



**EROSION CONTROL LEGEND**

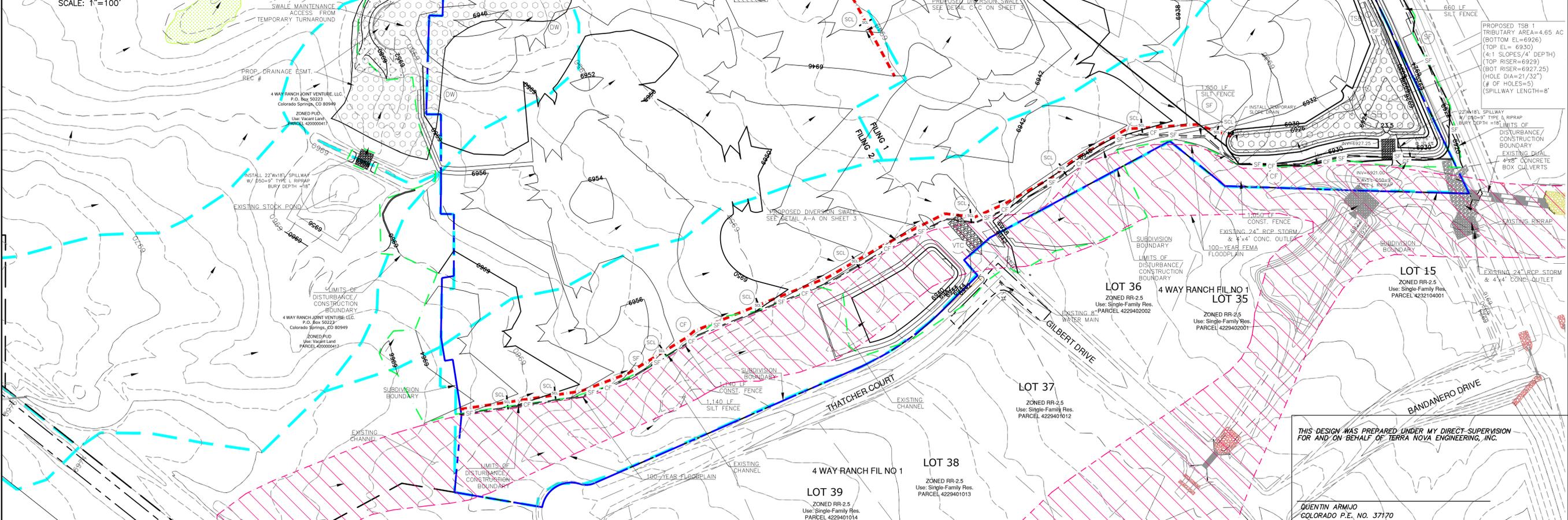
KEY	TITLE	SYMBOL	IMPLEMENTATION PHASE
SF	SILT FENCE	— SF —	INITIAL
CF	CONSTRUCTION FENCE	— CF —	INITIAL
SCL	SEDIMENT CONTROL LOGS	— SCL —	INITIAL
SP	STOCKPILE PROTECTION	[Symbol]	INITIAL
VTC	VEHICLE TRACKING CONTROL	[Symbol]	INITIAL
SSA	STABILIZED STAGING AREA	[Symbol]	INITIAL
TSB	TEMPORARY SEDIMENT BASIN	[Symbol]	INITIAL
PSM	PERMANENT SEEDING AND MULCHING	[Symbol]	INITIAL

**GRADING LEGEND**

10' EXISTING CONTOUR	— 6810 —
2' EXISTING CONTOUR	— 6802 —
LIMITS OF DISTURBANCE/CONSTRUCTION BOUNDARY	[Symbol]
SUBDIVISION BOUNDARY	[Symbol]
TRIBUTARY AREA TO TSB	[Symbol]
PROPOSED DIVERSION SWALE	[Symbol]
DIRECTION OF SURFACE FLOW	[Symbol]
EXISTING WETLANDS	[Symbol]
100-YEAR FLOODPLAIN	[Symbol]
AREAS OF DE-WATERING	[Symbol]

**DEWATERING NOTE:**  
 CONTRACTOR TO DISCHARGE GROUND WATER TO THE PROPOSED TEMPORARY SEDIMENT BASINS PER DETAIL ON SHEET 10

**NOTES:**  
 1. NO BATCH PLANTS ARE PROPOSED  
 2. ALL CONTROL MEASURES ARE BEING IMPLEMENTED BY THE OWNER/DEVELOPER/CONTRACTOR  
 3. SWALE E-E IS TO BE SEEDED AND MULCHED IN INITIAL PHASE

