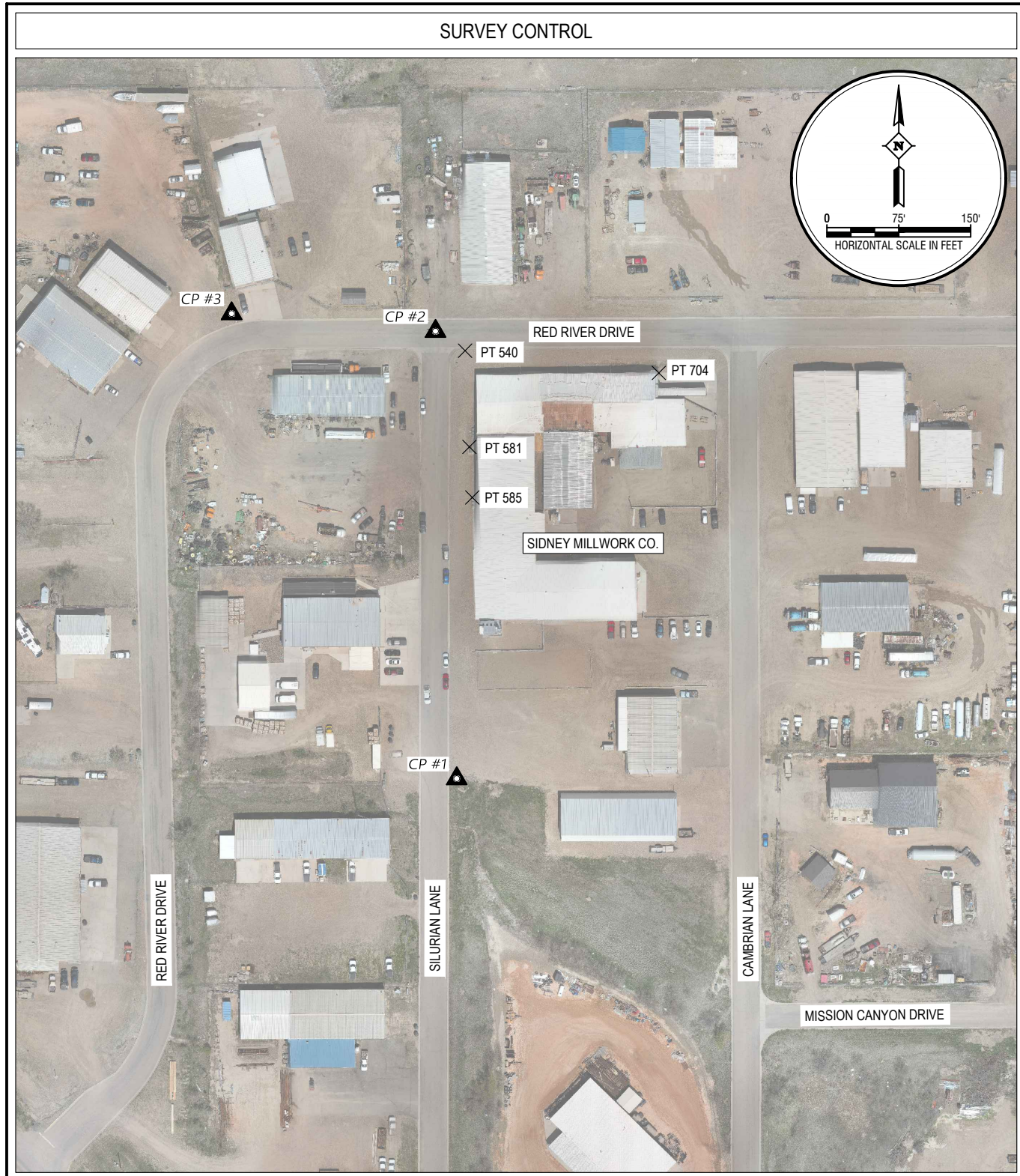


| COORDINATE SYSTEM & DATUM | |
|---------------------------|-----------------------------|
| COORDINATE SYSTEM GROUP | RMTCRS |
| ZONE | INTERSTATE OBLIQUE MERCATOR |
| EPSG | 5703 |
| HORIZONTAL DATUM | NAD 1983 (CONUS) |
| VERTICAL DATUM | GEOID 18 (CONUS) |
| COORDINATE VALUE | GRID |
| FOOT DEFINITION | INTERNATIONAL FOOT |
| RESERVED | |

| POINT TABLE | | | | | |
|-------------|-------------|-------------|-----------|------|---------------------------|
| POINT # | NORTHING | EASTING | ELEVATION | TYPE | DESCRIPTION |
| CP #1 | 985525.5121 | 767278.8288 | 2093.78 | PCR | OPC |
| CP #2 | 985992.1708 | 767256.7655 | 2110.86 | BM | MAG NAIL |
| CP #3 | 986010.5787 | 767044.0306 | 2115.64 | BM | TEMP NAIL |
| PT #704 | 985948.735 | 767489.650 | 2102.06 | INFO | BUILDING CORNER (FF ELEV) |
| PT #540 | 985971.862 | 767287.555 | 2110.67 | INFO | EXST. TOP BACK OF CURB |
| PT #581 | 985871.533 | 767292.017 | 2103.63 | INFO | CONC. PAD CORNER |
| PT #585 | 985818.827 | 767295.072 | 2102.34 | INFO | CONC. PAD CORNER |



