



INTERIM RECLAMATION PLAN
FOR
Washington Pad

Prepared For:



1120 Lincoln Street, Suite 801
Denver, Colorado, 80203

Prepared By:



1720 Bellaire Street Suite 202
Denver, CO 80222
www.rpgres.com

Date Prepared: September 2022

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1. INTRODUCTION

This interim reclamation plan was prepared by RPG Resources (RPG), on behalf of Extraction Oil & Gas, Inc. (Civitas Resources, Inc.; hereafter Extraction), and outlines Extraction’s planned methods and provides site-specific guidance and recommended best management practices (BMPs) necessary to execute compliant interim reclamation for the Washington Pad (Site). Contents of the report, including proposed measures to address reclamation objectives will adhere to the Colorado Oil and Gas Conservation Commission’s (COGCC) updated rules pursuant to 1003.b & 606.c for Oil and Gas Locations for which operation activity has ceased and long-term production activities are set to begin. Ongoing implementation of the agreed upon interim reclamation plan will serve to ensure that 1) appropriate surface stabilization is achieved via the establishment of desirable vegetative growth at the Site, and 2) current establishment of all undesirable growth associated previous reclamation efforts at the Site are addressed to meet COGCC and landowner expectations and standards.

This report addresses Extraction’s intent to comply with all applicable operating requirements. Additional measures may be implemented based on any new environmental constraints that arise or additional site-specific recommendations identified by Extraction, COGCC or the landowner.

2. SITE DESCRIPTION

2.1. General

The Site includes the proposed development area and abutting access road located within Township 1S, Range 68W, Section 10 in Adams County, Colorado. For the purposes of this plan, any such area subject to proposed reclamation at the location will occur within a delineated area defined as the limits of disturbance (LOD; also referred to as the Oil and Gas Location). The total LOD measures approximately 14.2 acres and will be reclaimed down to approximately 3.64 acres.

The Site is not located within any Colorado Parks and Wildlife (CPW)-mapped High Priority Habitats. The proposed seed mix (Appendix C) consists of native plants and is consistent with the quality of the currently observed vegetation and will create high quality wildlife and rangeland habitat.

2.2. Topography and Land Use

The Site generally slopes to the east at a 2-5% grade. The Site is currently utilized primarily as cropland and a small area of rangeland in the eastern portion of the Site.

2.3. Natural Features

The nearest surface water is Bull Canal, approximately 50 feet east of the permitted limit of disturbance and approximately 750 feet east of the pad location. An abandoned section of Bull Canal is within the LOD

2.4. Pre-Construction Vegetative Community

The preconstruction vegetation cover observed during the site inspection was primarily comprised of introduced plants. Introduced plant species observed at the time of the field visit included Russian thistle (*Salsola tragus*), field bindweed (*Convolvulus arvensis*), and winter wheat (*Triticum aestivum*). Please see Appendix E for additional information.

3. IMPLEMENTATION PROCESS

This plan is being developed as a requirement of Rule 303.c.(16) and is consistent with the requirements of Rule 1003 as well as local government recommendations. The following procedures outline Extraction's processes related to interim reclamation and will be implemented during the Washington Pad development. Additional and related information pertaining to field-wide interim reclamation procedures can be found in the operator's Field-Wide Stormwater Management Plan, which is updated periodically.

3.1. Pre-construction Procedures

3.1.1. Design Considerations

As a good engineering practice, the operator will work closely with qualified consultants to identify the most efficient usage of native material as well as placement of permanent equipment to minimize the area of long-term disturbance. In addition, the consultant will prepare drainage plans for an interim reclamation design to ensure long term erosion and stormwater controls are in place. Site-specific drainage and grading plans for interim reclamation required by the local government will be prepared and will be consistent with the site-specific design details of this interim reclamation plan.

3.1.2. Commencement of Work

The operator intends to commence drilling and or completion activities within twelve (12) months of site construction. In the event of unforeseen circumstances outside of the operator's control, the site might not be able to be utilized within the required time frame. If this occurs, the operator will work with the surface owner, as well as state and local governments, to determine a reasonable course of action, whether that be interim reclamation of the site or a waiver to keep the location in current state.

3.2. Construction Activities

3.2.1. Non-Native Material

All non-native materials, such as debris and waste, including but not limited to concrete, sack bentonite and other drilling mud additives, sand plastic, pipe and cable, as well as equipment associated with the drilling, re-entry, or completion operations, shall be removed. All Exploration & Production (E&P) waste will be handled according to the 900 Series rules, and consistent with the operator's Waste Management Plan. Per Rule 1003.a, upon interim reclamation, the operator will remove and regrade any and all cellars, rat holes, and other bore holes not required for future lease operations. *All non-native materials such as roadbase, granular rock, concrete or similar pad surfacing materials placed in areas to be reclaimed will be removed. If deemed usable, roadbase and rock material may be salvaged for future use.*

3.2.2. Compact Alleviation

All areas compacted by drilling and subsequent oil and gas operations which are no longer needed following completion of such operations shall be cross-ripped. The site is deemed to be on crop land thus, such compaction alleviation operations shall be undertaken when the soil moisture at the time of ripping is below thirty-five percent (35%) of field capacity. Ripping shall be undertaken to a depth of eighteen (18) inches unless and to the extent bed rock is encountered at a shallower depth.

3.2.3. Re-contouring

Cut and fill areas to be reclaimed shall be regraded to match pre-existing contours to the nearest extent possible to provide long term erosion control and site stability.

3.2.4. Topsoil

Onsite stockpiled topsoil shall be used and spread across all reclaimed areas to a depth of 12 inches. Approximately 158,414 cubic feet (5,876 cubic yards) of total topsoil will be used during the Interim reclamation phase. Remaining topsoil in the stockpile shall be left intact for use during final reclamation.

3.2.5. Revegetation

When a well is completed for production, all disturbed areas no longer needed for production operations will be restored and revegetated as soon as practicable. The operator intends to follow the COGCC guidelines for restoration and revegetation on crop land, as per the Site's categorized land use, as detailed below:

- (1) *Revegetation of crop lands.* All segregated soil horizons removed from crop lands shall be replaced to their original relative positions and contour, and shall be tilled adequately to re-establish a proper seedbed. The area shall be treated if necessary and practicable to prevent invasion of undesirable species and noxious weeds, and to control erosion. Any perennial forage crops that were present before disturbance shall be re-established.

3.3. Post-Construction Operator Obligations

3.3.1. Reporting

When reclamation work is complete, the operator shall provide the following forms to the COGCC documenting the work performed.

- (1) *Form 4 Notice.* Upon completion of work, the operator will submit a Form 4 Sundry Notice detailing the work performed along with a minimum of four (4) photographs in each cardinal direction or one (1) aerial photograph image taken with an unmanned aerial vehicle during the growing season to document successful vegetative growth.
- (2) *Form 45.* Within six (6) months of completion of reclamation work, the operator will submit a site As-built verifying the work completion and accuracy of acreage returned to original site conditions.

3.3.2. Inspections

Interim reclamation of all disturbed areas no longer in use shall be considered complete when all ground surface disturbing activities at the site have been completed, and all disturbed areas have been either built on, compacted, covered, paved, or otherwise stabilized in such a way as to minimize erosion to the extent practicable, or a uniform vegetative cover has been established that reflects pre-disturbance or reference area forbs, shrubs, and grasses. Pictures will be taken to document vegetative growth. The site will not be deemed as complete until vegetative cover exceeds 80%.

Inspection of BMPs shall occur for as long as they remain on site. As per the Colorado Department of Public Health and Environment (CDPHE) guidance, over the course of active construction inspection shall occur every seven (7) days; or every fourteen (14) days with post storm inspections completed within 24 hours of any precipitation or snowmelt event. When the construction site is considered idle, routine inspections must be performed minimally every 14 days with post-storm inspections conducted within 72 hours of any precipitation or snowmelt event. After construction has been completed and the site is awaiting stabilization, inspections will be conducted every 30 days with no additional post storm inspections. During all inspections, necessary repairs to BMPs will be noted and corrective action shall be immediately implemented. If noted deficiencies cannot be immediately addressed, the reasoning shall be noted and repair will be scheduled.