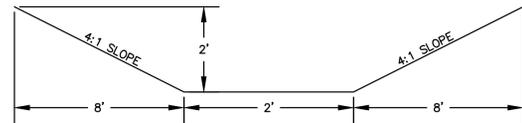


No Comment

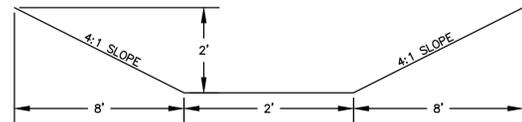
DATE	
REVISIONS	
NO.	
DESCRIPTION	
UNTIL SUCH TIME AS THESE DRAWINGS ARE APPROVED BY THE AGENCIES AND THE TERRA NOVA ENGINEERING, INC. APPROVES THEIR USE ONLY FOR THE PROJECT AND COST OF THE PROJECT BY WRITTEN AUTHORIZATION.	
PREPARED FOR:	4-WAY RANCH JOINT VENTURE
ATTN:	PETER MARTZ
	P.O. BOX 50223
	COLORADO SPRINGS, CO 80949
	719-491-3150
721 S. 23RD STREET, COLORADO SPRINGS, CO 80904	
OFFICE: 719-635-6422	
FAX: 719-635-6426	
www.tnecinc.com	
<b>WATERBURY FILING NO. 1 &amp; 2</b>	
GRADING AND EROSION CONTROL PLAN	
INITIAL EROSION CONTROL PLAN 1	
DESIGNED BY	DLF
DRAWN BY	QNA
CHECKED BY	QNA
H-SCALE	1" = 100'
V-SCALE	N/A
JOB NO.	1715.00
DATE ISSUED	7/20/22
SHEET NO.	2 OF 10

THIS DESIGN WAS PREPARED UNDER MY DIRECT SUPERVISION FOR AND ON BEHALF OF TERRA NOVA ENGINEERING, INC.

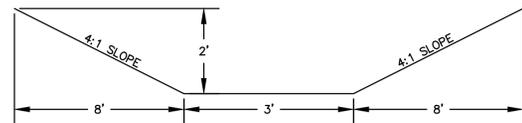
QUENTIN ARMIJO  
COLORADO P.E. NO. 37170



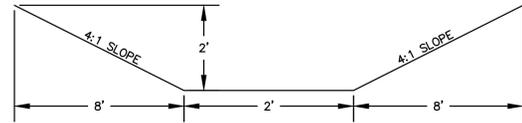
**DIVERSION SWALE A-A**



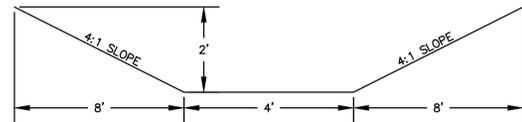
**DIVERSION SWALE B-B**



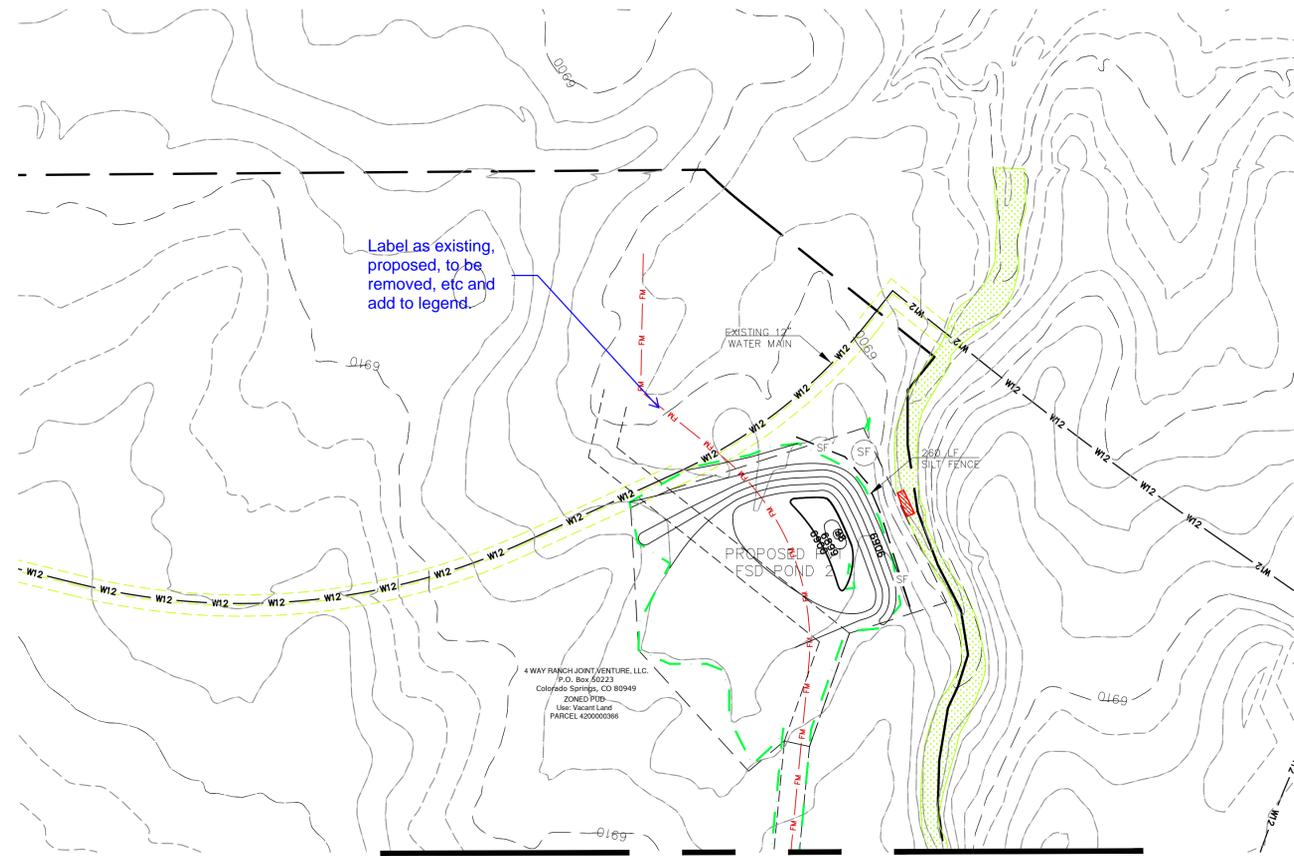
**DIVERSION SWALE C-C**



**DIVERSION SWALE D-D**

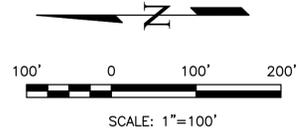


**DIVERSION SWALE E-E**



Label as existing, proposed, to be removed, etc and add to legend.