| LEGEND | | | |
|-------------|-------------|------------|----------------------|
| <u>EXST</u> | <u>ABBR</u> | <u>SET</u> | <u>DESCRIPTION</u> |
| ## ▲ | CP | ## ▲ | SURVEY CONTROL POINT |
| × | PT | | INFORMATIONAL POINT |

| REV NO | DATE | BY | DESCRIPTION |
|--------|------|----|-------------|
| | | | |
| | | | |

RED RIVER DRIVE DRAINAGE AND EROSION CONTROL
 CITY OF SIDNEY
 SIDNEY, MONTANA

SURVEY CONTROL

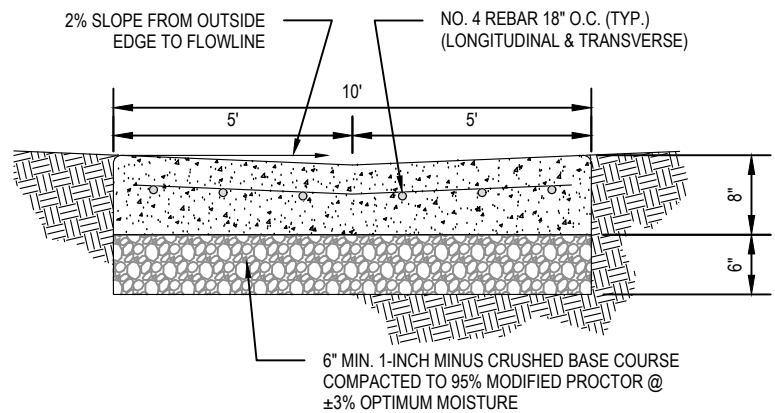
DRAWN BY: WJS
 SURVEYED BY: PT
 CHECKED BY: TK
 DESIGNED BY: TIL

PROJECT NO.: WR24-04-050
 DATE: 07/25/2024

Interstate Engineering
 2177 Lincoln Ave SE
 PO Box 648
 Sidney, MT 59270
 (406) 433.8617
 www.interstateeng.com

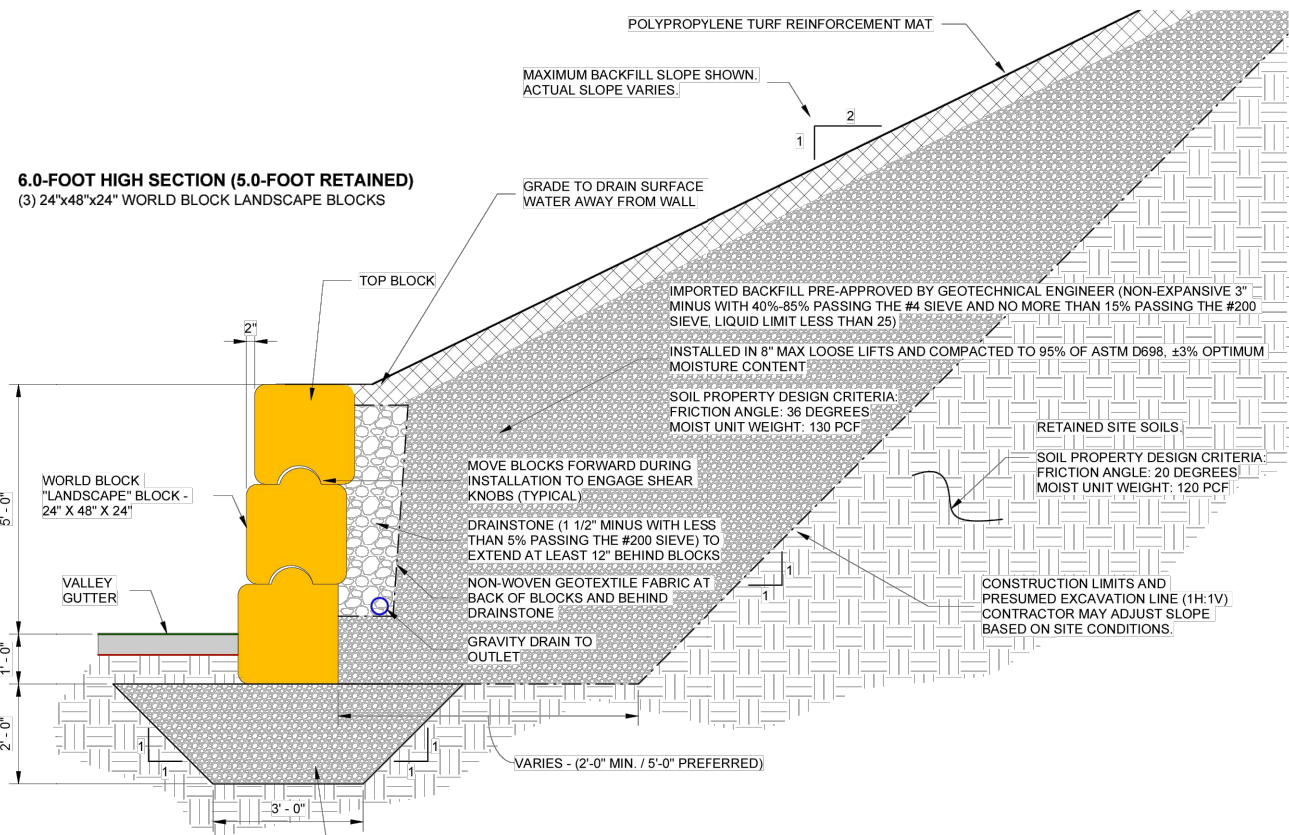
INTERSTATE ENGINEERING
 Professionals You Need, People You Trust.

