open any of the hydrants or attempt to draw water from the same, or at any time uncover or remove any protection from them, or in any manner interfere with the same except by permission of authorized officials.

(Prior Code, § 18-37) Penalty, see § 10.99

§ 52.03 WATER METER GENERALLY.

(A) Water meters for the measurement of all classes of service provided by the city shall be furnished by the city with the cost thereof borne by the requesting party and paid at the time of receipt of a building permit. Such meters shall be installed by a licensed plumber or authorized person.

(B) The city shall retain control and be responsible for the cost of meter replacement due to normal meter usage.

(C) Any meter having been abused, tampered with, intentionally damaged or damaged through the fault or misuse by the customer shall be replaced at the customer’s expense, costs of which shall be set by resolution.

(Prior Code, § 18-38) (Ord. 649, passed 3-6-1989; Ord. 714, passed 12-2-1991; Ord. 786, passed 12-18-1995; Ord. 1163, passed 10-15-2012)

§ 52.04 LAWN METERS.

Lawn and irrigation meters shall be paid in full the Public Works Department when they are picked up.

(Prior Code, § 18-39) (Ord. 649, passed 3-6-1989; Ord. 714, passed 12-2-1991)

§ 52.05 READING DIALS FOR METERS.

(A) (1) All water meters shall be equipped with a remote reading device capable of being read by a radio receiving unit and/or any future upgrade needed to ensure efficient service provided by the City Water Department. The device shall be installed under the direction of the City Water Department on all water meters, the type of device and the date of installation to be determined by the city.

(2) The cost of installing such device shall be at current value, by resolution and found in the city schedule of fees. The city shall retain ownership of the device, and the device will be under the control of the City Water Department at all times. The device shall be considered as part of the water meter servicing the property and shall not be removed or altered except by employees of the city.

(3) Where an outside meter reading device shall be installed for a nonresidential building and the cost of such installation exceeds the established charge, the property owner shall be required to pay an additional charge which will cover the additional cost of installation.

(B) If the consumer or property owner refuses to grant access to the city to install a remote reading device, the water may be shut off to such property.

(C) City water users whose meters do not have remote reading dials shall purchase the same as determined by the Common Council.

(Prior Code, § 18-40) (Ord. 594, passed 4-7-1986; Ord. 649, passed 3-6-1989; Ord. 771, passed 4-17-1995; Ord. 1016, passed 8-15-2005; Ord. 1102, passed 9-8-2009)

§ 52.06 WATER CONSERVATION PROGRAM AND POLICY.

The City Administrator will establish and maintain an administrative policy adopting a water conservation program that includes conservation levels based on the city's water resources. Violations of a mandatory limitation or rationing under the water conservation policy are subject to the general penalty provision in § 10.99. In addition, the city may disconnect water service to the property violating the mandatory limitation or rationing.

(Prior Code, § 18-41) (Ord. 1352, passed 8-2-2021)

§ 52.07 OUTDOOR WATER USE.

Except when additional restrictions are adopted pursuant to § 52.06, outdoor water use of the city water system is regulated as follows.

(A) Residential or business lawn watering is prohibited between the hours of 11:00 a.m. and 6:00 p.m. Newly installed grass lawns are excepted from this prohibition for two weeks following the installation of the grass lawn. Overseeding an existing lawn does not qualify as a newly installed grass lawn.

(B) No watering may be conducted with an open hose.

(Prior Code, § 18-42) (Ord. 1352, passed 8-2-2021)

§ 52.08 AMENDMENT OF REGULATIONS BY RESOLUTION.

Upon adoption of a resolution by the Common Council declaring an emergency water shortage, the Council may, by resolution, impose additional restrictions and make such other regulations pertaining to the use of water within the city as is deemed in the public interest.

(Prior Code, § 18-43) (Ord. 1352, passed 8-2-2021)

§ 52.09 ABANDONED WATER LINES.

Water service lines shall be abandoned as described in the Engineering Design Standards. ~~Abandoned water lines must be capped or plugged at the corporation stop unless otherwise directed by the Public Works Department.~~

(Prior Code, § 18-44) (Ord. 1046, passed 1-2-2007)

§ 52.10 WATER METERS.

Water meters must be installed within the structures they are serving whenever possible. When a meter pit becomes necessary outside of the structure, the meter(s) must be accessible from ground level without entering the pit.

(Prior Code, § 18-45) (Ord. 1046, passed 1-2-2007)

RATES AND CHARGES

§ 52.25 WATER SERVICE FEES BY CLASS.

(A) Class 1, residential. All rates related to Class 1, residential water service provided by the city are listed in the city fee schedule, which is set and amended by resolution.

(Prior Code, § 18-236)

(B) Class 2, commercial. All rates related to Class 2, commercial water service provided by the city are listed in the city fee schedule, which is set and amended by resolution.

(Prior Code, § 18-237)

(C) Class 3, residential or commercial outside the city limits. All rates related to Class 3, residential or commercial outside the city limits water service provided by the city are listed in the city fee schedule, which is set and amended by resolution.

(Prior Code, § 18-238)

(D) Class 3, industrial. Water rates shall be established by the Common Council for Class 3, industrial purposes by resolution and when or if set, such fees will be listed in the city fee schedule. Such service shall be subject to discontinuance upon written notice 30 days in advance of termination of service.

(Prior Code, § 18-239)

(Ord. 535, passed 4-18-1983; Ord. 603, passed 10-6-1986; Ord. 649, passed 3-6-1989; Ord. 691, passed 11-19-1990; Ord. 714, passed 12-2-1991; Ord. 765, passed 11-21-1994; Ord. 948, passed 2-18-2003; Ord. 1016, passed 8-15-2005; Ord. 1037, passed 10-2-2006; Ord. 1073, passed 10-15-2007; Ord. 1087, passed 11-17-2008; Ord. 1109, passed 10-5-2009)

§ 52.26 DEMAND CHARGE ON METERS.

All rates related to demand charges on meters provided by the city are listed in the city fee schedule, which is set and amended by resolution.

(Prior Code, § 18-240) (Ord. 649, passed 3-6-1989; Ord. 786, passed 12-18-1995; Ord. 849, passed 10-5-1998; Ord. 1016, passed 8-15-2005; Ord. 1109, passed 10-5-2009)

§ 52.27 ESTIMATED CHARGES.

When, for any reason a meter is not read for a period and an estimate is necessary, the consumption of the three previous periods will be used.

(Prior Code, § 18-241)

§ 52.28 MOBILE HOMES.

Each single mobile home upon any residential premises will have a separate water meter chargeable as an ordinary residence.

(Prior Code, § 18-242)

§ 52.29 HIGH USAGE INSPECTION.

Upon request of a utility customer, the city will charge a fee to be set by resolution and can be found in the schedule of fees to inspect service lines for high consumption. If a problem exists that is determined to be city responsibility, the fee will be waived.

(Prior Code, § 18-243) (Ord. 868, passed 9-7-1999; Ord. 1102, passed 9-8-2009)

§ 52.30 SERVICE AVAILABILITY RATE.

(A) There is hereby established a reduced rate (service availability rate) for residential and commercial water and sanitary sewer accounts during extended periods of vacancy of one continuous billing cycle or more.

(B) The service availability rate shall be the current, appropriate minimum rate for water and sanitary sewer service.

(C) There will be a non-refundable service availability rate administration fee established by resolution. This fee will be billed on the customer's utility bill and is required to convert a utility account from full rates to the service availability rate.

(D) The service availability rate will not be applied retroactively under any circumstances and shall become effective only upon notification to the city by the utility account owner of the vacancy or that the meter has been issued for new construction.

(E) The service availability rate may be prorated for the first and final billing periods of the actual vacant period.

(F) Any water usage during a full service availability rate billing cycle will cause the account to be converted to full rates for that corresponding billing cycle and future billing cycles.

(G) If utility account has been converted to full rates due to water usage, re-establishment of a new service availability rate period is required and any applicable fees will be assessed.

(H) The service availability rate shall not apply when a mobile home, building or other structure is removed from the property.

(Prior Code, § 18-244) (Ord. 995, passed 11-5-2004; Ord. 1164, passed 11-5-2012)

§ 52.31 MASTER METERS.

Notwithstanding the provisions of any other section to the contrary, water usage in planned unit developments, mobile home courts and homeowner's associations may, in the sole discretion of the city, be measured by a master meter.

(Prior Code, § 18-245) (Ord. 1016, passed 8-15-2005)

****

Severability. The provisions of this ordinance are severable. If any provision of this ordinance or the application thereof to any person or circumstance is held to be invalid, such invalidity shall not affect the remaining provisions or other applications of this ordinance which can be given effect without the invalid provision or application.

Effective Date. This Ordinance will become effective twenty (20) days following publication, which will occur after the ordinance receives second and final reading and approval by the City Council and is signed by the Mayor.

Dated this _ day of ___, 2026.

CITY OF SPEARFISH

(Seal)

By:_____
John Senden, Its Mayor

Attest:

_____

Michelle DeNeui, Finance Officer

First Reading: June 15, 2026
Second Reading: July 6, 2026
Published: _____, 2026
Effective: _____, 2026

Agenda Item Report

Public Works Item # 11.A.3.

Meeting: Regular Session Agenda **Meeting Date:** July 6, 2026
Department: Community Development

Request:
Hold a public hearing and approve the second reading of Ordinance 1421 — An Ordinance Amending the Revised Ordinances of the City of Spearfish, Chapter 53: Sanitary Sewer Service.

Background Information:
This ordinance amends Chapter 53 to include revisions related to Engineering Design Standards and other minor corrections related to errors and outdated information.

Fiscal Impact:

Recommended City Council Action: Approve

Staff Contact Information:
Abbey Larson, 605-717-1131, a.larson@spearfish.gov

Attachments:
1. Ordinance 1421 - An Ordinance Amending the Revised Ordinances of the City of Spearfish, Chapter 53

ORDINANCE 1421

AN ORDINANCE AMENDING THE REVISED ORDINANCES OF THE CITY OF SPEARFISH, TITLE V PUBLIC WORKS, CHAPTER 53: SANITARY SEWER SERVICE.

WHEREAS, the City of Spearfish developed the City of Spearfish Engineering Design Standards ("the standards") which detail policy, methods, practice, and procedures related to the design and development of infrastructure; and

WHEREAS, the standards are intended to protect the public health, safety, and welfare in the provision and maintenance of public, and certain private improvements, within the City of Spearfish; and

WHEREAS, the development of the standards included opportunities for public input from developers, elected officials, design professionals, and community members at large; and

WHEREAS, Resolution 2026-09 formally adopts the standards; and

WHEREAS, existing language within the revised Ordinances of the City of Spearfish includes conflicting, outdated, erroneous, and duplicate information as the standards; and

NOW THEREFORE, BE IT ORDAINED by the Common Council of the City of Spearfish that Title V Public Works, Chapter 53 of the Revised Ordinances of the City of Spearfish is hereby amended—with ~~strikethrough~~ indicating text to be deleted, <u>underline</u> indicating text to be added, and the remainder of the Article left unaffected—as follows:

[. . .]

CHAPTER 53: SANITARY SEWER SERVICE

Section

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GENERAL PROVISIONS

§ 53.001 DEFINITIONS.

For the purpose of this chapter, the following definitions shall apply unless the context clearly indicates or requires a different meaning.

BIOCHEMICAL OXYGEN DEMAND (BOD). The quantity of oxygen utilized in the biochemical oxidation of organic matter under standard laboratory procedure in five days at 20°C, expressed in milligrams per liter.

BUILDING DRAIN. The part of the lowest horizontal piping of a drainage system which receives the discharge from soil, waste and other drainage pipes inside the walls of the building and conveys it to the building sewer, beginning five feet (one and one-half meters) outside the inner face of the building wall.

BUILDING SEWER. The extension from the building drain to the public sewer or other place of disposal, also called HOUSE CONNECTION.

COMBINED SEWER. A sewer intended to receive both wastewater and storm or surface water.

EASEMENT. An acquired legal right for the specific use of land owned by others.

FLOATABLE OIL. Oil, fat or grease in a physical state such that it will separate by gravity from wastewater by treatment in an approved pre-treatment facility. A wastewater shall be considered free of floatable fat if it is properly pretreated and the wastewater does not interfere with the collection system.

GARBAGE. The animal and vegetable waste resulting from the handling, preparation, cooking and serving of foods.

INDUSTRIAL WASTES. The wastewater from industrial processes, trade or business as distinct from domestic or sanitary wastes.

NATURAL OUTLET. Any outlet, including storm sewers and combined sewer overflows, into a watercourse, pond, ditch, lake or other body of surface or groundwater.

pH. The logarithm of the reciprocal of the hydrogen-ion concentration. The concentration is the weight of hydrogen ions, in grams, per liter of solution. Neutral water, for example, has a pH value of seven and a hydrogen-ion concentration of ten to seven.

PROPERLY SHREDDED GARBAGE. The wastes from the preparation, cooking and dispensing of food that have been shredded to such a degree that all particles will be carried freely under the flow conditions normally prevailing in public sewers, with no particle greater than one-half inch (1.27 centimeters) in any dimension.

PUBLIC SEWER. A common sewer controlled by a governmental agency or public utility.

SANITARY SEWER. A sewer that carries liquid and water-carried wastes from residences, commercial buildings, industrial plants and institutions together with minor quantities of groundwater, stormwater and surface waters that are not admitted intentionally.

SEWAGE. The spent water of a community. The preferred term is WASTEWATER.

SEWER. A pipe or conduit that carries wastewater or drainage water.

SLUG. Any discharge of water or wastewater which in concentration of any given constituent or in quantity of flow exceeds for any period of duration longer than 15 minutes more than five times the average 24-hour concentration or flows during normal operation and shall adversely affect the collection system and/or performance of the wastewater treatment works.

STORM DRAIN or STORM SEWER. A drain or sewer for conveying water, groundwater, subsurface water or unpolluted water from any source.

SUPERINTENDENT. The Superintendent of wastewater facilities and/or of wastewater treatment works and/or of water pollution control) of the city.

SUSPENDED SOLIDS. Total suspended matter that either floats on the surface of, or is in suspension in water, wastewater or other liquids and that is removable by laboratory filtering as prescribed in Standard Methods for the Examination of Water and Wastewater and referred to as nonfilterable residue.

UNPOLLUTED WATER. Water of quality equal to or better than the effluent criteria in effect or water that would not cause violation of receiving water quality standards and would not be benefited by discharge to the sanitary sewers and wastewater treatment facilities provided.

WASTEWATER. The spent water of a community. From the standpoint of source, it may be a combination of the liquid and water-carried wastes from residences, commercial buildings, industrial plants and institutions, together with any groundwater, surface water and stormwater that may be present.

WASTEWATER FACILITIES. The structures, equipment and processes required to collect, carry away and treat domestic and industrial wastes and dispose of the effluent.

WASTEWATER TREATMENT WORKS. An arrangement of devices and structures for treating wastewater, industrial wastes and sludge. Sometimes used as synonymous with "waste treatment plant" or "wastewater treatment plant" or "water pollution control plant."

WATERCOURSE. A natural or artificial channel for the passage of water either continuously or intermittently.

(Prior Code, § 18-61) (Ord. 511, passed 9-20-1982)

Statutory reference:

Sewer systems, see SDCL §§ 9-48-1 et seq.

§ 53.002 SEWER SERVICE LINES.

Each residential unit or commercial unit within the city shall have a service line sized, designed, and connected with the municipal sewer system in accordance with this section, State Plumbing Code, and the Engineering Design Standard. ~~Such service lines shall be of material meeting the specifications as set forth by the Water and Wastewater Utilities Superintendent and approved by the City Engineer and of such size to meet the minimum requirements of the State Plumbing Code, being ARSD 20:54, and the requirements set forth in the Engineering Design Standards for~~

~~Installation and Repair of Water and Sewer Service Lines, as adopted by the city and as may be amended from time to time.~~

(Prior Code, § 18-62) (Ord. 1180, passed 7-1-2013; Ord. 1181, passed 9-3-2013)

§ 53.003 UNSANITARY DEPOSITS PROHIBITED.

It shall be unlawful for any person to place, deposit or permit to be deposited in any unsanitary manner on public or private property within the city, or in any area under the jurisdiction of the city, any human or animal excrement, garbage or other objectionable waste.

(Prior Code, § 18-63) (Ord. 511, passed 9-20-1982) Penalty, see § 53.999

§ 53.004 DISCHARGES INTO NATURAL OUTLET.

It shall be unlawful to discharge to any natural outlet within the city, or in any area under the jurisdiction of the city any sewage or other polluted waters, except where suitable treatment has been provided in accordance with subsequent provisions of this chapter.

(Prior Code, § 18-64) (Ord. 511, passed 9-20-1982) Penalty, see § 53.999

§ 53.005 DISPOSAL OF WASTEWATER.

(A) Except as hereinafter provided, it shall be unlawful to construct or maintain any privy, privy vault, cesspool or other facility intended or used for the disposal of wastewater.

(B) Alternate plumbing fixtures and disposal methods may be acceptable based on engineering designs and national standards when approved by the authority having jurisdiction.

(Prior Code, § 18-65) (Ord. 511, passed 9-20-1982; Ord. 1046, passed 1-2-2007; Ord. 1154, passed 9-17-2012) Penalty, see § 53.999

§ 53.006 WHEN SEWER CONNECTION REQUIRED; EXCEPTIONS.

(A) The owner of each house, building or property used for human occupancy, employment, recreation or other purposes, situated within the city and abutting on any street, alley or right-of-way in which there is now located or may in the future be located a public sanitary or combined sewer of the city, is hereby required, at the owner's expense, to install suitable toilet facilities therein and to connect such facilities directly with the proper public sewer in accordance with the provisions of this chapter within 90 days after date of official notice to do so, provided a public sewer is within 200 feet of the property line.

(B) Under circumstances where alternate plumbing fixtures and disposal methods have been allowed within the 200 feet requirement and nuisances develop from these systems, connection to the municipal sanitary system must be completed within 90 days.

(C)Private wastewater collection or treatment systems may be permitted by the City for existing lots of record and new subdivisions where municipal wastewater service is unavailable, extension of the

City's infrastructure is determined to be impractical by the Public Works Department, and the land use is residential or agricultural.

(D) Lots utilizing private wastewater treatment systems shall be a minimum of 1 acres provided that the lot is connected to municipal or shared water source; site-specific conditions may require a greater area.

(E) Subdivision applications proposing private wastewater treatment systems shall include satisfactory percolation tests and any additional soil or site evaluations required by the Engineering Division.

(F) Private wastewater treatment systems shall not be permitted within areas identified for existing or planned municipal wastewater service extensions in the City's adopted utility master plans, unless otherwise approved by the City Council based on demonstrated hardship pursuant to 154.051-154.052.

(G) Property owners utilizing private septic systems shall submit a septic tank inspection report prepared by a state-certified on-site wastewater installer, or registered professional engineer, to the City's Building Services Department every three (3) years.

ADMINISTRATION

§ 53.020 RIGHT OF ENTRY.

The Superintendent and other duly authorized employees of the city bearing proper credentials and identification shall be permitted to enter all properties for the purposes of inspection, observation, measurement, sampling and testing pertinent to discharge to the community system in accordance with the provisions of this chapter.

(Prior Code, § 18-86) (Ord. 511, passed 9-20-1982)

§ 53.021 RIGHT TO INFORMATION.

The Superintendent or other duly authorized employees are authorized to obtain information concerning industrial processes which have a direct bearing on the kind and source of discharge to the wastewater collection system. The industry may withhold information considered confidential. The industry must establish that the revelation to the public of the information in question might result in an advantage to competitors.

(Prior Code, § 18-87) (Ord. 511, passed 9-20-1982)

§ 53.022 LIABILITY OF COMPANIES, CITY.

While performing the necessary work on private properties referred to in this chapter, the Superintendent or duly authorized employees of the city shall observe all safety rules applicable to the premises established by the company, and the company shall be held harmless for injury or death to the city employees. The city shall indemnify the company against loss or damage to its property by city employees and against liability claims and demands for personal injury or property damage asserted against the company growing out of the gauging and sampling operation, except as

such may be caused by negligence or failure of the company to maintain safe conditions as required in § 53.086.

(Prior Code, § 18-88) (Ord. 511, passed 9-20-1982)

§ 53.023 ENTRY ONTO CERTAIN EASEMENTS.

The Superintendent and other duly authorized employees of the city bearing proper credentials and identification shall be permitted to enter all private properties through which the city holds a duly negotiated easement for the purposes of, but not limited to, inspection, observation, measurement, sampling, repair and maintenance of any portion of the wastewater facilities lying within such easement. All entry and subsequent work, if any, on such easement, shall be done in full accordance with the terms of the duly negotiated easement pertaining to the private property involved.

(Prior Code, § 18-89) (Ord. 511, passed 9-20-1982)

PRIVATE DISPOSAL SYSTEMS

§ 53.035 WHEN REQUIRED.

Where a public sanitary ~~or combined sewer~~ is not available under the provisions of this subchapter, the building sewer shall be connected to a private wastewater disposal system complying with the provisions of this subchapter.

(Prior Code, § 18-106) (Ord. 511, passed 9-20-1982)

§ 53.036 PERMIT REQUIRED~~; FEE.~~

(A) Before commencement of construction of a private wastewater disposal system, the owner shall first obtain applicable permits and approval from the city and South Dakota Department of Agriculture and Natural Resources (DANR).

(1) A copy of applicable state permits shall be provided to the city.

~~written permit signed by the Superintendent. The application for such permit shall be made on a form furnished by the city, which the applicant shall supplement by any plans, specifications and other information as are deemed necessary by the Superintendent.~~

~~(B) A permit and inspection fee may be charged by the city at the time the application is filed.~~

~~(Prior Code, § 18-107) (Ord. 511, passed 9-20-1982)~~

~~§ 53.037 INSPECTION, APPROVAL OF WORK.~~

~~A permit for a private wastewater disposal system shall not become effective until the installation is completed to the satisfaction of the Superintendent. The Superintendent shall be allowed to inspect the work at any stage of construction, and, in any event, the applicant for the permit shall notify the Superintendent when the work is ready for final inspection, and before any underground portions are covered. The inspection shall be made within 24 hours of the receipt of notice by the Superintendent.~~

~~(Prior Code, § 18-108) (Ord. 511, passed 9-20-1982)~~

~~§ 53.038 SPECIFICATIONS GENERALLY.~~

~~The type, capacities, location and layout of a private wastewater disposal system shall comply with all recommendations of the State Department of Water and Natural Resources. No permit shall be issued for any private wastewater disposal system employing subsurface soil absorption facilities where the area of the lot is less than one acre. No septic tank or cesspool shall be permitted to discharge to any natural outlet.~~

~~(Prior Code, § 18-109) (Ord. 511, passed 9-20-1982)~~

§ 53.039 CONNECTION TO PUBLIC SEWER; FILLING OF PRIVATE FACILITY.

At such time as a public sewer becomes available to property served by a private wastewater disposal system, as provided in § 53.038, a direct connection shall be made to the public sewer within 60 days in compliance with this subchapter and state regulations. ~~, and any septic tanks, cesspools and similar private wastewater disposal facilities shall be cleaned of sludge and filled with suitable material.~~

(Prior Code, § 18-110) (Ord. 511, passed 9-20-1982)

§ 53.040 SANITARY MAINTENANCE.

The owner shall operate and maintain the private wastewater disposal facilities in a sanitary manner at all times, at no expense to the city.

(Prior Code, § 18-111) (Ord. 511, passed 9-20-1982)

~~§ 53.041 ADDITIONAL REQUIREMENTS.~~

~~No statement contained in this subchapter shall be construed to interfere with any additional requirements that may be imposed by the health officer.~~

(Prior Code, § 18-112) (Ord. 511, passed 9-20-1982)

BUILDING SEWERS AND SANITARY SEWER
SYSTEM CONNECTIONS

§ 53.055 PERMIT REQUIRED

No unauthorized person shall uncover, make any connections with or opening into, use, alter or disturb any public sewer or appurtenance thereof without first having plans and specifications approved by the city Engineer and providing notice prior to time of connection to the city Utilities Department. ~~obtaining a written permit from the Superintendent~~.

(Prior Code, § 18-131) (Ord. 511, passed 9-20-1982)

§ 53.056 CLASSIFICATION OF PERMITS; INSPECTION FEE.

(A) (1) There shall be two classes of building sewer permits:

(a) For residential and commercial service; and

(b) For service to establishments producing industrial wastes.

(2) In either case, the owner or his or her agent shall make application on ~~a special form furnished by the city~~ the city's online permitting and licensing portal. The permit application shall be supplemented by any plans, specifications or other information considered pertinent in the judgment of the ~~Superintendent~~ City Engineer.

(B) A permit and inspection fee for residential, commercial and industrial building sewer permits shall be paid to the city at the time the application is filed.

(Prior Code, § 18-132) (Ord. 511, passed 9-20-1982)

§ 53.057 LIABILITY FOR COSTS.

All costs and expenses incidental to the installation and connection of the building sewer shall be borne by the owner. The owner shall indemnify the city from any loss or damage that may directly or indirectly be occasioned by the installation of the building sewer.

(Prior Code, § 18-133) (Ord. 511, passed 9-20-1982)

§ 53.058 SEPARATE CONNECTIONS; ADJOINING PROPERTIES.

A separate and independent building sewer shall be provided for every building, except where one building stands at the rear of another on an interior lot and no private sewer is available or can be constructed to the rear building through an adjoining alley, court, yard or driveway, the building sewer from the front building may be extended to the rear building and the whole considered as one building sewer, but the city does not and will not assume any obligation or responsibility for damage caused by or resulting from any such single connection aforementioned.

(Prior Code, § 18-134) (Ord. 511, passed 9-20-1982)

§ 53.059 USE OF OLD SEWERS.

Old building sewers may be used in connection with new buildings only when they are found, on examination and test by the ~~Superintendent~~ Utilities Department, to meet all requirements of this subchapter.

(Prior Code, § 18-135) (Ord. 511, passed 9-20-1982)

§ 53.060 TECHNICAL SPECIFICATIONS.

The size, slope, alignment, materials of construction of all sanitary sewers, ~~including building sewers, and the methods to be used in excavating, placing of the pipe, jointing, testing and back-filling the trench,~~ shall all conform to the requirements of Engineering Design Standard and adopted building and codes. ~~the building and plumbing code or other applicable rules and regulations of the city.~~ In the absence of suitable code provisions ~~or in application thereof~~, the materials and procedures set forth in appropriate specifications of the American Society for Testing and Materials (ASTM) ~~A.S.T.M. and W.P.C.F. Manual of Practice No. 9~~ shall apply.

(Prior Code, § 18-136) (Ord. 511, passed 9-20-1982)

§ 53.061 POINT OF CONNECTION; LIFTER.

Whenever possible, the building sewer shall be brought to the building at an elevation below the basement floor. In all buildings in which any building drain is too low to permit gravity flow to the public sewer, sanitary sewage carried by such building drain shall be lifted by an approved means and discharged to the building's sewer.

(Prior Code, § 18-137) (Ord. 511, passed 9-20-1982)

§ 53.062 SURFACE RUNOFF RESTRICTED.

(A) No person shall make connection of roof downspouts, foundation drains, areaway drains or other sources of surface runoff or groundwater to a building sewer or building drain which in turn is connected directly or indirectly to a public sanitary sewer unless such connection is approved by the city Engineer ~~superintendent~~ for purposes of disposal of polluted surface drainage.

~~(B) The connection of the building sewer into the public sewer shall conform to the requirements of the building and plumbing code or other applicable rules and regulations of the city, or the procedures set forth in appropriate specifications of the A.S.T.M. and the W.E.F. Manual of Practice No. 9. All such connections shall be made gastight and watertight and verified by proper testing. Any deviation from the prescribed procedures and materials must be approved by the Superintendent before installation.~~

(Prior Code, § 18-138) (Ord. 511, passed 9-20-1982; Ord. 1046, passed 1-2-2007)

§ 53.063 REQUEST FOR INSPECTION.

The applicant for the building sewer permit shall notify the ~~Superintendent~~ Building Services when the building sewer is ready for inspection and connection to the public sewer. The connection and testing shall be made under the supervision of the ~~Superintendent~~ Utilities Department.

(Prior Code, § 18-139) (Ord. 511, passed 9-20-1982)

§ 53.064 EXCAVATIONS.

All excavations for building sewer installation shall be adequately guarded with barricades and lights so as to protect the public from hazard. Streets, sidewalks, parkways and other public property disturbed in the course of the work shall be restored in a manner satisfactory to the city.

(Prior Code, § 18-140) (Ord. 511, passed 9-20-1982)

§ 53.065 ABANDONED SEWER LINES.

Abandoned sewer lines will be removed from the sewer main and the patch in the sewer line will be replaced pursuant to the current method approved by the Public Works Department.

(Prior Code, § 18-141) (Ord. 1046, passed 1-2-2007)

SANITARY SEWER SYSTEM USE

§ 53.080 UNPOLLUTED DISCHARGES.

(A) Generally. No person shall discharge or cause to be discharged any unpolluted waters ~~such as stormwater, surface water, groundwater, roof runoff, subsurface drainage or cooling water~~ to any sewer, except stormwater runoff from limited areas~~, which stormwater may be polluted at times, may be discharged to the sanitary sewer by permission of the Superintendent~~ with permission from the Public Works Director.

(Prior Code, § 18-156)

(B) ~~Combined, s~~Storm sewers~~,~~ natural outlets. Stormwater, other than that exempted under division (A) above, and all other unpolluted drainage shall be discharged to ~~such sewers as are specifically designated as combined sewers or~~ storm sewers, or to a natural outlet approved by the ~~Superintendent~~ Utilities Department and other regulatory agencies. Unpolluted industrial cooling water or process waters may be discharged, on approval of the ~~Superintendent~~ entity having regulatory authority, to a storm sewer, ~~combined sewer~~ or natural outlet.

(Prior Code, § 18-157)

(Ord. 511, passed 9-20-1982) Penalty, see § 53.999

§ 53.081 DISCHARGES PROHIBITED INTO PUBLIC SEWERS.

No person shall discharge or cause to be discharged any of the following described water or wastes to any public sewers:

(A) Any gasoline, benzene, naphtha, fuel oil or other flammable or explosive liquid, solid or gas.

(B) Any waters containing toxic or poisonous solids, liquids or gases in sufficient quantity, either singly or by interaction with other wastes, to contaminate the sludge of any municipal systems, or to injure or interfere with any sewage treatment process, constitute a hazard to humans or animals, create a public nuisance or create any hazard in or have an adverse effect on the waters receiving any discharge from the treatment works. Any user discharging any toxic pollutants which cause an increase in the costs of managing the effluent or the sludge of the city's treatment works, shall pay for such increased costs.

(C) Any waters or wastes having a pH lower than 5.5 or having any other corrosive property capable of causing damage or hazard to structures, equipment and personnel of the wastewater works.

(D) Solid or viscous substances in quantities or of such size capable of causing obstruction to the flow in sewers, or other interference with the proper operation of the wastewater facilities such as, but not limited to, ashes, cinders, sand, mud, straw, shavings, metal, glass, rags, feathers, tar, plastics, wood, unground garbage, whole blood, paunch manure, hair and fleshings, entrails and paper dishes, cups, milk containers and the like, either whole or ground by garbage grinders.

(Prior Code, § 18-158) (Ord. 511, passed 9-20-1982) Penalty, see § 53.999

§ 53.082 CERTAIN DISCHARGES LIMITED.

(A) The following described substances, materials, waters or waste shall be limited to discharges to municipal systems to concentrations or quantities which will not harm either the sewers, wastewater treatment process or equipment, will not have an adverse effect on the receiving stream, or will not otherwise endanger lives, limb, public property or constitute a nuisance. The ~~Superintendent~~ Public Works Director may set limitations lower than the limitations established in the regulations below if in his or her opinion such more severe limitations are necessary to meet the above objectives. In forming his or her opinion as to the acceptability, the ~~Superintendent~~ Public Works Director will give consideration to such factors as the quantity of subject waste in relation to flows and velocities in the sewers, materials of construction of the sewers, the wastewater treatment process employed, capacity of the wastewater treatment plant, degree of treatability of the waste in the wastewater treatment plant and other pertinent factors.

(B) The limitations or restrictions on materials or characteristics of waste or wastewater~~s~~ discharged to the sanitary sewer which shall not be violated without approval of the ~~Superintendent~~ Public Works Director are as follows:

(1) Wastewater having a temperature higher than 150°F (65°C);

(2) Wastewater containing more than 25 milligrams per liter of petroleum oil, nonbiodegradable cutting oils or product of mineral oil origin;

(3) Wastewater from industrial plants containing floatable oils, fat or grease;

(4) Any garbage that has not been properly shredded (see § 53.001). Garbage grinders may be connected to sanitary sewers from homes, hotels, institutions, restaurants, hospitals, catering establishments or similar places where garbage originates from the preparation of food in kitchens for the purpose of consumption on the premises or when served by caterers;

(5) Any waters or wastes containing iron, chromium, copper, zinc, mercury and similar objectionable or toxic substances to such degree that any such material received in the composite wastewater at the wastewater treatment works exceeds the limits established by the Superintendent for such materials;

(6) Any waters or wastes containing odor-producing substances ~~exceeding limits which may be established by the Superintendent~~;

(7) Any radioactive wastes or isotopes of such half-life or concentration as may exceed limits established by the Superintendent in compliance with applicable state or federal regulations;

(8) Quantities of flow, concentrations or both which constitute a slug;

(9) Waters or wastes containing substances which are not amenable to treatment or reduction by the wastewater treatment processes employed, or are amenable to treatment only to such degree that the wastewater treatment plant effluent cannot meet the requirements of other agencies having jurisdiction over discharge to the receiving waters; and

(10) Any waters or wastes which, by interaction with other water or wastes in the public sewer system, release obnoxious gases, form suspended solids which interfere with the collection system or create a condition deleterious to structures and treatment processes.

(Prior Code, § 18-159) (Ord. 511, passed 9-20-1982)

§ 53.083 DISCRETIONARY AUTHORITY OF SUPERINTENDENT.

(A) If any waters or wastes are discharged, or are proposed to be discharged to the public sewers, which waters contain the substances or possess the characteristics enumerated in § 53.082, and in the judgment of the Public Works Director ~~Superintendent~~ may have a deleterious effect upon the wastewater facilities, processes, equipment or receiving waters, or which otherwise create a hazard to life or constitute a public nuisance, the city ~~Superintendent~~ may:

(1) Reject the wastes;

(2) Require pretreatment to an acceptable condition for discharge to the public sewers;

(3) Require control over the quantities and rates of discharge; and/or

(4) Require payment to cover the added cost of handling and treating the wastes not covered by existing taxes or sewer charges under the provisions of § 53.088.

(B) When considering the above alternatives, the Public Works Director ~~Superintendent~~ shall give consideration to the economic impact of each alternative on the discharger. If the Public Works Director ~~Superintendent~~ permits the pretreatment or equalization of waste flows, the design and installation of the plants and equipment shall be subject to the review and approval by the city Engineer. ~~of the Superintendent.~~

(Prior Code, § 18-160) (Ord. 511, passed 9-20-1982)

§ 53.084 INTERCEPTORS.

(A) Grease, oil and sand interceptors shall be provided when, in the opinion of the ~~Superintendent~~ Community Development Department or Public Works Department, they are necessary for the proper handling of liquid wastes containing floatable grease in excessive amounts as specified in § 53.082(B)(3), or any flammable wastes, sand or other harmful ingredients; except that such interceptors shall not be required for private living quarters or dwelling units.

(B) All interceptors shall be of a type and capacity approved by the ~~Superintendent~~ Community Development Department and shall be located so as to be readily and easily accessible for cleaning and inspection. In the maintaining of these interceptors, the owner shall be responsible for the proper removal and disposal by appropriate means of the captivated material and shall maintain records of the dates and means of disposal which are subject to review by the Public Works Department ~~Superintendent. Any removal and hauling of the collected materials not performed by owner personnel must be performed by currently licensed waste disposal firms.~~

(Prior Code, § 18-161) (Ord. 511, passed 9-20-1982)

§ 53.085 PRETREATMENT, FLOW-EQUALIZING FACILITIES.

Where pretreatment or flow-equalizing facilities are provided or required for any waters or wastes, they shall be maintained continuously in satisfactory and effective operation by the owner at his or her expense.

(Prior Code, § 18-162) (Ord. 511, passed 9-20-1982)

§ 53.086 CONTROL STRUCTURES.

~~When required, by the Superintendent, t~~ The owner of any property serviced by a building sewer carrying industrial wastes shall install a suitable structure together with such necessary meters and other appurtenances in the building sewer to facilitate observation, sampling and measurement of the wastes. Such structures, when required, shall be accessibly and safely located and shall be constructed in accordance with approved plans ~~approved by the Superintendent~~. The structure shall be ~~installed by the owner at his or her expense and shall~~ be maintained by him or her so as to be safe and accessible at all times.

(Prior Code, § 18-163) (Ord. 511, passed 9-20-1982)

§ 53.087 CERTAIN INFORMATION MAY BE REQUIRED.

(A) The ~~Superintendent~~ Utilities Department may require a user of sewer services to provide information needed to determine compliance with this subchapter.

(B) These requirements may include:

(1) Wastewaters' discharge peak rate and volume over a specified time period;

(2) Chemical analyses of wastewaters;

(3) Information on raw materials, processes and products affecting wastewater volume and quality;

(4) Quantity and disposition of specific liquid, sludge, oil, solvent or other materials important to sewer use control;

(5) A plot plan of sewers of the user's property showing sewer pretreatment facility location;

(6) Details of wastewater pretreatment facilities; and

(7) Details of systems to prevent and control the losses of materials through spills to the municipal sewer.

(Prior Code, § 18-164) (Ord. 511, passed 9-20-1982)

§ 53.088 STANDARD FOR MEASUREMENTS, TESTS AND THE LIKE.

All measurements, tests and analyses of the characteristics of waters and wastes to which reference is made in this subchapter shall be determined in accordance with the latest edition of Standard Methods for the Examination of Water and Wastewater, published by the American Public Health Association. Sampling methods, location, times, durations and frequencies are to be determined on an individual basis subject to approval by the ~~Superintendent~~ Public Works Department.

(Prior Code, § 18-165) (Ord. 511, passed 9-20-1982)

§ 53.089 STATUS OF SPECIAL AGREEMENT.

No statement contained in this subchapter shall be construed as preventing any special agreement or arrangement between the city and any industrial concern whereby an industrial waste of unusual strength or character may be accepted by the city for treatment.

(Prior Code, § 18-166) (Ord. 511, passed 9-20-1982)

RATE DETERMINATION SYSTEM

§ 53.100 PURPOSE.

The purpose of this subchapter shall be to generate sufficient revenue to pay all costs for the operation and maintenance of the complete wastewater system. The costs shall be distributed to all users of the wastewater system in proportion to each user's contribution to the total loading of the treatment works. Factors such as strength (BOD and SS), volume and delivery flow rate characteristics shall be considered and included as the basis for the user's contribution to ensure a proportional distribution of operation and maintenance costs to each user (or user class).

(Prior Code, § 18-186) (Ord. 512, passed 9-20-1982)

§ 53.101 DETERMINING TOTAL ANNUAL COST OF OPERATION AND MAINTENANCE.

The city shall determine the total annual costs of operation and maintenance of the wastewater system which are necessary to maintain the capacity and performance, during the service life of the treatment works, for which such works were designed and constructed. The total annual cost of operation and maintenance shall include, but need not be limited to, labor, repairs, equipment replacement, maintenance, necessary modifications, power, sampling, laboratory tests and a reasonable contingency fund.

(Prior Code, § 18-187) (Ord. 512, passed 9-20-1982)

§ 53.102 DETERMINING EACH USER'S WASTEWATER CONTRIBUTION PERCENTAGE.

(A) The city shall determine each user's average daily volume of wastewater, which has been discharged to the wastewater system, which shall then be divided by the average daily volume of all wastewater discharged to the wastewater system, to determine each user's volume contribution percentage. The amount used as the total average daily volume of wastewater shall exclude infiltration and inflow. The city shall determine each user's average daily poundage of five-day 20°C biochemical oxygen demand (BOD) which has been discharged to the wastewater system which shall then be divided by the average daily poundage of all five-day BOD discharged to the wastewater system to determine each user's BOD contribution percentage.

(B) The city shall determine each user's average suspended solids (SS) poundage which has been discharged to the wastewater system which shall then be divided by the average daily poundage of all suspended solids discharged to the wastewater system, to determine the user's suspended solids contribution percentage. Each user's volume contribution percentage, BOD contribution percentage and suspended solids contribution percentage shall be multiplied by the annual operation and maintenance costs for wastewater treatment of the total volume flow, of the total five-day 20°C BOD and of the suspended solids, respectively.

(Prior Code, § 18-188) (Ord. 512, passed 9-20-1982)

§ 53.103 DETERMINING A SURCHARGE SYSTEM FOR USERS WITH EXCESS BOD AND SS.

The city will determine the average suspended solids (SS) and biochemical oxygen demand (BOD) daily loadings for the average residential user. The city will assess a surcharge rate for all nonresidential users discharging wastes with BOD and SS strengths greater than the average residential user. Such users will be assessed a surcharge sufficient to cover the costs of treating such users' above normal strength wastes. Normal strength wastes are considered to be 200 p.p.m. BOD and 250 p.p.m. SS. The surcharge rate structure for such above normal strength waste dischargers is on file in the office of the Finance Officer.

(Prior Code, § 18-189) (Ord. 512, passed 9-20-1982)

§ 53.104 DETERMINING EACH USER'S WASTEWATER SERVICE CHARGE.

Each nonresidential user's wastewater treatment cost contributions as determined in §§ 53.102 and 53.103 shall be added together to determine such user's annual wastewater service charge. Residential users may be considered to be one class of user and an equitable service charge may be determined for each user based upon an estimate of the total wastewater contribution of this class of user. The Common Council may classify industrial, commercial and other nonresidential establishments as a residential user, provided that the wastes from these establishments are equivalent to the wastes from the average residential user with respect to volume, suspended solids and BOD. Each user's wastewater treatment cost contribution will be assessed in accordance with the rate schedule on file in the office of the Finance Officer.

(Prior Code, § 18-190) (Ord. 512, passed 9-20-1982)

§ 53.105 WASTEWATER FACILITIES REPLACEMENT FUND.

A reserve fund called the Wastewater Facilities Replacement Fund is hereby established within the Wastewater Utility Fund for the purpose of providing sufficient funds to be expended for obtaining and installing equipment, accessories and appurtenances during the useful life (20 years) of the wastewater treatment facilities necessary to maintain the capacity and performance for which such facilities are designed and constructed.

(Prior Code, § 18-191) (Ord. 512, passed 9-20-1982)

§ 53.106 PAYMENT OF USER'S WASTEWATER SERVICE CHARGE AND PENALTIES.

The city shall submit an annual statement to the user for the user's annual wastewater service charge or one-twelfth of the user's annual wastewater service charge may be included with the monthly water and/or wastewater utility billing. The city may add a penalty of 1.5% per month if the payment is not received by the city within 15 days. Should any user fail to pay the user charge within three months of the due date, the city may stop the wastewater service to the property.

(Prior Code, § 18-192) (Ord. 512, passed 9-20-1982)

§ 53.107 REVIEW OF EACH USER'S WASTEWATER SERVICE CHARGE.

The city shall review the total annual cost of operation and maintenance as well as each user's wastewater contribution percentage not less often than every two years and will revise the system as necessary to assure equity of the service charge system established herein and to assure that sufficient funds are obtained to adequately operate and maintain the wastewater treatment works. If a significant user, such as an industry, has completed in-plant modifications which would change that user's wastewater contribution percentage, the user can present at a regularly scheduled meeting of the Common Council, such factual information and the city shall then determine if the user's wastewater contribution percentage is to be changed. The city shall notify the user of its findings as soon as possible.

(Prior Code, § 18-193) (Ord. 512, passed 9-20-1982)

§ 53.108 NOTIFICATION.

Each user will be notified, at least annually, in conjunction with a regular bill, of the rate and that portion of the user charges which are attributable to wastewater treatment services.

(Prior Code, § 18-194) (Ord. 512, passed 9-20-1982)

§ 53.109 PROHIBITED WASTES.

The discharge of any waters containing toxic or poisonous solids, liquids or gases in sufficient quantity, either singly or by interaction with other wastes, to contaminate the sludge of any municipal systems or to injure or interfere with any sewage treatment process, constitute a hazard to humans or to animals, create a public nuisance or create any hazard in or have an adverse effect on the waters receiving any discharge from the treatment works is hereby prohibited. Any user discharging any toxic pollutants which cause an increase in the costs of managing the effluent or the sludge of the city's treatment works, shall pay for such increased costs.

(Prior Code, § 18-195) (Ord. 512, passed 9-20-1982) Penalty, see § 53.999

§ 53.110 PROHIBITION OF CLEAR WATER CONNECTIONS.

No person shall make connection of roof downspouts, exterior foundation drains, areaways drains or other sources of surface runoff or groundwater to a building sewer or building drain which in turn is connected directly or indirectly to a public sanitary sewer.

(Prior Code, § 18-196) (Ord. 512, passed 9-20-1982) Penalty, see § 53.999

§ 53.111 PROPER DESIGN AND CONSTRUCTION OF NEW SEWERS AND CONNECTIONS.

The size, slope, alignment, and materials of construction of all sanitary sewers and sewer connections, and the methods to be used in excavating, placing of the pipe, jointing, testing and backfilling the trench, shall all conform to the requirements of the building and plumbing code, Engineering Design Standards, or other applicable rules and regulations of the city and the state. In the absence of code provision or in amplification thereof, the materials and procedures set forth in ~~a~~appropriate specifications of the ASTM ~~A.S.T.M. and W.E.F. Manual of Practice No. 9~~ shall apply.

(Prior Code, § 18-197) (Ord. 512, passed 9-20-1982; Ord. 1046, passed 1-2-2007)

RATES AND CHARGES

§ 53.125 SURCHARGE RATE STRUCTURE FOR ABOVE NORMAL STRENGTH WASTES.

The city will determine the average total suspended solids (SS) and five-day biochemical oxygen demand (BOD) daily loadings for the average residential user or in lieu of such a determination will consider the average residential strength wastes to be 200 mg/l BOD and 250 mg/l SS. The city will assess a surcharge rate for all nonresidential users discharging wastes with BOD and SS strengths greater than the average residential user. The surcharge will be sufficient to cover the costs of treating such users' above normal strength wastes. Such users will pay an additional service charge as set forth in the current Master Fee Schedule. ~~of $0.10 per 1,000 gallons for each 25 mg/l over 200 mg/l of BOD and $0.07 per 1,000 gallons for each 25 mg/l over 250 mg/l SS.~~

(Prior Code, § 18-261) (Ord. 512, passed 9-20-1982)

§ 53.126 SEWER RATE SCHEDULE.

(A) Sanitary sewer charge. All sanitary sewer rates for the city are listed in the Master Fee Schedule ~~city fee schedule, which is set and amended by resolution.~~

(B) Wastewater sewer charge for sewage treatment. All wastewater sewer rates for the city are listed in the Master Fee Schedule ~~city fee schedul~~e, which is set and amended by resolution.

(1) Any nonresidential user with BOD and SS greater than the average residential user's strength of 250 mg/l BOD and 200 mg/l SS will pay a surcharge in accordance with the rates shown in the surcharge rate structure.

(2) All users without water meters or not categorized elsewhere, located within the city's boundaries, shall be charged according to the EQR schedule the base sewer rate per the city fee schedule per month per EQR.

(3) All users, located within the city's boundaries, will be allowed to determine irrigation usage separately by installing separate meters. Payment for this meter by the user will be at a rate determined by the city. There will be no sanitary sewer system charges applied to meters recording irrigation use only.

(4) All users located outside of the city's boundaries without water meters or not categorized elsewhere, shall be charged according to the EQR schedule a service charge of one and one-half times the base sewer line rate per the city fee schedule.

(5) Where, in the judgment of the Common Council, special conditions surrounding the use of city sanitary sewer facilities to the extent that the application of the service charges as specified herein would be inequitable, the Council may establish a special rate applying to such contributors.

(6) Users that exceed the normal flow, biochemical oxygen demand (BOD) and/or total suspended solids (TSS) amounts may be charged as follows:

(a) All applicable sewer line charges ~~per city fee schedule~~;

(b) All applicable waste water charges ~~per city fee schedule~~;

(c) A $0.45 per pound BODs over ten pounds per month; and

(d) A $0.32 per pound TSS over 12.5 pounds per month.

(C) Monitoring; lab tests. Monitoring of the above-referenced parameters shall be accomplished by the user under a program acceptable to the city. The city shall perform the necessary lab tests to determine the quantity of these parameters. Payment for the city-furnished services shall be at rates determined by the city.

(D) Equivalent residential unit (EQR) schedule.

Table unchanged

(Prior Code, § 18-262) (Ord. 498, passed 6-7-1982; Ord. 512, passed 9-20-1982; Ord. 587, passed 1-6-1986; Ord. 603, passed 10-6-1986; Ord. 714, passed 12-2-1991; Ord. 765, passed 11-21-1994; Ord. 786, passed 12-18-1995; Ord. 903, passed 10-1-2001; Ord. 948, passed 2-18-2003; Ord. 1016, passed 8-15-2005; Ord. 1037, passed 10-2-2006; Ord. 1047, passed 1-2-2007; Ord. 1065, passed 7-16-2007; Ord. 1073, passed 10-15-2007; Ord. 1087, passed 11-17-2008; Ord. 1132, passed 2-22-2011)

§ 53.127 WASTEWATER FACILITIES REPLACEMENT FUND SCHEDULE.

The reserve fund called the Wastewater Facilities Replacement Fund established within the Wastewater Utility Fund as an interest-bearing account shall be funded by a deposit of $20,000 per year obtained from the Wastewater Utility Fund at the end of each fiscal year.

(Prior Code, § 18-263) (Ord. 512, passed 9-20-1982)

§ 53.128 SEWER RENTAL FUND.

Any and all funds, fees, rentals, charges or rates collected under the authority of this subchapter for sewer services shall be remitted to the City Finance Officer each month and shall be kept in a separate fund to be known as the Sewer Rental Fund, and such Fund shall be used only for the purposes of paying the cost of financing the operation, maintenance or construction of the sanitary utilities, except that no part of such Fund shall be used to meet the cost of construction of lateral

sewers serving local territory or the portion of the cost of sanitary sewer utilities which have been financed by special assessment against benefited properties. Pursuant to approval of ordinances numbered 290 and 296 by the requisite vote of the qualified electors of the city, the city has authorized construction of a new outfall line and sewage treatment facility as a utility undertaking. By resolution duly enacted on October 18, 1971, the city has established the terms and conditions for the issuance of $350,000 sewage disposal utility revenue bonds to finance the city's portion of the cost of such utility undertaking and has established on the books of the city a Sewage Disposal Utility Fund, and various subfunds, for administering all revenues of such utility undertaking. So long as any of the sewage disposal utility revenue bonds, dated November 1, 1971, or any other bonds made payable from such Sewage Disposal Utility Fund pursuant to such resolution, remain outstanding, all rates and charges collected under this subchapter for sewer services for deposit in the Sewer Rental Fund shall be paid into the Sewage Disposal Utility Fund and accounted for as provided in such resolution.

(Prior Code, § 18-264)

§ 53.999 PENALTY.

(A) Any person found to be violating any provision of this chapter, shall be served by the city with written notice stating the nature of the violation and providing a reasonable time limit for the satisfactory correction thereof. The offender shall, within the period of time stated in such notice, permanently cease all violations.

(B) Any person who shall continue any violation beyond the time limits provided for in this chapter shall be guilty of a misdemeanor, and on conviction thereof shall be fined in the amount not exceeding $100 for each violation. Each day in which any such violation shall continue shall be deemed a separate offense.

(C) Any person violating any of the provisions of this chapter shall become liable to the city for any expense, loss or damage occasioned the city by reason of such violation.

(Prior Code, § 18-67) (Ord. 511, passed 9-20-1982)

****

Severability. The provisions of this ordinance are severable. If any provision of this ordinance or the application thereof to any person or circumstance is held to be invalid, such invalidity shall not affect the remaining provisions or other applications of this ordinance which can be given effect without the invalid provision or application.

Effective Date. This Ordinance will become effective twenty (20) days following publication, which will occur after the ordinance receives second and final reading and approval by the City Council and is signed by the Mayor.

Dated this __ day of ___, 2026.

CITY OF SPEARFISH

(Seal)

By: _____
John Senden, Its Mayor

Attest:

_____
Michelle DeNeui, Finance Officer

First Reading: June 15, 2026
Second Reading: July 6, 2026
Published: _____, 2026
Effective: _____, 2026

Agenda Item Report

Community Development Item # 11.A.4.

Meeting: Regular Session Agenda **Meeting Date:** July 6, 2026
Department: Community Development

Request:
Hold a public hearing and approve the second reading of Ordinance 1422 — An Ordinance Amending the Revised Ordinances of the City of Spearfish, Chapter 96: Parks and Recreation.

Background Information:
This ordinance amends Chapter 96 'Parks and Recreation' to include revisions related to Engineering Design Standards, in this case, referencing the Parks and Recreation Master Plan. The proposed ordinance does not change the content of the Parks and Recreation Master Plan.

Fiscal Impact:

Recommended City Council Action: Approve

Staff Contact Information:
Kyle Mathis, 605-717-1129, k.mathis@spearfish.gov

Attachments:
1. Ordinance 1422 - Chapter 96 Parks and Recreation

ORDINANCE NO. 1422

AN ORDINANCE AMENDING THE REVISED ORDINANCES OF THE CITY OF SPEARFISH, TITLE IX: GENERAL REGULATIONS, CHAPTER 96: PARKS AND RECREATION.

WHEREAS, the City of Spearfish developed the City of Spearfish Engineering Design Standards ("the standards") which detail policy, methods, practice, and procedures related to the design and development of infrastructure; and

WHEREAS, the standards are intended to protect the public health, safety, and welfare in the provision and maintenance of public, and certain private improvements, within the City of Spearfish; and

WHEREAS, the development of the standards included opportunities for public input from developers, elected officials, design professionals, and community members at large; and

WHEREAS, Resolution 2026-09 formally adopts the standards; and

WHEREAS, existing language within the revised Ordinances of the City of Spearfish includes conflicting, outdated, erroneous, and duplicate information as the standards.

NOW THEREFORE, BE IT ORDAINED by the Common Council of the City of Spearfish that Title IX: General Regulations, Chapter 96: Parks and Recreation, of the Revised Ordinances of the City of Spearfish is hereby amended—with ~~strikethrough~~ indicating text to be deleted, <u>underline</u> indicating text to be added, and the remainder of the Article left unaffected—as follows:

HAPTER 96: PARKS AND RECREATION

Section

96.01 System established

96.02 Parks designated

96.03 Management

96.04 Closure authorized

Statutory reference:

Municipal parks and recreational facilities, see SDCL Ch. 9-38

§ 96.01 SYSTEM ESTABLISHED.

There is hereby established in the city a system of public recreation and playgrounds, and, for such purpose the city may acquire, equip and maintain land, buildings or other recreational facilities and expand its funds ~~therefor~~ <u>in accordance with the Spearfish Parks and Recreation Master Plan</u>.

(Prior Code, § 14-251)

§ 96.02 PARKS DESIGNATED.

The city's parks and campground, together with all structures, buildings, improvements and equipment thereon, are the property of the city and shall be and constitute the city parks.

(Prior Code, § 14-252)

§ 96.03 MANAGEMENT.

Until and unless otherwise provided for, the management of the city parks shall be in the hands of the ~~Public Works Administrator~~ Parks and Recreation Director~~,~~ and the supervision shall rest with the Common Council.

(Prior Code, § 14-253)

§ 96.04 CLOSURE AUTHORIZED.

Upon determination that it would be in the best interests of the city that the city parks or any part thereof be closed to the public for any reason, the Common Council, without further notice, have the authority to close all or any part of any city park to public use.

(Prior Code, § 14-254)

****

Severability. The provisions of this ordinance are severable. If any provision of this ordinance or the application thereof to any person or circumstance is held to be invalid, such invalidity shall not affect the remaining provisions or other applications of this ordinance which can be given effect without the invalid provision or application.

Effective Date. This Ordinance will become effective twenty (20) days following publication, which will occur after the ordinance receives second and final reading and approval by the City Council and is signed by the Mayor.

Dated this _____ day of _____, 2026.

CITY OF SPEARFISH

(Seal)

By: _____
John Senden, Its Mayor

Attest:

_____
Michelle DeNeui, Finance Officer

First Reading: June 15, 2026
Second Reading: July 6, 2026
Published: _____, 2026
Effective: _____, 2026

Agenda Item Report

Community Development Item # 11.A.5.

Meeting: Regular Session Agenda **Meeting Date:** July 6, 2026
Department: Community Development

Request:
Hold a public hearing and approve the second reading of Ordinance 1423 — An Ordinance Repealing and Replacing The Revised Ordinances of the City of Spearfish, Chapter 151: Flood Prevention and Protection.

Background Information:
This ordinance repeals and replaces Chapter 151, the Floodplain Prevention and Protection Chapter, to align with the FEMA template ordinance for South Dakota, reorganize the chapter by flood zone requirement for clarity, and reduce the time that substantial improvement/substantial damage requirements cumulatively totaled from 20 years to 5 years.

FEMA staff have reviewed the draft ordinance and after discussion with staff, it was determined that our Community Rating System Class and credits would not be affected by the reduction in time for the substantial improvement/substantial damage requirements.

Fiscal Impact:

Recommended City Council Action: Approve

Staff Contact Information:
Abbey Larson, 605-717-1131, a.larson@spearfish.gov

Attachments:
1. Ordinance 1423 - An Ordinance Amending the Revised Ordinance of the City of Spearfish, Chapter 151

ORDINANCE NO. 1423

AN ORDINANCE AMENDING THE REVISED ORDINANCES OF THE CITY OF SPEARFISH, TITLE XV LAND USAGE, CHAPTER 151: FLOOD PREVENTION AND PROTECTION.

WHEREAS, the City of Spearfish developed the City of Spearfish Engineering Design Standards ("the standards") which detail policy, methods, practice, and procedures related to the design and development of infrastructure; and

WHEREAS, the standards are intended to protect the public health, safety, and welfare in the provision and maintenance of public, and certain private improvements, within the City of Spearfish; and

WHEREAS, the development of the standards included opportunities for public input from developers, elected officials, design professionals, and community members at large; and

WHEREAS, Resolution 2026-09 formally adopts the standards; and

WHEREAS, existing language within the revised Ordinances of the City of Spearfish includes conflicting, outdated, erroneous, and duplicate information as the standards; and

WHEREAS, the Spearfish Planning Commission held a public hearing on April 7th, 2026, recommended approval of the revisions within this ordinance.

NOW THEREFORE, BE IT ORDAINED by the Common Council of the City of Spearfish that Title XV Land Usage, Chapter 151 of the Revised Ordinances of the City of Spearfish is hereby repealed and replaced — as follows:

[. . .]

CHAPTER 151: FLOOD DAMAGE PREVENTION ORDINANCE

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ARTICLE I STATUTORY AUTHORIZATION, FINDINGS OF FACT, PURPOSE, METHODS, AND INTENT

§151.001 STATUTORY AUTHORIZATION

The state legislature has in SDCL 9-29-1, SDCL Ch. 9-36, and SDCL 11-4-1 delegated the responsibility of local governmental units to adopt regulations designed to minimize flood losses. Therefore, the Common Council of Spearfish does ordain as follows:

> The city of Spearfish elects to comply with the requirements of the National Flood Insurance Act of 1968 (Pub. Law No. 90-488, as amended). The National Flood Insurance Program (NFIP) is a voluntary program administered by the Federal Emergency Management Agency (FEMA), a component of the U.S. Department of Homeland Security, and the City of Spearfish's community officials have elected to join the program, participate, and enforce this Flood Damage Prevention Ordinance and the requirements and regulations of the NFIP. The NFIP, established in the aforesaid act, provides that areas of the City of Spearfish having a special flood hazard be identified by FEMA, and that floodplain management measures be applied in such flood hazard areas. Furthermore, the City of Spearfish may elect to administer the Flood Damage Prevention Ordinance to areas not identified as Special Flood Hazard Areas (SFHAs) by FEMA on the community's effective Flood Insurance Rate Map (FIRM), if the community has documentation to support that there is an inherent risk of flooding in such areas.

(Prior Code, § 8-1) (Ord. 1153, passed 3-19-2012)

§151.002 FINDINGS OF FACT.

The flood hazard areas of the city, and that area of the county administered by the city pursuant to the terms of a joint powers agreement between the city and the county, pursuant to Res. 2014-37, are subject to periodic inundation which results in loss of life and property, health and safety hazards, disruption of commerce and governmental services, and extraordinary public expenditures for flood protection and relief; all of which adversely affect the public health, safety, and general welfare. These potential flood losses are caused by:

(A) The cumulative effect of obstructions in floodplains that are known to cause increases in flood heights and velocities.
(B) The occupancy of flood hazard areas by structures vulnerable to floods because they are inadequately elevated or otherwise unprotected from flood damages, and
(C) Uses deemed unsuitable for floodplain areas or that do not account for the increased flood risk.

(Prior Code, § 8-2) (Ord. 1153, passed 3-19-2012)

§151.003 STATEMENT OF PURPOSE.
It is the purpose of this chapter to promote the public health, safety, and general welfare of the community and to minimize public and private losses due to flood conditions in specific areas by the following provisions designed to:

(A) Protect human life and health.
(B) Minimize public expenditures on flood control projects.
(C) Minimize the need for rescue and relief efforts associated with flooding that are generally undertaken at the expense of the public.
(D) Minimize prolonged business interruptions caused by flooding.
(E) Minimize damage to public infrastructure, including but not limited to utilities, streets, and bridges that are susceptible to flooding.
(F) Help maintain a stable tax base by providing for the sound use and development of flood-prone areas in such a manner as to minimize future flood blight areas.
(G) Promote that potential buyers are notified that property is in a flood area,
(H) Ensure that those who occupy the areas of a floodplain are held accountable for their actions.

(Prior Code, § 8-3) (Ord. 1153, passed 3-19-2012)

§151.004 METHODS OF REDUCING FLOOD LOSSES.
In order to accomplish the purposes outlined in 151.003, this ordinance applies the following methods:

(A) Restricts or prohibits land uses that are dangerous to health, safety, or property in times of flooding, or that cause excessive increases in erosion, flood heights, or velocities.
(B) Requires that land uses vulnerable to floods, including facilities which serve such uses, be protected against flood damage at the time of initial construction.
(C) Controls the alteration of natural floodplains, stream channels, and natural protective barriers, which are involved in the accommodation of floodwaters.
(D) Controls filling, grading, dredging, and other developments which may increase flood damage.
(E) Prevents or regulates the construction of flood barriers that will unnaturally divert floodwaters or may increase flood hazards to other lands.

(Prior Code, § 8-4) (Ord. 1153, passed 3-19-2012)

§151.005 INTENT.
The National Flood Insurance Program (NFIP) was created by Congress to reduce annual flood losses through careful planning by communities and to provide property owners with affordable flood insurance. In 1974 the Common Council requested voluntary participation in the National Flood Insurance Program and adopted the "permanent" program in 1981.

The city recognizes the inherent flood risk of Spearfish Creek and other watercourses which flow through the city and the extra-territorial jurisdictional area. It recognizes the beneficial attributes of a National Flood Insurance Program, which protects existing and future structures within the flood area and ensures against potential financial loss and bodily harm. The city also recognizes the inherent constraints imposed by the flood insurance program which prohibit certain uses of property by its owners. The city, therefore, adopts the following management objectives as permitted by the Federal Emergency Management Agency:

(A) Manage with a minimum intent of flood control regulations

(B) Apply minimum regulations to variance authority, i.e., allow construction within the floodplain fringe as long as it meets minimum regulations of the Federal Emergency Management Agency and does not increase the flood depth or flood course.

(C) By legal authority elects not to control the 500-year flood area, and

(D) Recognizes all architectural and engineering techniques approved by FEMA, which provide for non-density construction and floodproofing protection.

(Prior Code, § 8-5) (Ord. 1153, passed 3-19-2012)

ARTICLE II DEFINITIONS

§151.006 DEFINITIONS.

Unless specifically defined below, words or phrases used in this ordinance shall be interpreted to give them the meaning they have in common usage and to give this ordinance its most reasonable application.

100-YEAR FLOOD. A flood having a recurrence interval that has a 1-percent chance of being equaled or exceeded during any given year (1-percent-annual-chance flood). The terms "100-hundred-year flood" and "1-percent-annual-chance flood" are synonymous. The term does not imply that the flood will necessarily happen once every 100 hundred years. Mandatory flood insurance requirements may apply.

100-YEAR FLOODPLAIN. The area of land susceptible to being inundated due to the occurrence of a 1-percent-annual-chance flood.

500-YEAR FLOOD. A flood having a recurrence interval that has a 0.2-percent chance of being equaled or exceeded during any given year (0.2-percent-annual-chance flood). The term does not imply that the flood will necessarily happen once every 500 years and mandatory flood insurance requirement generally does not apply.

500-YEAR FLOODPLAIN. The area of land susceptible to being inundated due to the occurrence of a 0.2-percent-annual-chance flood.

ACCESSORY STRUCTURE. A structure that is on the same parcel of property as a principal structure. Its use is incidental to the use of the principal structure. The ownership of the accessory structure is the same owner as of the principal structure. An accessory structure is a non-residential structure of low value that is used solely for the parking of vehicles and storage of tools, materials, or equipment. No human habitation is allowed within an accessory structure.

ADDITION. Any improvement that expands the enclosed footprint or increases the square footage of an existing structure. This includes lateral additions added to the side, front, or rear of a structure; vertical additions added on top of a structure; and enclosures added underneath a structure.

APPURTENANT STRUCTURE. See ACCESSORY STRUCTURE.

APPEAL. A request for a review of the Common Council's interpretation of any provisions of this chapter or a request for a variance.

AREA OF SPECIAL FLOOD HAZARD. The land in the floodplain within a community subject to a 1% or greater chance of flooding in any given year. The area may be designated as Zone A on the FHBM. After detailed ratemaking has been completed in preparation for publication of the flood insurance rate map, Zone A usually is refined into Zones A, AO, AH, A1- 30, AE, A99, AR,

AR/A1-30, AR/AE, AR/AO, AR/AH, AR/A or V1-30, VE or V. For purposes of these regulations, the term SPECIAL FLOOD HAZARD AREA is synonymous in meaning with the phrase "area of special flood hazard".

BASE FLOOD. The flood having a 1% chance of being equaled or exceeded in any given year.

BASE FLOOD ELEVATION (BFE). The water surface elevation of the 1% annual chance flood. It is the height in relation to mean sea level expected to be reached by the waters of the base flood at pertinent points in the floodplains of coastal and riverine areas. It is also the elevation shown on the FIRM and found in the accompanying Flood Insurance Study (FIS) for Zones A, AE, AH, A1-A30, AR, V1-V30, or VE that indicates the water surface elevation resulting from the flood that has a 1-percent chance of equaling or exceeding that level in any given year.

BASEMENT. Any area of the building having its floor subgrade (below ground level) on all sides. A walkout basement that does not require a step up to grade is not considered a basement.

BEST AVAILABLE DATA. Existing flood hazard information adopted by a community and reflected on an effective FIRM, FBFM, FHBM and/or within an FIS report; or draft or preliminary flood hazard information supplied by FEMA or from another source. Other sources may include, but are not limited to, state, other federal agencies, or local studies, the more restrictive of which would be reasonably used by the community.

BUILDING. See STRUCTURE.

CODE OF FEDERAL REGULATIONS (CFR). The codification of the general and permanent rules published in the Federal Register by the executive departments and agencies of the Federal Government.

CONDITIONAL LETTER OF MAP REVISION (CLOMR). FEMA's comment on a proposed project that would, upon construction, affect the hydrologic or hydraulic characteristics of a flooding source and thus result in the modification of the existing regulatory floodway, the effective base flood elevations (BFEs), or the special flood hazard area (SFHA). The letter does not revise an effective NFIP map, it indicates whether the project, if built as proposed, would be recognized by FEMA. FEMA charges a fee for processing a CLOMR to recover the costs associated with the review. Building permits cannot be issued based on a CLOMR, because a CLOMR does not change the NFIP map.

CONDITIONAL LETTER OF MAP REVISION BASED ON FILL (CLOMR-F). FEMA's comment on a proposed structure or property. The letter does not revise an effective map; it indicates whether the project, if built as proposed, would be removed from the floodplain. FEMA charges a fee for processing a CLOMR-F to recover the costs associated with the review. Building permits cannot be issued based on a CLOMR-F, because a CLOMR-F does not change the NFIP map.

CRAWLSPACE. An under-floor space that has its interior floor area (finished or not) no more than 4 feet from the bottom floor joist the next higher floor elevation, designed with proper openings that equalize hydrostatic pressures of flood water, and is not used for habitation. Reference: ARTICLE V, SECTION B.4 CRAWLSPACE

DEED RESTRICTION. A clause in a deed that limits the future use of the property in some respect. Deed restrictions may impose a vast variety of limitations and conditions. For example, they

may limit the density of buildings, dictate the types of structures that can be erected, or prevent buildings from being used for specific purposes or from being used at all.

DETACHED GARAGE. A building that is used solely for storage of materials or vehicle parking for up to four housing occupants. If a detached garage is designed or used for habitation or conducting business, or has multiple stories, then the building is not considered a detached garage under the NFIP.

DEVELOPMENT. Any human-made change to improved or unimproved real estate, including, but not limited to buildings or other structures, mining, dredging, filling, grading, paving, excavation or drilling operations or storage either temporary or permanent of equipment or materials.

EROSION. The process of the gradual wearing a way of land masses by wind, water, or other natural agents.

EXISTING CONSTRUCTION. Structures for which the "start of construction" commenced before the effective date of the FIRM or before January 1, 1975, for FIRMs effective before that date. EXISTING CONSTRUCTION may also be referred to as EXISTING STRUCTURES.

EXISTING MANUFACTURED HOME PARK OR SUBDIVISION. A manufactured home park or subdivision for which the construction of facilities for servicing the lots on which the manufactured homes are to be affixed (including, at a minimum, the installation of utilities, the construction of streets and either final site grading or the pouring of concrete pads) is completed before the effective date of the floodplain management regulations adopted by the city.

EXISTING SUBDIVISION. A subdivision for which the construction of facilities for servicing the lots including, at a minimum, the installation of utilities, the construction of streets and either final site grading or the pouring of concrete pads is completed before the effective date of the floodplain management regulations adopted by the city.

EXISTING STRUCTURES. See EXISTING CONSTRUCTION.

EXPANSION TO AN EXISTING MANUFACTURED HOME PARK OR SUBDIVISION. The preparation of additional sites by the construction of facilities for servicing the lots on which the manufactured homes are to be affixed (including the installation of utilities, the construction of streets and either final site grading or the pouring of concrete pads).

EXPANSION TO AN EXISTING SUBDIVISION. The preparation of additional sites by the construction of facilities for servicing the lots including the installation of utilities, the construction of streets and either final site grading or the pouring of concrete pads.

FEMA. means the Federal Emergency Management Agency.

FILL. refers to the placement of materials, such as dirt, sand, or rock to elevate a structure, property, or portion of a property above the natural elevation of the site, regardless of where the material was obtained from. The common practice of removing unsuitable material and replacing with engineered material is not considered fill if the elevations are returned to the existing conditions. Any fill placed or used prior to the area being mapped as a flood hazard area is not deemed as fill.

FLOOD OR FLOODING. A general and temporary condition of partial or complete inundation of normally dry land areas from:

(A) The overflow of inland or tidal waters.

(B) The unusual and rapid accumulation or runoff of surface waters from any source.

(C) Mudslides (i.e., mudflows) that are proximately caused by flooding as defined in this ordinance and are akin to a river of liquid and flowing mud on the surfaces of normally dry land areas, as when earth is carried by a current of water and deposited along the path of the current.

(D) The collapse or subsidence of land along the shore of a lake or other body of water as a result of erosion or undermining caused by waves or currents of water exceeding anticipated cyclical levels or suddenly caused by an unusually high water level in a natural body of water, accompanied by a severe storm, or by an unanticipated force of nature, such as flash flood or an abnormal tidal surge, or by some similarly unusual and unforeseeable event which results in flooding as defined in this ordinance.

FLOOD INSURANCE RATE MAP (FIRM). The official map on which FEMA has delineated both the areas of special flood hazards and the risk premium zones applicable to the community.

FLOOD INSURANCE STUDY OR FLOOD ELEVATION STUDY. An examination, evaluation, and determination of flood hazards and, if appropriate, corresponding water surface elevations, or an examination, evaluation, and determination of mudslide (i.e., mudflow) and/or flood-related erosion hazards.

FLOODPLAIN DEVELOPMENT PERMIT. A community issued permit or document that is used for any development that occurs within an SFHA identified by FEMA or the community. It is used to address the proposed development to ensure compliance with the community's ordinance.

FLOODPLAIN OR FLOOD-PRONE AREA. Any land area susceptible to being inundated by water from any source whether it has been identified by FEMA or not (see definition of FLOODING).

FLOODPLAIN MANAGEMENT. The operation of an overall program of corrective and preventive measures for reducing flood damage, including but not limited to emergency preparedness plans, flood control works, mitigation plans, and floodplain management regulations.

FLOODPLAIN MANAGEMENT REGULATIONS. Zoning ordinances, subdivision regulations, building codes, health regulations, special purpose ordinances (such as a floodplain ordinance, grading ordinance, and erosion control ordinance) and other applications of police power. The term describes such state or local regulations, in any combination thereof, which provide standards for flood damage prevention and reduction.

FLOOD OPENING. An opening in the wall of an enclosed structure that allows floodwaters to automatically enter and exit the enclosure. Refer to FEMA Technical Bulletin 1. FEMA Technical Bulletins can be found on FEMA's website.

FLOODPROOFING. Any combination of structural and non-structural additions, changes, or adjustments to structures that reduce or eliminate flood damage to real estate or improved real property, water and sanitary facilities, structures, and their contents. Floodproofing can either be accomplished in the form of dry floodproofing in which the structure is watertight below the levels that need flood protection, or wet floodproofing in permanent or contingent measures applied to a structure that prevent or provide resistance to damage from flooding, while allowing floodwaters to enter the structure or area.

FLOODWAY (REGULATORY FLOODWAY). The channel of a river or other watercourse and the adjacent land areas that must be reserved in order to discharge the base flood without cumulatively increasing the water surface elevation more than a designated height.

HABITABLE STRUCTURE. A building or dwelling used for residential occupancy.

HIGHEST ADJACENT GRADE. The highest natural elevation of the ground surface prior to construction next to the proposed walls of a structure.

HISTORIC STRUCTURE. Any structure that is:

(A) Listed individually in the National Register of Historic Places (a listing maintained by the Department of Interior) or preliminarily determined by the Secretary of the Interior as meeting the requirements for individual listing on the National Register.
(B) Certified or preliminarily determined by the Secretary of the Interior as contributing to the historical significance of a registered historic district or a district preliminarily determined by the Secretary to qualify as a registered historic district.
(C) Individually listed on a state inventory of historic places in states with historic preservation programs which have been approved by the Secretary of the Interior; or
(D) Individually listed on a local inventory of historic places in communities with historic preservation programs that have been certified either:
(1) By an approved state program as determined by the Secretary of the Interior, or
(2) Directly by the Secretary of the Interior in states without approved programs.

LETTER OF MAP AMENDMENT (LOMA). An official amendment, by letter, to an effective FIRM. A LOMA establishes a property's location in relation to the SFHA. It is usually issued because a property or structure has been inadvertently mapped as being in the floodplain when the property or structure is actually on natural high ground above the BFE.

LETTER OF MAP REVISION (LOMR). FEMA's modification or revision to an entire or portion of the effective FIRM, or Flood Boundary and Floodway Map, or both. LOMRs are generally based on the implementation of physical measures that affect the hydrologic or hydraulic characteristics of a flooding source and thus result in the modification of the existing regulatory floodway, the effective BFEs, or the SFHA.

LETTER OF MAP REVISION BASED ON FILL (LOMR-F). FEMA's amendment, by letter, to an effective FIRM where fill was brought in or used to elevate a property, portion of property or structure above the BFE.

LOWEST ADJACENT GRADE (LAG). The lowest natural elevation of the ground surface prior to construction next to the proposed walls of a structure. For an existing structure, it means the lowest point where the structure and ground touch, including but not limited to attached garages, decks, stairs, and basement windows.

LOWEST FLOOR. The lowest floor of the lowest enclosed area (including basement). An unfinished or flood-resistant enclosure usable solely for parking of vehicles, building access, or storage in an area other than a basement area, is NOT considered a building's lowest floor, as long as such enclosure does not render the structure in violation of the applicable non-elevation design requirements of 44 C.F.R. § 60.3.

MANUFACTURED HOME. A structure, transportable in one or more sections, which is built on a permanent chassis and is designed for use with or without a permanent foundation when attached to

the required utilities. The term MANUFACTURED HOME does not include a RECREATIONAL VEHICLE. However, a manufactured home may be used for both residential and non-residential use.

MANUFACTURED HOME PARK OR SUBDIVISION. A parcel (or contiguous parcels) of land divided into two or more manufactured homes for rent or sale.

MAP. The flood hazard boundary map (FHBM) or the flood insurance rate map (FIRM) for a community issued by FEMA.

MEAN SEA LEVEL. For the purpose of the National Flood Insurance Program, the National Geodetic Vertical Datum (NGVD) of 1929, North American Vertical Datum (NAVD) of 1988, or other datum, to which base flood elevations shown on a community's flood insurance rate map are referenced.

NATIONAL FLOOD INSURANCE PROGRAM (NFIP). The NFIP is a program of flood insurance coverage and floodplain management administered under the National Flood Insurance Act of 1968 and applicable federal regulations promulgated in Title 44 of the Code of Federal Regulations, Subchapter B. The NFIP program makes federally backed insurance available in those states and communities that agree to adopt and enforce floodplain management ordinances to reduce future flood damage.

NEW CONSTRUCTION. For the purposes of determining insurance rates, structures for which the start of construction commenced on or after the effective date of an initial FIRM or after March 29, 1974, whichever is later, and includes any subsequent improvements to such structures. For floodplain management purposes, NEW CONSTRUCTION means structures for which the start of construction commenced on or after the effective date of a floodplain management regulation adopted by a community and includes any subsequent improvements to such structures.

NEW MANUFACTURED HOME PARK OR SUBDIVISION. A manufactured home park or subdivision for which the construction of facilities for servicing the lots on which the manufactured homes are to be affixed (including at a minimum, the installation of utilities, the construction of streets and either final site grading or the pouring of concrete pads) is completed on or after the effective date of floodplain management regulations adopted by the city.

NEW SUBDIVISION. A subdivision for which the construction of facilities for servicing the lots including at a minimum, the installation of utilities, the construction of streets and either final site grading or the pouring of concrete pads is completed on or after the effective date of floodplain management regulations adopted by the city.

NO-RISE CERTIFICATIONS. Formal certifications signed and stamped by a professional engineer licensed to practice in the state, demonstrating through hydrologic and hydraulic analyses performed in accordance with standard engineering practice that a proposed development will not result in any increase (0.00 feet) in flood levels within the community during the occurrence of a base flood event.

RECREATIONAL VEHICLE. A vehicle which is:

(A) Built on a single chassis
(B) Four hundred square feet or less when measured at the largest horizontal projection
(C) Designed to be self-propelled or permanently towable by a light duty truck; and

(D) Designed primarily as temporary living quarters for recreational, camping, travel, or seasonal use.

REGULATORY FLOODWAY. The channel of a river or other watercourse and the adjacent land areas that must be reserved in order to discharge the base flood without cumulatively increasing the water surface elevation more than a designated height.

RIVERINE. Relating to, formed by, or resembling a river (including tributaries), stream, brook, creek, etcetera, which can be intermittent or perennial.

START OF CONSTRUCTION. (For other than new construction or substantial improvements under the Coastal Barrier Resources Act (Pub. L. 97-348)) includes substantial improvement, and means the date the building permit was issued, provided the actual start of construction, repair, reconstruction, rehabilitation, addition placement, or other improvement was within 180 days of the permit date. The actual start means either the first placement of permanent construction of a structure on a site, such as the pouring of slab or footings, the installation of piles, the construction of columns, or any work beyond the stage of excavation, or the placement of a manufactured home on a foundation. Permanent construction does not include land preparation, such as clearing, grading, and filling; nor does it include the installation of streets and/or walkways; nor does it include excavation for a basement, footings, piers, or foundations or the erection of temporary forms; nor does it include the installation on the property of accessory buildings, such as garages or sheds not occupied as dwelling units or not part of the main structure. For a substantial improvement, the actual start of construction means the first alteration of any wall, ceiling, floor, or other structural part of a building, whether or not that alteration affects the external dimensions of the building.

STRUCTURE. For floodplain management purposes, a walled and roofed building, culvert, bridge, dam, or a gas or liquid storage tank that is principally above ground, as well as a manufactured home. Structure, for insurance purposes, means:

(A) A building with two or more outside rigid walls and a fully secured roof, which is affixed to a permanent site.
(B) A manufactured home ("a manufactured home," also known as a mobile home, is a structure built on a permanent chassis, transported to its site in one or more sections, and affixed to a permanent foundation); or
(C) A travel trailer without wheels built on a chassis and affixed to a permanent foundation, that is regulated under the community's floodplain management and building ordinances or laws.

For insurance purposes, "structure" does not mean a recreational vehicle or a park trailer or other similar vehicle, except as described in paragraph (C) of this definition, or a gas or liquid storage tank.

SUBSTANTIAL DAMAGE. Damage of any origin sustained by a structure whereby the cost of restoring the structure to its pre-damaged condition would equal or exceed 50% of the market value of the structure before the damage occurred.

SUBSTANTIAL IMPROVEMENT. Any reconstruction, rehabilitation, addition, repairs, or other improvement of a structure, the cost of which equals or exceeds 50 percent of the market value of the structure before the "start of construction" of the improvement, totaled cumulatively over the previous 5 years. This term includes structures which have incurred "substantial damage", regardless of the actual repair work performed. The term does not, however, include:

(A) Any project for improvement of a structure to correct existing violations of state or local health, sanitary, or safety code specifications that have been identified by the local code enforcement official and are the minimum necessary to assure safe living conditions; or

(B) Any alteration of a "historic structure", if the alteration will not preclude the structure's continued designation as a "historic structure."

VARIANCE. A grant of relief by a community from the terms of a flood plain management regulation.

VIOLATION. The failure of a structure or other development to be fully compliant with the community's floodplain management regulations. A structure or other development without the elevation certificate, other certifications or other evidence of compliance required in 44 C.F.R. § 60.3(b)(5), (c)(4), (c)(10), (d)(3), (e)(2), (e)(4) or (e)(5) is presumed to be in violation until such time as that documentation is provided.

WATER SURFACE ELEVATION. The height, in relation to the North American Vertical Datum (NAVD) of 1988, (or other datum, where specified) of floods of various magnitudes and frequencies in the floodplains of coastal or riverine areas.

WATERCOURSE. The channel and banks of an identifiable water in a creek, brook, stream, river, ditch or other similar feature.

(Prior Code, § 8-6) (Ord. 1153, passed 3-19-2012)

ARTICLE III GENERAL PROVISIONS

§151.007 LANDS TO WHICH THIS CHAPTER APPLIES.

This chapter shall apply to all areas of special flood hazards identified by FEMA within the jurisdiction of the city and the area of the county administered by the city pursuant to the terms of a joint powers agreement between the city and the county, pursuant to Res. 2014-37.

(Prior Code, § 8-7) (Ord. 1153, passed 3-19-2012)

§151.008 BASIS FOR ESTABLISHING AREAS OF SPECIAL FLOOD HAZARD.

(A) The areas of special flood hazard identified by the Federal Emergency Management Agency (FEMA) in a scientific and engineering report entitled, "The Flood Insurance Study for the City of Spearfish, Lawrence County, South Dakota and Incorporated Areas" dated April 17, 2012, with accompanying flood insurance rate maps, any Letters of Map Change including Letters of Map Amendment, Letters of Map Revision based on Fill, and Letters of Map Revision, are hereby adopted by reference and declared to be a part of this chapter.

(B) The community has elected to adopt Best Available Data, defined in ARTICLE II, to regulate floodplain development in addition to utilizing the effective FIRMs, FHBM, FIS, and/or FBFM. Where Best Available Data contradicts the FIRMs, FHBM, FIS, and/or the FBFM, the more restrictive data shall be utilized.

(C) The flood insurance study and FIRMs are on file at Spearfish City Hall, 625 Fifth Street, Spearfish, South Dakota.

(Prior Code, § 8-8) (Ord. 1153, passed 3-19-2012)

§151.009 ESTABLISHMENT OF DEVELOPMENT PERMIT.

A Floodplain Development Permit shall be required to ensure conformance with the provisions of this ordinance.

(Prior Code, § 8-14) (Ord. 1153, passed 3-19-2012)

§151.010 ABROGATION AND GREATER RESTRICTIONS.
This chapter is not intended to repeal, abrogate, or impair any existing easements, covenants, or deed restrictions. However, where this chapter and another ordinance, easement, covenant, or deed restriction conflict or overlap, whichever imposes the more stringent restrictions shall prevail.

(Prior Code, § 8-10) (Ord. 1153, passed 3-19-2012)

§151.011 INTERPRETATION.
In the interpretation and application of this chapter, all provisions shall be:

(A) Considered as minimum requirements,
(B) Liberally construed in favor of the Common Council, and
(C) Deemed neither to limit nor repeal any other powers granted under state statutes.

(Prior Code, § 8-11) (Ord. 1153, passed 3-19-2012)

§151.012 WARNING AND DISCLAIMER OF LIABILITY.
(A) The degree of flood protection required by this chapter is considered reasonable for regulatory purposes and is based on scientific and engineering considerations. On rare occasions, greater floods can and will occur and flood heights may be increased by human-made or natural cause.
(B) This chapter does not imply that land outside the areas of special flood hazard or uses permitted within such areas will be free from flooding or flood damages. This chapter shall not create liability on the part of the community or any official or employee thereof for any flood damages that result from reliance on this chapter, or any administrative decision lawfully made thereunder.

(Prior Code, § 8-12) (Ord. 1153, passed 3-19-2012)

§151.013 SEVERABILITY
If any section, provision, or portion of this ordinance is adjudged unconstitutional or invalid by a court, the remainder of the ordinance shall not be affected.

ARTICLE IV ADMINISTRATION

§151.014 FLOODPLAIN ADMINISTRATOR DESIGNATION; DUTIES; RESPONSIBILITIES.
(A) *Designation of Floodplain Administrator*. The Floodplain Administrator is hereby appointed to administer and implement the provisions of this chapter and other appropriate sections of 44 C.F.R. (National Flood Insurance Program Regulations) pertaining to floodplain management.
(B) *Duties and responsibilities of Floodplain Administrator*. The duties of the Floodplain Administrator shall include, but not be limited to, the following:

(1) Uphold the goals of the community and the NFIP to reduce risk when possible and increase the community's resistance to future disasters.

(2) Maintain and hold open for public inspection all records pertaining to the provisions of this ordinance, including the actual elevation of the lowest floor (including basement or crawlspace) of all new or substantially improved structures and any floodproofing certificates, including the data supporting such certificates.

(3) Maintain and hold open for public inspection maps that identify and locate the boundaries of the SFHAs to which this ordinance applies, including, but not limited to, the FIRM.

(4) Review development proposals to determine whether a proposed building site, including sites designed for the placement of manufactured homes, will be reasonably safe from flooding.

(5) Review, approve, or deny all applications for development permits required by adoption of this ordinance.

(6) Review all proposed development and permit applications to determine whether all necessary permits, to the best of the Floodplain Administrator's knowledge, have been obtained from those federal, state, or local governmental agencies (including Section 404 of the Federal Water Pollution Control Act Amendments of 1972, 33 U.S.C. 1334 and the Endangered Species Act of 1973) from which prior approval is required.

(7) Assure that the flood carrying capacity within the altered or relocated portion of any watercourse is maintained.

(8) Notify, in riverine situations, adjacent communities and the State Coordinating Agency which is the South Dakota Office of Emergency Management, prior to any alteration or relocation of a watercourse which requires a letter of map change, and submit evidence of such notification to FEMA.

(9) Where interpretation is needed as to the exact location of the boundaries of the areas of special flood hazards (for example, where there appears to be a conflict between a mapped boundary and actual field conditions), the Floodplain Administrator shall make the necessary interpretation.

(10) When BFE data has not been provided by FEMA, the Floodplain Administrator shall obtain, review, and reasonably utilize any BFE data and floodway data available from a federal, state, or other source including data provided by the applicant, in order to administer the provisions of this ordinance.

(11) When a regulatory floodway has not been designated, no new construction, substantial improvements, or other development (including fill) shall be permitted within Zones A1-30, AE, and AH on the community's FIRM, unless it is demonstrated that the cumulative effect of the proposed development, when combined with all other existing and anticipated development, will not increase the water surface elevation of the base flood more than 1.00 foot at any point within the community.

(a) Under the provisions of 44 CFR Chapter 1, Section 65.12 of the NFIP Regulations, a community may approve certain development in Zones A1-30, AE, and AH on the community's FIRM, which increases the water surface elevation of the base flood by more than 1.00 foot, provided that the community first meets the requirements of Section 65.12 for a conditional FIRM revision through FEMA's CLOMR process.

(12) In addition to utilizing the effective FIRMs, FIS, Flood Boundary and Floodway Map, all permit reviews will utilize Best Available Data. Reference 151.008 (B).

(13) If the project is determined or reasonably believed to cause an adverse effect on the BFE(s), boundaries of the floodplain or any insurable structures, technical justification for the proposed development shall be submitted and the community may require a CLOMR or LOMR to be submitted prior to the permit approval or as a requirement of the permit.

§151.015 REQUIREMENT TO SUBMIT NEW TECHNICAL DATA

(A) The property owner or developer shall notify FEMA by submittal of a LOMR within 6 months of project completion when an applicant has obtained a CLOMR from FEMA or when development altered a watercourse, modified floodplain boundaries, or modified BFE.

(B) The property owner or developer shall be responsible for preparing technical data to support the CLOMR or LOMR application and paying any processing or application fees to FEMA. The property owner or developer is responsible for submitting the CLOMR and LOMR to FEMA and

shall provide all necessary data to FEMA if requested during the review process to ensure the CLOMR or LOMR is issued.

(C) The Floodplain Administrator shall be under no obligation to sign the Community Acknowledgement Form, which is part of the CLOMR/LOMR application, until the applicant demonstrates that the project will or has met the requirements of this ordinance and all applicable state federal, and local laws.

§151.016 PERMIT PROCEDURES.

(A) Application for a floodplain development permit shall be presented to the Floodplain Administrator on forms furnished by the Floodplain Administrator or forms made available on the city's permitting website and may include, but not be limited to:

(1) Duplicated plans drawn to scale showing the location, dimensions, and elevation of

(a) proposed landscape alterations,

(b) existing and proposed structures, including the placement of manufactured homes.

(2) Location of the foregoing in relation to SFHAs.

(3) Elevation (in relation to mean sea level), of the lowest floor (including basement and crawlspace) of all new and substantially improved structures, if applicable.

(4) Elevation (in relation to mean sea level), to which any nonresidential structure (if applicable) shall be floodproofed.

(5) A certificate from a registered professional engineer or architect that the nonresidential floodproofed structure (if applicable) shall meet the floodproofing criteria of this ordinance and the NFIP Regulations.

(6) Description of the extent to which any watercourse or natural drainage will be altered or relocated because of proposed development, if applicable.

(7) The community will charge a fee for issuance of floodplain development permits. Current fee schedules are available upon request from the City of Spearfish Finance Office.

(8) Designed opening certificate prepared by a registered professional engineer for fully enclosed areas below the base flood elevation where provisions to allow for the automatic entry and exit of floodwaters do not meet the minimum requirements in § 151.022(D).

(9) If applicable as determined by the Floodplain Administrator, a "One Foot Rise" certificate along with supporting hydraulic computations, prepared by a registered professional engineer, that the cumulative effect of the proposed development, when combined with all other existing and anticipated development, will not increase the water surface elevation of the base flood more than 1.00 foot at any point within the community.

(10) If applicable as determined by the Floodplain Administrator, "No-Rise" certificate along with supporting hydrologic and hydraulic analyses, prepared by a registered professional engineer in accordance with standard engineering practice that the proposed development would not result in any increase greater than 0.00 feet in flood levels within the community during the occurrence of the base flood discharge.

(11) Fill placement certification prepared by a registered professional engineer when required by the Floodplain Administrator to ensure proper compaction and slope protection for fill placed in the floodplain.

(12) Manufactured home foundation design certification by a registered professional engineer to meet the applicable design requirements including but not limited to those outlined in §151.026.

(13) Improvements or rehabilitation of an existing structure shall require the items detailed in §151.018, §151.019, §151.020.

(B) Copies of all floodplain development permits and the associated documents shall become property of the community and a permanent record.

(C) Approval or denial of a development permit by the Floodplain Administrator shall be based on all of the provisions of this ordinance and the following relevant factors:

(1) The danger to life and property due to flooding or erosion damage.

(2) The susceptibility of the proposed facility and its contents to flood damage and the effect of such damage on the individual owner.

(3) The danger that materials may be swept onto other lands to the injury of others.

(4) The compatibility of the proposed use with existing and anticipated development.

(5) The safety of access to the property in times of flood for ordinary and emergency vehicles.

(6) The costs of providing governmental services during and after flood conditions including maintenance and repair of streets and bridges, and public utilities and facilities such as sewer, gas, electrical, and water systems.

(7) The expected heights, velocity, duration, rate of rise and sediment transport of the flood waters and the effects of wave action, if applicable, expected at the site.

(8) The necessity to the facility of a waterfront location, where applicable.

(9) The availability of alternative locations, not subject to flooding or erosion damage, for the proposed use.

(10) The relationship of the proposed use to the comprehensive plan for that area.

Validity of permit. The issuance of a floodplain development permit under this chapter shall not be construed to be a permit for, or approval of, any violation of this chapter or any other ordinance of the jurisdiction. The issuance of a permit based on submitted documents and information shall not prevent the Floodplain Administrator from requiring the correction of errors. The Floodplain Administrator is authorized to prevent occupancy or use of a structure or site which is in violation of this chapter.

Expiration. A floodplain development permit shall become invalid if the proposed development is not commenced within one year after its issuance, or if the work authorized is suspended or abandoned for a period of 180 days after the work commences. Extensions shall be requested in writing and justifiable cause demonstrated. The Floodplain Administrator is authorized to grant, in writing, extensions.

Suspension or revocation. The Floodplain Administrator is authorized to suspend or revoke a permit issued under this chapter wherever the permit is issued in error or on the basis of incorrect, inaccurate, or incomplete information, or in violation of any ordinance or code of this jurisdiction.

(Prior Code, § 8-14) (Ord. 1153, passed 3-19-2012)

ARTICLE V FLOOD HAZARD REDUCTION

§151.017 GENERAL STANDARDS

(A) In all areas of special flood hazards, including but not limited to the special flood hazard areas identified in Section §151.008, the following provisions are required for all new construction and substantial improvements:

(B) All new construction and substantial improvements shall be designed (or modified) and adequately anchored to prevent flotation, collapse, or lateral movement of the structure resulting from hydrostatic and hydrodynamic loads, including the effects of buoyancy.

(C) All new construction or substantial improvements shall be constructed with materials and utility equipment resistant to flood damage.

(D) All new construction and substantial improvements shall be constructed using methods and practices that minimize flood damage.

(E) All new construction and substantial improvements shall be constructed with electrical, heating, ventilation, plumbing, air conditioning equipment, and other service facilities that are designed and/or located so as to prevent water from entering or accumulating within the components during conditions of flooding.

(F) All new and replacement water supply systems shall be designed to minimize or eliminate infiltration of floodwaters into the system.

(G) New and replacement sanitary sewage systems shall be designed to minimize or eliminate infiltration of floodwaters into the systems and discharge from the systems into floodwaters.

(H) On-site waste disposal systems shall be located to avoid impairment to them or contamination from them during flooding.

(Ord. 1153, passed 3-19-2012)

§151.018 SUBSTANTIAL IMPROVEMENT

Any reconstruction, rehabilitation, addition, repairs, or other improvement of a structure, the cost of which equals or exceeds 50 percent of the market value of the structure before the "start of construction" of the improvement, totaled cumulatively over the previous 5 years shall be considered as substantial improvement. If the structure has sustained substantial damage, any repairs are considered substantial improvements regardless of the actual repair work performed. For Substantial Damage, refer to §151.019. The term does not, however, include either:

(A) Any project for improvement of a building required to correct existing health, sanitary, or safety code violations identified by the building official and that are the minimum necessary to assure safe living conditions.

(B) Any alteration of a historic structure provided that the alteration will not preclude the structure's continued designation as a historic structure.

§151.019 SUBSTANTIAL DAMAGE

Substantial damage means damage of any origin sustained by a structure whereby the cost of restoring the structure to its pre-damaged condition would equal or exceed 50 percent of the market value of the structure only before the damage occurred. This term also applies to structures which have incurred any damage that equals or exceeds 50 percent of the structure's market value regardless of the actual repair work performed. When a structure or building has been determined as substantially damaged, any work or repair on said structure or building will be considered as substantial improvement and will be required to meet the development requirements set forth within this ordinance for substantial improvement.

§151.020 SUBSTANTIAL IMPROVEMENT AND SUBSTANTIAL DAMAGE DETERMINATION

For applications for building permits to improve buildings and structures, including reconstructions, alterations, movement, enlargement, replacement, repair, change of occupancy, additions, rehabilitations, renovations, and any other improvement of or work on such buildings and structures, the Floodplain Administrator, in coordination with the applicable community officials and staff, shall:

(A) Require the applicant to obtain an appraisal of the market value of the building. The value may be determined from a market value assessment by qualified independent appraiser, a Lawrence County tax assessment, an estimate from a qualified local building official, or a market value assessment from a qualified real estate agent. The assessment must be of the building or structure only, not of land and building, before the start of construction of the proposed work. If the

assessment is supplied by a real estate agent, they must supply the methods used to determine the value to ensure its reasonability. In the case of repair, the market value of the building or structure shall be the market value before the damage occurred and before any repairs are made.

(B) Compare the cost to perform the improvement, the cost to repair a damaged building to its pre-damaged condition, or the combined costs of improvements and repairs, if applicable, to the market value of the building or structure.

(C) Determine and document whether the proposed work constitutes substantial improvement or repair of substantial damage; the determination requires evaluation of previous permits issued for improvements and repairs as specified in §151.018.

(D) Utilize FEMA's Substantial Improvement/Substantial Damage Desk Reference when making any determination on Substantial Improvement and/or Substantial Damage.

(E) The substantial improvement regulations apply to all of the work that is proposed as the improvement, even if multiple permits are issued. Therefore, the determination of the cost of the improvement should consider all costs of all phases of the work before issuance of the first permit.

(F) Notify the applicant that if it is determined that the work constitutes substantial improvement or repair of substantial damage, that compliance with the floodplain management ordinance is required.

§151.021 SPECIFIC STANDARDS FOR IDENTIFIED FLOODWAYS.

Floodways located within areas of special flood hazard established in §151.008, are extremely hazardous areas due to the velocity of floodwaters which carry debris, potential projectiles, and erosion potential. The following provisions shall apply:

(A) Encroachments are prohibited, including fill, new construction, substantial improvements, and other development within the adopted regulatory floodway unless it has been demonstrated through hydrologic and hydraulic analyses performed in accordance with standard engineering practice that the proposed encroachment would not result in any increase greater than 0.00 feet in flood levels within the community during the occurrence of the base flood discharge.

(B) Under the provisions of 44 C.F.R. Chapter 1, Section 65.12, of the National Flood Insurance Regulations, a community may permit encroachments within the adopted regulatory floodway that would result in an increase in base flood elevations, provided that the community first applies for a conditional LOMR and floodway revision, fulfills the requirements for such a revision as established under the provisions of Code of Federal Regulations section § 65.12, and receives the approval of the Federal Insurance Administrator. The information necessary for the conditional LOMR shall be provided by the applicant and reviewed and approved by the Floodplain Administrator and other applicable city staff before application is submitted to FEMA.

(C) If item (A) OR (B) above is satisfied, all new construction and substantial improvements shall comply with all applicable flood hazard reduction provisions of this subchapter, including the standards in the following section, §151.022.

§151.022 STANDARDS FOR SPECIAL FLOOD HAZARD AREAS WITH ESTABLISHED BASE FLOOD ELEVATIONS WITH FLOODWAYS DESIGNATED

(A) All new construction and substantial improvements in this zone require a floodplain development permit and the accompanying documentation (see §151.016: Permit Procedures) and elevation certificates submitted to the Floodplain Administrator prior to, during, and after construction certified by a registered professional engineer, architect, or land surveyor that show the standards of this ordinance are satisfied.

(B) Residential Construction of Habitable Structure

(1) New construction or substantial improvement (see §151.018, Substantial Improvement) of any residential structure shall have the lowest floor (including basement) elevated to the base flood elevation. A registered professional engineer, architect or land surveyor shall submit certified elevation certificates to the Floodplain Administrator to show that the standards of this chapter are satisfied.

(2) Properties that have a letter of map revision based on fill must still have the lowest floor elevated to the base flood elevation.

(C) Nonresidential Construction

(1) New construction and substantial improvements of any commercial, industrial, or other nonresidential structure shall either have the lowest floor (including basement) elevated to the base flood level, OR,

(2) Together with attendant utility and sanitary facilities, be designed so that below the base flood level the structure is watertight with walls substantially impermeable to the passage of water and with bridge components having the capability of resisting hydrostatic and hydrodynamic loads and effects of buoyancy.

(3) A registered professional engineer or architect shall develop and/or review structural design, specifications, and plans for the construction, and shall certify that the design and methods of construction are in accordance with accepted standards of practice as outlined in this subsection.

(4) A record of certification that includes the specific elevation (in relation to mean sea level) to which such structures are floodproofed shall be maintained by the Floodplain Administrator.

(5) If the use or occupancy of the building changes in the future to residential, then the dry floodproofing of the structure cannot be used when determining compliance of the structure to the residential construction of this ordinance. As such, the building will not be grandfathered into compliance and will be required to be brought into compliance with the residential construction requirements of this ordinance.

(D) Enclosures Below Lowest Floor

(1) New construction and substantial improvement of fully enclosed areas may be permitted below the lowest floor as long as they are to be used solely for parking of vehicles, building access, or storage in an area other than a basement.

(2) These areas are subject to flooding and shall be designed to automatically equalize hydrostatic flood forces on exterior walls by allowing for the entry and exit of floodwaters. Designs for meeting this requirement must either be certified by a registered professional engineer or architect, or must meet or exceed the following minimum criteria:

(3) A minimum of two openings having a total net area of not less than 1 square inch for every square foot of enclosed area subject to flooding shall be provided.

(4) The bottom of all openings shall be no higher than 1 foot above grade.

(5) Openings may be equipped with screens, louvers, valves, or other coverings or devices provided that they permit the automatic entry and exit of floodwaters.

(6) The development and construction of the structure must conform with the provisions in FEMA/Federal Insurance Administration (FIA)-Technical Bulletins 1 and 2.

(E) Crawlspaces

(1) New construction or substantial improvements built on a crawlspace or sub-grade crawlspace may be permitted if the development is designed and meets or exceeds the standards found in FEMA's Technical Bulletins 1, 2, and 11, which include but are not limited to the following:

(2) The structure must be affixed to a permanent foundation, designed and adequately anchored to resist flotation, collapse, and lateral movement of the structure resulting from hydrodynamic and hydrostatic loads, including the effects of buoyancy. Because of hydrodynamic

loads, crawlspace construction is not allowed in areas with flood velocities greater than 5 feet per second unless the design is reviewed by a qualified design professional, such as a registered architect or professional engineer.

(3) The crawlspace is an enclosed area below the BFE and, as such, must have openings that equalize hydrostatic pressures by allowing the automatic entry and exit of floodwaters. The bottom of each flood vent opening can be no more than 1 foot above the LAG.

(4) The crawlspace enclosure must have proper openings that allow equalization of hydrostatic pressure by allowing automatic entry and exit of floodwaters. To achieve this, a minimum of 1 square inch of flood opening is required per 1 square foot of the enclosed area subject to flooding.

(5) Portions of the building below the BFE must be constructed with materials resistant to flood damage. This includes not only the foundation walls of the crawlspace used to elevate the building, but also any joists, insulation, piers, or other materials that extend below the BFE. Ductwork, in particular, must either be placed above the BFE or sealed from floodwaters.

(6) Any building utility systems within the crawlspace must be elevated above the BFE or designed so that floodwaters cannot enter or accumulate within the system components during flood conditions.

(7) The interior grade of a crawlspace below the BFE must not be more than 2 feet below the LAG.

(8) The height of the below-grade crawlspace, measured from the lowest interior grade of the crawlspace floor to the bottom of the floor joist of the next higher floor cannot exceed 4 feet at any point.

(9) There must be an adequate drainage system that removes floodwaters from the interior area of the crawlspace. The enclosed area should be drained within a reasonable time after a flood event.

(10) Buildings with below-grade crawlspaces will have higher flood insurance premiums than buildings that have the preferred crawlspace construction, with the interior elevation at or above the LAG.

§151.023 STANDARDS FOR SPECIAL FLOOD HAZARD AREAS WITH ESTABLISHED BASE FLOOD ELEVATIONS WITHOUT FLOODWAYS DESIGNATED

(A) No new construction, substantial improvements, or other development (including fill) shall be permitted within these zones on the community's FIRM, unless it is demonstrated that the cumulative effect of the proposed development, when combined with all other existing and anticipated development, will not increase the water surface elevation of the base flood more than one foot at any point within the community.

(B) The city may approve certain development in Zones Al-30, AE, and AH, on the community's FIRM which increase the water surface elevation of the base flood by more than one foot, provided that the community first applies for a conditional FIRM revision, fulfills the requirements for such a revision as established under the provisions of Code of Federal Regulations section § 65.12, and receives the approval of the Federal Insurance Administrator. The information necessary for the conditional LOMR shall be provided by the applicant and reviewed and approved by the Floodplain Administrator and other applicable city staff before application is submitted to FEMA.

(C) If (A) or (B) are satisfied, all new construction and substantial improvements in these zones shall comply with all applicable flood hazard reduction provisions of this subchapter, including the standards in section §151.022.

§151.024 STANDARDS FOR SPECIAL FLOOD HAZARD AREAS WITHOUT ESTABLISHED BASE FLOOD ELEVATIONS AND FLOODWAYS (ZONE A)

These zones are designated by FEMA as having a 1 percent annual chance of flooding and a 26 percent chance of flooding of the life of a 30-year mortgage, but no base flood elevations or floodways have been established.

(A) All proposed construction and development in these areas shall be reviewed to assure that all necessary permits have been received from those governmental agencies from which approval is required by Federal or State Law, including Section 404 of the Federal Water Pollution Construct Act Amendments of 1972, 33 U.S.C. 1334.

(B) All proposed construction and other developments, including subdivisions and the placement of manufactured homes, within Zone A on community's FIRM, shall require a floodplain development permit as outlined in §151.016.

(C) All permit applications with Zone A on or adjacent to proposed building sites, all new construction and substantial improvements, subdivision proposals, and other proposed new development, including manufactured home parks, shall be reviewed by the Floodplain Administrator to determine whether the proposed site is reasonably safe from flooding. If a proposed site is in a flood-prone area, the work shall comply with the following:

(1) §151.017 General Standards,

(2) §151.022, and

(3) Until a floodway is designated, no new construction, substantial improvements, or other development (including fill) shall be permitted in Zone A on the community's FIRM, unless it is demonstrated that the cumulative effect of the proposed development, when combined with all other existing and anticipated development, will not increase the water surface elevation of the base flood more than one foot at any point within the community.

(D) The city may approve certain development in Zone A on the community's FIRM which increase the water surface elevation of the base flood by more than one foot, provided that the community first applies for a conditional FIRM revision, fulfills the requirements for such a revision as established under the provisions of Code of Federal Regulations section § 65.12, and receives the approval of the Federal Insurance Administrator. The information necessary for the conditional LOMR shall be provided by the applicant and reviewed and approved by the Floodplain Administrator and other applicable city staff before application is submitted to FEMA.

§151.025 STANDARDS FOR UNMAPPED STREAMS

(A) All permit applications with unmapped streams or drainages on or adjacent to proposed building sites, new construction and substantial improvements, subdivision proposals and other proposed new development, including manufactured home parks or subdivisions, shall be reviewed by the Floodplain Administrator to determine whether the proposed site is reasonably safe from flooding. The Floodplain Administrator's determination will be based on, but not be limited to, the following:

(1) Horizontal distance from apparent floodway channel

(2) Vertical elevation gain from apparent floodway channel to proposed development

(3) Approximate 100-year flows based on drainage basin characteristics

(B) If a proposed site is in a flood-prone area, the work shall comply with the following:

(1) §151.017,

(2) §151.022,

(3) For subdivision proposals in these areas, §151.026, and

(4) Until a floodway is designated, no new construction, substantial improvements, or other development (including fill) shall be permitted within the area needed to accommodate the 1-percent

annual chance flood, unless it is demonstrated that the cumulative effect of the proposed development, when combined with all other existing and anticipated development, will not increase the water surface elevation of the base flood more than one foot at any point within the community.

(C) If the proposed development results in studying an unmapped stream, the city may require submittal of new technical data to FEMA for a LOMR to ensure the areas streams are accurately mapped and available to the public. In this case, §151.015 will apply.

§151.026 STANDARDS FOR SUBDIVISION PROPOSALS

(A) All subdivision proposals involving preparation of sites by the construction of facilities for servicing lots, installation of utilities, construction of streets, and either final site grading or, for manufactured home parks and subdivisions, pouring of concrete pads, shall be reviewed by the Floodplain Administrator to determine whether the proposed site is reasonably safe from flooding. If a proposed site is in a flood-prone area:

(1) §151.021, §151.022, §151.023, §151.024, or §151.025, as applicable based on special flood hazard area designation, shall apply.

(2) Base Flood Elevation data shall be generated where the proposed development is greater than 50 lots or 5 acres, or whichever is lesser.

(B) In addition, subdivisions involving preparation of sites by the construction of facilities for servicing lots, installation of utilities, construction of streets, and either final site grading or pouring of concrete pads, including manufactured home parks and subdivisions shall:

(1) Have adequate drainage provided to reduce exposure to flood hazards.

(2) Meet Development Permit requirements of §151.016, Permit Procedures.

(3) Be constructed and designed to minimize flood damage.

(4) Have public utilities and facilities such as sewer, gas, electrical and water systems located and constructed to minimize or eliminate flood damage.

(5) Have a minimum of one dryland access for each lot that is located above the BFE to better ensure safe access for occupants and emergency vehicles during flooding events.

§151.027 STANDARDS FOR MANUFACTURED HOMES

(A) Require that all manufactured homes to be placed within Zone A on a community's FHBM or FIRM shall be installed using methods and practices that minimize flood damage. For the purposes of this requirement, manufactured homes must be elevated and anchored to resist flotation, collapse, or lateral movement. Methods of anchoring may include, but are not limited to, use of over-the-top or frame ties to ground anchors. This requirement is in addition to applicable State and local anchoring requirements for resisting wind forces.

(B) Require that manufactured homes that are placed or substantially improved within Zones A1-30, AH, and AE on the community's FIRM on sites outside of a manufactured home park or subdivision;) in a new manufactured home park or subdivision; in an expansion to an existing manufactured home park or subdivision; or in an existing manufactured home park or subdivision on which a manufactured home has incurred "substantial damage" as a result of a flood, be elevated on a permanent foundation such that the lowest floor of the manufactured home is elevated at or above the BFE, and be securely anchored to an adequately anchored foundation system to resist flotation, collapse, and lateral movement.

(C) In A-1-30, AH, AO and AE Zones, require that manufactured homes to be placed or substantially improved in an existing manufactured home park to be elevated so that the lowest floor is at or above the BFE; or the chassis is supported by reinforced piers no less than 36 inches in height above grade and securely anchored.

§151.028 STANDARDS FOR RECREATIONAL VEHICLES

(A) Recreational vehicles placed on sites within Zones A1-30, AH, and AE on the community's FIRM must either be on the site for fewer than 180 consecutive days and be fully licensed and ready for highway use or meet the permit requirements of §151.016, Permit Procedures, and the elevation and anchoring requirements for "manufactured homes" of §151.026.

(1) A recreational vehicle is ready for highway use if it is on its wheels or jacking system, is attached to the site only by quick disconnect type utilities and security devices and has no permanently attached additions.

ARTICLE VI ENFORCEMENT

§151.029 COMPLIANCE AND PENALTIES FOR NONCOMPLIANCE

In accordance with Section 59.2(b) of CFR 44, Chapter 1, of the NFIP regulation, to qualify for the sale of federally subsidized flood insurance, a community must adopt floodplain management regulations that meet or exceed the minimum standards of Section 60. "These regulations must include effective enforcement provisions." In accordance with Section 60.1(b) of CFR 44, Chapter 1, of the NFIP regulations, "These regulations must be legally enforceable, applied uniformly throughout the community to all privately and publicly owned land within flood-prone (i.e., mudflow) or flood-related erosion areas, and the community must provide that the regulations take precedence over less restrictive conflicting local laws, ordinances, or codes."

No structure or developments including buildings, recreation vehicles, or manufactured homes or land shall hereafter be constructed, located, extended, converted, or altered without full compliance with the terms of this ordinance and other applicable regulations. Violation of the provisions of this ordinance by failure to comply with any of its requirements (including violations of conditions and safeguards established in connection with conditions) shall constitute a misdemeanor. Nothing herein contained shall prevent the City of Spearfish from taking such other lawful action as is necessary to prevent or remedy any violation.

§151.030 STOP WORK ORDER

Authority. Whenever the Floodplain Administrator or other community official discovers any work or activity regulated by this ordinance being performed in a manner contrary to the provision of this ordinance, the Floodplain Administrator is authorized to issue a stop work order.

Issuance. The stop work order shall be in writing and shall be given to the owner of the property involved, or to the owner's agent, or to the person doing the work. Upon issuance of a stop work order, the cited work shall immediately cease. The stop work order shall state the reason for the order, and the conditions under which the cited work will be permitted to resume.

Unlawful continuance. Any person who shall continue any work after having been served with a stop work order, except such work as that person is directed to perform to remove a violation or unsafe condition, shall be subject to penalties as prescribed by local or state law including but not limited to the penalties outlined in §151.029.

§151.031 VARIANCE

(A) An application for a variance must be submitted to the Floodplain Administrator and include, at a minimum, the same information required for a development permit and an explanation for the basis for the variance request.

(B) Upon receipt of a completed application for a variance, the variance request will be set for public hearing at the next City Council meeting in which time is available for the matter.

(C) Prior to the public hearing, notice of the hearing will be published in the official newspaper of the city at least 15 days prior to the hearing. In addition to the newspaper publication, written notice shall be provided to all adjoining property owners.

(D) The burden of showing that the variance is warranted and meets the criteria set out herein is on the applicant.

§151.032 CRITERIA FOR VARIANCES

(A) Generally, the only condition under which a variance from the elevation standard may be issued is for new construction and substantial improvements to be erected on a small or irregularly shaped lot contiguous to and surrounded by lots with existing structures constructed below the base flood level. As the lot size increases the technical justification required for issuing the variance increases.

(B) Variances shall not be issued within a designated floodway if any increase in flood levels during the base flood discharge would result.

(C) Variances shall only be issued upon a determination that the variance is the minimum necessary, considering the flood hazard, to afford relief.

(D) Variances may be issued upon the following

(1) A showing by the applicant of good and sufficient cause.

(2) A determination that failure to grant the variance would result in increased flood heights, additional threats to public safety, extraordinary public expense, create nuisances, cause fraud on or victimization of the public, or conflict with existing local laws and ordinances.

(E) Variances pertain to a physical piece of property; they are not personal in nature and do not pertain to the structure, its inhabitants, economic or financial circumstances. They primarily address small lots in densely populated residential neighborhoods.

(F) The decision to either grant or deny a variance shall be made by the Floodplain Administrator. The decision shall be in writing and shall set forth the reasons for such approval or denial. If the variance is granted, the property owner shall be put on notice along with the written decision that the permitted building will have its lowest floor below the Base Flood Elevation and that the cost of flood insurance likely will be commensurate with the increased flood damage risk.

(Prior Code, § 8-38) (Ord. 1153, passed 3-19-2012)

§151.033 APPEALS

(A) The Common Council shall hear and decide appeals and request for variances from the requirements of this chapter.

(B) The Common Council shall hear and decide appeals when it is alleged there is an error in any requirement, decision, or determination made by the Floodplain Administrator in the enforcement or administration of this chapter.

(C) An appeal must be filed with the Floodplain Administrator within fourteen (14) days of the date of any permit denial or interpretation of the Administrator. Failure to timely file an appeal shall be considered a failure to exhaust the administrative remedies. The appeal must set out the interpretation of the Administrator and a narrative setting forth the facts relied upon by the appellant and the appellant's claim regarding the error in the interpretation.

(D) Upon receipt of a completed appeal, the appeal will be scheduled for the next available Common Council meeting to be heard. In ruling on an appeal, the Common Council shall consider all technical evaluations, all relevant factors, and standards specified in other sections of this ordinance, including:

(1) The danger that materials may be swept onto other lands to the injury of others.

(2) The danger to life and property due to flooding or erosion damage.

(3) The susceptibility of the proposed facility and its contents to flood damage and the effect of such damage on the individual owners.

(4) The importance of the services provided by the proposed facility to the community.

(5) The necessity to the facility of a waterfront location, where applicable.

(6) The availability of alternative locations for the proposed use which are not subject to flooding or erosion damage.

(7) The compatibility of the proposed use with the existing and anticipated development.

(8) The relationship of the proposed use to the comprehensive plan and floodplain management program for that area.

(9) The safety of access to the property in times of flood for ordinary and emergency vehicles.

(10) The expected heights, velocity, duration, rate of rise and sediment transport of the floodwaters and the effects of wave action, if applicable, expected at the site; and

(11) The costs of providing governmental services during and after flood conditions, including maintenance and repair of public utilities and facilities such as sewer, gas, electrical and water systems, streets, and bridges.

(E) Upon consideration of the factors of division (D) above and the purposes of this chapter, the Common Council may attach such conditions to the granting of variances as it deems necessary to further the purposes of this chapter.

(F) Those aggrieved by the decision of the Common Council, or any taxpayer may appeal such decisions to the Eighth Judicial Circuit Court, as provided in SDCL § 9-36-8.

(G) The Floodplain Administrator shall maintain the records of all appeal actions, including technical information, and report any variances to the Federal Emergency Management Agency and the State Office of Emergency Management.

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Severability. The provisions of this ordinance are severable. If any provision of this ordinance or the application thereof to any person or circumstance is held to be invalid, such invalidity shall not affect the remaining provisions or other applications of this ordinance which can be given effect without the invalid provision or application.

Effective Date. This Ordinance will become effective twenty (20) days following publication, which will occur after the ordinance receives second and final reading and approval by the City Council and is signed by the Mayor.

Dated this ____ day of ___, 2026.

CITY OF SPEARFISH

(Seal)

By:_____
John Senden, Its Mayor

Attest:

_____
Michelle DeNeui, Finance Officer

First Reading: June 15, 2026
Second Reading: July 6, 2026
Published: _____, 2026
Effective: _____, 2026

Agenda Item Report

Community Development Item # 11.A.6.

Meeting: Regular Session Agenda **Meeting Date:** July 6, 2026
Department: Community Development

Request:
Hold a public hearing and approve the second reading of Ordinance 1424 - An Ordinance amending The Revised Ordinances of the City of Spearfish, Chapter 153: Public Ways and Property.

Background Information:
This ordinance amends Chapter 153 'Public Ways and Property' to include revisions related to Engineering Design Standards and other minor corrections related to errors and outdated information.

Fiscal Impact:

Recommended City Council Action: Approve

Staff Contact Information:
Kyle Mathis, 605-717-1129, k.mathis@spearfish.gov

Attachments:
1. Ordinance 1424 - Chapter 153 Public Ways and Property

ORDINANCE NO. 1424

AN ORDINANCE AMENDING THE REVISED ORDINANCES OF THE CITY OF SPEARFISH, TITLE XV: LAND USAGE, CHAPTER 153: PUBLIC WAYS AND PROPERTY.

WHEREAS, the City of Spearfish developed the City of Spearfish Engineering Design Standards ("the standards") which detail policy, methods, practice, and procedures related to the design and development of infrastructure; and

WHEREAS, the standards are intended to protect the public health, safety, and welfare in the provision and maintenance of public, and certain private improvements, within the City of Spearfish; and

WHEREAS, the development of the standards included opportunities for public input from developers, elected officials, design professionals, and community members at large; and

WHEREAS, Resolution 2026-09 formally adopts the standards; and

WHEREAS, existing language within the revised Ordinances of the City of Spearfish includes conflicting, outdated, erroneous, and duplicate information as the standards.

NOW THEREFORE, BE IT ORDAINED by the Common Council of the City of Spearfish that Title XV: Land Usage, Chapter 153: Public Ways and Property, of the Revised Ordinances of the City of Spearfish is hereby amended—with ~~strikethrough~~ indicating text to be deleted, <u>underline</u> indicating text to be added, and the remainder of the Article left unaffected—as follows:

153: PUBLIC WAYS AND PROPERTY

Section

General Provisions

153.01 Building permit

153.02 Street grades

153.03 Street name, prefixes; official map

153.04 Obstruction of gutters

153.05 Removal, replacement of curbs and gutters

153.06 Driveways

153.07 Surfacing of areas as behind lay-down curbs

153.08 Moving of buildings

153.09 Location of street lights

153.10 Riding on toy vehicles prohibited

153.11 Snow removal

Obstructions and Encroachments

153.25 Definition

153.26 Restricted

153.27 Nonconforming encroachments

153.28 Obstruction of traffic devices

153.29 Use of right-of-way

153.30 Display of goods prohibited

153.31 Removal

153.32 Permission for artwork

153.33 Certain church signs permitted

Sidewalks

153.45 Installation

153.46 Location of sidewalks

153.47 Specifications

153.48 Discharge of rainwater

153.49 Sidewalk snow and ice control

153.50 Building permits required prior to building of sidewalks and driveways

153.51 Restrictions

153.52 Removal

153.53 Public sidewalk maintenance

Use of City Rights-of-Way and Other Properties

153.65 Supervision

153.66 Permit required

153.67 Application for permit

153.68 Permit fee

153.69 Condition of issuance

153.70 Refilling excavations

153.71 Restoring pavements or street surfacing to meet city specifications

153.72 Protection of public and surrounding properties

153.73 Ditch compaction

153.74 Sidewalk service permit

153.999 Penalty

Statutory reference:

Numbering of houses, see SDCL § 9-45-2 Sidewalks,

see SDCL §§ 9-46-1 et seq.

Streets and alleys, see SDCL §§ 9-45-1 et seq.

GENERAL PROVISIONS

§ 153.001 BUILDING PERMIT.

A building permit shall be required with the requisite fees associated therewith prior to the construction of sidewalks and driveways required by the city.

(Prior Code, § 14-1) (Ord. 518, passed 11-10-1982)

§ 153.002 STREET GRADES.

Permissible street grades for new roadways are as designated in the city Engineering Design Standards.

~~The grades of the streets and avenues in the city as theretofore established and as shown on the street profiles on file in the office of the Public Works Administrator are hereby adopted as the official record of the street grades in the city.~~

(Prior Code, § 14-26) Statutory

reference:

Authority to establish street grades, see SDCL §§ 9-45-1 and 9-45-14

§ 153.003 STREET NAME, PREFIXES; OFFICIAL MAP.

(A) The names of the streets lying easterly from Main Street shall be designated as "East" and the names of the streets lying westerly of Main Street shall be designated as "West." The prefixes shall be placed before the proper names of the street as "East Colorado Street" or "West Colorado Street."

(B) The names of the streets and avenues in the city are hereby fixed and adopted in accordance with and as shown by the map of the city on file in the office of the Public Works Administrator, which map is hereby designated and adopted as the official map of the city.

(Prior Code, § 14-27) Statutory

reference:

Name of streets, avenues, see SDCL § 9-45-2

§ 153.004 OBSTRUCTION OF GUTTERS.

It shall be unlawful for any person to place, cause or maintain any obstruction of whatsoever manner in any gutter or drainage ditch within the city.

(Prior Code, § 14-28) Penalty, see § 153.999

§ 153.005 REMOVAL, REPLACEMENT OF CURBS AND GUTTERS.

(A) No person shall remove or cause to be removed any portion of existing curb and gutter without first obtaining a right-of-way permit from the city of Spearfish. ~~written permit to do so from the Public Works Administrator.~~ Curb and gutter work shall be performed by a contractor licensed with the city of Spearfish. No such permit shall be issued for removal of curb and gutter except in accordance with the provisions contained herein.

(B) ~~Application for such permit must be made in writing upon forms furnished by the city. Such application shall contain the name and address of the person making the application and the name and address of the contractor or person who is to replace the curb and gutter.~~

(C) ~~(B)~~ All such work shall be done under the jurisdiction of the Engineering Department ~~Public Works Administrator~~ and in accordance with this code and shall be inspected upon completion by ~~the constituted~~ a member of such department.

~~(D)~~ (C) All plans and specifications must conform to the following minimum requirements before a permit for removal and replacement shall be issued.

(1) The replacement of curb and gutter must conform to the Engineering Design Standards. ~~existing curb and gutter grade as established and designated by the official~~

~~grades of the streets of the city and the profile on file in the office of the Public Works Administrator.~~

(2) ~~If an existing expansion joint in the curb and gutter is within five feet of the end of the driveway opening, the existing curb and gutter may be removed to the expansion joint, otherwise the existing curb and gutter must be cut, making a neat edge truly at right angles to the edge of the pavement and truly vertical.~~

~~(3) The new curb and gutter shall be constructed in a manner and of a material equal at least to the existing curb and gutter adjacent thereto.~~

(E) It shall be the responsibility hereafter and required of the property owner who removes or causes any other person to remove any portion of curb and gutter to provide the costs for all materials, construction and installation involved in replacing the curb and gutter, and all construction and installation shall be performed according to plans and specifications ~~of~~ approved by the city.

(Prior Code, § 14-29)

§ 153.006 DRIVEWAYS.

(A) For the purpose of this section, PARKWAY means the portion of the public right-of-way which lies between the curb and gutter and the adjacent property line or, if no curb and gutter is present, it is the portion of the public right-of-way which lies between the edge of the paved street and the adjacent property line.

(B) It shall be the responsibility hereafter and required of all property owners whose driveway connects to an existing paved street, paved alley or crosses over a public parkway to install a nonporous concrete or bituminous driveway surface. The following are exceptions to this requirement.

(1) In locations where the existing street or alleyway providing access to the property is unpaved, the driveway shall be surfaced with asphalt, concrete, gravel, asphalt millings or similar loose material.

(2) For property zoned Rural Large Lot Single-Family or Agricultural, a paved surface is only required when the existing street providing access to the property is paved, in which case the paving of the driveway shall be required to extend only to the front setback and with a minimum width of 12 feet. Beyond the front setback, gravel, asphalt millings or similar loose material is permitted.

(C) It shall be the responsibility hereafter and required of all property owners whose driveway crosses over any portion of any public sidewalk or public parkway to provide the costs for all materials, construction and installation involved in surfacing the driveway with nonporous concrete or bituminous material.

(D) Where a driveway of any kind of material is constructed across the public sidewalk or public parkway, it shall conform to the sidewalk grades as established in the Engineering Design Standards. ~~and designated by the official grades of the sidewalks of the city and the profiles on file in the office of the Public Works Administrator.~~

(E) All driveways shall be so graded between the gutter and the sidewalk that it will not be necessary to change the established grade of either and will not elevate or depress any portion of either. No part of such driveway shall extend beyond the curbline in such manner as to change the grade of such gutter or obstruct the free flow of water in such gutter. Where elevations or depressions are necessary in the parkway strip adjoining the curb and walks, the parkway shall be graded on both sides of the driveway to a distance sufficient to create a gradual ascent or descent. Where driveways cross open ditches in the parkways, culverts shall be designed and installed according to city Engineering Design Standards. ~~adequate culverts shall be installed.~~

(Prior Code, § 14-30) (Ord. 1165, passed 11-19-2012; Ord. 1231, passed 1-19-2016)

~~§ 153.007 SURFACING OF AREAS AS BEHIND LAY-DOWN CURBS.~~

~~(A) It shall be the responsibility hereafter and required of the property owner whose property adjoins or abuts lay-down curbing to install within six months a nonporous concrete or bituminous surface upon the area behind the lay-down curbing which is used for parking, loading, unloading or delivery purposes.~~

~~(B) It shall be the responsibility hereafter and required of such property owner to provide the costs for all materials, construction and installation involved in laying the nonporous concrete or bituminous surface.~~

~~(Prior Code, § 14-31)~~

§ 153.008 MOVING OF BUILDINGS.

(A) It shall be unlawful for any person to move a building of any kind over the streets or alleys of this city without first paying a fee of $50 and obtaining a permit to do so from the Public Works Department.

(B) When a permit shall be granted for the purpose of moving a building over the streets of the city, it shall be the duty of the Public Works Department to verify that the moving person or company has been licensed by the city and submitted a certified check in the amount of $1,000 to cover any damages to the city property which might result from such use of the streets and alleys under the operation of such permit.

(C) When the building has been moved as contemplated and allowed by a permit under this section, it shall be the duty of the Public Works Administrator to carefully examine the route over which such building was moved. If the person to whom such permit was granted repairs forthwith any damages to the full satisfaction of the Public Works Administrator, the certified check collected as herein provided shall be refunded. Otherwise, the Public Works Administrator shall cause such damages to be repaired and pay for the same out of the certified check so collected and held by him or her and refund the remainder, if there be any, to the person from whom collected.

(Prior Code, § 14-32) (Ord. 844, passed 6-1-1998) Penalty, see § 153.999

§ 153.009 LOCATION OF STREET LIGHTS.

(A) Location, spacing, and type of streetlight shall be as described in the city of Spearfish Engineering Design Standards.

~~(A) Residential street lights within the city may be placed at intersections. If there is a distance of over 400 feet between intersections or on a dead-end street over 400 feet with a cul-de-sac, the Public Works Department shall determine the need and best location for a light and make such recommendation to the Public Works Committee.~~

~~(B) The locations or spacing of street lights in commercial or major thoroughfares shall be determined by the Public Works Department. Such location shall be based upon recommendation of the applicable electric company as to candle power and coverage of light and shall be the most efficient and economical to the city.~~

(Prior Code, § 14-33) (Ord. 601, passed 9-15-1986)

§ 153.010 RIDING ON TOY VEHICLES PROHIBITED.

It shall be unlawful for any person traveling upon any coaster, sled, roller skates or any toy vehicle to ride upon any street in the city.

(Prior Code, § 14-34) Penalty, see § 153.999

§ 153.011 SNOW REMOVAL.

(A) Policy. It is hereby declared to be in the public interest to regulate and restrict the parking and operation of vehicles on public streets during snow removal efforts.

(Prior Code, § 14-36)

(B) Snow storm information and advisory guide. The City Administrator is hereby required to establish and maintain an administrative policy entitled the City Snow Information and Advisory Guide which describes how the city will address snow removal and regulate such things as parking in snow conditions. The policy has the weight of law.

(Prior Code, § 14-37)

(C) Interference or obstruction of snow removal operations. It shall be unlawful for any person or operator of any vehicle to interfere with or obstruct, or cause interference with or obstruction, of the snow removal operations undertaken by the city and its employees. It shall also be unlawful for any person to operate any vehicle in a manner not reasonable or prudent, thereby creating a safety risk in relation to snow removal operations.

(Prior Code, § 14-38)

(D) Placement of snow. Residents and businesses shall not be allowed to place snow on public boulevards and public streets. Exception: Property owners in the Downtown Business Improvement District who have no ability to store snow on site will be allowed to push snow onto the street if done before the city plows or removes snow. Any snow placed on the right-of-way along with snow already on the street cannot exceed three feet in height.

(Prior Code, § 14-39)

(E) Responsibility for snow removal on private driveways. The city will not plow snow from private property and will not open any private driveways whether closed by city street plowing or other means. Property owners will be responsible for snow removal of sidewalks in compliance of this section.

(Prior Code, § 14-40)

(F) Additional power of administrative staff. The administrative staff shall have the power, during extreme snow removal circumstances, to close any street or portion of street which is under the jurisdiction of the city to all traffic and parking, if necessary, for public safety and efficient removal of snow.

(Prior Code, § 14-41)

(Ord. 817, passed 2-18-1997; Ord. 1112, passed 11-2-2009) Penalty, see § 153.999

OBSTRUCTIONS AND ENCROACHMENTS

§ 153.025 DEFINITION.

For the purpose of this subchapter, the following definition shall apply unless the context clearly indicates or requires a different meaning.

ENCROACHMENT. Any sign, awning, canopy or marquee, billboard or other advertising device, merchandise stand or display, building or other structure or other use for private purposes of any character which exists in or rests upon or projects above the right-of-way or any portion thereof of a public street.

(Prior Code, § 14-51) (Ord. 1342, passed 4-5-2021)

§ 153.026 RESTRICTED.

It shall be unlawful, except as hereinafter provided, for any person to erect, construct, install, place, maintain or allow to remain or to permit the erection, construction, installation, placing, maintenance or remaining of any encroachment upon or above the right-of-way or any portion thereof, in the city unless permitted by an encroachment agreement with the city.

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(Prior Code, § 14-52) (Ord. 1342, passed 4-5-2021) Penalty, see § 153.999

§ 153.027 NONCONFORMING ENCROACHMENTS.

Any encroachment existing on the effective date of the ordinance from which this subchapter was derived, as heretofore permitted by the city, may be continued for a period of 90 days from and after such effective date unless discontinued, or unless the same shall become defective and unsafe prior to the expiration of such period, in which case the same shall be removed by the owner or person permitting the erection, construction, installation, placing or maintenance of the same; provided, however, that in established business districts on such streets where the buildings are at the property line and are continuous or very closely spaced, overhanging encroachments are permitted under the following conditions.

(A) Awnings, canopies, marquees and similar installations supported wholly from the face of the building shall be permitted, providing that the edge of such encroachment be not less than three feet back of the face of the curb.

(B) Advertising or other similar signs supported wholly from the front of the building shall be permitted to remain in place until such time that they become functionally or structurally obsolete; such signs shall then be removed.

(C) The replacements of encroachments, as allowed in division (B) above, will not be permitted.

(Prior Code, § 14-53)

§ 153.028 OBSTRUCTION OF TRAFFIC DEVICES.

In the event the encroachments referred to in § 153.027 by reason of color or placement, obscure or in any way detract from the effectiveness of highway signs or traffic signals, the city may cause the removal of such encroachments in the manner hereinafter provided for the removal of any encroachment in violation of this subchapter.

(Prior Code, § 14-54)

§ 153.029 USE OF RIGHT-OF-WAY.

The following uses of the right-of-way by owners or lessees of abutting property are allowed without an encroachment agreement: landscaping, driveways and sidewalks as permitted by the city of Spearfish and conforming with the city of Spearfish Engineering Design Standards.

The use of the right-of-way by owners or lessees of abutting property for the storage of vehicles, placement of portable signs or other private use, without an encroachment agreement, is hereby prohibited on public rights-of-way.

(Prior Code, § 14-55) (Ord. 1342, passed 4-5-2021) Penalty, see § 153.999

§ 153.030 DISPLAY OF GOODS PROHIBITED.

The use of sidewalks or other areas of the right-of-way for the storage or display of merchandise without an encroachment agreement, is prohibited on public rights-of-way.

(Prior Code, § 14-56) (Ord. 1342, passed 4-5-2021) Penalty, see § 153.999

§ 153.031 REMOVAL.

Whenever any encroachment exists in violation of the provisions of this subchapter, the city will issue notice requiring the removal of such encroachment within a specified time. If the owner or person responsible for such encroachment, or his or her agent, is known, such notice will be a written notice served in person or by certified mail upon such owner or agent. If the owner, person responsible or agent is unknown, notice will be posted on or near the encroachment or on the adjacent property. If the owner, person responsible, agent or the adjacent property owner fail or refuse to remove the encroachment within the time fixed in the notice, the city shall cause the encroachment to be removed. Upon removal of the encroachment, all related receipts and administrative costs will be billed to the owner, person responsible, agent or adjacent property owner.

(Prior Code, § 14-57) (Ord. 1342, passed 4-5-2021)

§ 153.032 PERMISSION FOR ARTWORK.

Any person desiring to place sculpture, statuary, fountains or other artwork of any kind on or over public property shall first obtain permission from the Common Council, which shall approve the artwork and location thereof. Such artwork may not constitute a safety or traffic hazard.

(Prior Code, § 14-60) (Ord. 901, passed 9-17-2001)

~~§ 153.033 CERTAIN CHURCH SIGNS PERMITTED.~~

~~Notwithstanding any ordinance or zoning regulation to the contrary, each church located within the city shall be allowed to use the public right-of-way to place two directional and informational signs not exceeding 720 square inches per sign on each side. Both sides of a sign may be used if the sign is hung by a bracket. No fee or permit is required for such sign.~~

~~(Prior Code, § 14-61) (Ord. 958, passed 6-16-2003)~~

SIDEWALKS

§ 153.045 INSTALLATION.

(A) Unless exempt under Ch. 154 or Ch. 156, it shall be the responsibility hereafter and required of all property owners of vacant lots, that sidewalks be installed whenever a new building or dwelling be constructed upon such vacant lots.

(B) Such sidewalks shall be completed at or before the time the new building or dwelling is completed and shall be constructed and installed according to city Engineering Design Standards. ~~city plans and specifications on file in the office of the Public Works Administrator.~~

(Prior Code, § 14-76) (Ord. 922, passed 4-1-2002)

§ 153.046 LOCATION OF SIDEWALKS.

(A) Sidewalks constructed in the city shall be located in conformity with existing sidewalk locations, except the replacement of sidewalks abutting the curb, whenever possible, shall conform to the standards of this section.

(B) In the event no existing sidewalk location and in the case of new subdivisions, sidewalk location shall be as follows:

(1) Five feet from and parallel to the back of the curb; and

(2) If no curb exists, parallel to and adjacent to the lot line.

~~(C) The Common Council may permit exceptions where special conditions warrant.~~ (Prior Code, § 14-77) (Ord. 697, passed 3-4-1991)

§ 153.047 SPECIFICATIONS.

All sidewalks within this city shall be constructed ~~and maintained~~ in compliance with Engineering Design Standards ~~specifications~~ therefor promulgated in the city. Maintenance of sidewalk shall be in compliance with Chapter 92.

(Prior Code, § 14-78)

~~§ 153.048 DISCHARGE OF RAINWATER.~~

~~It shall be unlawful for any person to permit the rainwater from any building discharge on and over the sidewalks.~~

~~(Prior Code, § 14-79) Penalty, see § 153.999~~

§ 153.049 SIDEWALK SNOW AND ICE CONTROL.

Property owners are responsible for controlling snow and ice buildup on sidewalks. (Prior Code, § 14-81)

§ 153.050 BUILDING PERMITS REQUIRED PRIOR TO BUILDING OF SIDEWALKS AND DRIVEWAYS.

(A) ~~A building permit shall be required with the requisite fees associated therewith prior to the construction of sidewalks and driveways required by the city.~~ A building permit for new building construction within the city's corporate limits includes a right-of-way permit for sidewalk and driveway installation. Any improvements or other changes to an existing sidewalk or driveway not associated with new building construction require a standalone right-of-way permit. All required permits have associated fees, listed in the Master Fee Schedule.

(B) Section 301(b)(7) of the Uniform Building Code adopted in § 150.015 adopted by the city is repealed and all other provisions of such Code inconsistent with this section are likewise repealed.

(C) Unless changed by ordinance of the city, the provision exempting sidewalks and driveways in any future edition of the Uniform Building Code which may hereafter be adopted by the city will likewise be repealed and ineffective.

(D) The requirements above do not exempt any sidewalk or driveway from complying with the city Engineering Design Standards.

(Prior Code, § 14-82)

§ 153.051 RESTRICTIONS.

It shall be unlawful for any person to erect, construct, install, place or to permit the erection, construction, installation, placing of any encroachment upon or above any portion of any residential sidewalk in the city.

(Prior Code, § 14-83) (Ord. 703, passed 6-3-1991) Penalty, see § 153.999

§ 153.052 REMOVAL.

Whenever any encroachment exists in violation of these provisions, written notice shall be given to the owner of record requiring removal within 14 days. If the owner of record fails to remove the encroachment within the time specified in the notice, the city shall remove the encroachment at the owner's expense.

(Prior Code, § 14-84) (Ord. 703, passed 6-3-1991)

§ 153.053 PUBLIC SIDEWALK MAINTENANCE.

The maintenance of sidewalks located in city right-of-way including, but not limited to, the area between the property line and street curb shall be the responsibility of the owner, manager or lessee of the abutting property. Such persons are jointly and severally liable for the maintenance and replacement when required by the city according to the criteria pertaining to sidewalk replacement.

(Prior Code, § 14-85) (Ord. 1165, passed 11-19-2012)

USE OF CITY RIGHTS-OF-WAY AND OTHER PROPERTIES

§ 153.065 SUPERVISION.

The City Engineer or his or her designee shall supervise all excavations made for any purpose in the streets, alleys or public ground and shall require compliance with all the requirements of this subchapter.

(Prior Code, § 14-131) (Ord. 1221, passed 12-21-2015)

§ 153.066 PERMIT REQUIRED.

(A) No person shall make or cause to be made any excavation in or under any street, parking, sidewalk, alley or public ground without first having obtained a ROW permit and a contractor's license from the Building ~~and Development~~ Department. The permit will not be required to start emergency work as may be necessary to protect existing structures. However, the permit shall be obtained the morning of the first working day after such work has commenced.

(B) Any person, other than a person holding a special event permit, desiring to block, partially occupy or interrupt the traffic flow of any ROW for 30 minutes or more for any reason, shall be required to have a ROW permit.

(C) The construction of driveways and sidewalks within the city's corporate limits pursuant to a city building permit will include a ROW permit at no extra charge.

(D) Any person starting any work in a municipal ROW without a ROW permit shall be subject to fines set forth in § 10.99.

(Prior Code, § 14-132) (Ord. 880, passed 4-17-2000; Ord. 1221, passed 12-21-2015)

§ 153.067 APPLICATION FOR PERMIT.

(A) Any person requesting a ROW permit shall make application ~~to the City Engineer or his or her designee.~~ via the city's online application portal.

(B) At a minimum, the application shall include the exact location of the excavation, a detailed description of the work to be performed, the purpose for the excavation, an illustration of the areas to be disturbed or removed and a timeline for the replacement of all materials. The City Engineer may approve temporary repairs in the event of inclement weather.

(C) Additional submittal documents, such as traffic control plans and utility plans or profiles, may be required as determined by the City Engineer, based on the size or complexity of the project or other factors.

(D) Only licensed contractors may perform curb or street repairs. (Prior

Code, § 14-133) (Ord. 1221, passed 12-21-2015)

§ 153.068 PERMIT FEE.

The fee for a ROW permit shall be the minimum base charge set by resolution, per excavation, up to and including 400 feet. Beyond 400 feet, the permit fee will be charged by the foot, commensurate with the base charge listed above. A service repair permit shall be obtained in lieu of a ROW permit for repair of water or sewer service lines. The permit fee for the repair of city water and sewer service lines shall be waived.

(Prior Code, § 14-134) (Ord. 1221, passed 12-21-2015)

§ 153.069 CONDITION OF ISSUANCE.

(A) Every application for a ROW permit that involves excavation in or under any street, parking area or sidewalk shall be accompanied by:

(1) A certificate of insurance showing that the applicant has in effect a statutory workers' compensation insurance policy in the amount of limits applicable for the state;

(2) A certificate of insurance showing that the applicant has occurrence-based commercial general liability insurance or equivalent form, with a limit of not less than $1,000,000 for each occurrence. If such insurance contains a general aggregate limit, it shall apply separately to this ROW permit or be no less than two times the occurrence limit. Such insurance shall add the city and its employees as additional insureds. Such certificate shall contain a statement to the effect that the policy cannot be canceled or substantially altered without ten days prior written notice to the city; and

(3) A certificate of insurance showing that the applicant has automobile liability insurance, with a limit of not less than $1,000,000 for each accident. Such insurance shall include coverage for owned, hired and non-owned vehicles. Such certificate shall contain a statement to the effect that the policy cannot be canceled or substantially altered without ten days' prior written notice to the city.

(B) Each ROW permit issued shall contain a statement and shall be issued only upon the express condition that the permittee shall refill the excavation in accordance with the instructions of the City Engineer and restore the pavement or surfacing, as the case may be, to its former condition and maintain it in such condition for a period of three years from the time of completion of the work authorized by the ROW permit.

(Prior Code, § 14-135) (Ord. 780, passed 8-21-1995; Ord. 880, passed 4-17-2000; Ord. 1221, passed 12-21-2015)

§ 153.070 REFILLING EXCAVATIONS.

The City Engineer shall adopt, amend and enforce a code of rules and regulations which shall set forth the manner in which various types of excavations shall be replaced.

(Prior Code, § 14-136) (Ord. 1221, passed 12-21-2015)

§ 153.071 RESTORING PAVEMENTS OR STREET SURFACING TO MEET CITY SPECIFICATIONS.

It shall be the duty of the City Engineer to keep on file a copy of all ROW permits, and to conduct periodic inspections of pavements or other street surfacing disturbed pursuant to such permits. If a pavement or surface is not restored to current city specifications, notice thereof shall be sent to the permittee. The permittee shall return the pavement or surface to an approved condition within a time period as specified by the City Engineer. If the permittee fails to restore and maintain such pavement or the surfacing thereof, the City Engineer shall arrange for the completion of the necessary repairs. The original permittee shall pay a penalty to the city equal to one and one-half times the cost of the repairs. No other permit shall be issued to an individual, or any person on his or her behalf, until satisfaction of the penalty provided by this section has occurred. The City Engineer shall be consulted for typical street patching requirements.

(Prior Code, § 14-137) (Ord. 1044, passed 1-2-2007; Ord. 1221, passed 12-21-2015)

§ 153.072 PROTECTION OF PUBLIC AND SURROUNDING PROPERTIES.

(A) Any person receiving a permit to make excavations in or upon any street, alley, sidewalk or public ground shall, during the progress and continuance of the work, erect and maintain around the project area, both by day and night, suitable guards, fences, lanterns and signals so as to prevent injury to persons, animals or vehicles on account of such excavations. Such lanterns shall be kept lighted from sundown until sunrise. Traffic control will be determined by the City Engineer, based on the specific project and its proximity to roadways. If a traffic control plan is required, the contractor will be required to use State Department of Transportation (SDDOT) standard traffic control plates, which will be filed with the ROW permit application. Larger projects may require traffic control plans implemented by a SDDOT-approved contractor.

(B) It shall be unlawful for any person, owner or occupant of any lot to make or cause to be made any excavation adjacent to any street, alley, public ground, sidewalk or traveled road or roadway, unless appropriate measures are implemented to prevent the injury of any person or animal.

(C) Any person making an excavation shall use all appropriate control measures to prevent pollutants from entering neighboring properties and waters of the state, including municipal storm drain conveyances and natural drainage ways.

(Prior Code, § 14-138) (Ord. 1221, passed 12-21-2015) Penalty, see § 153.999

§ 153.073 DITCH COMPACTION.

The city will not allow water soaking for compaction of trenches resulting from utility placement or repairs. All trenches will be mechanically tamped and compacted to a compaction factor of 95% or greater. Testing of the trench compaction may be required, at the discretion of the City Engineer.

(Prior Code, § 14-140) (Ord. 602, passed 9-15-1986; Ord. 1044, passed 1-2-2007; Ord. 1221, passed 12-21-2015)

§ 153.074 SIDEWALK SERVICE PERMIT.

(A) The Public Works Director may permit a food or beverage service establishment (establishment) to sell and allow to be consumed food or beverages on a sidewalk or walkway subject to a public right-of-way abutting and immediately adjacent to the food or beverage service establishment's premises.

(B) The establishment must submit a sidewalk service permit application with the following.

(1) The establishment shall propose a specific service area that clearly delineates the boundaries where food or beverages may be served and consumed. The service area cannot impede pedestrian use of the sidewalk and must provide a minimum width of 60 inches of clear space for pedestrian use. The service area shall meet existing requirements of the building code.

(2) The establishment shall propose a seating configuration that maintains ADA accessible walkways and employs commercial grade tables, chairs, umbrellas, benches or other furniture, the design and construction of which shall be subject to approval of the Public Works Director.

(3) The establishment shall propose a plan to address any garbage and waste that may be generated by the proposed use.

(C) The establishment may install a physical barrier or other visual delineation to designate the service area. If the establishment chooses to install a physical barrier, the design and materials must be approved by the Public Works Director prior to construction. The barrier must follow all relevant building regulations.

(D) The establishment must have a valid sidewalk service permit and provide a copy of the establishment's certificate of insurance that lists the city as an additional insured. The establishment must agree to any and all conditions or restrictions the city may deem appropriate based on the location or other characteristics of the establishment.

(E) The city may revoke the sidewalk service permit at its discretion or if the establishment violates any of the provisions of this section or other laws or regulations.

(Prior Code, § 14-141) (Ord. 1331, passed 10-5-2020)

§ 153.999 PENALTY.

(A) Any person violating any provision of this chapter for which no specific penalty is prescribed shall be subject to § 10.99.

(B) In the event any person fails to comply with the provisions of § 153.005, he or she shall be guilty of a misdemeanor and fined not less than $50.

(Prior Code, § 14-29)

(C) In the event any person fails to comply with the provisions of § 153.006, he or she shall be guilty of a misdemeanor and fined not less than $50.

(Prior Code, § 14-30)

(D) In the event any person fails to comply with the provisions of § 153.007, he or she shall be guilty of a misdemeanor.

(Prior Code, § 14-31)

(E) Violation of any provisions of § 153.011, in addition to the penalties contained herein, may be punished by a fine in accordance to a Class 2 misdemeanor. Illegally parked vehicles may be ticketed, towed and impounded at owner's expense. Enforcement of any provisions of § 153.011 will be in compliance of §§ 70.20 through 70.30.

(Prior Code, § 14-42)

(F) Any person violating §§ 153.065 through 153.074 shall be subject to fines set forth in § 10.99.

(Prior Code, § 14-140)

(Ord. 602, passed 9-15-1986; Ord. 817, passed 2-18-1997; Ord. 1044, passed 1-2-2007; Ord. 1221, passed 12-21-2015)

****

Severability. The provisions of this ordinance are severable. If any provision of this ordinance or the application thereof to any person or circumstance is held to be invalid, such invalidity shall not affect the remaining provisions or other applications of this ordinance which can be given effect without the invalid provision or application.

Effective Date. This Ordinance will become effective twenty (20) days following publication, which will occur after the ordinance receives second and final reading and approval by the City Council and is signed by the Mayor.

Dated this _____ day of _____, 2026.

CITY OF SPEARFISH

(Seal)

By: _____
John Senden, Its Mayor

Attest:

_____
Michelle DeNeui, Finance Officer

First Reading: June 15, 2026
Second Reading: July 6, 2026
Published: _____, 2026
Effective: _____, 2026

Agenda Item Report

Community Development Item # 11.A.7.

Meeting: Regular Session Agenda **Meeting Date:** July 6, 2026
Department: Community Development

Request:
Hold a public hearing and approve the second reading of Ordinance 1425 — An Ordinance Repealing and Replacing The Revised Ordinances of the City of Spearfish, Chapter 154: Subdivisions.

Background Information:
This ordinance repeals and replaces Chapter 154. Subdivisions to align the subdivision regulations with the City's soon-to-be adopted Engineering Design Standards. The revisions remove technical engineering requirements from the ordinance and instead reference the Engineering Design Standards, reducing redundancy and improving administrative efficiency.

Additional changes include reorganizing subdivision procedures for clarity, correcting outdated or unnecessary provisions, and updating references to the City's adopted planning documents. Following a public hearing and stakeholder review process, the Planning Commission recommended approval of the ordinance in a 4-1 vote, with a revision requiring subdivisions to "utilize and consider" the Master Transportation Plan, Master Utility Plans, Parks and Recreation Master Plan, and Comprehensive Plan.

Please see the attached Planning Commission staff report for additional details.

Fiscal Impact:

Recommended City Council Action: Approve

Staff Contact Information:
Jaymia Ecker, 605-722-2559, j.ecker@spearfish.gov

Attachments:
1. Ordinance 1425 - An Ordinance Repealing and Replacing The Revised Ordinances of the City of Spearfish, Chapter 154 Subdivisions
2. Chapter 154 Subdivision wTracked Changes
3. Planning Commission Staff Report

ORDINANCE NO. 1425

AN ORDINANCE REPEALING AND REPLACING THE REVISED ORDINANCES OF THE CITY OF SPEARFISH, TITLE XV LAND USAGE, CHAPTER 154: SUBDIVISIONS.

WHEREAS, the City of Spearfish developed the City of Spearfish Engineering Design Standards ("the standards") which detail policy, methods, practice, and procedures related to the design and development of infrastructure; and

WHEREAS, the standards are intended to protect the public health, safety, and welfare in the provision and maintenance of public, and certain private improvements, within the City of Spearfish; and

WHEREAS, the development of the standards included opportunities for public input from developers, elected officials, design professionals, and community members at large; and

WHEREAS, Resolution 2026-09 formally adopts the standards; and

WHEREAS, existing language within the revised Ordinances of the City of Spearfish includes conflicting, outdated, erroneous, and duplicate information as the standards; and

WHEREAS, the Spearfish Planning Commission held a public hearing on April 7th, April 21st and May 19th, 2026, recommended approval of the revisions within this ordinance.

NOW THEREFORE, BE IT ORDAINED by the Common Council of the City of Spearfish that Title XV Land Usage, Chapter 154 of the Revised Ordinances of the City of Spearfish is hereby repealed and replace with the following:

[. . .]

CHAPTER 154: SUBDIVISIONS

GENERAL PROVISIONS

§ 154.001 DEFINITIONS.

For the purpose of this chapter, the following definitions shall apply unless the context clearly indicates or requires a different meaning.

ADMINISTRATIVE OFFICIAL. The officer appointed by the city to administer this chapter.

BOND. A security consisting of a cash deposit, surety bond, personal guarantee, collateral, property or instrument of credit in an amount and form satisfactory to and approved by the Common Council whenever a bond is required by this chapter.

BLOCKS. Two tiers of lots with an appropriate depth.

CITY ENGINEER. The person designated by the Common Council to furnish engineering assistance for the administration of this chapter.

COMPREHENSIVE PLAN. A long-range planning document adopted by the City for the purpose of promoting the health, safety, and general welfare of the municipality. The Future Land Use Map within this document guides the development and use of land within the City's municipal boundary and jurisdictional area.

CUL-DE-SAC. A local street with only one outlet and having an appropriate turn-around at its terminus for the safe and convenient reversal of traffic movement.

DEDICATION. The designation and formal transfer of land to the governing body for use by the public.

EASEMENT. A grant of the right to use land for specific purposes.

ENGINEERING DESIGN STANDARDS. An adopted set of standards which apply to the comprehensive design and construction of all public improvements and private development associated with developing, redeveloping, and subdividing lands, and providing necessary criteria for all drainage, right-of-way, transportation, and utility service design.

FINAL PLAT. A technical drawing that incorporates the final survey of subdivision and any accompanying material, as described in this chapter in a form that is recorded with the County Register of Deeds.

LOT. A tract, plot or portion of subdivision or other parcel of land intended as a unit for the purpose, whether immediate or future, of transfer of ownership or of building development.

LOT LINE ADJUSTMENT. A change to the boundaries between adjacent parcels of land without creating new lots

MASTER TRANSPORTATION PLAN. A long-range planning document adopted by the City including transportation related goals, policies, and proposed improvements. The Major Street Plan within this document establishes the framework for the community's transportation network, identifying functional classifications of existing and future roadways and guiding the coordinated development of streets in relation to land use, subdivision, and future growth.

MAJOR SUBDIVISION. All subdivisions of four or more lots.

MINOR SUBDIVISION. Any subdivision containing not more than three lots.

PRELIMINARY PLAT. The map, plan or record of proposed subdivision and any accompanying material approved by the Common Council in advance of the submission of a final plat.

SKETCH PLAT. The preliminary concept drawing or drawings, referenced in this chapter, indicating the proposed manner and layout of the subdivision to be submitted for approval.

SUBDIVISION The division of any tract or parcel of land into two or more lots, sites, or other division for the purpose, whether immediate or future, of sale or building development. Subdivision includes the resubdivision and platting of unplatted property.

TIME. Days for public notice and shall include the day of notice but not the day of hearing, and shall include weekends and holidays.

(Prior Code, § 15A-1) (Ord. 914, passed 2-19-2002)

§ 154.002 PURPOSE.

The regulations in this chapter are adopted to establish reasonable standards of design and procedures for subdivisions, to protect and provide for the public health, safety and general welfare of the city, to promote aesthetically attractive, subdivisions and to achieve economies in the construction and long-term maintenance of the city street system.

(Prior Code, § 15A-2) (Ord. 914, passed 2-19-2002)

§ 154.003 CONFLICTING REGULATIONS.

Where any provision of this chapter imposes restrictions different from those imposed by any other provision of this chapter, or any other ordinance, rule or regulation, the city's Engineering Design Standards, or other provision of law, whichever provisions are more restrictive or impose higher standards shall control. These regulations are not intended to abrogate any easement, covenant or any other private agreement or restriction.

(Prior Code, § 15A-3) (Ord. 914, passed 2-19-2002)

§ 154.004 JURISDICTION.

This chapter shall govern all subdivisions of land within the corporate boundaries of the city.

(Prior Code, § 15A-4) (Ord. 914, passed 2-19-2002)

§ 154.005 FEES.

Fees shall be according to the city's Master-Fee Schedule adopted by resolution of the City Council.

(Prior Code, § 15A-5) (Ord. 914, passed 2-19-2002; Ord. 1159, passed 7-16-2012)

§ 154.006 PREPARATION.

All plats shall be prepared and sealed by a registered land surveyor licensed to practice in the state and in accordance with applicable state laws and local regulations.

(Prior Code, § 15A-6) (Ord. 914, passed 2-19-2002)

PROCEDURE

§ 154.020 GENERALLY.

Subdivisions are reviewed for compliance with applicable zoning and subdivision regulations, Master Plans, and Engineering Design Standards.

The subdivision process begins with a sketch plat submittal. During review of the sketch plat, staff determine whether the plat will follow the minor or major plat approval process and associated document requirements.

(Prior Code, § 15A-21) (Ord. 914, passed 2-19-2002)

§ 154.021 APPROVAL PROCESS

Pursuant to SDCL § 11-3-6 and these regulations, the administrative official may approve sketch plats and final plats as outlined in this section. Denial of a sketch plat by the administrative official may be appealed in writing to the City Council.

The applicant, or a designated agent, shall attend each meeting where action by the Planning Commission or City Council is requested. If represented by an agent, such designation shall be in writing and filed with the application.

Subdivision procedures vary based on whether the application is classified as a major or minor subdivision.

A public hearing is required for all major preliminary plats and may be required for final plats as specified below. Notice of the time and place of any required public hearing shall be published at least once (5) days in advance in the legal newspaper of the city.

It is recommended, but not required, that sketch plats associated with major subdivisions be presented to the Planning Commission for discussion.

§ 154.022 MINOR SUBDIVISION PROCEDURE

(A) Sketch Plat

(1) Reviewed and approved administratively.

(B) Final Plat

(1) Reviewed and approved administratively if the plat conforms to all applicable zoning and Engineering Design Standards. If the plat does not meet these conditions, (2) and (3) apply.

(2) Approval by the Planning Commission with a public hearing; and

(3) Approval by the City Council.

(C) Recording

(1) Upon approval, the final plat shall be signed and stamped and filed with the Lawrence County Register of Deeds.

§ 154.023 MAJOR SUBDIVISION PROCEDURE

(A) Sketch Plat

(1) Reviewed and approved administratively.

(2) May be presented to the Planning Commission for discussion

(B) Preliminary Plat

(1) Approval by the Planning Commission with a public hearing; and

(2) Approval by the City Council.

(C) Final Plat

(1) Reviewed and approved administratively if:

(a) A preliminary plat of the subdivision has been approved, and the final plat is in substantial conformance with the same; or

(b) A planned unit development has been approved, and the final plat is in substantial conformance with the same.

If the plat does not meet these conditions, (2) and (3) apply.

(2) Approval by the Planning Commission with a public hearing; and

(3) Approval by the City Council.

(D) Recording

(1) Upon approval, the final plat shall be signed and stamped and filed with the Lawrence County Register of Deeds.

DOCUMENT REQUIREMENTS

§ 154.030 SKETCH PLAT.

Subdivisions must begin with a sketch plat application submittal. The objective of this procedure is to provide an opportunity for the applicant and appropriate city staff to confer regarding the concept and basic elements of the proposed development.

The following information shall be included in the sketch plat application:

(A) A vicinity map or key map showing location of subdivision
(B) North arrow and scale
(C) Boundary, lot layouts, and street right-of-way
(D) Location of existing utilities and proposed connection plan, if applicable
(E) FEMA floodplain delineation
(F) Other encumbrances such as easements

§ 154.031 PRELIMINARY PLAT.

The preliminary plat application helps further determine the feasibility and suitability of the proposed development. This submittal must include details on the overall development layout and preliminary reports and plans listed in the city's Engineering Design Standards.

The following information shall be included in the preliminary plat application:

(A) *Vicinity map, street names.*

(1) A vicinity map or key map shall accompany or be shown on the preliminary plat at a legible scale showing all existing subdivision streets, tract lines or acreage parcels adjoining the proposed subdivision. It shall show how streets in the proposed subdivision connect with existing and proposed streets in adjoining subdivisions and future street openings to undeveloped property to produce the most advantageous development of the adjoining area.

(2) The subdivider shall submit proposed street names for E-911 approval

(B) The plat submitted shall be of such scale that all survey, mathematical information and all other details are clearly and legibly shown. Each lot and block shall be lettered or numbered. The area and dimensions of all boundaries of each lot shall be shown. The plat shall also show:

(1) The proposed name of the subdivision;

(2) North arrow, scale;

(3) Proposed legal description;

(4) The boundary line (accurate in scale) of the tract to be subdivided;

(5) Topographic map with minimum five-foot contours;

(6) Drainage plan and, if applicable, a FEMA floodplain map overlay;

(7) The names of adjacent property owners and lot descriptions;

(8) The location, widths and names of all existing or platted streets or other public ways within or adjacent to the tract;

(9) All parcels of land intended to be dedicated for public use or reserved in the deeds for use of all property owners in the proposed subdivision, together with the purpose of conditions or limitations of such reservation, if any;

(10) The layout, names (if previously approved) and widths of existing and proposed streets and easements;

(11) The preliminary plat shall be accompanied by:

(a) The profile of each street with tentative grades for a reasonable distance beyond the limits of the subdivision; and

(b) The cross-section of proposed streets showing the width of roadways, locations and width of sidewalks.

(12) Where a replat of an existing plat is being submitted for consideration, the location of the existing plat shall be indicated by insertion of broken lines and a statement, where appropriate, vacating the former plat.

(D) *Floodplain revisions.* At the time of preliminary plat submittal, the applicant shall provide a copy of the letter of map change request as submitted to the Flood Emergency Management Agency (FEMA). If there is no floodplain on the subject property, this requirement may be waived. The city may refuse to accept a preliminary plat without this letter and may also refuse to accept a preliminary plat where a floodplain may exist and the Floodplain Administrator has made a written determination that a letter of map change is required. All floodplain revisions shall comply with § 151.47.

(Prior Code, § 15A-41) (Ord. 914, passed 2-19-2002; Ord. 1009, passed 7-5-2005)

§ 154.032 FINAL PLAT.

A final plat provides a permanent and accurate record of the exact size and location of the lots, blocks, streets, drainage areas, easements, and other parcels of land within a subdivision. When filed with the County Register of Deeds, a final plat becomes the legal instrument whereby the location and boundaries of separate land parcels within the subdivision are identified.

(A) The final plat shall be submitted in the form of one Mylar, one full-size copy (to scale), and an electronic format compatible with the city system. The electronic format requirement may be waived for any firm that does not have electronic drafting equipment.

(B) The final plat shall be drawn to scale of not more than one inch equals 100 feet and shall show:

(1) The name and legal description of subdivision;

(2) The name and address of the owner;

(3) North arrow, scale;

(4) The boundary lines with accurate distances and bearings, the exact location and widths of all existing or recorded streets and ways intersecting the boundary of the tract;

(5) True bearings and distances to the nearest established street lines or official monuments, which shall be accurately described on the plat; municipal, township, county or section lines accurately tied to the lines of the subdivision by distances and bearings;

(6) An accurate vicinity map of the subdivision

(7) Streets and alleys together with approved names;

(8) The length of all arcs, radii, internal angles and points of curvature;

(9) All existing and proposed easements and rights-of-way provided for public services, utilities or access and any limitations of the easements;

(10) All block indications, lot numbers and lot lines with accurate dimensions in feet and hundredths, and bearings or angles in degrees, minutes and seconds;

(11) The accurate location, material and approximate size of all monuments;

(12) The designation of easements and rights-of-way and all property which is offered for dedication for the public use, with the purpose indicated thereon, and of all property that may be reserved by deed covenant for the common use of the property owners in the subdivision; and

(13) Monuments shall be located and/or set at each angle and curve point on the outside boundary lines of the plat, at all block corners and at all intermediate points on the block lines indicating a change of direction in the lines. The plat shall indicate that the monuments have been set or found.

(Prior Code, § 15A-42) (Ord. 914, passed 2-19-2002; Ord. 1053, passed 3-5-2007)

VARIANCES

§ 154.050 HARDSHIP.

(A) An applicant who is able to show an extraordinary hardship arising from the location, topography or other physical characteristic, which would make it difficult or impossible to conform strictly to this chapter, may apply for a variance.

(B) The Common Council, upon finding that such conditions do exist and that the public interest shall be secured and that such project will be beneficial to the community and not nullify the intent and purposes of the comprehensive plan or this chapter, may vary the regulations so that substantial justice may be done.

(Prior Code, § 15A-61) (Ord. 914, passed 2-19-2002)

§ 154.051 CONDITIONS.

In granting variances and modifications, the Common Council may require such conditions as will secure substantially the objectives of the standards or requirements so varied or modified.

(Prior Code, § 15A-62) (Ord. 914, passed 2-19-2002)

§ 154.052 PROCEDURE.

Application for a variance shall be made concurrently with the submission of the sketch or preliminary plat.

(Prior Code, § 15A-63) (Ord. 914, passed 2-19-2002)

SUBDIVISION CRITERIA

§ 154.065 MINIMUM STANDARDS.

The following requirements of design and development are to be considered as minimum standards.

Subdivisions shall utilize and consider the Master Transportation Plan, Master Utility Plans, Parks and Recreation Master Plan and the Comprehensive Plan.

(Prior Code, § 15A-81) (Ord. 914, passed 2-19-2002)

§ 154.066 DUTIES OF SUBDIVIDER.

(A) Subdivision improvements shall be identified, sized, designed, in accordance with the city's Engineering Design Standards and may include:

(1) Street system (lighting, sidewalk, side paths, bike lanes, signs, and traffic control)

(2) Water and sewer facilities

(3) Drainage facilities

(4) Dry utilities

(5) Parks

(6) Offsite improvements

The city's Engineering Design Standards include an exception process. Requests for exceptions shall be identified as early in the plat submittal process as possible.

(B) Completion of public improvements required prior to final platting

(1) No final plat may be recorded for any lot within a subdivision before the installation, dedication and acceptance of all required improvements.

(2) Exception: A delay in the completion of certain improvements may be allowed subject to the following requirements:

(a) Development agreement, including the period within which the required improvements will be completed.

(b) Financial guarantee, in a form acceptable to the city Attorney, securing the outstanding improvements.

(c) City Council approval.

(Prior Code, § 15A-82) (Ord. 914, passed 2-19-2002)

§ 154.067 STREET NETWORK LAYOUT

(A) A subdivision shall provide for the proper integration of existing and proposed street systems as established in the Master Transportation Plan or required for the efficient and convenient movement of people in accordance with Engineering Design Standards.