MATCHLINE SEE SHEET 2 FOR FILING 1 & FILING 2



**NOTES:**  
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**GRADING LEGEND**

10' EXISTING CONTOUR	---	6810
2' EXISTING CONTOUR	---	6802
LIMITS OF DISTURBANCE/ CONSTRUCTION BOUNDARY	---	
SUBDIVISION BOUNDARY	---	
TRIBUTARY AREA TO TSB	---	
PROPOSED DIVERSION SWALE	---	
DIRECTION OF SURFACE FLOW	---	
EXISTING WETLANDS	---	
100-Y FEMA FLOODPLAIN	---	
AREAS OF DE-WATERING	---	

REVISIONS NO.	DESCRIPTION	DATE

UNTIL SUCH TIME AS THESE DRAWINGS ARE APPROVED BY THE REVIEWING AGENCIES, THE REVIEWING AGENCIES ARE NOT TO BE CONSIDERED AS APPROVING THESE DRAWINGS. APPROVAL OF THESE DRAWINGS IS THE SOLE RESPONSIBILITY OF THE CLIENT. APPROVAL OF THESE DRAWINGS IS NOT TO BE CONSIDERED AS A WRITTEN AUTHORIZATION.

PREPARED FOR:  
**4-WAY RANCH JOINT VENTURE**  
 ATTN: PETER MARTZ  
 P.O. BOX 50223  
 COLORADO SPRINGS, CO 80949  
 719-491-3150

**Terra Nova**  
 Engineering, Inc.  
 Civil/Environmental Engineers

721 S. 23RD STREET  
 COLORADO SPRINGS, CO 80904  
 OFFICE: 719-635-6422  
 FAX: 719-635-6426  
 www.tnengine.com

**WATERBURY FILING NO. 1 & 2**

GRADING EROSION CONTROL PLAN  
 INITIAL EROSION CONTROL 2

THIS DESIGN WAS PREPARED UNDER MY DIRECT SUPERVISION FOR AND ON BEHALF OF TERRA NOVA ENGINEERING, INC.

QUENTIN ARMIJO  
 COLORADO P.E. NO. 37170

DESIGNED BY DLF
DRAWN BY QNA
CHECKED BY QNA
H-SCALE NA
V-SCALE N/A
JOB NO. 1715.00
DATE ISSUED 7/20/22
SHEET NO. 3 OF 10

**EROSION CONTROL LEGEND**

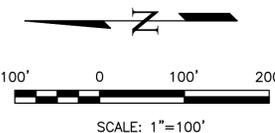
KEY	TITLE	SYMBOL	IMPLEMENTATION PHASE
SF	SILT FENCE	— SF —	INITIAL
CF	CONSTRUCTION FENCE	— CF —	INITIAL
CIP	CULVERT INLET PROTECTION	[Symbol]	INTERIM
IP	INLET PROTECTION	[Symbol]	INTERIM
SBB	STRAW BALE BARRIER	[Symbol]	INTERIM
SP	STOCKPILE PROTECTION	[Symbol]	INITIAL
VTC	VEHICLE TRACKING CONTROL	[Symbol]	INITIAL
CWA	CONCRETE WASHOUT AREA	[Symbol]	INTERIM
SSA	STABILIZED STAGING AREA	[Symbol]	INITIAL
TSM	TEMPORARY SEEDING AND MULCHING	[Symbol]	INTERIM

**GRADING LEGEND**

8' EXISTING CONTOUR	6810
1' EXISTING CONTOUR	6802
5' PROPED CONTOUR	6810
1' PROPED CONTOUR	6802
LIMITS OF DISTURBANCE/CONSTRUCTION BOUNDARY	[Symbol]
SUBDIVISION BOUNDARY	[Symbol]
CUT/FILL LINE	[Symbol]
DIRECTION OF SURFACE FLOW	[Symbol]
HIGH POINT	HPX
LOW POINT	LPX
A LOT	"A"
B LOT	"B"
WALK OUT LOT MODIFIED	"WO"
GARDEN LEVEL LOT MODIFIED	"G"
100-Y FEMA FLOODPLAIN	[Symbol]
AREAS OF DE-WATERING	[Symbol]