SECTION
 V
 1
 SHEET NO.



- NOTES:**
- DOWELS AND REBAR SHALL BE PLACED WITH MINIMUM 2-1/2" OF COVER.
 - TESTING REQUIREMENTS FOR CONCRETE VALLEY GUTTER AND CRUSHED BASE COURSE SHALL BE AS FOLLOWS:
 - CONCRETE: 1 TEST PER 50 CY; 1 TESTS TOTAL
 - CRUSHED BASE COURSE: 1 TEST PER 500 SF; 2 TESTS TOTAL
 - TESTING PROCEDURES PER MPWSS (7TH EDITION)

1 VALLEY GUTTER DETAIL
SCALE: N.T.S.



LEVELING PAD
(NON-EXPANSIVE 3" MINUS WITH 40%-85% PASSING THE #4 SIEVE AND NO MORE THAN 15% PASSING THE #200 SIEVE, LIQUID LIMIT LESS THAN 25)
INSTALLED IN 8" MAX LOOSE LIFTS AND COMPACTED TO 98% OF ASTM D698, ±3% OPTIMUM MOISTURE CONTENT
SOIL PROPERTY DESIGN CRITERIA:
FRICTION ANGLE: 36 DEGREES
MOIST UNIT WEIGHT: 130 PCF

2 RETAINING WALL DETAIL
SCALE: N.T.S.

PREPARATION

- A. FILL SOIL**
1. THE CONTRACTOR SHALL VERIFY THAT ANY FILL SOIL INSTALLED IN THE FOUNDATION AND RETAINED SOIL ZONES OF THE RETAINING WALL SATISFIES THE SPECIFICATION OF THE RETAINING WALL DESIGN ENGINEER AS SHOWN ON THE CONSTRUCTION DRAWINGS.
- B. EXCAVATION**
1. THE CONTRACTOR SHALL EXCAVATE TO THE LINES AND GRADES REQUIRED FOR CONSTRUCTION OF THE PRECAST MODULAR BLOCK RETAINING WALL AS SHOWN ON THE CONSTRUCTION DRAWINGS. THE CONTRACTOR SHALL MINIMIZE OVER-EXCAVATION. EXCAVATION SUPPORT, IF REQUIRED, SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.
2. OVER-EXCAVATED SOIL SHALL BE REPLACED WITH COMPACTED FILL IN CONFORMANCE WITH THE SPECIFICATIONS OF THE RETAINING WALL DESIGN ENGINEER AND THE PROJECT SPECIFICATIONS.
3. EMBANKMENT EXCAVATIONS SHALL BE BENCH CUT OR SLOPED AS DIRECTED BY THE GEOTECHNICAL ENGINEER AND INSPECTED BY THE GEOTECHNICAL ENGINEER FOR COMPLIANCE.
- C. FOUNDATION PREPARATION**
1. PRIOR TO CONSTRUCTION OF THE PRECAST MODULAR BLOCK RETAINING WALL, THE LEVELING PAD AREA AND UNDERCUT ZONE (IF APPLICABLE) SHALL BE CLEARED AND GRUBBED. ALL TOPSOIL, BRUSH, FROZEN SOIL AND ORGANIC MATERIAL SHALL BE REMOVED. ADDITIONAL FOUNDATION SOILS FOUND TO BE UNSATISFACTORY BEYOND THE SPECIFIED UNDERCUT LIMITS SHALL BE UNDERCUT AND REPLACED WITH APPROVED FILL AS DIRECTED BY THE GEOTECHNICAL ENGINEER. THE CONTRACTOR SHALL ENSURE THAT THE UNDERCUT LIMITS ARE CONSISTENT WITH THE REQUIREMENTS OF THE GEOTECHNICAL ENGINEER AND THAT ALL SOIL FILL MATERIAL IS PROPERLY COMPACTED ACCORDING TO PROJECT SPECIFICATIONS. THE CONTRACTOR SHALL DOCUMENT THE VOLUME OF UNDERCUT AND REPLACEMENT.
2. FOLLOWING EXCAVATION FOR THE LEVELING PAD AND UNDERCUT ZONE (IF APPLICABLE), THE GEOTECHNICAL ENGINEER SHALL EVALUATE THE IN-SITU SOIL IN THE FOUNDATION AND RETAINED SOIL ZONES.
a. THE GEOTECHNICAL ENGINEER SHALL VERIFY THAT THE SHEAR STRENGTH OF THE IN-SITU SOIL ASSUMED BY THE RETAINING WALL DESIGN ENGINEER IS APPROPRIATE. THE GEOTECHNICAL ENGINEER SHALL IMMEDIATELY STOP WORK AND NOTIFY THE OWNER IF THE IN-SITU SHEAR STRENGTH IS FOUND TO BE INCONSISTENT WITH THE RETAINING WALL DESIGN ASSUMPTIONS.
b. THE GEOTECHNICAL ENGINEER SHALL VERIFY THAT THE FOUNDATION SOIL EXHIBITS SUFFICIENT ULTIMATE BEARING CAPACITY TO SATISFY THE REQUIREMENTS INDICATED ON THE RETAINING WALL CONSTRUCTION SHOP DRAWINGS.
- D. LEVELING PAD**
1. THE LEVELING PAD SHALL BE CONSTRUCTED TO PROVIDE A LEVEL, HARD SURFACE ON WHICH TO PLACE THE FIRST COURSE OF PRECAST MODULAR BLOCK UNITS. THE LEVELING PAD SHALL BE PLACED IN THE DIMENSIONS SHOWN ON THE RETAINING WALL CONSTRUCTION DRAWINGS AND EXTEND TO THE LIMITS INDICATED.
2. CRUSHED STONE LEVELING PAD. CRUSHED STONE SHALL BE PLACED IN UNIFORM MAXIMUM LOOSE LIFTS OF 8 INCHES. THE CRUSHED STONE SHALL BE COMPACTED BY A MINIMUM OF 3 PASSES OF A VIBRATORY COMPACTOR CAPABLE OF EXERTING 2,000 LB OF CENTRIFUGAL FORCE. COMPACTION SHALL REACH THE PERCENTAGE SPECIFIED IN THE CONSTRUCTION DRAWINGS AND TESTED PER ASTM D698 AND A MINIMUM OF 1 TEST PER 50 LF OF RETAINING WALL.
3. UNREINFORCED CONCRETE LEVELING PAD. THE CONCRETE SHALL BE PLACED IN THE SAME DIMENSIONS AS THOSE REQUIRED FOR THE CRUSHED STONE LEVELING PAD. THE CONTRACTOR SHALL ERECT PROPER FORMS AS REQUIRED TO ENSURE THE ACCURATE PLACEMENT OF THE CONCRETE LEVELING PAD ACCORDING TO THE RETAINING WALL CONSTRUCTION DRAWINGS.