(B) Where the plat submitted covers only a part of the subdivider's tract, drawing of the prospective future street system of the entire tract shall be furnished and the street system of the part submitted shall be considered in light of conformity to the street system of the entire tract.

(C) Where a tract is subdivided into lots of an acre or more, the Planning Commission may require an arrangement of lots and streets such as to permit a later subdivision in conformity to the street requirements and other requirements contained in this chapter.

(Prior Code, § 15A-83) (Ord. 914, passed 2-19-2002)

§ 154.068 STREET DESIGN

Street system design, access spacing, widths, types, and other relevant aspects shall be designed and constructed in accordance with the city's Engineering Design Standards.

(Prior Code, § 15A-86) (Ord. 914, passed 2-19-2002)

§ 154.069 TEMPORARY DEAD-END STREETS.

Temporary dead-end streets may be accepted when necessary to accommodate future subdivision of an adjacent property and extension of the street.

(Prior Code, § 15A-89) (Ord. 914, passed 2-19-2002)

§ 154.070 EASEMENTS.

(A) Accessible and unobstructed utility easements of not less than five feet in width shall be provided on each side of the rear and side lot lines.

(B) Easements of the same or greater width may be required along lot lines or across lots or land parcels when required by the administrative official.

(Prior Code, § 15A-90) (Ord. 914, passed 2-19-2002)

§ 154.071 BLOCKS.

(A) No blocks shall be longer than 1,200 feet between street lines.

(B) In blocks over 800 feet in length, a mid-block crossing may be required.

(Prior Code, § 15A-91) (Ord. 914, passed 2-19-2002)

§ 154.072 LOTS.

Every lot shall abut on a street improved to the standards required by the city's Engineering Design Standards and conform with applicable zoning district regulations.

(Prior Code, § 15A-92) (Ord. 914, passed 2-19-2002)

§ 154.073 WATER AND SEWER FACILITIES.

(A) The subdivider is required to connect to the municipal water and sewerage systems and must install all facilities according to the city's Engineering Design Standards.

(B) Subject to approval by the Planning Commission and City Council, private or shared wells and private disposal systems may be permitted in compliance with Title V, Chapters 52. Water, and 53. Sanitary Sewer Service.

(Prior Code, § 15A-95) (Ord. 914, passed 2-19-2002; Ord. 1045, passed 4-2-2007; Ord. 1165, passed 11-19-2012; Ord. 1334, passed 10-19-2020)

§ 154.074 UTILITIES.

All utilities shall be located underground throughout the subdivision unless the Planning Commission waives this requirement because of hardship. If there are existing utility facilities aboveground, such facilities may qualify for hardship treatment. Underground service connections to every platted lot shall be installed.

(Prior Code, § 15A-96) (Ord. 914, passed 2-19-2002)

§ 154.075 DRAINAGE FACILITIES.

(A) A subdivision which does not make provision for storm or floodwater runoff, during and after construction, may not be approved. Rights-of-way may be required where it is deemed necessary to provide adequate drainage, to accommodate upstream drainage, to minimize the effects of downstream drainage, and to adequately interface with the existing stormwater drainage system of the city. Drainage plans shall be in compliance with the city's Engineering Design Standards.

(B) The property owner ultimately assumes all responsibility for drainage off individual lots.

(Prior Code, § 15A-97) (Ord. 914, passed 2-19-2002)

****

Severability. The provisions of this ordinance are severable. If any provision of this ordinance or the application thereof to any person or circumstance is held to be invalid, such invalidity shall not affect the remaining provisions or other applications of this ordinance which can be given effect without the invalid provision or application.

Effective Date. This Ordinance will become effective twenty (20) days following publication, which will occur after the ordinance receives second and final reading and approval by the City Council and is signed by the Mayor.

Dated this ____ day of _____, 2026.

CITY OF SPEARFISH

(Seal)

By: _____

John Senden, Its Mayor

Attest:

_____
Michelle DeNeui, Finance Officer

First Reading: June 15th, 2026
Second Reading: July 6, 2026
Published: _____, 2026
Effective: _____, 2026

CHAPTER 154: SUBDIVISIONS

Section

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GENERAL PROVISIONS

§ 154.001 DEFINITIONS.

For the purpose of this chapter, the following definitions shall apply unless the context clearly indicates or requires a different meaning.

ADMINISTRATIVE OFFICIAL. The officer appointed by the city to administer this chapter.

BOND. A security consisting of a cash deposit, surety bond, personal guarantee, collateral, property or instrument of credit in an amount and form satisfactory to and approved by the Common Council whenever a bond is required by this chapter.

CITY ENGINEER. The person designated by the Common Council to furnish engineering assistance for the administration of this chapter.

COMPREHENSIVE PLAN. A long-range planning document adopted by the City for the purpose of promoting the health, safety, and general welfare of the municipality. The Future Land Use Map within this document guides the development and use of land within the City's municipal boundary and jurisdictional area.

CUL-DE-SAC. A local street with only one outlet and having an appropriate turn-around at its terminus for the safe and convenient reversal of traffic movement.

DEDICATION. The designation and formal transfer of land to the governing body for use by the public.

EASEMENT. A grant of the right to use land for specific purposes.

ENGINEERING DESIGN STANDARDS. An adopted set of standards which apply to the comprehensive design and construction of all public improvements and private development associated with developing, redeveloping, and subdividing lands, and providing necessary criteria for all drainage, right-of-way, transportation, and utility service design.

FINAL PLAT. ~~The map, plan or record of subdivision and any accompanying material, as described in this chapter.~~ A technical drawing that incorporates the final survey of subdivision and any accompanying material, as described in this chapter in a form that is recorded with the County Register of Deeds.

LOT. A tract, plot or portion of subdivision or other parcel of land intended as a unit for the purpose, whether immediate or future, of transfer of ownership or of building development.

LOT LINE ADJUSTMENT ~~REVISION~~. ~~The re-subdivision of an existing platted lot for the purpose of adjusting boundary lines.~~ A change to the boundaries between adjacent parcels of land without creating new lots

~~LOW DENSITY. Subdivisions having an average density of one and one-half lots per acre or less.~~

~~MAJOR STREET PLAN. The map showing the streets and highways laid out, adopted or established by law, any amendments or additions thereto resulting from the approval of subdivision plats and the subsequent filing of such approved plats.~~

MASTER TRANSPORTATION PLAN. A long-range planning document adopted by the City including transportation related goals, policies, and proposed improvements. The Major Street Plan within this document establishes the framework for the community's transportation network, identifying functional classifications of existing and future roadways and guiding the coordinated development of streets in relation to land use, subdivision, and future growth.

MAJOR SUBDIVISION. All subdivisions of four or more lots.

MINOR SUBDIVISION. Any subdivision containing not more than three lots.

PRELIMINARY PLAT. The map, plan or record of proposed subdivision and any accompanying material approved by the Common Council in advance of the submission of a final plat.

SKETCH PLAN. The preliminary concept drawing or drawings, referenced in this chapter, indicating the proposed manner and layout of the subdivision to be submitted for approval.

~~STREET, COLLECTOR. A road intended to move traffic from residential streets to minor arterials.~~

~~STREET, MAJOR ARTERIAL. A road of considerable continuity, which is primarily a through-traffic artery for interconnection among large areas.~~

~~STREET, MINOR ARTERIAL. A road supplementary to the major streets and primarily a means of interconnection between minor traffic-generating areas. These streets carry traffic from collector streets to the major arterial streets.~~

~~STREET, RESIDENTIAL. A lane, minor, major or low-density residential street intended to provide access to other roads from abutting properties.~~

SUBDIVISION. ~~Any land, vacant or improved, which is divided or proposed to be divided into two or more lots, parcels, sites, units, plots or interests for the purpose of offer, sale, lease or development, including re-subdivision. SUBDIVISION includes the division of land, whether by deed, metes and bounds description, devise, intestacy, lease, map, plat or other recorded instrument.~~ The division of any tract or parcel of land into two or more lots, sites, or other division for the purpose, whether immediate or future, of sale or building development. Subdivision includes the resubdivision and platting of unplatted property.

TIME. Days for public notice and shall include the day of notice but not the day of hearing and shall include weekends and holidays.

(Prior Code, § 15A-1) (Ord. 914, passed 2-19-2002)

§ 154.002 PURPOSE.

The regulations in this chapter are adopted to establish reasonable standards of design and procedures for subdivisions, to protect and provide for the public health, safety and general welfare of the city, to promote aesthetically attractive subdivisions and to achieve economies in the construction and long-term maintenance of the city street system.

(Prior Code, § 15A-2) (Ord. 914, passed 2-19-2002)

§ 154.003 CONFLICTING REGULATIONS.

Where any provision of this chapter imposes restrictions different from those imposed by any other provision of this chapter, or any other ordinance, rule or regulation, the city's Engineering Design Standards, or other provision of law, whichever provisions are more restrictive or impose higher standards shall control. These regulations are not intended to abrogate any easement, covenant or any other private agreement or restriction.

(Prior Code, § 15A-3) (Ord. 914, passed 2-19-2002)

§ 154.004 JURISDICTION.

This chapter shall govern all subdivisions of land within the corporate boundaries of the city.

(Prior Code, § 15A-4) (Ord. 914, passed 2-19-2002)

§ 154.005 FEES.

~~The application fee for preliminary and final plat approval shall be according to the Planning and Zoning Department~~ Fees shall be according to the Master fee schedule adopted by resolution of the City Council.

(Prior Code, § 15A-5) (Ord. 914, passed 2-19-2002; Ord. 1159, passed 7-16-2012)

§ 154.006 PREPARATION.

All plats shall be prepared and sealed by a registered land surveyor licensed to practice in the state and in accordance with applicable state laws and local regulations.

(Prior Code, § 15A-6) (Ord. 914, passed 2-19-2002)

PROCEDURE

§ 154.020 GENERALLY.

~~The applicant or a designated agent shall attend each meeting where action is requested. If represented by an agent, such designation shall be in writing and filed with the application.~~

Commented [JE1]: Moved to 154.021

Subdivisions are reviewed for compliance with applicable zoning and subdivision regulations, Master Plans, and Engineering Design Standards.

The subdivision process begins with a sketch plat submittal. During review of the sketch plat, staff determine whether the plat will follow the minor or major plat approval process and associated document requirements.

(Prior Code, § 15A-21) (Ord. 914, passed 2-19-2002)

§ 154.021 ~~ADMINISTRATIVE APPROVAL OF PLATS.~~ APPROVAL PROCESS

Pursuant to the authority granted in SDCL § 11-3-6, the administrative official of the city may approve ~~final plats in lieu of approval by the governing body subject to the following regulations.~~ sketch plats and final plats as outlined in this section. Denial of a sketch plat by the administrative official may be appealed in writing to the City Council.

The applicant, or a designated agent, shall attend each meeting where action by the Planning Commission or City Council is requested. If represented by an agent, such designation shall be in writing and filed with the application.

Subdivision procedures vary based on whether the application is classified as a major or minor subdivision.

A public hearing is required for all major preliminary plats and may be required for final plats as specified below. Notice of the time and place of any required public hearing shall be published at least once (5) days in advance in the legal newspaper of the city.

It is recommended, but not required, that sketch plats associated with major subdivisions be presented to the Planning Commission for discussion.

~~(A) Minor subdivisions (three lots or less) may be approved by the administrative official.~~

~~(B) Major subdivisions (four lots and more) may be approved by the administrative official under the following circumstances:~~

~~(1) A preliminary plat of the subdivision has been approved by the Common Council and the final plat is in conformance with the same;~~

~~(2) A planned unit development has been approved by the Common Council and the final plat is in conformance with the same; and~~

~~(3) Lot line revisions or subdivision of existing lots result in a major subdivision, so long as the subdivision conforms to the density requirements of the applicable zoning district.~~

Commented [JE2]: Moved to 154.022 and 154.023

(Prior Code, § 15A-22) (Ord. 914, passed 2-19-2002; Ord. 1377, passed 3-6-2023)

§ 154.022 ~~GOVERNING BODY APPROVAL OF PLATS.~~ MINOR SUBDIVISION PROCEDURE

(A) Sketch Plat

(1) Reviewed and approved administratively.

(B) Final Plat

(1) Reviewed and approved administratively if the plat conforms to all applicable zoning and Engineering Design Standards. If the plat does not meet these conditions, (2) and (3) apply.

(2) Approval by the Planning Commission with a public hearing; and

(3) Approval by the City Council.

(C) Recording

~~(1) Upon approval, the final plat shall be signed and stamped and filed with the Lawrence County Register of Deeds.~~

~~(A) The following is required for minor subdivisions plat approval:~~

~~(1) Application, fee and, for all properties where changes in the floodplain are proposed, written verification from FEMA that the letter of map change has been approved;~~

~~(2) Sketch plan approval by administrative official;~~

~~(3) Prepare final plat and submit Mylar, one full-size copy (to scale), one 11 by 17 copy and electronic format compatible with the city system. The electronic format requirement may be waived for any firm that does not have electronic drafting equipment;~~

~~(4) Public hearing by Planning Commission, with five days' notice;~~

~~(5) Recommendation to the Common Council;~~

~~(6) Approval or disapproval by the Common Council; and~~

~~(7) Recording.~~

§ 154.023 MAJOR SUBDIVISION PROCEDURE

(A) Sketch Plat

(1) Reviewed and approved administratively.

(2) May be presented to the Planning Commission for discussion

(B) Preliminary Plat

(1) Approval by the Planning Commission with a public hearing; and

(2) Approval by the City Council.

(C) Final Plat

(1) Reviewed and approved administratively if:

(a) A preliminary plat of the subdivision has been approved, and the final plat is in substantial conformance with the same; or

(b) A planned unit development has been approved, and the final plat is in substantial conformance with the same.

If the plat does not meet these conditions, (2) and (3) apply.

(2) Approval by the Planning Commission with a public hearing; and

(3) Approval by the City Council.

(D) Recording

(1) Upon approval, the final plat shall be signed and stamped and filed with the Lawrence County Register of Deeds.

~~(B) The following is required for major subdivisions plat approval:~~

~~(1) Application, fee and, for all properties where changes in the floodplain are proposed, written verification from FEMA that the letter of map change has been approved;~~

~~(2) Sketch plan approval by administrative official;~~

~~(3) Prepare preliminary plat and submit seven copies;~~

~~(4) Public hearing by the Planning Commission, with five days' notice;~~

~~(5) Recommendation to the Common Council;~~

~~(6) Approval or disapproval by the Common Council;~~

~~(7) Prepare final plat and submit Mylar, one full-size copy (to scale), one 11 by 17 copy and electronic format compatible with the city system. The electronic format requirement may be waived for any firm that does not have electronic drafting equipment;~~

~~(8) If no substantial changes, plat shall be forwarded by the administrative official to the Planning Commission Chair and Mayor for signatures, subject to requirements for bond, dedication and form; and~~

~~(9) Recording.~~

(Prior Code, § 15A-23) (Ord. 914, passed 2-19-2002; Ord. 1009, passed 7-5-2005; Ord. 1053, passed 3-5-2007)

~~§ 154.023 INFRASTRUCTURE COMPLETION PRIOR TO RECORDING FINAL PLAT.~~

Commented [JE3]: Moved to 154.066

~~(A) No final plat may be recorded for any lot within a subdivision before the installation, dedication and acceptance of all public improvements including, but not limited to: paved streets; curb; gutter; sidewalk; water lines; sewer lines; and drainage improvements. The City Council may grant a special exception to allow a delay in the completion of any improvements by agreement secured by a letter of credit, bond, cash escrow deposit or other guarantee of such improvements.~~

~~(B) Exceptions for plats recorded before July 5, 2005: Where no street improvements exist but a final plat is recorded, these provisions shall not prohibit the city from issuing a building permit; provided, that the permit is issued with notice to the contractor/owner that no garbage collection or plowing of the street can take place until final street improvements are installed.~~

(Prior Code, § 15A-24) (Ord. 1009, passed 7-5-2005; Ord. 1222, passed 12-21-2015)

DOCUMENT REQUIREMENTS

§ 154.030 SKETCH PLAT.

Subdivisions must begin with a sketch plat application submittal. The objective of this procedure is to provide an opportunity for the applicant and appropriate city staff to confer regarding the concept and basic elements of the proposed development.

The following information shall be included in the sketch plat application:

A. A vicinity map or key map showing location of subdivision

B. North arrow and scale

C. Boundary, lot layouts, and street right-of-way

D. Location of existing utilities and proposed connection plan, if applicable

E. FEMA floodplain delineation

F. Other encumbrances such as easements

§ 154.035 PRELIMINARY PLAT.

The preliminary plat application helps further determine the feasibility and suitability of the proposed development. This submittal must include details on the overall development layout and preliminary reports and plans listed in the city's Engineering Design Standards.

The following information shall be included in the preliminary plat application:

(A) Vicinity map, street names.

(1) A vicinity map or key map shall accompany or be shown on the preliminary plan or sketch plan at a legible scale showing all existing subdivision streets, tract lines or acreage parcels adjoining the proposed subdivision. It shall show how streets in the proposed subdivision connect with existing and proposed streets in adjoining subdivisions and future street openings to undeveloped property to produce the most advantageous development of the adjoining area.

(2) The subdivider shall submit proposed street names for E-911 approval ~~with the preliminary plat or sketch plan.~~

~~(B) Minor subdivision. A sketch plan may be submitted as a preliminary plat for a minor subdivision. If the property proposed for development involves areas where it would be desirable to impose additional requirements, the administrative official may require some or all the data contained in the requirements for preliminary plat, major subdivisions.~~

~~(C) Major subdivision.~~ The plat submitted shall be of such scale that all survey, mathematical information and all other details are clearly and legibly shown. Each lot and

block shall be lettered or numbered. The area ~~in square feet~~ and dimensions of all boundaries of each lot shall be shown. The plat shall also show:

(1) The proposed name of the subdivision;

(2) North arrow, scale;

(3) Proposed legal description;

(4) The boundary line (accurate in scale) of the tract to be subdivided;

(5) Topographic map with minimum five-foot contours;

(6) Drainage plan and, if applicable, a FEMA floodplain map overlay;

(7) The names of adjacent property owners and lot descriptions;

(8) The location, widths and names of all existing or platted streets or other public ways within or adjacent to the tract;

(9) All parcels of land intended to be dedicated for public use or reserved in the deeds for use of all property owners in the proposed subdivision, together with the purpose of conditions or limitations of such reservation, if any;

(10) The layout, names (if previously approved) and widths of existing and pro-posed streets and easements;

(11) ~~When required by the Planning Commission,~~ the preliminary plat shall be accompanied by:

(a) The profile of each street with tentative grades for a reasonable distance beyond the limits of the subdivision; and

(b) The cross-section of proposed streets showing the width of roadways, locations and width of sidewalks. ~~All elevations shall be based upon mean sea level datum.~~

(12) Where a replat of an existing plat is being submitted for consideration, the location of the existing plat shall be indicated by insertion of broken lines and a statement, where appropriate, vacating the former plat.

(D) Floodplain revisions. At the time of preliminary plat submittal, the applicant shall provide a copy of the letter of map change request as submitted to the Flood Emergency Management Agency (FEMA). If there is no floodplain on the subject property, this requirement may be waived if not applicable. The city may refuse to accept a preliminary plat without this letter and may also refuse to accept a preliminary plat where a floodplain may exist and the Floodplain Administrator has made a written determination that a letter of map change is required. All floodplain revisions shall comply with § 151.47.

(Prior Code, § 15A-41) (Ord. 914, passed 2-19-2002; Ord. 1009, passed 7-5-2005)

§ 154.036 FINAL PLAT.

A final plat provides a permanent and accurate record of the exact size and location of the lots, blocks, streets, drainage areas, easements, and other parcels of land within a subdivision. When filed with the County Register of Deeds, a final plat becomes the legal instrument whereby the location and boundaries of separate land parcels within the subdivision are identified.

(A) The final plat shall be submitted in the form of one Mylar, one full-size copy (to scale), ~~one 11 by 17 copy~~ and electronic format compatible with the city system. The electronic format requirement may be waived for any firm that does not have electronic drafting equipment.

(B) The final plat shall be drawn to scale of not more than one inch equals 100 feet and shall show:

(1) The name and legal description of subdivision;

(2) The name and address of the owner;

(3) North arrow, scale;

(4) The boundary lines with accurate distances and bearings, the exact location and widths of all existing or recorded streets and ways intersecting the boundary of the tract;

(5) True bearings and distances to the nearest established street lines or official monuments, which shall be accurately described on the plat; municipal, township, county or section lines accurately tied to the lines of the subdivision by distances and bearings;

(6) An accurate vicinity map of the subdivision ~~in reference to the real estate records of the county including names of adjacent recorded owners of property;~~

(7) Streets and alleys together with approved names;

(8) The length of all arcs, radii, internal angles and points of curvature;

(9) All existing and proposed easements and rights-of-way provided for public services, utilities or access and any limitations of the easements;

(10) All block indications, lot numbers and lot lines with accurate dimensions in feet and hundredths, and bearings or angles in degrees, minutes and seconds;

(11) The accurate location, material and approximate size of all monuments;

(12) The designation of easements and rights-of-way and all property which is offered for dedication for the public use, with the purpose indicated thereon, and of all property that may be reserved by deed covenant for the common use of the property owners in the subdivision; and

(13) Monuments shall be located and/or set at each angle and curve point on the outside boundary lines of the plat, at all block corners and at all intermediate points on the

block lines indicating a change of direction in the lines. The plat shall indicate that the monuments have been set or found.

(Prior Code, § 15A-42) (Ord. 914, passed 2-19-2002; Ord. 1053, passed 3-5-2007)

VARIANCES

§ 154.050 HARDSHIP.

(A) An applicant who is able to show an extraordinary hardship arising from the location, topography or other physical characteristic, which would make it difficult or impossible to conform strictly to this chapter, may apply for a variance.

(B) The Common Council, upon finding that such conditions do exist and that the public interest shall be secured and that such project will be beneficial to the community and not nullify the intent and purposes of the comprehensive plan or this chapter, may vary the regulations so that substantial justice may be done.

(Prior Code, § 15A-61) (Ord. 914, passed 2-19-2002)

§ 154.051 CONDITIONS.

In granting variances and modifications, the Common Council may require such conditions as will secure substantially the objectives of the standards or requirements so varied or modified.

(Prior Code, § 15A-62) (Ord. 914, passed 2-19-2002)

§ 154.052 PROCEDURE.

Application for a variance shall be made concurrently with the submission of the preliminary plat.

(Prior Code, § 15A-63) (Ord. 914, passed 2-19-2002)

~~DESIGN STANDARDS~~ SUBDIVISION CRITERIA

§ 154.065 MINIMUM STANDARDS.

The following requirements of design and development are to be considered as minimum standards.

Subdivisions shall utilize and consider the Master Transportation Plan, Master Utility Plans, Parks and Recreation Master Plan and the Comprehensive Plan.

(Prior Code, § 15A-81) (Ord. 914, passed 2-19-2002)

§ 154.066 DUTIES OF SUBDIVIDER.

(A) Subdivision improvements shall be identified, sized, designed, in accordance with the city's Engineering Design Standards and may include:

(1) Street system (lighting, sidewalk, side paths, bike lanes, signs, and traffic control)

(2) Water and sewer facilities

(3) Drainage facilities

(4) Dry utilities

(5) Parks

(6) Offsite improvements

The city's Engineering Design Standards include an exception process. Requests for exceptions shall be identified as early in the plat submittal process as possible.

(B) Completion of public improvements required prior to final platting

(1) No final plat may be recorded for any lot within a subdivision before the installation, dedication and acceptance of all required improvements.

(2) Exception: A delay in the completion of certain improvements may be allowed subject to the following requirements:

(a) Development agreement, including the period within which the required improvements will be completed.

(b) Financial guarantee, in a form acceptable to the city Attorney, securing the outstanding improvements.

(c) City Council approval.

~~(A) All of the following improvements are to be constructed by the subdivider.~~

~~(B) A statement by the Public Works Department that the following requirements have been met and approved shall accompany the final plat:~~

~~(1) Typical sections and profiles of the proposed streets showing widths and grades of roadways, types of surfacing, curb locations and width and location of sidewalks;~~

~~(2) Preliminary layout plan and profiles of proposed sanitary and storm sewers, with tentative grades, pipe sizes and the location of appurtenances;~~

~~(3) Preliminary layout plan and profiles of the proposed water distribution system showing tentative pipe sizes and location of appurtenances; and~~

~~(4) Lighting plan.~~

(Prior Code, § 15A-82) (Ord. 914, passed 2-19-2002)

§ 154.067 ~~RELATION TO ADJOINING STREET SYSTEM.~~ STREET NETWORK LAYOUT

(A) A subdivision shall provide for the ~~continuation of the principal streets existing in the adjoining subdivisions or of their proper projection when adjoining property is not subdivided, and such streets shall be of a width not less than the minimum requirements for streets set forth in the regulations of this chapter.~~ proper integration of existing and proposed street systems as established in the Master Transportation Plan or required for the efficient and convenient movement of people in accordance with Engineering Design Standards.

(B) Where the plat submitted covers only a part of the subdivider's tract, drawing of the prospective future street system of the entire tract shall be furnished and the street system of the part submitted shall be considered in light of conformity to the street system of the entire tract.

(C) Where a tract is subdivided into lots of an acre or more, the Planning Commission may require an arrangement of lots and streets such as to permit a later subdivision in conformity to the street requirements and other requirements contained in this chapter.

(Prior Code, § 15A-83) (Ord. 914, passed 2-19-2002)

§ 154.068 STREET DESIGN

Street system design, access spacing, widths, types, and other relevant aspects shall be designed and constructed in accordance with the city's Engineering Design Standards.

~~§ 154.068 ACCESS.~~

~~The subdividing of the land shall be such as to provide each lot, by means of public street or way, with satisfactory access to an existing public street or to a thoroughfare as shown in the major street plan, or an official map.~~

~~(Prior Code, § 15A-84) (Ord. 914, passed 2-19-2002)~~

~~§ 154.069 STREET WIDTHS.~~

~~In order to provide for roads of suitable location, width and improvement to accommodate prospective traffic and afford satisfactory access to emergency services,~~

snow removal, sanitation and road maintenance equipment and to coordinate roads so as to compose a convenient system and avoid undue hardships to adjoining properties, the following minimum design standards for roads are hereby required.

-

Minimum Design Standards; Residential Streets					
-	***Lane***	***Rural***[1]	***Minor Residential***	***Major Residential****	***Low Density Residential***
Curb/gutter (See Note 6.)	No	No	Yes	Yes	No
Design speed	15 mph	20 mph	20 mph	25 mph	30 mph
Parking	No	No	One side	Both sides	No
ROW width	40'	50'	50'	60'	60'
Sidewalk (5')	No	No	One side	Both sides	No
Traveled width	20'	24'**; 2' shoulders	29'	38'	24', 2-ft paved shoulders

Minimum Design Standards; Arterial streets			
	Residential Collector	***Major Arterial***	***Minor Arterial***
Curb/gutter	Yes	Yes	Yes
Design speed	25 mph	35 mph+	35 mph
Parking	Optional*	No	No
ROW width	60'	70'	60'
Sidewalk (5')	Both sides	Both sides	Both sides
Traveled width	40'	48' *	36' *
Volume (ADT)	Up to 3,000	Up to 5,000	Up to 3,000
*12' moving lanes		*Parking may or may not be allowed, on a case-by-case basis, upon recommendation by the Street Superintendent and Chief of Police.	

Minimum Design Standards; Industrial Roads	
Curb/gutter (see Note 6.)	No
Design speed	30 mph
Parking	No
ROW width	60'
Sidewalk (5')	No
Traveled width	36', 2-ft. paved shoulders
NOTES:	

~~1. Residential traveled street width is based on moving lanes of ten feet, parking lanes of nine feet.~~
~~2. Traveled width does not include gutter, when required. Gutter width is included in width of parking lanes.~~
~~3. Where required, sidewalk width shall be five feet, setback five feet from curb or edge of pavement. Wheelchair ramps shall be provided at all intersections.~~
~~4. ADT (average daily traffic) is based on ten trips per single-family residential dwelling unit, per day.~~
~~5. All streets shall be improved with a wearing surface approved by the city.~~
~~6. Curb/gutter is not required only when a drainage plan for surface water discharge has been approved by the Public Works Administrator.~~

~~(Prior Code, § 15A-85) (Ord. 914, passed 2-19-2002; Ord. 1165, passed 11-19-2012)~~

~~§ 154.070 STREET GRADES AND CONDITION.~~

~~(A) The grades of streets shall not exceed 10%, except under unavoidable conditions approved by the Planning Commission at the time of preliminary plat approval.~~

~~(B) All streets shall have at least a 0.3% grade.~~

~~(C) All streets shall be improved with a wearing surface approved by the city.~~

~~(Prior Code, § 15A-86) (Ord. 914, passed 2-19-2002)~~

~~§ 154.071 STREET CURVES.~~

~~Minimum centerlines of curvature, tangents, curb radiuses and sight distances shall be based on design speed as per the Institute of Transportation Engineers, Traffic Engineering Handbook, current edition.~~

~~(Prior Code, § 15A-87) (Ord. 914, passed 2-19-2002)~~

~~§ 154.072 ALLEYS.~~

~~Alley rights-of-way, if provided, shall not be less than 20 feet in width. The corners of all alley intersections with other alleys or streets shall have a radius of not less than ten feet.~~

~~(Prior Code, § 15A-88) (Ord. 914, passed 2-19-2002)~~

§ 154.073 ~~HALF STREETS.~~ TEMPORARY DEAD-END STREETS.

Temporary dead-end streets may be accepted when necessary to accommodate future subdivision of an adjacent property and extension of the street.

~~No half streets shall be included in a subdivision plan except where necessary on the boundary of the subdivision tract where the extension of an existing dedicated street must be provided for and the boundary line of the tract is the centerline of the necessary street.~~

(Prior Code, § 15A-89) (Ord. 914, passed 2-19-2002)

§ 154.074 EASEMENTS.

(A) Accessible and unobstructed utility easements of not less than five feet in width shall be provided on each side of the rear and side lot lines.

(B) Easements of the same or greater width may be required along lot lines or across lots or land parcels when required by the administrative official.

(Prior Code, § 15A-90) (Ord. 914, passed 2-19-2002)

§ 154.075 BLOCKS.

(A) No blocks shall be longer than 1,200 feet between street lines.

(B) In blocks over 800 feet in length, a mid-block crossing may be required. ~~there shall be a cross walkway easement of not less than ten feet in width, near the middle of the block.~~

~~(B) The width of blocks shall be such as to allow two tiers of lots, unless exceptional conditions are, in the opinion of the Planning Commission, such as to render this requirement undesirable.~~

(Prior Code, § 15A-91) (Ord. 914, passed 2-19-2002)

§ 154.076 LOTS.

Every lot shall abut on a street improved to the standards required by the city's Engineering Design Standards and conform with applicable zoning district regulations. ~~this chapter. The minimum dimensions of residential lots on any plat shall be in conformity with the zoning ordinance.~~

(Prior Code, § 15A-92) (Ord. 914, passed 2-19-2002)

~~§ 154.077 CURB AND GUTTER.~~

~~Concrete curb and gutter shall be provided as required in § 154.069 and may be required on all residential streets to accommodate drainage.~~

~~(Prior Code, § 15A-93) (Ord. 914, passed 2-19-2002)~~

~~§ 154.078 RIGHT-OF-WAY WIDTH.~~

~~Widths of rights-of-way shall be as required by § 154.069.~~

~~(Prior Code, § 15A-94) (Ord. 914, passed 2-19-2002)~~

§ 154.079 WATER AND SEWER FACILITIES.

(A) The subdivider is required to connect to the municipal water and sewerage systems and must install all facilities according to the city's Engineering Design Standards. ~~to the specifications of the Public Works Department. Service lines must be stubbed to every lot abutting a street prior to the surfacing of the street.~~

(B) Subject to approval by the Planning Commission and City Council, private or shared wells and private disposal systems may be permitted in compliance with Title V, Chapters 52. Water and 53. Sanitary Sewer Service.

~~(B) For lots eight acres and larger zoned Rural Large Lot Single-Family (RLS-1) and located at a distance greater than otherwise required by state law or city code to be connected to a sanitary sewer, connection to the municipal water and sewer system is not required. Private/shared wells and private disposal systems are permitted and must be designed and stamped by a registered professional engineer.~~

~~(C) Except where otherwise prohibited by law, easement, ordinance or other more restrictive regulation, for lots one acre and larger zoned Agriculture (AG) and located at a distance greater than otherwise required by state law or city code to be connected to a sanitary sewer, connection to the municipal sewer system is not required. Private disposal systems are permitted and must be designed and stamped by a registered professional engineer. Connection to the municipal water system is required.~~

~~(D) Wires for locating water and sewer services must be installed (attached to outside of line) with new or replacement lines from the main to the outside of the structure it serves. (This will not be required on existing lines until the line is replaced.)~~

~~(E) Stubbed water lines will include curb stop, curb box and rod extension from curb valve to top of the curb box.~~

~~(F) Water and sewer services stubbed into properties must be marked at top of curb with a "W" and an "S" respectively.~~

(Prior Code, § 15A-95) (Ord. 914, passed 2-19-2002; Ord. 1045, passed 4-2-2007; Ord. 1165, passed 11-19-2012; Ord. 1334, passed 10-19-2020)

§ 154.080 UTILITIES.

All utilities shall be located underground throughout the subdivision unless the Planning Commission waives this requirement because of hardship. If there are existing utility facilities aboveground, such facilities may qualify for hardship treatment. Underground service connections to every platted lot shall be installed.

(Prior Code, § 15A-96) (Ord. 914, passed 2-19-2002)

§ 154.081 DRAINAGE FACILITIES.

(A) A subdivision which does not make provision for storm or floodwater runoff, during and after construction, may not be approved. Rights-of-way may be required where it is deemed necessary to provide adequate drainage, to accommodate upstream drainage, to minimize the effects of downstream drainage, and to adequately interface with the existing stormwater drainage system of the city. Drainage plans shall be in compliance with the city's Engineering Design Standards. ~~master drainage plan, where applicable.~~

(B) The property owner ultimately assumes all responsibility for drainage off individual lots.

(Prior Code, § 15A-97) (Ord. 914, passed 2-19-2002)

Spearfish Planning Commission Tuesday, May 19, 2026 -4:00 PM
Community Development Department - 605-642-1335
Staff Report - Contact: Jaymia Ecker

Request:	Continue public hearing and make recommendation to City Council on proposed revisions to City Code, Chapter 154 (Subdivisions).
Applicant:	City of Spearfish
Location:	City-wide
Recommendation:	Staff recommend approval of the proposed revisions to Chapter 154. Subdivisions, based on the finding that the revisions meet the criteria set forth in City Code Section § 156.084
Public Hearing:	Yes

Project Summary

Proposed revisions to Chapter 154. Subdivision were initially presented at the April 7th Planning Commission meeting. A stakeholder meeting was held on April 14th to review comments and incorporate additional edits. The second version was then presented at the April 21st Planning Commission meeting. The Commission voted to continue the public hearing to the May 19th Planning Commission meeting. A third version is now presented for consideration.

Staff recommends approval of the proposed ordinance amendments to Chapter 154: Subdivisions, finding that the revisions are necessary to avoid redundancy and improve clarity between the city's Code of Ordinances and the Engineering Design Standards. This recommendation is conditional on the successful adoption of the Engineering Design Standards by resolution.

The Commission may consider the following courses of action:
1. Recommend approval as presented
2. Recommend approval with specific revision(s) stated in motion

Staff Analysis

Engineering Design Standards are intended to "protect the public health, safety, and welfare in the provision and maintenance of public improvements within the city." The development of these standards was led by the city's Engineering Division in close coordination with other departments, and with input from external consultants, elected and appointed officials, the development community, and design professionals. The standards are organized into the following sections which can be accessed here: https://www.spearfish.gov/899/Standards-and-Specifications.

Section 100 - General Provisions
Section 200 - Streets
Section 300 - Wastewater Collection
Section 400 - Water Distribution
Section 500 - Storm Drainage
Section 600 - Grading and Environmental
Section 700 - Street Lighting and Dry Utilities Distribution
Section 800 - Development Process and Submittal Requirements

Elements of the design standards are found throughout the city's Code of Ordinances, including within Chapter 154: Subdivisions. The proposed revisions update language within the chapter to align with the standards by removing technical engineering requirements and incorporating references to the standards. The majority of these changes are in the Design Standards section of Chapter 154. In addition, the Procedure section of Chapter 154 is reorganized for clarity. There are no changes to the content of this section, which includes public hearing requirements and approval authority.

Chapter 154 is organized into sections — General Provisions, Procedure, Document Requirements, Variances, Design Standards. The table below identifies the changes made between the three versions of the revisions.

Version 1	Version 2	Version 3
154.001 "DEVELOPER. The owner of property where private and/or public improvements are made. "	Removed definition of developer	
154.001 "SUBDIVISION includes the division of land, whether by deed, metes and bounds description, devise, intestacy, lease, map, plat or other recorded instrument. The division of any tract or parcel of land into two or more lots, sites, or other division for the purpose, whether immediate or future, of sale or building development and includes resubdivision."	Added "Subdivision is inclusive of resubdivision and platting of unplatted property." to definition	
154.006 "All plats shall be prepared and sealed by a registered land surveyor licensed to practice in the state and in accordance with applicable state laws."	Revised to "All plats shall be prepared and sealed by a registered land surveyor licensed to practice in the state and in accordance with applicable state laws and local regulations."	

154.021 "Upon receiving a plat application, city staff review the submission for conformance with applicable zoning and subdivision regulations, Master Plans, and Engineering Design Standards. Applications are reviewed in the order they are received, and review timelines vary depending on the size and complexity of the project and workload of city staff."	Revised to "Subdivisions are reviewed for compliance with applicable zoning and subdivision regulations, Master Plans, and Engineering Design Standards."	
154.021 Table structure for plat approval procedure	Removed table, created clear list of procedures based on current ordinance	
154.035 11.B No revisions proposed	Removed "All elevations shall be based upon mean sea level datum."	
154.035 C. No revisions proposed	Removed "in square feet"	
154.036 B (6). No revisions proposed	Removed "An accurate vicinity map of the subdivision in reference to the real estate records of the county including names of adjacent recorded owners of property"	
154.065 Subdivision improvements shall be identified, sized, designed, and constructed in accordance with the city's Engineering Design Standards, Master Transportation Plan, Master Utility Plans, Parks and Recreation Master Plan, and Comprehensive Plan.	Revised to "Subdivisions shall be designed to be consistent with the Master Transportation Plan, Master Utility Plans, Parks and Recreation Master Plan and the Comprehensive Plan."	
154.066 including	Revised to "may include"	
154.067 A. "A subdivision shall provide for the proper integration of existing and proposed street systems as established in the Master Transportation Plan or required for the efficient and convenient movement of people by all modes of travel. "	Revise to "A subdivision shall provide for the proper integration of existing and proposed street systems as established in the Master Transportation Plan or required for the efficient and convenient movement of people in accordance with Engineering Design Standards."	
§ 154.073 (A) The subdivider is required to connect to the municipal water and sewerage systems and must install all facilities according to the city's Engineering Design Standards. (B) Subject to approval by the	No changes	Revised (B) to "Subject to approval by the Planning Commission and City Council, private or shared wells and private disposal systems may be permitted in compliance with Title V, Chapters 52. Water and 53. Sanitary Sewer Service"

Planning Commission and City Council, private or shared wells and private disposal systems may be permitted if the following criteria are met: 1. Lots eight acres and larger; and 2. Located at a distance greater than that required by state law or city code from public water and sewer system requiring connection; and 3. Land use is residential or agricultural in nature (C) If permitted, private or shared wells and private disposal system shall be designed and installed in accordance with South Dakota Department of Agriculture and Natural Resources (DANR)		Removed (C) Removes zoning and references single section of code which will include criteria under which private water and sewer services may be permitted.

Public Input: Notice of the public hearing was initially published in the Black Hills Pioneer on March 28th, 2026. Public input was received during the public hearing on this item, and through the stakeholder meeting held on April 14th. An additional stakeholder meeting for the Engineering Design Standards was also convened. Staff have reviewed the written comments received during the public hearing. The suggested revisions and comments are on sections of the ordinance which are either outside of the scope of the revisions or covered in the Engineering Design Standards.

The third version balances revisions needed to avoid conflict with the Engineering Design Standards, cleans up outdated regulations, and incorporates permissive references to other planning documents. Overall, the proposed revisions maintain procedure within the city's Code of Ordinances while shifting more technical standards out of the code and into the Engineering Design Standards for easier administration and future updates.

Agenda Item Report

Community Development Item # 11.B.

Meeting: Regular Session Agenda **Meeting Date:** July 6, 2026
Department: Community Development

Request:
Approve Resolution 2026-09 - A Resolution to Adopt the Engineering Design Standards.

Background Information:
The Engineering Design Standards (EDS) were developed to clarify and clearly communicate current engineering practices by consolidating design specifications and requirements into one document. The EDS formalizes operational procedures and aligns development standards with federal and state regulations. The purpose of the EDS is to protect and maintain the public health, safety, and welfare of Spearfish citizens in the provision and maintenance of public improvements for the city.

The process for drafting the EDS extended through multiple years and included substantial coordination with other city departments, external consultants, elected and appointed officials, the development community and design professionals.

EDS timeline:

- March 2023: Presentation of major EDS topics to City Council at Study Session
- March 2023-June 2025: Internal drafting of the EDS
- June 2025–August 2025: Posting draft EDS for public comment
- August 2025–March 2026: Incorporation of revisions and internal revision of conflicting ordinances
- March 2026: Joint Planning Commission and City Council presentation on major updates based on feedback
- June 2026: First Reading of Ordinance Revisions

The adoption of the EDS and associated ordinances will provide invaluable tools for city staff, developers, and design professionals in the construction and maintenance of public improvements in the City of Spearfish.

Fiscal Impact: N/A.

Recommended City Council Action: Approve

Staff Contact Information:
Kyle Mathis, 605-717-1129, k.mathis@spearfish.gov

Attachments:
1. RESOLUTION 2026-09

Prepared By:
City of Spearfish
625 Fifth St.
Spearfish, SD 57783
605-717-1122

RESOLUTION NO. 2026-09

A RESOLUTION OF THE COMMON COUNCIL OF THE CITY OF SPEARFISH ADOPTING THE CITY OF SPEARFISH ENGINEERING DESIGN STANDARDS

WHEREAS, the City of Spearfish requires comprehensive policy, methods, practice, and procedures for the design and construction of public infrastructure and private development projects; and

WHEREAS, the Community Development Department has prepared Engineering Design Standards to reflect current engineering practices, ensure compliance with state and federal regulations, promote public health, safety, and welfare, and provide necessary criteria for all drainage, right-of-way, transportation, and utility services design within the city; and

WHEREAS, these standards apply to the comprehensive design and construction of infrastructure improvements associated with developing, redeveloping, and subdividing lands within the City of Spearfish; and

WHEREAS, the adoption of these standardized criteria provides uniformity in the design and plan review process for development within the city; and

WHEREAS, a public review process was conducted, and the Common Council has reviewed the proposed standards and determined it is in the best interest of the City to formally adopt them.

NOW THEREFORE, BE IT RESOLVED that the Common Council of the City of Spearfish, as follows:

SECTION 1: ADOPTION OF STANDARDS
The document titled "City of Spearfish Engineering Design Standards, dated July 2026" which contains engineering design standards and standard construction details, is hereby approved and adopted.

NOW THEREFORE, BE IT RESOLVED that the Common Council of the City of Spearfish at its regular meeting on July 6, 2026, adopts the Spearfish Engineering Design Standards.

Dated this 6th day of July, 2026

CITY OF SPEARFISH

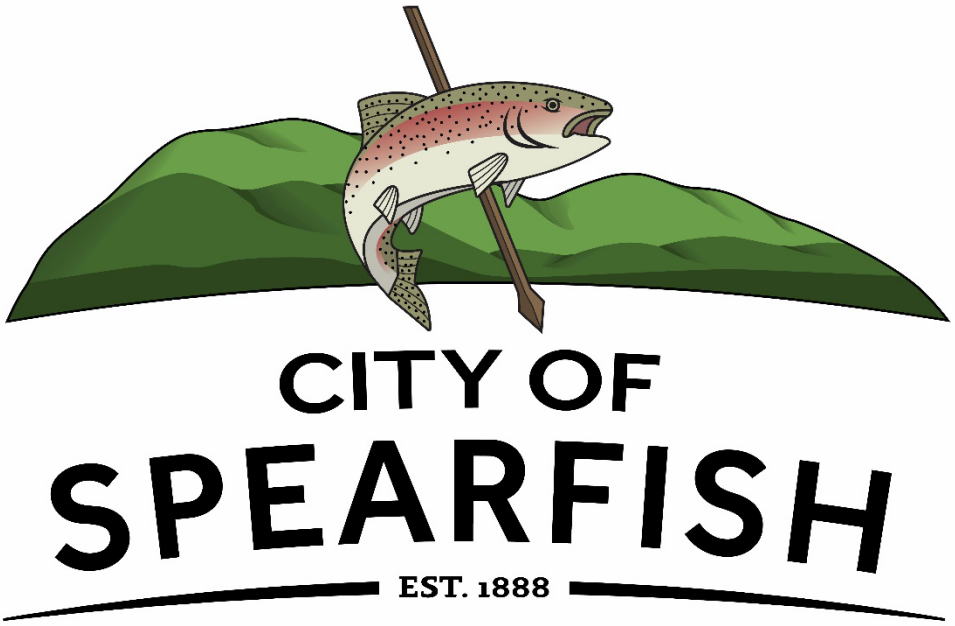
By: _____
John Senden, Mayor

ATTEST:

By: _____
Michelle DeNeui
City Finance officer

(SEAL)

Adopted: July 6, 2026
Published:_____
Effective: _____



ENGINEERING DESIGN STANDARDS

City of Spearfish
Spearfish, SD

Adopted July 2026

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CITY OF SPEARFISH
STANDARD CONSTRUCTION DETAILS

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CITY OF SPEARFISH ENGINEERING DESIGN STANDARDS

The Table of Contents page will reflect the date of the most recent revision to these Standards. The most current approved version will be posted on the city's website. Comments on these standards submitted via email to citystandards@spearfish.gov will be reviewed on an annual basis, and any updates resulting from the review will be posted on the city website. If you have any questions regarding these Standards or updates to them, please contact the Engineering Department in Spearfish City Hall at 625 N 5th Street, Spearfish, SD 57783. Please check the city's website regularly to ensure your copy of the Standards is the most recent.

SECTION 100

CITY OF SPEARFISH
ENGINEERING DESIGN STANDARDS
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SECTION 100

CITY OF SPEARFISH
ENGINEERING DESIGN STANDARDS
GENERAL PROVISIONS

100.1 GENERAL REQUIREMENTS

100.1.1 SHORT TITLE

These regulations, together with future amendments, shall be known as City of Spearfish Engineering Design Standards, hereinafter called Design Standards or standards.

100.1.2 PURPOSE

These Design Standards detail policy, methods, practice, and procedures utilized by the city of Spearfish (city). These standards are adopted to encourage consistency in the design and development of infrastructure in the city of Spearfish.

These Design Standards, in conjunction with the city's Code of Ordinances (Ordinance), the city's Standard Specifications for Construction (Specifications), and Standard Construction Details (Standard Details), are intended to protect the public health, safety, and welfare in the provision and maintenance of public improvements within the city. These standards apply to the comprehensive design and construction of infrastructure improvements associated with developing, redeveloping, and subdividing lands. They provide necessary criteria for all drainage, right-of-way, transportation, and utility services design within the city.

These Standards are only applicable to single-lot residential development for access spacing and driveway requirements as provided in Section 200.7.6, 'Access Management'.

100.1.3 JURISDICTION

These Design Standards, along with the Standard Specifications for Construction, and the city's Code of Ordinances shall apply to all public improvements within the incorporated area of the city of Spearfish. Federal or State requirements may supersede the provisions of this document.

100.1.4 MINIMUM CRITERIA

These standards prescribe minimum requirements to be met or exceeded when designing all public and private improvements. Whenever the standards are found to be inconsistent with any other adopted standards, regulations, codes, or ordinances, the more restrictive standards, regulations, codes, or ordinances shall control.

Reference to any code, regulation, standard, criterion, or manual of any technical society, organization, or association, or to any law or regulation of any governmental authority, whether such reference be specific or by implication, shall mean the most recently adopted or current version of such a reference in effect at the time of city approval of the design documents for any

project. It is the city's intention for these standards to be in compliance with all applicable laws. If they are found to be out of compliance with applicable laws, the city will revise as necessary.

The design of all public improvements shall be prepared by or under the direct supervision of a Professional Engineer duly registered and licensed by the State of South Dakota.

100.1.5 REVISIONS TO DESIGN STANDARDS

Comments on these Standards may be submitted in writing to the city Engineering Department using the Comment Form posted on the city's website. Comments on these Standards will be reviewed annually by Engineering Department staff to determine if revisions are warranted. Revisions shall be issued in writing and can be made only by the city. The city will post any updates or amendments to the city webpage. Depending on the significance of the changes, Engineering Department staff may elect to take the changes to City Council for final approval.

100.1.6 EXCEPTIONS TO THESE STANDARDS

When practical difficulties are involved in meeting the provisions of these Standards, the City Engineer may allow an exception of the strict application of Sections 200 through 700 of these Standards as set forth in this section. Section 800 describes the general platting process and construction administration requirements and is not eligible for exceptions. Platting requirements and related variances are described in Ordinance.

Exceptions are intended only for the special circumstances described herein and are not to be routinely considered or approved. Where it is necessary to vary from these Standards, an applicant for exception must clearly demonstrate that the provisions of these Standards cannot be met, that all criteria for an exception are being met, and that the exception will create the minimum variance necessary to accomplish the intended purpose.

Exceptions shall be applied for at time of preliminary plat application. Approved exceptions will be noted in the staff report. Additional exceptions may be applied for as needed throughout the design process.

100.1.6.1 Criteria for Exceptions. No exception of the strict application of any provision of these Standards shall be granted unless the applicant clearly demonstrates, and the City Engineer finds, that the following conditions exist:

- The strict application of the provisions of these Standards would deprive an individual of the reasonable use of land or structure, and
- Special circumstances peculiar to such land or development justify the requested exception, and
- Any exception would result in a solution consistent with the goals of the underlying zoning district, a city of Spearfish Comprehensive Plan goal, a specific neighborhood plan, or an adopted design guideline, or current city master plans, and

- Any exception represents the minimum variance from these Standards that will accomplish the intended purpose, and
- Any exception will not create an additional maintenance or financial burden for the affected property owners or the city.

An applicant for an exception to these Standards shall submit a written request to the City Engineer that includes the Exception Request Form found in Section 800 Appendix. The request shall state, in detail, the specific sections and subsections of these Standards that are requested for exception. The request shall describe, in detail, how the requested exception meets the criteria listed above.

The City Engineer shall require sufficient documentation be submitted to support the request. Documentation may include verification by a South Dakota registered professional engineer, possessing relevant expertise.

100.1.6.2 Exception Application Decisions. The City Engineer will reach a decision on whether or not the exception will be approved based on the above criteria, application, and submitted documents. The City Engineer will consult with the Community Development Director and Public Works Director when evaluating issues that potentially impact city planning, design, and maintenance and operations.

The City Engineer will advise the applicant, in writing, of the decision reached on the requested exception. In granting any exception to these Standards, the City Engineer may impose specific conditions necessary to ensure that the criteria described in Section 100.1.6.1 are, and will remain, satisfied. The applicant may appeal the decision to the City Council within 10 business days of the decision. The City Council's action on the appeal is final. The details of any decision granting approval of an exception to these Standards will be entered in the form of written findings.

100.1.7 RELATED DOCUMENTS

Information regarding the design of public improvements is also contained in City of Spearfish Standard Specifications for Construction (Specifications), City of Spearfish Standard Construction Details (Standard Details), and City of Spearfish's Code of Ordinances (Code). The designer shall become familiar with these documents.

100.2 DEFINITIONS AND TERMS

Wherever used in these standards, the following terms shall have the meanings indicated which shall be applicable to both the singular and plural thereof.

Applicant. Entity submitting application for development.

ARSD. Administrative rules of South Dakota.

Backflow. The undesirable reversal of flow in a potable water distribution system as a result of a cross connection.

Best Management Practices (BMPs). Schedules of activities, prohibitions of practices, maintenance procedures and other management practices to prevent or reduce the discharge of pollutants to waters of the state. BMPs also include treatment requirements, operating procedures and practices to control plant site runoff, spillage or leaks, sludge or waste disposal or drainage from raw material storage.

Bond. For the purposes of these Standards, a Bond refers to a Performance Bond. A Performance Bond is a surety bond issued by an insurance company or bank used as a guarantee that a contractor will complete a construction project according to the agreed-upon contract.

Building Code. Building Code as adopted by the city of Spearfish in city ordinance.

Building Fire Extinguishing System. The components of a private fire protection system constructed within or integral to a structure, including sprinkler systems, hose connections, hose cabinets, and related equipment.

Building Official. The designated authority charged with the administration and enforcement of the building code as adopted by the city of Spearfish.

Fire Code Official. The designated authority charged with the administration and enforcement of the fire code as adopted by the city of Spearfish.

City Engineer. Director of the city Engineering Department.

Collector Sewer. A sewer main to which one or more branch sewers are tributary.

Community Development Department. The Community Development Department is comprised of three divisions—Planning & Zoning, Engineering, and Building Services—that work collaboratively to ensure the City's growth and redevelopment align with its development regulations and long-term vision.

Community Development Director. Director of the Community Development Department.

Cross Connection. A connection or potential connection between any part of a potable water system and any other environment containing other substances in a manner that, under certain circumstances, would allow such substances to enter or adversely affect the potable water system. Other substances may be gases, liquids, or solids, such as chemicals, waste products, steam, water from other sources (potable or non-potable), or any matter that may change the temperature, the color, the taste, or add odor to the water.

DANR. South Dakota Department of Agriculture and Natural Resources.

Dead End Water Main. A water transmission line with a single source entering a cul-de-sac, or blind alley, measured from the last looped main.

Developer. The owner of property where private and/or public improvements are made.

Development Review Team (DRT). A team comprised of the Public Works, Building Services, Planning and Zoning, Engineering, Parks and Recreation, and Fire Departments. The City Attorney, Manager, Finance Officer, and Police Chief also attend DRT meetings when needed. The team focuses on reviewing land-use and development applications including plat applications going to Planning Commission, commercial building permits, annexations, rezones, and conditional use permits.

Distribution Main. A water main, which supplies one or more branch mains.

Domestic Service Line. Pipe and appurtenances delivering water from the city water distribution system to a meter. Domestic service lines may be located on private property or in public ROW and are owned, operated, and maintained by the owner of the property being served.

Driveway. A paved or unpaved surface that enables vehicular access from the public right of way onto private property.

Drawings. The part of the submittal documents which shows the characteristics and scope of the Work to be performed, and which have been prepared or approved by a Professional Engineer.

Engineer of Record. Engineer providing design and/or construction management services. Engineer responsible for the content of the design drawing and specifications. Engineer whose stamp is on the design drawings and specifications.

Final Plat. A technical drawing that incorporates the final survey in a form that is recorded with the County Register of Deeds.

Fire Code. The International Fire Code as adopted by the city of Spearfish.

Individual Booster Pump. A pump system located in or near a building, which pumps water from a publicly owned water main into the building's water supply system for the purpose of increasing the water pressure at the fixtures.

Individual Sewage Pump. A pump system located in or near a building, which pumps sewage from a building's drain system to the publicly owned sewer main.

Interceptor Sewer. A sewer that receives many tributary branches and serves a large basin.

Land Surveyor. A person registered as a Land Surveyor by the State of South Dakota.

Main. A pipe which is part of the water distribution system or sewage collection system owned, operated and maintained by the city of Spearfish or by a publicly owned utility.

Manufactured Home Park or Subdivision. A parcel (or contiguous parcels) of land divided into two or more parts occupied by manufactured homes for rent or sale.

Manufactured Home. A structure, transportable in sections, built on a permanent chassis and designed for use with or without a permanent foundation when connected to the required utilities.

The term manufactured home does not include a recreational vehicle. However, a manufactured home may be used for both residential and non-residential use.

Multimodal Transportation. Multimodal transportation access which supports the needs of all users whether they choose to walk, bike, use transit, or drive.

Opengov. The permitting and licensing site used by the city to review permit applications, plat applications, and engineering submittals.

Ordinance. The City of Spearfish Municipal Code.

Owner. For privately owned lands for proposed development, the landowner is the Owner.

Planning Director. The Director of the city Planning Department.

Preliminary Plat. A technical drawing prepared by a land surveyor that depicts how the land is proposed to be subdivided and development.

Plumbing Code. Plumbing Code as adopted by the city of Spearfish.

Private Fire Protection System. Hydrants, valves, water lines and appurtenances, sprinkler systems, hose connections, and other equipment constructed for the purpose of providing fire protection for a particular building or group of buildings and supplied with water from a public water supply system. Private Fire Protection Systems are located on private property, although some components may be located in public ROW, and are owned, operated, and maintained by the owner(s) of the property being served.

Private Sewer Collection System. Manholes, sewer piping and appurtenances constructed for the purpose of collecting wastewater from multiple buildings. Private Sewer Collection Systems are located on private property, although some components may be located in public ROW, and are owned, operated, and maintained by the owner(s) of the property being served.

Private Storm Water System. Piping and appurtenances constructed for the purpose of collecting, conveying or storing storm water. Private Storm Water Systems are located on private property, although some components may be located in public ROW, and are owned, operated, and maintained by the owner(s) of the property being served.

Private Street System. Street and access approaches constructed for the purpose of conveying traffic. Private Street Systems are located on private property, although some components may be located in public ROW, and are owned, operated, and maintained by the owner(s) of the property being served.

Private Water Distribution System. Water piping and appurtenances constructed for the purpose of supplying water to multiple buildings. Private Water Distribution Systems are located on private property, although some components may be located in public ROW, and are owned, operated, and maintained by the owner(s) of the property being served.

Professional Engineer or P.E. A person registered as a Professional Engineer by the State of South Dakota. Engineer providing design and/or construction management services on behalf of the property owner or developer. Engineer responsible for the content of the design drawings and specifications. Engineer whose stamp is on the design drawings and specifications.

Public Right-of-Way Accessibility Guidelines (PROWAG). Accessibility guidelines developed by the U.S. Access Board for the design, construction, and alteration of pedestrian facilities in the public right-of-way.

Public Improvement. Any public facility, system or infrastructure in the city of Spearfish jurisdictional area including, but not limited to: earthwork or landscaping, streets, sidewalks, bike paths, trails, parking and traffic control devices; water supply, treatment, storage and distribution systems; wastewater collection and treatment systems; and storm water and flood control collection and conveyance systems in proposed or existing public easements or right-of –way.

ROW. Public right-of-way.

Service Line. The line from the city main to within 5 feet of the building. Water service lines shall be further classified as follows:

Fire Service Line. A service line delivering water from the city water distribution system to a building fire extinguishing system. Fire service lines may be located on private property or in public ROW and are owned, operated, and maintained by the owner of the property being served. Fire hydrants shall not be installed on Fire service lines. Refer to definition for Private Fire Protection systems.

Sewer or Sewer Main. Sanitary sewer main. Also see “Main”.

Shared Use Path. A multi-use trail or other path, physically separated from motorized vehicular traffic by an open space or barrier, either within a highway right-of-way or within an independent right-of-way, and usable for transportation purposes. Shared use paths may be used by pedestrians, bicyclists, skaters, equestrians, and other nonmotorized users.

Sketch Plat. A preliminary concept drawing of a proposed subdivision development.

Standard Specifications. “City of Spearfish Standard Specifications for Public Works Construction,” current edition.

Ten States Standards. “Recommended Standards for Water Works” when cited in reference to water distributions systems, and “Recommended Standards for Wastewater Facilities” when cited in reference to sewer collection systems, both by the Great Lakes - Upper Mississippi River Board of State and Provincial Public Health and Environmental managers, as amended by the DANR.

Termination Manhole. The manhole at the end of a sewer main which is not intended to be extended.

Transmission Main. A water main that supplies many tributary branches, serves a large area, and has few service taps.

Utility. Water, sewer, garbage collection and/or utility service furnished by the city to consumers thereof.

SECTION 200

CITY OF SPEARFISH
ENGINEERING DESIGN STANDARDS
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SECTION 200

CITY OF SPEARFISH
ENGINEERING DESIGN STANDARDS
STREETS

200.1 GENERAL

These criteria shall govern the planning, design, and construction of all streets within the City of Spearfish. Where design information is not provided herein, the current edition of AASHTO Standards *A Policy on Geometric Design of Highways and Streets* or *Guidelines for Geometric Design of Low-Volume Roads* shall be used.

The City's current adopted Master Transportation Plan, other supplementary traffic plans, and the general street network layout guidelines discussed herein shall be utilized to determine the locations and designations of roadways. In the event of any conflict between these standards and the city's Master Transportation Plan, the provisions of these Standards shall govern and control.

200.2 MATERIALS

Material specifications for street surfaces, curb/gutter, sidewalks, and shared use paths are covered in the City Construction Specifications, and associated details.

200.3 DRAINAGE

Storm water from concentrated points of discharge shall not be allowed to flow over sidewalks, shared use, or side paths, but shall drain to the roadway by use of storm sewers. Sidewalk chases may be allowed if approved by the City Engineer. If permitted, sidewalk chase sections shall not be located within a driveway and shall be designed to convey minor storm flows.

200.4 SIDEWALK, PATH AND CURB RAMP DESIGN

200.4.1 SIDEWALKS

Sidewalks shall be provided on both sides of the street and shall be compliant with relevant figures, standard details and construction specifications herein. All new sidewalks shall be property line sidewalks detached from the curb and located 0.83 to 2.33 feet from the property line within the street right-of-way, depending on street classification as defined in 200.6.2.

200.4.1.1 Design Guidelines. Sidewalks shall conform to all Public Right-of-Way Accessibility Guidelines (PROWAG).

200.4.1.2 Thickness. Pavement thickness shall not be less than 4 inches along local roadways and shall be 6 inches along collector and arterial roadways. Sidewalks across access drives along said roadways and all curb ramps shall be a minimum of 6 inches including steel reinforcement.

200.4.1.3 Width. The minimum width shall not be less than 5 feet; additional width requirements pertaining to recreation path use can be implemented.

200.4.2 SHARED USE AND SIDE PATHS

A shared use path is physically separated from motorized vehicular traffic by an open space or barrier and either within the highway right-of-way or within an independent right-of-way. Most shared use paths are designed for two-way travel and are a supplemental network to on-road bicycle facilities. Shared use paths may be used by bicycles, pedestrians, and other nonmotorized users.

A side path is a type of shared use path that runs adjacent to, but separated from the roadway, and is located within the road right-of-way.

Shared use paths shall be installed where required and as shown within any city adopted master plan such as a Master Transportation Plan or Recreation Path Master Plan. A side path shall be included on at least one side of all new arterial streets and considered on all reconstruction projects. If on-street bike lanes are not included on collector streets, then one side of the street shall include a side path in lieu of a sidewalk.

200.4.2.1 Design Guidelines. The same considerations that go into designing a highway system (design speed, horizontal alignment, superelevation, grade, etc.) also apply to shared use facilities.

The following guidelines provide useful design parameters and considerations. The city encourages the use of the most current version of these guidelines in design, but minimum city standards for width of shared use and side paths can be found in Section 200.4.2.2.

- AASHTO Guide for the Development of Bicycle Facilities
- AASHTO Guide for the Planning, Design, and Operation of Pedestrian Facilities
- PROWAG
- National Association of City Transportation Officials (NACTO) Urban Bikeway Design Guide and Urban Street Design Guide
- Institute of Transportation Engineers (ITE) Designing Urban Walkable Thoroughfares, Public Rights-of-Way Accessibility Guidelines
- Federal Highway Administration (FHA) Separated Bike Lane Planning and Design Guide or other applicable FHA guidelines.

200.4.2.2 Width. A shared use path shall have a minimum width of 10 feet, and a minimum of 2-foot-wide vegetated shoulders on each side. Depending on the speed limit of the adjacent roadway, additional shoulder width may be required, as determined by the City Engineer. A side path shall be a minimum of 10 feet wide, shall have a minimum separation of 5 feet to the back of curb and a minimum 2 feet of clearance from the right-of-way line and any obstructions on either side of the path.

200.4.3 SIDEWALK GRADES

Longitudinal sidewalk grades shall, where possible, match the profile grade of the adjacent street. Sidewalks for steep streets shall, where possible, be designed to comply with ADA requirements. If ADA requirements cannot be met, justification shall be provided by the Engineer. Steps in the sidewalk will not be permitted. Transverse grades shall slope toward the street and shall be designed at a 1.5% cross slope with a maximum 2% cross slope for as-constructed conditions.

200.4.4 WALKWAY ACCESSIBILITY REQUIREMENTS

Walkways (sidewalks, crosswalks, ramps, etc.) are an integral component of the transportation system. Where sidewalks are provided, they must be constructed so they are accessible to all potential users, including those with disabilities. Walkways shall be in compliance with the Americans with Disability Act (ADA) accessibility guidelines except when the unique characteristics of terrain prevent the full incorporation of accessibility features. Accessible curb ramps shall be constructed at all intersections where sidewalks are required and shall conform to the City's Standard Construction Specifications.

200.4.4.1 Accessible Sidewalk Design. It has been common practice to place the responsibility for sidewalk ramp layout on the contractor and/or construction inspector. This has resulted in the sidewalk, curb ramps, driveway crossings, etc., being designed in the field, which can lead to mixed accessibility results. As public right-of-way accessibility comes under greater scrutiny, it is increasingly important that newly constructed or altered sidewalks meet accessibility requirements. Therefore, sidewalks, curb ramps, and street crossings shall be included as part of the design process and the details of those designs shall be included in the contract documents as appropriate.

Design information that needs to be shown on the plans includes, but is not limited to the location, size, and grade of sidewalks, turning spaces, ramps, and detectable warning panels. Spot elevations shall also be required for all accessible curb ramps and may be necessary for sidewalks located along steeper roadways.

200.4.5 CURB RAMPS

A curb ramp is required wherever a new or altered pedestrian walkway crosses a curb or other barrier to a street, road, or highway. Similarly, a curb ramp is required wherever a new or altered street intersects a pedestrian walkway. A separate curb ramp is required at each pedestrian street crossing for new construction of collector and arterial streets (8 per intersection). A single diagonal curb ramp is allowed for local and local collector streets (4 per intersection). Curb ramps shall be constructed to meet ADA requirements and PROWAG guidelines.

200.4.5.1 Landings/Turning Space. A minimum 5 feet by 5 feet landing/turning space must be provided at the top of perpendicular ramps, at the bottom of parallel ramps, or whenever a ramp changes directions. This area is intended to provide a wheelchair user a relatively flat area which can be used to maintain stability while turning or changing directions. This area must have a cross slope 2% or less in all directions. Best practice is to design landings with a cross slope of 1.

to allow some tolerance to compensate for error during construction.

200.4.5.2 Ramp Width. The clear width of ramp runs, turning spaces, and the pedestrian access route shall be 5 feet minimum. Ramp width shall match the width of the facility it serves. If a sidewalk is 6 feet in width, then the ramps servicing that sidewalk shall be 6 feet in width. Ramp width (excluding flares) servicing shared use paths shall match the width of the path.

200.4.5.3 Ramp Thickness. Sidewalk thickness at ramp locations including the turning space, ramp, and flares shall be a minimum of 6 inches thick and include steel reinforcement.

200.4.5.4 Flared Sides. Flares on the sides of curb ramps are required when the ramp abuts a walkable area or surface such as concrete pavement. The maximum slope for ramp flares is 10% (or 1:10). When a ramp is adjacent to a non-walkable surface such as turf, landscaping, or other areas that won't be traversed by pedestrians, the flare slope can exceed 10% or be a vertical curb.

200.4.5.5 Ramp Slopes. Ramp running slope is the grade measured along the direction of travel down the ramp. Curb ramp running slopes need to be less than 1 inch vertical for every 1 foot of horizontal run, an equivalent slope of 8.33%. Best practice is to design ramps with a running slope of 7.5% to allow some tolerance to compensate for error during construction.

Cross slope is the grade measured perpendicular to the direction of travel. The cross slope of curb ramps must be 2% or less. Best practice is to design ramps with a cross slope of 1.5% to allow some tolerance to compensate for errors during construction.

200.4.5.6 Ramp Length/Tie in. Sometimes PROWAG maximum slope requirements for curb ramps cannot be met, due to site conditions. PROWAG does not require ramps be extended more than 15 feet to tie in to existing sidewalks in these cases.

200.4.5.7 Detectable Warning Panels. Detectable warnings are a distinctive surface pattern of domes detectable by cane or underfoot that alert people with vision impairments of their approach to street crossings and hazardous drop-offs. They are used to indicate the boundary between pedestrian and vehicular routes where there is a flush instead of a curbed connection. Detectable warning panels shall be installed in accordance with the manufacturer's recommendations at all locations where the curb ramp enters a street or parking lot. Panels may also be required at wide access driveways for commercial, industrial and multi-family sites, as determined by the City Engineer. Panels must extend the full width of the curb ramp (exclusive of flared sides) and extend 2 feet minimum in the direction of pedestrian travel. Detectable warning panels shall be made of cast iron and shall meet all ADA requirements.

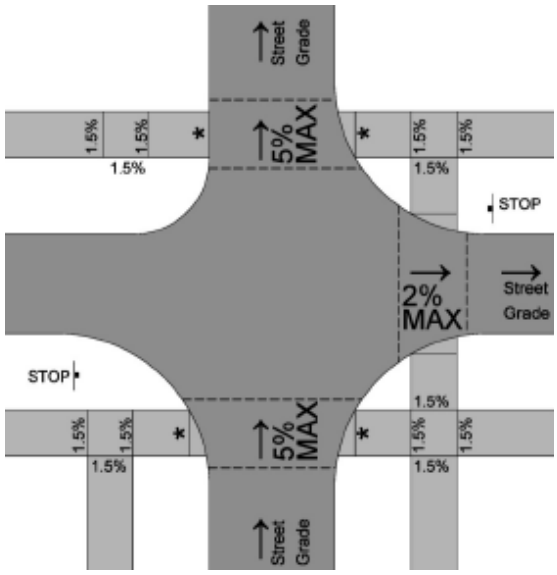
200.4.6 PEDESTRIAN STREET CROSSINGS

200.4.6.1 Cross Slope. The longitudinal grade of a street becomes the cross slope for a pedestrian street crossing. PROWAG has maximum limits for the cross slope of pedestrian street crossings, which vary depending on the location of the crossing and the type of vehicular traffic control at the

crossing. These requirements, in effect, limit the longitudinal grade of a street or require a “tabled crosswalk” at the intersection.

- Intersection legs with stop or yield control: For pedestrian street crossings across an intersection leg with full stop or yield control (stop sign or yield sign), the maximum cross slope is 2.0% and a maximum 2.0% street grade through the crossing (see figure below).

- Intersection legs without stop or yield control: For pedestrian street crossings across an intersection leg where vehicles may proceed without slowing or stopping (uncontrolled or signalized), the maximum cross slope of the pedestrian street crossing is 5.0% and a maximum 5.0% street grade through the crossing as shown in the following figure.



* Match pedestrian street crossing cross slope or flatter

Pedestrian Street Crossing Grades at Intersections

- Midblock pedestrian street crossings: In blocks over eight hundred (800) feet in length, a crosswalk must be provided near the middle of the block to connect sidewalks on both sides of the street. At midblock crossings, the cross slope of the pedestrian street crossing is allowed to equal the street grade.

200.3.6.2 Running Slope. The running slope of the pedestrian street crossing is limited to a maximum of 5.0% and a maximum street cross slope or superelevation of 5.0%.

200.3.6.3 Location. Driver anticipation and awareness of pedestrians increase as one moves closer to the intersection. Therefore, curb ramps and pedestrian street crossings should be located as close to the edge of the adjacent traveled lane as practical. Where a stop sign or yield sign is provided, MUTCD requires the pedestrian street crossing, whether marked or unmarked, be located a minimum of 4 feet from the sign between the sign and the intersection. It is recommended stop and yield signs be located no greater than 30 feet from the edge of the intersecting roadway; however, MUTCD allows up to 50 feet. Consult MUTCD for placement of curb ramps and pedestrian street crossings at signalized intersections.

200.5 PAVEMENT DESIGN

Street pavement design shall be based on the volume and characteristics of the traffic expected to use the street over a minimum period of twenty (20) years. Street pavement design shall also account for the subgrade soil's supporting strength characteristics, the type and strengths of the paving materials, and their combined behavior under load, in all probable climatic conditions.

200.5.1 GUIDANCE DOCUMENT

The design of street pavement shall comply with AASHTO guidelines and any further requirements herein.

200.5.2 GEOTECHNICAL INVESTIGATION

A geotechnical investigation shall be conducted by a qualified individual prior to design of any city street, except for those classified as local. However, if poor soils conditions or groundwater is encountered during construction of a local street, then a geotechnical engineer shall conduct an investigation and provide a pavement design for the local street.

The geotechnical investigation shall be used to obtain the soil characteristics and design data necessary to prepare an AASHTO pavement design.

- Soil investigation data shall be obtained to a minimum depth of 10 feet below the proposed street grade at locations spaced no further than 700 feet apart.
- Streets and cul-de-sacs shorter than 700 feet shall have a minimum of one investigation location.

The Design Engineer, in concert with the Geotechnical Engineer, shall be responsible for location of the tests to best represent the soil characteristics and shall be responsible for performing additional tests wherever soil types and conditions warrant.

200.5.3 DESIGN CRITERIA.

All pavement designs shall be conducted by a South Dakota licensed Professional Engineer and shall bear the Engineer’s stamp and signature upon delivery to the City.

- Pavement structures shall be designed for the predicted traffic loading over a minimum 20-year performance period.
- Traffic can be represented by the number of 18-kip equivalent single axle loads (ESALs).
- The ESALs for the performance period represent the cumulative number of loadings from the time the roadway pavement is placed to the time when the serviceability is reduced to a terminal value.
- The minimum design traffic levels for Local streets in residential areas, with fewer than eighty (80) dwelling units, shall be 20,000 18-kip ESAL applications.
- Design traffic levels for all other residential local streets shall be 45,000 18-kip ESAL applications.

The ESAL applications for collector streets, including collectors in industrial and commercial areas shall be determined by the city based on traffic counts of existing streets within the City that have a similar end use.

Where traffic data is available, actual counts shall be used along with projections of traffic growth in determining the pavement design. If traffic counts are unavailable, then the following criteria may be used to provide data for the pavement design. Traffic data for all arterial streets will be determined by the City Engineer.

Street Classification	ADT (2 way)	Number of Lots	18-kip ESAL Traffic	AASHTO Traffic Level
Commercial Collector	300-700	60-140	50,000-300,000	Low
Industrial Collector	200-700		400,000-600,000	Medium
3-lane Collector	7,000		400,000-1,000,000	High

Other Minimum Street Pavement Design Criteria are:

	Local Street (Residential Areas Only)	All Other Classifications
Design Deviation	0.45	0.45
Soil Modulus	CBR Times 1500	CBR Times 1500
Initial Serviceability	4.2	4.2
Terminal Serviceability	2.0	2.5

- The Drainage Coefficient for all street designs shall be 0.75.
- Soil Resilience Modulus must be expressed in terms of the results of a California Bearing Ratio (CBR).
- The maximum AASHTO Design Reliability input shall be 75 for local streets in residential areas.

- The maximum AASHTO Design Reliability input shall be 80 for collector streets in industrial or commercial areas.
- The AASHTO Design Reliability shall be 90 for all other streets.

Roadbed soils that are susceptible to swell, frost heave, or loss of structural support from variable or high moisture content shall be given special design consideration to ensure that the long-term pavement performance is not compromised.

200.5.4 MINIMUM ASPHALT CONCRETE PAVEMENT SECTION

The minimum acceptable pavement sections for city streets are provided below. If the pavement design section differs, then the greater section shall be used.

	Composite Section	
Classification	**Asphalt Concrete Pavement (inches)**	**Aggregate Base Course (inches)**
Local	5.0	6.0
Local Collector & Collector*	5.0	8.0
Arterial	6.0	10.0

*Includes roadways for industrial and commercial areas

200.5.5 CONCRETE PAVEMENT DESIGN ALTERNATIVE

The use of concrete pavement shall be evaluated and considered for streets that are identified within the development's Traffic Impact Study to have a high volume of truck traffic, such as those located in commercial or industrial areas. A concrete pavement design alternative shall be prepared for these roadways. If concrete pavement is selected, the following items shall be included:

- The minimum pavement section allowed for concrete pavement shall be 8 inches for non-reinforced or 7 inches with reinforcement, with a minimum base course thickness of 4 inches.
- A joint design shall be included.
    - Transverse joint spacing should not exceed twice the pavement thickness in feet with consideration given to length to width panel ratios for longitudinal joints.
    - Construction of longitudinal and transverse joints shall follow the standard details located in the Construction Specifications.
    - The curb and gutter section shall match the thickness of the concrete pavement and be dowelled into the pavement. Transverse pavement joints shall match curb and gutter joints.

200.6 STREET DESIGN

Geometric street design refers to the dimensions and arrangements of the visible features of a roadway. This includes pavement widths, horizontal and vertical alignment, slopes, channelization, intersections and other features that can significantly affect the operations, safety and capacity of the roadway network. The geometric design of the roadway shall be consistent with the intended functional classification of the roadway and fit the characteristics and needs of all users.

200.6.1 STREET NETWORK CONNECTIVITY

The term "street connectivity" suggests a system of streets with multiple routes and connections serving the same origins and destinations while minimizing dead ends. Connectivity not only relates to the number of intersections along a segment of street, but how an entire area is connected by the transportation system.

The design engineer shall provide a well-designed, highly connected network which helps reduce the volume of traffic and traffic delays on major streets (arterials and collectors) and ultimately improves livability in communities by providing parallel routes and alternative route choices. By increasing the number of street connections or local street intersections in communities, bicycle and pedestrian travel is also improved. A well planned, connected network of collector roadways allows a transit system to operate more efficiently.

An interconnected street system is necessary to ensure that streets will function in an interdependent manner, to provide adequate access for emergency and service vehicles, to connect neighborhoods, to promote walking and biking, to reduce miles of travel that result in lower wear on the roadway, and to provide continuous and comprehensible traffic routes.

200.6.1.1 General Standards. Proposed developments shall minimize the design and use of dead-end roadways, including cul-de-sacs, and provide multiple direct connections in its local street system to and between local destinations, such as parks, schools, shopping centers, etc. without requiring the use of arterial streets.

Blocks within residential areas shall not be more than 1200 feet in length, in accordance with Spearfish's code of ordinances.

Each development shall incorporate and continue, to the extent feasible, all collector or local streets stubbed to the boundary of the development plan by previously approved but unbuilt development or by existing development. Wherever a proposed subdivision or development abuts unplatted land or a future development phase of the same development, street stubs shall be provided as deemed necessary by the City to provide access to neighboring properties or to logically extend the street system into the surrounding area. The guidelines specified within Section 200.6.2 shall be closely followed to accomplish this. The city's Master Transportation Plan and/or other adopted area transportation plans shall also be used to determine roadway layouts, locations and classifications.

A minimum of two points of access shall be provided for all subdivision developments. If significant constraints exist due to topography, political jurisdiction (i.e. county, state, or road district

authority), lack of connecting right of way or easement, floodplain, or similar hardship, then a design exception may be considered for an alternate design.

200.6.2 STREET CLASSIFICATIONS AND GENERAL STREET NETWORK LAYOUT

Street classification is the process of grouping streets and highways according to the level of vehicular travel service they provide. Various concepts and criteria, including traffic volume, vehicular speeds, and connectivity, are used to classify roadways. These classifications help to distinguish high-traffic streets (arterials) from medium-traffic streets (collectors) and low-traffic streets (local roads) and are used to provide stakeholders and developers with a set of standard street cross-sections to guide new development and street rehabilitation. Figure 200-01 summarizes the primary characteristics of each public street classification.

A public right-of-way shall be dedicated on the final plat for all existing and future public streets. This provision shall only apply where a parcel of land is divided into two or more lots. This shall not apply to the reconfiguration of existing property lines where the number of lots remains the same after the reconfiguration. Additional right-of-way width from that shown within the street criteria may be required at and/or near intersections to account for additional turn lanes, medians, corner sidewalk connections or other required improvements.

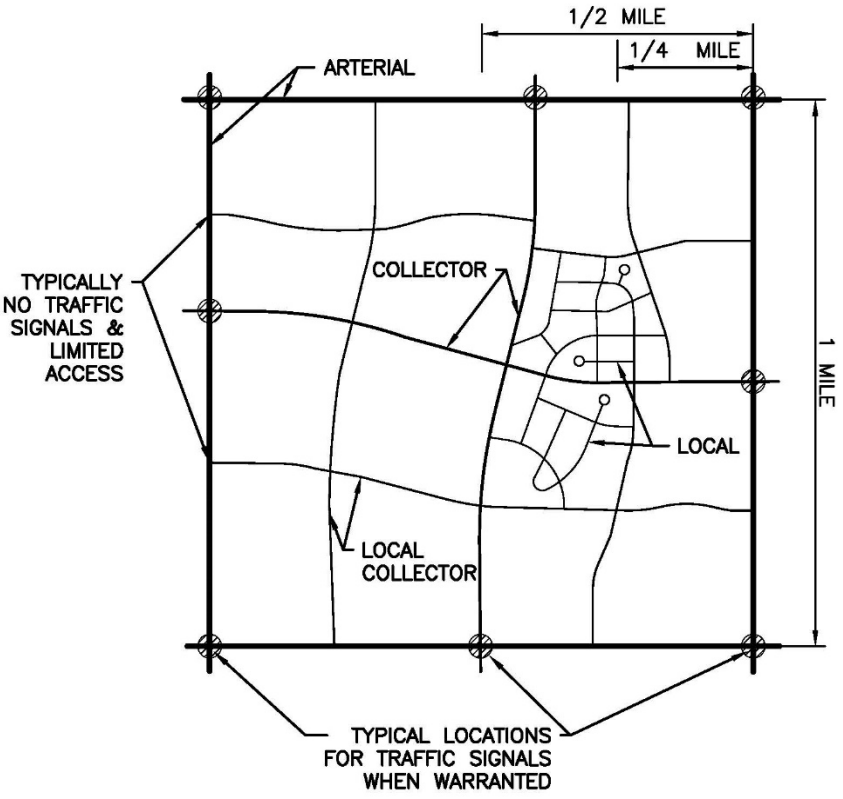
200.6.2.1 Federal and State Highways and County Roadways. Roadways that are maintained by the federal, state, or county governments provide significant connectivity in and around Spearfish. Federal and State roadways include Interstate 90, US Highway 85, and US Highway 14A. County Roads are prevalent in and around Spearfish. The South Dakota Department of Transportation's Local Roads Map Viewer shows jurisdiction of roads in and around Spearfish and should be referenced before construction to determine the appropriate jurisdiction to coordinate with for access and construction.

200.6.2.2 Arterial Streets. An arterial street is a general term denoting a roadway designated or operating with the following characteristics:

- **Design Speed.** 35 miles per hour with generally posted speed limits of the same.
- **Traffic Volumes.** Generally greater than 8,000-10,000 vehicles per day.
- **Function.** Arterial roadways are mobility roads that carry longer-distance trips for regional, inter-community and major commuting purposes. Arterials can carry significant traffic volumes at higher speeds for longer distances and are seldom spaced at closer than one-mile intervals.
- **Access Control.** Direct access to abutting land is subordinate to providing service to the through traffic movements. Access will typically not be granted to individual property which has a reasonable alternative means of access to a lower classification of roadway. Consideration of reasonable alternative access will take into consideration the function of the alternative roadway, its purpose, capacity, operation, safety, and means of improving the alternative roadway. Access movements for local roads are typically prohibited. If

allowed, the movement will typically be limited. See Section 200.7.6.1 for specific spacing requirements.

- **Traffic Control.** Regulation of traffic is accomplished by signs, traffic signals, and channelization in accordance with the current edition of the Manual on Uniform Traffic Control Devices (MUTCD).
- **Parking.** On-street parking is not permitted.
- **General Street Layout.** Arterials shall be located at approximately one-mile intervals, both in an east-west direction and a north-south direction and are often aligned on section lines as shown in the following figure.

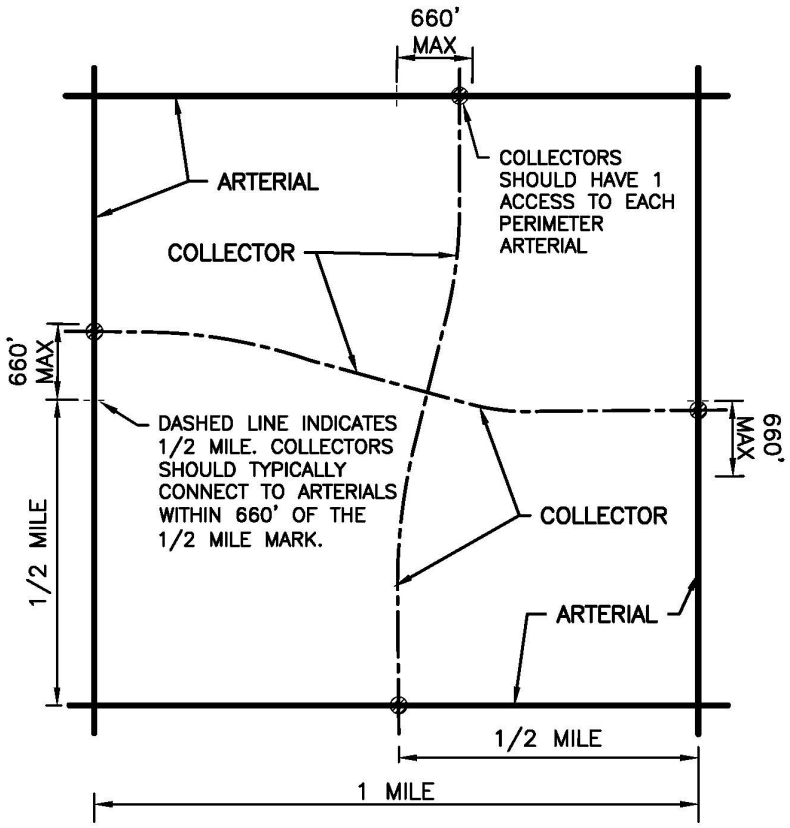


General Arterial Street Network Layout

200.6.2.3 Collector Streets. A collector street is a general term denoting a roadway designed or operating with the following characteristics:

- **Design Speed.** Between 25 and 35 miles per hour with a generally posted speed limit between 25 and 35 miles per hour.
- **Traffic Volumes.** Generally, less than 5,000 vehicles per day.

- **Function.** Collector roadways typically serve moderate volumes of traffic from arterial roads to local streets. Left turn lanes and channelization may be required at intersections and driveway access points.
- **Access Control.** Access will normally be full movement and is provided via moderately spaced signalized or stop controlled intersections. Any limited movement collector street intersection which is identified within a traffic impact or other traffic study, may require an access control median or other acceptable access control device. The intersection may be initially constructed to allow full movement access, if recommended within the traffic study. Driveway access is generally limited and may be restricted. Single-family residential frontage is discouraged, and back-out drives are prohibited. See Section 200.7.6.1 for specific spacing requirements.
- **Traffic Control.** Regulation of traffic is accomplished by signs, traffic signals, and channelization in accordance with the current edition of the Manual on Uniform Traffic Control Devices (MUTCD).
- **Parking.** On-street parking may be permitted.
- **General Street Layout.** Within each 1-mile segment, collectors shall divide the segment east-west and north-south on or near the 1/2 points along a section (or within 660 feet on either side of the 1/2 points) into four approximately quarter-mile square (160 acre) areas. Collectors may also be necessary, on occasion, on or near 1/4 points within development areas of greater density such as commercial. These collector streets may be transitioned into local collectors upon reaching less dense development areas. Generally, it is expected that collectors will align and connect across arterials to distribute traffic and to provide continuity on bicycle routes, which are generally located on collectors. See the following figure.



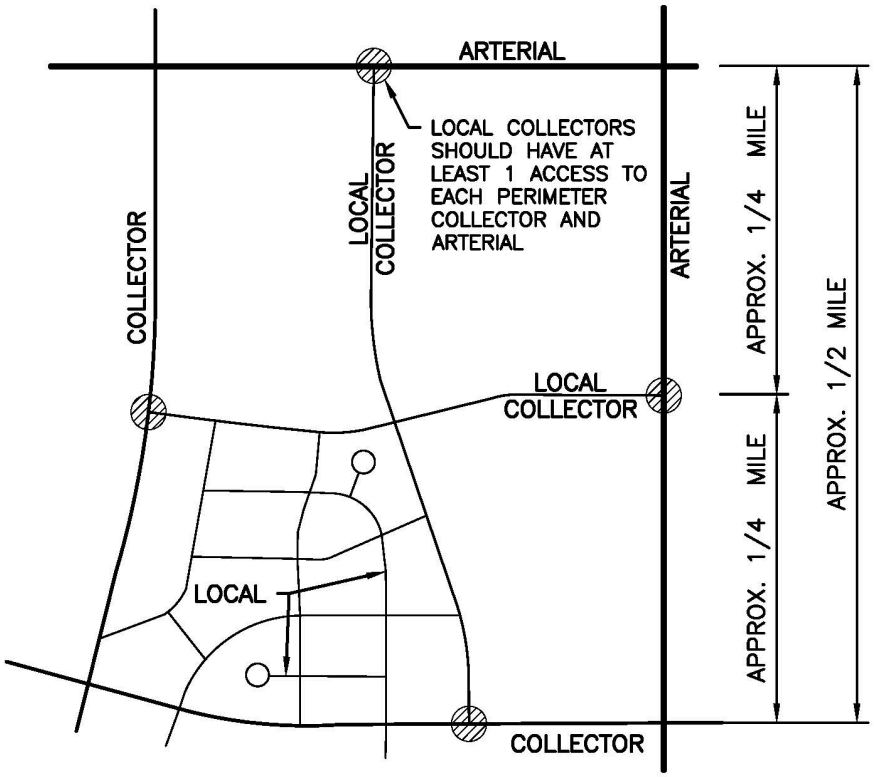
General Collector Street Network Layout

200.6.2.4 Local Collector Streets. A local collector street is a general term denoting a roadway designed or operating with the following characteristics:

- **Design Speed.** 25 miles per hour with a generally posted speed limit of the same.
- **Traffic Volumes.** Generally, less than 3,500 vehicles per day.
- **Function.** The primary function for local collectors is to provide a connection between local streets and the collector and arterial street system. Local collectors accommodate trips relatively short in length, typically one-half mile or less and is defined as a street which connects an arterial to a collector or a collector to another collector.
- **Access Control.** Access will typically be full movement, unsignalized except when abutting an arterial street. In such a case, a restriction of movements will typically be required. Any limited movement local collector street intersection which is identified within a traffic impact or other traffic study, may require an access control median or other acceptable access control device. The intersection may be initially constructed to allow full movement access, if recommended within the traffic study. See Section 200.7.6.1 for specific spacing requirements.
- **Traffic Control.** Regulation of traffic is accomplished through signs in accordance with the current edition of the Manual on Uniform Traffic Control Devices (MUTCD).

- **Parking.** On-street parking may be permitted.

- **General Street Layout.** Within each approximately 160-acre segment, at least one continuous local collector street shall connect an arterial and a collector, in both the north-south and the east-west directions. Local collector streets are generally located on or near the 1/4 and 3/4 points along a section line and should define four areas of roughly similar size (approximately 40 acres). They may also be located on or near the 1/8, 3/8, 5/8 and 7/8 points along a section line where minimum access spacing requirements can be met. See the following figure.



General Local Collector Street Network Layout

200.6.2.5 Local Streets. A local street is a general term denoting a roadway designed or operating with the following characteristics:

- **Design Speed.** 15 to 25 miles per hour with a posted speed limit not more than 25 miles per hour.

- **Traffic Volumes.** Not applicable.

- **Function.** The primary function of local roads is to provide direct access to adjacent land uses. Local streets generally are internal to or serve as an access function for a single neighborhood or development. Local roads are limited in length and continuity, and traffic using them should have a close-by origin or destination.

- **Access Control.** Local streets are prohibited to intersect with arterial streets. Any limited movement local street intersection which is identified within a traffic impact or other traffic study, may require an access control median or other acceptable access control device. The intersection may be initially constructed to allow full movement access, if recommended within the traffic study. See Section 200.7.6.1, for specific spacing requirements.

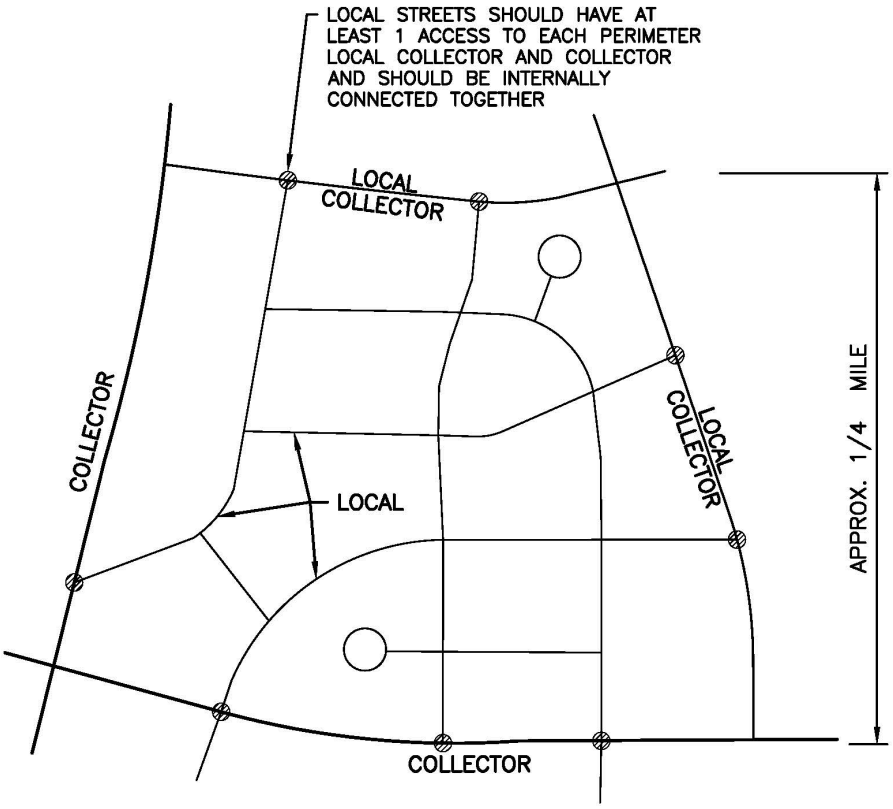
- **Traffic Control.** Regulation of traffic is accomplished through stop signs, yield signs, or right-of-way rules for uncontrolled intersection as in accordance with the current edition of the Manual on Uniform Traffic Control Devices (MUTCD).

- **Parking.** On-street parking is required on both sides.

- **General Street Layout.** For each approximately 40-acre area, at least one street giving access to its interior shall be provided on every perimeter local collector and collector street of the area unless:

    - Such a connection to an arterial would create undesirable turning movements or present other traffic safety hazards,

    - Or the connection would be impractical because of topography or other physical obstructions such as intervening open space, a golf course, a ravine, or existing adjoining development. Such access streets shall connect across continuous local streets and should connect across collectors, depending upon land use relationships. In no case shall local streets be required to connect to an arterial street at intervals of less than one-quarter mile. See the following figure.



General Local Street Network Layout

200.6.2.6 Hillside Access. A hillside access street is a general term denoting a roadway designed or operating with the following characteristics:

- **Design Speed.** 15 to 25 miles per hour with a posted speed limit not more than 25 miles per hour.
- **Traffic Volumes.** Not applicable.
- **Function.** The hillside access street will function like a local collector street with more flexible design parameters. The intention of the hillside access street is to increase opportunities to access areas of potential development which can only be reached through areas of steep terrain. The hillside section allows for the design of a steeper road profile with a smaller width/section that may be used through these areas of steep terrain if access would not otherwise be attainable utilizing other standard city street sections. This section must be approved for use by the City Engineer. See Figures 200-03 and 200-04 for more detailed design guidelines.
- **Access Control.** Access is prohibited and no developable lots shall be allowed along the hillside access street. The catch/fill slope areas adjacent to this street section will be steep (3:1 and likely greater) and therefore shall be required to become open space, dedicated to a homeowner's association. When topography allows, the hillside street shall transition

back to the most applicable typical street section based on the type of development that will be adjacent to it.

- **Traffic Control.** Regulation of traffic is accomplished through stop signs, yield signs, or right-of-way rules for uncontrolled intersection as in accordance with the current edition of the Manual on Uniform Traffic Control Devices (MUTCD).
- **Parking.** No on-street parking is required or allowed.
- **General Street Layout.** See Figure 200-04 for the Hillside Access Road Plan & Profile Example.

200.6.2.7 Alleys. An alley is a general term denoting a roadway designed or operating with the following characteristics:

- **Design Speed.** Less than 15 miles per hour with no posted speed limit.
- **Traffic Volumes.** Generally, up to 500 vehicles per day.
- **Function/Access.** Designed to function as service corridors for garbage collection and public utilities, access to parking, loading and unloading zones for commercial properties, and access to parking, garages, and rear yards for residential properties.
- **Traffic Control.** Regulation of traffic is accomplished through stop signs, yield signs, or right-of-way rules for uncontrolled intersection as in accordance with the current edition of the Manual on Uniform Traffic Control Devices (MUTCD).

200.6.2.8 Construction Responsibilities for New and Existing Streets. The Developer shall be responsible for construction of the full street section for all *new* streets classified as local, collector, local collector, hillside access, and alley as per the street criteria. On-street bike lanes for collector streets and on-street parking for local collector and collector streets shall be determined on a case-by-case basis at time of development. Their inclusion to the street section shall depend on the scale and density of the development, surrounding land use, multi-modal recommendations within the Traffic Impact Study (TIS) for the development, opportunities for connectivity to existing facilities, and other factors noted within adopted city master plans. Detailed information for Traffic Impact Studies is provided in Section 200.5.3 below.

Full street sections for *new* streets classified as arterial may not be necessary for the Developer to construct. The TIS shall evaluate and recommend the total number of traffic lanes that are necessary to adequately service the development. At a minimum, one traffic lane in each direction and left turn lanes at intersections shall be completed. If the full street section will not be required, the City of Spearfish will be responsible for widening to the ultimate 5-lane street section in the future, when necessary. For construction of partial interim arterial street sections, see Figure 200-02.

The following minimum street criteria for *existing* streets within and directly adjacent to a development shall be required:

- One traffic lane each direction of travel
- Bituminous or PCC pavement for street surfacing

- A concrete sidewalk or path for pedestrian and bike/non-motorized travel use (per street section criteria)
- Street lighting (see Section 200.10 for criteria)
- Adequately sized drainage conveyance and collection components such as roadside ditches or curb/gutter/storm sewer.

In addition, *existing* streets identified within adopted city transportation plans as collector or arterial shall be evaluated within the TIS to identify and recommend improvements necessary to adequately serve the development such as intersection improvements, additional traffic and/or turn lanes, acceleration / deceleration lanes, and multi-modal improvements (on-street bike lanes, side paths).

The TIS shall also evaluate and recommend additional improvements including the total number of traffic lanes that are necessary to adequately service 'through' traffic collectively with the development generated traffic for all *new* arterial, *existing* collector and *existing* arterial roadways to determine if additional improvements above those required solely for the development, may be necessary at time of development.

At their discretion, the City Planner may require any additional roadway improvement recommendations from this analysis to be constructed by the developer, in which the City shall compensate the developer for the added costs. In these circumstances, details of the cost reimbursement shall be included and documented within a Development Agreement.

200.6.3 TRAFFIC IMPACT STUDIES

Development of property has a direct impact on transportation including vehicular, bicycle, pedestrian, and public transit. In order to meet capacity and safety needs as they relate to the traffic generated from a particular land use, specific improvements can be made. Traffic Impact Studies (TIS) address traffic related issues on the existing and planned street systems for new development and determine the improvements required so that levels of service are safely maintained.

The TIS shall be prepared by a South Dakota licensed Professional Engineer with experience in the field of traffic engineering. The primary responsibility for assessing the traffic impacts associated with a proposed development will rest with the Developer, with the city serving in a review capacity.

Roadways that are controlled by other jurisdictions (SDDOT, Lawrence County, etc.) that lie within the study area may have additional requirements and/or methods of analysis. The design engineer shall be responsible for coordinating with the relevant entities, including review, and provide City staff with a copy of the study's comments and approval.

Upon approval of the TIS, the recommended traffic improvements shall be included as part of a Development Agreement for the project.

200.6.3.1 When a TIS is Required. A TIS meeting the city's guidelines shall be required on projects as specified below, unless waived by the City Planner:

- Any development proposal when trip generation during the peak hour is expected to meet or exceed one hundred (100) vehicles, or one thousand (1,000) trips per day. Trip generation estimates will be derived from the current *Institute of Transportation Engineers' (ITE) Trip Generation Manual* (latest edition), or an alternative guide or method approved by the City Engineer. If traffic exceeds either of the noted thresholds a TIS will be required at the time of preliminary plat, including but not limited to the following situations:
    - When a rezoning application or Development Review District application is submitted.
    - Upon submittal of a final plan or final development plan if the property has already been rezoned for the proposed use, and no traffic report was required for the rezoning.
    - Prior to issuance of a building permit, if the property has already been zoned/platted and no previous TIS less than two (2) years old exists.
    - If additional access off an arterial street to an existing use is being requested.
    - If, after submitting the original TIS, the land use intensity and traffic generation area increase by more than ten percent (10%).
    - Where access points are not defined or a site plan is not available at the time the TIS is prepared, additional traffic analysis may be required when a site plan becomes available, or the access points are defined.
    - When a new phase of a development is submitted for review, all previous traffic reports relating to the development that are more than two years old must be updated.
- The City Planner reserves the right to require a TIS for proposed developments not meeting the one hundred (100) vehicles or one thousand (1,000) trips per day threshold if, in their judgement, the trip generation characteristics of the proposed development are likely to have significant impact on the safe and efficient operation of city streets.

200.6.3.2 Pre-study Meeting. Traffic consultants will schedule a meeting to discuss projects with city departments and other applicable review agencies prior to beginning the study. Topics for discussion may include:

- Definition of the study area
- Directional distribution of traffic
- Intersections requiring critical lane analysis
- Methods for projecting build-out volume
- Count locations (intersections and/or segments)
- Durations (day of week, start/stop times)
- Count method (hand count, camera, tubes, etc.)
- Count categories (vehicle classification, truck classification, pedestrian or bicycles in cross walk, bicycles on the road, etc.)

200.6.3.3 Traffic Impact Study Content. Specific requirements will vary depending on location; however, all traffic studies shall contain the following information, at a minimum:

- **Introduction.** A brief description of the size of the land parcel, general terrain features, the location within the jurisdiction and the region should be included in this section. In addition, the roadways that afford access to the site, and are included in the study area, must be identified. The exact limits of the study area are to be based on engineering judgment, and an understanding of existing traffic conditions at the site. In all instances, however, the study area limits shall include the entirety of the development area with existing, adjacent access roads. Additional areas of inclusion shall be mutually agreed upon by the Developer, the design consultant, and the city. These limits will usually result from the pre-study meeting. A vicinity map that shows the site, in relation to the surrounding transportation system, must be included.
    - Existing and proposed site uses. The existing and proposed uses of the site must be identified. Staff will evaluate the uses to determine their eligibility for the Zoning designation and compliance with the Spearfish Future Land Use Map (FLUM).
    - Existing and proposed uses in vicinity of the site. A complete description of the existing land uses in the vicinity of the site, as well as their current zoning and use, must be included.
    - Proposed uses for vacant adjacent land. The consultant must also state the proposed uses for vacant adjacent land as identified in the FLUM or as identified by planning staff in the pre-study meeting.
    - Existing and proposed roadways and intersections. Within the study area, the consultant must describe existing roadways and intersections (geometrics and traffic signal control) as well as improvements contemplated by government agencies. This would include the nature of the improvement project, its extent, implementation schedule, and the agency or funding source responsible.
- **Trip Generation and Design Hour Volumes.**
    - A summary table listing each type of land use, the size involved, the average trip generation rates used (total daily traffic and a.m. and p.m. peaks), and the resultant total trips generated shall be provided.
    - Trip generation will be calculated from the latest data contained within the *Institute of Transportation Engineers' Trip Generation Guide* (latest edition) or an alternative guide or method approved by the City Engineer. In the event that data is not available for the proposed land use, the city must approve estimated rates prior to acceptance.
    - The peak hour volume used to determine public improvements will be estimated by one of the following methods which are listed in:
        - Traffic volume counts for existing uses.

        - Peak hour trip generation rates as published in the *ITE Trip Generation Guide,* latest edition.

- **Trip Distribution.** The direction of approach for site-generated traffic will be presented in this section. The technical analysis steps, basic methods, and assumptions used in this work must be clearly stated.

- **Trip Assignment.** This section will describe the utilization of study area roadways by site-generated traffic. The anticipated site traffic volumes must be combined with existing and projected area traffic volumes in Section 200.5.3.2 to describe mainline and turning movement volumes for future conditions with the site developed as proposed. Internal trips in excess of ten percent (10%) will require analytical support to demonstrate how the higher figures were derived. Non-generated pass by trips may be considered if applicable. All estimates of trip distribution, assignment, and modal split are subject to review and approval by the City.

- **Existing and Projected Traffic Volumes.**

    - Graphics must show the following:

        - AM peak hour site traffic (in and out) including turning movements.

        - PM peak hour site traffic (in and out) including turning movements.

        - AM peak hour total including site (in and out) and through traffic including turning movements for current conditions and twenty (20) year projections or build-out.

        - PM peak hour total including site (in and out) and through traffic including turning movements for current conditions and twenty (20) year projections or build-out.

    - All raw traffic count data (including ADT and peak hour turning movements) and worksheets shall be provided. All traffic data should be collected using standard traffic data collection techniques, which may consist of digital count boards and/or video cameras at intersections and tube counters or video cameras on roadway segments.

    - Build-out projections shall include major vacant properties around the proposed development as defined by the City. Volume projections for background traffic growth will be provided by the city, or a method for determining their volume will be recommended by the city.

    - All total daily traffic counts should be actual machine counts and not based on factored peak hour sampling. Latest available machine counts from the South Dakota Department of Transportation (SDDOT), the City, and other agencies may be acceptable if not more than two (2) years old.

    - All traffic will be assigned to existing and planned facilities in a manner consistent with existing traffic patterns and approved by the city.

- **Capacity Analysis.** A capacity analysis will be conducted for the street intersections at driveways for the proposed development. Within the limits of the previously defined study area, capacity analyses will also be conducted for street intersections. The a.m., p.m., and any other possible peak period will be tested to determine which will be analyzed. Pedestrian movements should also be considered in the evaluation. Capacity calculations should also include an analysis for twenty (20) year projections or build-out conditions. Capacity analysis will be calculated in accordance with the procedures outlined in *The Highway Capacity Manual,* latest edition.

- **Traffic Signals.** The need for new traffic signals shall be checked using the warrants in the *Manual on Uniform Traffic Control Devices,* latest edition. Traffic progression is of paramount importance. Generally, a spacing of one-half (1/2) mile for all signal-controlled intersections should be maintained. This spacing is usually desirable to achieve good speed, capacity, and optimum signal progression.

  To provide flexibility for existing conditions and ensure optimum two-way signal progression, an approved traffic engineering analysis will be made to properly locate all proposed connecting access approaches that may require signalization. An optimum two-way progression pattern will be established between two public intersections that bracket the proposed approach as chosen by the City. These bracketing intersections should be about one (1) mile apart, and be existing, or possible future signal locations.

  The progression pattern calculation must use a cycle length of between fifty (50) and one hundred twenty (120) seconds, and a travel speed of forty (40) mph, unless existing signal systems and speed limits govern usable cycle lengths and travel speeds. A desirable bandwidth of fifty percent (50%) must be used where existing conditions allow.

  The acceptable cycle lengths for capacity analysis progression patterns are between 60 and 180 seconds with a travel speed of 40 miles per hour (mph), unless existing signal systems and speed limits govern usable cycle lengths and travel speeds. Left-turn phases shall have a minimum split of at least 10 seconds. Dual left-turn phases shall have a minimum split of at least 13 seconds. Thru-phases shall have a minimum split of at least 20 seconds, and no less than the time required for a pedestrian to cross the street in accordance with the latest edition of the MUTCD.

  Those intersections which would reduce the optimum bandwidth if a traffic signal were installed will remain un-signalized and have turning movements limited by driveway design or median islands.

- **Level of Service.** Level of Service C during the peak hour will be the design objective for all new street components and intersections. Individual approaches shall be designed to at least LOS D for arterial street approaches or a LOS E for collector/local/private street approaches, with no individual movement having a volume to capacity ratio of greater than 1.00. Existing corridors with established adjacent development shall be designed to LOS D. The design year will be approximately twenty (20) years following construction or at build-out of the area. Levels of service are defined in *The Highway Capacity Manual*, latest edition.

- **Traffic Crashes.** Traffic crash data for affected street corridors shall be required for the study. Crash history review should consist of a tabular summary of the most recent 3 years of crash data adjacent to the development (roadway and intersection), in addition to the map of the crash data, identification of any access related crash trends and possible mitigation measures. Intersection and street segment crash data is available through SDDOT's Intersection Crash Mapping Tool.

- **Recommendations.** In the event that the analysis indicates unsatisfactory levels of service on study area roadways, a description of proposed improvements to remedy deficiencies shall be included. These proposals would not include projects committed by the city or the SDDOT. In general, the recommendation section should include:

    - Proposed Recommended Improvements. This section shall describe the location, nature, and extent of proposed improvements to assure sufficient roadway capacity. Vehicular, pedestrian and bicycle traffic improvements shall be provided. The timing or phasing of the construction of these improvements shall also be described.

        - Vehicular traffic improvements may include road widening, turn lanes, acceleration and deceleration lanes, intersection improvements, traffic signals, stop signs, design speed adjustments, roundabouts, and modifications to access points.

        - Pedestrian traffic improvements may include short blocks, low traffic speeds, tree-lined sidewalks, smaller corner radii, well-defined crosswalks, bulb-outs for streets with on-street parking, median refuges and channelized islands for wide street crossings.

        - Bicycle traffic improvements may include the addition of on-street bicycle lanes and or off-street shared use paths needed to achieve connectivity between the proposed project and the existing path system.

    - Volume / Capacity Analysis at Critical Points. Another iteration of the volume / capacity analysis will be described, which demonstrates the anticipated results of making these improvements.

    - Levels of Service at Critical Points. As a result of the revised volume / capacity analysis presented in the previous section, levels of service for the highway system with improvements will be presented.

- **Conclusion.** The last chapter of the report must be a clear, concise description of the study findings. It is anticipated that this concluding chapter will serve as an executive summary.

- **Revisions to Traffic Report.** Revisions to the traffic report must be provided as required by the city. The need to require revisions will be based on the completeness of the TIS, the thoroughness of the impact evaluation, and the compatibility of the study with the proposed access and development plan.

200.6.4 HORIZONTAL AND VERTICAL ALIGNMENT

Street alignment should closely fit the existing topography to minimize the need for cuts or fills without sacrificing pedestrian and vehicle safety. Additional consideration should be given to providing adequate driveway access to properties adjacent to the street, either through vertical alignment, lot grading, or similar design considerations.

All designs shall be accomplished in accordance with the current AASHTO publication *A Policy on Geometric Design of Highways and Streets*.

Geometric design features shall be consistent with the specified design speed. Horizontal and vertical alignment must complement each other and be considered in combination. Roadway design plans shall include plan and profile views.

200.6.4.1 Horizontal Curves. Minimum horizontal curve radii shall be provided in accordance with the latest edition of the AASHTO's *A Policy on Geometric Design of Highways and Streets* (AASHTO Guidelines). The guidelines for low-speed urban streets shall be used. For streets classified as local, the minimum centerline radii shall be 150'.

200.6.4.2 Horizontal Transition Length. If lanes are added, deleted, or adjusted, it will be necessary to construct a transition section for the safe conveyance of traffic. The following formula shall be applied to the taper or lane change necessary for this transition:

$L=WS^2/60$

where:

L = Length of transition in feet

W = Width of offset in feet

S = Speed limit or 85th percentile speed

200.6.4.3 Stopping Sight Distance. The minimum stopping sight distance is the distance required by the driver of a vehicle traveling at the design speed to bring the vehicle to a stop after an object on the street becomes visible. Stopping sight distance is calculated in accordance with the latest edition of the AASHTO Guidelines. Object height is assumed to be 2 feet above road surface and viewer's eye height is 3.5 feet above road surface. A likely obstruction may be a bridge abutment or line of columns, wall, cut side slope, or a side or corner of a building. The sight distance design procedure shall assume a 6-foot fence (as measured from actual finished grade) exists at all property lines except in the sight-distance triangles required at all intersections.

Where an object off the pavement restricts sight distance, the stopping sight distance determines the minimum radii of curvature. In no case shall the stopping sight distance be less than as specified in the following table.

Stopping Sight Distance

Design Speed (Mph)	Stopping Sight Distance (Ft)
25	155

30	200
35	250
40	305
45	360
50	425

To allow for the effect of grade on stopping sight distance the factors in the following table shall be used.

Effect Of Grade on Stopping Sight Distance

Design Speed (Mph)	Stopping Sight Distance Adjustment					
	Increase For Down Grade			Decrease For Upgrades (Ft)		
	3%	6%	9%	3%	6%	9%
25	3	10	18	7	12	15
30	5	15	27	10	16	21
35	7	21	37	13	21	28
40	10	32	49	16	27	36
45	18	40	67	16	29	40
50	21	49	82	20	37	50

200.6.4.4 Sight Triangles. A sight triangle is a specified area at an intersection that is free of any obstructions that would block a driver's view of potentially conflicting traffic. Intersecting facilities may include streets, alleys, driveways, rail lines, sidewalks and bicycle paths. The criteria for sight triangles presented in this section are based on the recommendations contained within the current AASHTO Guidelines. The figures are presented as general representations of the required sight triangles. It is the responsibility of the designer to verify the applicability to the facility being designed.

- **Sight Triangle Criteria.**
    - Stop-controlled intersection. An intersection with traffic control stop signs. Alley, private street, and driveway intersections are considered stop-controlled intersections for the purpose of sight triangle requirements. Each stop-controlled intersection shall have a sight triangle based on the speed limits of the intersecting streets, except that the intersection of 2 alleys shall have a sight triangle of 25 feet on each leg. See Figure 200-05 for sight triangles at stop-controlled intersections.
    - Yield-controlled intersection. An intersection with traffic control yield signs. See Figure 200-06 and Figure 200-07 for sight triangles at yield-controlled intersections.
    - Signalized intersection. An intersection with traffic controlled by a traffic signal. Signalized intersections should be considered to be stop-controlled for the purpose of sight triangle requirements.
    - Pedestrian sight triangle. A specified area at an intersection of sidewalks or bicycle paths that is free of any obstructions that would block a user's view of potentially conflicting traffic. At intersecting sidewalks or bicycle paths, and at any intersection

of a sidewalk or bicycle path with a street, alley, or driveway, a pedestrian sight triangle shall be maintained. These distances are shown on Figure 200-09.

- Uncontrolled intersection. An intersection with no traffic control. See Figure 200-08 for sight triangles at uncontrolled intersections.

- **Sight Triangle Rules and Restrictions.**
  - No obstructions to vision shall be allowed within the applicable sight triangle (s), except as permitted by ordinance. An object shall be deemed an obstruction if it creates a hazard as defined by the AASHTO guidelines.
  - When more than one sight triangle applies to the same corner, all applicable sight triangle requirements must be satisfied.
  - All distances shall be measured from the edge of the travel lane.

200.6.5 PERMISSIBLE STREET GRADES

Adequate pavement cross-slope is required to move water off the traveled portion of the roadway and into the gutter or ditch. Care should be taken when using vertical curves combined with variable profile and cross-slope grades to provide adequate drainage to prevent ponding or icing conditions. This is especially critical where super-elevated sections are utilized. Minimum cross-slope shall be 2%. The maximum cross-slope shall be 5%.

Street profile grades for city streets shall be as flat as is consistently possible with the surrounding terrain while allowing for good drainage. Street profile grades shall range from 1% and a maximum of 8% with the exception of the criteria outlined in Section 200.5.5.1, when it is allowed for use.

200.6.5.1 Hillside Access Street Grade Criteria. As noted in Section 200.5.2.6, the intention of the hillside access street is to increase opportunities to access developable property which can only be reached through areas of steep terrain. The Developer may request to use this special street section through the city's exception process as outlined in Section 100. If approved for use, the hillside section allows for the design of a steeper road with a smaller street section width that may be used through these areas of steep terrain if access would not otherwise be attainable utilizing standard city street sections. Design guidelines for hillside access street grades are as follows:

- The Hillside Access Section may be used if an exception is granted by the city. A maximum profile slope of 12% may be used as detailed below.
  - The minimum centerline radius shall be 85'.
  - Roadway curves with a centerline radius ranging between 85' to 250' shall have a maximum profile slope of 7% and shall have a superelevation of 4%. A minimum 75' tangent length at a maximum profile slope of 7% is also required before and after these curves. The road cross slope shall transition between crown and superelevation sections within the 75' tangents. See Figure 200-04 for the Hillside Access Road Plan & Profile Example.

- Roadway curves which have a centerline radius greater than 250' shall have a crown section and a maximum profile slope of 12%.

- When topography allows, the 'hillside' street shall transition to an applicable typical street section with a maximum profile slope of 8% (typically a local collector or local street) and begin the subdivision development. See Figures 200-01 and 200-03 for the typical street section requirements.

200.6.5.2 Grade Transitions. Instantaneous grade changes shall not be permitted. The use of grade breaks in lieu of vertical curves is discouraged. However, if a grade break is necessary and the algebraic difference in grade does not exceed 0.8% or 0.008 feet/foot along the roadway, the grade break will be permitted. The maximum grade break allowed at the point of tangency at a curb return for local and collector roads shall be 2% and a maximum of 1% for arterial roadways.

200.6.5.3 Vertical Curves. Minimum vertical curve radii shall be provided in accordance with the latest edition of the AASHTO Guidelines. The guidelines for low-speed urban streets shall be used.

Profiles along the centerline of roadways are required for street design. Separate flow line profiles are required as the basis for design at cul-de-sacs, horizontal curves when the vertical grade is less than 1% and any departure from normal roadway cross sections (i.e: the pavement cross slope is not a 2% crown). Additional transition requirements are discussed in Section 200.6.3.

When the algebraic difference in grade (A) is at, or exceeds, 0.8% or 0.008 feet/foot, a vertical curve shall be used. All vertical curves shall be symmetrical. The minimum gradients into and out of a sag vertical curve shall be 1.0% or 0.01 ft./. All vertical curves shall be labeled in the profile with length of curve (L), K=L/A values, VPC, VPT, VPI, and stationing and elevation of these components. In addition, the low point or high point of the vertical curve shall be shown. The minimum vertical curve K values are shown in the following table.

Minimum Vertical Curve Design Criteria

Design Speed	K Value (Length = K x Algebraic Difference in Grades)	
	Crest	Sag
25	12	26
30	19	37
35	29	49
40	44	64
45	61	79
50	84	96

200.6.5.4 Roadway Crown. Except at intersections, or where superelevation is required, new roadways shall be level from top of curb to top of curb with a 2% crown as measured from lip of curb to centerline or lip of median curb to lip of outside curb on roadways with raised center medians. See Section 200.6.3 'Side Street Cross Slopes' for the allowable rates of change in pavement cross slope when warping side streets at intersections.

200.7 INTERSECTION DESIGN AND ACCESS MANAGEMENT

Intersections are roadway elements where conflicting vehicle streams and occasionally non-motorized users share the same space. This area encompasses all modes of travel including passenger vehicles, trucks, transit, bicycles and pedestrians.

Intersections also encompass auxiliary lanes, medians, islands, sidewalks and pedestrian ramps. These may further heighten the accident potential and constrain the operational efficiency and network capacity of the street system. However, the main objective of intersection design is to facilitate the roadway user and enhance efficient vehicle movement. The need to provide extra time for drivers to perceive, decide, and navigate through the intersection is central to intersection design controls and practices. A range of design elements are available to achieve the functional objectives, including horizontal and vertical geometry, left- and right-turn lanes, channelization, etc.

Designing to accommodate the appropriate traffic control is critical to intersection design. Warrants and guidelines for selection of appropriate intersection control, including stop, yield, all-stop, or signal control, may be found in the MUTCD. Recommendations from Traffic Impact Studies pertaining to intersection elements shall be incorporated into its overall design.

The alignment, grade and geometrics of intersecting streets shall provide drivers, bicyclists and pedestrians with a complete and unobstructed view of approaching traffic and shall enable each of them to make necessary maneuvers to traverse the intersection safely.

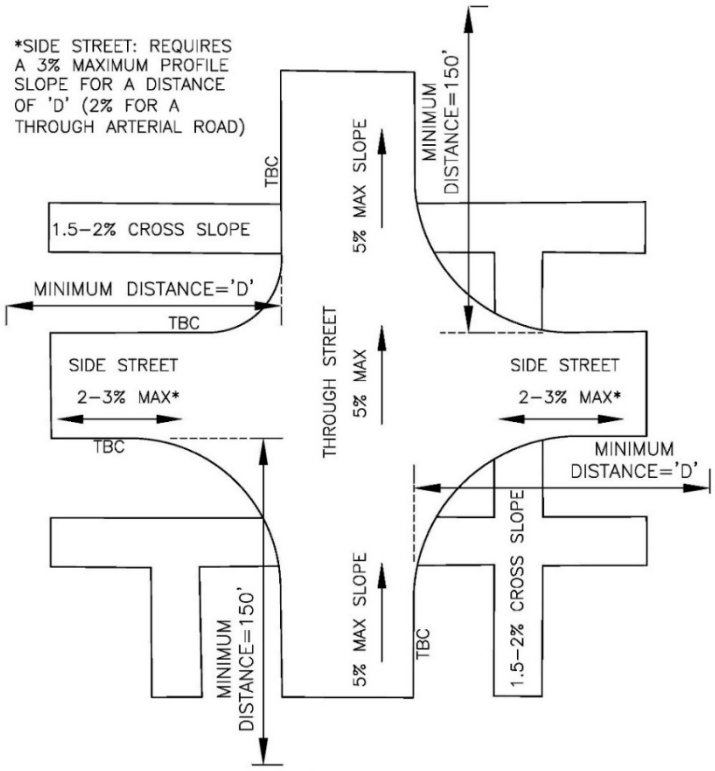
Whenever possible, intersections shall be made at 90° angles or radial to a curve. When exceptions are allowed by the City, the minimum interior angle of intersecting streets shall be no less than 85° for collector and arterial streets and no less than 80° for all other streets.

200.7.1 PERMISSIBLE INTERSECTION GRADES

The grade of the major or through street shall take precedence at intersections. At intersections of roadways with the same classification, the more important roadway, as determined by the City Engineer, shall have this precedence.

The maximum permissible profile grade approaching intersections for the side street will be 3% for the distances shown in the following table. At intersecting arterials, the maximum for the side street shall be 2% for the noted distances, measured from the top back of curb (TBC) of the intersecting through street. The intersection grade of the through street at the intersection shall be a maximum of 5% as shown in the figure below.

Permissible Intersection Grades



		MINIMUM DISTANCE (D)			
		MAJOR / THROUGH STREET			
		LOCAL (FT)	LOCAL COLLECTOR (FT)	COLLECTOR (FT)	ARTERIAL (FT)
SIDE STREET	LOCAL	75	85	100	125
	LOCAL COLLECTOR	-	100	120	150
	COLLECTOR	-	-	200	200

(D) IS MEASURED FROM THROUGH STREET TOP BACK OF CURB

In general, all commercial driveways with curb return radii shall have a maximum grade of four (4) percent, with the length of the maximum grade for the commercial driveway a minimum of fifty (50) feet measured from the flowline intersection of the public roadway.

200.7.2 SIDE STREET CROSS SLOPES

Except at intersections, or where superelevation is required, new roadways shall be level from top of curb to top of curb with a 2% crown as measured from centerline to lip of curb, or lip of median curb to lip of outside curb on roadways with raised medians. Carrying the crown of the side street into the through street is not permitted. The cross slope of a side street intersecting a street of higher classification, or through street, shall be warped to match the grade of the through street. In no case shall the pavement cross slope at intersections exceed the grade of the through street.

Maximum pavement cross slope is 5% at intersections, as measured across the PCR's of the intersecting street. The rate of change in pavement cross slope of the side street to match the through street shall not exceed 1% every 25 feet horizontally on a local roadway, 1% every 37.5 feet horizontally on a collector roadway, or 1% every 56.5 feet horizontally on arterial roadways. Street warping shall be complete at the PCR's of the warped side street and shall extend to the point of beginning away from the intersection.

Separate flow line profiles shall be shown until a standard cross section is obtained (see Section 200.5.5.3, Vertical Curves'). Do not show a centerline profile within the area that the separate flow line profiles are shown.

200.7.3 CURB RETURNS

Minimum grade around curb returns, when turning water, shall be 1.27%. Label high point elevation and distance from P.C.R. Label station and elevation of upstream flow line intersection when a cross pan is required. Maximum fall around a curb return generally equals steepest grade (≥ 2%) coming into or out of a return multiplied by the length of the return, plus 0.2 of a foot. This maximum fall shall apply to inside curbs on streets with knuckles for pavement widening requirements. The longitudinal sidewalk grade within this inside curb shall not exceed five percent.

200.7.3.1 Radii. The dimensions of curb radii directly affect the speed of turning motor vehicles. Large radii are needed to accommodate large trucks and busses but may also allow cars to make high speed turns and create increased crossing distances for pedestrians. A network of intersections with short curb radii would be of greatest benefit to pedestrians, but would hinder movement of fire trucks; thus creating a hazardous environment. Therefore, curb radii standards are needed in order to accommodate all types of users. Back of curb return radii for each street classification is shown in the following table:

Curb Return Radii (Measured Along Back of Curb)

	Arterial	Collector	Local Collector	Local
Arterial	40 ft	35 ft	30 ft	20 ft
Collector	35 ft	30 ft	25 ft	25 ft
Local Collector	30 ft	25 ft	20 ft	20 ft
Local	20 ft	25 ft	20 ft	20 ft

200.7.3.2 Minimum Grade. Minimum grade around curb returns, when turning water, shall be 1.27%. Label high point elevation and distance from P.C.R. Label station and elevation of upstream flow line intersection when a cross pan is required. Maximum fall around a curb return generally equals steepest grade (2%) coming into or out of a return multiplied by the length of the return, plus .2 of a foot. This maximum fall shall apply to inside curbs on streets with knuckles for pavement widening requirements. The longitudinal sidewalk grade within this inside curb shall not exceed five percent.

200.7.4 CROSS PANS

Cross pans shall be constructed in accordance with the standard details. Cross pans are not allowed across or parallel to arterial roadways. Cross pans may only be allowed across collector streets as a last alternative, and must first be approved through the exception process. Cross pans may be used across local roadways, primarily perpendicular to the stop condition at the intersection. Inlets are required as outlined in Section 500.

200.7.5 PLANS PREPARATION FOR INTERSECTIONS

Intersection layout sheets shall be included as part of the construction drawings and shall show all necessary details, geometric controls and access management features, including channelization, tapers, turn lanes, special drainage, and grading. The sheets shall be prepared on a standard plan format using a scale large enough to show details clearly and legibly. Information provided is generally the same as in the street plan sheets.

200.7.5.1 Minimum requirements. The following is a list of the minimum requirements for the intersection plans.

- **Physical elements.** Includes curb/gutter, sidewalk, accessible curb ramps, detectible warning panels, drainage structures and concrete pans/fillets.
- **Line work.** Includes property/ROW lines, centerlines and proposed contour lines.
- **Labels.** Includes street names, contour elevations, curve radii, centerline stationing, spot elevations and slope labels with direction arrows for ADA landings/ramps/crossings, pans, fillets, curbs, through street crown, side street crown transitions and dimensions for pan widths, landings, ramps and asphalt width.

  Pavement cross slopes for sidewalk streets shall be shown until the typical road cross section is reached on each side of the roadway. See Section 200.6.3 ‘Side Street Cross Slopes’ for rates of pavement warp allowed for side streets.

200.7.5.2 Plan Scale. The scale used shall be sufficient to cover all necessary details, preferably 1" = 40' for 11 x 17 plan sheets or 1” =20’ for 24” x 36” plan sheets.

200.7.6 ACCESS MANAGEMENT

Access management is a set of techniques to control access to highways, major arterials, and other roadways. The City of Spearfish implements access management principles that are

designed to increase the capacity of these roads, manage congestion, and reduce crashes. They include the following:

- Increasing spacing between signals and interchanges.
- Driveway location, spacing, and design.
- Use of exclusive turning lanes.
- Use of medians that prevent or limit certain movements across a roadway.
- Use of service and frontage roads.
- Land use policies that limit right-of-way access to highways.

200.7.6.1 Access Spacing. Access spacing standards allow drivers to process one decision at a time. Through proper spacing, drivers may monitor upcoming conflict points and react accordingly to each conflict. Private access spacing is measured from the closest edge (perpendicular tangent section) of the nearest driveway/public intersection to the closest edge of the proposed driveway. Public street intersection spacing is measured from the centerline of street to centerline of street.

The City's exception process shall be used for any requests to decrease access spacing standards. The Traffic Impact Study shall include evaluation of reduced spacing and provide documentation which ensures preservation of safety, capacity, and speed with reduced access spacing. Access spacing standards are shown in the following table:

Street Classification	Minimum Signal Spacing (feet)	Minimum Public Street Intersection Spacing (feet)	Minimum Private Access Spacing from Public Street Intersection (feet)	Minimum Private Access to Private Access Spacing (feet)
Arterial	2640	660	300	250
Collector	1320	300	200	150
Local Collector	1320	250	120	80
Local	N.A.	200	60	N.A.

The minimum spacing shown in the table must include and account for streets and/or accesses on the opposite side of the roadway. A new access should be located directly across from any existing access on the opposite side of the street if spacing requirements can be met.

Minimum spacing for signals located on arterial streets may be reduced to 1320 feet along development areas with dense use such as commercial development if the Traffic Impact Study indicates the need for it.

In addition to meeting minimum access spacing from existing accesses, spacing for future access to adjacent parcels that are currently undeveloped and do not already have an established access, will need to be accounted for. This is especially important if the undeveloped parcel has limited frontage.

Access will not be approved for parking or loading areas that require backing maneuvers onto or from a public street right-of-way except for single-family or duplex residential uses on local and local collector streets.

Access movements for local roads onto arterial roads are typically prohibited.

200.7.6.2 Private Driveway Access. The design and location of driveways onto streets is directly related to the specific use of the access approach and the functional classification of the street the approach is fronting. All driveways shall be constructed in accordance with these Design Standards and be hard surfaced with either bituminous pavement or concrete pavement.

200.7.6.3 General Requirements. Access spacing for all driveways shall be in accordance with Section 200.7.6.1. The edge of driveway aprons and/or curb tapers shall maintain a five-foot distance to the adjacent property line. Any private access to a principal arterial street shall be permitted only when the property in question has no other reasonable access to the general street system, or when denial of direct access to the arterial and alternative access to another roadway would cause traffic operation and safety problems as shown in the Traffic Impact Study.

200.7.6.4 Residential Areas.

- Driveways for corner lots shall be in accordance with Section 200.6 and 200.7.
- A thirty-five foot (35 ft.) maximum driveway width plus tapers is allowed within the public right-of-way. The width of the driveway may be increased within the owner's private property, as city ordinance allows.
- A forty-five foot (45 ft.) maximum driveway plus tapers is allowed within the public right-of-way for a shared driveway for townhouses and duplexes with garages.
- Private residential access directly to arterial streets and any access to an arterial street shall be permitted only when the property in question has no other reasonable access to the general street system, or when denial of direct access to the arterial and alternative access to another roadway would cause traffic operation and safety problems as shown in a Traffic Impact Study. Back-out drives are prohibited.

200.7.6.5 Commercial, Multi-Family and Industrial Areas. In addition to the requirements previously discussed, the following items shall apply to driveways in these areas.

- The number of driveways allowed to a commercial or industrial establishment will be dependent on access spacing requirements and the size and design of the development and safety criteria. The developer or owner shall be responsible to show the need for the proposed number of access points for traffic flow and safety.
- In commercial and industrially zoned areas, the driveway openings shall be not less than sixteen feet (16 ft.) in width for one way traffic, not less than twenty-five feet (25 ft.) in width for two-way traffic, and no more than forty feet (40 ft.) in width, exclusive of the curb tapers or radii.
- Driveways shall be designed as radius approaches, similar to an intersection. Radii shall be as specified in these criteria.

200.7.6.6 Location Coordination. Driveways on opposite sides of a street, where possible and reasonable, will be located so opposing lanes line up to provide the best possible vision of drivers entering the street. Adequate sight distance must be provided for vehicles exiting and entering an

approach. Approach locations will be evaluated to determine whether sight obstructions such as buildings, signs, vegetation, parked vehicles, highway alignments, etc. exist. Driveways shall be located a minimum of 10 feet from crosswalks, curb ramps, street lights, fire hydrants and storm inlets.

200.7.6.7 Joint or Shared Access Easement. When one driveway is to be used or shared by adjacent properties under different ownership, each property owner must provide the necessary legal documents to establish an access easement agreement.

Where several adjacent properties exist along a collector or higher classification of street, each having limited frontage, or where there is a probability of such development, consideration shall be given to shared access points, and frontage or rear roads in order to reduce the number of accesses to the street. Frontage or rear road access to the street shall be at the extremities of the frontage or rear road from street intersections or at well-spaced intervals along it. Intervals shall be at least the distance of normal intersection spacing.

200.7.6.8 Driveway Grades. Driveway grades shall be compatible with their intended use and in compliance with that required by the International Fire Code for fire apparatus access and shall not exceed an 8% slope. Where driveways are installed before construction of the public sidewalk, the driveway shall be built with a cross slope not to exceed a maximum 2 percent where it will cross the future sidewalk. The elevation of driveways shall increase a minimum of 6 inches above the gutter flowline elevation of the adjacent roadway prior to changing grade in the opposite direction.

200.7.6.9 Driveway Throat Depth. The entrance throat shall be designed to safely accommodate ingress without the potential for queuing to back onto the feeding street. Entrance throats shall meet the following criteria.

- The minimum throat length shall be 30’.
- For entrance throats off arterial roadways, the throat depth shall be the greater of either 150 feet, or the 85th percentile egress queue.
- For entrance throats off collector roadways, the throat depth shall be the greater of either 75 feet, or the 85th percentile egress queue.
- There are typically no throat depth requirements for local roadways. The City Engineer may require a minimum throat depth based on the context of the project.

200.7.6.10 Medians. Medians are the center portion of the roadway that separates general purpose travel lanes moving in opposite directions. Medians frequently incorporate features to improve safety and operations by providing space for turning vehicles. When recommended within the traffic impact study, medians should be constructed along arterial streets. Medians may also be considered along collector streets but are prohibited on local streets.

Any limited movement intersection which is identified within a traffic impact or other traffic study, may require an access control median or other acceptable access control device. The intersection may be initially constructed to allow full movement access, if recommended within the traffic study.

200.7.6.11 Median Openings. There are two types of median openings, directional and full opening. Directional median opening generally allows only left or right turns into a driveway, but left turns or through movements are not permitted out of the driveway. A full median opening allows all traffic movements. To preserve the functionality of the median and the adjacent roadway a minimum distance should be maintained between openings. For arterials roadways that minimum distance shall be 2640 feet for full openings and 1320 feet for directional openings.

Median openings are normally designated at collector street intersections. These intersections are normally at each quarter-mile location intersecting the arterial street. These openings may be full movement intersections that provide both left in and left out maneuvers. These openings also may be controlled by a traffic signal.

Full median openings should align with cross streets or with driveways. Left-turn lanes shall be provided at all median openings for safe left turn movements.

Full median breaks shall not be allowed closer than 1,000 feet from an arterial-to-arterial intersection, unless an exception is approved by the City Engineer.

200.7.6.12 Storm Drainage for Medians. Typical design of collector and arterial streets suggests that medians are often used to separate traffic flow. These medians create an impediment to cross flow of water and effectively create a curb flow in the center of a street. When the median ends, cross flow of the storm water will exist thereby flooding travel lanes of the street. Care must be exercised in designing these barriers so that the storm water flow is properly accommodated. Underdrain systems within wider medians shall also be utilized into the median design.

200.7.7 TURN LANES

The design of the arterial street system depends upon the proper control of access to developments and turn lanes at collector street intersections. The location and design of access points must minimize traffic hazards and interference to through-traffic movements. In order to ensure proper access control, the following standards for turn lanes have been established.

200.7.7.1 Where Turn Lanes are Required. Turn lanes may be required along segments of arterial or collector streets if the proposed development constitutes a potential for creating a traffic hazard or unnecessarily impedes through-traffic movements as determined by the Traffic Impact Study. A high-volume access must be provided with a turning lane to allow the driver to maneuver out of the main travel lanes before slowing down. Left-turn lanes must be provided in the center or median of the road for left-turning traffic at a high-volume access. If such lanes cannot be provided, left turns will be restricted.

Turn lanes for right turning movements will be required as necessary at intersections for capacity and safety. Turn lanes for access points shall be according to the following table.

Volume Warrants for Turn Lanes For Access Points for Right-Turning Movements					
	POSTED SPEED OF STREET IN MPH				
	Less Than 25	26 to 40	41 to 50	51 or greater	For
If the a.m. or p.m. design hour volume of the highway lanes will exceed	500	400	200	150	2-lane streets
	1400	1200	800	600	4 or more lanes
and the a.m. or p.m. design hour volume of the driveway will exceed	50	40	20	15	2-lane streets
	70	60	40	25	4 or more lanes

For streets with four or more through travel lanes, design hour volumes shall be measured only in the direction of the access approach.

For left-turning movements, turn lanes will be required as necessary at intersections for capacity and safety. Turn lanes for access points shall be according to the following table.

Volume Warrants for Turn Lanes at Access Points for Left-Turning Movements					
	POSTED SPEED OF STREET IN MPH				
	Less Than 25	26 to 40	41 to 50	51 or greater	For
When a.m. or p.m. design hour volume of the highway will exceed	500	400	200	150	2-lane streets
	1000	900	600	400	4 or more lanes
and the left turning design a.m. or p.m. hour volume into the driveway will exceed	50	40	20	15	2-lane streets
	70	60	40	25	4 or more lanes

For streets with four or more through travel lanes, design hour volumes shall be measured only in the direction of the median turn lane.

For both tables, where the existing street design hour volume is below the values in the tables, a 20-year prediction shall be made and compared to the table.

Where public safety so requires, due to specific site conditions, such as sight distance, a turn lane may be required even though the warrants in the tables are not met. Where the design hour volume of the street is twice the street design hour volume in the tables, the city may require a minimum turn lane for any access approach.

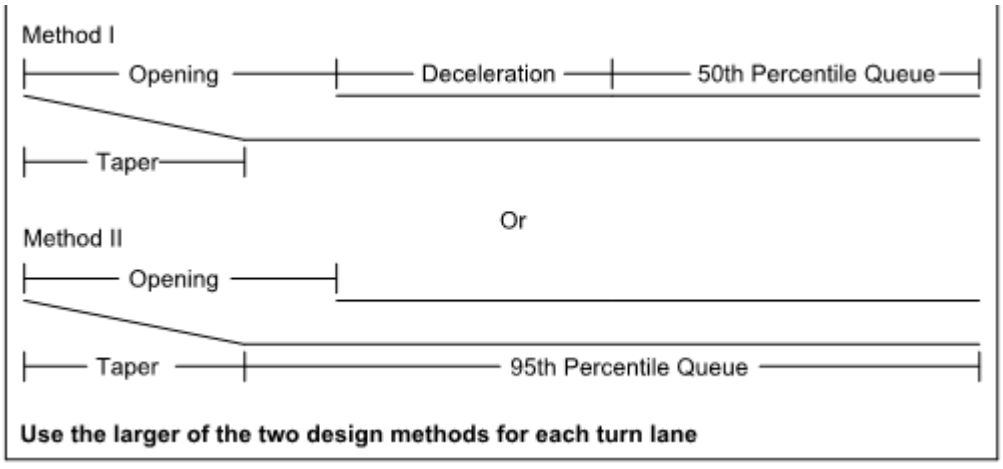
200.7.7.2 Turn Lane and Acceleration Lane Design. On arterial and collector streets in the City, the design of acceleration/ deceleration lanes shall meet the minimum requirements as shown in the following tables, providing sufficient off-site right-of-way is available. These absolute minimum requirements were developed recognizing the severe limitations that currently exist on right-of-way availability for most of the urban street network. Where grades are significant, modifications to these lengths will be required by the city. If off-site right-of-way is insufficient, lanes will be designed to maximize the use of available right-of-way at the time that construction plans receive final approval. The percentile queue values are determined by Synchro or other similar traffic analysis software. The queue blockage should be considered in the design.

Acceleration Lane Lengths			
(1) Speed (MPH)	Lane Length		Taper Length
	Stop Condition	From 15 mph (2)	
30	150’	125’	120’
35	175’	150’	150’
40	250’	200’	180’
45	300’	250’	180’

(1) 85th percentile speed.

(2) Assumes vehicles start at 15 miles per hour.

Turn Lane Lengths					
Posted Speed	Taper	Opening	Deceleration	50th Percentile Queue	95th Percentile Queue
30 mph	60’	60’	75’	Values determined by software analysis.	
35 mph	60’	85’	75’		
40 mph	90’	120’	100’		
45 mph	120’	150’	125’		



200.7.7.3 Exceptions to Deceleration Lane Requirements. An exception to the deceleration lane requirements will not be considered if the traffic impact study shows traffic would be impeded more than 3% of the total time or more than 5% of the time during peak traffic flow periods. Other unique circumstances may warrant special design considerations and prohibit an exception. The exceptions process is outlined in Section 100.

200.8 CUL-DE-SAC DESIGN

Street network connectivity is an essential component to a successful development, implementing a system of streets with multiple routes and connections serving the same origins and destinations while minimizing dead ends. Developers shall minimize the use of dead-end streets. All permanent dead ends require cul-de-sacs compliant with these standards for the purposes of enabling service and emergency vehicles such as fire trucks and garbage trucks an area to adequately turn around.

200.8.1 HORIZONTAL GEOMETRICS

The following criteria shall be used for cul-de-sac horizontal geometry.

- The cul-de-sac geometrics provided exceed international fire code requirements for a dead-end fire apparatus access road turnaround.
- The minimum right-of-way radius shall be sixty (60) feet.
- The minimum edge of asphalt (EOA) radius shall be forty-six and one-half (46.5) feet.
- A five (5) foot boulevard and five (5) foot detached sidewalk shall be included along the cul-de-sac.
- The maximum length of the cul-de-sac as measured along the centerline, from extended property lines on the open end to the farthest side of the circumference of the cul-de-sac shall be five hundred (500) feet.
- Sidewalk crossings/mid-block accessible curb ramps shall be provided every 400 feet at a minimum along the roadway.
- See Figure 200-10 for additional information on minimum horizontal design requirements.

200.8.2 GRADING AND STORM DRAINAGE DESIGN

- The vertical alignment shall be in accordance with Section 200.5.4 of these design standards.
- The minimum longitudinal slope for the asphalt pavement shall be 1% and curb and gutter shall be 0.8%.
- Cul-de-sac grades shall not exceed 5%.
- Cul-de-sacs shall typically be designed to drain towards the roadway. Sumps within the cul-de-sac are discouraged and should only be used if topographically necessary.
- For cul-de-sacs that will have a road sump, provide an emergency overland flow path adjacent to the inlet(s) within the sump and provide lowest adjacent grade (lag) elevations for buildings on adjacent lots. A storm drainage easement shall also be provided, which shall be wide enough to fully encompass the flow path for the major storm event & storm pipe (minimum 20'). This easement may also be used for public sidewalk access and/or utilities, if necessary.
- See Figure 200-11 for additional information on minimum design requirements pertaining to cul-de-sac grading and drainage.

200.8.3 CONNECTIVITY CORRIDORS

Although cul-de-sacs create vehicular dead-ends, it is important to provide pedestrian and bicycle connections with other adjacent roadways and/or neighborhoods. Corridors with sidewalks and/or recreation paths shall be provided from the cul-de-sac to adjacent roadways, other public venues and/or open space areas. These areas can also be utilized as utility and storm drainage corridors when necessary and as required by the City Engineer.

200.8.4 CUL-DE-SACS AT END OF DEVELOPMENT BOUNDARIES

Roadways ending at a development boundary line that are 150 feet or greater distance from the nearest intersection, require a means of turnaround meeting IFC standards. For local and local collector roadways, cul-de-sacs shall be installed as shown in Figure 200-12. Alternatively, the developer may obtain an offsite access easement and construct a temporary gravel cul-de-sac turnaround on the adjacent property.

200.8.5 TEMPORARY CUL-DE-SACS

Any temporary dead-end street, due to phasing of a development project, shall require a temporary means of turnaround for emergency and service vehicles if the end of the street is over 150 feet long from the nearest intersection or has more than one lot fronting the street.

All temporary turnarounds shall meet IFC standards for dead-end fire apparatus access roads. Curb and gutter, sidewalk, and pavement are not required. Gravel or asphalt millings may be used for surfacing, using a minimum depth of 6 inches. Subgrade shall be prepared per the City Construction Standards.

200.9 CONSTRUCTION TRAFFIC CONTROL

200.9.1 PEDESTRIAN ACCOMMODATIONS THROUGH WORK ZONES

When pedestrian facilities are impacted due to maintenance or construction, pedestrian accommodation must be provided to the maximum extent feasible. These accommodations must have accessibility features up to the level of the disturbed route. Signage and temporary barricades must be provided to direct pedestrians safely through the work zone.

Temporary pedestrian access routes shall be designed in compliance with Public Rights-of-Way Accessibility Guidelines and Manual on Uniform Traffic Control Devices requirements.

200.9.2 VEHICULAR TRAFFIC

Construction work zone traffic shall be controlled by signs, barricades, detours, etc., which are designed and installed in accordance with the Manual on Uniform Traffic Control Devices, latest edition. A traffic control plan shall be submitted to and approved by city staff, prior to start of any construction. The South Dakota Department of Transportation (SDDOT) standard traffic control plates may be utilized as part of the traffic control plan.

For construction of new facilities, traffic control should strive to keep the motorist from entering the facility. The primary means to accomplish this are by use of temporary barricades, located in advance of the construction area, and with appropriate signing. New construction shall neither be opened to traffic, nor shall the construction traffic control removed, without the approval of the Project Engineer and the City Engineer.

The details of the traffic control plan must be shown on a map. For minor projects or local roadways, a neat sketch of the roadways and the proposed control devices will suffice. For major projects or major roadways, the traffic control plan shall be superimposed on as-builts, construction plan drawings, or other detailed map.

The Manual on Uniform Traffic Control Devices, latest edition, shall be the basis upon which the traffic control plan is designed, in concert with proper, prudent, and safe engineering practice. All necessary signing, striping, coning, barricading, flagging, etc., shall be shown on the plan.

200.10 OFF-STREET PARKING REQUIREMENTS

Parking shall be provided in accordance with the parking requirements of the applicable city of Spearfish Ordinance 156.062 'Minimum Off-Street Parking Requirements'.

200.11 STREET LIGHTING

Street lighting shall be provided along all newly developed and dedicated public streets. Street lighting shall also be provided along all existing roadways adjacent to a development if there is currently no existing lighting or it doesn't meet minimum current lighting standards/spacing. In general, streetlight poles shall be placed within the boulevard area between the curb and the sidewalk. See Section 700 of these standards for further street lighting requirements.

200.12 SIGNING AND STRIPING

Signing and striping plans for new streets and existing streets necessitated by development shall be submitted as part of the construction plans. Signing and striping plans shall include, but not be limited to, all appropriate and applicable regulatory, warning, and guide signs and striping materials in accordance with the current Manual on Uniform Traffic Control Devices (MUTCD), City standards and construction specifications. Said plans shall also include street name signs as appropriate and applicable.

200.12.1 STRIPING REQUIREMENTS ALONG ROADWAY

Striping is generally not required along local and local collector streets. In general, high build paint shall be utilized on arterial and collector roads for all line and symbol markings.

200.12.1.1 Arterial Roads. Grooving shall be required for all line markings and symbol markings shall be inlayed into the pavement. Bike lane symbols require grooving when thermoplastic installation is required, no grooving is required when the symbols are required to be painted on. The method of installation will be determined on a project by project basis.

200.12.1.2 Collector Roads. Line and symbol markings may be directly installed on the pavement surface.

200.12.2 STRIPING REQUIREMENTS AT INTERSECTIONS

Intersections with arterial and/or collector roads shall include the following.

200.12.2.1 Intersections with Traffic Signals. In general, thermoplastic material shall be used for all line and symbol markings at intersections with traffic signals, with the exception of high build paint material used for bike lane symbols and skip/lane lines. Use of the thermoplastic shall extend from the intersection crosswalks to a minimum of 100 feet away from the intersection or to the end of the exclusive left turn lane taper, whichever is longer. Line markings shall be grooved, and symbols shall be inlaid into the pavement.

200.12.2.2 Intersections with Stop Control on Side Street. In general, high build paint shall be used for all line and symbol markings at intersections with stop-controlled side streets. Line and symbol markings may be directly installed on the pavement surface.

Exceptions for the through street include the use of thermoplastic material for exclusive left turn lanes (all turn lane lines and symbols) as well as crosswalks located across the through street. These line markings shall be grooved, and symbols shall be inlaid into the pavement.

200.12.3 SIGNING REQUIREMENTS

The use of breakaway sign supports shall conform to the current edition of the MUTCD, Roadside Design Guide, and FHWA guidelines. Breakaway posts are required for all signs placed along roadways, regardless of the posted speed limit. Decorative street signs or signposts installed by a developer that do not comply with these standards are prohibited.

Multiple signs may be placed on one post, where allowed by the MUTCD. In general, the maximum number of signs on one post shall be three. However, this number may be reduced based on sign size.

200.12.4 ON-STREET BIKE LANES

Bike lane widths shall be as shown in Figure 200-01. For streets with no parking, a 4” solid white bike lane line marking shall be installed parallel with the gutter and spaced the specified width from the lip of gutter. For streets with parking, a 4” white solid lane line shall be installed along each side of the bike lane.

A bike lane sign (R3-17) shall be used to designate on-street bike lanes. The sign shall be 24” x 18”. The bike lane sign should be placed adjacent to the symbol, where possible. The sign may be placed before or after the symbol as necessary to utilize existing poles or combine signs on one post.

The helmeted rider and arrow symbol shall be used after each street intersection and at evenly spaced intervals not to exceed 600 feet in between intersections. Symbols shall be placed 50 feet from the end of the curb radius return.

An “Ends” plaque (R3-17bP) shall be used where a bike lane terminates on a corridor. The sign shall be 24” x 8”. A 30” x 30” bicycle merge sign (W9-XX) shall be included at the top of the signpost. Additional signage shall be placed on a separate post within 100 feet after the end of the bike lane which includes a 30” x 30” “Share the Road” sign with bicycle and car symbols and a “May Use Full Lane with Change Lanes to Pass” sign (R4-11) placed directly below.

200.13 DRAINAGE

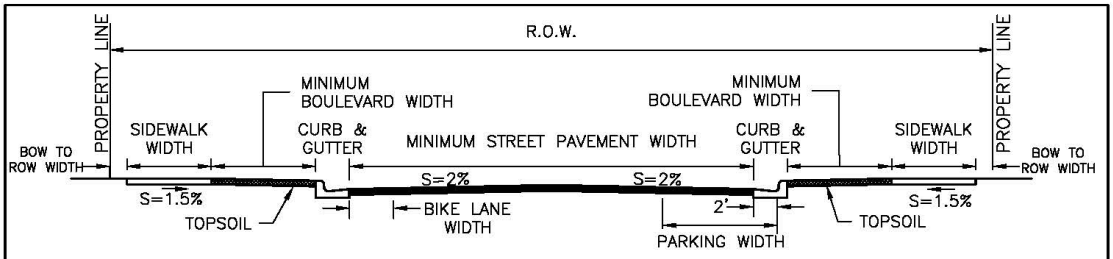
All streets shall be designed to provide continuous surface drainage directed to storm drain inlets and drainage courses. Grades shall permit flow without ponding. Inlets shall be located to intercept the curb flow at the point flow capacity is exceeded by storm runoff according to the Design Standards. Inlets shall also be installed to intercept cross-pavement flows at points of transition in superelevation. Due to the presence of accessible curb ramps, inlets shall not be allowed in the curb return but shall be located outside the tangent points of the curb returns. Gutter transition sections abutting inlets shall not be within the curb return.

Concrete cross-pans shall be installed across those streets at intersections where traffic is required to stop. The installation of cross-pans between intersections or across streets carrying through traffic at intersections shall be avoided in all cases. Cross-pans are not permitted across collector or arterial roadways.

Storm water from concentrated points of discharge shall not be allowed to flow over sidewalks but shall drain to the roadway or storm inlet by use of chase sections. Sidewalk chase sections shall not be located within a curb cut or driveway. Hydraulic design shall be in accordance with the Design Standards. Sidewalk chases will only be used to allow surface drainage to enter into the street gutter, rather than being used to avoid the use of a standard inlet.

A check shall be made to be sure of the continuity of drainage design between the proposed construction and existing and/or future construction. In no case will a proposed street section be allowed to utilize road ditch drainage when it is connecting to an existing street that contains curb and gutter. In no case shall surface drainage be permitted to be disposed of overland except by approved storm drainage facilities. Sheet flow across road sections will not be allowed. See Section 500 for more specific requirements.

END OF SECTION



	ALLEY (see note 1)	HILLSIDE ACCESS (see note 2)	LOCAL	LOCAL COLLECTOR 2-LANE	COLLECTOR 3-LANE	ARTERIAL 5-LANE (see note 2)
MINIMUM RIGHT-OF-WAY WIDTH	20 FEET	33 FEET	54 FEET	51 FEET (See Note 4a)	62 FEET (See Note 4a)	102 FEET
MINIMUM STREET PAVEMENT WIDTH	16 FEET	21 FEET	27 FEET	22 FEET (See Note 4a)	33 FEET (11' TURN LANE) (See Note 4a)	56 FEET (12' TURN LANE)
CURB & GUTTER	NOT REQUIRED	2.67 FEET TYPE B	2.67 FEET TYPE D	2.67 FEET TYPE B OR D	2.67 FEET TYPE B OR D	2.67 FEET TYPE B
MINIMUM ON-STREET BIKE LANE WIDTH	NOT REQUIRED	NOT REQUIRED	NOT REQUIRED	NOT REQUIRED	CASE BY CASE (See Notes 4,4a-b) 4 FEET IF USED	5 FEET
MINIMUM BOULEVARD WIDTH	NOT REQUIRED	3.67 FEET	5 FEET	5 FEET	5 FEET	5 FEET
MINIMUM SIDEWALK WIDTH	NOT REQUIRED	5 FEET ONE SIDE	5 FEET BOTH SIDES	6 FEET BOTH SIDES* (See Notes 4a,d)	6 FEET BOTH SIDES* (See Notes 4,4a,c-d)	6 FEET ONE SIDE 10 FEET ONE SIDE
MINIMUM B.O.W. TO R.O.W. WIDTH	2'	NOT APPLICABLE	0.83'	0.83' (See Notes 4a,c-d)	0.83' (See Notes 4a,c-d)	2.33'
MINIMUM ON-STREET PARKING-WIDTH	NOT PERMITTED	NOT PERMITTED	BOTH SIDES	CASE BY CASE (See Notes 4, 4,4a,e-f) 8 FEET IF USED	CASE BY CASE (See Notes 4, 4,4a,e-f) 8 FEET IF USED	NOT PERMITTED

1) THE ALLEY ROAD CROSS SECTION SHALL BE A SUPER ELEVATION OF 2-4% (ASPHALT) OR AN INVERTED CROWN (CONCRETE).

2) SEE FIGURE 200-02 FOR CRITERIA ON THE INTERIM STREET SECTION FOR NEW ARTERIALS, FIGURES 200-03 & 200-04 FOR ADDITIONAL CRITERIA ON THE HILLSIDE ACCESS ROAD, AND FIGURES 200-10, 200-11 AND 200-12 FOR CUL-DE-SAC DETAILS.

3) A SIDEWALK WHICH IS 10 FEET WIDE, HAS A MINIMUM 5' BOULEVARD AND A MINIMUM 2' CLEARANCE FROM B.O.W. TO R.O.W. SHALL BE DEFINED AS A 'SIDEPATH'.

4) INCLUSION OF THESE SEGMENTS OF THE ROADWAY SECTION SHALL BE DETERMINED ON A CASE BY CASE BASIS AT TIME OF DEVELOPMENT AND SHALL DEPEND ON THE SCALE AND DENSITY OF THE DEVELOPMENT, SURROUNDING LAND USE, MULTI-MODAL RECOMMENDATIONS WITHIN THE TRAFFIC IMPACT STUDY (TIS) FOR THE DEVELOPMENT, OPPORTUNITIES FOR CONNECTIVITY TO EXISTING FACILITIES AND OTHER FACTORS NOTED WITHIN AN ADOPTED CITY MASTER PLAN.

a) STREET PAVEMENT, 'B.O.W. TO R.O.W.' AND R.O.W. WIDTHS NOTED WITHIN THE TABLE ABOVE SHALL BE INCREASED ACCORDINGLY WHEN SEGMENTS DISCUSSED WITHIN 4b-4f ARE INCLUDED AND/OR WIDENED.

b) IN GENERAL, ON-STREET BIKE LANES WILL TYPICALLY BE INCLUDED WITHIN THE COLLECTOR ROAD SECTION. IF INCLUDED, INCREASE PAVEMENT WIDTH 8' AND R.O.W. WIDTH 8'.

c) IF ON-STREET BIKE LANES ARE NOT ADDED, ONE 6' SIDEWALK SHALL BE CHANGED TO A 10' SIDEPATH. WHEN A SIDEPATH IS INCLUDED, INCREASE SIDEWALK WIDTH 4','B.O.W. TO R.O.W.' WIDTH 1.5' AND R.O.W. WIDTH 5.5'.

d) ONE SIDEWALK SHALL ALSO BE REQUIRED TO BECOME A 10' WIDE SIDEPATH IF IT IS IDENTIFIED WITHIN AN ADOPTED CITY MASTER PLAN TO PROVIDE A PATH ALONG SAID ROADWAY. THE CITY WILL PAY AN 'UPSIZE COST' FOR THE EXTRA WIDTH ON A COLLECTOR STREET IF ON-STREET BIKE LANES ARE ALSO ADDED.

e) IF PARKING IS INCLUDED ON ONE SIDE, INCREASE PAVEMENT WIDTH 6' AND R.O.W. WIDTH 6'.

f) IF PARKING IS INCLUDED ON BOTH SIDES, INCREASE PAVEMENT WIDTH 12' AND R.O.W. WIDTH 12'.

5) SEE TABLE IN SECTION 4.3.4 FOR MINIMUM PAVEMENT SECTIONS. A PAVEMENT DESIGN SHALL BE PREPARED BY A GEOTECHNICAL ENGINEER AS WELL AND THE GREATER SECTION SHALL BE USED. FOLLOW THE GEOTECHNICAL REPORT FOR SUBGRADE PREPARATION. BASE COURSE TO BE INSTALLED 1' PAST THE BACK OF CURB/GUTTER AND 0.5' PAST THE SIDEWALK.

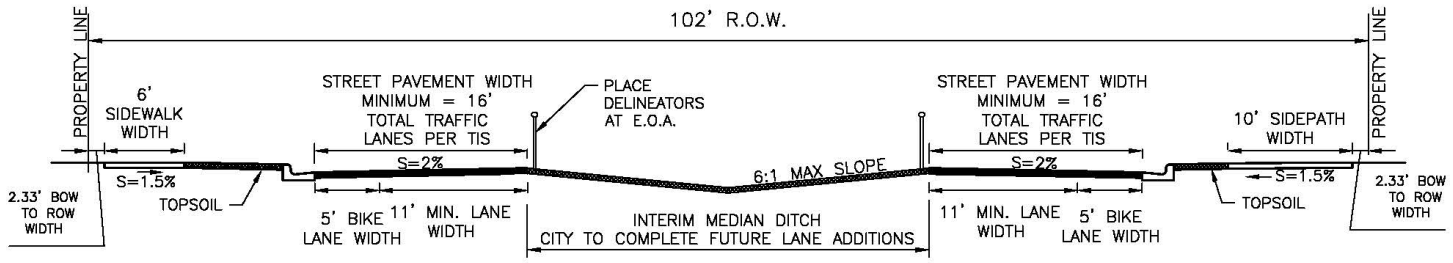
6) ADDITIONAL RIGHT-OF-WAY WIDTH FROM THAT SHOWN IN THE TABLE ABOVE MAY BE REQUIRED AT INTERSECTIONS TO ACCOUNT FOR ADDITIONAL TURN LANES, MEDIANS, CORNER SIDEWALK CONNECTIONS, ETC.

Public Works Department

City of Spearfish

PUBLIC STREET & R.O.W. CRITERIA

DATE 12/20/2024
REVISED 00/00/00
SECTION FIGURE
200-01



NOTES:

1) FOR NEW ARTERIAL ROADWAYS, THE TIS SHALL IDENTIFY THE TOTAL NUMBER OF TRAFFIC LANES THAT ARE REQUIRED TO ADEQUATELY SERVICE THE DEVELOPMENT INCLUDING TURN LANES AT INTERSECTIONS. AT A MINIMUM, ONE TRAFFIC LANE EACH WAY SHALL BE CONSTRUCTED AT TIME OF DEVELOPMENT. IF THE FULL STREET SECTION IS NOT REQUIRED WITHIN THE TIS, THEN THE CITY OF SPEARFISH WILL BE RESPONSIBLE FOR WIDENING THE ROADWAY TO THE ULTIMATE 5-LANE SECTION IN THE FUTURE, WHEN NECESSARY.

2) A SIDEWALK WHICH IS 10 FEET WIDE, HAS A MINIMUM 5' BOULEVARD AND A MINIMUM 2' CLEARANCE FROM B.O.W. TO R.O.W. SHALL BE DEFINED AS A 'SIDEPATH'.

3) SEE TABLE IN SECTION 4.3.4 FOR MINIMUM PAVEMENT SECTIONS. A PAVEMENT DESIGN SHALL BE PREPARED BY A GEOTECHNICAL ENGINEER AS WELL AND THE GREATER SECTION SHALL BE USED. FOLLOW THE GEOTECHNICAL REPORT FOR SUBGRADE PREPARATION. BASE COURSE TO BE INSTALLED 1' PAST THE BACK OF CURB/GUTTER AND 0.5' PAST THE SIDEWALK.

4) ADDITIONAL RIGHT-OF-WAY WIDTH FROM THAT SHOWN IN THE TABLE ABOVE MAY BE REQUIRED AT INTERSECTIONS TO ACCOUNT FOR ADDITIONAL TURN LANES, MEDIANS, CORNER SIDEWALK CONNECTIONS, ETC.

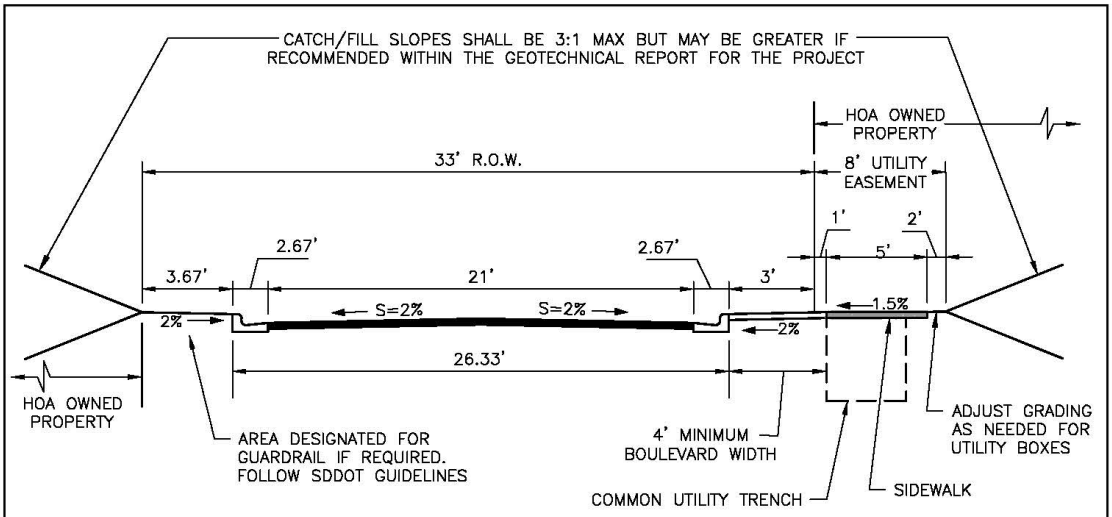
	INTERIM SECTION: ARTERIAL 5-LANE
MINIMUM RIGHT-OF-WAY WIDTH	102 FEET
MINIMUM STREET PAVEMENT WIDTH	MINIMUM 16'; # OF TRAFFIC LANES PER TIS (USE 11' TRAFFIC LANES, 12' TURN LANE)
CURB & GUTTER	2.67 FEET TYPE B
MINIMUM ON-STREET BIKE LANE WIDTH	5 FEET
MINIMUM BOULEVARD WIDTH	5 FEET
MINIMUM SIDEWALK WIDTH	6 FEET ONE SIDE 10 FEET ONE SIDE
MINIMUM B.O.W. TO R.O.W. WIDTH	2.33'
MINIMUM ON-STREET PARKING-WIDTH	NOT PERMITTED

Public Works Department

City of Spearfish

PUBLIC STREET & R.O.W. CRITERIA INTERIM SECTION FOR NEW ARTERIAL

DATE 12/20/2024
REVISED 00/00/00
SECTION FIGURE
200-02



THE INTENTION OF THE HILLSIDE STREET IS TO INCREASE OPPORTUNITIES TO ACCESS AREAS OF POTENTIAL DEVELOPMENT WHICH CAN ONLY BE REACHED THROUGH AREAS OF STEEP TOPOGRAPHY. THE HILLSIDE SECTION ALLOWS FOR THE DESIGN OF A STEEPER ROAD WITH A SMALLER WIDTH/SECTION THAT MAY BE USED THROUGH THESE AREAS OF STEEP TERRAIN IF ACCESS WOULD NOT OTHERWISE BE ATTAINABLE UTILIZING STANDARD CITY ROAD SECTIONS.

* THE HILLSIDE ROAD SECTION ALLOWS FOR UP TO A 12% MAXIMUM PROFILE SLOPE. REDUCED ROAD WIDTH DOES NOT ALLOW FOR PARKING ALONG THIS SECTION.
* IF THIS ROAD SECTION IS UTILIZED, THE CITY OF SPEARFISH WILL OWN AND MAINTAIN THE ROAD AND INFRASTRUCTURE WITHIN THE DEDICATED RIGHT-OF-WAY.
* NO DEVELOPABLE LOTS SHALL BE ALLOWED ALONG THE HILLSIDE STREET SECTION. THE CATCH/FILL SLOPE AREAS ADJACENT TO THIS ROAD SECTION WOULD BE REQUIRED TO BE OPEN SPACE DEDICATED TO A HOMEOWNER'S ASSOCIATION.
* WHEN TOPOGRAPHY ALLOWS, TRANSITION TO THE RELEVANT STANDARD STREET SECTION WITH A MAXIMUM SLOPE OF 8% AND BEGIN SUBDIVISION DEVELOPMENT.
* SEE TABLE BELOW FOR ADDITIONAL REQUIREMENTS.