**WETLANDS LEGEND**

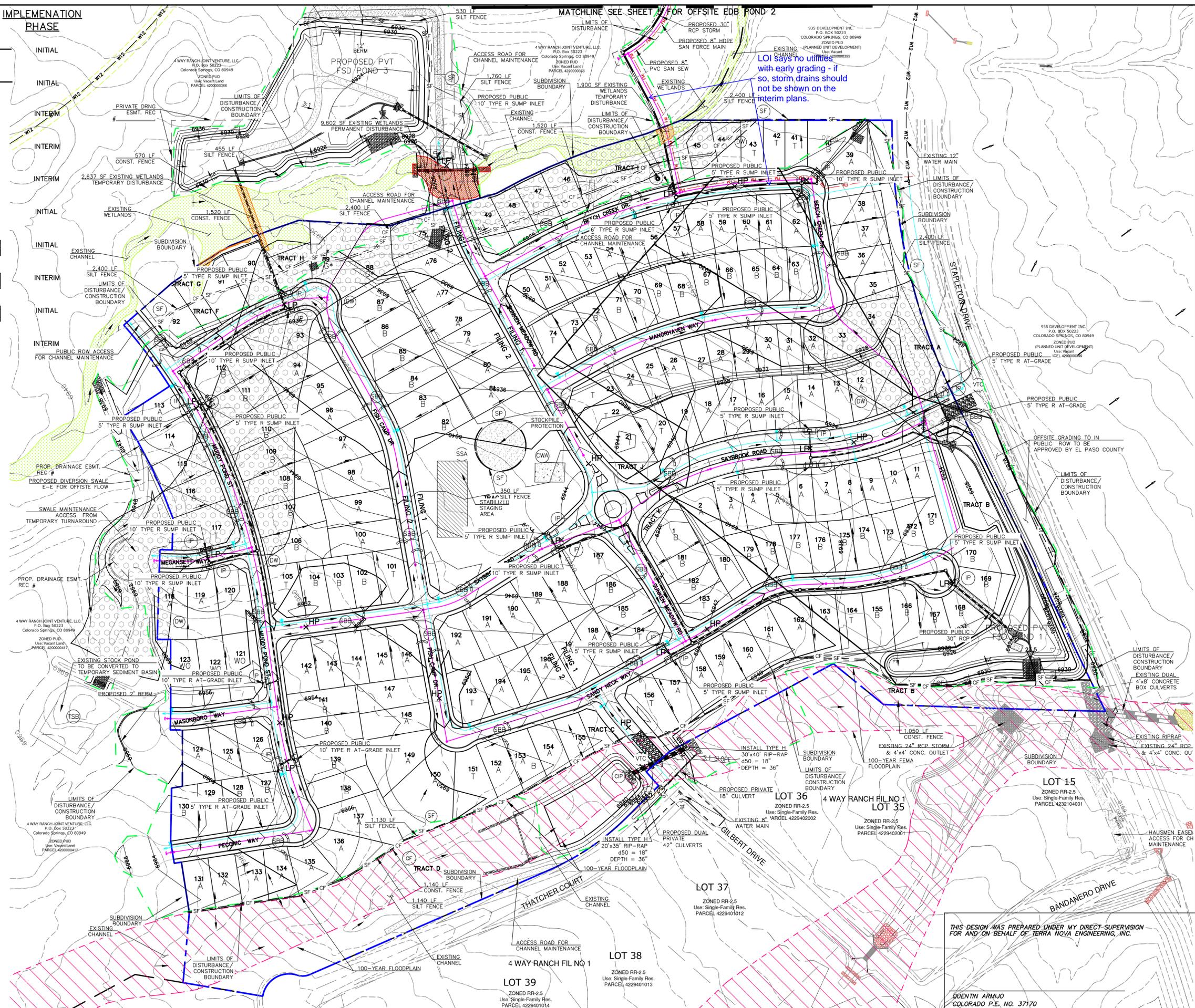
EXISTING WETLANDS	[Symbol]
TEMPORARY WETLAND DISTURBANCE	[Symbol]
PERMANENT WETLAND DISTURBANCE	[Symbol]



**VEGETATION NOTE:**

EXISTING VEGETATION CONSISTS OF NATIVE PRAIRIE GRASSES AND SHRUBS WITH FAIR TO GOOD COVERAGE OF 50% TO 70%

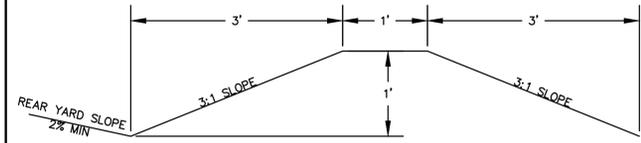
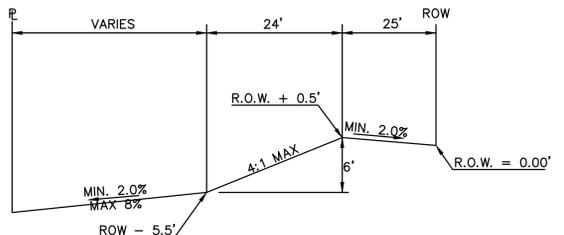
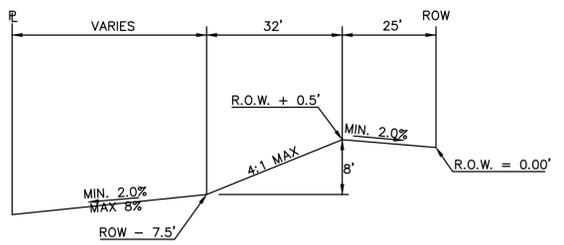
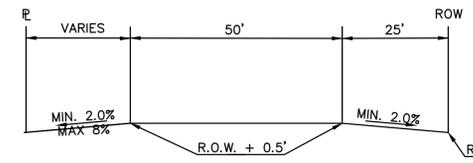
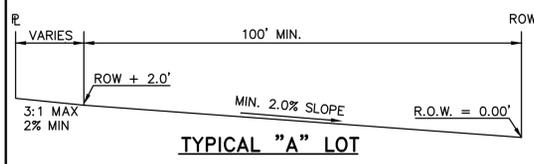
**NOTES:**  
NO BATCH PLANTS ARE PROPOSED  
ALL CONTROL MEASURES ARE BEING IMPLEMENTED BY THE OWNER/DEVELOPER/CONTRACTOR



LOI says no utilities with early grading - if so, storm drains should not be shown on the interim plans.