DRAINSTONE

A. DRAINAGE AGGREGATE SHALL BE A DURABLE CRUSHED STONE CONFORMING TO NO. 57 SIZE PER ASTM C33 WITH THE FOLLOWING PARTICLE-SIZE DISTRIBUTION REQUIREMENTS PER ASTM D422:

| US STANDARD SIEVE SIZE | % PASSING |
|------------------------|-----------|
| 1-1/2" | 100 |
| 1" | 95-100 |
| 1/2" | 25-60 |
| NO. 4 | 0-10 |
| NO. 8 | 0-5 |
| NO. 200 | 0-5 |

GENERAL

- A. ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH OSHA SAFETY STANDARDS, STATE AND LOCAL BUILDING CODES AND MANUFACTURER'S REQUIREMENTS.
- B. THE CONTRACTOR IS RESPONSIBLE FOR THE LOCATION AND PROTECTION OF ALL EXISTING UNDERGROUND UTILITIES. ANY NEW UTILITIES PROPOSED FOR INSTALLATION IN THE VICINITY OF THE RETAINING WALL, SHALL BE INSTALLED CONCURRENT WITH RETAINING WALL CONSTRUCTION. THE CONTRACTOR SHALL COORDINATE THE WORK OF SUBCONTRACTORS AFFECTED BY THIS REQUIREMENT.
- C. NEW UTILITIES INSTALLED BELOW THE RETAINING WALL SHALL BE BACKFILLED AND COMPACTED TO A MINIMUM OF 98% MAXIMUM DRY DENSITY PER ASTM D698 STANDARD PROCTOR.
- D. THE CONTRACTOR IS RESPONSIBLE TO ENSURE THAT SAFE EXCAVATIONS AND EMBANKMENTS ARE MAINTAINED THROUGHOUT THE COURSE OF THE PROJECT.
- E. ALL WORK SHALL BE OBSERVED BY THE OWNER OR THE RESIDENT PROJECT REPRESENTATIVE AS DIRECTED BY THE OWNER.
- F. INSTALL BLOCK UNITS PER MANUFACTURE'S REQUIREMENTS, DETAILS, SPECIFICATIONS AND RECOMMENDATIONS.

DRAINAGE PIPE

- A. DRAINAGE PIPE
1. DRAINAGE COLLECTION PIPE SHALL BE A 4 INCH DIAMETER, 3-HOLE PERFORATED, HDPE PIPE WITH A MINIMUM PIPE STIFFNESS OF 22 PSI PER ASTM D2412.
2. THE DRAINAGE PIPE SHALL BE MANUFACTURED IN ACCORDANCE WITH ASTM D1248 FOR HDPE PIPE AND FITTINGS.
- B. PREAPPROVED DRAINAGE PIPE PRODUCTS
1. ADS 3000 TRIPLE WALL PIPE AS MANUFACTURED BY ADVANCED DRAINAGE SYSTEMS.