3.3.3. Weed Management

During drilling, production, and reclamation operations, all disturbed areas shall be kept as free of all undesirable plant species designated to be noxious weeds as practicable. The operator will monitor the site for the presence of noxious weeds. The operator may employ a third-party consultant knowledgeable in identifying such species. If encountered, the operator shall implement weed control measures consistent and in compliance with the Colorado Noxious Weed Act.

3.3.4. Drilling Pits

The operator does not expect to use any on-site drilling pits. Therefore, no reclamation procedures will be considered here.

4. SITE SPECIFIC BEST MANAGEMENT PRACTICES (BMPs)

Each of the BMPs listed below are intended for use at this Site specifically (see Topsoil Protection Plan Exhibit in Appendix D). These BMPs are also consistent with the field-wide SWMP for Extraction. Detailed design and maintenance information for each BMP has been included as an attachment (Appendix B).

4.1. Diversion/Berm

A temporary berm made of either compacted subsoil or coarse aggregate along with an associated diversion ditch will be placed on the north, west, and southern perimeter of the pad. The diversion ditch and berm will function to divert runoff into the detention pond helping to prevent erosion and reduce sediment transport. The diversion ditch and berm will remain in place until the pad has been stabilized.

4.2. Vehicle Tracking Control

The vehicle tracking control will be made with coarse-aggregate surface underlaid by a geotextile, a construction mat, or a wheel wash located at the entrance/exit of the Site west of Washington Street. This will function in sediment control and materials management by reducing the tracking of sediment off Site. The vehicle tracking control will remain in place until Site has been stabilized.

4.3. Outlet Protection

Rip-rap, grouted rip-rap, or concrete will be placed along the eastern side of the pond outlet structure as well as within the emergency spillway. Outlet protection will be installed to reduce the velocity of concentrated water flow in order to mitigate rill and gully erosion. All installed outlet protection will remain in place until the pad is stabilized.

4.4. Stockpile Management

Topsoil will be stockpiled along the eastern portion of the permitted limit of disturbance. In order to mitigate topsoil loss and migration of soil offsite, the stockpile will be contained using a perimeter erosion control device. Perimeter erosion controls will remain in place at any time the stockpile is not being actively accessed and until vegetative cover is established. Erosion control devices shall be placed within 5-10 feet of the toe of slope.

4.5. Seeding

Once construction operations have been completed, the soil on the southern and northeastern portions of the pad will be seeded with the specified seed mix (see Appendix C). Establishing vegetative cover will help to stabilize the soil, reduce wind and water erosion, minimize sheet flow and rill erosion, increase infiltration rates, and reduce overall surface runoff. The reclamation area will be regularly monitored for noxious weed growth. Re-seeding will occur as necessary to achieve wide spread, uniform vegetative cover.

4.6. Mulching

Post seeding, a layer of straw or hay mulch will be installed via crimping along the stockpile, in order to promote seed germination and further stabilization of the soil. Mulching helps to mitigate the impacts of rainfall and increase soil moisture retention. Mulching will be monitored and re-applied as necessary, until vegetative growth is established.

4.7. Erosion Control Logs

Erosion logs composed of excelsior, rocks, straw, coconut fibers, wood chips, or compost will be installed along the eastern perimeter of the permitted limit of disturbance. Erosion logs will aid in reducing flow velocities to mitigate rill erosion, and capture sediment to mitigate runoff. Erosion control logs will remain in place until the pad is stabilized.

4.8. Erosion Control Blanket

Erosion control blankets will be composed of degradable materials including straw, wood, coconut fibers or a mixture will be installed along the eastern slopes of the pad. Erosion blankets will aid in minimizing erosion on slopes and reducing moisture loss. Erosion control blankets will remain in place until the pad is stabilized.

4.9. Silt Fence

A temporary barrier composed of porous fabric that is stretched across and held up by wooden posts will be placed along the north, west, and southern edge of the pad. Silt fencing will aid in sediment control by allowing sediment within surface runoff to settle before leaving the pad. Silt fencing will remain in place until the pad is stabilized.

LITERATURE CITED

Colorado Oil and Gas Conservation Commission. 2021. 1000 Series: Reclamation Regulations.

Colorado Oil and Gas Conservation Commission. 2021. 600 Series: Safety and Facility Operations Regulations.

Extraction Oil and Gas, Inc. 2019. Field-Wide Stormwater Management Plan for Construction Activities.

APPENDIX A

Interim Reclamation Plan Exhibit

LEGEND

EXISTING LINETYPES	PROPOSED LINETYPES	
---	---	SUA BOUNDARY
---	---	LOT LINE
---	---	RIGHT-OF-WAY
---	---	MINOR CONTOUR (1' INTERVAL)
---	---	MAJOR CONTOUR (5' INTERVAL)
---	---	EDGE OF GRAVEL
---	---	FENCE
---	---	DITCH FLOWLINE
---	---	STORM SEWER

EXISTING SYMBOLS

→	→	FLOW DIRECTION, %
▽	▽	CONCRETE FLARED END SECTION
⊠	⊠	GAS MARKER SYMBOL
■	■	RECLAMATION PAD
▨	▨	RIPRAP
▩	▩	RECLAMATION SEED MIX

LANDSCAPING NOTES:

1. THE PROJECT AREA IS CURRENTLY UTILIZED AS AGRICULTURAL LAND FOR CROPS.
2. DRILL PHASE CONSTRUCTION WILL LESSEN THE AMOUNT OF ARABLE LAND ONSITE.
3. UPON INTERIM AND FINAL RECLAMATION, EXTRACTION OIL & GAS WILL CONTACT THE CITY OF THORNTON TO CONFIRM THAT LAND WILL BE RETURNED TO ITS ORIGINAL CONDITION AS AGRICULTURE USE. STRAW CRIMPING WILL BE INCORPORATED TO HELP CONTROL EROSION AND DUST UNTIL CROPS ARE PLANTED. IF THE SURFACE WILL NOT BE UTILIZED AS AGRICULTURE THEN A NATIVE SEED MIX WILL BE PLANTED. A TEMPORARY SURFACE IRRIGATION SYSTEM WILL BE IMPLEMENTED TO PROMOTE NATIVE SEED GERMINATION DURING PERIODS OF DRY OR DROUGHT CONDITIONS. A TEMPORARY FRESH WATER TANK BE LOCATED WITHIN THE PAD AND UTILIZED FOR THE TEMPORARY IRRIGATION SYSTEM UNTIL GERMINATION AND NATIVE SEED GROWTH IS ESTABLISHED.
4. VEGETATION NOT DIRECTLY IMPACTED BY CONSTRUCTION SHALL BE PROTECTED BY EROSION AND SEDIMENT CONTROL MEASURES SHOWN IN THE STORMWATER MANAGEMENT PLANS AS WELL AS THE GRADING, DRAINAGE, AND EROSION CONTROL PLANS IN THIS APPLICATION. THESE MEASURES, IN ADDITION TO THE DETENTION POND OUTLET STRUCTURE, WILL SERVE TO MITIGATE EROSION, SEDIMENTATION, AND EXCESS STORMWATER RUNOFF TO AREAS OUTSIDE THE PROJECT LIMITS. OUTSIDE OF THE PROJECT LIMITS, THERE WILL BE MINIMAL IMPACT TO EXISTING TREES AND VEGETATION.
5. AREAS OUTSIDE THE PAD AND ACCESS LIMITS SHALL BE SEEDED AND PROTECTED UNTIL A UNIFORM VEGETATIVE COVER WITH 70% OF PRE-DISTURBANCE PLANT DENSITY IS ESTABLISHED