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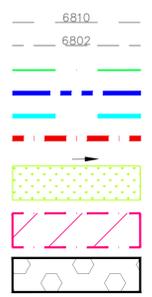
DATE	
DESCRIPTION	
REVISIONS	
NO.	
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PREPARED FOR:	4-WAY RANCH JOINT VENTURE
ATTN:	PETER MARTZ
	P.O. BOX 50223
	COLORADO SPRINGS, CO 80949
	719-491-3150
721 S. 23RD STREET	COLORADO SPRINGS, CO 80904
OFFICE: 719-635-6422	FAX: 719-635-6426
www.tnecinc.com	
<b>WATERBURY FILING NO. 1 &amp; 2</b>	
GRADING AND EROSION CONTROL PLAN	
INTERIM EROSION CONTROL PLAN 1	
DESIGNED BY	DLF
DRAWN BY	QNA
CHECKED BY	QNA
H-SCALE	1" = 100'
V-SCALE	N/A
JOB NO.	1715.00
DATE ISSUED	7/20/22
SHEET NO.	4 OF 11



**NOTES:**  
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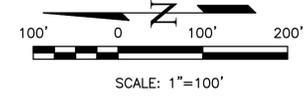
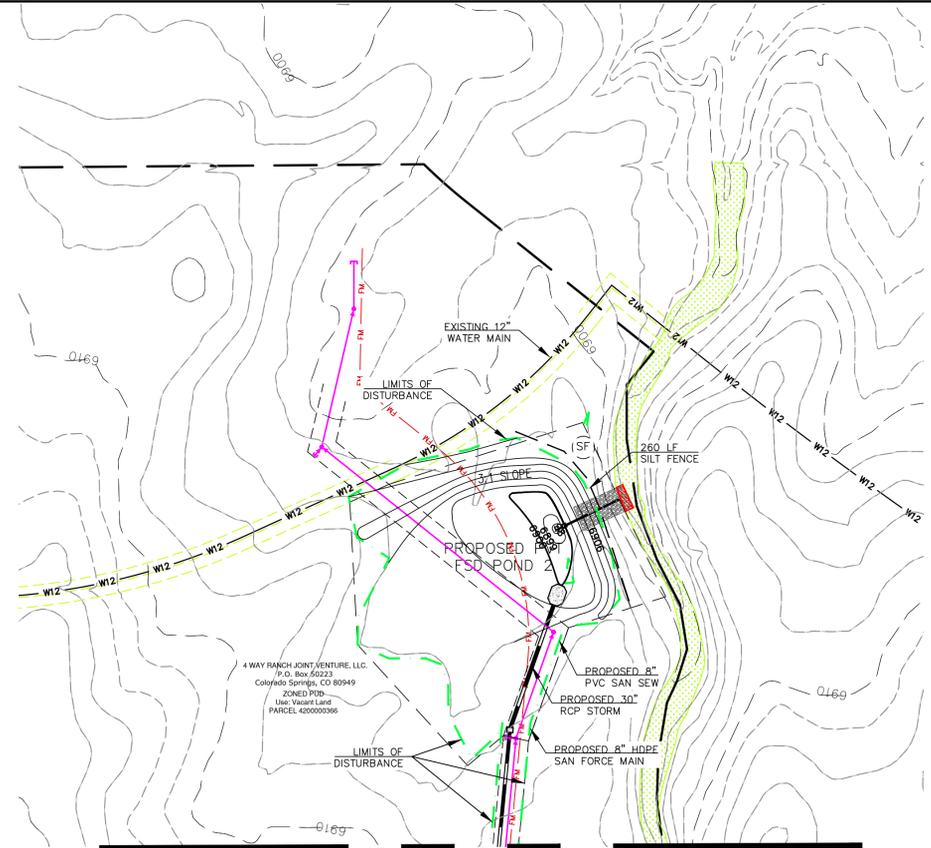
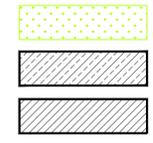
**GRADING LEGEND**

- 10' EXISTING CONTOUR
- 2' EXISTING CONTOUR
- LIMITS OF DISTURBANCE/ CONSTRUCTION BOUNDARY
- SUBDIVISION BOUNDARY
- TRIBUTARY AREA TO TSB
- PROPOSED DIVERSION SWALE
- DIRECTION OF SURFACE FLOW
- EXISTING WETLANDS
- 100-Y FEMA FLOODPLAIN
- AREAS OF DE-WATERING



**WETLANDS LEGEND**

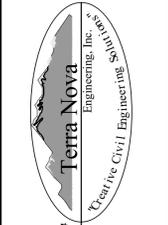
- EXISTING WETLANDS
- TEMPORARY WETLAND DISTURBANCE
- PERMANENT WETLAND DISTURBANCE



REVISIONS NO.	DESCRIPTION	DATE

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PREPARED FOR:  
**4-WAY RANCH JOINT VENTURE**  
 ATTN: PETER MARTZ  
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 COLORADO SPRINGS, CO 80949  
 719-491-3150



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 COLORADO SPRINGS, CO 80904  
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 FAX: 719-635-6426  
 www.tnecinc.com

**WATERBURY FILING NO. 1 & 2**  
 GRADING EROSION & STORMWATER CONTROL PLAN  
 INTERIM EROSION CONTROL PLAN 2

THIS DESIGN WAS PREPARED UNDER MY DIRECT SUPERVISION FOR AND ON BEHALF OF TERRA NOVA ENGINEERING, INC.