IMPORTED BACKFILL REQUIREMENTS

- A. INSTALL CLEAN MATERIAL.
- B. GRADATION
1. SOURCE GRADATION MUST BE PROVIDED TO GEOTECHNICAL ENGINEER FOR REVIEW PRIOR TO INSTALLATION.
NON-EXPANSIVE 3" MINUS
NO. 4 SIEVE: 40%-85%
NO. 200 SIEVE: 0-15%
LIQUID LIMIT LESS THAN 25
- C. SITE EXCAVATED SOILS: ACCEPTABLE WHEN SPECIFIED REQUIREMENTS CAN BE MET.
- D. DO NOT USE UNSUITABLE SOILS, INCLUDING HIGH-PLASTIC CLAYS OR ORGANIC SOILS, FOR BACKFILL OR IN REINFORCED SOIL MASS.
- E. PLACE AND COMPACT REINFORCED BACKFILL IN MAXIMUM 8-INCH LOOSE LIFTS.
- F. DECREASE LIFT THICKNESS TO ACHIEVE REQUIRED DENSITY, IF NECESSARY.
- G. COMPACT REINFORCED BACKFILL TO 95 PERCENT OF MAXIMUM DENSITY IN ACCORDANCE WITH ASTM D 698.
- H. ENSURE MOISTURE CONTENT OF REINFORCED BACKFILL BEFORE AND DURING COMPACTION IS UNIFORMLY DISTRIBUTED THROUGHOUT EACH LAYER AND IS WITHIN PLUS 3 PERCENT, MINUS 3 PERCENT OF OPTIMUM MOISTURE CONTENT.
- I. CONSTRUCTION EQUIPMENT:
1. ALLOW ONLY LIGHTWEIGHT HAND-OPERATED EQUIPMENT WITHIN 3 FEET FROM SOIL SIDE OF CONCRETE LANDSCAPE BLOCKS.
2. AVOID SUDDEN BRAKING AND SHARP TURNING WITH RUBBER-TIRED EQUIPMENT.
3. SLOPE LAST LIFT OF REINFORCED BACKFILL AWAY FROM CONCRETE LANDSCAPE BLOCKS TO DIRECT RUNOFF AWAY FROM RETAINING WALL FACE, AT END OF EACH DAY'S OPERATION.
- J. DO NOT ALLOW SURFACE RUNOFF FROM ADJACENT AREAS TO ENTER RETAINING WALL FILL ZONE.

| REV. NO. | DATE | BY | DESCRIPTION |
|----------|------|----|-------------|
| | | | |
| | | | |

RED RIVER DRIVE DRAINAGE AND EROSION CONTROL
CITY OF SIDNEY
SIDNEY, MONTANA
DETAIL SHEET

DRAWN BY: WJS
CHECKED BY: TK

SURVEYED BY: PT
DESIGNED BY: TJL

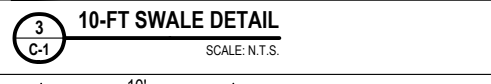
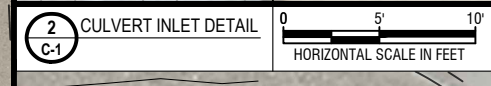
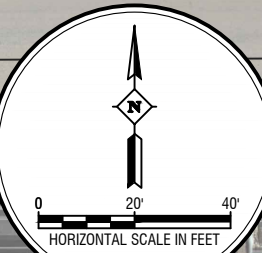
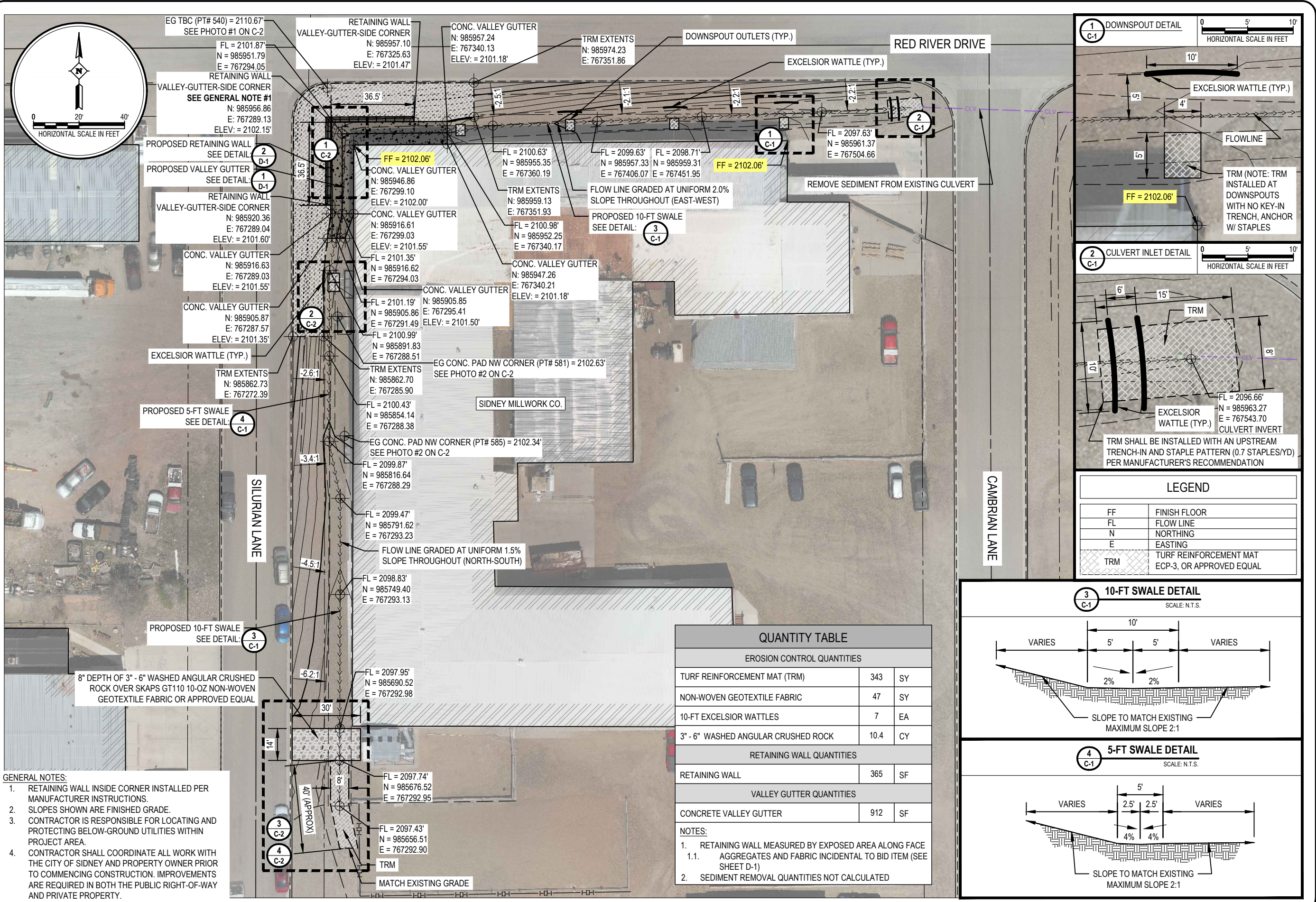
PROJECT NO.: WR24-04-050
DATE: 07/25/2024