TABLE 1. RECLAMATION SEED MIX

COMMON NAME	SCIENTIFIC NAME	VARIETY	# PURE LIVE SEEDS/ACRE	PERCENT OF MIX
BLUE GRAMA	BOUTELOUA GRACILIS	NATIVE	0.42	20
SIDEOATS GRAMA	BOUTELOUA CURTIPENDULA	VAUGHN	1.37	15
BUFFALOGRASS	BOUTELOUA DACTYLOIDES	NATIVE	4.67	15
WESTERN WHEATGRASS	PASCOPYRUM SMITHII	NATIVE	1.98	12.5
WESTERN WHEATGRASS	PASCOPYRUM SMITHII	ARRIBA	1.98	12.5
GREEN NEEDLEGRASS	NASSELLA VIRIDULA	LODORM	1.16	12
LITTLE BLUESTEM	SCHIZACHYRIUM SCOPARIUM	NATIVE	0.87	13
TOTAL			12.45	100

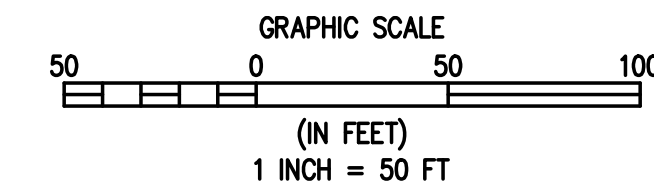
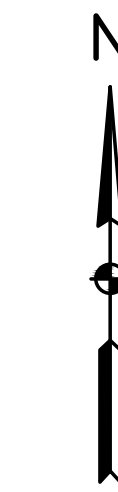
SEEDING AND AMENDMENTS

NOTE: THE SEED MIX IN TABLE 1 MAY BE ADJUSTED BASED ON LANDOWNER PREFERENCE, SEEDING DATES, OR OTHER VARIABLES. ADJUSTMENTS TO THE SEED MIX ARE NOT EXPECTED TO WARRANT SIGNIFICANT ADJUSTMENTS TO THE COST OR SCHEDULE OF RECLAMATION. FALL/WINTER SEEDING AND AMENDMENT APPLICATIONS ARE RECOMMENDED TO OPTIMIZE DORMANCY AND MOISTURE CONDITIONS FOR SUITABLE WINTER-SPRING GERMINATION AND GROWTH. PLANTING OF NATIVE SPECIES BETWEEN MAY AND SEPTEMBER WILL NOT FAVOR PLANTED GRASSES, FOR EXAMPLE, AND MAY ENCOURAGE WEED GROWTH THROUGH SURFACE DISTURBANCE.

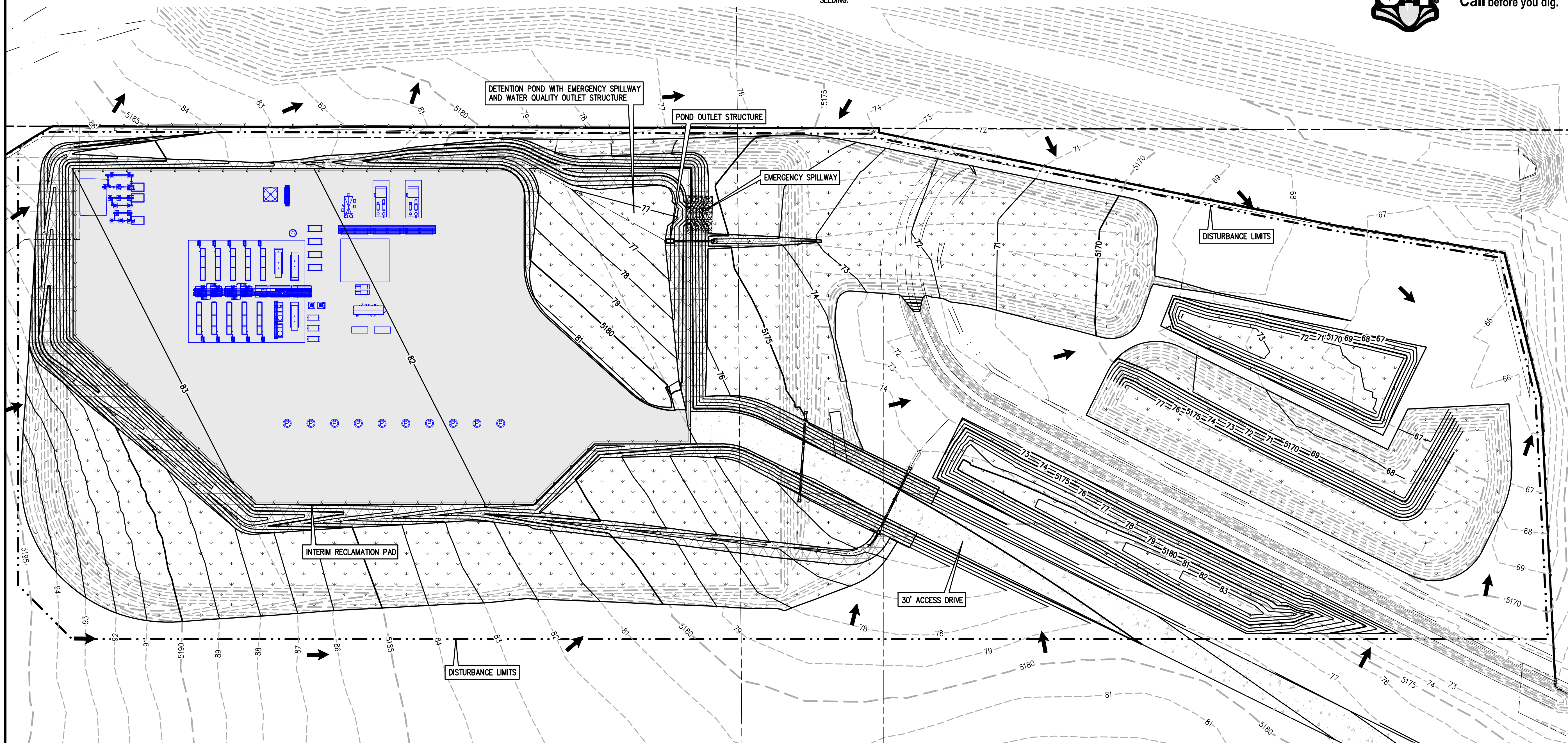
IN THE FALL/WINTER/SPRING:

- APPLY 40 LBS/ACRE OF SLOW RELEASE NITROGEN TO THE WELL/FACILITY PAD AND ACCESS ROAD TO ACCOUNT FOR THE LESS THAN OPTIMAL NITRATE LEVELS PRESENT.
- FOLLOWING OR CONCURRENT WITH AMENDMENT APPLICATION, DRILL-SEED RECLAMATION AREA WITH THE SEED MIX SPECIFIED BY THE TOWN OF FIRESTONE IN TABLE 1.
- CRIMP RECLAMATION AREA WITH TWO TONS/ACRE CERTIFIED WEED-FREE STRAW AFTER SEEDING.

WORK SHALL BE CONSTRUCTED TO CITY OF THORNTON STANDARDS AND SPECIFICATIONS. THIS APPROVAL IS FOR CONFORMANCE TO THESE STANDARDS AND SPECIFICATIONS AND OTHER CITY REQUIREMENTS. THE DESIGN AND CONCEPT REMAINS THE RESPONSIBILITY OF THE PROFESSIONAL ENGINEER OR LANDSCAPE PROFESSIONAL.