CENTERLINE RADIUS REQUIREMENTS FOR ROADWAY CURVES		
CENTERLINE RADIUS	85' TO 250'	> 250'
CROSS SLOPE	4% SUPERELEVATION	2% CROWN
CURVE MAX PROFILE SLOPE	7%	12%
MINIMUM TANGENT LENGTH & CROWN TO SUPERELEVATION TRANSITION	75 FEET	NA
TANGENT MAX PROFILE SLOPE	7%	NA

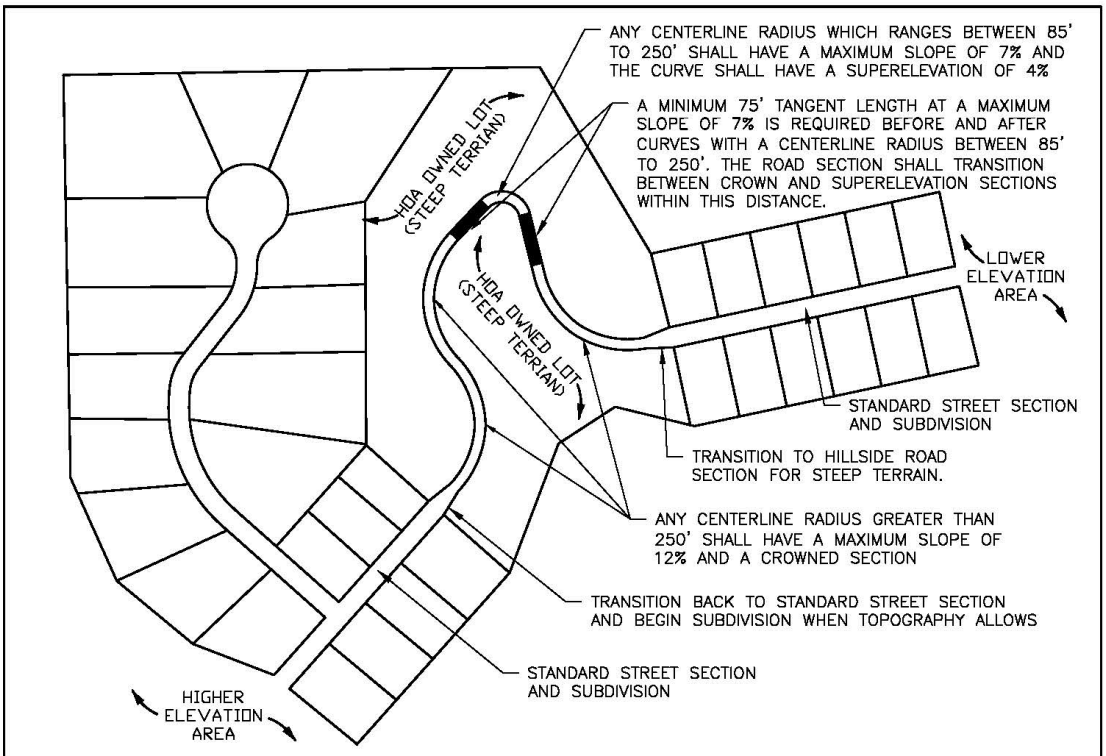
* THE MINIMUM CENTERLINE RADIUS SHALL BE 85'.
* ROADWAY CURVES WITH A CENTERLINE RADIUS RANGING BETWEEN 85' TO 250' SHALL HAVE A MAXIMUM PROFILE SLOPE OF 7% AND SHALL HAVE A SUPERELEVATION OF 4%. A MINIMUM 75' TANGENT LENGTH AT A MAXIMUM PROFILE SLOPE OF 7% IS ALSO REQUIRED BEFORE AND AFTER THESE CURVES. THE ROAD SHALL TRANSITION BETWEEN CROWN AND SUPERELEVATION SECTIONS WITHIN THE 75' TANGENTS.
** ADVANCED WARNING SIGNS FOR THE CURVE SHALL BE PLACED PRIOR TO THE START OF THE CURVE PER MUTCD STANDARDS.
** STORM SEWER INLETS SHALL TYPICALLY BE INSTALLED JUST UPSTREAM OF THE CROWN TO SUPERELEVATION TRANSITION TO MINIMIZE CONCENTRATED STORM DRAINAGE FLOWS FROM SHEETING ACROSS THE ROADWAY.
** TRANSITION TO A STANDARD STREET SECTION AND BEGIN SUBDIVISION DEVELOPMENT WHEN TOPOGRAPHY ALLOWS.
* ROADWAY CURVES WHICH HAVE A CENTERLINE RADIUS GREATER THAN 250' SHALL HAVE A CROWN SECTION AND A MAXIMUM PROFILE SLOPE OF 12%.
* THE POSTED SPEED LIMIT FOR THIS ROAD SECTION WILL BE 25 MPH.

Public Works Department

City of Spearfish

HILLSIDE ACCESS ROAD ROW CRITERIA

DATE 06/12/23
REVISED 00/00/00
SECTION FIGURE
200-03



Public Works Department

City of Spearfish

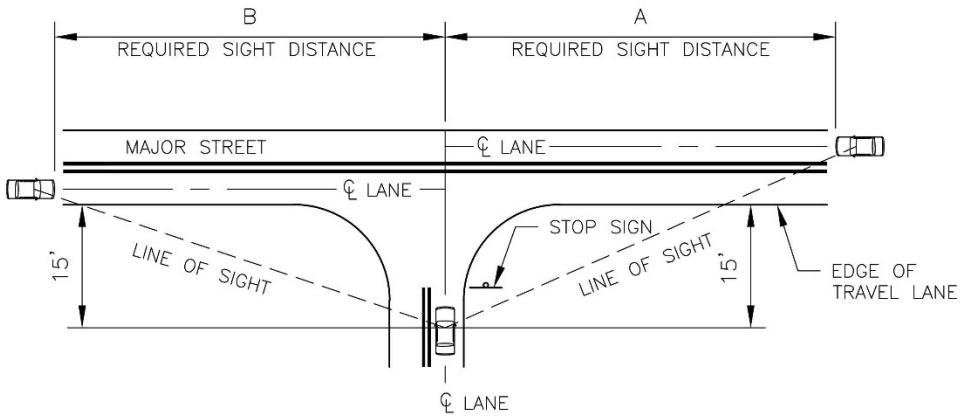
HILLSIDE ACCESS ROAD PLAN & PROFILE EXAMPLE

DATE	REVISED	SECTION	FIGURE
06/12/23	00/00/00		200-04

POSTED SPEED LIMIT OF MAJOR STREET		25	30	35	40	45	50
DISTANCE A (FEET)	PASSENGER CAR	280	335	390	445	500	555
	TRUCK	425	510	600	680	765	850
DISTANCE B (FEET)	PASSENGER CAR	240	290	335	385	430	480
	TRUCK	390	465	540	620	700	775

NOTES:
THE VALUES CITED ASSUME TURNS ONTO A TWO–LANE STREET WITH NO MEDIAN AND GRADES OF 3% OR LESS.
FOR OTHER CONDITIONS, THE SIGHT DISTANCE MUST BE ADJUSTED AS PER AASHTO GUIDELINES.

THE VALUE FOR TRUCKS SHALL BE APPLIED IN COMMERCIAL AND INDUSTRIAL ZONED AREAS.



Public Works Department

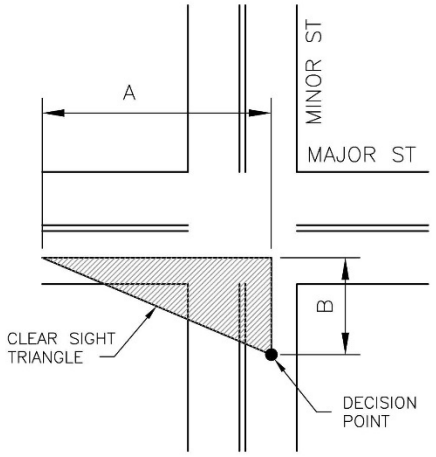
City of Spearfish

INTERSECTION SIGHT DISTANCE STOP-CONTROLLED

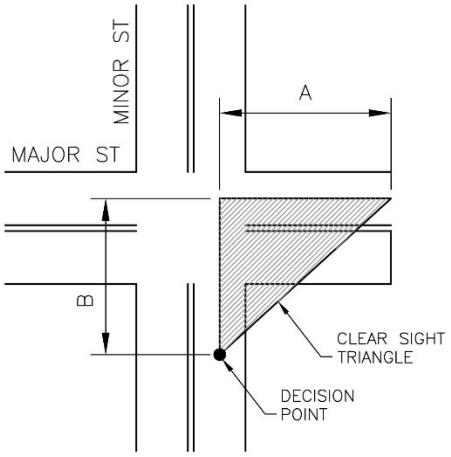
DATE 03/28/22
REVISED 00/00/00
SECTION FIGURE
200-05

POSTED SPEED LIMIT OF MAJOR STREET		25	30	35	40	45	50
DISTANCE A (FEET)	PASSENGER CAR	240	290	335	385	430	480
POSTED SPEED LIMIT OF MINOR STREET		25	30	35	40	45	50
DISTANCE B (FEET)	PASSENGER CAR	130	160	195	235	275	320

NOTES
THE VALUES CITED ASSUME A TWO–LANE MAJOR STREET WITH NO MEDIAN AND GRADES OF 3% OR LESS. FOR OTHER CONDITIONS, THE SIGHT DISTANCE MUST BE ADJUSTED AS PER AASHTO GUIDELINES.



CLEAR SIGHT TRIANGLE FOR VIEWING TRAFFIC APPROACHING FROM THE LEFT



CLEAR SIGHT TRIANGLE FOR VIEWING TRAFFIC APPROACHING FROM THE RIGHT

Public Works Department

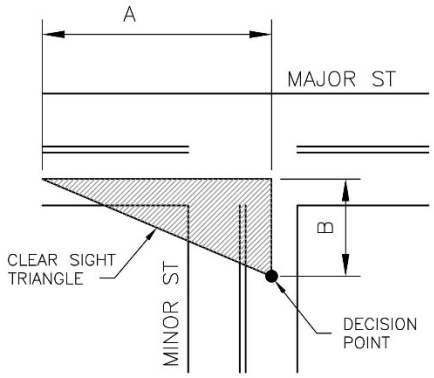
City of Spearfish

INTERSECTION SIGHT DISTANCE YIELD-CONTROLLED W/ 4 LEGS

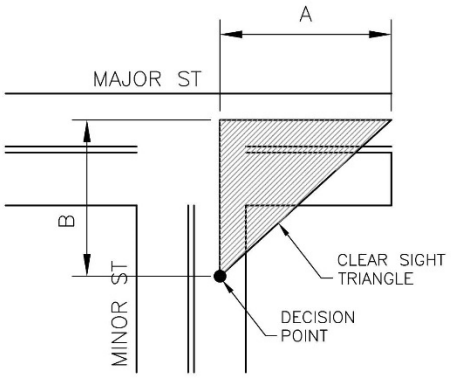
DATE	03/28/22
REVISED	00/00/00
SECTION	FIGURE
200	06

POSTED SPEED LIMIT OF MAJOR STREET		25	30	35	40	45	50
DISTANCE A (FEET)	PASSENGER CAR	295	355	415	475	530	590
POSTED SPEED LIMIT OF MINOR STREET		25	30	35	40	45	50
DISTANCE B (FEET)	PASSENGER CAR	85	85	85	85	85	85

NOTES
THE VALUES CITED ASSUME A TWO–LANE MAJOR STREET WITH NO MEDIAN AND GRADES OF 3% OR LESS. FOR OTHER CONDITIONS, THE SIGHT DISTANCE MUST BE ADJUSTED AS PER AASHTO GUIDELINES.



CLEAR SIGHT TRIANGLE FOR VIEWING TRAFFIC APPROACHING FROM THE LEFT



CLEAR SIGHT TRIANGLE FOR VIEWING TRAFFIC APPROACHING FROM THE RIGHT

Public Works Department

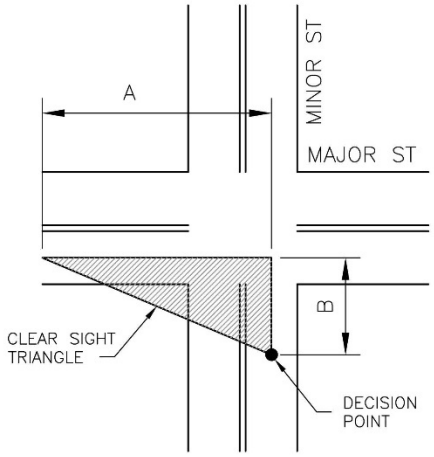
City of Spearfish

INTERSECTION SIGHT DISTANCE YIELD-CONTROLLED & UNCONTROLLED W/ 3 LEGS

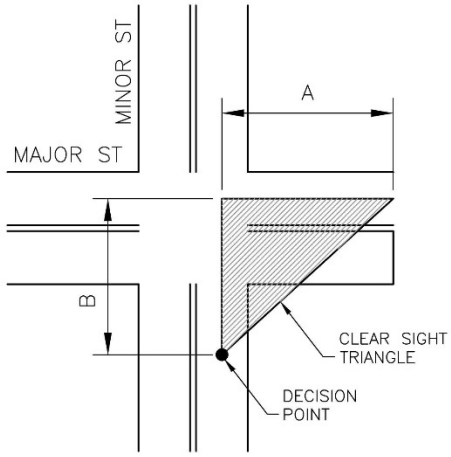
DATE 03/28/22
REVISED 00/00/00
SECTION FIGURE
200-07

POSTED SPEED LIMIT OF MAJOR STREET (MPH)	25	30	35	40	45	50
DISTANCE A (FEET)	115	140	165	195	220	245
POSTED SPEED LIMIT OF MINOR STREET (MPH)	25	30	35	40	45	50
DISTANCE B (FEET)	115	140	165	195	220	245

NOTES
THE VALUES CITED ASSUME GRADES OF 3% OR LESS. FOR OTHER CONDITIONS, THE SIGHT DISTANCE MUST BE ADJUSTED AS PER AASHTO GUIDELINES.



CLEAR SIGHT TRIANGLE FOR VIEWING TRAFFIC APPROACHING FROM THE LEFT



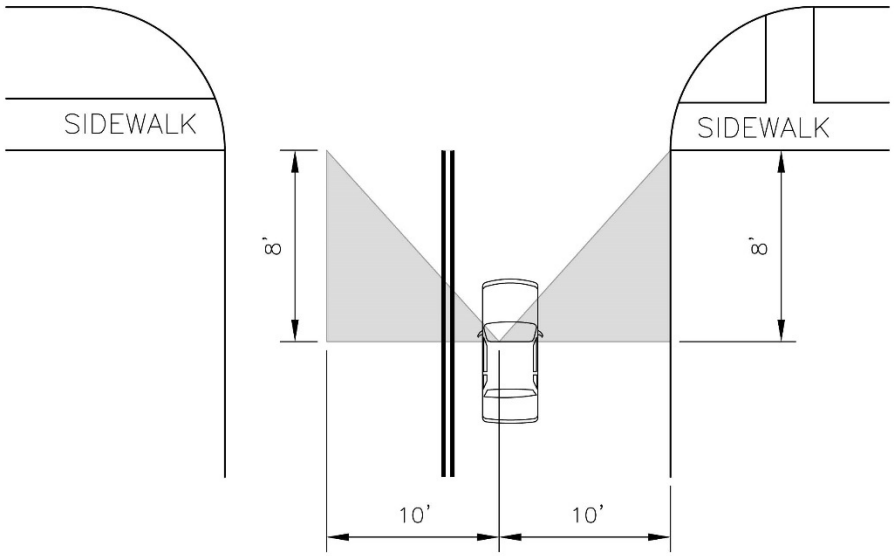
CLEAR SIGHT TRIANGLE FOR VIEWING TRAFFIC APPROACHING FROM THE RIGHT

Public Works Department

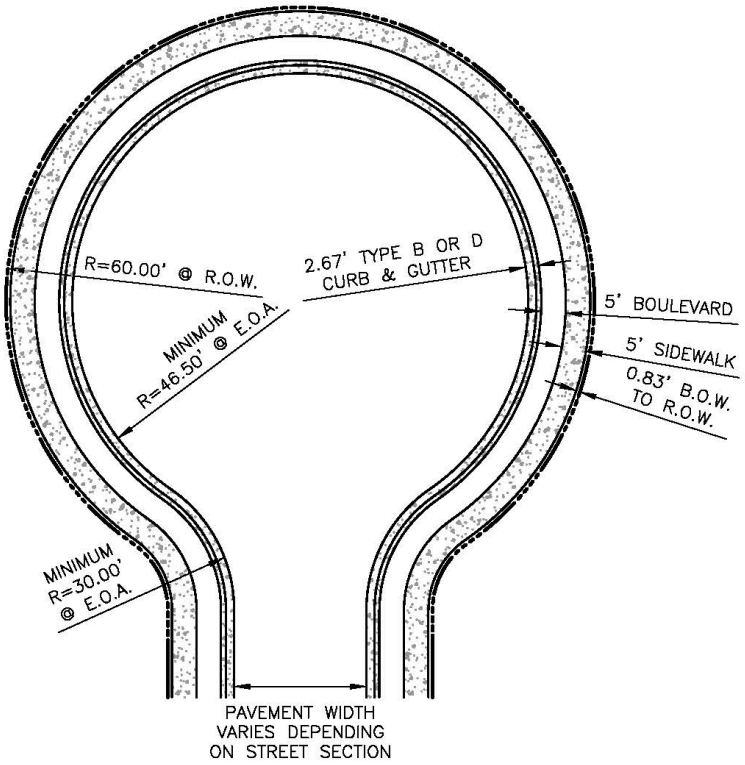
City of Spearfish

INTERSECTION SIGHT DISTANCE UNCONTROLLED W/ 4 LEGS

DATE	03/28/22
REVISED	00/00/00
SECTION	FIGURE
200-08	



Public Works Department	***City of Spearfish***	DATE 03/28/22
		REVISED 00/00/00
	SIGHT TRIANGLE CRITERIA PEDESTRIAN INTERSECTION	SECTION FIGURE 200-09



NOTES:

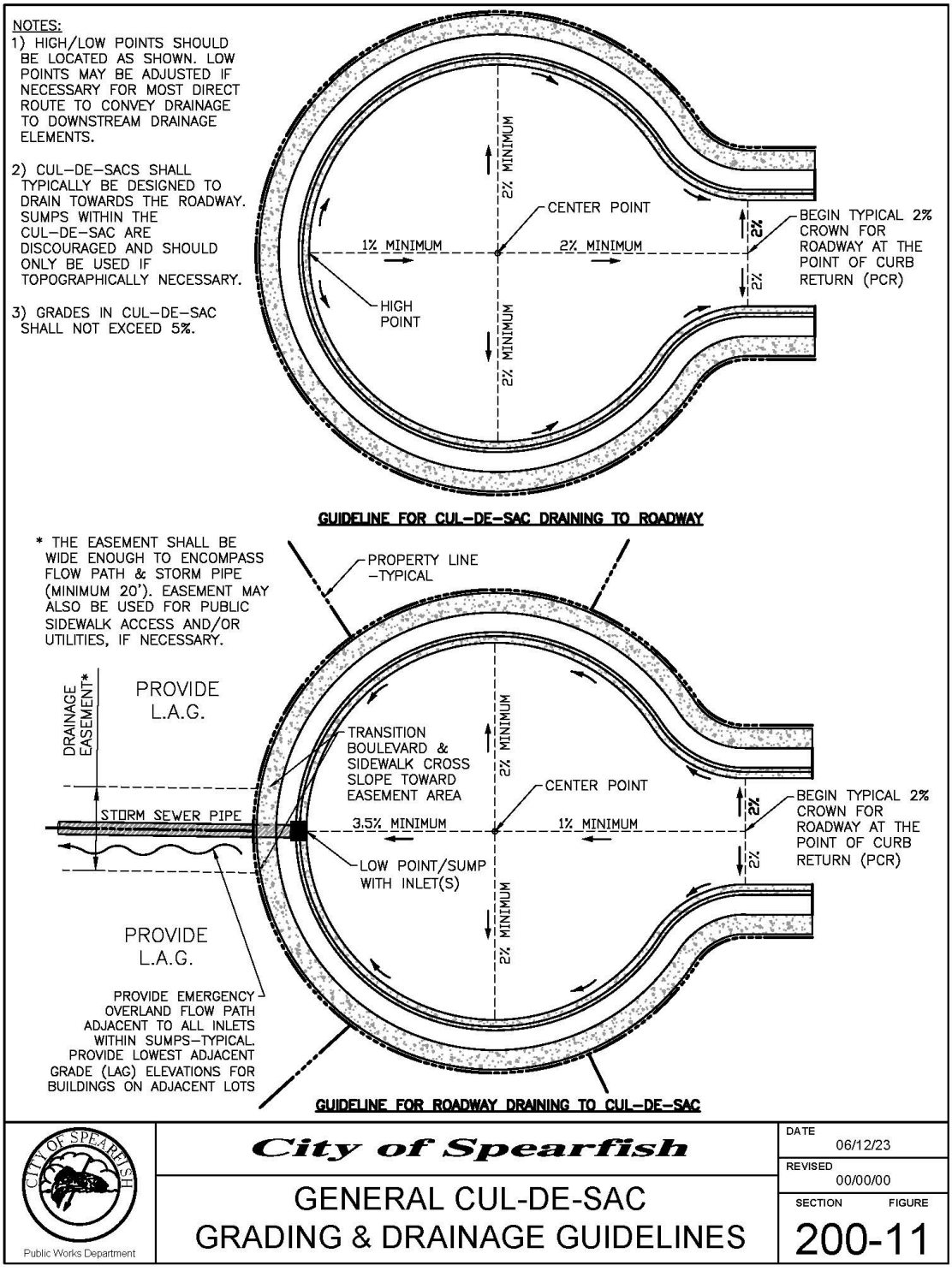
1) THE CUL-DE-SAC GEOMETRICS SHOWN ABOVE MEET OR EXCEED INTERNATIONAL FIRE CODE REQUIREMENTS FOR A DEAD-END FIRE APPARATUS ACCESS ROAD TURNAROUND.

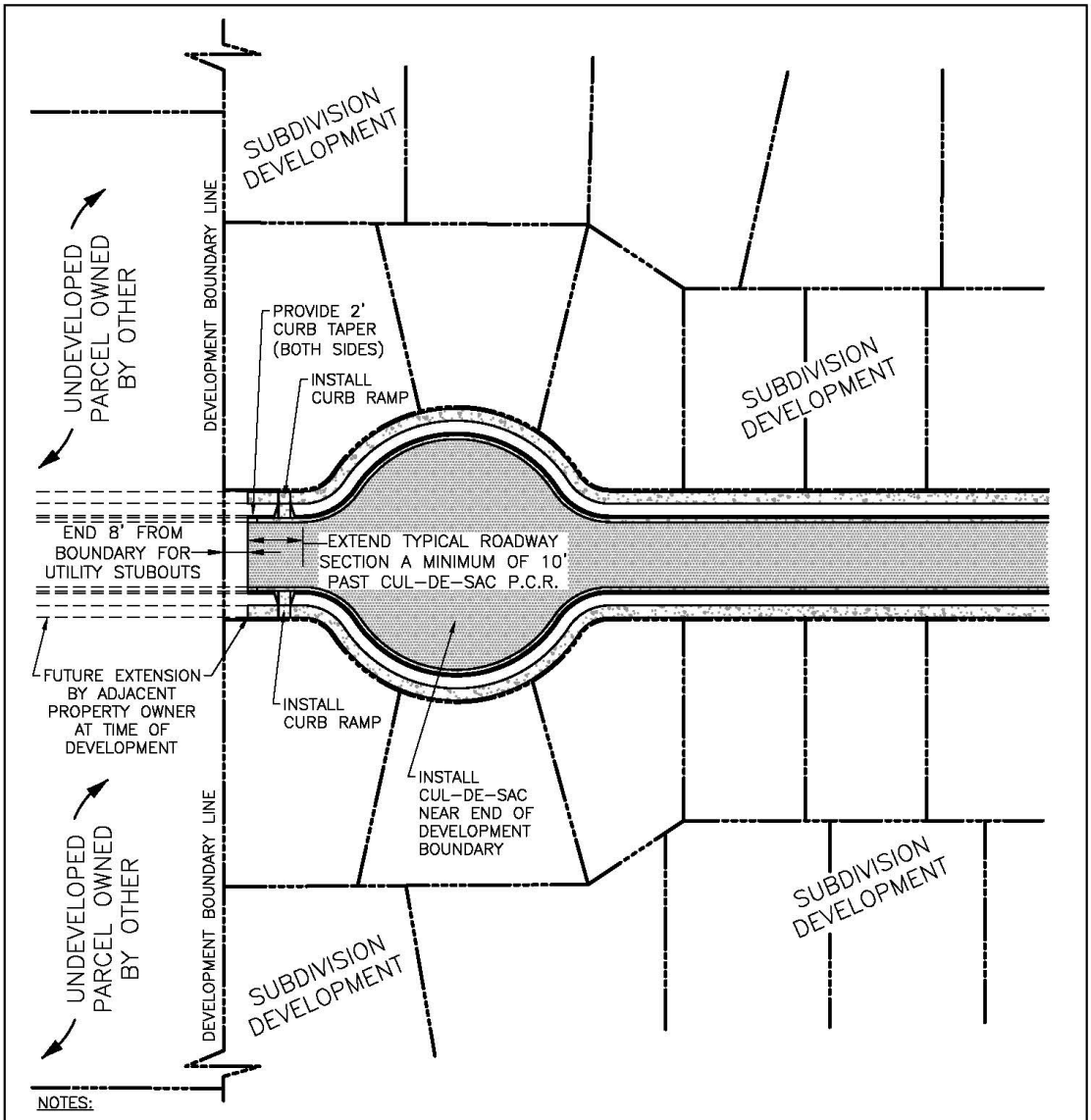
2) ALTHOUGH CUL-DE-SACS CREATE VEHICULAR DEAD-ENDS, IT IS IMPORTANT TO PROVIDE PEDESTRIAN CONNECTIVITY. CORRIDORS WITH SIDEWALKS SHALL BE PROVIDED TO ADJACENT ROADWAYS AND/OR OPEN SPACE AREAS. UTILITY AND STORM DRAINAGE CORRIDORS WILL ALSO BE REQUIRED, WHEN NECESSARY.

3) SIDEWALK CROSSINGS/HANDICAP RAMPS SHALL BE PROVIDED EVERY 400 FEET AT A MINIMUM ALONG THE ROADWAY.

3) SEE STANDARD DETAIL 200-11 FOR TYPICAL GRADING AND STORM DRAINAGE REQUIREMENTS.

CITY OF SPEARFISH Public Works Department	***City of Spearfish***	DATE 06/12/23
		REVISED 00/00/00
	CUL-DE-SAC GEOMETRICS	SECTION FIGURE 200-10


NOTES:
1) HIGH/LOW POINTS SHOULD BE LOCATED AS SHOWN. LOW POINTS MAY BE ADJUSTED IF NECESSARY FOR MOST DIRECT ROUTE TO CONVEY DRAINAGE TO DOWNSTREAM DRAINAGE ELEMENTS.
2) CUL-DE-SACS SHALL TYPICALLY BE DESIGNED TO DRAIN TOWARDS THE ROADWAY. SUMPS WITHIN THE CUL-DE-SAC ARE DISCOURAGED AND SHOULD ONLY BE USED IF TOPOGRAPHICALLY NECESSARY.
3) GRADES IN CUL-DE-SAC SHALL NOT EXCEED 5%.
2% MINIMUM
CENTER POINT
1% MINIMUM
2% MINIMUM
2%
BEGIN TYPICAL 2% CROWN FOR ROADWAY AT THE POINT OF CURB RETURN (PCR)
HIGH POINT
2% MINIMUM
GUIDELINE FOR CUL-DE-SAC DRAINING TO ROADWAY
* THE EASEMENT SHALL BE WIDE ENOUGH TO ENCOMPASS FLOW PATH & STORM PIPE (MINIMUM 20'). EASEMENT MAY ALSO BE USED FOR PUBLIC SIDEWALK ACCESS AND/OR UTILITIES, IF NECESSARY.
PROPERTY LINE -TYPICAL
DRAINAGE EASEMENT*
PROVIDE L.A.G.
TRANSITION BOULEVARD & SIDEWALK CROSS SLOPE TOWARD EASEMENT AREA
2% MINIMUM
CENTER POINT
STORM SEWER PIPE
3.5% MINIMUM
1% MINIMUM
2%
BEGIN TYPICAL 2% CROWN FOR ROADWAY AT THE POINT OF CURB RETURN (PCR)
LOW POINT/SUMP WITH INLET(S)
2%
2% MINIMUM
PROVIDE L.A.G.
PROVIDE EMERGENCY OVERLAND FLOW PATH ADJACENT TO ALL INLETS WITHIN SUMPS-TYPICAL. PROVIDE LOWEST ADJACENT GRADE (LAG) ELEVATIONS FOR BUILDINGS ON ADJACENT LOTS
GUIDELINE FOR ROADWAY DRAINING TO CUL-DE-SAC
CITY OF SPEARFISH
Public Works Department
City of Spearfish
GENERAL CUL-DE-SAC
GRADING & DRAINAGE GUIDELINES
DATE
06/12/23
REVISED
00/00/00
SECTION
FIGURE
200-11



NOTES:

1) ALL LOCAL AND LOCAL COLLECTOR ROADWAYS ENDING AT A DEVELOPMENT BOUNDARY LINE THAT ARE 150 FEET OR GREATER DISTANCE FROM THE NEAREST INTERSECTION, REQUIRE A MEANS OF TURNAROUND FOR THE GENERAL PUBLIC AS WELL AS EMERGENCY AND SERVICE VEHICLES INCLUDING FIRE TRUCKS, GARBAGE TRUCKS AND SNOW PLOW EQUIPMENT. CUL-DE-SACS SHALL BE INSTALLED, AS SHOWN. ALTERNATIVELY, THE DEVELOPER MAY OBTAIN AN OFFSITE PUBLIC ACCESS EASEMENT AND CONSTRUCT A TEMPORARY GRAVEL CUL-DE-SAC TURN-AROUND ON THE ADJACENT PROPERTY.

2) DRIVEWAYS FOR LOTS LOCATED AT THE END OF THE ROADWAY SHALL BE LOCATED IN THE CUL-DE-SAC.

CITY OF SPEARFISH Public Works Department	***City of Spearfish***	DATE 06/12/23
		REVISED 00/00/00
	CUL-DE-SAC LAYOUT NEAR DEVELOPMENT BOUNDARY	SECTION FIGURE 200-12

SECTION 300

CITY OF SPEARFISH
ENGINEERING DESIGN STANDARDS
WASTEWATER COLLECTION SYSTEMS

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300.1.4 PROVISIONS FOR FUTURE EXTENSION 3

300.1.5 MOBILE HOME PARKS AND ONE OWNER MULTI-RESIDENTIAL COMPLEXES, EXCLUDING APARTMENT HOUSES 3

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SECTION 300

CITY OF SPEARFISH
ENGINEERING DESIGN STANDARDS
WASTEWATER COLLECTION SYSTEMS

300.1 GENERAL REQUIREMENTS

300.1.1 DESIGN STANDARDS

The design of wastewater collection systems shall be in conformance with the chapter. All collection systems shall be designed and sealed by a licensed engineer in the state of South Dakota. Where design information is not provided herein, the most current edition of the following standards shall be used:

- City of Spearfish Design Standards, Standard Construction Specifications, and Standard Details.
- Requirements and Standards of the South Dakota Department of Agriculture and Natural Resources (SD DANR).
- Recommended Standards for Wastewater Facilities Great Lakes—Upper Mississippi River Board of State Public Health and Environmental Managers Edition (Ten State Standards).
- South Dakota State Plumbing Code.
- Uniform Plumbing Code of International Association of Plumbing and Mechanical Officials.

In case of a conflict between the above design standards, the most restrictive requirement shall apply.

300.1.2 REQUIRED LOCATIONS OF SEWER MAINS

300.1.2.1 Sewer Mains within Public Right-of-Way. Sewer mains will be located within the public-of-way and in the paved street section, except as approved by the City Engineer. Sewer mains and manholes shall not be located in the centerline of the street or within the curb and gutter section. Mains shall be parallel with, and a minimum of 6 feet from, the lip of gutter for segments of the main designed along linear sections of roadway.

Sewer mains located within easements may be considered under the following conditions:

Topography, floodplain, or other natural features, prevents a new right-of-way corridor from being developed.

Special circumstances exist that require the sewer main to pass through private property to serve more than one lot or a new growth area.

Special circumstances, cul-de-sacs. Refer to the layout in the appendix.

300.1.2.2 Easement Requirements for Sewer Systems Outside of Public Right-of-ways. If the above conditions for exception outlined in Section 300.1.2.1 warrant an easement, the easement shall be granted to the City and recorded with the Register of Deeds. The easement shall include the following provisions:

A minimum easement width of twenty feet (20 ft.) centered on the main,

For mains buried deeper than ten feet (10 ft.) in depth, the easement width shall be two times the depth, centered on the utility.

- If a main must pass along the boundary line of two parcels, the easement shall be located on one property, versus equally divided or centered on the parcel boundary.
- Combined water and sewer easements shall be a minimum of thirty feet (30 ft.) wide with ten feet (10 ft.) separation between utilities and ten feet (10 ft.) between the utility and the edge of the easement.
- Sewer main easements must be exclusive to sewer main purposes unless adequate separation is achieved between the main and other utilities as approved by the City Engineer.
- Property owner shall maintain easements free of all obstructions including but not limited to buildings, walls, fences, hedges, trees and shrubs. These easements grant, to all public authorities, the right to construct, operate, maintain, inspect, and repair such improvements and structures as the authority deems necessary to facilitate operation and maintenance of the public infrastructure.
- Easement documents shall identify entities responsible for repair or maintenance of any surfacing.
- The finished surface profile of the easement, parallel to the main shall not exceed twenty percent (20%).
- The finished cross slope or transverse slope of the easement, transverse to the main shall not exceed five percent (5%).
- Access roads and turn around areas shall be installed to provide access to all manholes and shall have gravel or asphalt milling surfacing, See figure 300-01 for details.
- Easements longer than one thousand feet (1,000 ft.) shall provide turn-arounds for maintenance vehicles for maintenance vehicles at five hundred (500 ft.) on center. Refer to Figure 300-01 for turn around dimensions.
- All easements shall have a vertical clear space of thirteen feet six inches (13’-6”) above finished grade.
- Minimum surfacing width must be twelve feet (12 ft.) and shall be an “all weather” material, such as gravel or crushed rock.
- Sewer mains shall be extended a minimum of 10’ beyond the paved surface to enable connection without tearing up the existing surfacing of each parcel to be served.

300.1.2.3 Sewer Mains in Relation to Other Utilities.

- Sewer mains will be required to maintain a 10-foot horizontal separation from the water main that is also installed in the same street section.
- Other private utilities (parallel to sewer mains) shall maintain a minimum five foot (5 ft.) horizontal separation from the sewer main.
- Other private utilities shall attempt to cross sewer mains at right angles to obtain the five-foot (5 ft.) separation as soon as practical.

300.1.3 CONSTRUCTION PHASING

Sewer systems shall terminate at the nearest upstream manhole located in adjacent and subsequent phases; if the sewer has the potential to be extended, a minimum of a ten-foot (10 ft.) stub shall be provided to extend beyond the paved surface to enable connection without tearing up the existing surfacing.

Construction phasing which terminates mains in mid-block will be required to meet Section 300.1.4, Provisions for Future Extension.

300.1.4 PROVISIONS FOR FUTURE EXTENSION

Complete subdivision layout with pipe and manholes, and construction phasing shall be provided on initial submittal.

Manholes shall be fitted with inlet hole, boot, and ten-foot (10 ft.) sewer pipe extension with cap to permit future extension without additional modification to the manhole. Termination manholes will be permitted where the city determines that no future extension of sewer main is possible. Cleanouts will not be permitted in lieu of a termination manhole.

300.1.5 MOBILE HOME PARKS AND ONE OWNER MULTI-RESIDENTIAL COMPLEXES, EXCLUDING APARTMENT HOUSES

Sanitary sewer systems and service lines in mobile home parks and one owner multi-residential complexes shall meet the requirements of this Manual, City Ordinances, and the Supplemental Construction Specifications.

The requirements of this Section shall apply to proposed mobile home parks and to existing mobile home parks when replacement or major improvements are made to existing sanitary sewer systems.

Nothing in this section shall prohibit the sewer mains within the park from being public infrastructure provided the utilities meet all applicable standards and criteria and are placed within the public right-of-way or applicable utility easement.

300.2 WASTEWATER COLLECTION SYSTEMS

300.2.1 DESIGN LIFE

The design life goal for sewer collection systems: All proposed sewer collection systems shall be designed to achieve a minimum design life goal of one hundred (100) years.

300.2.2 DESIGN FLOW

Flow requirements will be in accordance with the following criteria. The current Sanitary Sewer Master Planning Document will be relied upon for verification of downstream conveyance and capacities.

Residential*: $Q_{avg} = \frac{\frac{(QA \times PH \times DU)}{24}}{60}$

$Q_{avg}(total) = \sum Q_{avg}\ (for\ each\ land\ use)$

*Equation to be used for residential and multi-family land uses.

Where:

$$Q_{avg} = Average\ calculated\ wastewater\ flow\ in\ gallons\ per\ minute\ (gpm)$$

$QA = Average\ unit\ flow, 115\ gallons\ per\ capita\ per\ day$

$PH = Population\ per\ household, 2.65$

$DU = Dwelling\ units$. In the absence of future land use plans, work with the City Planning Department to finalize recommended land use projections.

Commercial**: $Q_{avg} = QA \times A$

** Equation to be used for commercial, industrial, and similar land uses.

Where:

$Q_{avg}(total) = \sum Q_{avg}\ (for\ each\ land\ use)$

$Q_{avg} = Average\ calculated\ wastewater\ flow\ in\ gallons\ per\ minute\ (gpm)$

$A = Developable\ area\ in\ acres.$

$QA = Average\ unit\ flow, 3\ gallons\ per\ minute\ per\ acre\ \frac{gpm}{ac}\ for\ commercial\ and\ industrial\ uses,$

$2\frac{gpm}{ac} for\ public\ land\ uses.$

For areas consisting of multiple land uses the designer shall calculate the Q_{avg} for each land use and sum the Q_{avg} values to establish the total Q_{avg}.

Peak design flow calculations: $Q_{peak} = Q_{avg} \times PF$

Where:

Q_{peak} = Peak calculated wastewater flow in gallons per minute (gpm)

Q_{avg}= average design flow; gallons per minute (gpm) derived from above equations

PF = peaking factor; Use 3.0 for residential and multi-family, 1.7 for commercial & industrial land uses, and 1.2 for public land uses.

For areas consisting of multiple land uses, the designer shall calculate Q_{avg} and Q_{peak} for each land use.

300.2.3 MINIMUM SIZE

The following requirements shall dictate the minimum size for sewer mains.

- No gravity sewer main shall be less than eight inches (8 in.) in diameter.
- The sewer main shall be sized so that the Q_{peak} flow ratio, $d\ /\ D$, does not exceed 0.70. Where d = depth of Q_{peak} flow in the sewer main and D = diameter of the sewer main.

300.2.4 DEPTH

This section outlines the required depths for sewer mains.

- Minimum depth of five feet (5 ft.) over the top of the pipe.
- As necessary to have top of the main one foot (1 ft.) below the invert of the service line at the main.
- Minimum cover depth of four (4) feet over the top of service pipes and ¼"/foot minimum slope on service pipes.
- Maximum cover depth of fifteen (15) feet.

300.2.5 SLOPE

The following slope requirements shall be adhered to on all sewer mains:

- Minimum slope will be 0.40% on all sanitary sewer mains 8 inches and larger.
- Maximum slopes on mains shall not exceed a slope creating a velocity of ten (10) feet per second (fps) at the Q_{peak} d/D ratio depth of 0.70. Greater velocities may be permitted with written approval from the City Engineer.
- Deviations from the maximum slope on all mains may be considered through the exception process. If approved, the use of manholes with energy dissipating structures may be required.
- Mains with slopes greater than twenty percent (20%) or with velocities greater than ten (10) fps at the Q_{peak} d/D ratio depth of 0.70, that have been reviewed and approved by the City Engineer, shall be anchored according to the requirements of SD DANR Recommended Design Criteria.
- Use Manning's Coefficient "n" = 0.013 for PVC pipe. Manning's Coefficient "n" values less than 0.013 are not permitted.
- Manholes shall be located at all changes in slope. It is desirable to maintain a constant slope on sewer mains of the same diameter over long segments containing multiple manholes.
- All changes in pipe diameter shall be located at manholes. Changes in pipe diameter, at a minimum, shall be accomplished by matching the crown of the outlet pipe with the crown of the lowest inlet pipe crown.
- The pipe slope shall be calculated from the center of manhole to center of manhole using the design invert elevations, (rise/run).

300.2.6 ALIGNMENT

Alignment requirements for sewer mains are as follows:

- All changes in direction shall be accomplished with manholes.
- Deflecting the pipe at joints to change alignment or slope shall not be permitted.
- Branches or sewer laterals extending from sewer mains shall begin at manholes.

300.2.7 SEWER MAIN MATERIAL

Sewer Main materials shall meet the requirements of ASTM D3034 and have a minimum standard dimension ratio (SDR) of 35.

300.2.8 SEWER MANHOLES

Requirements and design criteria for sewer manholes are as follows:

- Manholes within the right-of-way shall generally be located within the street section a minimum of six (6) feet from the lip of gutter. Manholes shall not be placed along the centerline or crown of the roadway.
- Maximum spacing: Four hundred (400) feet for sewers fifteen inches (15 in.) or less. Maximum spacing for sewers eighteen inches (18 in.) and larger shall be five hundred feet (500 ft.).
- Manholes of forty-eight (48 in.) inches minimum inside diameter shall be used on eight (8) inch through fifteen (15) inch mains. Larger mains and crowded intersecting mains will have oversized manholes.
- Manholes five- and one-half feet (5.5 ft.) and greater in depth, measured from invert to rim, shall have eccentric cone top sections per the detail in Standard Specifications. Manholes less than five- and one-half feet (5.5 ft.) in depth shall have flat concrete covers designed for AASHTO H-20 wheel loading as per the detail in the Standard Specifications.
- Manholes shall all have a minimum drop of 0.10 feet across the manhole and shall all have pre-formed inverts & channels.
- The designer shall select the type of frame and cover in accordance with the Standard Specifications. The opening of the eccentric cone section shall be centered over the shelf of the manhole inverts.
- Sewer mains shall terminate with a manhole, cleanouts installed with a sanitary sewer manhole frame, grate and concrete collar, for out of pavement locations, will be permitted if future development is planned.
- Manholes located outside of paved surfaces shall be designed such that positive drainage will be maintained away from the manhole.

300.2.9 DROP MANHOLES

Drop manholes shall be utilized when the sewer mains upstream and downstream of the manhole will have a significant elevation difference. This is typically due to extensive topographical grade changes or existing utilities conflicts. Internal drop manholes will not be allowed under any circumstances. Drop manholes shall be required per the following:

- A drop pipe shall be provided outside for a sewer entering a manhole at an elevation of 24 inches or more above the manhole invert.
- Where the difference in elevation between the incoming sewer and the manhole invert is less than 24 inches, the invert should be filleted to prevent solids deposition.
- The entire outside drop connection shall be encased in flowable fill.

300.2.10 SEWER MAINS IN CASING PIPES

On a case-by-case basis, casing may be required by the City Engineer whenever a sewer main crosses a major highway, stream, or other location where it is desired to minimize disruption of the surface over the sewer main in the event of repair or replacement.

- Sewer mains in casing pipe shall have restrained joints.
- Casing pipe shall be steel with minimum yield strength of thirty-five thousand (35,000) psi and minimum wall thickness as follows:

Diameter of Casing (inches)	Minimum Wall Thickness* (inches)
Under 14	0.188
14 & 16	0.282
18	0.312
20	0.344
22	0.375
24	0.406
26	0.436
28 & 30	0.500
32	0.500
34 & 36	0.531
38, 40, & 42	0.563

*Additional wall thickness may be required based on the design, especially in the case of long bores or soil conditions.

- Casing pipe shall have an inside diameter at least six inches (6”) greater than the maximum outside bell diameter of the carrier main.
- Sewer mains in casing pipe shall be supported with centering and restraining casing chocks specifically designed for the purpose. Casing chocks shall be fabricated from non-corrosive materials. Chocks shall be installed at each side of pipe joint, at the midpoint of the carrier pipe between pipe joints, and maximum spacing shall be ten feet (10 ft.) between chocks. Casing chock details shall be included on the design drawings.
- Casing pipe shall be sealed with prefabricated, non-corrosive end seals and bands manufactured specifically for the purpose of preventing movement of ground water or backfill through the casing pipe. Grout seals of the annular space will be permitted on a case-by-case basis.
- Casing pipes shall be designed to have a design life goal equivalent to that of the carrier pipe. Corrosion protection shall be a component of the design of casing installations.
- Where steel casing is not required under the specified street classification or by the governing agency, sanitary sewer mains can be installed by directional boring. The minimum slope of the sanitary sewer main will be 2% and be comprised of fusible or locking PVC or HDPE pipe as identified in the project specifications.

300.2.11 STREAM CROSSINGS

For purposes of this Manual, “stream” shall mean all U.S. Army Corps of Engineers designated streams, any stream requiring a 404 Permit, or as required by the City Engineer. A stream crossing is defined as beginning 20 feet back from stream bank and ending 20 feet past opposite stream bank at point of crossing, or where scour and erosion will not occur.

Pipe and installation shall comply with Ten States Standards, SD DANR criteria, and Supplemental Construction Specifications.

At a minimum, sewer main pipe shall be installed within a casing pipe or have a concrete pipe cap installed. When utilizing a pipe cap, the designer shall provide a detailed design for the pipe cap, meeting the following:

- The cap shall have a width of three (3) times the diameter of the pipe.
- The cap shall extend the entire length of the stream crossing.
- Concrete shall be reinforced concrete with a minimum thickness of six inches (6”).
- The cap shall extend vertically from the spring line of the pipe to a minimum of six inches (6”) above the pipe crown.

300.2.12 SEWERS IN RELATION TO WATER MAINS

Separation of water and sewer mains shall be as required by the South Dakota Department of Agriculture and Natural Resources criteria below and Supplemental Construction Specifications.

Vertical separation requirements: Whenever sewers must cross under water mains, the sewer shall be laid at such an elevation that the top of the sewer is at least 18 inches below the bottom of the water main. When the elevation of the sewer cannot be buried to meet the above requirement, a separate conduit casing pipe may be allowed if approved by the City Engineer and will follow the requirements of the Construction Specifications.

Horizontal separation requirements: Whenever possible, sewers should be laid at least 10 feet horizontally as measured from the outside to outside, from any existing or proposed water main. Should local conditions prevent a lateral separation of 10 feet, a sewer may be laid closer than 10 feet to a water main following approval from the City Engineer if the elevation of the crown of the sewer is at least 18 inches below the invert of the water main.

300.2.13 SERVICE CONNECTIONS

Mains shall be tapped with in-line wye fittings. Service lines will be installed in accordance with Supplemental Construction Specifications and this Manual, service tees and saddles are prohibited.

300.2.14 WASTEWATER LIFT STATIONS

The Design Standards and Standard Details for sewage lift stations shall be used for all stations unless a separate design is approved by the City Engineer. Each pumping station will consist of a wet well and dry well and shall be provided with a minimum of two pumps, each having a capacity

sufficient to pump the peak design flow. Dry well submersible pumps will be required with a third pump provided as a future replacement pump.

No sanitary sewage shall be allowed to be discharged into a newly constructed lift station wet well until final completion is made and notification is made by the City assuring operation responsibilities.

300.2.14.1 Specific Equipment Required. The sewage lift station shall be supplied with, but not be limited to, the following specific items:

- Separate dry well and wet well.
- Flow meter.
- Secondary power supply—engine generator system.
- Automatic transfer switch for the secondary power supply.
- Transducer for primary control and a float system for backup controls
- Programmable logic controller to control and monitor the lift station remotely and locally that is SCADA compatible with the city system.
- Man lift for all stations greater than 20 feet in depth (the depth shall be defined as the dimension from the top of the dry well entrance tube to the floor of the dry well).
- Variable Frequency Drive (VFD) for all motors greater than
- 30 horsepower—the requirement for VFDs may be deleted if it is determined unnecessary by the City Engineer.

300.2.14.2 Wet Well Design. The wet well design shall be coordinated with pump sizing in order to avoid frequent on/off cycling of the pumps. To prevent septicity, wet well detention time at average daily flow (QA) should not exceed 30 minutes.

Cycle time is the total time between starts of an individual pump and can be determined by comparing the volume between the "on" and "off" levels in the wet well with the pump capacity. Cycle time is computed as follows.

$$CT = \frac{V}{(D - QP)} + \frac{V}{QP}$$

Where:

- CT = Cycle Time (minutes)
- V = Wet Well Volume between On and Off Levels (gallons)
- D = Rated Pump Capacity (gallons per minute)
- QP = Peak Hourly Lateral Sewer Flow (gallons per minute)

With a given wet well volume and pumps of uniform pumping rate, minimum cycle time will occur when the rate of inflow is equal to one-half of the discharge rate of the individual pump under consideration.

The formula for cycle time then simplifies to:

$$CT = \frac{2V}{QP} = \frac{4V}{D}$$

An effective wet well volume of at least 2.5 times the discharge rate of the pump is required.

The operating volume of the wet well shall be designed to provide the following maximum motor starting times at the design pumping rates.

Motor Size, hp	Maximum Motor Starting Times 0–25
0-25	6 starts per hour
26–35	5 starts per hour
36–60	4 starts per hour

300.2.14.3 Pump Design. The following are minimum requirements for pump design in sewer lift stations.

- The operating speed of the pumps shall not exceed 1,800 rpm.
- The test sphere minimum diameter shall be no less than 3 inches in diameter.
- The minimum suction and discharge diameter shall be no less than 4 inches in diameter.

300.2.14.4 Engine Generator Design. The engine generator shall be designed to operate each pump simultaneously but start each pump separately. If more than two pumps are used, the engine generator shall be designed to start the pumps necessary for the firm pumping capacity of the station simultaneously. It shall be at the City Engineer's discretion to change the generator sizing requirements when the size of the lift station warrants it.

The engine generator system shall be a four- cycle water-cooled type. The generator shall be supplied with an automatic transfer switch. An enclosure for the automatic transfer switch shall be supplied and sized large enough to contain the station on/off switches, telephone termination boxes, and other necessary controls. The generator shall be enclosed in a sound attenuation enclosure and supplied with all accessories which make it a complete operating system.

300.2.14.5 Power Supply. The power supply shall be 240-volt, 60 Hz, 3-phase unless 480- volt power supply is required and/or available.

300.2.14.6 Additional Design Requirements. The following additional requirements apply to sewer lift stations:

- **Access Road to the Lift Station.** An access into the lift station will be required and shall be shown on the construction drawings. The access road shall meet minimum thickness and materials standards for streets. The surfacing used shall be asphalt or concrete.
- **Lift Station Site Fencing.** A fence shall be required and constructed around the perimeter of the lift station generator. The City Engineer shall determine if a fence is required around the entire site. The fence shall be as detailed and specified in the Standard Plates.
- **Site Landscaping.** The Contractor shall maintain the grass areas by watering, fertilizing, reseeding, mulching, and mowing until the grass has established a 2-inch catch of grass. The Contractor shall immediately reseed and mulch areas which show bare spots at no additional cost.
- **Odor Control.** Odor control shall be provided at the lift station and/or the force main discharge where it is determined to be a detectable problem or shown through a design

analysis. The design engineer shall perform an analysis showing the modeled results of the odor control analysis. Odor control will be required at the lift station and force main discharge point if it is found to be a detectable problem in the analysis or in the field as determined by the City Engineer within the two-year warranty period.

- **Flooding.** Wastewater pumping station structures and electrical and mechanical equipment shall be protected from physical damage by the 100-year flood and shall remain fully accessible during the 100-year flood.

300.3 LOW PRESSURE SEWER SYSTEMS

This section is intended to be a guide for low pressure sewer systems (LPSS), an alternative method of collection of sewage which involves discharge to common sewers. See the city of Spearfish Standard Construction Details for diagrams and installation guidelines for various components for an LPSS.

This guideline does not apply to systems which discharge to a drain field or other on-site disposal systems; such systems are regulated by South Dakota Administrative Rules. Provisions within these guidelines do allow for the installation of LPSS to replace failed septic/leach field systems. Technical activity fees are applicable for review of construction plans as part of the City approval process. Fees are presented in the latest adopted City fee structure and are available upon request.

300.3.1 OWNERSHIP AND CITY ACCEPTANCE

Ownership of the low-pressure main located in dedicated Public Right-of-way will be the responsibility of the City of Spearfish. Ownership of the service line components from the home to the main, including the gravity sewer service line, the grinder station, alarm and pump control panel, curb stop, and the pressurized service line to the low-pressure sewer main will be the responsibility of the Homeowner.

The City of Spearfish must inspect and accept the installation prior to its operation. No certificate of occupancy for any structure will be issued until inspections are complete and the system is accepted. Inspections will include but not be limited to control pumps, service lines, and other components of the system on private property.

300.3.2 ADMINISTRATIVE AND INSTALLATION REQUIREMENTS

The administrative and installation requirements listed below apply to low pressure sewer systems.

- The Developer will maintain ultimate responsibility and authority for design, equipment, and materials selections through the subdivision permitting and construction phase. The Developer must contract the design services with an Engineer who is licensed in the State of South Dakota.
- At time of building permitting, the Homeowner will be responsible for the installation of the low-pressure system and service line to the stub connection installed by the developer and

must hire a qualified contractor that has been trained by the manufacturer to install the system.

- No system may be installed or operated without a qualified contractor who has been trained by the manufacturer. An operations and maintenance manual must be submitted to the City of Spearfish for review and approval prior to startup.
- Homeowners must operate facilities without any interruption, sewage spills on the ground, sewage backup into buildings, or other unhealthy conditions.
- The developer must provide the homeowners with contact information for the manufacturer or locally trained service staff and an operations manual.
- The Homeowners Association's covenants must contain special provisions for the installation of the grinder system up to the service stub connection that was installed by the developer. The following will be the minimum requirements of the special provisions.
- H.O.A. Covenants must contain the name and contact information of the LPSS manufacturer that the Developer consulted during the design and permitting of the subdivision.
- LPSS components installed by the Homeowner during the building permit phase must be from the same LPSS manufacture that the Developer consulted during the design and permitting of the subdivision.
- Homeowners are required to utilize a contractor that has been trained by the LPSS manufacturer to perform any repairs, replacements, or maintenance on the grinder pump station.
- Installed LPSS stations will have some additional capacity to compensate for power outages as determined during the station selection process. Homeowners must be cautious of water usage during the time of power outages.
- If desired, the Homeowner may elect to have a generator transfer switch installed by a contractor that has been trained by the LPSS manufacturer in order to operate their system during a power outage.

300.3.3 LPSS MAINTENANCE

The Homeowner will directly maintain the system from the pump station to the service connection at the main and will be required to employ a contractor who is trained by the LPSS manufacturer. Each Homeowner will also be responsible for the gravity sewer service line from the building to the pump station.

Maintenance of the low-pressure main and appurtenances located along the main and in dedicated Public Right-of-way will be the responsibility of the City of Spearfish.

300.3.4 GRINDER PUMP SYSTEMS

Grinder pump systems are pressure sewer systems which pump untreated sewage from the Homeowner. Solids are not removed, nor is the sewage partially treated as it is with systems which utilize septic tanks. Sewage is coarsely-ground by the pump to prevent blockage in the pump or pipeline.

Overall, sewage flows from a conventional gravity service drain, waste, and vent (DWV) pipe within a building to a grinder pump tank or basin (usually outdoors), which contains a simplex pump for single family residences or a duplex pump for multi-family and commercial facilities. Pump discharge is carried by individual low-pressure service lines to a common pressure main which ultimately connects to a gravity sewer system.

Grinder pumps are submersible and feature a semi positive-displacement impeller or a centrifugal impeller with a cutter assembly. These two types are different and so the designer can base selection of pump type on specific project requirements regarding range of total dynamic head (TDH) and flow capacities.

Pipe sizing and layout, valves and other appurtenances will follow the requirements of SD DANR Chapter III, Section R (Pressure Sewer System) as well as the requirements of the LPSS manufacturer. Service lines from grinder pumps to common pressure mains must provide a minimum 2 ft/s scouring velocity on at least a daily basis. The minimum inside diameter will be 1-¼". Small-diameter pressure piping is installed at shallow depth from the pump to the collector main.

300.3.5 CONTROL OF HYDROGEN SULFIDE

LPSS are to be designed to reduce the concerns for the production of H2S by incorporating optimum system designs. Appropriate tank sizing, small pipe sizes, and properly designed manhole drops will keep the wastewater from becoming stagnant, reduce retention time and will direct the flow to the discharge of the manhole eliminating spraying and turbulence.

The engineer's design submittal must contain an evaluation of hydrogen sulfide production, and proposed control measures to protect the gravity sewer system against corrosion which include the methods indicated above. At a minimum, armored receiving manholes with approved acid-proof coatings will be required. The City of Spearfish will evaluate additional methods for handling hydrogen sulfide on a case-by-case basis.

300.3.6 PUMPS

Pumps will comply with the requirements of SD DANR Chapter III, Section R (Pressure Sewer System) and be sized appropriately for head/capacity conditions of the system. The manufacturer must submit their UL listing and factory testing data during the submittal process.

Pumps shall be a semi-positive displacement pump in the grinder pump station that has a nearly vertical head (H)-flow (Q) curve. This is the best type of pump for successful parallel operation of many pumps into a system of common low-pressure mains. Since each pump will be located at a different point along common low-pressure mains and at various elevations, each pump should operate in an efficient and predictable manner, whether one pump or numerous pumps are operating at a given moment; the pumps in such a system do not have a single fixed "operating point," but must operate consistently over a wide range of heads that are continually, and often rapidly, changing.

- Grinder pumps shall have the capability of operating above the LPSS system design criteria of 80 psig, or 185 feet (see grinder pump performance figure below).
- Based on the maximum daily number of pumps operating simultaneously (Table 3) versus the number of pumps connected to the system at the design pressure of 185 feet, the capability to operate significantly above the system's design pressure is mandatory in order for the system to operate properly during the approximately bimonthly peaks when the "absolute maximum" number of pumps are operating. This feature also ensures that pumping will continue under those conditions when higher–than–normal pressure occurs in the pipeline.
- System designs with calculated heads approaching the upper limits of recommended heads should be reviewed by the grinder station manufacturer's application specialists. A computerized review of the system design by the manufacturer or the regional sales office or authorized dealer will be required.

Occasionally during "normal" operation, there will be short periods when higher-than-design pressures will be experienced. These can result from a variety of causes including solids buildup (obstructions) or air bubbles.

Deposits of solids or air accumulation will be purged from the line since the pump continues to produce an essentially constant flow, even though the cross section of the pipeline has temporarily been reduced. Higher velocities through the reduced cross section will provide the scouring action needed to correct such conditions as soon as they start to appear.

- Higher–than–expected pressure conditions are transitory occurrences. The only requirement is that no damage be done to the pumping equipment, pipelines, or appurtenances during these occasional short periods.
- Grinder pumps must be driven by motors rated for continuous operation at 104 F/40 C above ambient temperature. They can operate at 50 percent above rated pressure for at least 5 minutes without excessive temperature rise. Please see the LPSS construction specifications for additional information.

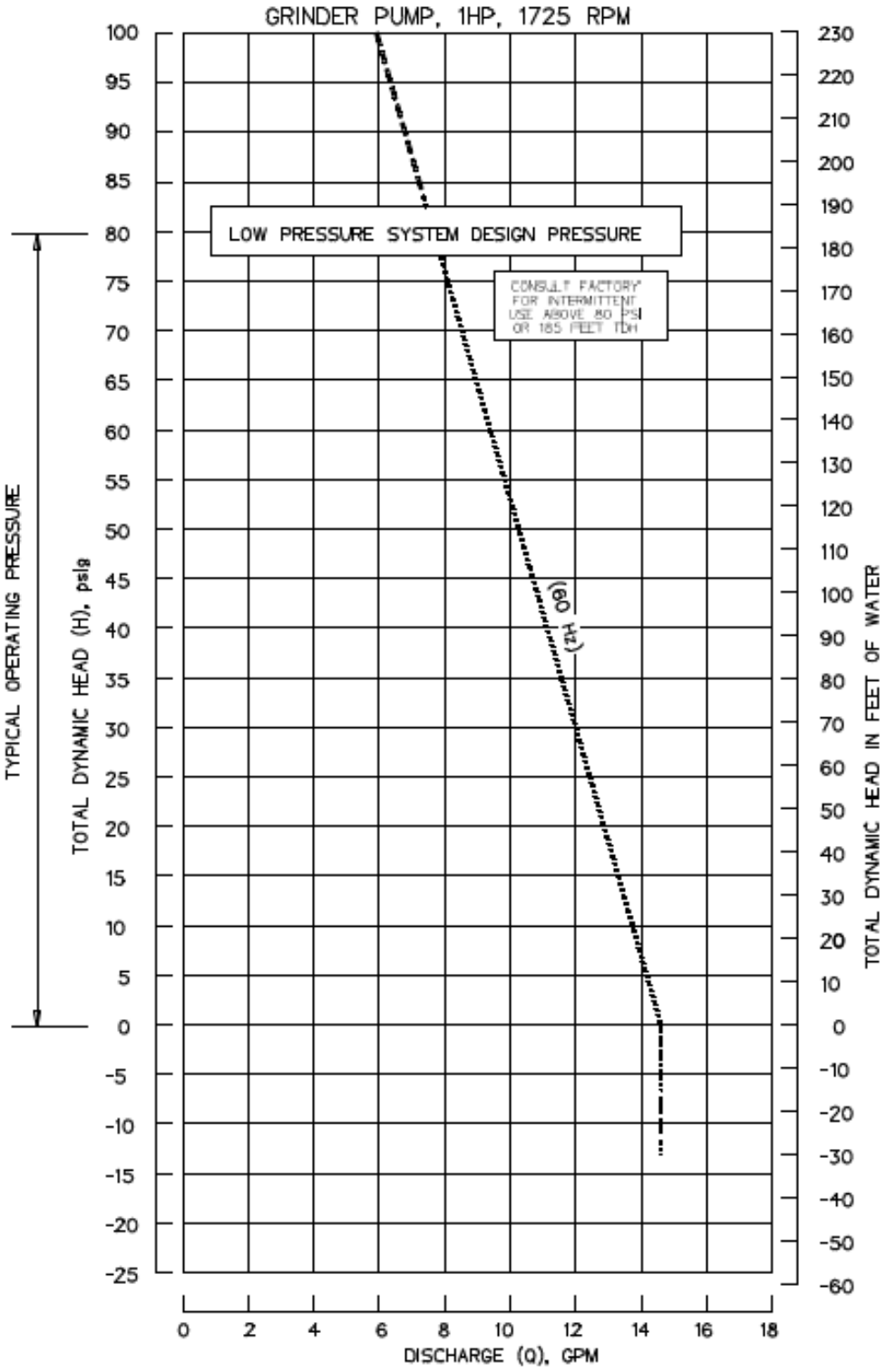
300.3.7 MOTOR SELECTION

The following are guidelines and requirements for motor selection for grinder pumps:

- A grinder pump shall be powered by a 1 hp, 240v (or 120v), 1,725 rpm capacitor start, thermally protected induction motor.
- The pump should be considered as a residential appliance. For this reason, performing the grinding and pumping functions using no more than 1 hp to permit occasional use at 120v in older homes not wired for 240v is desirable.
- In order to achieve the high heads desired and provide constant flow at varying heads, the 1-hp motor is coupled to a pump of semi-positive displacement design (see grinder pump performance figure below).
- At a rating of 1 hp and 1,725 rpm, the grinder pump shall develop more than 8.4 foot-pounds of torque. When handling residential sewage, grinding torque may be demanded

during any portion of the starting or running cycle. When the pump stops (controlled by level) in the midst of grinding hard objects (e.g. plastic items, etc.), it must, upon restarting, be able to provide sufficient torque to the grinder to overcome the resistance of any object remaining from the previous cycle. Please see the LPSS construction specifications for additional information.

Grinder Pump Performance Characteristics



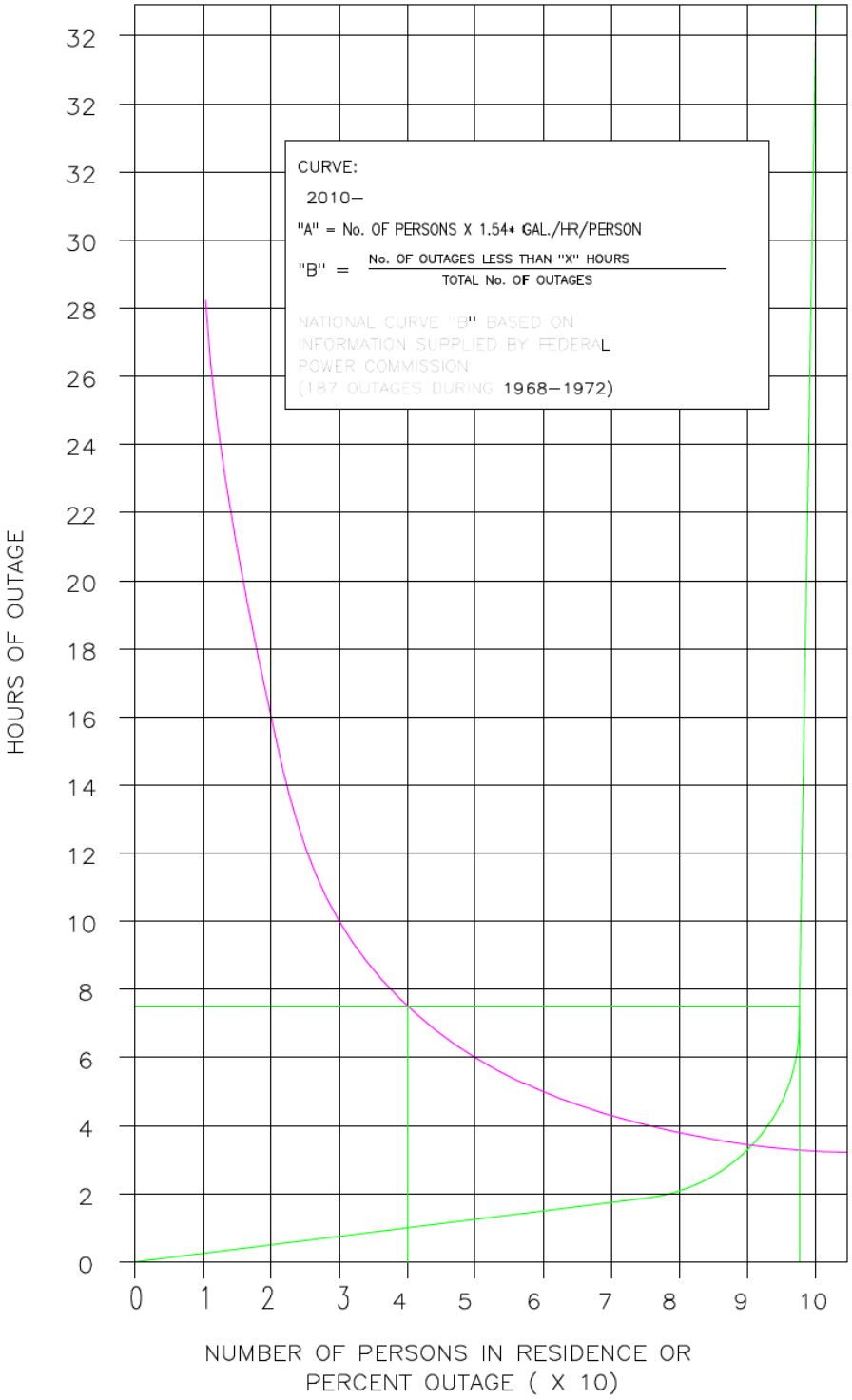
300.3.8 POWER OUTAGES

Grinder pump stations must have adequate excess holding capacity to provide wastewater storage during most electrical power outages (see figure below). This excess holding capacity is shown on curve A. Data from the Federal Power Commission on national electrical power outages is plotted as a cumulative distribution function (curve B). Note that only volume above the normal “turn-on” level was counted as available storage. The average flow of 1.54 gallons/hour/person is based on the actual measured flow over a one-year period from a test location.

The local electrical power utility should be contacted to obtain a history on the power interruptions of the feeder(s) scheduled to serve the low-pressure sewer site. From this data, curve B should be replotted to reflect local conditions. In those rare local areas where the frequency and/or the duration of outages exceed 8 hours, the use of a larger grinder pump station with a greater holding capacity should be considered. If desired, the Homeowner may elect to have a generator transfer switch installed by a contractor that has been trained by the LPSS manufacturer in order to operate their system during a power outage.

When power has been restored after a power outage, it is likely that nearly all the pumps in the system will try to operate simultaneously. Under these conditions, the dynamic head loss component of the total head will rise significantly. Several pumps in the system would see a total back pressure high enough to cause the thermal overload protectors to automatically trip in a few minutes. Operation under conditions that could cause damage to the pumps, or the system would be avoided. While these pumps are offline, other pumps in the system would be able to empty their tanks. After one to two minutes, the group that tripped off on thermal overload would cool and restart. The system back pressure would have been reduced and the group would be able to pump down normally. This process repeats itself automatically under the influence of each unit’s own thermal protector, reliably restoring the system to normal operation.

Relationship of GP Storage Capacity to Power Outage Experience



EXAMPLE:

1. GP 2010 INSTALLED
2. FOUR PERSONS IN RESIDENCE
3. FOLLOW VERTICAL LINE 4 UPWARD TO CURVE "A" FOR GP 2010
4. HORIZONTALLY LEFT SHOWS 7–1/2 HOURS OF STORAGE CAPACITY
5. HORIZONTALLY RIGHT TO CURVE "B"
6. VERTICALLY DOWN SHOWS 97% OF THE NATIONS OUTAGES ARE SATISFIED

300.3.9 PUMP CONTROL PANELS AND ALARMS

Pump control panels must be energized through a dedicated breaker and must be rated minimum NEMA- 4X with a locked door. Control panels must be exterior mounted and should be visible to Owner's service personnel from public right-of-way. Electrical conduits must be sealed gas-tight at the tank and the panel. Control panels must be equipped with elapsed time meters and equipped with event counters. The alarm panel shall include external audible and visual alarm; push-to-run switch; push-to-silence switch; redundant pump start; and high-level alarm capability. Stations must be equipped with a SENTRY PROTECT PLUS system or engineer approved equal, for burnout, run dry, and high system pressure protection. Power is furnished by the Homeowner. Please see the LPSS construction specifications for additional information.

300.3.10 LPSS SYSTEM DESIGN

Once the initial analysis of a project has confirmed the feasibility of using the low-pressure approach, the completion of a preliminary system design is straightforward. This is primarily a result of two characteristics of the semi-positive displacement pump: near-constant flow over the entire range of operating pressures and the ability of the pump to handle transient overpressures.

The balance of this section outlines a systematic approach to LPSS system design, leading from pump model and pipe selection to a detailed zone and system analysis.

300.3.10.1 Required Information. The information that should be assembled prior to initiation of the LPSS system design includes:

- Topography map
- Soil conditions
- Climatic conditions (frost depth, low temperature, and duration)
- Water table
- Applicable codes
- Discharge location
- Lot layout (with structures shown, if available)
- Total number of lots
- Dwelling type(s)
- Use and flow factors (seasonal occupancy or year-round, appliances, water supply sources)
- Area development sequence and timetable

300.3.10.2 Grinder Pump Station Size Selection. Use this table to select grinder pump models for the types of occupancy to be served.

Recommended Flow (gpd)	Adequate for Managing ...
up to 700	Flow from one average single-family home, and up to two average single-family homes where codes allow, with verification from the manufacturer.

Up to 1,500	Flow from up to two average single-family homes, and up to six average single-family homes where codes allow, with verification from the manufacturer.
Up to 3,000	Flow from up to four average single-family homes, and up to 12 average single-family homes, with verification from the manufacturer.
Up to 5,000	Flow from up to six average single-family homes, and up to 20 average single-family homes, with verification from the manufacturer.
Up to 6,000	Flow from up to nine average single-family homes, and up to 24 average single-family homes, with verification from the manufacturer.

Considerations include:

- Wet well and discharge piping must be protected from freezing
- Model and basin size must be appropriate for incoming flows, including peak flows
- Appropriate alarm device must be used
- Suitable location

Daily flows above those recommended may exceed the tank's peak flow holding capacity and/or shorten the interval between pump overhauls. The company should be consulted if higher inflows are expected.

The final selection will have to be determined by the engineer on the basis of actual measurements or best estimates of the expected sewage flow.

300.3.10.3 Grinder Pump Placement. The grinder pump station must be located outside and as close as possible to the building. All GP models will have a high-density polyethylene (HDPE) integral accessways ranging in height up to 10 feet. By keeping the unit as close as possible to the building, the lengths of gravity sewer and wiring will be minimized, keeping installation costs lower while reducing the chances of infiltration in the gravity flow section. General access easements for the GP location must contain language that restricts obstructions which would hinder access, repairs, or maintenance.

AC power from the building being served is required to be used for the grinder pump. Separate power sources add to installation and O&M costs, decrease overall reliability, and frequently represent an aesthetic issue.

When two dwellings are to be served by a single unit, the station is usually placed in a position requiring the shortest gravity drains from each home. With multi-family or commercial buildings, more than one grinder pump (Duplex System) will be required.

300.3.10.4 Pipe Selection. Three approved pipe materials are listed below. The final determination of the type of pipe to be used is the responsibility of the consulting engineer. In addition, the requirements of local codes, soil, terrain, water, and weather conditions that prevail will guide this decision. Gravity portions of the service into the home will be required to meet IBC.

Low-pressure sewer systems will be constructed with PVC or HDPE pipe. Continuous coils of small-diameter, HDPE pipe can be installed with automatic trenching machines and horizontal

drilling machines to areas at lower cost. Backfilling and compaction requirements of any section that has been installed with a trenching machine must still meet the requirements of the local construction specifications.

Table 1
PIPE WATER CAPACITY
Gallons/100 feet of Pipe Length

Nominal Pipe Size (in.)	Sch 40 PVC	SDR 21 PVC	SDR 11 HDPE
1 1/4	7.8	9.2	7.4
1 1/2	10.6	12.1	9.9
2	17.4	18.8	15.4
2 1/2	23.9	27.6	—
3	38.4	40.9	33.5
4	66.1	67.5	55.3
5	103.7	103.1	84.5
6	150.0	146.0	119.9
8	260.0	249.0	203.2

Table 2
PVC PIPE COMPARISONS
Nominal Pipe Size = 2 in.

Parameter	Sch 40	SDR 21
Wall Thickness, in.	0.154	0.113
Inside Diameter, in.	2.067	2.149
50 gpm Friction Loss, ft/100 ft	4.16	3.44

Table 1 compares the water capacity of two types of PVC pipe commonly used: SDR-21 and Sch 40, and one type of HDPE, SDR-11. All three have adequate pressure ratings for low pressure sewer service. All components of the low-pressure sewer system will not be allowed to be installed with any glued connections.

Although both types of PVC pipes are suitable, the three parameters compared in Table 2 illustrate why SDR-21 is suggested as a good compromise between capacity, strength, friction loss characteristics and cost. Tracer wire shall be installed along all LPSS mains, flushing station lines and services into the property and ending at the curb stop or other approved valve.

300.3.10.5 System Layout. A preliminary layout of the entire pressure sewer system shall be prepared (Figure 3). Pump models will need to be selected, and their location (elevation) noted. The location and direction of flow of each lateral, zone and main, and the point of discharge should be shown.

- The system should be designed to give the shortest runs and the fewest abrupt changes in direction.
- "Loops" in the system must be avoided as they lead to unpredictable and uneven distribution of flow.

Although not shown in Figure 3, the elevation of the shutoff valve of the lowest-lying pump in each zone should be recorded and used in the final determination of static head loss. Since the grinder pumps are semi-positive displacement and relatively insensitive to changes in head, precisely surveyed profiles are unnecessary.

Combination air valves serve to prevent the concentration of air at high points within a system. This is accomplished by exhausting large quantities of air as the system is filled and by releasing pockets of air as they accumulate while the system is in operation and under pressure.

- Combination valves should be installed at all system high points and significant changes in grade or direction where air pockets can form. Combination valves should be installed at

intervals of 2,000 to 2,500 feet on all long horizontal runs that lack a clearly defined high point.

Trapped pockets of air in the system not only add static head, but also increase friction losses by reducing the cross-sectional area available for flow. Air will accumulate in downhill runs preceded by an uphill run.

- Long ascending or descending lines will require a combination valve placed at approximately 2000-foot intervals.

If air or gas pockets collect at the high points in a pumped system, then those pressurized air pockets can begin to displace usable pipe cross section. As the cross section of the pipe artificially decreases, the pump sees this situation as increased resistance to its ability to force the liquid through the pipe. The engineer should consult the system manufacturer in cases where trapped air is considered a potential problem.

- Clean-out flushing stations shall be incorporated into the pipe layout. Flushing stations should be installed at the upstream terminal end of each main, every 1,000 feet on straight runs of pipe, and whenever two or more mains come together and feed into another main.

300.3.10.6 Zone Designations. The LPSS system illustrated in Figure 3 contains 72 pumps and is divided into 14 individually numbered zones. Division into zones facilitates final selection of pipe sizes, which are appropriate in relation to the requirements that flow velocity in the system is adequate and that both static and dynamic head losses are within design criteria.

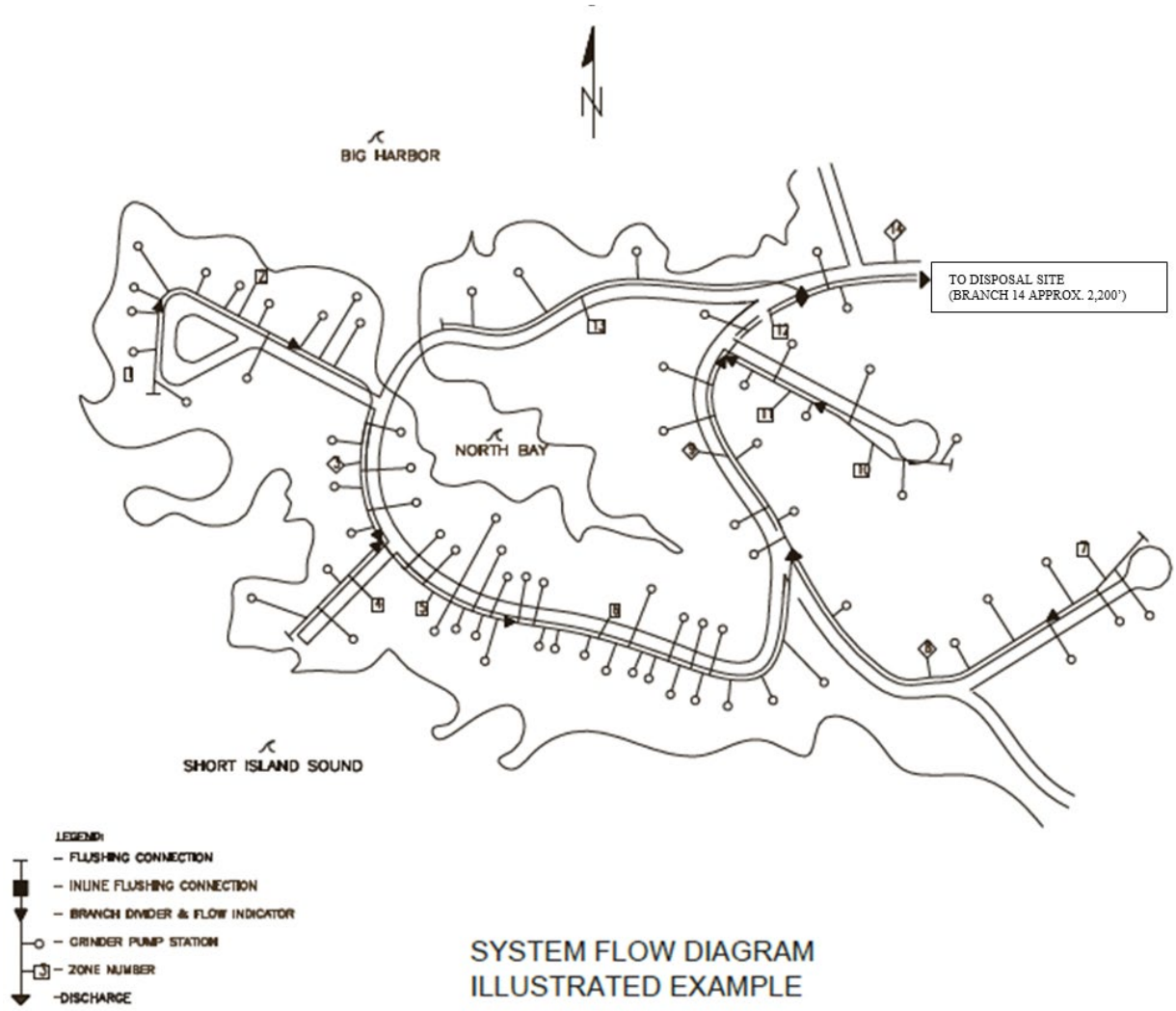


FIGURE 3

Assignment of individual zones follows from the relationship between the accumulating total number of pumps in a system to the predicted number that will periodically operate simultaneously (Table 3).

Table 3

MAXIMUM NUMBER OF GRINDER PUMPCORES OPERATING DAILY

Number of Grinder Pump Cores Connected	Maximum Daily Number of Grinder Pump Cores Operating Simultaneously	Number of Grinder Pump Cores Connected	Maximum Daily Number of Grinder Pump Cores Operating Simultaneously
1	1	510–542	21
2–3	2	543–575	22
4–9	3	576–608	23
10–18	4	609–641	24
19–30	5	642–674	25
31–50	6	675–707	26
51–80	7	708–740	27
81–113	8	741–773	28
114–146	9	774–806	29
147–179	10	807–839	30
180–212	11	840–872	31
213–245	12	873–905	32
246–278	13	906–938	33
279–311	14	939–971	34
312–344	15	972–1,004	35
345–377	16		
378–410	17		
411–443	18		
444–476	19		
477–509	20		

Table 4 was initially developed after careful analysis of more than 58,000 pump events in a 307-day period during the Albany project (4). It was extended for larger systems by application of probability theory. The validity of this table has since been confirmed by actual operating experience with thousands of large and small LPSS systems during a 34-year period.

Using Figure 3, the actual exercise of assigning zones is largely mechanical. The single pump farthest from the discharge point in any main or lateral constitutes a zone. This and downstream pumps along the main are accumulated until their aggregate number is sufficient to increase the number of pumps in simultaneous operations by one, i.e., until the predicted maximum flow increases by 11 gpm.

Figure 3 shows that zones 1, 2 and 3 end when the number of pumps connected total 3, 6 and 9, and the number of pumps in daily simultaneous operation are 2, 3 and 4, respectively.

Any place where two or more sections of main join, or where the outfall is reached, also determines the end of a zone. This design rule takes precedence over the procedure stated above, as seen in zones 3, 4, 6, 8, 9, 11, 12, 13 and 14.

300.3.10.7 Completion of Pipe Schedule and Zone Analysis. The data recorded on the System Flow Diagram (Figure 3) is then transferred to Table 4.

BY: | DATE:

PIPE: SDR 21 PVC

PREPARED FOR:

PRELIMINARY LOW-PRESSURE SEWER SYSTEM PIPE SCHEDULE AND ZONE ANALYSIS OF:

Illustrated Example
Table 4

AE

SHEET NO. OF

REV

1 ZONE NO.	2 CONN. TO ZONE	3 NO. PUMPS IN ZONE	4 ACCUM. PUMPS IN ZONE	5 GAL/DAY PER CORE	6 MAX. FLOW PER CORE	7 MAX. SIM OPS	8 MAX. FLOW (gpm)	9 PIPE SIZE (in)	10 MAX. VELOCITY (FPS)	11 LENGTH OF MAIN THIS ZONE	12 FRICTION LOSS FACTOR (ft/100 ft)	13 FRICTION LOSS THIS ZONE	14 ACCUM. FRICTION LOSS (ft)	15 MAX. MAIN ELEV.	16 MIN. PUMP ELEV.	17 STATIC HEAD (ft)	18 TOTAL DYNAMIC HEAD (ft)
1	2	3	3	200	11	2	22	1.5	3.04	205	2.15	4.41	73.41	40	10	30	103.41
2	3	6	9	200	11	3	33	2.0	2.92	380	1.54	5.86	69.00	40	10	30	99.00
3	5	9	18	200	11	4	44	2.0	3.89	630	2.63	16.56	63.14	40	5	35	98.14
4	5	3	3	200	11	2	22	1.5	3.04	310	2.15	8.46	53.25	40	5	35	88.25
5	6	9	30	200	11	5	55	3.0	2.24	800	0.60	4.83	46.58	40	5	35	81.58
6	9	17	47	200	11	6	66	3.0	2.69	1,000	0.85	8.46	41.75	40	5	35	76.75
7	8	3	3	200	11	2	22	1.5	3.04	175	2.15	3.77	49.56	40	5	35	84.56
8	9	4	7	200	11	3	33	2.0	2.92	810	1.54	12.50	45.80	40	30	10	55.80
9	12	6	60	200	11	7	77	3.0	3.14	520	1.12	5.85	33.30	40	10	30	63.30
10	11	3	3	200	11	2	22	1.5	3.04	230	2.15	4.95	37.03	40	10	30	67.03
11	12	3	6	200	11	3	33	2.0	2.92	300	1.54	4.63	32.08	40	10	30	62.08
12	14	1	67	200	11	7	77	3.0	3.14	240	1.12	2.70	27.45	40	10	30	57.45
13	14	3	3	200	11	2	22	1.5	3.04	985	2.15	21.19	45.94	40	5	35	80.94
14	14	2	72	200	11	7	77	3.0	3.14	2,200	1.12	24.75	24.75	40	30	10	34.75

Column 4 is completed by referring to Table 3, where the maximum number of pumps in simultaneous operation is given as a function of the number of pumps upstream from the end of the particular zone. The output of each zone will vary slightly with head requirements, but under typical conditions, the flow is approximately 11 gpm.

Calculate the maximum anticipated flow for each zone by multiplying the number of simultaneous operations in Column 7 by 11 gpm and record the results in Column 8.

To complete columns 9, 10, 12 and 13, refer to Flow Velocity and Friction Head Loss table for the type of pipe selected — in this case, Table 5 for SDR-21. It will be seen that the engineer will frequently be presented with more than one option when selecting pipe size. Sometimes a compromise in pipe size will be required to meet present needs as well as planned future development. As a general rule, pipe sizes should be selected to minimize friction losses while keeping velocity near or above 2 feet per second.

For example, Zone 1 has a maximum of two pumps running (Column 7). Table 5 offers a choice of 1.25-inch, 1.5-inch or 2-inch pipe. 1.5- inch pipe is selected since flow velocity equals 3.4 ft/sec and friction loss equals 2.15 ft/100 ft. Since the zone is 205 feet in length (Column 11), the total friction loss (Column 13) is:

- $HF = (2.15\ ft/100\ ft) \times (205\ ft) = 4.41\ ft$

For Zone 14, with 72 upstream pumps, it is seen that a maximum of seven pumps can be running simultaneously. Table 5 provides options for 3-inch and 4-inch pipe.

- 3-inch pipe $V = 3.14\ ft/sec;\ HF = 1.12\ ft/100\ ft$
- 4-inch pipe: $V = 1.90\ ft/sec;\ HF = 0.33\ ft/100\ ft$

The smaller-diameter 3-inch pipe is selected because of the increased velocities, especially with the TDH below 185 feet. A choice of 3-inch pipe would lead to a friction loss in this zone of:

- $HF = (1.12\ ft/100\ ft) \times (2200\ ft) = 24.75\ ft$

Accumulated friction loss (Column 14) for each zone is next determined by adding the friction loss for each zone from the system outfall (Zone 14) to the zone in question. Thus, from Figure 3 it is seen that the accumulated friction loss for Zone 1 is:

Zone Number	Friction Loss (ft)
14	24.75
12	2.70
9	5.85
6	8.46
5	4.83
3	16.56
2	5.86
1	4.41

73.41 ft = Accumulated friction loss, Zone 1

The same summation is completed for each zone.

To complete the hydraulic analysis, refer to the drawing contours and record in Column 15 the maximum line elevation between the point of discharge and the zone under consideration. In Column 16, record the elevation of the lowest pump in the zone. Subtract the values in Column 16 from those in Column 15 and record only positive elevation differentials in Column 17. Add the values in Column 14 to those in Column 17 and record the total in Column 18 to show the maximum combination of friction and static head a pump will experience at any given point in the system.

Table 5
SDR 21 PVC PIPE
Flow Velocity and Friction Head Loss *vs* Pumps in Simultaneous Operation (C = 150)

	1 1/4 in.		1 1/2 in.		2 in.		2 1/2 in.		3 in.		4 in.		5 in.		6 in.		8 in.		
N	V	H_F	V	H_F	V	H_F	V	H_F	V	H_F	V	H_F	V	H_F	V	H_F	V	H_F	N
1	1.99	**1.15**	1.52	**0.60**															1
2	3.99	**4.16**	3.04	**2.15**	1.95	**0.73**													2
3	5.98	**8.82**	4.56	**4.56**	2.92	**1.54**	1.99	**0.61**											3
4	7.97	**15.02**	6.08	**7.77**	3.89	**2.63**	2.66	**1.04**	1.79	**0.40**									4
5					4.87	**3.97**	3.32	**1.57**	2.24	**0.60**									5
6					5.84	**5.57**	3.99	**2.20**	2.69	**0.85**									6
7					6.81	**7.41**	4.65	**2.93**	3.14	**1.12**	1.90	**0.33**							7
8							5.32	**3.75**	3.59	**1.44**	2.17	**0.42**							8
9							5.98	**4.66**	4.04	**1.79**	2.44	**0.53**							9
10							6.64	**5.67**	4.49	**2.18**	2.71	**0.64**							10
11									4.93	**2.60**	2.98	**0.76**	1.95	**0.27**					11
12									5.38	**3.05**	3.25	**0.90**	2.13	**0.32**					12
13									5.83	**3.54**	3.52	**1.04**	2.31	**0.37**					13
14									6.28	**4.06**	3.80	**1.19**	2.48	**0.43**					14
15											4.07	**1.36**	2.66	**0.48**	1.88	**0.21**			15
16											4.34	**1.53**	2.84	**0.55**	2.00	**0.23**			16
17											4.61	**1.71**	3.02	**0.61**	2.13	**0.26**			17
18											4.88	**1.90**	3.19	**0.68**	2.25	**0.29**			18
19											5.15	**2.10**	3.37	**0.75**	2.38	**0.32**			19
20											5.42	**2.31**	3.55	**0.82**	2.50	**0.35**			20
21											5.69	**2.53**	3.73	**0.90**	2.63	**0.39**			21
22											5.96	**2.76**	3.90	**0.98**	2.75	**0.42**			22
23											6.24	**2.99**	4.08	**1.07**	2.88	**0.46**			23
24													4.26	**1.16**	3.00	**0.49**			24
25													4.44	**1.25**	3.13	**0.53**			25
26													4.61	**1.34**	3.25	**0.57**			26
27													4.79	**1.44**	3.38	**0.61**	1.99	**0.17**	27
28													4.97	**1.54**	3.50	**0.66**	2.07	**0.18**	28
29													5.15	**1.64**	3.63	**0.70**	2.14	**0.19**	29
30													5.32	**1.75**	3.75	**0.75**	2.21	**0.21**	30
31													5.50	**1.86**	3.88	**0.79**	2.29	**0.22**	31
32													5.68	**1.97**	4.01	**0.84**	2.36	**0.23**	32
33													5.86	**2.08**	4.13	**0.89**	2.44	**0.25**	33
34													6.03	**2.20**	4.26	**0.94**	2.51	**0.26**	34
35													6.21	**2.32**	4.38	**0.99**	2.58	**0.28**	35
36															4.51	**1.05**	2.66	**0.29**	36
37															4.63	**1.10**	2.73	**0.30**	37
38															4.76	**1.16**	2.81	**0.32**	38
39															4.88	**1.21**	2.88	**0.34**	39
40															5.01	**1.27**	2.95	**0.35**	40
41															5.13	**1.33**	3.03	**0.37**	41
42															5.26	**1.39**	3.10	**0.39**	42
43															5.38	**1.45**	3.17	**0.40**	43
44															5.51	**1.52**	3.25	**0.42**	44
45															5.63	**1.58**	3.32	**0.44**	45
46															5.76	**1.65**	3.40	**0.46**	46
47															5.88	**1.72**	3.47	**0.47**	47
48															6.01	**1.78**	3.54	**0.49**	48
49															6.13	**1.85**	3.62	**0.51**	49
50															6.26	**1.92**	3.69	**0.53**	50

Head Loss Calculations
From Modified Hazen - Williams Formula

$$H = .2083 \left[\left(\frac{100}{} \right)^{1.852} \times \frac{q^{1.852}}{} \right]$$

$$V = .3208 \frac{q}{\frac{d^2\pi}{4}}$$

C = 150
q = flow in gallons per minute
d = I.D. of pipe in inches =
[average O.D. - (2 x min. wall thickness]

N = Number of pumps operating at 11 gpm
V = Flow velocity in ft/sec
H_F = Friction head loss in ft/100 ft of pipe

300.3.10.8 Review. The accumulated data in Table 4 should finally be reviewed for conformity with the criteria of flow velocity greater than or equal to 2.0 ft/sec and total design head less than or equal to 185 feet. If the system pressure exceeds 92 feet, the number of cores operating will remain the same and the flow from each pump will be reduced from 11 gpm to 9 gpm.

Data should be reviewed to determine whether system improvements could result from construction modifications. As an example, deeper burial of pipe in one or two critical high-

elevation zones might bring the entire system into compliance with design criteria. The system manufacturer should be consulted in marginal cases and/or concerning:

- Odor control issues
- Frost protection issues
- Excessive static head conditions
- Excessive total dynamic head conditions
- Unusual applications

300.3.11 SEPTIC TANK EFFLUENT PUMP (STEP) SYSTEM

A Septic Tank Effluent Pump (STEP) system will be considered as an option to add onto the grinder station system and to replace failed septic/leach field systems. A STEP system is a type of pressure sewer system which utilizes a septic tank and a pump/grinder station. The use of this type of system will require the septic tank to be located prior to the grinder station. The septic tank will capture most settleable solids. Settled solids must be removed from the tank periodically to avoid their taking up excessive volume within the tank and thus reducing its actual hydraulic detention time. Solids removal, along with partial oxidation of the sewage's soluble biochemical oxygen demand (BOD) content, provides a significant reduction in influent BOD by the STEP system, thus reducing loading to the publicly owned treatment works. The second component of this system will be the grinder station which transfers effluent to a common pressure main.

Septic tanks, grease traps and sand oil separators will follow the requirements of SD DANR Chapter III, Section R (Pressure Sewer System).

Use of existing septic tanks will be allowed by the City of Spearfish and the State of South Dakota on a case-by- case basis if results of testing and inspection are positive, otherwise existing tanks should be removed or decommissioned.

- Construction details and configuration of septic tanks shall conform with SD Administrative Rules. All tanks shall feature inlet and outlet risers with lockable covers.
- Covers shall be designed for H-20 loading in traffic areas.
- Inlet riser shall be minimum 8" diameter.
- Outlet risers shall be sized to accommodate and access the equipment installed, with 24" diameter as a minimum.
- Intermediate 8" risers will be required on large tanks over 3000 gallons.

Because of corrosion, odor, and safety concerns, discharges into armored gravity sewer manholes will be required. Additionally, downstream sewer and manholes may need to be armored with approved acid-proof coatings for a sufficient distance to dissipate the hydrogen sulfide. The required distance shall be determined case by case by the engineer, depending on sewer turbulence and anticipated initial sulfide strength.

The engineer's design submittal must contain an evaluation of hydrogen sulfide production, and proposed control measures to protect the gravity sewer system against corrosion. Air injection or

chemical treatment may be necessary. The City of Spearfish will evaluate proposed methods for handling hydrogen sulfide on a case-by-case basis.

300.3.12 GENERAL DESIGN REQUIREMENTS AND CONSIDERATIONS

Single tanks and grinder stations serving multiple lots under separate ownership will not be allowed. Systems serving facilities such as RV parks, mobile home parks, apartments, and unit developments are usually under the control of a single customer or responsible association. Such systems may be designed with shared tanks or grinder chambers, subject to requirements and approval of the SD DANR and the City of Spearfish.

- Flotation of tanks and grinder stations in areas of high groundwater shall be anticipated in system design. Structural design features and operational procedures shall be employed to prevent flotation. Equalization of buoyancy through hydrostatic pressure-relief valves will not be allowed.
- All sewage from the building including kitchen, laundry, and bath wastes shall be intercepted and conveyed to the septic tank or grinder station.
- Multiple force mains may be utilized within a development so long as each force main has a discharge location into a gravity system.
- It will be the Developer's responsibility to extend gravity sewer as far as possible to provide a discharge point for the common low-pressure force main. Gravity mains will be required to meet City of Spearfish minimum sizing for gravity sewers.
- Each system shall have an emergency capacity for power outages as discussed previously.
- Existing building laterals/service lines must be replaced if inspections and testing show that the lateral/service line does not meet the regulations of the City of Spearfish and the State of South Dakota. Alternatively, a cleanout must be installed adjacent to the building and inspected and tested in accordance with the current building code.
- Low pressure sewer systems shall be supplied by a single manufacturer for all phases of development within a subdivision.
- The approved LPSS manufacture will be Environmental One Corporation. Other manufacturers that can demonstrate they meet all requirements of this document and the City of Spearfish LPSS construction specifications, can demonstrate their product is equal to or superior to the above-named manufacturer, and which are approved by the City of Spearfish will be acceptable. The City of Spearfish shall have 60 days to review and approve or disapprove LPSS requesting to be approved.

300.3.13 DESIGN SUBMITTALS AND CONSTRUCTION REQUIREMENTS

Plans and specifications must be submitted to the City of Spearfish and the SD DANR for review and approval. In addition to the requirements found in the sanitary sewer design standards and plan requirements for the City of Spearfish submittals must also include:

- Engineer's design data including hydraulics (model summary table or equivalent), and sizing of tanks/stations, pumps, and pipes. In general, system design must conform to

information herein and with the requirements published in SD DANR Chapter III, Section R (Pressure Sewer System).

- Technical standards and specifications for systems to be installed, including acceptance testing.
- Explanation of effect of proposed pumping rate on maintenance requirements.
- Copy of current covenants/ordinance allowing use of the proposed systems.
- Engineer's evaluation of hydrogen sulfide production and preliminary design of control measures to protect system against corrosion.
- An itemized list of quantities involved in the project.
- Design documents that follow the City of Spearfish requirements.
- Plan and profile sheets indicating the location and depth of the proposed system.
- Detail sheets as required.
- The name and address of the owner, developer, and engineer must be shown on the plans. Easements must also be shown. Blanket easements may be indicated by note.

300.3.14 REFERENCES FOR LPSS DESIGN

Carcich, I., Hetling, L.J., and Farrell, R.P. “A Pressure Sewer System Demonstration,” EPA-R2- 72-091, Office of Research and Monitoring, U.S. Environmental Protection Agency, Washington, D.C., November 1972.

Farrell, R.P. “Long-Term Observation of Wastewater Observation Stations,” TM-2, American Society of Civil Engineers, April 1968.

“Handbook of PVC Pipe: Design and Construction,” Uni-Bell PVC Pipe Association, Dallas, Texas, Second Edition, 1982.

Hicks, T.G., and Edwards, T. W. “Pump Application Engineering,” McGraw Hill, New York, 1971.

Stepanoff, A.J. “Centrifugal and Axial Flow Pumps,” John Wiley and Sons, New York, 1948.

Tucker, L.S. “Hydraulics of a Pressurized Sewerage System and Use of Centrifugal Pumps,” TM- 6, American Society of Civil Engineers, 1967.

Tucker, L.S. “Sewage Flow Variations in Individual Homes,” TM-2, American Society of Civil Engineers, February 1967.

Waller, D.H. “Peak Flow of Sewage from Individual Homes,” TM-9, American Society of Civil Engineers, January 1968.

300.4 SEWER SERVICES

Installation shall be as specified in the Supplemental Construction Specifications, design and layout requirements are as follows.

Separate service lines shall be provided for each platted lot. For multiple buildings (i.e. an apartment complex) on a single platted lot, one common service connection to the city main is permitted provided that minimum pipe sizing requirements are met. Please refer to Figure 300-02.

All sewer lines, including private systems, must run at right angles to the street and may not run in the ROW parallel to the street. Service lines shall not cross adjoining property lines and shall connect to mains fronting the property. Private service lines may not cross adjoining properties even if they are located in private easements. Where service lines are being replaced to bring property into compliance, the new service line shall connect to a main at the front of the property even if that requires a main extension.

Sewer services shall be designed according to the Supplemental Construction Specifications. Exceptions to these criteria may be granted for trenches excavated in rock. Requests for exception must provide the following: the sewer service must be located eighteen inches (18") below the water service and must have a twelve inch (12") horizontal separation or the water service line must be installed in a watertight casing pipe. Reconnecting existing service lines is not allowed unless they meet the separation requirements of a new installation.

Existing service lines may be used for a new building only if they are examined by the City Engineer and are found to comply in all respects with this Section and the Spearfish Standard Specifications. Sewer service shall also be tested per City standards.

300.4.1 DESIGN

Service lines shall be designed in accordance with the adopted City of Spearfish Plumbing Code, and as follows:

- Minimum diameter shall be as required by the adopted City of Spearfish Plumbing Code (South Dakota Plumbing Code), but not less than four (4) inches in any circumstance; and
- Minimum depth is to be four (4) feet from top of pipe to finished surface;
- Minimum slope is to be ¼ inches per foot (2%) for four (4) inch and 1/8 inches per foot (1%) for six (6) inch diameter services.
- Sewer services crossing less than eighteen (18) inches above water mains shall have a full pipe length centered on the water main. This requirement also applies to crossing water service lines.

Cleanouts shall be installed at the following locations:

- Every one hundred feet (100 ft.) for services.
- All changes in alignment greater than forty-five (45) degrees.
- Within three (3) to five (5) feet from each building served.

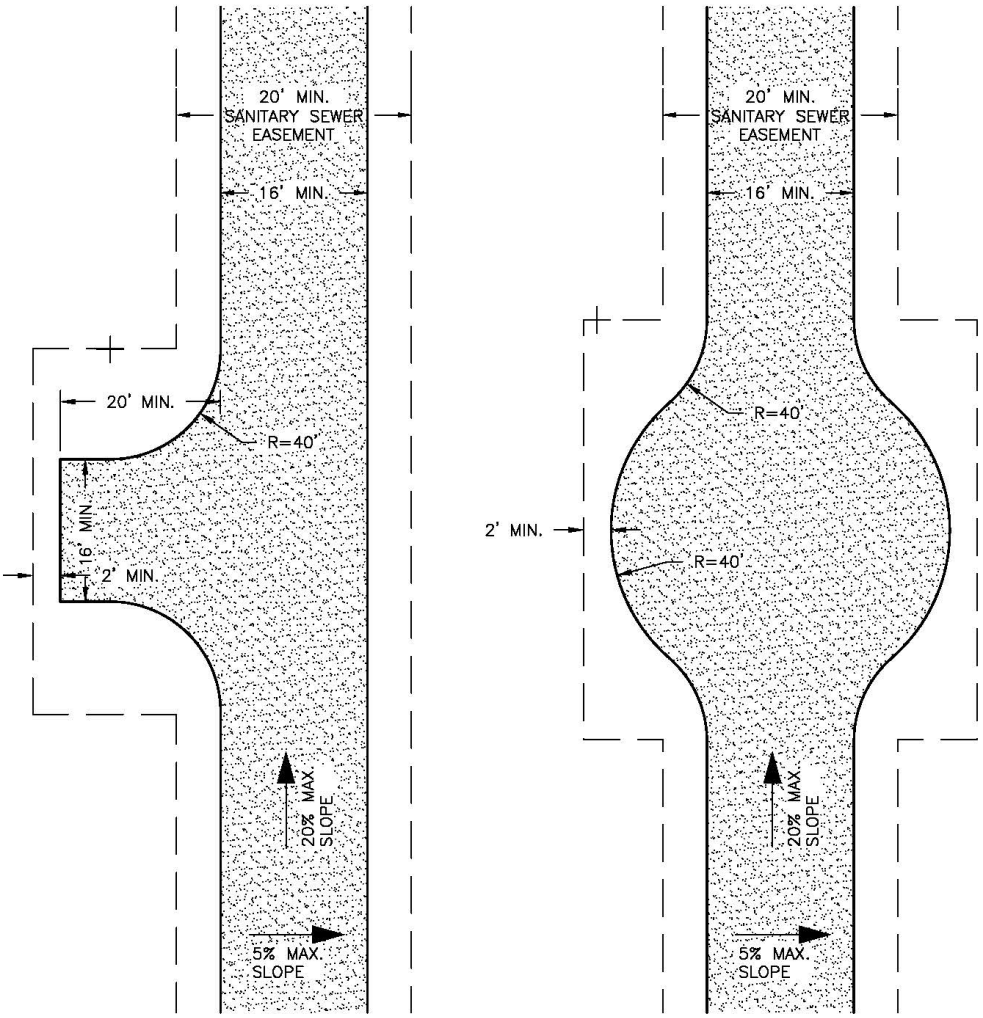
All cleanouts shall be extended to finished grade. All cleanouts located in all driving areas, concrete, or asphalt shall be made accessible by yard boxes or by extending flush with paving approved materials and adequately protected as per the Supplemental Construction Specifications.

- Taps on sewer mains shall not exceed six inches (6") in diameter. Service lines greater than six inches (6") in diameter shall be connected to the main with a manhole.
- Services four inches (4") and six inches (6") in diameter shall be tapped directly to the main and not connected to manholes. A minimum of 3 feet horizontal separation is required

between the manhole and the tap. And a minimum of 3 feet horizontal separation between sewer service connections measured to the outer dimension of both pipes is required.

- Sewer service lines shall be bedded and backfilled as per the Supplemental Construction Specifications.
- Foundation drains, roof drains, area drains, storm drains, sump pumps, and other sources of surface or ground water shall not be connected to sanitary sewers.

END OF SECTION



NOTES:

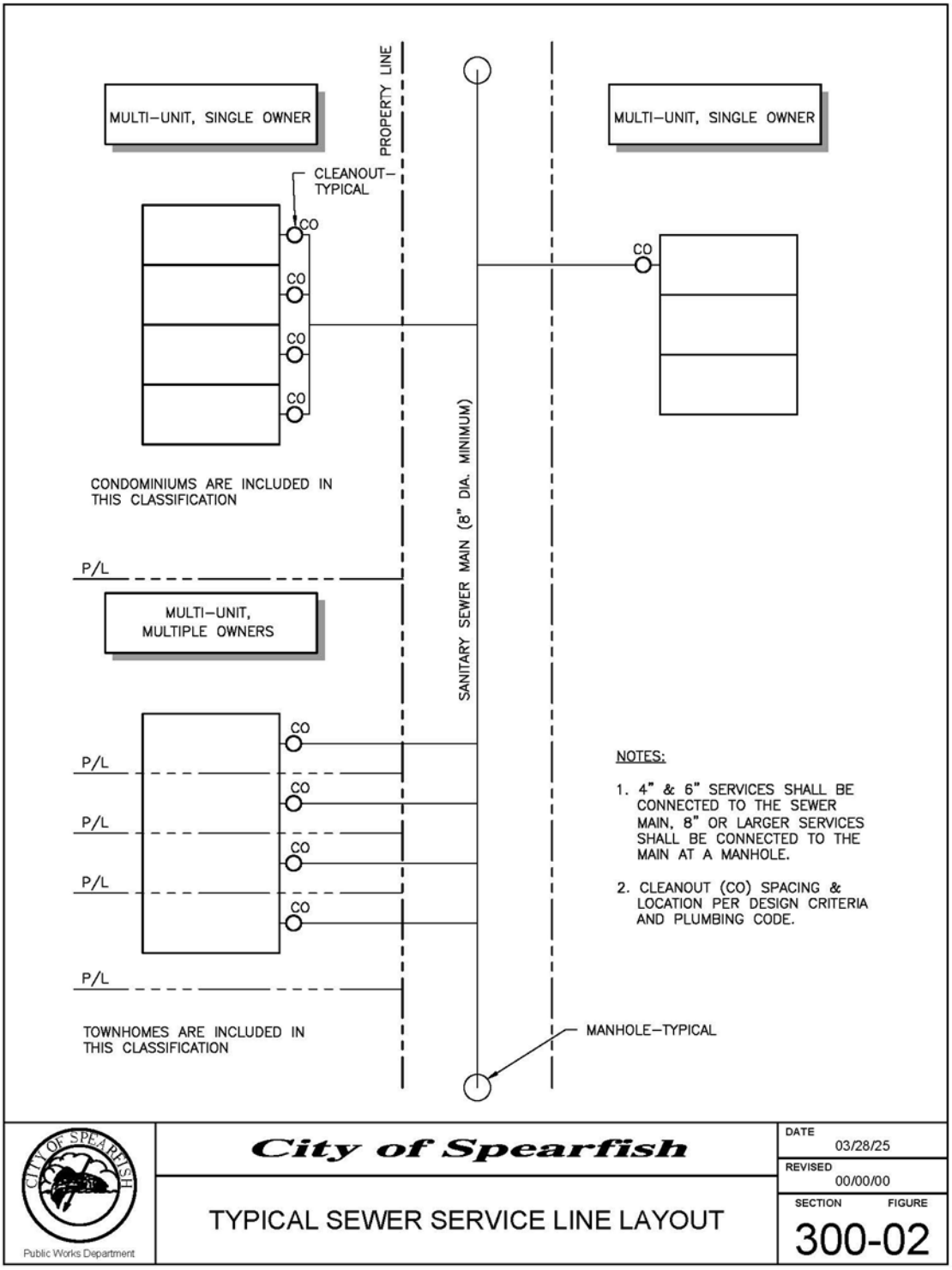
1. ALL WEATHER SURFACING IS REQUIRED FOR THE ACCESS. A MINIMUM OF 6" OF GRAVEL OR ASPHALT MILLINGS SHALL BE USED FOR THE SURFACING.
2. TURNAROUNDS SHALL BE PLACED ON/ALONG THE ACCESS ROAD EVERY 500 FEET AND AT DEADENDS.
3. THE MAXIMUM TRANSVERSE SLOPE OF 5% SHALL EXTEND TO ENTIRETY OF THE EASEMENT WIDTH.
4. ACCESS ROADS MAY BE WAIVED AT THE DISCRETION OF THE CITY ENGINEER, THROUGH THE EXCEPTION PROCESS.

Public Works Department

City of Spearfish

ACCESS ROAD WITH TURNAROUNDS
FOR SEWER SYSTEMS OUTSIDE OF R.O.W.

DATE	04/03/25
REVISED	00/00/00
SECTION	FIGURE
300	01


MULTI–UNIT, SINGLE OWNER
PROPERTY LINE
MULTI–UNIT, SINGLE OWNER
CLEANOUT–TYPICAL
CO
CO
CO
CO
CO
CONDOMINIUMS ARE INCLUDED IN THIS CLASSIFICATION
SANITARY SEWER MAIN (8" DIA. MINIMUM)
P/L
MULTI–UNIT, MULTIPLE OWNERS
CO
CO
CO
CO
P/L
P/L
P/L
P/L
NOTES:
1. 4" & 6" SERVICES SHALL BE CONNECTED TO THE SEWER MAIN, 8" OR LARGER SERVICES SHALL BE CONNECTED TO THE MAIN AT A MANHOLE.
2. CLEANOUT (CO) SPACING & LOCATION PER DESIGN CRITERIA AND PLUMBING CODE.
TOWNHOMES ARE INCLUDED IN THIS CLASSIFICATION
MANHOLE–TYPICAL
City of Spearfish
Public Works Department
DATE
03/28/25
REVISED
00/00/00
SECTION
FIGURE
300-02
TYPICAL SEWER SERVICE LINE LAYOUT

SECTION 400

CITY OF SPEARFISH
WATER DISTRIBUTION

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SECTION 400

CITY OF SPEARFISH
WATER DISTRIBUTION SYSTEMS

400.1 GENERAL REQUIREMENTS

400.1.1 DESIGN STANDARDS

The design for watermain facilities shall be in conformance with this section. All water main facilities shall be designed and sealed by a licensed engineer in the state of South Dakota. Where design information is not provided herein, the most current edition of the following standards shall be used:

- Recommended Standards for Water Works, Great Lakes—Upper Mississippi River Board of State and Provincial Public Health and Environmental Managers (Ten State Standards).
- Requirements and Standards of the South Dakota Department of Agriculture and Natural Resources.
- American Water Works Association Standards.
- South Dakota Plumbing Code.
- Uniform Plumbing Code.
- International Fire Code and referenced NFPA Standards.

In case of a conflict between the above design standards, the most restrictive requirement shall apply.

400.1.2 REQUIRED LOCATIONS OF WATER SYSTEMS

400.1.2.1 Water Systems within Public Right-of-ways. Water mains shall be located in the public right of way, within the paved street section. Water mains shall not be placed along the centerline of the street or within the curb and gutter section and shall be a minimum of 4 feet from the lip of the gutter. Water mains will be required to maintain a 10-foot horizontal separation from storm and sanitary sewer mains that are also installed in the same street section.

Water mains shall be extended across the full frontage of each parcel to be served, except as modified for cul-de-sacs.

Water mains within easements may be considered with approval of the City Engineer under the following conditions:

- Topography, floodplain, or other natural features, prevent a new right of way corridor from being developed.
- A looped system is required, but no existing right of way is available.
- Special circumstances: such as offsite utilities must pass through un-platted property to provide service for a proposed development.

400.1.2.2 Easement Requirements for Water Systems Outside of Public Right-of-ways. If the conditions for exception outlined in Section 400.1.2.1 apply, an easement shall be granted to the city and recorded with the Registrar of Deeds. The easement shall include the following:

- A minimum width of twenty feet (20 ft.) centered on the main.
- For mains buried deeper than ten feet (10 ft.) in depth, the easement width shall be two times the depth, centered on the utility.
- If a main must pass along the boundary line of two parcels, the easement shall be located on one property, versus equally divided or centered on the parcel boundary. Distribution and service mains shall be at least 15 feet away from structures (including roof overhang), unless otherwise specified by the City Engineer.
- Combined water and sewer easements shall be a minimum of thirty feet (30 ft.) wide with ten feet (10 ft.) separation between utilities and ten feet (10 ft.) between the utility and the edge of the easement.
- Water main easements shall be exclusive to water main purposes only with no dry utilities (gas, electrical, communications) running parallel to the water main. Crossing of the water main with dry utilities is permitted.
- Property owner shall maintain easement free of all obstructions including but not limited to buildings, walls, fences, hedges, trees and shrubs and cannot significantly alter the existing grade within the easement. These easements grant, to all public authorities, the right to construct, operate, maintain, inspect, and repair such improvements and structures as the authority deems necessary to facilitate operation and maintenance of the public infrastructure.
- Easement documents shall identify entities responsible for repair or maintenance of any surfacing.
- The City of Spearfish will provide easement document templates that will require an easement exhibit prepared by a Registered Land Surveyor. The easement documents shall identify entities responsible for repair or maintenance of any surfacing.
- The finished surface profile of the easement, parallel to the main, shall not exceed twenty percent (20%).
- The finished cross slope or transverse slope of the easement, transverse to the main shall not exceed five percent (5%).
- Access roads shall be provided within the easements that shall have turn-around areas for maintenance vehicles every five hundred (500 ft.) and at dead-ends. Refer to Figure 400-01 for turn around dimensions. Minimum surfacing width must be sixteen feet (16 ft.) and surfacing shall be an “all weather” material, such as gravel or asphalt millings.

All easements shall have a vertical clear space of thirteen feet six inches (13’-6”) above finished grade for overhead utilities only. Utilities will only be allowed to cross the easement.

400.1.2.3 Easement Requirements for Fire Hydrants.

The following are requirements for a fire hydrant placed outside the public right-of-way.

- A separate easement specifically for the City of Spearfish shall be provided for the fire hydrant.
- The easement shall provide an area from the ROW defined as eight feet (8 ft.) each side of the fire hydrant lead and extending six feet (6 ft.) (minimum) past the fire hydrant (to the rear of the fire hydrant).
- The fire hydrant shall be located so that there are no obstacles, barriers, or topographical constraints, which limit the Fire Department's ability to use the hydrant.
- A note shall be placed on the easement document stating that the property owner cannot cover, block, or otherwise inhibit the use of the fire hydrant by installing any landscaping structural features, bushes, fences, retaining walls, etc. and the fire hydrant shall, at all times, remain visible from the street ROW.
- Fire hydrant placement outside of the ROW requires authorization of the City Engineer per the above easement requirements.

400.1.3 CONSTRUCTION PHASING

Water distribution systems shall extend across all proposed street intersections located in adjacent and subsequent phases and shall extend a minimum of 10' beyond the paved surface.

Construction phasing which terminates mains in mid-block will be required to meet Section 400.1.4, Provisions for Future Extension.

400.1.4 PROVISIONS FOR FUTURE EXTENSION

Complete subdivision layout with valving and hydrants and construction phasing shall be shown on the initial submittal.

Mains shall be terminated with a valve and plug immediately beyond a hydrant set on a tee and not at the end of the pipe in order to permit future extension of the main without opening or shutting off the main.

Water mains shall be extended to a minimum of 10' beyond the paved surface to enable connection without disturbing the existing surfacing of each parcel to be served except as modified for cul-de-sacs.

400.1.5 REQUIREMENTS FOR SINGLE LOT OR MULTI-RESIDENTAL, SINGLE LOT OR MULTI-COMMERCIAL COMPLEXES, AND MOBILE HOME PARKS

Water utilities in single lot mobile home parks with leased spaces, single lot or multi-residential and single lot or multi-commercial complexes shall be privately owned and maintained and shall be designed per the requirements in this section and Section 400.3, Water Service Lines. Water mains with a minimum diameter of 6 inches are allowed for private water systems that meet

minimum fire flows plus peak day demand or peak hour demand, whichever is greater, while maintaining minimum residual pressures and maximum velocities as presented in these standards.

Private water system layouts shall be as specified herein and as shown in Figures 400-02 through 400-04. Private systems will have one connection onto the City's water system that includes the installation of a backflow device and a master meter vault. When applicable, the City Engineer can require additional connection points to the City's water system with the installation of a main line valve on the private main that will remain closed. Additional connection points will only be utilized under emergency situations by the City Utility Department. The backflow device and master meter vault shall be located within the lot typically within 5' of the public right-of-way.

If each structure on the lot directly abuts a public road/right-of-way and no additional fire hydrants are required onsite (i.e. existing area hydrants meet IFC spacing requirements for the development) then separate service lines from the city main to each structure with meters being placed inside each structure will be allowed as an alternative to the master meter vault requirement described in the previous paragraph.

Private fire protection systems and protection flow rates will be designed in accordance with the International Fire Code.

400.1.6 MOBILE HOME PARK SUBDIVISION DEVELOPMENTS

Mobile home parks may be developed on a single lot with leased spaces or developed as a subdivision with individual platted lots. Refer to Figure 400-02 for the general water system layout for each option.

If the mobile home park is developed as a subdivision all infrastructure required shall be publicly owned and dedicated to the city. The public water system shall be designed per the requirements of this section with each platted lot having individual water services with a curb stop and a meter pit.

400.2 WATER SYSTEMS

400.2.1 DESIGN LIFE

All proposed water distribution systems shall be designed to achieve a minimum design life goal of one hundred (100) years. This section establishes design standards for public and private distribution systems and fire protection systems.

400.2.2 DOMESTIC WATER USE CRITERIA

Water use criteria for various areas of the City shall be as stated in the current utility system master plan document. If values are not available in the master plan document, the following values shall be used:

Water Use Criteria			
Land Use	**Average Day**	**Peak Day**	**Peak Hour**
Residential single-family	0.4 gpm/du	1.8 gpm/du	4.0 gpm/du
Residential multi-family	0.3 gpm/du	1.3 gpm/du	3.0 gpm/du
Commercial office/retail	0.8 gpm/ac	3.2 gpm/ac	6.4 gpm/du
Industrial	0.8 gpm/ac	3.2 gpm/ac	25.6 gpm/ac**

Gpm=gallons per minute, du=dwelling unit, ac=acre

*Duplexes for the purpose of determining water use shall be considered as two residential single-family units.

**Recommended value to be utilized in the absence of site-specific engineering criteria or analysis.

400.2.3 FIRE FLOWS

Generally, the following are required for fire flow design, in addition to the subsequent subsections:

- All water distribution systems shall be designed to meet the greater of: peak hour conditions or peak day plus (+) fire flow conditions.
- All water distribution systems shall be designed to provide levels of fire protection consistent with the zoning of property served.
- Public system fire flow requirements shall be as determined by the currently adopted IFC.
- Private fire protection systems shall be designed in accordance with the International Fire Code (IFC).
- Fire flows are based on a single fire event within an individual service zone.
- In case of discrepancy between the Fire Code and these criteria, the larger value requirements shall govern.

400.2.3.1 Fire Flow for Residential. Fire flow shall be as detailed in the currently adopted version of the IFC. Residences under thirty-six hundred (3,600) square feet in gross area shall have a one thousand (1,000) gpm fire flow requirement and residences over thirty-six hundred (3,600) square feet shall have a flow requirement of one thousand five hundred (1,500) gpm or greater as detailed in the IFC. The number and spacing of fire hydrants required to collectively achieve the minimum fire flow requirement are identified in the International Fire Code Appendix C.

400.2.3.2 Fire Flow for Commercial and Industrial. Fire flows for commercial and industrial areas will follow the currently adopted version of the IFC for the proposed facilities.

400.2.4 ALLOWABLE PIPE VELOCITIES

The following table shows the maximum allowable pipe design velocities.

Maximum Water Pipe Velocity	
Conditions	**Maximum Allowable Pipe Velocity**
Average Day Demand	Five (5) feet per second (fps)
Peak Day Demand with Fire Flow	Twelve (12) feet per second (fps)
Peak Hour Demand	Five (5) feet per second (fps)

400.2.5 WATER PIPE FRICTION FACTOR CRITERIA

The designer shall evaluate the distribution system they are analyzing for friction factors and minor losses. The designer shall summarize the assumptions made and the supporting rational. In the absence of a more refined evaluation for small distribution, a Hazen-Williams "C" factor of one hundred twenty (120) shall be used for the piping material.

400.2.6 WATER MAINS

The following are minimum requirements for water mains.

- Water mains shall be extended across the full frontage of each parcel to be served, except as modified for cul-de-sacs.
- Water main materials shall conform to the requirements of the Standard Construction Specifications and this manual.
- Standard main sizes for the City of Spearfish will be 6*, 8, 10, 12, 20, 24, 30, 36, and 42-inch. Hydrant leads shall be 6-inch diameter. Water mains shall have a minimum diameter of 8 inches.
- Six-inch (6") to sixteen-inch (16") diameter mains shall be PVC, AWWA C-900. DR18 pipe shall be installed in areas where the system pressure will be up to 150 pounds per square inch (psi). DR14 pipe will be installed in areas where the system pressure will be above 150 psi.
- Twenty-inch (20") and greater diameters shall be ductile iron AWWA C-151/A21.51 with pressure class design per AWWA c-150/A21.50 or steel pipe AWWA C-200. Refer to Standard Specifications.

400.2.7 DESIGN CALCULATIONS SUBMITTAL REQUIREMENTS FOR WATER MAINS

The Engineer of Record shall submit their design assumptions and criteria used. In addition to this information, the designer shall submit the calculated peak hour demand, peak day demand with fire flow, and average day demand conditions.

400.2.8 WATER PRESSURE

The following water pressure requirements are the minimum to be adhered to:

- Static Pressure Requirements for systems are forty (40) psi minimum, one hundred thirty-five (135) psi maximum. Pressures are to be designed and measured at the highest surface elevation of the main for minimum pressure and lowest surface elevation of the main for maximum pressure.
- Design flow (peak day plus fire flow or peak hour, whichever is greater) residual pressure shall be twenty (20) psi minimum. Pressures are to be designed and measured at the highest surface elevation of the water main.
- For the peak day plus fire flow analysis, fire flow demand should be selected for the worst-case scenario, typically the hydrant furthest from the distribution connection(s) at the highest system elevation.
- Peak hour flow residual pressures shall be thirty-five (35) psi minimum. Pressures are to be designed and measured at the highest surface elevation of the main.
- For commercial and multi-family structures, the water system shall maintain a twenty (20) psi minimum residual pressure after the meter and backflow preventer at the finished floor elevation of the highest unit proposed during the peak day plus fire flow demand o, and a forty (40) psi minimum residual pressure during the peak hour demand.
- When evaluating the distribution system pressure, the designer shall evaluate the system under two reservoir conditions. The system shall be evaluated with the reservoir at fifty percent (50%) full and at one hundred percent (100%) full. The pressure criteria shall be satisfied for both reservoir conditions.

400.2.9 BOOSTER STATIONS

Booster stations on city water mains shall be designed with the following considerations. Stations shall also meet all applicable requirements of SDDANR design criteria.

- Booster pumping stations shall have a minimum of two pumps, with a reliable capacity of supplying the peak hour and the peak day plus fire flow demand.
- Booster pump intake pressure shall be at least 35 psi when the pumps are in operation and shall be provided with a low-pressure cutoff switch if the suction line pressure is a minimum of 20 psi.
- Pumps shall have an outlet for drainage from pump glands without discharging on the floor.
- Discharge associated with pressure reducing devices will not be allowed to be connected onto the floor drain and will require a separate drain line.

- All piping located under the building, interior piping and riser pipes shall be ductile iron with flange fittings. Cathodic protection will be required on the riser pipes.
- Magnetic water meters will be standard for booster stations.
- Air relief fittings shall discharge outside the building.

Individual booster pumps will not be allowed for individual services from the public water supply main to the meter/back-flow assembly. In special circumstances related to existing service lines and with written permission of the City Engineer, they may be allowed to be placed after/downstream of the meter/back-flow assembly within the structure being served.

400.2.9.1 Booster Station Buildings. The following are minimum requirements for the design of booster station buildings, including interior and exterior components.

- All booster stations will be located above ground in an enclosed building fitted with a heating system to prevent freezing.
- The heating system shall be comprised of a propane or gas heating system that will serve as a backup to the main electrical heating system.
- Buildings shall have adequate space for the installation of additional pumping equipment and for the safe servicing of all equipment.
- Buildings will require a building permit from the City and shall be constructed of masonry block with a pitched metal roof.
- Building colors and security fencing shall be determined as required.
- Grounding shall follow all local building codes.
- Electrical equipment shall be located in a separate room fitted with air conditioning and shall have a separate exterior door, no interior connecting door will be allowed.
- Buildings shall have at least one outward opening door to the outside that is large enough to accommodate the installation and removal of equipment. All doors and hatches will be made of steel and shall have locks.
- The building shall not have any windows installed and any security alarms installed shall be connected to the telemetry control and SCADA systems where such systems are used. The designer shall work with the City SCADA and radio system supplier to coordinate connection onto City systems. An emergency shut off shall be installed near the exterior of the access door.
- Buildings must be provided with a concrete floor and at least one floor drain that may discharge to the surrounding surface drainage system. The discharge must be at least 25 feet from the building and have an invert elevation that is at least 6 inches below the building floor elevation. The exterior pipe opening shall be covered with a rodent resistant screen. The piping shall terminate in a location that will not allow backflow of surface water into the building.

- Ventilation for all booster stations will be governed by applicable local building codes and may be continuous or intermittent. If intermittent, ventilation in areas normally visited by operating personnel shall be started automatically at not greater than 30-minute intervals and shall ensure starting upon entry of operating personnel.
- All booster stations must have a standby auxiliary power source consisting of a permanent backup generator.
- Stations shall be provided with craneways, hoist beams, eyebolts, or other facilities for servicing or removing equipment. They shall be rated to not less than 50 percent more than the weight of the heaviest single item to be lifted.
- Sites shall be landscaped to conduct surface drainage away from the station and have a floor elevation at least 6 inches above the finished grade and at least 3 feet above the regional flood elevation. Concrete aprons and exterior lighting shall be installed at all exterior doors.

400.2.10 DIAMETERS

The following are requirements for determining minimum acceptable diameters for water mains.

- Minimum Diameter of system mains shall be eight inches (8”).
- Water Distribution Systems shall be designed to meet the greater of: peak hour conditions, or peak day plus (+) fire flow conditions.
- Design shall limit the head loss in order to comply with the pressure requirements listed previously in this section.
- Design shall limit pipe velocities to comply with the maximum velocity criteria listed previously in this section.
- When evaluating the distribution system for purposes of determining pipe diameters, the designer shall evaluate the total system as stated in this section.

400.2.11 DEAD ENDS

Dead-end mains will not be allowed except in permanent cul-de-sacs or to promote phased construction with a maximum length of 800 ft. All dead-end mains shall be terminated with a standard fire hydrant.

400.2.12 VALVES

The following are requirements for Valve types, locations, spacing, and installation requirements.

Valve types shall be according to the following table:

Pipe Size	Type of Valve
4” up to 12”	Gate Valves
>12”	Butterfly Valves

Valves are required at the following locations:

- At intersections for valve clusters.
- At all pipe junctions, so that the total number of valves at the junction is one less than the number of branches, except as approved by the City Engineer.
- As otherwise required by the City Engineer.

The spacing of valves shall comply with the above criteria but not be spaced more than:

- Four hundred fifty feet (450 ft.) maximum on distribution mains, to coincide with hydrant spacing.
- Nine hundred feet (900 ft.) maximum on transmission mains.

The location, size, and type of all valves shall be shown and called out on the plan and profile drawings.

- No valve or valve box shall be installed within concrete curbs, gutters, sidewalk ramps, or within ten feet (10 ft. clear) of sewer facilities that require encasement.
- Foster adapters shall be installed at all tees and crosses where they are connected directly to water valves.
- 2” valve box risers shall be installed at each valve box located in paved areas.

400.2.13 AIR RELEASE VALVES

Where high points occur, fire hydrants shall be located at the high point in all water mains of 8-to-10-inch diameter. If, in the opinion of the City Engineer, a hydrant would not be satisfactory, an air release valve may be required.

Air release valves shall be installed at each high point in all water mains of 12-inch diameter and larger.

400.2.14 FIRE HYDRANTS

The required spacing of the fire hydrants is as follows:

- Spacing shall be per the International Fire Code (IFC), but not greater than four hundred fifty feet (450 ft.) for distribution mains.
- For transmission mains a spacing of up to nine hundred feet (900 ft.) may be allowed following approval from the City Engineer.

Fire hydrants are required in the following locations:

- Street intersections, within mainline valve cluster.
- High points in pipe profile of water mains 8 to 10 inches in diameter. If in the opinion of the City Engineer a hydrant would not be satisfactory, an air release valve will be required.
- Side lot line when spacing requires a hydrant to be located in mid-block.
- At all pressure zone separation boundaries. Two valves shall be installed: one on each side of the fire hydrant tee.

- At approved cul-de-sacs and future phase extensions.

In relation to other facilities and utilities the following additional requirements apply:

- Setback from back of curb shall be two feet (2 ft.) minimum and fifteen feet (15 ft.) maximum and must be positioned in the middle of any proposed boulevard as shown in Figure 400-05.
- Fire hydrants shall be located a minimum of one foot (12”) clear from the edge of sidewalks.
- Pumper nozzle shall be oriented perpendicular to the least traveled street at intersections and perpendicular to the street at mid-block.
- The location of all fire hydrants and valves shall be shown and called out on the plan and profile drawings.
- No fire hydrant or valve or valve box shall be installed within concrete curbs, gutters, sidewalk ramps, fillets, or within ten feet (10 ft.) (clear) of sewer facilities that require encasement.
- Fire hydrant bollards shall be provided whenever a fire hydrant is located within a travel way such as a parking lot or where curb and gutter is not installed.
- Flushing hydrants are not permitted for use.

400.2.15 WATER MAIN LAYOUT

Location of the water mains within public right-of-way shall be in accordance with this section.

- Distribution and service mains shall be at least 20 feet away from structures and under paved areas whenever possible, unless otherwise specified by the City Engineer.
- Other (private) utilities (parallel to water mains) shall maintain a minimum ten foot (10 ft.) horizontal separation from the water main.
- Other (private) utilities shall attempt to cross water mains at right angles to obtain ten-foot separation as soon as practical. Sewer and water main separation shall meet the requirements as established elsewhere in this manual.
- Changes in vertical or horizontal direction shall be accomplished with bends, fittings, or couplings for all mains. Deflection of the pipe or pipe joint in excess of manufacturer recommendations is not permitted.
- The location of all bends, fittings, couplings, and appurtenances shall be shown and called out on the plan and profile drawings. Long mechanical joint deflection couplings will be required under certain circumstances as determined by the City Engineer.

400.2.16 WATER MAIN PROFILE

Water main bury depths, insulation, and other minimum requirements are outlined in this section.

Bury depth shall be measured from the finished grade to the top of the pipe per the following table:

Bury Depth Table		
Pipe Diameter (inches)	Minimum Bury (feet)	Maximum Bury (feet)
12 inches and less	6.0	10
More than 12 inches and less than 20 inches	5.5	10
20 inches and larger	5.0	10

If grading occurs such that the bury depth no longer meets the required minimum or maximum depths, the existing water main shall be reconstructed with a new main. Insulating the existing main will not be permitted except as approved by the City Engineer.

Insulation requirements are as follows:

- Use of Insulation shall not be allowed to correct deficiencies in depth.
- Storm sewers up to 36 inches in diameter can be crossed with a minimal separation distance of 18 inches and must include insulation between the storm sewer and the water main.
- Crossings of larger storm pipes or box culverts must be reviewed and approved by the City Engineer regarding the use of insulation and separation distances.
- High points in the profile shall be minimized. Where high points occur in distribution lines, fire hydrants shall be located at the high point along with a water service located within 50 feet of the hydrant.

400.2.17 JOINT RESTRAINTS AND THRUST BLOCKS

Requirements for joint restraints and thrust blocks are as follows.

- Thrust restraint shall be provided for each of the following: dead end, valve, bend, tee, fire hydrant, reducers, fittings otherwise unrestrained, and where changes in pipe diameters or direction occur. The design engineer shall specify the size and shape of concrete thrust blocks.
- The length of restrained joint piping and details of joint restraint glands, clamps, friction slabs, or other anchors shall be as specified by the design engineer.
- The designer shall refer to the construction specifications for the requirements and use of joint restraints and thrust blocks and shall prepare their design to comply with the requirements of the specifications.
- The designer shall be responsible for evaluating the soil type, bearing capabilities, and corrosion potential. The designer shall employ a design safety factor commensurate with the site conditions and risk potential but in no case shall a safety factor of less than one and a half (1.5:1) be applied.

The project drawings at a minimum shall contain the following information:

- For each fitting, tee, cross, etc., criteria for “Minimum Concrete Thrust Block Bearing Area” and “Minimum Concrete Volume per Thrust Block” shall be given.
- The designer shall include a plan note or detail indicating if a fitting installation is to be restrained or thrust blocked and, if restrained, the beginning and end of the restraint.
- Pipe joint restraints at fitting locations must be used when the length of pipe from the fitting to the first joint is equal to or less than the lengths depicted in the Appendix figures.

400.2.18 STREAM CROSSINGS

For purpose of this Manual, stream shall mean all Corps of Engineer designated streams, any stream requiring a 404 permit, or as required by the City Engineer.

- A stream crossing shall start and end within a minimum of twenty feet (20 ft.) horizontally of the stream bank or where scour and erosion will not occur.
- Pipe and installation shall comply with SDDANR criteria, and City of Spearfish Standard Specifications.
- At a minimum the requirements of Section 400.2.16 will be followed.

400.2.19 WATER MAINS IN CASING PIPES

On a case-by-case basis, casing pipe may be required by the City Engineer whenever a water main crosses a major roadway, stream, or other location where it is desired to minimize disruption of the surface over the water main in the event of repair or replacement. The requirements for casing pipes are outlined in this section.

- Water mains in casing pipe shall have restrained joints.
- Casing pipe shall be steel with minimum yield strength of thirty-five thousand (35,000) psi and minimum wall thickness as follows:

Diameter of Casing (Inches)	**Minimum Wall Thickness* (Inches)**
Under 14	0.188
14 & 16	0.282
18	0.312
20	0.344
22	0.375
24	0.406
26	0.436
28 & 30	0.469
32	0.500
34 & 36	0.531
38, 40 & 42	0.563

*Additional wall thickness may be required based on the design, especially in the case of long bores or soil conditions

- Casing pipe shall have an inside diameter at least six inches (6") greater than maximum outside bell diameter of the carrier main.
- Water mains in casing pipe shall be supported with centering casing spacers and joint restraints specifically designed for this purpose. Casing spacers shall be fabricated from non-corrosive materials. Spacers shall be installed within 12 inches of each end of the casing pipe, on each side of the carrier pipe joint, and additional spacers installed at a maximum spacing of 8 ft. Carrier pipe joints will require joint restraints or the installation of Certa-Lok pipe. Casing spacer and joint restraint details shall be included on the drawings.
- Casing pipe shall be sealed with prefabricated non-corrosive end seals and bands manufactured specifically for the purpose of preventing movement of ground water or backfill through the casing pipe. Grout seals of the annular space will be on a case-by-case basis. Corrosion protection will be required at each end of the steel casing.

400.2.20 PRESSURE REDUCING FACILITIES

Pressure reducing valve facilities (PRV) installations are used to control pressures between distribution zones and along transmission mains where pressure fluctuations may occur. This section outlines the requirements for design and layout of PRV facilities.

When main extension plans are submitted for review, the need for a pressure regulating valve installation shall be determined based on existing pressure zones and the existing distribution system. Plans shall be submitted indicating size, type, and location for the PRV installation. The PRV shall be located outside of the roadway. Calculations shall be submitted along with the plan submittal.

Design life of the pressure reducing facility shall be seventy-five (75) years. Mechanical components (not buried) shall be designed to achieve a design life goal of twenty-five (25) years.

Prior to design, pressure-reducing stations must be approved by the City Engineer. Pressure reducing stations shall not be permitted on water mains or lines having a normal working pressure less than one hundred thirty-five (150) psi. Pressure reduction in mains having working pressures less than one hundred thirty-five (150) psi shall be accomplished by using individual pressure reducing valves on individual service lines.

Approved pressure-reducing stations shall meet the following minimum criteria:

- Contain a minimum of two (2) pressure reducing valves operating in parallel. The smaller valve shall be sized for full open operation at one third (1/3) of the design flow. The larger valve is sized for full open operation at two thirds (2/3) of the design flow. Design flow shall be peak day plus fire flow.
- Internal bypass piping and valving around each pressure reducing valve shall be provided.

- External bypass piping and valving around each pressure reducing valve shall be provided; and
- Prefabricated, below-grade steel structures shall be cathodically protected, exterior insulated, ventilated, heated, dehumidified, and provided with sump and sump pump when necessary.
- All hardware must be stainless steel.

The PRV facility shall be provided with the following:

- A route accessible by a City maintenance vehicle shall be provided adjacent to the facility.
- A paved surface of approximately one hundred (100) square feet at and around the station entrance hatch; this requirement may be waived at the direction of the City Engineer.
- Guard posts with spacing and location as necessary to protect the access hatch, electrical equipment and accessory equipment.

The design report shall include the following for both initial and future conditions:

- Description of proposed facility including the system hydraulics.
- Number and type of pressure reducing valves.
- System head curve including loss computations for pressure reducing station.
- System head calculations and assumed C (friction) factor.
- Detailed design criteria for each specific facility shall be developed by the Engineer of Record and approved by the City Engineer.

400.3 WATER SERVICE LINES

Installation of water service lines shall be as specified in the City of Spearfish Construction Standards. In addition, the following minimum requirements shall be followed.

- All water services shall be installed at right angles to the street and may not be placed in the ROW parallel with the street.
- Service lines shall not cross adjoining property lines and shall connect to mains fronting the property.
- Existing service lines that will be replaced shall comply with the requirements herein and shall connect to a main along the property frontage even if that requires a main extension.
- Water service lines shall be designed as required herein with a standard 10 foot horizontal separation from sewer services. Exceptions to design criteria may be granted for trenches excavated in rock. Requests for exception must provide the following:
    - The sewer service must be located eighteen inches (18”) below the water service and must have a twelve inch (12”) horizontal separation or the water service line must be installed in a watertight casing pipe.

- Reconnecting existing service lines is not allowed unless they meet the separation requirements of a new installation.
- Existing service lines may be used for building reconstruction only if they are examined by the City of Spearfish and are found to comply in all respects with this section and the currently adopted plumbing code.

400.3.1 WATER SERVICE DESIGN CRITERIA

Service lines shall be designed in accordance with this section, the currently adopted plumbing code of the City of Spearfish, and additional requirements as follows:

- Materials shall be CTS Polyethylene 200 lbs or Type K copper for 2" diameter and smaller.
- Materials shall be C-900 PVC for larger than 2" diameter.
- Minimum diameter shall be as required by the plumbing code, but not less than one (1) inch.
- Service lines shall generally be placed perpendicular to the main and shall being aligned from the main within the public right-of-way, directly into the lot it serves without crossing side or rear lot lines of adjacent parcels, and without running parallel to the right-of-way centerline. Special exceptions are allowed for cul-de-sacs.
- Minimum depth shall be six feet (6 ft.) measured from finished grade. Services which connect to mains less than six (6) feet deep shall be insulated and installed with the gooseneck and will not be allowed unless approved by the City Engineer.
- Water services shall cross sewer mains and services as nearly perpendicular as possible and shall have no less than eighteen inches (18") vertical separation from the sewer pipe. The water service should cross over the sewer whenever possible.
- Curb stops shall be installed on all service lines and shall be placed a minimum of ten feet past the property line into the serving property or a minimum of 5 feet past the common dry utility trench, whichever is greater.
- Corporation stops shall be required on all 1", 1 ½", or 2" service taps in accordance with the City of Spearfish Standard Specifications. Tapping saddles shall be installed on all taps.
- Tapping tees and valves with box are required for all taps 4 inches and greater diameter.
- Tap locations shall be installed as per pipe manufacturers' recommendations, but in no case shall be less than eighteen (18) inches apart and shall be twenty-four (24) inches minimum from joints and fittings.
- Individual service lines shall be provided for each structure or in the case of townhouses or condominiums, for each unit as shown in Figure 400-03. Shared water service lines may be permitted by the City Engineer in the following instances:
    - A shut off and an individual meter is provided to each structure.

    - An agreement for shared maintenance of privately owned lines is provided to the city.
    - If applicable, easements are dedicated for water services in the event of re-subdividing one common lot into individual lots.
- No service line is permitted to pass through one structure to service another structure.

400.3.2 METER VAULTS

Accepted uses and design requirements for meter vaults are as follows.

- Meter vaults shall only be used for mobile home parks, single lot multi-residential and commercial complexes as specified in Section 200.1.5 or as approved by the City Engineer. All other lots shall have the water meter placed inside the building. See Figures 400-02 through 400-04 for required meter locations.
- Meter vaults may be permitted with written approval of the City Engineer for private systems and special circumstances. Detailed drawings by a Registered Professional Engineer of the proposed facility shall be submitted at the time of the request.
- Meter vaults shall not be located in the Right-of-Way but shall be located on private property, typically within 5' of the property/right-of-way line.

400.3.3 BACKFLOW AND CROSS CONNECTION PREVENTION

Backflow and cross connection prevention shall be governed by the requirements of the currently adopted plumbing code.

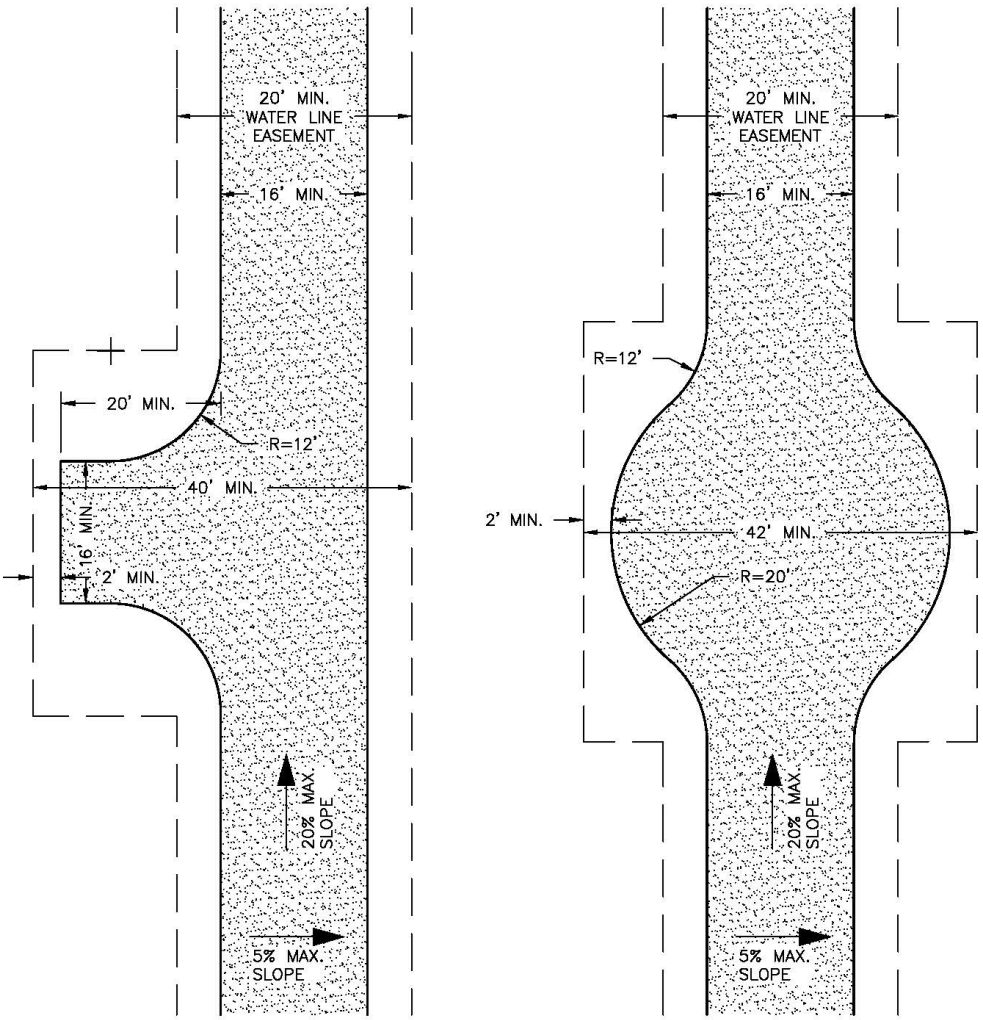
AWWA Manual 14 shall supplement the plumbing code with specific construction and installation requirements. Conflicts between the plumbing code and AWWA Manual 14 shall be resolved in favor of the plumbing code.

400.3.4 ABANDONING SERVICES

Services shall be abandoned by disconnecting them per the following:

- Water service lines permanently removed from service shall be abandoned at the water main by closing the corporation stop, disconnecting the service line from the corporation and capping the corporation.
- If the water service line is under a roadway that has recently been resurfaced it may be capped outside of the roadway with the approval of the City Engineer.
- Curb boxes shall be removed when the service line is abandoned at the main.

END OF SECTION



NOTES:

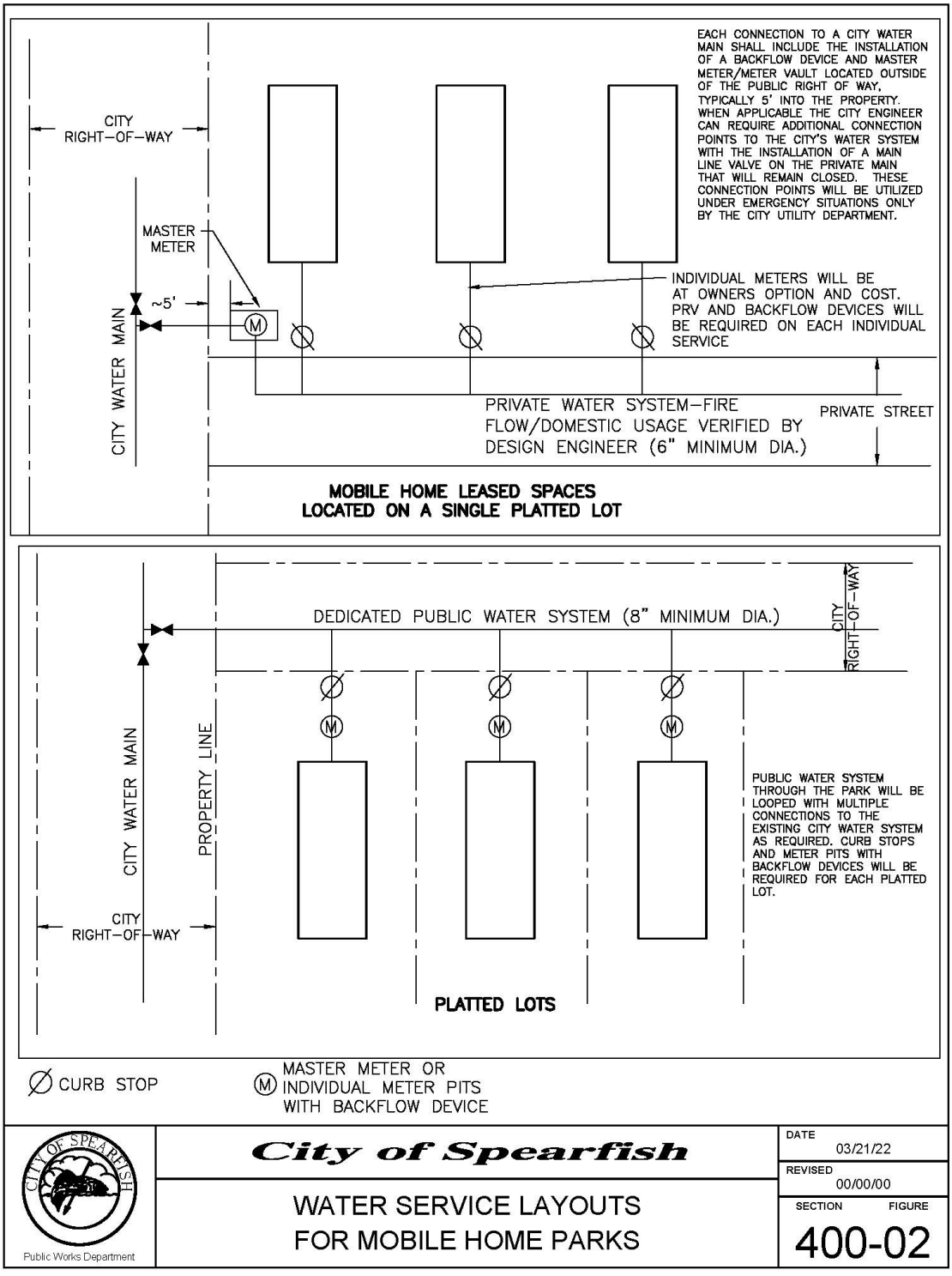
1. ALL WEATHER SURFACING IS REQUIRED FOR THE ACCESS. A MINIMUM OF 6" OF GRAVEL OR ASPHALT MILLINGS SHALL BE USED FOR THE SURFACING.
2. TURNAROUNDS SHALL BE PLACED ON/ALONG THE ACCESS ROAD EVERY 500 FEET AND AT DEADENDS.
3. THE MAXIMUM TRANSVERSE SLOPE OF 5% SHALL EXTEND TO ENTIRETY OF THE EASEMENT WIDTH.
4. ACCESS ROADS MAY BE WAIVED AT THE DISCRETION OF THE CITY ENGINEER, THROUGH THE EXCEPTION PROCESS.

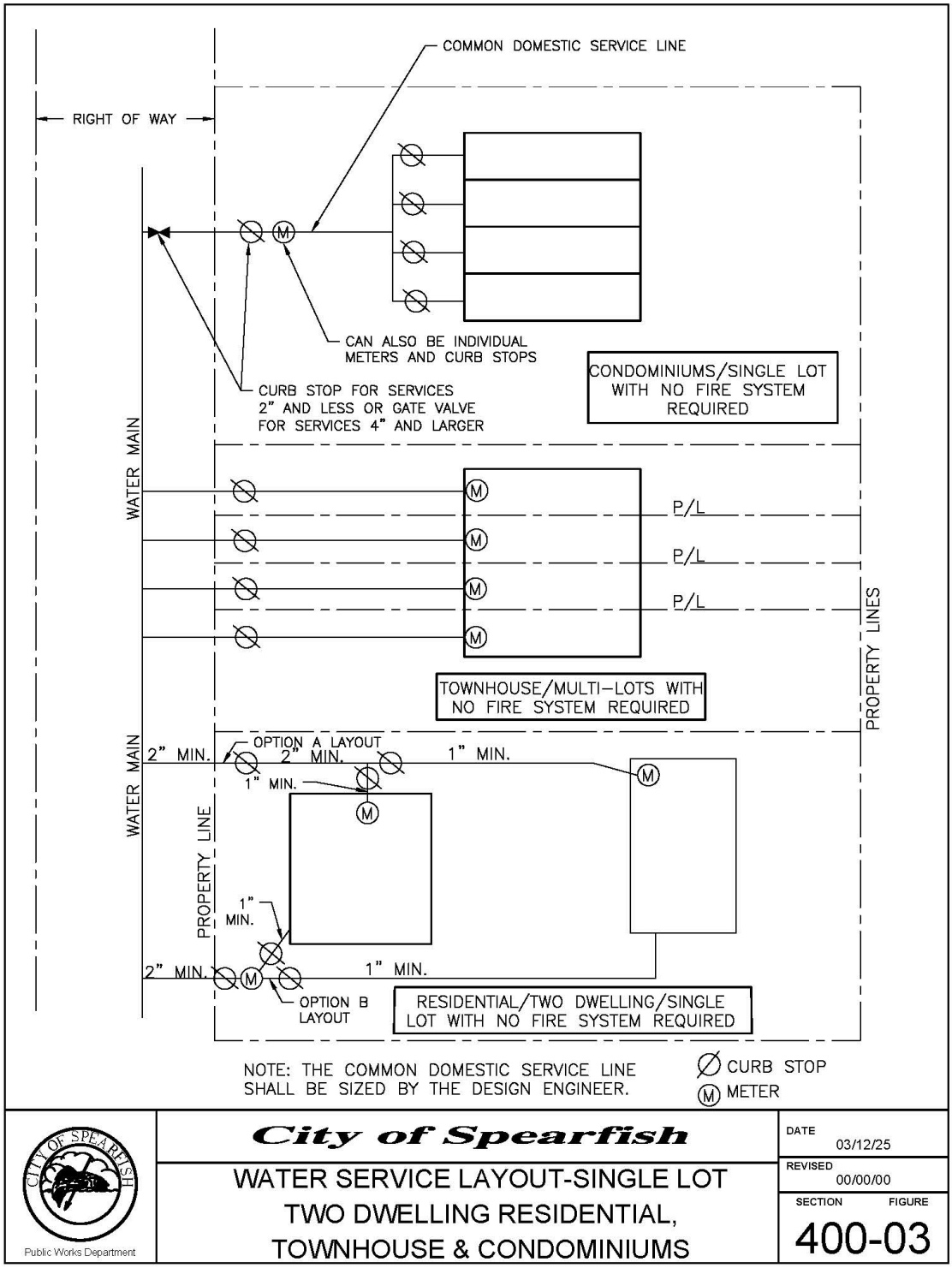
Public Works Department

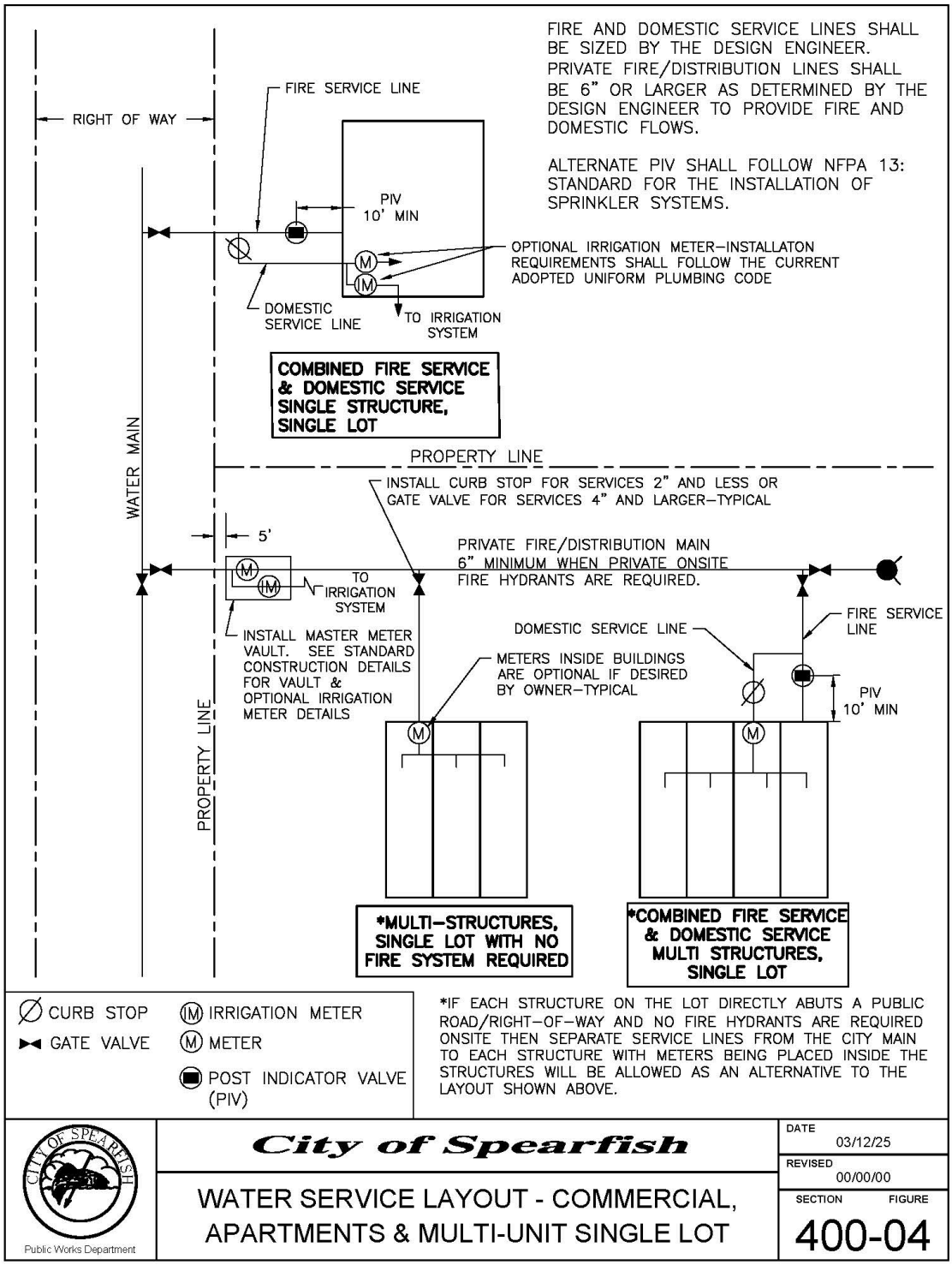
City of Spearfish

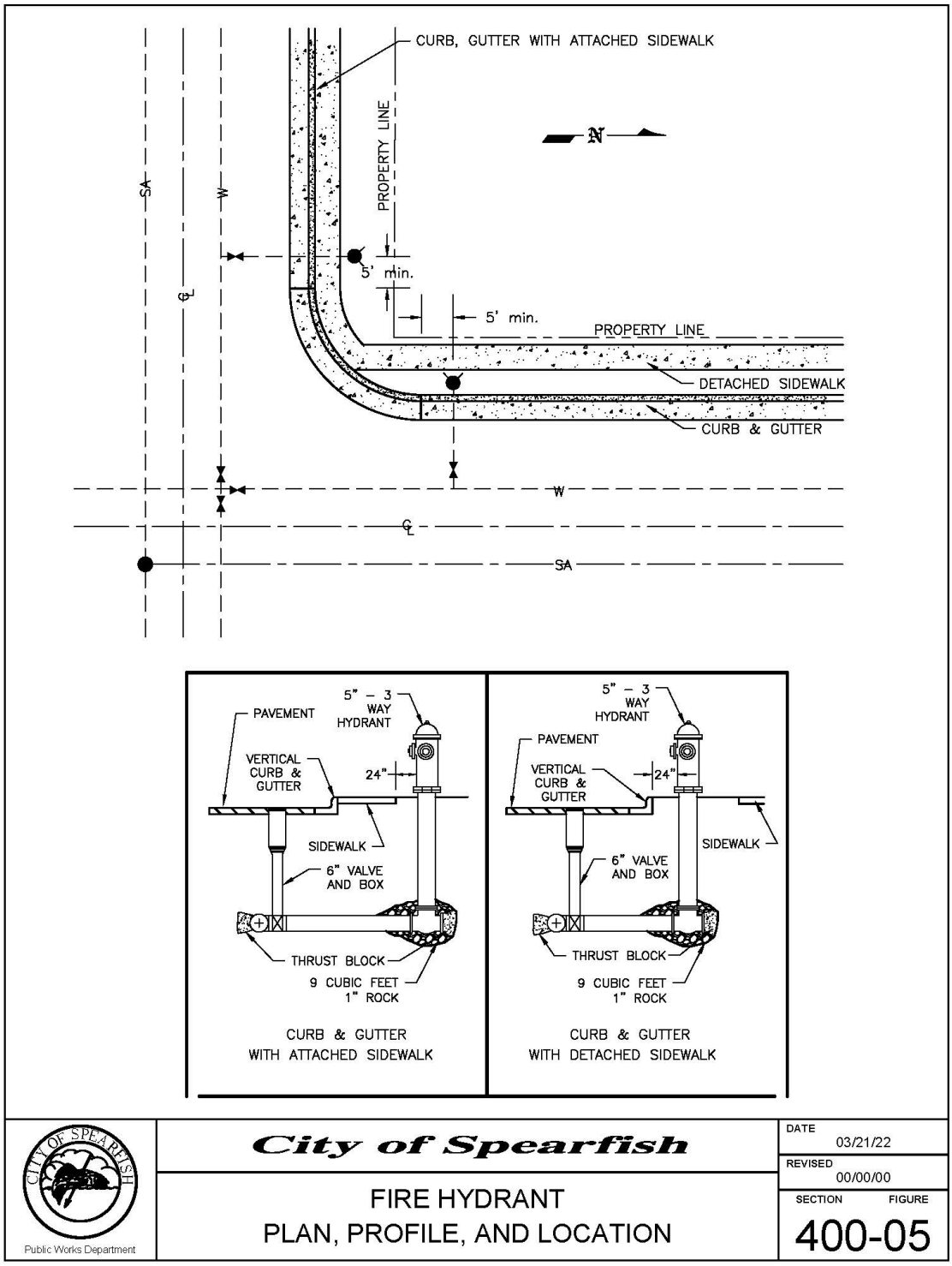
ACCESS ROAD WITH TURNAROUNDS
FOR WATER SYSTEMS OUTSIDE OF R.O.W.

DATE	REVISED	SECTION	FIGURE
04/27/26	00/00/00		400-01


EACH CONNECTION TO A CITY WATER MAIN SHALL INCLUDE THE INSTALLATION OF A BACKFLOW DEVICE AND MASTER METER/METER VAULT LOCATED OUTSIDE OF THE PUBLIC RIGHT OF WAY, TYPICALLY 5' INTO THE PROPERTY. WHEN APPLICABLE THE CITY ENGINEER CAN REQUIRE ADDITIONAL CONNECTION POINTS TO THE CITY'S WATER SYSTEM WITH THE INSTALLATION OF A MAIN LINE VALVE ON THE PRIVATE MAIN THAT WILL REMAIN CLOSED. THESE CONNECTION POINTS WILL BE UTILIZED UNDER EMERGENCY SITUATIONS ONLY BY THE CITY UTILITY DEPARTMENT.
CITY RIGHT-OF-WAY
MASTER METER
~5'
CITY WATER MAIN
INDIVIDUAL METERS WILL BE AT OWNERS OPTION AND COST. PRV AND BACKFLOW DEVICES WILL BE REQUIRED ON EACH INDIVIDUAL SERVICE
PRIVATE WATER SYSTEM-FIRE FLOW/DOMESTIC USAGE VERIFIED BY DESIGN ENGINEER (6" MINIMUM DIA.)
PRIVATE STREET
MOBILE HOME LEASED SPACES LOCATED ON A SINGLE PLATTED LOT
DEDICATED PUBLIC WATER SYSTEM (8" MINIMUM DIA.)
CITY RIGHT-OF-WAY
CITY WATER MAIN
PROPERTY LINE
CITY RIGHT-OF-WAY
PUBLIC WATER SYSTEM THROUGH THE PARK WILL BE LOOPED WITH MULTIPLE CONNECTIONS TO THE EXISTING CITY WATER SYSTEM AS REQUIRED. CURB STOPS AND METER PITS WITH BACKFLOW DEVICES WILL BE REQUIRED FOR EACH PLATTED LOT.
PLATTED LOTS
CURB STOP
MASTER METER OR INDIVIDUAL METER PITS WITH BACKFLOW DEVICE
City of Spearfish
Public Works Department
City of Spearfish
WATER SERVICE LAYOUTS FOR MOBILE HOME PARKS
DATE 03/21/22
REVISED 00/00/00
SECTION FIGURE
400-02


COMMON DOMESTIC SERVICE LINE
RIGHT OF WAY
CAN ALSO BE INDIVIDUAL METERS AND CURB STOPS
CURB STOP FOR SERVICES 2" AND LESS OR GATE VALVE FOR SERVICES 4" AND LARGER
CONDOMINIUMS/SINGLE LOT WITH NO FIRE SYSTEM REQUIRED
WATER MAIN
P/L
P/L
P/L
PROPERTY LINES
TOWNHOUSE/MULTI-LOTS WITH NO FIRE SYSTEM REQUIRED
WATER MAIN
2" MIN.
OPTION A LAYOUT
2" MIN.
1" MIN.
1" MIN.
PROPERTY LINE
1" MIN.
2" MIN.
1" MIN.
OPTION B LAYOUT
RESIDENTIAL/TWO DWELLING/SINGLE LOT WITH NO FIRE SYSTEM REQUIRED
NOTE: THE COMMON DOMESTIC SERVICE LINE SHALL BE SIZED BY THE DESIGN ENGINEER.
CURB STOP
METER
City of Spearfish
Public Works Department
WATER SERVICE LAYOUT-SINGLE LOT TWO DWELLING RESIDENTIAL, TOWNHOUSE & CONDOMINIUMS
DATE 03/12/25
REVISED 00/00/00
SECTION FIGURE
400-03


FIRE AND DOMESTIC SERVICE LINES SHALL BE SIZED BY THE DESIGN ENGINEER. PRIVATE FIRE/DISTRIBUTION LINES SHALL BE 6" OR LARGER AS DETERMINED BY THE DESIGN ENGINEER TO PROVIDE FIRE AND DOMESTIC FLOWS.
ALTERNATE PIV SHALL FOLLOW NFPA 13: STANDARD FOR THE INSTALLATION OF SPRINKLER SYSTEMS.
RIGHT OF WAY
FIRE SERVICE LINE
PIV 10' MIN
OPTIONAL IRRIGATION METER–INSTALLATON REQUIREMENTS SHALL FOLLOW THE CURRENT ADOPTED UNIFORM PLUMBING CODE
DOMESTIC SERVICE LINE
TO IRRIGATION SYSTEM
COMBINED FIRE SERVICE & DOMESTIC SERVICE SINGLE STRUCTURE, SINGLE LOT
WATER MAIN
PROPERTY LINE
INSTALL CURB STOP FOR SERVICES 2" AND LESS OR GATE VALVE FOR SERVICES 4" AND LARGER–TYPICAL
5'
PRIVATE FIRE/DISTRIBUTION MAIN 6" MINIMUM WHEN PRIVATE ONSITE FIRE HYDRANTS ARE REQUIRED.
TO IRRIGATION SYSTEM
INSTALL MASTER METER VAULT. SEE STANDARD CONSTRUCTION DETAILS FOR VAULT & OPTIONAL IRRIGATION METER DETAILS
DOMESTIC SERVICE LINE
FIRE SERVICE LINE
METERS INSIDE BUILDINGS ARE OPTIONAL IF DESIRED BY OWNER–TYPICAL
PIV 10' MIN
PROPERTY LINE
*MULTI–STRUCTURES, SINGLE LOT WITH NO FIRE SYSTEM REQUIRED
*COMBINED FIRE SERVICE & DOMESTIC SERVICE MULTI STRUCTURES, SINGLE LOT
CURB STOP
GATE VALVE
IRRIGATION METER
METER
POST INDICATOR VALVE (PIV)
*IF EACH STRUCTURE ON THE LOT DIRECTLY ABUTS A PUBLIC ROAD/RIGHT–OF–WAY AND NO FIRE HYDRANTS ARE REQUIRED ONSITE THEN SEPARATE SERVICE LINES FROM THE CITY MAIN TO EACH STRUCTURE WITH METERS BEING PLACED INSIDE THE STRUCTURES WILL BE ALLOWED AS AN ALTERNATIVE TO THE LAYOUT SHOWN ABOVE.
City of Spearfish
Public Works Department
WATER SERVICE LAYOUT - COMMERCIAL, APARTMENTS & MULTI-UNIT SINGLE LOT
DATE 03/12/25
REVISED 00/00/00
SECTION FIGURE
400-04



Public Works Department

City of Spearfish

FIRE HYDRANT
PLAN, PROFILE, AND LOCATION

DATE	03/21/22
REVISED	00/00/00
SECTION	FIGURE
400	05

SECTION 500

CITY OF SPEARFISH
ENGINEERING DESIGN STANDARDS
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SECTION 500

CITY OF SPEARFISH
ENGINEERING DESIGN STANDARDS
STORM DRAINAGE SYSTEMS

500.1 MULTI-PURPOSE USE

Multi-purpose use of all drainage facilities shall be considered in the design of those facilities. Small local parks, greenbelts, nature trails, bike trails and similar facilities shall be incorporated with major drainage facilities whenever possible, as long as the hydraulic capacity of the facility is not compromised by these alternate uses.