QUENTIN ARMIJO  
 COLORADO P.E. NO. 37170

DESIGNED BY DLF
DRAWN BY QNA
CHECKED BY QNA
H-SCALE NA
V-SCALE N/A
JOB NO. 1715.00
DATE ISSUED 7/20/22
SHEET NO. 5 OF 10

**EROSION CONTROL LEGEND**

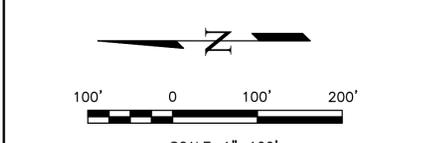
KEY	TITLE	SYMBOL	IMPLEMENTATION PHASE
SF	SILT FENCE	— SF —	INITIAL
CF	CONSTRUCTION FENCE	— CF —	INITIAL
CIP	CULVERT INLET PROTECTION	[Symbol]	INTERIM
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SBB	STRAW BALE BARRIER	[Symbol]	INTERIM
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CWA	CONCRETE WASHOUT AREA	[Symbol]	INTERIM
SSA	STABILIZED STAGING AREA	[Symbol]	INITIAL
TSM	TEMPORARY SEEDING AND MULCHING	[Symbol]	FINAL
PSM	PERMANENT SEEDING AND MULCHING	[Symbol]	FINAL

**GRADING LEGEND**

8' EXISTING CONTOUR	6810
1' EXISTING CONTOUR	6802
5' PROPEL CONTOUR	6810
1' PROPEL CONTOUR	6802
LIMITS OF DISTURBANCE / CONSTRUCTION BOUNDARY	[Symbol]
SUBDIVISION BOUNDARY	[Symbol]
CUT/FILL LINE	[Symbol]
DIRECTION OF SURFACE FLOW	[Symbol]
HIGH POINT	HPX
LOW POINT	LPX
A LOT	"A"
B LOT	"B"
WALK OUT LOT MODIFIED	"WO"
GARDEN LEVEL LOT MODIFIED	"G"
100-Y FEMA FLOODPLAIN	[Symbol]
AREAS OF DE-WATERING	[Symbol]

**WETLANDS LEGEND**

EXISTING WETLANDS	[Symbol]
TEMPORARY WETLAND DISTURBANCE	[Symbol]
PERMANENT WETLAND DISTURBANCE	[Symbol]