1
10.3 10.3
INTERIM LANDSCAPING AND RECLAMATION PLAN



BASILINE
Engineering • Planning • Surveying
112 W. RUBY DRIVE, SUITE 210 • GOLDEN, COLORADO 80403
P: 303.949.8868 • F: 303.949.8869 • www.basilinecorp.com

DESIGNED BY	DATE
JDD	

DRAWN BY	DATE
JDD	

CHECKED BY	DATE
SRA	

EXTRACTION OIL & GAS
ADAMS COUNTY
WASHINGTON PAD
SOUTHEAST QUARTER OF SECTION 10, TOWNSHIP 1 SOUTH, RANGE 68 WEST
INTERIM LANDSCAPING AND RECLAMATION PLAN
CITY OF THORNTON

PREPARED UNDER THE DIRECT SUPERVISION OF
PRELIMINARY NOT FOR CONSTRUCTION
FOR AND ON BEHALF OF
BASILINE CORPORATION
INITIAL SUBMITTAL 05/25/2022
DRAWING SIZE 22" X 34"
SURVEY FIRM SURVEY DATE
BASILINE 02/25/2022
JOB NO. EXT01568W10-02
DRAWING NAME
EXT01568W10-02 (WASHINGTON) LSCP PLAN INTERIM
SHEET 3 OF 27
10.3

APPENDIX B
BMP Data Sheets

REINFORCED CONCRETE PIPE (RCP)

POLYVINYL CHLORIDE PIPE (PVC)

HIGH DENSITY POLYETHYLENE (HDPE)

NATIVE SOIL: COARSE GRAINED SAND AND GRAVEL (50% OR MORE BY WEIGHT RETAINED ON # 40 SIEVE)	BEDDING: COOT CLASS A FILTER MATERIAL (SECTION 703.04)
FINE GRAINED SOIL (LESS THAN 50% RETAINED ON # 40 SIEVE)	UDFC TYPE 1 FILTER MATERIAL, COOT FINE AGGREGATE FOR CONCRETE AASHTO M6 (SECTION 703.01)

* MINIMUM COVER SHALL NOT INCLUDE PAVEMENT.
** MAY BE REQUIRED IN AREAS WITH HIGH GROUNDWATER TABLE OR UNSUITABLE SUB-GRADE.

CITY OF THORNTON, COLORADO STANDARDS & SPECIFICATIONS

STORM DRAINAGE PIPE BEDDING DETAILS

ISSUED: DECEMBER 2002
REVISED: APRIL 2010
DRAWING NO. 400-2

OP

SECTION A-A

TRASHRACK

NOTES:

- L, D, AND W DIMENSIONS TO BE PROVIDED BY THE ENGINEER OF RECORD
- RIP RAP SHALL BE HAND PLACED
- SEE SPECIFICATIONS FOR MATERIALS
- FILTER LATER AND FABRIC ARE INCIDENTAL TO RIP RAP
- ADD RIP RAP OVER TOP OF PIPE
- PIPE SHALL BE RCP TO FIRST STRUCTURE

CITY OF THORNTON, COLORADO STANDARDS & SPECIFICATIONS

RIP RAP AT CULVERT OUTLET DETAIL

ISSUED: APRIL 1995
REVISED: APRIL 2010
DRAWING NO. 400-4

VTC

PAVED ROADWAY

NOTES:

- PAVED ROADWAY TO BE KEPT CLEAN OF MUD, DIRT, ROCKS, AND DEBRIS AT ALL TIMES.
- GEOTEXTILE FABRIC SHALL COMPLY WITH CDOT 712.08B.
- 2"-3" STONE SHALL CONTAIN LESS THAN 10% FINES.
- CONSTRUCTION EXIT SHALL BE MAINTAINED AT ALL TIMES. STONE SHOULD BE BLADED AND/OR ADDITIONAL 2"-3" STONE SHOULD BE PLACED IF VOIDS BEGIN FILLING WITH DEBRIS.
- IF A DRAINAGE DITCH EXISTS NEXT TO ROADWAY, INSTALL TEMPORARY CULVERT UNDERNEATH STONE CONSTRUCTION EXIT TO CONVEY FLOW.
- PROVIDE INLET PROTECTION FOR ANY INLETS LOCATED IMMEDIATELY ADJACENT TO THE CONSTRUCTION EXIT.
- IF TRACKOUT DOES OCCUR, ROADWAY SHOULD BE SWEEP IMMEDIATELY.
- RECYCLED CONCRETE OR RECYCLED ASPHALT SHALL NOT BE USED.

CITY OF THORNTON, COLORADO STANDARDS & SPECIFICATIONS

VEHICLE TRACKING PAD

ISSUED: NOV 08
REVISED:
DRAWING NO. 400-7

SCL

PROFILE VIEW

PLAN VIEW

NOTES:

- STAKES SHALL BE 1-1/2" x 1-1/2" x 24" MINIMUM AND EMBEDDED INTO GROUND A MINIMUM OF 12".
- SEDIMENT CONTROL LOG SHALL BE TRENCHED 2" INTO GROUND.
- FOR CONTINUOUS CONTROL, ADJACENT SEDIMENT CONTROL LOGS SHALL BE PLACED FIRMLY TOGETHER WITH NO GAPS.
- SEDIMENT SHALL BE CLEANED/ REMOVED WHEN SEDIMENT DEPTH IS 1/2 THE HEIGHT OF THE SEDIMENT CONTROL LOG.

CITY OF THORNTON, COLORADO STANDARDS & SPECIFICATIONS

SEDIMENT CONTROL LOG

ISSUED: NOV 08
REVISED:
DRAWING NO. 400-9

CD

PLAN VIEW

PROFILE VIEW

NOTES:

- CHECK DAMS SHALL BE INSTALLED PRIOR TO UPSTREAM EARTH DISTURBING ACTIVITIES.
- STONE SHALL HAVE < 10% FINES.
- EACH END OF CHECK DAM SHALL BE 6" MINIMUM HIGHER THAN CENTER.
- SEDIMENT SHALL BE REMOVED FROM THE CHECK DAM WHEN THE SEDIMENT DEPTH REACHES 1/2 THE HEIGHT OF THE CENTER.
- CHECK DAM SHALL BE REMOVED ONCE ALL UPSTREAM DISTURBED AREAS HAVE BEEN STABILIZED. UPON REMOVAL OF CHECK DAM, EXCAVATIONS SHALL BE FILLED WITH SUITABLE COMPACTED FILL, SEEDED AND COVERED WITH AN EROSION CONTROL BLANKET ADEQUATE FOR EXPECTED CHANNEL VELOCITY.

CITY OF THORNTON, COLORADO STANDARDS & SPECIFICATIONS

CHECK DAM

ISSUED: NOV 08
REVISED:
DRAWING NO. 400-11

SC-6 Inlet Protection (IP)

IP

IP-1. BLOCK AND ROCK SOCK SUMP OR ON GRADE INLET PROTECTION

IP-2. CURB ROCK SOCKS UPSTREAM OF INLET PROTECTION

NOTES:

- SEE ROCK SOCK DESIGN DETAIL FOR INSTALLATION REQUIREMENTS.
- CONCRETE "CINDER" BLOCKS SHALL BE LAID ON THEIR SIDES AROUND THE INLET IN A SINGLE ROW, ABUTTING ONE ANOTHER WITH THE OPEN END FACING AWAY FROM THE CURB.
- GRAVEL BAGS SHALL BE PLACED AROUND CONCRETE BLOCKS, CLOSELY ABUTTING ONE ANOTHER AND JOINTED TOGETHER IN ACCORDANCE WITH ROCK SOCK DESIGN DETAIL.
- MINIMUM OF TWO CURB SOCKS APPROX 30 DEG. BLOCK AND ROCK SOCK INLET PROTECTION (SEE DETAIL IP-1)
- SEE ROCK SOCK DESIGN DETAIL INSTALLATION REQUIREMENTS.
- PLACEMENT OF THE SOCK SHALL BE APPROXIMATELY 30 DEGREES FROM PERPENDICULAR IN THE OPPOSITE DIRECTION OF FLOW.
- SOCKS ARE TO BE FLUSH WITH THE CURB AND SPACED A MINIMUM OF 5 FEET APART.
- AT LEAST TWO CURB SOCKS IN SERIES ARE REQUIRED UPSTREAM OF ON-GRADE INLETS.