500.2 STORMWATER TRANSFER

The design of storm water drainage systems shall not result in the inter-basin transfer of drainage. A significant change in existing drainage basin flow characteristics will also not be allowed unless approval from the City Engineer has been obtained through the exception process outlined in Section 100.

500.3 ACCESS TO FACILITIES

Easements, right-of-ways, or other legal access shall be provided to all storm water facilities, both private and public, for inspection, maintenance, or repair.

500.4 OPERATION, MAINTENANCE AND OWNERSHIP

Ownership and maintenance of stormwater facilities that collect or convey flows from or under the public right of way shall be owned and maintained by the city following city engineering acceptance and dedication of the infrastructure, approved by City Council.

Ownership of all other stormwater facilities shall be private unless otherwise agreed upon with the City. Operation and maintenance are required by the owner to ensure that these facilities will perform as designed. Prior to the construction of any facility, the responsibility for the ownership, operation and maintenance of that facility shall be determined, whether it be the Owner/Developer, Homeowners Association or other.

500.5 PLANNING REQUIREMENTS

All developments shall conform to an approved Drainage Basin Design Plan. If no plan exists for the area of the proposed development, the City may: (1) waive this requirement, (2) require the development to provide the necessary data; or (3) declare a "study area" until a Drainage Basin Design Plan is completed. Interim plans may be accepted, providing they conform to the overall objectives of the Manual.

500.6 EASEMENTS FOR STORM DRAINAGE FACILITIES OUTSIDE PUBLIC ROW

Easements for all drainageways shall be established for the 100-year storm event when the drainageway conveys the runoff from two or more lots.

Easements for all storm sewer systems shall follow the requirements set forth within Section 300.1.2.2.

No permanent structures or grading shall occur within the drainage easement. These restrictions ensure the capacity of the drainage channel is not significantly altered.

500.7 REPORT REQUIREMENTS

Drainage reports submitted for acceptance by the City of Spearfish shall contain, at a minimum, design input parameters, output, assumptions and calculations in addition to other items required by this section.

500.7.1 DRAINAGE REPORTS

All land development or re-development projects affecting drainage or the potential for erosion and sedimentation shall submit documentation addressing the proposed changes and provide measures intended to mitigate the impacts of the proposed project to drainage facilities and downstream properties. Submittals shall be provided with the appropriate type of land use application including annexation, planning, zoning, platting, and site development.

500.7.1.1 Preliminary Drainage Report. The purpose of the Drainage Report is to identify and/or refine conceptual solutions to the problems which may occur on-site and off-site as a result of the development or any phase of the development. The Drainage Report shall be submitted during the subdivision process with the application for Preliminary Plat. If the Zoning and Preliminary Plat applications are submitted concurrently, the submittal requirements of this section shall still apply. In addition, those problems that exist on-site prior to development must be addressed during the preliminary phase.

Preliminary drainage reports shall provide an appropriate level of detail to address drainage issues and present the overall plan for the overall development with all phases identified on the Preliminary Plat. The report shall be based on the following outline and include appropriate background information, supporting data, calculations and drainage plan drawing(s).

- Title page
    - Report title and Project name
    - Prepared for / prepared by
    - Date
    - P.E. seal and signature
- Introduction

- Location
    - City, county, state highway and local streets within and adjacent to the site, or the area to be served by the drainage improvements.
    - Township, range, section, ¼ section
    - Names of surrounding developments, properties or landmarks.
- Description of property
    - Area in acres
    - Ground cover (type of ground cover and vegetation)
    - Existing land uses
    - Topographic features, steepness of slopes
    - Major drainage ways and receiving channels
    - Existing drainage facilities
    - National Resources Conservation Service (NRCS) Soils Classification Map and Discussion
    - Flood hazard zones
    - History of flooding
    - Existing major irrigation facilities
    - Previous drainage studies for the property (if any)
- Proposed project description
    - Land uses
    - Project phasing
    - Changes to existing drainage facilities
    - Changes to floodplains
    - Proposed drainage system improvements
    - Right-of-way conveyance or acquisition required
- Drainage criteria
    - Application standards or exceptions
    - Minor and major storm frequencies
    - Hydrologic methods
- Rainfall
- Design storms
- Runoff methods and computer models
    - Hydraulic methods
- Design standards
- Hydraulic models

    - Detention pond locations (no sizing required).
- Historic pre-development drainage system
    - Major basin description
        - Reference to major drainage way planning studies such as flood hazard delineation report, city master drainage plans, and flood insurance rate maps.
        - Major basin drainage characteristics, flow patterns and structures, existing and planned land uses within the basin.
        - Sub-basin drainage characteristics, flow patterns and structures, existing and planned land uses within the basin.
        - Summary of off-site and on-site basin characteristics and runoff rates.
- Proposed post-development drainage system
    - Design Concepts
        - Discussion of concept and typical drainage patterns.
        - Discussion of compliance with off-site runoff considerations.
        - Discussion of proposed drainage patterns and improvements including streets, storm sewer, culverts, open channels and detention storage.
        - Discussion of the content shown in tables, charts, figures, plates, or drawings presented in the report.
- Summary
    - Relation to off-site conditions.
    - Summary of proposed improvements.
        - Storm sewer
        - Culverts
        - Open channels
        - Detention Storage
    - Floodplain impacts.
    - State or Federal regulations
    - Compliance with applicable regulations and standards.
- References
    - Reference all criteria, master plans, and technical information used in support of concepts and calculations.
- Appendices
    - Background Data
        - Floodplain maps
        - Applicable reports or report excerpts
- Preliminary Drainage Plan Contents

- General Location Map: All drawings submitted as back-up materials with the Preliminary Plat shall be a minimum of 11" x 17" in size. A map shall be provided in sufficient detail to identify drainage flows entering and leaving the development and general drainage patterns. The map shall identify any major facilities from the property (i.e., development, existing detention facilities, culverts, storm sewers) along the flow path to the nearest major drainage way.

- Floodplain Information: The location of the subject property shall be included with the report. All major drainage ways shall have the floodplain defined and shown on the report drawings.

- Pre-Development Drainage Plan: Map(s) of the proposed development on a minimum sheet size of 11" x 17" shall be included. The plan shall show the following:

    - Existing topographic contours at two (2) feet maximum intervals. The contours shall extend a minimum of one-hundred (100) feet beyond the property lines.

    - All existing drainage facilities.

    - Approximate flooding limits based on available information.

    - Conceptual major drainage facilities including detention ponds, storm sewers, culverts, swales, riprap, and outlet structures in the detail consistent with the proposed development plan.

    - Major drainage basin boundaries and sub-basin boundaries. Include basin designation, basin area and minor storm runoff coefficient.

    - Basin design points

    - Drainage flowchart

    - Any off-site features influencing development.

    - Proposed flow directions and, if available, proposed contours. Legend to define map symbols.

500.7.1.2 Final Drainage Report. The purpose of the Final Drainage Report is to present the design details for the drainage facilities discussed in the Preliminary Drainage Report. Also, any change to the Preliminary concept must be presented and fully explained.

The Final Drainage Report shall be submitted with the Final Construction Plans for applicable developments. A Final Drainage Report shall be provided with each phase of the development.

Final drainage reports shall provide an appropriate level of detail to address the drainage issues and present sizing and locations for all proposed improvements. The report shall be based on the following outline and include appropriate background information and supporting data and calculations and plan drawing(s).

- Title Page
    - Type of Report

- Project Name
- Prepared for / Prepared by
- Date
- P.E. Seal and Signature

- Introduction
  - Location
    - City, County, State Highway and local streets within and adjacent to the site, or the area to be served by the drainage improvements.
    - Township, range, section, ¼ section
    - Names of surrounding developments, properties or landmarks.
  - Description of property
    - Area in acres
    - Ground cover (type of ground cover and vegetation)
    - Existing land uses
    - Topographic features, steepness of slopes
    - Major drainage ways and receiving channels
    - Existing drainage facilities
    - Flood Hazard Zones
    - History of flooding
    - Existing major irrigation facilities
    - National Resources Conservation Service (NRCS) Soils Classification Map and Discussion
    - Geologic features (if applicable)
    - Previous drainage studies for the property (if any)
    - Easements within and adjacent to the site
  - Proposed project description
    - Land uses
    - Project phasing
    - Changes to existing drainage facilities
    - Changes to floodplains
    - Proposed drainage system improvements
    - Right-of-way conveyance or acquisition required
  - Drainage criteria
    - Application standards or exceptions
    - Minor and major storm frequencies

        - Hydrologic methods
    - Rainfall
    - Design storms
    - Runoff methods and computer models
        - Hydraulic methods
    - Design standards
    - Hydraulic models
    - Detention pond sizing
        - State or Federal Regulations (if applicable).
- Historic Drainage System
    - Major Basin Description
    - Reference to major drainage way planning studies such as flood hazard delineation report, major drainage way planning reports, and flood insurance rate maps.
    - Major basin drainage characteristics, flow patterns and structures, existing and planned land uses within the basin.
    - Sub-basin drainage characteristics, flow patterns and structures, existing and planned land uses within the basin.
    - Summary of off-site and on-site basin characteristics and runoff rates.
- Sub-Basin Description
    - Discussions of historic drainage patterns of the property.
    - Discussion of off-site drainage flows and flow patterns and impact on development under existing and fully developed basin conditions.
    - Summary of off-site and on-site basin characteristics and runoff rates.
- Proposed Drainage System
    - Design Concepts
        - Discussion of concept and typical drainage patterns.
        - Discussion of compliance with off-site runoff considerations.
        - Discussion of proposed drainage patterns and improvements including streets, storm sewer, culverts, open channels and detention storage.
        - Discussion of the content of tables, charts, figures, plates, or drawings presented in the report.
    - Design Details
        - Discussion of drainage problems encountered and solutions at specific design points.
        - Discussion of detention storage and outlet design.
        - Discussion of maintenance and access aspects of the design.

        - Discussion of impacts of concentrating the flow on the downstream properties.
        - Summary of basin characteristics and runoff rates.
- Summary
    - Relation to off-site conditions.
    - Summary of proposed improvements.
        - Storm sewer
        - Culverts
        - Open channels
        - Detention Storage
    - Floodplain impacts
    - State or Federal regulations
    - Compliance with applicable regulations and standards
- References
    - Reference all criteria, master plans, and technical information used in support of concepts and calculations.
- Appendices
    - Background Data
        - Floodplain maps
        - Applicable reports or report excerpts
        - Key correspondence with adjacent property owners or utilities
    - Hydrologic Computations
        - Land uses regarding adjacent properties
        - Soil types, coverage and loss coefficients
        - Proposed land uses for project by basin
        - Time of concentration and runoff coefficients for each basin
        - Basin parameters used for modeling including basin area, length, slope, and routing elements
        - Initial and major storm runoff at specific design points for off-site and on-site flows
        - Off-site, historic and fully developed runoff computations at specific design points
        - Hydrographs at critical design points
        - Schematic diagram of hydrology model showing basins and routing elements and combination elements
    - Hydraulic Computations

        - Culvert Capacities and inlet and outlet protection
        - Storm sewer capacity, including energy grade line (EGL) and hydraulic grade line (HGL) elevations.
        - Gutter capacity as compared to allowable
        - Storm inlet capacity including roughness coefficients, trickle channels, freeboard, hydraulic grade line, and slope protection.
        - Check and/or channel drop placement.
        - Detention area volume capacity and outlet capacity calculations; depths of detention basins, outlet configuration, emergency overflow weir calculations
        - Emergency overflow channel calculations at roadway sumps.
        - Downstream/outfall capacity to the Major Drainage way system.
    - Miscellaneous Information
        - Other documents relating to drainage conditions on the property.
        - Agreements with property owners or other agencies.
        - Permits, etc.
- Final Report Drainage Plan Contents
    - General Location Map: All drawings submitted shall be a minimum of 11" x 17" in size. A map shall be provided in sufficient detail to identify drainage flows entering and leaving the development and general drainage patterns. The map shall identify any major construction (i.e., development, existing detention facilities, culverts, storm sewers) along the entire path of drainage. Basins and divides are to be identified, and topographic contours are to be included.
    - Floodplain Information: The location of the subject property shall be included with the report. All major drainage ways shall have the floodplain defined and shown on the report drawings.
    - Drainage Plan: Map(s) of the proposed development at a scale of 1" =20' to 1"=60' as well as a minimum size of 11" x 17" drawing shall be included. The plan shall show the following:
        - Existing topographic contours at two (2) foot maximum intervals. The contours shall extend a minimum of one hundred (100) feet beyond the property lines and as necessary to show relevant off-site drainage features.
        - Existing and Proposed property lines and easements with purpose noted. Streets, indicating names, ROW width, flowline width, curb type, sidewalk, and approximate slopes.
        - Existing drainage facilities and structures, including, but not limited to, roadside ditches, crosspans, drainage ways, gutter flow direction, and culverts. All pertinent information such as material, size, shape, slope, and location shall also be included.
        - Overall drainage area boundary and drainage sub-basin boundaries. Include basin designation, basin area and minor storm runoff coefficient.

- Proposed type of street flow (i.e., vertical or combination curb and gutter), roadside ditch, gutter, slope and flow directions, and crosspans.
- Proposed storm sewers and open drainage ways, including inlets, manholes, culverts, and other appurtenances, including riprap protection and profiles showing existing and proposed sizes and grades and hydraulic grade lines for minor and major storms.
- Proposed outfall point for runoff from the developed area and facilities to convey flows to the final outfall point without damage to downstream properties.
- Proposed storm water quality facilities.
- Routing and accumulation of flows at various critical points for the minor storm event listed on the drawing.
- Routing and accumulation of flows at various critical points for the major storm event listed on the drawing.
- Volume and release rates for detention storage facilities and outlet works details with a site plan showing proposed grading, emergency spillway and details
- Location and elevation of all existing floodplain affecting the property.
- Proposed emergency overflow channels at all road sumps & Lowest Adjacent Grade (LAG) elevations for adjacent lots.
- Location and elevation of all existing and proposed utilities affected by or affecting the drainage design.
- Routing of off-site drainage flow through the development
- Definition of flow path leaving the development through the downstream properties ending at a major drainage way.
- Typical sections for open channels and cross sections showing existing proposed grades, side slopes.
- Legend to define map symbols.
- Title block in lower right corner
- Seal of Professional Engineer licensed to practice in South Dakota.
- Standard Notes.

500.8 STORMWATER RUNOFF

This section presents two methods for computing storm runoff in the Spearfish, South Dakota area. The Rational Method may be used for the determination of runoff from areas of 160 acres or less and is especially useful for the design of storm sewer systems. The Corps of Engineers HEC-HMS program shall be used whenever the rational method is not used. The presentation of these two methods is not intended to preclude the use of other methods (SCS curve number method, TR-55, or TR-20 as appropriate); however, the designer is required to secure approval from the City of Spearfish and any other appropriate reviewing agencies before utilizing different methods.

500.8.1 RATIONAL METHOD

The Rational Method is an empirical runoff formula which has gained wide acceptance because of its simple, intuitive treatment of storm runoff. This method relates peak runoff to rainfall intensity, surface area, and surface characteristics by the formula:

$$Q = CiA \qquad \text{(Eq. 500-12)}$$

Where:
Q = peak runoff rate, in cubic feet per second
C = runoff coefficient representing a ratio of peak runoff rate to average rainfall intensity for a duration equal to the time of concentration
i = average rainfall intensity, in inches per hour
A = drainage area, in acres

The Rational Method is based on the following assumptions:

- The peak rate of runoff at any point is a direct function of the average uniform rainfall intensity during the time of concentration to that point.
- The frequency of the peak discharge is the same as the frequency of the average rainfall intensity.
- The time of concentration is the time required for the runoff to become established and flow from the most hydraulically remote part of the drainage area to the point under design. This assumption applies to the most remote in time, not necessarily in distance.

Practice generally limits use of the Rational Method to some maximum area. For larger areas, storage and subsurface drainage flow cause an attenuation of the runoff hydrograph so that the rates of flow tend to be overestimated by the Rational Method. In addition, the assumption of uniform rainfall distribution and intensity becomes less appropriate as drainage area increases. Because of the trend for overestimation of flows and the additional cost in drainage facilities associated with this overestimation, the application of a more sophisticated runoff computation technique is usually warranted on larger drainage areas. The designer must obtain permission from the city before applying the Rational Method to areas larger than 160 acres.

500.8.2 RUNOFF COEFFICIENT

The runoff coefficient, C, is a variable of the Rational Method which is least susceptible to a precise determination and provides the designer with a degree of latitude to exercise independent judgment. The following discussion is intended to provide a guide to promote the uniform application of runoff coefficients.

The runoff coefficient accounts for abstractions for losses between rainfall and runoff which may vary with time for a given drainage area. These losses are caused by interception by vegetation, infiltration into permeable soils, retention in surface depressions, and evaporation and transpiration. In determining this coefficient, differing climatological and seasonal conditions,

antecedent moisture conditions, and the intensity and frequency of the design storm should be considered.

The following table presents recommended C values that vary with recurrence frequency. It is required to develop a composite runoff coefficient based in part on the percentage of different types of surfaces in the drainage area. This procedure can be applied to typical sample areas as a guide to the selection of the coefficient for the entire area.

Recommended Runoff Coefficients and Percent Impervious					
	Impervious	**Runoff C**	**Runoff C**	**Runoff C**	**Runoff C**
Land Use	Percentage	2-yr	5-yr	10-yr	100-yr
Business/Commercial	95	0.87	0.87	0.88	0.89
Business/Neighborhood	70	0.60	0.65	0.70	0.80
Single-family Residential	45	0.40	0.45	0.50	0.60
Multi-unit (detached)	50	0.45	0.50	0.60	0.70
Multi-unit (attached)	70	0.60	0.65	0.70	0.80
1/2 acre lot or larger	45	0.30	0.35	0.40	0.60
Apartments	70	0.65	0.70	0.70	0.80
Light Industrial	80	0.71	0.72	0.76	0.82
Heavy Industrial	90	0.80	0.80	0.85	0.90
Parks/Cemeteries	7	0.10	0.10	0.35	0.60
Playground	13	0.45	0.25	0.35	0.65
Schools	50	0.45	0.50	0.60	0.70
Paved Streets	100	0.87	0.88	0.90	0.93
Gravel Streets	40	0.15	0.25	0.35	0.65
Drive and Walks	96	0.87	0.87	0.88	0.89
Roofs	90	0.80	0.85	0.90	0.90
Lawns, sandy soil	2	0.00	0.01	0.05	0.20
Lawns, clay soil	2	0.05	0.10	0.20	0.40

A composite runoff coefficient is calculated using the relationship:

$$C = (\sum_{i=1}^{n} C_i A_i)/A_t \quad \text{(Eq.500-1)}$$

Where:
C_i = individual runoff coefficient corresponding to surface type C_i
A_i = area of surface type corresponding to C_i
A_t = *total* drainage area for which composite runoff coefficient is applicable
n = total number of surface types in drainage areas
C = the composite runoff coefficient

500.8.3 RAINFALL INTENSITY

Rainfall intensity (i) is the average rate of rainfall, in inches per hour. Intensity is selected on the basis of design frequency of exceedance, a statistical parameter established by design criteria, and rainfall duration. For the rational method, the critical rainfall intensity is the rainfall having duration equal to the time of concentration of the drainage basin.

Rainfall intensity can be determined for the 2, 5, 10, and 100-year return periods from the 'Rainfall Depth, Duration & Frequency' table in Section 500.9.1.

500.8.4 TIME OF CONCENTRATION

One of the basic assumptions underlying the Rational Method is that runoff is a function of the average rainfall rate during the time required for water to flow from the most hydraulically remote point of the drainage basin to the point under consideration. Time of concentration is usually computed by determining the travel time through the watershed. Overland flow, storm sewer or road gutter flow, and channel flow are the three phases of direct flow commonly used in computing travel time.

For urban areas, the time of concentration consists of an inlet time or overland flow time (t_i) plus the travel time (t_t) in the storm sewer, paved gutter, roadside drainage ditch, or drainage channel. For non-urban areas, the time of concentration consists of an overland flow time (t_i) plus the time of travel (t_t) in a combined form, such as a small swale, channel, or drainageway. The travel portion (t_t) of the time of concentration can be estimated from the hydraulic properties of the storm sewer, gutter, swale, ditch, or drainageway. Inlet time, on the other hand, will vary with surface slope, depression storage, surface cover, antecedent rainfall, and infiltration capacity of the soil, as well as distance of surface flow. The time of concentration can be represented by Equation 4-2-3 for both urban and non-urban areas.

$$t_c = t_i + t_t \quad \text{(Eq.500-2)}$$

Where:
t_c = time of concentration, in minutes
t_j= initial inlet or overland flow time in minutes
t_t = travel time in the ditch, channel, gutter, or storm sewer, in minutes

500.8.5 TIME OF CONCENTRATION IN NON-URBANIZED BASINS

Overland Flow. The travel time for overland flow consists of the time it takes water to travel from the uppermost part of the watershed to a defined channel or inlet of the storm sewer system. Overland flow is significant in small watersheds because a high proportion of travel time is due to overland flow. The velocity of overland flow can vary greatly with the surface cover and tillage. If the slope and land use of the overland flow segment are known, the travel time can be calculated using the following equation.

$$t_i = 1.87(1.1 - C_5)L^{0.5}S^{-0.33} \quad \text{(Eq. 500-3)}$$

Where:
t_i= initial or overland flow time, in minutes
C_5 = runoff coefficient for a 5-year frequency
L = length of overland flow, in feet
S = average slope of flow path, in percent
Should the calculations result in a t_c less than 10-minutes, it is recommended that a minimum value of 10-minutes be used for non-urban watersheds.

500.8.5.1 Storm Sewer or Road Gutter Flow. Travel time through the storm sewer or road gutter system to the main open channel is the sum of travel times in each individual component of the system between the uppermost inlet and the outlet. In most cases average velocities can be used without a significant loss of accuracy. During major storm events, the sewer system may be fully taxed and additional channel flow may occur, generally at a significantly lower velocity than the flow in the storm sewers. By using the average conduit size and the average slope (excluding any vertical drops in the system), the average velocity can be estimated using Manning's Formula.

Since the hydraulic radius of a pipe flowing half full is the same as when flowing full, the respective velocities are equal. Travel time may be based on the pipe flowing full or half full. The travel time through the storm sewers is computed by dividing the length of flow by the average velocity.

500.8.5.2 Channel Flow. The travel time for flow in an open channel can be determined by using Manning's Formula to compute average velocities. Bank full velocities should be used to compute these averages.

500.8.6 TIME OF CONCENTRATION IN URBANIZED BASINS

Overland flow in urbanized basins can occur from the back of the lot to the street, in parking lots, in greenbelt areas, or within park areas. The time of concentration at the first design point in an urbanized basin using this procedure should not exceed the time of concentration calculated using Equation 500-4.

$$t_c = L/180 + 10 \qquad \text{(Eq. 500-4)}$$

Where:
t_c = time of concentration at the first design point in an urban watershed, in minutes
L = watershed length, in feet

Normally, Equation 500-4 will result in a lesser time of concentration at the first design point and will govern in an urbanized watershed. For subsequent design points, the time of concentration is calculated by accumulating the travel times in downstream drainageway reaches. The minimum t_c recommended for urbanized areas should not be less than 5-minutes and if calculations indicate a lesser value, use 5-minutes.

The inlet time can be estimated by calculating the various overland distances and flow velocities taken from the most remote point. A common mistake in urbanized areas is to assume travel

velocities that are too slow. Another common error is to not check the runoff peak resulting from only a part of the basin. Sometimes a lower portion of the basin produces a larger peak than that computed for the whole basin. This error is most often encountered in long basins, or in basins where the upper portion contains grassy park land and the lower portion is developed urban land.

When studying a tract of land proposed for a subdivision, do not necessarily take the overland flow path perpendicular to the contours. The land will be graded and swales will often intercept the natural contour and conduct the water to the streets, thus decreasing the time of concentration.

500.9 HYDROLOGIC ANALYSIS METHODOLOGIES

There are several methodologies and modeling tools for development of rainfall runoff hydrographs. Many of the modeling tools use similar techniques but have differing user capabilities and some are public access and some are proprietary. The City of Spearfish has chosen to use the Hydrologic Engineering Center Hydrologic Modeling System (HEC-HMS) computer program for the hydrologic analysis of rainfall/runoff (USACE, 2006). There are three primary components to the HEC-HMS modeling system, Basin Model, Metrological Model, and Control Model. The Control Model simply specifies the timing components for running the model start time, end time and time step and are discussed in detail in the HEC-HMS User Manual (USACE, 2006).

500.9.1 DESIGN RAINFALL

The Meteorological Model specifies the rainfall used to drive the model. HEC-HMS allows the user to use gauged data or synthetic design storms. The City of Spearfish relies on a frequency based approach for development of a synthetic design storm. The intensity-duration-frequency data (National Oceanic and Atmospheric Administration NOAA – Atlas 14: Precipitation-Frequency Atlas of the U.S., Volume 8) for Spearfish is used to develop two-hour design storms for selected frequencies. The frequencies requiring analysis to meet Spearfish's drainage criteria are the 5-year and 100-year return periods. For consistency of analysis the frequency based design storm approach will be used. This approach is clearly described in the HEC-HMS user manual and requires entry of the total rainfall depth at specified durations for a specified frequency. The duration, rainfall depths for the two required frequencies are given in in the following table. These rainfall depths can be directly entered into HEC-HMS for the frequency based meteorological model.

Rainfall Depth, Duration & Frequency Table				
	Design Storm Depth (inches)			
(1) Duration (min)	2-year	5-year	10-year	100-year
5	0.33	0.44	0.54	0.88
10	0.48	0.65	0.78	1.29
15	0.59	0.79	0.96	1.57
30	0.73	1.00	1.22	2.04
60	0.89	1.23	1.54	2.91
120	1.06	1.46	1.86	3.79
180	1.19	1.63	2.10	4.56
360	1.51	2.00	2.56	5.65
720	1.96	2.52	3.14	6.28
1440	2.43	3.12	3.80	7.04

(1) Durations greater than 2-hour storms provided for use in special situations.

- The depth-duration-frequency data from the '*Rainfall Depth, Duration & Frequency Table'* can be used to create design storm durations from 2-hr to 24-hr.
- A five-minute time step shall be used in development of design storm.
- Storm peak shall occur at the first quartile.

500.9.2 RAINFALL-RUNOFF METHODOLOGIES

The Basin Model component within HEC-HMS defines the physical representation of the watershed being analyzed. Initially, the watershed is represented by developing the basin schematic which represents subbasins, junctions and routing elements (reaches, detention structures etc). For each of these elements the methodology to be used to perform the analyses is selected from several available within the model.

The general categories of hydrologic process represented are losses (infiltration and initial abstraction), transformation (conversion of excess rainfall to watershed runoff hydrograph), and routing (channel routing and detention storage routing). HEC-HMS provides several methods for each of hydrologic processes represented in the model. For consistency of analysis one method has been chosen to be used for rainfall-runoff analysis in Spearfish.

The HEC-HMS user manual (USACE, 2006) and technical reference (USACE, 2000) provide in-depth discussion and explanation of all methods with in the model. Additionally, the Applications Guide (USACE, 2002) provides several example applications using the various methods available in the model. The discussion here focuses on the parameters and coefficients used for each of the methods.

500.9.3 LOSSES

The methodology selected for representation of rainfall losses is the Green-Ampt (GA) method. The GA method was initially developed in 1911 by Green and Ampt (Gumpta, 2001). Its initial limited use was due to the computational requirements and lack of available soils information. With current computer modeling capabilities and the availability of detailed digital soils information the GA methodology has become one of the prominent infiltration loss models in hydrologic analysis. The advantages of using the GA methodology are 1) it is a simple model, 2) it is physically (theoretically) based on Darcy's law (i.e. it is not strictly empirical), 3) its parameters have physical significance and are computed from soil properties, 4) it has been used with good results for profiles that become dense with depth, profiles where hydraulic conductivity increases with depth, for soils with partially sealed surfaces and for soils having nonuniform initial water contents (Gupta, 2001). Additionally, the physical basis results in less analysis variability and detailed soils information on the necessary soils parameters is readily available.

The required GA parameters for the Spearfish area have been developed and are provided as part of this manual. The parameters needed for the Green-Ampt approach are initial abstraction, saturated hydraulic conductivity, initial soil moisture deficit, capillary suction head, and percent hydraulically connected impervious area.

500.9.4 INITIAL ABSTRACTION

Initial abstraction and impervious area must be determined by the user based on various characteristics of the basin being modeled. Initial abstraction represents the storage of water in surface depressions on the watershed and is a function of various characteristics including land slope and land cover. As land slope increases the initial abstraction decreases. Initial abstraction is less for impervious areas than for pervious areas. Heavily forested areas will reduce the volume of rainfall due to interception. For these areas initial abstraction should include interception storage. Table 4.2.3 provides guideline values for initial abstraction.

Recommended Values for Initial Abstraction Used in the HEC-HMS Loss Model		
	Initial Abstraction (inches)	
Land Cover (pervious areas only)	Range	Recommended
Lawn and grass	0.20-0.50	0.35
Open fields and developed forest	0.20-0.60	0.40
Undeveloped forest	0.4 - 1.0	0.80

The designer must justify the use of values other than those recommended above.

500.9.5 HYDRAULICALLY CONNECTED IMPERVIOUS AREA

Hydraulically connected impervious area is the impervious area that is hydraulically controlled by direct runoff to a curb and gutter and subsequent channel drainage. Runoff from impervious area that is directed back over pervious must be allowed enough time to infiltrate to not be considered hydraulically connected. It is the City's objective to promote reduction in hydraulically connected

impervious area. Reducing the hydraulically connected impervious area reduces the peak, volume and pollutant load produced by rainfall-runoff. The hydraulically connected impervious area must be determined by the user on a case by case basis. Within HEC-HMS impervious area generates 100% runoff.

In determining impervious area the designer will use and must determine the effective impervious area (EIA) of the basin or subbasin of interest. Effective impervious area (EIA) is the portion of the mapped impervious area (MIA) within a basin that is directly connected to the drainage collection system. EIA includes street surfaces, paved driveways connecting to the street, sidewalks adjacent to curbed streets, rooftops which are hydraulically connected to the curb, and parking lots.

Average basins are those where the local collector systems for the urban areas of the basin are predominantly storm sewer with curb and gutter inlets, no dry wells or other drainage retention areas are known to exist, and the roof tops of the single family residential areas are not connected to or piped directly to the street curb.

EIA is usually measured as a percentage of total basin or subbasin area. In traditional urban runoff modeling, the EIA for a given basin is usually less than the MIA. However, in highly urbanized basins, EIA values can approach and equal MIA values.

The following equation is for drainage planning purposes, either DBDP's or subdivision sized projects. In the case of detailed design calculations for building permits, the actual EIA shall be calculated, based on the proposed design, rather than the Drainage Planning equation.

The following equation (Sutherland) will be used in determining EIA for existing or proposed developed areas.

$$EIA = 0.1(MIA)^{1.5}$$ (Eq.500-5) (Sutherland)

Where:
EIA = Effective Impervious Area
MIA = Mapped Impervious Area
MIA >= 1

500.9.6 SOIL PARAMETERS

The soils parameters needed for the GA method are saturated hydraulic conductivity (K_s), initial soil moisture deficit ($\Delta\theta$) and average capillary suction head at the wetting front (Ψavg). The spatial distribution of these parameters has been developed using the STATSGO database (U.S. Department of Agriculture, 1993). The SURGO data base is a digital representation of the detailed county soils information developed by the Natural Resources Conservation Service (originally the Soil Conservation Service). The specific values for each parameter are linked to the soils data based on the soil type. The soil types and specific parameters used to represent the Spearfish are based on analysis of several soil samples from many States. The following table provides the soil parameters to be used.

Green and Ampt Soil Parameters						
Soil Class	Porosity	Effective Porosity	Wetting front soil suction head (em)	Wetting front soil suction head (in)	Hydraulic conductivity (cm/h)	Hydraulic conductivity (in/h)
Sand	0.437	0.417	4.95	1.949	11.78	4.638
	(0.374 - 0.500)	(0.354 - 0.480)	(0.97 - 25.36)			
Loamy Sand	0.437	0.401	6.13	2.413	2.99	1.177
	(0.363 - 0.506)	(0.329 - 0.473)	(1.35 - 27.94)			
Sandy Loam	0.453	0.412	11.01	4.335	1.09	0.429
	(0.351 - 0.555)	(0.283 - 0.541)	(2.67 - 45.47)			
Loam	0.463	0.434	8.89	3.500	0.65	0.256
	(0.375 - 0.551)	(0.334 - 0.534)	(1.33 - 59.38)			
Silt Loam	0.501	0.486	16.68	6.567	0.34	0.134
	(0.420 - 0.582)	(0.394 - 0.578)	(2.92 - 95.39)			
Sandy Clay Loam	0.398	0.330	21.85	8.602	0.15	0.059
	(0.332 - 0.464)	(0.235 - 0.425)	(4.42 - 108.0)			
Clay Loam	0.464	0.309	20.88	8.220	0.10	0.039
	(0.409 - 0.519)	(0.279 - 0.501)	(4.79 - 91.10)			
Silty Clay Loam	0.471	0.432	27.30	10.748	0.10	0.039
	(0.418 - 0.524)	(0.347 - 0.517)	(5.67 - 131.50)			
Sandy Clay	0.430	0.321	23.90	9.409	0.06	0.024
	(0.370 - 0.490)	(0.207 - 0.435)	(4.08 - 140.20)			
Silty Clay	0.479	0.423	29.22	11.504	0.05	0.020
	(0.425 - 0.533)	(0.334 - 0.512)	(6.13 - 139.40)			
Clay	0.475	0.385	31.63	12.453	0.03	0.012
	(0.427 - 0.523)	(0.269 - 0.501)	(6.39 - 156.50)			

This table provides direct values for saturated hydraulic conductivity and capillary suction head. The effective porosity represents the total effective soil moisture. The initial soil moisture deficit is the difference between the initial moisture content (ambient conditions) and total effective porosity. Thus, the modeler must assume an initial moisture deficit. To develop a spatial distribution of initial moisture deficit for Spearfish, the initial moisture content was assumed to be half of the field capacity for any given soil type. Field capacity represents the maximum moisture content a soil can hold against gravity. This approach results in values of initial moisture content ranging from 0.1 to 0.25 and initial moisture deficit values ranging from 0.15 to 0.25. These are reasonable average values and well within the sensitivity of the model to this parameter.

500.9.7 RAINFALL RUNOFF TRANSFORMATION

The method selected for transformation of excess rainfall to a watershed runoff hydrograph is the Snyder Unit Hydrograph (SUH) method. The Snyder method consists of two primary equations;

$$t_p = C_t(LL_c)^{0.3} \qquad \text{(Eq.500-6)}$$

Where:
t_p = lag time (hours)
C_t = lag time coefficient

L = length from the outlet along the main drainage channel (longest flow path) to the drainage divide (miles)
L_c = length from the outlet measured along the main drainage channel to a point perpendicular to the centroid of the drainage basin (miles), and

$$Q_p = C_p A / t_p \qquad \text{(Eq. 500-7)}$$

where:
Q_p = the peak flow of the unit hydrograph (cfs)
C_p = peaking coefficient
A = the area of the drainage (mi^2)
t_p = lag time (hours)

The HEC-HMS model requires the user to enter the lag time, t_p, and peaking coefficient, C_p. To calculate the lag time the user must measure L, L_c, and S, and select an appropriate value for Ct. Ct represents variations in watershed slope and storage (Dodson & Associates, 1991). Several references provide values and ways to estimate Ct (Viessman, 2002). Based on the available information recommended Ct values for different land uses in the Spearfish area are given below.

Recommended values for Ct (lag time coefficient) used in the HEC HMS Snyder unit hydrograph methodology		
Land Cover	**Lag Time Coefficient (Ct)**	
	Range	**Recommended**
Mountains, forests, good meadows	1.8 - 2.2	2.00
Range land, pastures, foot hills	0.5 - 1.1	0.80
Urban sewered	0.3 - 0.9	0.60

The second coefficient necessary to use the SUH method is Cp. Cp represents flood wave routing and storage conditions within the watershed and again various approaches to estimating Cp are referenced in the literature (Viessman, 2002). Based on the available information recommended Cp values for different land uses in Spearfish will range from 0.40 to 0.80 (mean of 0.6) with lower values representing less steep slopes and higher numbers for steeper slopes.

500.9.8 CHANNEL ROUTING

The transform model creates the outlet hydrograph for each sub-basin representing the runoff generated from each individual sub-basin. However, many of the sub-basins contain a reach of river which runs through the entire basin. This means that the hydrograph created for a basin does not account for the water flowing into the basin in the channel coming from upstream basins. This water must be properly routed through the sub-basin and then added to the hydrograph for the sub-basin at the outlet. Part of this process involves accounting for the travel time of a flood wave traveling through the channel as well as any attenuation that will occur as a function of the channel shape and roughness. It is this combination of channel hydrographs and individual sub-basin hydrographs that will create the final storm water runoff hydrograph produced by a storm event.

As with the other basin model options, there are several options for routing water through the stream channel. The primary channel routing options are the Kinematic Wave and the Muskingum-Cunge standard and eight point options. The method recommended for applications in the Spearfish area is the Muskingum-Cunge.

This method is based on the continuity and momentum equation and accounts for gradually varied flow by estimating the attenuation that will occur. This method is a semi-hydraulic routing method, which is based on the physical characteristics of the drainage channel. The input parameters needed are channel cross section shape, channel bottom width (or diameter), bank side slopes (for open channels), reach length, slope of the energy grade line (usually taken as the slope of the channel), and the Manning's n roughness coefficient. The Muskingum-Cunge method options for channel shape are either prism (trapezoidal) or circle. HEC-HMS also contains an option called the Muskingum-Cunge 8-point method. This is the same method as the Muskingum-Cunge standard except for the level of channel data. In the 8-point method eight stationing points including the elevations can represent a somewhat more detailed cross section. The calculations are performed in the same way as the standard method.

500.9.9 DETENTION POND ROUTING

HEC-HMS uses the standard storage indication (level pool reservoir routing) methodology for routing hydrographs through detention storage structures. The model enables the user to input elevation-storage-discharge data for the routing procedure. Additionally, the user can input elevation-area data and the physical characteristics of the outlet structure, and the model will develop the storage discharge function. This option provides the user with the ability to readily evaluate various design options. The routing tables are entered as time series data and reference to each routing structure. Detailed description of detention storage routing can be found in the user manual, technical reference and applications guide (USACE, 2006, 2002 and 2000).

500.9.10 ADDITIONAL REFERENCES

U.S. Army Corps of Engineers, 2006. "Hydrologic Modeling System HEC-HMS, User's Manual" US Army Corps of Engineers, Hydrologic Modeling Center, Davis, CA.

U.S. Army Corps of Engineers, 2002. "Hydrologic Modeling System HEC-HMS, Application Guide" US Army Corps of Engineers, Hydrologic Modeling Center, Davis CA.

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500.10 STREET DRAINAGE

Streets serve an important and necessary drainage service even though their primary function is for the movement of traffic. Traffic and drainage uses are compatible up to a point, beyond which drainage must be secondary to traffic needs. Gutter flow in streets is necessary to transport runoff water to storm inlets and to major drainage channels.

500.10.1 EFFECTS OF STORMWATER ON STREET CAPACITY

The storm runoff which influences the traffic capacity of a street can be classified as follows:

- Sheet flow across the pavement as falling rain flows to the edge of the pavement.
- Runoff flowing adjacent to the curb within the gutter.
- Stormwater ponded at low points.
- Flow across the traffic lane from external sources, or cross-street flow (as distinguished from water falling on the pavement surface).
- Splashing of any of the above types of flow on pedestrians.

Each of these types of storm runoff must be controlled within acceptable limits so that the street's main function as a traffic carrier will not be unduly restricted. The effect of each of the above categories of runoff on traffic movement is discussed in the following sections.

500.10.2 INTERFERENCE DUE TO SHEET FLOW ACROSS PAVEMENT

Rainfall which falls upon the paved surface of a street or road must flow overland as sheet flow until it reaches a channel. Channels can be created either by curbs and gutters or by roadside ditches. The direction of flow on the street may be determined by the vector addition of the street grade and the crown slope, which is equivalent to drawing the perpendicular to a contour line on the road as shown in Figure 500-01. The depth of sheet flow will be essentially zero at the crown of

the street and will increase as it proceeds towards the channel. Traffic interference due to sheet flow is essentially of two types: hydroplaning and splash.

Hydroplaning is the phenomenon of vehicle tires actually being supported by a film of water which acts as a lubricant between the pavement and the vehicle. It generally occurs at speeds commensurate with arterial streets and its effect can be minimized by achieving a relatively rough pavement which will allow water to escape from beneath the tires by pavement grooving to provide drainage, or by reducing travel speed.

Traffic interference due to splash results from sheet flow of excessive depth caused by water traveling a long distance or at a very low velocity before reaching a gutter. Increasing the street crown slope will decrease both the time and distance required for water to reach the gutter. The crown slope, however, must be kept within acceptable limits to prevent side-slipping of traffic during frozen surface conditions and to allow the opening of doors when parked adjacent to curbs. An exceedingly wide pavement section contributing flow to one curb will also affect the depth of sheet flow. This may be due to super elevation of a curve, offsetting of the street crown due to warping of curbs at intersections, or many traffic lanes between street crown and the gutter. Consideration should be given to all of these factors to maintain a depth of sheet flow within acceptable limits.

500.10.3 INTERFERENCE DUE TO GUTTER FLOW

Water which enters a street, either sheet flow from the pavement surface or overland flow from adjacent land areas, will flow in the gutter of the street until it reaches an outlet, such as a storm sewer or a channel. Figure 500-01 shows the configuration of gutter flow moving down a street when there is a storm sewer system. As the flow progresses downhill and additional areas contribute to the runoff, the width of flow will increase and progressively infringe upon the traffic lane. If vehicles are parked adjacent to the curb, the width of spread will have little influence on traffic until it exceeds the width of the vehicle by several feet. However, on streets where parking is not permitted, as with many arterial streets, whenever the flow width exceeds a few feet it will significantly affect traffic. Field observations show that vehicles will crowd adjacent lanes to avoid curb flow.

As the flow width increases it becomes impossible for vehicles to operate without driving through water, and they again begin to use the inundated lane. At this point the traffic velocities will be significantly reduced as the vehicles begin to drive through the deeper water. Splash from vehicles traveling in the inundated lane obscures the vision of drivers of vehicles moving at a higher rate of speed on the open lane.

Eventually, if width and depth of flow become great enough, the street will become ineffective as a traffic carrier. During these periods it is imperative that emergency vehicles such as fire trucks, ambulances, and police cars be able to traverse the street by moving along the crown of the roadway.

The street classification is also important when considering the degree of interference to traffic. A local street, and to a lesser extent a collector street, could be inundated with little effect upon vehicular travel. The small number of cars involved could move at a low rate of speed through the water even if the depth were four to six inches. However, reducing the speed of arterial traffic affects a greater number of private, commercial, and emergency vehicles.

500.10.4 INTERFERENCE DUE TO PONDING

Storm runoff ponded on the street surface because of a change in grade or the crown slope of intersecting streets has a substantial effect on traffic. A major problem with ponding is that it may reach depths greater than the curb and remain on the street for long periods of time. Another problem is that ponding is localized in nature and vehicles may enter a ponded area moving at a high rate of speed.

The manner in which ponded water affects traffic is essentially the same as for curb flow; the width of spread onto the traffic lane is the critical parameter. Ponded water will often bring a street to a complete halt. In this case, incorrect design of only one facet of an entire street and storm drainage system will render the remainder of the street system useless during the runoff period.

500.10.5 INTERFERENCE DUE TO WATER FLOWING ACROSS TRAFFIC LANE

Whenever storm runoff moves across a traffic lane, a serious impediment to traffic flow occurs. The cross flow may be caused by super elevation of a curve or a street intersection exceeding the capacity of the higher gutter on a street with cross fall. The problem associated with this type of flow is the same as for ponding in that it is localized in nature and vehicles may be traveling at high speed when they reach the location. If the velocity of vehicles is naturally slow and use is light, such as on local streets, cross-street flow does not cause sufficient interference to be objectionable.

The depth and velocity of cross-street flow should always be maintained within such limits that it will not have sufficient force to affect moving traffic. If a vehicle which is hydroplaning enters an area of cross street flow, even a minor force could be sufficient to move it laterally towards the gutter.

At certain intersections the flow may be trapped between converging streets and must either flow over one street or be carried underground. If the vehicles crossing the intersection are required to stop, then very little hazard exists to the traveling public. This is the basis for the assumption that valley gutters are acceptable across a local street where it intersects another local or collector street. Another point in favor of the use of valley gutters is the continuation of the grade of the dominant street. If the crown of the local street is allowed to coincide with the crown of the major street, the outside traffic lanes of the major street will have a "hump" at the intersection.

500.10.6 INTERFERENCE DUE TO TRAFFIC MEDIANS

Current design of collector and arterial streets suggests that medians are often used to separate traffic flow. Medians create an impediment to cross flow of water and effectively create a curb flow in the center of a street. When the media ends, cross flow of the storm water will exist thereby flooding travel lanes of the street. Care must be exercised in designing these barriers so that the storm water flow is properly accommodated.

A raised median in a street reduces the street width for storm water purposes. As an example, a four-lane street with a center median is effectively a two-lane street, for storm water conveyance purposes.

500.10.7 EFFECT ON PEDESTRIANS

In areas where pedestrians frequently use sidewalks, splash due to vehicles moving through water adjacent to the curb is a serious problem. It must also be kept in mind that under certain circumstances, pedestrians will be required to cross ponded water adjacent to curbs.

Since the majority of pedestrian traffic will cease during the actual rainstorm, less consideration need be given to the problem while the rain is actually falling. However, ponded water, remaining after the storm has passed, must be negotiated by pedestrians. Streets should be classified with respect to pedestrian traffic as well as vehicular traffic. As an example, streets which are classified as local for vehicles and located adjacent to a school are arterials for pedestrian traffic. Allowable width of gutter flow and ponding should reflect this fact.

500.11 DESIGN CRITERIA

The criteria set forth herein will be used in analyzing and approving the adequacy of streets as a function of the drainage system. Both the minor and major storm runoff must be considered and calculations showing such runoff at critical sections shall be submitted.

The criteria for the collection and transport of runoff on public streets is based on a reasonable frequency of traffic interference. That is, depending on the street classification, certain traffic lanes can be fully inundated once during the initial design storm return period. For example, a local street flow is allowed to cover the crown during a 5-year frequency storm. During the 5-year period, lesser storms will occur which will produce less runoff and will not inundate the entire street.

Planning and design for urban storm runoff must be considered from the viewpoint of both the regularly expected storm occurrence, that is, the initial storm, and the major storm occurrence. The initial storm will have a return period of 5 years. The major storm will have a return period of 100 years. The objective of the major storm runoff planning and design is to eliminate or reduce major damage and loss of life. The initial drainage system is necessary to eliminate inconvenience, frequently recurring initial damage, and high street maintenance costs.

The initial or minor (5 year) and major (100 year) storm events shall be as defined in Section 500.8.

500.11.1 STREET CAPACITY FOR INITIAL OR MINOR STORMS

Determination of street capacity for the 5-year storm shall be based upon pavement encroachment. The pavement encroachment for the 5-year storm shall be limited as set forth in the following table.

Allowable 5 year Storm Runoff Encroachment

Street Classification	Maximum Encroachment
Local	No curb overtopping. Flow may spread to crown of street.
Local Collector	No curb overtopping. Flow may spread to crown of street.
Collector	No curb overtopping. Flow spread must leave at least 12 feet of pavement free of water.
Arterial	No curb overtopping. Flow spread must leave at least 24 feet of pavement free of water.

The storm sewer system should begin at or upslope of the point where the maximum encroachment is reached. Development of the major drainage system is encouraged so that the minor runoff is removed from the streets, thus moving the point at which the storm sewer system must begin further downstream.

500.11.1.1 Calculating Capacity. When the allowable encroachment has been determined, the gutter (that portion of the street used to convey runoff) capacity shall be computed using the modified Manning's Equation.

$$Q = \frac{0.56}{n} Sx^{1.67} S^{0.5} T^{2.67} \qquad \text{(Eq. 500-8)}$$

Where:
Q= discharge, in cubic feet per second
S_x = cross slope, in feet per foot
S = longitudinal slope, in feet per foot
T = width of flow (spread), in feet
n = Manning's roughness coefficient

Figure 500-02 can be used for a direct solution of the above equation using Manning's "n" value of 0.016. For other values of "n", divide the value of Q_n by "n". Manning's "n" values for different street and gutter roughness conditions are presented in the following table. For the discharge of a composite cross slope, use Figure 500-02 and Figure 500-03. Figure 500-04 provides the solution for a family of conveyance-spread curves for a typical composite gutter section with varying cross slopes.

Manning's Roughness Coefficients for Streets and Gutters	
Surface Type	**"n" Value**
Concrete gutter troweled finish	0.012
Asphalt pavement	0.016
Concrete gutter with asphalt pavement	0.015
Concrete pavement	0.015
Brick	0.016

500.11.1.2 Calculating Velocity. The average velocity of flow in the gutter can be calculated by modifying Manning's Equation. Figure 500-05 is a nomograph of the velocity in a triangular gutter section. The equation assumes that the discharge in the gutter varies uniformly between sections.

$$V = \frac{1.12}{n} S^{0.5} Sx^{0.67} T^{0.67} \qquad \text{(Eq. 500-9)}$$

Where:
V = velocity, in feet per second
S = longitudinal slope, in feet per foot
Sx =cross slope, in feet per foot
T = width of flow (spread) in feet
n = Manning's roughness coefficient

If a channel has zero flow at the upstream end, the average velocity occurs at the point where spread is equal to 65 percent of the maximum spread. For channel sections with discharges greater than zero at the upstream section, the spread at average velocity, Ta, is provided within the following table. In the table, T1 is the spread at the upstream section and T2, is the spread at the downstream section. The average spread is then used in Figure 500-05 or Equation 500-4-2.

Spread at Average Velocity in a Triangular Gutter Section	
T1 / *T2*	*Ta* / *T2*
0.0	0.65
0.1	0.66
0.2	0.68
0.3	0.70
0.4	0.74
0.5	0.77
0.6	0.82
0.7	0.86
0.8	0.90

500.11.2 STREET CAPACITY FOR MAJOR STORM

Determination of the allowable capacity for the 100-year storm event shall be based upon allowable depth and inundated area. The allowable depth and inundated area for the 100-year storm event shall be limited as set forth in the following table.

500.11.2.1 Calculating Capacity. Based upon the allowable depth and inundated area as determined from the following table, the street capacity shall be calculated. Manning's Formula shall be utilized with an "n" value applicable to the actual boundary conditions encountered.

Allowable 100-Year Storm Runoff Inundation		
Street Classification	**Major Storm Frequency**	**Allowable Depth and Inundated Areas**
Local & Local Collector	100-year	Residential dwellings, public, commercial, and industrial buildings, shall not be inundated at the ground line, unless buildings are flood proofed. The depth of water over the gutter flowline shall not exceed 12 inches.
Collector	100-year	Residential dwellings, public, commercial, and industrial buildings, shall not be inundated at the ground line, unless buildings are flood proofed. The depth of water over the gutter flowline shall not exceed 12 inches.
Arterial	100-year	Residential dwellings, public, commercial, and industrial buildings, shall not be inundated at the ground line, unless buildings are flood proofed. The depth of water over the gutter flowline shall not exceed 12 inches.

500.11.3 INTERSECTION LAYOUT CRITERIA

The following design criteria are applicable at intersections of urban streets. Gutter capacity limitations covered in Section 500.10.3 shall apply along the street, while this section shall govern at the intersection. Limitations at intersections for pavement encroachment shall be as given in the following table.

Allowable Cross Street Flow		
Street Classification	**5-year Storm Flow**	**100-year Storm Flow**
Local & Local Collector	6 inches of depth in cross pan	12 inches of depth above gutter flow line

Collector	Where cross pans allowed, depth of flow should not exceed 6 inches	12 inches of depth above gutter flow line.
Arterial	None	No cross flow. Maximum depth at upstream gutter on road edge of 12 inches.

500.12 STORM INLETS

The hydraulic capacity of a gutter inlet depends upon its geometry and upon the characteristics of the gutter flow. The inlet capacity governs both the rate of water removal from the gutter and the amount of water that can enter the storm drain system. Many costly storm drains flow at less than design capacity because the storm runoff cannot get into the drains. Inadequate inlet capacity or poor inlet location may cause flooding on the traveled way which creates a safety hazard or at times interrupts traffic.

The inlet is frequently located in or near the path of vehicular traffic. Water-borne debris and trash may be deposited on the inlet causing complete or partial clogging. Often freedom from clogging and noninterference with traffic requires an inlet of a specific type rather than the most efficient inlet from a hydraulic point of view. For example, a curb-opening inlet might be used where a grate inlet would be more efficient.

500.12.1 INLET TYPES

Gutter inlets can be divided into four major classes, each with many variations.

These classes are: curb-opening inlets, gutter inlets, combination inlets, and area inlets. Each type of inlet shall be installed with a depression of the gutter and may be a single or a multiple inlet (two or more closely spaced inlets acting as a unit). Two identical units placed end to end are called double inlets. A brief description of the inlet types to be used in Spearfish follows.

Grate Inlets consist of an opening in the gutter or ditch covered by a grate. Inlets used in Spearfish are Type A, Type B, Type C, and Precast Tee Type Manhole. Type B inlets have a vaned grate with curb opening box and are considered a grate inlet for continuous grade capacity calculations. Type A and Type C inlets have a flat rectangular surface grate.

Curb Opening Inlets are vertical openings in the curb covered by a top slab. Curb inlets used in Spearfish are Type S inlets. Type S inlets have a depressed gutter throat section.

Combination Inlets consist of both a curb opening inlet and a grate placed in a side by side combination. The Type B inlet in a sag condition is considered a combination inlet. Type B inlets are considered a grate inlet for continuous grade capacity calculations.

SDDOT Median Drain Inlets are inlet details prepared by the SDDOT for use in medians and ditches. Inlets are SDDOT Type L median Drain, Type M Median Drain, and Type N Median Drain.

Special Inlets consist of inlets other than those described above and require written authorization for use.

500.12.2 INLET CAPACITY

The term inlet capacity is used herein to mean the catch of the inlet under a given set of conditions rather than the maximum water that can be intercepted by the inlet if the discharge is increased without limit. The efficiency of an inlet is the percent of total flow that the inlet will intercept under a given set of conditions. The efficiency of an inlet varies with change in cross slope, longitudinal slope, total gutter flow, and pavement roughness.

In mathematical form, efficiency, E, is defined by the following equation:

$$E = Q_1 \div Q$$

Where:
E = efficiency of inlet
Q_1 = intercepted flow by inlet, in cubic feet per second
Q = total gutter flow, in cubic feet per second

The discharge that bypasses the inlet, Qc, is termed carry-over or bypass. The interception capacity of all inlet configurations increase with increasing flow rates, and inlet efficiency generally decreases with increasing flow rates.

The following table provides an adjustment factor, F, to compensate for clogging inlets. Inlet capacity shall be calculated in accordance with the Federal Highway Administration Urban Drainage Design Manual Hydraulic Engineering Circular No. 22 (current edition).

Inlet Clogging Factor, F (Percent of Inlet Clogged)	
	F
Grate Inlets	40%
Combination Inlets	33%
Curb Opening Inlets	0%

500.12.3 INLET LOCATION

In general, inlets should be placed at all low points in the gutter grade and at intersections to prevent the gutter flow from crossing traffic lanes of the intersecting road. In urban locations, inlets are normally placed up-grade from pedestrian crossings to intercept the gutter flow before it reaches the crosswalk. Where pavement surfaces are warped, as at cross streets, ramps, or in transitions between superelevated and normal sections, gutter flow shall be picked up before the

cross slope of the pavement begins to change in order to lessen water flowing across the roadway and to prevent icing.

Where a curbed roadway crosses a bridge, the gutter flow shall be intercepted and not be permitted to flow onto the bridge.

500.12.4 SPACING OF INLETS ON A CONTINUOUS GRADE

Inlets should be spaced so as to limit the spread of the water on the pavement to the criteria outlined in Section 500.10.

With the maximum spread fixed and with a given pavement cross slope and longitudinal slope, the flow in the gutter is also fixed and can be calculated as explained in Section 500.10. The spacing of inlets is equal to the length of pavement needed to generate the discharge corresponding to the allowable spread on the pavement. The flow bypassing each inlet must be included in the flow arriving at the next inlet.

500.12.5 SPACING OF INLETS IN A SAG

Three inlets should be placed in a sag vertical curve on all arterial streets, one at the low point and one on each side of this point, where the grade elevation is approximately 0.2 feet higher than that at the low point. The inlets should be spaced so as to limit the spread of water on the pavement to the criteria outlined in Section 500.10.

Sag vertical curves differ one from another in the potential for ponding, and criteria adopted for inlet spacing in sags should be applied only where traffic could be unduly disrupted if an inlet became clogged or runoff from the design storm were exceeded. Therefore, criteria adopted for inlet spacing in sag vertical curves are not applicable to the sag curve between two positive or two negative longitudinal slopes. Also, they should not be applied to locations where ponding depths could not exceed curb height and ponding widths would not be unduly disruptive, as in sag locations on embankment.

Where significant ponding can occur, in locations such as underpasses and in sag vertical curves in depressed sections, it is good engineering practice to place flanking inlets on each side of the inlet at the low point in the sag. The flanking inlets should be placed so that they will limit spread on low gradient approaches to the level point and act in relief of the inlet at the low point if it should become clogged or if the design spread is exceeded. The following table shows the spacing required for various depth at curb criteria and vertical curve lengths defined by the following dimensionless coefficient:

$$K = \frac{L}{A} \qquad \text{(Eq. 500-10)}$$

Where:
K = dimensionless coefficient
L =length of vertical curve, in feet

A = algebraic difference in approach grades (G2 – G1)

The AASHTO policy on geometrics specifies maximum K values are shown in the following table.

Distance X to Flanking Inlets in Sag Vertical Curve Locations								
	Depth at Curb (Inches)							
"K" L/A	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8
20	20.0	28	35	40	45	49	53	57
30	24.0	35	42	49	55	60	65	69
40	28.0	40	49	57	63	69	75	80
50	32.0	45	55	63	71	77	84	89
70	37.0	53	65	75	84	92	99	106
90	42.0	60	73	85	95	104	112	120
110	47.0	66	81	94	105	115	124	133
130	51.0	72	88	102	114	125	135	144
160	57	80	98	113	126	139	150	160
167	58	80	100	116	129	142	153	163
Notes: $X = (200dK)^{0.5}$; where X = distance from the low point.								

The purpose in providing this table is to facilitate the selection of criteria for the location of flanking inlets based on the ponding potential at the site, the potential for clogging of the inlet at the low points design spread, design speeds, traffic volumes, and other considerations which may be peculiar to the site under consideration. A depth at curb criterion which does not vary with these considerations neglects consideration of cross slope and design spread and may be unduly conservative at some locations. Location of flanking inlets at a fixed slope rate on the vertical curve also neglects consideration of speed facilities and not at all conservative for high speed facilities.

Except where inlets become clogged, spread on low gradient approaches to the low point is a more stringent criterion for design that the interception capacity of the sag inlet. AASHTO recommends that a gradient of 0.3 percent be maintained within 50 feet of the level point in order to provide for adequate drainage. It is considered advisable to use spread on the pavement at a gradient comparable to that recommended by the AASHTO Committee on Design to evaluate the location and design of inlets upgrade of sag vertical curves. Standard inlet design and/or location may need adjustment to avoid excessive spread in the sag curve.

500.13 STORM SEWERS AND APPURTENANCES

It is the purpose of this section to consider the significance of the hydraulic elements of storm sewers and their appurtenances to a storm drainage system. Hydraulically, storm drainage systems are conduits (open or enclosed) in which unsteady and non-uniform free flow exists. Storm sewers accordingly are designed for open-channel flow to satisfy as well as make possible

the requirements for unsteady and non-uniform flow. Steady flow conditions may or may not be uniform.

All storm sewers shall be designed by the application of the Manning's Equation when flowing in open channel conditions. The hydraulic grade line shall be checked storm sewer designs to determine if the open channel flow assumption is valid. In the preparation of hydraulic designs, a thorough investigation shall be made of all existing structures and their performance on the waterway in question.

After the computation of the quantity of storm runoff entering each inlet, the storm sewer system required to carry the runoff is designed. It should be borne in mind that the quantity of flow to be carried by any particular section of the storm sewer system is not the sum of the inlet design quantities of all inlets above that section of the system but is less than the straight total. This situation is due to the fact that as the time of concentration increases the rainfall intensity decreases.

500.13.1 FREQUENCY OF DESIGN RUNOFF

The frequency of design runoff is a function of operational and economic criteria with a special emphasis on public safety. As discussed in other sections of this Manual some types of facilities do not require high levels of protection and periodic flooding is not objectionable. However, for all facilities the designer must consider the impact of a 100-year event.

500.13.2 PIPE SIZES AND MATERIAL TYPES

Pipes which are to become an integral part of the public storm sewer system shall have a minimum equivalent diameter of 15 inches if there are no bends and 18 inches if there are any bends used. Pipe constructed within the public right-of-way or public easement shall be reinforced concrete pipe (RCP) or ADS HP Storm polypropylene (PP) pipe or approved equal.

For private use only, high-density polyethylene (HDPE) pipe, may be used within an easement, more than ten (10) feet away from pavement, or under driveways when directed by the Engineer.

For private use only, corrugated metal pipe (CMP) shall conform to the SDDOT Standard Specifications for Road and Bridges and AASHTO M36 or M196. Corrugated metal pipe is only allowed in specified locations and shall not be placed under roadways, driveways or other paved areas.

- All pipe design and installation must meet the manufacturer's recommendations for minimum depth of cover.
- Pipe design service life shall be a minimum of 50 years as certified by the manufacturer. All manufacturer requirements for which the design service life is based must be met by the engineer.
- The minimum allowable coefficient of roughness for concrete pipe for direct solution of Manning's Equation is 0.013 and 0.012 for PP and HDPE pipe.

500.13.3 VELOCITIES AND GRADES

Storm sewers should operate with velocities of flow sufficient to prevent excessive deposition of solid material; otherwise, objectionable clogging may result. The controlling velocity occurs near the bottom of the conduit and is considerably less than the mean velocity. Storm sewers shall be designed to have a minimum mean velocity of 2.5 feet per second (fps) for the 5-year storm condition. Outlets on storm sewers of minimum grade should be designed to avoid sedimentation at the outfall.

The following table shows the limits of maximum velocity for all storm sewers except downspouts.

Maximum Velocity in Storm Sewers	
Description	Maximum Permissible Velocity
Storm Sewers (inlet laterals)	No Limit
Storm Sewers (collectors and mains)	20 fps

500.13.4 PIPE BENDS

Prefabricated horizontal pipe bends of up to 11.25 degrees are allowed for use for RCP and PP pipe that is 18 inches or greater. Vertical bends shall not be used. The use of these bends shall not be liberal and shall be limited to a maximum of 2 placed between access points (manholes, junction boxes, inlets, outlets) with a minimum of 10 feet of straight aligned pipe between each bend.

Prefabricated large and short radius RCP bends shall only be used when approved by the City Engineer.

500.13.5 MANHOLES, JUNCTION BOXES, AND INLETS

Manholes/junction boxes and inlets shall be placed at each bend (exception per Section 500.13.4) in the storm sewer alignment (horizontal or vertical), at each change in pipe size, at lateral connections, at the upstream terminus of each trunk line and shall have maximum spacing as follows:

Maximum Allowable Spacing

Storm Sewer Diameter	Maximum Distance
18” to 30”	400’
36” to 60”	500’
66” and Larger	600’

Manhole sizes – Manhole diameters shall be as follows:

Minimum Allowable Manhole Sizes

Storm Sewer Diameter	Manhole Diameter
18"to 24"	4'
27" to 36"	5'
42"	6'
48" and larger	Junction box or Tee

- Larger manhole diameters or junction boxes may be required when storm sewer alignments are not straight through or when lateral pipes also enter manholes. Junctions boxes may be cast-in-place or pre-cast.
- Manholes shall have pre-cast bases and eccentric cones and iron rings and covers. Flat top lids may be used if design depths are too shallow to allow eccentric cones. Steps shall be installed at appropriate spacing in line with the eccentric cone to provide safe access to the storm sewer. Adjustments to rings and covers to match design grades shall be made with pre-cast concrete or HDPE rings and shall not exceed 8 inches in height.
- Maximum manhole depth shall not exceed 15 feet.
- Manholes shall have a maximum vertical distance of 24 inches between the highest pipe invert entering a manhole and the invert leaving. Manholes exceeding 24 inches of fall shall be designed as drop manholes. Drop manholes with drop heights exceeding six feet shall be designed with high strength (6,000 psi) concrete.

500.13.5.1 In-line Manhole Tees. Prefabricated RCP manhole tee connections are allowed for use for pipe sizes of 36 inches and greater. At the City Engineer's discretion, pipes placed at greater depths may require use of a standard manhole as described in Section 500.13.4. The minimum vertical diameter for the access opening shall be 27 inches. The maximum number of manhole tees used in a storm sewer system shall be no more than 50 percent of the total manholes/junction boxes.

500.13.6 ALIGNMENT

In general storm sewer alignment between manholes shall be straight with use of bends only when following the requirements within Section 500.13.4.

500.13.7 FLOW IN STORM SEWERS

All storm drains shall be designed by the application of the Continuity Equation and Manning's Equation. The following items will be followed when designing storm sewers:

- Select pipe size and slope so that the velocity of flow will increase progressively, or at least will not appreciably decrease, at inlets, bends, or other changes geometry or configuration.

- Do not discharge the contents of a larger pipe into a smaller one, even though the capacity of the smaller pipe may be greater due to steeper slope.
- At changes in pipe size from a smaller to a larger pipe, match the soffits (inside top surface) of the two pipes at the same level rather than matching the flow lines. (When necessary for minimal fall, match the 0.8 diameter point of each pipe.)
- Conduits are to be checked at the time of their design with reference to critical slope. If the slope of the line is greater than critical slope, the unit will likely be operating under entrance control instead of the originally assumed normal flow. Conduit slope should be kept below critical slope if at all possible. This also removes the possibility of a hydraulic jump within the line.
- Inlets and outlet treatments are required on all storm sewers in accordance with Section 500.16. Inlets and outlets shall be designed to prevent scour and erosion.

500.13.8 HYDRAULIC GRADIENT AND PROFILE OF STORM SEWERS

The hydraulic grade line (HGL) shall in no case be closer than one foot to the rim elevation or finished grade based on the maximum storm sewer system input. The hydraulic grade line shall be based on the law of conservation of energy as expressed by the Bernoulli Equation. If the storm sewer system could be extended at some future date, present and future operation of the system must be considered. The minor and major storm HGL shall be shown on all storm sewer profiles unless otherwise noted.

It is not necessary to compute the hydraulic grade line of a conduit section if all three of the following conditions are satisfied.

- The slope(s) and the pipe size(s) are chosen so that the slope is equal to or greater than friction slope.
- The inside top surfaces (soffit) of successive pipes are lined up at changes in size.
- The water surface at the point of discharge will not rise above the top of the outlet.
- In such cases the pipe will not operate under pressure and the slope of the water surface under capacity discharge will approximately parallel the slope of the invert of the pipe.

500.13.9 TOTAL ENERGY LOSSES AT STRUCTURES

The following total energy head losses at structures shall be determined for inlets, manholes, junction boxes, or bends in the design of full flow closed conduits. Note total energy losses include minor losses (hj) and the change in velocity head (hv). See Figures 500-06 through 500-08 for details of each case.

500.13.10 MINOR HEAD LOSSES AT STRUCTURES

The standard method calculates structure head loss based on the exit pipe's velocity. The exit velocity head is multiplied by a user-entered coefficient to determine the loss.

$$h_s = K\left(\frac{Vo^2}{2g}\right)$$ (Eq. 500-11)

Where:
h_s = Structure headloss (feet)
K = Loss coefficient
Vo = Exit pipe velocity (ft/s)
g = Gravitational acceleration constant (ft/s^2)

For suggested K values for various structure configurations, see Figure 500-08.

500.13.11 OUTLETS

Where a storm sewer discharges into a natural channel or irrigation ditch, an outlet structure shall be provided that will blend the storm sewer discharge into the natural channel flow in such a way as to prevent erosion of the bed or banks of the channel.

When the discharge velocity is low, or subcritical, the outlet structure may be one of the following:

- Flared, Safety or sloped end section
- Headwall
- Wing walls

If the discharge velocity is high, or supercritical, prevention of erosion of the natural channel bed or banks in the vicinity of the outlet may require an energy dissipating structure.

All outlets shall have an apron consisting of one of the following:

- Riprap with geotextile fabric base
- Concrete anchor mat
- Concrete slab
- Scour stop, or approved equal
- Other approved methods

500.14 CULVERT HYDRAULIC DESIGN

The function of a drainage culvert is to pass the design storm flow under a roadway or other feature without causing damaging backwater, excessive flow constriction, or excessive outlet velocities.

The following design criteria shall be utilized for all culvert design:

- The culvert including inlet and outlet structures shall properly take care of storm water flow, bed-load, and debris at all stages of flow.
- Inlets. Culvert inlets shall be designed to minimize entrance and friction losses. Inlets shall be provided with either flared-end sections or head walls with wing walls. Projecting ends

will not be acceptable. For large structures, provisions shall be made to resist possible structural failure due to hydrostatic uplift forces.

- Outlets. Culvert outlets shall be designed to avoid sedimentation, undermining of the culvert, or erosion of the downstream channel. Outlets shall be provided with either flared-end sections or headwalls, with wingwalls. Projecting outlets will not be acceptable. Additional outlet control in the form of rip rap, channel shaping, dissipation structure, etc., may be required where excessively high discharge velocities occur. All structural outlet velocity dissipaters shall be underlain with a suitable filter fabric to protect against scour.
- Slopes. Culvert slopes shall be such that neither silting nor excessive velocities and scour occur. Generally, the minimum slope of culverts shall be limited to 0.50 percent.
- Hydraulic Design. Culverts shall be analyzed to determine whether discharge is controlled by inlet or outlet conditions for both the initial storm discharge and the major storm discharge. The value of the roughness coefficient (n) used shall not be less than those specified by documentation of the culvert manufacturer. Computations for selected culvert sizes shall be submitted for review.
- Minimum Allowable Size. The required size of the culvert shall be based upon adequate hydraulic design analysis. Approval will not be granted for round culverts with less than 18 inches inside diameter, or for arched or oval-shaped culverts with span-rise dimensions less than 24 inches x 18 inches nominal except that culverts 12 inches or greater in diameter may be used for single-family residential access drives. The minimum height of a reinforced box culvert should be 3 feet to facilitate cleanout and allow removal of forms during construction.
- Multiple Culvert Installation. Where physical conditions dictate, multiple culvert installations will be acceptable, provided the minimum size of any culvert to be used shall not be less than the requirements set forth above.
- Structural Design. The structural design of culverts shall conform to those methods and criteria recommended by the manufacturer of a specific type of culvert dependent upon the type of bedding, the method of installation, and the load.

500.14.1 DESIGN FREQUENCY

Culverts within major drainageways, as outlined in the city's current master storm drainage plan or as determined by the City Engineer, that are under arterials or railroads shall have sufficient capacity to pass all of the runoff from the 100-year storm, considering 20 percent of the inlet plugged, for pipes under 48-inch diameter. For all other streets, culverts must be designed to convey a minimum of the10-year flow with no street overtopping and must be large enough so that the 100-year flow over the top of the road does not exceed 12 inches in depth above the invert of the gutter.

500.14.2 CULVERT DISCHARGE VELOCITIES

The velocity of discharge from culverts should have consideration given to the effect of high velocities, eddies or other turbulence on the natural channel, downstream property and roadway

embankment. Inlets and outlet treatments are required on all culverts in accordance with Section 2.9. Inlets and outlets shall be designed to prevent scour and erosion.

The maximum allowable velocity in a culvert is 20 fps. A minimum velocity of 2.5 feet per second at the 10-year design flow shall be maintained in all drainage structures to prevent siltation. Where doubt exists concerning silt or scour, protection commensurate with the value of the structure and surrounding property shall be installed to insure that damage to or failure of the structure will not occur.

500.14.3 CULVERT MATERIAL TYPES

Material for culverts shall be reinforced concrete pipe (RCP) or ADS HP Storm polypropylene (PP) pipe (or equivalent). Other materials may be considered and be granted use by the City Engineer through the exception process.

500.14.4 CULVERT DESIGN METHODOLOGIES

Culverts shall be designed in accordance with the current edition of the Hydraulic Design of Highway Culverts, Hydraulic Design Series No.5. by the Federal Highway Administration (FHWA).

500.15 OPEN-CHANNEL FLOW

Open channels designed for use in drainage systems have significant advantages in regard to cost, capacity, multiple use for recreational and aesthetic purposes, and potential for instream storage and ground water re-charge. Disadvantages include potential right-of-way constraints and maintenance costs. Careful planning and design are needed to increase the benefits and to minimize the disadvantages. The ideal open channel is one that is a stabilized water course developed by nature over time, characterized by stable bed and banks. The benefits of such a channel are listed below.

- Available channel storage can decrease peak flows.
- Maintenance needs can be low when the channel is properly stabilized.
- Natural subsurface infiltration of flows is provided.
- Native vegetation and wildlife may not have to be disturbed.
- The channel can provide a desirable green belt and recreational area adding significant social benefits.
- Generally speaking, a stabilized natural channel, or the man-made channel which most nearly conforms to the character of a stabilized natural channel is the most efficient and the most desirable.
- The use of naturally occurring channels and drainage ways is encouraged. Significant changes to natural drainage ways shall not be allowed unless computations show that the changes will not adversely impact the channel of adjacent downstream development.
- Channel stability, particularly in unprotected alluvial materials, is a problem in urban hydrology because of the significant increase in low flow and peak storm runoff rates. A

natural channel must be studied in sufficient detail to determine the measures needed to mitigate potential bottom scour and bank cutting. Erosion control measures can be provided at reasonable cost which will preserve the natural appearance without sacrificing hydraulic efficiency. This section provides the necessary criteria and methodology for selection and design of open-channels.

- Design criteria for various types of channel lining are provided in Figure 500-09 and are to be used in the design of drainage channels.

500.15.1 TYPES OF CHANNELS

Channels are defined as natural or artificial. Natural channels include all water courses that have developed by the erosion process. Artificial channels are channels constructed or significantly altered by human effort and include roadside ditches and grassed or improved channels.

500.15.1.1 Natural Channels. Many natural channels in urbanizing or urbanized areas have mild slopes, are reasonably stable, and are not in a state of serious degradation or aggredation. However, if a natural channel is to be used for carrying storm runoff from an urbanized area, the altered nature of the runoff peaks and volumes from urban development can and will cause erosion. Hydraulic analyses will be required for natural channels in order to identify the erosion tendencies. Some on-site modification of the natural channel may be required to assure a stabilized condition.

The investigations necessary to assure that the natural channels will be adequate are different for every waterway. The designer must prepare cross sections of the channel, define the water surface profile for the initial and major design flood, investigate the bed and bank material to determine erosion tendencies, and study the bank slope stability of the channel under flow conditions. Supercritical flow does not normally occur in natural channels, but calculations must be made to assure that the results do not reflect supercritical flow.

500.15.1.2 Artificial Channels. Artificial channels include the following:

- Grass-Lined Channels. Grass-lined channels are the most desirable of the artificial channels. The presence of grass in channels creates turbulence which results in loss of energy and increased flow retardance. Therefore, the designer must give full consideration to sediment deposition and scour, as well as hydraulics.

- Concrete-Lined Channels. If the project constraints dictate the use of a concrete channel, such use shall be allowed only upon prior approval by the City.

- Rock-Lined Channels. If the project constraints dictate the use of a riprap or gabion lining, such use shall be allowed only upon prior approval of the City. Riprap for the purposes of local erosion control is permitted.

- Other Channel Linings. The criteria for the design of channels with linings other than grass, rock, or concrete will be dependent on the manufacturer's recommendations for the specific product. The designer will be required to submit the technical data in support of the proposed material. Additional information or calculations may be requested by the City to verify assumptions or design criteria.

500.15.2 DESIGN STANDARDS

The design standards for open channels cannot be presented in a step-by-step fashion because of the wide range of options available to the designer. Certain planning and conceptual criteria are particularly useful in the preliminary design of a channel. Those criteria which have the greatest effect on the performance and cost of the channel are discussed below. Design submittals shall be in a clear and concise format convenient for review and shall include, but not be limited to:

- storm runoff computations and mapping
- hydraulic design computations, assumptions, references, sketches and drawings
- floodplain mapping
- all other pertinent data

All designed channels shall be such that the Froude Number is not between the range of 0.95 to 1.05. Undulated flow could occur in the prohibited range and cause excessive channel damage.

500.15.3 EVALUATION OF NATURAL CHANNELS

The evaluation criteria for natural channels are:

- The channel and overbank areas shall have adequate capacity for the major storm runoff.
- Natural channel segments which have a Froude Number greater than 0.95 for any flow shall be protected from erosion.
- The water surface profiles shall be defined so that the major storm floodplain can be mapped.
- Filling of the flood fringe reduces valuable channel storage capacity and tends to increase downstream runoff peaks and is subject to the restriction of floodplain regulations.
- Manning's roughness factors, "n", which are representative of unmaintained or "in need of maintenance" channel conditions shall be used for the analysis of water surface profiles.
- Manning's roughness factors, "n", which are representative of maintained channel conditions, shall be used to determine velocity limitations.
- Erosion control structures such as riprap, check drops or check dams, may be required to control flow velocities, including the initial storm runoff.
- Plan and profile drawings of the major storm floodplain, including flooded limits, shall be prepared. Appropriate allowances for future bridges or culverts, which can raise the water surface profile and cause the floodplain to be extended, shall be included in the analysis.

With most natural waterways, grade control structures should be constructed at regular intervals to decrease the thalweg (point of deepest flow) slope and to control erosion. However, these channels should be left in as near a natural condition as possible. For that reason, extensive modifications should not be undertaken unless they are found to be necessary to avoid excessive erosion with subsequent deposition downstream. Also, modification of the channel within the normal high-water line may require a US Army Corps of Engineers Section 404 permit.

The usual rules of freeboard depth, curvature, and other guidelines which are applicable to artificial channels do not necessarily apply to natural channels. There are significant advantages which may occur if the designer plans for the overtopping of the channel and localized flooding of adjacent areas, which are laid out and developed for the purpose of being inundated during the major storm runoff. The freeboard criteria can be used to take advantage in gauging the adequacy of a natural channel for future changes in runoff.

500.15.4 EVALUATION OF GRASS-LINED CHANNELS

Key parameters in grass-lined channel design include velocity, slopes, roughness coefficients, depth, freeboard, curvature, cross section shape, and lining materials. Other factors such as water surface profile computation, erosion control, drop structures, and transitions also play an important role. See Figure 500-08 for design criteria for grass-lined channels. In addition to the design criteria contained in Figure 500-08, grass-lined channels shall also meet the following standards.

- Maintenance / Access Road. Linear access for maintenance and/or construction vehicles and equipment shall be provided for all major drainage ways from public right-of-way or other easements. The “road” may consist of a twelve feet wide, graded space on one side of the channel.
- Transitions. Scour potential is amplified by turbulent eddies in the vicinity of rapid changes in channel geometry such as at transitions and bridges. Riprap protection for subcritical transitions (Froude Number 0.8 or less) is selected by increasing the channel velocity by 20%. Since the channel velocity varies through a transition, the maximum velocity in the transition should be used in selecting riprap size after it has been increased by 20%. Protection should extend upstream from the transition entrance at least five (5) feet and extend downstream from the transition exit at least ten (10) feet.

500.15.5 EVALUATION OF CONCRETE-LINED CHANNELS

The hydraulic criteria for the design and construction of concrete lined channels is presented in Figure 500-09.

500.15.6 EVALUATION OF ROCK-LINED CHANNELS

Design criteria applicable to ordinary and grouted riprap channel linings are presented herein.

- Channel Coefficient. The Manning's roughness coefficient for hydraulic computations may be estimated for ordinary riprap using Figure 500-08. The "n" value is dependent on the predominant rock size.
- Rock Size and Lining Dimensions. Rock size lining and dimensions shall be per FHWA HEC 22.

- Wire Enclosed Rock (Gabions). The roughness coefficient for gabion linings varies from 0.025 to 0.033 depending on the predominant rock size. An "n" value of 0.028 is recommended based on a rock size of four inches. For gabion linings a larger value of n = 0.032 is recommended due to the larger rock size.
- Bedding Requirements for Rock-Lined Channels. Long term stability of riprap and gabion erosion protection is strongly influenced by proper bedding conditions. A large percentage of all riprap failures are directly attributable to bedding failures. Properly designed bedding provides a buffer of intermediate sized material between the channel bed and the riprap to prevent piping of channel particles through the voids in the riprap. Two types of bedding are in common use: 1) a granular bedding filter and 2) filter fabric.

500.15.7 WATER-SURFACE PROFILE ANALYSIS

For final design, water surface profiles must be computed for all channels. The normal depth may be used for the water surface profile if the channel is uniform and continuous with no variance in the channel cross section, slope or channel material. Computation of the water surface profile shall be presented for all open channels, utilizing standard backwater analysis, and should consider all losses due to changes in channel velocity, drops, curves, bridge openings, and other obstructions. Computations begin at a known point and extend in an upstream direction for subcritical flow.

Backwater computation can be made using the methods presented in '*Open-Channel Hydraulics'* by Chow. The use of water-surface analysis can be easily programmed on calculators or computers. Many computer programs are also available for computation of water-surface profiles. The most general and widely used program is the HEC-RAS Water-Surface Profiles, developed by the US Army Corps of Engineers, and is the program recommended for flood water profile computations. This program can be used to compute water-surface profiles for both natural and man-made channels.

When designing for bends in open-channels the effects of superelevation and energy losses due to resistance in the bends must be considered in water-surface profile computations. In addition to superelevation on bends, flow separation in the bend creates a backwater effect that must also be considered. More detail on determining these effects may be found in Chow.

500.16 GENERAL GUIDELINES FOR HYDRAULIC STRUCTURES

Hydraulic structures are used to guide and control water flow velocities, directions and depths, the elevation and slope of the streambed, the general configuration of the waterway, and its stability and maintenance characteristics.

Careful and thorough hydraulic engineering is justified for hydraulic structures. Consideration of environmental, ecological, and public safety objectives should be integrated with hydraulic engineering design. The proper application of hydraulic structures can reduce initial and future maintenance costs by managing the character of the flow to fit the environment and project needs.

Hydraulic structures include transitions, constrictions, channel drops, low flow checks, energy dissipaters, bridges, bends, and confluences. Their shape, size, and other features vary widely for different projects, depending upon the discharge and the function to be accomplished. Hydraulic design procedures must govern the final design of all structures.

Urban drainage facilities should not be built if they cannot be properly maintained on a long-term basis. This means that suitable access must be provided, a maintenance plan must be developed and funded, and the drainage facilities must be maintained in accordance with public works standards.

The design of structures must consider the safety of maintenance workers and the general public, especially when multiple uses are intended. There are some inherent safety risks in any waterway that have to be recognized by the public, designers, and government officials. The designer must use a reasonable standard of care for the particular structure being designed or retrofitted that includes evaluation of present or likely future public access and uses.

Aesthetic appearance of structures in urban areas is also important. Structures can be designed with various configurations, different materials, and incorporation of adjacent landscaping to produce a pleasing appearance and good hydraulic function and to enhance the environmental and ecological character of the channel and floodplain.

It is not the intent of this Section to describe detailed design standards for these hydraulic structures, rather general design considerations and city expectations. Design of hydraulic structures shall be prepared be means of generally accepted, industry standards and technical references.

500.17 RIPRAP

Placement of riprap is used for preventing or limiting channel bed and bank erosion damage caused by excessive channel flow or surges from energy dissipaters. In particular, placement of riprap on the channel bottom and banks downstream of an energy dissipater structure is required for alleviating possible undermining of the structure.

Experience has shown that a primary reason for riprap failure is placement of undersized individual stones in the maximum size range. Failure has also occurred because of improper engineering design for gradation of riprap, seepage control and/or bedding filter requirements.

- Design of riprap should take into account the following parameters:
- Stone durability
- Stone density
- Stone size
- Stone shape
- Stone gradation
- Velocity of flow against the stone

- Filter bed requirements
- Channel side slopes
- Froude Number

The U.S. Bureau of Reclamation has developed a curve, shown as Figure 500-09, which gives the minimum stone size (diameter and weight of a spherical specimen) for a range of bottom velocities up to seventeen feet (17 ft.) per second. A well-graded riprap layer contains about forty percent (40%) of the rock pieces smaller than the required size as stable, or more stable, than a single stone of the required size.

Most of the mixture should consist of stones having length, width, and thickness dimensions as nearly equal as practical and of the size shown in Figure 500-09 or larger, or the stones should be of curve weight as shown in Figure 500-09 or more (weight is computed on the basis of 165 pounds per cubic foot) and should not be flat slabs.

The riprap layer should be a minimum of 1-1/2 times or more, as thick as the dimension of the large stones (curve size) and should be placed over a gravel or reverse filter layer.

500.17.1 DESIGN OF RIPRAP BASINS

The designer, by using Figures 500-10 through 500-13, can determine the proper length and width of the basin and the size of rock. The following assumes that a flared end section is to be used at the outlet and the channel water depth is not less than one quarter (1/4) of the pipe diameter.

The general geometry of the basin shall be such that the width of the basin at the flared end section outlet shall be three (3) times the pipe diameter, the divergence angle of the rock basin shall be a 3H:1V ratio of the length to the width, the depth of the rock one and a half (1.5) minimum times as thick as the largest stone and the maximum slope of the sides of riprap basin shall be 2H:1V. A riprap basin shall not be used if the pipe velocity (V_p) is greater than 3.33 times the channel velocity (V_c). The slope of the outlet pipe shall not exceed five percent (5%) for a distance of 5D from the outlet.

For Figures 500-10 thru 500-13 the following symbols shall be used:

- Q = pipe discharge, in cubic feet per second
- D = pipe diameter, in feet
- d = size of rock in feet (Figure 500-13)
- L = length of riprap basin to which velocity is reduced to Vc, in feet Vc = channel velocity, in feet per second
- Vp = pipe velocity, in feet per second

500.18 STORMWATER STORAGE OF DETENTION OF EXCESS POST-DEVELOPMENT FLOWS

On-site detention of runoff is an alternative to other methods of urban stormwater management. Storage, which involves collecting excess runoff before it enters the main drainage system, can

often be an effective and economical means of reducing peak flow rates and mitigating problems of flooding, pollution, soil erosion, and siltation.

Detention facilities will be used to lessen the impact of post-development peak flows on downstream property. Facilities that retain stormwater runoff for an extended period of time will not be permitted. Design of retention facilities is beyond the scope of this manual.

State law states that a landowner cannot drain their property by artificially accelerating the drainage onto lower land following the natural drainage course unless water is collected or released in unusual or unnatural quantities. State law also states that a landowner can reasonably alter flow of runoff on the land as long as the resultant downstream harm is not unreasonable.

The design of a drainage system for a development shall account for the runoff from upstream sites, onsite flows, and evaluation of the downstream conveyance system leading to established drainage facilities to ensure that they have sufficient capacity to accept design discharges without adverse backwater or downstream impacts such as flooding, stream bank erosion, and sediment deposition. If downstream conveyance is not in place to handle increased flows, the landowner must make adequate onsite detention to limit flows.

Peak flows shall be limited to pre-development levels, i.e. natural for undeveloped land and immediate pre-development for partially developed land, for the 5-year and 100-year storm event. This will require that storage facilities contain dual stage outlet structures designed to meter the outflows for both storm events.

Properties abutting a detention pond shall be a minimum of 1 foot above the 100-year design storm. Recommended lowest adjacent ground (LAG) elevations for homes abutting or affected by the detention pond shall be a minimum of 2 feet above the overflow elevation. The design engineer shall establish the LAGs and provide them on the drainage plan and within the grading plans. Refer to Section 600.1.4 for additional content on LAGs.

500.18.1 ON-SITE STORM WATER DETENTION LOCATIONS

The following are the permitted locations for storm water detention:

- Open space / recreational locations
- Privately owned parking Lot storage (1’ maximum depth)
- Underground detention for commercial/industrial and multi-family development

Detention is not permitted in the following locations:

- Public rights of way
- Roof tops
- FEMA Flood Zones
- Online detention facilities within major drainageways, unless approved by the City Engineer

Detention facilities should typically be placed at or near the most downstream areas on the development site and/or each development phase, if multiple detention facilities will be constructed. They typically function best if configured in one or a few large basins as opposed to multiple small basins with very small orifices. Therefore, the minimum number of detention facilities is generally preferable.

500.18.2 DETENTION REQUIREMENTS FOR REDEVELOPMENT, EXPANSION AND/OR IMPROVEMENT

Redevelopment of a site occurs when a change in the property use and/or function is desired and produces physical changes to the site. The redevelopment of a site shall require that on-site detention be provided for the entire site, including those areas that previously had not provided detention due to the site being developed prior to city criteria and standards.

Expansion of a site occurs when additional area on the site is to be developed. The expansion of a site shall require that current city standards herein for detention for the entire site are met, where feasible. There are two conditions that may arise for site expansion, depending upon whether or not detention has been provided for the existing site prior to expansion:

- If detention has been provided for the existing developed area, the new expansion shall require that additional detention be provided to accommodate the expanded development.
- If detention has not been provided for the existing developed area, detention will be required for the full expansion and to the extent possible, for the existing site area that has previously been un-detained. The city will require that a reasonable attempt be made to provide detention storage for the previously developed, un-detained portion of the site.

500.18.3 ADDRESSING OFF-SITE FLOWS

Two approaches are generally acceptable for addressing off-site flows that must be conveyed through a development site and the potential impacts to the on-site detention.

Separate Conveyance Systems. In this approach, off-site runoff is conveyed to a point downstream of the on-site detention pond outfall. The detention pond is sized based on the tributary area of the site. Off-site flows and the detained runoff can be conveyed in the same system downstream of the detention pond.

Design for Off-site Flows. An alternative method is to design the detention basin for the entire upstream watershed area, including the future development flows from off-site areas without giving any credit to off-site detention facilities. This method may be appropriate if the off-site tributary area is relatively small, but it becomes less feasible as the off-site tributary increases.

500.18.4 DETENTION FACILITY

A detention facility shall consist of any artificial barrier and associated outlet works intended to detain water. A detention facility that meets the definition of a dam in the ARSD shall be designed in accordance with the ARSD and is beyond the scope of these Standards.

Detention storage shall be provided for all new development and redevelopment projects so that peak rates of runoff are reduced to rates less than or equal to their existing, predeveloped rates. Peak flows shall be limited to predevelopment levels for the 5-year and 100-year event unless the design engineer provides a drainage analysis showing the downstream conveyance system can handle the larger post development flows. Minimum design standards for detention facilities are as follows:

- Minimum bottom slopes - pond slopes shall be designed with a 1.0% minimum longitudinal and a 2.0% minimum cross slope. Longitudinal slopes less than 1.0% will require a low flow trickle channel.
- Side slopes - graded facility side slopes shall be 4H to 1V, maximum.
- Trickle channels - facilities shall have a trickle channel with a capacity of 2% of the 100-year design storm event inflow to the pond and a minimum slope of 0.5 %.
- Freeboard - detention facilities shall be designed with a minimum freeboard of one foot above the emergency spillway water surface elevation or one foot above the water surface elevation during 100-year storm event spill over the emergency spillway, which ever is greater.
- Inlets - points of inflow to the facility shall be protected to prevent erosion. The design of protection measures shall be based on no storage in the pond. Runoff shall enter a detention facility via a stabilized drainageway, a100-year drop structure, or a storm sewer with energy dissipater. Riprap rundowns are generally not accepted due to a history of erosion problems.
- Groundwater - the presence of groundwater within detention facilities must be addressed in design so that standing water is avoided, and drainage structures are adequately protected.
- Access easements for access shall be provided to detention facilities that do not have direct access for public right-of-way.

500.18.5 PRINCIPAL OUTLET WORKS

Reinforced concrete structures shall be utilized for the principal outlets. The minimum outlet pipe diameter shall be eighteen inches (18”). The principal outlet shall be able to completely drain the detention facility within 72 hours of the end of the 100-year storm event by gravity flow through the principal outlets. If a riser is used, a drawdown pipe shall be installed to completely drain the facility. The minimum riser pipe diameter shall be eighteen inches (18”).

The formation of vortices can significantly reduce the discharge for a given headwater because of energy losses. The potential for this shall be evaluated during design and antivortex devices installed, if necessary.

Depending on the geometry of the outlet structure (either drop-inlet riser or hood-inlet pipe) discharge for various headwater depths can be controlled by the inlet crest (weir control), the riser or barrel opening (orifice control), or the riser or barrel pipe (pipe control). Each of these flow controls shall be evaluated when determining the rating curve of the principal outlet.

A stage (foot) versus release rate (cfs) curve shall be provided for the release structure.

500.18.6 OUTLETS

Where a storm sewer discharges into a natural channel, an outlet structure shall be provided that will blend the storm sewer discharge into the natural channel flow in such a way as to prevent erosion of the bed or banks of the channel.

When the discharge velocity is low, or subcritical, the outlet structure may be one of the following:

- Flared end section
- Head wall
- Wing walls

If the discharge velocity is high, or supercritical, prevention of erosion of the natural channel bed or banks in the vicinity of the outlet may require an energy dissipating structure.

All outlets shall have an apron consisting of one of the following:

- Riprap with geotextile fabric base
- Concrete slab
- Other approved methods

500.18.7 EMERGENCY SPILLWAYS

The emergency spillway is needed to control the release point and direction of the overflow. The emergency spillway and the path of the emergency overflow downstream of the spillway and embankment shall be clearly depicted on the drainage plan. Structures shall not be permitted in the path of the emergency spillway or overflow. The emergency overflow water surface shall be shown on the detention facility construction drawings.

The position, profile, and length of the spillway are influenced by geologic and topographic features of the site and downstream structures. The cross-section dimensions are governed by hydraulic elements and are determined by acceptable reservoir routing of the design storm. Discharge from the spillway(s) shall be directed to the main channel without causing erosion along the downstream toe of the facility. Spillways proposed for the protection of earthen embankments shall be in full cut, if possible, to avoid flows against constructed fill. The side slopes of the

excavated channel in earth shall be no steeper than 4H: IV for ease of maintenance. Where the site limitations prevent a full channel cut, a riprap lined wing dike shall be provided to direct spillway flows away from the downstream toe of the facility. A geotechnical evaluation and recommendation shall be made for the embankment material to be used. Ready access to the emergency spillway system shall also be provided.

The configuration of the entrance channel from the reservoir to the control section of the spillway shall be a smooth transition to avoid turbulent flow over the spillway crest. The outlet channel of the spillway shall convey flow to the channel below the structure with a minimum of erosion. The slope of the exit channel usually follows the configuration of the abutment. The predominate soils in the Spearfish area are highly erodible soils, therefore, other means of protection such as riprap, grouted rock or concrete paving to form the exit channel will be required on all structures. Specially adapted grasses can be used to provide a stabilizing effect and reduce erosion in the exit channel.

The acceptable methods for predicting the volume of runoff over time and peak flow are the Modified Rational Method and HEC-HMS or methods identified in Chapter 4.2. Use of CUP-SWIM shall be limited to making predictions for changes in existing basins where the basin has not yet been remodeled using HEC-HMS. See Section 500.8.

500.18.8 IRRIGATION

The combined use of irrigation facilities for storm water drainage is prohibited without the permission of the owner of such facilities and the city.

Urbanization of undeveloped areas could impact existing irrigation systems in one of three ways:

- Development could disrupt the source of supply by reducing the quantity of water flowing in channels used for irrigation supplies or by reducing the quality of water used for irrigation.
- Development could disrupt irrigation water delivery by adversely impacting the geometry of channels used for irrigation, thus reducing the hydraulic efficiency of the irrigation head gates.
- Development could disrupt irrigation water delivery by increasing the flow in existing ditches, resulting in ditch failure and downstream flooding.

500.18.9 USE OF IRRIGATION CHANNELS

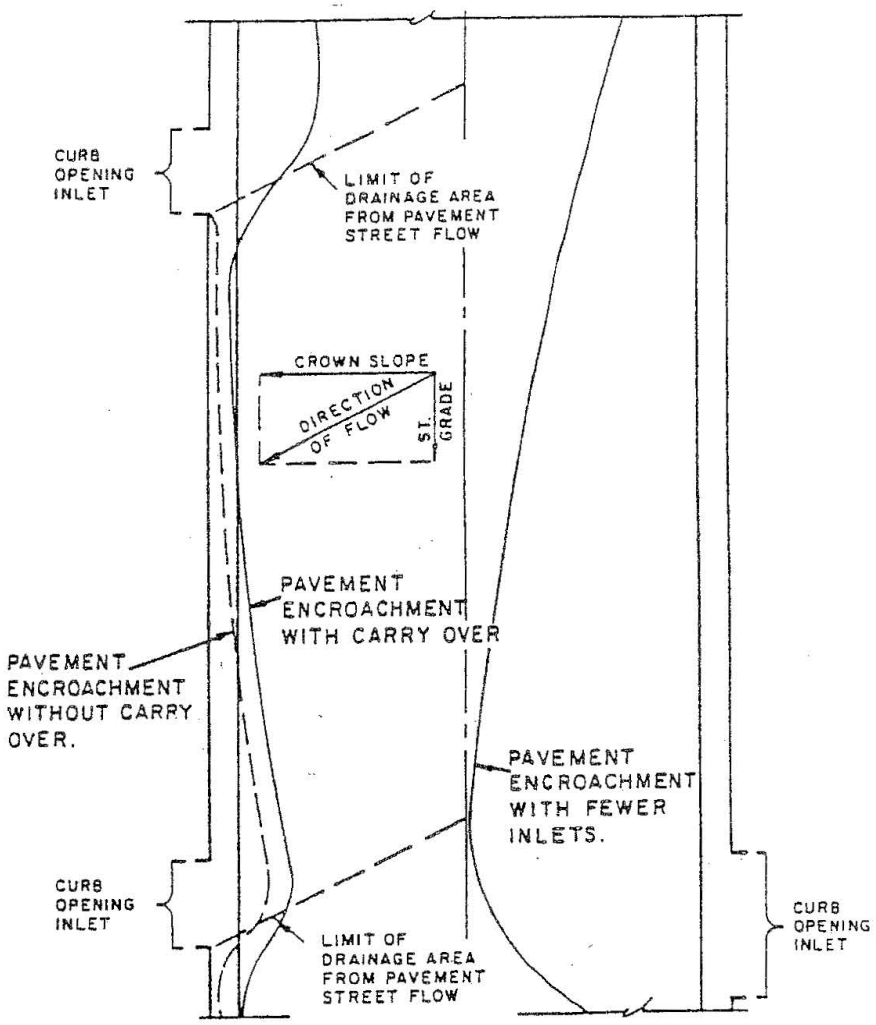
The use of irrigation facilities for storm water conveyance generally is not acceptable. Runoff from urban development shall be directed into historic or natural drainage ways, avoiding discharge into irrigation facilities, except as required by water rights or as shown in an approved Drainage Basin Design Plan and with the permission of the owners of such facilities and the city.

If the designer proposes to use an existing, manmade canal to convey storm water runoff from a developing area, the following information must be provided to the city:

- Documentation of consultation between the designer and ditch owner indicating the intent of the designer, the extent of the affected reach, and the magnitude of expected impacts.
- Maps showing the affected canal reach, accompanied by engineering drawings of any improvements made to the canal as part of the storm water management system.
- A narrative report describing the proposed improvements supported by the following information:
- A description of the alternatives considered, including the design criteria used to evaluate the alternatives.
- Additional design criteria, if any, required by the ditch owner.
- Technical computations indicating:
    - Existing canal capacity, including base flow and/or irrigation flows and residual capacity
    - Ultimate capacity after improvements
    - Design storm hydrographs
    - Areas flooded under existing and ultimate conditions
- An environmental appraisal of the proposed action which describes as a minimum:
    - Temporary and permanent measures to control the production of sediments.
    - Wetlands and navigable streams affected by the proposed action. Wetlands are regulated by Section 404 of the Clean Water Act and navigable streams are regulated by Section 10 of the Rivers and Harbors Act of 1899
    - Expected impacts to water quality
- A description of the expected maintenance requirements, together with an annual maintenance schedule, including the source of funds to be used for maintenance activities.
- Downstream channel is not filled in (i.e. drainage easement)
- Resolution(s) made and executed by the ditch owner (or companies, if necessary) allowing the use of the affected canal for purposes of stormwater management.

END OF SECTION

Figure 500-01
Gutter and Pavement Flow Patterns



11-15-68
Denver Regional Council of Governments

Figure 500-02
Flow in Triangular Gutter Section

(Source: US Department of Transportation, Hydraulic Engineering Circular No 12, Drainage of Highway Pavements, March 1984)

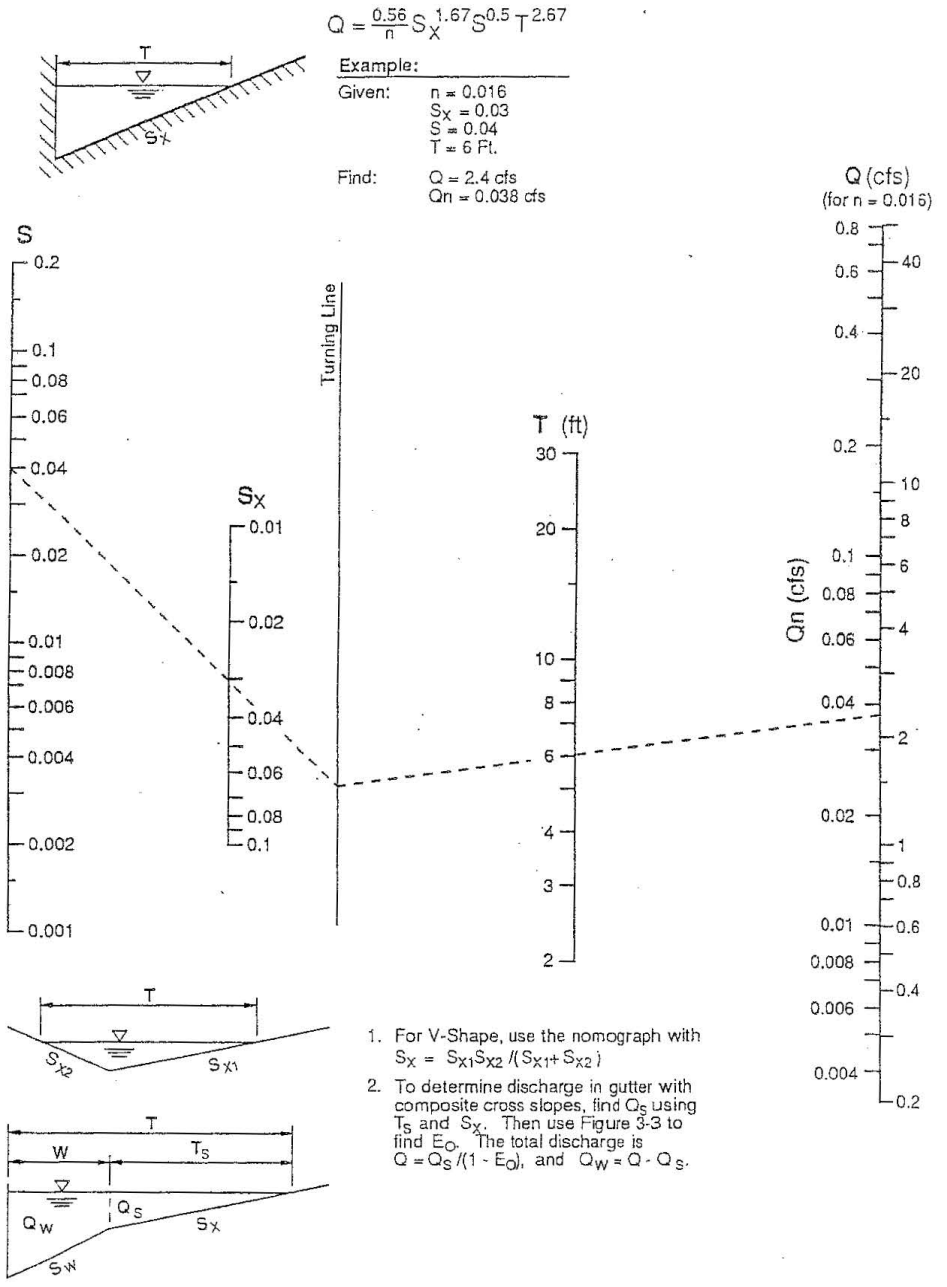


Figure 500-03
Ratio of Frontal Flow to Total Gutter Flow (Eo)

(Source: US Department of Transportation, Hydraulic Engineering Circular No. 12, Drainage of Highway Pavements, March 1984)

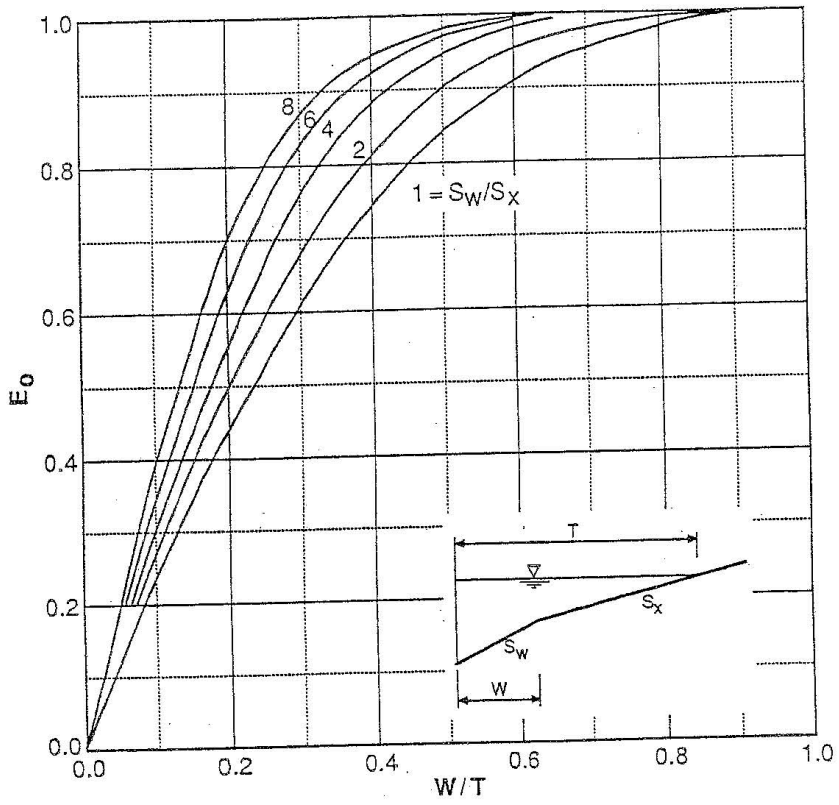


Figure 500-04
Conveyance-Spread Curves for a Composite Gutter Section

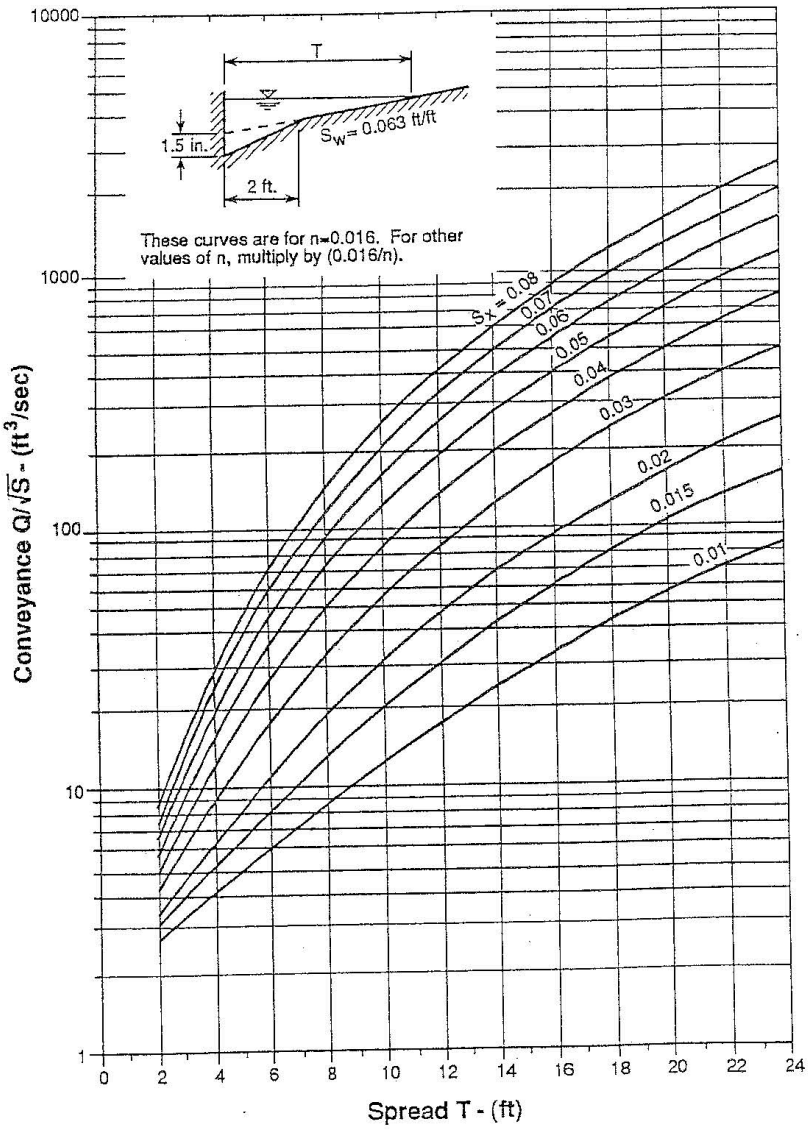


Figure 500-05
Velocity in Triangular Gutter Sections
Source: USDOT. Hydraulic Engineering Circular No. 12, Drainage of Highway Pavements, March 1984

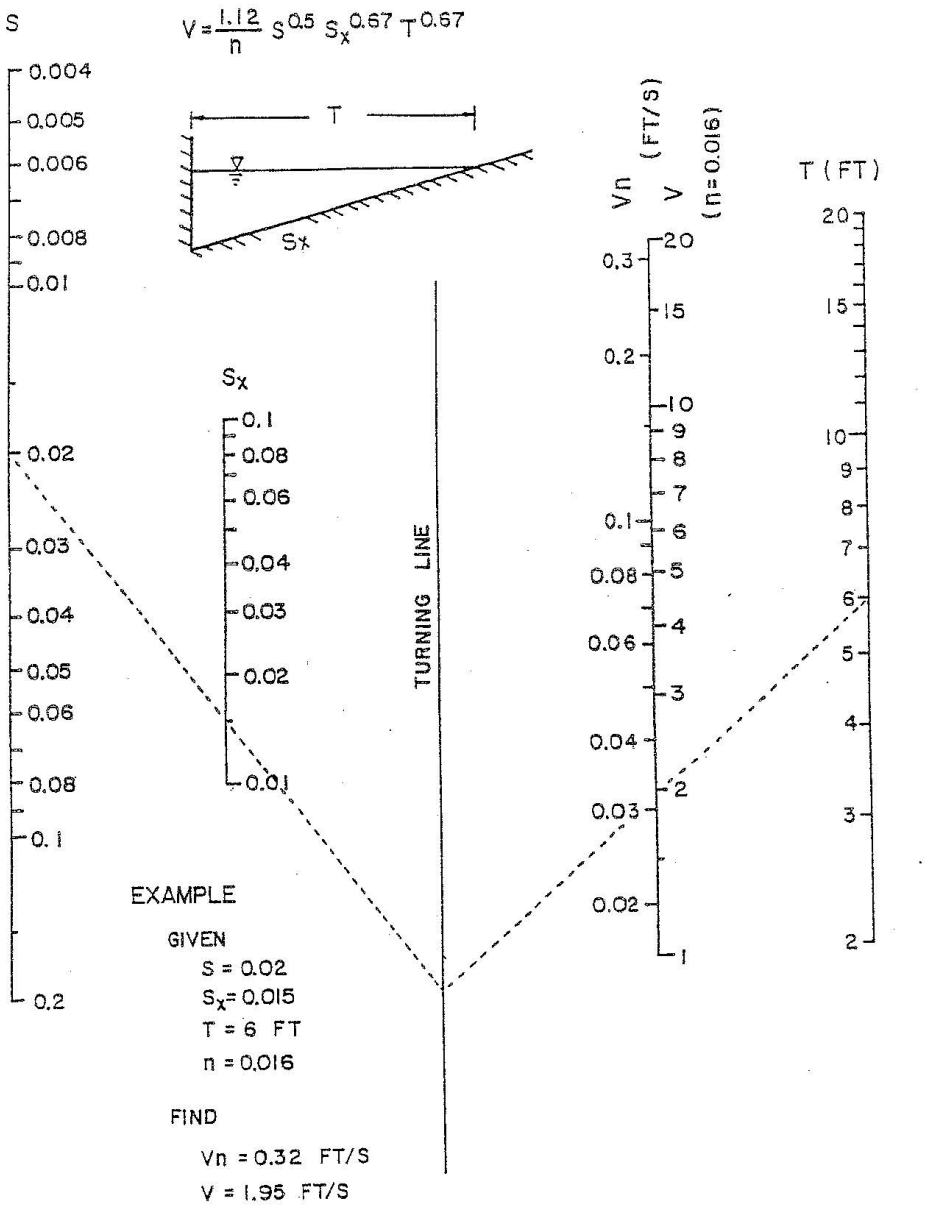
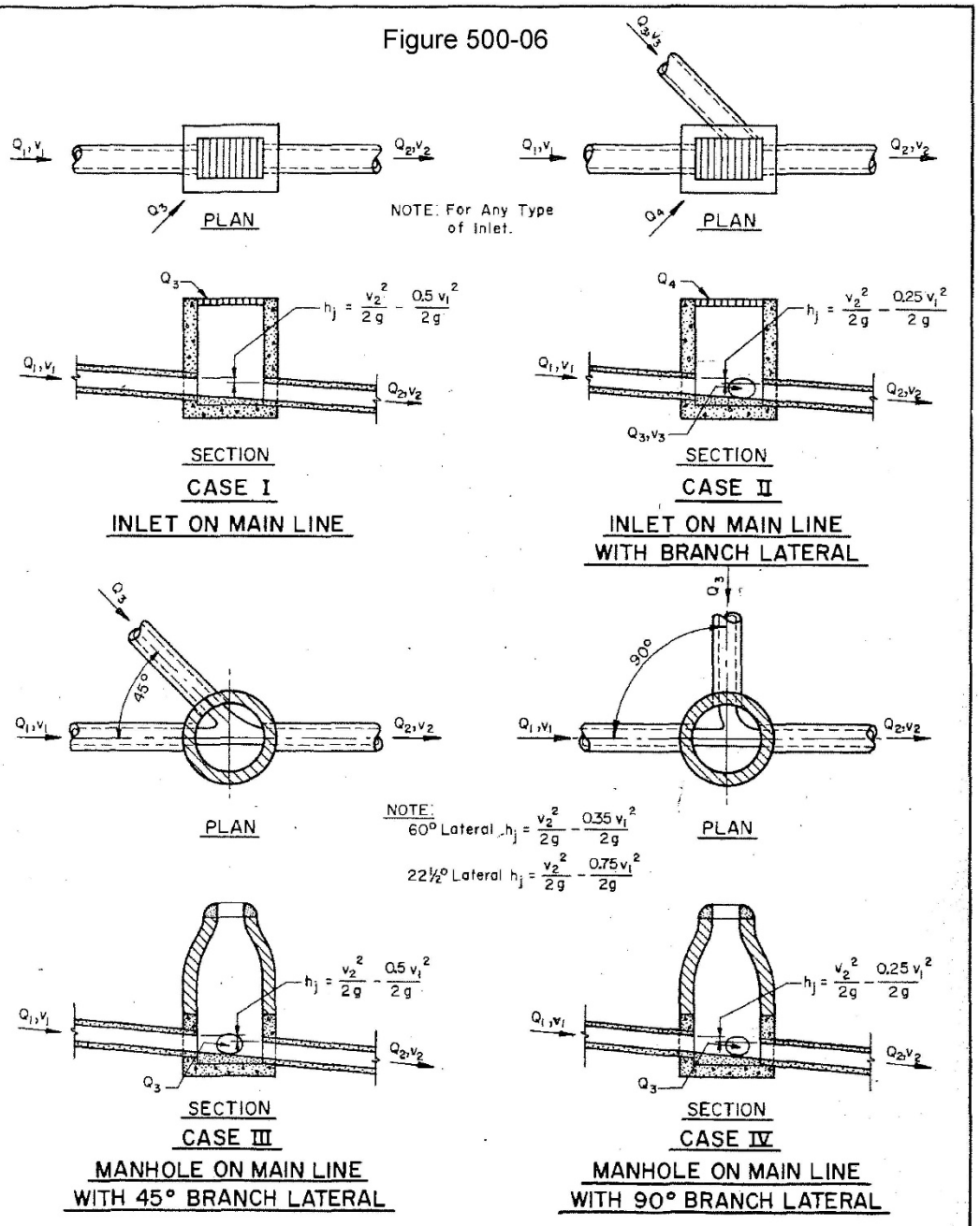
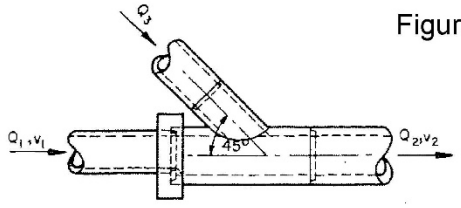


Figure 500-06

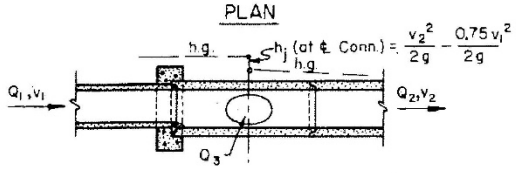


MINOR HEAD LOSSES DUE TO TURBULENCE AT STRUCTURES

Figure 500-07



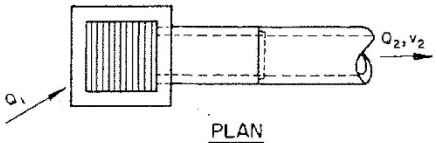
PLAN



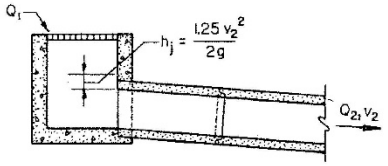
SECTION

CASE V

45° WYE CONNECTION OR CUT IN



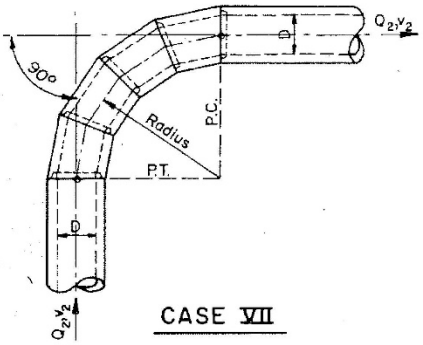
PLAN



SECTION

CASE VI

INLET OR MANHOLE AT BEGINNING OF LINE



CASE VII

CONDUIT ON 90° CURVES*

NOTE: Head loss applied at P.C. for length of curve.

Radius = Dia. of Pipe $h_j = 0.50 \frac{V_2^2}{2g}$

Radius = (2-8) Dia. of Pipe $h_j = 0.25 \frac{V_2^2}{2g}$

Radius = (8-20) Dia. of Pipe $h_j = 0.40 \frac{V_2^2}{2g}$

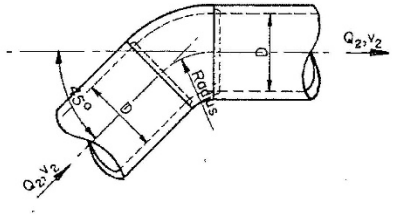
Radius = Greater than 20 Dia. of Pipe $h_j = 0$

*When curves other than 90° are used, apply the following factors to 90° curves.

60° curve 85%

45° curve 70%

22 ½° curve 40%



CASE VIII

BENDS WHERE RADIUS IS EQUAL TO DIAMETER OF PIPE

NOTE: Head loss applied at begining of bend

90° Bend $h_j = 0.50 \frac{V_2^2}{2g}$

60° Bend $h_j = 0.43 \frac{V_2^2}{2g}$

45° Bend $h_j = 0.35 \frac{V_2^2}{2g}$

22 ½° Bend $h_j = 0.20 \frac{V_2^2}{2g}$

MINOR HEAD LOSSES DUE TO TURBULENCE AT STRUCTURES

Figure 500-08
Junction or Structure Coefficient of Loss

Case No.	Reference Figure	Description of Condition	Coefficient K_j
I	20	Inlet on Main Line	0.50
II	20	Inlet on Main Line with Branch Lateral	0.25
III	20	Manhole on Main Line with 45° Branch Lateral	0.50
IV	20	Manhole on Main Line with 90° Branch Lateral	0.25
V	21	45° Wye Connection or cut-in	0.75
VI	21	Inlet or Manhole at Beginning of line	1.25
VII	21	Conduit on Curves for 90° *	
		Curve radius = diameter	0.50
		Curve radius = (2 to 8) diameter	0.25
		Curve radius = (8 to 20) diameter	0.40
VIII	21	Bends where radius is equal to diameter	
		90° Bend	0.50
		60° Bend	0.43
		45° Bend	0.35
		22-1/2° Bend	0.20
		Manhole on line with 60° Lateral	0.35
		Manhole on line with 22-1/2° Lateral	0.75

*Where bends other than 90° are used, the 90° bend coefficient can be used with the following percentage factor applied:

60° Bend - 85%; 45° Bend - 70%; 22-1/2° Bend - 40%

Figure 500-09: General Design Guidance for Major and Local Drainage Facilities

Design Item	Criteria for Various Types of Channel Lining					
	Grass Erosive Soils	Grass Nonerosive Soils	Trickle Channel[3]	Low Flow Channel[4]	Riprap	Concrete
Maximum flow velocity (ft/sec)	5	7	*dependent on soils	*dependent on soils	12	18
Minimum flow velocity (ft/sec)	2	2	2	2	2	2
Minimum Manning's n—stability check	0.03	0.03	*See grass lined channels	*See grass lined channels	0.03	0.011
Maximum Manning's n—capacity check	0.035	0.035	*See grass lined channels	*See grass lined channels	0.04	0.013
Maximum Froude number	0.5	0.8	*dependent on soils	*dependent on soils	0.8	N/A
Maximum low-flow zone depth (ft)	N/A	N/A	N/A	3	N/A	N/A
Maximum depth outside low-flow zone (ft)	5.0	5.0	5.0	5.0	N/A	N/A
Minimum channel longitudinal slope (%)	0.2	0.2	0.2	0.2	0.2	N/A
Maximum channel longitudinal slope (%)	0.60	0.60	0.6	0.6	1.00	N/A
Maximum side slope	4H:1V	4H:1V	N/A	2H:1V	2.5H:1V	1.5H:1V5)[2]
Maximum centerline radius for a bend[1]	2 x top width	2 x top width	*See grass lined channels	*See grass lined channels	2 x top width	2 x top width
Design Discharge (cfs)	100-year	100-year	2% of 100-year	33% to 50% of 2-year	100-year	100-year

1. Use 100 ft if 2 x top width is less than 100 ft. Supercritical channels shall not have horizontal bends.

2. Side slopes may be steeper if designed as a structurally reinforced wall to withstand soil and groundwater forces.

3. Trickle channels are to be used in all channels that have a high probability of having base flow in the future. Trickle channels shall be utilized in drainage rights-of-way or easements that DO NOT have adequate room for recreational activities adjacent to the drainage facility. Trickle channels are either lined with manmade material (concrete) or natural lining (hydric vegetation, rock, etc.) within a larger channel used to minimize oversaturation of drainage ways.

4. Low Flow channels are be used in all channels that carry base flow or are to be utilized. Low Flow channels (preferably free-meandering) shall be utilized in drainage rights-of-way or easements that DO have adequate room or will be used for recreational activities adjacent to the drainage facility. Low flow channel are typically grass channels within a larger channel. Only limited erosion control is provided that allows the channel to adjust to changes in discharge rates and frequencies overtime.

Figure 500-10
Maximum Stone Size in Riprap Mixture
Source: US Bureau of Reclamation, Hydraulic Design of Stilling Basins and Engergy Dissipators, 1984

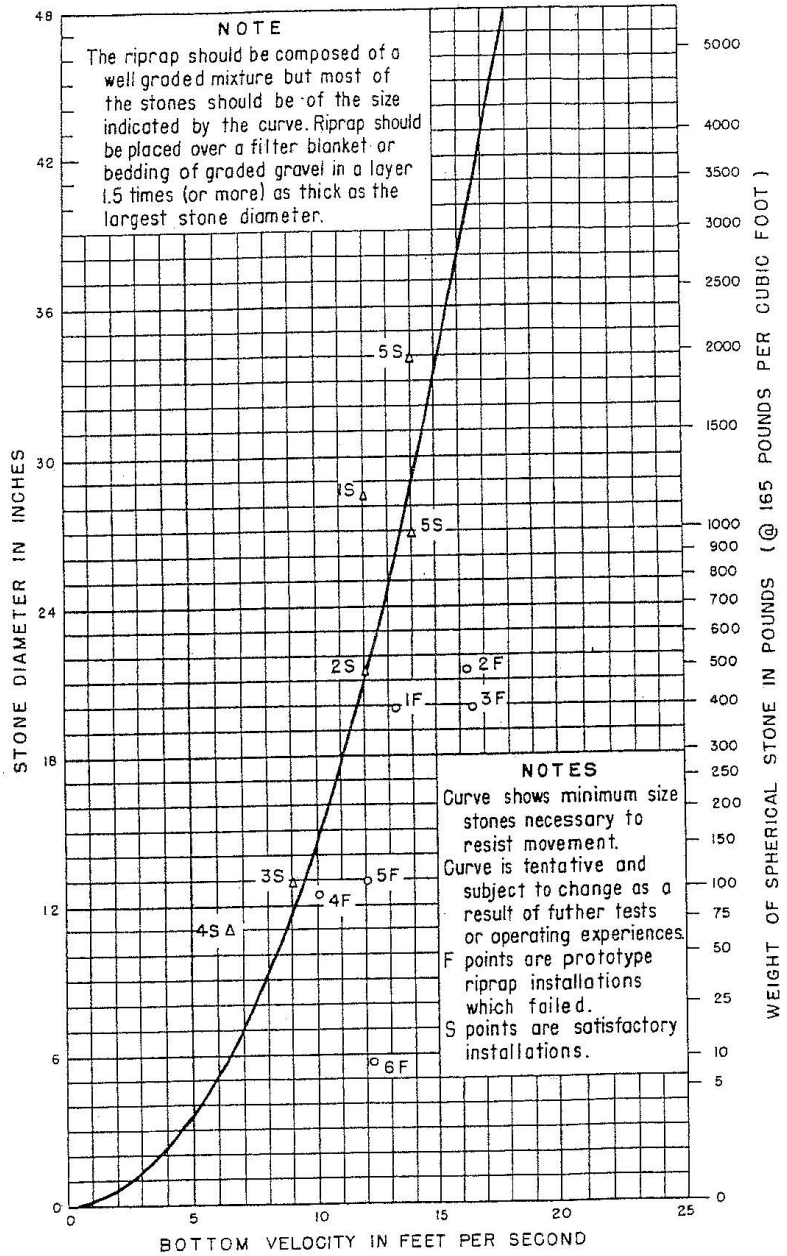


Figure 500-11
Length Ratio of Basin for Specified Velocity Reduction Ratio

$\frac{L}{D}$ for $\frac{V_c}{V_p} = 0.5$

$\frac{Q}{D^{2.5}}$	D/d				
	8	6	4	3	2
1.00	9.10	8.65	8.00	7.75	6.90
1.25	8.95	8.50	7.85	7.60	6.75
1.50	8.80	8.35	7.70	7.45	6.65
1.75	8.70	8.25	7.60	7.30	6.50
2.00	8.50	8.15	7.50	7.20	6.40
2.25	7.70	8.00	7.30	7.00	6.25
2.50	7.45	7.85	7.15	6.90	6.10
2.75		7.60	7.05	6.75	5.95
3.00		7.30	6.90	6.60	5.85
3.25		7.05	6.80	6.45	5.70
3.50		6.90	6.65	6.30	5.60
3.75		6.70	6.45	6.20	5.45
4.00		6.55	6.25	6.05	5.35
4.25		6.40	6.10	5.95	5.20
4.50			6.00	5.70	5.05
4.75			6.00	6.00	4.95
5.00			6.00	6.00	4.80
5.25			6.00	6.00	4.20
5.50			6.00	6.00	4.00
5.75			6.00	6.00	4.00
6.00				6.00	4.00
6.25				6.00	4.00
6.50					4.00
7.00					4.00
7.50					6.00
8.00					6.00

Figure 500-12
Length Ratio of Basin for Specified Velocity Reduction Ratio

$$\frac{L}{D} \text{ for } \frac{V_c}{V_p} = 0.4$$

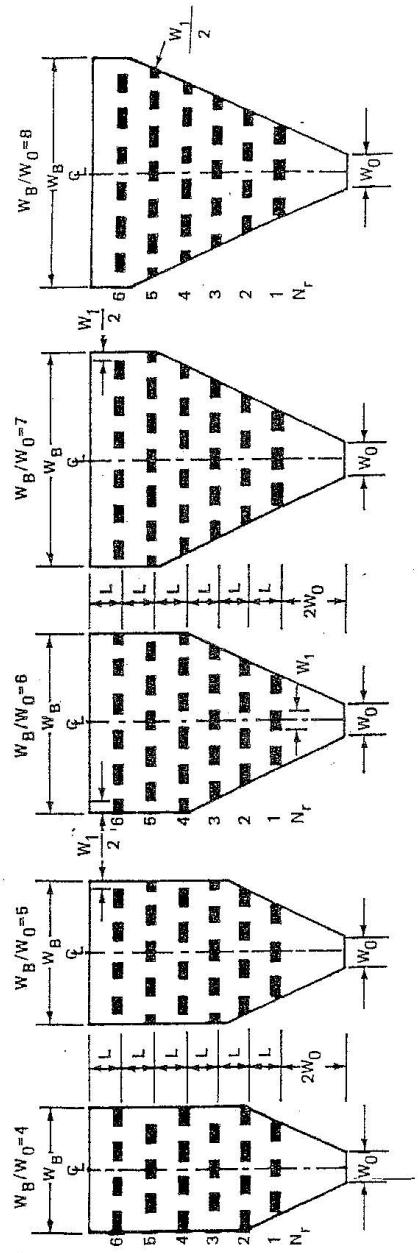
$\frac{Q}{D^{2.5}}$	D/d				
	8	6	4	3	2
1.00	10.95	10.35	9.60	9.40	9.05
1.25	10.85	10.15	9.45	9.20	8.90
1.50	10.70	10.00	9.35	9.10	8.75
1.75	10.55	9.85	9.20	9.00	8.55
2.00	10.30	9.75	9.10	8.85	8.40
2.25	9.75	9.55	9.00	8.70	8.25
2.50	9.60	9.40	8.85	8.60	8.05
2.75		9.30	8.75	8.45	7.95
3.00		9.20	8.60	8.35	7.75
3.25		9.15	8.50	8.15	7.55
3.50		9.05	8.40	8.05	7.40
3.75		9.05	7.85	7.90	7.20
4.00		8.95	7.50	7.75	7.05
4.25		8.85	7.25	7.65	6.90
4.50			7.35	7.00	9.75
4.75			6.80	7.05	6.55
5.00			6.65	6.80	6.40
5.25			6.45	6.30	6.10
5.50			6.35	6.10	5.85
5.75			6.30	6.00	5.70
6.00				6.00	5.45
6.25				6.00	5.30
6.50					5.15
7.00					4.80
7.50					6.00
8.00					6.00

Figure 500-13
Length Ratio of Basin for Specified Velocity Reduction Ratio

$\frac{L}{D}$ for $\frac{V_c}{V_p} = 0.3$

$\frac{Q}{D^{2.5}}$	D/d				
	8	6	4	3	2
1.00	12.80	11.90	11.20	10.85	10.65
1.25	12.65	11.90	11.20	10.85	10.65
1.50	12.50	11.55	10.95	10.75	10.30
1.75	12.35	11.45	10.85	10.65	10.10
2.00	12.10	11.25	10.70	10.50	10.00
2.25	11.85	11.05	10.60	10.35	9.80
2.50	11.80	10.95	10.45	10.25	9.65
2.75	11.75	10.80	10.30	10.10	9.50
3.00		10.70	10.20	9.95	9.30
3.25		10.65	10.10	9.80	9.10
3.50		10.60	10.00	9.65	9.00
3.75		10.60	9.40	9.50	8.80
4.00		10.50	9.10	9.45	8.65
4.25		10.40	8.85	9.30	8.50
4.50			8.60	9.00	8.30
4.75			8.40	8.80	8.15
5.00			8.20	8.35	7.95
5.25			8.05	7.90	7.65
5.50			7.95	7.75	7.40
5.75			7.90	7.60	7.20
6.00				7.50	7.05
6.25				7.40	6.90
6.50					6.75
7.00					6.40
7.50					6.00
8.00					6.00

Figure 500-14
Design Values for Roughness Elements for Energy Dissipation Basin
Source: Hydraulic Engineering Circular No. 14, Hydraulic Design of Energy Dissipators for Culverts and Channels, 1983



W_B/W_0		2 TO 4			5			6			7			8		
W_1/W_0		.57			.63			.6			.58			.62		
NO. ROWS (N_r)		4	5	6	4	5	6	4	5	6	5	6	6	6	6	6
NO. ELEMENTS (N)		14	17	21	15	19	23	17	22	27	24	30	30	30	30	30
	h/Y_A	C_B FOR ROUGHNESS ELEMENT DISSIPATORS														
RECTANGULAR	0.91	0.32	0.28	0.24	0.32	0.28	0.24	0.31	0.27	0.23	0.26	0.22	0.22	0.22	0.22	0.22
	0.71	0.44	0.40	0.37	0.42	0.38	0.35	0.40	0.36	0.33	0.34	0.31	0.29	0.29	0.29	0.29
	0.48	0.60	0.55	0.51	0.56	0.51	0.47	0.53	0.48	0.43	0.46	0.39	0.35	0.35	0.35	0.35
	0.37	0.68	0.66	0.65	0.65	0.62	0.60	0.62	0.58	0.55	0.54	0.50	0.45	0.45	0.45	0.45
CIRCULAR	0.91	0.21	0.20	0.48	0.21	0.19	0.17	0.21	0.19	0.17	0.18	0.16				
	0.71	0.29	0.27	0.40	0.27	0.25	0.23	0.25	0.23	0.22	0.22	0.20				
	0.31	0.38	0.36	0.34	0.36	0.34	0.32	0.34	0.32	0.30	0.30	0.28				
	0.48	0.45	0.42	0.25	0.40	0.38	0.36	0.36	0.34	0.32	0.30	0.28				
	0.37	0.52	0.50	0.18	0.48	0.46	0.44	0.44	0.42	0.40	0.38	0.36				

SECTION 600

CITY OF SPEARFISH
ENGINEERING DESIGN STANDARDS
GRADING AND ENVIRONMENTAL

600.1 GRADING 1

600.1.1 GENERAL GRADING REQUIREMENTS 1

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SECTION 600

CITY OF SPEARFISH
ENGINEERING DESIGN STANDARDS
GRADING AND ENVIRONMENTAL

600.1 GRADING

All proposed developments shall be graded such that storm water runoff is conducted away from proposed building sites to swales constructed in drainage easements along lot lines, to public rights-of-way, or to another approved drainage course.

Grading shall be in accordance with the requirements herein and with the City of Spearfish Ordinance 'Grading and Erosion Controls' Section.

600.1.1 GENERAL GRADING REQUIREMENTS

600.1.1.1 Permitting. Unless otherwise exempt, a city grading permit will be required prior to persons engaging in any land disturbing activity exceeding 1,000 square feet. The following requirements must be met before the permit is granted:

- General permit for stormwater discharges associated with construction activities through SD DANR as required by state regulations for land disturbing activity of one (1) acre or more.
- General permit for stormwater discharges associated with industrial activities through SD DANR as required by state regulations. The requirements for this permit are governed by the Standard Industrial Code (SIC). There are no size requirements for this permit.
- Approval of the Storm Water Pollution Prevention Plan (SWPPP) which is a requirement of the SD DANR general permit.
- An Erosion and Sediment Control Plan shall be developed and incorporated into the construction plans for construction activities causing 0.5 acres or greater of land disturbance. At the discretion of the City Engineer, projects with land disturbances less than 0.5 acres, which contain unique development challenges, may also be required to prepare this plan.

Issuance of a grading permit by the City of Spearfish shall not relieve the permit holder from any obligation to determine the need for and to obtain permits from other agencies having jurisdiction, such as the South Dakota Department of Agriculture and Natural Resources, the US EPA, the US Army Corp of Engineers, etc. A permit does not give authority to violate, cancel, or set aside any of the provisions of the building code, zoning ordinances, or any other local law or ordinance regulating construction or the performance of construction in the City of Spearfish. A grading permit does not include authorization for construction of retaining walls or other structures which may require a separate building permit from the city. Refer to city Ordinance for comprehensive requirements.

600.1.1.2 Setbacks. All cut or fill slopes shall be setback from property lines at least 2 feet. Where the vertical height of the cut or fill slope is greater than 10 feet, or where interceptor drains are required by the building code above cut slopes, additional setback shall be required. Refer to Figure J108.1 of the International Building Code (IBC). The IBC's setback requirements in Appendix J,

Figure J108.1, apply to all buildings except detached one- and two-family dwellings and townhouses up to three stories.

Where setbacks from property line to the location of the work will be less than that specified above, or the grading work will extend across lot lines, written evidence from affected property owners (i.e. the owners of all lots on which grading is taking place, as well as the owner of lots adjacent to areas of reduced setback) shall be submitted prior to issuance of a permit to demonstrate concurrence with and authorization for the proposed grading work.

600.1.1.3 Surface Preparation. Surfaces to receive fills shall be prepared by removing all vegetation, topsoil, and unsuitable materials, and scarifying the exposed surface to a depth of at least eight inches (8"). Fill shall not be placed on frozen ground.

600.1.1.4 Benches and Keys. Where existing ground surfaces to receive fill are steeper than 5 (horizontal) to 1 (vertical), and the depth of fill will exceed five feet (5 ft.) (vertical measurement from toe of slope to crest of fill), the exposed surface shall be benched, and a key provided at the toe of the slope. The slopes shall be constructed as recommended in the Geotechnical Report. If no Geotechnical Report is available, the toe key shall be at least ten feet (10 ft.) wide and two feet (2 ft.) deep. Slopes on benches shall generally be no greater than five percent (5%). Where recommended by a soils engineer based on analysis alternative standards may be approved.

600.1.1.5 Maximum Slope. Cross slopes within the City Right of Way shall be between 2% to a maximum of 5% with approval from the City Engineer. Cut or fill slopes located outside of the Right of Way shall be constructed at a maximum 4 (horizontal) to 1 (vertical) slope or following the recommendations of the Geotechnical Soils Report and shall include applicable stabilization measures.

600.1.2 GRADING REQUIREMENTS FOR SINGLE LOT COMMERCIAL, INDUSTRIAL, & MULTI-FAMILY DEVELOPMENTS

Single lot grading plans for commercial, industrial, and multi-family development shall include the following at a minimum:

- Provide a conventional scale large enough to show details clearly and legibly (i.e., 1" = 20', 1" = 30', etc.). showing the entire parcel with property lines dimensioned, building footprint(s), driveway(s), parking lot and adjacent streets including sidewalk and curb/gutter. Include adjacent street names, a north arrow and date of drawing.
- Legal description, physical address, current zoning.
- Name, Address, and Telephone Number of Builder (if known), Owner, and Engineer.
- Elevations for finished floor (for each level of the building that has ingress/egress to the outside), and window wells.
- Spot elevations as needed for lot grading including sumps, grade breaks, etc.
- 1' contours (existing and proposed).
- Floodplain delineation, if applicable.
- Lowest Adjacent Grade (LAG) information, if applicable.
- Drainage arrows indicating direction and slopes away from the proposed structure and drainage conveyance elements including storm water detention and drainage report.

- Existing and proposed utilities, services, structures, easements, and any other encumbrances.
- Dimensions from property lines and setbacks to each proposed structure.
- ADA parking areas, ramps and compliant path showing spot elevations along with longitudinal and transverse slopes.

600.1.3 GRADING REQUIREMENTS FOR SUBDIVISION DEVELOPMENT

Grading plans for subdivision development shall include the following at a minimum:

- Overall grading plans shall be provided at a conventional scale large enough to show details clearly and legibly (i.e., 1" = 100', 1" =200', etc.). Detailed grading plans shall be drawn at a maximum 1" = 40' scale.
- No filling will be allowed in any areas of land within a proposed subdivision or other type of development which lies either wholly or in part within the floodplain of a river, stream, creek, or lake unless under the terms of a permit granted by the U.S. Corps of Engineers and/or the City of Spearfish where applicable.
- Over lot grading will be required for proposed subdivision developments. Grading for proposed residential developments will require that the proposed lots are graded to drain toward the street right-of-way at a 2% minimum slope from, as a minimum, the midpoint of the lots. The back portion of the proposed lots must be graded to blend with the sloped front portion to where a steep vertical break is not created at any location. Consideration of lowest adjacent grade (LAG) requirements along with side and back lot drainage must be taken into consideration during grading design.
- The longitudinal slope along a rear yard drainage easement shall be not less than 2.0 percent but not so great as to cause erosion.
- All grade point elevations shall be shown for each lot at the property corners and at the low and high points along the property lines.
- The general direction of overland drainage in the rear and side yards shall be indicated on each lot by an arrow indicating slope percentage.
- All high and low street grade points, slope direction (by arrow), and the location of all inlets and drainage ditches shall be shown on the grading plan.
- A maximum slope of 4 feet horizontal to 1 foot vertical shall not be exceeded for all terracing. The toe of the slope shall be located outside of drainage easements and natural drainage ways unless adequate drainage is provided. No retaining walls shall be allowed within the R.O.W. and will be privately owned and maintained.
- Grading plans shall include details of typical lot grading and drainage patterns intended to be used.
- The grading plans shall show the contours with intervals of 1 foot.
- All elevations shall be on the NAVD 1988 vertical control datum.

- Drainage patterns other than those shown in standard details may be used and will be acceptable for review. Details of the typical lot drainage pattern shall be shown on the grading plan with all grade control points identified.
- All nonconforming lots with drainage patterns other than those in the standard details shall be noted on the grading plan.
- Drainage swales shall be constructed entirely within easements or right-of-way.

600.1.4 LOWEST ADJACENT GRADE (LAG) REQUIREMENTS

Lowest adjacent grade (LAG) is the lowest point of the ground, sidewalk or patio slab immediately next to a building, after final completion of the building. Ground shall be defined as the top of soil, top of landscape rock or other landscape material. See Figure 600.1 'Lowest Adjacent Grade (LAG) Examples' for LAG general examples.

The LAG is intended to reduce the risk of stormwater from entering the building. LAG's shall be established during development design by the engineer of record and shall be shown on the grading plans for all parcels adjacent to:

- Sump inlets at low points of roadways.
- Emergency overflow channels/paths.
- Detention ponds.
- Drainage ways.
- Any other areas that may be susceptible to flooding, as determined by the city engineer.

The city maintains records of the established LAG elevations for all affected parcels and this information is provided to the City Building Department to help ensure all building structures on these parcels will be constructed in such a manner that the minimum LAG elevation is met or exceeded. At the time of building permit, submittal requirements for any addition or new structure shall include completion of a property owner acknowledgement form, a LAG site plan and an as-built exhibit to be signed and stamped by a licensed professional engineer or surveyor with the following information:

- Provide a conventional scale (i.e., 1" = 10', 1" = 20', etc.) showing the entire parcel with property lines dimensioned. Include a north arrow and date of drawing.
- Vertical datum (i.e., NGVD 29 or NAVD 88).
- Legal description and physical address.
- Name, Address, and Telephone Number of Builder and Owner.
- Show the location and dimension of all recorded easements on the parcel – (i.e.: road easements, public utility easements, drainage easements, etc.).
- Show to scale all existing or proposed structure(s) on the property including decks and cantilevers.
- Show the LAG and the lowest floor elevation for new dwellings.
- Benchmark set on the parcel labeled with the LAG.

- Specify front, side, and rear yard setback dimensions.
- Include street names, driveways, and parking areas.
- Parcels within a FEMA flood hazard zone or within close proximity require a licensed civil engineer or surveyor to determine if the proposed building on the lot will be outside a flood zone.
- Floodplain boundaries shall be delineated and the Flood Insurance Rate Map Panel included.
- Floodplain limits to be staked by the surveyor prior to construction.
- No grading activities or placement of fill within the floodplain limits.
- Provide the base flood elevation shown on the site plan at upstream corner of the parcel.

See Figure 600.2 'Lowest Adjacent Grade (LAG) Site Plan Example' for a typical plan layout.

A Certificate of Occupancy for the building will be permitted only after the as-built LAG exhibit has been submitted to the City of Spearfish Building Official for verification that the LAG requirements have been met. This includes the completion of all finished grading, topsoiling and/or landscaping rock adjacent to the building.

600.1.5 GEOTECHNICAL EXPLORATION AND REPORT

The geotechnical exploration and report shall determine any special geotechnical conditions and make recommendations regarding the special conditions, grading, foundations, utility installations, and pavement.

600.1.5.1 When Required. Single lot commercial, industrial and multifamily developments and subdivision developments that require the installation of public infrastructure will be required to submit a geotechnical report. A preliminary NRCS soils report is required as part of the preliminary plat process for subdivisions. A final report, as specified in section 600.1.6, is required as part of the final development plans submittal.

600.1.5.2 Soil Exploration. When geotechnical explorations are required, all sampling and testing of the soil shall be performed in accordance with the appropriate AASHTO (American Association of State Highway and Transportation Officials) and ASTM (American Society for Testing and Materials) designations.

600.1.5.3 Sampling. Representative samples of the soils shall be obtained by drilling shallow penetration soil borings along the route of the existing or proposed public right-of-way.

- Borings shall extend to a minimum depth of 5.0 feet below the proposed subgrade foundation, or 2.0 feet below the flow line elevation of any pipe or conduit. Consideration of proposed final grades must be considered for depth determination. Every third boring, or a minimum of one boring, shall be of sufficient depth, or a minimum of ten (10) feet, for monitoring of the ground water elevation if required.
- Borings will be performed at close enough intervals to determine the boundaries of each significant soil type present.
- A random technique shall be used to select sampling locations but should include considerations for different soil types as indicated by the USGS Web Soil Survey.

- Spacing of the borings will vary with the uniformity of the soil profile and the topography. The maximum interval between soil borings may not exceed 750 feet.
- Where the original ground line is to be covered with fill material, five (5)-foot depth borings are necessary to determine the character of the support.
- Where drainage areas are crossed or boggy areas are encountered, the spacing of the borings shall be at closer intervals in order to determine the boundaries of the "soft" area. At these "weak" areas, the depth of the borings may also have to be increased in order to determine if and to what depth improved subgrade material will be required to provide uniform support for the construction.
- Representative samples from the borings shall be collected for submittal to a soil testing laboratory for evaluation.
- A boring log shall be maintained for each soils boring performed. The boring log shall contain a complete record of the soil material observed.

600.1.5.4 Testing. The tests required are those for identification and classification purposes. These tests include a standard sieve and hydrometer analysis (ASTM D422 or AASHTO T-88) and Atterburg Limits (ASTM D423 and 424 or AASHTO T-89 and 90). The test results are used to give a soil a descriptive name and letter symbol (in accordance with the Unified Soils Classification System) indicating its principle characteristics. Based on the test results, similar soil types can be placed into several major groups.

These major groups shall be plotted on a profile sheet to determine their limits. The profile sheet is used with the laboratory data in selecting what soil types further testing should be performed on. Additional testing includes the moisture-density relationship (AASHTO T-99 or T-180) and California Bearing Ratio (MIL STD 621 Method 101 or ASTM D1883). The moisture-density relationship determines the maximum dry density and optimum moisture content for that particular soil. The CBR test is performed at 95 percent of the maximum dry density and at the optimum moisture content. The results of the CBR test determine the relative bearing value of the subgrade and is used in the pavement thickness design. A minimum of a three (3) point curve will be utilized for the CBR testing with a five (5) point curve preferred. If the various soil type areas are not large enough to justify separate pavement designs, a single design shall be made on the worst soil type.

600.1.6 REPORT

For preliminary plat submittals, a NRCS Web Soil Survey (WSS) is required and can be generated through the USDA website. The WSS provides soil data and information produced by the National Cooperative Soil Survey. It is operated by the USDA Natural Resources Conservation Service (NRCS) and provides access to the largest natural resource information system in the world. The site is updated and maintained online as the single authoritative source of soil survey information. The following shall be provided in the report.

- Provide soils map complete with legend and soil descriptions for the area of interest.
- Provide the following reports which are located under the Soil Data Explore Tab
    - Suitability and Limitations for Use
        - Shallow Excavation report
        - Corrosion of concrete and steel reports

        - Local roads and street report
    - Soil Properties and Qualities
        - Soil Qualities and Features - Depth to any soil restrictive layer and or bedrock report
        - Water Features - Depth to water table report

The design engineer shall review the WSS report findings and include a findings summary within the submitted report for the onsite soils as they pertain to development. Concerns shall be identified in the summary and include preliminary recommendations to address the concerns.

Reports for final development plans shall identify any special geotechnical conditions found in the exploration and recommendations to ameliorate the special conditions along with grading, foundations, utility installations, subgrade and pavement requirements. The recommendations may be divided into four parts: geotechnical special conditions, grading, foundation, utility installations, subgrade, and pavement.

600.1.6.1 Special Geotechnical Conditions. The special conditions portion of the report shall consider ground water, frost susceptibility, erosion potential, soils creep, land sliding, expansive soils, gypsum, soil corrosivity, and any other special geotechnical conditions the Geotechnical Engineer becomes aware of.

600.1.6.2 Grading and Foundation. The grading and foundation portion shall include data regarding the distribution and engineering characteristics of the various soil materials, data about groundwater levels, recommendations about the need for mitigation measures for special geotechnical conditions, grading criteria, foundation design criteria, and any other information the Geotechnical Engineer considers pertinent.

600.1.6.3 Subgrade and Pavement. The subgrade and pavement portion shall include data regarding the distribution of various subgrade materials and design tests (such as CBR, R-value, and/or plate bearing) to be made. Where soils are susceptible to erosion, recommendations shall be made for preventing the undermining of pavements. The pavement design including subgrade, sub-base, and base requirements shall be included in this report. See Section 200.4 'Pavement Design' for additional requirements.

600.2 ENVIRONMENTAL REQUIREMENTS

The city is committed to protecting the environment. An agency with permitting authority can delay a project if identified environmental impacts have not been adequately addressed.

All environmental requirements and regulations shall be complied with including any not listed in this section that may be unique to the project location. In the event of a discrepancy the more stringent requirement shall apply.

Further details on complying with these Environmental Requirements may be located in other Sections (most notable are Sections 300 (Sanitary Sewer), 400 (Water Distribution), and 500 (Storm Drainage).

600.2.1 EROSION & SEDIMENT CONTROL

During the construction process, soil is highly vulnerable to erosion by wind and water. Eroded soil endangers water resources by reducing water quality and adversely affects aquatic habitat for fish and other desirable species. Eroded soil also necessitates repair of sewers, ditches and the dredging of lakes, ponds and streams. In addition, clearing and grading during construction cause the loss of native vegetation necessary for terrestrial and aquatic habitat.

The purpose of this subsection is to safeguard persons, protect property and prevent damage to the environment in the city. This subsection will also promote the public welfare by guiding, regulating and controlling the design, construction, use and maintenance of any development or other activity that disturbs or breaks the topsoil or results in the movement of earth on land in the city.

Unless specifically exempted, these regulations apply to all lands within the city in which the vegetative cover is removed; disturbed or fill material has been brought onto the site requiring stabilization.

- An Erosion and Sediment Control Plan shall be developed and incorporated into the construction plans for construction activities causing 0.5 acres, or greater, of land disturbance.
- The Erosion and Sediment Control Plan shall include both temporary and permanent measures to control both erosion and sediment during and after construction activities.
- The Erosion and Sediment Control Plan shall be designed to meet or exceed the requirements as set forth in the Clean Water Act: Water Pollution Prevention and Control and all requirements from permitting agencies associated with implementation and enforcement (Environmental Protection Agency, U.S. Army Corps of Engineers, & South Dakota Department of the Agriculture and Natural Resources).
    - The design shall be such that the requirements in the General Permit Authorizing Stormwater Discharges under the South Dakota Surface Water Discharge System are met during construction.
    - The design shall be such that the requirements in the Corps of Engineers Permit(s) are met during construction, if applicable.
    - The most current version of the SDDOT 'Erosion and Sediment Control and Stormwater Management' manual shall be used for guidance as a design standard for complying with permit requirements, however in case of a discrepancy the permit requirements shall supersede the SDDOT manual requirements.
- All applicable/required permits shall be obtained prior to any soil/vegetation disturbing activities, stockpiling of materials, staging of equipment, or any discharges of materials associated with construction.
- When required, the plans and specifications shall be submitted to the SDDANR for review and approval. Development plans for the project will not be approved by the City until a copy of the SDDANR approval letter has been provided.

600.2.2 STATE APPROVALS

When required, the plans and specifications shall be submitted to the SDDANR for review and approval on all projects that the SDDANR requires. Development plans for the project will not be approved by the City until a copy of the SDDANR approval letter has been provided.

Systems and Facilities in which Review and Approvals are Conducted:

- Wastewater treatment and collection systems
- Drinking water treatment and distribution systems
- Animal waste management systems
- Landfills, recycling facilities and landfill closures
- Hazardous waste facilities
- Large-scale mining facilities
- Municipal swimming pools
- Individual and small on-site wastewater systems
- Underground and Above ground Storage Tank Facilities
- Addendums and change orders
- Granting of variances (case-by-case basis)
- Bottled water facilities
- Dams (Safety of Dams)

600.2.3 FLOODPLAIN DEVELOPMENT

Regulatory floodplains within the city have been defined and adopted. When a proposed development is in or near an existing FEMA flood zone, or an unmapped streams, the development shall be designed and constructed in accordance with the requirements of the City of Spearfish Ordinance 'Chapter 151: Flood Damage Prevention' and all requirements of the National Flood Insurance Program (NFIP).

600.2.4 WETLAND MITIGATION

Adverse impacts to aquatic resources are to be avoided and no discharge shall be permitted if there is a practicable alternative with less adverse impact. If impacts cannot be avoided, appropriate and practicable steps to minimize adverse impacts must be taken.

Even after avoiding and minimizing impacts, projects that will cause adverse impacts to wetlands, streams and other aquatic resources typically require some type of compensatory mitigation. The Army Corps of Engineers (or approved state authority) is responsible for determining the appropriate form and amount of compensatory mitigation required. Methods of compensatory mitigation include restoration, establishment, enhancement and preservation.

General locations and size of potential wetlands shall be identified. Include copy of correspondence with United States Army Corps of Engineers (USACE) requesting wetland determination and any responses. Also note if any mitigated wetlands will be created.

Wetland mitigation is required for all projects that have impacts to jurisdictional and/or non-jurisdictional wetlands. A provision in regards to wetland monitoring needs to be included within the 404 permit.

600.2.5 ARCHEOLOGICAL

The impact on sites of archeological/historical importance should be eliminated or minimized when practical, or as required by city planning documents or master plans.

When required, the National Historic Preservation Act shall be complied with and as directed by the State Historic Preservation Office.

600.2.6 THREATENED & ENDANGERED SPECIES

The impact on the Habitats of Threatened & Endangered Species should be eliminated or minimized when practical.

When required, the Endangered Species Act shall be complied with and as directed by the South Dakota Department of Transportation Environmental Office, South Dakota Game Fish & Parks, US Fish & Wildlife Service, and/or any other regulatory agency.

600.2.7 CONTAMINATED MATERIAL

When contaminated materials are known to exist, suspected to exist, or are encountered on the project, the contaminated materials shall be disposed of properly and as directed by the Department of Agriculture & Natural Resources (SDDANR), EPA, and/or any other regulatory agency.

600.2.8 FIRE MITIGATION PLAN

If determined necessary by the Spearfish Fire Chief, development projects shall have a community wildfire protection plan to reduce the risk from wildfire to life, property, critical infrastructure and natural resources in areas of Spearfish and the fire protection district.

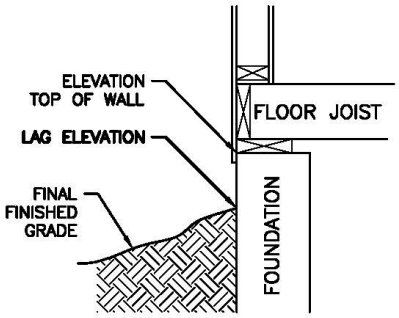
The Community Wildfire Protection Plan (CWPP), concept is outlined in the Healthy Forest Restoration Act (HFRA) of 2003 adopted and followed by Lawrence County and surrounding areas. The HRFA builds on National Fire Plan and the Ten-Year Comprehensive Strategy for Reducing Wildland Fire Risks to Community and Environment in establishing an expectation that federal land management agencies will work with communities and local governments to reduce fire and forest health risks within and communities at risk.

The plan shall be developed and implemented with the objective of reducing the risk from wildfire, with the City of Spearfish's focus on three major items:

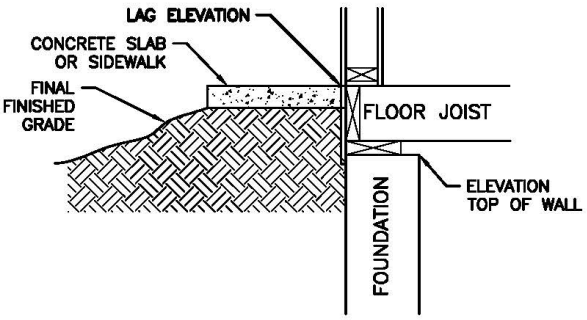
- Landscape restoration and maintenance
- Fire adaptive communities
- Response to wildfire

The plan allows for the implementation of various measures, allowing for flexibility of treatment options, and is designed to minimize the destructive effects a wildfire has on development. Some measures are designed to modify the forest environment surrounding a structure that puts the structure at risk from destruction by a wildfire. Others focus on modifying the construction of a structure itself or changing its location to improve its ability to withstand a wildfire without being dependent upon fire suppression resources.

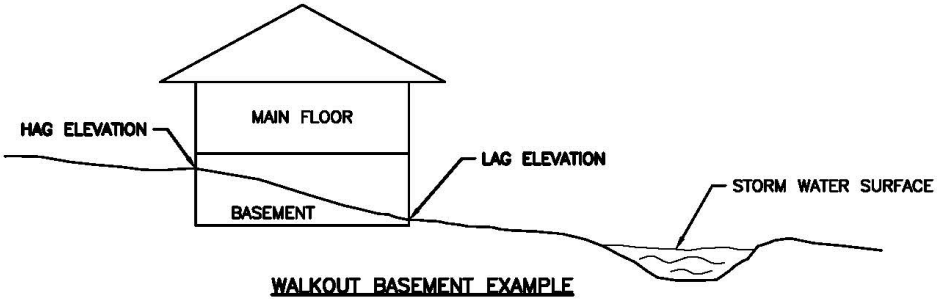
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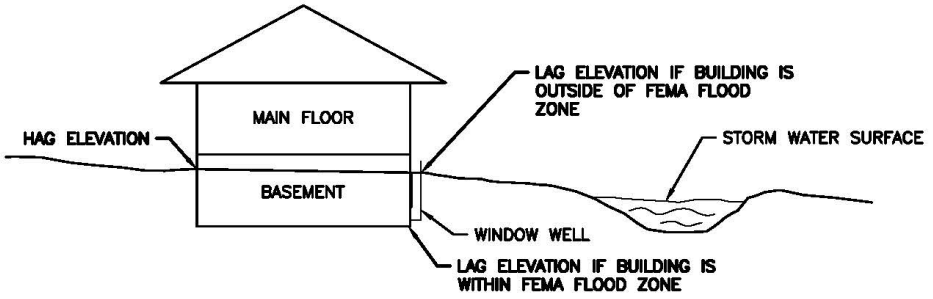
LOWEST ADJACENT GRADE (LAG)



LOWEST ADJACENT GRADE (LAG)
WITH CONCRETE SLAB OR SIDEWALK



WALKOUT BASEMENT EXAMPLE

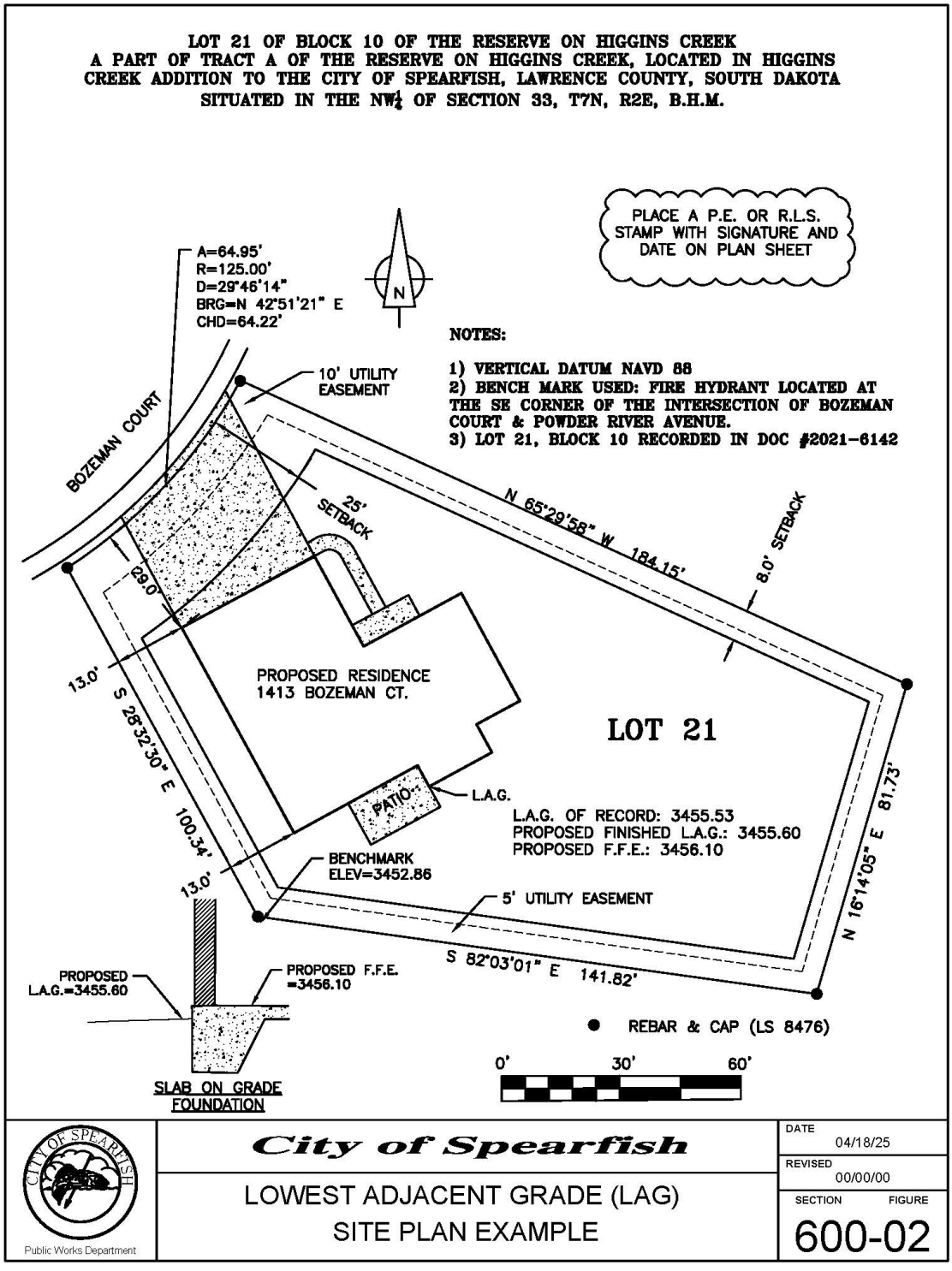


WALKOUT BASEMENT WITH WINDOW WELL EXAMPLE

NOTES:

- THE LOWEST ADJACENT GRADE (LAG) IS THE LOWEST ELEVATION OF THE GROUND, SIDEWALK OR OTHER CONCRETE SLAB IMMEDIATELY NEXT TO A BUILDING.
- THE HIGHEST ADJACENT GRADE (HAG) IS THE HIGHEST ELEVATION OF THE GROUND, SIDEWALK OR OTHER CONRETE SLAB IMMEDIATELY NEXT TO A BUILDING.
- FOR BUILDINGS LOCATION OUTSIDE OF A FEMA FLOOD ZONE, IF A WINDOW WELL IS ATTACHED TO THE BUILDING, THEN THE LAG SHALL BE DETERMINED AT THE TOP OF THE WINDOW WELL WHERE THE FINAL FINISHED GRADE ABUTS THE BUILDING.
- FOR BUILDINGS LOCATION WITHIN A FEMA FLOOD ZONE, IF A WINDOW WELL IS ATTACHED TO THE BUILDING, THEN THE LAG SHALL BE DETERMINED AS THE ELEVATION OF THE LOWEST FLOOR OF THE BUILDING.
- THE LAG SHALL NOT BE VERIFIED UNTIL THE FINAL FINISHED GRADE HAS BEEN ESTABLISHED. THIS INCLUDES THE COMPLETION OF ANY AND ALL CUTS AND/OR FILLS ADJACENT TO THE BUILDING.