Interstate Engineering
2177 Lincoln Ave SE
PO Box 648
Sidney, MT 59270
(406) 433-8617
www.interstateeng.com

INTERSTATE ENGINEERING
Professionals You Need. People You Trust.

SECTION
D

1
SHEET NO.



| LEGEND | |
|--------|---|
| FF | FINISH FLOOR |
| FL | FLOW LINE |
| N | NORTHING |
| E | EASTING |
| TRM | TURF REINFORCEMENT MAT ECP-3, OR APPROVED EQUAL |

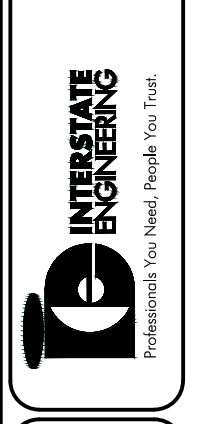
| QUANTITY TABLE | | |
|---|------|----|
| EROSION CONTROL QUANTITIES | | |
| TURF REINFORCEMENT MAT (TRM) | 343 | SY |
| NON-WOVEN GEOTEXTILE FABRIC | 47 | SY |
| 10-FT EXCELSIOR WATTLES | 7 | EA |
| 3" - 6" WASHED ANGULAR CRUSHED ROCK | 10.4 | CY |
| RETAINING WALL QUANTITIES | | |
| RETAINING WALL | 365 | SF |
| VALLEY GUTTER QUANTITIES | | |
| CONCRETE VALLEY GUTTER | 912 | SF |
| NOTES: | | |
| 1. RETAINING WALL MEASURED BY EXPOSED AREA ALONG FACE | | |
| 1.1. AGGREGATES AND FABRIC INCIDENTAL TO BID ITEM (SEE SHEET D-1) | | |
| 2. SEDIMENT REMOVAL QUANTITIES NOT CALCULATED | | |

- GENERAL NOTES:**
- RETAINING WALL INSIDE CORNER INSTALLED PER MANUFACTURER INSTRUCTIONS.
 - SLOPES SHOWN ARE FINISHED GRADE.
 - CONTRACTOR IS RESPONSIBLE FOR LOCATING AND PROTECTING BELOW-GROUND UTILITIES WITHIN PROJECT AREA.
 - CONTRACTOR SHALL COORDINATE ALL WORK WITH THE CITY OF SIDNEY AND PROPERTY OWNER PRIOR TO COMMENCING CONSTRUCTION. IMPROVEMENTS ARE REQUIRED IN BOTH THE PUBLIC RIGHT-OF-WAY AND PRIVATE PROPERTY.