Urban Drainage and Flood Control District
Urban Storm Drainage Criteria Manual Volume 3

August 2013

EC-6 Rolled Erosion Control Products (RECP)

ECB

ECB-3. OUTSIDE OF DRAINAGEWAY

STAKING PATTERNS BY ECB TYPE

STAKING PATTERNS BY SLOPE OR CHANNEL TYPE

NOTES:

- SEE PLAN VIEW FOR:
 - LOCATION OF ECB.
 - TYPE OF ECB (STRAW, STRAW-COCONUT, COCONUT, OR EXCELSIOR).
 - AREA, A, IN SQUARE YARDS OF EACH TYPE OF ECB.
- 100% NATURAL AND BIODEGRADABLE MATERIALS ARE PREFERRED FOR RECPs, ALTHOUGH SOME JURISDICTIONS MAY ALLOW OTHER MATERIALS IN SOME APPLICATIONS.
- IN AREAS WHERE ECBs ARE SHOWN ON THE PLANS, THE PERMITTEE SHALL PLACE TOPSOIL AND PERFORM FINAL GRADING, SURFACE PREPARATION, AND SEEDING AND MULCHING. SUBGRADE SHALL BE SMOOTH AND MOIST PRIOR TO ECB INSTALLATION AND THE ECB SHALL BE IN FULL CONTACT WITH SUBGRADE. NO GAPS OR VOIDS SHALL EXIST UNDER THE BLANKET.
- PERIMETER ANCHOR TRENCH SHALL BE USED ALONG THE OUTSIDE PERIMETER OF ALL BLANKET AREAS.
- JOINT ANCHOR TRENCH SHALL BE USED TO JOIN ROLLS OF ECBs TOGETHER (LONGITUDINALLY AND TRANSVERSELY) FOR ALL ECBs EXCEPT STRAW WHICH MAY USE AN OVERLAPPING JOINT.
- INTERMEDIATE ANCHOR TRENCH SHALL BE USED AT SPACING OF ONE-HALF ROLL LENGTH FOR COCONUT AND EXCELSIOR ECBs.
- OVERLAPPING JOINT DETAIL SHALL BE USED TO JOIN ROLLS OF ECBs TOGETHER FOR ECBs ON SLOPES.
- MATERIAL SPECIFICATIONS OF ECBs SHALL CONFORM TO TABLE ECB-1.
- ANY AREAS OF SEEDING AND MULCHING DISTURBED IN THE PROCESS OF INSTALLING ECBs SHALL BE RESEED AND MULCHED.
- DETAILS ON DESIGN PLANS FOR MAJOR DRAINAGEWAY STABILIZATION WILL GOVERN IF DIFFERENT FROM THOSE SHOWN HERE.

TYPE	COCONUT CONTENT	STRAW CONTENT	EXCELSIOR CONTENT	RECOMMENDED NETTING**
STRAW*	-	100%	-	DOUBLE/NATURAL
STRAW-COCONUT	30% MIN	70% MAX	-	DOUBLE/NATURAL
COCONUT	100%	-	-	DOUBLE/NATURAL
EXCELSIOR	-	-	100%	DOUBLE/NATURAL

*STRAW ECBs MAY ONLY BE USED OUTSIDE OF STREAMS AND DRAINAGE CHANNELS.
**ALTERNATE NETTING MAY BE ACCEPTABLE IN SOME JURISDICTIONS.

Urban Drainage and Flood Control District
Urban Storm Drainage Criteria Manual Volume 3

November 2010

EC-6 Rolled Erosion Control Products (RECP)

EROSION CONTROL BLANKET INSTALLATION NOTES

- SEE PLAN VIEW FOR:
 - LOCATION OF ECB.
 - TYPE OF ECB (STRAW, STRAW-COCONUT, COCONUT, OR EXCELSIOR).
 - AREA, A, IN SQUARE YARDS OF EACH TYPE OF ECB.
- 100% NATURAL AND BIODEGRADABLE MATERIALS ARE PREFERRED FOR RECPs, ALTHOUGH SOME JURISDICTIONS MAY ALLOW OTHER MATERIALS IN SOME APPLICATIONS.
- IN AREAS WHERE ECBs ARE SHOWN ON THE PLANS, THE PERMITTEE SHALL PLACE TOPSOIL AND PERFORM FINAL GRADING, SURFACE PREPARATION, AND SEEDING AND MULCHING. SUBGRADE SHALL BE SMOOTH AND MOIST PRIOR TO ECB INSTALLATION AND THE ECB SHALL BE IN FULL CONTACT WITH SUBGRADE. NO GAPS OR VOIDS SHALL EXIST UNDER THE BLANKET.
- PERIMETER ANCHOR TRENCH SHALL BE USED ALONG THE OUTSIDE PERIMETER OF ALL BLANKET AREAS.
- JOINT ANCHOR TRENCH SHALL BE USED TO JOIN ROLLS OF ECBs TOGETHER (LONGITUDINALLY AND TRANSVERSELY) FOR ALL ECBs EXCEPT STRAW WHICH MAY USE AN OVERLAPPING JOINT.
- INTERMEDIATE ANCHOR TRENCH SHALL BE USED AT SPACING OF ONE-HALF ROLL LENGTH FOR COCONUT AND EXCELSIOR ECBs.
- OVERLAPPING JOINT DETAIL SHALL BE USED TO JOIN ROLLS OF ECBs TOGETHER FOR ECBs ON SLOPES.
- MATERIAL SPECIFICATIONS OF ECBs SHALL CONFORM TO TABLE ECB-1.
- ANY AREAS OF SEEDING AND MULCHING DISTURBED IN THE PROCESS OF INSTALLING ECBs SHALL BE RESEED AND MULCHED.
- DETAILS ON DESIGN PLANS FOR MAJOR DRAINAGEWAY STABILIZATION WILL GOVERN IF DIFFERENT FROM THOSE SHOWN HERE.