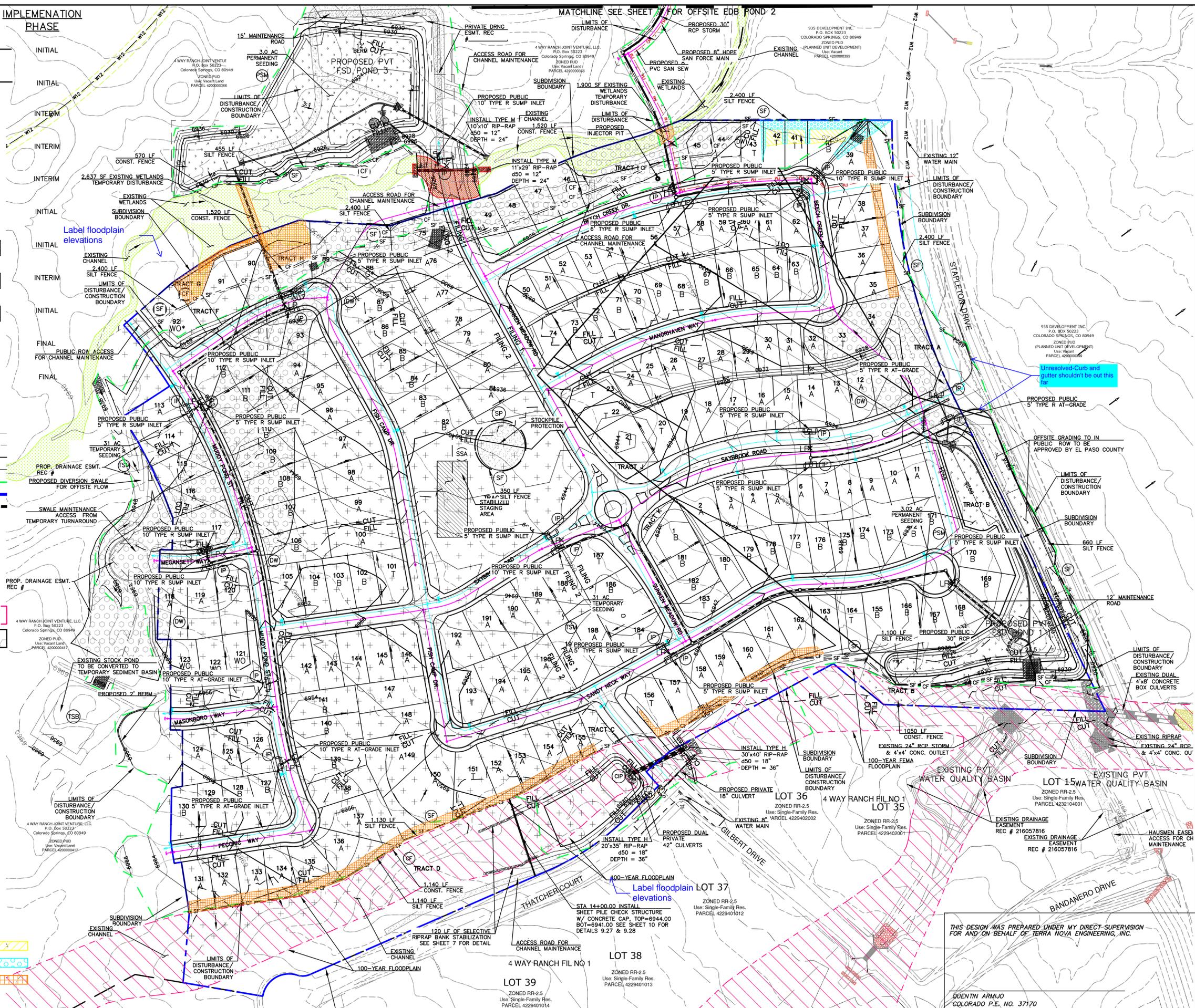


**VEGETATION NOTE:**  
EXISTING VEGETATION CONSISTS OF NATIVE PRAIRIE GRASSES AND SHRUBS WITH FAIR TO GOOD COVERAGE OF 50% TO 70%.

**NOTES:**  
NO BATH PLANTS ARE PROPOSED.  
ALL CONTROL MEASURES ARE BEING IMPLEMENTED BY THE OWNER/DEVELOPER/CONTRACTOR

**RUNOFF REDUCTION LEGEND**

UNCONNECTED IMPERVIOUS AREA	[Symbol]
RECEIVING PERVIOUS AREA	[Symbol]
SEPARATE PERVIOUS AREA	[Symbol]



DATE: \_\_\_\_\_

DESCRIPTION: \_\_\_\_\_

REVISIONS: \_\_\_\_\_

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PREPARED FOR: 4-WAY RANCH JOINT VENTURE  
ATTN: PETER MARTZ  
P.O. BOX 50223  
COLORADO SPRINGS, CO 80949  
719-491-3150

721 S. 23RD STREET  
COLORADO SPRINGS, CO 80904  
OFFICE: 719-635-6422  
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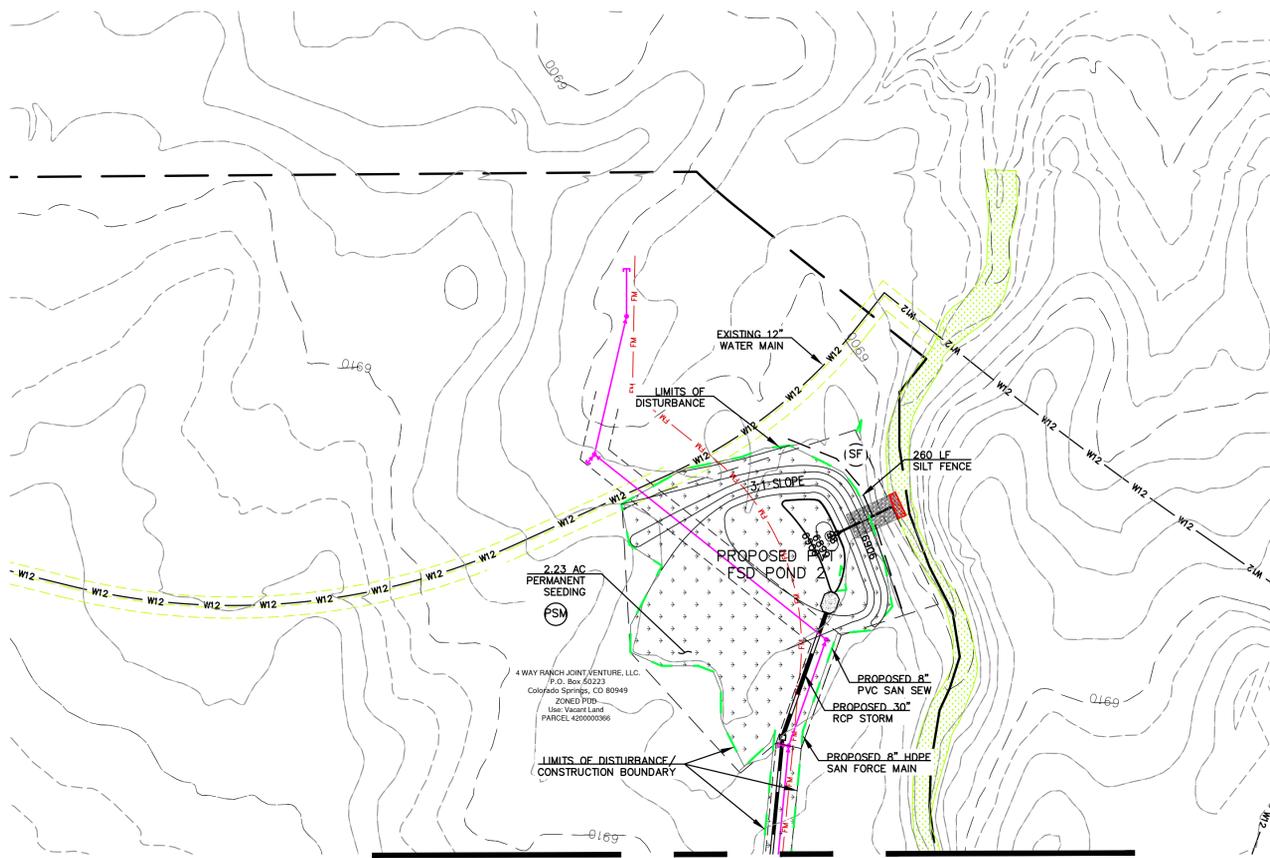
**Terra Nova**  
Engineering, Inc.  
Creative Civil Engineering