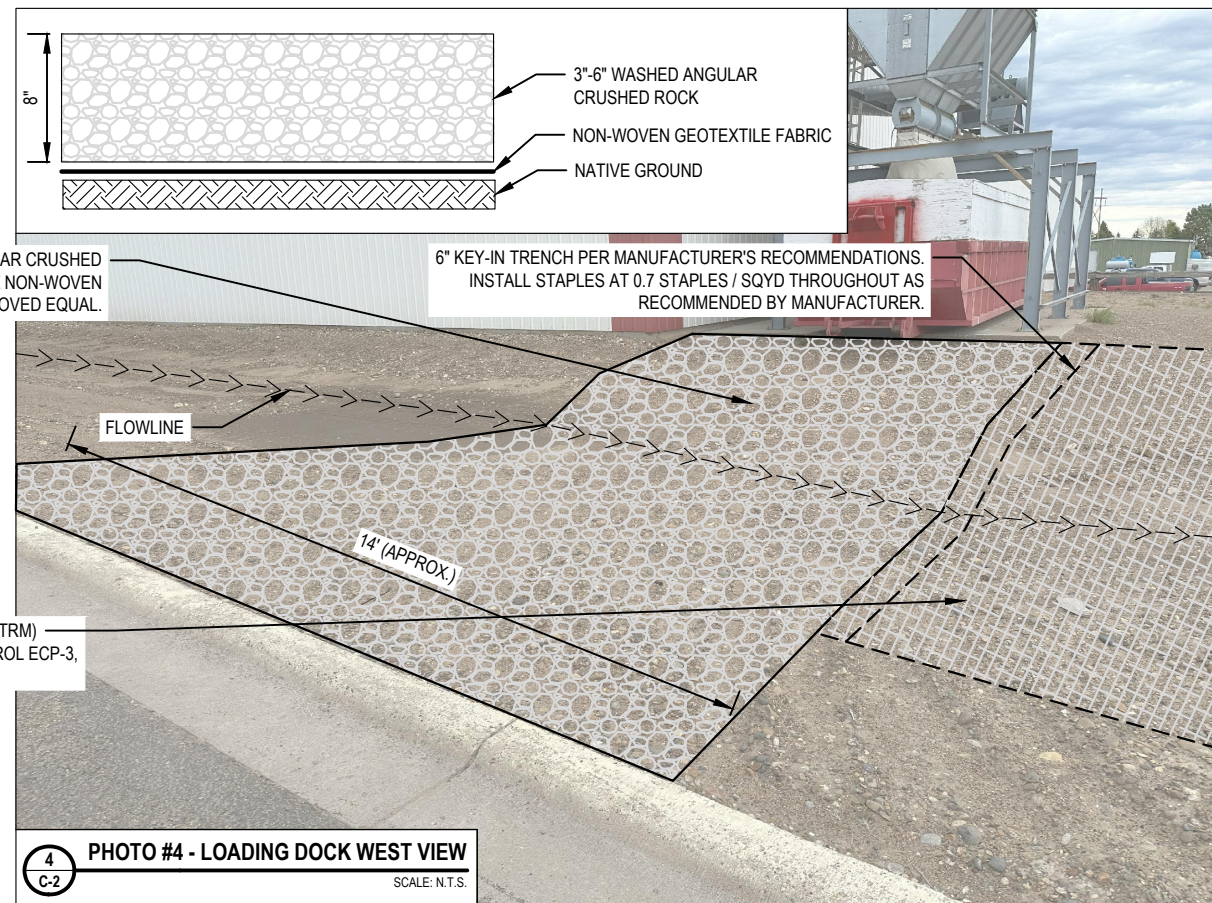
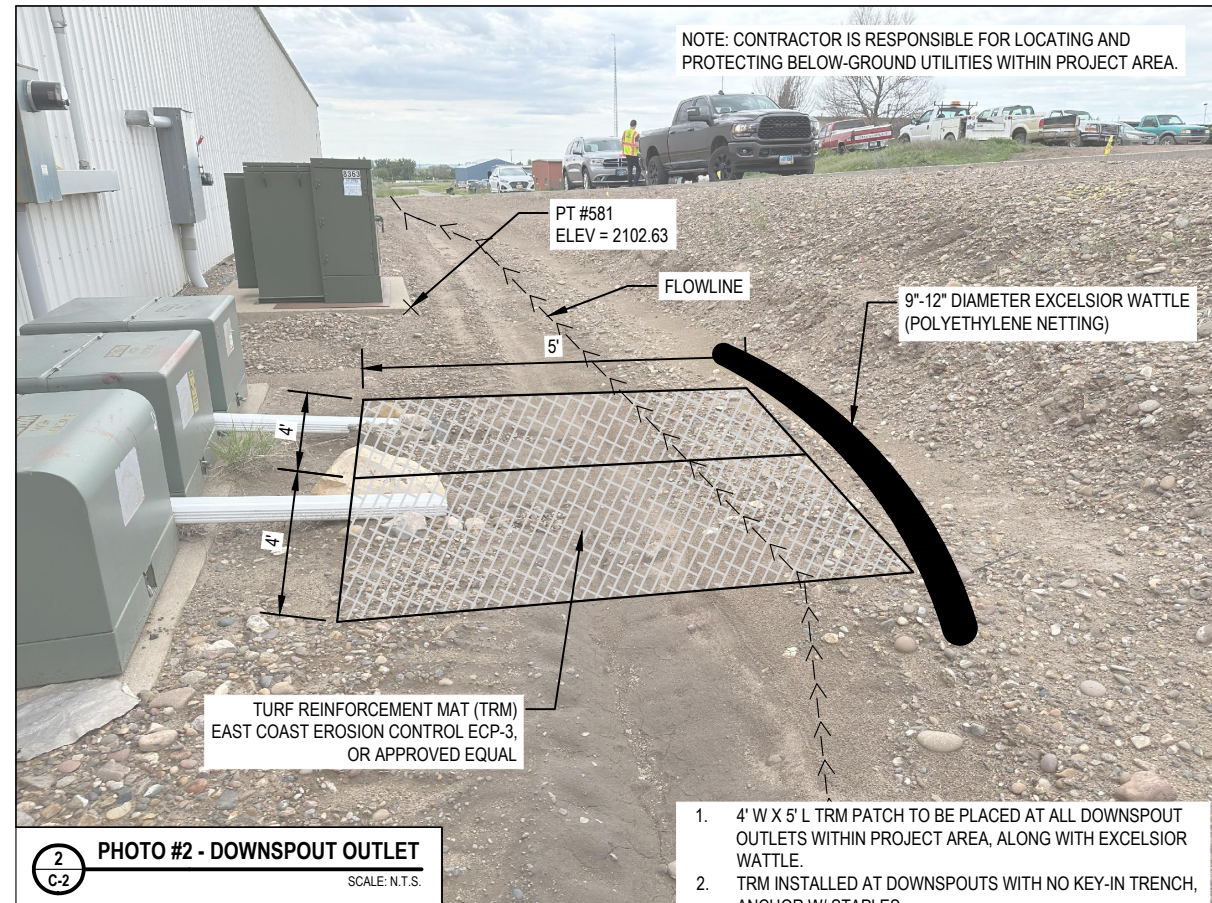
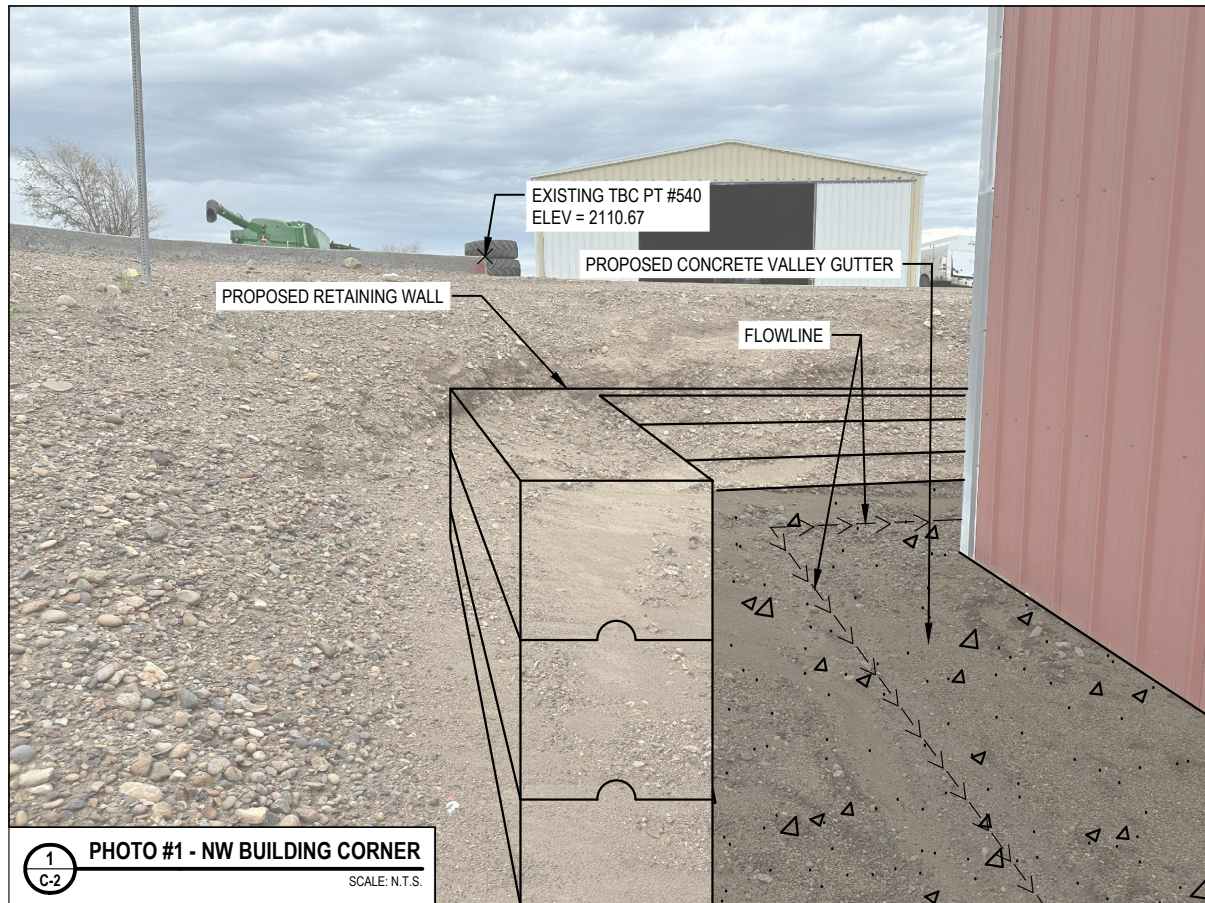
| REV. NO. | DATE | DESCRIPTION |
|----------|------|-------------|
| | | |
| | | |