CITY OF THORNTON, COLORADO STANDARDS & SPECIFICATIONS

EXTRACTION OIL & GAS

WASHINGTON PAD

SOUTHEAST QUARTER OF SECTION 10, TOWNSHIP 1 SOUTH, RANGE 68 WEST

ADAMS COUNTY

EROSION AND SEDIMENT CONTROL DETAILS

ISSUED: NOV 08
REVISED:
DRAWING NO. 400-9

BASELINE
Engineering • Planning • Surveying

112 W. RUBEY DRIVE, SUITE 210 • GOLDEN, COLORADO 80403
P. 303.426.8669 • F. 303.426.8669 • WWW.BASELINECORP.COM

DESIGNED BY: JDD
DRAWN BY: JDD
CHECKED BY: LOS

PREPARED BY: DATE

REVISION DESCRIPTION

CITY OF THORNTON

FOR AND ON BEHALF OF
BASELINE CORPORATION

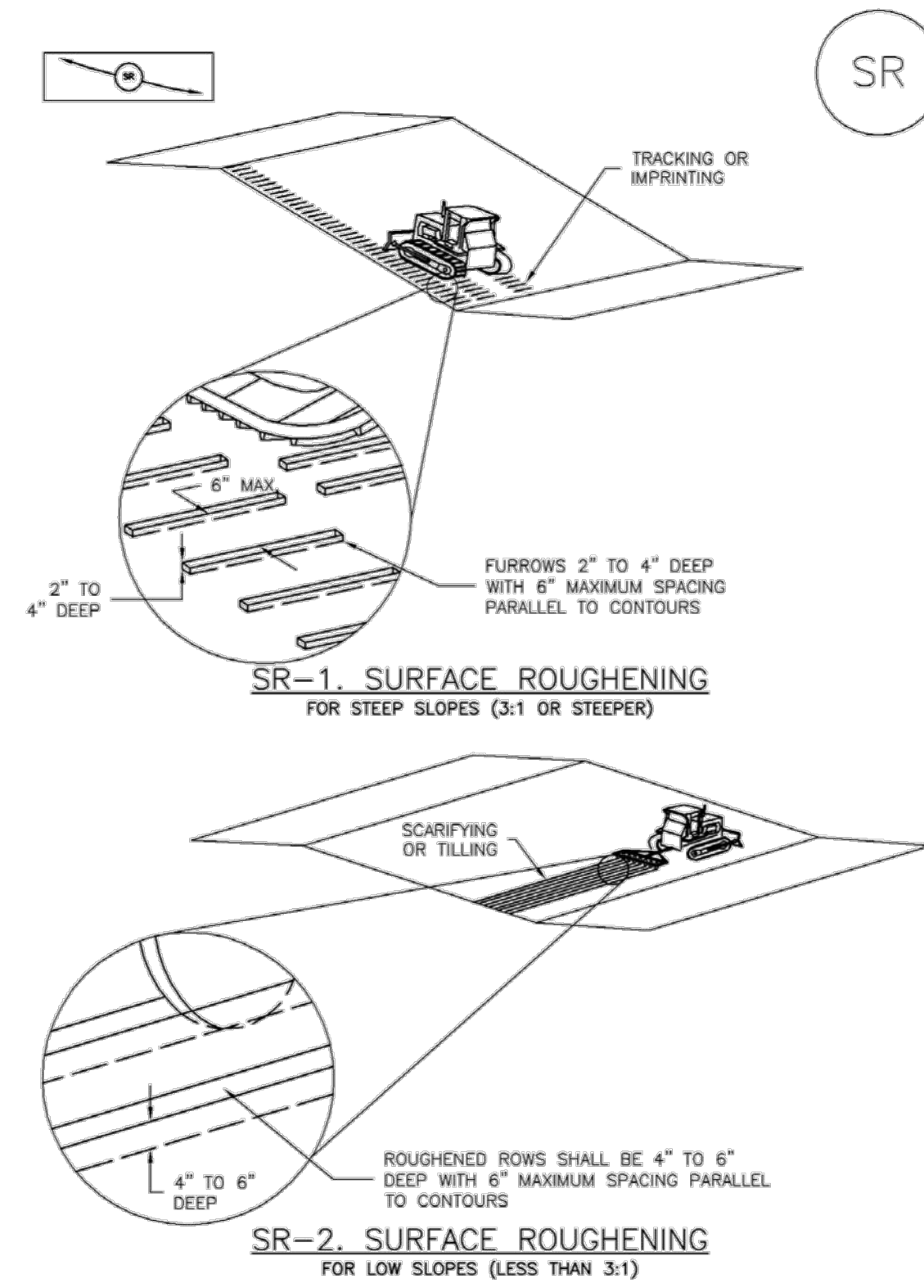
PRELIMINARY NOT FOR CONSTRUCTION

INITIAL SUBMITTAL: 05/25/2022
DRAWING SIZE: 22" x 34"
SURVEY FIRM: BASELINE
SURVEY DATE: 02/25/2022
JOB NO.: EXT01568W10-02
DRAWING NAME: 11M52.dwg
SHEET: 11 OF 27

M:\co - Well Head Staking\EXT01568W10-02 (WASHINGTON W)\Drawings\Construction Documents\North\DET\AL52.dwg, 6/7/15/2022 5:29:56 PM, Jay Davis

Surface Roughening (SR)

EC-1



EC-1

Surface Roughening (SR)

SURFACE ROUGHENING INSTALLATION NOTES

- SEE PLAN VIEW FOR:
-LOCATION(S) OF SURFACE ROUGHENING.
- SURFACE ROUGHENING SHALL BE PROVIDED PROMPTLY AFTER COMPLETION OF FINISHED GRADING (FOR AREAS NOT RECEIVING TOPSOIL) OR PRIOR TO TOPSOIL PLACEMENT OR ANY FORECASTED RAIN EVENT.
- AREAS WHERE BUILDING FOUNDATIONS, PAVEMENT, OR SOD WILL BE PLACED WITHOUT DELAY IN THE CONSTRUCTION SEQUENCE, SURFACE ROUGHENING IS NOT REQUIRED.
- DISTURBED SURFACES SHALL BE ROUGHENED USING RIPPING OR TILLING EQUIPMENT ON THE CONTOUR OR TRACKING UP AND DOWN A SLOPE USING EQUIPMENT TREADS.
- A FARMING DISK SHALL NOT BE USED FOR SURFACE ROUGHENING.

SURFACE ROUGHENING MAINTENANCE NOTES

- INSPECT BMPs EACH WORKDAY, AND MAINTAIN THEM IN EFFECTIVE OPERATING CONDITION. MAINTENANCE OF BMPs SHOULD BE PROACTIVE, NOT REACTIVE. INSPECT BMPs AS SOON AS POSSIBLE (AND ALWAYS WITHIN 24 HOURS) FOLLOWING A STORM THAT CAUSES SURFACE EROSION, AND PERFORM NECESSARY MAINTENANCE.
- FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN BMPs IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.
- WHERE BMPs HAVE FAILED, REPAIR OR REPLACE UPON DISCOVERY OF THE FAILURE.
- VEHICLES AND EQUIPMENT SHALL NOT BE DRIVEN OVER AREAS THAT HAVE BEEN SURFACE ROUGHENED.
- IN NON-TURF GRASS FINISHED AREAS, SEEDING AND MULCHING SHALL TAKE PLACE DIRECTLY OVER SURFACE ROUGHENED AREAS WITHOUT FIRST SMOOTHING OUT THE SURFACE.
- IN AREAS NOT SEEDED AND MULCHED AFTER SURFACE ROUGHENING, SURFACES SHALL BE RE-ROUGHENED AS NECESSARY TO MAINTAIN GROOVE DEPTH AND SMOOTH OVER RILL EROSION.

(DETAILS ADAPTED FROM TOWN OF PARKER, COLORADO, NOT AVAILABLE IN AUTOCAD)

NOTE: MANY JURISDICTIONS HAVE BMP DETAILS THAT VARY FROM UDFCD STANDARD DETAILS. CONSULT WITH LOCAL JURISDICTIONS AS TO WHICH DETAIL SHOULD BE USED WHEN DIFFERENCES ARE NOTED.

November 2010 Urban Drainage and Flood Control District Urban Storm Drainage Criteria Manual Volume 3 SR-3

SR-4 Urban Drainage and Flood Control District Urban Storm Drainage Criteria Manual Volume 3 November 2010

Mulching (MU)

EC-4

Description

Mulching consists of evenly applying straw, hay, shredded wood mulch, rock, bark or compost to disturbed soils and securing the mulch by crimping, tackifiers, netting or other measures. Mulching helps reduce erosion by protecting bare soil from rainfall impact, increasing infiltration, and reducing runoff. Although often applied in conjunction with temporary or permanent seeding, it can also be used for temporary stabilization of areas that cannot be reseeded due to seasonal constraints.



Photograph MU-1. An area that was recently seeded, mulched, and crimped.

Mulch can be applied either using standard mechanical dry application methods or using hydromulching equipment that hydraulically applies a slurry of water, wood fiber mulch, and often a tackifier.

Appropriate Uses

Use mulch in conjunction with seeding to help protect the seedbed and stabilize the soil. Mulch can also be used as a temporary cover on low to mild slopes to help temporarily stabilize disturbed areas where growing season constraints prevent effective reseeding. Disturbed areas should be properly mulched and tacked, or seeded, mulched and tacked promptly after final grade is reached (typically within no longer than 14 days) on portions of the site not otherwise permanently stabilized.

Standard dry mulching is encouraged in most jurisdictions; however, hydromulching may not be allowed in certain jurisdictions or may not be allowed near waterways.

Do not apply mulch during windy conditions.

Design and Installation

Prior to mulching, surface-roughen areas by rolling with a crimping or punching type roller or by track walking. Track walking should only be used where other methods are impractical because track walking with heavy equipment typically compacts the soil.