CITY OF SPEARFISH Public Works Department	***City of Spearfish***	DATE 04/18/25 REVISED 00/00/00
	LOWEST ADJACENT GRADE (LAG) EXAMPLES	SECTION 600 FIGURE 01


LOT 21 OF BLOCK 10 OF THE RESERVE ON HIGGINS CREEK
A PART OF TRACT A OF THE RESERVE ON HIGGINS CREEK, LOCATED IN HIGGINS CREEK ADDITION TO THE CITY OF SPEARFISH, LAWRENCE COUNTY, SOUTH DAKOTA
SITUATED IN THE NW¼ OF SECTION 33, T7N, R2E, B.H.M.
PLACE A P.E. OR R.L.S. STAMP WITH SIGNATURE AND DATE ON PLAN SHEET
A=64.95'
R=125.00'
D=29°46'14"
BRG=N 42°51'21" E
CHD=64.22'
N
NOTES:
1) VERTICAL DATUM NAVD 88
2) BENCH MARK USED: FIRE HYDRANT LOCATED AT THE SE CORNER OF THE INTERSECTION OF BOZEMAN COURT & POWDER RIVER AVENUE.
3) LOT 21, BLOCK 10 RECORDED IN DOC #2021-6142
10' UTILITY EASEMENT
BOZEMAN COURT
25' SETBACK
N 65°29'58" W 184.15'
8.0' SETBACK
29.0'
13.0'
S 26°32'30" E 100.34'
PROPOSED RESIDENCE
1413 BOZEMAN CT.
LOT 21
PATIO
L.A.G.
L.A.G. OF RECORD: 3455.53
PROPOSED FINISHED L.A.G.: 3455.60
PROPOSED F.F.E.: 3456.10
BENCHMARK
ELEV=3452.86
13.0'
5' UTILITY EASEMENT
N 16°14'05" E 81.73'
S 82°03'01" E 141.82'
PROPOSED L.A.G.=3455.60
PROPOSED F.F.E. =3456.10
SLAB ON GRADE FOUNDATION
REBAR & CAP (LS 8476)
0'
30'
60'
CITY OF SPEARFISH
Public Works Department
City of Spearfish
LOWEST ADJACENT GRADE (LAG)
SITE PLAN EXAMPLE
DATE
04/18/25
REVISED
00/00/00
SECTION
FIGURE
600-02

SECTION 700

CITY OF SPEARFISH
ENGINEERING DESIGN STANDARDS
STREET LIGHTING AND DRY UTILITIES DISTRIBUTION

700.1 STREET LIGHTING SYSTEMS 1

700.1.1 Coordination with Local Power Company. 1

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SECTION 700

CITY OF SPEARFISH
ENGINEERING DESIGN STANDARDS
STREET LIGHTING AND DRY UTILITIES DISTRIBUTION

700.1 STREET LIGHTING SYSTEMS

This section sets forth the criteria to be used in the preparation of all street lighting plans. Where information is not provided herein, the following standards (most current edition) shall be used:

- National Electrical Safety Code (NESC)
- National Electrical Code (NEC)
- City of Spearfish Construction Specifications and Standard Construction Details
- Requirements and Standards of the State of South Dakota
- Where a conflict occurs between the above standards, the most restrictive requirement shall apply.

700.1.1 COORDINATION WITH LOCAL POWER COMPANY.

Generally, street light fixtures, arms, poles, wire and transformers are furnished and installed by a local power company. The developer will generally be required to have the trenching, bedding, junction boxes and conduit installed. Local power companies that have service territories within the City of Spearfish include Black Hills Energy and Butte Electric Cooperative.

The design engineer will need to identify whose territory the project site lies within and confirm specific requirements and process with the service provider. They shall also coordinate the design and layout of the street lighting system with them. The provider will typically have pole, arm and fixture options for the developer to chose from. Spacing and location requirements for the selected light pole option for the project shall follow the requirements shown herein. After installation and approval of the street lighting system, the service provider will own and maintain it in perpetuity and will charge the city standard monthly rates to do so.

700.1.2 CITY OWNED STREET LIGHTING OPTIONS

If the developer wishes to install decorative or metal pole street lighting in lieu of the lighting options provided by the local service provider, they may choose from various options of varying style and height pre-selected by the city. Street lighting components for each option are provided in Section 700 Standard Construction Details. All components of this type of lighting system are required to be installed by the developer, less the transformer. After installation of the lighting and formal dedication to the city, the city will own and maintain the lighting system in perpetuity.

An Electrical Engineer is required to design the decorative street lighting system. Design requirements are provided in the following sections. The street lighting system design shall consider and incorporate service requirements for future phases of the development and shall minimize the number of power connections and, in turn, number of meters and disconnects and maximize the number of lights on each circuit. The design engineer shall coordinate with the city Public Works Department during their preliminary layout and design of the decorative street lighting system. The city shall be allowed to determine how the system will be circuited/wired to produce an efficient circuit and lighting system.

700.1.3 LOCATIONS AND SPACING

Design of street lighting systems will typically consist of installation of street lights in areas that have concrete curb and gutter installed. Street lights shall be placed in the public right of way within the boulevard, a minimum of 3 feet behind the curb, perpendicular to street centerline and adjacent to or near property lines (to eliminate potential conflict with future driveways).

Streets that have attached sidewalks directly behind the curb shall have street lights installed a minimum of 3 feet behind the sidewalk but still within the public right-of-way. If street lights cannot be installed within the public right-of-way, a utility easement will be required.

Street lights along streets with no curb and gutter shall be placed in a location determined by the City Engineer, between the edge of asphalt and right-of-way line.

Street lighting on cul-de-sacs must terminate with a street light on the lot line nearest where the turnaround begins.

Street lights, junction boxes, meter pedestals, and conduit shall be free and clear of any permanent obstructions, which would impair the ability of future maintenance operations. Layout of street lighting must also consider vertical and horizontal alignment with respect to other utilities that may be in conflict with the installation of the street lighting system. In general, street lights shall maintain a minimum clear distance of eight (8) feet from any overhead electrical power lines. Other overhead obstructions such as trees, cable television lines, communications lines, etc., shall be evaluated on a case-by- case basis.

Street light spacing requirements are provided in the following table. Future street light options from the local service providers may be allowed for use when they become available, with prior approval by the City Engineer. These requirements are for street lighting along proposed roadways within the development and for existing, roadways adjacent to the development which do not have street lighting. Street lighting improvements for existing, adjacent roadways with existing lighting that does not meet current requirements shall be as determined by the City Engineer.

Dual head street lighting within raised medians for arterial and collector streets may be used with prior approval from the City Engineer. Spacing requirements are provided within the following table.

Street lighting along roadways adjacent to lots zoned commercial or industrial shall comply with arterial street spacing requirements regardless of the street classification.

Each of the decorative lights shall be individually fused.

Street Lighting Spacing Requirements					
Owner	Pole Type	Pole Height (ft)	Street Classification	Maximum Spacing (ft)	Street Side Location
BHE/Butte	wood	28	Local/Local Collector	300	one side
			Collector	250	alternating
City	metal	40	Local Collector	325	one side
			Collector	275	alternating
			Arterial	225	alternating
			Arterial	185	raised median - (dual head light)
City	Decorative-1	12	Local/Local Collector	150	one side
City	Decorative-2	30	Local/Local Collector	300	one side
			Collector	250	alternating
City	Decorative-3	40	Local Collector	325	one side
			Collector	275	alternating
			Arterial	225	alternating
			Arterial	185	raised median - (dual head light)

Street lights shall also be installed at intersections. Lighting requirements at intersections are provided in the following table:

Street Lighting Requirements at Intersections		
Through Street Classification	Side Street Classification	Total Lights at Intersection
Arterial	Arterial/Collector	4
Arterial	Collector/ Local Collector/ Local	2*

Collector	Collector/ Local Collector/ Local	2*
Local Collector	Local Collector/Local	1
Local	Local	1

* Place lights at opposite intersection quadrants

700.1.4 CONDUITS

Generally, conduits will be located within the public right-of-way 3 feet from the back of the curb unless otherwise noted.

All buried roadway lighting conduits shall be Schedule 40 PVC unless otherwise specified. All conduits installed above ground or under roadways and driveways shall be Schedule 80 PVC. When bends are required on any conduit run, no more than four 90-degree bends will be allowed in one given conduit run.

The primary/power feed wire and street light wire shall be kept in separate conduit runs.

Generally, conduits shall have a minimum bury depth of 18 inches, and a maximum of 36 inches from finished grade for PVC type conduit. There are certain exceptions dependent upon conduit material, wiring, voltage, and conduit under roadways. The designer shall ensure that all designs comply with minimum applicable NEC requirements.

Conduits must have 12 inches of horizontal clearance from fire hydrants, inlets, cable boxes, etc.

The minimum size of conduits shall be 1-inch and the maximum size of conduits shall be 2-inch diameter. Additional/parallel runs of conduits installed shall also be a maximum size of 2-inch diameter.

Conduit used for decorative roadway lighting shall be installed in it's own trench and shall not be installed in the common dry utility trench. Installation of the lighting system shall be inspected by the electrical engineer of record.

700.1.5 JUNCTION BOXES

Junction box requirements for lighting provided by the local power company shall be per their guidelines and specifications.

Generally, junction boxes will be located within the public right-of-way, 3 feet from the back of curb, unless otherwise noted, and near a lot line whenever possible. They shall not be placed within driveways. If they cannot be installed within the public right-of-way, a utility easement will be required.

Junction boxes along streets that have attached sidewalks directly behind the curb shall be installed a minimum of 3 feet behind the sidewalk but still within the public right-of-way.

Junction boxes along streets with no curb and gutter shall be placed in a location determined by the City Engineer, between the edge of asphalt and right-of-way line.

Junction boxes shall be spaced a maximum of 250 feet from the furthest street light or junction box. Boxes shall also be located at road crossings and directly adjacent to each light pole. If a transformer base is installed for the pole, an adjacent junction box will not be required.

The SDDOT Type 1electrical junction box of 11 x 18 inch dimensions shall be used. The maximum number of conduits entering into a junction box shall not exceed 6 and the minimum number of conduits shall not be less than 2. If a greater size junction box is needed, Spearfish will assist in the determination of such junction box. Refer to SDDOT Standard Plates for specific junction box details.

700.1.6 POLE FOOTINGS

Footing requirements for lighting provided by the local power company shall be per their guidelines and specifications.

Concrete footings for the decorative street lighting options have been designed and provided in the Section 700 Standard Construction Details. They are based on soil type, light components, load requirements, etc. Typically, these standard footings will be sufficient; however, if atypical conditions are found during the subsurface geotechnical exploration, the developer shall have a structural engineer review the noted conditions and provide a revised footing design, if the engineer considers it warranted.

The maximum number of conduits within a footing shall not exceed four. Included in the total number of conduits will be one spare conduit that will generally be installed facing away from the curb for future lighting needs.

Horizontal clearance from fire hydrants shall be a minimum of 15 feet.

When street lighting is installed near a location of pedestrian traffic, ADA clearance requirements will need to be met.

700.1.7 METER PEDESTALS

Meter requirements for lighting shall be per the service provider's guidelines and specifications. If the power company's policy states that metering is optional then the developer shall provide the city with the company's unit utility rates based on metering and the monthly rate based on a per pole price (i.e. no metering). The city will evaluate the rates and determine if metering will be required or not.

If a meter pedestal is included in the lighting system design, the Developer and/or their Contractor shall be responsible for completing the application process with the local power company for the meter installation.

All meter pedestals must be inspected by the design engineer and the city electrical inspector.

If there are more than two lighting circuits entering the meter pedestal, an additional conduit shall be installed.

For decorative street lighting systems, an adequately sized control panel with an approved fused disconnecting means shall be provided within 10 feet of each transformer which furnishes power to the street lights. The control panel may be located on the same support structure as the meter pedestal, if approved by the service provider. A metal pedestal which meets NEC requirements shall be used to supply power to lights and each will include a photocell sensor attached to the side of the box. In addition, each individual pole shall be fused per NEC sizing requirements.

700.1.8 POWER SUPPLY

All street lighting plans shall indicate a designated power supply feed point(s).

The design engineer will be required to determine which power company will be utilized to supply power for street lighting.

Power supplies shall be centrally located within project boundaries for street lighting layouts whenever possible.

All wiring shall be sized according to NEC, be within conduit and have minimum cover as required by the NEC.

700.1.9 EASEMENTS

Utility easements shall be provided for all lighting and power lines located outside of the public right-of-way and shall have a minimum width of 10 feet, centered on the utility line. Utility easements shall be easily accessible to maintain the lighting and power system.

700.2 DRY UTILITIES DISTRIBUTION SYSTEMS FOR SUBDIVISIONS

This section provides guidance and minimum design criteria for the modification and construction of dry utilities. Dry utilities include but are not limited to electrical, telecommunications and natural gas systems. All new dry utilities within a proposed subdivision development shall be designed and constructed in accordance with the service policies of the dry utility service providers as well as the requirements in this Section and the city Construction Specifications. The requirements within this Section shall be the minimum standards regardless of the service provider standards. The design engineer shall refer to the specific standards established by the service provider and the more restrictive requirement shall apply.

All new dry utilities shall be installed underground within a common dry utility trench. See the Section 700 Standard Construction Details for specific trench details. When, because of the subdivision development, it is necessary to relocate, renew or expand existing facilities within or adjacent to the platted area, the developer shall make the necessary arrangements with the serving utility for these installations to be placed underground within a common dry utility trench as well. The developer of the property shall be responsible for the costs of the underground construction in accordance with the policy of the serving utility.

Except for road crossings, the common dry utility trench should typically be located within the perimeter utility easements along the proposed lot frontages, however the trench may also be located within the city right-of-way but shall meet all utility separation requirements within these Standards.

Offsite dry utility improvements that require a crossing under an existing public roadway shall be bored unless otherwise approved as an exception for open cut installation by the Public Works Director.

Underground utilities shall be extended to the boundaries of the plat to provide service connections to abutting un-subdivided land.

All trench excavation, backfilling and compaction shall be per the city Construction Specifications. Bedding shall be specifically per the requirements of the service providers.

The Contractor shall obtain a city Right of Way permit prior to any work being performed outside of the development and within a city right of way. A proposed traffic control plan shall be submitted along with the permit.

Traffic control and barricading work area shall be according to the Manual on Uniform Traffic Control Devices and these Standards.

No trench shall be left open/uncovered after working hours unless properly signed and barricaded per the approved traffic control plan.

700.3 STREET LIGHTING AND DRY UTILITY DISTRIBUTION PLANS

Street lighting and dry utility distribution plans are not required for submittal at the preliminary plat step of the city's development approval process. However, the following information shall be provided within the plan:

- A summary letter of the street lighting that is proposed for use within the subdivision. The Developer shall note which type of lighting they intend to use along each proposed and existing roadway within and adjacent to the development.
- The Developer shall specify which dry utilities they intend to provide for the development and a list of the service providers. The Developer shall coordinate with

the service providers and provide a copy of the overall development site plan and any additional information they may request. Written correspondence from each provider shall be submitted which discusses a general plan to service the overall development (i.e. all project phases) and should note if any offsite improvements will be necessary and if there are any major challenges of serving the subdivision.

A street lighting and dry utility distribution plan is required to be included within the final subdivision development plan set for each development phase. The following items will need to be provided within the plan:

- Components of the plan as required within Sections 700.1 and 700.2.
- Proposed subdivision layout including street and lot layout, street names, existing and proposed utility easements, existing dry utility infrastructure, other existing/proposed wet utilities (optional-include if plan is still legible and clarity is not diminished).
- Proposed dry utilities trench alignment/layout.
    - Labels and/or legend identifying conduit sizes.
    - Location of utility pedestals, switching modules, transformers and other service facilities.
- Street lighting system layout.
    - Locations of lights which comply with spacing requirements noted in Section 700.1. Include labels and/or light legend which specifies lighting type (service provider light or decorative light, pole height).
    - Locations of transformers powering the lighting system, meter pedestals, disconnect box, junction boxes, conduit/wiring. Include labels with sizing information.
    - List of all service provider contacts for construction coordination.
    - Verification signoff table for each utility service provider. (written verification is also acceptable). Each provider shall sign off on layout prior to final design approval.
- Relevant Section 700 standard construction details.
- Supplemental construction details.
- Plan notes that list the road authority of each public roadway and that has proposed offsite utility work within its right-of-way.

SECTION 800

CITY OF SPEARFISH
ENGINEERING DESIGN STANDARDS
DEVELOPMENT PROCESS AND SUBMITTAL REQUIREMENTS

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SECTION 800

CITY OF SPEARFISH
ENGINEERING DESIGN STANDARDS
DEVELOPMENT PROCESS AND SUBMITTAL REQUIREMENTS

800.1 SUBMITTAL AND REVIEW PROCESS

This section describes the primary engineering submittal requirements involved in property subdivision and (re)development. City submittal forms and checklists referred to in this section are provided in the Section 800 Appendix. All development plans, reports, and related documents must be in conformance with these standards.

800.1.1 SUBMITTAL

Applications are submitted through the city's online permitting and licensing portal. A link to the portal is located on the city's official website.

Plans must include any special provisions. Reports submitted shall be in conformance with the requirements of the applicable sections of these standards. For any other reports follow industry standards and include applicable data, references, and calculations.

800.1.2 REVIEW

Review begins when all required application documents have been received, and applicable fees have been paid. A tentative review completion date is shown on the review step in the portal. Applications are reviewed in the order they are received, and review timelines vary depending on the size and complexity of the project and workload of city staff.

Staff reviews the submitted documents for compliance with these Standards, the city's Code of Ordinances, the Comprehensive Plan, Master Plans, State Statutes and other applicable rules and regulations.

Certain applications require a meeting with the city's Development Review Team (DRT) as part of the review process prior to being placed on the agenda for consideration by a governing body. The DRT is comprised of Public Works, Building, Planning & Zoning, Engineering, Parks and Recreation, Fire, and other departments as needed. Meeting with the DRT allows parties involved in the development project to receive feedback from all relevant departments and ask questions.

800.1.3 REVISIONS AND RESUBMITTALS

Following review, redlined documents are uploaded to the portal, and the applicant is notified. Required revisions and any proposed changes to the documents originally submitted must be clearly tracked in subsequent submittals and uploaded through the portal. Questions posed during the review process require written responses.

800.1.4 GOVERNING BODY APPROVAL

Certain development applications require public hearings and approval by the city's Planning Commission, City Council, or both. Applications requiring these approvals will not be placed on the respective governing body's agenda for consideration unless they are in substantial compliance with these Standards, Specifications, the city's Code of Ordinances, and Master Plans.

800.2 APPROVAL OF PLANS AND REPORTS

Approved development plans, and other reports submitted for engineering review are certified with city's approval stamps and uploaded to the portal. Owners are responsible for ensuring relevant parties have access to the approved documents prior to the start of construction activities.

The city of Spearfish is not responsible for the accuracy and adequacy of the design or other information provided in the submittal documents. The city's review is for general compliance with the city's Standards, Construction Specifications, Code of Ordinances, and Master Plans. The city, through the acceptance of the documents, assumes no responsibility for the completeness and/or accuracy of the approved documents. The city does not accept liability for facilities and/or infrastructure designed by others.

The design professional (engineer, surveyor, and/or architect) who stamps and signs the submitted documents shall be responsible for completeness and accuracy within the documents. City approval of the documents in no way relieves the design professional of any responsibility for errors or omissions in the documents.

800.3 REVISIONS TO APPROVED PLAN DOCUMENTS

Once approved, development plan documents are valid for two (2) years or as otherwise specified in the approval documents. If substantial construction, as determined by the City Engineer, has not been performed during this time, the accepted documents automatically become void and must be updated to current criteria and submitted for review before any further construction takes place, and before any permits can be issued.

Upon written request, the City Engineer may grant a one (1) year extension to the accepted documents provided the documents substantially conform to current Standards and that other conditions affecting the development site have not substantially changed.

Updates or revisions to previously approved development plans must be submitted for review.

800.4 ENGINEERING SUBMITTALS FOR SUBDIVISION DEVELOPMENT

800.4.1 SKETCH PLAT

Subdivisions must begin with a sketch plat application submittal. The objective of this procedure is to provide an opportunity for the applicant and appropriate city staff to confer regarding the concept and basic elements of the proposed development. It is recommended, but not required, that sketch plats associated with major subdivisions are presented by the developer to the City's Planning Commission as a discussion item.

The following information shall be included in the sketch plat application:

- A vicinity map or key map showing location of subdivision
- North arrow and scale
- Boundary, lot layouts, and street right-of-way
- Location of existing utilities and proposed connection plan
- FEMA floodplain delineation
- Other encumbrances such as easements

8.4.1.1 Review and Approval. City staff review the sketch plat and determine the plat classification, either major or minor. Sketch plats are approved administratively, and an approval letter is issued directing the applicant to the appropriate next step, either preliminary or final plat application.

800.4.2 PRELIMINARY PLAT

The preliminary plat application helps further determine the feasibility and suitability of the proposed development. This submittal must include details on the overall development layout and preliminary reports and plans listed below.

- Preliminary plat application
    - Requirements listed in Ordinance
- Preliminary development plans
    - Title Sheet with vicinity map
    - Overall Layout / Site Plan
    - Overall Utility Plan
    - Street Lighting & Dry Utilities Distribution Plan
    - Grading and Schematic Storm Drainage Plan
    - Typical Street Sections
    - Street Plan and Profiles
    - Park Plan, if required.

Some of the plan sheets noted above may be combined with one another if clarity and legibility of the combined plan sheet(s) are maintained.

- Preliminary development reports
    - Preliminary drainage report
    - Preliminary geotechnical report
    - Preliminary water system report*
    - Preliminary sanitary sewer report*
    - Traffic Impact Study, if required

The reports shall be prepared for the entire development property (i.e. all development phases). Note that significant proposed changes to a phase or phases of the development, such as land use, site layout, etc. shall require the developer to resubmit updated development documents via the preliminary plat review process. For additional details on what should be included in each report, please refer to the applicable section of these Standards.

* For the water and sanitary sewer reports, if the subdivision development will be phased then each phase shall be analyzed and shall provide verification that all minimum requirements are met as each phase is developed.

Example: A development will be constructed in 3 phases.

- Analyze phase 1
- Analyze phases 1 + 2
- Analyze phases 1 +2+ 3 (entire development)

Additional outlines, details and content of the required items for this process are provided within the *City of Spearfish Preliminary Plat Submittal Checklist* in the Section 800 Appendix.

800.4.2.1 Review and Approval. City staff review the preliminary plat and associated plans and reports. Preliminary plats require public hearings and governing body approval. Once approved, an approval letter is issued detailing any conditions of approval, terms of approval, and directing the applicant to the appropriate next step.

800.5 FINAL SUBDIVISION DEVELOPMENT PLANS

Upon approval of the preliminary plat, the applicant may submit final development plans and reports. These are detailed, comprehensive documents used for constructing a project that provide further detail on the previously approved plans and reports provided in the preliminary plat process. They provide specific information about site layout, grading, drainage, street, and utility design. Final plans and studies must be signed and sealed by a registered professional engineer in the state of South Dakota.

- Application
- Final development plans
    - Title Sheet with vicinity map
    - General Construction Notes
    - SWPPP General Notes, if applicable

    - Typical Street Sections
    - Overall Grading Plan
    - Detailed Grading Plan(s)
    - Erosion and Sediment Control Plan
    - Overall Utility Plan
    - Water Plan and Profiles
    - Sanitary Sewer Plan and Profiles
    - Storm Sewer Plan and Profiles
    - Street Lighting and Dry Utilities Distribution Plan
    - Street Plan and Profiles
    - Detailed Intersection Plans
    - Signage and Striping Plan
    - Traffic Control Plan
    - Construction Details
    - Park Plan, if required.

Some of the plan sheets noted above may be combined with one another if clarity and legibility of the combined plan sheet(s) are maintained.

- Final development reports
    - Final drainage report
    - Final geotechnical report
    - Final water system report
    - Final sanitary sewer report
    - Traffic Impact Study

Final reports shall address any outstanding comments from the preliminary plat reports. If the subdivision will be developed in phases, the reports shall address all requirements for the current development phase being submitted. Report recommendations shall be incorporated into the final development plans, and the report shall provide information that verifies concurrence with the approved preliminary report that was prepared for the entire development. If a development phase is significantly different than presented in the preliminary report, at the discretion of the City Engineer, an amendment to the preliminary report may be required (via the preliminary plat review process).

Additional outlines, details and content of the required items for this process are provided within the *City of Spearfish Final Subdivision Development Plan Submittal Checklist* in the Section 800 Appendix.

- Technical Specifications
    - Refer to city Construction Specifications in general notes of plans.
    - Add supplement specifications, if applicable.
- Copy of approval letters from outside agencies, if applicable

- SDDANR – Water and sanitary sewer improvements
- SDDOT – Proposed Improvements within SDDOT ROW
- Lawrence County - Proposed Improvements within County ROW
- FEMA – CLOMR and/or LOMC

800.5.1 REVIEW AND APPROVAL

City staff review the final development plans, specifications, and reports and require additional revisions and reviews as needed. Once all comments are addressed, the documents are approved administratively.

Unless otherwise determined by the Development Review Team, a development agreement is required for all major subdivisions and shall be executed prior to city approval of the final development plans, specifications, and reports. See Section 800.7 for specific detailed information on development agreement content and purpose. Once approved, an approval letter is issued detailing any conditions of approval, terms of approval, and directing the applicant to the appropriate next step.

800.6 ENGINEERING SUBMITTALS FOR SINGLE LOT (RE)DEVELOPMENT

A development plan review by city staff is required for all commercial, industrial, and multi-family properties being developed for the first time or as a re-development or infill project. The applicant may submit final development plans and reports on the city's online permitting and licensing portal. This submittal process includes administrative review and approval of the building and civil/site engineering development plans (architectural, structural, mechanical, plumbing, electrical, civil/site plans, etc.) and reports. These documents are revised until all comments have been addressed. All submittals must include the items listed below.

- Application (online portal questions)
- Building plans (including architectural, structural, mechanical, plumbing, electrical, or other as specified by the Building Official)
- Development plans* (list is for civil/site engineering plans. Combine into one full plan set with the building plans for submittal.)
    - Title Sheet with vicinity map
    - General Construction Notes
    - SWPPP General Notes, if applicable
    - Typical Street Sections, if applicable
    - Site Plan
    - Grading, Drainage, Erosion and Sediment Control Plan
    - Overall Utility Plan
    - Water Plan and Profiles, if applicable
    - Sanitary Sewer Plan and Profiles, if applicable
    - Storm Sewer Plan and Profiles, if applicable
    - Street Plan and Profiles, if applicable
    - Landscape plan

- Traffic Control Plan, if applicable
- Construction Details

*Plan sheets noted above may be combined with one another if clarity and legibility of the combined plan sheet(s) are maintained.

- Development reports
  - Final drainage report
  - Final geotechnical report
  - Final water system report, if applicable.
  - Final sanitary sewer report, if applicable.
  - Traffic Impact Study, if applicable.

Required submittal items for this process are also provided within the Single Lot (Re)Development Plan Submittal Checklist for Commercial, Industrial, & Multi-Family Developments in the Section 800 Appendix.

City staff will review the final development plans, specifications, and reports and require additional revisions and reviews as needed. Once all comments are addressed, the documents are approved administratively.

800.7 CONSTRUCTION

Upon approval of the final plans, specifications, and reports, the applicant may proceed to the construction phase of development.

Please note that during single lot development, the city's Building Inspectors and Building Official will also be involved with inspection and closeout requirements and the Building Official issues the Certificate of Occupancy (COO) for the building(s) upon completion of the project. All civil/site improvements and building improvements must be completed to obtain the COO.

In cases where construction is limited to private infrastructure, no public dedication of improvements is required. In cases where public infrastructure is included in the construction of single-lot development, then dedication is required prior to the issuance of the COO.

800.7.1 PRE-CONSTRUCTION REQUIREMENTS

The applicant shall complete the following prior to commencement of construction.

- Obtain all required permits for the project and provide the city with a copy of permits from outside agencies. The following is a list of typical permits that may be required.
  - SDDANR Permit for Storm Water Discharges Associated with Construction Activity (required for disturbed areas over 1 acre)
  - City Grading Permit

- City ROW Permit
- City Floodplain Development Permit
- SDDOT ROW and/or Utility Permit
- Lawrence County ROW access and/or Utility Permit
- USACE – Wetlands Permit
- Other state and federal permits required for the development

- Provide written verification to the city of the selected professional civil engineer who will act as the project engineer and oversee the project construction. See section 800.6.1.1 for additional details on responsibilities. See *Construction Observation Services Checklists* in the Section 800 Appendix.
- Verification that the contractor and subcontractors have valid contractor licenses with the city of Spearfish.
- Verification that the contractor and subcontractors all have other state licenses, if applicable, including but not limited to:
  - Sewer and water contractor/installer via the SD Plumbing Commission
- The developer, project engineer, the contractor's superintendent, subcontractors and relevant dry utility companies shall meet for a preconstruction meeting with the city Engineering Department. The contractor or the project engineer shall prepare the meeting agenda and provide meeting minutes to all attendees. The purpose of the meeting is to discuss the contractor's schedule, any road closures, construction traffic routes, traffic control plans, dust prevention, erosion and sediment control, locations of fill disposal sites, locations of imported borrow sites, and any special conditions prior to issuance of permits. The city Engineering Department will provide an overview of the city's construction closeout and dedication process in this meeting.

800.7.2 DURING CONSTRUCTION

Projects taking place within Spearfish City limits that are related to public infrastructure will require observations and daily reports from the Owner's Engineer of Record. While the City's Project Inspector will be rotating between different public infrastructure projects to verify project compliance, the Owner's Engineer of Record is responsible for ensuring the project is being completed in compliance with the approved construction documents. Please review SDCL 36-18A-46 regarding administration services and the minimum observation checklists included in the Section 800 Appendix.

All observation reporting and material testing are to be forwarded to the City of Spearfish on a bi-weekly basis. Failure to provide observation and testing reports on a bi-weekly basis may result in a project shutdown as determined by the City Engineer.

The following are principal requirements and responsibilities for city staff and the owner, project engineer, and contractor during construction.

- The owner is ultimately responsible for project coordination between the development team and the city.
- Per SDCL 36-18A-46, the project engineer shall provide construction administration services in order to attest that the construction was completed according to submitted plans and specifications. Site inspection reports should contain the information shown in the city's Construction Inspection Reports Guidelines provided in the Section 800 Appendix.
- The project engineer shall submit quality control items (QC) such as construction updates, inspections, testing results, schedules, etc. to the city Engineering Department on a bi-weekly basis. Failure to submit these documents in a timely manner may result in temporary shutdown of the construction until the documents have been submitted and city staff can confirm that quality control is being performed.
- Any significant changes proposed from the approved plan documents must be reviewed and approved by the project engineer, then forwarded to the city Engineering Department for final approval.
- The project engineer shall verify testing specified below and notify the city prior to commencement of curb, gutter, paving, and/or sidewalk operations.
    - All underground utilities shall be completed and verified (including all CCTV inspections and/or testing requirements shall be completed and passed).
    - All compaction tests shall be reviewed for compliance for utility trenches, subgrade and subbase.
- The city's inspection role shall be to assist with construction coordination and inspection, as time allows, and to review the submitted QC documents for conformance. The city Engineering Department will also perform a final walk through once all improvements are complete and ready for city acceptance.
- The city Utility Department will observe water line testing and provide CCTV inspection of storm and sanitary sewer lines. All other required testing shall be coordinated with, observed and documented by the project engineer.
- The contractor and/or project engineer shall conduct progress meetings with city staff during construction (typically once a month). Topics should include work completed to date, a review of the project schedule and any updates, a detailed look ahead at work scheduled before the next progress meeting, coordination on subcontractors, utilities, testing results, submittals, and status of requested project changes or additions.
- The contractor shall construct the improvements according to the approved plan documents and coordinate work schedules with the project engineer.

800.7.3 CONSTRUCTION CLOSE OUT PROCESS

When construction is substantially complete, the closeout process may proceed. Below is a list of requirements needed to obtain final approval and closeout from the city.

800.7.3.1 Final Walkthrough Inspection. When the contractor believes they have substantially completed the construction of the improvements, they will contact the project engineer and complete a site walkthrough using the city's Final Walkthrough Punchlist, available in the Section 800 Appendix. If the project engineer concurs that the construction is substantially complete, they shall notify the city Engineering Department to schedule a formal final walk through.

The contractor, developer/owner, project engineer, and city staff shall be present for the final walkthrough. The project engineer shall compile a list of outstanding items for the contractor to complete, if necessary, using the city's Final Walk Through Punchlist.

The project engineer shall notify the city Engineering Department when punchlist items are complete, and another walkthrough will be performed. This process repeats until all punchlist items are completed and approved by the city.

800.7.3.2 Construction Completion Report. The CCR is a summary of all work completed, including final inspections, materials testing, as-builts, approvals, drainage sizing verification documents, and any outstanding issues or major approved changes to the plans.

The project engineer shall submit a CCR to the city Engineering Department for review and approval on or before the final walkthrough inspection is performed. The CCR must include all items listed in the city's CCR Review Checklist, provided in Section 800 Appendix. Due to the time investment to compile a CCR, the city advises that the project engineer compile the report and as-builts as construction proceeds in order to minimize the time to complete the closeout process.

800.7.3.3 Construction As-builts. Construction as-builts are required as part of the CCR. They reflect the actual in-place construction of public improvements. The city's As-Built Checklist is provided in the Section 800 Appendix and includes a comprehensive list of the required items for as-builts.

As noted in the checklist, some as-built items can be contractor notes taken during installation and other items will be required to be surveyed by a Registered Land Surveyor. The as-built points shall be surveyed in the city's specified coordinate system and vertical datum (NAD 83, NAVD 88).

The project engineer shall submit as-built plans in both CAD and PDF formats. The plans shall be stamped and certified with the following statement included:

> *"I certify that the construction inspection and as-built plans preparation were performed by me or under my direct control and supervision. The construction details as shown on these as-built plans are accurate and complete to the best of my knowledge and belief."*

A copy of the contractor's as-built or redlined plans shall also be submitted.

800.7.4 DEDICATION OF PUBLIC IMPROVEMENTS AND WARRANTY SURETY

After the construction closeout process is completed, the owner or developer shall dedicate all public improvements, which include public land and public infrastructure, to the city prior to

recording the final plat, as per city ordinance. The owner will permanently and irrevocably dedicate the public improvements to the city for public use in perpetuity. The owner shall warranty the public improvements for a period of two years, unless otherwise agreed to, from the date of City Council acceptance and approval.

The following shall be completed before the dedication agreement is presented to City Council for approval:

- The city Dedication Agreement Template (available in Section 800 Appendix) shall be completed by the owner and submitted to city staff for review and approval.
- A completed Inventory and Value Reporting Form for Dedication (available in Section 800 Appendix) signed by the owner and city staff and provided as an exhibit in the Dedication Agreement.
- A map showing the location of the improvements to be dedicated shall be provided as an exhibit in the Dedication Agreement.
- Provide a two-year warranty bond for 10%, unless otherwise agreed to, of the total construction costs of the public improvements as determined in the signed Inventory and Value Reporting Form for Dedication.
- Provide easement documents related to any city owned utilities including water, sewer, and drainage, if applicable. The city's Easement Template is provided in the Section 800 Appendix.

800.7.5 FINAL PLAT

A final plat provides a permanent and accurate record of the exact size and location of the lots, blocks, streets, drainage areas, easements, and other parcels of land within a subdivision. When filed with the County Register of Deeds, a final plat becomes the legal instrument whereby the location and boundaries of separate land parcels within the subdivision are identified.

- Final plat application, per ordinance.
- Closure Calculation Report

Additional outlines, details, and content of the required items for this process are provided within the city's Final Major Plat Submittal Checklist in the Section 800 Appendix.

Final plat applications may be submitted during or after the construction closeout process. In most cases, the final plat is reviewed and approved administratively. Once approved, city staff will issue an approval letter, and the applicant may submit the mylar to the city with owner signatures. The final plat may only be recorded after the dedication of public improvements has been accepted and approved or if granted a special exception by City Council.

City staff will sign the mylar and then it will be taken to the Lawrence County Register of Deeds to be officially recorded.

800.7.6 RECORDING OF FINAL PLAT PRIOR TO COMPLETION OF PUBLIC IMPROVEMENTS

The City Council may grant a special exception to allow a delay in the completion of any improvements by agreement secured by a letter of credit, bond, cash escrow deposit, or other financial guarantee in a form acceptable to the City Attorney.

When requesting the special exception, the following items shall be submitted prior to consideration of approval by City Council.

- A cost estimate of all outstanding improvements shall be prepared by a professional civil engineer licensed in South Dakota. The total estimated cost shall include a 50% contingency to the subtotal. The warranty bond will be completed for 10% of this overall total.
- A construction schedule for the outstanding improvements, including a final completion date acceptable to the City Engineer, shall be provided.

After City Council approval and prior to recording of the final plat, the following items shall be completed.

- The financial guarantee shall be provided to the city in a form acceptable to the City Attorney.
- Dedication of all completed public improvements shall be completed prior to the recording of the final plat.

800.7.7 PUBLIC IMPROVEMENTS WARRANTY PERIOD

The warranty period begins on the date that the City Council approves and accepts the dedication of public improvements. During the warranty period, the owner is responsible for repair work on any defective public improvements. The city Engineering Department will periodically inspect the development and will notify the owner of any defects that require repair work to be performed. The owner is responsible for repairs during the warranty period. Defects shall mean any construction which no longer meets the minimum Standards and Construction Specifications approved for the project.

8.7.7.1 Final Warranty Inspection. A minimum of forty-five (45) days prior to the end of the warranty period, the city Engineering Department will conduct a final warranty inspection. A written list of warranty defects, if any, will be prepared and presented to the owner.

The owner will be responsible for notifying the city Engineering Department in writing when the warranty repairs will begin, which contractor will be performing the repairs, and when they have been completed. The city Engineering Department shall inspect the same within ten (10) business days of such notice. The warranty security will remain until all warranty repairs have been completed and accepted by the city Engineering Department. The city Engineering Department will verify the warranty repairs have been completed and provide written correspondence acknowledging acceptance of the warranty repairs and release of the warranty security.

8.7.7.2 Emergency Repairs During Warranty. Defects, which, in the opinion of the City Engineer, constitute an immediate threat to public health, safety, or welfare, shall be considered an emergency situation. The city shall promptly contact the owner once the area of concern is barricaded and/or isolated from the public. When emergency repair work is required, the owner shall act with urgency and have the repair work completed in an immediate fashion.

800.8 AGREEMENTS

Property development often involves the use of various agreements between the owner/developer and the city. The agreements below will be utilized when applicable.

800.8.1 DEVELOPMENT AGREEMENTS

A development agreement is a contract between the property owner and the city, outlining the specific terms and conditions under which a property can be developed. It provides a legally binding framework for development, establishing clear expectations and responsibilities for both parties. They provide assurances to the developer that the development regulations that apply to their project are set within the terms of the agreement.

Development agreements are required for all major subdivisions which include public infrastructure and shall be completed and fully executed prior to the approval of final development plan documents and commencement of construction. Preliminary design plan document recommendations from the preliminary plat submittal will be utilized to compile the content of the agreement. Items that mitigate project impacts, project phasing, and timing of public improvements are a few examples of items that are typically incorporated. The Planning Commission and City Council may impose additional development requirements to be included within the agreement.

The agreement will be prepared by the city Planning and Zoning Department and City Attorney. The city will work closely with the owner to gain their input and to review in order to ensure the final content is agreeable to both parties prior to completion and execution of the agreement.

800.8.2 REIMBURSEMENT AGREEMENTS FOR OVERSIZED INFRASTRUCTURE

At their discretion, the City Engineer may require the developer to construct oversized infrastructure which exceeds the minimum size required to service the development, as verified by the developer's design engineer. The oversized infrastructure and appurtenances will typically be required for essential service improvement to surrounding developed areas or to serve future development within the area.

This oversized infrastructure is typically in accordance with, and identified in, the city's master utility plans and includes water, sanitary sewer, and storm sewer trunk lines or mains, sewer collection systems, streets, or regional storm sewer detention ponds. The bidding of these improvements is not required as per South Dakota Codified Law 5-18C-4.

An agreement shall be completed by and between the city and developer for reimbursement of the oversized infrastructure. This may be a standalone agreement or included within the development agreement, as determined by the City Attorney. Such agreements shall be approved by City Council prior to final development plan approval.

When utility infrastructure is required to be upsized, the developer's contractor shall be responsible for obtaining two separate quotes from their product supplier, one for the oversized products and one for product size needed for the development only. The two quotes shall provide unit prices, total quantities, and sub-total prices for each product. Reimbursable costs do not include labor and are limited to the difference between the product cost of the oversized infrastructure, and the product cost of infrastructure necessary to serve the proposed development only.

When streets or regional detention ponds are required to be oversized, the developer's engineer shall be responsible for providing an estimate of the cost difference between the oversized construction and the cost of construction needed for the development only. Reimbursable costs may include labor and material.

The timing of the deliverables required for reimbursement shall be outlined in the Development Agreement.

The developer is responsible for all construction costs associated with the oversizing of the infrastructure. After project completion, the developer's engineer shall provide final construction costs to be reimbursed. The city's participation shall be by reimbursement of a lump sum total in the amount of the estimate or actual construction costs, whichever is less, once the infrastructure is accepted and dedicated to the city. The developer shall send an invoice for this amount to the city Finance Department upon city acceptance of the project and final dedication of the public infrastructure. The developer shall receive payment within 30 days of the city receiving the invoice.

Note that infrastructure included within a Tax Increment Finance District is not eligible for oversizing reimbursement.

800.8.3 COST RECAPTURE AGREEMENTS FOR EXTENSION OF OFFSITE WATER AND SEWER INFRASTRUCTURE

If public water and sewer mains are not already located along and stubbed out to a development site, the Developer will be required to extend the nearest utilities to the site at their own expense. The cost of extending this infrastructure can be a significant financial investment. Cost recapture agreements may be requested by developers to proportionally recapture some or all of the costs of this infrastructure using connection fees.

The following extensions are <u>not</u> eligible for cost recapture agreements:

- Offsite utility extensions of less than 0.5 miles in length.
- Infrastructure included within a Tax Increment District.

Each agreement will vary, but the following requirements shall apply to all cost recapture agreements:

- The term of the agreement shall be no more than 15 years.
- The connection fee shall be as approved by City Council and shall be based on a cost per diameter (in inches) of the utility line to be connected.
- Maximum reimbursement is capped at the total cost of the original construction.
- Must be approved by City Council.

If the city decides to participate in upsizing the utility lines and/or pay for additional water improvements not necessary to service the development, such as fire hydrants or utility main stub outs at intersections, then the city will also be party to being a beneficiary to the agreement. The reimbursement payments will be proportionately distributed based on the percentage of costs paid for the extension. Reimbursement payments will not be distributed until the infrastructure is accepted and dedicated to the city.

800.8.4 ENCROACHMENT AGREEMENTS

Developments may desire use of existing city right-of-way for proposed improvements. An encroachment agreement for a city right-of-way is a legal contract that allows the adjacent property owner to use or occupy a portion of a city's public right-of-way for a specific purpose, even though it technically falls within the city's jurisdiction. It outlines the terms and conditions under which the encroachment is permitted, including responsibilities, limitations, and potential consequences of non-compliance. Applicants who wish to obtain an encroachment agreement should refer to the city code of ordinances for specific details and approval process.

800.8.5 VACATION OF PUBLIC RIGHT-OF-WAY, SECTION LINE RIGHT-OF-WAY, OR EASEMENTS

The following applies to all requests for vacation of public right of way including streets and alleys, city of Spearfish easements and section line easements located within the city of Spearfish municipal boundary. Vacate requests for section line easements will only be considered at time of subdivision development or when building permit approval is sought. Exceptions to the timing of the request will be reviewed according to the exceptions process located in Section 100.

Easements that benefit a utility company other than the city of Spearfish must be vacated according to the affected utility company’s process and are not required to be approved by the city of Spearfish.

All costs associated with a vacate request are the petitioner or applicant’s responsibility and include all necessary documents and activities such as survey work, creation of easement documents, plats, and construction or relocation of public or private utilities and infrastructure.

Requests to vacate a city of Spearfish right of way, section line easement, or other city easement must include the submittal of all items as required by the *City of Spearfish Vacate Request Checklist* in the Section 800 Appendix.

Upon receipt of a complete application requesting the vacate, city staff will review the request according to the following, as applicable:

- Impacts to existing public and private utilities and other improvements in the right of way or easement.
- Overall connectivity of the street system and access to property in the immediate vicinity.
- City's ability to efficiently access and manage city parks, facilities, buildings, and public infrastructure.
- Future utilities, roadway, and pathway corridor opportunities.
- Additional submittal and review items shown below are specifically for section line easement vacates.
    - Identifying the existence of steep terrain, a significant body of water, floodplain, and/or other environmental/geographic features that make it demonstrably infeasible to construct a city street within the easement that meets the requirements specified within Section 200.
    - Alternate roadway alignments through the petitioner's property which deviate away from and around the identified constraints shall be submitted If similar directional connectivity of the existing section line easement can be achieved and the alignment meets the requirements specified within Section 200 the alternate alignment will be considered as a replacement for the section line easement.

Once all issues have been identified and impacts resolved, a public hearing date for the vacate resolution will be set by City Council with public hearing as required by state statute.

800.8.5.1 Vacate Close-out Requirements and Related Documents. If the vacate resolution is approved, the following are required to complete the approval process:

- For vacations of city Right of Way, the applicant must submit a final plat showing the right-of-way vacate area incorporated into the applicant's property. The vacation resolution number must be noted on the plat, and the city of Spearfish must be shown as an owner on the final plat.

- Any utility relocations or roadway corridor revisions required as a condition of the vacate, whether private or public, must be accommodated in an easement shown on the final plat. After the relocation has taken place, the easement may be vacated in a later approval.

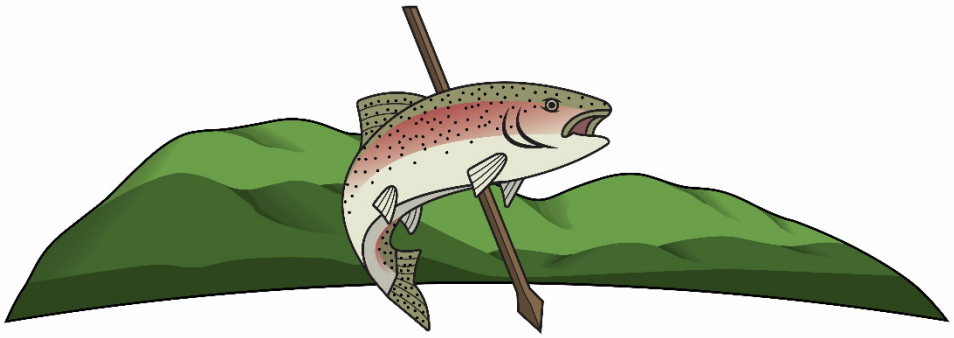
The city will record the following in the office of the Lawrence County Register of Deeds:

- Vacate resolution

- Final plat (only required for vacating street or alley right of way)

- Easement Agreements, if applicable

END OF SECTION



CITY OF
SPEARFISH
EST. 1888

SECTION 800
APPENDIX

City of Spearfish Construction Inspection Report Guidelines

Please have your inspection reports provide the following information. The information listed under the Prime Contractor's Daily Progress Report is required in the Design Engineer's Construction Inspection Report if the Prime Contractor is not completing a Daily Progress Report. This document is just a guideline, the Design Engineer is responsible for ensuring the Inspection Reports are an accurate representation of the work being performed and are adequate documentation of the quality of the work performed.

Design Engineer's (or his/her representative's) Construction Inspection Reports:

1. Project Name & Number
2. Engineering Firm
3. Today's Day and Date
4. Weather (while on site)
5. Approximate Time(s) on & off Project
6. Prime & Sub Contractors working with a brief summary of work being performed (including locations/stations) while on site
7. List any visitors on project while on site
8. Any instructions and/or pertinent communications given/received/with the Developer, Design Engineer, The City of Spearfish, the Prime Contractor, Subcontractors, or others
9. Work inspected, what was checked, quality of the work, and the basis for that determination
10. Any Additional Comments
11. Be Specific
12. Ensure legibility (Electronically completed documents are acceptable)
13. Print Name & Title
14. Signature (If electronically completed either print sign and scan, E-sign, or include in the email that you certify that the report was prepared by you or under your direct supervision and ensure its accuracy and completeness and sent from a company email address that would be difficult to impersonate)
15. Any Pertinent Photos

Prime Contractor's Daily Progress Report:

16. Project Name & Number
17. Prime Contractor
18. Today's Day and Date
19. Weather (Cloud cover, Hi /Low Temps., wind speed)
20. Prime Contractor work performed
21. Sub-Contractor work performed

22. Include approximate start & end times, stations, quantities, running totals, equipment, and personnel for the work being performed (Both Prime & Sub Contractors)
23. List any visitors on project
24. Document any tests and results (pass/fail)
25. List any unusual incidents or accidents on project
26. Be Specific
27. The report should include days not worked (with weather & sub-contractor information) and reason(s) work was not performed. (excluding days not in the regular schedule i.e. Saturday and/or Sunday unless the reason for not working a regularly scheduled day was due to the weather/event on those days)
28. Ensure legibility (Electronically completed documents are acceptable)
29. Print Name & Title
30. Signature (If electronically completed either print sign and scan, E-sign, or include in the email that you certify that the report was prepared by you or under your direct supervision and ensure its accuracy and completeness and sent from a company email address that would be difficult to impersonate)
31. Any Pertinent Photos

Email staff copies of Inspection Reports, Daily Progress Reports, and Test Results to the City Engineering Department bi-weekly.

Revised: 3/15/18 By: AM

DEDICATION AND ACCEPTANCE OF PUBLIC IMPROVEMENTS

This **DEDICATION AND ACCEPTANCE OF PUBLIC IMPROVEMENTS** (hereinafter "Agreement") is made and entered into this_____ day of _____, _____ by and between **LEGAL NAME OF ENTITY DEDICATING THE IMPROVEMENTS,** Street Address, City, State, Zip Code, (hereinafter "Owner") and the **CITY OF SPEARFISH**, a municipal corporation and political subdivision of the State of South Dakota, 625 North Fifth Street, Spearfish, South Dakota 57783 (hereinafter "Spearfish").

1. Owner has constructed a road, curb and gutter, sidewalks, street lights, water main, sewer main, and drainage improvements (hereinafter "Infrastructure") improvements upon the following-described real property, as further described in Exhibit A, situated in the City of Spearfish, Lawrence County, South Dakota, to-wit:

   Bridgestone Street dedicated public right-of-way located in Block 8 of the Falcon Crest Subdivision, a portion of Tract C and D of Miller Addition to the City of Spearfish, Lawrence County, South Dakota, as shown on Plat Document No. 2008-00177 recorded in the Office of the Lawrence County Register of Deeds. (Hereinafter "Right-of-Way")

2. Owner desires to dedicate to Spearfish:

   2.1 The Infrastructure for public use. Owner and Spearfish have examined the Infrastructure plans and specifications on file in the office of the City Engineer (hereinafter "Plans") and agree that the Infrastructure has a fair market value as listed on Exhibit B as: $317,001.40.

   2.2 Right-of-Way for Bridgestone Street.

   2.3 Drainage easements and water easement as shown on Plat Document No. _____-_____recorded in the Office of the Lawrence County Register of Deeds (hereinafter "Easements").

   2.4 Sections 2.1, 2.2, and 2.3 are collectively referred to as "Public Improvements."

3. Spearfish desires to accept the Public Improvements for public use in perpetuity subject to the terms of this Agreement.

NOW THEREFORE, in consideration of the covenants, conditions, benefits, and obligations herein contained and for other good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, the Parties agree as follows:

4. **Owner's Representations**. Owner hereby represents and certifies that Owner is the owner of the Public Improvements to be dedicated by this Agreement.

5. **Dedication**. Owner hereby permanently and irrevocably dedicates the Public Improvements to Spearfish for public use in perpetuity.

6. **General and Customary Maintenance**. Effective as of the date of this Agreement, Spearfish agrees to assume all usual and customary maintenance, inspection, and operation responsibilities of the Public Improvements, subject to the provisions and limitations contained within this Agreement and Owner's Warranty.

7. **Owner's Warranty**. Owner hereby warrants that the Public Improvements will conform to the requirements of the Plans and Specifications and will be free from defects for a period of two years from the date of this Agreement. Except those Public Improvements identified hereafter as Non-complying Improvements, Public Improvements not conforming to the Plans and Specifications will be considered defective. Owner's warranty excludes remedy for damage or defect caused by abuse, alterations to the work by Spearfish from the date of this Agreement, improper or insufficient maintenance, improper operation, normal wear and tear, or normal usage. If a defect is discovered and notice given during the warranty period, Owner understands and agrees it is obligated to repair such defect even if the repairs are started or completed outside of the warranty period.

8. **Punchlist and Non-complying Improvements.** Owner and Spearfish acknowledge there remains some incomplete improvements as identified below but these incomplete improvements do not affect the overall ability for Spearfish to own and maintain the Public Improvements unaffected by the punchlist. The remaining punchlist items shall be completed by September 30, 2021. Outstanding punchlist items are as follows:

   a. Description
   b. Description
   c. Description

   (hereinafter "Punchlist").

   Owner and Spearfish acknowledge that the following improvements do not comply with the approved Plans and Specifications but are of the minimum acceptable

standard for Spearfish ownership and maintenance and these improvements will receive additional monitoring by Spearfish during the warranty period for defects that would require Owner to repair them.

a. Description
b. Description
c. Description

(hereinafter "Non-complying Improvements").

Spearfish may withhold recording of future final plats if the Punchlist items are not completed by the deadline. The warranty for the Public Improvements affected by the Punchlist will not commence until the City Engineer confirms in writing that Owner has acceptably completed the Punchlist.

9. **Exclusions.** Describe any improvements that will be owned and/or maintained by a different entity than the city. Examples are landscape entry medians, local stormwater storage basins, group mailbox structures, etc. Describe who will maintain and own these. If not applicable, delete.

10. **Acceptance**. Spearfish hereby accepts Owner's dedication subject to the terms of this Agreement.

11. **Legally Binding.** All agreements, covenants, conditions, and obligations contained in this Agreement shall be legally binding upon and inure to the benefit of the parties hereto and their respective successors and assigns.

12. **Complete Agreement.** This Agreement constitutes a written memorandum of the entire understanding and agreement between the parties and supersedes all prior understandings, negotiation, or agreements between them, whether written or verbal, with respect to the subject matter hereof.

13. **Non-Waiver.** Failure by Spearfish to insist upon or enforce any of its rights shall not constitute a waiver thereof, and nothing shall constitute a waiver of Spearfish's right to insist upon strict compliance with the provisions hereof. Either party hereto may waive the benefit contained in this Agreement.

14. **Modification**. No oral modification hereof shall be binding upon the parties, and any modification shall be in writing and signed by the parties.

15. **Attorney's Fees and Costs**. In the event any legal action is filed to enforce or recover under any provision of this Agreement, the prevailing party in the suit shall be entitled

to recover court costs and reasonable attorney's fees from the non-prevailing party if such court costs and reasonable attorney's fees are ordered by a Court of competent jurisdiction in a final non-appealable order.

16. **Severability**. If any portion of this Agreement is determined to be invalid or unenforceable, such determination shall not affect the validity or enforceability of any other provision herein.

17. **Notice**. Notice, demand, or other communication made pursuant to this Agreement by any party to another shall be sufficiently given or delivered if it is sent by registered or certified mail, postage prepaid, return receipt requested, or delivered personally at the address stated above.

18. **Construction and Governing Law.** This Agreement shall be construed and governed in accordance with the laws of the State of South Dakota. This Agreement was prepared by the City of Spearfish. However, each party has had the opportunity to review and revise this Agreement, has had equal opportunity for input into this Agreement, and has had the opportunity to have this Agreement reviewed by that party's own independent legal counsel. No individual party, nor its respective legal counsel, shall be construed to be the drafter or primary drafter of this Agreement. In the event of any dispute regarding the construction of this Agreement or any of its provisions, ambiguities or questions of interpretation shall not be construed more in favor of one party than the other. Instead, questions of interpretation shall be construed equally as to each party.

19. **Other Documents**. The Parties hereby mutually agree to execute any and all other documents necessary or needed to effectuate the purposes of this Agreement.

20. **Dispute Resolution**. The parties agree to resolve any dispute, controversy, or claim arising out of or relating to this Agreement (hereinafter "Dispute") by first attempting to resolve such Dispute by negotiation and consultation between themselves. In the event that such Dispute is not resolved on an informal basis within twenty-one days, the parties agree to endeavor first to settle such Dispute by non-binding mediation before resorting to litigation, which litigation, if commenced, may be commenced and maintained only in the Fourth Judicial Circuit in Deadwood, Lawrence County, South Dakota.

21. **Counterparts**. This Agreement may be executed in two or more counterparts, both or all of which taken together shall constitute one and the same instrument, and any party hereto may execute this Agreement by signing any such counterpart. Facsimile and electronic versions of signatures shall be treated as originals.

In Witness Whereof, the Parties have set their signatures.

[Separate signature pages follow]

CITY OF SPEARFISH

By: _____
John Senden, Mayor

(Seal)

Attest:

_____
Michelle DeNeui, Finance Officer

State of South Dakota)
) ss.
County of Lawrence)

On this _____day of_____, 20____, before me the undersigned officer, personally appeared John Senden and Michelle DeNeui, known to me or satisfactorily proven to be the persons described in the foregoing instrument, and acknowledged that they executed the same in the capacity therein stated and for the purposes therein contained.

In Witness Whereof, I have set my hand and official seal.

(Seal)

_____
Notary Public

My Commission Expires: _____

_____
Name of Individual Signing for ownership, and title if an LLC

State of South Dakota)
) ss.
County of Lawrence)

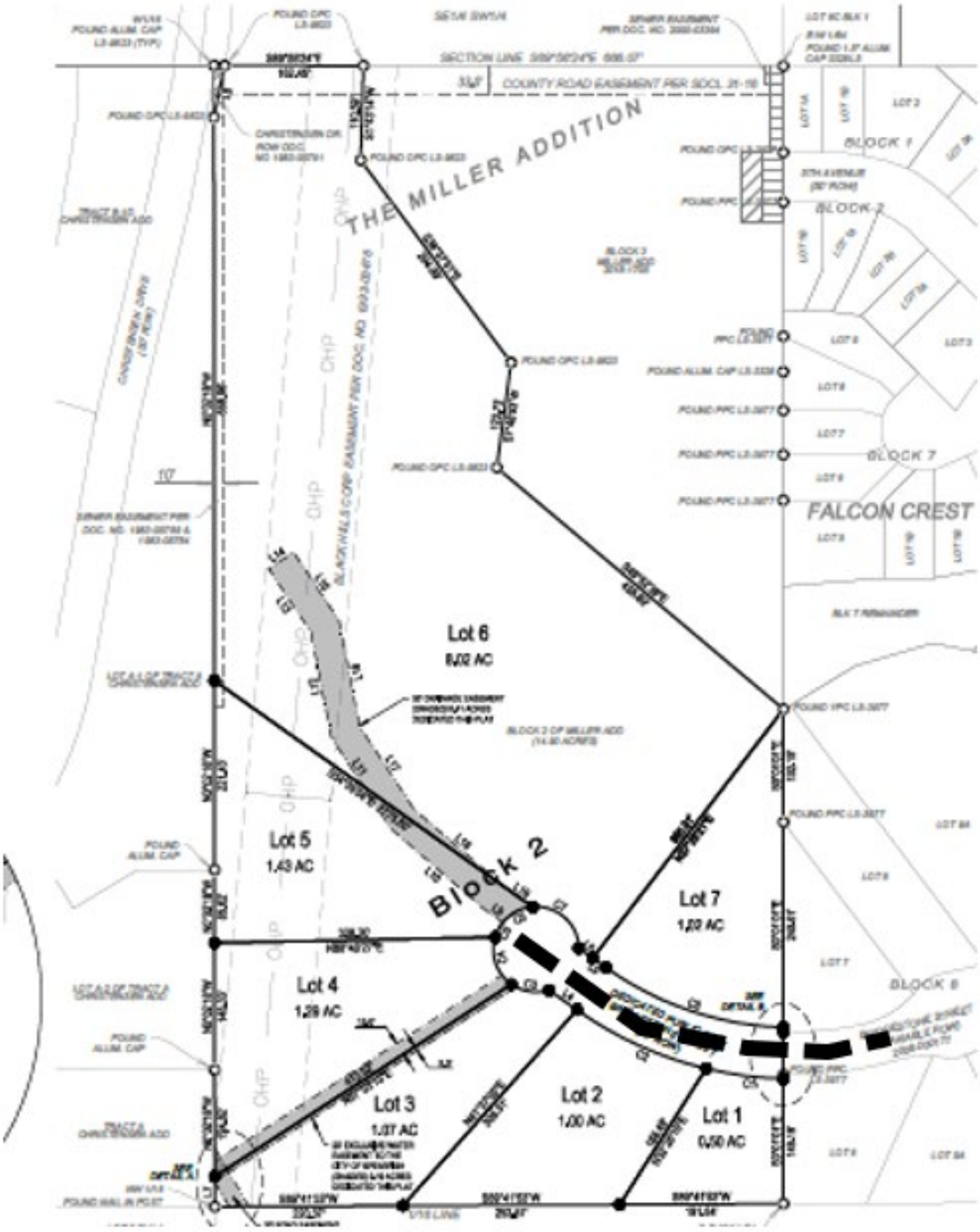
On this ____day of _____, 20___, before me the undersigned officer, personally appeared Name of individual signing, title of individual, known to me or satisfactorily proven to be the persons described in the foregoing instrument, and acknowledged that they executed the same in the capacity therein stated and for the purposes therein contained.

In Witness Whereof, I have set my hand and official seal.

(Seal)

_____
Notary Public

My Commission Expires: _____



Dashed Line – Dedication of Right of Way and Public Improvements

Exhibit A

Checklist for Offer of Dedication of Land and Improvements

INSTRUCTIONS: FILL OUT ALL AREAS CONTAINED IN THE SHADED PORTION, WHERE APPLICABLE. CITY STAFF WILL COMPLETE THE REMAINDER OF THE FORM

Line

1 **Improvements offered** Bridgestone Street Extension (General description of all improvements being dedicated to city)

2 **Location** Bridgestone Street West of 2020 Bridgestone Extension Project

3 **If only portions of streets are dedicated, list specific station numbers for each street below:**

a Street Name: _____ Station numbers: _____

b Street Name: _____ Station numbers: _____

c Street Name: _____ Station numbers: _____

		$ Value	Quantity	Description (size/type of pipe, curb type, sidewalk width, etc.)
4	**WATER -** Adam Gates 3-16-22 (Sign & Date)	$54,821.75	See attached bid sheet from McDirt excavation, inc. for quantities and description	
5	**STORM SEWER/DRAINAGE -** Adam Gates 3-16-22 (Sign & Date)	$7,660.00	See attached bid sheet from McDirt excavation, inc. for quantities and description	
6	**SANITARY SEWER -** Adam Gates 3-16-22 (Sign & Date)	$4,199.00	See attached bid sheet from McDirt excavation, inc. for quantities and description	
7	**AIR RELIEF VALVE -** NA (Sign & Date)			
8	**STREETS -** Adam Gates 3-16-22 (Sign & Date)	$66,412.80		See attached bid sheet from McDirt excavation, inc.and sacrison paving for quantities and description
9	**STREET LIGHTS -** NA (Sign & Date)			
10	**CURB & GUTTER -** NA (Sign & Date)			
11	**SIDEWALKS -** NA (Sign & Date)			
12	**UTILITY EASEMENTS -** Adam Gates 3-16-22 (Sign & Date) (easement documents complete)	$40,830.00	See attached bid sheet from McDirt excavation, inc. for quantities and description	
13	**STREET RIGHT OF WAY -** Adam Gates 3-16-22 (Sign & Date) (plat(s) filed)			Recording Pending
14	**UTILITY TRACTS (drainage, water, sewer) -** Adam Gates 3-16-22 (Sign & Date) (plat(s) filed/deed conveyed to city)		See attached bid sheet from McDirt excavation, inc. for quantities and description	Recording Pending
15	**PARK/GREEN SPACE IMPROVEMENTS -** _____ (Sign & Date) (plat(s) filed/ deed conveyed to city)			

16 **EXCEPTIONS -** (Describe below all privately owned/maintained infrastructure)

17 **TOTAL VALUE OF ALL DEDICATED LAND AND IMPROVEMENTS** $173,923.55

18 **Signature of Developer/Dedicator** John M. Gates

(Rev. 12-10)

Exhibit B

Dedication and Acceptance of Public Improvements
Name of Ownership / Dedicator
Page 9 of 9

Prepared by:
Name of preparer
Address, city, state, zip code
Phone number

SANITARY SEWER EASEMENT AND AGREEMENT

This **SANITARY SEWER EASEMENT AND AGREEMENT** (hereinafter "Agreement") is made and entered into this 21st day of March, 2022 by and between **DAC PROPERTIES, L.L.C.**, a limited liability company, 910 W. Jackson Boulevard Apartment 10, Spearfish, South Dakota 57783 (hereinafter "Owner"), and the **CITY OF SPEARFISH**, a municipal corporation and political subdivision of the State of South Dakota, 625 North Fifth Street, Spearfish, South Dakota, 57783 (hereinafter "Spearfish").

1. Owner is the owner of the following-described real property situated in the City of Spearfish, Lawrence County, South Dakota, to-wit:

   Lot 40 of Block 16 of the Reserve on Higgins Creek, located in Higgins Creek Addition to the City of Spearfish, Lawrence County South Dakota as shown on Plat Document No. 2019-04797 recorded in the Office of the Lawrence County Register of Deeds.

   (hereinafter "Owner's Property").

2. Spearfish owns a sanitary sewer system on Owner's Property and requires an easement to provide access and maintenance of the sanitary sewer main, as shown on "Exhibit A", (hereinafter "Easement") which is attached hereto and incorporated herein by reference.

3. The parties desire to further define the use of the Easement.

NOW, THEREFORE, for and in consideration of the sum of One Dollar ($1.00) and other good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, the Parties agree as follows:

4. Owner hereby grants to Spearfish an easement for a Spearfish sanitary sewer system located in the Easement.

5. **Purpose**. The Easement is for the purpose of locating, establishing, constructing, reconstructing, maintaining, replacing, repairing, excavating, inspecting, or removing the sanitary sewer system improvements, as Spearfish may need or require.

6. **Access**. This Agreement grants Spearfish the right of ingress and egress through, under, over, and across Owner's Property and to otherwise do those things reasonable and necessary to effectuate the purpose of this Easement and Agreement.

7. **Exclusive Nature**. The Easement runs to the exclusive benefit of Spearfish and is not a public easement. Owner retains the qualified right to use and enjoy the surface of the Easement and grant others rights to use the surface of the Easement in a manner that does not interfere with the purposes of the Easement. Owner shall not be permitted to construct or allow to be constructed any building, structure, parts of buildings and structures, or any other obstruction on the surface of the Easement, or in any airspace over the Easement, nor to substantially add to the groundcover with plant material having root systems that will impact the sanitary sewer main in the Easement. Owner shall not grant any third-party any rights to occupy or utilize the subsurface or airspace above the Easement without the express written consent of Spearfish. Owner may place pavement over the easement to provide driveway access to Owner's property.

8. **Maintenance**. Spearfish owns and will be responsible for all maintenance of the sanitary sewer main and the manhole as described herein. Owner owns and is responsible for the sanitary sewer system serving Owner's Property.

9. **Succession**. The Easement shall be perpetual, shall run with Owner's Property, and shall be binding upon the parties hereto and their respective successors and assigns.

(separate signature pages follow)

DAC PROPERTIES, L.L.C.

_____

Darin Cooper, Member

State of South Dakota)
) ss.
County of Lawrence)

On this ____ day of _____, 20___, before me, the undersigned officer, personally appeared Darin Cooper, known to me or satisfactorily proven to be the person described in the foregoing instrument, and acknowledged that he executed the same in the capacity therein stated and for the purposes therein contained.

In Witness Whereof, I have set my hand and official seal.

(Seal)

_____

Notary Public

My Commission Expires: _____

CITY OF SPEARFISH

(Seal)

_____
John Senden, Its Mayor

Attest:

_____
Michelle DeNeui, Finance Officer

State of South Dakota)
) ss.
County of Lawrence)

On this ____ day of _____, 20___, before me, the undersigned officer, personally appeared Dana Boke and Michelle DeNeui, known to me or satisfactorily proven to be the persons described in the foregoing instrument, and acknowledged that they executed the same in the capacity therein stated and for the purposes therein contained.

In Witness Whereof, I have set my hand and official seal.

(Seal)

_____
Notary Public

My Commission Expires: _____

Insert Original Easement Exhibit if not shown on the plat.

Exhibit A

City of Spearfish Final Plat Submittal Checklist

1. Final plat – include standard signature blocks (attached)
2. City's final plat information checklist (attached)
3. Closure calculations for all lots/blocks, right-of-ways and survey ties.

Submittals must be complete before city review will start.

1. City staff will conduct reviews to ensure the proposed plat complies with City requirements. Comments along with corrections will be sent to the applicant. This process is repeated until review approval is reached.

2. City will coordinate with Lawrence County Highway Superintendent and County Commission to obtain formal approval from county authorities for properties abutting County road rights-of-way. Once approved, City will notify surveyor and property owner. One of these parties will then be responsible to coordinate with the Lawrence County Highway Superintendent, to obtain their signature on the mylar.

3. The County Treasurer's office requires that property taxes be paid in full prior to a plat being recorded. City staff will coordinate with the Treasurer to determine the status of property taxes which might be due on the property. If taxes are due, the property owner must pay the Lawrence County Treasurer's office directly and provide the City with a copy of the receipt once paid. City will not deliver the check for taxes to the County when plat records.

4. Once all comments are addressed, staff will notify surveyor that the final plat mylar may be submitted for city signature. Please submit the following items:
   a. Check in the amount of current plat filing fees payable to the City of Spearfish
   b. Copy of receipt from Lawrence County Treasurer showing that taxes have been paid
   c. (1) mylar of plat (11"x17" or 15"x26")
   d. Signatures on the mylar (no ink pens, fine point Sharpie works best)
      i. Owner's signature, notary signature and seal
      ii. Surveyor's signature and seal
      iii. If applicable, signature from Lawrence County Highway Superintendent, SD DOT, or Road District President
   e. Electronic CAD drawing file of the plat emailed to the City

5. City will record the plat at the Lawrence County Courthouse. A copy of the recorded plat will be uploaded to your application on the Opengov portal.

City of Spearfish Final Plat

Checklist of Required Information

Date: _____

Abbreviated Legal:

_____

The following items must be completed to meet the requirements of the City of Spearfish Subdivision Regulations *per Section 15A-24, 15A-41 and 15A-42.* **Applicant** is to **checkmark** according to completed items; the **City's plat reviewer** will **initial** accordingly.

	Applicant	City
All required plat certificates, seals & signatures (if any of the wet stamps are illegible the plat will not be accepted by the City of Spearfish). ***No ink pens to be used, Fine point Sharpie works the best. SEE ATTACHED FOR SIGNATURE BLOCK FORM**		
Closure calculation sheets provided by surveyor for lots/blocks, right-of-ways, survey ties, etc.		
Title block on all sheets with: Prepared By Business name of firm and/or surveyor & sheet designation for multiple sheets.		
The final plat shall be drawn to scale of not more than 1" = 100', scale (scale noted & shown graphically).		
Name & legal description of subdivision.		
Name & address of the owner and/or sub-divider.		
North arrow & date of drawing.		
Basis of bearing statement. (**NO SD State Plane Coordinates**).		
Legend or Key		
An accurate vicinity map of the subdivision in reference to the real estate records of the county.		
The boundary lines (indicated with by a heavy solid line) with accurate distances and bearings, the exact location & widths of all existing or recorded streets & ways intersecting the boundary of the tract.		
Streets, alleys & other ROW lines together with approved names and width.		
The length of all arcs, radii, internal angles & points of curvature. (Curve data to include radius, arc length, delta, chord length & chord direction)		
Show all block indications, lot numbers & lot lines with accurate dimensions in feet & hundredths, & bearings or angles in degrees, minutes & seconds.		
City of Spearfish Plat Note: 5' Public Utility Easement is hereby dedicated along the interior side of all lots lines on this plat. (If not being shown graphically).		
3 Mile Plat Note: 5' Utility Easement is hereby dedicated along the interior side of all lots lines on this plat. (If not being shown graphically).		
Show all existing & proposed easements & ROW provided for public services, utilities or access & any limitations of the easements.		
Monuments shall be located and/or set at each angle and curve point on the outside boundary lines of the plat, at all block corners and at all intermediate points on the block lines indicating a change of direction in the lines. The plat shall indicate that the monuments have been set or found with the material & size of all monuments.		
The designation of easements & rights of-way & all property which is offered for dedication for the public use, with the purpose indicated thereon, & of all property that may be reserved by deed covenant for the common use of the property owners in the subdivision.		
Private access easements shall specify the legal description for which access is being dedicated to, for the use of and benefit of.		
Area Summary: Total Platted Area, Lot Area, Dedicated ROW Area, & Remaining Acreage		
If document numbers, book and page and plat numbers are being referenced on the plat, the reference needs to match the recorded source.		
For parcels with existing structures, submit a separate exhibit indicating dimensions between existing structures & all proposed property lines.		
FEMA floodplain note: The property shown on this plat is subject to **Zone AE, A, and/or X Shaded** Special Flood Hazard Areas as shown on FIRM of Lawrence County, South Dakota and Incorporated Areas. Community Panel Number _____ Effective Date: _____		

CERTIFICATE OF OWNERSHIP

State of South Dakota County of Lawrence

I/We, _____, do hereby certify that I/We are the owner of the land as shown and described hereon, that the plat was done at the request and direction of the owner for the purpose hereon and that development of this land will conform to all existing applicable zoning, subdivision, erosion and sediment control regulations.

*I/We are the owner(s) of the land as shown and described hereon, hereby dedicate the easement(s) shown or noted hereon to such use.
(*THIS NOTE IS TO BE USED WHEN DEDICATING EASEMENTS ON PLATS.)

Owner Signature: _____
Address: _____

ACKNOWLEDGMENT OF OWNERSHIP

State of South Dakota County of Lawrence

On the _____ day of _____, 20___, before me, a Notary Public, personally appeared _____, known to me to be the persons described in and who executed the foregoing certificate.

My Commission Expires: _____ Notary Public _____

SURVEYOR'S CERTIFICATE

I, _____(surveyor's name)_____a Registered Land Surveyor in the State of South Dakota, on the basis of my knowledge, information and belief, certify to the above Owner(s), that at the request of said Owner(s), the survey represented by this plat was made under my supervision, on the ground to the normal standards of care of Professional Land Surveyors practicing in the State of South Dakota. This survey does not constitute a title search to determine ownership or easements of record as performed by myself or by (company name).

_____ _____
Name RLS # Date

OFFICE OF ADMINISTRATIVE OFFICIAL

State of South Dakota County of Lawrence City of Spearfish

This plat is approved by the Administrative Official on this _____ day of _____, 20___ in accordance with the administrative approval authority granted in City of Spearfish Resolution 2018-23.

_____ _____
Administrative Official Finance Officer

Use the appropriate street authority signature block as follows:

City of Spearfish:

APPROVAL OF ACCESS BY STREET AUTHORITY

State of South Dakota County of Lawrence City of Spearfish

The location of the proposed access to the abutting Street as shown hereon, is hereby approved. Any changes in the location of the proposed access shall require additional approval.

_____ _____

Street Authority Date

Lawrence County:

APPROVAL OF ACCESS BY STREET AUTHORITY

State of South Dakota County of Lawrence

Approval of the access, if any, to an abutting political subdivision highway or street:

_____ _____

Highway or Street Authority Date

Pursuant to SDCL § 11-3-12, the County/State shall not be required to open, improve, or maintain any such dedicated right-of-way, streets, alleys, ways, commons, or other public ground solely by virtue of having approved a plat or having partially accepted any such dedication, donation or grant. No certification, approval or endorsement contained herein shall be construed as acceptance of any public right-of-way, dedicated street, alley, or road depicted or described herein, as part of the State or Lawrence County highway system.

State DOT:

APPROVAL OF ACCESS BY ROAD AUTHORITY

The location of the existing access to the Highway or Street as shown herein is hereby approved. This access does not replace the need for any permits required by law, including Administrative Rule of South Dakota 70:09:01:02.

Dated this _____day of_____20___

_____

SDDOT Authority

Road District:

APPROVAL OF ACCESS BY ROAD DISTRICT AUTHORITY

State of South Dakota County of Lawrence
Approval of the access, if any, to an abutting political subdivision highway or street:

_____
Name of Road District

_____ _____
Signature of the Road District with his/her title Date

CERTIFICATE OF COUNTY TREASURER

State of South Dakota County of Lawrence
I, _____, Lawrence County Treasurer, do hereby certify that the _____ taxes which are liens upon the lands platted hereon as shown by the records of my office, have been fully paid.

_____ _____
County Treasurer Date

OFFICE OF COUNTY DIRECTOR OF EQUALIZATION

State of South Dakota County of Lawrence
I, _____, Lawrence County Direct of Equalization, hereby certify that I have received a copy of this plat

_____ _____
County Director of Equalization Date

OFFICE OF REGISTER OF DEEDS

State of South Dakota County of Lawrence
Files for record this _____ day of _____, 20____, at _____o'clock __m., and recorded as Document #_____.

_____ _____
Register of Deeds Fee

CITY OF SPEARFISH FINAL DEVELOPMENT PLANS SUBMITTAL CHECK LIST

(Name of Subdivision or Project)

Submitted	NA	CITY OF SPEARFISH	Accepted No Exception Taken		Revise & Resubmit	Notes
TITLE SHEET						
___	___	Vicinity Map	___		___	
___	___	Subdivision or Development Project Name	___		___	
___	___	Project Location	___		___	
___	___	Complete Index of Sheets	___		___	
___	___	Certification Statement, P.E. Seal, and Signature	___		___	
___	___	Identify Benchmark Used for Elevation Data	___		___	
GENERAL NOTES AND LEGENDS						
___	___	Symbol and Hatch Pattern Legend	___		___	
___	___	General Construction Notes	___		___	
___	___	Line type Legend	___		___	
___	___	SWPPP Notes, if applicable	___		___	
OVERALL GRADING PLAN						
___	___	Property Boundary Lines	___		___	
___	___	Existing Contour Lines (dashed and shaded w/ elevation labels)	___		___	
___	___	Proposed Contour Lines (solid w/ elevation labels)	___		___	
___	___	Spot Elevations (TBC, PCR, FL, etc.)	___		___	
___	___	Proposed Streets and Lot Lines (shaded)	___		___	
___	___	Designate Controlled Fill Areas > 2’	___		___	
DETAILED GRADING PLAN						
___	___	Existing Contour Lines (dashed and shaded) & Proposed Contour Lines (solid w/ elevation labels)	___		___	
___	___	Spot Elevations (TBC, PCR, FL, Grade Breaks, etc.)	___		___	
___	___	Spot Elevations & Slopes (ADA Ramps)	___		___	
___	___	Show Inter-Lot Drainage Flow Patterns Using High (HP) and Low (LP) Point Spot Elevations, Contour Lines, Drainage Swales (Ditches), and Flow Arrows	___		___	
___	___	Proposed Streets and Lot Lines (shaded)	___		___	
___	___	Lowest Adjacent Grade Elevation Labels for applicable lots	___		___	
EROSION AND SEDIMENT CONTROL PLAN						
___	___	Property Boundary Lines	___		___	
___	___	Existing Contour Lines (dashed and shaded)	___		___	
___	___	Proposed Contour Lines (solid w/ elevation labels)	___		___	
___	___	Proposed Streets and Lot Lines (shaded)	___		___	
___	___	Limits of Disturbance (include total area)	___		___	
___	___	Show the Locations of Necessary BMPs Including: (silt fence, inlet protection, outlet protection, straw wattles, vehicle tracking control, etc.)	___		___	
OVERALL UTILITY PLAN						
WATER						
___	___	Existing and Proposed Fire Hydrant Locations and Spacing Per Latest Edition of the IFC	___		___	
___	___	Length, Size, and Type of Proposed Pipe Material	___		___	
___	___	Valve and Fitting (tees, bends, reducers, etc.) locations	___		___	
___	___	All Water Service Connection Locations	___		___	
SANITARY SEWER						
___	___	Existing and Proposed Manhole Locations	___		___	
___	___	Length, Size, and Type of Pipe Material	___		___	
___	___	Slope of All Proposed Sewer Lines	___		___	
___	___	All Sanitary Sewer Service Connection Locations	___		___	
___	___	Existing Invert Elevations of Tie-in Manholes	___		___	
STREET LIGHTING & DRY UTILITIES DISTRIBUTION PLAN						
(ELECTRICAL, TELECOMMUNICATIONS, CABLE TV, TELEPHONE, GAS)						
___	___	Street Lighting Plans shall be design/stamped by electrical engineer if city decorative lighting is used	___		___	
___	___	Show street light locations, conduit/ugp locations, condiut sizing and type, junction boxes with sizing labels, transformer(s) powering lights, meter pedestal with disconnect	___		___	
___	___	Show existing and proposed dry utility locations, as coordinated with utility companies	___		___	
___	___	Show common dry utility trench locations, risers, transformers, conduit sizing and type, utility easements	___		___	
___	___	Provide the common dry utility trench detail, and relevant lighting details	___		___	

CITY OF SPEARFISH FINAL DEVELOPMENT PLANS SUBMITTAL CHECK LIST

(Name of Subdivision or Project)

Submitted	NA	CITY OF SPEARFISH	Accepted No Exception Taken		Revise & Resubmit	Notes
STREET PLANS AND PROFILES						
___	___	Plans and Profiles for Every Street (the plan and profile must be located on one sheet and the plan view shall be located above the profile view)	___		___	
___	___	Vertical Curve Data and Street Grade Labels for Each Centerline Street Profile. Separate flow line profiles for cul-de-sacs, horizontal curves when the vertical grade is less than 1%, and any street segments that depart from normal roadway cross sections	___		___	
___	___	Arrows Indicating Direction of Stormwater Flow on Plan View	___		___	
___	___	Show Linework and Label Sidewalk Location/Width	___		___	
___	___	Show Linework for Curb and Gutter	___		___	
___	___	Show and Label Right-of-way (R.O.W.) and Street Widths (per Subdivision Regulations)	___		___	
___	___	Curves, Radius Points, and Lengths of Cul-de-sacs	___		___	
___	___	Detailed Street Cross-Sections (for each street) (include pavement type & thickness, base thickness, depth of sub-grade prep, and other pertinent measurements (sidewalk, Blvd., etc.))	___		___	
___	___	Offsite Utility Access Roads	___		___	
___	___	Temporary Turnaround Location (include base thickness, depth of sub-grade prep, width, Radius	___		___	
___	___	Cluster Mailbox Locations	___		___	
DETAILED INTERSECTION LAYOUT PLANS						
___	___	Prepare on a standard plan format using a scale large enough to show details clearly and legibly, preferably 1" = 20' for 11 x 17 plan sheets or 1"=40' for 24" x 36" plan sheets.	___		___	
___	___	Generally: Show all necessary details, geometric controls and access management features, including channelization, tapers, turn lanes, handicap ramps, special drainage, and grading. Information provided is generally the same as in the street plan sheets	___		___	
___	___	Line work includes property/ROW lines, centerlines, and proposed contour lines	___		___	
___	___	Labels include street names, contour elevations, curve radii, centerline stationing, spot elevations and slope labels with direction arrows for ADA landings/ramps/crossings, pans, fillets, curbs, through street crown, side street crown transitions	___		___	
TEMPORARY (DURING CONSTRUCTION) TRAFFIC CONTROL PLAN						
___	___	Show Exact Locations of Temporary Traffic Control Devices Including: (cones, barrels, Type III barricades, flashing warning lights, flaggers, etc.)	___		___	
___	___	Show Arrows Indicating Detour Traffic Patterns	___		___	
___	___	Show Temporary Sign details and MUTCD Numbers	___		___	
___	___	Provide SDDOT Standard Traffic Control Plates to be used during project	___		___	
SIGNING AND STRIPING PLAN						
___	___	Street Name Sign Locations	___		___	
___	___	Stop Signs and Other Regulatory Signs	___		___	
___	___	Detailed Sign Size/Shape Information	___		___	
___	___	No Parking Sign Locations	___		___	
___	___	MUTCD Numbers for All Proposed Signs	___		___	
___	___	Street Striping	___		___	
SANITARY SEWER MAIN PLANS AND PROFILES						
___	___	Manhole Locations (including stationing)	___		___	
___	___	Elevations for All Inverts (IN and OUT - Verify drop across MH)	___		___	
___	___	Percent Grade (slope) for All Mains	___		___	
___	___	Exact Locations of All Sewer Services	___		___	
___	___	Length, Size, and Type of Pipe Material	___		___	
___	___	Tracer Wire Installed on Offsite Sanitary Sewer and all Services	___		___	
WATER MAIN PLANS AND PROFILES						
___	___	Locations of All Appurtenances (tees, valves, bends, reducers, etc.)	___		___	
___	___	Length, Size, and Type of Pipe Material	___		___	
___	___	Locations of Fire Hydrants	___		___	
___	___	Locations of Meter Pits/Curb Stops	___		___	
___	___	Depth of Water Mains (6.0' minimum)	___		___	

CITY OF SPEARFISH FINAL DEVELOPMENT PLANS SUBMITTAL CHECK LIST

(Name of Subdivision or Project)

Submitted	NA	CITY OF SPEARFISH	Accepted No Exception Taken		Revise & Resubmit	Notes
STORM SEWER PLANS AND PROFILES						
___	___	Locations of All Appurtenances (inlets, manholes, culverts, trickle channels, swales, road ditches, etc.)	___		___	
___	___	Pipe End Treatment (Rip Rap, etc.)	___		___	
___	___	profiles showing existing and proposed pipe sizes, materials, and grades; and EGL and HGL for minor and major storm runoff)	___		___	
___	___	Length, Size, and Type of Pipe Material	___		___	
___	___	Include Cross-Sections and profiles of Any Trickle Channels, Road Ditches, storm pipes or swales (for verification of capacity and verification of crossing utility depth)	___		___	
CONSTRUCTION DETAILS						
___	___	All necessary details are included	___		___	
PRE-SUBMITTAL QUALITY CONTROL REVIEW BY CONSULTANT						
___	___	Submittal must include statement that a Quality Control Review has been completed and is signed by the Engineer who performed the review.	___		___	

(Name of Engineer) (Date)

City of Spearfish Final Walk Through Punchlist

Project Name: _____

City Project Number: _____

Date of Design Engineer Verification: _____

Date of Final Walk Through with the City of Spearfish: _____

Section:	Punchlist Item:	N/A	Design Eng. Verification		City Verification		Final Walk Through		Comments:
			Yes	No	Yes	No	Yes	No	
WATER: ☐ N/A	Water Main pressure tests completed & approved (City Utilities Dept. must observe)	☐	☐	☐	☐	☐	☐	☐	
	Water Main bacteria tests completed & approved (City Utilities Dept. must perform)	☐	☐	☐	☐	☐	☐	☐	
	Fire Hydrant Testing complete-water pressure acceptable (City verification)	☐	☐	☐	☐	☐	☐	☐	
	Ensure valves are in working condition & inlcude a 2" riser (City verification)	☐	☐	☐	☐	☐	☐	☐	
	Water Services to all Platted Lots	☐	☐	☐			☐	☐	
	Blue marker/post (steel) located at ends of services	☐	☐	☐			☐	☐	
	Curb Stops placed correctly-outside of ROW & near grade	☐	☐	☐			☐	☐	
	Fire Hydrant placed correctly-bury line at grade, min. 3' away from TBC, wrench test, Fire Flow Test	☐	☐	☐	☐	☐	☐	☐	
	Tracer wire access box & tracer wire at bottom of each hydrant and by each curb stop (City verification)	☐	☐	☐	☐	☐	☐	☐	
	Tracer wire placed along main is complete & in working condition (City verification)	☐	☐	☐	☐	☐	☐	☐	
	Additional Comments:								
SANITARY SEWER: ☐ NA	Manhole infiltration/exfiltration tests completed & approved (Design Engineer must observe)	☐	☐	☐			☐	☐	
	Sewer main pressure tests completed & approved (Design Engineer must observe)	☐	☐	☐			☐	☐	
	Sewer main jetting by owner completed & approved by City Sewer Dept. (if necessary)	☐	☐	☐	☐	☐	☐	☐	
	Sewer main video inspection & report by City completed	☐	☐	☐	☐	☐	☐	☐	
	Tracer wire placed along main and/or services is complete & in working condition (City verification)	☐	☐	☐	☐	☐	☐	☐	
	Sewer Services to all Platted Lots	☐	☐	☐			☐	☐	
	Green marker/post (steel) located at ends of services	☐	☐	☐			☐	☐	
	manhole-concrete adjusting rings are 2-6" max. height,grouted & aligned correctly (City verification)	☐	☐	☐	☐	☐	☐	☐	
	manhole-no significant debris in bottom (City verification)	☐	☐	☐	☐	☐	☐	☐	
	manhole-plastic steps are in place and aligned correctly (City verification)	☐	☐	☐	☐	☐	☐	☐	
	connections to existing MHs-new pipe grouted around correctly (City verification)	☐	☐	☐	☐	☐	☐	☐	
	connections to existing MHs-channel/invert grouted in correctly (City verification)	☐	☐	☐	☐	☐	☐	☐	
	Ensure voids from shimming between concrete rings are filled in with non-shrink grout	☐	☐	☐			☐	☐	
	Additional Comments:								

Section:	Punchlist Item:	N/A	Design Eng. Verification		City Verification		Final Walk Through		Comments:
			Yes	No	Yes	No	Yes	No	
☐ STORM SEWER: N/A	Sewer main video inspection & report by City completed (City lines only, no private)	☐	☐	☐	☐	☐	☐	☐	
	Inlet protection placed around inlets	☐	☐	☐			☐	☐	
	Sediment and erosion control placed around culvert ends	☐	☐	☐			☐	☐	
	No significant amount of sediment/debris within inlets &/or pipe	☐	☐	☐			☐	☐	
	Ensure voids from shimming inlet frames are filled in with non-shrink grout	☐	☐	☐			☐	☐	
	Additional Comments:								
DRY UTILITIES: ☐ N/A	Black Hills Energy Complete & Verification Letter Received	☐	☐	☐			☐	☐	
	Butte Electric Complete & Verification Letter Received	☐	☐	☐			☐	☐	
	MDU Complete & Verification Letter Received	☐	☐	☐			☐	☐	
	Century Link Complete & Verification Letter Received	☐	☐	☐			☐	☐	
	Midcontinent Complete & Verification Letter Received	☐	☐	☐			☐	☐	
	Vast Broadband Complete & Verification Letter Received	☐	☐	☐			☐	☐	
	& Verification Letter Received	☐	☐	☐			☐	☐	
	& Verification Letter Received	☐	☐	☐			☐	☐	
	Additional Comments:								
STREETS: ☐ N/A	Roadway striping is complete (City streets only)	☐	☐	☐			☐	☐	
	Permanent signage is installed (City streets only)	☐	☐	☐			☐	☐	
	Street lights inspected by City & State Electrical Inspector & are in working condition	☐	☐	☐			☐	☐	
	All handicap ramps are complete and ADA compliant	☐	☐	☐			☐	☐	
	Spot checks on sidewalk cross slope are between 0.5-2.0%	☐	☐	☐			☐	☐	
	valves and manholes are 3/4"-1" below pavement surfacing	☐	☐	☐			☐	☐	
	Curb stamps for water/sewer services are placed on top of curb	☐	☐	☐			☐	☐	
	Spot checks: 10' straightedge-surface variations must be < 1/4"	☐	☐	☐			☐	☐	
	Spot checks: cross slope (2%) and longitudinal slope (min. 1%)	☐	☐	☐			☐	☐	
	Top of asphalt adjacent to lip of gutter shall be 1/4"-1/2" higher	☐	☐	☐			☐	☐	
	Additional Comments:								

Section:	Punchlist Item:	N/A	Design Eng. Verification		City Verification		Final Walk Through		Comments:
			Yes	No	Yes	No	Yes	No	
DETENTION POND: ☐ N/A	Design volumes confirmed	☐	☐	☐			☐	☐	
	overflow channel- H x W x L , and design elevation confirmed	☐	☐	☐			☐	☐	
	top of berm design width and elevation confirmed	☐	☐	☐			☐	☐	
	pond bottom-minimum longitudinal and cross slope confirmed	☐	☐	☐			☐	☐	
	minor/major storm water surface elevations/outlet structure-orifice and grate inverts/elevations confirmed	☐	☐	☐			☐	☐	
	outlet pipe-diameter, slope and inverts confirmed	☐	☐	☐			☐	☐	
	Maximum side slopes of pond are 3:1 or less (per approved design plans)	☐	☐	☐			☐	☐	
	Additional Comments:								
DRAINAGE CHANNELS: ☐ N/A	Conveyence capacity (per approved design) confirmed	☐	☐	☐			☐	☐	
	Channel grading is uniform and side slopes per approved plans	☐	☐	☐			☐	☐	
	Additional Comments:								
GRADING & EROSION CONTROL: ☐ N/A	All EC measures are installed and in working condition	☐	☐	☐			☐	☐	
	All disturbed areas are topsoiled/seeded/mulched	☐	☐	☐			☐	☐	
	Contractor's SWPPP maintenance records are up to date	☐	☐	☐			☐	☐	
	Additional Comments:								

Design Engineer Verification (Print Name & Signature)

Date

City Engineering Department Approval (Print Name & Signature)

Date

Notes on Construction Completion & Dedication Process :

A Construction Completion Report will be required prior to final acceptance of the project. The Final Construction Report shall include as-built drawings for all infrastructure that will be dedicated to the City of Spearfish (hard copy and electronic files), materials testing reports (including verification that minimum testing frequencies were met), water and sewer testing/forms, permits, engineer's field inspection reports, bid tab, change orders, photos, and any other pertinent documents pertaining to the project. A copy of the CCR components is attached.

Please submit the CCR for City review and approval. Once approved, a final walkthrough will need to be performed with the City's Engineering Department, the design engineer, contractor and developer (optional) and a Punchlist of outstanding work items created. After the Punchlist is completed and accepted by the City, the Developer shall move forward with Dedication of all public infrastructure.

City of Spearfish Preliminary Plat Submittal Checklist

Required Information to be shown on the Preliminary Plat:

1. Vicinity map, north arrow, scale. The preliminary plat submitted shall be of such scale that all survey, mathematical information, and all other details are clearly and legibly shown.
2. Show all existing streets and parcels adjacent to the proposed subdivision.
3. The proposed name of the subdivision and legal description.
4. The boundary line and lot lines. Each lot and block shall be lettered or numbered and the width of the street right of way shall be clearly labeled. Include the area in square feet and dimensions of all boundaries of each lot and ROW.
5. The names of adjacent property owners and lot descriptions.
6. The location, widths and names of all existing or platted streets or other public ways within or adjacent to the development property.
7. The preliminary layout of all streets, easements, or other public ways within or adjacent to the tract, existing street names, and proposed street names for E-911 approval.
8. Topographic information showing existing and design grades with minimum five-foot contours.
9. Proposed development phasing, if applicable.
10. All parcels of land intended to be dedicated for public use or reserved in the deeds for use of all property owners in the proposed subdivision, together with the purpose of conditions or limitations of such reservation, if applicable.

Required Preliminary Development Reports:

1. Preliminary drainage report (for entire development property, i.e. all phases-typical)
    a. Floodplain sub-section, if applicable:
        i. If there is floodplain or unmapped streams on the property or if floodplain is impacted by the development, a hydraulic and hydrologic study and Letter of Map Change (LOMC) may be required. Spearfish city ordinance details these requirements. If these items are required, the applicant shall provide a floodplain development section within the drainage report which identifies the proposed changes to the floodplain and provides a phasing plan of the required improvements. Required hydraulic and hydrologic study, LOMC, and related documentation shall be included within the final development plans and reports submittal.
    b. Wetlands data using Wetlands Mapper, if applicable.
        i. The Wetlands Mapper is a web-based tool by the U.S. Fish and Wildlife Service that provides easy-to-use, map-like views of America's wetland and deepwater resources. It allows users to view, query, download, and print wetlands data,

integrating National Wetlands Inventory data with other resource information and political boundaries.

2. Preliminary geotechnical report
    a. Scope and purpose. The following NRCS reports are required during the Preliminary Plat Submittal as a basis for preliminary design considerations. Click the following link for NRCS Web Soil Survey.
    b. Provide soils map complete with legend and soil descriptions for the area of interest.
    c. Provide the following reports which are located under the 'Soil Data Explore' Tab
        i. Suitability and Limitations for Use
        ii. Building and Site Development
            1. Shallow Excavation report
            2. Corrosion of concrete and steel reports
            3. Local roads and street report
        iii. Soil Properties and Qualities
            1. Soil Qualities and Features
                a. Depth to any soil restrictive layer and or bedrock report
            2. Water Features
                a. Depth to water table report
3. Preliminary water system report*
4. Preliminary sanitary sewer report*
5. Traffic Impact Study, if applicable
    a. Unless waived by the City Planner, a TIS will be required for any development proposal when trip generation during the peak hour is expected to meet or exceed one hundred (100) vehicles or one thousand (1,000) trips per day. The traffic engineer for the development shall provide this preliminary traffic volume estimate and if it exceeds either of the noted thresholds then a TIS will be required at time of preliminary plat.

The reports shall be prepared for the entire development property (i.e. all development phases). Note that significant proposed changes to a phase or phases of the development, such as land use, site layout, etc. shall require the developer to resubmit updated development documents via the preliminary plat review process. Refer to the relevant Sections in the Engineering Design Standards for more information on report outlines, details and content.

* For the water and sanitary sewer reports, if the subdivision development will be phased then each phase shall be analyzed and shall provide verification that all minimum requirements are met as each phase is developed.

Example: XYZ development will be constructed in 3 phases.
- Analyze Phase 1
- Analyze Phases 1 + 2
- Analyze Phases 1 +2+ 3 (entire development)

Required Preliminary Development Plans:

1. Title sheet including the development name, vicinity map, sheet index and labeled as Preliminary Subdivision Development Plans
2. Overall Layout / Site Plan

    a. For projects with 50 or more residential lots, identify a location for public park space based on the requirements of the City's Parks and Recreation Master Plan . Applicant to coordinate location and type of park space to be incorporated into the subdivision with the city Parks and Recreation Department.
3. Overall Utility Plan- show preliminary sizes, locations, and connection points of water and sewer utility systems
4. Street Lighting & Dry Utilities Distribution Plan
    a. Include service verification from applicable utility companies
5. Grading and Schematic Storm Drainage Plan
6. Typical Street Sections
7. Street plan and profiles
8. Show offsite infrastructure improvements, if required.

Some of the plan sheets noted above may be combined with one another if clarity and legibility of the combined plan sheet(s) are maintained.

PRIVATE DEVELOPMENT PROJECT CONSTRUCTION CLOSE-OUT & CITY DEDICATION PROCESS

Revised: 5/20/2025

By: KM

ADDITIONAL CONTRACTOR and/or DESIGN ENGINEER REQUIREMENTS :

1. Any significant proposed changes from the approved design plans must be reviewed and approved, first, by the Design Engineer, then City Engineering Department.

2. City will observe water line testing and provide CCTV inspection of storm and sanitary sewer lines. All other required testing shall be coordinated with, observed and documented by the design engineer.

3. Verify Testing and Notify the City prior to commencement of curb, gutter, paving, and/or sidewalk operations.

   a. All Underground Utilities shall be completed and verified. (including all CCTV inspections and/or Testing requirements shall be completed and passed)

   b. All Compaction Tests shall be reviewed and passing.

   c. All Concrete Tests shall be reviewed and passing.

4. Copies of construction materials testing results (asphalt, soil, concrete) shall be sent to the City Engineering Department as completed, throughout construction.

5. Copies of Inspection Reports & Progress Reports should be sent to the City Engineering Department throughout construction, preferably once a week but every other week at a minimum.

Contractor/Design Engineer notifies City Engineer, in writing, when construction of development is believed to be substantially complete.

Contractor, Design Engineer and City representative perform Final Walk Through on project. Design Engineer compiles a punchlist of outstanding items for Contractor to complete.
*USE CITY PUNCHLIST FORM AT WALKTHROUGH

WALK THROUGH ITEMS:

1. Utilities: sanitary & storm sewer, water.
2. Drainage channels/detention ponds.
3. Streets, curb and gutter, sidewalk street lighting.
4. Dirt work, grading.
5. Seeding/Vegetation.
6. Striping/Permanent Signage.
7. Verification of Quality Control Testing.
*USE CITY PUNCHLIST FORM AT WALKTHROUGH

Contractor/Design Engineer notify City Engineer, in writing, when punch list items are complete. City performs inspection on items. Process repeats until City approval is reached.

Design Engineer shall submit to the City a Construction Completion Report or CCR for review and approval.

DEDICATION DOCUMENTS:

1. Irrevocable Offer of Dedication of Land and/or Improvements (Developer).
2. Land and/or Improvements Dedication: Quantities & Cost Valuation (Developer & City).
3. A final plat with proposed public R.O.W. and easements (Developer).
4. Resolution for Acceptance of Irrevocable Offer of Dedication of Land and/or Improvements (City).

Upon completion of punch list and approval of CCR, development construction shall be considered complete.

If applicable, a Certificate of Occupancy will be provided at this time.

Documents for the dedication of public land and improvements are available for the Developer/Design Engineer to complete and submit to the City Planner.

CCR ITEMS (See Checklist):

1. Project Narrative
2. Inspection Reports & Project Photos on CD
3. Construction Materials Test Data with explanation of problems/deficiencies.
4. Sanitary & Storm Sewer Test Data with explanation of problems/deficiencies.
5. Water Test Data with explanation of problems/deficiencies.
6. Documentation of All Approved Changes (CCO's, Updated Plan Sheets, Approval Letters, etc.) *(Bid Tab & Final Pay Request on City Projects)*
7. ADA Compliance Verification for all curb ramps and sidewalk.
8. Written Verification of Utilities Completion from all pertinent companies.
9. Project As-Builts (CAD, PDF, & hard copy). Items of inclusion are specified to the right.
10. As-Built Drainage & Storm Sewer calculations.
11. Written verification that all floodplain items are completed and approved (if applicable).
12. Copies of Project Permits.
13.Copies of Contractors SWPPP & Inspection/Maintenance Records
14. Submittals (Mix Design, Shop Drawings, Supplier Info and/or Test Results, etc.)

*Enclose in hard covered binder

City Staff reviews dedication documents and final plat. All pertinent City department heads must sign documents prior to staff approval.

City Planning Dept. prepares and presents a Resolution for Acceptance of Irrevocable Offer of Dedication of Land and Improvements to City Council for approval.

City Planning Department gets final plat recorded at Lawrence County Register of Deeds.

Date of City Council approval signifies commencement of warranty period. Developer is also notified that final platting of development lots may commence.

SANITARY SEWER TEST INFO:

1. Manhole: inspector's visual report & infiltration/exfiltration tests
2. Sewer main- leakage tests & pipe deflection tests
3. Copy of jetting inspection by developer (if necessary)
4. Inspection Notes from City Sewer Dept.
5. Copy of video camera inspection DVD (City)

STORM SEWER TEST INFO:

1. Inspection Notes from City Sewer Dept.
2. Copy of video camera inspection DVD (City)

WATER TEST INFO:

1. Pressure Tests
2. Bacteria Test Results
3. Fire Hydrant flow tests-static and residual pressures (City to perform).

UTILITIES VERIFICATION:

1. Copy of Verification Letter/Email(s) from all Utility Companies.

AS-BUILT ITEMS:

1. As-builts: 1 pdf, 1 CAD file
2. Point list: 1 electronic file.
3. Minimum 'XYZ' points/items: manholes, valves, curb stops, fire hydrants, water and sewer lines, storm sewer inlets, outlet pipes, detention pond(s), drainage channel(s), street light poles and junction boxes.
4. Contractor's as-builts: water & sewer service tap locations, utility crossings, street light system, alignment changes to dry utility trench.
5. State Planes Coordinates NAD 83, & NAVD 88 vertical datum to be used.

SHOP DRAWINGS, MIX DESIGN, & SUBMITTAL ITEMS:

1. Water, sanitary and storm sewer materials.
2.Aggregates-road base, bedding material, riprap, etc. (gradations, fractured face test, etc.)
3. Street lighting materials.
4. Asphalt mix design.
5. Concrete mix design.
6.Seeding, mulch, fertilizer.
7. Other pertinent items.

P:\Engineering-Floodplan\Eng-Misc\DEDICATIONS & WARRANTY INFO\08 City Dedication Process\AutoCAD\flowchart

REQUEST FOR EXCEPTION TO THE CITY OF SPEARFISH ENGINEERING DESIGN STANDARDS

Please submit this form to request an exception to the City of Spearfish Engineering Design Standards. The City Engineer will consider each request and inform each applicant in writing of the decision on the requested exception.

Applicant Information

Applicant Name

Applicant Email Address

Associated Opengov Application Number

Exception Request Details

Provide the Section number, subsection number, page number, and the specific text for which you are requesting an exception:

Provide a description of the alternative or variation you are proposing:

Exception Criteria Evaluation

No exception will be considered unless the applicant clearly demonstrates that all of the following conditions are met. For each condition below, check the box if you believe you are meeting the condition. Then, in the space provided, explain how you are meeting this condition and list any attachments to this application that provide evidence that the condition is being met. The City Engineer, upon review, may require additional documentation to support the request.

☐ The strict application of the provisions of these Standards would deprive an individual of the reasonable use of the land or structure. Explain:

☐ Special circumstances peculiar to such land or development justify the requested exception. Explain:

☐ The requested exception represents the minimum variance from these Standards that will accomplish the intended purpose. Explain:

☐ The requested exception will not create an additional maintenance or financial burden for the affected property owners or the city. Explain:

You will be informed in writing of the decision on your requested exception. The decision is a final action. The City Engineer may impose specific conditions necessary to ensure that the criteria described above are, and will remain, satisfied. The City Engineer will consult with the Planning Director when evaluation issues that potentially impact city planning and design.

Commercial / Multifamily As-Built Review Checklist

Project #: _____

Project Name: _____

Date: _____

Section:	Checklist Item:	Surveyed Point Data	Contractor Notes	Approved Yes	Approved No	Approved N/A	Comments:
Platting & Street CAD linework	Right of Way and Lot Lines			☐	☐	☐	
	Curb/gutter, Sidewalk, Fillets/pans, Striping, Signs			☐	☐	☐	
	Utility Easement(s)			☐	☐	☐	
	Drainage Easement(s)			☐	☐	☐	
	Public Access Easement(s)			☐	☐	☐	
	Additional Comments:						
Water	Fire Hydrants	☐		☐	☐	☐	
	Water Valves	☐		☐	☐	☐	
	Water Service & Curb Stops	☐		☐	☐	☐	
	Meter Pit Manholes	☐		☐	☐	☐	
	Bends (vertical & horizontal)/Lowerings		☐	☐	☐	☐	
	Service Tap locations		☐	☐	☐	☐	
	CAD Linework Complete & Adjusted to As-Built Locations			☐	☐	☐	
	Additional Comments:						
Sanitary Sewer	Manholes (with inverts)	☐		☐	☐	☐	
	Sewer Service & Cleanouts	☐		☐	☐	☐	
	Service tap locations		☐	☐	☐	☐	
	CAD Linework Complete & Adjusted to As-Built Locations			☐	☐	☐	
	Additional Comments:						

Section:	Checklist Item:	Surveyed Point Data	Contractor Notes	Approved Yes	Approved No	Approved N/A	Comments:
Storm Sewer	Inlets (TBC to TBC, Manhole & inverts)	☐		☐	☐	☐	
	Flared End Sections (FES)	☐		☐	☐	☐	
	Manholes/Junction Boxes	☐		☐	☐	☐	
	Prefabricated bends/tees		☐	☐	☐	☐	
	CAD Linework Complete & Adjusted to As-Built Locations			☐	☐	☐	
	Additional Comments:						
	*Design Engineer shall provide updated calculations to verify all storm sewer pipe, as-built, conveys the minimum design flows.						
Detention Pond	Pond Volume/capacity, Longitudinal & cross slopes	☐	☐	☐	☐	☐	
	Outlet Structure/pipe (with inverts, Top of box)	☐		☐	☐	☐	
	Emergency Overflow Weir and channel (L,W,H)	☐		☐	☐	☐	
	Provide Detention Pond Contour Lines	☐		☐	☐	☐	
	Verify Orifice Sizes & Elevations of Outlet Structure(s)	☐	☐	☐	☐	☐	
	CAD Linework Complete & Adjusted to As-Built Locations						
	Additional Comments:						
	*Design Engineer shall provide updated calculations to verify the pond volume, 5 & 100 year water surface and outlet structure components and overflow channel elevations, as-built, function per the approved design.						
Drainage Channel	Check Capacity	☐		☐	☐	☐	
	Cross Sections	☐		☐	☐	☐	
	Longitudinal Slope	☐		☐	☐	☐	
	CAD Linework Complete & Adjusted to As-Built Locations			☐	☐	☐	
	Additional Comments:						
	*Design Engineer shall provide updated calculations to verify all drainage channels convey the minimum design flows (including emergency overflow channels adjacent to sump inlets).						

General Comments:	

Checked By:			
Signed:		Date:	

Commercial / Multifamily Construction Closeout Report-CCR Checklist

Project Name: _____

Project Number: _____

Date: _____

Section Number:	Description:	Approved			Comments:
		Yes	No	N/A	
1	**Project Narrative**	☐	☐	☐	
	Description of the Project	☐	☐	☐	
	Project Location	☐	☐	☐	
	General Summary of Items & Quantities being Dedicated to the City, if any *(Linear feet of Roadway (including type, width, depths, & curb & gutter type), Sidewalk locations & lengths, Linear feet of Utilities (Sewer, Water, Storm Sewer), Manholes & Drop Inlets (types & quantity), etc.)*	☐	☐	☐	
	Timeline *(Design, Approval, Bid Letting (if applicable), Construction Start Date, Major Milestones Met, Any Shutdowns Due to Weather (or Other), Substantial Completion, Overall Completion, Final Inspection, Bonding (if applicable), Cleanup/Punchlist Work, & Dedication)*	☐	☐	☐	
	Any Observed Deficiencies & Corrective Actions	☐	☐	☐	
	Any Variations/Changes from/to the Approved Plans	☐	☐	☐	
2	**Inspection Reports** *(or Daily Diary/Log/Progress Report)*				
a)	Engineer's Inspection Records *(May Include Contractor's Daily Progress Reports)*	☐	☐	☐	
b)	Adequate Frequency of Inspections to Ensure Quality Work	☐	☐	☐	
c)	Thorough & Detailed Documentation of Inspections *(See Guidelines for Inspection Reports)*	☐	☐	☐	
d)	Project Photos	☐	☐	☐	
3	**Materials Test Data (Right of Way)**				
a)	Public Right of Way Testing Results *(Please also list any failing tests, corrective action taken, and certify that the material was retested and passed after corrective action)*	☐	☐	☐	
4	**Sanitary & Storm Sewer (For Connection Points onto Public Systems only)**	☐	☐	☐	
a)	Manholes *(Inspector's and City's Visual Reports & Infiltration/Exfiltration Test Data)*	☐	☐	☐	
b)	Sewer Main Wye Connection (Inspector's & City's Visual Reports)	☐	☐	☐	
c)	Storm Connection if any (Inspector's & City's Visual Reports)	☐	☐	☐	
5	**Water (For Connection Points onto Public Systems Only)**	☐	☐	☐	
a)	Water Connection to Public Main (Inspector's and City's Visual Reports & Bacteria Testing)	☐	☐	☐	
6	**Documentation of All Approved Changes** *(CCO's, Updated Plan Sheets, Approval Letters, etc.)*	☐	☐	☐	
7	**ADA Compliance Verification for Curb Ramps & Sidewalk**				
a)	Summary	☐	☐	☐	
b)	Inspection Forms and/or Checklists	☐	☐	☐	

Section Number:	Description:	Approved			Comments:
		Yes	No	N/A	
8	**As-Built Information** *(See As Built Checklist for CAD & electronic file Requirements)*	☐	☐	☐	
a)	PDFof As-built plan set, & CAD File with as-built points and linework	☐ ☐	☐ ☐	☐ ☐	
b)	Points List *(1 hard copy & 1 electronic file)*				
c)	Minimum 'XYZ' Points/Items *(Manholes, Valves, Curb Stops, Fire Hydrants, Water & Sewer Lines, Storm Sewer Inlets, Outlet Pipes, Detention Ponds, Drainage Channels, Street Lights, & Junction boxes)*	☐	☐	☐	
d)	Contractor's As-Builts *(Water & Sewer Tap Locations, Utility Crossings, Street Lights, & Any Alignment Changes to Dry Utility Trenches)*	☐	☐	☐	
e)	As-Built information in State Plane Coordinates *(NAD 83) & NAVD 88*	☐	☐	☐	
9	**As-Built Drainage & Storm Sewer Calculations**				
a)	Summary & Certification	☐	☐	☐	
	Highlight any variations from the plans, a statement on the conformity with the plans *(0.xx ft & 0.xx% of plans shown location, grades, and slopes)* , and state that the revised calculations are based on the as-built information and that they show that the drainage & storm sewer will handle the flows in the specified rain/runoff event	☐	☐	☐	
b)	Revised Calculations based on As-Built Survey Information				
10	**Verification that Floodplain Items Completed & Approved** *(Provide Copies of Approvals)*	☐	☐	☐	
11	**Copies of Project Permits**				
a)	Completed Checklist for Local, State, and Federal Permits for Land Development	☐	☐	☐	
b)	Copies of All Obtained Permits/Approval Letters/Submittals	☐	☐	☐	
12	**Storm Water Pollution Prevention Plan (SWPPP)**				
a)	SWPPP *(Plan & Map)*	☐	☐	☐	
b)	SWPPP Inspection Records	☐	☐	☐	
c)	Adequate Frequency of Inspections to Comply with EPA Requirements	☐	☐	☐	
d)	Thorough & Detailed Documentation of Inspections	☐	☐	☐	
13	**Submittals For Public / Right of Way Items**				
a)	Approved Mix Designs	☐	☐	☐	
b)	Approved Shop Drawings	☐	☐	☐	
c)	Supplier Information and/or Test Results *(Aggregate Stockpile Gradations, Quality Test Results, etc.)*	☐	☐	☐	
b), c),…	Other *(List Items)*	☐	☐	☐	

General Comments:	

Checked By:			
Signed:		**Date:**	

Single Lot Commercial, Industrial & Multifamily Civil/Site Construction Observation Services Checklist

	Minimum Inspection Times
Grading Activities (Observe / Perform and Document the Following)	2 Hrs. Per Working Day*
Fill areas, lift thickness, and Geotechnical requirements / compaction	
Required benching on slope areas	
Detention pond construction including compaction	
Overall grading, slopes, and drainage patterns - will be required for as-builts	
Erosion Control (Observe / Perform and Document the Following)	Initial Inspection then Every 2 Weeks & After Storm Events
Erosion control measures following the issued permits	
Perform Erosion Control inspections and associated reporting every 2 weeks and following storm events	
Modify erosion control plan as necessary	
Erosion control measures are replaced as required	
Utilities (Observe / Perform and Document the Following)	2 Hrs. per Working Day*
Connections onto City infrastructure	
Backfill material, lift thickness, compaction testing within all City Right of Way areas and public infrastructure connections	
Installation of storm sewer components - pipe slopes, inverts will be required for as-builts	
Detention pond outlet structures - inverts and elevations will be required for as-builts	

Concrete and Asphalt Work (Observe / Perform and Document the Following)	2 Hrs. per Working Day*
ADA curb ramps and access routes (private & public)	
Concrete work within the Public Right of Way including slopes, testing, rebar, dowels, expansion, joints and sealing	
Asphalt paving and striping within the Public Right of Way including testing, tacked edges, slopes	

Traffic Control & Signage	Initial Inspection After Each Set Up then Once a Week
Traffic control along public streets	
Installation of Road signage	

Floodplain	2 Hrs. per Working Day*
Floodplain limits are staked prior to starting work	
Grading and work is taking place following City approved plans & FEMA requirements	
Compaction testing is completed in fill areas located in the Floodplain	
Complete survey in a timely manner to confirm FEMA and City Floodplain requirements	
Lowest adjacent grade requirements, if applicable-supply documentation to the City	

* Working day represents each day the Contractor is working on the specific item. Inspections on several construction activities can often be performed concurrently.

SINGLE LOT (RE)DEVELOPMENT PLAN SUBMITTAL CHECKLIST FOR COMMERCIAL, INDUSTRIAL, & MULTI-FAMILY DEVELOPMENTS

The following documents shall be submitted prior to or as part of the building plan submittal.

1. Building plans (includes architectural, structural, mechanical, plumbing, electrical)
2. Development plans (list is for civil/site engineering plans. Combine into one full plan set with the Building plans for submittal.)
    - Title Sheet with vicinity map
    - General Construction Notes
    - SWPPP General Notes, if applicable
    - Typical Street Sections, if applicable
    - Site Plan
        - Show location of proposed building(s)/addition(s) with clear dimensions of the building, all property lines, easements (existing and proposed), building setbacks from property lines, and other structures on site.
        - Include parking layout showing dimensions of parking stalls and drive aisles, parking count/calculation data, and all other requirements of the parking regulations per *City ordinance 156.062*. When outdoor lighting is provided, it shall have an arrangement of reflectors and an intensity of lighting which will not interfere with adjacent land uses or the safe use of adjacent streets
        - Include dumpster location
    - Grading, Drainage, Erosion and Sediment Control Plan
        - Existing and proposed 1-foot contours
        - Proposed elevations for finished floor, proposed contours, and spot elevations throughout the site to clearly show the intended final grades for the property including all paved surfaces, curb & gutter, sidewalks, ADA parking and accessible routes to accessible building entrances, and key drainage features.
        - Proposed elevations at bottom and top of retaining walls with all finished grades clearly identified for both sides of the wall. Retaining walls over 4 feet require a design prepared by a professional engineer and shall include typical wall sections.
        - Location of all drainage features and structures including storm sewers, inlets, outlets, channels, detention basins, etc. Include drainage arrows.
        - Show any areas of the site within a FEMA designated 100-year flood zone. All floodplain revisions shall comply with ordinance *Chapter 151: 'Flood Prevention And Protection'*.
    - Overall Utility Plan
        - Include all existing and proposed fire hydrants
    - Water Plan and Profiles, if applicable
    - Sanitary Sewer Plan and Profiles, if applicable
    - Storm Sewer Plan and Profiles, if applicable
    - Street Plan and Profiles, if applicable
    - Landscape plan
        - Show specific location of plant material, plant names, and landscape points requirements per city ordinance *155.26 'Landscaping Required'*.
    - Traffic Control Plan, if applicable
    - Construction Details

Some of the plan sheets noted above may be combined with one another if clarity and legibility of the combined plan sheet(s) are maintained.

3. Development reports
    - Final drainage report
        - If the site is within a subdivision which has a previously approved drainage report then provide a limited drainage report, which confirms that the site will be developed in compliance with the original report and/or provide justification for proposed revisions. Include sizing calculations of all collection and conveyance elements.
    - Final geotechnical report
    - Final water system report, if applicable
    - Final sanitary sewer report, if applicable
    - Traffic Impact Study, if applicable
        - Unless waived by the Planning Director, a TIS will be required for any development proposal when trip generation during the peak hour is expected to meet or exceed one hundred (100) vehicles or one thousand (1,000) trips per day. The traffic engineer for the development shall provide this preliminary traffic volume estimate and if it exceeds either of the noted thresholds then a TIS will be required.



City of Spearfish Sketch Plat Submittal Checklist

All subdivision development must begin with a sketch plat application submittal. The objective of this procedure is to provide an opportunity for the applicant and appropriate city staff to confer regarding the concept and basic elements of the proposed development. Sketch plats will be submitted electronically using the city's online review portal and shall contain the following:

Required Information to be shown on the Sketch Plat:

1. A vicinity map or key map showing location of subdivision
2. Legal description
3. North arrow and scale
4. Boundary, lot layouts and street right-of-way
5. Proposed access locations
6. Proposed street classifications
7. Nearest City utilities that will serve the entire property
8. Connection points for all utilities
9. Existing easements
10. FEMA floodplain delineation, if applicable
11. Existing zoning designation

Additional items required for Major Plats (4+ lots):

1. Aerial Background may be required
2. Existing contours, 10' intervals minimum
3. Streets network connectivity

Other items required for Major Plats:

1. Concept Drainage Plan: The purpose of the Plan is to identify any proposed drainage concerns regarding the development. Approximate flow paths and existing conditions will be provided.

Subdivision As-Built Review Checklist

Project #: _____

Project Name: _____

Date: _____

Section:	Checklist Item:	Surveyed Point Data	Contractor Notes	Approved Yes	Approved No	Approved N/A	Comments:
Platting & Street CAD linework	Right of Way and Lot Lines			☐	☐	☐	
	Curb/gutter, Sidewalk, Fillets/pans, Striping, Signs			☐	☐	☐	
	Utility Easement(s)			☐	☐	☐	
	Drainage Easement(s)			☐	☐	☐	
	Public Access Easement(s)			☐	☐	☐	
	Additional Comments:						
Water	Fire Hydrants	☐		☐	☐	☐	
	Water Valves	☐		☐	☐	☐	
	Curb Stops	☐		☐	☐	☐	
	Casing Pipe (with inverts)	☐		☐	☐	☐	
	Meter Pit Manholes	☐		☐	☐	☐	
	Air Release Valve Manholes	☐		☐	☐	☐	
	Pressure Release Valve (PRV) Stations	☐		☐	☐	☐	
	Bends (vertical & horizontal)/Lowerings		☐	☐	☐	☐	
	Service Tap locations		☐	☐	☐	☐	
	CAD Linework Complete & Adjusted to As-Built Locations			☐	☐	☐	
	Additional Comments:						
Sanitary Sewer	Manholes (with inverts)	☐		☐	☐	☐	
	Cleanouts	☐		☐	☐	☐	
	Service tap locations		☐	☐	☐	☐	
	CAD Linework Complete & Adjusted to As-Built Locations			☐	☐	☐	
	Additional Comments:						
Storm Sewer	Inlets (TBC to TBC, Manhole & inverts)	☐		☐	☐	☐	
	Flared End Sections (FES)	☐		☐	☐	☐	
	Manholes/Junction Boxes	☐		☐	☐	☐	
	Prefabricated bends/tees		☐	☐	☐	☐	
	CAD Linework Complete & Adjusted to As-Built Locations			☐	☐	☐	
	Additional Comments:						
	*Design Engineer shall provide updated calculations to verify all storm sewer pipe, as-built, conveys the minimum design flows.						

Section:	Checklist Item:	Surveyed Point Data	Contractor Notes	Approved Yes	Approved No	Approved N/A	Comments:
Street Lighting	Street Lights	☐		☐	☐	☐	
	Junction Boxes	☐		☐	☐	☐	
	Disconnect Structure locations	☐		☐	☐	☐	
	Transformers (that service the lights)	☐		☐	☐	☐	
	Conduit (depth & alignment)	☐	☐	☐	☐	☐	
	CAD Linework Complete & Adjusted to As-Built Locations	☐	☐	☐	☐	☐	
	Additional Comments:						
Detention Pond	Pond Volume/capacity, Longitudinal & cross slopes	☐		☐	☐	☐	
	Outlet Structure/pipe (with inverts, Top of box)	☐		☐	☐	☐	
	Emergency Overflow Weir and channel (L,W,H)	☐		☐	☐	☐	
	Provide Detention Pond Contour Lines	☐		☐	☐	☐	
	Verify Orifice Sizes & Elevations of Outlet Structure(s)	☐	☐	☐	☐	☐	
	CAD Linework Complete & Adjusted to As-Built Locations						
	Additional Comments:						
	*Design Engineer shall provide updated calculations to verify the pond volume, 5 & 100 year water surface and outlet structure components and overflow channel elevations, as-built, function per the approved design.						
Drainage Channel	Check Capacity	☐		☐	☐	☐	
	Cross Sections	☐		☐	☐	☐	
	Longitudinal Slope	☐		☐	☐	☐	
	CAD Linework Complete & Adjusted to As-Built Locations			☐	☐	☐	
	Additional Comments:						
	*Design Engineer shall provide updated calculations to verify all drainage channels convey the minimum design flows (including emergency overflow channels adjacent to sump inlets).						
Dry Utilities	CL Alignment of Common Utility Trench	☐		☐	☐	☐	
	Common Utility Trench is within Utility Easement			☐	☐	☐	
	Above Ground Facilities (Riser Boxes, Transformers, etc.)	☐		☐	☐	☐	
	Above Ground Facilities are not located over a City Utility			☐	☐	☐	
	CAD Linework Complete & Adjusted to As-Built Locations			☐	☐	☐	
	Additional Comments:						

General Comments:	

Checked By:			
Signed:		Date:	

Subdivision Construction Closeout Report (CCR) Review Checklist

Project Name: _____

Project Number: _____

Date: _____

Section Number:	Description:	Approved			Comments:
		Yes	No	N/A	
	Binder w/ Cover Including Project Name & Number	☐	☐	☐	
	Title Sheet Inside Binder	☐	☐	☐	
	Signed Statement From the Engineer Certifying the Accuracy of the Content in the CCR *(Developers)*	☐	☐	☐	
	Table of Contents	☐	☐	☐	
	Tabs/Dividers for Sections and Subsections	☐	☐	☐	
1	**Project Narrative**				
	Description of the Project	☐	☐	☐	
	Project Location	☐	☐	☐	
	General Summary of Items & Quantities being Dedicated to the City *(Linear feet of Roadway (including type, width, depths, & curb & gutter type), Sidewalk locations & lengths, Linear feet of Utilities (Sewer, Water, Storm Sewer), Manholes & Drop Inlets (types & quantity), etc.)*	☐	☐	☐	
	Timeline *(Design, Approval, Bid Letting (if applicable), Construction Start Date, Major Milestones Met, Any Shutdowns Due to Weather (or Other), Substantial Completion, Overall Completion, Final Inspection, Bonding (if applicable), Cleanup/Punchlist Work, & Dedication)*	☐	☐	☐	
	Any Observed Deficiencies & Corrective Actions	☐	☐	☐	
	Any Variations/Changes from/to the Approved Plans	☐	☐	☐	
2	**Inspection Reports** *(or Daily Diary/Log/Progress Report)*				
a), b),…	Engineer's and/or Inspector(s) Inspection Records *(May Include Contractor's Daily Progress Reports)*	☐	☐	☐	
	Adequate Frequency of Inspections to Ensure Quality Work	☐	☐	☐	
	Thorough & Detailed Documentation of Inspections *(See Guidelines for Inspection Reports)*	☐	☐	☐	
c)	Project Photos on CD	☐	☐	☐	
3	**Materials Test Data**				
a)	Statement Certifying the Minimum Test Frequency was met & all final in-place tests passed *(list any failing tests, corrective action taken, and certify that the material was retested and passed after corrective action)*	☐	☐	☐	
b), c),…	Aggregate Gradations, Compaction Tests, Concrete Tests, etc.	☐	☐	☐	
	Well Organized w/ Tabs/Dividers and by Date/Location.	☐	☐	☐	

Section Number:	Description:	Approved			Comments:
		Yes	No	N/A	
4	**Sanitary & Storm Sewer Test Data**				
a)	Summary	☐	☐	☐	
b)	Manholes *(Inspector's Visual Reports & Infiltration/Exfiltration Test Data)*	☐	☐	☐	
c)	Sewer Main *(Leakage & Deflection Tests)*	☐	☐	☐	
d)	Copy of Jetting Inspection by Developer *(if necessary)*	☐	☐	☐	
e)	Inspection Notes from City Sewer Department	☐	☐	☐	
f)	Sleeve for a DVD Copy of Video Camera Inspection *(City to insert the DVD during the CCR Review)*	☐	☐	☐	
5	**Water Test Data & Discussion**				
a)	Summary	☐	☐	☐	
b)	Pressure tests	☐	☐	☐	
c)	Bacteriological Test Results	☐	☐	☐	
d)	Fire Hydrant Flow Test *(Static & Residual Pressures)*	☐	☐	☐	
6	**Documentation of All Approved Changes** *(CCO's, Updated Plan Sheets, Approval Letters, etc.) (Bid Tab & Final Pay Request on City Projects)*	☐	☐	☐	
7	**ADA Compliance Verification for Curb Ramps & Sidewalk**				
a)	Summary	☐	☐	☐	
b)	Inspection Forms and/or Checklists	☐	☐	☐	
8	**Utilities Verifications**				
a)	Summary *(Include List of Dry Utilities that participated and those that did not, General Timeline of Installation, and any special conditions)*	☐	☐	☐	
b)	Verification Letters/Emails from All Utilities	☐	☐	☐	
9	**As-Built Information** *(See As Built Checklist for CAD & electronic file Requirements)*				
a)	PDFof As-built plan set, & CAD File with as-built points and linework	☐ ☐	☐ ☐	☐ ☐	
b)	Points List *(1 hard copy & 1 electronic file)*				
c)	Minimum 'XYZ' Points/Items *(Manholes, Valves, Curb Stops, Fire Hydrants, Water & Sewer Lines, Storm Sewer Inlets, Outlet Pipes, Detention Ponds, Drainage Channels, Street Lights, & Junction boxes)*	☐	☐	☐	
d)	Contractor's As-Builts *(Water & Sewer Tap Locations, Utility Crossings, Street Lights, & Any Alignment Changes to Dry Utility Trenches)*	☐	☐	☐	
e)	As-Built information in State Plane Coordinates *(NAD 83) & NAVD 88*	☐	☐	☐	
10	**As-Built Drainage & Storm Sewer Calculations**				
a)	Summary & Certification	☐	☐	☐	
	Highlight any variations from the plans, a statement on the conformity with the plans *(0.xx ft & 0.xx% of plans shown location, grades, and slopes)* , and state that the revised calculations are based on the as-built information and that they show that the drainage & storm sewer will handle the flows in the specified rain/runoff event	☐	☐	☐	
b)	Revised Calculations based on As-Built Survey Information				

Section Number:	Description:	Approved			Comments:
		Yes	No	N/A	
11	**Verification that Floodplain Items Completed & Approved** *(Provide Copies of Approvals)*	☐	☐	☐	
12	**Copies of Project Permits**				
a)	Completed Checklist for Local, State, and Federal Permits for Land Development	☐	☐	☐	
b)	Copies of All Obtained Permits/Approval Letters/Submittals	☐	☐	☐	
13	**Storm Water Pollution Prevention Plan (SWPPP)**				
a)	SWPPP *(Plan & Map)*	☐	☐	☐	
b)	SWPPP Inspection Records	☐	☐	☐	
c)	Adequate Frequency of Inspections to Comply with EPA Requirements	☐	☐	☐	
d)	Thorough & Detailed Documentation of Inspections	☐	☐	☐	
14	**Submittals**				
a)	Approved Mix Designs	☐	☐	☐	
b)	Approved Shop Drawings	☐	☐	☐	
c)	Supplier Information and/or Test Results *(Aggregate Stockpile Gradations, Quality Test Results, etc.)*	☐	☐	☐	
b), c),…	Other *(List Items)*	☐	☐	☐	

General Comments:	

Checked By:			
Signed:		**Date:**	

Subdivision Construction Observation / Inspection Services Checklist

	Recommended Inspection Times
Topsoil Removal and Grading Activities **Observe / Perform and Document the Following Activities**	2 Hours Per Working Day*
Topsoil removal-verify proper stockpiling and stable, load-bearing subsoil is reached	
Fill area placement, watering and lift thickness	
Geotechnical Report requirements are being followed (includes imported fill material)	
Required benching along catch slopes	
Compaction and moisture content testing and review testing results	
Overall grading, slopes, and drainage patterns	
Detention pond construction	

Erosion Control **Observe / Perform and Document the Following Activities**	Initial Inspection then Every 2 Weeks & After Storm Events
Erosion control installations following SDDANR permit requirements	
Perform erosion control inspections and associated reporting every two weeks and after storm events, as defined by SDDANR	
Modify the erosion control plan as necessary	
Verify erosion control measures have been replaced when needed	

Road Subgrade Preparation and Base Course **Observe / Perform and Document the Following Activities**	2 Hours Per Working Day*
Road subgrade scarification, compaction and moisture content testing	
Base course gradation follows approved specifications	
Base course placement and compaction / moisture content testing	
Base course thickness - checked at the same intervals as compaction / moisture content testing	

Utility Installation, Excavation, and Backfill **Observe / Perform and Document the Following Activities**	4 Hours Per Working Day*
Delivery of materials according to Engineer approved submittals (includes imported trench backfill material, trench stabilization material, and pipe bedding)	
Materials and pipe installation are following the approved plans, project specifications, and manufacturer's requirements	
Detention pond outlet structures and overflows are installed to the approved plans	
Pipe bedding material, placement, and compaction / moisture content	
Tracer wire installation	
Thickness of backfill lifts	
Equipment that is being used during trench backfilling	
Thrust blocks installation	
General trench backfill material testing (compaction, and moisture content)	
Pressure testing of the pipe and sanitary sewer manholes that are constructed	
Schedule video inspections and verify / review bacteria testing	

Curb and Gutter Construction **Observe / Perform and Document the Following Activities**	4 Hours Per Working Day*
Traffic control for tie in locations	
Curb stakes and string lines follow the approved plans	
Size and type of gutter follows the approved plans	
Reinforcement and expansion	
Transition sections from one type of curb to another type of curb	
Curb sections for ADA areas are set per approved plans and in the right location	
Curb and gutter installation is being completed per the approved plans and specs	
Water and sanitary sewer service stamps are placed in the curb and gutter	
Material testing of the curb and gutter (concrete air, slump, and compressive strength)	

Asphalt Pavement **Observe / Perform and Document the Following Activities**	2 Hours Per Working Day*
Traffic control for tie in locations	
Cross slopes of base course material in the area to be paved	
Tack coat is applied (tack of side faces, curb and gutter, and existing asphalt areas)	
Equipment that will be used during the asphalt pavement (paver and rollers)	
Temperature of asphalt mix upon delivery to the asphalt paver	
Material abnormalities or irregularities during paving operations	
asphalt mat temperature during roller operations (per specifications)	
Depth of mat being placed follows the approve plans	
Cross slope of the asphalt mat being placed follows the approved plans	
Asphalt joints on all lifts between passes and connections onto existing asphalt	
Material testing is being completed and meets specifications during asphalt paving (compaction, temperature - (cold feed gradation, core testing, and asphalt content as requested by the City Engineer)	
Site clean up	

Concrete Sidewalk and ADA Ramps **Observe / Perform and Document the Following Activities**	2 Hours Per Working Day*
Boulevard width and distance to the property line	
Formwork for concrete placements follows the approved slopes including ADA	
Cross slopes of sidewalks and ramps following placement	
Expansion joint material and reinforcing steel if required	
Material testing during concrete placement (air, slump, compressive strength)	

Floodplain **Observe / Perform and Document the Following Activities**
Floodplain limits are staked prior to start of work, if applicable
Grading or other activities taking place within the floodplain limits follow the approved plans, including any requirements set forth by the Federal Emergency Management Agency (FEMA)
Adequate compaction testing in areas where fill has been placed in the floodplain
Work completed in the floodplain is surveyed in a timely manner to confirm any as-built requirements set forth by the City or FEMA
Lowest adjacent grade requirements, if applicable-supply documentation to the City

* Working day represents each day the Contractor is working on the specific item. Inspections on several construction activities can often be performed concurrently.

City of Spearfish Subdivision Development Inspections

	Minimum Inspection Times
Topsoil removal and Grading Activities **Observe / Perform and Document the Following Activities**	2 Hrs. Per Working Day*
Topsoil removal including thickness	
Fill area placement and lift thickness	
Geotechnical Report requirements are being followed (includes imported fill material)	
Required benching on slope areas	
Compaction and moisture content testing and review testing results	
Overall grading, slopes, and drainage patterns	
Detention pond construction including compaction	
Erosion Control **Observe / Perform and Document the Following Activities**	Initial Inspection then Every 2 Weeks & After Storm Events
Erosion control installations following SDDANR permit requirements	
Perform erosion control inspections and associated reporting every two weeks and after each major storm event, as defined by SDDANR	
Modify the erosion control plan as required	
Verify erosion control measures have been replaced when needed	
Road Subgrade Preparation and Base Course **Observe / Perform and Document the Following Activities**	2 Hrs. Per Working Day*
Road subgrade scarification, compaction and moisture content testing	
Base course gradation follows approved specifications	
Base course placement and compaction / moisture content testing	
Base course thickness - checked at the same intervals as compaction / moisture content testing	

Utility Installation, Excavation, and Backfill **Observe / Perform and Document the Following Activities**	4 Hrs. Per Working Day*

Delivery of materials according to Engineer approved submittals (includes imported trench backfill material, trench stabilization material, and pipe bedding)
Materials and pipe installation are following the approved plans, project specifications, and manufacture's requirements
Detention pond outlet structures and overflows are installed to the approved plans
Pipe bedding material, placement, and compaction / moisture content
Tracer wire installation
Thickness of backfill lifts
Equipment that is being used during trench backfilling
Thrust blocks
General trench backfill material testing (compaction, and moisture content)
Pressure testing of the pipe and sanitary sewer manholes that are constructed
Schedule video inspections and verify / review bacteria testing

Curb and Gutter Construction **Observe / Perform and Document the Following Activities**	4 Hrs. Per Working Day*

Traffic control for tie in locations
Curb stakes and string lines follow the approved plans
Size and type of gutter follows the approved plans
Reinforcement and expansion
Transition sections from one type of curb to another type of curb
Curb sections for ADA areas are set per approved plans and in the right location
Curb and gutter installation is being completed following the approved plans and specifications
Water and sanitary sewer service stamps are placed in the curb and gutter
Material testing of the curb and gutter (concrete air, slump, and compressive strength)

Asphalt Pavement **Observe / Perform and Document the Following Activities**	2 Hrs. Per Working Day*

Traffic control for tie in locations
Cross slopes of base course material in the area to be paved
Tack coat is applied (tack of side faces, curb and gutter, and existing asphalt areas)
Equipment that will be used during the asphalt pavement (paver and rollers)
Temperature of asphalt mix upon delivery to the asphalt paver
Material abnormalities or irregularities during paving operations
asphalt mat temperature during roller operations (per specifications)
Depth of mat being placed follows the approve plans
Cross slope of the asphalt mat being placed follows the approved plans
Asphalt joints on all lifts between passes and connections onto existing asphalt
Material testing is being completed and meets specifications during asphalt paving (compaction, temperature - (cold feed gradation, core testing, and asphalt content as requested by the City Engineer)
Site clean up

Concrete Sidewalk and ADA Ramps **Observe / Perform and Document the Following Activities**	2 Hrs. Per Working Day*

Boulevard width and distance to the property line
Formwork for concrete placements follows the approved slopes including ADA requirements
Cross slopes of sidewalks and ramps following placement
Expansion joint material and reinforcing steel if required
Material testing during concrete placement (air, slump, compressive strength)

Floodplain **Observe / Perform and Document the Following Activities**

Floodplain limits are staked prior to start of work
Grading or other activities taking place within the floodplain limits follow the approved plans, including any requirements set forth in by the Federal Emergency Management Agency (FEMA)
Adequate compaction testing in areas where fill has been placed in the floodplain
Work completed in the floodplain is surveyed in a timely manner to confirm any requirements set forth by the City or FEMA
Lowest adjacent grade requirements and supply necessary documentation to the City

* Working Day Represents Each Day the Contractor is Working on the Specific Item

City of Spearfish Right-of-way & Easement Vacate Request
Submittal Checklist

1) A petition form (attached) signed by the landowner(s) adjoining the right of way or easement.
2) A plat showing the location of the right of way or easement requested to be vacated.
3) A scaled drawing prepared by a Registered Land Surveyor or Professional Engineer showing the proposed vacate area and location of curb/gutter, sidewalk, trees, driveways, structures, overhead and/or underground utilities and any other encumbrances within the vacate area.
4) Submittal fee according to the city's adopted fee resolution.

Additional submittal items that may be required, if applicable:

5) A scaled drawing prepared by a Registered Land Surveyor or Professional Engineer showing the location of new improvements within the vacated area, and timeline of completion.
6) If non-city owned utilities are within the vacate area, a draft copy of an easement agreement between the landowner and utility company. Alternatively, for partial width right of way vacates, the utility may be relocated elsewhere within the remainder of the ROW if approved by the City and the utility company.
7) For city owned utilities that will require an easement, a draft copy of an easement agreement between the City and landowner. Alternatively, for partial width right of way vacates, the utility may be relocated elsewhere within the remainder of the ROW if approved by the City.

PETITION TO VACATE RIGHT-OF-WAY OR EASEMENT

TO THE HONORABLE MAYOR AND THE CITY COUNCIL OF THE CITY OF SPEARFISH, SOUTH DAKOTA:

I/We, the undersigned, landowner(s) within the City of Spearfish, South Dakota, respectfully do hereby consent and petition the City Council of said City to vacate the following described right-of-way or easement for the reasons as described in the attached narrative:

_____
_____
_____
_____

Name	Address or Legal Description of parcel adjacent to location of vacate request – **Attach a plat or exhibit to this form**	Date Of Signature
_____ Signature _____ Printed Name		
_____ Signature _____ Printed Name		
_____ Signature _____ Printed Name		

State of South Dakota)
) ss
County of Lawrence)

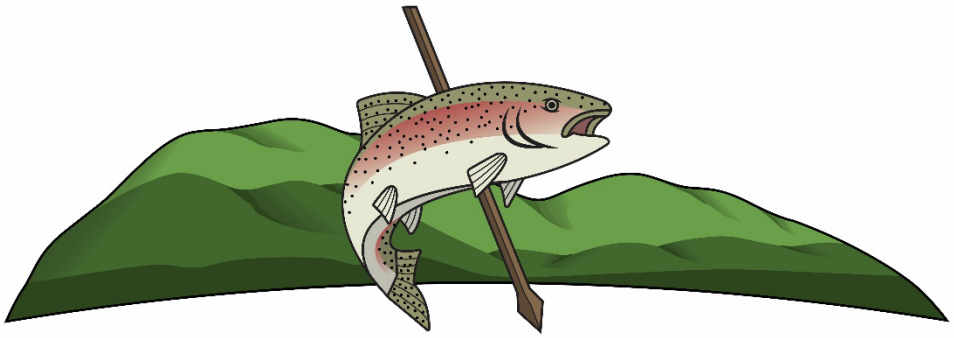
I, the undersigned landowner of the City of Spearfish, in said County and State, do hereby certify that I personally circulated the within petition and depose and state on oath the names subscribed thereto in my presence are genuine and the signatures of the aforesaid freeholders/landowners above mentioned.

_____
Printed Name of Circulator - Signature of Circulator

Subscribed and sworn to before me this_____day of_____20___.

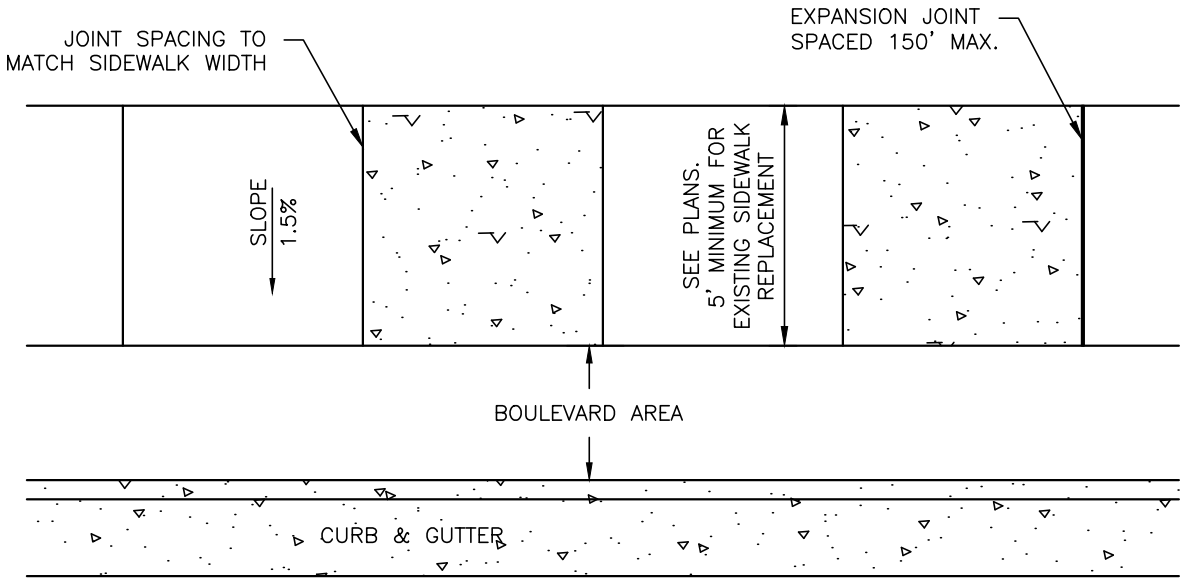
_____
Notary Public
My Commission Expires:_____

SEAL



CITY OF
SPEARFISH
EST. 1888

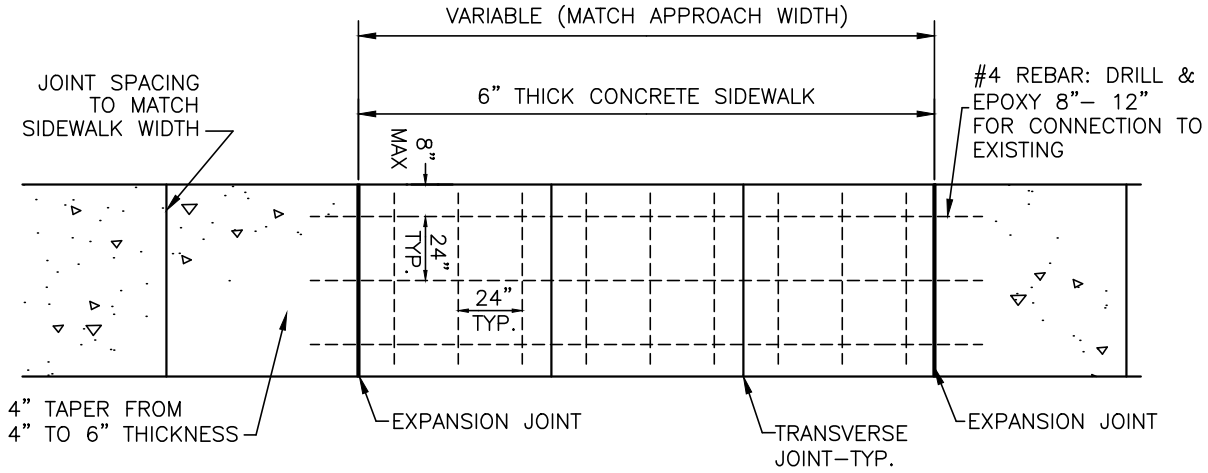
STANDARD CONSTRUCTION DETAILS



BOULEVARD SIDEWALK

RESIDENTIAL SIDEWALKS 6' OR LESS IN WIDTH SHALL BE A MINIMUM OF 4" THICK CONCRETE WITH A MINIMUM OF 4" OF COMPACTED CUSHION MATERIAL PLACED UNDER THE SIDEWALK.

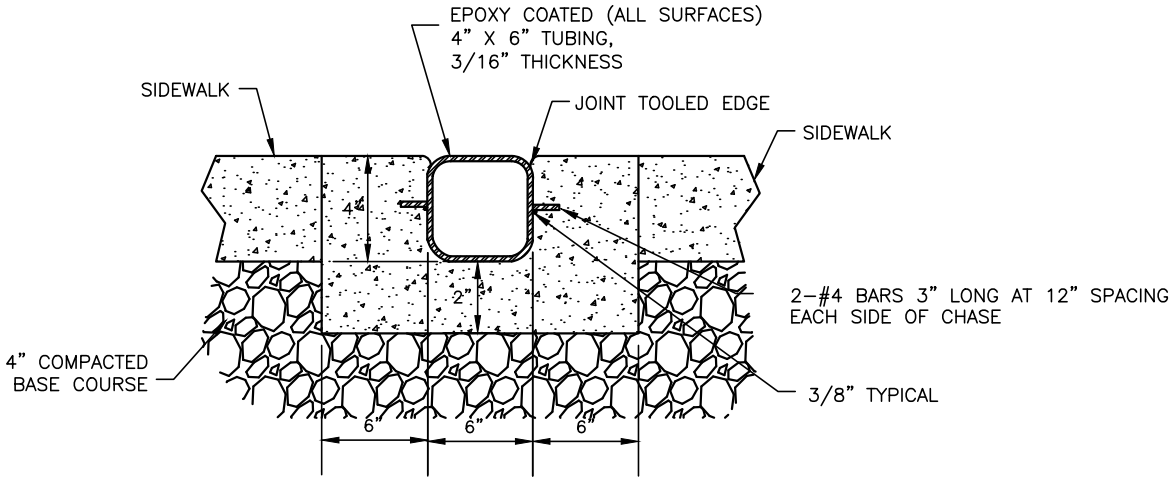
ALL SIDEWALKS 8' OR GREATER IN WIDTH SHALL BE 6" THICK WITH #4 REBAR REINFORCEMENT PLACED 24" ON CENTER BOTH LONGITUDINALLY AND TRANSVERSELY. A 2" CLEARANCE SHALL BE MAINTAINED BETWEEN THE BOTTOM AND SIDES OF CONCRETE AND THE REBAR. THE OUTERMOST LONGITUDINAL REBAR SHALL BE WITHIN 8" FROM THE EDGE OF CONCRETE.



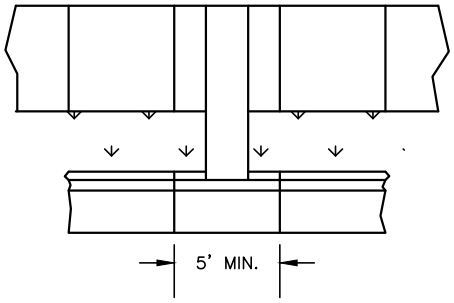
6" REINFORCED SIDEWALK ACROSS DRIVEWAY APPROACH

NOTES:
REINFORCED SIDEWALK SHALL BE PLACED AT ALL ENTRANCES INTO ALLEYS, PARKING LOTS, AND PROPERTY WHICH IS ZONED COMMERCIAL, LIGHT INDUSTRIAL & HEAVY INDUSTRIAL. #4 REBAR SHALL BE PLACED AS PER DETAIL AND TIED TOGETHER. TWO INCH (2") CLEARANCE SHALL BE MAINTAINED BETWEEN THE BOTTOM AND SIDES OF THE CONCRETE & REBAR. MINIMUM DEPTH OF GRANULAR MATERIAL PLACED UNDER REINFORCED SIDEWALK SHALL BE 4".

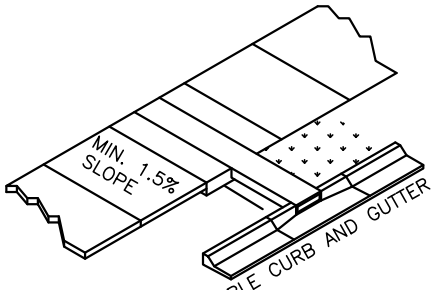
CITY OF SPEARFISH Public Works Department	***City of Spearfish***	DATE 03/01/26 REVISED 00/00/00
	CONCRETE SIDEWALKS	SECTION DETAIL # 200-01

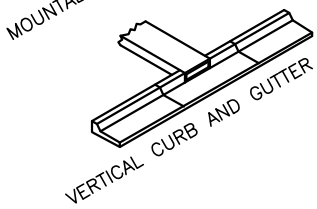


TYPICAL CHASE SECTION

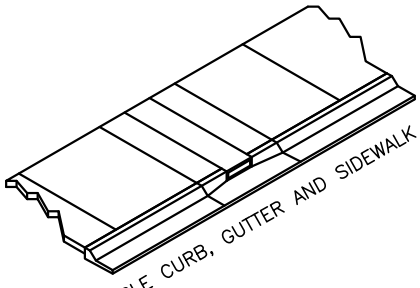


PLAN VIEW
(Detached curb & gutter)



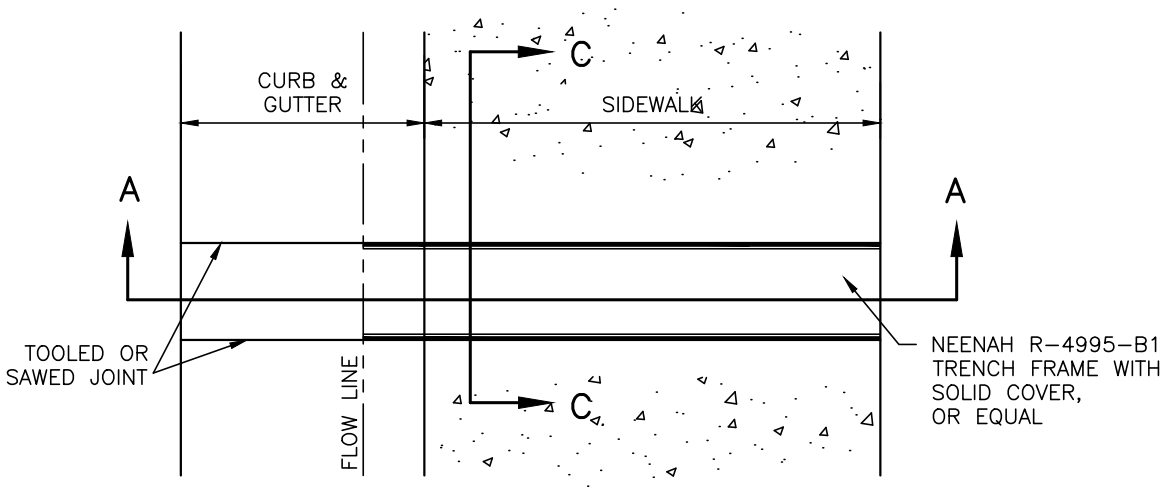


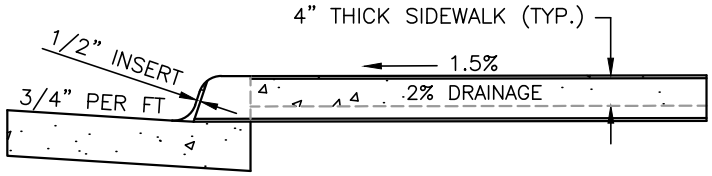
ISOMETRIC VIEW
(Detached curb & gutter)



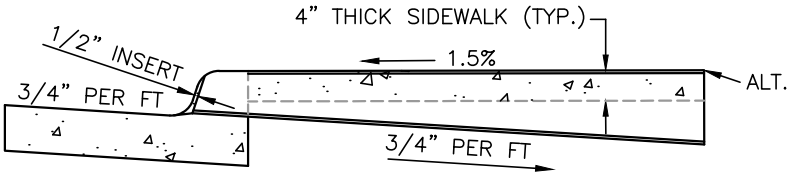
ISOMETRIC VIEW
(Attached curb & gutter)

CITY OF SPEARFISH Public Works Department	*City of Spearfish*	DATE 03/05/26 REVISED 00/00/00
	SIDEWALK CHASE	SECTION 200 DETAIL # 02

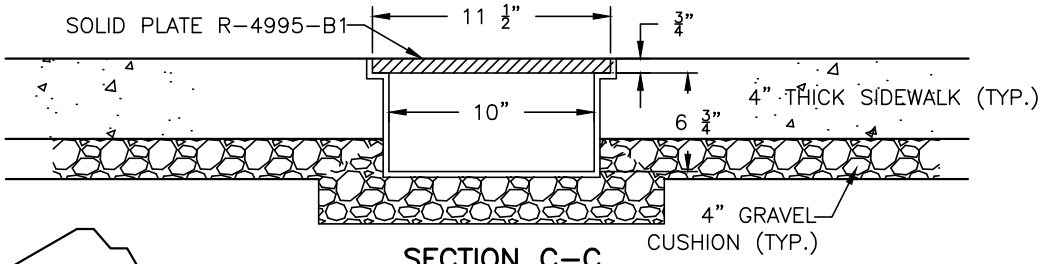




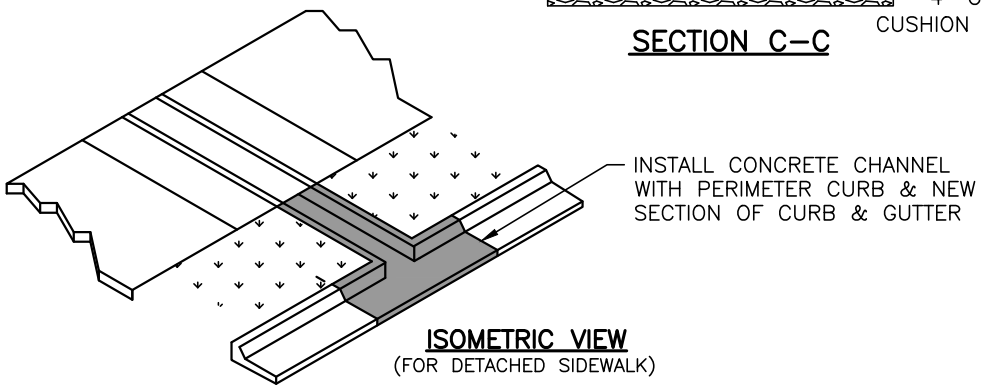
SECTION A–A – DRAINAGE INTO GUTTER



SECTION A–A – DRAINAGE FROM GUTTER TO DESIGNATED DISCHARGE LOCATION



SECTION C–C



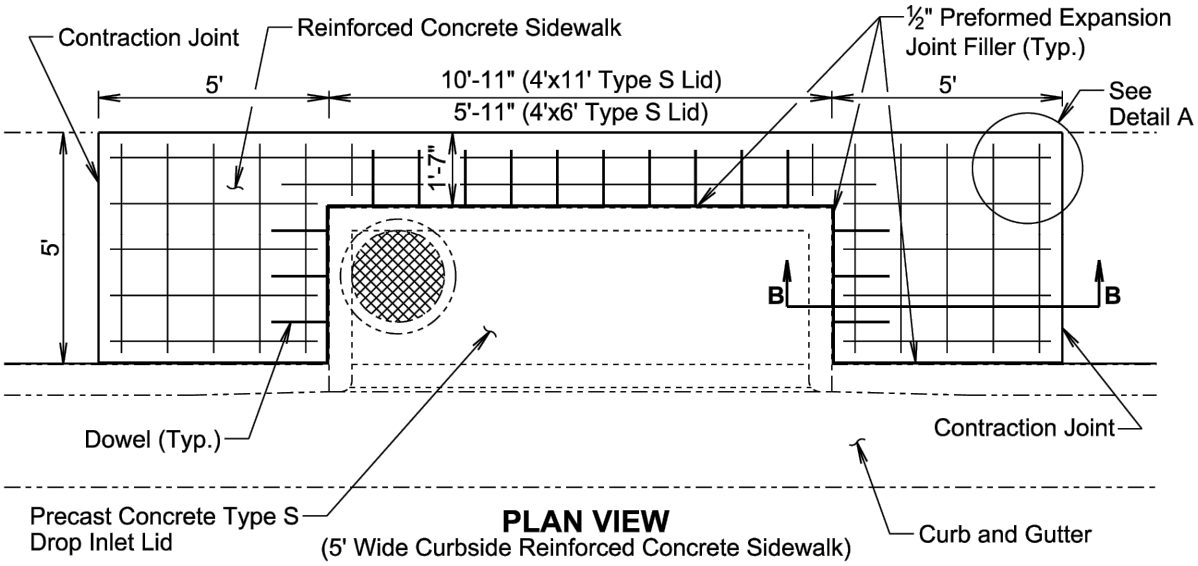
ISOMETRIC VIEW
(FOR DETACHED SIDEWALK)

Public Works Department

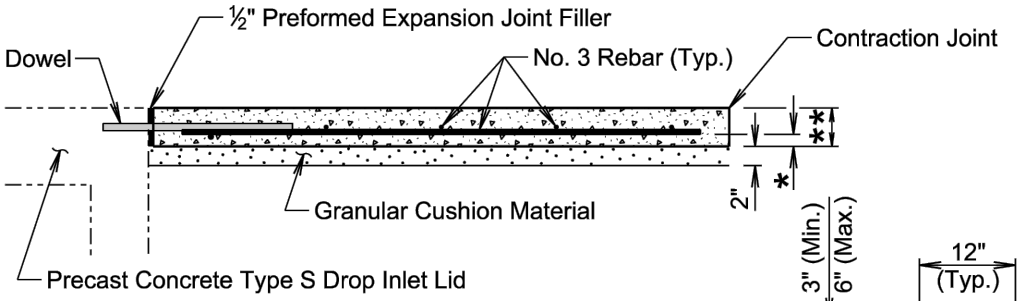
City of Spearfish

SIDEWALK GUTTER DRAIN
CURB SIDE SIDEWALK

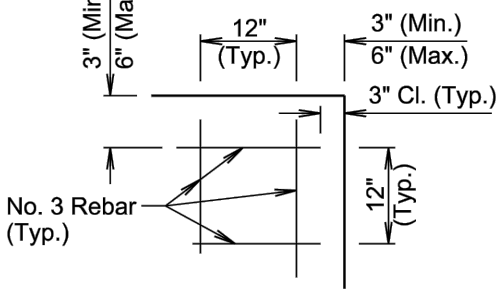
DATE	03/05/26
REVISED	00/00/00
SECTION	DETAIL #
	200-03



PLAN VIEW
(5' Wide Curbside Reinforced Concrete Sidewalk)



SECTION B-B



DETAIL A

** 4", 5", or 6" as specified elsewhere in the plans.

* 1⅝" for 4" sidewalk, 2⅛" for 5" sidewalk, and 2⅝" for 6" sidewalk.

GENERAL NOTES:

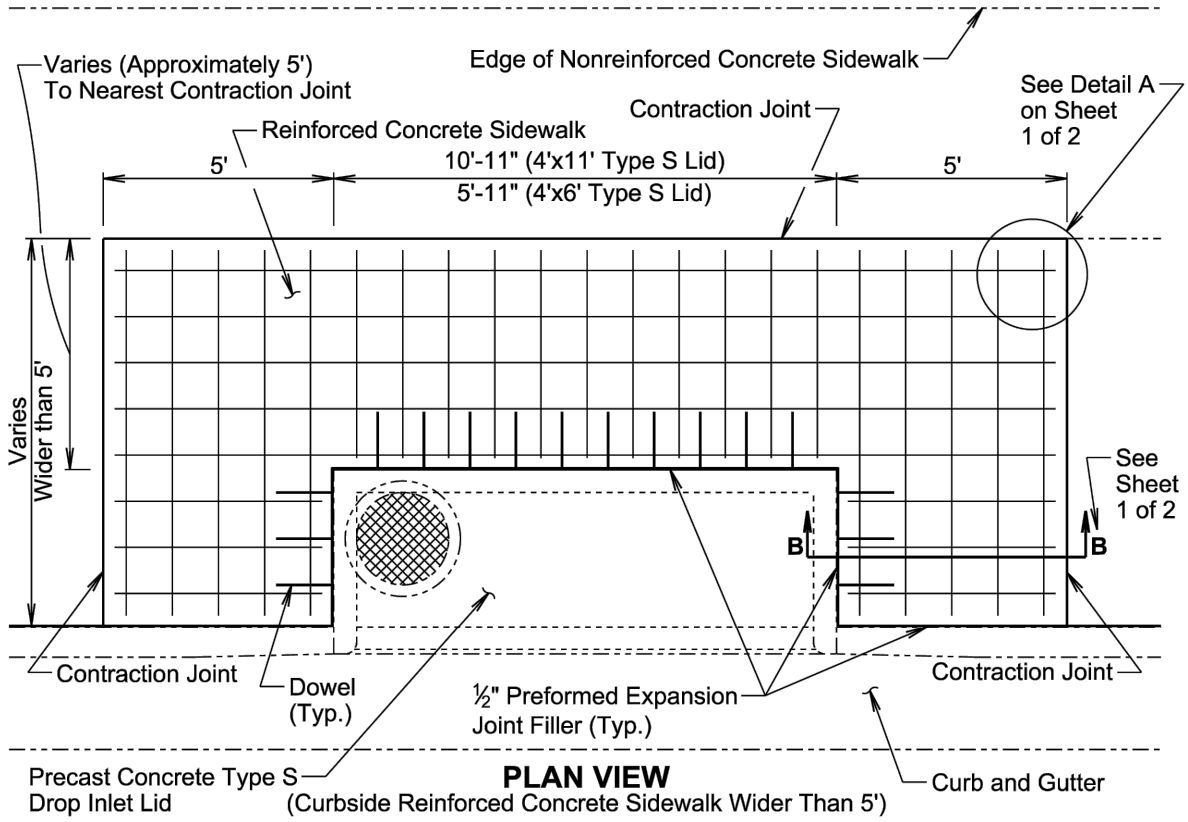
The precast concrete Type S lids shown are 4'x11' for illustrative purpose.

The cross slope of the sidewalk and precast concrete type S drop inlet lid will be as specified elsewhere in the plans.

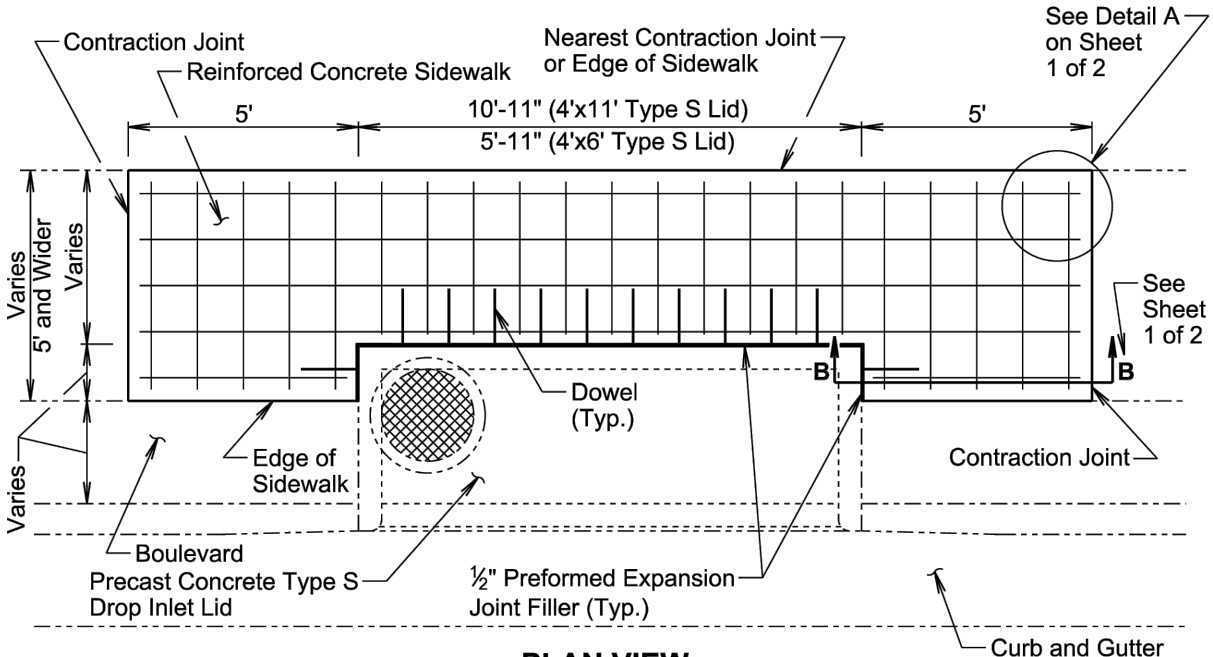
When lapping of reinforcing steel is necessary, the No. 3 rebar will be lapped 12".