RED RIVER DRIVE DRAINAGE AND EROSION CONTROL
 CITY OF SIDNEY
 SIDNEY, MONTANA
GRADING PLAN
 DRAWN BY: WJS
 CHECKED BY: TK
 SURVEYED BY: PT
 DESIGNED BY: TJJ
 PROJECT NO.: WR24-04-050
 DATE: 07/25/2024

Interstate Engineering
 2177 Lincoln Ave SE
 PO Box 648
 Sidney, MT 59270
 (406) 433-8617
 www.interstateeng.com



SECTION
C
 1
 SHEET NO.



| REV NO | DATE | BY | DESCRIPTION |
|--------|------|----|-------------|
| | | | |
| | | | |
| | | | |

RED RIVER DRIVE DRAINAGE AND EROSION CONTROL
CITY OF SIDNEY
SIDNEY, MONTANA

ANNOTATED SITE PHOTOS

DRAWN BY: WJS SURVEYED BY: PT PROJECT NO.: WR24-04-050
CHECKED BY: TK DESIGNED BY: TJJ DATE: 07/25/2024

Interstate Engineering
2177 Lincoln Ave SE
PO Box 648
Sidney, MT 59270
(406) 433.8617
www.interstateeng.com

INTERSTATE ENGINEERING
Professionals You Need. People You Trust.

| | |
|-----------|---|
| SECTION | C |
| SHEET NO. | 2 |