A variety of mulches can be used effectively at construction sites. Consider the following:

Mulch	
Functions	
Erosion Control	Yes
Sediment Control	Moderate
Site/Material Management	No

June 2012 Urban Drainage and Flood Control District Urban Storm Drainage Criteria Manual Volume 3 MU-1

EC-4

Mulching (MU)

- Clean, weed-free and seed-free cereal grain straw should be applied evenly at a rate of 2 tons per acre and must be tacked or fastened by a method suitable for the condition of the site. Straw mulch must be anchored (and not merely placed) on the surface. This can be accomplished mechanically by crimping or with the aid of tackifiers or nets. Anchoring with a crimping implement is preferred, and is the recommended method for areas flatter than 3:1. Mechanical crimpers must be capable of tucking the long mulch fibers into the soil to a depth of 3 inches without cutting them. An agricultural disk, while not an ideal substitute, may work if the disk blades are dull or blunted and set vertically; however, the frame may have to be weighted to afford proper soil penetration.
- Grass hay may be used in place of straw; however, because hay is comprised of the entire plant including seed, mulching with hay may seed the site with non-native grass species which might in turn out-compete the native seed. Alternatively, native species of grass hay may be purchased, but can be difficult to find and are more expensive than straw. Purchasing and utilizing a certified weed-free straw is an easier and less costly mulching method. When using grass hay, follow the same guidelines as for straw (provided above).
- On small areas sheltered from the wind and heavy runoff, spraying a tackifier on the mulch is satisfactory for holding it in place. For steep slopes and special situations where greater control is needed, erosion control blankets anchored with stakes should be used instead of mulch.
- Hydraulic mulching consists of wood cellulose fibers mixed with water and a tackifying agent and should be applied at a rate of no less than 1,500 pounds per acre (1,425 lbs of fibers mixed with at least 75 lbs of tackifier) with a hydraulic mulcher. For steeper slopes, up to 2000 pounds per acre may be required for effective hydroseeding. Hydromulch typically requires up to 24 hours to dry; therefore, it should not be applied immediately prior to inclement weather. Application to roads, waterways and existing vegetation should be avoided.
- Erosion control mats, blankets, or nets are recommended to help stabilize steep slopes (generally 3:1 and steeper) and waterways. Depending on the product, these may be used alone or in conjunction with grass or straw mulch. Normally, use of these products will be restricted to relatively small areas. Biodegradable mats made of straw and jute, straw-coconut, coconut fiber, or excelsior can be used instead of mulch. (See the ECM/TRM BMP for more information.)
- Some tackifiers or binders may be used to anchor mulch. Check with the local jurisdiction for allowed tackifiers. Manufacturer's recommendations should be followed at all times. (See the Soil Binder BMP for more information on general types of tackifiers.)
- Rock can also be used as mulch. It provides protection of exposed soils to wind and water erosion and allows infiltration of precipitation. An aggregate base course can be spread on disturbed areas for temporary or permanent stabilization. The rock mulch layer should be thick enough to provide full coverage of exposed soil on the area it is applied.

Maintenance and Removal

After mulching, the bare ground surface should not be more than 10 percent exposed. Reapply mulch, as needed, to cover bare areas.

MU-2 Urban Drainage and Flood Control District Urban Storm Drainage Criteria Manual Volume 3 June 2012

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112 W. RUBEY DRIVE, SUITE 210 • GOLDEN, COLORADO 80403
P: 303.949.8666 • F: 303.949.8669 • www.baselinecorp.com

DESIGNED BY	JDD	DRAWN BY	JDD	CHECKED BY	LDS
REVISION	DESCRIPTION	PREPARED BY	DATE		
<p>EXTRACTION OIL & GAS</p> <p>ADAMS COUNTY</p> <p>WASHINGTON PAD</p> <p>SOUTHEAST QUARTER OF SECTION 10, TOWNSHIP 1 SOUTH, RANGE 68 WEST</p> <p>EROSION AND SEDIMENT CONTROL DETAILS</p> <p>CITY OF THORNTON</p>					
<p>PRELIMINARY NOT FOR CONSTRUCTION</p>					
<p>FOR AND ON BEHALF OF</p> <p>BASELINE CORPORATION</p> <p>INITIAL SUBMITTAL 05/25/2022</p> <p>DRAWING SIZE 22" x 34"</p> <p>SURVEY FIRM SURVEY DATE</p> <p>BASELINE 02/25/2022</p> <p>JOB NO. EXT01568W10-02</p> <p>DRAWING NAME</p> <p>EXT01568W10</p> <p>SHEET 12 OF 27</p> <p style="font-size: 14px;">11.12</p>					

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APPENDIX C

Seed Mix

Seed Mix

Common Name	Scientific Name	Variety	# Pure Live Seed/Acre	Percent of Mix
Blue grama	Bouteloua gracilis	Native	0.42	20
Sideoats grama	Bouteloua curtipendula	Vaughn	1.37	15
Buffalograss	Bouteloua dactyloides	Native	4.67	15
Western wheatgrass	Pascopyrum smithii	Native	1.98	12.5
Western wheatgrass	Pascopyrum smithii	Arriba	1.98	12.5
Green needlegrass	Nassella viridula	Lodorm	1.16	12
Little bluestem	Schizachyrium scoparium	Native	0.87	13
	Total		12.45	100

Seeding and Amendments

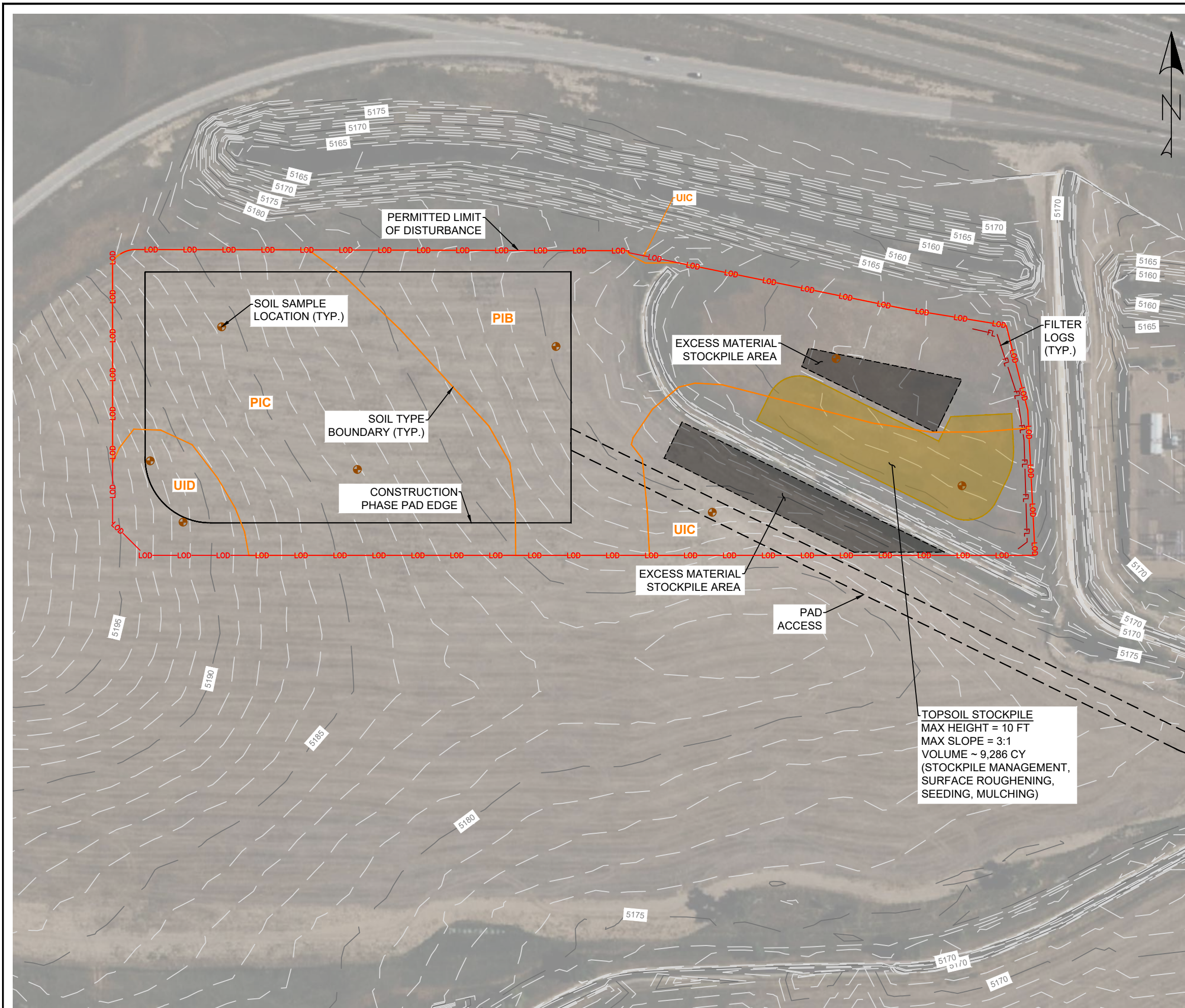
Note: The seed mix may be adjusted based on landowner preference, seeding dates, or other variables. Adjustments to the seed mix are not expected to warrant significant adjustments to the cost or schedule of reclamation. Fall/winter seeding and amendment applications are recommended to optimize dormancy and moisture conditions for suitable winter- spring germination and growth. Planting of native species between May and September will not favor planted grasses, for example, and may encourage weed growth through surface disturbance.