SHEET 1 OF 2

CITY OF SPEARFISH Public Works Department	*City of Spearfish*	DATE 01/20/26 REVISED 00/00/00
	REINFORCED CONCRETE SIDEWALK ADJACENT TO CONCRETE TYPE 'S' INLET	SECTION DETAIL # 200-04



PLAN VIEW
(Curbside Reinforced Concrete Sidewalk Wider Than 5')



PLAN VIEW
(Reinforced Concrete Sidewalk With Boulevard)

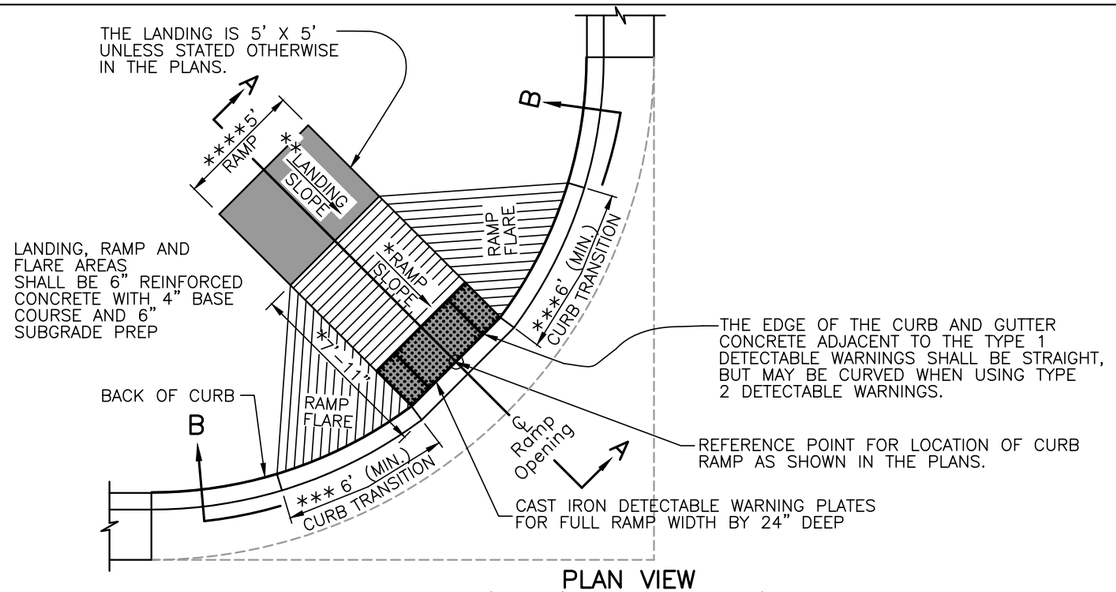
SHEET 2 OF 2

Public Works Department

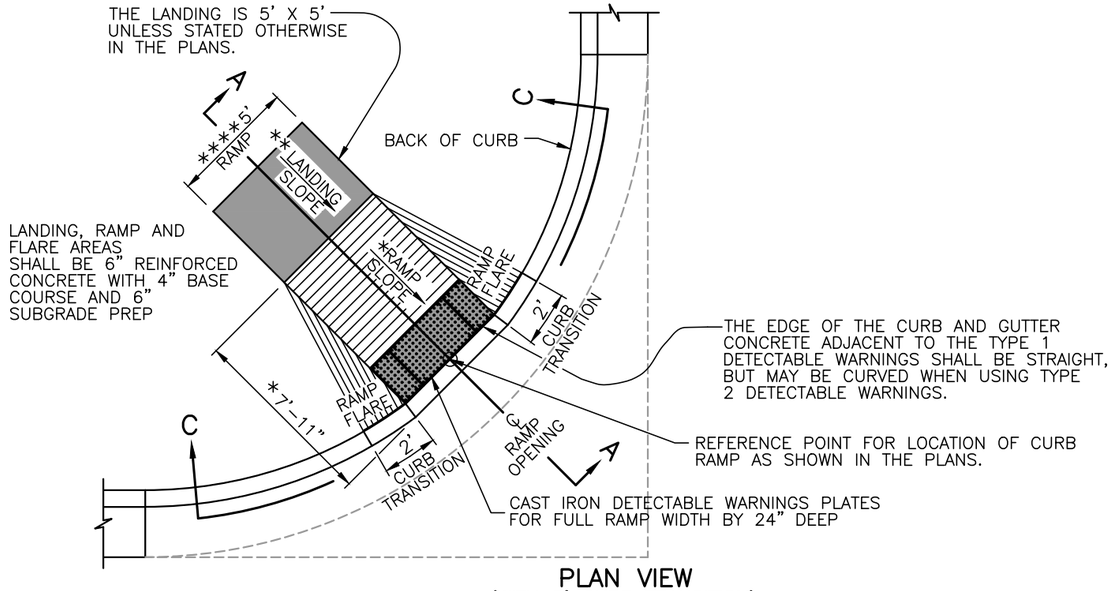
City of Spearfish

REINFORCED CONCRETE SIDEWALK ADJACENT TO CONCRETE TYPE 'S' INLET

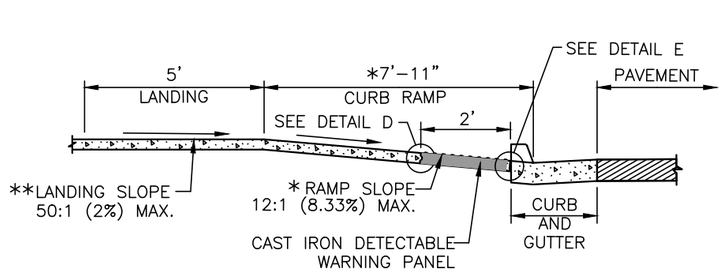
DATE	01/20/26
REVISED	00/00/00
SECTION	DETAIL #
	200-04



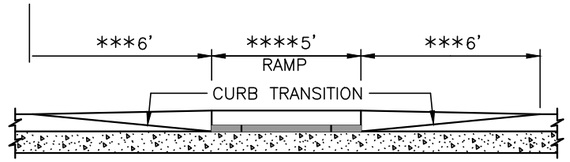
PLAN VIEW
(WITH 6'+ CURB TRANSITION)



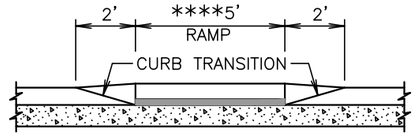
PLAN VIEW
(WITH 2' CURB TRANSITION)



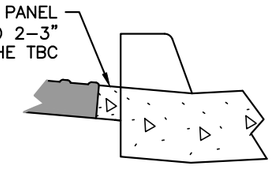
SECTIONAL VIEW A–A



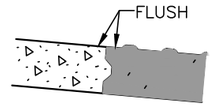
SECTIONAL VIEW B–B



SECTIONAL VIEW C–C



DETAIL E



DETAIL D

GENERAL NOTES:

FOR ILLUSTRATIVE PURPOSE ONLY, PCC FILLET SECTIONS ARE SHOWN IN THE DRAWINGS. THE CURB RAMP DEPICTED ON THIS STANDARD PLATE MAY BE USED WITH A PCC FILLET SECTION, WITH CURVED CURB AND GUTTER, OR WITH STRAIGHT CURB AND GUTTER.

FOR ILLUSTRATIVE PURPOSE ONLY, THE CURB RAMP LOCATION IS SHOWN AT THE CENTER OF A PCC FILLET SECTION. THE CURB RAMP SHALL BE PLACED AT THE LOCATION STATED IN THE PLANS.

SIDEWALK SHALL NOT BE PLACED ADJACENT TO THE RAMP FLARES WHEN A 2' CURB TRANSITION IS USED UNLESS SHOWN OTHERWISE IN THE PLANS.

CARE SHALL BE TAKEN TO ENSURE A UNIFORM GRADE ON THE RAMP, FREE OF SAGS AND SHORT GRADE CHANGES.

SURFACE TEXTURE OF THE RAMP SHALL BE OBTAINED BY COARSE BROOMING TRANSVERSE TO THE SLOPE OF THE RAMP.

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

JOINTS SHALL BE SAWED OR TOOLED INTO THE CONCRETE ADJACENT TO THE DETECTABLE WARNINGS TO ALLEVIATE POSSIBLE CORNER CRACKING.

CARE SHALL BE TAKEN TO ENSURE THAT THE SURFACE OF THE DETECTABLE WARNINGS ARE CLEAN AND MAINTAINS A UNIFORM COLOR.

MAINTAIN 2–3" OF CONCRETE BETWEEN THE BACK OF CURB AND FRONT OF DETECTABLE WARNING PANEL.

THE SQUARE FOOT AREA OF THE DETECTABLE WARNINGS SHALL BE INCLUDED IN THE MEASURED AND PAID FOR QUANTITY OF THE RAMP.

SLOPES SHOULD BE DESIGNED FOR 1.5% CROSS SLOPE AND 7.5% RAMP SLOPES TO HELP ENSURE FIELD COMPLIANCE WITH MAXIMUMS SHOWN.

*THE RAMP SLOPE SHALL NOT BE FLATTER THAN A 20:1 (5%) AND NOT BE STEEPER THAN A 12:1 (8.33%) BUT SHALL NOT REQUIRE THE RAMP LENGTH TO EXCEED 15' UNLESS STATED OTHERWISE IN THE PLANS. THE CROSS SLOPE OF THE RAMP SHALL NOT EXCEED 50:1 (2%). THE 7'–11" DIMENSION WAS COMPUTED BASED ON A FLAT ROADWAY PROFILE, A CONTINUOUS 2% THEORETICAL SLOPE FROM TOP OF THEORETICAL CURB TO THE TOP OF RAMP, AND A 6" HIGH CURB. THE DIMENSION SHALL BE ADJUSTED BASED ON THE CURB TYPE SHOWN IN THE PLANS, THE ROADWAY GEOMETRICS, AND THE SIDEWALK GEOMETRICS.

**THE LANDING SLOPE SHALL NOT EXCEED 50:1 (2%) IN ANY DIRECTION OF PEDESTRIAN TRAVEL.

***THE CURB TRANSITION SHALL BE A MINIMUM OF 6' LONG, A MAXIMUM OF 10' LONG, AND THE CURB TRANSITION SLOPE SHALL NOT BE STEEPER THAN A 10:1 (10%) UNLESS STATED OTHERWISE IN THE PLANS.

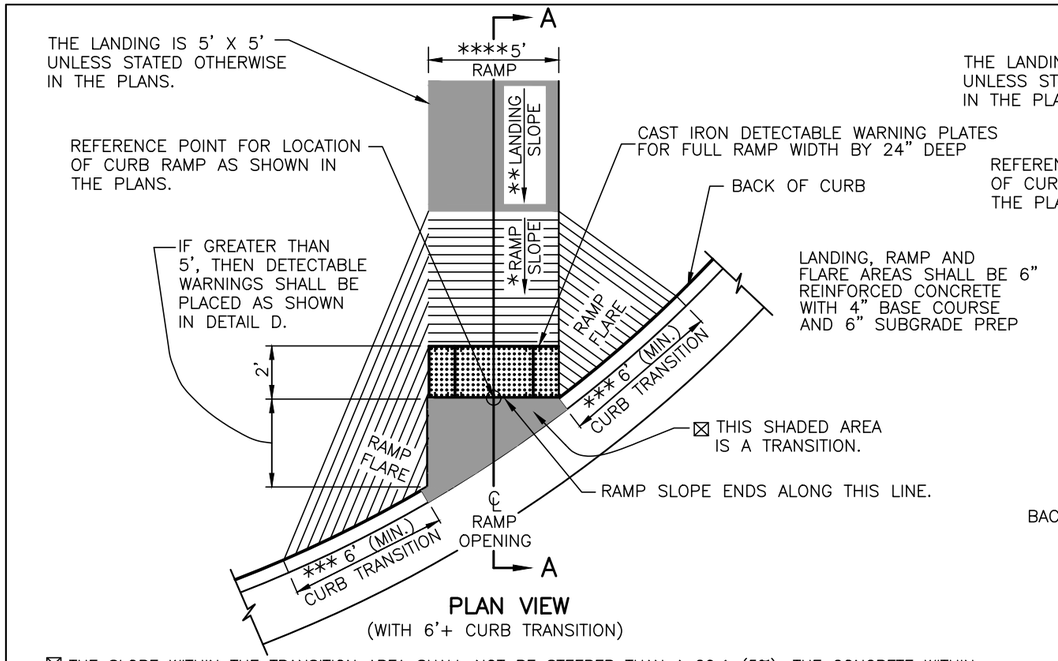
****THE RAMP WIDTH IS 5' UNLESS STATED OTHERWISE IN THE PLANS.

Public Works Department

City of Spearfish

TYPE 1 CURB RAMP (PERPENDICULAR CURB RAMP)

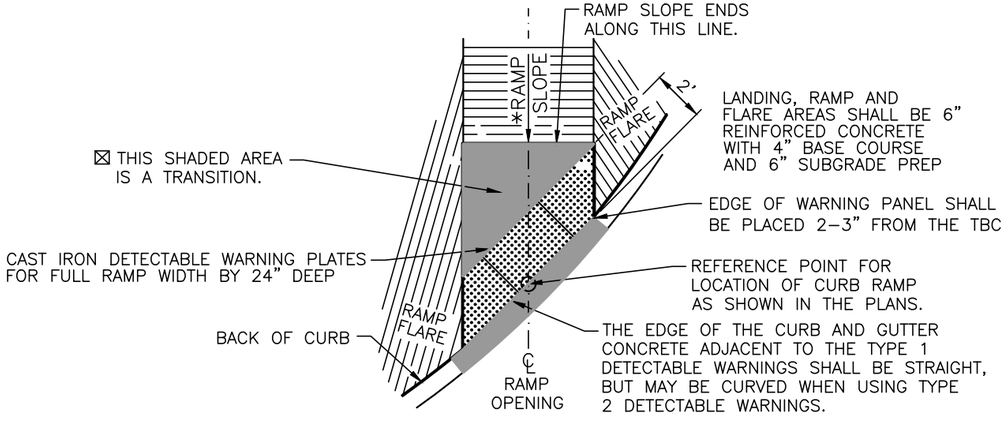
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	200-05



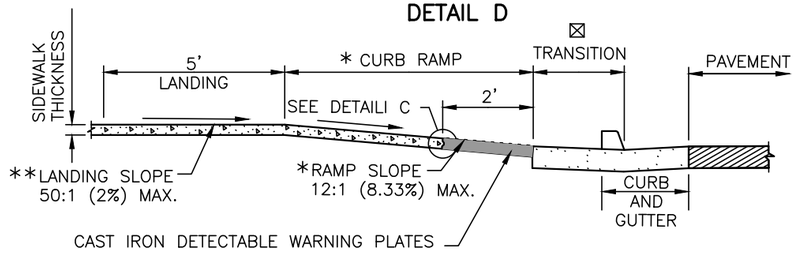
PLAN VIEW
(WITH 6'+ CURB TRANSITION)

☒ THE SLOPE WITHIN THE TRANSITION AREA SHALL NOT BE STEEPER THAN A 20:1 (5%). THE CONCRETE WITHIN THE TRANSITION SHALL BE PLACED MONOLITHIC WITH THE CURB AND GUTTER OR FILLET SECTION CONCRETE. THE CONCRETE THICKNESS WITHIN THE TRANSITION SHALL BE THE SAME AS THE CURB AND GUTTER OR FILLET SECTION CONCRETE THICKNESS.

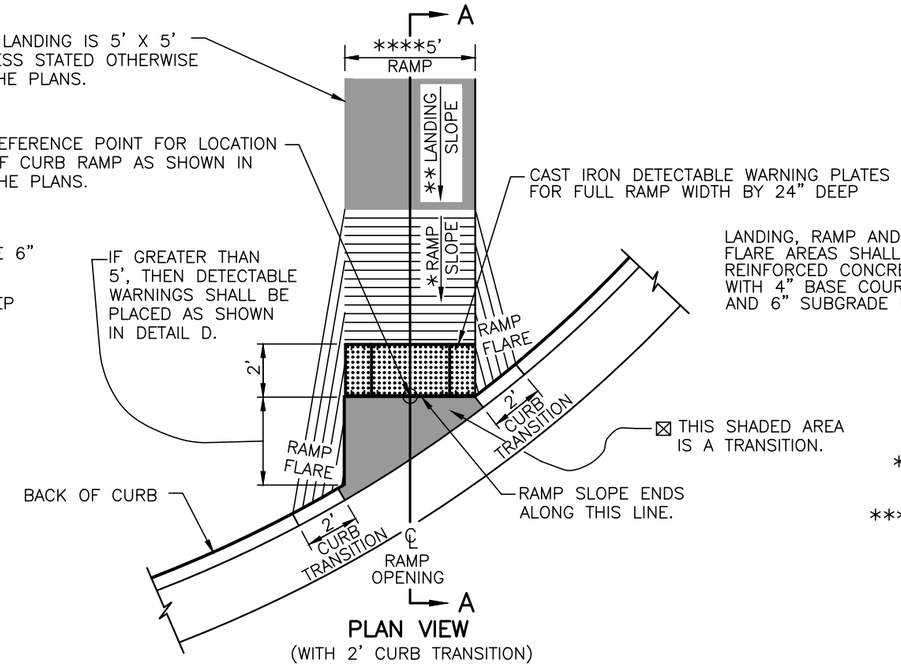
*** THE CURB TRANSITION SHALL BE A MINIMUM OF 6' LONG, A MAXIMUM OF 10' LONG, AND THE CURB TRANSITION SLOPE SHALL NOT BE STEEPER THAN A 10:1 (10%) UNLESS STATED OTHERWISE IN THE PLANS.



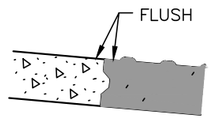
DETAIL D



SECTION A–A



PLAN VIEW
(WITH 2' CURB TRANSITION)



DETAIL C

* THE RAMP SLOPE SHALL NOT BE FLATTER THAN A 20:1 (5%) AND NOT BE STEEPER THAN A 12:1 (8.33%) BUT SHALL NOT REQUIRE THE RAMP LENGTH TO EXCEED 15' UNLESS STATED OTHERWISE IN THE PLANS. THE CROSS SLOPE OF THE RAMP SHALL NOT BE STEEPER THAN A 50:1 (2%).

** THE LANDING SLOPE SHALL NOT BE STEEPER THAN A 50:1 (2%) IN ANY DIRECTION OF PEDESTRIAN TRAVEL.

**** THE RAMP WIDTH IS 5' UNLESS STATED OTHERWISE IN THE PLANS.

GENERAL NOTES:

THE CURB RAMP DEPICTED ON THIS STANDARD PLATE MAY BE USED WITH A PCC FILLET SECTION, WITH CURVED CURB AND GUTTER, OR WITH STRAIGHT CURB AND GUTTER.

SIDEWALK SHALL NOT BE PLACED ADJACENT TO THE RAMP FLARES WHEN A 2' CURB TRANSITION IS USED UNLESS SHOWN OTHERWISE IN THE PLANS.

CARE SHALL BE TAKEN TO ENSURE A UNIFORM GRADE ON THE RAMP, FREE OF SAGS AND SHORT GRADE CHANGES.

SURFACE TEXTURE OF THE RAMP SHALL BE OBTAINED BY COARSE BROOMING TRANSVERSE TO THE SLOPE OF THE RAMP.

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

JOINTS SHALL BE SAWED OR TOOLED INTO THE CONCRETE ADJACENT TO THE DETECTABLE WARNINGS TO ALLEVIATE POSSIBLE CORNER CRACKING.

CARE SHALL BE TAKEN TO ENSURE THAT THE SURFACE OF THE DETECTABLE WARNINGS ARE CLEAN AND MAINTAINS A UNIFORM COLOR.

MAINTAIN 2–3" OF CONCRETE BETWEEN THE BACK OF CURB AND FRONT OF DETECTABLE WARNING PANEL.

THE SQUARE FOOT AREA OF THE DETECTABLE WARNINGS SHALL BE INCLUDED IN THE MEASURED AND PAID FOR QUANTITY OF THE RAMP.

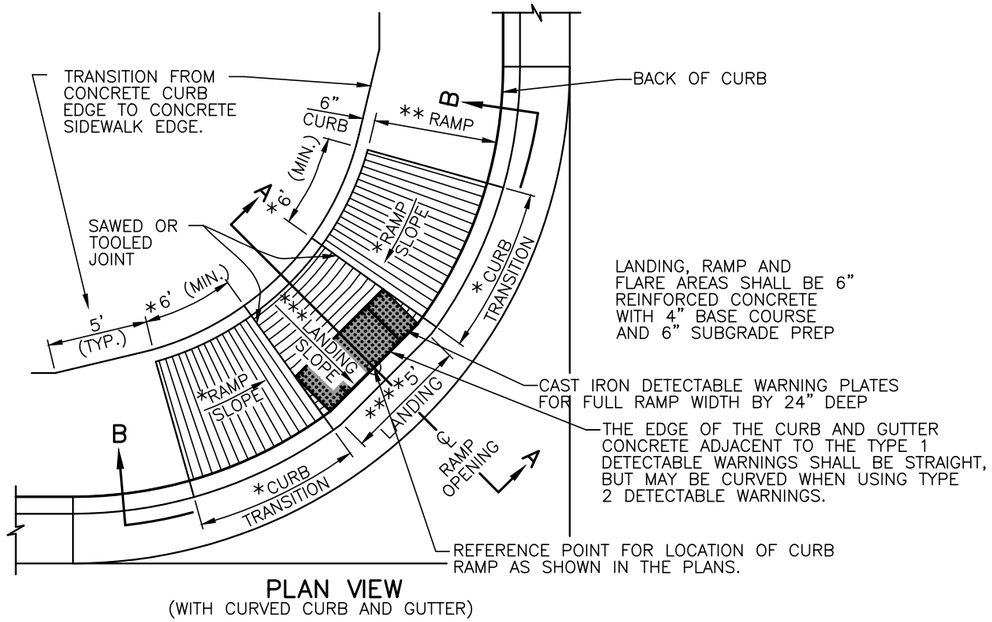
SLOPES SHOULD BE DESIGNED FOR 1.5% CROSS SLOPE AND 7.5% RAMP SLOPES TO HELP ENSURE FIELD COMPLIANCE WITH MAXIMUMS SHOWN.

CITY OF SPEARFISH
Public Works Department

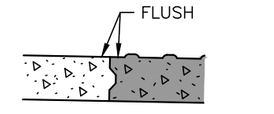
City of Spearfish

TYPE 2 CURB RAMP (DIRECTIONAL CURB RAMP)

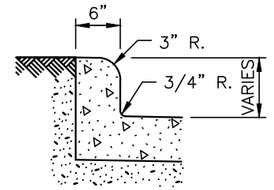
DATE	03/05/26
REVISED	00/00/00
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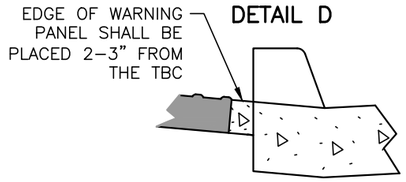
PLAN VIEW
(WITH CURVED CURB AND GUTTER)



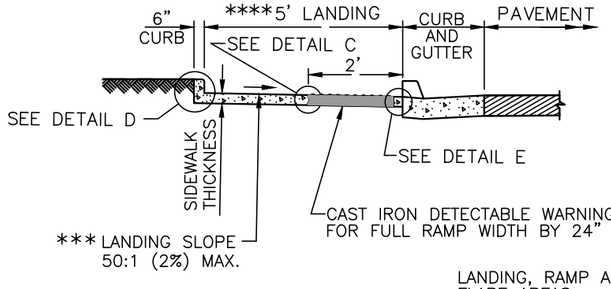
DETAIL C



DETAIL D

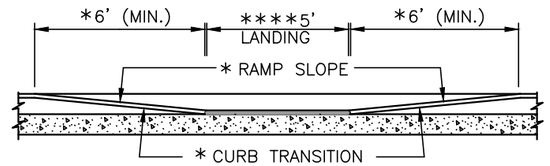


DETAIL E

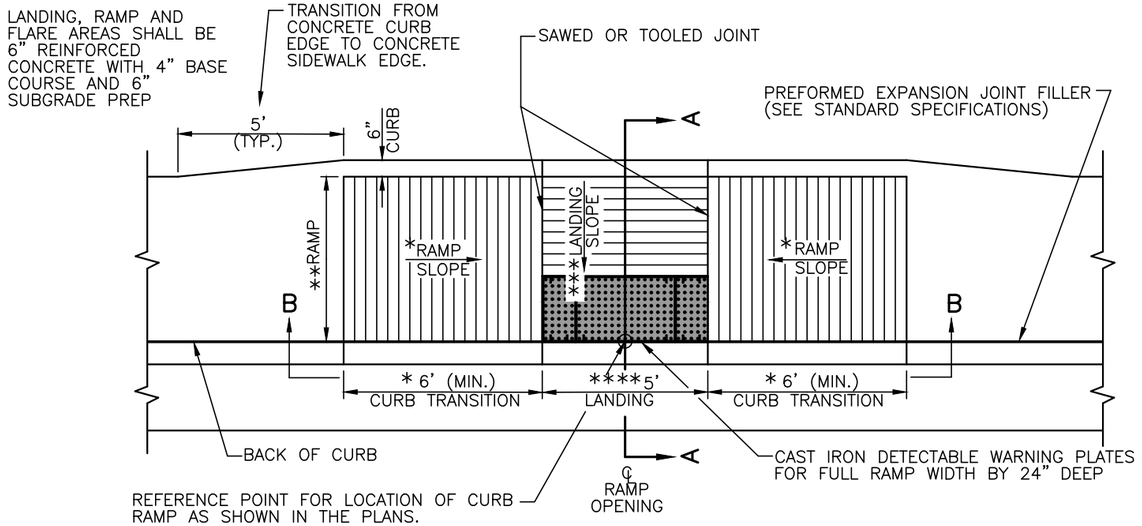


SECTION A–A

LANDING, RAMP AND FLARE AREAS SHALL BE 6" THICK WITH 4" BASE COURSE AND 6" SUBGRADE PREP



SECTIONAL VIEW B–B



PLAN VIEW
(WITH STRAIGHT CURB AND GUTTER)

GENERAL NOTES:

FOR ILLUSTRATIVE PURPOSE ONLY, A PCC FILLET SECTION IS SHOWN IN ONE OF THE DRAWINGS. THE CURB RAMP DEPICTED ON THIS STANDARD PLATE MAY BE USED WITH A PCC FILLET SECTION, WITH CURVED CURB AND GUTTER, OR WITH STRAIGHT CURB AND GUTTER.

THE CURB RAMP SHALL BE PLACED AT THE LOCATION STATED IN THE PLANS.

SIDEWALK ADJACENT TO THE CURB RAMP SHALL BE AS SHOWN IN THE PLANS.

CARE SHALL BE TAKEN TO ENSURE A UNIFORM GRADE ON THE RAMP, FREE OF SAGS AND SHORT GRADE CHANGES.

SURFACE TEXTURE OF THE RAMP SHALL BE OBTAINED BY COARSE BROOMING TRANSVERSE TO THE SLOPE OF THE RAMP.

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

JOINTS SHALL BE SAWED OR TOOLED INTO THE CONCRETE ADJACENT TO THE DETECTABLE WARNINGS TO ALLEVIATE POSSIBLE CORNER CRACKING (SEE PLAN VIEW FOR JOINT LOCATION).

CARE SHALL BE TAKEN TO ENSURE THAT THE SURFACE OF THE DETECTABLE WARNINGS ARE CLEAN AND MAINTAINS A UNIFORM COLOR.

MAINTAIN 2–3" OF CONCRETE BETWEEN THE BACK OF CURB AND FRONT OF DETECTABLE WARNING PANEL.

THE SQUARE FOOT AREA OF THE DETECTABLE WARNINGS SHALL BE INCLUDED IN THE MEASURED AND PAID FOR QUANTITY OF THE RAMP.

SLOPES SHOULD BE DESIGNED FOR 1.5% CROSS SLOPE AND 7.5% RAMP SLOPES TO HELP ENSURE FIELD COMPLIANCE WITH MAXIMUMS SHOWN.

* THE CURB TRANSITION SLOPE SHALL MATCH THE RAMP SLOPE. THE RAMP SLOPE, AT ANY LOCATION OF THE RAMP, SHALL NOT BE FLATTER THAN A 20:1 (5%) AND NOT BE STEEPER THAN A 12:1 (8.33%) BUT SHALL NOT REQUIRE THE RAMP LENGTH TO EXCEED 15' UNLESS STATED OTHERWISE IN THE PLANS. THE MINIMUM LENGTH OF THE CURB TRANSITION SHALL BE 6'.

** THE RAMP CROSS SLOPE SHALL NOT BE STEEPER THAN A 50:1 (2%) AND THE RAMP WIDTH IS 5' UNLESS STATED OTHERWISE IN THE PLANS.

*** THE LANDING SLOPE SHALL NOT BE STEEPER THAN A 50:1 (2%) IN ANY DIRECTION OF PEDESTRIAN TRAVEL.

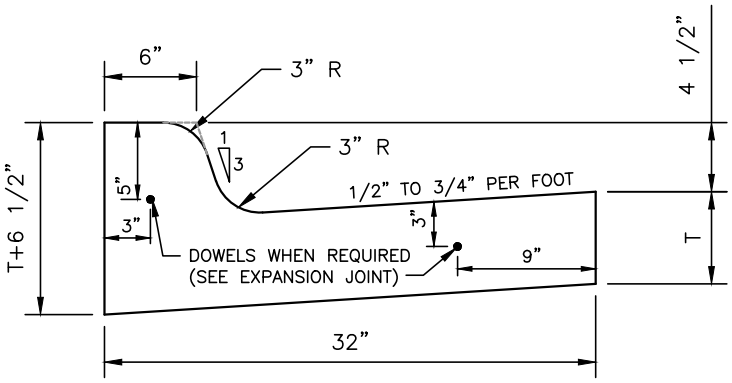
**** THE LANDING IS 5' X 5' UNLESS STATED OTHERWISE IN THE PLANS.

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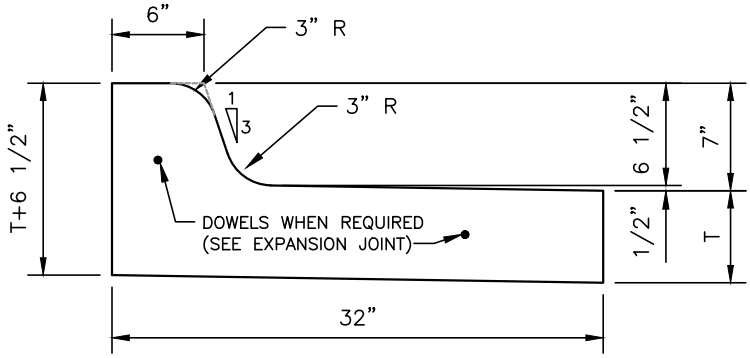
City of Spearfish

TYPE 3 CURB RAMP (PARALLEL CURB RAMP)

DATE	03/05/26
REVISED	00/00/00
SECTION	DETAIL #
	200-07



STANDARD CURB & GUTTER (TYPE B)



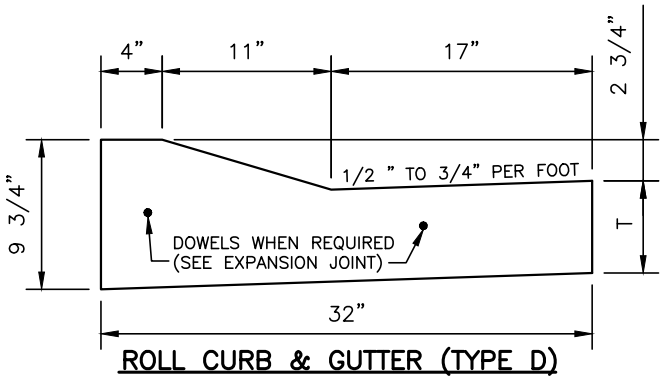
TILTED CURB & GUTTER (TYPE BL)

NOTES:
ALL CURB & GUTTER SHALL HAVE A 28 DAY COMPRESSIVE STRENGTH OF NOT LESS THAN 4000 P.S.I. & AIR ENTRAINED 6% ± 1.5% (4.5% TO 7.5%). ALL DESIGN GRADES ARE TOP OF CURB ELEVATIONS UNLESS OTHERWISE INDICATED ON PLANS. EXPANSION JOINT FILLER IS TO BE PLACED IN THE CURB & GUTTER AT EACH JUNCTION OF A RADIUS, FOR LONG RUNS FILLER IS TO BE PLACED AT A 400 FT MAX SPACING. CONTRACTION JOINTS SHALL BE PLACED IN THE CURB & GUTTER AT 10' MAXIMUM INTERVALS OR MATCH JOINTS OF CONCRETE PAVEMENT. DOWELS, WHEN REQUIRED, SHALL BE #4 DRILLED & EPOXY REBAR.

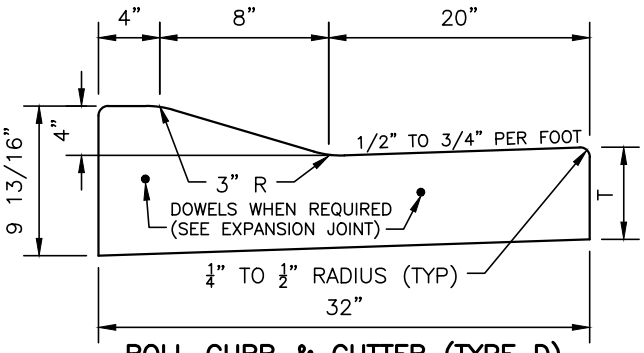
MINIMUM DEPTH OF GRANULAR MATERIAL PLACED UNDER CURB & GUTTER SHALL BE 4".

WHERE T IS EQUAL TO PAVEMENT THICKNESS OR 6", WHICHEVER IS GREATER.

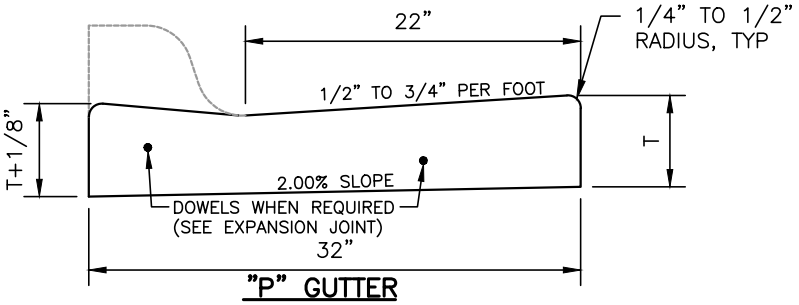
BOTH TYPE D CURB SECTIONS PRESENTED WILL BE ALLOWED.



ROLL CURB & GUTTER (TYPE D)



ROLL CURB & GUTTER (TYPE D)



"P" GUTTER

Public Works Department

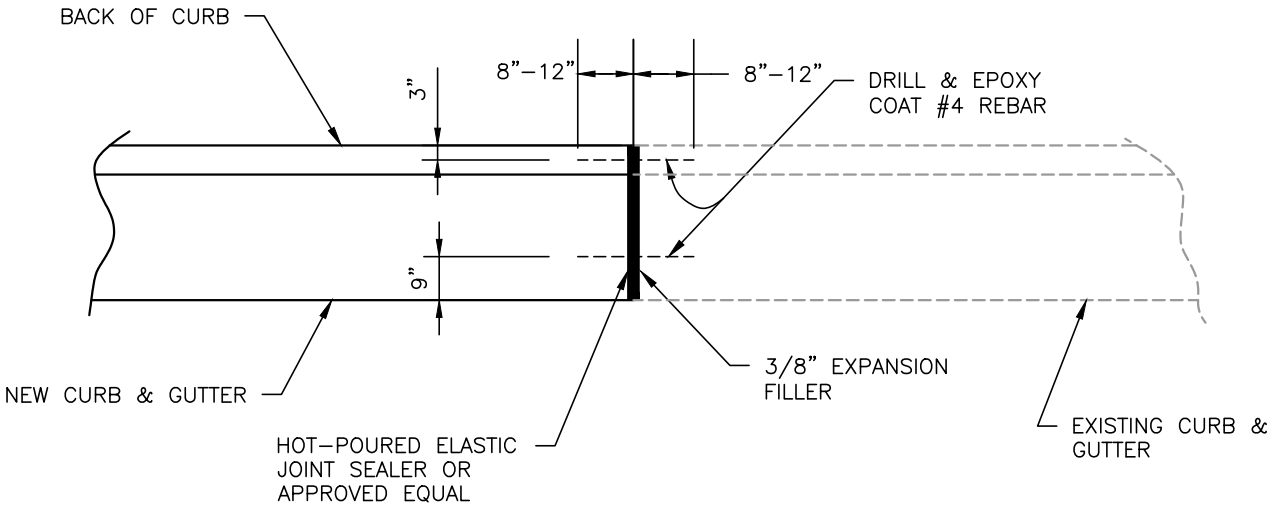
City of Spearfish

CONCRETE CURB AND GUTTER

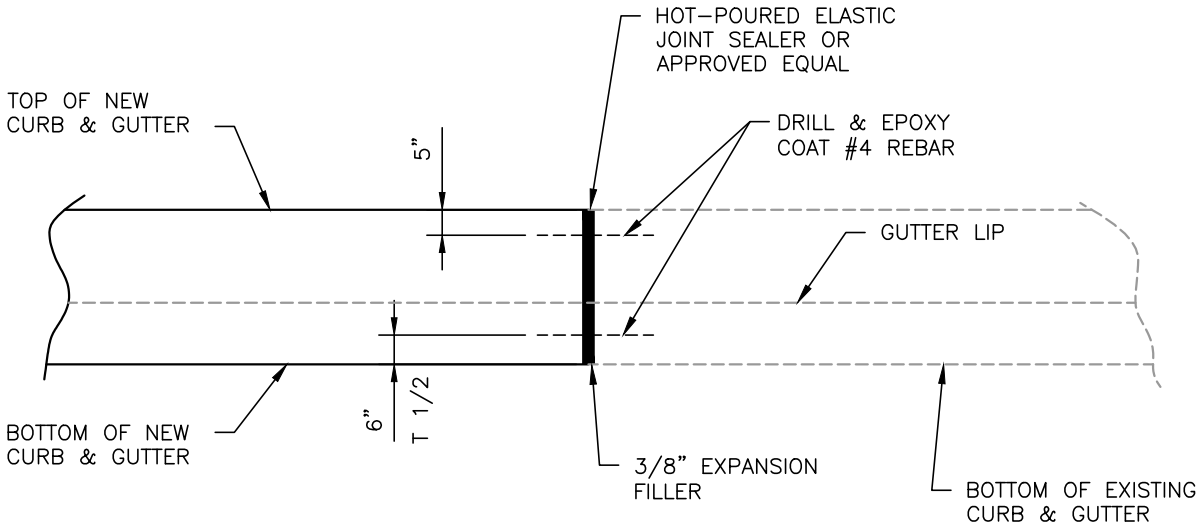
DATE 03/05/26

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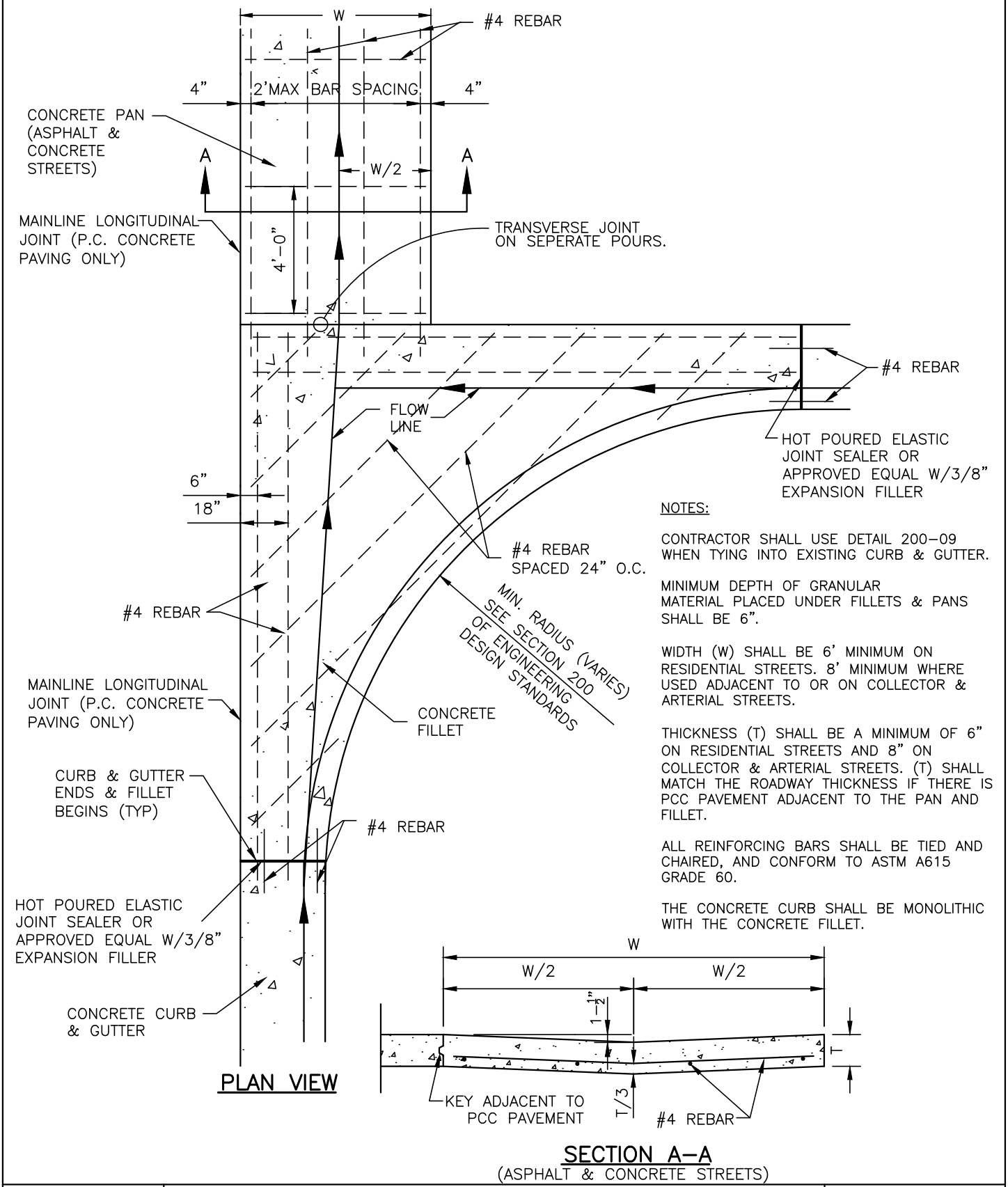


PLAN



PROFILE

CITY OF SPEARFISH Public Works Department	**City of Spearfish**	DATE 03/05/26 REVISED 00/00/00
	CURB AND GUTTER REPAIR	SECTION DETAIL # 200-09



NOTES:

CONTRACTOR SHALL USE DETAIL 200-09 WHEN TYING INTO EXISTING CURB & GUTTER.

MINIMUM DEPTH OF GRANULAR MATERIAL PLACED UNDER FILLETS & PANS SHALL BE 6".

WIDTH (W) SHALL BE 6' MINIMUM ON RESIDENTIAL STREETS. 8' MINIMUM WHERE USED ADJACENT TO OR ON COLLECTOR & ARTERIAL STREETS.

THICKNESS (T) SHALL BE A MINIMUM OF 6" ON RESIDENTIAL STREETS AND 8" ON COLLECTOR & ARTERIAL STREETS. (T) SHALL MATCH THE ROADWAY THICKNESS IF THERE IS PCC PAVEMENT ADJACENT TO THE PAN AND FILLET.

ALL REINFORCING BARS SHALL BE TIED AND CHAIRED, AND CONFORM TO ASTM A615 GRADE 60.

THE CONCRETE CURB SHALL BE MONOLITHIC WITH THE CONCRETE FILLET.

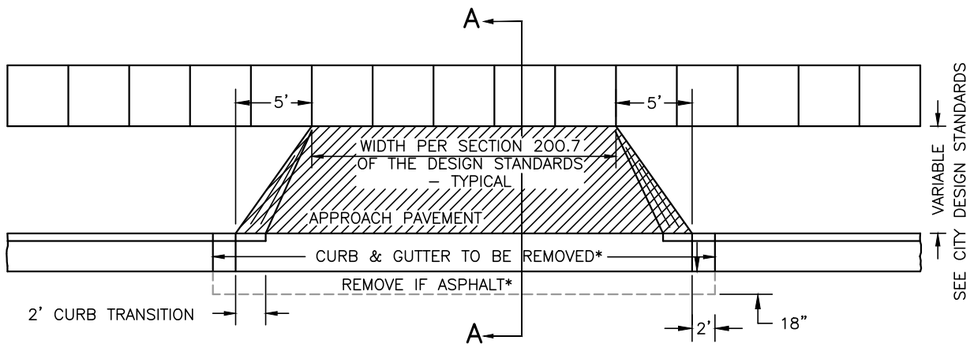
Public Works Department

City of Spearfish

REINFORCED CONCRETE FILLET AND PAN

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	200-10

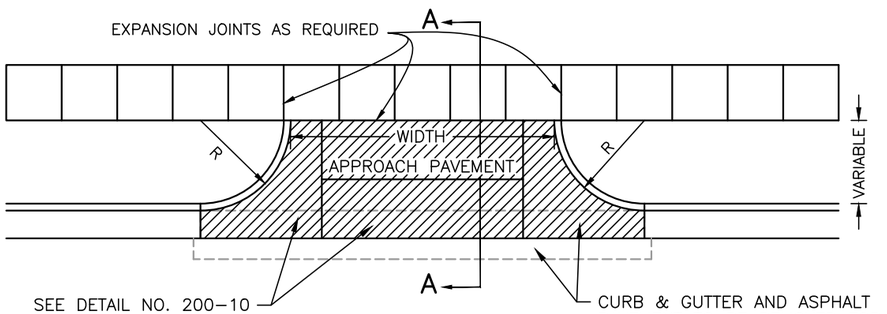
DROP CURB TYPE APPROACH



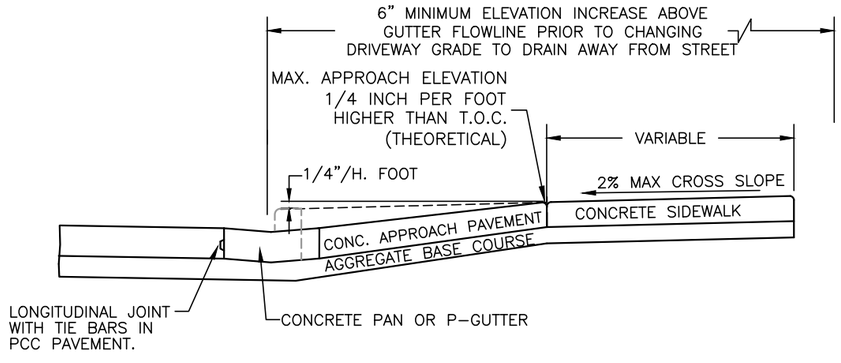
PLAN VIEW

*REMOVE FOR EXISTING DRIVEWAYS

RADIUS TYPE APPROACH

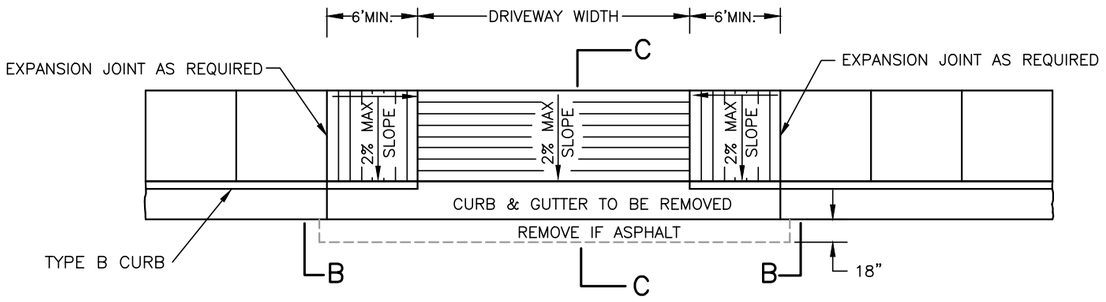


PLAN VIEW

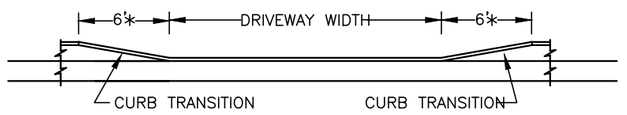


SECTION VIEW A–A

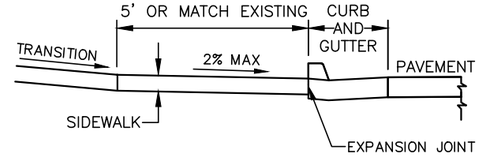
CURBSIDE SIDEWALK TYPE APPROACH



PLAN VIEW



SECTION VIEW B–B



SECTION VIEW C–C

* REQUIREMENT: WHEN BACK OF CURB SIDEWALK IS GOING TO BE INSTALLED IT WILL BE NECCESSARY TO EXTEND THE CURB TRANSITION LENGTH ACCORDING TO THE TABLE TO ACHIEVE THE 8.33% MAXIMUM RUNNING SLOPE ON THE SIDEWALK RAMP ADJACENT TO THE CURB. THE TRANSITION LENGTH WILL BE LIMITED TO 15' IN LENGTH.

	TRANSITION LENGTH 8.33% MAX SLOPE	
STREET GRADE	LOW SIDE	HIGH SIDE
1%	6'–0"	7'–2"
2%	6'–0"	8'–4"
3%	6'–0"	10'–0"
4%	6'–0"	12'–6"
5% +	6'–0"	15'–0"

GENERAL NOTES

1. CITY R.O.W. PERMITS ARE REQUIRED BEFORE BEGINNING CONSTRUCTION OR ALTERATION OF ANY EXISTING DRIVEWAY. THE CURB AND GUTTER SHALL BE TAKEN OUT TO THE NEAREST CONSTRUCTION JOINT WHEN THE JOINT IS WITHIN 4' OF THE END OF THAT DRIVEWAY. FULL DEPTH SAWING IS REQUIRED WHEN THE CURB AND GUTTER IS NOT REMOVED AT A CONSTRUCTION JOINT. A CLEAN, NEAT AND VERTICAL CUT THROUGH THE CURB SECTION IS REQUIRED.

2. DRIVEWAYS FOR COMMERCIAL, INDUSTRIAL AND MULTI–FAMILY DEVELOPMENT SHALL BE INSTALLED USING A MINIMUM 6" REINFORCED CONCRETE WITH 4" AGGREGATE BASE COURSE SECTION. REINFORCEMENT (#4 REBAR) SHALL BE PLACED AT 24" ON CENTER IN EACH DIRECTION. TWO INCH (2") CLEARANCE SHALL BE MAINTAINED BETWEEN THE BOTTOM AND SIDES OF THE CONCRETE & REBAR.

3. DRIVEWAYS FOR RESIDENTIAL DEVELOPMENT SHALL BE INSTALLED USING A MINIMUM 4" CONCRETE WITH 4" AGGREGATE BASE COURSE SECTION.

4. CONTRACTION JOINTS SHALL BE FORMED IN THE APPROACH PAVEMENT BY MEANS OF A SUITABLE GROOVING TOOL. THESE JOINTS SHALL HAVE A DEPTH OF AT LEAST 1/4 THE THICKNESS OF THE CONCRETE APPROACH PAVEMENT.

5. THE CURB/GUTTER, DRIVEWAY APPROACH PAVEMENT AND THE SIDEWALK MAY NOT BE PLACED MONOLITHICALLY (I.E. COLD JOINTS IN BETWEEN EACH ITEM).

6. SIDEWALKS SHALL BE CONSTRUCTED PER STANDARD DETAIL 200–01.

7. CONCRETE PAVEMENT SHALL COMPLY WITH THE REQUIREMENTS OF THE STANDARD SPECIFICATIONS FOR 4000 PSI CONCRETE.

8. SLOPES SHALL BE DESIGNED FOR 1.5% CROSS SLOPE AND 7.5% RAMP SLOPES TO HELP ENSURE FIELD COMPLIANCE WITH MAXIMUM GRADES SHOWN HEREON.

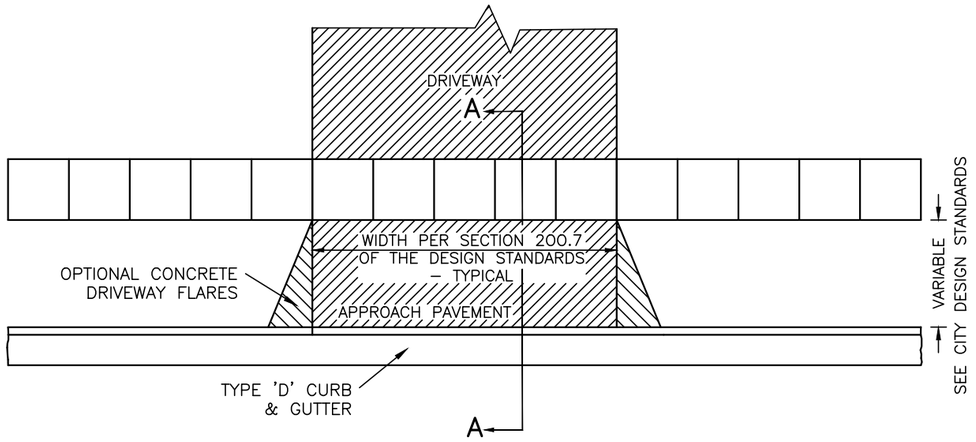
CITY OF SPEARFISH
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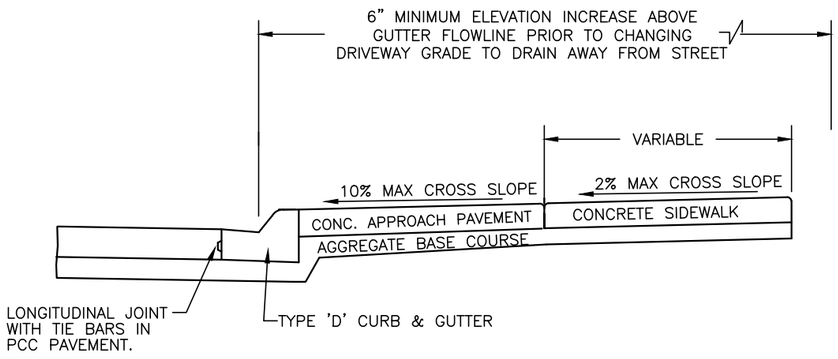
CONCRETE APPROACH PAVEMENT

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ROLL OVER CURB TYPE APPROACH

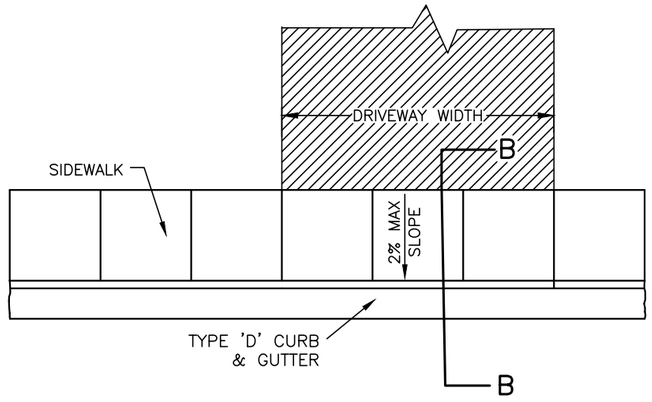


PLAN VIEW

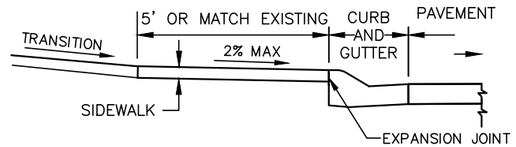


SECTION VIEW A–A

CURBSIDE SIDEWALK TYPE APPROACH



PLAN VIEW



SECTION VIEW B–B

GENERAL NOTES

1. CITY R.O.W. PERMITS ARE REQUIRED BEFORE BEGINNING CONSTRUCTION OR ALTERATION OF ANY EXISTING DRIVEWAY. THE CURB AND GUTTER SHALL BE TAKEN OUT TO THE NEAREST CONSTRUCTION JOINT WHEN THE JOINT IS WITHIN 4' OF THE END OF THAT DRIVEWAY. FULL DEPTH SAWING IS REQUIRED WHEN THE CURB AND GUTTER IS NOT REMOVED AT A CONSTRUCTION JOINT. A CLEAN, NEAT AND VERTICAL CUT THROUGH THE CURB SECTION IS REQUIRED.

2. DRIVEWAYS FOR COMMERCIAL, INDUSTRIAL AND MULTI–FAMILY DEVELOPMENT SHALL BE INSTALLED USING A MINIMUM 6" REINFORCED CONCRETE WITH 4" AGGREGATE BASE COURSE SECTION. REINFORCEMENT (#4 REBAR) SHALL BE PLACED AT 24" ON CENTER IN EACH DIRECTION. TWO INCH (2") CLEARANCE SHALL BE MAINTAINED BETWEEN THE BOTTOM AND SIDES OF THE CONCRETE & REBAR.

3. DRIVEWAYS FOR RESIDENTIAL DEVELOPMENT SHALL BE INSTALLED USING A MINIMUM 4" CONCRETE WITH 4" AGGREGATE BASE COURSE SECTION.

4. CONTRACTION JOINTS SHALL BE FORMED IN THE APPROACH PAVEMENT BY MEANS OF A SUITABLE GROOVING TOOL. THESE JOINTS SHALL HAVE A DEPTH OF AT LEAST 1/4 THE THICKNESS OF THE CONCRETE APPROACH PAVEMENT.

5. THE CURB/GUTTER, DRIVEWAY APPROACH PAVEMENT AND THE SIDEWALK MAY NOT BE PLACED MONOLITHICALLY (I.E. COLD JOINTS IN BETWEEN EACH ITEM).

6. SIDEWALKS SHALL BE CONSTRUCTED PER STANDARD DETAIL 200–01.

7. CONCRETE PAVEMENT SHALL COMPLY WITH THE REQUIREMENTS OF THE STANDARD SPECIFICATIONS FOR 4000 PSI CONCRETE.

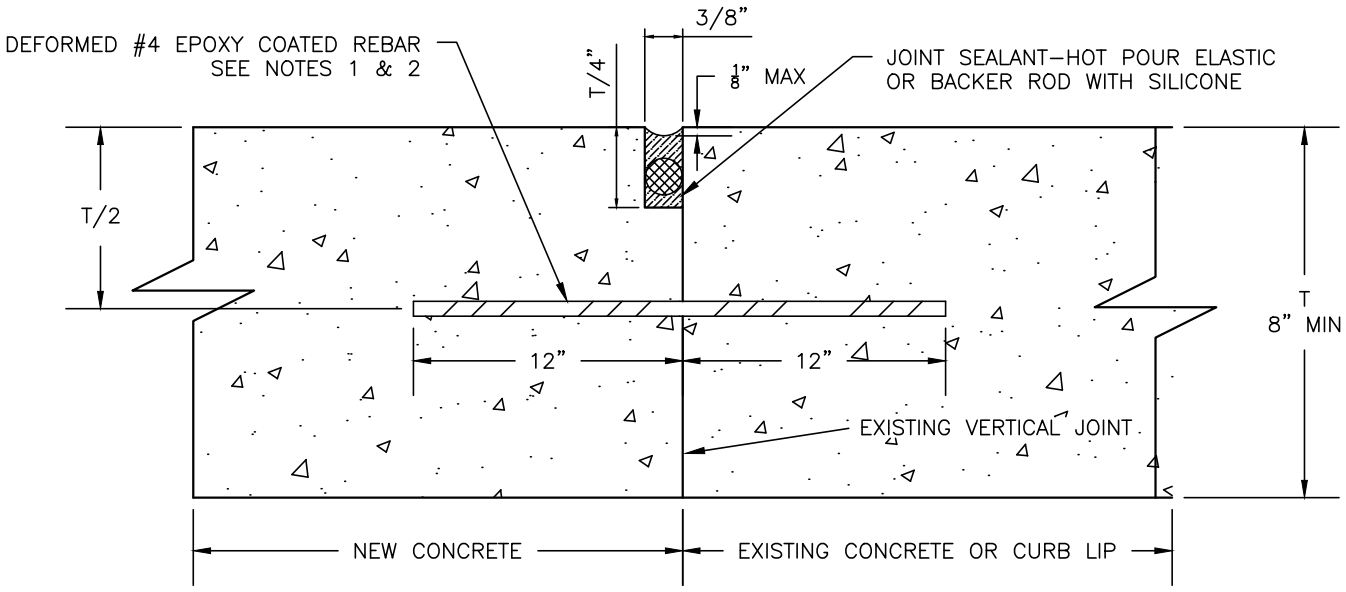
8. SLOPES SHALL BE DESIGNED FOR 1.5% CROSS SLOPE AND 7.5% RAMP SLOPES TO HELP ENSURE FIELD COMPLIANCE WITH MAXIMUM GRADES SHOWN HEREON.

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CONCRETE APPROACH PAVEMENT FOR TYPE 'D' ROLLOVER CURB/GUTTER

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LONGITUDINAL CONTRACTION / CONSTRUCTION JOINT

*THIS DETAIL SHALL ALSO BE USED FOR MID–PANEL REPAIR JOINTS

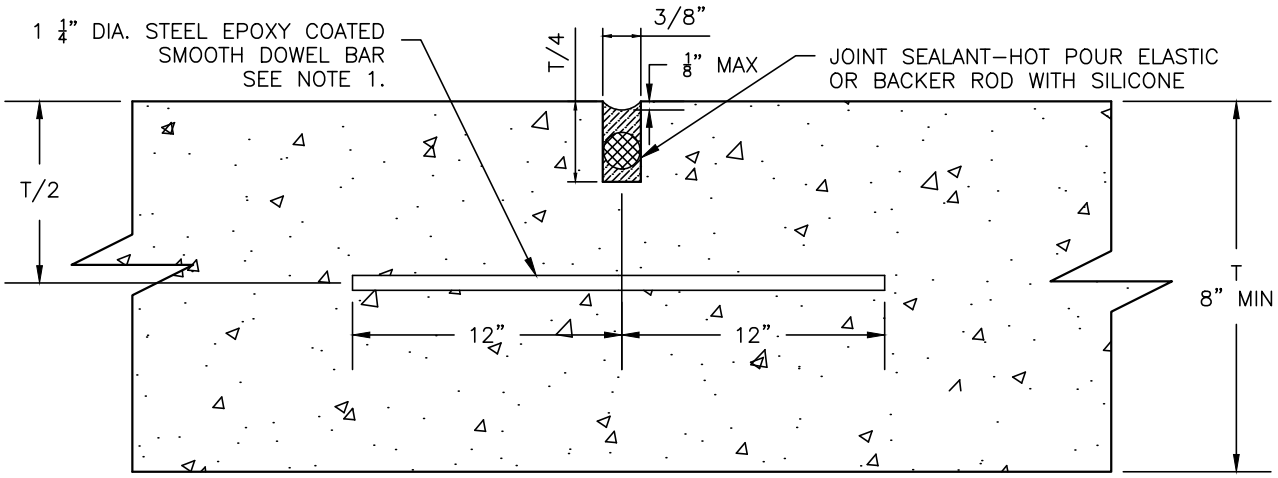
NOTES:
1. CURB AND GUTTER SHALL MATCH PAVEMENT THICKNESS AND BE DOWLED AND EXPOXIED INTO THE PAVEMENT AS SHOWN.
2. INSERT #4 REBAR SPACING 24" CENTER TO CENTER DURING INITIAL PAVING OR DRILL AND EMBED REBAR.
3. IF UTILIZED, BACKER ROD SHALL BE ½" CLOSED CELL POLYETHYLENE FOAM NON–MOISTURE ABSORBING.
4. THE FIRST TIE BAR SHALL BE 6" FROM ANY CONCRETE EDGE PARALLEL TO BAR.
5. ALL JOINT SEALANT SHALL BE AS SPECIFIED IN THE SPECIFICATIONS.
6. CONSIDERATION OF THE PANEL LENGTH TO WIDTH RATIO WITH TRANSVERSE JOINTS SHALL BE CONSIDERED IN THE LONGITUDINAL JOINT DESIGN.

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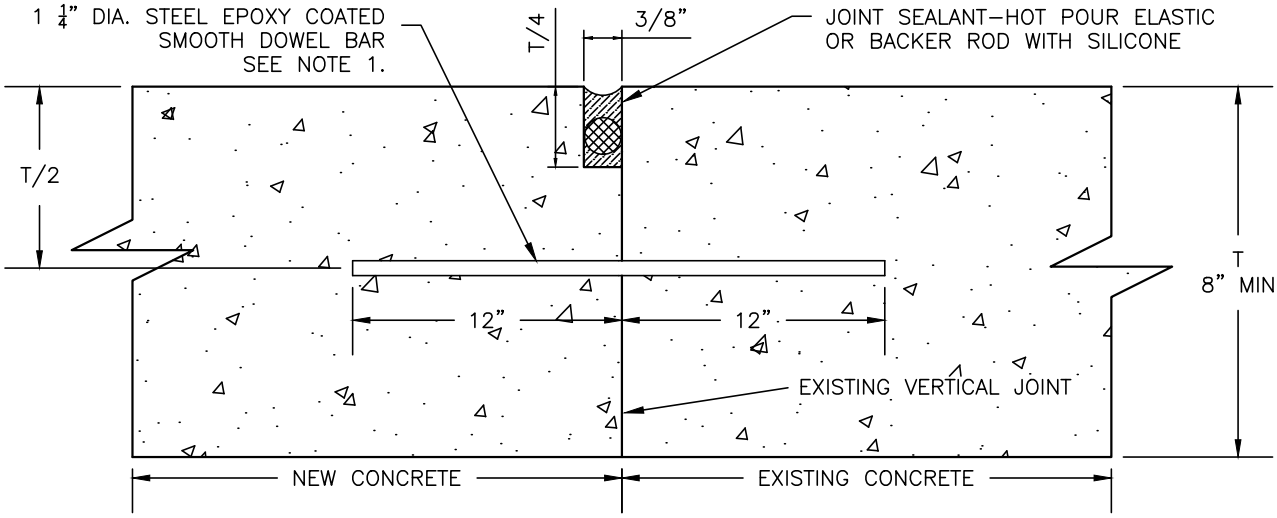
LONGITUDINAL JOINT DETAILS FOR PCC PAVEMENT

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NOTES:
1. INSTALL WITH DOWEL BASKETS WITH INITIAL PAVING ON 24" CENTERS.
2. IF UTILIZED, BACKER ROD SHALL BE ½" CLOSED CELL POLYETHYLENE FOAM NON–MOISTURE ABSORBING.
3. THE FIRST BAR SHALL BE 6" FROM ANY CONCRETE EDGE PARALLEL TO BAR.
4. ALL JOINT SEALANT SHALL BE AS SPECIFIED IN THE CONSTRUCTION SPECIFICATIONS.
5. IF THE TRANSVERSE JOINTS DO NOT FRACTURE AT THE JOINT ON THE OUTER EDGES OF THE SLAB, THE ENGINEER MAY DIRECT THAT THE SAW CUT DEPTH BE INCREASED FOR NO ADDITIONAL PAYMENT.
6. TRANSVERSE JOINTS SHALL LINE UP CURB AND GUTTER JOINTS.
7. MAX TRANSVERSE JOINT SPACING SHALL BE TWICE THE CONCRETE THICKNESS IN FEET.

TRANSVERSE CONTRACTION JOINTS



TRANSVERSE CONSTRUCTION JOINTS

NOTES:
1. DRILL HOLE FOR 1 ¼" DIA. X 24" STEEL EPOXY COATED SMOOTH DOWEL BARS (LIGHTLY GREASED ON ONE END) ON 24" CENTERS.
2. IF UTILIZED, BACKER ROD SHALL BE ½" CLOSED CELL POLYETHYLENE FOAM NON–MOISTURE ABSORBING.
3. THE FIRST TIE BAR SHALL BE 6" FROM ANY CONCRETE EDGE PARALLEL TO BAR.
4. ALL JOINT SEALANT SHALL BE AS SPECIFIED IN THE CONSTRUCTION SPECIFICATIONS.

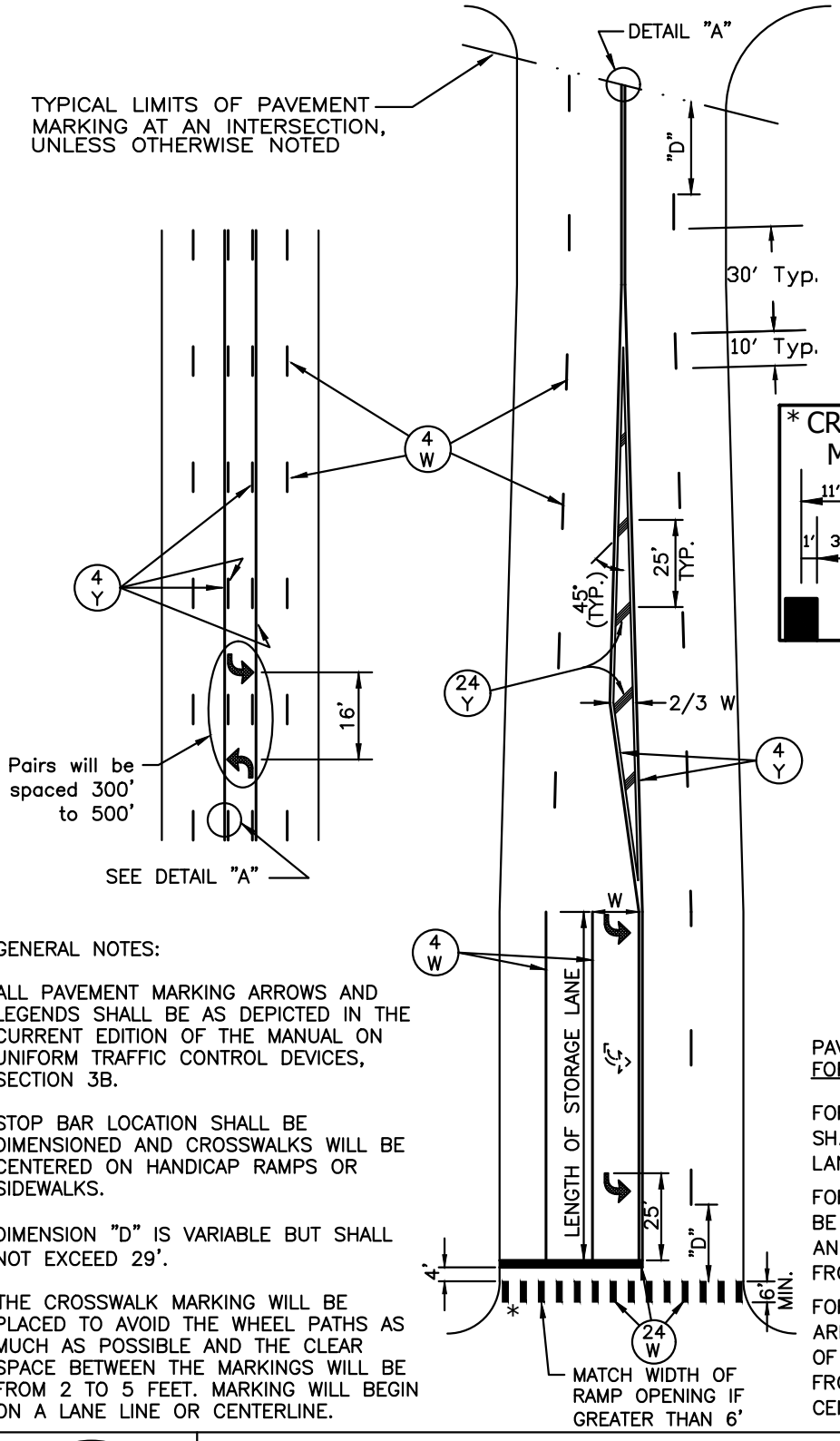
Public Works Department

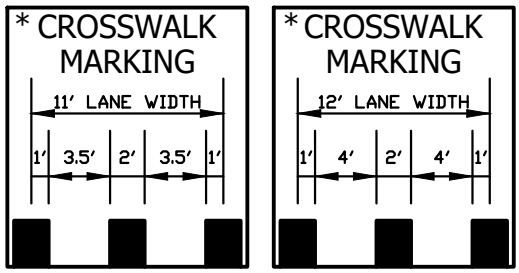
City of Spearfish

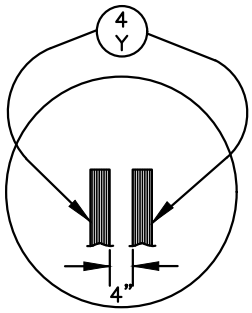
TRANSVERSE JOINT DETAILS FOR PCC PAVEMENT

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KEY	ITEM
4 W	4" WHITE
4 Y	4" YELLOW
12 W	12" WHITE
24 W	24" WHITE
24 Y	24" YELLOW
	ARROW (10 SQ. FT.) (URBAN CONDITIONS)







DETAIL "A"

GENERAL NOTES:

ALL PAVEMENT MARKING ARROWS AND LEGENDS SHALL BE AS DEPICTED IN THE CURRENT EDITION OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, SECTION 3B.

STOP BAR LOCATION SHALL BE DIMENSIONED AND CROSSWALKS WILL BE CENTERED ON HANDICAP RAMPS OR SIDEWALKS.

DIMENSION "D" IS VARIABLE BUT SHALL NOT EXCEED 29'.

THE CROSSWALK MARKING WILL BE PLACED TO AVOID THE WHEEL PATHS AS MUCH AS POSSIBLE AND THE CLEAR SPACE BETWEEN THE MARKINGS WILL BE FROM 2 TO 5 FEET. MARKING WILL BEGIN ON A LANE LINE OR CENTERLINE.

PAVEMENT MARKING ARROW SPACING FOR LEFT AND RIGHT TURN LANES:

FOR LANES 75 FEET OR LESS, ONE ARROW SHALL BE PLACED AT THE BEGINNING OF THE LANE.

FOR LANES 76–150 FEET, ONE ARROW SHALL BE PLACED AT THE BEGINNING OF THE LANE AND A SECOND ARROW PLACED 25 FEET FROM THE STOP BAR.

FOR LANES 151 FEET OF GREATER, ONE ARROW SHALL BE PLACED AT THE BEGINNING OF THE LANE, ONE ARROW PLACED 25 FEET FROM THE STOP BAR, AND A THIRD ARROW CENTERED BETWEEN THE OTHER TWO ARROWS.

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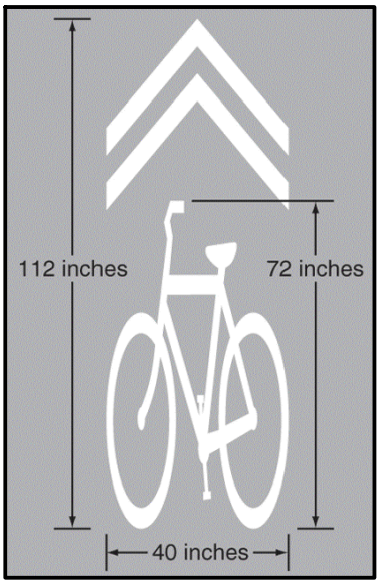
PAVEMENT MARKINGS FOR ADJACENT INTERSECTIONS AND CENTER TURN LANE

DATE 03/05/26

REVISED 00/00/00

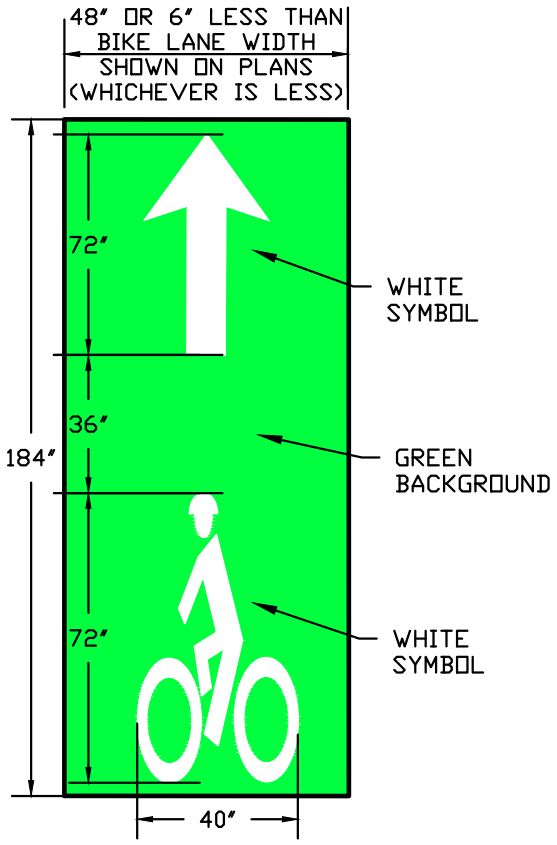
SECTION DETAIL #

200-14



SHARED LANE SYMBOL

*GROOVING IS REQUIRED DURING INITIAL INSTALLATION OF THIS SYMBOL IF USE OF THERMOPLASTIC IS REQUIRED.
*PROVIDE SYMBOL IMMEDIATELY AFTER INTERSECTIONS AND AT INTERVALS OF 250 FEET.



ON STREET BIKE LANE SYMBOL

*GROOVING IS REQUIRED DURING INITIAL INSTALLATION OF THIS SYMBOL IF USE OF THERMOPLASTIC IS REQUIRED.
*PROVIDE SYMBOL IMMEDIATELY AFTER INTERSECTIONS AND AT INTERVALS OF 600 FEET.





W9-XX





R3-17bP

ON STREET BIKE LANE TERMINATION SIGNAGE:
AN "ENDS" PLAQUE (R3-17bP) SHALL BE USED WHERE A BIKE LANE TERMINATES ON A CORRIDOR. THE SIGN SHALL BE 24" X 8". A 30" X 30" BICYCLE MERGE SIGN (W9-XX) SHALL BE INCLUDED AT THE TOP OF THE SIGNPOST. ADDITIONAL SIGNAGE SHALL BE PLACED ON A SEPARATE POST WITHIN 100 FEET AFTER THE END OF THE BIKE LANE WHICH INCLUDES A 30" X 30" "SHARE THE ROAD" SIGN WITH BICYCLE AND CAR SYMBOLS AND A "MAY USE FULL LANE WITH CHANGE LANES TO PASS" SIGN (R4-11) PLACED DIRECTLY BELOW.



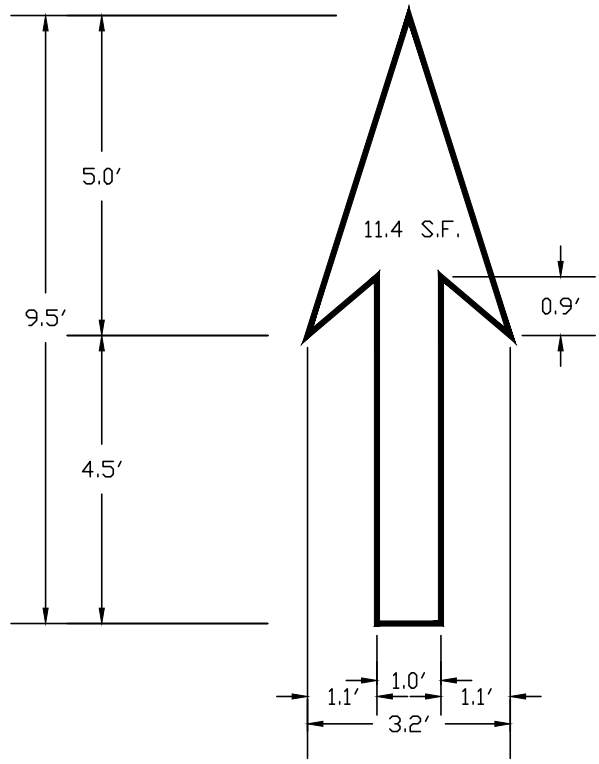
R3-17 BIKE LANE SIGN:
A BIKE LANE SIGN (R3-17) SHALL BE USED TO DESIGNATE ON-STREET BIKE LANES. THE SIGN SHALL BE 24" X 18". THE BIKE LANE SIGN SHOULD BE PLACED ADJACENT TO THE SYMBOL, WHERE POSSIBLE. THE SIGN MAY BE PLACED BEFORE OR AFTER THE SYMBOL AS NECESSARY TO UTILIZE EXISTING POLES OR COMBINE SIGNS ON ONE POST.

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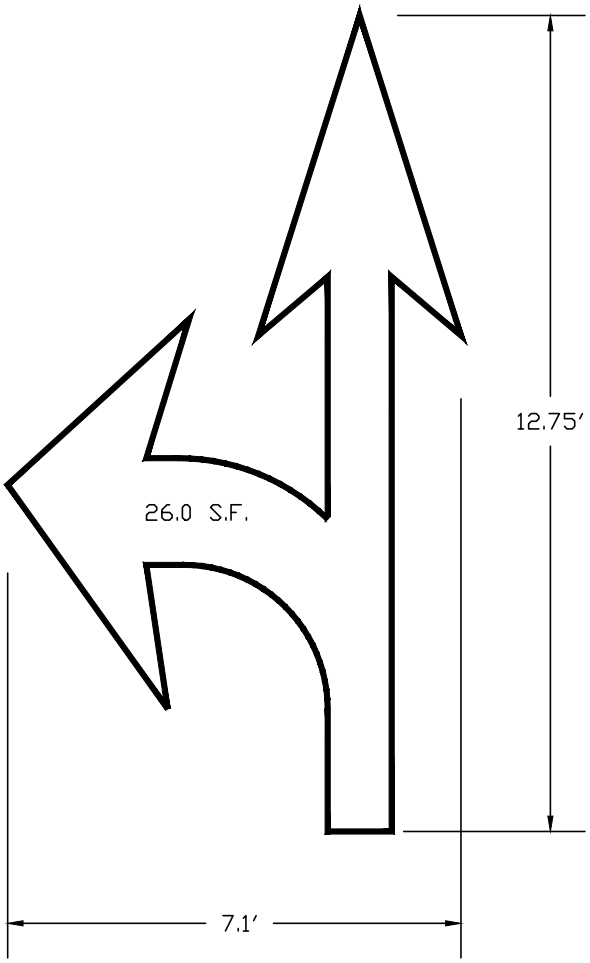
ON STREET BIKE LANE PAVEMENT MARKINGS & SIGNS

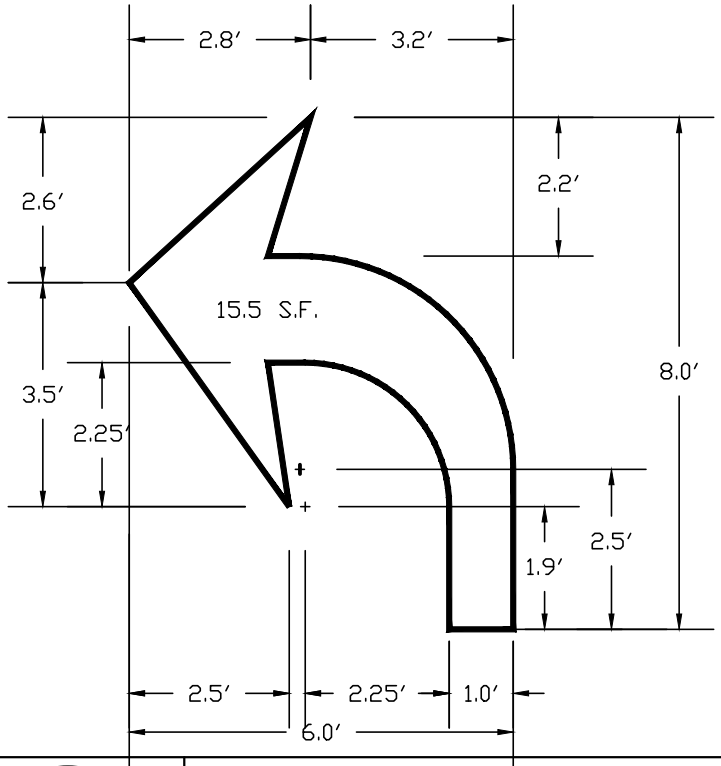
DATE	03/05/26
REVISED	00/00/00
SECTION	DETAIL #
200	15



Standard Size Pavement Marking Arrows

General Note: Unless otherwised specified, standard size pavement marking arrows shall be used on all streets with posted speed limit of 45 mph or greater and at all interstate interchanges.





Public Works Department

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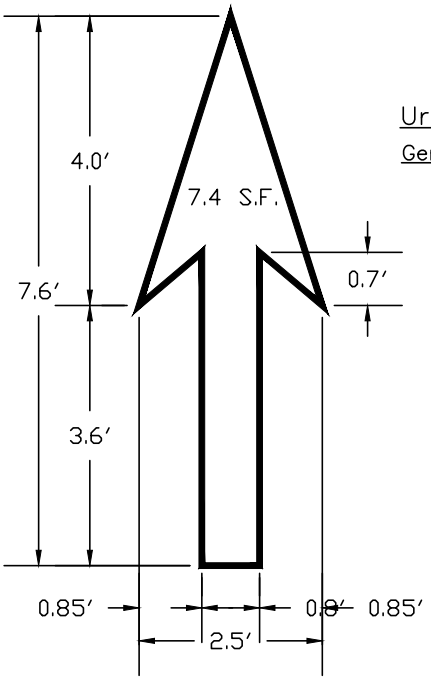
05/12/25

REVISED 00/00/00

PAVEMENT MARKING ARROWS FOR STREETS W/ 45+ MPH SPEED LIMITS

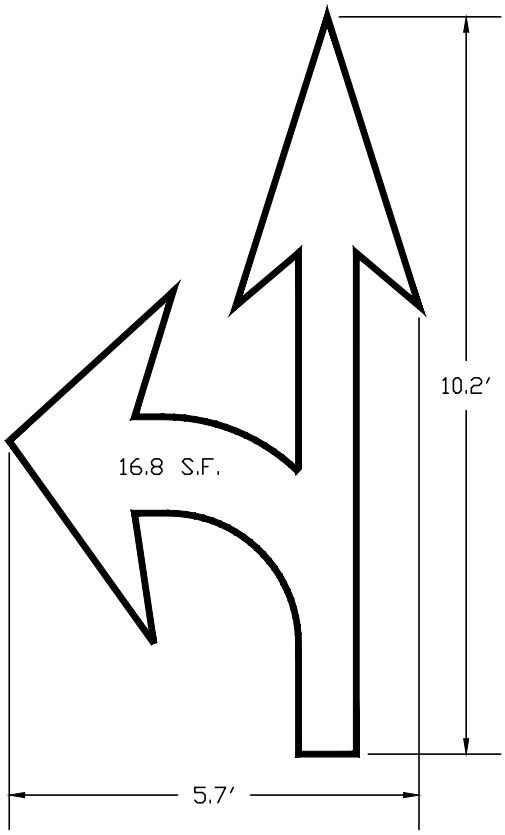
SECTION DETAIL #

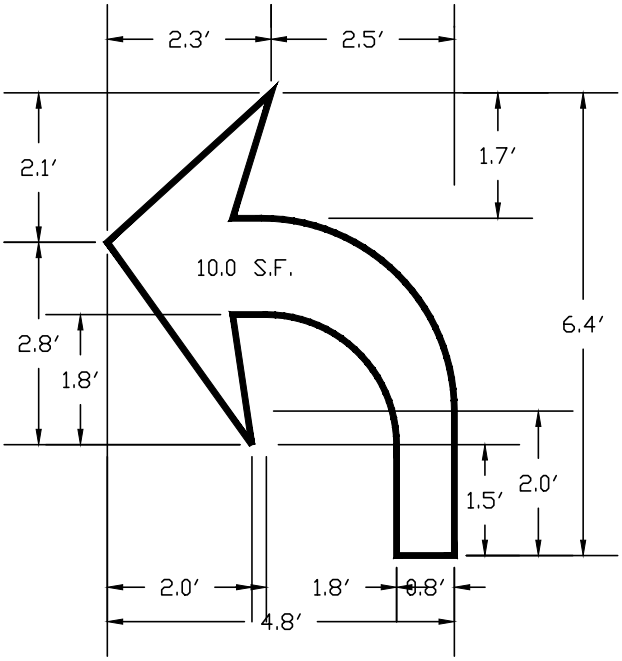
200-16



Urban Size Pavement Marking Arrows

General Note: Unless otherwised specified, urban size pavement marking arrows shall be used on all streets with posted speed limit of 40 mph or less.





Public Works Department

City of Spearfish

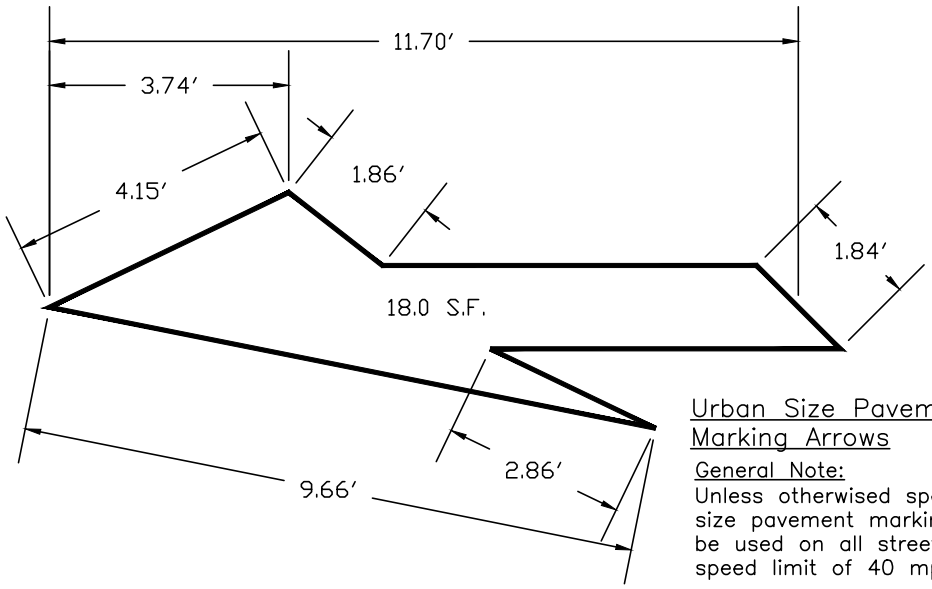
PAVEMENT MARKING ARROWS FOR STREETS W/ < 40 MPH SPEED LIMITS

05/12/25

REVISED 00/00/00

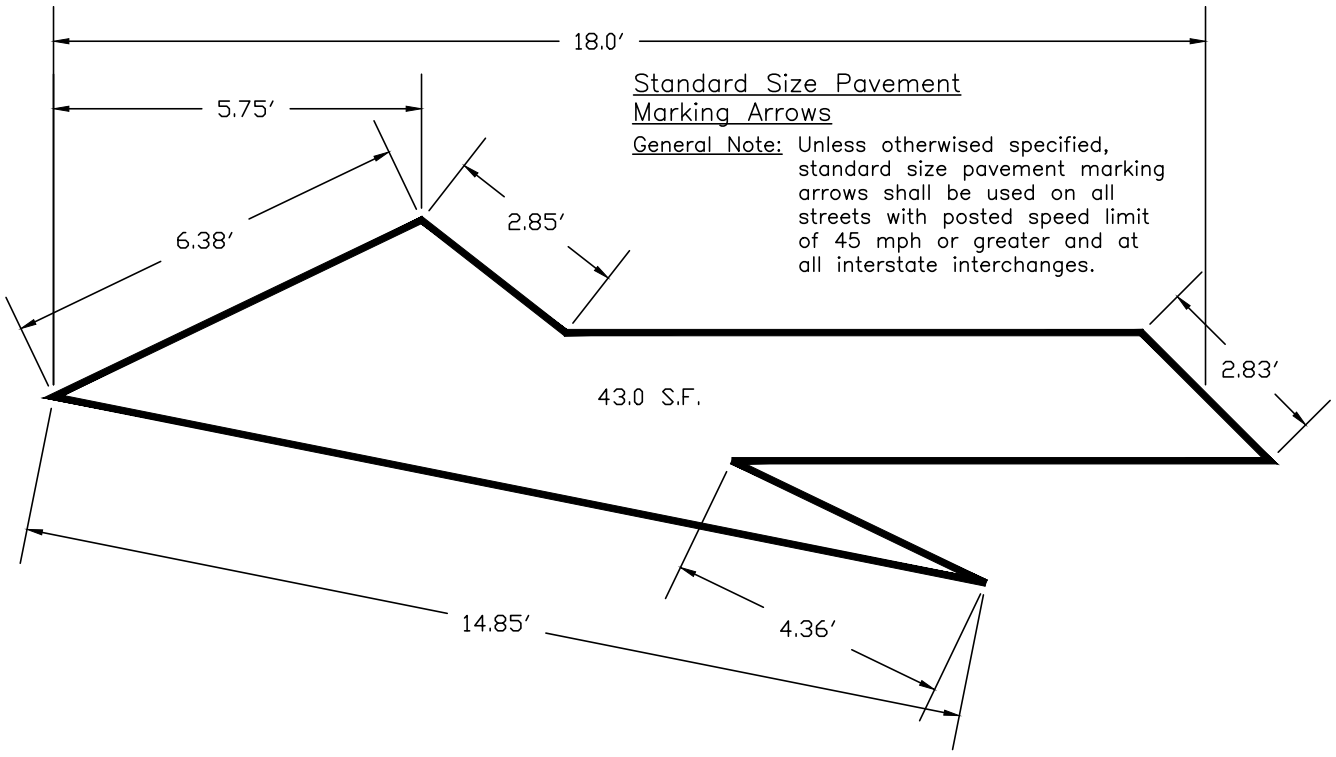
SECTION DETAIL #

200-17



Urban Size Pavement Marking Arrows

General Note:
Unless otherwised specified, urban size pavement marking arrows shall be used on all streets with posted speed limit of 40 mph or less.



Standard Size Pavement Marking Arrows

General Note: Unless otherwised specified, standard size pavement marking arrows shall be used on all streets with posted speed limit of 45 mph or greater and at all interstate interchanges.

Public Works Department

City of Spearfish

05/12/25

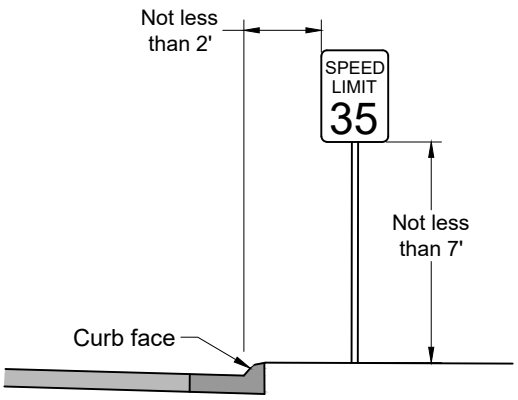
REVISED 00/00/00

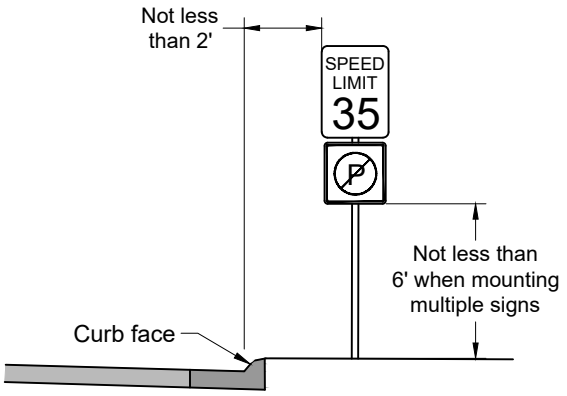
PAVEMENT MARKING ARROWS
LANE ENDS

SECTION DETAIL #

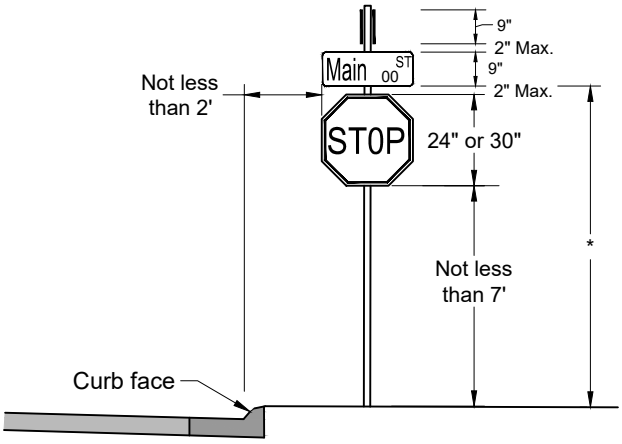
200-18

Roadside Signs



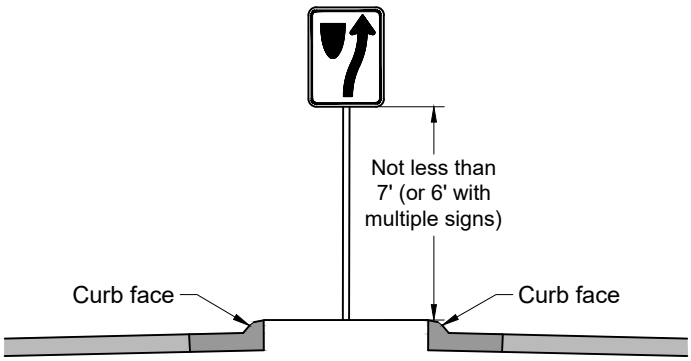


Stop/Street Name Signs



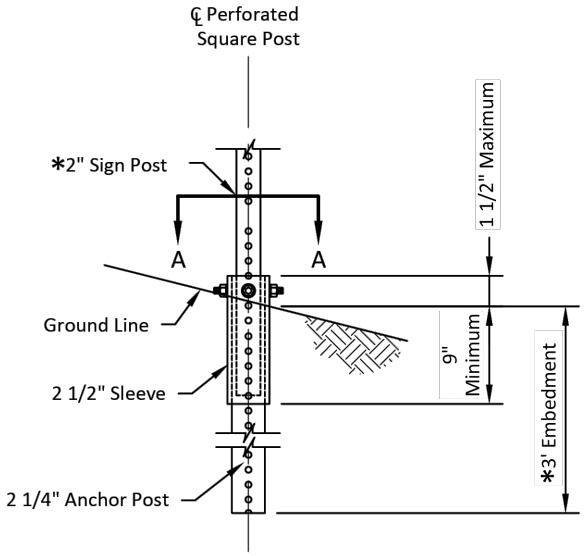
* 10' When street name signs are mounted alone on post.

Median Signs



Note: All R7 & R8 series signs with arrows shall be installed at a 45 degree angle to the street.

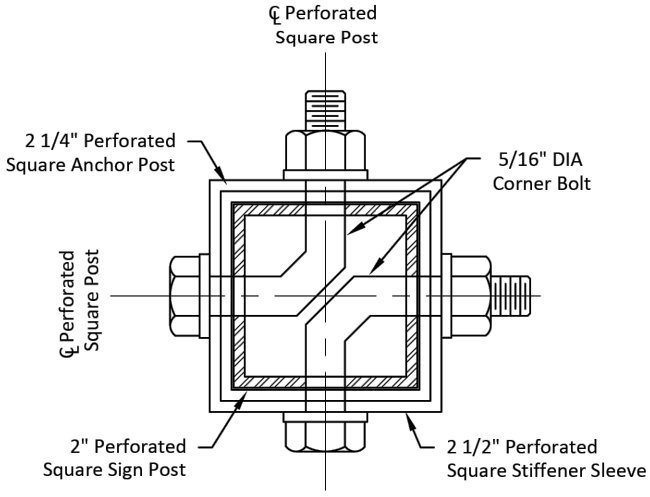
CITY OF SPEARFISH Public Works Department	***City of Spearfish***	DATE 03/05/26
		REVISED 00/00/00
	HEIGHTS AND LATERAL LOCATIONS OF SIGNS FOR TYPICAL URBAN INSTALLATION	SECTION DETAIL # 200-19



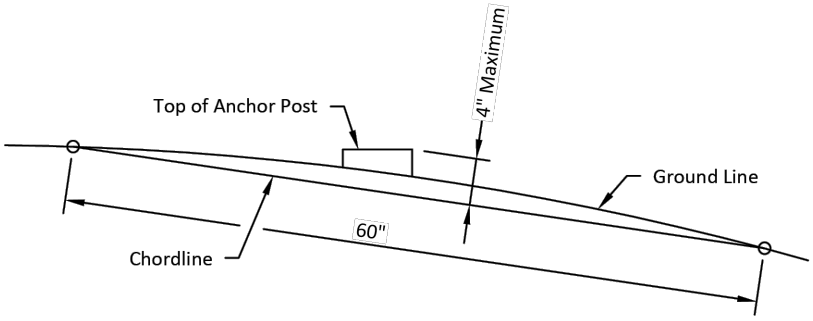
Notes:
1. All posts shall be galvanized in accordance with ASTM A653.
2. All hardware shall be galvanized in accordance with ASTM A153.
3. All nuts shall be nylon insert lock nuts.
4. Anchors posts shall be installed with a soil plate.

Installation Procedure:
1. Drive anchor post and sleeve to within approximately 1 1/2" above ground level.
2. Insert sign post into anchor to a minimum depth of 9" below ground level.
3. Place corner bolts and flat washers through top holes in anchor post. Remove dirt from around the post as necessary to allow room for bolts.
4. Place a flat washer and nut on each bolt.
5. Tighten nuts and tamp earth around base post firmly.
6. For signs over 48" wide, two posts are required.

*Minimum embedment length shall be 3'-0".



Note:
The top of anchor post shall not extend more than 4" maximum above the chordline within a 60" chord.



MOUNTING IN SOIL

Public Works Department

City of Spearfish

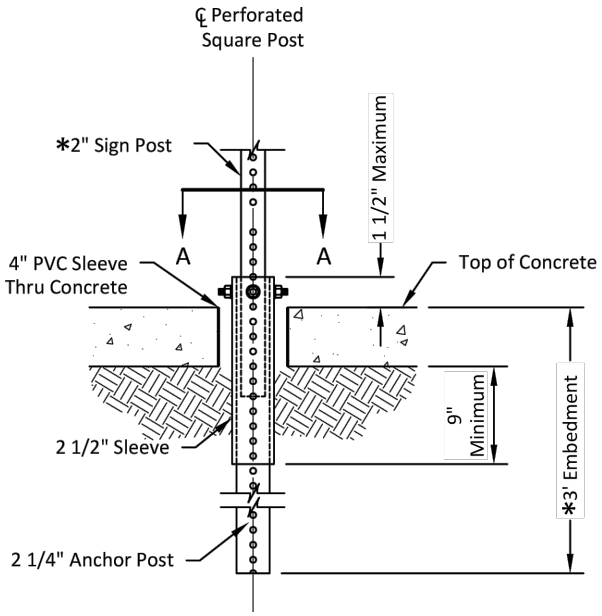
STREET SIGN MOUNTING

DATE 03/05/26

REVISED 00/00/00

SECTION DETAIL #

200-20



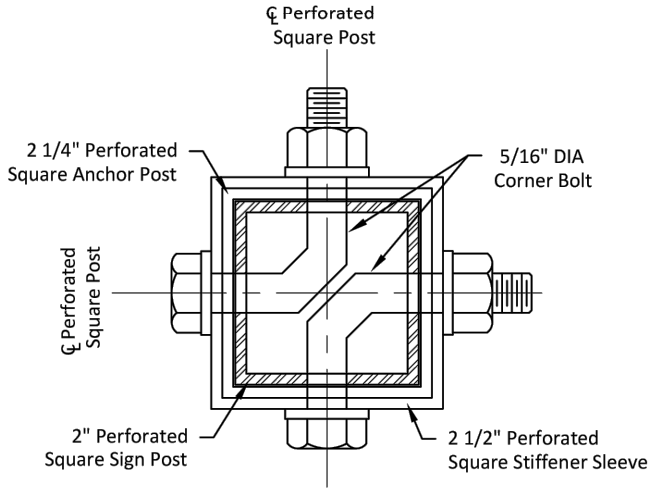
Notes:
1. All posts shall be galvanized in accordance with ASTM A653.
2. All hardware shall be galvanized in accordance with ASTM A153.
3. All nuts shall be nylon insert lock nuts.

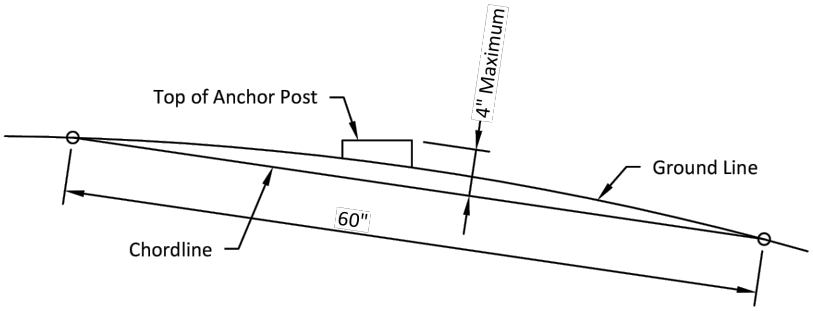
Installation Procedure:
1. Drive anchor post and sleeve to within approximately 1 1/2" above ground level.
2. Insert sign post into anchor to a minimum depth of 9" below ground level.
3. Place corner bolts and flat washers through top holes in anchor post. Remove dirt from around the post as necessary to allow room for bolts.
4. Place a flat washer & nut on each bolt.
5. Tighten nuts and tamp earth around base post firmly.
6. For signs over 48" wide, two posts are required.
7. If underground utilities interfere with the installation sign post thru a sleeve as detailed a surface mount slip base such as manufactured by Kleen Break Model 425 or approved equal. this installation requires prior approval from the Traffic Engineer.

*Minimum embedment length shall be 3'-0''.

** All signs the will be surface mounted on the concrete shall use a Kleen Break Sign Post Coupler System (NCHRP 350 Tested, FHWA accepted (SS-131) or approved equal .

Note:
The top of anchor post shall not extend more than 4" maximum above the chordline within a 60" chord.





MOUNTING IN/ON CONCRETE

Public Works Department

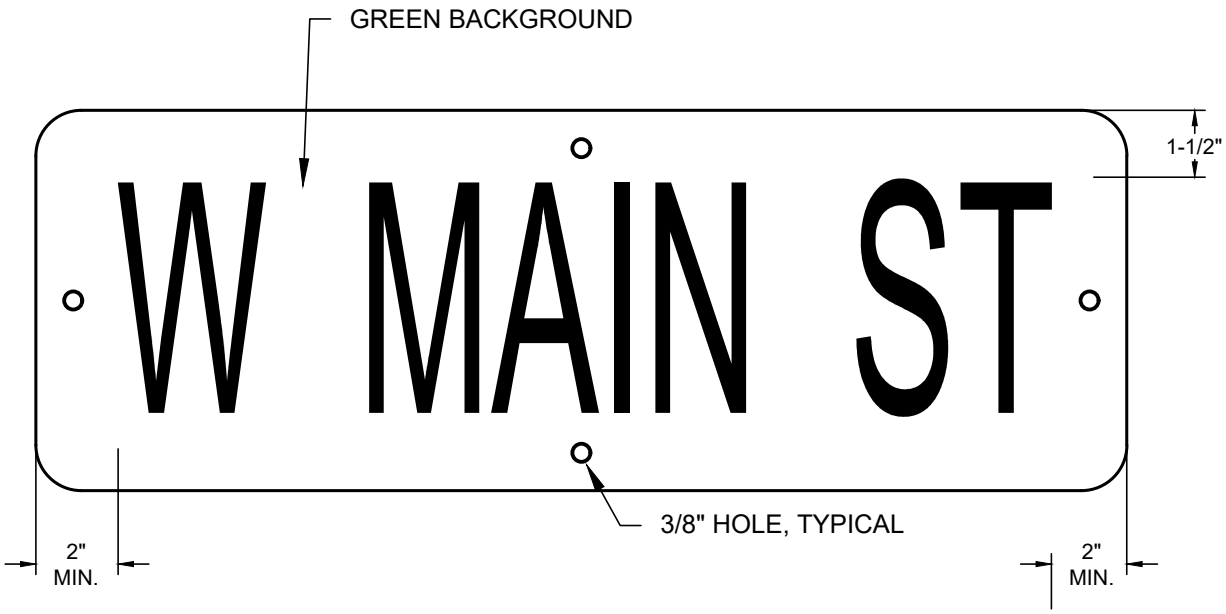
City of Spearfish

STREET SIGN MOUNTING

DATE	03/05/26
REVISED	00/00/00
SECTION	DETAIL #
	200-20

Street Name Sign

(All letters in white color)



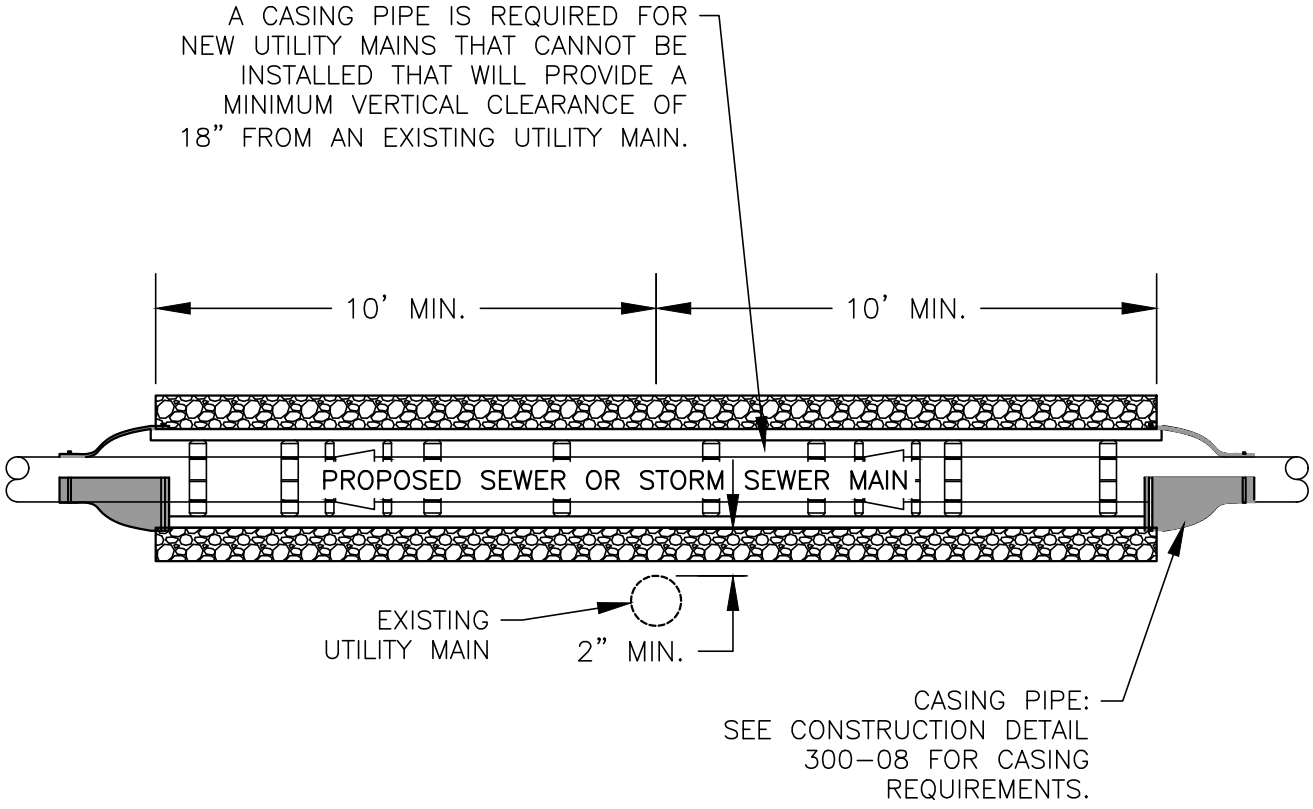
STREET NAME SIGNS – LEGENDS:

STREET NAME SIGNS ARE REQUIRED AT ALL STREET INTERSECTIONS, OR LOCATIONS WHERE THE NAME OF THE STREET CHANGES. UNIFORMITY IN THEIR DESIGN IS IMPORTANT IN THE UNDERSTANDING OF THESE SIGNS BY MOTORISTS. PROVIDE SINGLE SIDED SIGNS MOUNTED ON OPPOSITE SIDES OF THE MOUNTING POST.

THE FOLLOWING SET OF GUIDELINES SHALL BE USED WHEN DESIGNING THE LEGEND OF STREET NAME SIGNS:

1. THE NAME OF THE STREET SHALL BE USED IN FULL, WHILE ALL PREFIXES AND SUFFIXES SHALL BE ABBREVIATED.
2. UPPER CASE LETTERING SHALL BE USED WITH ARIAL NARROW FONT STYLE.
3. DIRECTIONS (NORTH, NORTHEAST, EAST, ETC.) SHALL BE ABBREVIATED WITHOUT USING A PERIOD, IF DIRECTION IS THE STREET NAME IT SHALL NOT BE ABBREVIATED (E.G., EAST BOULEVARD).
4. SUFFIXES (STREET, PLACE, COURT, AVENUE, ETC.) SHALL BE ABBREVIATED WITHOUT USING A PERIOD.
5. NUMBERED STREETS SHALL BE IDENTIFIED WITH NUMBERS (E.G., 5TH ST, NOT FIFTH ST).
6. ALL PARTS OF THE STREET NAME MUST APPEAR ON THE SAME STREET NAME SIGN.
7. STREET NAME SIGNS SHALL BE 9" HIGH WITH 6" LETTERS, EXCEPT AS OUTLINED IN NUMBER 10 BELOW.
8. MINIMUM SIGN WIDTH IS 24".
9. STREET NAME SIGNS SHALL BE INSTALLED AND VISIBLE TO ALL DIRECTIONS OF TRAFFIC; I.E., BACK TO BACK SIGNS.
10. DIMENSIONS FOR OVERHEAD MOUNTED SIGNS SHALL BE AS PER CURRENT EDITION OF THE MUTCD; I.E., SIGNS MOUNTED ON SIGNAL MAST ARMS.

Public Works Department	***City of Spearfish***	DATE 03/05/26
		REVISED 00/00/00
	STREET NAME SIGN - POST MOUNT	SECTION DETAIL # 200-21

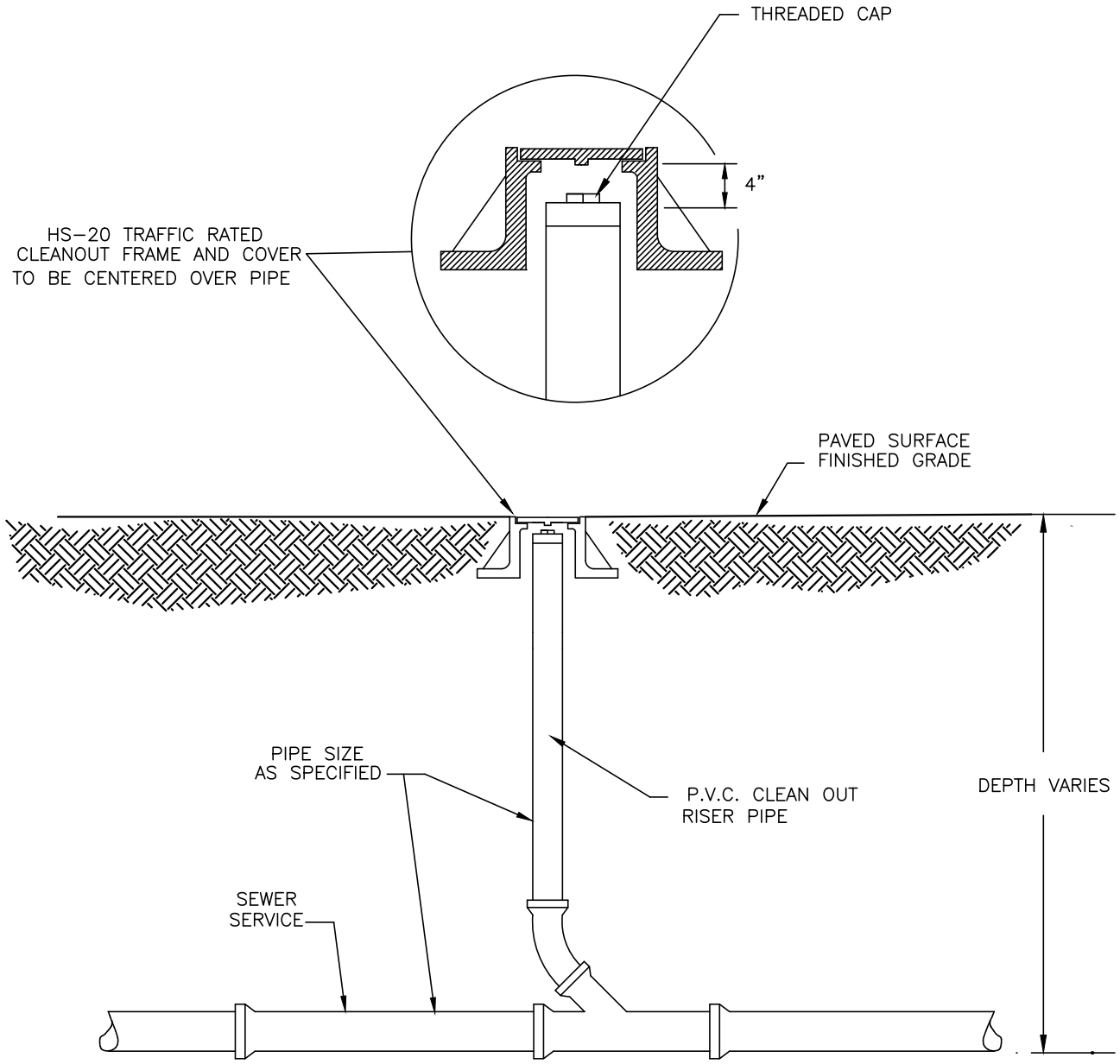


Public Works Department

City of Spearfish

UTILITY CROSSING WITH LESS THAN 18" MINIMUM VERTICAL CLEARANCE

DATE	03/05/26
REVISED	00/00/00
SECTION	DETAIL #
	300-01

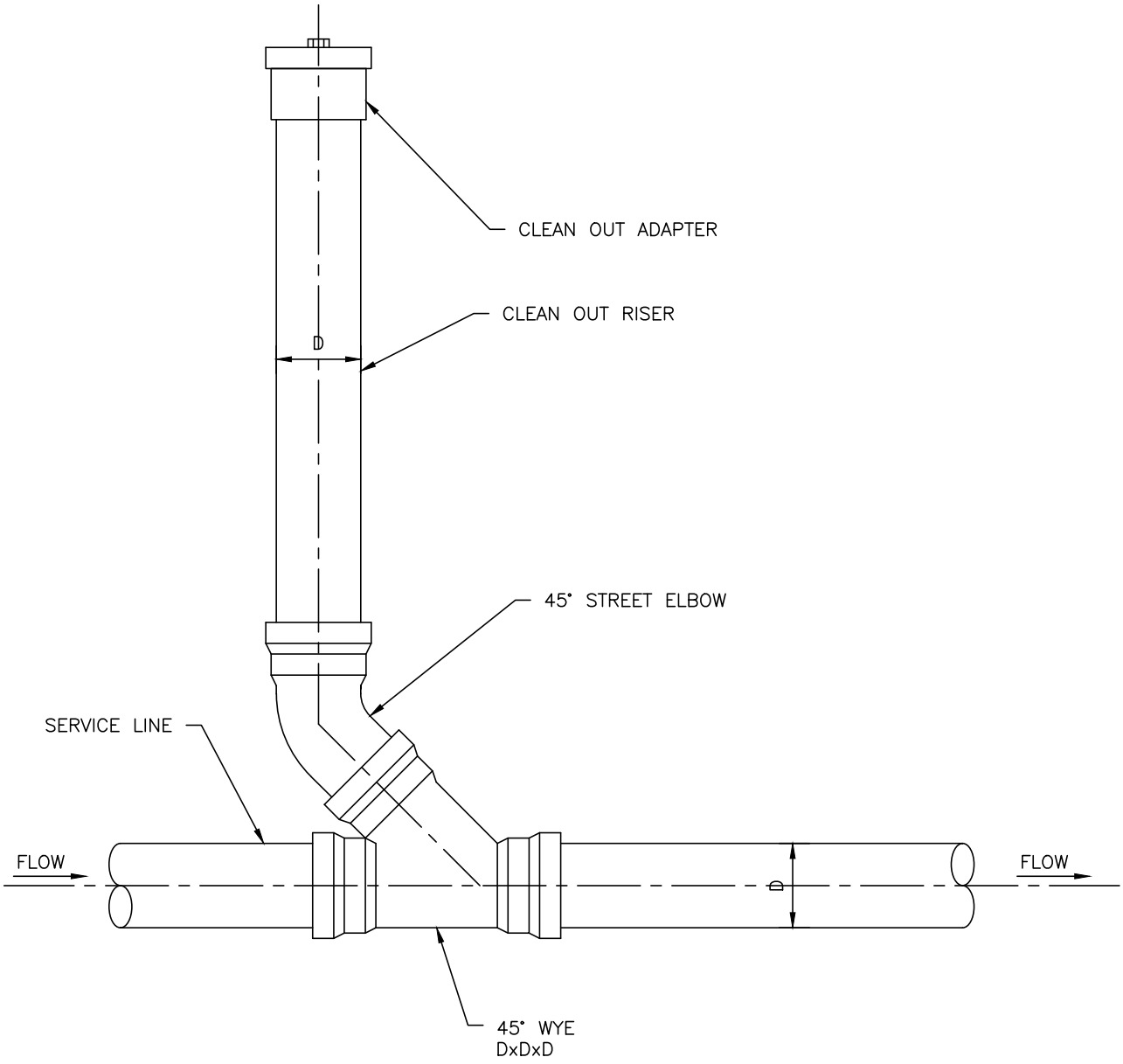


Public Works Department

City of Spearfish

SERVICE CLEANOUT FRAME AND COVER FOR TRAFFIC AND PAVED AREAS

DATE	05/12/25
REVISED	00/00/00
SECTION	DETAIL #
	300-02



ELEVATION

NOTES:

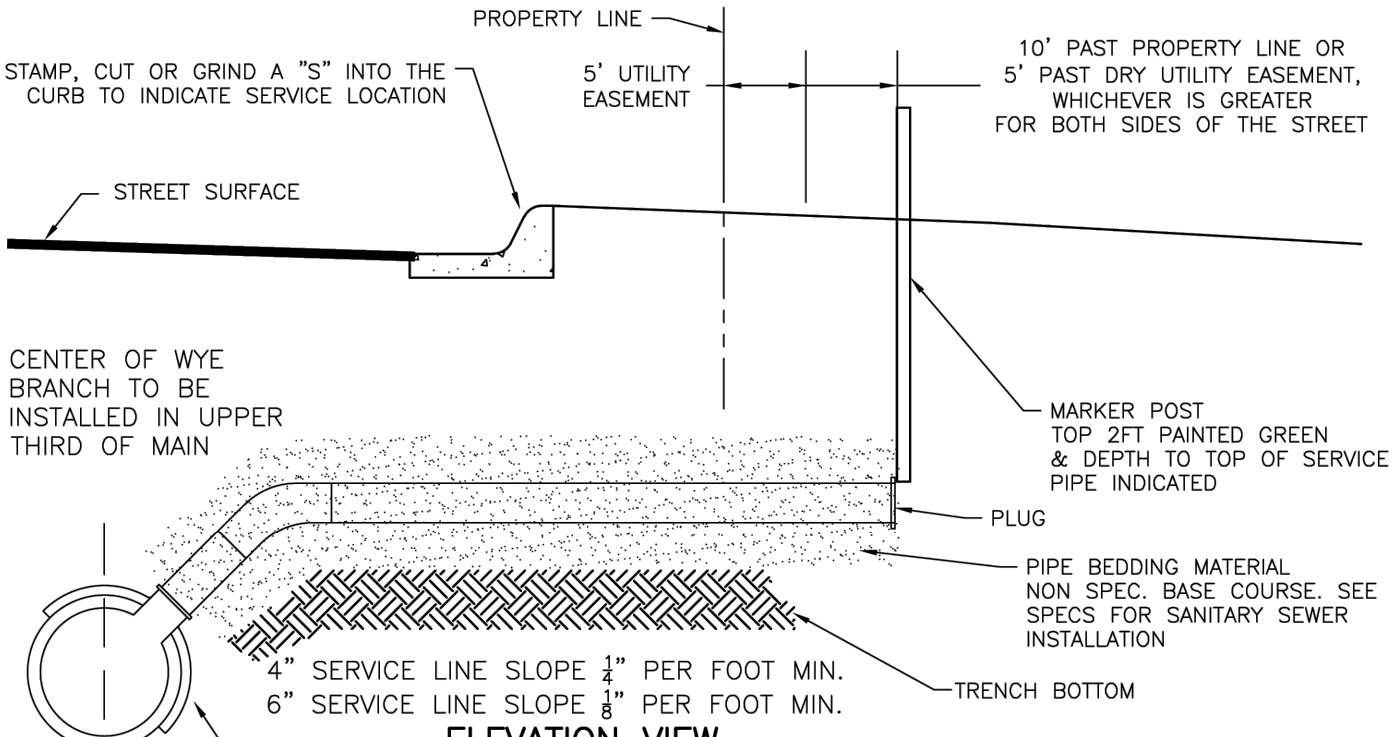
1. ALL FITTINGS SHALL BE GASKETED.
2. CLEAN OUTS TO BE SAME DIAMETER (D) AS SERVICE LINE.

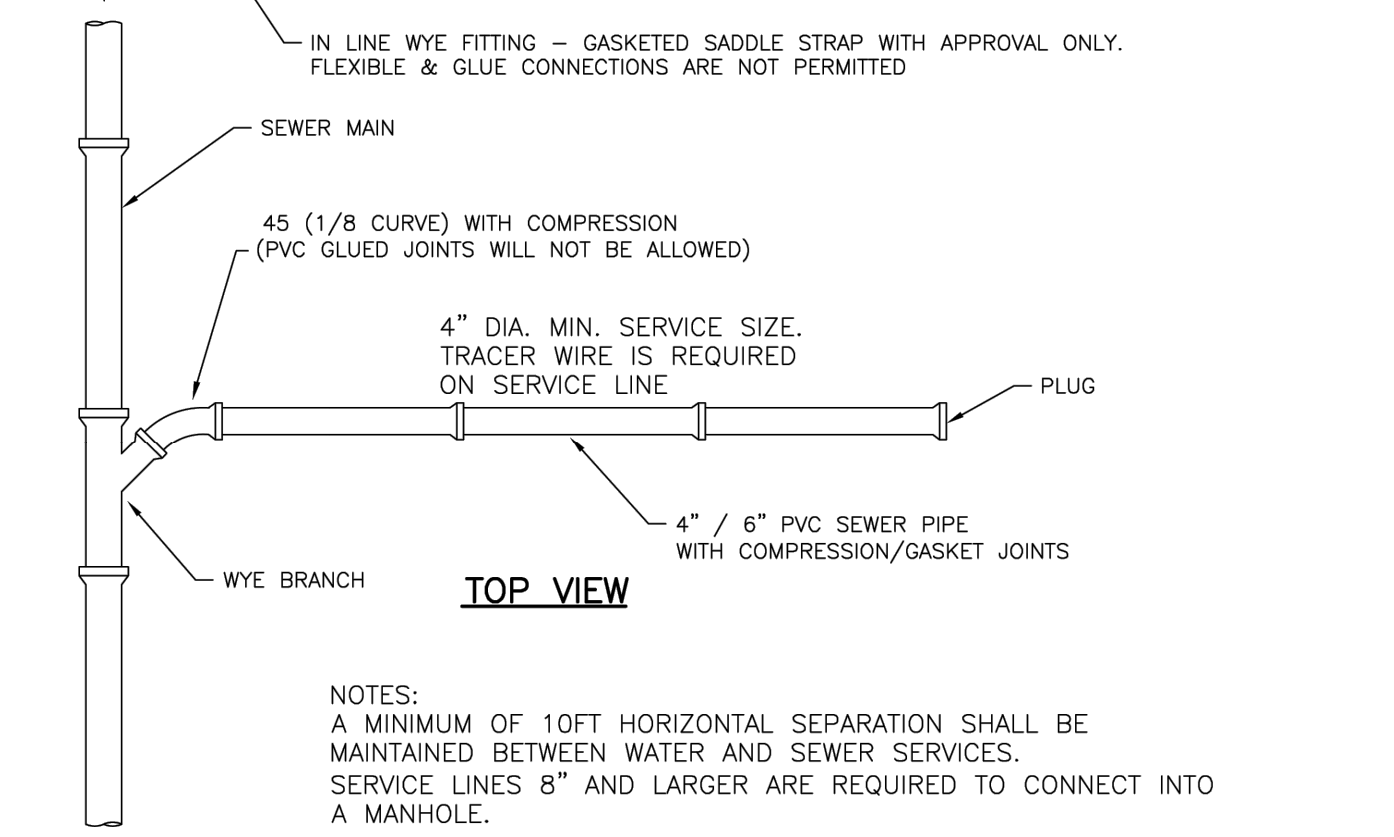
Public Works Department

City of Spearfish

SANITARY SEWER SERVICE CLEAN OUT DETAIL

DATE	05/12/25
REVISED	00/00/00
SECTION	DETAIL #
	300-03





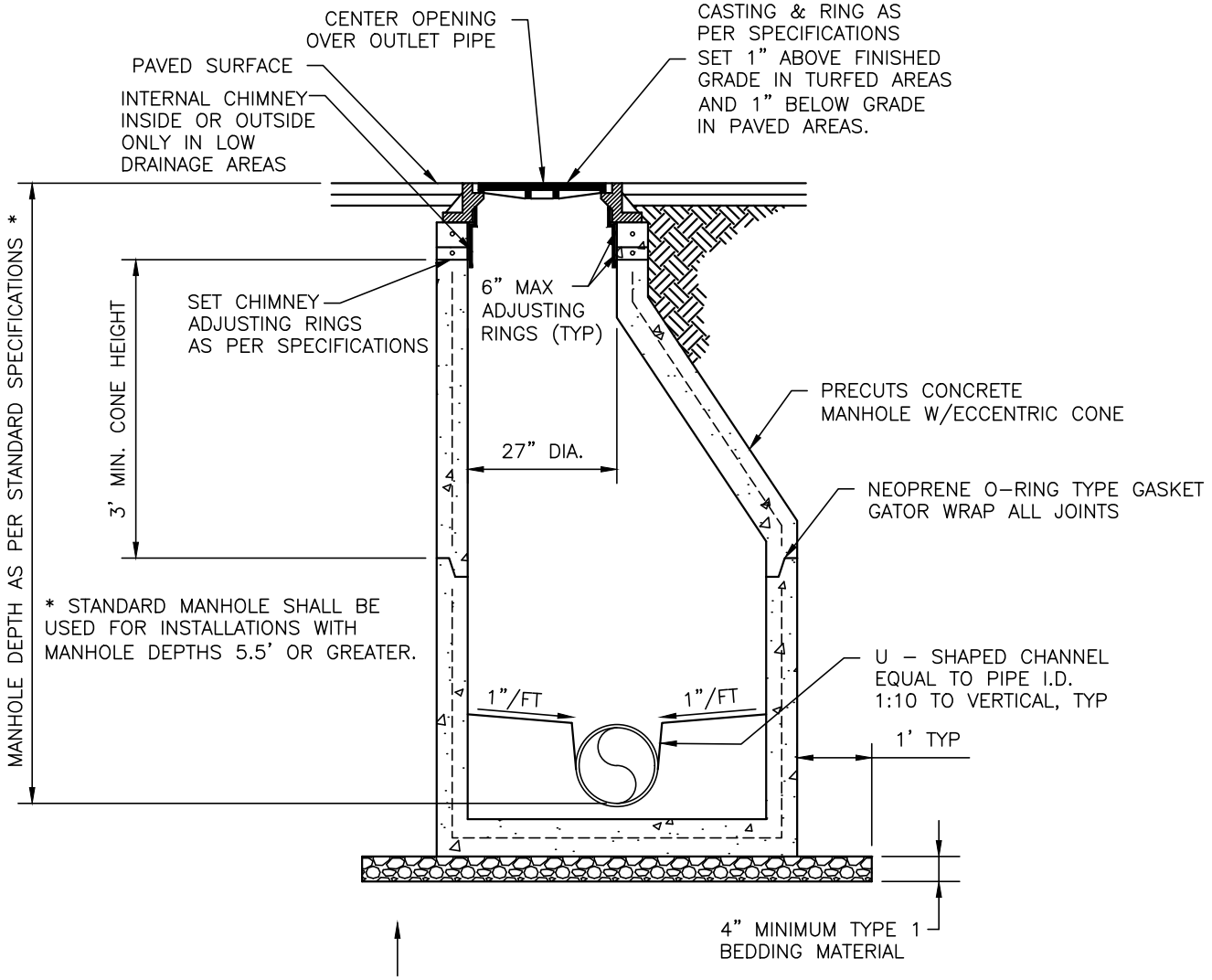
NOTES:
A MINIMUM OF 10FT HORIZONTAL SEPARATION SHALL BE MAINTAINED BETWEEN WATER AND SEWER SERVICES.
SERVICE LINES 8" AND LARGER ARE REQUIRED TO CONNECT INTO A MANHOLE.

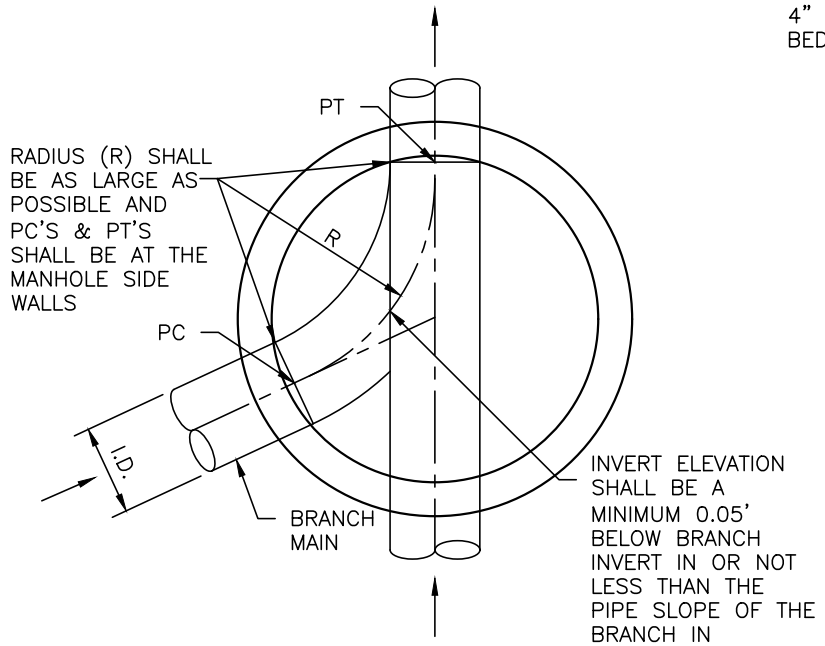
Public Works Department

City of Spearfish

TYPICAL SANITARY SEWER SERVICE STUBOUT

DATE	05/01/26
REVISED	00/00/00
SECTION	DETAIL #
	300-04





NOTES:

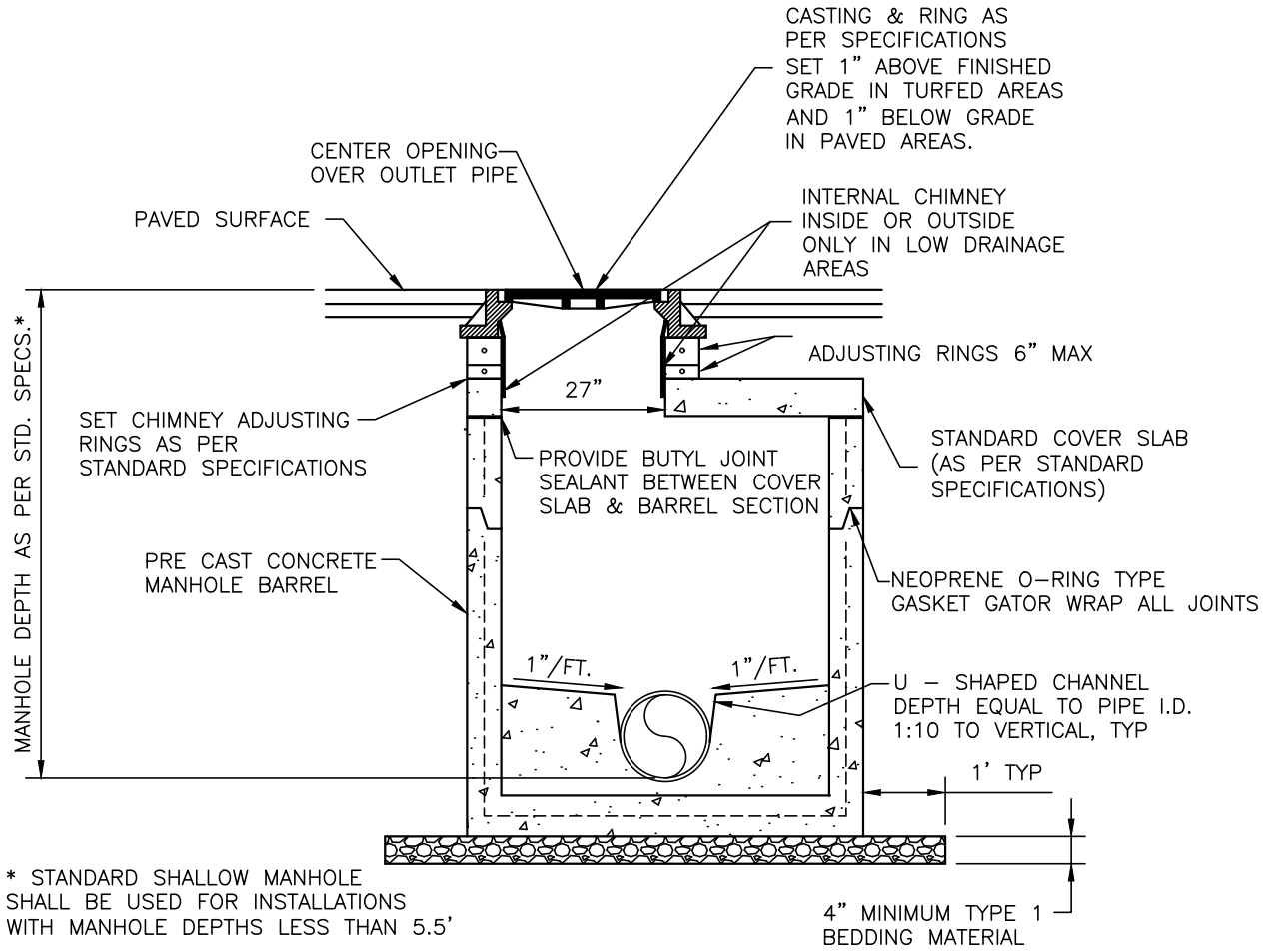
1. PC'S & PT'S ARE TO BE WITHIN THE MANHOLE.
2. ALL INVERTS TO BE U-SHAPED CHANNEL EQUAL TO PIPE I.D. AND SHALL BE CONSTRUCTED WITH SWEEPS.
3. A MINIMUM RADIUS (R) OF 2.5 TIMES THE I.D. OF THE BRANCH MAIN IS REQUIRED FOR ALL SWEEPS. IF THE 2.5 TIMES THE I.D. OF THE BRANCH CAN'T BE MET, A LARGER DIAMETER MANHOLE SHALL BE REQUIRED. SEE DETAIL SHEET 9-3.
4. MANHOLE PIPE CONNECTOR SHALL BE A RESILIENT WATER TIGHT SEAL.

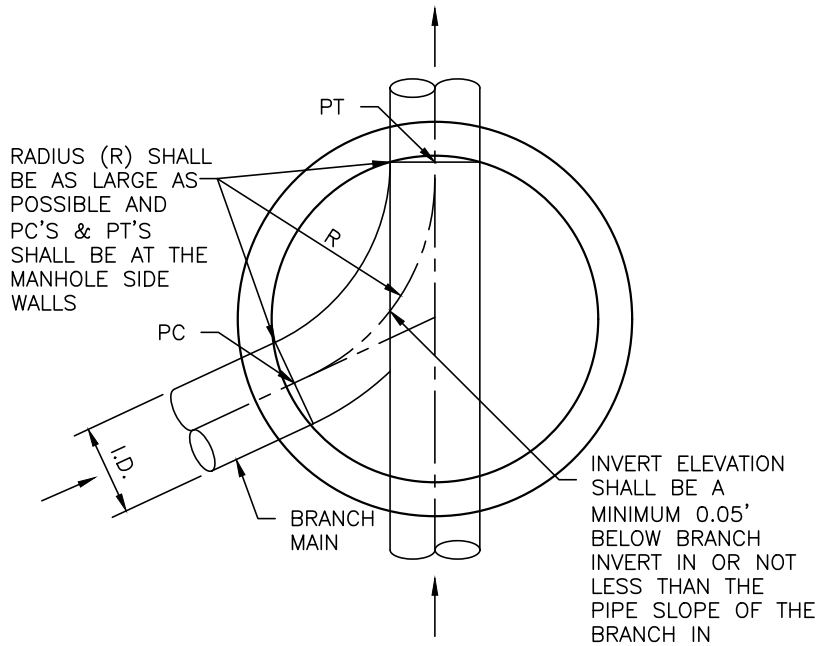
Public Works Department

City of Spearfish

STANDARD MANHOLE DETAIL WITH MONOLITHIC BASE (48" & 60")

DATE	05/01/26
REVISED	00/00/00
SECTION	DETAIL #
	300-05





NOTES:

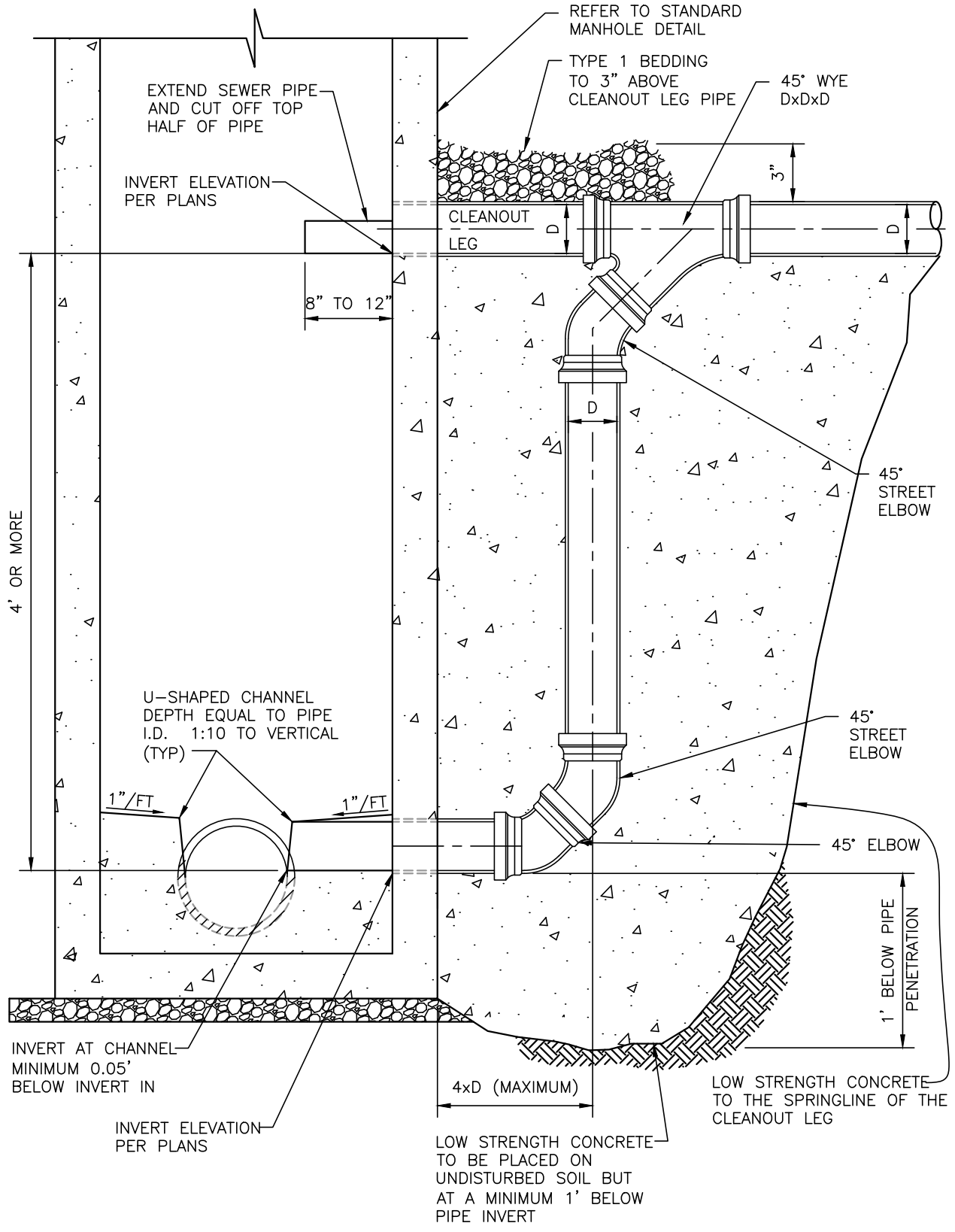
1. PC'S & PT'S ARE TO BE WITHIN THE MANHOLE.
2. ALL INVERTS TO BE U-SHAPED CHANNEL EQUAL TO PIPE I.D. AND SHALL BE CONSTRUCTED WITH SWEEPS.
3. A MINIMUM RADIUS (R) OF 2.5 TIMES THE I.D. OF THE BRANCH MAIN IS REQUIRED FOR ALL SWEEPS. IF THE 2.5 TIMES THE I.D. OF THE BRANCH CAN'T BE MET, A LARGER DIAMETER MANHOLE SHALL BE REQUIRED. SEE DETAIL SHEET 9-3.
4. MANHOLE PIPE CONNECTOR SHALL BE A RESILIENT WATER TIGHT SEAL.

Public Works Department

City of Spearfish

STANDARD SHALLOW MANHOLE DETAIL WITH MONOLITHIC BASE (48" 60" & 72")

DATE	05/01/26
REVISED	00/00/00
SECTION	DETAIL #
	300-06

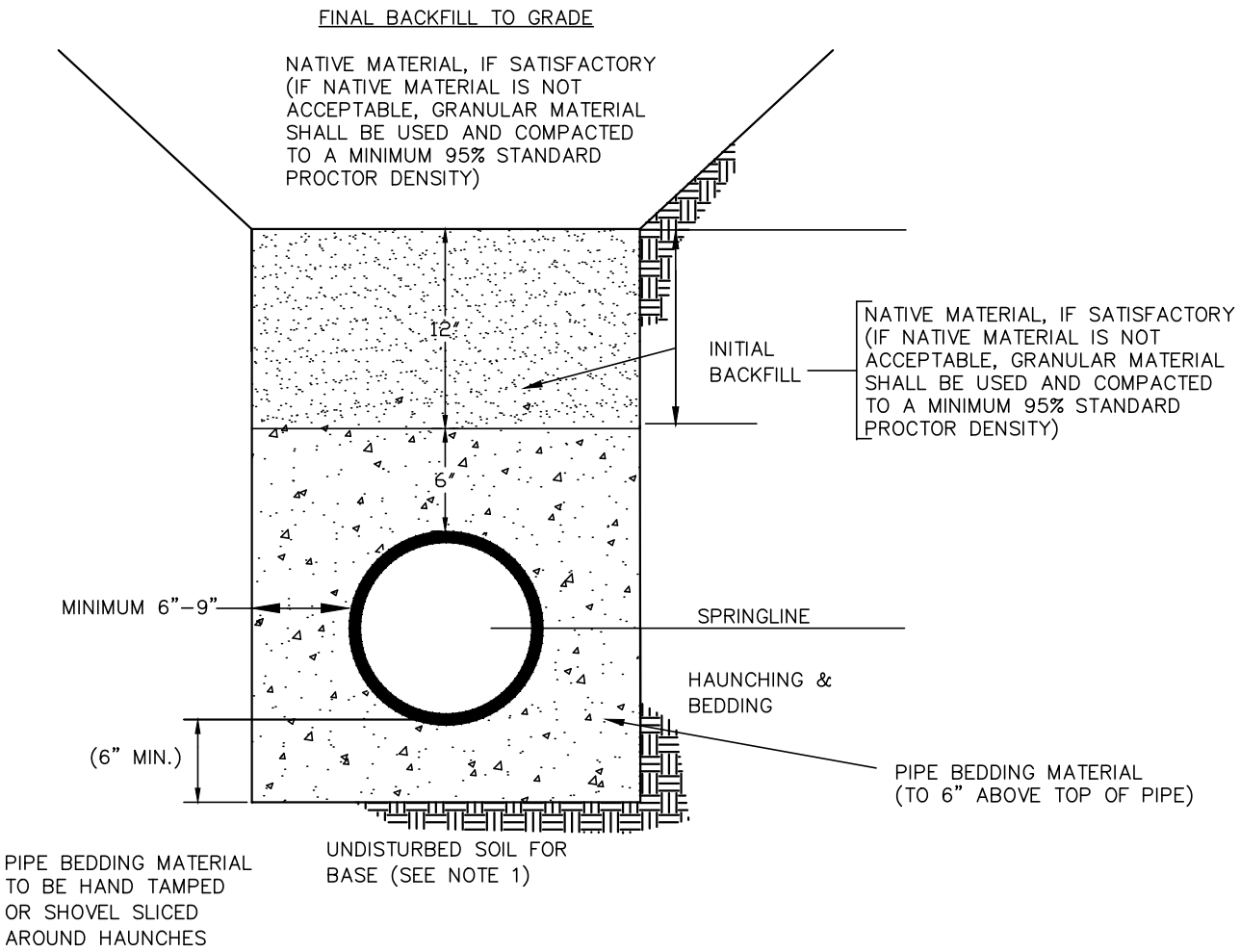


Public Works Department

City of Spearfish

STANDARD DROP MANHOLE DETAILS FOR INVERT CHANGES MORE THAN 4'

DATE	05/01/26
REVISED	00/00/00
SECTION	DETAIL #
	300-07



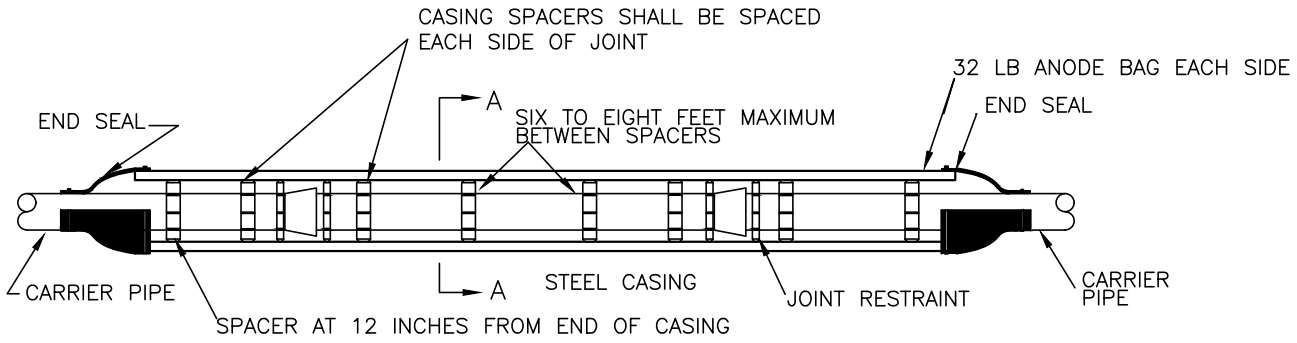
NOTE: 1. IF BASE IS UNSTABLE, TRENCH SHALL BE UNDERCUT AND STABILIZED WITH TRENCH STABILIZATION MATERIAL. SPECIFICATIONS AS PER MANUFACTURER'S RECOMMENDATIONS AND A.S.T.M. C12.

Public Works Department

City of Spearfish

STANDARD BEDDING & TRENCH BACKFILL DETAIL FOR SANITARY SEWER PIPE

DATE	REVISED	SECTION	DETAIL #
05/01/26	00/00/00		300-08



ELEVATION

CASING SPACERS AND END SEALS SHALL BE MANUFACTURED BY ADVANCED PRODUCTS AND SYSTEMS, INC. P.O. BOX 60399 LAFAYETTE, LA. 70596–0399 OR EQUAL AND MEET THESE REQUIREMENTS.

CASING SPACERS – MODEL SSI–8 (PIPE SIZES 24 INCHES IN DIAMETER AND SMALLER) OR MODEL SSI–12–2 (PIPE SIZES 30 INCHES IN DIAMETER AND GREATER) WITH T–304 STAINLESS STEEL SPACER.
BAND – 14 GAUGE T–304 STAINLESS STEEL.
RISER – 10 GAUGE T–304 STAINLESS STEEL.

RUNNERS – TWO INCH WIDE MINIMUM GLASS REINFORCED PLASTIC. THE NUMBER OF RISERS SHALL BE AS RECOMMENDED BY THE MANUFACTURER, BUT FOUR IS THE MINIMUM.

STUDS, NUTS AND WASHERS – T–304 STAINLESS STEEL.

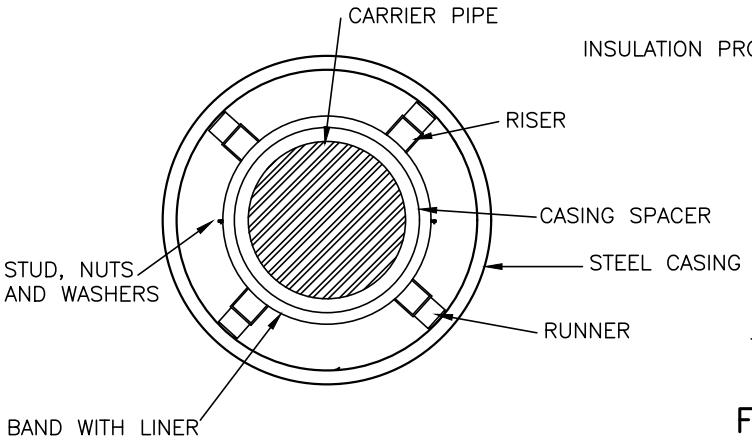
HEIGHTS – AS REQUIRED FOR CENTER RESTRAINING

END SEALS – CONICAL SHAPED WRAP–AROUND 1/8 INCH SYNTHETIC RUBBER WITH T–304 STAINLESS STEEL STRAPS.

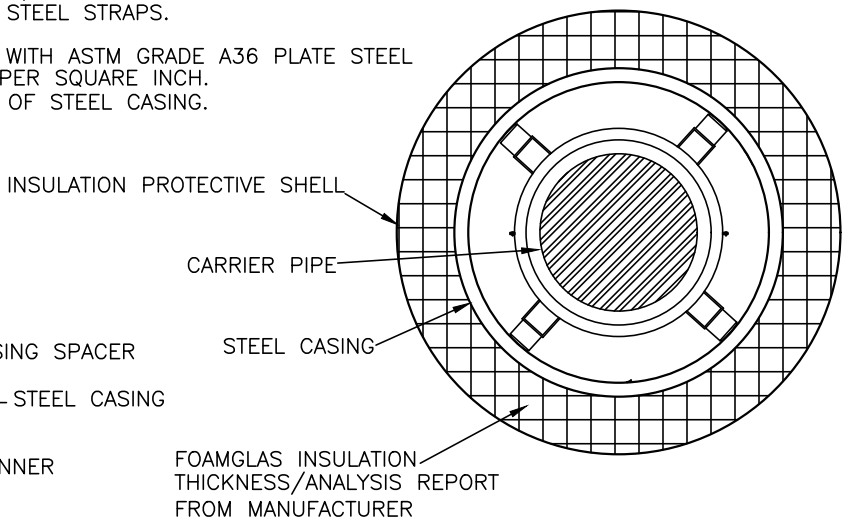
CASING PIPE MUST CONFORM TO AWWA C–200 WITH ASTM GRADE A36 PLATE STEEL MINIMUM YIELD STRENGTH OF 35,000 POUNDS PER SQUARE INCH.
32 LB ANODE BAG CAD WELDED TO EACH END OF STEEL CASING.

PIPE SIZE	CASING SIZE
4"	10"
6"	12"
8"	16"
10"	18"
12"	20"
16"	24"
20"	30"
24"	36"
30"	42"
>36"	*

* AS RECOMMENDED BY MANUFACTURER



SECTION A–A



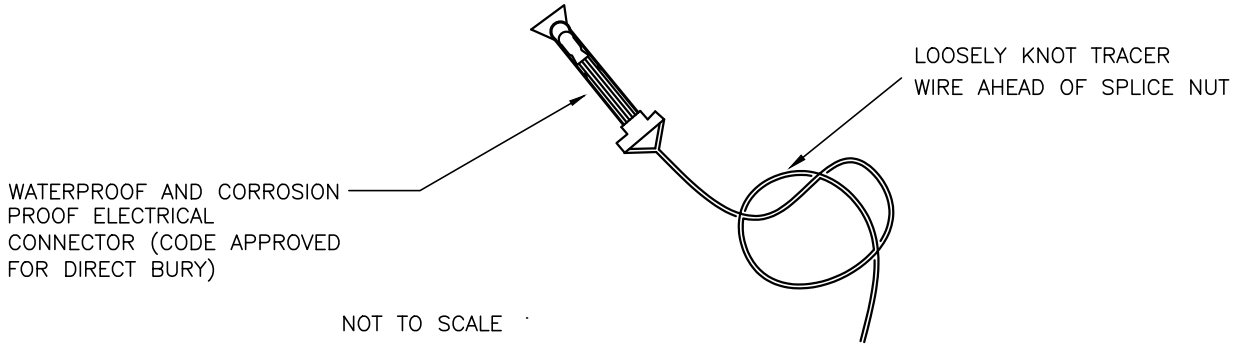
FOR SHALLOW INSTALLATION DEPTHS AND OR UNDER LARGE BOX CULVERTS WHERE REQUIRED.

Public Works Department

City of Spearfish

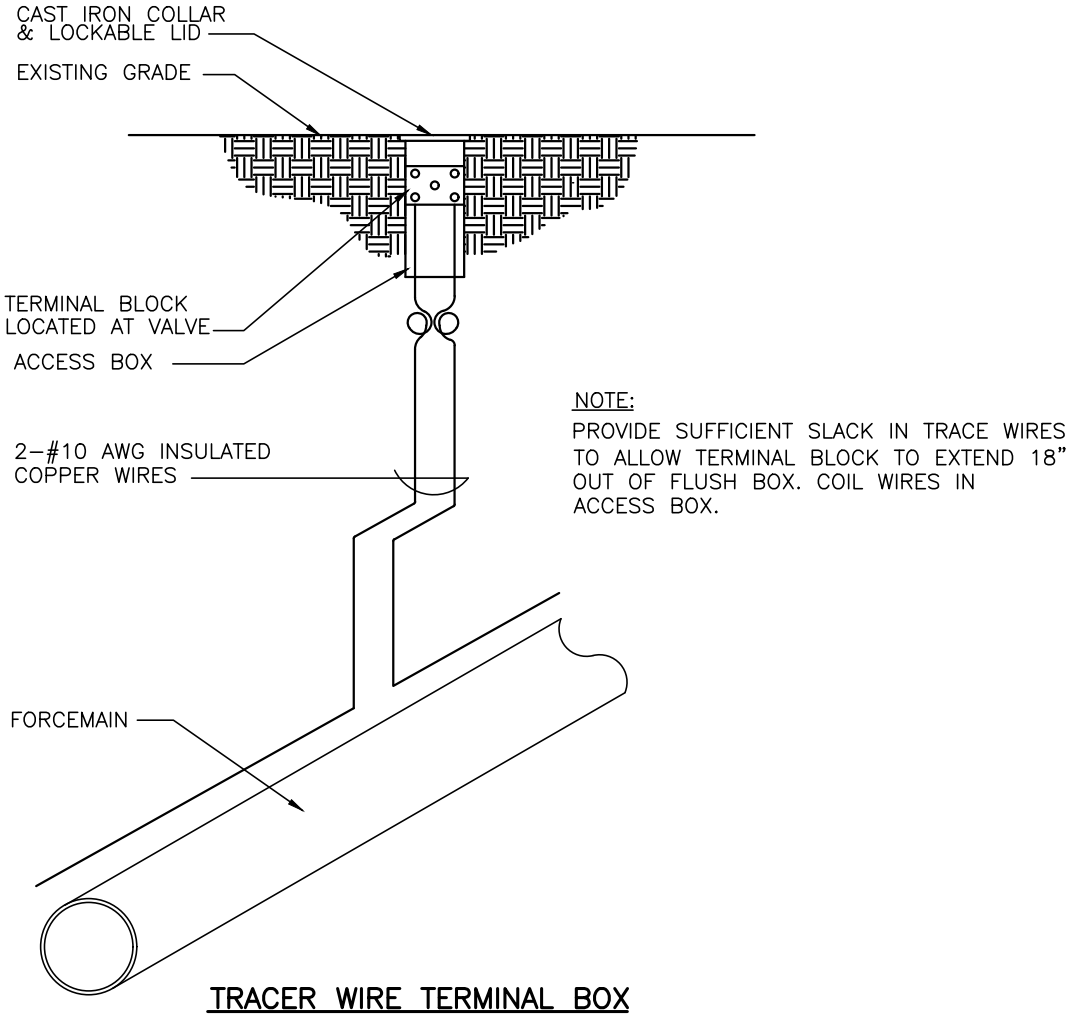
STANDARD CASING/CARRIER FOR SANITARY SEWER PIPE

DATE 05/01/26
REVISED 00/00/00
SECTION DETAIL #
300-09



TRACER WIRE SPLICE DETAIL

NOT TO SCALE



NOTE:

PROVIDE SUFFICIENT SLACK IN TRACE WIRES TO ALLOW TERMINAL BLOCK TO EXTEND 18" OUT OF FLUSH BOX. COIL WIRES IN ACCESS BOX.

TRACER WIRE TERMINAL BOX

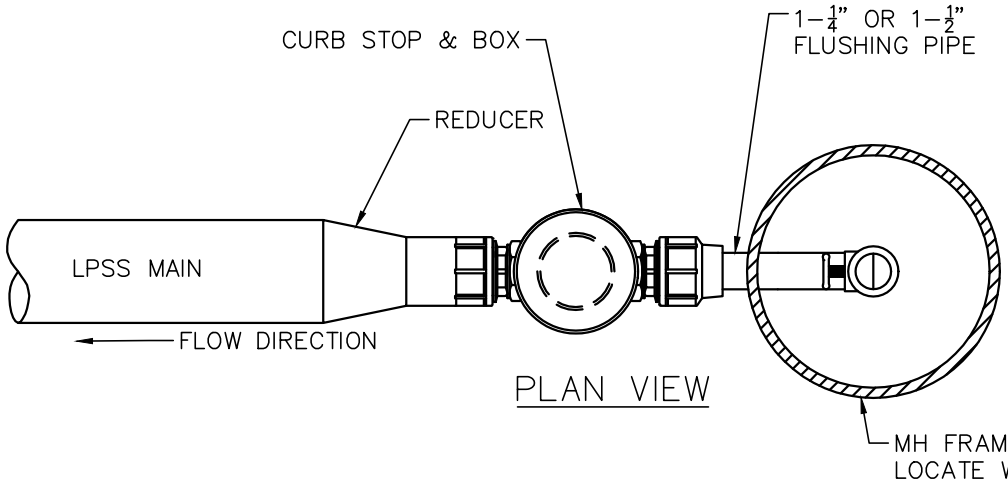
NOT TO SCALE

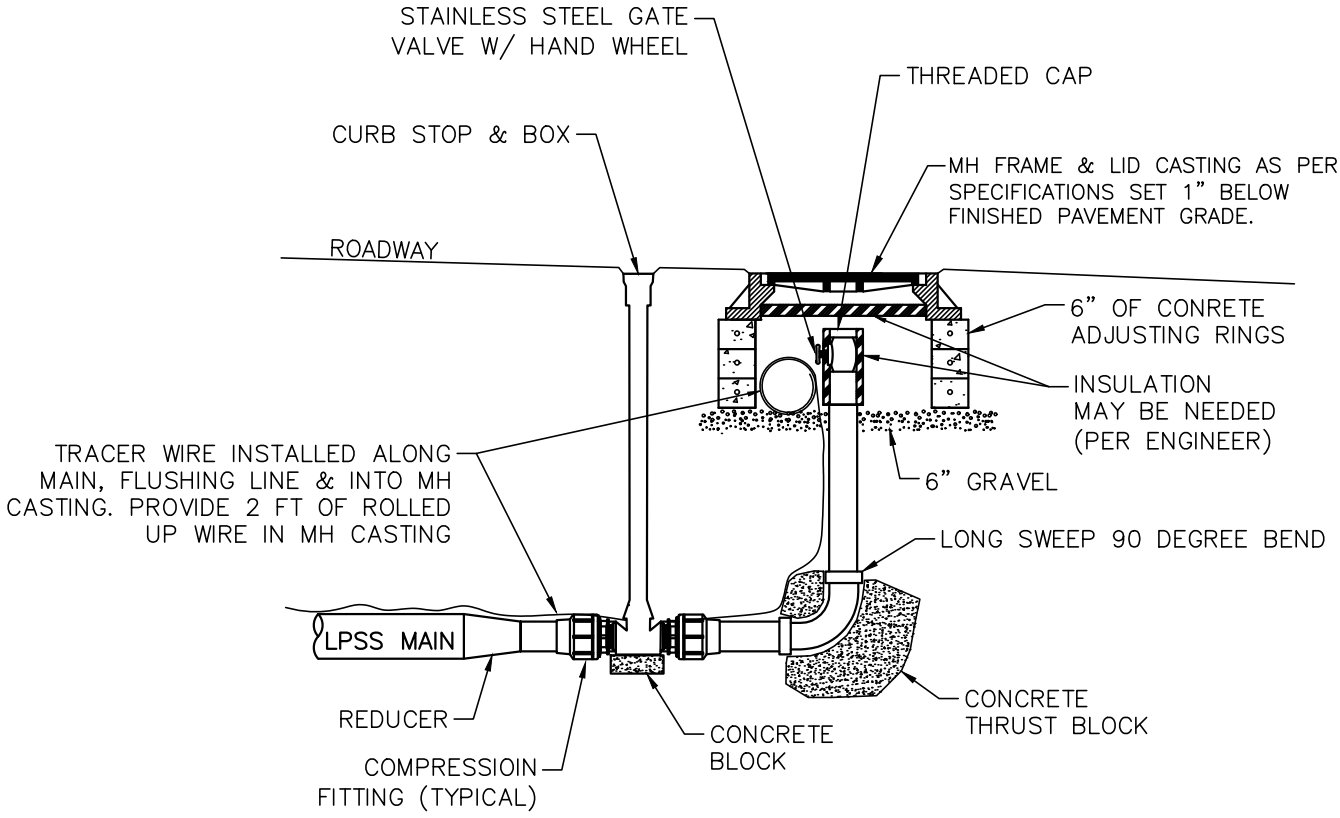
Public Works Department

City of Spearfish

SANITARY SEWER FORCE MAIN
TRACER WIRE SYSTEM

DATE	05/01/26
REVISED	00/00/00
SECTION	DETAIL #
300	10



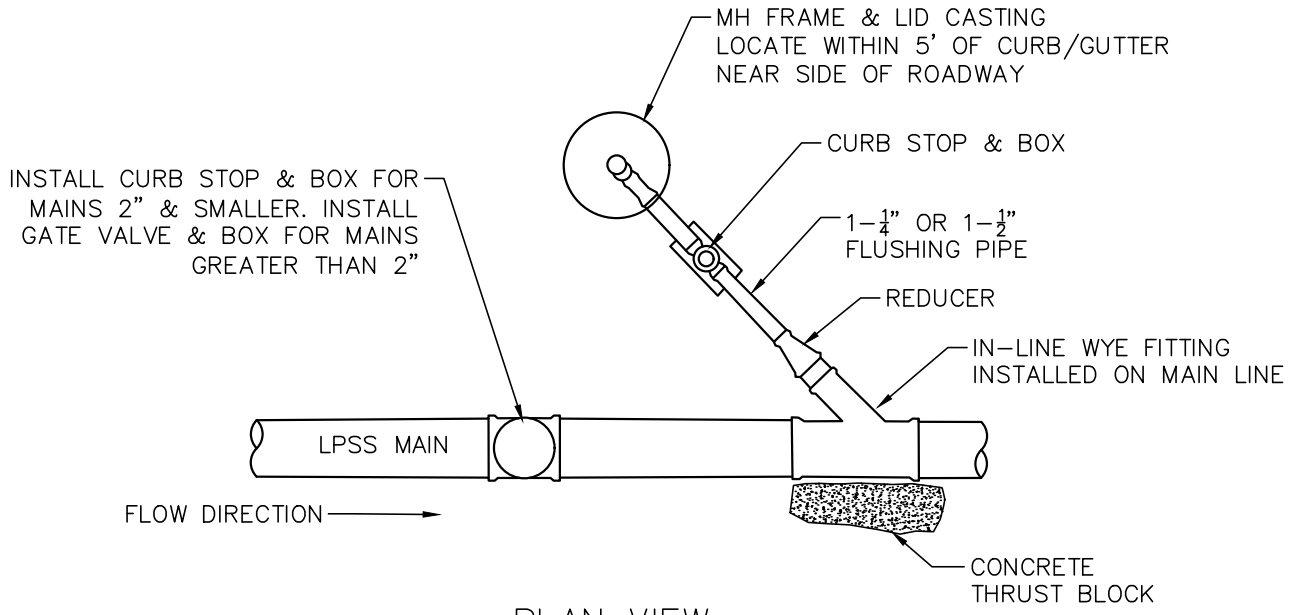


Public Works Department

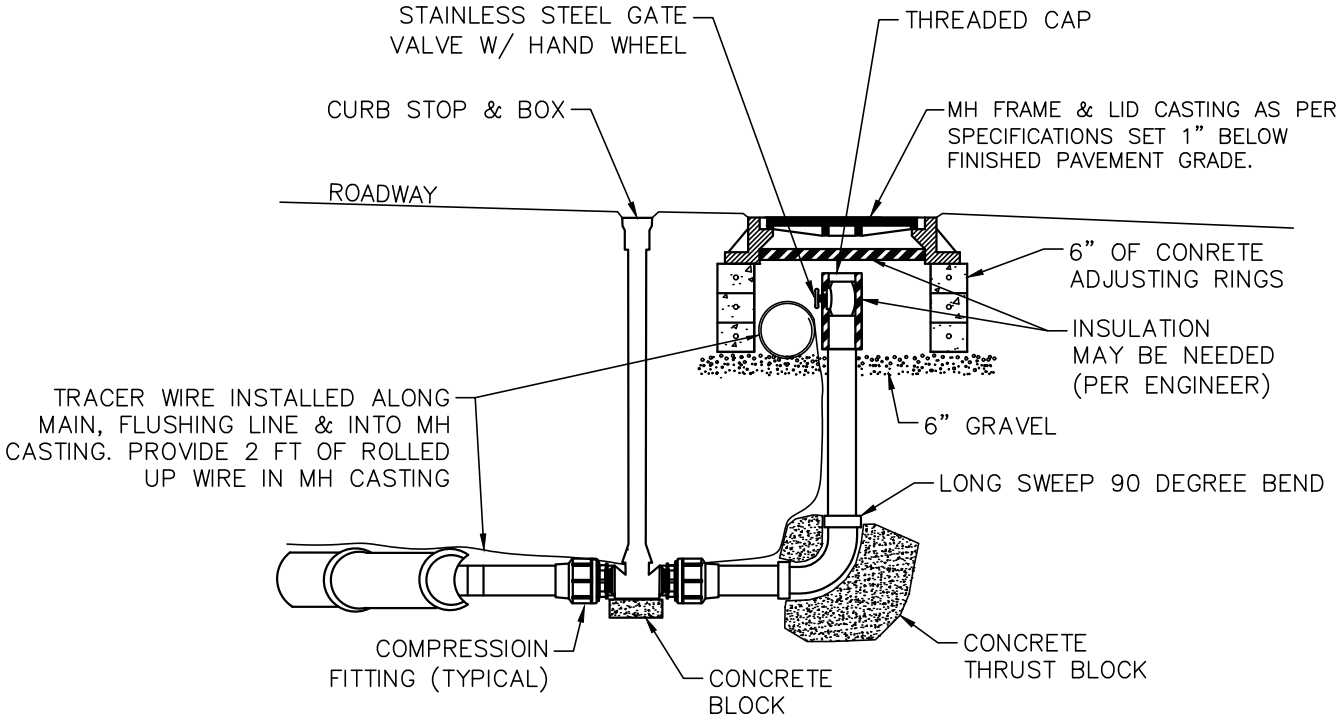
City of Spearfish

END OF LINE FLUSHING STATION
DETAIL FOR LPSS

DATE	05/01/26
REVISED	00/00/00
SECTION	DETAIL #
	300-11



PLAN VIEW

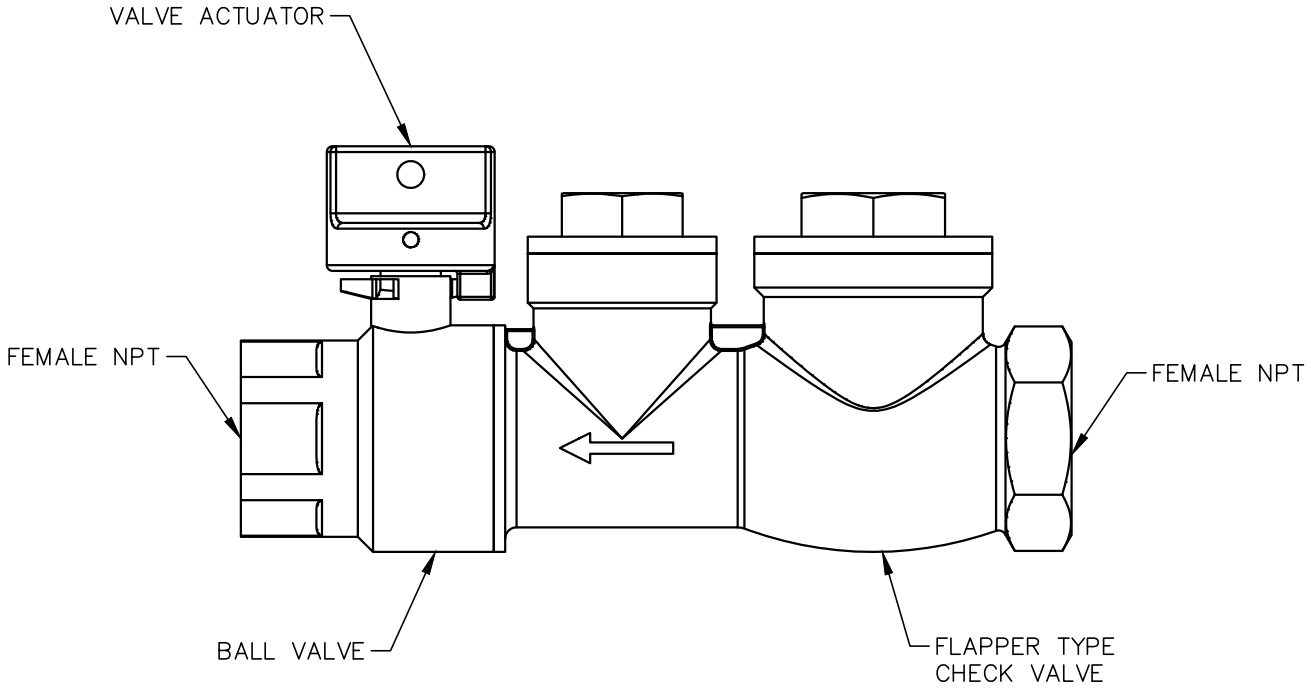


Public Works Department

City of Spearfish

IN-LINE FLUSHING STATION
DETAIL FOR LPSS

DATE	05/01/26
REVISED	00/00/00
SECTION	DETAIL #
	300-12



*AVAILABLE SIZES INCLUDE 1–1/4" & 2" DIAMETER

PART IS A BALL VALVE CURB STOP WITH FEMALE PIPE THREADS,
VALVE POSITION STOPS (OPEN/CLOSED), AND INTEGRAL CHECK VALVE
MATERIAL: STAINLESS STEEL

EONE STAINLESS STEEL
LATERAL ASSEMBLY
NO FITTINGS (OR EQUAL)
PRESSURE RATING: 235 PSI

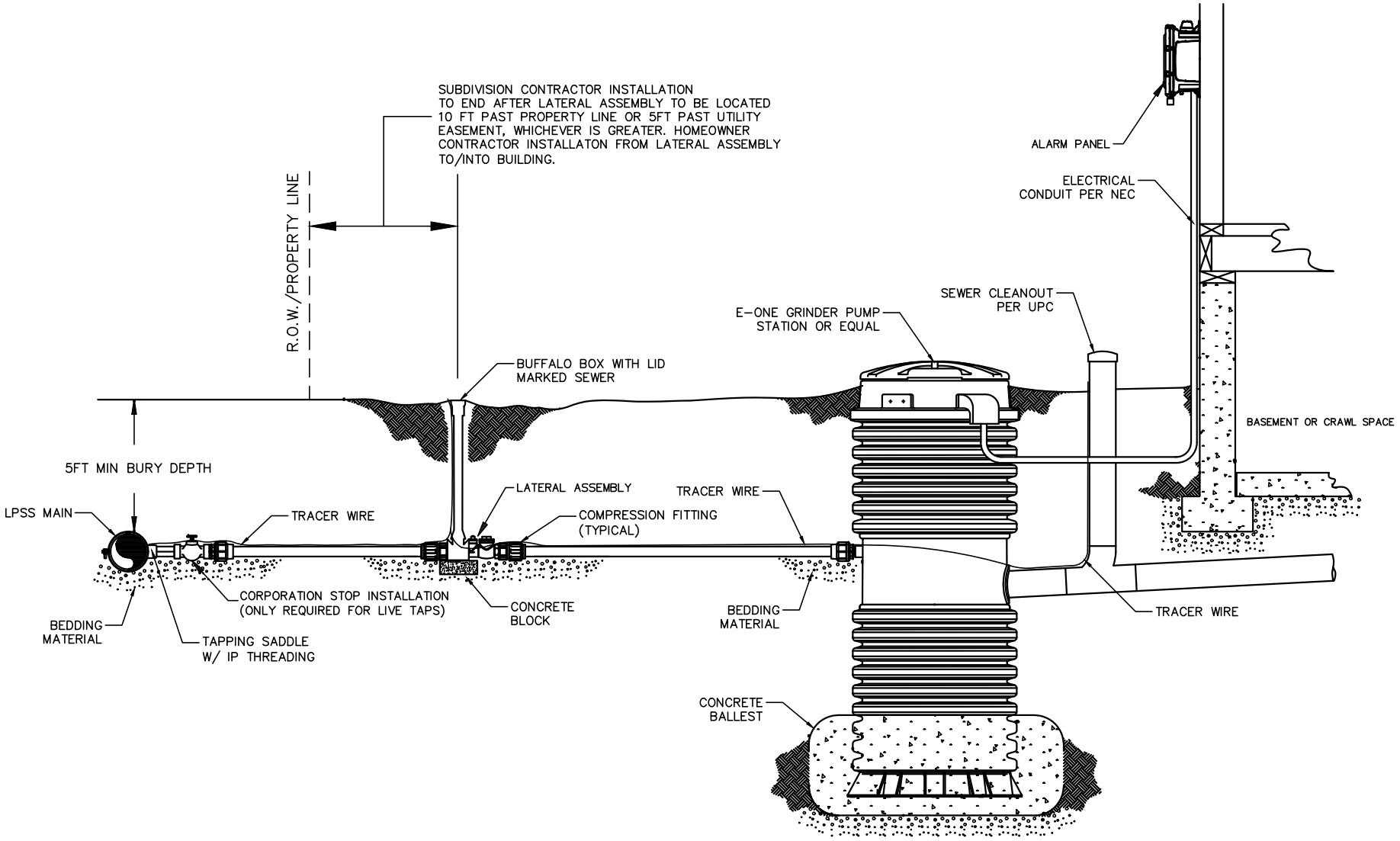
PART NUMBER:
NB0184P01 FOR 1–1/4"
NC0443P01 FOR 2"

Public Works Department

City of Spearfish

STAINLESS STEEL LATERAL ASSEMBLY
DETAIL FOR LPSS

DATE	05/01/26
REVISED	00/00/00
SECTION	DETAIL #
300	13

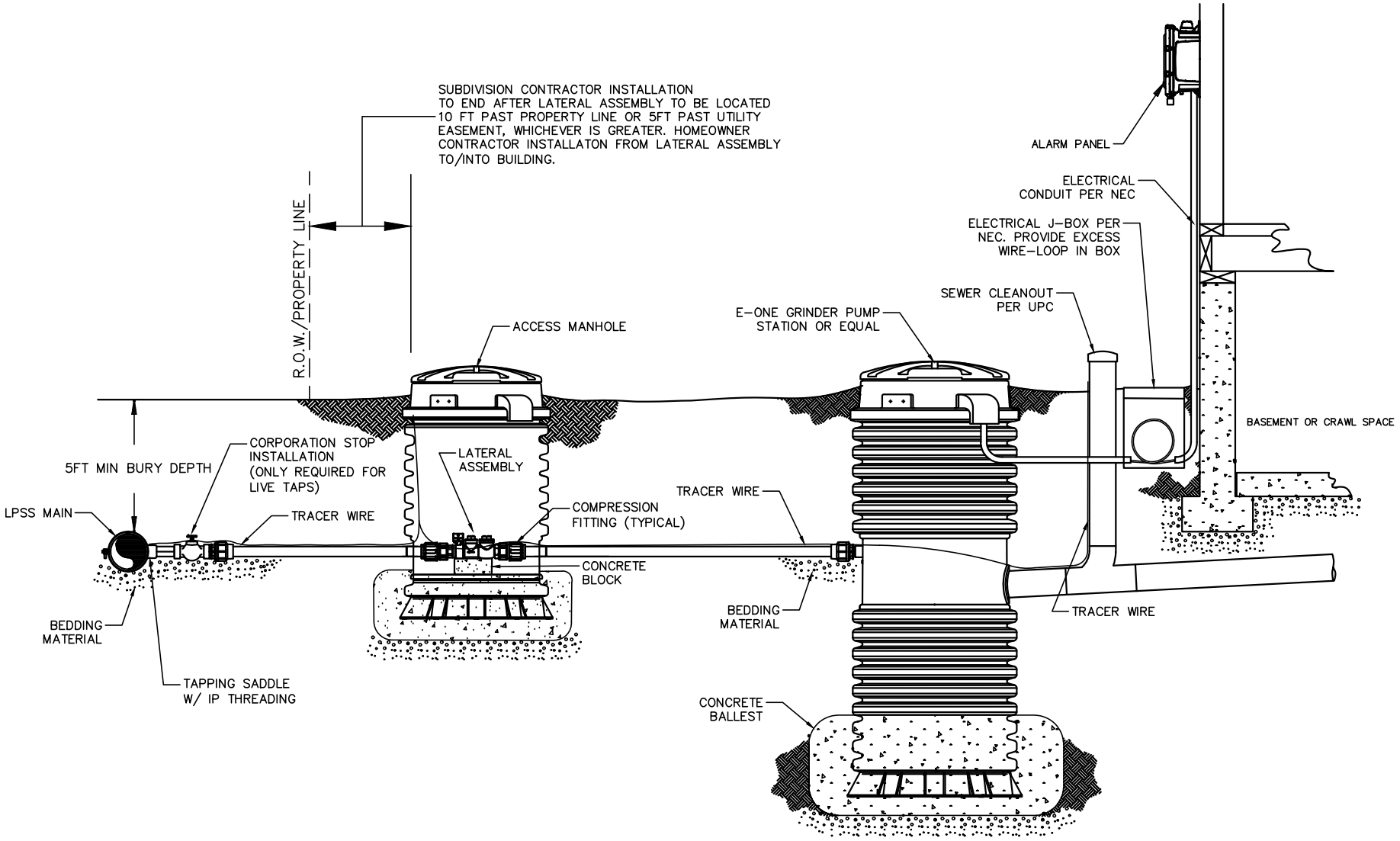


Public Works Department

City of Spearfish

SERVICE LATERAL INSTALLATION
DETAIL FOR LPSS

DATE	05/01/26
REVISED	00/00/00
SECTION	DETAIL #
	300-14

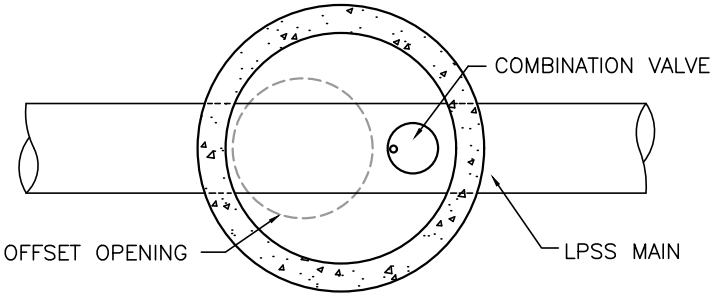


Public Works Department

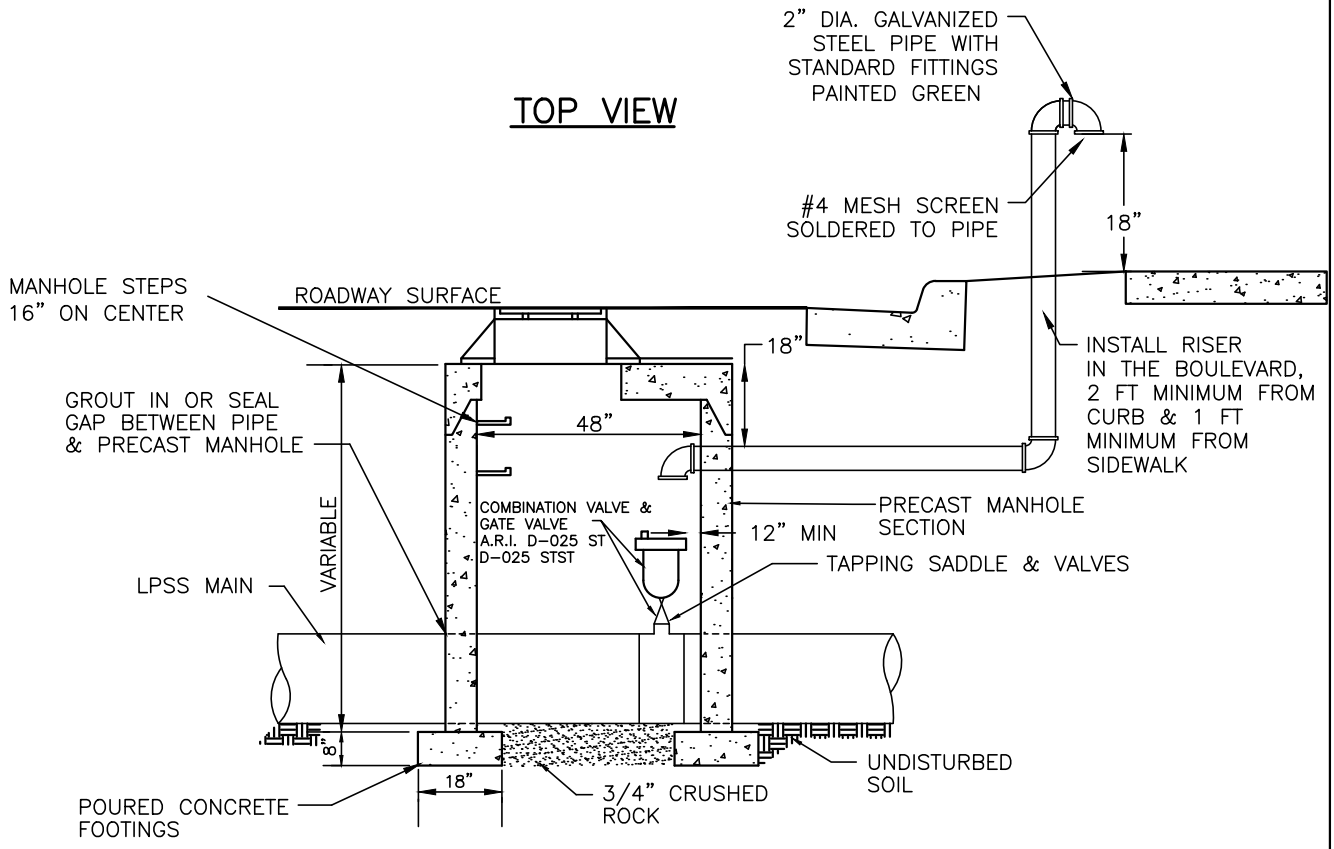
City of Spearfish

SERVICE LATERAL INSTALLATION DETAIL FOR LPSS - W/ MANHOLE ACCESS & ELECTRICAL JUNCTION BOX

DATE	05/01/26
REVISED	00/00/00
SECTION	DETAIL #
300	15



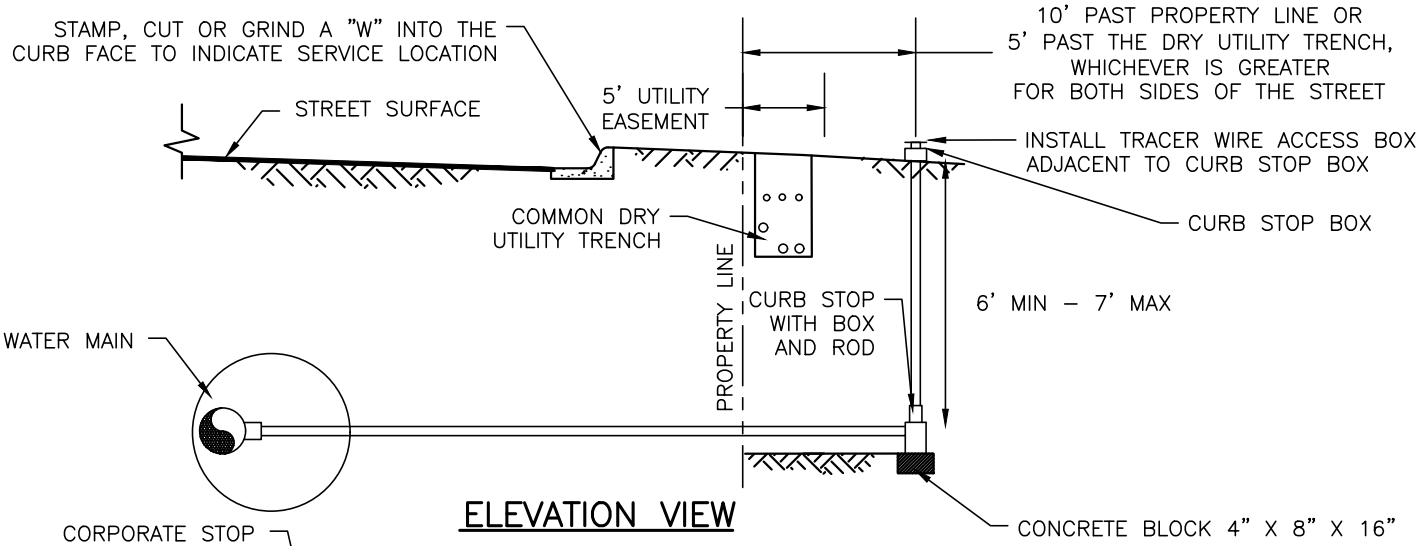
TOP VIEW



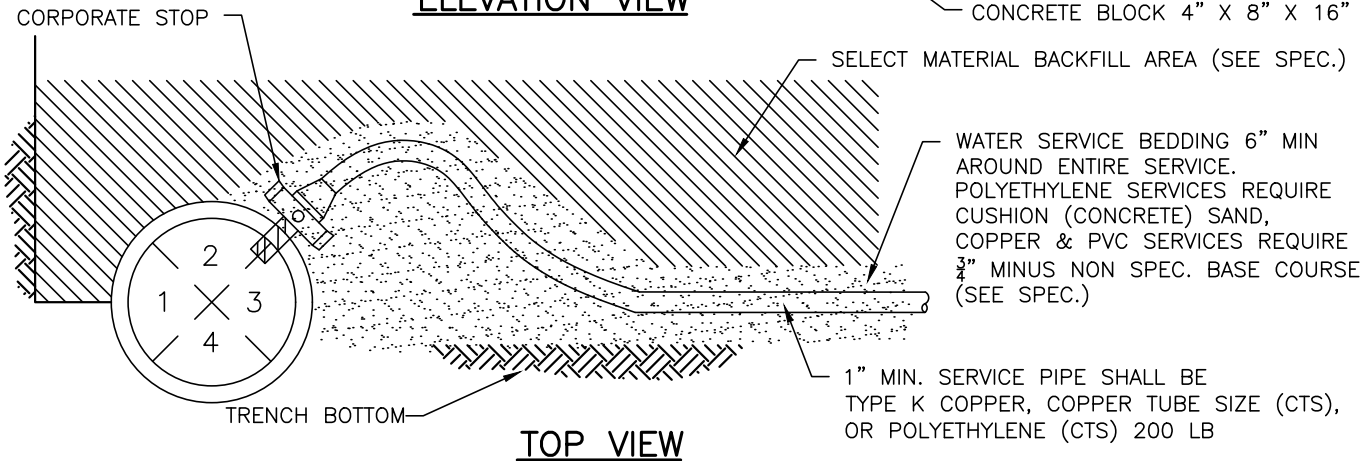
FRONT VIEW

*INSTALL AT ALL HIGH POINTS AND SIGNIFICANT CHANGES IN GRADE WHERE AIR POCKETS CAN FORM AND AT INTERVALS OF 2000–2500 FT ON ALL LONG HORIZONTAL RUNS THAT LACK A CLEARLY DEFINED HIGH POINT.

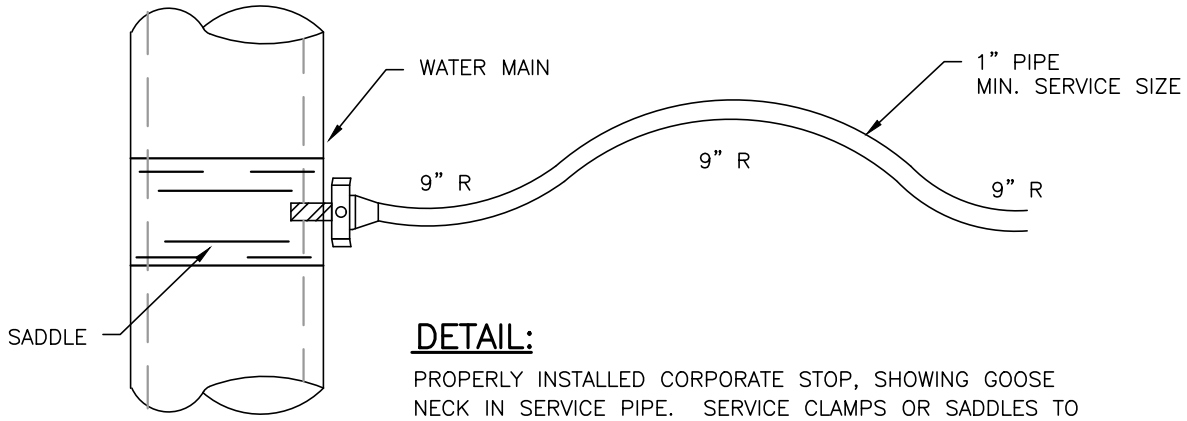
CITY OF SPEARFISH Public Works Department	**City of Spearfish**	DATE 05/01/26 REVISED 00/00/00
	COMBINATION AIR VALVE MANHOLE FOR LPSS	SECTION 300 DETAIL # 16



ELEVATION VIEW



TOP VIEW



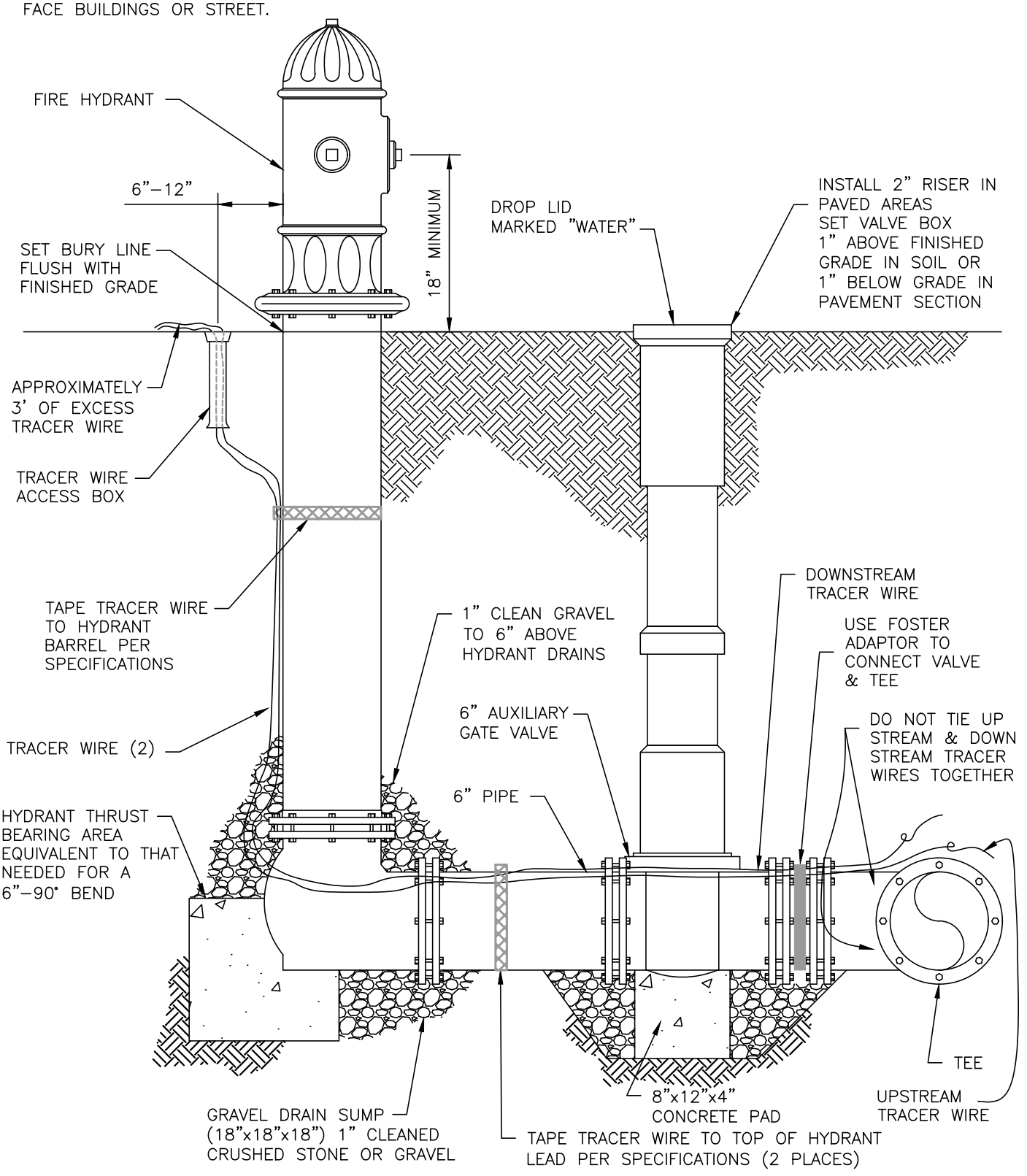
DETAIL:

PROPERLY INSTALLED CORPORATE STOP, SHOWING GOOSE NECK IN SERVICE PIPE. SERVICE CLAMPS OR SADDLES TO BE USED ON ALL PVC PIPE MAINS.

NOTES:

1. WATER SERVICE LINES SHALL HAVE A MINIMUM 6' TO 7' COVER MEASURED FROM THE EXISTING GROUND SURFACE, EXCEPT THAT COVER SHALL BE MEASURED FROM CENTERLINE STREET GRADE WHEN SERVICE LINES ARE LAID TO A STREET SIDE WHICH HAS AN UPHILL SLOPE.
2. WATER SERVICE LINES SHALL BE INSTALLED WHERE SHOWN ON THE DRAWINGS OR AS SPECIFIED.
3. BEDDING SHALL FOLLOW SPECIFICATIONS FOR PIPE MATERIAL.
4. PLACE TRACER WIRE ACCESS BOX ADJACENT TO CURB STOP BOX.

CITY OF SPEARFISH Public Works Department	***City of Spearfish***	DATE 05/12/25
		REVISED 00/00/00
	TYPICAL 1"-2" DIAMETER WATER SERVICE CONNECTION DETAIL	SECTION DETAIL # 400-01

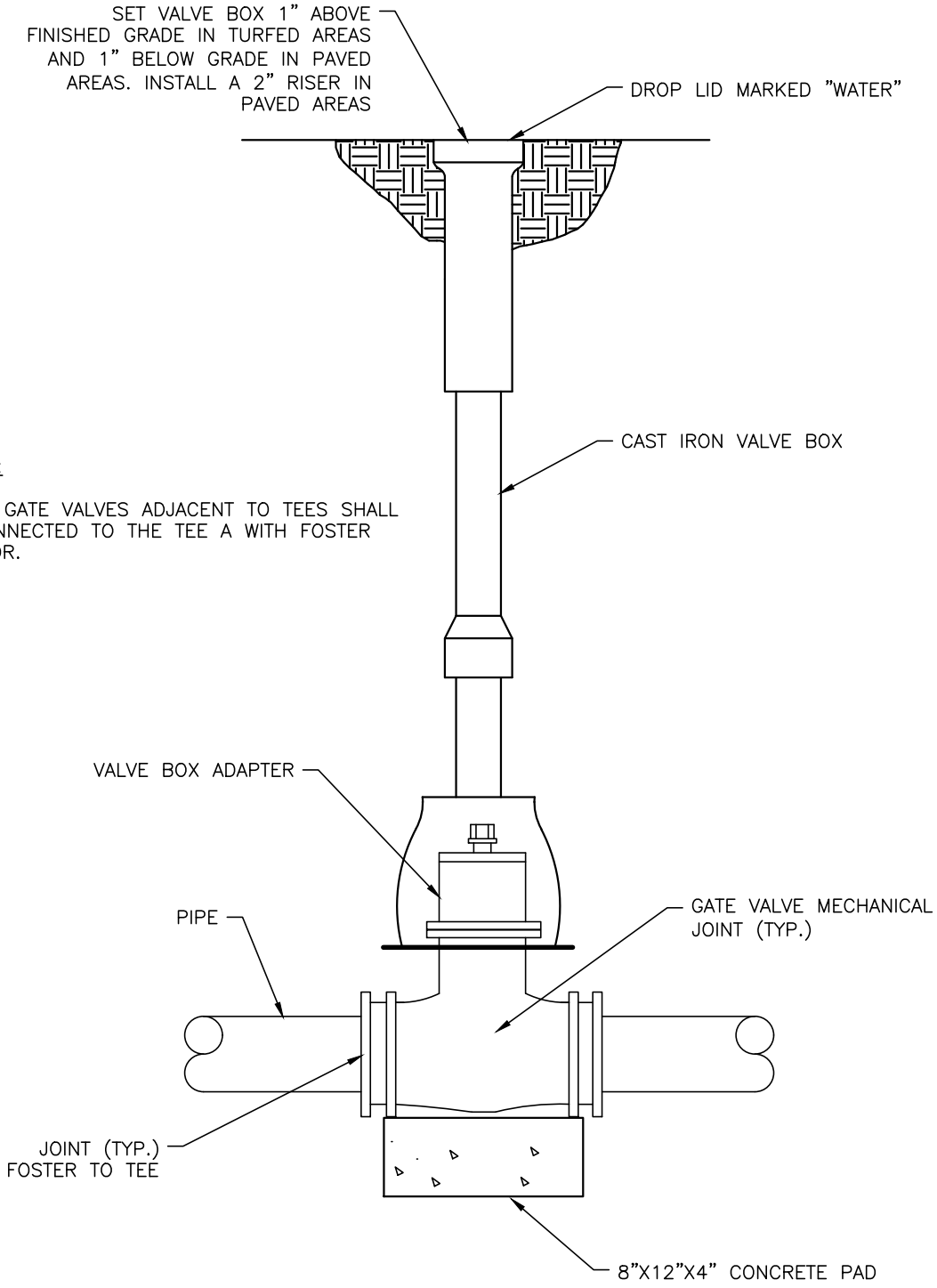


Public Works Department

City of Spearfish

HYDRANT SETTING DETAIL

DATE	05/12/25
REVISED	00/00/00
SECTION	DETAIL #
	400-02



NOTES:

1. ALL GATE VALVES ADJACENT TO TEES SHALL BE CONNECTED TO THE TEE A WITH FOSTER ADAPTOR.

PVC GATE VALVE INSTALLATION

NO SCALE

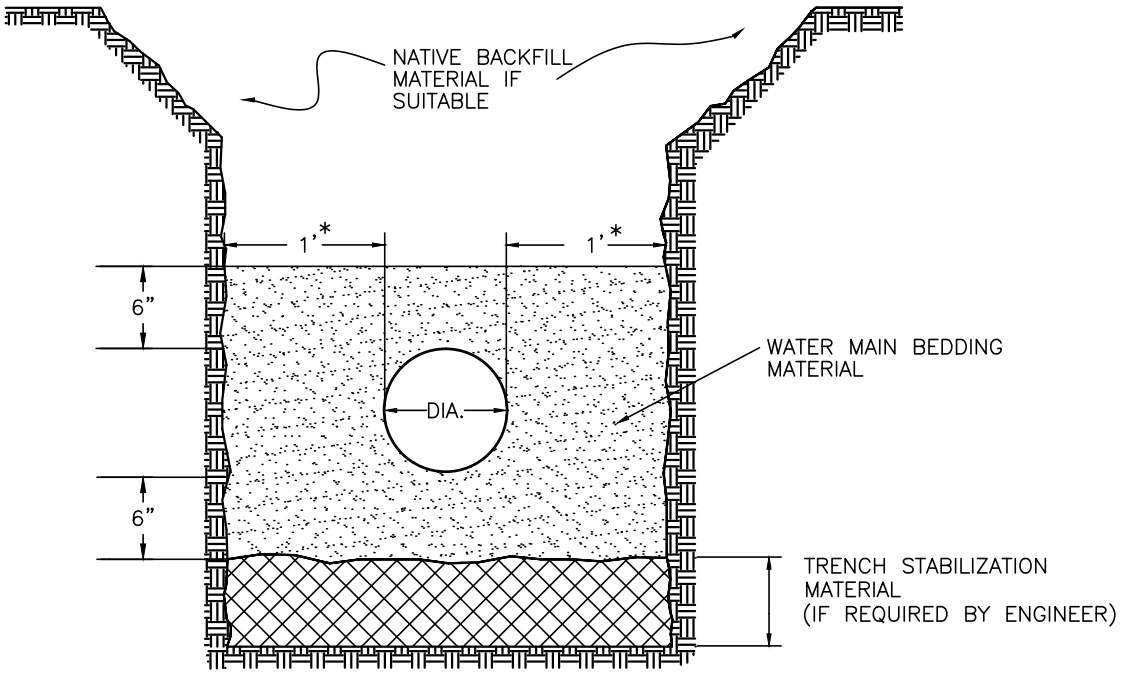
Public Works Department

City of Spearfish

PVC GATE VALVE INSTALLATION

DATE	REVISED	SECTION	DETAIL #
05/12/25	00/00/00	400	03

WATER MAIN BEDDING DETAIL



PIPE SIZE DIAMETER	TRENCH WIDTH	TRENCH HEIGHT	TRENCH AREA	PIPE AREA	WATER MAIN BEDDING MAT. AREA	WATER MAIN BEDDING MAT. TONS/LF
4"	28"	16"	3.11 SQ.FT.	.09 SQ.FT.	3.02 SQ.FT.	0.21
6"	30"	18"	3.75 SQ.FT.	.20 SQ.FT.	3.55 SQ.FT.	0.25
8"	32"	20"	4.44 SQ.FT.	.35 SQ.FT.	4.10 SQ.FT.	0.29
10"	34"	22"	5.19 SQ.FT.	.55 SQ.FT.	4.65 SQ.FT.	0.33
12"	36"	24"	6.00 SQ.FT.	.79 SQ.FT.	5.22 SQ.FT.	0.37
16"	40"	28"	7.78 SQ.FT.	1.40 SQ.FT.	6.38 SQ.FT.	0.45
20"	44"	32"	9.78 SQ.FT.	2.18 SQ.FT.	7.60 SQ.FT.	0.53
24"	48"	36"	12.00 SQ.FT.	3.14 SQ.FT.	8.86 SQ.FT.	0.62
30"	60"	42"	17.50 SQ.FT.	4.91 SQ.FT.	12.59 SQ.FT.	0.88

* IF >30" USE DIA./2 ON EACH SIDE OF WATER MAIN PIPE.
* LENGTH BASED ON ONE (1) FOOT OF MAIN.

Public Works Department

City of Spearfish

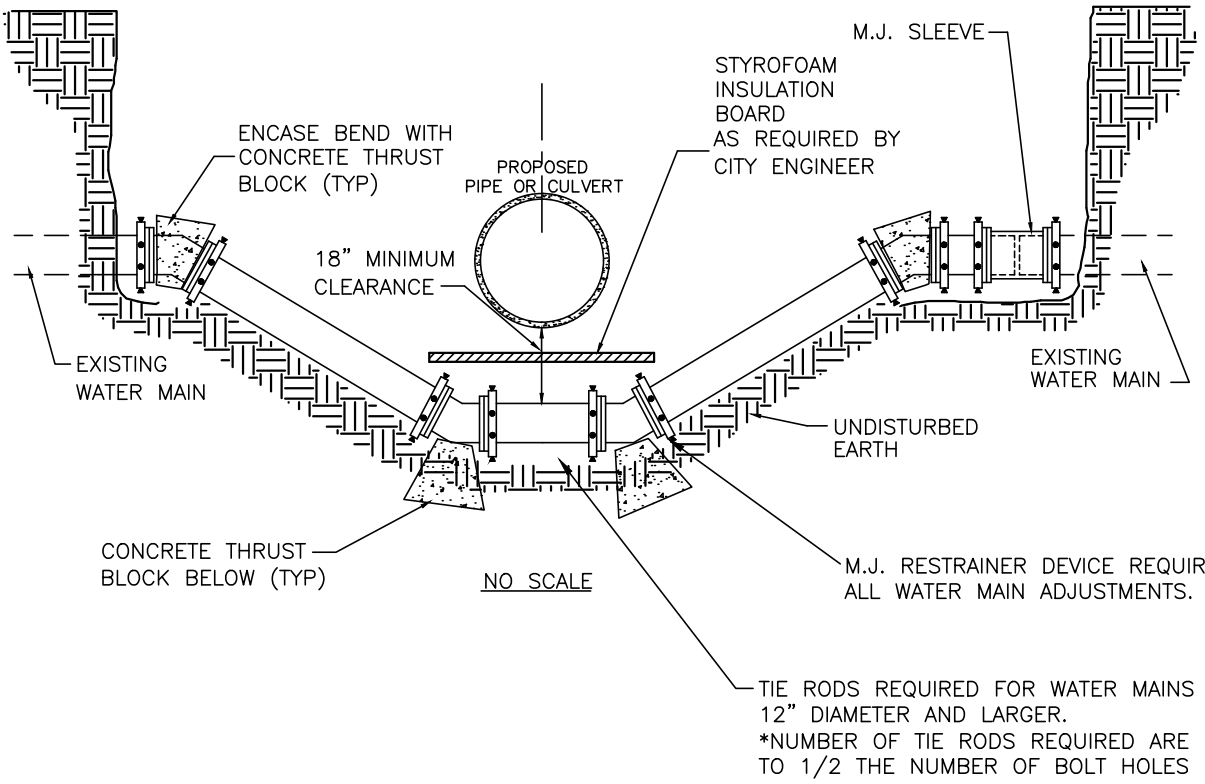
WATER MAIN BEDDING DETAIL

DATE 05/12/25

REVISED 00/00/00

SECTION DETAIL #

400-04



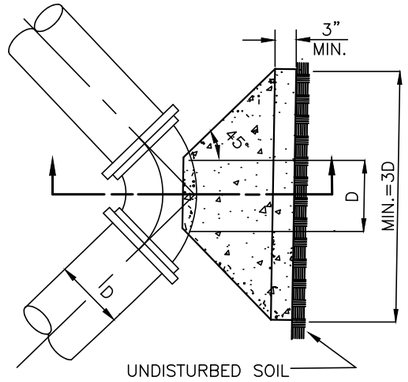
NOTES:
1. WRAP ALL FITTINGS WITH POLYETHYLENE
2. TIE TOP BENDS TO EXISTING MAIN WITH M.J. RESTRAINER DEVICES IF A PIPE JOINT IS EXPOSED
3. ENSURE ALL BOLTS ARE UNOBSTRUCTED BY CONCRETE

Public Works Department

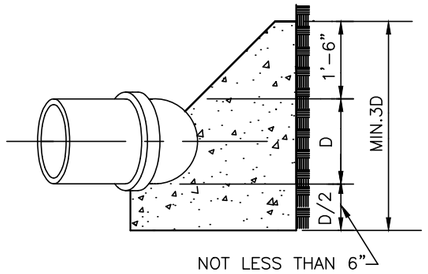
City of Spearfish

WATER MAIN LOWERING

DATE	05/12/25
REVISED	00/00/00
SECTION	DETAIL #
	400-05

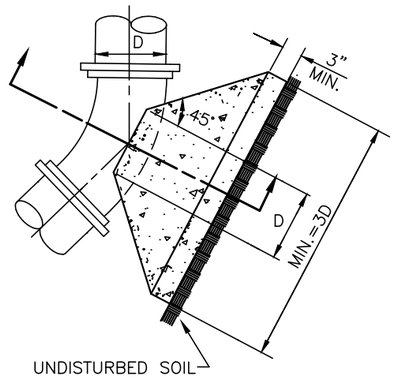


PLAN VIEW

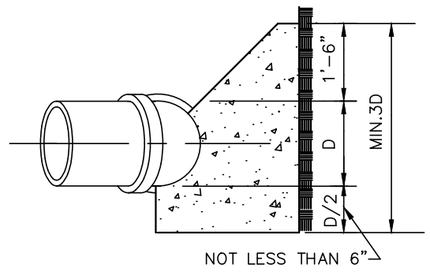


SECTION VIEW

90 – DEGREE BEND

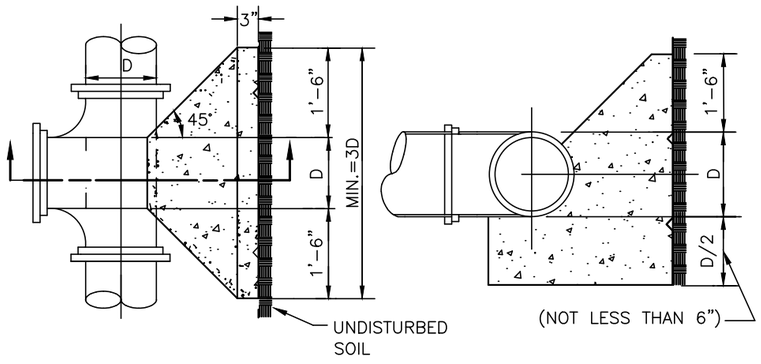


PLAN VIEW



SECTION VIEW

11 1/4 – DEGREE, 22 1/2 – DEGREE AND 45 – DEGREE BENDS



PLAN VIEW

SECTION VIEW

TEE

JOINT RESTRAINT TABLES ON PVC WATER MAINS

Cross Table	
	Restraining Length (FT)
Fitting Size (in)	LF
6x6	15
8x8	24
10x10	31
12x12	39

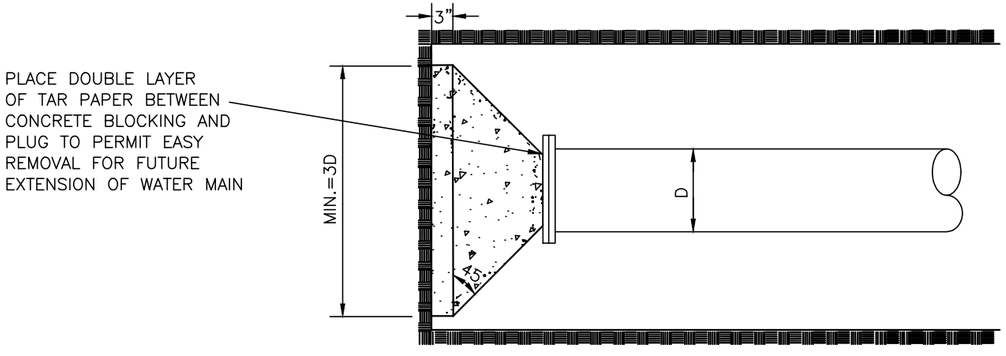
Tee Tables	
	Restraining Length (FT)
Fitting Size (in)	LF
8x6	11
10x6	7
10x8	20
10x10	31
12x6	3
12x8	17
12x10	28
12x12	39

11.25 Degree Bend Tables	
	Restraining Length (FT)
Pipe Size (in)	LF
6	1
8	1
10	1
12	2

22.5 Degree Bend Tables	
	Restraining Length (FT)
Pipe Size (in)	LF
6	2
8	2
10	3
12	3

45 Degree Bend Tables	
	Restraining Length (FT)
Pipe Size (in)	LF
6	4
8	5
10	6
12	7

90 Degree Bend Tables	
	Restraining Length (FT)
Pipe Size (in)	LF
6	9
8	12
10	14
12	17



S.J. PLUG

Public Works Department

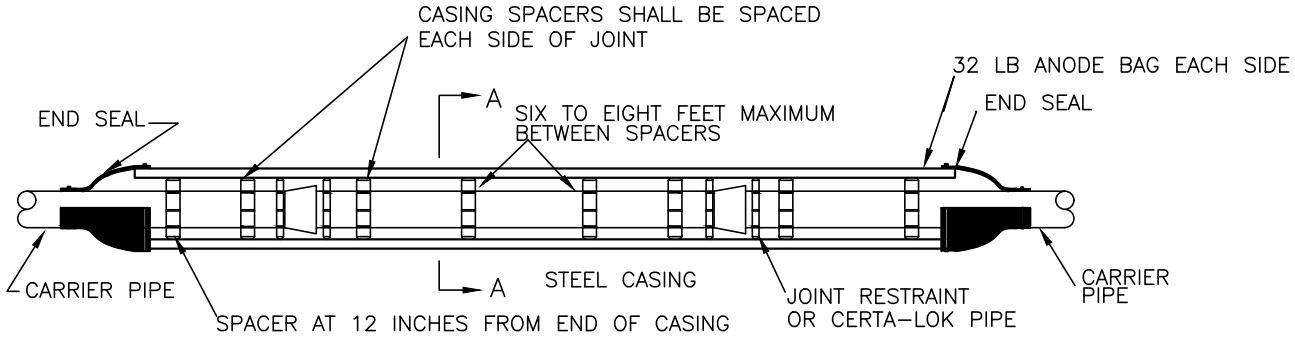
City of Spearfish

CONCRETE THRUST BLOCK

DATE 05/12/25

REVISED 00/00/00

SECTION DETAIL # 400-06



ELEVATION

CASING SPACERS AND END SEALS SHALL BE MANUFACTURED BY ADVANCED PRODUCTS AND SYSTEMS, INC. P.O. BOX 60399 LAFAYETTE, LA. 70596-0399 OR EQUAL AND MEET THESE REQUIREMENTS.

CASING SPACERS – MODEL SSI-8 (PIPE SIZES 24 INCHES IN DIAMETER AND SMALLER) OR MODEL SSI-12-2 (PIPE SIZES 30 INCHES IN DIAMETER AND GREATER) WITH T-304 STAINLESS STEEL SPACER.
BAND – 14 GAUGE T-304 STAINLESS STEEL.
RISER – 10 GAUGE T-304 STAINLESS STEEL.

RUNNERS – TWO INCH WIDE MINIMUM GLASS REINFORCED PLASTIC. THE NUMBER OF RISERS SHALL BE AS RECOMMENDED BY THE MANUFACTURER, BUT FOUR IS THE MINIMUM.

STUDS, NUTS AND WASHERS – T-304 STAINLESS STEEL.

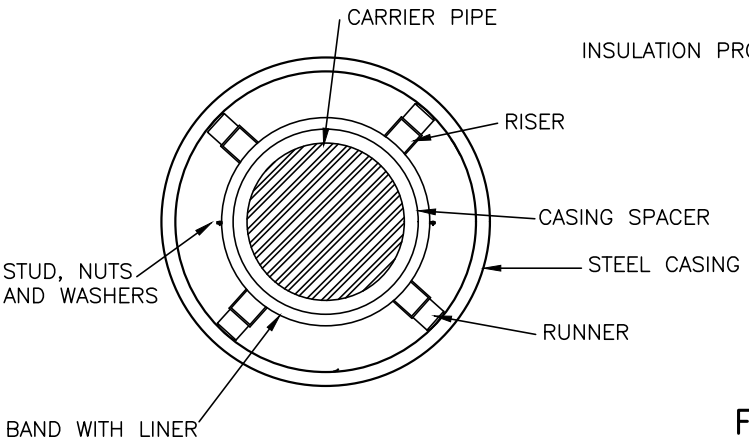
HEIGHTS – AS REQUIRED FOR CENTER RESTRAINING

END SEALS – CONICAL SHAPED WRAP-AROUND 1/8 INCH SYNTHETIC RUBBER WITH T-304 STAINLESS STEEL STRAPS.

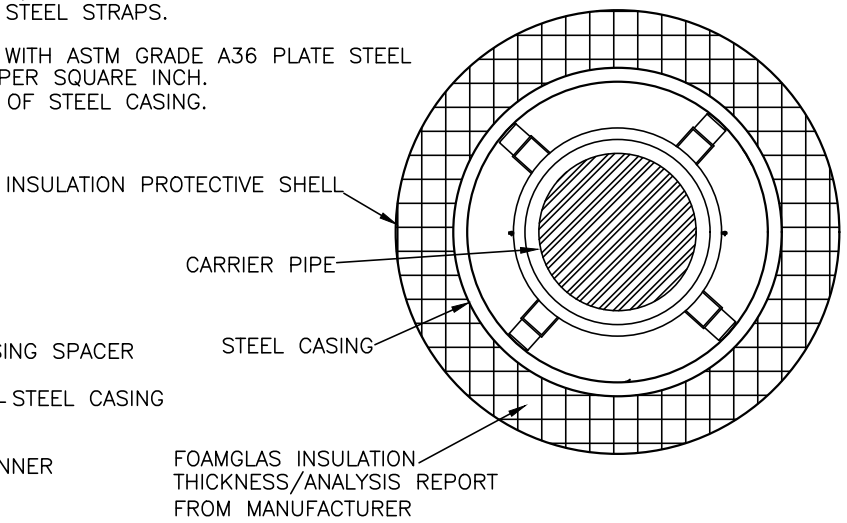
CASING PIPE MUST CONFORM TO AWWA C-200 WITH ASTM GRADE A36 PLATE STEEL MINIMUM YIELD STRENGTH OF 35,000 POUNDS PER SQUARE INCH.
32 LB ANODE BAG CAD WELDED TO EACH END OF STEEL CASING.

PIPE SIZE	CASING SIZE
4"	10"
6"	12"
8"	16"
10"	18"
12"	20"
16"	24"
20"	30"
24"	36"
30"	42"
>36"	*

* AS RECOMMENDED BY MANUFACTURER



SECTION A-A



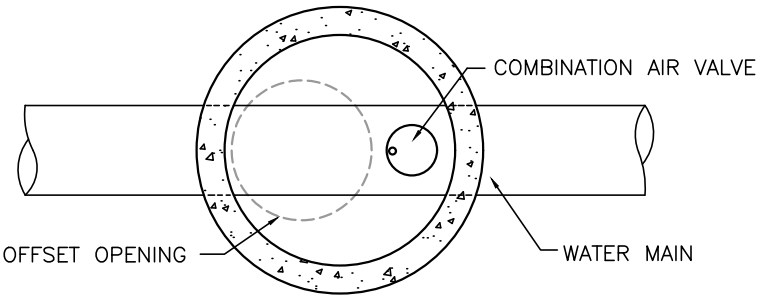
FOR SHALLOW INSTALLATION DEPTHS AND OR UNDER LARGE BOX CULVERTS WHERE REQUIRED.

Public Works Department

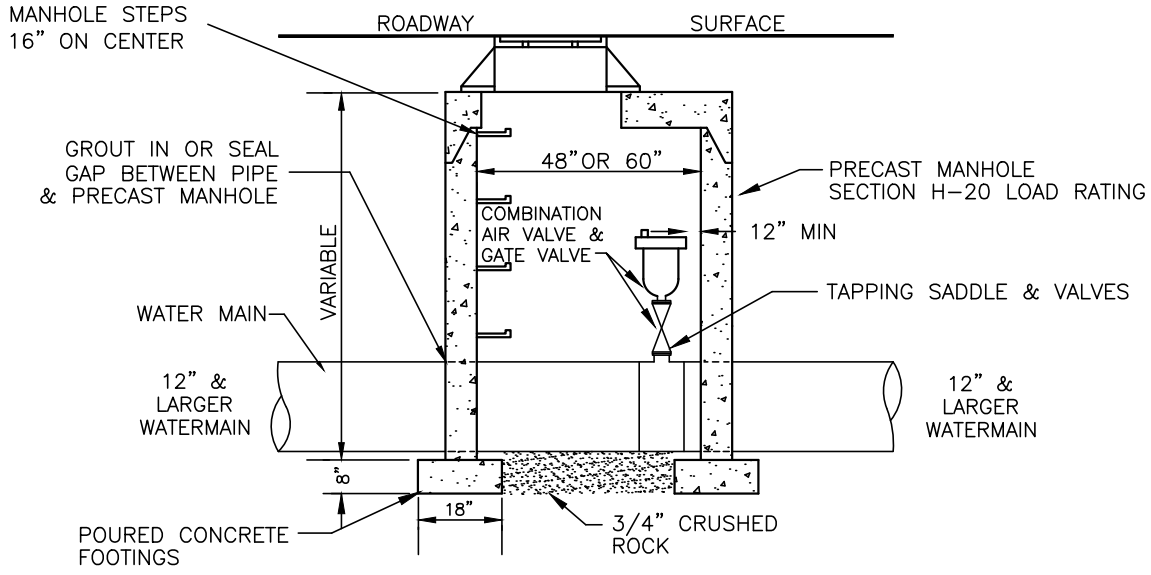
City of Spearfish

STANDARD CASING/CARRIER FOR WATER PIPE

DATE 05/12/25
REVISED 00/00/00
SECTION DETAIL # 400-07



TOP VIEW



FRONT VIEW

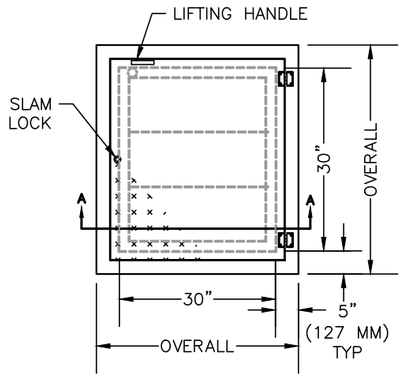
Public Works Department

City of Spearfish

COMBINATION AIR VALVE MANHOLE LOCATED IN ROADWAY

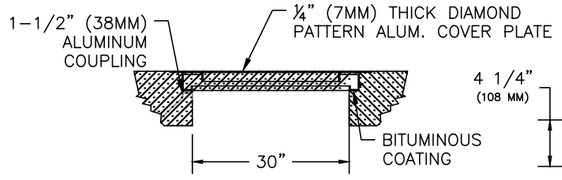
DATE	05/12/25
REVISED	00/00/00
SECTION	DETAIL #
	400-08

HALLIDAY PRODUCTS
W1C3030 ACCESS DOOR

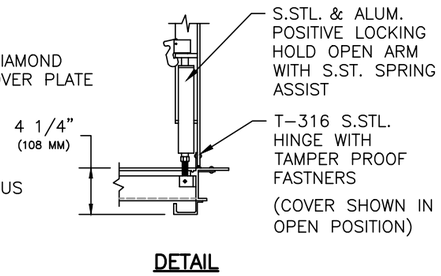


STANDARD FEATURES:

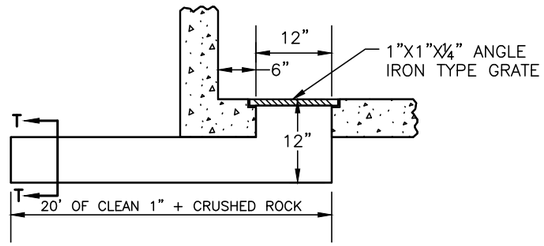
- AUTO–LOCK T–316 STAINLESS STEEL HOLD OPEN ARM WITH RELEASE HANDLE
- T–316 STAINLESS STEEL HINGES AND ATTACHING HARDWARE
- T–316 STAINLESS STEEL SLAM LOCK WITH REMOVABLE KEY
- STAINLESS STEEL COMPRESSION SPRING ASSIST
- BUILT–IN NEOPRENE CUSHION/GASKET
- NON–OZONE DEPLETING BITUMINOUS COATING
- SINGLE LEAF CONSTRUCTION
- 300 LBS. PER SQ. FT. LOAD RATING (1464 KG. PER SQ. METER LOAD RATING)
- EXTRUDED ALUMINUM CHANNEL FRAME
- RECESSED LIFTING HANDLE
- LIFETIME GUARANTEE



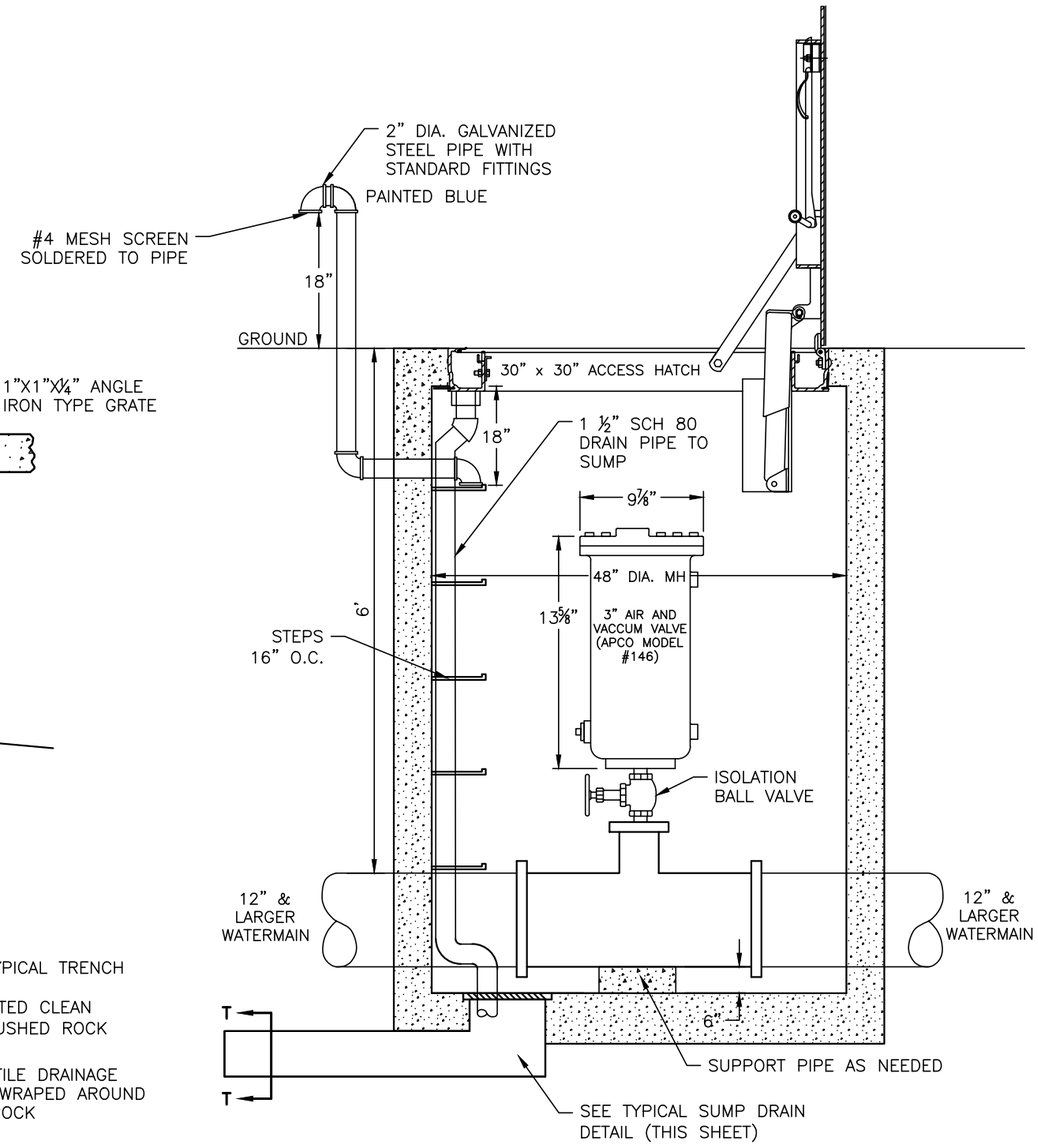
SECTION A–A



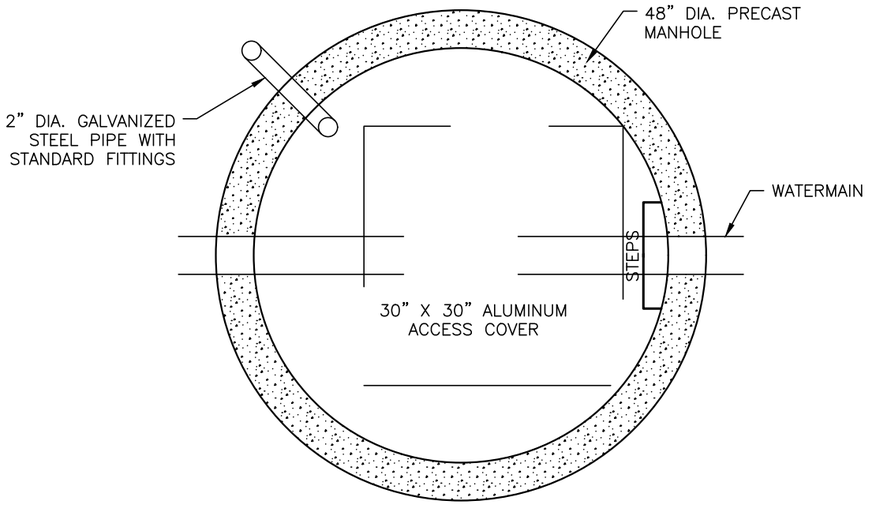
DETAIL



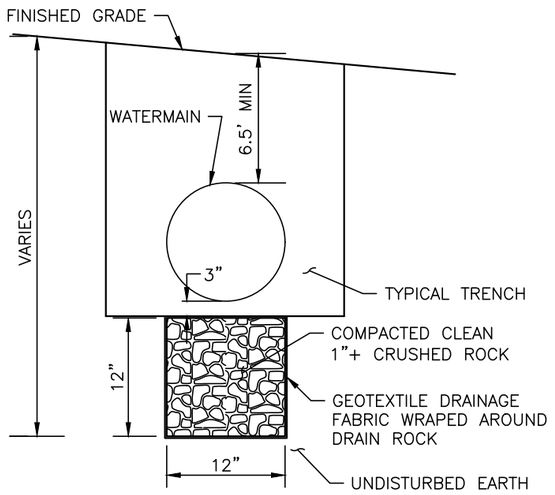
TYPICAL SUMP DRAIN DETAIL



AIR & VACCUM RELEASE VALVE



PLAN VIEW



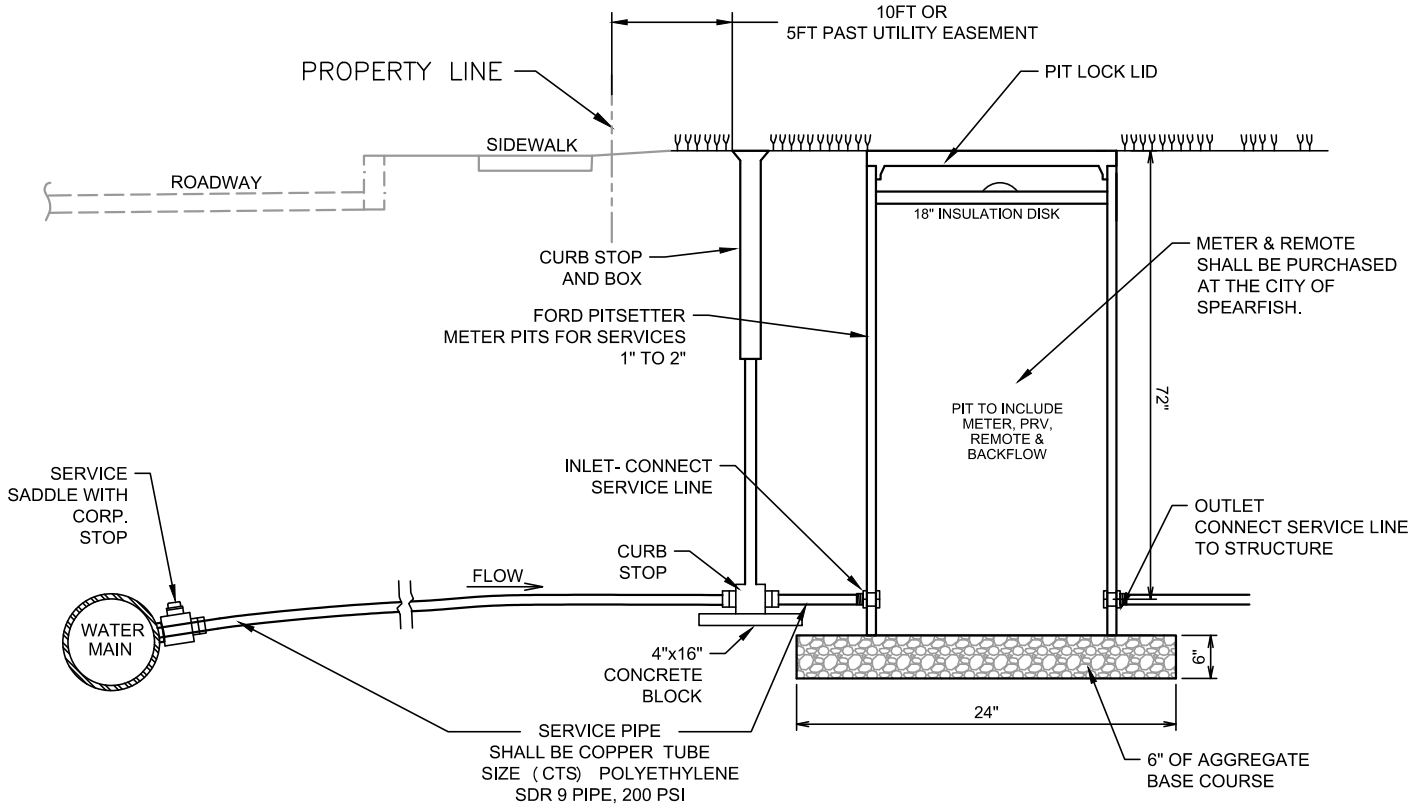
SECTION T–T

Public Works Department

City of Spearfish

COMBINATION AIR RELEASE VALVE MANHOLE LOCATED OUTSIDE OF ROADWAY

DATE	05/12/25
REVISED	00/00/00
SECTION	DETAIL #
	400-09



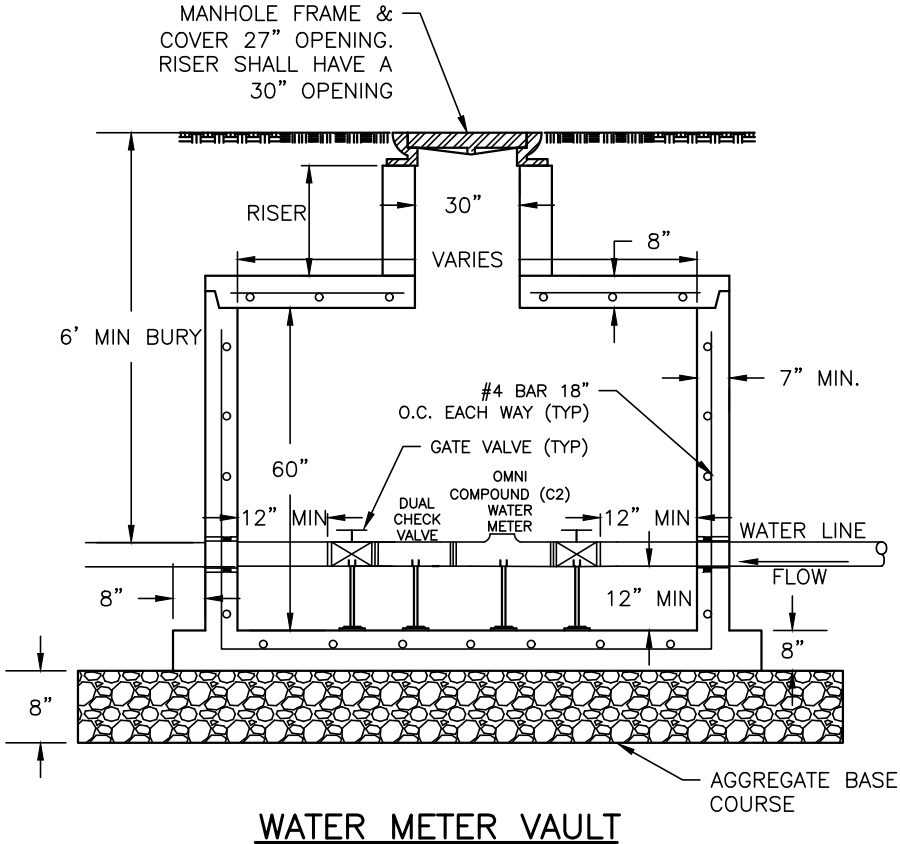
METER PIT ELEVATION

Public Works Department

City of Spearfish

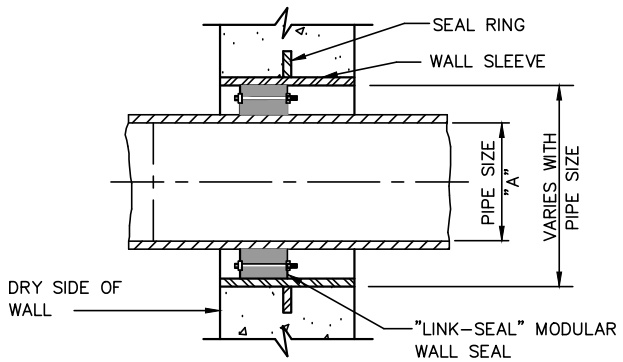
WATER SERVICE & METER PIT
1" TO 2" WATER SERVICE

DATE	05/12/25
REVISED	00/00/00
SECTION	DETAIL #
	400-10

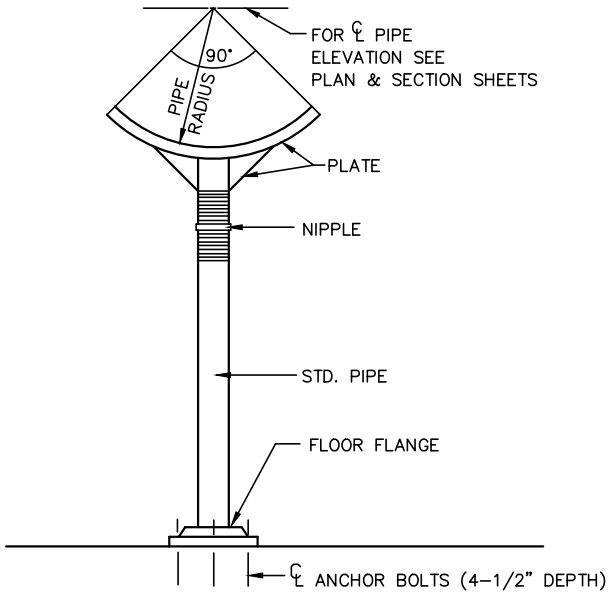


1. A PRESSURE REDUCING VALVE IS NOT SHOWN IN THE DETAIL BUT MAY BE REQUIRED. IF REQUIRED, THE GATE VALVES MAY BE INSTALLED OUTSIDE OF THE VAULT, 4 TO 6 FEET FROM THE VAULT BOX.
2. DIMENSIONS OF VAULT WILL VARY BASED ON WATER SERVICE SIZE, AND THE NUMBER AND SIZE OF EACH COMPONENT WITHIN THE VAULT. CONTRACTOR TO VERIFY ALL COMPONENT DIMENSIONS PRIOR TO SHOP DRAWING SUBMITTAL FOR THE VAULT BOX.
3. THE MINIMUM CLEARANCE FROM THE SIDE WALLS OF THE VAULT TO THE WIDEST COMPONENT SHALL BE 12 INCHES.
4. MINIMUM STRAIGHT LENGTH AHEAD OF METER MUST BE 20 INCHES (CAN INCLUDE GATE VALVE).
5. ALL JOINTS MUST BE RESTRAINED.
6. A SUMP PIT SHALL BE INSTALLED WHEN GROUNDWATER IS PRESENT.
7. A REMOTE RADIO READ CONTROL SHALL BE INSTALLED WITH THE METER. BOTH THE METER AND READ CONTROL SHALL BE PROVIDED BY AND PURCHASED FROM THE CITY OF SPEARFISH.

WATER METER VAULT



TYPICAL WALL SLEEVE & LINK-SEAL DETAIL



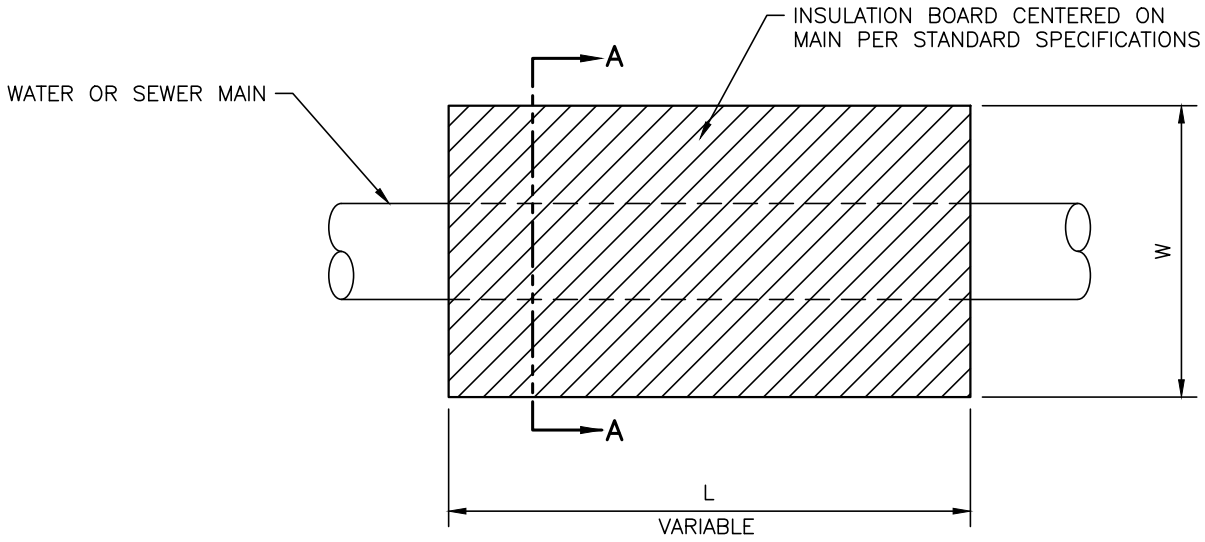
METAL PIPE SUPPORT DETAIL

Public Works Department

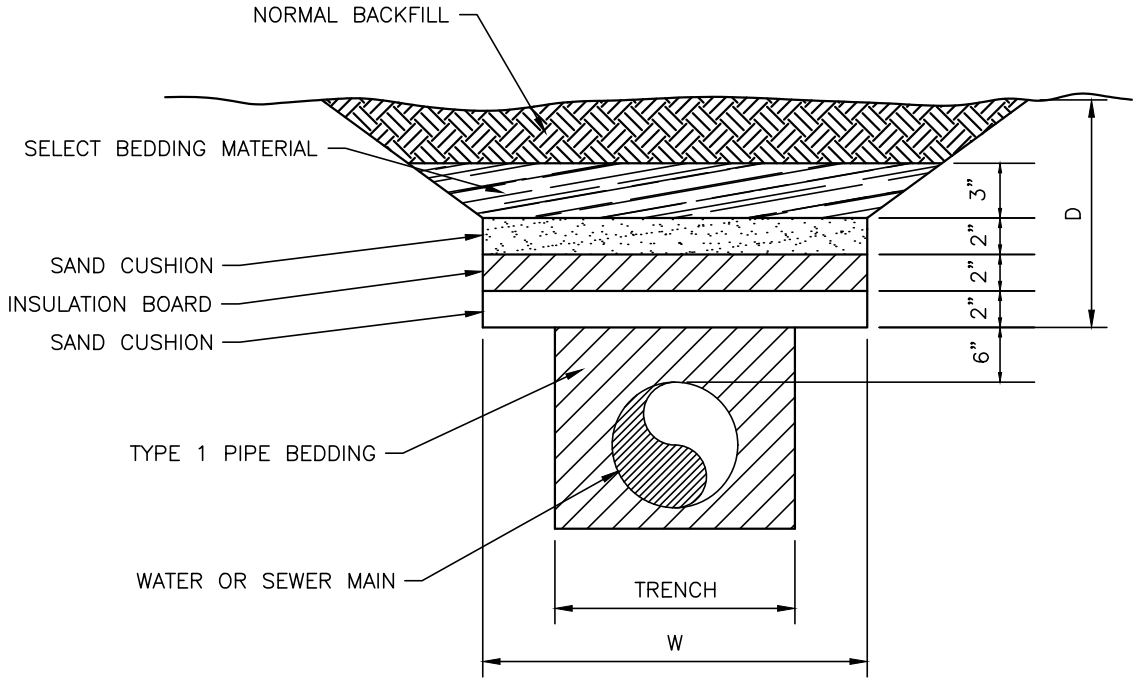
City of Spearfish

WATER METER VAULT
4 INCH METER & LARGER

DATE	05/01/26
REVISED	00/00/00
SECTION	DETAIL #
	400-11



PLAN



SECTION A–A

INSULATION WIDTH VS. PIPE DEPTH

WATER		SEWER	
D (FEET)	W (FEET)	D (FEET)	W (FEET)
3	8	2.5	8
4	6	3	6
5	4	3.5	4

* THE USE OF INSULATION REQUIRES PRIOR APPROVAL BY THE ENGINEER.

Public Works Department

City of Spearfish

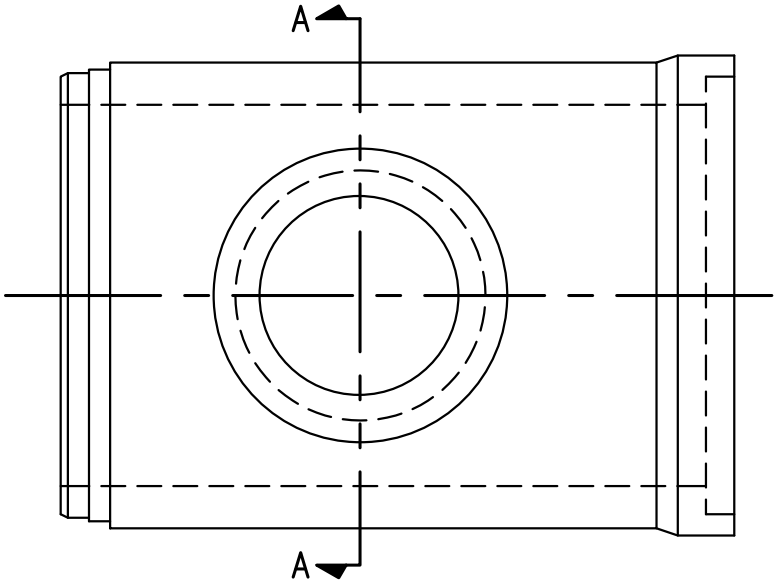
WATER & SEWER MAIN INSULATION DETAIL

DATE 05/12/25

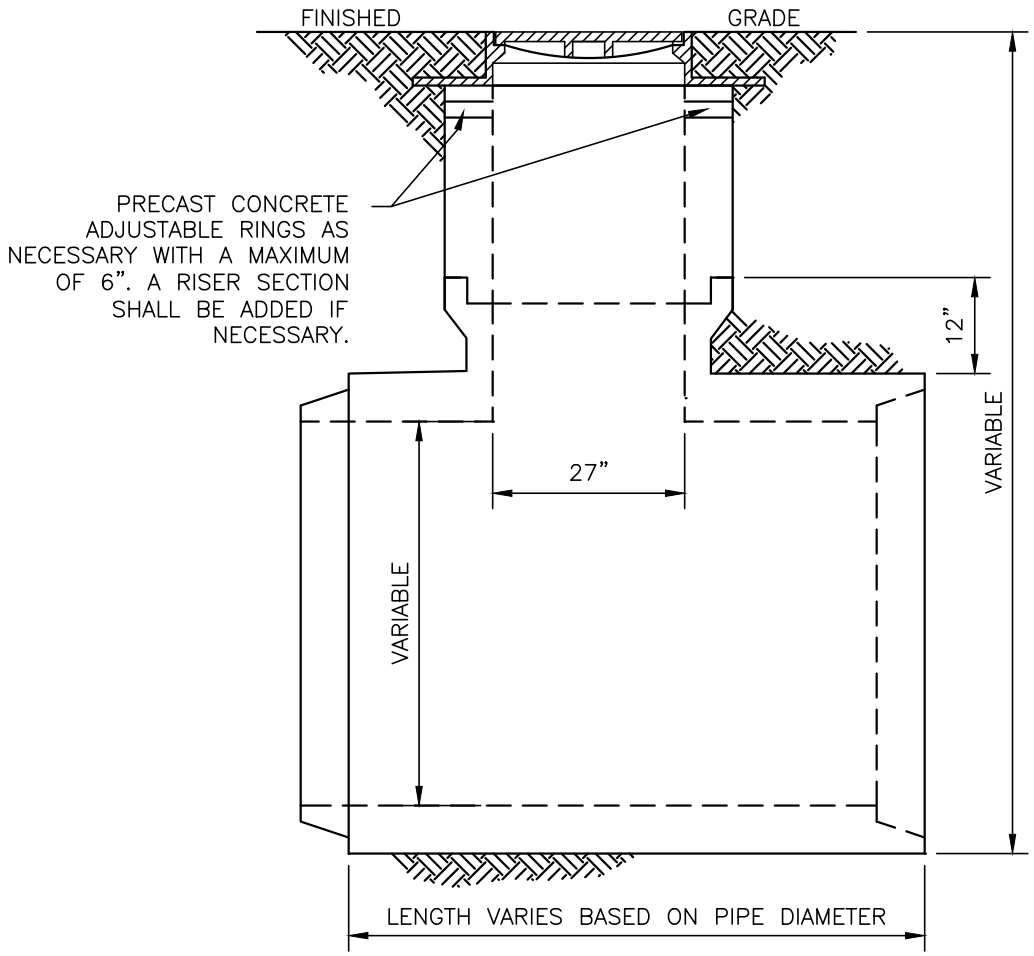
REVISED 00/00/00

SECTION DETAIL #

400-12



Plan View

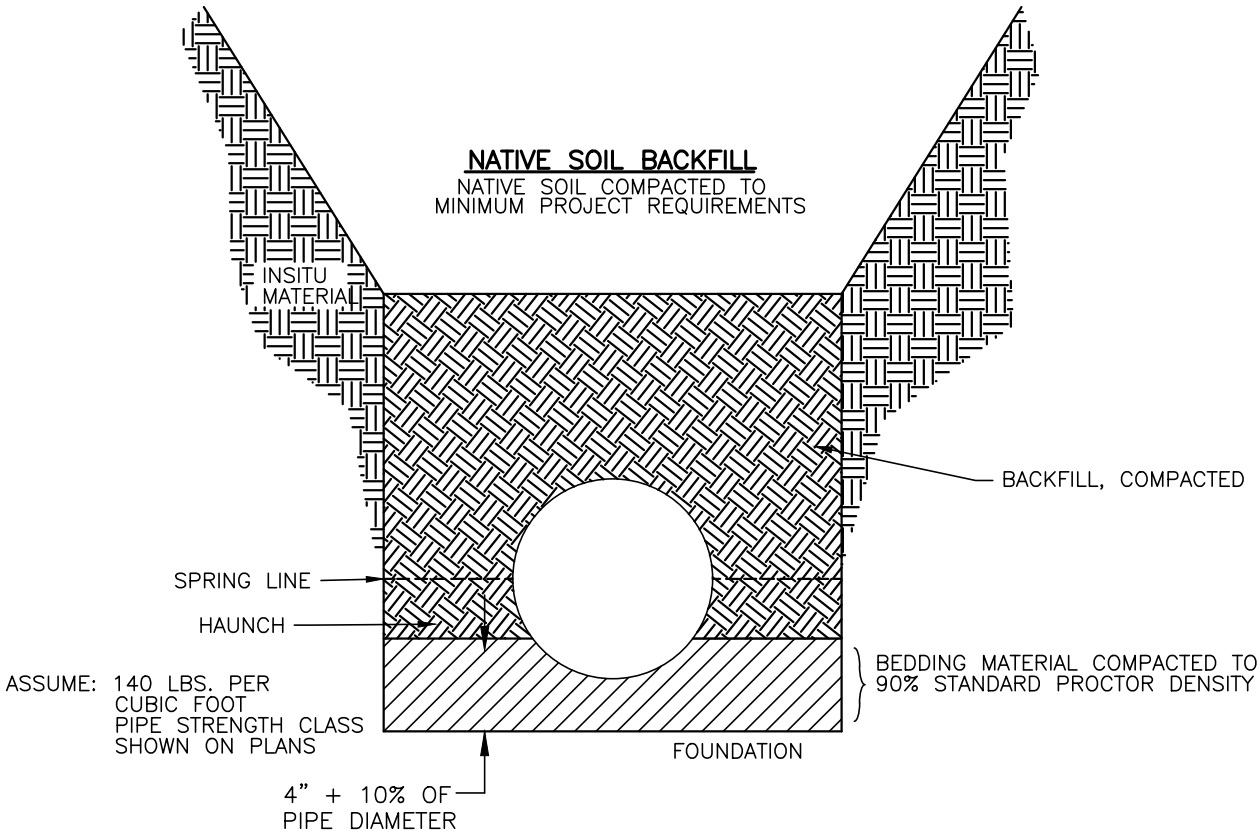


Section A-A View

GENERAL NOTES:

PRECAST TEES MAY VARY FROM THIS DETAIL BASED ON THE MANUFACTURER'S METHODS OF PRODUCTION BUT SHALL STILL MEET THE DIMENSIONS SHOWN HEREON.

CITY OF SPEARFISH Public Works Department	***City of Spearfish***	DATE 08/06/25 REVISED 00/00/00
	PRECAST TEE TYPE MANHOLE	SECTION DETAIL # 500-01



QUANTITY ESTIMATE TABLE FOR BEDDING MATERIAL

12"	0.07 TON/L.F.
15"	0.08 TON/L.F.
18"	0.09 TON/L.F.
21"	0.10 TON/L.F.
24"	0.11 TON/L.F.
27"	0.12 TON/L.F.
30"	0.12 TON/L.F.
33"	0.13 TON/L.F.
36"	0.14 TON/L.F.
42"	0.15 TON/L.F.
48"	0.16 TON/L.F.
54"	0.17 TON/L.F.
60"	0.18 TON/L.F.
66"	0.20 TON/L.F.
72"	0.21 TON/L.F.
78"	0.22 TON/L.F.
84"	0.24 TON/L.F.

NOTE:

TRENCH WIDTH TO BE TWICE THE OUTSIDE DIAMETER, OR THE OUTSIDE DIAMETER PLUS TWO FEET, WHICH EVER IS LESS.

Public Works Department

City of Spearfish

BEDDING AND BACKFILL FOR RCP INSTALLATION

DATE	08/06/25
REVISED	00/00/00
SECTION	DETAIL #
	500-02

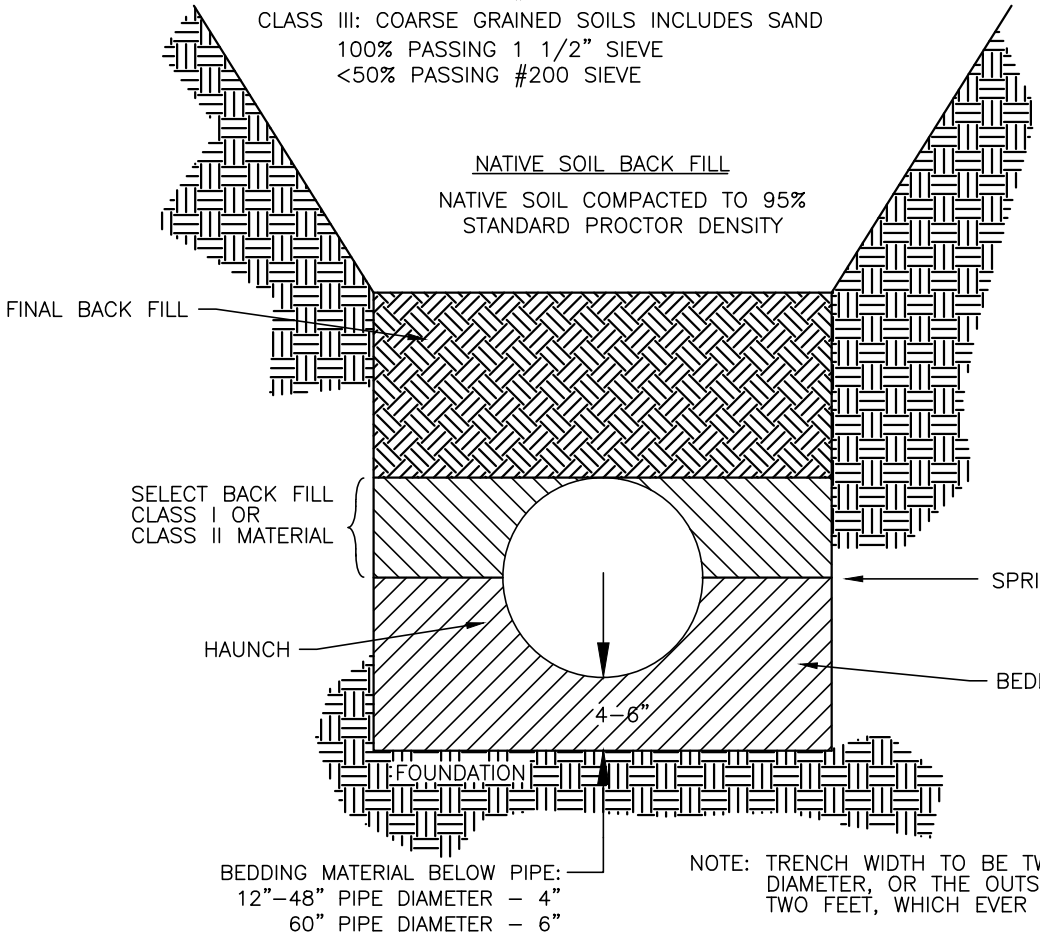
FOR 12" THRU 60" DIAMETER PIPE

SELECT BACKFILL MATERIAL

CLASS I: CRUSHED ROCK OR GRAVEL
100% PASSING 1 1/2" SIEVE
<5% PASSING #200 SIEVE

CLASS II: COARSE GRAINED SOILS INCLUDES SAND
100% PASSING 1 1/2" SIEVE
<12% PASSING #200 SIEVE

CLASS III: COARSE GRAINED SOILS INCLUDES SAND
100% PASSING 1 1/2" SIEVE
<50% PASSING #200 SIEVE



NOTE: TRENCH WIDTH TO BE TWICE THE OUTSIDE DIAMETER, OR THE OUTSIDE DIAMETER PLUS TWO FEET, WHICH EVER IS LESS.

ASSUME: 140 LBS. PER CUBIC FOOT

QUANTITY ESTIMATE TABLE
FOR BEDDING MATERIAL

12"	0.14 TON/L.F.
15"	0.20 TON/L.F.
18"	0.25 TON/L.F.
24"	0.36 TON/L.F.
30"	0.45 TON/L.F.

QUANTITY ESTIMATE TABLE
FOR SELECT FILL MATERIAL

12"	0.14 TON/L.F.
15"	0.20 TON/L.F.
18"	0.25 TON/L.F.
24"	0.36 TON/L.F.
30"	0.45 TON/L.F.

Public Works Department

City of Spearfish

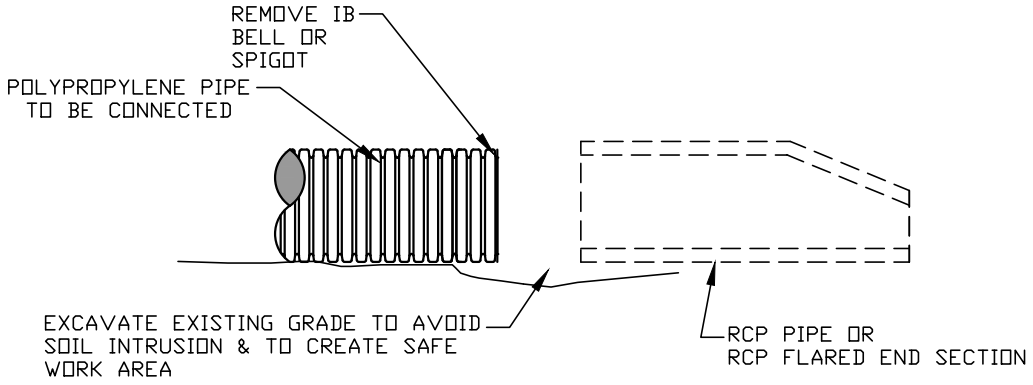
BEDDING AND BACKFILL FOR POLYPROPYLENE PIPE

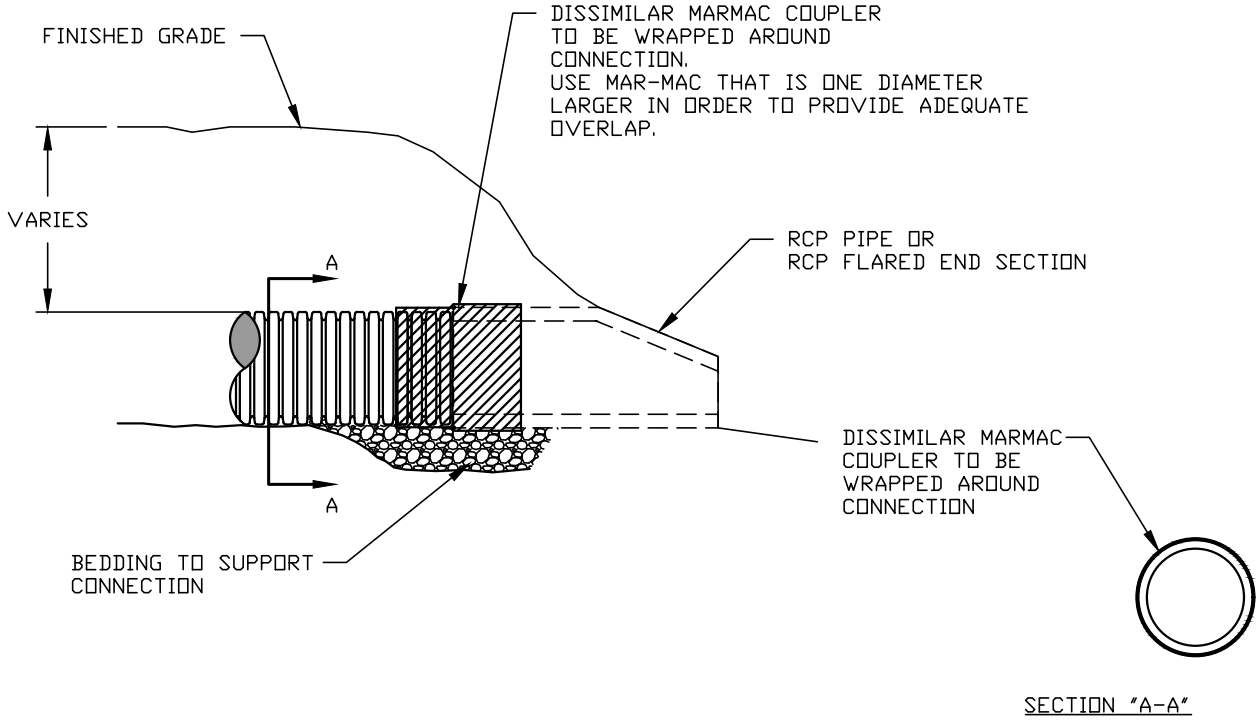
DATE 08/06/25
REVISED 00/00/00
SECTION DETAIL #
500-03

NOTES:

1. CONNECTION AND PIPE TO BE BACKFILLED PER ASTM D2321, LATEST EDITION.

2. DISSIMILAR CONNECTIONS OF THIS TYPE ARE ALLOWED ONLY ON RECONSTRUCTION PROJECTS OR WHEN CONNECTING TO RCP FLARED END SECTIONS.





SECTION "A-A"

Public Works Department

City of Spearfish

POLYPROPYLENE TO RCP CONNECTION

DATE	REVISED	SECTION	DETAIL #
08/06/25	00/00/00		500-04

South Dakota Department of Transportation (SDDOT) Standard Plates/Construction Details

The following SDDOT plates, current edition, are approved for use on City projects:

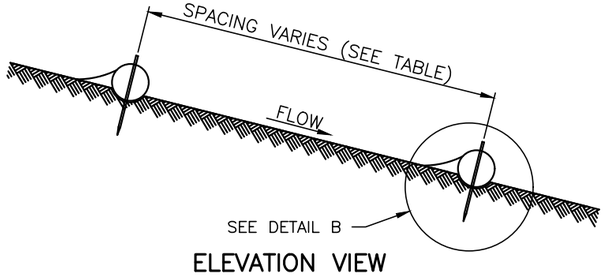
Series 450 - Pipe Culverts	
Standard Plate	Title
450.01	Reinforced Concrete Pipe
450.02	Reinforced Concrete Pipe Arch
450.03	Reinforced Concrete Pipe Short Radius Bend
450.04	Reinforced Concrete Pipe Long Radius Bend
450.10	R.C.P. Flared Ends
450.11	R.C.P. Arch Flared Ends
450.12	R.C.P. Safety Ends with or without Bars
450.13	R.C.P. Sloped Ends
450.14	R.C.P. Sloped Ends with or without Bars
450.15	R.C.P. Sloped End Bar Assemblies
450.16	R.C.P. Sectional Ends
450.17	R.C.P. Arch Sectional Ends
450.18	Tie Bolts for R.C.P. and R.C.P. Arch

Series 560 - Precast Concrete Box Culverts	
Standard Plate	Title
560.01	Precast Box Culvert Tie Bolt Assembly Details
560.10	Precast Single Box Culvert Sloped End Section Details with 2'-0 Cutoff Wall
560.11	Precast Single Box Culvert Sloped End Section Details with 4'-0 Cutoff Wall
560.20	Precast Double Box Culvert Sloped End Section Details with 2'-0 Cutoff Wall
560.21	Precast Double Box Culvert Sloped End Section Details with 4'-0

Series 670 - Drop Inlets	
Standard Plate	Title
670.01	2' X 3' Type B Reinforced Concrete Drop Inlet
670.02	3' X 4' Type B Reinforced Concrete Drop Inlet
670.03	3' X 5.5' Type B Reinforced Concrete Drop Inlet
670.04	4' X 4' Type B Reinforced Concrete Drop Inlet
670.05	5.5' X 3' Type B Reinforced Concrete Drop Inlet
670.06	5.5' X 5.5' Type B Reinforced Concrete Drop Inlet
670.07	4' X 3' Type B Reinforced Concrete Drop Inlet
670.10	3' X 4' Type C Reinforced Concrete Drop Inlet
670.11	4' X 5' Type C Reinforced Concrete Drop Inlet
670.30	4' X 6' Type S Drop Inlet Base
670.32	4' X 11' Type S Drop Inlet Base
670.34	7' X 11' Type S Drop Inlet Base
670.38	4' X 6' Precast Concrete Type S Drop Inlet Lid
670.40	4' X 11' Precast Concrete Type S Drop Inlet Lid
670.45	Installation Details for Precast Concrete Type S Drop Inlet Lid

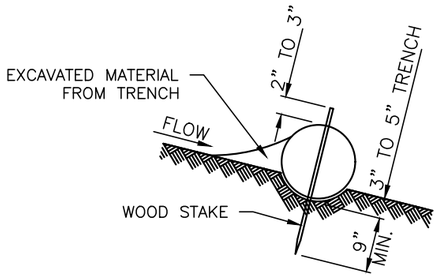
670.60	Type L Median Drain for 6:1 Inslope
670.61	Type L Median Drain for 4:1 Inslope
670.65	Type M Median Drain
670.75	Installation of Type B Drop Inlet
670.80	Type B Frame and Grate
670.82	Type C Frame and Grate
670.86	Type E Frame and Grate

Series 671 - Manholes	
Standard Plate	Title
671.01	5' X 5' Junction Box
671.02	6' X 6' Junction Box
671.03	7' X 7' Junction Box
671.10	Type A Manhole Frame and Lid
671.20	Type C Manhole Frame and Lid
671.30	Type S Manhole Frame and Lid

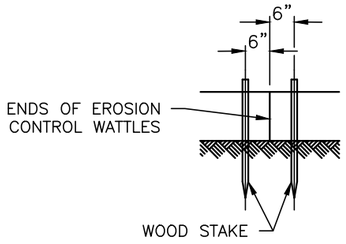


ELEVATION VIEW
CUT OR FILL SLOPE INSTALLATION

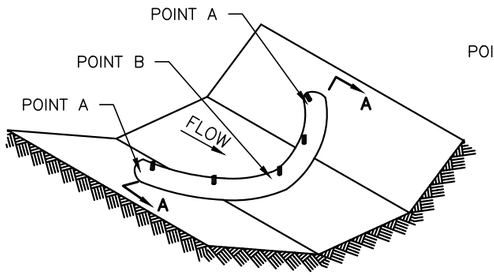
CUT OR FILL SLOPE INSTALLATION	
Slope	Spacing (Ft)
1:1	10
2:1	20
3:1	30
4:1	40



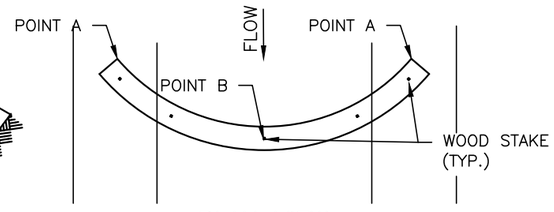
DETAIL B
(TYPICAL OF ALL INSTALLATIONS)



DETAIL C

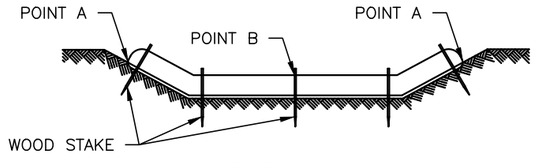


ISOMETRIC VIEW
DITCH INSTALLATION



PLAN VIEW
DITCH INSTALLATION

DITCH INSTALLATION	
Grade	Spacing (Ft)
2%	150
3%	100
4%	75
5%	50



SECTION A–A

GENERAL NOTES:

AT CUT OR FILL SLOPE INSTALLATIONS, WATTLES SHALL BE INSTALLED ALONG THE CONTOUR AND PERPENDICULAR TO THE WATER FLOW.

AT DITCH INSTALLATIONS, POINT A MUST BE HIGHER THAN POINT B TO ENSURE THAT WATER FLOWS OVER THE WATTLE AND NOT AROUND THE ENDS.

THE CONTRACTOR SHALL DIG A 3" TO 5" TRENCH, INSTALL THE WATTLE TIGHTLY IN THE TRENCH SO THAT DAYLIGHT CAN NOT BE SEEN UNDER THE WATTLE, AND THEN COMPACT THE SOIL EXCAVATED FROM THE TRENCH AGAINST THE WATTLE ON THE UPHILL SIDE. SEE DETAIL B.

THE STAKES SHALL BE 1"X2" OR 2"X2" WOOD STAKES, HOWEVER, OTHER TYPES OF STAKES SUCH AS REBAR MAY BE USED ONLY IF APPROVED BY THE ENGINEER. THE STAKES SHALL BE PLACED 6" FROM THE ENDS OF THE WATTLES AND THE SPACING OF THE STAKES ALONG THE WATTLES SHALL BE 3' TO 4'.

WHERE INSTALLING RUNNING LENGTHS OF WATTLES, THE CONTRACTOR SHALL BUTT THE SECOND WATTLE TIGHTLY AGAINST THE FIRST AND SHALL NOT OVERLAP THE ENDS. SEE DETAIL C.

THE CONTRACTOR AND ENGINEER SHALL INSPECT THE EROSION CONTROL WATTLES ONCE EVERY WEEK AND WITHIN 24 HOURS AFTER EVERY RAINFALL EVENT GREATER THAN ½" . THE CONTRACTOR SHALL REMOVE, DISPOSE, OR RESHAPE THE ACCUMULATED SEDIMENT WHEN NECESSARY AS DETERMINED BY THE ENGINEER.

SEDIMENT REMOVAL, DISPOSAL, OR NECESSARY SHAPING SHALL BE AS DIRECTED BY THE ENGINEER.

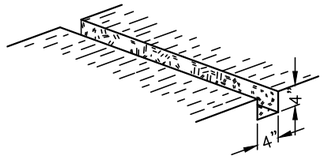
Public Works Department

City of Spearfish

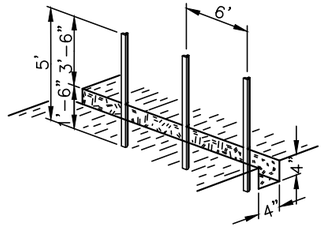
EROSION CONTROL WATTLE

DATE	01/01/09
REVISED	00/00/00
SECTION	DETAIL #
600	01

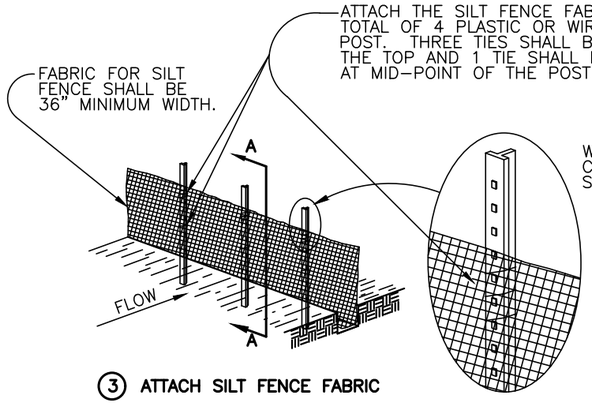
MANUAL HIGH FLOW SILT FENCE INSTALLATION



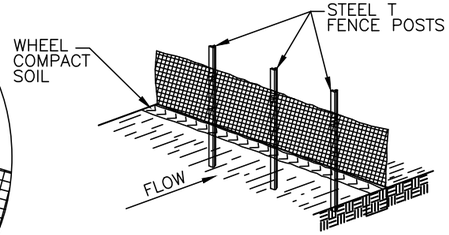
① EXCAVATE TRENCH



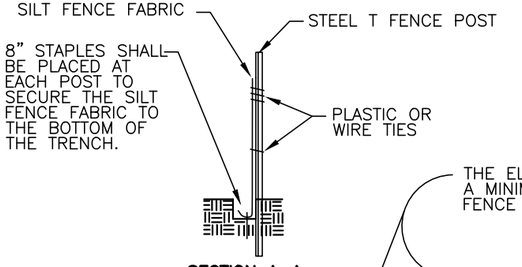
② DRIVE STEEL T FENCE POSTS



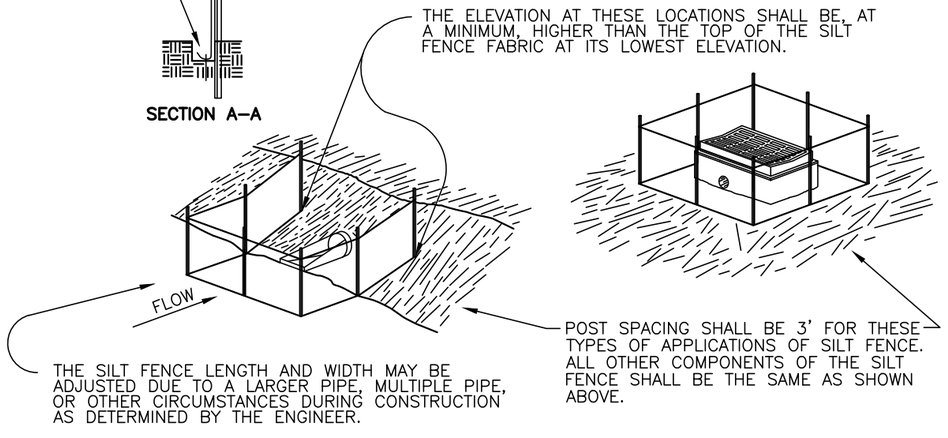
③ ATTACH SILT FENCE FABRIC



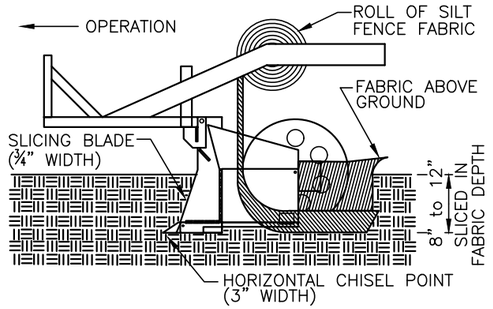
④ BACKFILL TRENCH AND WHEEL COMPACT SOIL



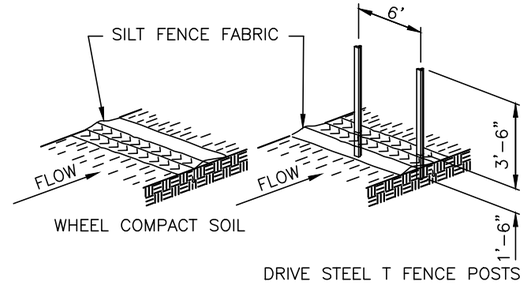
SECTION A–A



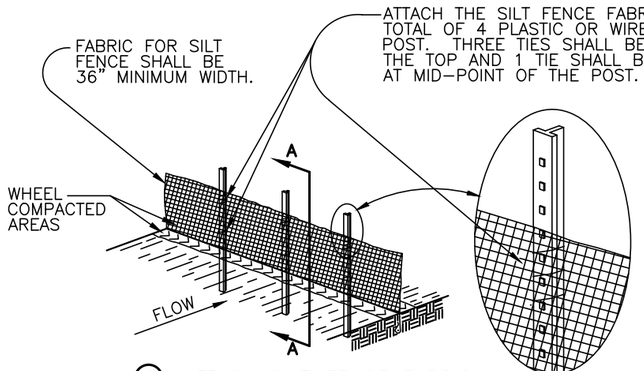
MACHINE SLICED HIGH FLOW SILT FENCE INSTALLATION



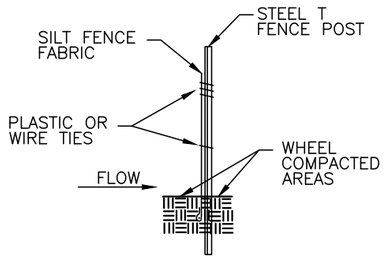
① INSTALL SILT FENCE FABRIC BY MACHINE SLICING METHOD.



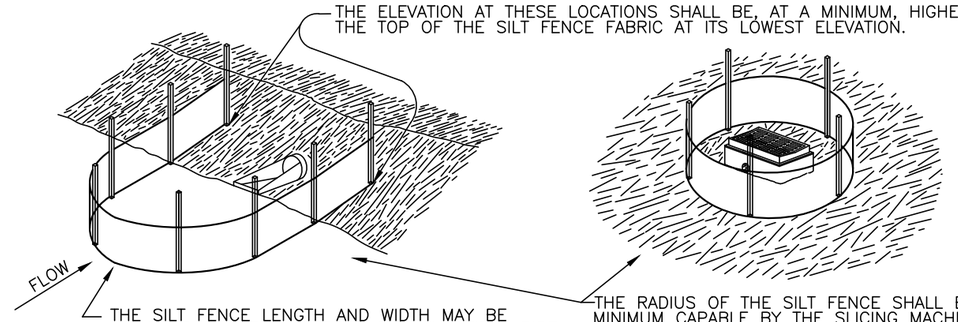
② WHEEL COMPACT SOIL ABOVE SLICED IN PORTION OF FABRIC AND THEN DRIVE STEEL T FENCE POSTS.



③ ATTACH SILT FENCE FABRIC



SECTION A–A



GENERAL NOTE:

IF A TRENCH CAN NOT BE DUG OR THE SILT FENCE FABRIC CAN NOT BE SLICED IN DUE TO THE TYPE OF EARTHEN MATERIAL (SUCH AS ROCK), THEN A ROW OF 30 TO 40 POUND SANDBAGS BUTTED END TO END SHALL BE PROVIDED ON TOP OF THE EXTRA LENGTH OF SILT FENCE FABRIC TO PREVENT UNDERFLOW.

CITY OF SPEARFISH

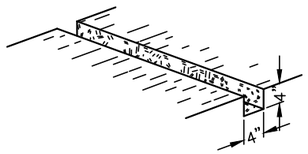
Public Works Department

City of Spearfish

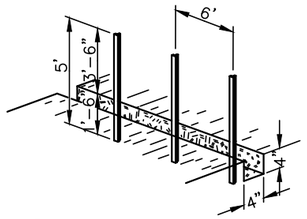
HIGH FLOW SILT FENCE

DATE	08/06/25
REVISED	00/00/00
SECTION	DETAIL #
600	02

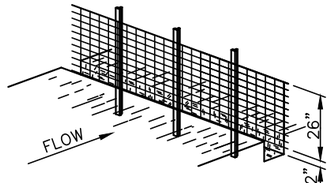
MANUAL LOW FLOW SILT FENCE INSTALLATION



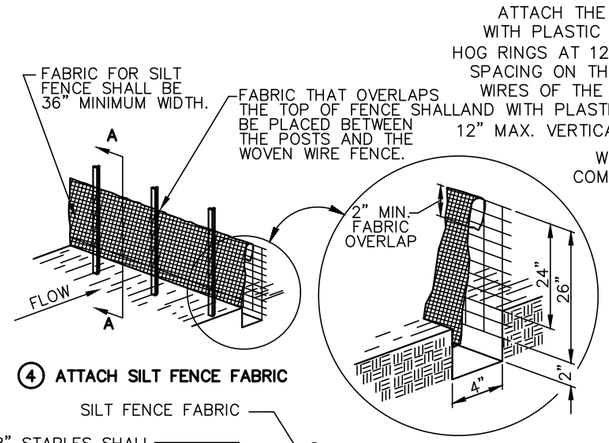
① EXCAVATE TRENCH



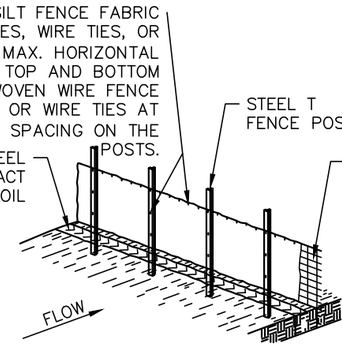
② DRIVE STEEL T FENCE POSTS



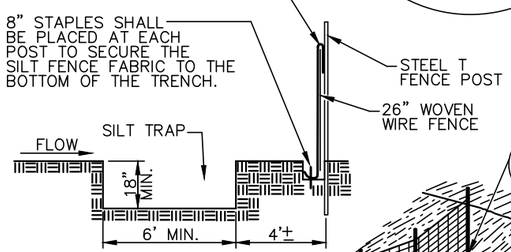
③ ATTACH 26" WOVEN WIRE FENCE TO POSTS



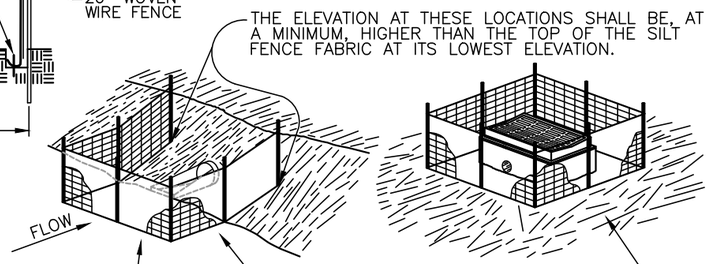
④ ATTACH SILT FENCE FABRIC



⑤ BACKFILL TRENCH AND WHEEL COMPACT SOIL



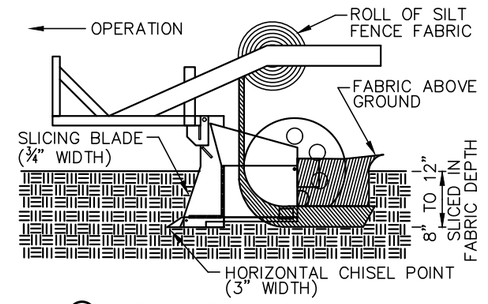
SECTION A–A



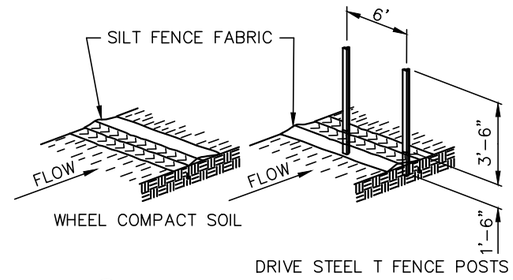
THE SILT FENCE LENGTH AND WIDTH MAY BE ADJUSTED DUE TO A LARGER PIPE, MULTIPLE PIPE, OR OTHER CIRCUMSTANCES DURING CONSTRUCTION AS DETERMINED BY THE ENGINEER.

POST SPACING SHALL BE 3' FOR THESE TYPES OF APPLICATIONS OF SILT FENCE. ALL OTHER COMPONENTS OF THE SILT FENCE SHALL BE THE SAME AS SHOWN ABOVE.

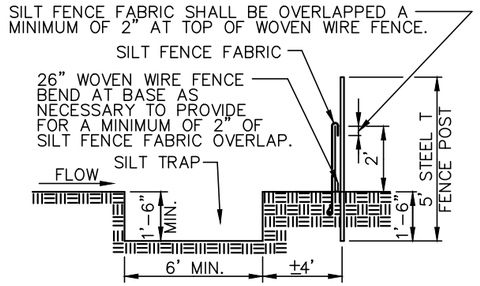
MACHINE SLICED LOW FLOW SILT FENCE INSTALLATION

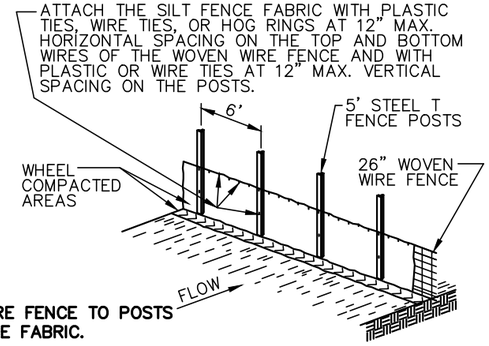


① INSTALL SILT FENCE FABRIC BY MACHINE SLICING METHOD.

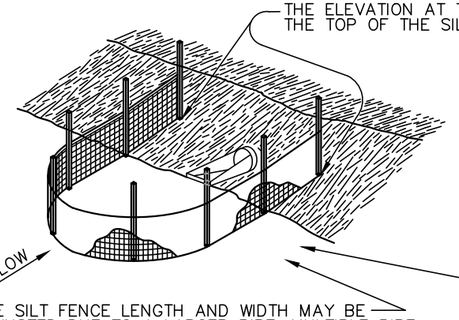


② WHEEL COMPACT SOIL ABOVE SLICED IN PORTION OF FABRIC AND THEN DRIVE STEEL T FENCE POSTS.

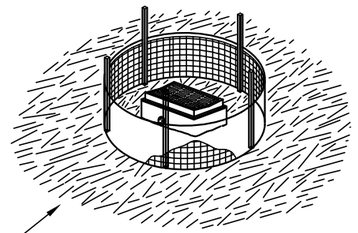




③ ATTACH 26" WOVEN WIRE FENCE TO POSTS AND ATTACH SILT FENCE FABRIC.



THE SILT FENCE LENGTH AND WIDTH MAY BE ADJUSTED DUE TO A LARGER PIPE, MULTIPLE PIPE, OR OTHER CIRCUMSTANCES DURING CONSTRUCTION AS DETERMINED BY THE ENGINEER.



THE RADIUS OF THE SILT FENCE SHALL BE THE MINIMUM CAPABLE BY THE SLICING MACHINE. THE POST SPACING SHALL BE 3' FOR THESE TYPES OF APPLICATIONS OF SILT FENCE. ALL THE OTHER COMPONENTS OF THE SILT FENCE SHALL BE THE SAME AS SHOWN ABOVE.

GENERAL NOTES:

A SILT TRAP SHALL BE PROVIDED WHEN SPECIFIED BY A PLAN NOTE.

IF A TRENCH CAN NOT BE DUG OR THE SILT FENCE FABRIC CAN NOT BE SLICED IN DUE TO THE TYPE OF EARTHEN MATERIAL (SUCH AS ROCK), THEN A ROW OF 30 TO 40 POUND SANDBAGS BUTTED END TO END SHALL BE PROVIDED ON TOP OF THE EXTRA LENGTH OF SILT FENCE FABRIC TO PREVENT UNDERFLOW.

Public Works Department

City of Spearfish

LOW FLOW SILT FENCE AND SILT TRAP

DATE	08/06/25
REVISED	00/00/00
SECTION	DETAIL #
600	03

MINOR IMPACT CONSTRUCTION SITE, SILT FENCE

MISF

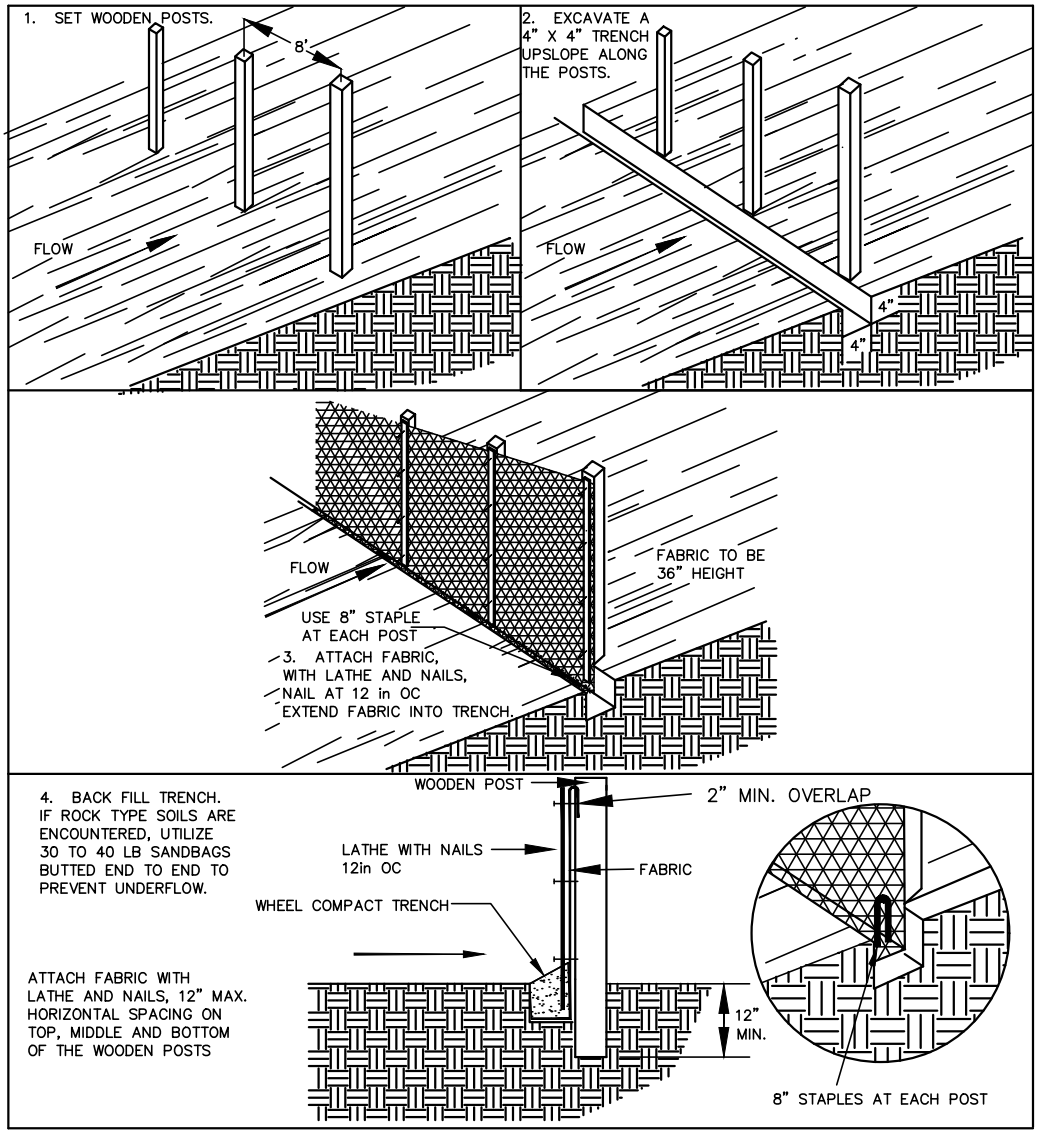
DEFINITION:

A TEMPORARY SEDIMENT BARRIER CONSISTING OF A FILTER FABRIC STRETCHED ACROSS AND ATTACHED TO SUPPORTING POSTS AND ENTRENCHED. THE SILT FENCE IS A TEMPORARY LINEAR BARRIER CONSTRUCTED OF SYNTHETIC FILTER FABRIC AND SUPPORTED BY WOODEN POSTS.

PURPOSES:

1. TO INTERCEPT AND DETAIN SMALL AMOUNTS OF SEDIMENT FROM DISTURBED AREAS DURING CONSTRUCTION OPERATIONS IN ORDER TO REDUCE SEDIMENT IN RUNOFF FROM LEAVING THE SITE.
2. TO DECREASE THE VELOCITY OF SHEET FLOWS AND LOW–TO–MODERATE LEVEL CONCENTRATED FLOWS.

THIS MODIFIED PLATE CAN ONLY BE USED AS A STRUCTURAL BMP FOR A MINOR IMPACT CONSTRUCTION SITE (EROSION SEDIMENT CONTROL PLAN DRAWING) THAT IS WITHIN AN APPROVED SUBDIVISION CLASSIFIED AS A MINOR IMPACT CONSTRUCTION SITE.



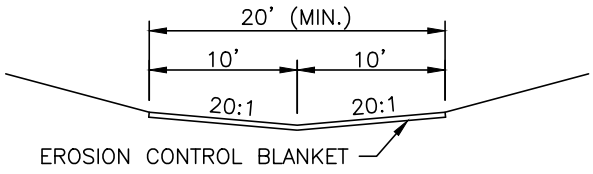
FENCE MATERIAL SHALL CONFORM TO GEOTEXTILE SPECIFICATIONS, SECTION 831 OF SDDOT STANDARD SPECIFICATIONS FOR ROADS AND BRIDGES, LATEST EDITION.

Public Works Department

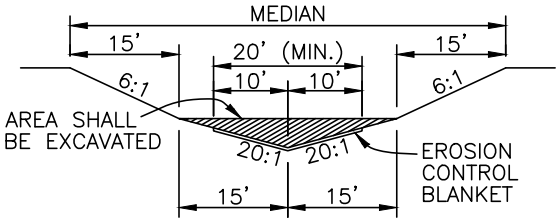
City of Spearfish

MINOR IMPACT CONSTRUCTION SITE SILT FENCE

DATE	08/06/25
REVISED	00/00/00
SECTION	DETAIL #
	600-04

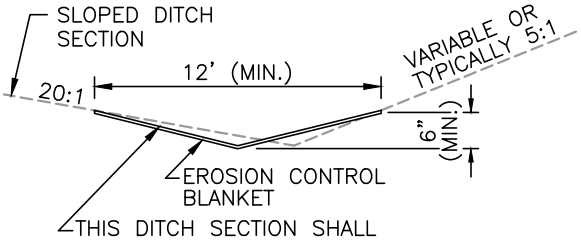


STANDARD DITCH SECTION

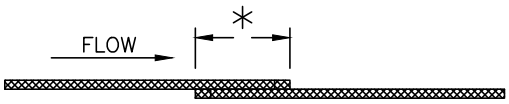


THE MEDIAN SHALL BE SHAPED TO THE LIMITS SHOWN IN THIS DETAIL WHERE THE EROSION CONTROL BLANKET WILL BE PLACED.

MEDIAN SECTION



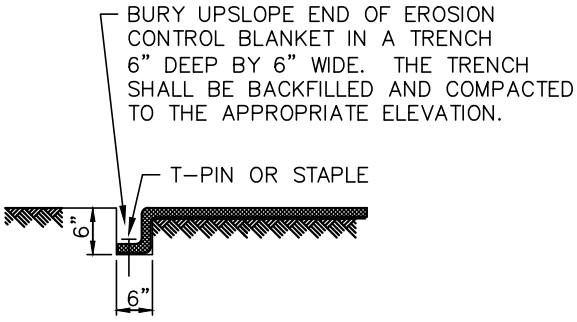
SLOPED DITCH SECTION



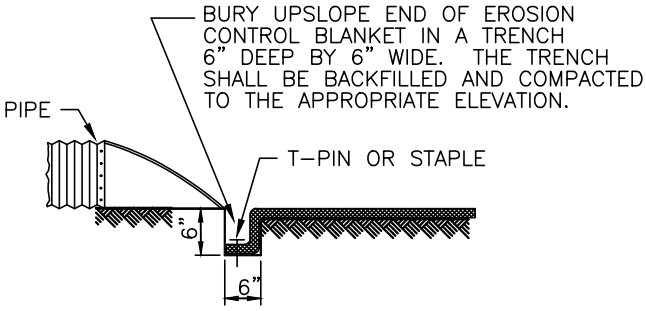
* USE A 4" (MIN.) OVERLAP WHEREVER TWO WIDTHS OF EROSION CONTROL BLANKET ARE APPLIED SIDE BY SIDE.

* USE A 6" (MIN.) OVERLAP WHEREVER ONE ROLL OF EROSION CONTROL BLANKET ENDS AND ANOTHER BEGINS.

OVERLAP DETAIL



TRENCH DETAIL



PIPE END DETAIL

GENERAL NOTES:

PRIOR TO PLACEMENT OF THE EROSION CONTROL BLANKET, THE AREAS SHALL BE PROPERLY PREPARED, SHAPED, SEEDED, AND FERTILIZED.

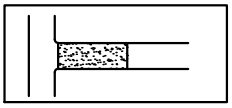
EROSION CONTROL BLANKET SHALL BE UNROLLED IN THE DIRECTION OF THE FLOW OF WATER WHEN PLACED IN DITCHES AND ON SLOPES. THE UPSLOPE END OF THE EROSION CONTROL BLANKET SHALL BE BURIED IN A TRENCH 6" WIDE BY 6" DEEP. THERE SHALL BE AT LEAST A 6" OVERLAP WHEREVER ONE ROLL OF EROSION CONTROL BLANKET ENDS AND ANOTHER BEGINS, WITH THE UPSLOPE EROSION CONTROL BLANKET PLACED ON TOP OF THE DOWNSLOPE EROSION CONTROL BLANKET.

THE EROSION CONTROL BLANKET SHALL BE PINNED TO THE GROUND ACCORDING TO THE MANUFACTURER'S INSTALLATION RECOMMENDATIONS.

AFTER THE PLACEMENT OF THE EROSION CONTROL BLANKET, THE CONTRACTOR SHALL FINE GRADE ALONG ALL EDGES OF THE BLANKET TO MAINTAIN A UNIFORM SLOPE ADJACENT TO THE BLANKET AND LEVEL ANY LOW SPOTS WHICH MIGHT PREVENT UNIFORM AND UNRESTRICTED FLOW OF SIDE DRAINAGE DIRECTLY ONTO THE EROSION CONTROL BLANKET.

ALL DITCH SECTIONS SHALL BE SHAPED WHEN INSTALLING THE EROSION CONTROL BLANKET.

CITY OF SPEARFISH Public Works Department	*City of Spearfish*	DATE 08/06/25 REVISED 00/00/00
	EROSION CONROL BLANKET	SECTION 600 DETAIL # 05



VEHICLE TRACKING CONTROL

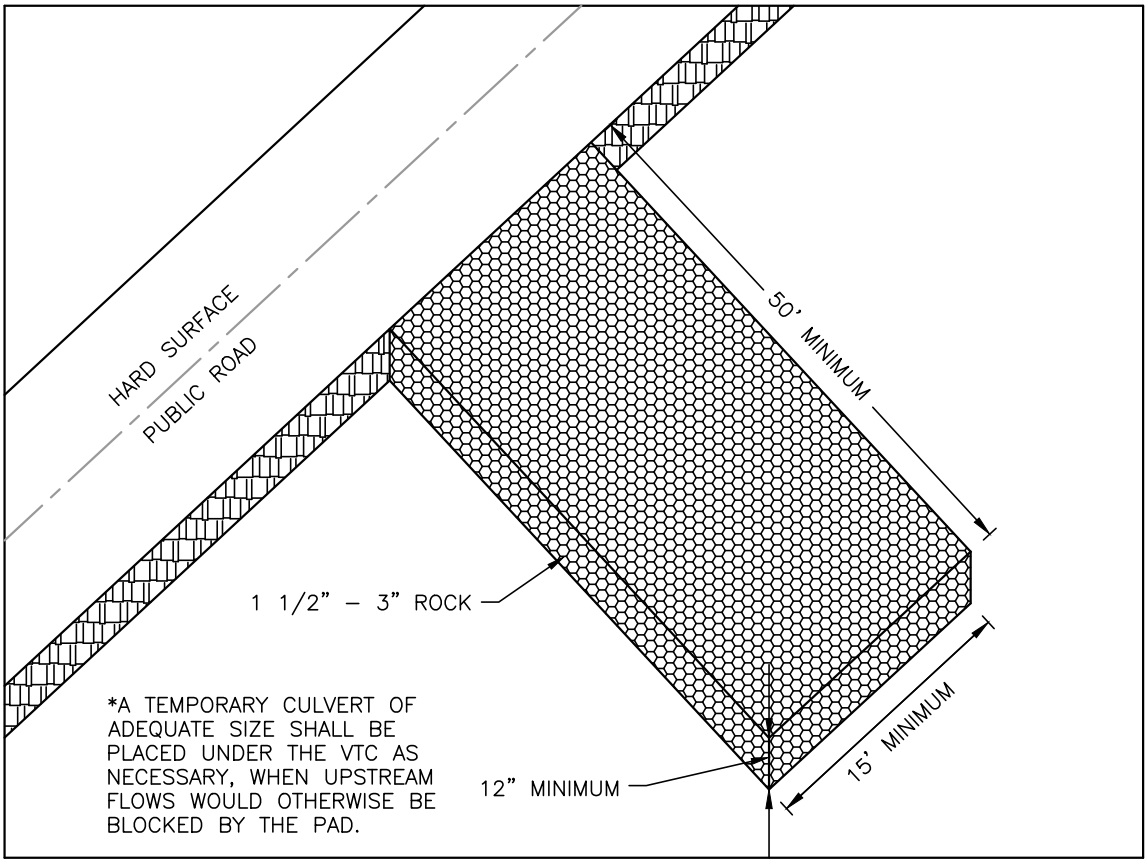
VTC

DEFINITION:

A STONE STABILIZED PAD LOCATED AT POINTS OF VEHICULAR INGRESS AND EGRESS ON A CONSTRUCTION SITE.

PURPOSES:

TO REDUCE THE AMOUNT OF MUD TRANSPORTED ONTO PUBLIC ROADS BY MOTOR VEHICLES OR RUNOFF.



Public Works Department

City of Spearfish

TEMPORARY VEHICLE TRACKING CONTROL

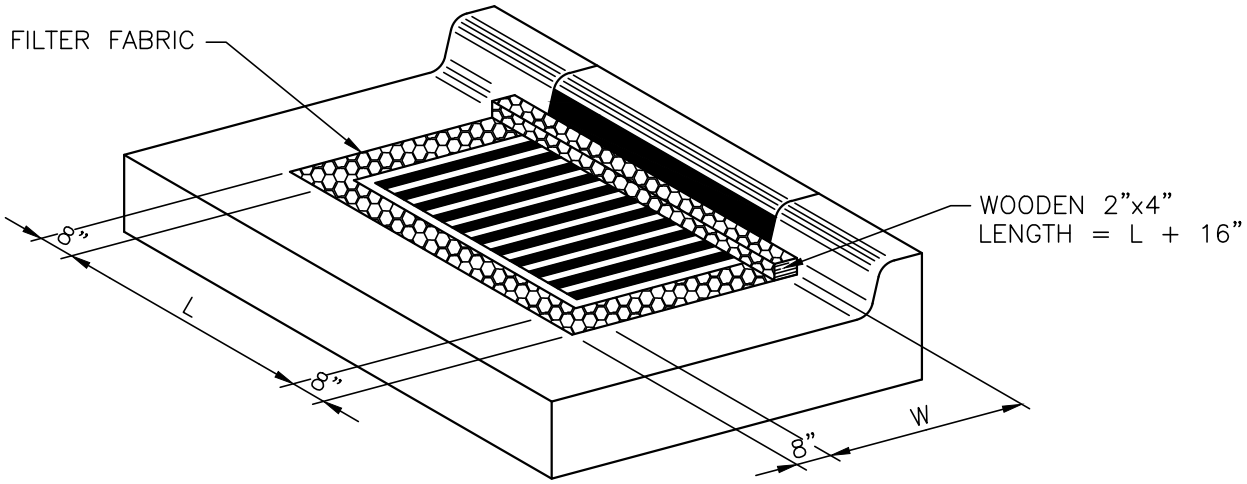
DATE 08/06/25

REVISED 00/00/00

SECTION DETAIL # 600-06

L = LENGTH OF GRATE

W = WIDTH OF GRATE



ISOMETRIC VIEW:

GENERAL NOTES:

THE GRATE AND CURB AND GUTTER SHOWN ARE FOR ILLUSTRATIVE PURPOSES ONLY.

THE SEDIMENT CONTROL AT INLET WITH FRAME AND GRATE SHALL BE PLACED AT LOCATIONS STATED IN THE PLANS OR AT LOCATIONS DETERMINED BY THE ENGINEER.

THE FILTER FABRIC SHALL BE THE TYPE SPECIFIED IN THE PLANS.

THE FILTER FABRIC SHALL BE PLACED IN THE INLET OPENING PRIOR TO PLACING THE GRATE. APPROXIMATELY 18 INCHES OF EXCESS FILTER FABRIC SHALL BE WRAPPED AROUND THE 2"X4" AND STAPLED SECURELY TO THE 2"X4" AFTER THE GRATE HAS BEEN PLACED.

THE CONTRACTOR SHALL INSPECT AND MAINTAIN THE SEDIMENT CONTROL DEVICE ONCE EVERY WEEK AND WITHIN 24 HOURS AFTER EVERY RAINFALL EVENT. THE CONTRACTOR SHALL MAINTAIN THE SEDIMENT CONTROL DEVICE BY REMOVING ACCUMULATED SEDIMENT AND REPLACING TORN FILTER FABRIC WITH NEW FILTER FABRIC.

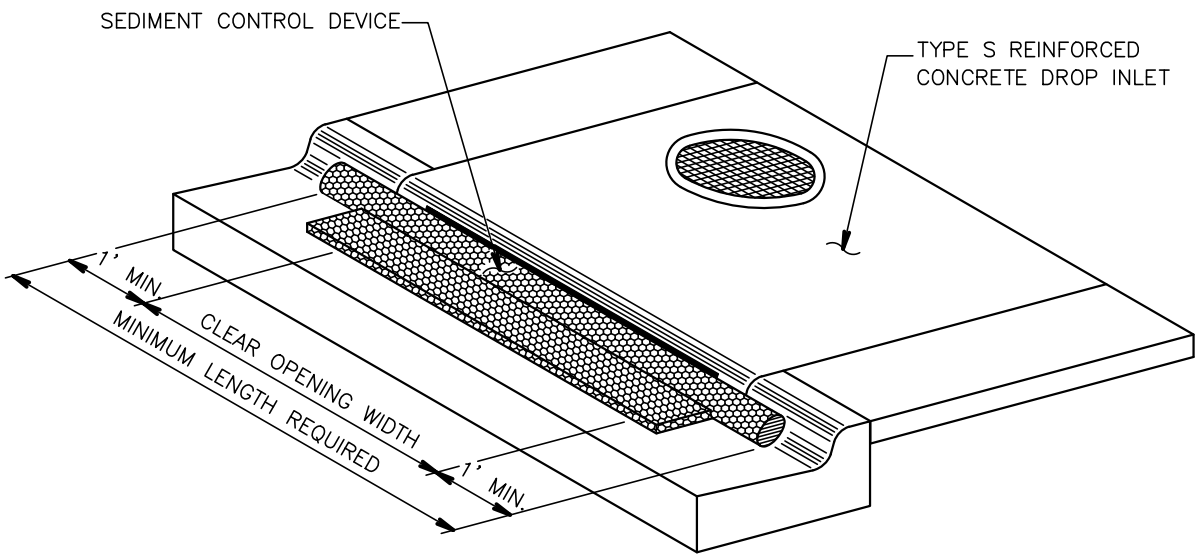
THE REMOVED SEDIMENT SHALL BE PLACED AT A LOCATION AWAY FROM THE DROP INLET WHERE THE SEDIMENT WILL NOT BE WASHED BACK INTO THE DROP INLET OR OTHER STORM SEWER SYSTEM.

Public Works Department

City of Spearfish

SEDIMENT CONTROL AT INLETS WITH FRAMES AND GRATES

DATE	08/06/25
REVISED	00/00/00
SECTION	DETAIL #
	600-07



ISOMETRIC VIEW

GENERAL NOTES:

THE TYPE OF SEDIMENT CONTROL DEVICE SHOWN IS FOR ILLUSTRATIVE PURPOSES ONLY.

THE TYPE OF SEDIMENT CONTROL DEVICE USED SHALL BE ONE OF THE TYPES AS SPECIFIED IN THE PLANS.

THE SEDIMENT CONTROL DEVICE SHALL BE PLACED AT THE DROP INLETS ACCORDING TO THE MANUFACTURERS' INSTALLATION INSTRUCTIONS.

THE SEDIMENT CONTROL AT INLET FOR TYPE S REINFORCED CONCRETE DROP INLET SHALL BE PLACED AT LOCATIONS STATED IN THE PLANS OR AT LOCATIONS DETERMINED BY THE ENGINEER.

THE CONTRACTOR SHALL INSPECT AND MAINTAIN THE SEDIMENT CONTROL DEVICE ONCE EVERY WEEK AND WITHIN 24 HOURS AFTER EVERY RAINFALL EVENT. THE CONTRACTOR SHALL MAINTAIN THE SEDIMENT CONTROL DEVICE BY REMOVING THE DEVICE, REMOVING ACCUMULATED SEDIMENT, AND RESETTING THE DEVICE.

THE REMOVED SEDIMENT SHALL BE PLACED AT A LOCATION AWAY FROM THE DROP INLET WHERE THE SEDIMENT WILL NOT BE WASHED BACK INTO THE DROP INLET OR OTHER STORM SEWER SYSTEM.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR FURNISHING, INSTALLING, INSPECTING, MAINTAINING, REMOVING AND RESETTING THE SEDIMENT CONTROL DEVICE AT THE DROP INLET.

CITY OF SPEARFISH Public Works Department	***City of Spearfish***	DATE 08/06/25 REVISED 00/00/00
	SEDIMENT CONTROL FOR TYPE 'S' DROP INLETS	SECTION DETAIL # 600-08

SR

SURFACE ROUGHENING

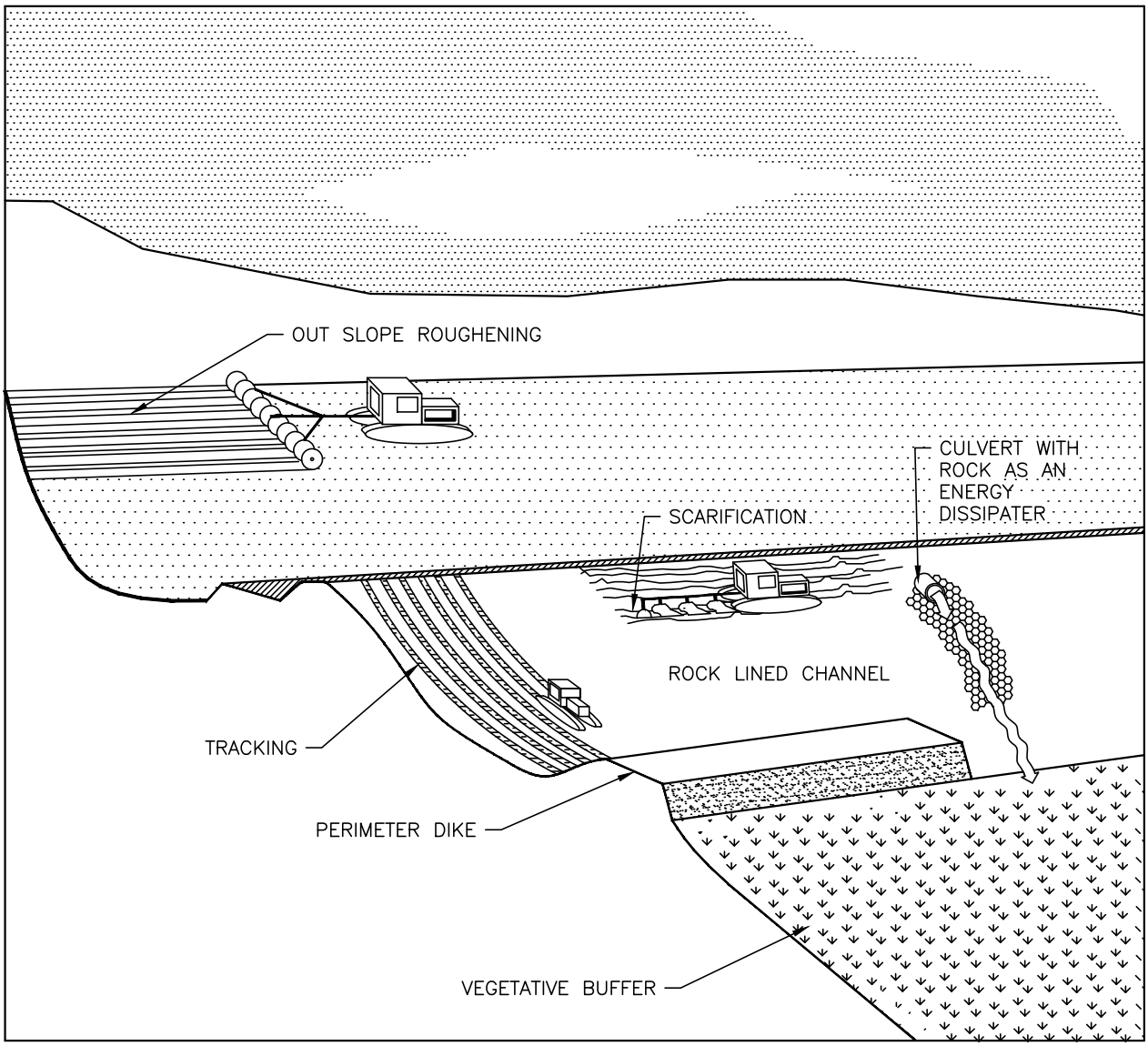
SR

DEFINITION:

PROVIDE A ROUGH SOIL SURFACE WITH HORIZONTAL DEPRESSIONS CREATED BY OPERATING A TILLAGE OR OTHER SUITABLE IMPLEMENT ON THE CONTOUR, OR BY LEAVING SLOPES IN A ROUGHENED CONDITION BY NOT FINE–GRADING THEM.

PURPOSES:

1. TO AID IN SEED BED PREPARATION AND ESTABLISHMENT OF VEGETATIVE COVER.
2. TO REDUCE RUNOFF VELOCITY AND INCREASE INFILTRATION.
3. TO REDUCE RUNOFF AND WIND EROSION AND PROVIDE FOR SEDIMENT TRAPPING.

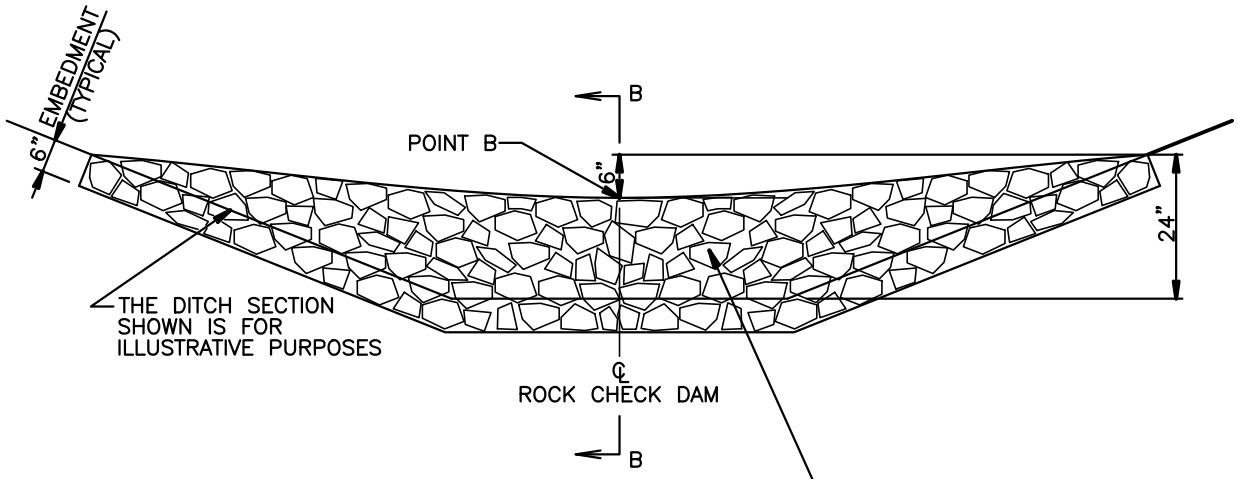


Public Works Department

City of Spearfish

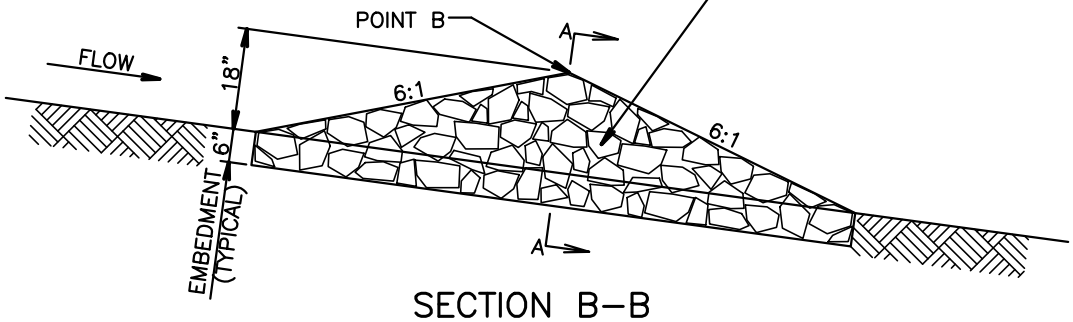
SURFACE ROUGHENING

DATE	08/06/25
REVISED	00/00/00
SECTION	DETAIL #
600	09

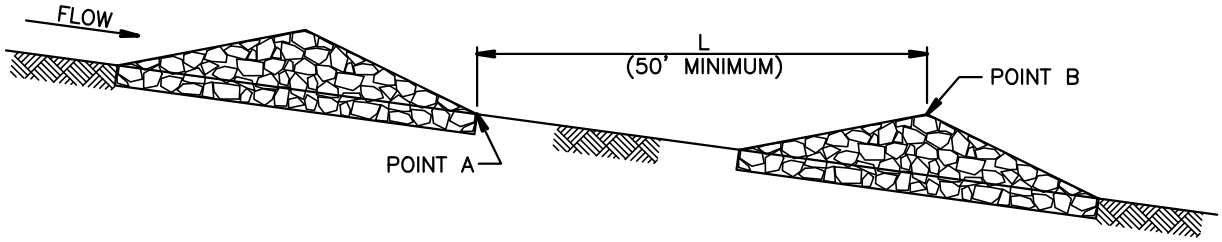


SECTION A–A

THE ROCK SHALL BE AS SPECIFIED IN THE PLANS



SECTION B–B

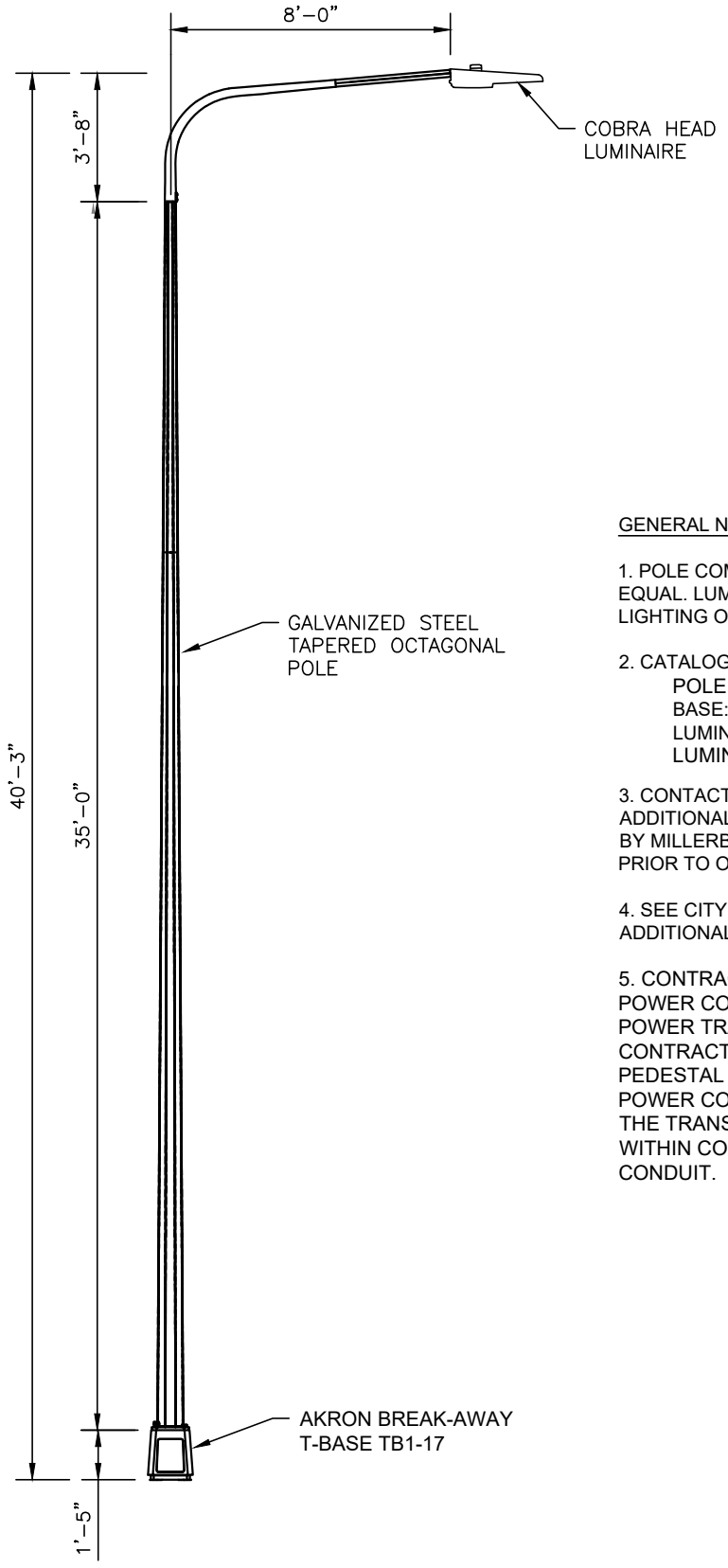


SECTION ALONG CENTERLINE OF ROCK CHECK DAMS

GENERAL NOTES:

THE ELEVATION OF POINT A AND POINT B SHALL BE THE SAME. THE DISTANCE L IS THE DISTANCE REQUIRED SUCH THAT POINT A AND POINT B ARE AT THE SAME ELEVATION.

CITY OF SPEARFISH Public Works Department	*City of Spearfish*	DATE 08/06/25 REVISED 00/00/00
	ROCK CHECK DAMS	SECTION 600 DETAIL # 10



GENERAL NOTES

1. POLE COMPONENTS SUPPLIED BY MILLERBERND OR EQUAL. LUMINAIRE SUPPLIED BY AMERICAN ELECTRIC LIGHTING OR EQUAL.

2. CATALOG NUMBERS FOR STREET LIGHT COMPONENTS
   POLE : WLDMT POLE LIGHT 8S
   BASE: AKRON BREAK-AWAY T-BASE TB1-17
   LUMINAIRE ARM: ELITE SINGLE ARM 8'
   LUMINAIRE: AUTOBAHN ATB0 LED COBRA HEAD

3. CONTACT CITY ENGINEERING DEPARTMENT FOR ADDITIONAL LIGHTING SPECIFICATION SHEETS SUPPLIED BY MILLERBERND & AMERICAN ELECTRIC LIGHTING PRIOR TO ORDERING STREET LIGHTS.

4. SEE CITY CONSTRUCTION SPECIFICATIONS FOR ADDITIONAL TECHNICAL DATA ON THE STREET LIGHT.

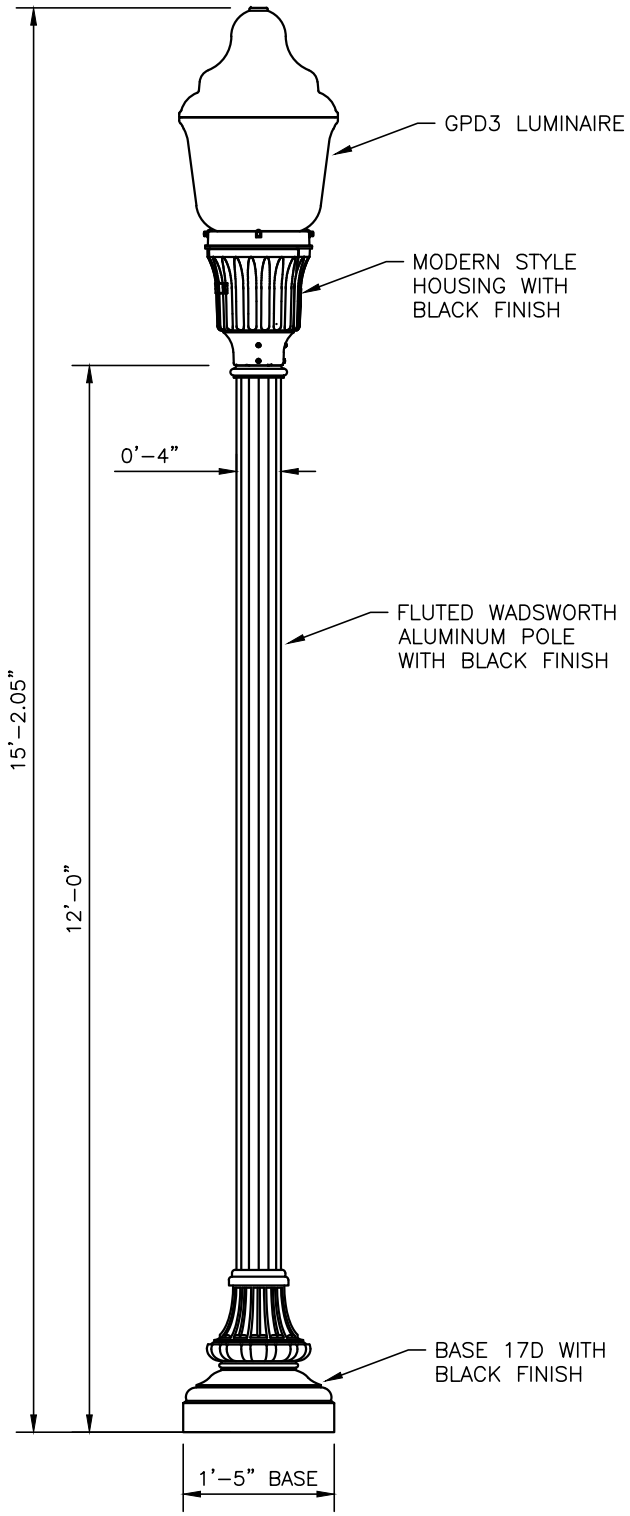
5. CONTRACTOR TO COORDINATE WITH LOCAL POWER COMPANY THAT WILL BE INSTALLING A POWER TRANSFORMER THAT WILL FEED THE CONTRACTOR FURNISHED AND INSTALLED METER PEDESTAL BEING INSTALLED FOR THE LIGHTING. THE POWER COMPANY WILL ALSO INSTALL WIRE FROM THE TRANSFORMER TO THE METER PEDESTAL, WITHIN CONTRACTOR FURNISHED AND INSTALLED CONDUIT.

Public Works Department

City of Spearfish

30' METAL STREET LIGHT

DATE	05/03/26
REVISED	00/00/00
SECTION	DETAIL #
	700-01



GENERAL NOTES

1. SUPPLIED BY HOLOPHANE OR EQUAL.

2. CATALOG NUMBERS FOR STREET LIGHT COMPONENTS
   - POLE & BASE: WDA 12 F4C 17D C03 BWKT BK ABG GRD (FINISH: BLACK)
   - LUMINAIRE: GPD3 P40 30K MVOLT D4I MS GL3 BK CR TBK ALCF
   - ANCHOR BOLTS: AB-31-4
   - ANCHOR BOLT TEMPLATE: TMP-85
   - BREAKAWAY KIT: BWKT 1700R 1200BC 075AB BK
   - TRANSPO BREAKAWAY: TRANSPO SPM4075XL

3. CONTACT CITY ENGINEERING DEPARTMENT FOR ADDITIONAL LIGHTING SPECIFICATION SHEETS SUPPLIED BY HOLOPHANE PRIOR TO ORDERING STREET LIGHTS.