In the Fall/Winter/Spring:

- Apply 40lbs/acre of slow release nitrogen to the well/facility pad and access road to account for the less than optimal nitrate levels present.
- Following or concurrent with amendment application, drill-seed reclamation area with the seed mix specified.
- Crimp reclamation area with two (2) tons/acre certified weed-free straw after seeding

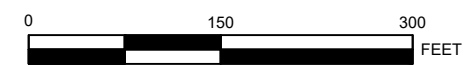
APPENDIX D

Topsoil Protection Plan Exhibit




MAP UNIT SYMBOL	MAP UNIT NAME	RATING	ACRES IN AOI	PERCENTAGE OF AOI
PIB	PLANTER LOAM, 0-3% SLOPES	C	5.6	39.5%
PIC	PLANTER LOAM, 3-5% SLOPES	C	4.9	34.2%
UIC	ULM LOAM, 3-5% SLOPES	C	3.0	21.3%
UID	ULM LOAM, 5-9% SLOPES	C	0.7	4.9%
TOTALS FOR AREA OF INTEREST			14.2	100%

LEGEND	
	EXISTING MAJOR CONTOUR
	EXISTING MINOR CONTOUR
	CONSTRUCTION PHASE PAD EDGE
	PAD ACCESS
	PERMITTED LIMIT OF DISTURBANCE
	FILTER LOGS
	TOPSOIL STOCKPILE
	EXCESS MATERIAL STOCKPILE
	SOIL UNIT BOUNDARY
	SOIL UNIT SYMBOL
	SOIL SAMPLE LOCATION



EXTRACTION OIL & GAS

DATE PREPARED: SEPTEMBER 2022



WASHINGTON PAD

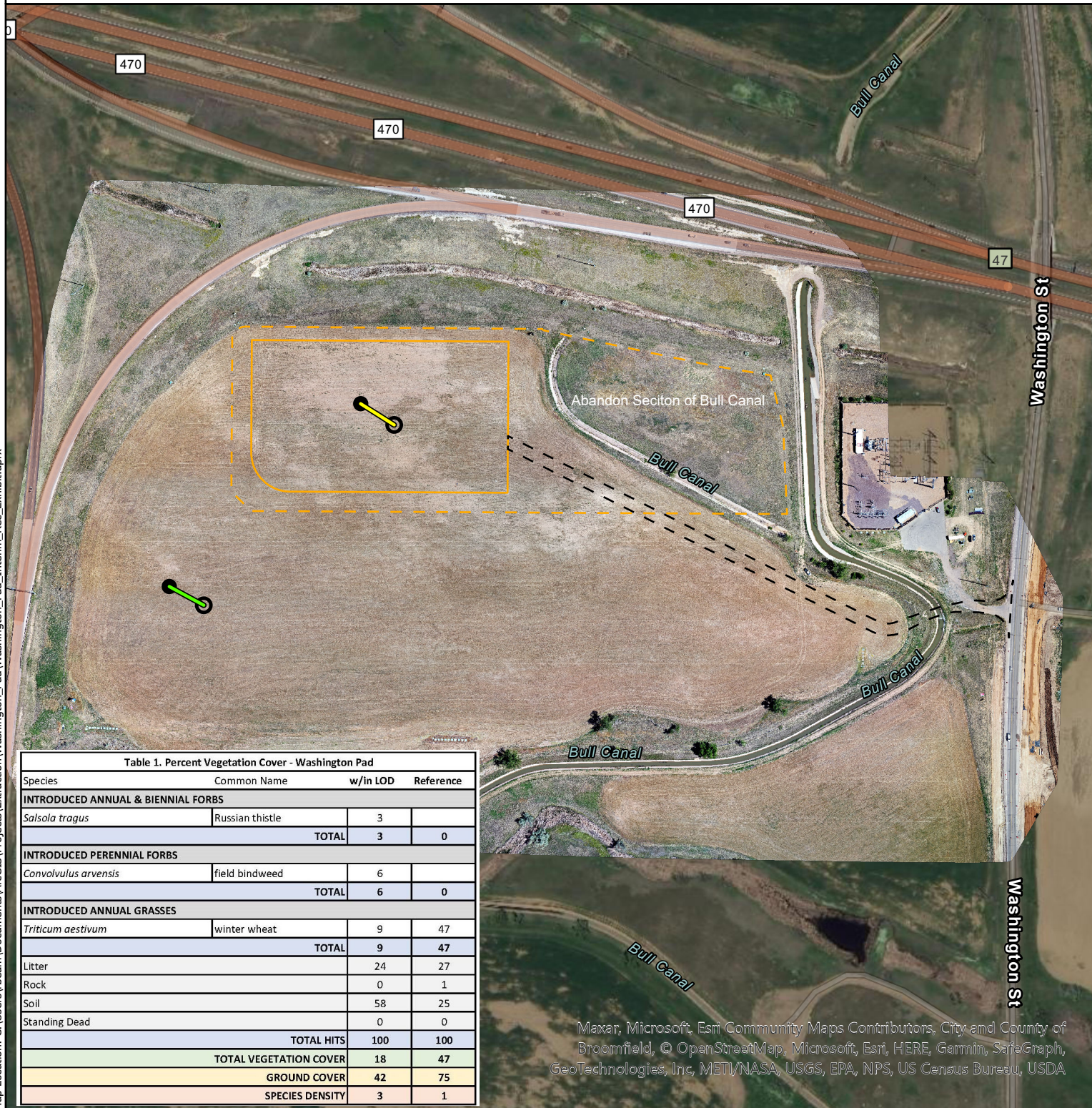
TOPSOIL MANAGEMENT PLAN EXHIBIT	1 OF 1
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APPENDIX E

Pre-Disturbance Vegetation Analysis

**EXTRACTION OIL & GAS
WASHINGTON PAD
SE 1/4 SECTION 10, T1S, R68W, 6th P.M.
ADAMS COUNTY, COLORADO**

Prepared For: Prepared By:



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Legend

Washington Pad

- Oil and Gas Location
- Working Pad Surface
- Access Road

Sample Location

- End
- Start

Vegetation Transect (100 ft)

- w/in LOD
- Reference

**FIGURE 1
PRE-DISTURBANCE
VEGETATION ANALYSIS**

Projection: NAD 83 UTM 13N
Date: 06/21/2022
Drafted by: RDB
Aerial Imagery Date: 6/16/2022