4. SEE CITY CONSTRUCTION SPECIFICATIONS FOR ADDITIONAL TECHNICAL DATA ON THE STREET LIGHT.

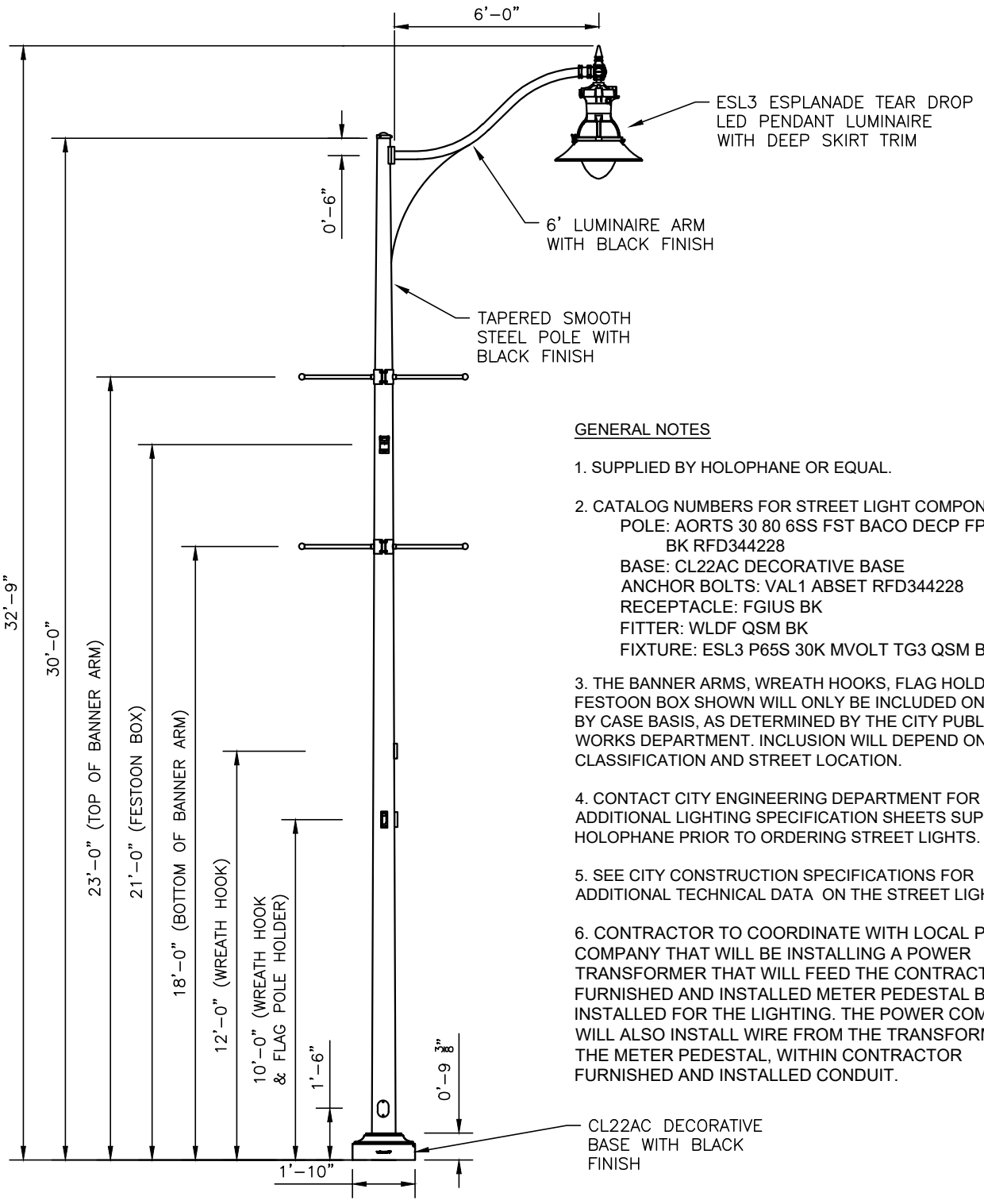
5. CONTRACTOR TO COORDINATE WITH LOCAL POWER COMPANY THAT WILL BE INSTALLING A POWER TRANSFORMER THAT WILL FEED THE CONTRACTOR FURNISHED AND INSTALLED METER PEDESTAL BEING INSTALLED FOR THE LIGHTING. THE POWER COMPANY WILL ALSO INSTALL WIRE FROM THE TRANSFORMER TO THE METER PEDESTAL, WITHIN CONTRACTOR FURNISHED AND INSTALLED CONDUIT.

CITY OF SPEARFISH
Public Works Department

City of Spearfish

12' DECORATIVE STREET LIGHT

DATE	05/03/26
REVISED	00/00/00
SECTION	DETAIL #
	700-02



GENERAL NOTES

1. SUPPLIED BY HOLOPHANE OR EQUAL.

2. CATALOG NUMBERS FOR STREET LIGHT COMPONENTS
   POLE: AORTS 30 80 6SS FST BACO DECP FPH CSB BK RFD344228
   BASE: CL22AC DECORATIVE BASE
   ANCHOR BOLTS: VAL1 ABSET RFD344228
   RECEPTACLE: FGIUS BK
   FITTER: WLDF QSM BK
   FIXTURE: ESL3 P65S 30K MVOLT TG3 QSM BK DS

3. THE BANNER ARMS, WREATH HOOKS, FLAG HOLDER AND FESTOON BOX SHOWN WILL ONLY BE INCLUDED ON A CASE BY CASE BASIS, AS DETERMINED BY THE CITY PUBLIC WORKS DEPARTMENT. INCLUSION WILL DEPEND ON STREET CLASSIFICATION AND STREET LOCATION.

4. CONTACT CITY ENGINEERING DEPARTMENT FOR ADDITIONAL LIGHTING SPECIFICATION SHEETS SUPPLIED BY HOLOPHANE PRIOR TO ORDERING STREET LIGHTS.

5. SEE CITY CONSTRUCTION SPECIFICATIONS FOR ADDITIONAL TECHNICAL DATA ON THE STREET LIGHT.

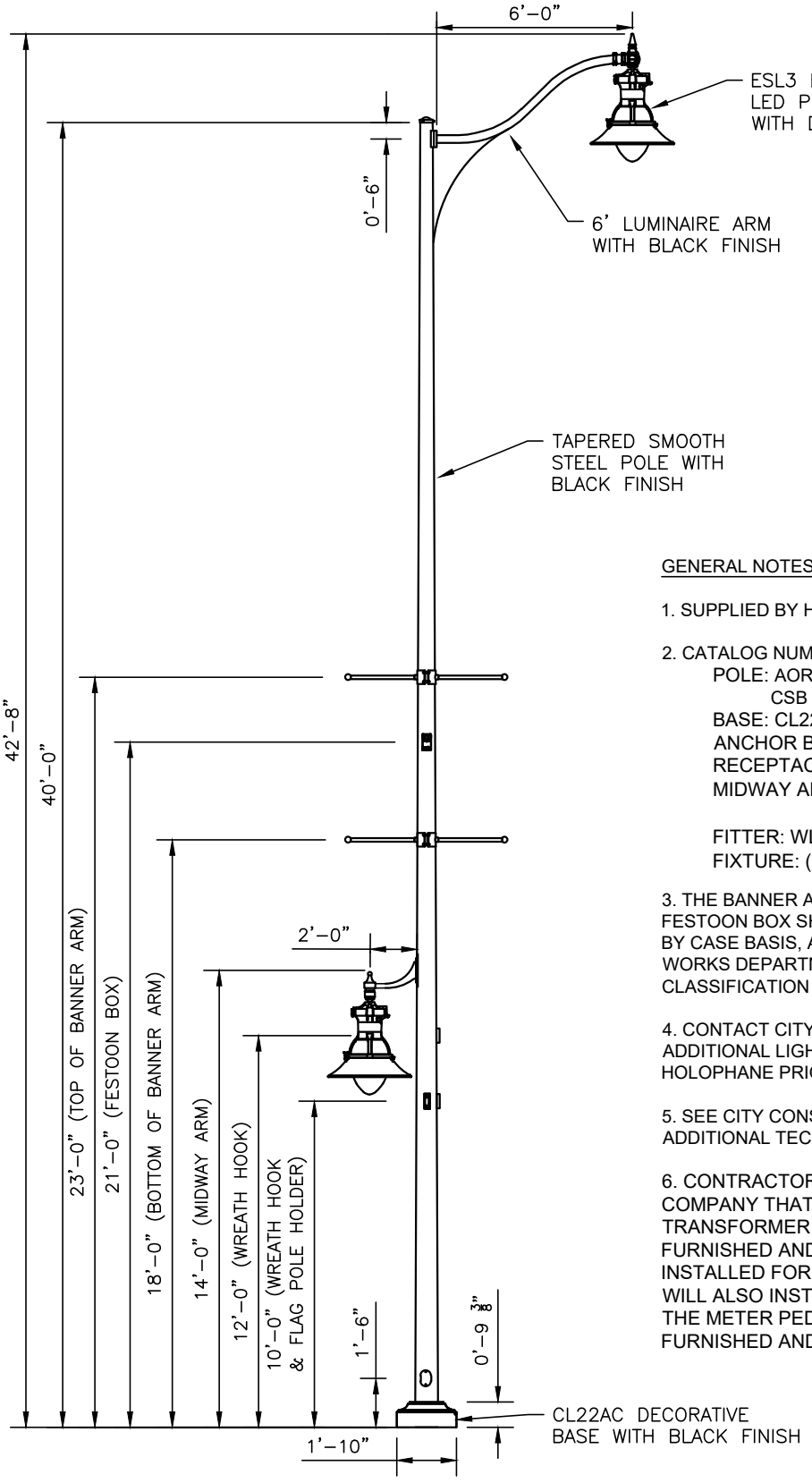
6. CONTRACTOR TO COORDINATE WITH LOCAL POWER COMPANY THAT WILL BE INSTALLING A POWER TRANSFORMER THAT WILL FEED THE CONTRACTOR FURNISHED AND INSTALLED METER PEDESTAL BEING INSTALLED FOR THE LIGHTING. THE POWER COMPANY WILL ALSO INSTALL WIRE FROM THE TRANSFORMER TO THE METER PEDESTAL, WITHIN CONTRACTOR FURNISHED AND INSTALLED CONDUIT.

Public Works Department

City of Spearfish

30' DECORATIVE STREET LIGHT

DATE	05/03/26
REVISED	00/00/00
SECTION	DETAIL #
	700-03



GENERAL NOTES

1. SUPPLIED BY HOLOPHANE OR EQUAL.

2. CATALOG NUMBERS FOR STREET LIGHT COMPONENTS
   - POLE: AORTS 40 95 6SS FST BACO PROV DECP FPH CSB BK RFD344227
   - BASE: CL22AC DECORATIVE BASE
   - ANCHOR BOLTS: VAL1.25 ABSET RFD344227
   - RECEPTACLE: FGIUS BK
   - MIDWAY ARM: ACA 15IN 1A BO RTS INV QSM BK RFD344227
   - FITTER: WLDF QSM BK
   - FIXTURE: (2)ESL3 P65S 30K MVOLT TG3 QSM BK DS

3. THE BANNER ARMS, WREATH HOOKS, FLAG HOLDER AND FESTOON BOX SHOWN WILL ONLY BE INCLUDED ON A CASE BY CASE BASIS, AS DETERMINED BY THE CITY PUBLIC WORKS DEPARTMENT. INCLUSION WILL DEPEND ON STREET CLASSIFICATION AND STREET LOCATION.

4. CONTACT CITY ENGINEERING DEPARTMENT FOR ADDITIONAL LIGHTING SPECIFICATION SHEETS SUPPLIED BY HOLOPHANE PRIOR TO ORDERING STREET LIGHTS.

5. SEE CITY CONSTRUCTION SPECIFICATIONS FOR ADDITIONAL TECHNICAL DATA ON THE STREET LIGHT.

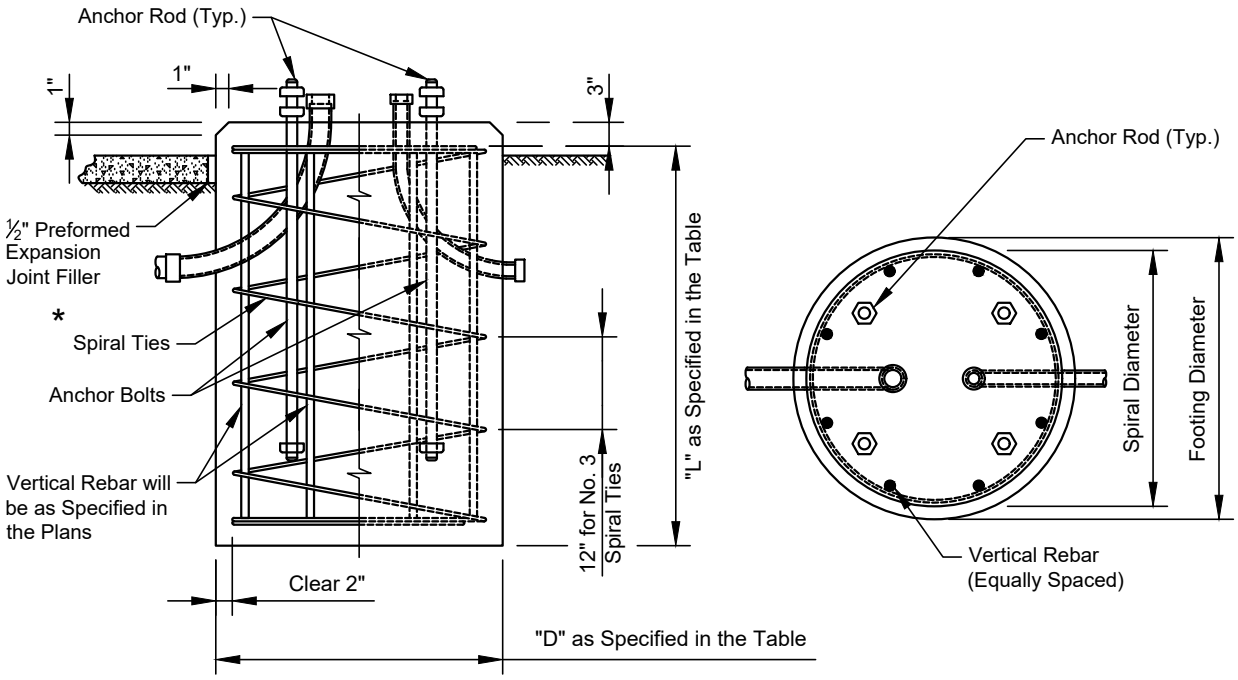
6. CONTRACTOR TO COORDINATE WITH LOCAL POWER COMPANY THAT WILL BE INSTALLING A POWER TRANSFORMER THAT WILL FEED THE CONTRACTOR FURNISHED AND INSTALLED METER PEDESTAL BEING INSTALLED FOR THE LIGHTING. THE POWER COMPANY WILL ALSO INSTALL WIRE FROM THE TRANSFORMER TO THE METER PEDESTAL, WITHIN CONTRACTOR FURNISHED AND INSTALLED CONDUIT.

CITY OF SPEARFISH
Public Works Department

City of Spearfish

40' DECORATIVE STREET LIGHT

DATE	05/03/26
REVISED	00/00/00
SECTION	DETAIL #
	700-04



General Notes:

* Circular ties may be used in lieu of the spiral ties. The No. 3 ties will be spaced 12 inches apart except for the top two which will be spaced 6 inches apart. The ties will be lapped 18 inches and the laps will be staggered around the cage.

Spiral ties will have 1-1/2 extra turns at each end.

Conduits and bushings may project 2 ½ inches to 6 inches above footing for fixed base poles but will not project above the slip plane or fracture plane for breakaway poles.

Conduits will be sealed water-tight during all phases of construction until poles are in place.

The anchor rods will fit inside the reinforcing steel cage.

Cost of conduit and conduit bushings shown on footing detail will be incidental to the footing bid item(s).

The pole will not be installed until the concrete has attained design strength (4000 psi).

The contour of the area surrounding the breakaway pole will be flat, though not necessarily level for a distance of 5 feet in all directions. The contractor may be required to provide finish grading at some breakaway pole locations.

If atypical conditions are found during the subsurface geotechnical exploration or at time of installation and the geotechnical engineer considers it warranted, the developer shall have a structural engineer review the noted conditions and provide a revised footing design.

TABLE OF LIGHT POLE FOOTING DETAILS

Soil Type	"D" = 2'-0"			"D" = 2'-6"		
	"L"	Pole Height	Vertical Rebar	"L"	Pole Hight	Vertical Rebar
Soft Alluvial Clays	7'	12'	8 No. 8's	5'	12'	10 No. 8's
	15'	30'	8 No. 8's	13'	30'	10 No. 8's
	17'	40'	8 No. 8's	15'	40'	10 No. 8's
Spearfish Formation and Terrace Gravels	5'	12'	8 No. 8's	5'	12'	10 No. 8's
	7'	30'	8 No. 8's	6'	30'	10 No. 8's
	8'	40'	8 No. 8's	7'	40'	10 No. 8's

Public Works Department

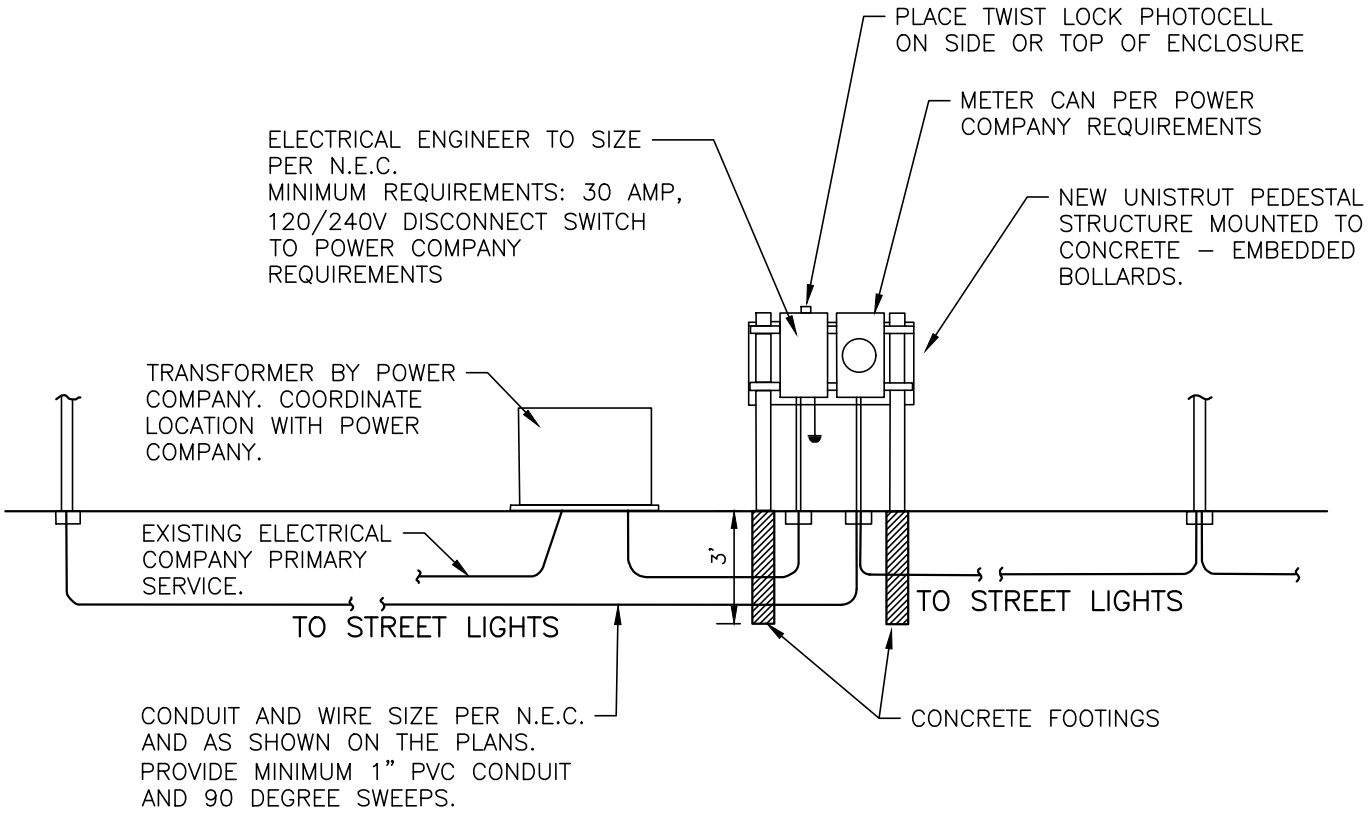
City of Spearfish

LIGHT POLE FOOTING

DATE 05/03/26

REVISED 00/00/00

SECTION DETAIL # 700-05



GENERAL NOTES

1. DISCONNECT HOUSING AND METER CAN MUST BE AN OUTDOOR ENCLOSURE (TYPE R3).
2. MUST MEET ALL CONSTRUCTION SITE GROUND FAULT PROTECTION REQUIREMENTS.
3. GROUNDING ROD FURNISHED BY CONTRACTOR.
4. ALL WORK SHALL CONFORM WITH THE NATIONAL ELECTRICAL CODE (NEC).
5. METER SHALL FACE THE STREET.
6. CONDUIT TO STREET LIGHTS SHALL BE PLACED BETWEEN THE BACK OF CURB AND FRONT OF SIDEWALK.
7. ADDITIONAL REQUIREMENTS MAY BE REQUIRED BY THE LOCAL POWER COMPANY.
8. CONTRACTOR TO PROVIDE AND INSTALL ALL LIGHTING SYSTEM COMPONENTS REQUIRED BY THE LOCAL POWER COMPANY.

Public Works Department

City of Spearfish

ELECTRICAL DISCONNECT & METER PEDESTAL FOR CITY OWNED STREET LIGHTS

DATE	05/03/26
REVISED	00/00/00
SECTION	DETAIL #
700	06

Agenda Item Report

Community Development Item # 11.C.

Meeting: Regular Session Agenda **Meeting Date:** July 6, 2026
Department: Community Development

Request:
Approve an encroachment agreement at 127 W. Grant Street.

Background Information:
The proposed encroachment agreement formalizes the existing, non-exclusive use of public right-of-way adjacent to the property for parking. If approved, the business, Spearfish Creek Wine Bar, intends to reconstruct the sidewalk and parking area. The agreement also permits temporary seating within the identified encroachment area. The applicant intends to place picnic tables, café tables, or similar seating during hours of operation for use by Wine Bar customers. Seating will not be affixed to the pavement and is planned to be removed when the Wine Bar is closed. The City retains the right-of-way and the ability to require modification or removal of the encroachment if needed.

Staff recommends approval of the Encroachment Agreement, finding that it aligns with code, policies, and will support the business' operations and downtown activation.

Fiscal Impact: There is a $250 application fee associated with this agreement.

Recommended City Council Action: Approve

Staff Contact Information:
Jaymia Ecker, 605-722-2559, j.ecker@spearfish.gov

Attachments:
1. Encroachment Agreement

ENCROACHMENT AGREEMENT AND LICENSE

This **ENCROACHMENT AGREEMENT AND LICENSE** ("Agreement") is made and entered into effective on _____, 2025 ("Effective Date"), notwithstanding any later date of execution, by and between **[REQUESTOR]**, [ADDRESS] Spearfish, South Dakota 57783 (hereinafter "Licensee") and the **CITY OF SPEARFISH**, a municipal corporation and political subdivision of the State of South Dakota, 625 Fifth Street, Spearfish, South Dakota 57783 (hereinafter "Spearfish" or "City"). (Licensee and Spearfish may be referred to herein individually as a "Party" and collectively as the "Parties".)

RECITALS

1. Licensee owns or legally occupies the following-described real property situated in the City of Spearfish, Lawrence County, South Dakota, more commonly known as 127 W. Grant Street and 444 5th Street, to-wit:

   > Lot 11A and 12A Original Town Spearfish, City of Spearfish, Lawrence County, South Dakota, as shown on the plat thereof recorded in Document No. 1995-04669, recorded in the Office of the Register of Deeds for Lawrence County, South Dakota;

   (hereinafter, the "Property").

2. Spearfish is the owner of the W. Grant Street right-of-way adjoining the Property (hereinafter the "City ROW").

3. Licensee has requested permission to encroach upon and use a portion of the City ROW (hereinafter the "Encroachment Area").

4. Licensee seeks to access and utilize the Encroachment Area for the purposes indicated herein and as more fully described and illustrated in Exhibit A .

5. Licensee may also seek to enhance the Encroachment Area along the frontage of the Property by installing and maintaining landscaping (hereinafter the "Frontage Improvements").

6. Spearfish is willing to permit Licensee's continued and non-exclusive use of the Encroachment Area and maintenance of the Frontage Improvements subject to the terms and condition of this Agreement.

7. The Parties also intend that all previous agreements for encroachments related to the Property shall be rescinded and replaced with this Agreement.

AGREEMENT

NOW THEREFORE, in consideration of the covenants, conditions, benefits, and obligations herein contained and for other good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, the Parties agree as follows:

1. **Incorporation of Recitals**. The foregoing Recitals are hereby incorporated and made a part of this Agreement.

2. **Grant of License**. Spearfish grants Licensee, as a privilege personal to Licensee, a temporary and nonexclusive license to enter upon the City ROW and to use the Encroachment Area consistent with and subject to the terms, conditions and limitations of this Agreement (the "License"). The License granted by this Agreement shall be subject and subordinate to all existing utility easements, if any, located within the City ROW, or any other easements, conditions, covenants or restrictions of record, whether already existing or arising in the future.

3. **License Only / No Interest in Land**. Licensee understands, acknowledges and agrees that this Agreement does not create an interest or estate in Licensee's favor in the City ROW and/or the Encroachment Area, whether express or implied, nor shall it be interpreted or deemed to create any such interest or estate. Spearfish shall at all times retain legal possession of the full boundaries of its right-of-way. This Agreement does not constitute an easement on or over the Encroachment Area or City ROW, nor shall it be interpreted or deemed to create any such easement. This Agreement grants Licensee only a license to use the Encroachment Area during the Term of this Agreement. Licensee hereby releases any and all right, title, claim, or interest which Licensee may have or may allege to have to the Encroachment Area, if any, including but not limited to any claim or rights arising out of adverse possession or otherwise attributable to the encroachments permitted herein.

4. **No Vested Right**. Notwithstanding any past, present or future expenditure of money, time or labor by Licensee on or within the Encroachment Area, this Agreement shall in no event be construed to create an assignment coupled with an interest or any vested rights in favor of Licensee in the Encroachment Area or the City ROW. Licensee shall expend any time, money or labor on or in the Encroachment Area at Licensee's own risk and peril.

5. **Duration and Termination**. This Agreement may be terminated by either Party at any time for any reason or no reason upon fifteen (15) days' written notice to the other Party. Upon termination, Licensee shall comply with the removal requirements set forth herein. The license to access and use the Encroachment Area is revocable at the will of Spearfish, upon fifteen (15) days' written notice to Licensee, unless revocation arises from Licensee's violation of any term of this Agreement, in which case, Spearfish may immediately revoke the license and terminate this Agreement. Should Licensee fail to maintain the Encroachment Area in good condition, in addition to Spearfish's right to terminate the license and the Agreement, Spearfish shall also have the right (but not the obligation) to remove any improvements from the Encroachment Area and assess the cost of doing so against Licensee.

6. **Allowed Encroachment**. Licensee shall be entitled to use the Encroachment Area for the purposes indicated herein and as more fully described and illustrated in Exhibit A, which is attached hereto and incorporated by reference. Licensee's use of the Encroachment Area is subject at all times to the terms and conditions of this Agreement. No expansion of the size of the Encroachment Area is permitted without the prior written consent of Spearfish. Licensee's use of the Encroachment Area is non-exclusive and Spearfish retains the right

to utilize the Encroachment Area for any purpose not inconsistent with this Agreement. In the event excavation is required or Spearfish otherwise desires to make use of the Encroachment Area, Spearfish shall provide Licensee with reasonable notice to remove any encroachments. All removal and replacement of encroachments in the Encroachment Area shall be at Licensee's sole cost and expense.

7. **Permissible Use**. Licensee's use of the Encroachment Area shall be limited to those described and set forth in Exhibit A ("Permitted Use"). No changes to or modification of the Permitted Use is allowed without the prior written consent of Spearfish, which consent may be withheld for any reason. Licensee may remove the encroachments described herein from the Encroachment Area at any time. Upon the removal of the encroachments and restoration of the Encroachment Area, this Agreement and all of Licensee's rights deriving from this Agreement shall cease immediately without further notice or action by either Party.

8. **Construction and Maintenance**. Licensee shall construct and maintain any and all improvements to and in the Encroachment Area, as described in this Agreement, at all times in a safe, neat, sightly and good physical condition. During the Term of this Agreement, Licensee shall, at Licensee's sole cost and expense, maintain the Encroachment Area and any improvements on the Encroachment Area in good condition. Spearfish shall, in its sole and exclusive discretion, determine the quality of the construction and maintenance of the Encroachment Area and any improvements therein. Upon written notice from Spearfish stating in general terms how and in what manner maintenance of the Encroachment Area of the improvements is required, Licensee shall promptly perform such maintenance. If Licensee fails to do so within a reasonable time, Spearfish shall have the right to perform such maintenance on Licensee's behalf, and Licensee shall be responsible for the full and complete cost of the maintenance. Licensee agrees to reimburse Spearfish its full cost and expense for any such maintenance within thirty (30) days of receipt of an invoice from Spearfish for such cost and expense.

9. **Compliance with Laws**. Licensee shall adhere to and comply with all federal, state and local laws, ordinances, rules and regulations, all as amended, that may pertain to or apply to the Encroachment Area and Licensee's use of the Encroachment Area. Licensee agrees and warrants that it has procured or shall procure all necessary or required licenses, permits or like permissions, if any, to conduct or engage in the use of the Encroachment Area described in this Agreement.

10. **Mechanics Liens and Encumbrances**. Licensee shall not allow the attachment of any liens or encumbrances to Encroachment Area for any reason, including but not limited to by reason of work, labor, services or materials furnished to Licensee at its direction. If the filing of a lien occurs in contravention of the foregoing, Licensee shall cause the lien to be discharged of record by payment, by the posting of a bond, by order of a court of competent jurisdiction, or by other lawful means promptly but no later than thirty (30) days after Licensee receives notice of the filing of the lien. If Licensee fails to discharge a lien within the time set forth above, Spearfish may discharge the lien in any lawful manner without investigating the validity of the lien claim. Licensee shall then reimburse Spearfish for the lien amount and all reasonable costs Spearfish incurs in connection with the discharge of

the lien, including, without limitation, reasonable attorneys' fees, within fifteen (15) days after receipt of an invoice from Spearfish. Any loss, liability, claim or suit arising from the foreclosure, or attempted foreclosure, of any encumbrance, or a mechanic's or materialmen's lien for goods delivered to Licensee or work performed by or for Licensee upon or at the Encroachment Area or the Property, shall be borne solely by Licensee. Licensee shall indemnify Spearfish for any and all costs, expenses or other losses to Spearfish arising from or related to any such liens. Such indemnification shall include, but not be limited to, reasonable attorneys' fees, costs and disbursements, incurred by Spearfish in connection with any such loss, claim or suit. The provisions of this paragraph shall survive any termination or expiration of this Agreement.

11. **Responsibility**.

11.1. At all times during the Term of this Agreement, and in accordance with this Agreement, Licensee shall be solely responsible for all maintenance and supervision of the Encroachment Area and any additional improvements that are constructed or installed consistent with the terms of this Agreement.

11.2. Licensee acknowledges and agrees that Spearfish will not be responsible for maintenance and supervision of any improvements within the Encroachment Area, including but not limited to parking lot striping, curb and gutter that is in or immediately adjacent to a parking lot, and any future sidewalks that are within the Encroachment Area.

11.3. Except for shared parking between tenants or adjacent property owners for the tenants, adjacent property owners, or their customers, Licensee may not assign or sublease all or any portion of the Encroachment Area without prior written consent from Spearfish. Spearfish may withhold its consent for any reason.

11.4. Licensee shall maintain occurrence-based commercial general liability insurance or equivalent form with a limit of not less than $1 million for each occurrence. If such insurance contains a general aggregate limit, it shall apply separately to this Agreement or be no less than $2 million. Such insurance shall name Spearfish, its elected officials, officers and employees as additional insureds. Such insurance shall be provided by a company authorized to engage in the insurance business in the State of South Dakota. Licensee shall provide a certificate of insurance to Spearfish at all times while this Agreement is in place. Such insurance shall not be cancelable or reduced without prior written notice to Spearfish, not less than thirty (30) days in advance of the cancellation or alteration. Such insurance shall be primary as to any other insurance available to Spearfish.

11.5. Any other provision of this Agreement to the contrary notwithstanding, and unless otherwise agreed upon by the Parties, Licensee shall immediately remove, at its sole cost and expense, any such encroachments whenever Spearfish determines that such removal is necessary or convenient for any reason, including but not limited to the installation, repair or replacement of any utilities or other public improvements in the Encroachment Area or City ROW, or if Spearfish determines

that any such encroachment interferes with pedestrian or vehicular traffic, public utilities, or constitute a safety hazard. Any replacement or repair of such encroachments shall be at the sole cost and expense of Licensee. If Licensee fails to comply with the requirements of this paragraph, Spearfish shall have the right to remove the encroachments or improvements from the Encroachment Area and restore the Encroachment Area and City ROW, with Licensee bearing responsibility for the full and complete cost of such removal and restoration. Licensee shall reimburse Spearfish its full cost and expense for any such removal or restoration within thirty (30) days after receipt of an invoice or other demand for reimbursement from Spearfish.

11.6. Upon termination of this Agreement, for any reason and by any Party, Licensee shall remove, at the option of Spearfish and at Licensee's sole cost and expense, any and all encroachments or improvements owned or maintained by Licensee in the Encroachment Area and/or City ROW, and return the Encroachment Area to Spearfish in a clean and orderly condition, as determined by Spearfish, normal wear and tear excepted.

11.7. Licensee shall not use or permit any hazardous substance on or in the Encroachment Area.

11.8. Licensee shall not remove or disturb any historic or archeological artifacts or relics located on or in the Encroachment Area and/or City ROW and shall promptly notify Spearfish of the discovery of any such items.

11.9. If this Agreement and/or the License granted hereunder, is revoked for any reason, and any use or occupancy of the Encroachment Area is not promptly discontinued, Spearfish may remove any improvement, encroachment, structure, property, or obstruction in or on the Encroachment Area, and/or repair the Encroachment Area as may be necessary to render the same secure and safe. The cost and expense of all such removal and/or repairs shall be the sole responsibility of Licensee, including all fees, costs, and expenses incurred, including attorneys' fees associated with the enforcement of or collection of the same. Spearfish may enforce this provision in any manner provided by law, including the abatement of public nuisances.

12. **Indemnification**. Licensee hereby releases and shall, at its own expense, indemnify and hold harmless Spearfish, its elected officials, officers, agents, and employees, from and against any and all liabilities, damages, losses, expenses, demands, suits, or judgments, including settlement costs and attorneys' fees, costs, and expenses incidental thereto, in any way arising: (i) Licensee's use or occupation of the Encroachment Area, (ii) for death of or injuries to any person; and (iii) for the loss of, damage to, or destruction of any property in any manner arising out of the negligent or intentional acts or omissions of Licensee, its agents, employees, or subcontractors.

13. **No Joint Venture or Partnership**. This Agreement shall not be construed to create a joint venture, partnership, employment, or any other agency relationship between the Parties

hereto.

14. **Inspection**. Licensee agrees that, at all times during the Term of this Agreement, Spearfish shall have the right to make inspections of the Encroachment Area. Any inspection by Spearfish shall be performed so as not to unduly interfere with Licensee's access to or use of the Encroachment Area.

15. **Legal Fees and Costs**. Should any action be taken by Spearfish to enforce all or any portion of this Agreement, Licensee shall, in addition to all other remedies, be responsible to reimburse Spearfish for all attorney's fees, costs, and disbursements incurred by Spearfish.

16. **Assignment**. Neither this Agreement nor any other obligations of Licensee under this Agreement may be assigned or delegated by Licensee without the prior written consent of Spearfish, which Spearfish may withhold in its sole discretion. This Agreement shall be binding upon and inure to the benefit of the Parties, their respective successors, assigns and legal representatives.

17. **Governing Law**. This Agreement shall be subject to and governed by the laws of South Dakota. Venue for the resolution of any disputes or the enforcement of any rights arising out of or in connection with this Agreement shall be in Lawrence County.

18. **Severability**. If any provision of this Agreement is held to be invalid, illegal or unenforceable, the validity, legality and enforceability of the remaining provisions shall in no way be affected or impaired.

19. **Waiver**. The failure of either Party at any time to require performance by the other of any provision of this Agreement shall in no way affect that Party's right to enforce such provision, nor shall the waiver by either Party of any breach of any provision of this Agreement be taken or held to be a waiver of any further breach of the same provision or any other provision.

20. **Survival**. The provisions of this Agreement which by their nature extend beyond the expiration or earlier termination of the Agreement, including but not limited to Licensee's obligations to indemnify Spearfish, shall survive and remain in effect until all obligations are satisfied.

21. **Complete Agreement.** This Agreement constitutes the entire understanding and agreement between the parties and supersedes all prior understandings, representations, negotiations and correspondence between the Parties, whether written or oral, with respect to the subject matter hereof, and shall not be modified or affected by any course of dealing, course of performance, or usage of trade.

22. **Modification**. Except as otherwise provided, this Agreement shall not be modified except by written agreement signed the Parties.

23. **Multiple Counterparts**. This Agreement may be executed in multiple counterparts, each of which shall be deemed an original, but all of which together shall constitute one and the same instrument.

In Witness Whereof, the Parties have set their signatures.

[SEPARATE SIGNATURE PAGES FOLLOW]

[LICENSEE]

_____
[NAME, TITLE]

State of South Dakota)
) ss.
County of Lawrence)

On this ____ day of _____, 2025, before me, the undersigned officer, personally appeared [NAME], who acknowledged himself to be [TITLE FOR LICENSEE], and that he executed the foregoing instrument for the purposes therein contained.

In Witness Whereof, I have set my hand and official seal.

(Seal)

_____
Notary Public

My Commission Expires: _____

[LICENSEE]

_____
[NAME, TITLE]

State of South Dakota)
) ss.
County of Lawrence)

On this ____ day of _____, 2025, before me, the undersigned officer, personally appeared [NAME], who acknowledged himself to be [TITLE FOR LICENSEE], and that he executed the foregoing instrument for the purposes therein contained.

In Witness Whereof, I have set my hand and official seal.

(Seal)

_____
Notary Public

My Commission Expires: _____

CITY OF SPEARFISH

_____
John Senden, Its Mayor

(Seal)

Attest:

_____
Michelle DeNeui, Finance Officer

State of South Dakota)
) ss.
County of Lawrence)

On this ____ day of _____, 2025, before me, the undersigned officer, personally appeared John Senden and Michelle DeNeui, known to me or satisfactorily proven to be the persons described in the foregoing instrument, and acknowledged that they executed the same in the capacity therein stated and for the purposes therein contained.

In Witness Whereof, I have set my hand and official seal.

(Seal)

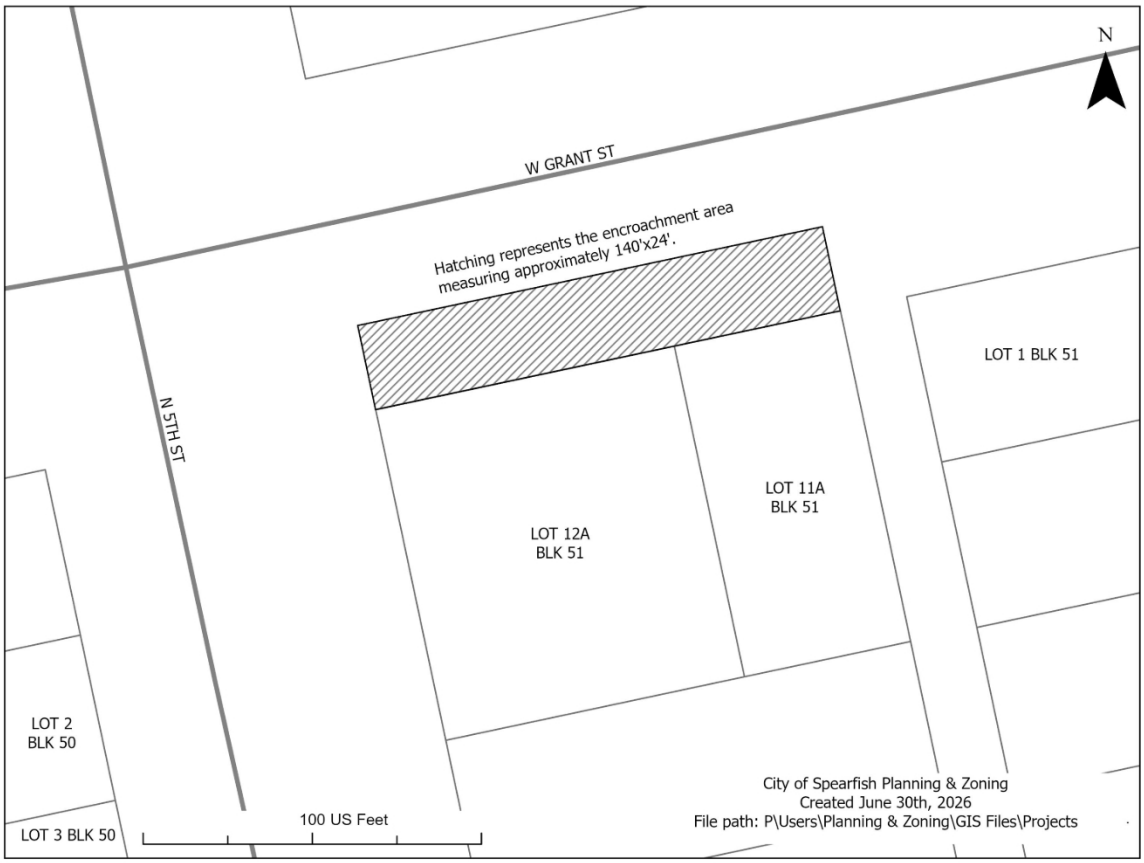
_____
Notary Public

My Commission Expires: _____

Exhibit A
to that certain
Encroachment Agreement and License
between
The City of Spearfish ("Spearfish")
and
[LICENSEE NAME] ("Licensee")

Diagram of Encroachment Area and Frontage Improvements

Allowed uses include paving and striping of parking spaces in accordance with Engineering Design Standards, landscaping, and temporary seating.



Agenda Item Report

Community Development Item # 11.D.

Meeting: Regular Session Agenda **Meeting Date:** July 6, 2026
Department: Community Development

Request:
Approve a special exception for completing public infrastructure before recording of a final plat pursuant to City Code Section 154.023.

Background Information:
City Code, Chapter § 154.023 requires public improvements including, but not limited to: paved streets; curb; gutter; sidewalk; water lines; sewer lines; and drainage improvements, associated with a subdivision to be installed, dedicated, and accepted by the City before a final plat is recorded. This Code section also allows the City Council to grant a special exception to this requirement, subject to the developer submitting a financial guarantee for the improvements. It should be noted that the exception does not de-obligate the developer from installing the required public improvements, it only changes the sequence of the subdivision process.

This exception applies to a major subdivision proposed by the landowner, Amigos LLC. The subdivision will create a lot for the Stone Ridge Commons affordable housing project to be constructed by Lloyd. Amigos, LLC and Lloyd are seeking to record the final plat and approval of the special exception. If granted, this would allow Amigos, LLC to record the final plat and sell the lot slated for the Stone Ridge Commons project to Lloyd. Creation of the lot will also facilitate Lloyd securing the necessary funding for the project, including grant funding from the Black Hills Area Community Foundation.

Lloyd submitted an itemized cost estimate for the public improvements. The construction contract for the public improvements is $1,672,693. The required financial assurance will be 120% of the costs, which equals $2,007,231.60. The developer must submit the financial assurance prior to City staff releasing the final plat.

Staff recommend approval of the exception request, finding that it meets code requirements and will streamline the development process.

Fiscal Impact: A bond in the amount of $2,007,231.60, secures the onsite improvements associated with this project. There is no cost to the City.

Recommended City Council Action: Approve

Staff Contact Information:
Jaymia Ecker, 605-722-2559, j.ecker@spearfish.gov

Attachments:

1. November, 2024 Preliminary Plat Staff Report
2. Final Plat

Spearfish Planning Commission Staff Report
Meeting Location: 625 Fifth Street, Spearfish SD, Council Chamber of City Hall and by Zoom Online Meeting

Meeting Date and Time:	November 5th, 2024 at 4:00 p.m.
Request:	Approve preliminary plat of Lots 1 through 5 of Block 1 and 1 through 6 of Block 2 of Stone Ridge Commons Second Addition
Applicant:	Amigos, LLC
Action:	Hold a public hearing and make a recommendation to City Council
Location:	South of Paramount Drive and north of Interstate 90; Within city limits



The proposed plat will create 11 lots ranging from 26,908 square feet (.62 acres) to 579,508 square feet (13.3 acres) from 3 existing parcels east of North 27th Street and south of Paramount Drive. The subject property is within city limits and zoned Highway Service Commercial (C-2).

Project History and General Comments

This is a major, preliminary plat application within city limits. The subject property was rezoned from Agriculture (Ag) to C-2 in 2023. The developer intends for a mix of commercial and residential uses at full build out. Platinum Drive will be continued through the subject property and connect to Paramount Drive. Additional internal street networks may be built if future phases.

Plat Summary	
Total Area	33.752 Acres
Lots and Right of Way Platted	33.752 Acres; 0 acres remainder
Resulting Lots	11 lots; 0.62 – 13.3 acres each
Additional Notes	66’ of right of way is dedicated for the continuation of Platinum Drive through the property. There is a drainage lot and drainage easement for the conveyance and detention of storm water.

Following the City of Spearfish Subdivision Ordinance, the sketch plat was reviewed and approved administratively.

The developer will construct Platinum Drive through the subject property connecting to Paramount Drive to the North. The existing section of Platinum Drive to the east of the subject property was constructed with 8’ sidewalk on the north side of the street and no sidewalk on the south side of the street. Considering intended mixed land use of the development and need for pedestrian connectivity; sidewalk will be installed on both side of the new section of Platinum Drive to meet minimum city standards.

Preliminary constructions plans have been reviewed by the city’s Engineering Department and must be finalized and approved prior to construction of infrastructure.

Staff Review

Zoning**:** The parcel is zoned Highway Service Commercial (C-2). The minimum lot size for this district is 5,000 square feet and the minimum lot width is 75 feet; All proposed lots meet this requirement. The zoning code allows for a variety of commercial and residential land uses.

Utilities: City water and sewer will be extended to service all lots in the development in accordance with Engineering standards.

Access: All proposed lots will be access from the new section of Paramount Drive to be constructed prior to final platting. Future phases of the development may include additional internal street network if further subdivision is requested.

Platting Process: Following preliminary plat approval by City Council, the applicant may submit their final grading and construction plans. Construction of all public infrastructure including streets, water services, and any other required improvements must be completed and accepted by the city prior to final plat approval. If the proposed final plat is in conformity with the approved preliminary plat, it may be approved administratively.

Public Comment: Notice of the public hearing was published in the newspaper. As of this writing, no comments have been received.

Summary and Staff Recommendation

Based on staff's review of the proposed preliminary plat and preliminary engineering reports, the preliminary plat complies with applicable Zoning and Subdivision Regulations. As such, staff would recommend approval of the preliminary plat.

Staff Contact

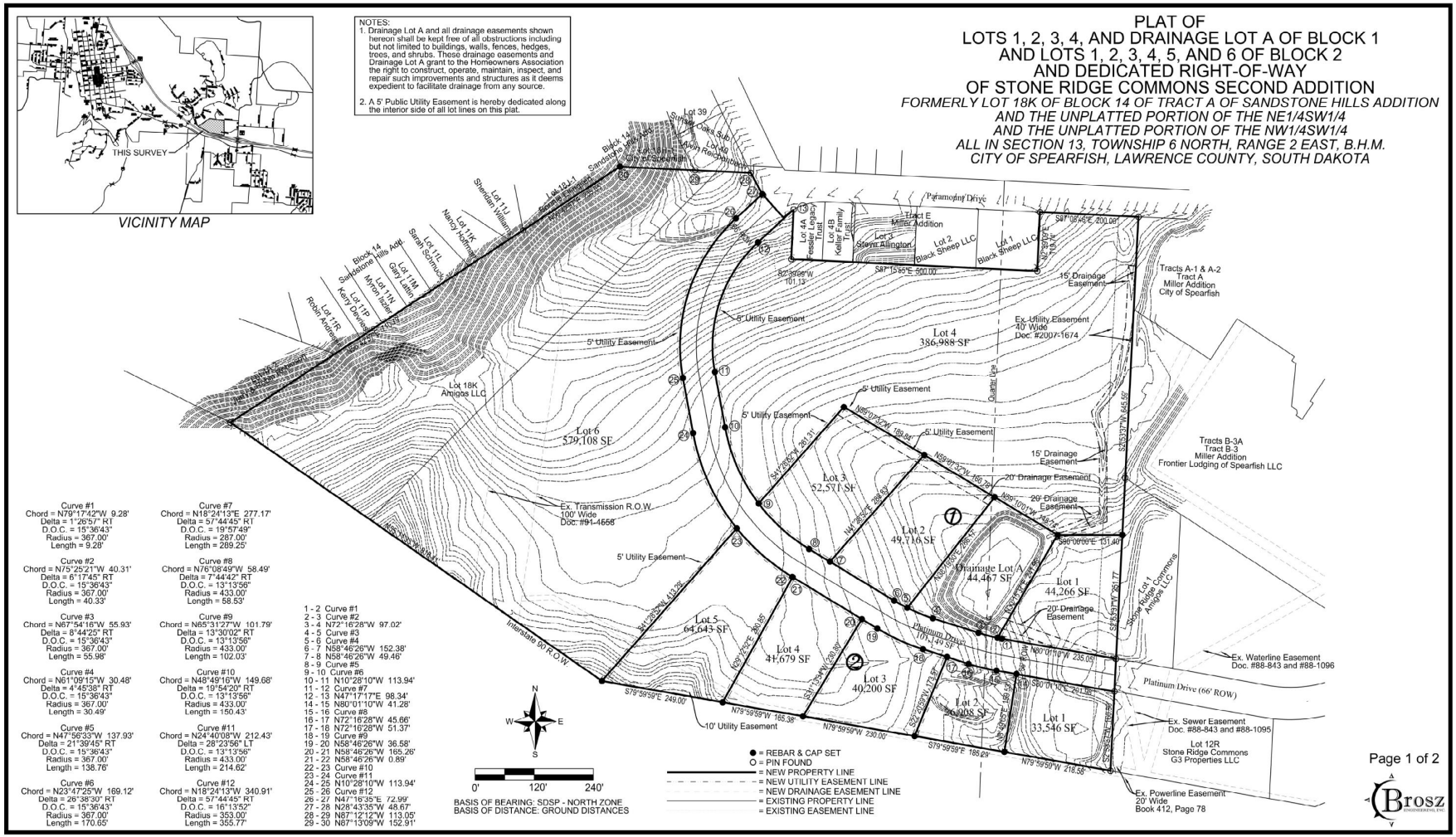
Jaymia Ecker
Assistant Planning Director
jaymia.ecker@cityofspearfish.com
605.722.2559

Join Zoom Meeting
https://us02web.zoom.us/j/81743359939

Meeting ID: 817 4335 9939

Attachments

Page 4 - Preliminary Plat


PLAT OF
LOTS 1, 2, 3, 4, AND DRAINAGE LOT A OF BLOCK 1
AND LOTS 1, 2, 3, 4, 5, AND 6 OF BLOCK 2
AND DEDICATED RIGHT-OF-WAY
OF STONE RIDGE COMMONS SECOND ADDITION
FORMERLY LOT 18K OF BLOCK 14 OF TRACT A OF SANDSTONE HILLS ADDITION
AND THE UNPLATTED PORTION OF THE NE1/4SW1/4
AND THE UNPLATTED PORTION OF THE NW1/4SW1/4
ALL IN SECTION 13, TOWNSHIP 6 NORTH, RANGE 2 EAST, B.H.M.
CITY OF SPEARFISH, LAWRENCE COUNTY, SOUTH DAKOTA
NOTES:
1. Drainage Lot A and all drainage easements shown hereon shall be kept free of all obstructions including but not limited to buildings, walls, fences, hedges, trees, and shrubs. These drainage easements and Drainage Lot A grant to the Homeowners Association the right to construct, operate, maintain, inspect, and repair such improvements and structures as it deems expedient to facilitate drainage from any source.
2. A 5' Public Utility Easement is hereby dedicated along the interior side of all lot lines on this plat.
THIS SURVEY
VICINITY MAP
Lot 18K Amigos LLC
Lot 6 579,108 SF
Lot 5 64,643 SF
Lot 4 41,679 SF
Lot 3 40,200 SF
Lot 2 36,008 SF
Lot 1 33,546 SF
Lot 4 386,988 SF
Lot 3 52,571 SF
Lot 2 49,716 SF
Drainage Lot A 44,467 SF
Lot 1 44,266 SF
Lot 4A Lessler Legacy Trust
Lot 4B Keller Family Trust
Tract E Miller Addition
Lot 3 Stover Allington
Lot 2 Black Sheep LLC
Lot 1 Black Sheep LLC
Paramount Drive
Platinum Drive
Platinum Drive (66' ROW)
Interstate 90 R.O.W.
Ex. Transmission R.O.W. 100' Wide Doc. #91-4658
Ex. Utility Easement 40' Wide Doc. #2007-1674
Tracts A-1 & A-2 Tract A Miller Addition City of Spearfish
Tracts B-3A Tract B-3 Miller Addition Frontier Lodging of Spearfish LLC
Lot 12R Stone Ridge Commons G3 Properties LLC
Stone Ridge Commons Amigos LLC
Ex. Waterline Easement Doc. #88-843 and #88-1096
Ex. Sewer Easement Doc. #88-843 and #88-1095
Ex. Powerline Easement 20' Wide Book 412, Page 78
15' Drainage Easement
20' Drainage Easement
5' Utility Easement
10' Utility Easement
Quarter Line
Curve #1 Chord = N79°17'42"W 9.28' Delta = 1°26'57" RT D.O.C. = 15°36'43" Radius = 367.00' Length = 9.28'
Curve #2 Chord = N75°25'21"W 40.31' Delta = 6°17'45" RT D.O.C. = 15°36'43" Radius = 367.00' Length = 40.33'
Curve #3 Chord = N65°54'16"W 55.93' Delta = 8°44'25" RT D.O.C. = 15°36'43" Radius = 367.00' Length = 55.98'
Curve #4 Chord = N61°09'15"W 30.48' Delta = 4°45'38" RT D.O.C. = 15°36'43" Radius = 367.00' Length = 30.49'
Curve #5 Chord = N47°56'33"W 137.93' Delta = 21°39'45" RT D.O.C. = 15°36'43" Radius = 367.00' Length = 138.76'
Curve #6 Chord = N23°47'25"W 169.12' Delta = 26°39'30" RT D.O.C. = 15°36'43" Radius = 367.00' Length = 170.65'
Curve #7 Chord = N18°24'13"E 277.17' Delta = 5°44'45" RT D.O.C. = 19°57'49" Radius = 287.00' Length = 289.25'
Curve #8 Chord = N76°08'49"W 58.49' Delta = 7°44'42" RT D.O.C. = 13°13'56" Radius = 433.00' Length = 58.53'
Curve #9 Chord = N85°31'27"W 101.79' Delta = 13°30'02" RT D.O.C. = 13°13'56" Radius = 433.00' Length = 102.03'
Curve #10 Chord = N48°49'16"W 149.68' Delta = 19°54'20" RT D.O.C. = 13°13'56" Radius = 433.00' Length = 150.43'
Curve #11 Chord = N24°40'08"W 212.43' Delta = 28°23'56" LT D.O.C. = 13°13'56" Radius = 433.00' Length = 214.62'
Curve #12 Chord = N18°24'13"W 340.91' Delta = 57°44'45" RT D.O.C. = 16°13'52" Radius = 353.00' Length = 355.77'
1 - 2 Curve #1
2 - 3 Curve #2
3 - 4 N72°16'28"W 97.02'
4 - 5 Curve #3
5 - 6 Curve #4
6 - 7 N58°46'26"W 152.38'
7 - 8 N58°46'26"W 49.46'
8 - 9 Curve #5
9 - 10 Curve #6
10 - 11 N10°28'10"W 113.94'
11 - 12 Curve #7
12 - 13 N47°17'17"E 98.34'
14 - 15 N80°01'10"W 41.28'
15 - 16 Curve #8
16 - 17 N72°16'28"W 45.86'
17 - 18 N72°16'28"W 51.37'
18 - 19 Curve #9
19 - 20 N58°46'26"W 36.58'
20 - 21 N58°46'26"W 165.26'
21 - 22 N58°46'26"W 0.89'
22 - 23 Curve #10
23 - 24 Curve #11
24 - 25 N10°28'10"W 113.94'
25 - 26 Curve #12
26 - 27 N47°16'25"E 72.99'
27 - 28 N28°43'35"W 48.67'
28 - 29 N87°12'12"W 113.05'
29 - 30 N67°13'09"W 152.91'
N
W
E
S
0'
120'
240'
BASIS OF BEARING: SDSP - NORTH ZONE
BASIS OF DISTANCE: GROUND DISTANCES
● = REBAR & CAP SET
O = PIN FOUND
= NEW PROPERTY LINE
= NEW UTILITY EASEMENT LINE
= NEW DRAINAGE EASEMENT LINE
= EXISTING PROPERTY LINE
= EXISTING EASEMENT LINE
Page 1 of 2
BROSZ ENGINEERING, INC.

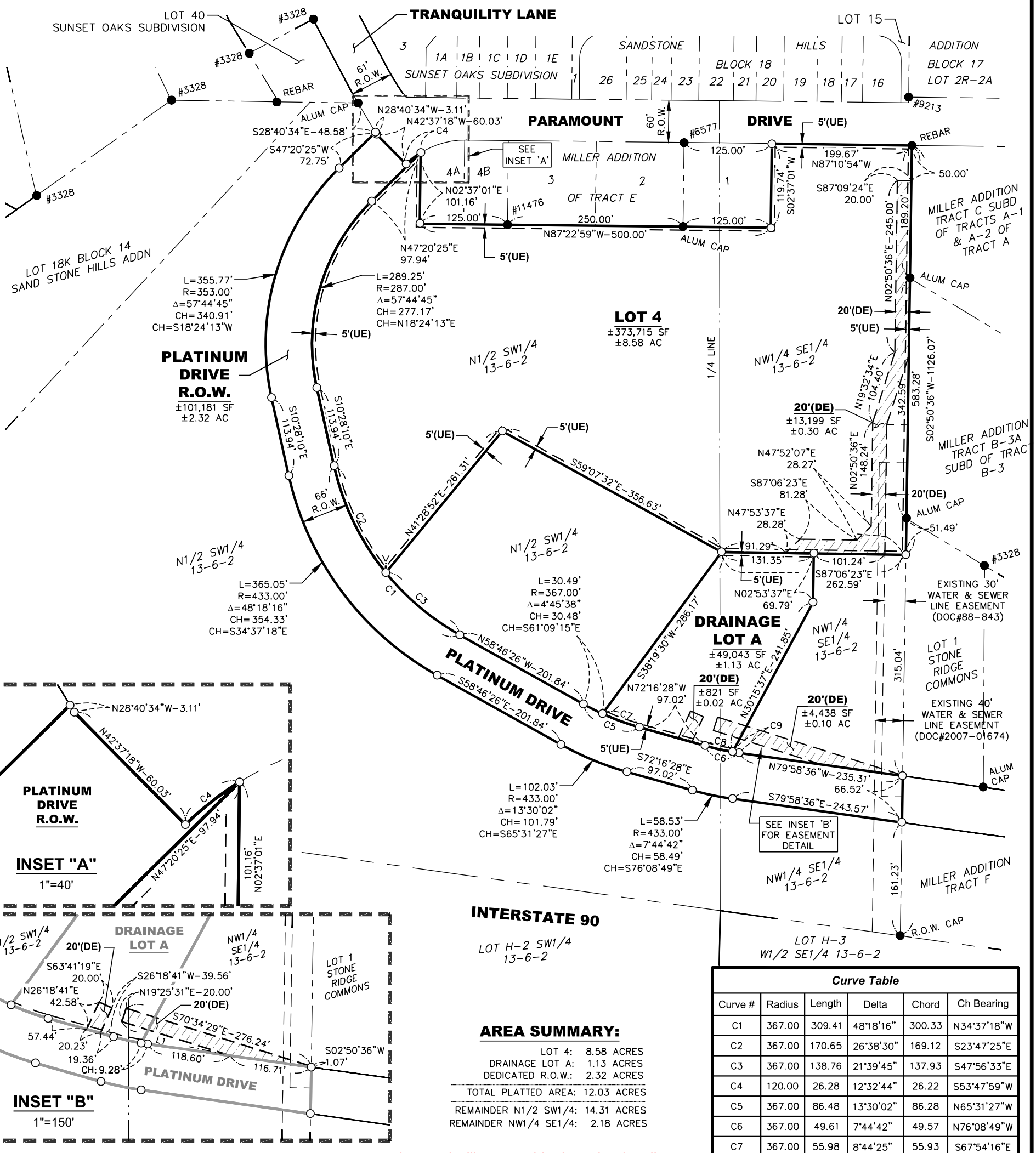
PLAT OF LOT 4 & DRAINAGE LOT A

STONE RIDGE COMMONS SECOND ADDITION

TO THE CITY OF SPEARFISH, LAWRENCE COUNTY, SOUTH DAKOTA

CONTAINING ±12.03 ACRES (INCLUDING ±2.32 ACRES R.O.W.)

LOCATED IN THE NW1/4 SE1/4 AND THE N1/2 SW1/4, LYING NORTH OF I-90 RIGHT OF WAY IN SECTION 13, T6N, R2E, B.H.M., MILLER ADDITION TO THE CITY OF SPEARFISH, LAWRENCE COUNTY, SOUTH DAKOTA



Curve Table					
Curve #	Radius	Length	Delta	Chord	Ch Bearing
C1	367.00	309.41	48°18'16"	300.33	N34°37'18"W
C2	367.00	170.65	26°38'30"	169.12	S23°47'25"E
C3	367.00	138.76	21°39'45"	137.93	S47°56'33"E
C4	120.00	26.28	12°32'44"	26.22	S53°47'59"W
C5	367.00	86.48	13°30'02"	86.28	N65°31'27"W
C6	367.00	49.61	7°44'42"	49.57	N76°08'49"W
C7	367.00	55.98	8°44'25"	55.93	S67°54'16"E
C8	367.00	40.33	6°17'45"	40.31	S75°25'21"E
C9	367.00	9.28	1°26'57"	9.28	S79°17'42"E

AREA SUMMARY:

LOT 4:	8.58 ACRES
DRAINAGE LOT A:	1.13 ACRES
DEDICATED R.O.W.:	2.32 ACRES
TOTAL PLATTED AREA:	12.03 ACRES
REMAINDER N1/2 SW1/4:	14.31 ACRES
REMAINDER NW1/4 SE1/4:	2.18 ACRES

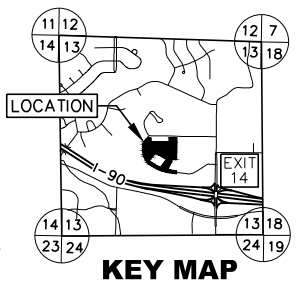
Line Table		
Line #	Length	Direction
L1	161.39	N70° 34' 29"W

LEGEND

- EXISTING EASEMENT LINE
- PROPERTY LINE
- RIGHT OF WAY LINE
- SECTION LINE
- QUARTER LINE
- SIXTEENTH LINE
- PLATTED PROPERTY LINE
- (DE) 20' DRAINAGE EASEMENT
- (UE) 5' UTILITY EASEMENT
- FOUND MONUMENT
- SET 5/8" X 18" CAPPED REBAR
- FOUND SECTION CORNER
- (100.00') PREVIOUSLY PLATTED DIMENSION

The pond will not provide detention for all lots. revise note as necessary per previous drainage report.

0 75 150



GENERAL NOTES:

1. BASIS OF BEARINGS FOR THIS DRAWING IS NAD83 SOUTH DAKOTA STATE PLANES, NORTH ZONE, US FOOT, GPS/GNSS SURVEY.
2. THIS PLAT HAS BEEN PREPARED WITHOUT THE BENEFIT OF A TITLE COMMITMENT.
3. THE PROPERTY SHOWN IS IN ZONE X; AN AREA OF MINIMAL FLOOD HAZARD PER FLOOD INSURANCE RATE MAP NO. 46081C0177F WITH AN EFF. DATE OF 4/17/2012.
4. DRAINAGE LOT A TO BE A DRAINAGE EASEMENT IN ITS ENTIRETY FOR THE BENEFIT OF ALL LOTS IN STONE RIDGE SECOND ADDITION. NO BUILDING STRUCTURES WILL BE ALLOWED.

REGISTERED PROFESSIONAL LAND SURVEYOR
REG. NO. 10958
JOSHUA R. VANDERWERF
6/18/26
SOUTH DAKOTA
PRELIMINARY

PREPARED BY:
DGR ENGINEERING
1300 S HIGHLINE AVENUE
SIOUX FALLS, SD 57110
(605) 339-4157 office
dgr.com

Plot Date: 6/18/2026 2:45:03 PM P:\06\75\154\675154\5_DRAWINGS\PLATS & EASEMENTS\675154 - STONERIDGE COMMONS - PLAT.DWG

PLAT OF LOT 4 & DRAINAGE LOT A

STONE RIDGE COMMONS SECOND ADDITION

TO THE CITY OF SPEARFISH, LAWRENCE COUNTY, SOUTH DAKOTA

CONTAINING ±12.03 ACRES (INCLUDING ±2.32 ACRES R.O.W.)

LOCATED IN THE NW1/4 SE1/4 AND THE N1/2 SW1/4, LYING NORTH OF I-90 RIGHT OF WAY IN SECTION 13, T6N, R2E, B.H.M., MILLER ADDITION TO THE CITY OF SPEARFISH, LAWRENCE COUNTY, SOUTH DAKOTA

SURVEYOR'S CERTIFICATE

I, JOSHUA R. VANDERWERF, A REGISTERED LAND SURVEYOR UNDER THE LAWS OF THE STATE OF SOUTH DAKOTA DO HEREBY CERTIFY THAT ON OR BEFORE FEBRUARY 10, 2026, I HAVE SURVEYED A PORTION OF THE PARCEL OF LAND DESCRIBED AS THE NW1/4 SE1/4 LYING NORTH OF I-90 RIGHT OF WAY IN SECTION 13, T6N, R2E, B.H.M., MILLER ADDITION TO THE CITY OF SPEARFISH, LAWRENCE COUNTY, SOUTH DAKOTA AND A PORTION OF THE PARCEL OF LAND DESCRIBED AS THE N1/2 SW1/4 LYING NORTH OF I-90 RIGHT OF WAY IN SECTION 13, T6N, R2E, B.H.M., MILLER ADDITION TO THE CITY OF SPEARFISH, LAWRENCE COUNTY, SOUTH DAKOTA AND PLATTED THE SAME INTO LOT 4 & DRAINAGE LOT A OF STONE RIDGE COMMONS SECOND ADDITION TO THE CITY OF SPEARFISH, LAWRENCE COUNTY, SOUTH DAKOTA WITH AREA AND DIMENSIONS AS SHOWN ON THE ABOVE PLAT.

THE SAME SHALL HEREAFTER BE KNOWN AND DESCRIBED AS LOT 4 & DRAINAGE LOT A OF STONE RIDGE COMMONS SECOND ADDITION TO THE CITY OF SPEARFISH, LAWRENCE COUNTY, SOUTH DAKOTA.

I FURTHER CERTIFY THAT THE ABOVE PLAT CORRECTLY REPRESENTS THE SAME TO THE BEST OF MY KNOWLEDGE AND BELIEF AND THAT THIS SURVEY WAS PERFORMED AT THE REQUEST AND UNDER THE DIRECTION OF THE OWNERS FOR THE PURPOSE OF TRANSFER.

DATED THIS 18TH DAY OF JUNE, 2026.

REGISTERED PROFESSIONAL LAND SURVEYOR
REG. NO. 10958
JOSHUA R. VANDERWERF
SOUTH DAKOTA

PRELIMINARY

6/18/26
JOSHUA R. VANDERWERF LS REG. NO. 10958

OWNER'S CERTIFICATE

I, THE UNDERSIGNED, DO HEREBY CERTIFY THAT I AM THE OWNER OF ALL LAND INCLUDED IN THE ABOVE PLAT AND THAT SAID PLAT HAS BEEN MADE AT MY REQUEST AND IN ACCORDANCE WITH MY INSTRUCTIONS FOR THE PURPOSE OF TRANSFER, AND THAT THE DEVELOPMENT OF THIS LAND SHALL CONFORM TO ALL EXISTING APPLICABLE ZONING, SUBDIVISION AND EROSION AND SEDIMENT CONTROL REGULATIONS.

I HEREBY DEDICATE TO THE PUBLIC FOR PUBLIC USE FOREVER, THE STREETS, ROADS, ALLEYS AND PARKS AND PUBLIC GROUNDS, IF ANY, AS SHOWN ON SAID PLAT, INCLUDING ALL SEWERS, CULVERTS, BRIDGES, WATER DISTRIBUTION LINES, SIDEWALKS AND OTHER IMPROVEMENTS ON OR UNDER THE STREETS, ROADS, ALLEYS, PARKS AND PUBLIC GROUNDS, WHETHER SUCH IMPROVEMENTS ARE SHOWN OR NOT. I ALSO HEREBY GRANT EASEMENTS TO RUN WITH THE LAND FOR WATER, DRAINAGE, SEWER, GAS, ELECTRIC, TELEPHONE OR OTHER PUBLIC UTILITY LINES OR SERVICES UNDER, ON OR OVER THOSE STRIPS OF LAND DESIGNATED HEREON AS EASEMENTS.

DATED THIS _____ DAY OF _____ 2026.

_____
HARLAN A. SCHMIDT, MEMBER
AMIGOS, LLC

STATE OF_____)
)SS
COUNTY OF_____)

ON THIS _____ DAY OF _____, 2026, BEFORE ME, A NOTARY PUBLIC, PERSONALLY APPEARED **HARLAN A. SCHMIDT, MEMBER, AMIGOS, LLC**, KNOWN TO ME TO BE THE PERSON DESCRIBED IN AND WHO EXECUTED THE FOREGOING CERTIFICATE.

IN WITNESS THEREOF, I HAVE HEREUNTO SET MY HAND AND OFFICIAL SEAL

THIS _____ DAY OF _____, 2026.

_____
NOTARY SIGNATURE
MY COMMISSION EXPIRES: _____

CITY OF SPEARFISH EST. 1888

Approved

City Staff

Signature

06/26/2026 3:15:29 PM

OFFICE OF THE ADMINISTRATIVE OFFICIAL

STATE OF SOUTH DAKOTA
CITY OF SPEARFISH
COUNTY OF LAWRENCE

THIS PLAT IS APPROVED BY THE ADMINISTRATIVE OFFICIAL ON THIS _____ DAY OF _____, 2026, IN ACCORDANCE WITH THE ADMINISTRATIVE APPROVAL AUTHORITY GRANTED IN CITY OF SPEARFISH RESOLUTION 2018-23.

_____ ATTEST: _____
ADMINISTRATIVE OFFICIAL FINANCE OFFICER

APPROVAL OF ACCESS BY ROAD AUTHORITY

STATE OF SOUTH DAKOTA
COUNTY OF LAWRENCE

THE LOCATION OF THE PROPOSED ACCESS TO THE ABUTTING COUNTY OR STATE HIGHWAY, OR CITY STREET AS SHOWN HEREON, IS HEREBY APPROVED. ANY CHANGES IN THE LOCATION OF THE PROPOSED ACCESS SHALL REQUIRE ADDITIONAL APPROVAL.

DATED THIS _____ DAY OF _____, 2026.

_____
HIGHWAY OR STREET AUTHORITY

CERTIFICATE OF COUNTY TREASURER

STATE OF SOUTH DAKOTA
COUNTY OF LAWRENCE

I, DEBORA TRIDLE, LAWRENCE COUNTY TREASURER, DO HEREBY CERTIFY THAT THE _____ TAXES, WHICH ARE LIENS UPON THE LANDS PLATTED HEREON, AS SHOWN BY THE RECORDS OF MY OFFICE HAVE BEEN FULLY PAID.

DATED THIS _____ DAY OF _____, 2026.

_____
COUNTY TREASURER

OFFICE OF COUNTY DIRECTOR OF EQUALIZATION

STATE OF SOUTH DAKOTA
COUNTY OF LAWRENCE

I, BRETT RUNGE, LAWRENCE COUNTY DIRECTOR OF EQUALIZATION, HEREBY CERTIFY THAT I HAVE RECEIVED A COPY OF THIS PLAT.

DATED THIS _____ DAY OF _____, 2026.

_____
COUNTY DIRECTOR OF EQUALIZATION

OFFICE OF REGISTER OF DEEDS

STATE OF SOUTH DAKOTA
COUNTY OF LAWRENCE

FILED FOR RECORD THIS _____ DAY OF _____2026, AT _____ .M.

AND RECORDED AS DOCUMENT NO. _____.

REGISTER OF DEEDS_____ FEE: _____

PREPARED BY:
DGR ENGINEERING
1300 S HIGHLINE AVENUE
SIOUX FALLS, SD 57110
(605) 339-4157 office
dgr.com

Plot Date: 6/18/2026 2:45:03 PM P:\06\75\154\675154\5_DRAWINGS\PLATS & EASEMENTS\675154 - STONERIDGE COMMONS - PLAT.DWG

Platinum Drive ROW Calcs approved in first submittal by Kyle Mathis.

Platinum Drive

P.O.B.
North:259,829.5327' East:971,547.0251'

Segment# 1: Line
Course: S47°20'25.35"W Length: 97.94'
North: 259,763.1645' East: 971,475.0007'

Segment# 2: Curve
Length: 289.25' Radius: 287.00'
Delta: 57.4445 Tangent: 158.26'
Chord: 277.17' Course: S18°24'12.65"W
Course In: S42°43'24.66"E Course Out: S79°31'49.95"W
RP North: 259,552.3239' East: 971,669.7191'
End North: 259,500.1727' East: 971,387.4971'

Segment# 3: Line
Course: S10°28'10.05"E Length: 113.94'
North: 259,388.1296' East: 971,408.2013'

Segment# 4: Curve
Length: 170.65' Radius: 367.00'
Delta: 26.3830 Tangent: 86.90'
Chord: 169.12' Course: S23°47'25.29"E
Course In: N79°31'49.95"E Course Out: S52°53'19.47"W
RP North: 259,454.8177' East: 971,769.0915'
End North: 259,233.3828' East: 971,476.4217'

Segment# 5: Curve
Length: 138.76' Radius: 367.00'
Delta: 21.3945 Tangent: 70.22'
Chord: 137.93' Course: S47°56'33.26"E
Course In: N52°53'19.47"E Course Out: S31°13'34.01"W
RP North: 259,454.8177' East: 971,769.0915'
End North: 259,140.9857' East: 971,578.8325'

Segment# 6: Line
Course: S58°46'25.99"E Length: 201.84'
North: 259,036.3484' East: 971,751.4315'

Segment# 7: Curve
Length: 30.49' Radius: 367.00'
Delta: 4.4538 Tangent: 15.26'
Chord: 30.48' Course: S61°09'14.82"E
Course In: N31°13'34.01"E Course Out: S26°27'56.36"W
RP North: 259,350.1804' East: 971,941.6905'
End North: 259,021.6414' East: 971,778.1328'

Segment# 8: Curve
Length: 55.98' Radius: 367.00'
Delta: 8.4425 Tangent: 28.05'
Chord: 55.93' Course: S67°54'15.90"E
Course In: N26°27'56.36"E Course Out: S17°43'31.84"W
RP North: 259,350.1804' East: 971,941.6905'
End North: 259,000.6034' East: 971,829.9547'

Segment# 9: Line
Course: S72°16'28.16"E Length: 97.02'
North: 258,971.0649' East: 971,922.3688'

Segment# 10: Curve
Length: 40.33' Radius: 367.00'
Delta: 6.1745 Tangent: 20.18'
Chord: 40.31' Course: S75°25'20.70"E
Course In: N17°43'31.84"E Course Out: S11°25'46.75"W
RP North: 259,320.6420' East: 972,034.1046'
End North: 258,960.9200' East: 971,961.3782'

Segment# 11: Curve
Length: 9.28' Radius: 367.00'
Delta: 1.2657 Tangent: 4.64'
Chord: 9.28' Course: S79°17'41.65"E
Course In: N11°25'46.75"E Course Out: S9°58'49.96"W
RP North: 259,320.6420' East: 972,034.1046'
End North: 258,959.1959' East: 971,970.4984'

Segment# 12: Line
Course: S79°58'35.97"E Length: 235.31'
North: 258,918.2404' East: 972,202.2169'

Segment# 13: Line
Course: S2°50'36.22"W Length: 66.52'
North: 258,851.8023' East: 972,198.9171'

Segment# 14: Line
Course: N79°58'35.96"W Length: 243.57'
North: 258,894.1955' East: 971,959.0647'

Segment# 15: Curve
Length: 58.53' Radius: 433.00'
Delta: 7.4442 Tangent: 29.31'
Chord: 58.49' Course: N76°08'49.10"W
Course In: N9°58'49.96"E Course Out: S17°43'31.84"W
RP North: 259,320.6427' East: 972,034.1096'
End North: 258,908.1990' East: 971,902.2796'

Segment# 16: Line
Course: N72°16'28.16"W Length: 97.02'
North: 258,937.7374' East: 971,809.8655'

Segment# 17: Curve

Length: 102.03'	Radius: 433.00'
Delta: 13.3002	Tangent: 51.25'
Chord: 101.79'	Course: N65°31'27.08"W
Course In: N17°43'31.84"E	Course Out: S31°13'34.01"W
RP North: 259,350.1812'	East: 971,941.6955'
End North: 258,979.9107'	East: 971,717.2210'

Segment# 18: Line

Course: N58°46'25.99"W	Length: 201.84'
North: 259,084.5480'	East: 971,544.6220'

Segment# 19: Curve

Length: 365.05'	Radius: 433.00'
Delta: 48.1816	Tangent: 194.16'
Chord: 354.33'	Course: N34°37'18.02"W
Course In: N31°13'34.01"E	Course Out: S79°31'49.95"W
RP North: 259,454.8184'	East: 971,769.0964'
End North: 259,376.1374'	East: 971,343.3051'

Segment# 20: Line

Course: N10°28'10.05"W	Length: 113.94'
North: 259,488.1805'	East: 971,322.6009'

Segment# 21: Curve

Length: 355.77'	Radius: 353.00'
Delta: 57.4445	Tangent: 194.65'
Chord: 340.91'	Course: N18°24'12.65"E
Course In: N79°31'49.95"E	Course Out: N42°43'24.66"W
RP North: 259,552.3246'	East: 971,669.7241'
End North: 259,811.6512'	East: 971,430.2273'

Segment# 22: Line

Course: N47°20'25.24"E	Length: 72.75'
North: 259,860.9497'	East: 971,483.7270'

Segment# 23: Line

Course: S28°40'34.22"E	Length: 3.11'
North: 259,858.2211'	East: 971,485.2194'

Segment# 24: Line

Course: S42°37'18.03"E	Length: 60.03'
North: 259,814.0486'	East: 971,525.8690'

Segment# 25: Curve

Length: 26.28'	Radius: 120.00'
Delta: 12.3244	Tangent: 13.19'
Chord: 26.22'	Course: N53°47'58.99"E
Course In: S42°28'22.95"E	Course Out: N29°55'39.08"W
RP North: 259,725.5372'	East: 971,606.8982'
End North: 259,829.5360'	East: 971,547.0297'

Perimeter: 3,247.26'	Area: 101,181.10Sq.Ft.
Error Closure: **0.0057**	Course: N54°00'37.75"E
Error North : 0.00335	East: 0.00461

Precision 1: 569,689.47

LOT 4

P.O.B.
North:259,829.5327' East:971,547.0251'

Segment# 1: Line
Course: S2°37'00.78"W Length: 101.16'
North: 259,728.4782' East: 971,542.4064'

Segment# 2: Line
Course: S87°22'59.22"E Length: 500.00'
North: 259,705.6495' East: 972,041.8849'

Segment# 3: Line
Course: N2°37'00.78"E Length: 119.74'
North: 259,825.2646' East: 972,047.3519'

Segment# 4: Line
Course: S87°10'54.22"E Length: 199.67'
North: 259,815.4472' East: 972,246.7804'

Segment# 5: Line
Course: S2°50'36.22"W Length: 583.28'
North: 259,232.8853' East: 972,217.8461'

Segment# 6: Line
Course: N87°06'22.85"W Length: 131.24'
North: 259,239.5106' East: 972,086.7735'

Segment# 7: Line
Course: N87°06'22.85"W Length: 131.35'
North: 259,246.1414' East: 971,955.5909'

Segment# 8: Line
Course: N59°07'32.30"W Length: 356.63'
North: 259,429.1487' East: 971,649.4973'

Segment# 9: Line
Course: S41°28'51.84"W Length: 261.31'
North: 259,233.3819' East: 971,476.4128'

Segment# 10: Curve
Length: 170.65' Radius: 367.00'
Delta: 26.3830 Tangent: 86.90'
Chord: 169.12' Course: N23°47'25.29"W
Course In: N52°53'19.47"E Course Out: S79°31'49.95"W
RP North: 259,454.8167' East: 971,769.0826'
End North: 259,388.1287' East: 971,408.1924'

Segment# 11: Line
Course: N10°28'10.05"W Length: 113.94'
North: 259,500.1718' East: 971,387.4882'

Segment# 12: Curve
Length: 289.25' Radius: 287.00'
Delta: 57.4445 Tangent: 158.26'
Chord: 277.17' Course: N18°24'12.65"E
Course In: N79°31'49.95"E Course Out: N42°43'24.66"W
RP North: 259,552.3229' East: 971,669.7102'
End North: 259,763.1635' East: 971,474.9918'

Segment# 13: Line
Course: N47°20'25.35"E Length: 97.94'
North: 259,829.5317' East: 971,547.0162'

Perimeter: 3,056.17' Area: 373,714.84Sq.Ft.
Error Closure: **0.0089** Course: S83°57'48.55"W
Error North : -0.00094 East: -0.00889

Precision 1: 343,388.76

CITY OF SPEARFISH
APPROVED
City Staff
06/26/2026 12:11:34 PM

DRAINAGE LOT A

P.O.B.

North:259,021.6372' East:971,778.1353'

Segment# 1: Line

Course: N38°19'30.06"E Length: 286.17'
North: 259,246.1391' East: 971,955.5955'

Segment# 2: Line

Course: S87°06'22.85"E Length: 131.35'
North: 259,239.5083' East: 972,086.7780'

Segment# 3: Line

Course: S2°53'37.15"W Length: 69.79'
North: 259,169.8073' East: 972,083.2548'

Segment# 4: Line

Course: S30°15'37.01"W Length: 241.85'
North: 258,960.9105' East: 971,961.3796'

Segment# 5: Curve

Length: 40.33' Radius: 367.00'
Delta: 6.1745 Tangent: 20.18'
Chord: 40.31' Course: N75°25'20.70"W
Course In: N11°25'46.75"E Course Out: S17°43'31.84"W
RP North: 259,320.6325' East: 972,034.1060'
End North: 258,971.0554' East: 971,922.3702'

Segment# 6: Line

Course: N72°16'28.16"W Length: 97.02'
North: 259,000.5938' East: 971,829.9562'

Segment# 7: Curve

Length: 55.98' Radius: 367.00'
Delta: 8.4425 Tangent: 28.05'
Chord: 55.93' Course: N67°54'15.90"W
Course In: N17°43'31.84"E Course Out: S26°27'56.36"W
RP North: 259,350.1709' East: 971,941.6920'
End North: 259,021.6319' East: 971,778.1343'

Perimeter: 922.49' Area: 49,042.66Sq.Ft.
Error Closure: **0.0054** Course: S10°42'08.75"W
Error North : -0.00527 East: -0.00100

Precision 1: 170,831.48

CITY OF SPEARFISH

APPROVED
City Staff
06/26/2026 12:12:22 PM

Agenda Item Report

Finance Item # 12.A.

Meeting: Regular Session Agenda **Meeting Date:** July 6, 2026
Department: Finance

Request:
Adopt Resolution 2026-17 - A Resolution Levying an Annual Special Maintenance Fee for Street Surfaces.

Background Information:
This resolution would set the Annual Special Maintenance Fee for Street Surfaces (a.k.a. front foot fee) at $1.25/lineal foot of property abutting a City-maintained street, with maximum assessment of $125 per parcel. This is for property taxes to be paid in 2028. This is no change to the assessment for 2027 taxes.

Fiscal Impact: This is a revenue source to the General Fund of the City for approximately $400,000 and used to fund street repairs annually.

Recommended City Council Action: Adopt

Staff Contact Information:
Michelle DeNeui, 605-642-1325, m.deneui@spearfish.gov

Attachments:
1. 2026-17 Special Maintenance Fee-Front Foot 2028

RESOLUTION 2026-17

A RESOLUTION LEVYING AN ANNUAL SPECIAL MAINTENANCE FEE FOR STREET SURFACES

WHEREAS, SDCL § 9-43-138 authorizes the City of Spearfish to levy, for the purpose of maintaining or repairing public improvements, an Annual Special Maintenance Fee upon the lots fronting and abutting any municipally-maintained public improvements within the City of Spearfish; and

WHEREAS, well-maintained public streets are necessary for the health, safety, and welfare of the citizens of the City of Spearfish; and

WHEREAS, the Common Council of the City of Spearfish has determined that it is in the best interests of the City of Spearfish and its citizens to regularly inspect, maintain, and resurface its public streets and not permit Spearfish's infrastructure to deteriorate to the point of failure; and

WHEREAS, the City of Spearfish determines it equitable and fair for all citizens to share in the cost of maintaining all public infrastructure; and

NOW THEREFORE, BE IT RESOLVED by the Common Council of the City of Spearfish, Lawrence County, South Dakota, that all taxable real property parcels fronting and abutting a city street shall be assessed a special maintenance fee of one dollar and twenty-five cents ($1.25) per foot; and

BE IT FURTHER RESOLVED that no taxable real property parcel fronting and abutting a city street shall be assessed more than one hundred and twenty-five dollars ($125.00), annually per platted lot; and

BE IT FURTHER RESOLVED that the Finance Officer of the City of Spearfish, Lawrence County, South Dakota, is directed to implement a Special Street Maintenance Fee to the general assessment and regular assessment, and to certify that assessment to the Lawrence County Auditor to be collected as municipal taxes for purposes of repairing and maintaining public infrastructure.

BE IT FURTHER RESOLVED that this Special Street Maintenance Fee is effective for 2027 taxes payable in 2028.

Dated this 6th day of July, 2026.

CITY OF SPEARFISH

(Seal)

By: _____
John Senden, Mayor

ATTEST:

_____
Michelle DeNeui, Finance Officer

Adopted: July 6, 2026
Published: July 10, 2026
Effective: July 30, 2026

Published once at the approximate cost of _____.

Agenda Item Report

Police Item # 13.A.

Meeting: Regular Session Agenda **Meeting Date:** July 6, 2026
Department: Police

Request:
Authorize staff to continue discussions with the Lawrence County Sheriff's Office to begin the consolidation process for our dispatch centers.

Background Information:

Fiscal Impact:

Recommended City Council Action:

Staff Contact Information:
, ,

Attachments:
None

Agenda Item Report

Police Item # 13.B.

Meeting: Regular Session Agenda **Meeting Date:** July 6, 2026
Department: Police

Request:
Follow up on the Spearfish Police Department enforcement approach for motorized bikes in Spearfish

Background Information:
Chief Collin Smith to discuss the education and enforcement actions for motorized bikes (e-dirt bikes) on sidewalks, recreation paths and roadways in Spearfish.

Fiscal Impact:

Recommended City Council Action: No Action

Staff Contact Information:
Collin Smith, 605-717-6931, c.smith@spearfish.gov

Attachments:
1. Council Presentation for Motorized Bikes
2. E-Bike-Law-Handouts_SD_2022

Motorized Bikes

Prohibit use on sidewalks, recreational paths and roadways

SDCL 32-26-21.1 for sidewalk enforcement

SDCL 32-20-9 for the recreational path enforcement

SDCL 32-20-12 Roadway enforcement

**Sidewalk and recreation path fall under two different definitions.*

- **South Dakota statutes do not define "off-highway vehicle" (OHV)** as a separate term.
- Instead, **South Dakota uses the term "off-road vehicle"** throughout Title 32. That is the statutory category that generally encompasses dirt bikes, e-dirt bikes, and similar machines.

The closest statutory definition is found in the Department of Revenue's interpretation:

"An off-road vehicle is any self-propelled, two or more wheeled vehicle designed to be operated on land other than a highway."

How this applies to an e-dirt bike

An electric dirt bike (such as a Sur-Ron, Talaria, E-Ride Pro, KTM Freeride E, etc.) is generally considered an **off-road vehicle** if it was manufactured for off-road use.

Under **SDCL 32-20-12**:

- It generally **may not be operated on a public street or highway**, except to cross the roadway.
- A person 12 years or older may operate it in a highway ditch (subject to the statutory restrictions).
- Off-road vehicles must be **titled**, but they are not normally licensed for highway use unless they qualify under another statute.

Can an e-dirt bike be made street legal?

This is where it becomes interesting.

SDCL 32-20-13 allows certain off-road vehicles to be licensed as motorcycles:

- Four-wheel ATVs with qualifying engines.

- Two-wheel off-road vehicles with combustion engines of at least 120 cc.
- Four-wheel electric ATVs.

Notice what's missing?:

- **There is no express provision for a two-wheel electric off-road vehicle.**

The statute specifically references:

- two-wheel **combustion-engine** off-road vehicles, and
- four-wheel **electric** ATVs, but does **not** mention two-wheel electric off-road vehicles.

Practical implication for law enforcement

This creates what many agencies have recognized as a *statutory gap*:

- A Sur-Ron or similar e-dirt bike clearly isn't a Class 1–3 e-bike because it lacks operable pedals and far exceeds the maximum speed of what constitutes an e-bike under state law.
- It is generally treated as an **off-road vehicle** because it was manufactured for off-road use.
- However, unlike a gasoline dirt bike, **South Dakota law does not clearly authorize licensing a two-wheel electric off-road vehicle for highway use.**

As a result, different counties have sometimes reached different conclusions when owners attempt to title and register these vehicles.

The more important enforcement question:

When an officer stops someone riding a motorized bike on a city street, what is the correct statutory classification?

Step 1: Is it an electric bicycle?

This is the first question because if the answer is "yes," then most of Title 32 treats it similarly to a bicycle.

South Dakota defines an electric bicycle as:

- a bicycle or tricycle,
- with **operable pedals**,

- an electric motor of **750 watts or less**, and
- meeting one of the Class I, II, or III speed limitations.

IMPORTANT NOTE about pedals:

After-market pedal kits are available allowing a motorized bike to be modified to have pedals. Don't be fooled by the presence of pedals. To be an electric bicycle, it still must meet the rest of the definition. Operable pedals alone don't mean a motorized bike is an electric bike.

Example

Vehicle	**Electric Bicycle?**
Aventon	Yes
Rad Power	Usually Yes
Trek Allant	Yes
Sur-Ron Light Bee	**No**
Talaria Sting	**No**
E-Ride Pro	**No**
Yozma	**No**

Most of the "e-dirt bikes" officers are seeing have:

- Foot pegs but not operable pedals,
- 3,000–12,000+ watt motors,
- 45-70 mph capability.

Therefore, they **cannot** legally be classified as electric bicycles.

Step 2: Is it an off-road vehicle?

Now we move to Chapter 32-20.

South Dakota's definition is broader than many realize.

An **off-road vehicle** is:

"any self-propelled, two or more wheeled vehicle designed primarily to be operated on land other than a highway"

It specifically includes vehicles whose Manufacturer's Statement of Origin (MSO/MCO) states they are **not for highway use.**

This language fits nearly every Sur-Ron, Talaria, E-Ride Pro, Rawrr, etc.

Manufacturers almost universally market these as:

- Off-Road Motorcycle
- Competition Motorcycle
- Not Intended for Highway Use

Step 3: Is it also a motorcycle?

Here's where people get confused.

The statutory definition of "motorcycle" is broad.

A motorcycle includes:

- motorcycles
- motorbikes
- bicycles with motors attached
- all motor-operated two-wheel or three-wheel vehicles with a seat or saddle to sit in or platform to stand on.

An e-dirt bike certainly **looks** like it fits, but then Chapter 32-20 creates a special category:

Off-road vehicles are not licensed for highway use **except as provided in SDCL 32-20-13.**

So, while an e-dirt bike may physically resemble a motorcycle, the Legislature has directed that vehicles designed primarily for off-road use follow the off-road vehicle statutes unless they qualify for highway licensing.

Step 4: Can it become street legal?

This is where the statutory gap appears.

SDCL 32-20-13 allows licensing of:

✓ four-wheel gasoline ATVs

✓ two-wheel gasoline off-road motorcycles (120 cc or larger)

✓ four-wheel electric ATVs

Again, notice what is missing?:

❌ two-wheel electric off-road motorcycles.

The Legislature specifically added electric ATVs in 2022 but did **not** include electric two-wheel off-road motorcycles.

As written today, there is no statutory authority to license a two-wheel electric off-road vehicle for highway use under this section.

We will treat a Sur-Ron, Talaria, E-Ride Pro, Yozma and similar vehicles as follows:

1. **Not an electric bicycle** because they do not meet the statutory definition (pedals and ≤750-watt motor).
2. **An off-road vehicle** because they are designed primarily for off-highway use and are commonly sold with an MSO/MCO stating they are not for highway use.
3. **Not eligible for highway licensing under the current language of SDCL 32-20-13**, because that statute authorizes licensing for two-wheel combustion-engine off-road motorcycles and certain four-wheel electric ATVs but does not include two-wheel electric off-road vehicles.

One caveat I'd emphasize is that this specific question has not yet been definitively resolved by South Dakota appellate courts. Until there is case law or legislative amendment, agencies are interpreting the existing statutes as written. Our approach will be grounded in the statutory text and the manufacturer's documentation (particularly the MSO/MCO), which are often the strongest evidence of the vehicle's intended classification.

Enforcement of Electric Dirt Bikes (Sur-Ron, Talaria, E-Ride Pro, Yozma, etc.)

Electric dirt bikes have become increasingly common on city streets and trails. These vehicles are frequently mistaken for electric bicycles but generally **do not meet South Dakota's statutory definition of an electric bicycle.**

STEP 1 – Is it an Electric Bicycle?

An electric bicycle must meet **all** of the following:

✓ Operable pedals

✓ Electric motor **750 watts or less**

✓ Meets Class I, II, or III requirements

Examples:

- Aventon
- Rad Power
- Trek Allant

Not Electric Bicycles:

- Sur-Ron
- Talaria
- E-Ride Pro
- Rawrr
- Yozma
- Most electric motocross bikes

Reason:

- No operable pedals
- Motors typically exceed 3,000 watts
- Speeds commonly exceed 45 mph

STEP 2 – Is it an Off-Road Vehicle?

South Dakota law generally considers an off-road vehicle to be:

A self-propelled vehicle designed primarily for operation on land other than a public highway.

Indicators include:

- Manufacturer's Statement of Origin (MSO/MCO) states:
    - "Off-Road Use Only"
    - "Competition Use Only"
    - "Not Intended for Highway Use"

Most commercially sold electric dirt bikes fall within this category.

STEP 3 – Can it be Licensed for Street Use?

Current South Dakota law authorizes licensing of:

✓ Certain gasoline-powered off-road motorcycles

✓ Certain ATVs

✓ Certain electric four-wheel ATVs

Current Statutory Gap

South Dakota law **does not expressly authorize licensing of two-wheel electric off-road motorcycles** for highway use.

As a result, most electric dirt bikes are **not eligible for highway registration under current law.**

POSSIBLE ENFORCEMENT CONSIDERATIONS

Depending on the circumstances, officers should evaluate:

- Operation of an off-road vehicle where prohibited
- Registration and licensing violations
- Operator licensing requirements
- Required motorcycle equipment violations (lighting, mirrors, DOT tires, etc.)
- Reckless driving or careless driving, if applicable

Each stop will be evaluated based on the totality of the circumstances and the specific vehicle involved.

LEGAL NOTE

This bulletin reflects the current language of South Dakota law. As of June 2026, no reported South Dakota appellate decision has definitively addressed the classification of two-wheel electric dirt bikes for highway use. Officers will rely on the statutory definitions, the vehicle's design and equipment, and manufacturer documentation when making enforcement decisions.

The **MSO/MCO is often one of the most important pieces of evidence** when determining how a vehicle was intended to be classified.

MSO vs. MCO

The terms are used interchangeably:

- **MSO** = **Manufacturer's Statement of Origin**
- **MCO** = **Manufacturer's Certificate of Origin**

They are essentially the same document.

What is it?

Think of it as the vehicle's **birth certificate**.

Before a vehicle has ever been titled, the manufacturer issues an MSO/MCO to the dealer. When the vehicle is first sold, the dealer provides the MSO/MCO so the purchaser can apply for a title and, if eligible, registration.

For vehicles like Sur-Rons, Talarias, and similar e-dirt bikes, the MSO/MCO often contains language such as:

- "Off-Road Use Only"
- "This vehicle is not manufactured for use on public highways."
- "Competition Vehicle"
- "Not intended for highway use"

Why is it important?

If officers stop someone riding an electric dirt bike on a city street, the MSO/MCO can help establish whether the vehicle was manufactured as an off-road vehicle rather than a highway motorcycle.

It can also explain why the vehicle may not have been eligible for street registration in the first place.

Where can it be found?

An officer usually won't find the MSO/MCO on the vehicle itself. Instead, it may be:

- In the owner's records at home.
- Provided by the selling dealer.
- Available through the owner if they retained it after purchase.
- Reflected in title or registration records if the vehicle has been titled.

What if the owner says, "I registered it in another county"?

That can happen. Sometimes a county office may issue a title or registration based on the paperwork presented. However, **a title or registration does not necessarily determine whether the vehicle legally qualifies for highway operation under the statutes.** If there is a question about the legality of the registration, that issue may ultimately need to be resolved administratively or by a court.

SOUTH DAKOTA'S ELECTRIC BICYCLE LAW

SD

SOUTH DAKOTA'S ELECTRIC BICYCLE LAW FOR THE ROAD

- Electric bicycles are regulated like bicycles. The same rules of the road apply to both electric bicycles and human-powered bicycles.
- Electric bicycles are not subject to the registration, licensing, or insurance requirements that apply to motor vehicles.
- South Dakota designates three classes of electric bicycles:
  - Class 1: Bicycle equipped with a motor that provides assistance only when the rider is pedaling, and that ceases to provide assistance when the electric bicycles reaches 20 mph.
  - Class 2: Bicycle equipped with a throttle-actuated motor, that ceases to provide assistance when the electric bicycle reaches 20 mph.
  - Class 3: Bicycle equipped with a motor that provides assistance only when the rider is pedaling, and that ceases to provide assistance when the electric bicycle reaches 28 mph.
- Unless otherwise prohibited by a governmental entity having jurisdiction, a person may operate a Class 1 or Class 2 electric bicycle on any bicycle path or multi-use path in this state. When in doubt, check with your town, city, or county for local rules and regulations before riding.
- Persons under 16 years of age may not ride a Class 3 electric bicycle, unless as a passenger.

* The following South Dakota laws are referenced: S.D. Codified Laws §32-20B, §32-3-1, §32-20-1, §32-35-1, §32-38-2, §26-21.1.

eMTB GUIDELINES

- On federal, state, country and local trails, electric mountain bike (eMTB) access varies significantly.
- Generally, any natural surface trail that is designated as open to both motorized and non-motorized uses is also open to eMTBs.
- eMTBs may not be allowed on trails managed for non-motorized activities.
- Do not ride your eMTB in areas where the local rules are unclear. Ride legally and only on authroized trails to show that mountain bikers are responsible trail users.
- When in doubt, ask your local land manager about access to specific trails. Local land rules change frequently.

SOUTH DAKOTA'S ELECTRIC BICYCLE LAW FOR TRAILS

- LOCAL: Consult your local land management agency.
- STATE: The South Dakota Division of Parks and Recreation does not have an electric bicycle policy. Contact the department for the most up to date information. PeopleForBikes is monitoring this policy and will update this document as needed.
- FEDERAL: The majority of public lands managed for recreation in South Dakota are under the jurisdiction of the U.S. Forest Service and the National Park Service, where eMTBs are considered motorized vehicles and have access to motorized trails. Contact the U.S. Forest Serice Rocky Mountain Regional Office, or the state's National Grasslands for more information.

CHECK OUT

- A map of great eMTB rides at peopleforbikes.org/emtb
- eMTB "Adventures" at peopleforbikes.org/electric-bikes

GREAT eMTB RIDES IN SOUTH DAKOTA

- Centennial Trail - Boxelder Creek to Pilot Knob
  Nemo | 6.6 miles
- Michelson Trail
  Deadwood | 113.3 miles

With an electric bicycle, bicyclists can ride more often, farther, and for more trips.

Electric bicycles are designed to be as safe as traditional bicycles, do not compromise consumer safety, and benefit bicyclists who may be discouraged from riding a traditional bicycle due to limited physical fitness, age, disability or convenience.

In many states, electric bicycles are regulated under antiquated laws primarily aimed at combustion engine vehicles such as mopeds or scooters. PeopleForBikes is clarifying state laws governing the use of electric bicycles in the U.S. Every state's law is different, but the objective is to ensure that low-speed electric bicycles are regulated similarly to traditional, human-powered bicycles.



Learn more at PeopleForBikes.org/electric-bikes

- Blogs and webinars
- Electric bicycle laws around the country
- Electric bicycle statistics and research
- Buying guide
- Retailer materials
- eMTB management resources

Agenda Item Report

Public Works Item # 14.A.

Meeting: Regular Session Agenda **Meeting Date:** July 6, 2026
Department: Public Works

Request:
Award the lowest responsive and responsible bid for the Airport Apron project to North Star Construction, at a total amount of $4,505,800.77.

Background Information:
The Airport Apron is a budgeted 2026 project with a total of $6,000,000 from the Airport Fund. The work includes paving areas connecting the new airport terminal to the existing taxiways and runways.

Two bids were opened on May 20, 2026 but were rejected as they were significantly higher than the engineer's estimate and exceeded the available funding. The project was redesigned with a smaller scope and longer construction window in hopes of awarding a contract fitting within the budget. Work removed from the project will be bid in the future in conjunction with a future grant.

Five bids were opened on July 1, 2026.

The City's consultant, Mead & Hunt, has recommended that the bid be awarded to North Star Construction, the low bidder, in the amount of $4,505,800.77.

Name	Base Bid	Total - Base Bid + Alternate A	Total - Base Bid + Alternate A + Alternate B
North Star Construction	$3,904,986.77	$4,033,311.77	$4,505,800.77
Quinn Construction, Inc.	$4,199,971.25	$4,360,043.75	$4,805,604.75
Woelber Excavating, LLC	$4,471,563.95	$4,589,831.92	$5,221,043.63
Western Construction, Inc.	$4,678,917.00	$4,828,154.50	$5,339,706.00
Baranko Bros, Inc.	$4,738,244.86	$4,919,997.75	$5,407,240.82

See attached 'Recommendation of Award', 'Bid Summary', and 'Grant Summary'.

Fiscal Impact: Airport

Recommended City Council Action: Approve

Staff Contact Information:
Adam McMahon, 605-717-1127, a.mcmahon@spearfish.gov

Attachments:
1. Recommendation of Award
2. Bid Summary
3. Grant Summary

July 2, 2026

Adam McMahon, PE
City of Spearfish
625 N Fifth Street
Spearfish, SD 57783

Subject: Recommendation of Award for the Terminal Apron Expansion

Mr. McMahon,

Construction bids for the subject airfield improvement project were opened and read aloud on Wednesday July 1, 2026 at 1:30pm MT. Five (5) bids were received for the project and a summary of the bids is enclosed for your records. The basis of the award was specified as the lowest responsive unit cost price bid for the Base Bid, Alternate A & Alternate B.

As part of the bid analysis, Mead & Hunt, Inc. (M&H) reviewed the bids in detail. Mathematical errors were identified in one bid (North Star). The mathematical errors were corrected in the bid tab & as shown in the table below. The total apparent low bid for the basis of the award was from North Star Construction of Spearfish, South Dakota. The Engineer's Opinion of Cost for the combined Base Bid and Alternates A & B was $4,873,305.80, approximately 8.1% higher than the apparent low bid.

Bid Summary	**Baranko Bros, Inc.** Dickinson, ND	**North Star Construction** Spearfish, SD	**Quinn Construction, Inc.** Rapid City, SD	**Western Construction, Inc.** Rapid City, SD	**Woelber Excavating, LLC** Belle Fourche, SD
Total: Base Bid	$ 4,738,244.86	$ 3,904,986.77	$ 4,199,971.25	$ 4,678,917.00	$ 4,471,563.95
Total: Base Bid + Alt A	$ 4,919,997.75	$ 4,033,311.77	$ 4,360,043.75	$ 4,828,154.50	$ 4,589,831.92
Total: Base Bid + Alt A + Alt B	$ 5,407,240.82	$ 4,505,800.77	$ 4,805,604.75	$ 5,339,706.00	$ 5,221,043.63

Based on the Airport's desire to use Airport Improvement Program (AIP) entitlement and state apportionment funds for this project, the bid proposals were further examined for adherence to the requirements including applicable Buy American Certifications and Disadvantaged Business Enterprise (DBE) Participation conditions. All contractors were researched on the System for Award Management and no exclusions were identified. The following is a table summarizing the required forms:

Bidder	Addendum #1	Signed Tax Delinquency	Bidder Pre-Qualification	Signed Contract Proposal	Buy American Certification	Bid Guarantee	Certification of Prohibited Entity
Baranko Bros, Inc.	X	X	X	X	X	X	X
North Star Construction	X	X		X	X	X	X
Quinn Construction, Inc.	X	X	X	X	X	X	X
Western Construction, Inc	X	X	X	X	X	X	X
Woelber Excavating, LLC	X	X	X	X	X	X	X

Only the low apparent bidder's (North Star Construction) proposal was reviewed in detail for irregularities and clarifications. Two irregularities were identified in North Star Construction's bid. The first was a mathematical error in the bid schedule. The error was corrected in accordance with the Instructions to Bidders. The second irregularity was pre-qualifications were not included. As North Star has successfully completed projects at the airport and for the City of Spearfish the in past, M&H recommends waiving this irregularity.

In accordance with the amendment to 49 CFR Part 26, dated October 3, 2025, no DBE goals have been established for this contract. This is due to the ongoing recertification process by the Department of Transportation. Recipients with DBE goals on contracts that have been advertised but have not yet let, must remove the DBE contract goals.

North Star's bid package included documentation indicating all project materials would meet the Buy American criteria and waivers will not be requested.

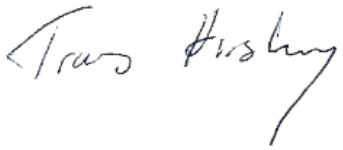
After reviewing the submitted proposals and completing the bid package evaluation, Mead & Hunt recommends that the City of Spearfish award the construction contract for the Terminal Apron Expansion project to North Star Construction, contingent on receipt of an FAA grant. This includes the Base Bid and Alternates A & B.

This contract should only be awarded once a grant has been received from the FAA.

If you should have any questions or require additional information regarding this project, please feel free to contact our office at your convenience.

Sincerely,

MEAD & HUNT, Inc.



Travis Hirschey, PE
Project Manager

Spearfish/Black Hills Airport

Terminal Apron Expansion (Rebid)

AIP No. 3-46-0065-039-2026 M&H No. 1946500-260173.01

Wednesday July 1, 2026 1:30PM MDT

Bidder	BASE BID	TOTAL - BASE BID + ALTERNATE A	TOTAL - BASE BID + ALTERNATE A + ALTERNATE B
Baranko Bros, Inc. Dickinson, ND	$ 4,738,244.86	$ 4,919,997.75	$ 5,407,240.82
Martin Construction, Inc. Dickinson, ND	$ -	$ -	$ -
Johner & Sons, Inc. Spearfish, SD	$ -	$ -	$ -
North Star Construction, Spearfish, SD	$ 3,933,931.77	$ 4,062,256.77	$ 4,534,745.77
Quinn Construction, Inc. Rapid City, SD	$ 4,199,971.25	$ 4,360,043.75	$ 4,805,604.75
Western Construction, Inc. Rapid City, SD	$ 4,678,917.00	$ 4,828,154.50	$ 5,339,706.00
Woelber Excavating, LLC Belle Fourche, SD	$ 4,471,563.95	$ 4,589,831.92	$ 5,221,043.63
	$ -	$ -	$ -
	$ -	$ -	$ -
Engineer's Opinion of Construction Cost:	$ 4,221,500.10	$ 4,382,647.60	$ 4,873,305.80

BLACK HILLS AIRPORT
AIP 3-46-0065-039-2026 & BIL IIJA 3-36-0065-040-2026
COST AND FUNDING SUMMARY

AIP 3-46-0065-039-2026

TERMINAL APRON EXPANSION

CONSTRUCTION ACTIVITIES

North Star Construction, Inc.		$ 4,505,800.77
Construct Apron Expansion	$ 3,904,986.77	
Alternate A - Construct Drainage Ditch	$ 128,325.00	
Alternate B – Construct Apron Extension	$ 472,489.00	

CONSTRUCTION ADMINSITRATION SERVICES

Mead & Hunt, Inc.	
Materials Testing (FMG, Inc.)	$ 41,150.00
Cultural Monitoring (Eocene Environmental Group)	$ 73,800.00

ADMINISTRATION

INDEPENDENT FEE REVIEWS

Terminal Apron Expansion CACO – HDR, Inc.	$ 4,600.00

ADMINISTRATION

Administration (Legal, advertising, etc.)	$ 9,386.07
TOTAL GRANT COSTS	***$ 4,634,736.84***

IIJA 3-46-0065-040-2026

TERMINAL APRON EXPANSION

DESIGN ENGINEERING SERVICES

Ace Services (Asbestos Survey for Building Demolition)	$ 1,190.00

CONSTRUCTION ACTIVITIES

Black Hills Energy (Electrical Utility Relocation)	$ 5,255.20

CONSTRUCTION ADMINSITRATION SERVICES

Mead & Hunt, Inc.	
Construction Administration and Construction Observation	$ 478,099.74
FAA Closeout Documentation (Mead and Hunt)	$ 17,611.99

ADMINISTRATION

ADMINISTRATION

Administration (Legal, advertising, etc.)	$ 1,574.65
TOTAL GRANT COSTS	***$ 503,731.58***

FUNDING PLAN

Federal Aviation Administration		$ 4,881,545.00
Entitlement Funds	$ 300,000.00	
State Apportionment	$ 4,103,000.00	
BIL - IIJA	$ 478,545.00	
State Share		$ 128,461.71
Local Share		$ 128,461.71
TOTAL FUNDING PARTICIPATION		***$ 5,138,468.42***

Agenda Item Report

Public Works Item # 14.B.

Meeting: Regular Session Agenda **Meeting Date:** July 6, 2026
Department: Public Works

Request:
Award the lowest responsive and responsible bid for the Campground Water Line Project to AusCar X, LLC at a total amount of $450,020.30.

Background Information:
The Campground Water Line is a budgeted 2026 project with a total of $750,000 from the Campground Fund. The work includes replacing existing water lines and services which have reached the end of their useful life, and the project was designed by Interstate Engineering. The City staff will be performing construction administration on the project. The low bid is within the budget, so a supplement is not required.

Five bids were opened on June 24, 2026.

Name	Amount
AusCar X, LLC	$450,020.30
Woelber Excavating, LLC	$1,048,406.04
Dakota Redi-Mix, Inc	$691,147.00
Halme, Inc.	$631,494.00
Hayworth Enterprises LLC	$484,655.20
Engineer's Estimate	$1,129,880.00

Staff recommends that the bid be awarded to AusCar X, LLC, the low bidder, in the amount of $450,020.30.

Until the actual completion date is known, no reservations will be taken for the campground. The potential revenue loss for the City if the campground is not open or taking advance reservations could be substantial, so the contract includes a $10,000 bonus if the contractor completes all work in 2026. If that is the case, the actual amount will be $460,020.30.

See attached '2603 Campground Water Line Bid Summary' and '2603 Campground Water Line Bid Tab'.

Fiscal Impact: Campground

Recommended City Council Action: Approve

Staff Contact Information:
Adam McMahon, 605-717-1127, a.mcmahon@spearfish.gov

Attachments:
1. 2603 Campground Water Line Bid Summary
2. 2603 Campground Water Line Bid Tab

Campground Water Line Project
City of Spearfish
Spearfish, SD
Project No. 2026-03
Bid Opening 1:30pm, on June 24th, 2026

	Contractor	Acknowledge Addendum 1	Acknowledge Addendum 2	Bid Bond	Base Bid	
	Engineer's Estimate				$1,129,880.00	
1	AusCar X, LLC	X	X	X	**$450,020.03***	***Low Bid***
2	Woelber Excavating, LLC	X	X	X	$1,048,406.04*	
3	Dakota Redi-Mix, Inc	X	X	X	$691,147.00	
4	Halme, Inc.	X	X	X	$631,494.00*	
5	Hayworth Enterprises LLC	X	X	X	$484,655.20*	

*Different from As Read bid.



City of Spearfish
Public Works Department
625 5th Street
Spearfish, SD 57783
Tel: 605-642-1333

				Engineer's Estimate		AusCar X, LLC		Woelber Excavating, LLC		Dakota Redi-Mix, Inc		Halme, Inc.		Hayworth Enterprises LLC	
Item	Item Description	Type	Quantity	Unit Cost	Amount	Unit Cost	Amount	Unit Cost	Amount	Unit Cost	Amount	Unit Cost	Amount	Unit Cost	Amount
1	MOBILIZATION/DEMOBILIZATION	LS	1	$158,504.00	$158,504.00	$15,300.00	$15,300.00	$35,601.60	$35,601.60	$ 23,372.00	$ 23,372.00	$40,000.00	$40,000.00	$ 28,000.00	$ 28,000.00
2	INCIDENTAL WORK	LS	1	$79,252.00	$79,252.00	$10,200.00	$10,200.00	$36,592.65	$36,592.65	$ 9,926.00	$ 9,926.00	$14,000.00	$14,000.00	$ 9,400.00	$ 9,400.00
3	TRAFFIC CONTROL SIGNS (R11-2 ROAD CLOSED)	SF	40	$40.00	$1,600.00	$12.75	$510.00	$13.20	$528.00	$ 17.70	$ 708.00	$16.00	$640.00	$ 15.00	$ 600.00
4	TYPE 3 BARRICADE	EA	4	$525.00	$2,100.00	$212.50	$850.00	$659.83	$2,639.32	$ 265.00	$ 1,060.00	$410.00	$1,640.00	$ 150.00	$ 600.00
5	REMOVE EXISTING YARD HYDRANT	EA	3	$590.00	$1,770.00	$297.50	$892.50	$1,246.11	$3,738.33	$ 678.00	$ 2,034.00	$93.00	$279.00	$ 400.00	$ 1,200.00
6	REMOVE EXISTING VERTICAL RISER ASSEMBLY	EA	39	$400.00	$15,600.00	$72.25	$2,817.75	$830.75	$32,399.25	$ 339.00	$ 13,221.00	$93.00	$3,627.00	$ 150.00	$ 5,850.00
7	REMOVE EXISTING CURB STOP AND BOX	EA	3	$240.00	$720.00	$170.00	$510.00	$830.75	$2,492.25	$ 339.00	$ 1,017.00	$93.00	$279.00	$ 100.00	$ 300.00
8	REMOVE EXISTING VALVE AND ASSOCIATED VALVE BOX	EA	11	$275.00	$3,025.00	$297.50	$3,272.50	$1,246.12	$13,707.32	$ 777.00	$ 8,547.00	$117.00	$1,287.00	$ 400.00	$ 4,400.00
9	REMOVE EXISTING TEE	EA	3	$1,000.00	$3,000.00	$425.00	$1,275.00	$830.75	$2,492.25	$ 518.00	$ 1,554.00	$117.00	$351.00	$ 250.00	$ 750.00
10	REMOVE BRICK VALVE VAULT	EA	1	$800.00	$800.00	$2,125.00	$2,125.00	$4,131.01	$4,131.01	$ 1,032.00	$ 1,032.00	$350.00	$350.00	$ 800.00	$ 800.00
11	ASPHALT REMOVAL	SF	18245	$9.00	$164,205.00	$1.28	$23,353.60	$2.83	$51,633.35	$ 1.40	$ 25,543.00	$1.00	$18,245.00	$ 2.00	$ 36,490.00
12	TREE REMOVAL	EA	1	$600.00	$600.00	$850.00	$850.00	$4,371.00	$4,371.00	$ 2,951.00	$ 2,951.00	$900.00	$900.00	$ 1,000.00	$ 1,000.00
13	STRIP, SALVAGE & STOCKPILE TOPSOIL, 4" (PLAN QUANTITY)	CY	195	$3.00	$585.00	$12.75	$2,486.25	$17.04	$3,322.80	$ 7.00	$ 1,365.00	$8.00	$1,560.00	$ 3.00	$ 585.00
14	PLACE TOPSOIL, 4" (PLAN QUANTITY)	CY	195	$5.00	$975.00	$15.30	$2,983.50	$55.96	$10,912.20	$ 12.00	$ 2,340.00	$16.00	$3,120.00	$ 4.00	$ 780.00
15	AGGREGATE BASE COURSE (ASPHALT STREETS)	TON	675	$45.00	$30,375.00	$23.80	$16,065.00	$43.51	$29,369.25	$ 49.00	$ 33,075.00	$59.00	$39,825.00	$ 36.00	$ 24,300.00
16	GRAVEL SURFACING (1" CLEAN ROCK)	TON	138	$60.00	$8,280.00	$32.30	$4,457.40	$63.87	$8,814.06	$ 56.00	$ 7,728.00	$46.00	$6,348.00	$ 33.00	$ 4,554.00
17	CLASS E ASPHALT CONCRETE (E-1 MIX)	TON	285	$162.00	$46,170.00	$131.75	$37,548.75	$158.03	$45,038.55	$ 157.00	$ 44,745.00	$131.00	$37,335.00	$ 125.00	$ 35,625.00
18	CLASS E ASPHALT CONCRETE (E-2 MIX)	TON	228	$162.00	$36,936.00	$131.75	$30,039.00	$158.03	$36,030.84	$ 157.00	$ 35,796.00	$131.00	$29,868.00	$ 125.00	$ 28,500.00
19	2"X1" TEE WITH 1" CORP STOP	EA	1	$900.00	$900.00	$637.50	$637.50	$2,935.93	$2,935.93	$ 433.00	$ 433.00	$515.00	$515.00	$ 550.00	$ 550.00
20	4"X1" TAPPING SADDLE WITH 1" CORP STOP	EA	10	$900.00	$9,000.00	$382.50	$3,825.00	$2,529.14	$25,291.40	$ 460.00	$ 4,600.00	$350.00	$3,500.00	$ 350.00	$ 3,500.00
21	4"X2" TAPPING SADDLE WITH 2" CORP STOP	EA	2	$1,000.00	$2,000.00	$722.50	$1,445.00	$3,287.91	$6,575.82	$ 805.00	$ 1,610.00	$740.00	$1,480.00	$ 640.00	$ 1,280.00
22	6"X1" TAPPING SADDLE WITH 1" CORP STOP	EA	2	$900.00	$1,800.00	$425.00	$850.00	$3,989.59	$7,979.18	$ 498.00	$ 996.00	$370.00	$740.00	$ 335.00	$ 670.00
23	6"X2" TAPPING SADDLE WITH 2" CORP STOP	EA	15	$1,000.00	$15,000.00	$765.00	$11,475.00	$4,127.92	$61,918.80	$ 815.00	$ 12,225.00	$760.00	$11,400.00	$ 675.00	$ 10,125.00
24	1" POLY WATER SERVICE (W/BEDDING MATERIAL)	LF	1017	$45.00	$45,765.00	$15.30	$15,560.10	$45.31	$46,080.27	$ 43.00	$ 43,731.00	$42.00	$42,714.00	$ 22.00	$ 22,374.00
25	1" CURB STOP W/BOX	EA	12	$690.00	$8,280.00	$297.50	$3,570.00	$2,365.12	$28,381.44	$ 432.00	$ 5,184.00	$420.00	$5,040.00	$ 335.00	$ 4,020.00
26	2" POLY WATER SERVICE (W/BEDDING MATERIAL)	LF	1119	$50.00	$55,950.00	$23.80	$26,632.20	$54.25	$60,705.75	$ 44.00	$ 49,236.00	$47.00	$52,593.00	$ 23.00	$ 25,737.00
27	2" CURB STOP W/BOX	EA	17	$720.00	$12,240.00	$595.00	$10,115.00	$2,741.74	$46,609.58	$ 755.00	$ 12,835.00	$970.00	$16,490.00	$ 750.00	$ 12,750.00
28	4" PVC WATER MAIN, AWWA C-900, (DR-18)	LF	931	$70.00	$65,170.00	$34.00	$31,654.00	$59.34	$55,245.54	$ 49.00	$ 45,619.00	$54.00	$50,274.00	$ 36.00	$ 33,516.00
29	4" GATE VALVE W/BOX & FOSTER ADAPTER	EA	6	$2,800.00	$16,800.00	$1,870.00	$11,220.00	$4,114.91	$24,689.46	$ 2,275.00	$ 13,650.00	$1,940.00	$11,640.00	$ 2,000.00	$ 12,000.00
30	4" TEE	EA	1	$2,200.00	$2,200.00	$595.00	$595.00	$1,300.67	$1,300.67	$ 1,086.00	$ 1,086.00	$475.00	$475.00	$ 275.00	$ 275.00
31	4"X4"X6" TEE	EA	1	$1,500.00	$1,500.00	$1,020.00	$1,020.00	$1,998.86	$1,998.86	$ 1,719.00	$ 1,719.00	$1,070.00	$1,070.00	$ 895.00	$ 895.00
32	4" BEND: 11.25 DEGREE	EA	2	$1,300.00	$2,600.00	$425.00	$850.00	$1,772.88	$3,545.76	$ 787.00	$ 1,574.00	$500.00	$1,000.00	$ 485.00	$ 970.00
33	4" BEND: 45 DEGREE	EA	4	$1,300.00	$5,200.00	$425.00	$1,700.00	$1,772.88	$7,091.52	$ 787.00	$ 3,148.00	$505.00	$2,020.00	$ 485.00	$ 1,940.00
34	4" BEND: 90 DEGREE	EA	1	$1,300.00	$1,300.00	$510.00	$510.00	$1,778.18	$1,778.18	$ 822.00	$ 822.00	$535.00	$535.00	$ 485.00	$ 485.00
35	4" HIGH DEFLECTION COUPLER	EA	1	$800.00	$800.00	$595.00	$595.00	$1,418.22	$1,418.22	$ 588.00	$ 588.00	$515.00	$515.00	$ 375.00	$ 375.00
36	6" PVC WATER MAIN, AWWA C-900, (DR-18)	LF	933	$85.00	$79,305.00	$40.80	$38,066.40	$65.42	$61,036.86	$ 58.00	$ 54,114.00	$64.00	$59,712.00	$ 48.00	$ 44,784.00
37	6" GATE VALVE W/BOX & FOSTER ADAPTER	EA	5	$3,200.00	$16,000.00	$2,210.00	$11,050.00	$4,519.37	$22,596.85	$ 2,699.00	$ 13,495.00	$1,975.00	$9,875.00	$ 2,275.00	$ 11,375.00
38	6" x 4" REDUCER	EA	1	$700.00	$700.00	$595.00	$595.00	$1,413.30	$1,413.30	$ 827.00	$ 827.00	$590.00	$590.00	$ 375.00	$ 375.00
39	6" BEND: 11.25 DEGREE	EA	2	$1,600.00	$3,200.00	$510.00	$1,020.00	$1,560.59	$3,121.18	$ 910.00	$ 1,820.00	$660.00	$1,320.00	$ 540.00	$ 1,080.00
40	6" BEND: 22.5 DEGREE	EA	1	$1,600.00	$1,600.00	$595.00	$595.00	$1,570.48	$1,570.48	$ 902.00	$ 902.00	$660.00	$660.00	$ 540.00	$ 540.00
41	6" BEND: 45 DEGREE	EA	6	$1,600.00	$9,600.00	$595.00	$3,570.00	$1,572.81	$9,436.86	$ 923.00	$ 5,538.00	$675.00	$4,050.00	$ 600.00	$ 3,600.00
42	6" BEND: 90 DEGREE	EA	1	$1,600.00	$1,600.00	$722.50	$722.50	$1,478.67	$1,478.67	$ 979.00	$ 979.00	$730.00	$730.00	$ 490.00	$ 490.00
43	6" TEE	EA	4	$2,400.00	$9,600.00	$1,020.00	$4,080.00	$1,577.93	$6,311.72	$ 1,181.00	$ 4,724.00	$1,270.00	$5,080.00	$ 800.00	$ 3,200.00
44	6"X6"X4" TEE	EA	1	$2,600.00	$2,600.00	$1,275.00	$1,275.00	$1,465.77	$1,465.77	$ 1,296.00	$ 1,296.00	$685.00	$685.00	$ 800.00	$ 800.00
45	6" HIGH DEFLECTION COUPLER	EA	1	$1,100.00	$1,100.00	$722.50	$722.50	$1,609.48	$1,609.48	$ 961.00	$ 961.00	$715.00	$715.00	$ 650.00	$ 650.00
46	RECONNECT WATER SERVICE LINE TO EXISTING SERVICE LINE	EA	2	$500.00	$1,000.00	$425.00	$850.00	$1,120.86	$2,241.72	$ 378.00	$ 756.00	$845.00	$1,690.00	$ 350.00	$ 700.00
47	CONNECT WATER TO EXISTING BUILDING	EA	1	$700.00	$700.00	$850.00	$850.00	$1,492.04	$1,492.04	$ 717.00	$ 717.00	$1,835.00	$1,835.00	$ 950.00	$ 950.00
48	2"X1"X1" TEE	EA	14	$300.00	$4,200.00	$425.00	$5,950.00	$1,373.98	$19,235.72	$ 576.00	$ 8,064.00	$380.00	$5,320.00	$ 315.00	$ 4,410.00
49	CONNECT TO EXISTING WATER MAIN	EA	5	$800.00	$4,000.00	$1,530.00	$7,650.00	$2,802.15	$14,010.75	$ 1,528.00	$ 7,640.00	$2,370.00	$11,850.00	$ 915.00	$ 4,575.00
50	WOOD SERVICE PEDESTAL	EA	38	$94.00	$3,572.00	$255.00	$9,690.00	$854.55	$32,472.90	$ 361.00	$ 13,718.00	$220.00	$8,360.00	$ 47.15	$ 1,791.70
51	1" VERTICAL RISER SERVICE ASSEMBLY, FROST FREE	EA	38	$600.00	$22,800.00	$552.50	$20,995.00	$1,253.28	$47,624.64	$ 1,044.00	$ 39,672.00	$465.00	$17,670.00	$ 475.00	$ 18,050.00
52	1" YARD HYDRANT, FROST FREE	EA	3	$7,000.00	$21,000.00	$765.00	$2,295.00	$1,137.71	$3,413.13	$ 1,286.00	$ 3,858.00	$520.00	$1,560.00	$ 340.00	$ 1,020.00
53	1" BALL VALVE	EA	1	$70.00	$70.00	$127.50	$127.50	$446.03	$446.03	$ 231.00	$ 231.00	$195.00	$195.00	$ 28.00	$ 28.00
54	INSULATION BOARD	LF	94	$6.00	$564.00	$12.75	$1,198.50	$21.56	$2,026.64	$ 27.00	$ 2,538.00	$5.00	$470.00	$ 8.75	$ 822.50
55	10" CASING	LF	105	$275.00	$28,875.00	$63.75	$6,693.75	$102.60	$10,773.00	$ 90.00	$ 9,450.00	$120.00	$12,600.00	$ 60.00	$ 6,300.00
56	12" CASING	LF	63	$300.00	$18,900.00	$80.75	$5,087.25	$129.63	$8,166.69	$ 103.00	$ 6,489.00	$120.00	$7,560.00	$ 74.00	$ 4,662.00
57	BOLLARD	EA	4	$500.00	$2,000.00	$510.00	$2,040.00	$1,087.86	$4,351.44	$ 1,221.00	$ 4,884.00	$595.00	$2,380.00	$ 975.00	$ 3,900.00
58	WATER METER VAULT	EA	1	$12,500.00	$12,500.00	$18,700.00	$18,700.00	$31,603.88	$31,603.88	$ 24,250.00	$ 24,250.00	$29,000.00	$29,000.00	$ 18,000.00	$ 18,000.00
59	FIRE HYDRANT W/ AUXILIARY VALVE	EA	1	$12,000.00	$12,000.00	$7,225.00	$7,225.00	$9,856.90	$9,856.90	$ 12,657.00	$ 12,657.00	$10,000.00	$10,000.00	$ 9,300.00	$ 9,300.00
60	SEEDING, MULCHING, & FERTILIZING (PLAN QUANTITY)	ACRE	1	$33,880.00	$33,880.00	$3,825.00	$3,825.00	$7,851.91	$7,851.91	$ 7,803.00	$ 7,803.00	$6,600.00	$6,600.00	$ 3,500.00	$ 3,500.00
61	9" EROSION CONTROL WATTLE	LF	426	$12.00	$5,112.00	$3.83	$1,631.58	$3.94	$1,678.44	$ 5.00	$ 2,130.00	$4.50	$1,917.00	$ 6.00	$ 2,556.00
62	VEHICLE TRACKING CONTROL (24'X36')	EA	4	$300.00	$1,200.00	$425.00	$1,700.00	$2,722.12	$10,888.48	$ 5,863.00	$ 23,452.00	$2,300.00	$9,200.00	$ 800.00	$ 3,200.00
63	EXPLORATORY EXCAVATION	Hr	20	$60.00	$1,200.00	$148.75	$2,975.00	$328.85	$6,577.00	$ 320.00	$ 6,400.00	$240.00	$4,800.00	$ 200.00	$ 4,000.00
64	CONTRACTOR FURNISHED CONSTRUCTION STAKING	LS	1	$15,000.00	$15,000.00	$7,650.00	$7,650.00	$10,692.57	$10,692.57	$ 11,147.00	$ 11,147.00	$8,745.00	$8,745.00	$ 10,000.00	$ 10,000.00
65	CONTRACTOR FURNISHED MATERIAL TESTING	LS	1	$15,000.00	$15,000.00	$3,400.00	$3,400.00	$5,600.58	$5,600.58	$ 5,565.00	$ 5,565.00	$4,670.00	$4,670.00	$ 4,800.00	$ 4,800.00
	BID TOTAL				**$1,129,880.00**		**$ 450,020.03**		**$ 1,048,406.04**		**$ 691,147.00**		**$ 631,494.00**		**$ 484,655.20**

Low Bid

Highlighted cells differ from as-read bid.

Agenda Item Report

Public Works Item # 14.C.

Meeting: Regular Session Agenda **Meeting Date:** July 6, 2026
Department: Public Works

Request:
Award the lowest responsive and responsible bid for the Yellowstone Place & Wyoming Ct Drainage Project to American Contracting and Consulting, LLC at a total amount of $372,568.10.

Background Information:
This is a budgeted item for 2026 with a total of $850,000 for three projects from the General Fund (Streets).

The Yellowstone Place and Wyoming Court Drainage Project will armor the storm drainage channel bottom in the drainage easement between Yellowstone Place and Wyoming Court from N 5th Street to N Canyon Street with a concrete swale, and continue downstream from Canyon Street to Spearfish Creek with rip rap. The culverts under Canyon Street will be replaced with a single box culvert which will increase the capacity of the system and thereby reduce flooding. The irrigation ditch running parallel to the drainage channel is not affected by or part of this project.

See the attached diagram showing the location of the project.

5 bids were opened on July 1, 2026.

Name	Amount
Falcon Construction, LLC	$398,593.50
Woelber Excavating, LLC	$482,894.63
American Contracting & Consulting, LLC	$372,568.10
Quinn Construction, Inc.	$710,454.65
Sitework Specialists	$908,372.00
Engineer's Estimate	**$293,192.10**

The City's consultant, FMG Engineering, recommends that the bid be awarded to American Contracting & Consulting, LLC, the low bidder, in the amount of $372,566.60.

See attached 'Bid Tab and Recommendation'.

Fiscal Impact: Streets

Recommended City Council Action: Approve

Staff Contact Information:
Adam McMahon, 605-717-1127, a.mcmahon@spearfish.gov

Attachments:
1. 2339C Yellowstone Place Wyoming Court Bid Tab & Recommendation

FMG ENGINEERING 3700 Sturgis Road, Rapid City, SD 57702 • **fmgengineering.com** • 605-342-4105

Mr. Adam McMahon
Public Works Director
City of Spearfish
625 N. 5th Street
Spearfish, SD 57783

Re: Wyoming Court & Yellowstone Place Drainage
Project No. 2339C
Spearfish, South Dakota

Dear Mr. McMahon:

FMG Engineering has reviewed the bid results from the Wyoming Court & Yellowstone Place Drainage project letting held on July 1, 2026 at 2:00 PM. FMG recommends the City of Spearfish award the bid to American Contracting and Consulting, LLC for the amount of **$372,568.10.**

Respectfully,

FMG Engineering

Richard Sudmeier, PE, CFM
Enclosures



Civil Engineering
Geotechnical Engineering
Materials Testing Laboratory
Land Surveying
Environmental Services
Water Resources

FMG ENGINEERING

Bid Results for Wyoming Court and Yellowstone Place Drainage - Project No. 2339C

				Engineer Estimate		American Contracting		Falcon Construction LLC		Woelber Excavating, LLC		Quinn Construction		Site Works Specialists	
Item No.	Item Description	Unit	Quantity	Unit Price	Extension	Unit Price	Extension	Unit Price	Extension	Unit Price	Extension	Unit Price	Extension	Unit Price	Extension
1	Mobilization	LS	1	$25,000.00	$25,000.00	$17,500.00	$17,500.00	$15,000.00	$15,000.00	$41,417.32	$41,417.32	$71,000.00	$71,000.00	$70,500.00	$70,500.00
2	Remove Asphalt Pavement	SY	330.7	$15.00	$4,960.50	$15.00	$4,960.50	$40.00	$13,228.00	$14.16	$4,682.71	$15.00	$4,960.50	$9.50	$3,141.65
3	Remove Concrete Curb and Gutter	LF	77	$10.00	$770.00	$8.50	$654.50	$50.00	$3,850.00	$27.79	$2,139.83	$15.00	$1,155.00	$34.00	$2,618.00
4	Remove Concrete Sidewalk	SY	17.8	$5.00	$89.00	$25.00	$445.00	$120.00	$2,136.00	$10.67	$189.93	$25.00	$445.00	$130.00	$2,314.00
5	Remove Pipe Culvert	LF	124	$10.00	$1,240.00	$15.00	$1,860.00	$35.00	$4,340.00	$37.02	$4,590.48	$20.00	$2,480.00	$27.00	$3,348.00
6	Remove 2" PVC Sanitary Sewer Force Main	LF	75	$5.00	$375.00	$15.00	$1,125.00	$25.00	$1,875.00	$20.40	$1,530.00	$12.00	$900.00	$29.00	$2,175.00
7	Unclassified Excavation	CY	194	$20.00	$3,880.00	$25.00	$4,850.00	$36.00	$6,984.00	$21.76	$4,221.44	$42.00	$8,148.00	$71.00	$13,774.00
8	Place Topsoil	CY	131	$15.00	$1,965.00	$30.00	$3,930.00	$40.00	$5,240.00	$20.77	$2,720.87	$25.00	$3,275.00	$178.00	$23,318.00
9	2" PVC Pressure Sewer Main	LF	75	$70.00	$5,250.00	$30.00	$2,250.00	$185.00	$13,875.00	$54.15	$4,061.25	$50.00	$3,750.00	$45.00	$3,375.00
10	Connect to Sanitary Sewer Manhole	EA	1	$1,500.00	$1,500.00	$850.00	$850.00	$1,000.00	$1,000.00	$3,421.68	$3,421.68	$2,000.00	$2,000.00	$700.00	$700.00
11	Pipe Bedding	LF	75	$35.00	$2,625.00	$25.00	$1,875.00	$50.00	$3,750.00	$18.94	$1,420.50	$5.00	$375.00	$36.00	$2,700.00
12	Asphalt Concrete Pavement, Class E, Type 1	Ton	82	$300.00	$24,600.00	$190.00	$15,580.00	$120.00	$9,840.00	$257.73	$21,133.86	$190.00	$15,580.00	$256.00	$20,992.00
13	Fog Seal	SY	330.7	$3.00	$992.10	$4.00	$1,322.80	$100.00	$33,070.00	$5.38	$1,779.17	$4.50	$1,488.15	$5.00	$1,653.50
14	Base Course	Ton	290	$55.00	$15,950.00	$50.00	$14,500.00	$75.00	$21,750.00	$42.92	$12,446.80	$100.00	$29,000.00	$96.00	$27,840.00
15	Concrete Curb and Gutter	LF	77	$65.00	$5,005.00	$40.00	$3,080.00	$55.00	$4,235.00	$69.51	$5,352.27	$66.00	$5,082.00	$124.00	$9,548.00
16	4" Nonreinforced Concrete Sidewalk	SF	151	$15.00	$2,265.00	$12.00	$1,812.00	$15.00	$2,265.00	$10.75	$1,623.25	$12.00	$1,812.00	$59.00	$8,909.00
17	Concrete Channel	SF	7949	$12.00	$95,388.00	$14.00	$111,286.00	$13.00	$103,337.00	$16.50	$131,158.50	$42.00	$333,858.00	$61.75	$490,850.75
18	Class A Riprap	Ton	254	$70.00	$17,780.00	$91.00	$23,114.00	$95.00	$24,130.00	$98.20	$24,942.80	$105.00	$26,670.00	$81.00	$20,574.00
19	Type B Drainage Fabric	SY	340	$6.00	$2,040.00	$4.00	$1,360.00	$32.00	$10,880.00	$4.16	$1,414.40	$5.00	$1,700.00	$7.00	$2,380.00
20	4" Corrugated Polyethylene Pipe	LF	80	$30.00	$2,400.00	$15.00	$1,200.00	$50.00	$4,000.00	$31.36	$2,508.80	$10.00	$800.00	$23.00	$1,840.00
21	4" Corrugated Perforated Polyethylene Pipe	LF	742	$30.00	$22,260.00	$15.00	$11,130.00	$25.00	$18,550.00	$29.78	$22,096.76	$10.00	$7,420.00	$23.00	$17,066.00
22	8' x 2' Precast Concrete Box Culvert	LF	62	$400.00	$24,800.00	$1,400.00	$86,800.00	$185.00	$11,470.00	$1,787.73	$110,839.26	$1,900.00	$117,800.00	$1,350.00	$83,700.00
23	8' x 2' Precast Concrete Box Culvert End Section	EA	2	$4,000.00	$8,000.00	$9,000.00	$18,000.00	$3,800.00	$7,600.00	$7,974.38	$15,948.76	$7,000.00	$14,000.00	$5,300.00	$10,600.00
24	Box Culvert Undercut	CY	73.1	$50.00	$3,655.00	$68.00	$4,970.80	$55.00	$4,020.50	$123.21	$9,006.65	$200.00	$14,620.00	$174.00	$12,719.40
25	Concrete Headwall	EA	1	$1,500.00	$1,500.00	$18,750.00	$18,750.00	$22,500.00	$22,500.00	$26,886.88	$26,886.88	$21,000.00	$21,000.00	$44,000.00	$44,000.00
26	Water and Sewer Main Insulation	SF	384	$3.00	$1,152.00	$8.00	$3,072.00	$5.50	$2,112.00	$4.68	$1,797.12	$9.00	$3,456.00	$8.50	$3,264.00
27	Seeding	LB	220	$6.00	$1,320.00	$15.00	$3,300.00	$25.00	$5,500.00	$14.98	$3,295.60	$11.00	$2,420.00	$12.00	$2,640.00
28	Fertilizer	SY	51	$3.00	$153.00	$5.00	$255.00	$90.00	$4,590.00	$2.30	$117.30	$2.00	$102.00	$2.00	$102.00
29	9" Wattles	LF	1523	$5.00	$7,615.00	$4.00	$6,092.00	$10.00	$15,230.00	$6.07	$9,244.61	$4.50	$6,853.50	$5.00	$7,615.00
30	Bonded Fiber Matrix	LB	1959	$3.50	$6,856.50	$1.50	$2,938.50	$4.00	$7,836.00	$3.46	$6,778.14	$2.50	$4,897.50	$3.00	$5,877.00
31	Temporary Sediment Barrier	LF	18	$10.00	$180.00	$10.00	$180.00	$100.00	$1,800.00	$6.07	$109.26	$4.50	$81.00	$5.00	$90.00
32	High Flow Silt Fence	LF	21	$6.00	$126.00	$25.00	$525.00	$100.00	$2,100.00	$8.45	$177.45	$6.00	$126.00	$7.00	$147.00
33	Traffic Control	LS	1	$1,500.00	$1,500.00	$3,000.00	$3,000.00	$10,500.00	$10,500.00	$3,840.98	$3,840.98	$3,200.00	$3,200.00	$8,000.19	$8,000.19
					Total: $293,192.10		**$372,568.10**		**$398,593.50**		**$482,894.63**		**$710,454.65**		**$908,371.49**

Agenda Item Report

Public Works Item # 14.D.

Meeting: Regular Session Agenda **Meeting Date:** July 6, 2026
Department: Public Works

Request:
Approve the Temporary Construction Agreement with Hills View Homes for temporary use of the City-owned property in and adjacent to Sky Ridge Subdivision.

Background Information:
This agreement gives Hills View Homes LLC of Rapid City, the Sky Ridge neighborhood home builder, official written permission to access and utilize City-owned property for storage, staging, processing, and stockpiling of materials and equipment to facilitate their home-building activities and protects the City from liability associated with Hills View Homes' said activities.

While Hills View Homes has purchased many of the lots in the Sky Ridge neighborhood, they are also actively using some of the platted lots, which they will eventually purchase, and some of the adjacent unplatted lots to park vehicles and equipment, place storage containers, store materials, and process soil for future use on their own lots. This enables them to keep their work areas less cluttered and prevents them from having to regularly move their staging area to make way for home construction.

Fiscal Impact: None

Recommended City Council Action: Approve

Staff Contact Information:
Adam McMahon, 605-717-1127, a.mcmahon@spearfish.gov

Attachments:
1. Hills View Homes - Temporary Construction Easement

Prepared By:
City of Spearfish
625 North Fifth Street
Spearfish, SD 57783
605-642-1335

TEMPORARY CONSTRUCTION EASEMENT

This **TEMPORARY CONSTRUCTION EASEMENT AND AGREEMENT** (the "Agreement") is made and entered in this _____ day of _____, 2026, (the "Effective Date") by and between **HILLS VIEW HOMES, INC.**, a South Dakota corporation (Business ID DB182190), 815 St. Joseph Street, Suite 203, Rapid City, SD 57701 ("HVH"), and the **CITY OF SPEARFISH**, a municipal corporation and political subdivision of the State of South Dakota, 625 North Fifth Street, Spearfish, South Dakota 57783 ("Spearfish").

RECITALS

WHEREAS, Spearfish, is the owner of certain real property described as:

Parcel Number 32204-22010-030-00, Elkhorn Ridge Addition Tract V on NW1/4, City of Spearfish, Lawrence County, South Dakota, according to plat recorded as Document No. 2013-04050, and further identified as Tract V Remainder according to plat recorded as Document No. 2020-1714; and

Lots 3-11 of Block 6, Lot 1 of Block 7, Lots 1-7 of Block 8, Lots 1-9 of Block 9, and Lots 1-7 of Block 10 of Sky Ridge Subdivision, being a part of Tract V-1 of Sky Ridge Subdivision, which is a part of Tract V of Elkhorn Ridge Addition, City of Spearfish, Lawrence County, South Dakota, according to plat recorded as Document No. 2024-05531; and

Lots 2-7 of Block 5 and Lots 16-21 of Block 6 of Sky Ridge Subdivision, being a part of Tract V-1 of Sky Ridge Subdivision, which is a part of Tract V of Elkhorn Ridge Addition, City of Spearfish, Lawrence County, South Dakota, according to plat recorded as Document No. 2023-04441.

(collectively referred to herein as the "Property"); and,

WHEREAS, HVH has entered into a Restated and Amended Development Agreement with Spearfish for the development of lots and construction of homes in the Sky Ridge Subdivision (the "Project"); and,

WHEREAS, HVH requires a temporary construction easement on the Property for the sole purpose of completing its work on the Project.

AGREEMENT

NOW, THEREFORE, for and in consideration of the sum of One Dollar ($1.00), the mutual covenants contained herein, and other good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, Spearfish does hereby grant to HVH a Temporary Construction Easement (the "Easement") on and within the Property subject to the following terms and conditions.

1. **Description**. The location and boundaries of this Easement are limited to the Property (the "Easement Area").

2. **Purpose**. HVH shall have the right of ingress and egress upon the Property and Easement Area for the sole purpose of temporarily placing excess fill material, and for temporarily placing and operating the necessary equipment for the Project and for processing the excess fill material, *provided* the placement and operation of such equipment does not jeopardize the requirements of the Property Conditions section of this Agreement. HVH shall have the right of access to the Property and to otherwise be on the Property to do all things reasonably necessary to perform the Project to final completion. HVH shall perform its work in a diligent manner and shall not unreasonably delay completion of the Project.

3. **Property Conditions**. HVH agrees it will perform all work in a good and workmanlike manner and shall return the Property to its original state or better, unless otherwise agreed to in writing by the Parties. HVH shall not remove any brush or trees (other than downed trees as of the Effective Date of this Agreement) without the prior written approval of Spearfish. HVH agrees to a final walkthrough with Spearfish representatives before closeout of the Project to ensure these conditions have been met and, if they have not, to take such corrective action as is needed to meet these conditions.

4. **Indemnification**. HVH shall indemnify and hold harmless Spearfish, its elected and appointed officials, directors and employees from and against any actions, suits, claims or other demands for damages, liability, or other proceedings that may arise out of or be related to the negligent or intentional acts or omissions, whether actual or alleged, of HVH as the result of HVH's use or exercise of this Easement under this Agreement. However, this section does not require HVH to indemnify or defend Spearfish against claims or damages arising solely from errors or omissions of Spearfish or its officers, agents, or employees.

5. **Duration**. The Easement and any rights herein conveyed by Spearfish to HVH shall terminate upon the first to occur of the following:

    a. With respect to each individual lot in the Property, the Easement shall automatically terminate upon the closing of the sale of the individual lot to HVH or any other purchaser. Termination under this Section 5.a. shall occur by operation of contract without the need for any notice to any party.

b. Upon final completion of the Project, the Easement shall automatically terminate with respect to any and all portion of the Property then owned by Spearfish.

[SIGNATURE PAGES TO FOLLOW]

City of Spearfish

_____
John Senden, Its Mayor

(Seal)

Attest:

_____
Michelle DeNeui, Finance Officer

State of South Dakota)
) ss.
County of Lawrence)

On this ____ day of _____, 2026 before me, the undersigned officer, personally appeared John Senden and Michelle DeNeui, known to me or satisfactorily proven to be the persons described in the foregoing instrument, and acknowledged that they executed the same in the capacity therein stated and for the purposes therein contained.

In Witness Whereof, I have set my hand and official seal.

(Seal)

_____
Notary Public

My commission expires: _____

Hills View Homes, Inc.

_____
Tanner Quinn, President

State of South Dakota)
) ss.
County of Pennington)

On this ____ day of _____, 2026 before me, the undersigned officer, personally appeared Tanner Quinn, known to me or satisfactorily proven to be the person described in the foregoing instrument and acknowledged that he executed the same in the capacity therein stated and for the purposes therein contained.

In Witness Whereof, I have set my hand and official seal.

(Seal)

_____
Notary Public

My commission expires: _____

Agenda Item Report

Public Works Item # 14.E.

Meeting: Regular Session Agenda **Meeting Date:** July 6, 2026
Department: Public Works

Request:
Approve the Final Under/Over Change Order #3 for the Rainbow Road Box Culvert project with a net increase of $9,698.82**.**

Background Information:
The contract for the Rainbow Road Box Culvert was awarded to North Star Construction on November 21st, 2025.

In all, this final under/over change order includes an increase of $23,821.12 and a decrease of $14,122.30 for these and other minor changes for a net increase of $9,698.82 and a final project cost of $495,063.14. The original budget amount for this project was $1,000,000.00.

Original Contract Amount	$479,324.02
Change Order #1 Increase	$4,840.00 (1.01%)
Change Order #2 Increase	$1,200.00 (0.25%)
Final Change Order #3 Increase	$9,698.82 (2.02%)
Revised Contract Total Amount	$495,063.14

The project was completed by its due date. The main contribution to the increase in price is the additional grading and erosion control performed at the airport stockpile area that was used during this project. This area is directly adjacent to the airport, east of Aviation Place, and north-east of the airport itself. The Contractor was originally going to stockpile dirt in the area, but after further discussion, additional grading work was approved by the City. By allowing the contractor to perform that work now, and level out the area, it will make any future work completed in that area less expensive, as the grading for that area has already been done.

See attached 'Rainbow Road Box Culvert Final Change Order 3' document for specific details.

Note: The Final Pay Request #6 for the Rainbow Road Box Culvert is also on this agenda

(in the bill list) for approval.

Fiscal Impact: Streets

Recommended City Council Action: Approve

Staff Contact Information:
Adam McMahon, 605-717-1127, a.mcmahon@spearfish.gov

Attachments:
1. UPDATED CCO 3

CITY OF SPEARFISH
EST. 1888

Construction Change Order Number: 3

FINAL

Project: Rainbow Road Box Culvert
Project #: 2023-21
Contractor: North Star Construction
Engineer: Interstate Engineering

The following change in plans and/or specifications for the subject project are hereby made:

Item No.	Item Description	Unit	Unit Price	Changes this CCO	Changes to Date	Current Quantity	Change Amount
4	FLAGGING	HR	$15.00	-170	-170	80	($2,550.00)
6	REMOVE AND RESET FENCE	LF	$5.00	10.44	10.44	580	$52.20
9	SEEDING, FERTILIZING & MULCHING	AC	$5,000.00	2.92	2.92	5.38	$14,600.00
11	REMOVE ASPHALT PAVEMENT	SF	$2.00	396	396	4356	$792.00
12	REMOVE & SALVAGE ROAD BASE	SF	$0.37	396	396	4356	$146.52
14	CLASS E ASPHALT CONCRETE (E-1 MIX)	TON	$160.00	18.44	18.44	105.44	$2,950.40
15	CLASS E ASPHALT CONCRETE (E-2 MIX)	TON	$160.00	-26.46	-26.46	60.54	($4,233.60)
16	ROADWAY STRIPING	LF	$1.50	-620	-620	820	($930.00)
17	CONCRETE CURB & GUTTER, TYPE B	LF	$90.00	16	16	108	$1,440.00
22	TYPE 2 OBJECT MARKERS	EA	$50.00	-4	-4	0	($200.00)
23	9" STRAW WATTLE	LF	$5.00	768	768	1729	$3,840.00
24	EROSION CONTROL BLANKET (MUST WITHSTAND 6 FT/S FLOW)	SY	$1.50	-1684	-1684	9226	($2,526.00)
25	CLASS A RIPRAP	TON	$70.00	-52.61	-52.61	297.39	($3,682.70)

Instruction, Description, and Reason for Change:

- All Standard Specifications apply unless otherwise noted.
- No Time will be added to the contract for this change.

Summary of Contract Time:

Substantial Completion:		Overall Completion:	
Original Date:	Aug 18, 2026	Original Date:	Sep 18, 2026
Days Added This Order:	0	Days Added This Order:	0
Days Added Prior to This Order:	0	Days Added Prior to This Order:	0
Net Days Added to Date:	0	Net Days Added to Date:	0
Revised Date:	Aug 18, 2026	Revised Date:	Sep 18, 2026

Summary of Costs:

Original Contract Amount:	$479,324.02	Increases This Order:	$23,821.12
		Decreases This Order:	($14,122.30)
Net Change This Order (%):	2.02%	**Net Change This Order:**	**$9,698.82**
Net Changes to Date (%):	3.29%	Net Changes Prior to This Order:	$6,040.00
Total Contract Amount (Including this Order):	$495,063.14	Net Changes to Date:	$15,783.82

Preparation by:

By: Kyle Carey
Title: Project Engineer
Org./Firm: Interstate Engineering
Date: 7/2/2026

City Staff Recommendation for Approval:

By: Adam McMahon
Title: Public Works Director
Signature:
Date:

Contractor Acceptance:

Approved at City Council Meeting:

Item No.	Item Description	Unit	Unit Price	Changes this CCO	Changes to Date	Current Quantity	Change Amount

By: _____ Date: _____

Title: _____ **City of Spearfish Mayor Signature:**

Company: North Star Construction By: _____

Signature: _____ Signature: _____

Date: _____ Date: _____

TO BE PAID
JULY 6TH, 2026 DRAFT

VENDOR NAME	DESCRIPTION	AMOUNT
A & B BUSINESS INC	PRINTER AND COPIER LEASE MAY 26	$ 4,235.07
AINSWORTH AUTO PARTS LLC	CIRCUIT BREAKER	$ 9.99
A&B WELDING SUPPLY, LLC	CUT OFF DISCS	$ 112.16
AINSWORTH-BENNING INC	SKY RIDGE IRRIGATION WELL WATER PE 10	$ 152,227.48
DILLY PRINTS, LLC	EMPLOYEE SAFETY CLOTHING	$ 1,200.00
AMAZON CAPITAL SERVICES	USA DÉCOR-SAFETY SIGNS-CHAIRS-GLOVES-GAS TANK	$ 6,746.19
AMERICAN ENGINEERING TESTI	FIRE TRAINING TOWER	$ 1,528.00
BAKER, DALTON	REIMBURSE CDL	$ 45.00
BECK'S NURSERY CORP	LILAC TREE-MEMORIAL TREE-DOWNTOWN FLOWERS	$ 346.33
BLACK HILLS ENERGY	MAY/JUNE ELECTRIC USE	$ 41,947.52
BICKLE TRUCK & DIESEL INC	CLEVIS ASSEMBLY	$ 13.44
BLACK HILLS CHEMICAL CORP	DISPENSERS-TP-CLEANING SUPPLIES-TRASH BAGS	$ 4,035.09
BLACK HILLS EQUIPMENT RENT	CHAIN	$ 27.99
BLACK HILLS FLYIN	SPONSORSHIP FLYIN EVENT 2026	$ 1,000.00
BLACK HILLS PIONEER	SANBURN MAPS- 17 COLOR-COMMUNITY PAGES-LIBRARY SUB	$ 378.30
BLACK HILS STRIPING LLC	CROSSWALK ANNUAL PAINTING	$ 20,759.85
BUILDERS FIRSTSOURCE INC	CONCRETE MIX	$ 69.90
BUTLER CAT	COUPLING-ELEMENT-DRIVE PART-FAULT-DEF PUMP MOTOR	$ 6,331.44
CAPTAIN CLEAN	CLEAN CAR INTERIOR PD	$ 175.00
CARON, SARAH	JULY 2026 BYOD	$ 41.91
CASH-WA DISTRIBUTING CO	WATER PARK CONCESSIONS	$ 5,796.66
CONSOLIDATED ELECTRICAL DI	FUSE-TEMFLEX-TAMPER-SPLICE KIT	$ 320.07
COMBAT BRANDS, LLC	REC CENTER WORKOUT EQUIPMENT	$ 2,106.80
DIAS, GREGORY K	BACK UP FEES FOR LIBRARY	$ 56.97
COPY COUNTRY INC	PROJECT PLANS FOR DISTRIBUTION	$ 668.88
CROELL INC	CONCRETE	$ 882.00
DAKOTA BUS SERVICE CORP	TRANSPORT SUMMER REC JEWEL CAVE & OUTDOOR CAMPUS	$ 1,600.00
DAKOTA PUMP INC	LIFT STATION PUMP REPLACEMENT-INFLUENT FLOW WWTP	$ 12,988.75
DIJULIO DISPLAYS INC	USA BANNERS FOR DOWNTOWN	$ 2,919.74
SHERRY EWING	CONCESSIONS FOR WATERPARK	$ 600.00
DONOVAN PLUMBING LLC	REPAIR LEAKING VALVE SANDSTONE	$ 498.41
DAKOTA REDI-MIX, INC	E CO BLVD RD IMPOVEMENTS PE 10	$ 191,985.40
EXPLORE FITNESS & ADVENTUR	JUNE 2026 FITNESS/ PERSONAL TRAINER	$ 2,655.00
BDG INC	SUCTION HOSE - SEAL KIT-HOSE REEL	$ 612.90
FMG INC	DRAINAGE & SPF CRK STBL PROJECT	$ 4,463.41
FRONTIER ICE COMPANY LLC	ICE FOR CAMPGROUND	$ 567.55
FUXA, LAURA	JUNE 2026 FITNESS INSTRUCTOR	$ 196.00
G&G GARBAGE LLC	PORTA POTTY RENTAL LIVE BURN	$ 81.00
VIEHAUSER ENTERPRISES LLC	KEYS AND REKEY	$ 381.45
GREAT WESTERN TIRE INC	TIRES	$ 452.85
HAUGO BROADCASTING INC	MAY/JUNE 2026 ADVERTISEMENT WP	$ 660.00
HAWKINS INC	CHECK VALVE- CHEMICALS FOR POOL	$ 15,268.75
HAYWORTH ENTERPRISES	SPF MTN ELEM ALLEY IMPROVEMENT	$ 121,182.25
HDR ENGINEERING INC	SPF STRMWTR MASTER PLAN-CO BLVD SWR PLC PH 2&3	$ 51,859.08
HELEN CORONATO	JUNE 2026 WATERFITNESS	$ 476.00
HORSE CREEK LUMBER	FIREWOOD FOR CAMPGROUND	$ 1,657.75
INGRAM LIBRARY SERVICES	BOOKS FOR LIBRARY	$ 240.39
INTERSTATE ENGINEERING INC	CHIP SEAL PROJECT	$ 8,804.70
I & S GROUP, INC.	SPF CREEK PLAN PHASE 2	$ 22,825.93

JOHNER & SONS INC	SAWMILL RD MCLAUGHLIN PROP	$	43,308.67
JOHNER PAVING	TACK OIL-ASPHALT	$	2,023.00
KDV INC	FIX WATER LEAK BEHIND 140 11TH	$	2,908.16
KETEL THORSTENSON LLP	AUDIT PROGRESS BILLING	$	26,361.38
LAWRENCE COUNTY AUDITOR	TIF #4 EXCESS DUE	$	1,116.08
LEROY, BILLY	CDL REIMBURSEMENT	$	45.00
LORANG, SOLOMON	REIMB FOR CLASS III CERT EXAM & CDL REIMBURSEMENT	$	60.00
LUEDERS FOOD CENTER	COOKIES FOR CAMPGROUND OPEN HOUSE	$	29.66
MACK'S AUTO BODY LLC	REPAIR FLEET TRUCK	$	2,181.10
MCD CONSTRUCTION SERVICES	HYDRO PLANT CONCRETE WORK	$	12,387.78
MCKIRDY-WILSEY, EMMA	JUNE 2026 FITNESS INSTRUCTOR	$	144.00
MEAD & HUNT, INC.	SPF TERMINAL APRON EXP PH 1	$	27,827.25
MEREDITH SERVICES CO INC	WATER SERVICE LEAK EXIT 17 & MICHIGAN	$	8,191.09
ALLIANCE TECHNICAL GROUP,	WATER TESTING W/S AND WWTP DEPT	$	2,388.40
LLJMWT, LLC	IRRIGATION MATERIALS FOR REPAIR	$	1,178.74
NORTHERN HILLS VENTURES IN	NETWORK SERVICES/COMPUTER SWAPS	$	23,623.85
NORDSVEN, SHANE	CDL REIMBURSEMENT	$	45.00
NORTH STAR CONSTRUCTION	RAINBOW RD BOX CULVERT PE 4 AND PE 6	$	42,178.33
NUTRIEN AG SOLUTIONS INC	ROUNDUP QUIKPRO	$	592.50
ONE TIME VENDORS	CAMP REFUNDS	$	836.00
ONSCENE DYNAMICS, LLC	DECOMMISSION PD1 INSTALL NEW	$	540.00
ORIGINAL WATERMEN INC	LIFEGUARD EQUIPMENT	$	107.95
PETTY CASH	REIMBURSE PLAT PETTY CASH	$	185.00
QUALITY QUICK PRINT	RECIEPT BOOKS	$	648.00
QUIK SIGNS INC	LETTERHEAD-SIGNS-TREE LEAF	$	876.39
RACE WHEELS, LLC	JUNE 2026 MENTAL HEALTH	$	4,250.00
RECREATION SUPPLY CO	PALINTEST CHLORINE	$	340.11
REED, THERESA DAWN	DOWNTOWN RESTROOM CLEAN JUNE	$	450.00
ROBB, BRYAN	REIMBURSE FOR LET BASIC PD	$	1,259.85
ROCKINGTREE FLORAL/GARDEN	TOP SOIL	$	67.50
ROVERE, TAYLER	CDL REIMBURSEMENT	$	45.00
SACRISON ASPHALT INC	ASPHALT-ASPHALT MIX	$	3,024.06
SACRISON PAVING INC	ASPHALT PATCHING HILLSVIEW/HAR	$	15,708.64
JO A DEDECKER	SCULPTURES WAX AND CLEAN	$	1,700.00
SOUTH DAKOTA ONE CALL	MESSAGE FEES MAY 2026	$	201.60
SD WING CIVIL AIR PATROL	PROCEEDS OF AUCTION TRAILER	$	6,871.88
SUDS & DUDS INC	MAT/MOP CHANGE OUT- SHOP LAUNDRY	$	660.39
SHERWIN WILLIAMS CO	STREET PAINT-PAINT FOR SHED	$	2,177.40
SIGN SOLUTIONS USA, LLC	SIGNS FOR STREETS	$	993.45
SIMON CONTRACTORS OF SD IN	BALLAST AND ROADSTONE	$	383.89
SIR LINES A LOT, LLC	2026 MAINLINE PAVEMENT MARKING	$	19,598.22
SPEARFISH LUMBER CO	ANCHORING ADHESIVE	$	53.98
SPEARFISH ELECTRIC	SIREN TESTING WARD SIREN-EXIT 17 SIREN-BASEBALL LIGHTS	$	4,551.34
SPEARFISH SCHOOL DIST 40-2	EXCESS TIF MAY 2026	$	2,787.13
STEC'S INNOVATIVE SAFETY S	MAY SAFTEY REWARDS	$	1,755.39
SUNSHINE TOWING	TOWING FOR PD	$	585.00
SYSCO FOOD SERVICES OF MT	CONCESSIONS FOR WATERPARK	$	2,261.75
TACTICAL SOLUTIONS	RAPID BALLISTIC HELMET	$	709.08
THE KNOTHOLE	VINYL LETTERS-FD	$	4.99
TYLER TECHNOLOGIES INC	UB CARD READER-ANNUAL FEES	$	88,929.49
UNIVERUS WASTE & RECYCLING	GARBAGE TRUCK TRACKING SOFTWARE	$	1,891.18
VAN DRIEL JOSEPH	CLASS II WASTE WATER CERT-CDL REIMBURSEMENT	$	105.00
VISIT SPEARFISH INC	JULY 2026 ALLOCATION	$	17,500.00
VISUAL WORKS	CAMP RESERVATION SOFTWARE	$	1,881.00

WAREING MOTORS BELLE FOURC	VALVE BODY ASSEMBLIES	$	979.19
WATER GEAR INC	GOGGLES FOR WATER PARK	$	2,207.90
WELLS PLUMBING CORP	IRRIGATION MATERIALS/ REPAIR-VALVE BOXES	$	307.08
INTEGRITY ACQUISITION LLC	ADJUST NEW REAR WHEEL BEARING-SUSPENSION WORK	$	4,937.60
WHITE'S QUEEN CITY MOTORS	KNOBS-ELECTRICAL ISSUE	$	450.97
WOELBER EXCAVATING, LLC	CO BLVD SWR UPSIZE PH 2 PE 1 AND PHASE 2 PE 1	$	189,731.23
WOODROOF, JUSTIN	CDL REIMBURSE	$	45.00
		$	1,273,228.97

Agenda Item Report

Finance Item # 15.B.

Meeting: Regular Session Agenda **Meeting Date:** July 6, 2026
Department: Approve the Bills

Request:
Approve the salary expense, bank fees and credit card fees for the month of June 2026.

Background Information:
Monthly report of salaries and wages.

Fiscal Impact: N/A

Recommended City Council Action: Approve

Staff Contact Information:
Michelle DeNeui, 605-642-1325, m.deneui@spearfish.gov

Attachments:
1. Monthly Salary Expense 2026 JUNE--

JUNE 2026 Salary Expense & Credit Card Fees

	Gross Wages/Benefits		Gross Wages	Benefits	
Mayor/Council	$9,834.46	0.79%	$9,135.58	$698.88	0.93%
City Administrator	13,250.84	1.07%	11,126.40	2,124.44	1.13%
City Attorney	254.66	0.02%	236.56	18.10	0.02%
Finance	37,716.13	3.03%	29,532.37	8,183.76	3.01%
Human Resources	19,155.50	1.54%	15,160.00	3,995.50	1.54%
Gov't Bldgs	32,913.17	2.65%	25,886.99	7,026.18	2.64%
Public Works Admin	67,127.81	5.40%	52,805.69	14,322.12	5.38%
Engineering	35,148.26	2.83%	27,826.64	7,321.62	2.83%
Police	236,108.09	18.99%	179,743.22	56,364.87	18.30%
Fire	5,497.98	0.44%	4,464.15	1,033.83	0.45%
Bldg Inspection	28,649.42	2.30%	21,844.04	6,805.38	2.22%
Streets & Snow	54,605.13	4.39%	41,756.54	12,848.59	4.25%
Electrical	10,265.50	0.83%	7,609.60	2,655.90	0.77%
Cemetery	14,339.10	1.15%	12,165.70	2,173.40	1.24%
Animal Control	5,797.12	0.47%	4,242.55	1,554.57	0.43%
Recreation/Aquatic	167,683.98	13.49%	144,554.36	23,129.62	14.72%
Parks	86,829.37	6.98%	69,827.03	17,002.34	7.11%
Library	42,099.09	3.39%	32,895.76	9,203.33	3.35%
Plan & Zone	39,278.09	3.16%	31,159.09	8,119.00	3.17%
Motor Pool	32,267.50	2.60%	24,387.22	7,880.28	2.48%
Wildland Fire	63,458.91	5.10%	51,535.59	11,923.32	5.25%
Police Comm	49,093.63	3.95%	38,230.00	10,863.63	3.89%
Water	34,861.96	2.80%	25,662.13	9,199.83	2.61%
Electric Production	20,988.06	1.69%	16,378.08	4,609.98	1.67%
Sewer	32,670.17	2.63%	23,972.66	8,697.51	2.44%
WWTP	42,033.12	3.38%	32,269.15	9,763.97	3.29%
Airport	5,287.42	0.43%	3,808.89	4,505.60	0.39%
Solid Waste	36,368.65	2.92%	26,503.29	9,865.36	2.70%
Campground	19,825.49	1.59%	17,551.51	2,273.98	1.79%
Totals	$1,243,408.61	100.00%	$982,270.79	$264,164.89	100.00%
Banking Fees MAY	126.58				
Credit Card Fees MAY	$ 26,027.21				
Grand Total	$1,269,435.82				

Agenda Item Report

Finance Item # 17.A.

Meeting: Regular Session Agenda **Meeting Date:** July 6, 2026
Department: Mayor and Council Discussion

Request:
Council president and vice president election.

Background Information:
Pursuant to SDCL 9-8-7 - ...In a year when there is no regular election, the council shall elect from among its members a president and vice president at the first regular meeting that occurs no more than one year after the president and vice president were last elected from among the council's members.
This was missed in May 2026 but will apply correctly in 2027 as election will be held in June and newly elected/re-elected officials will take office the first meeting in July.

Fiscal Impact: No funding impact for this action.

Recommended City Council Action: Approve

Staff Contact Information:
Michelle DeNeui, 605-642-1325, m.deneui@spearfish.gov

Attachments:
None

Agenda Item Report

City Administration Item # 17.B.

Meeting: Regular Session Agenda **Meeting Date:** July 6, 2026
Department: Mayor and Council Discussion

Request:
Appoint Amy Davison to the Art in Public Places Advisory Board as the Planning Commission representative.

Background Information:
Amy Davison was appointed as the Planning Commission member at the June 16, 2026 Planning Commission meeting.

Fiscal Impact:

Recommended City Council Action:

Staff Contact Information:
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Attachments:
None