**WATERBURY FILING NO. 1 & 2**  
GRADING AND EROSION CONTROL PLAN  
FINAL EROSION CONTROL PLAN 1

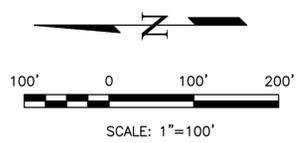
DESIGNED BY: DLF  
DRAWN BY: QNA  
CHECKED BY: QNA  
H-SCALE: 1" = 100'  
V-SCALE: N/A  
JOB NO. 1715.00  
DATE ISSUED: 7/20/22  
SHEET NO. 6 OF 11

THIS DESIGN WAS PREPARED UNDER MY DIRECT SUPERVISION FOR AND ON BEHALF OF TERRA NOVA ENGINEERING, INC.  
DOENIN ARMJO  
COLORADO P.E. NO. 37170

revise per comments on pdf pg 312 of Drainage Report.



MATCHLINE SEE SHEET 6 FOR FILING 1 & FILING 2



**NOTES:**  
 NO BATCH PLANTS ARE PROPOSED  
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**GRADING LEGEND**

- 8' EXISTING CONTOUR
- 1' EXISTING CONTOUR
- 5' PROPEDED CONTOUR
- 1' PROPEDED CONTOUR
- LIMITS OF DISTURBANCE/  
CONSTRUCTION BOUNDARY
- SUBDIVISION BOUNDARY
- CUT/FILL LINE
- DIRECTION OF SURFACE FLOW
- HIGH POINT
- LOW POINT
- A LOT
- B LOT
- WALK OUT LOT MODIFIED
- GARDEN LEVEL LOT MODIFIED

- 6810
- 6802
- 6810
- 6802
- FILL
- CUT
- HPX
- LPX
- "A"
- "B"
- "WO\*"
- "G\*"

**WETLANDS LEGEND**

- EXISTING WETLANDS
- TEMPORARY WETLAND DISTURBANCE
- PERMANENT WETLAND DISTURBANCE

- 100-Y FEMA FLOODPLAIN
- AREAS OF DE-WATERING

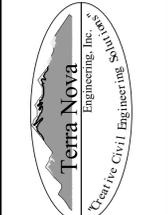
THIS DESIGN WAS PREPARED UNDER MY DIRECT SUPERVISION  
 FOR AND ON BEHALF OF TERRA NOVA ENGINEERING, INC.

QUENTIN ARMIJO  
 COLORADO P.E. NO. 37170

REVISIONS NO.	DESCRIPTION	DATE

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PREPARED FOR:  
**4-WAY RANCH JOINT VENTURE**  
 ATTN: PETER MARTZ  
 P.O. BOX 50223  
 COLORADO SPRINGS, CO 80949  
 719-491-3150

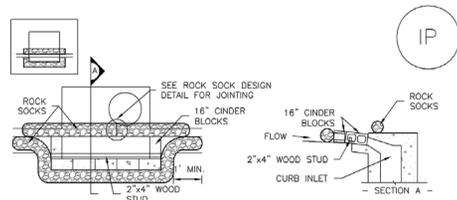


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**WATERBURY FILING NO. 1**  
 GRADING EROSION & CONTROL PLAN  
 FINAL EROSION CONTROL PLAN 2

DESIGNED BY DLF
DRAWN BY QNA
CHECKED BY QNA
H-SCALE NA
V-SCALE N/A
JOB NO. 1715.00
DATE ISSUED 7/20/22
SHEET NO. 7 OF 10

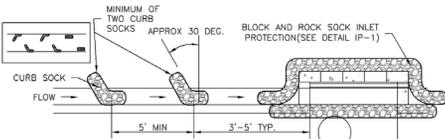
**SC-6 Inlet Protection (IP)**



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

**BLOCK AND CURB SOCK INLET PROTECTION INSTALLATION 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 JOINED TOGETHER IN ACCORDANCE WITH ROCK SOCK DESIGN DETAIL.



**IP-2. CURB ROCK SOCKS UPSTREAM OF INLET PROTECTION**

**CURB ROCK SOCK INLET PROTECTION INSTALLATION NOTES**

- 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.

**SC-6 Inlet Protection (IP)**

**GENERAL INLET PROTECTION INSTALLATION NOTES**

- SEE PLAN VIEW FOR: LOCATION OF INLET PROTECTION. TYPE OF INLET PROTECTION (IP-1, IP-2, IP-3, IP-4, IP-5, IP-6)
- INLET PROTECTION SHALL BE INSTALLED PROMPTLY AFTER INLET CONSTRUCTION OR PAVING IS COMPLETE (TYPICALLY WITHIN 48 HOURS). IF A RAINFALL/RUNOFF EVENT IS FORECAST, INSTALL INLET PROTECTION PRIOR TO ONSET OF EVENT.
- 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.

**INLET PROTECTION MAINTENANCE NOTES**

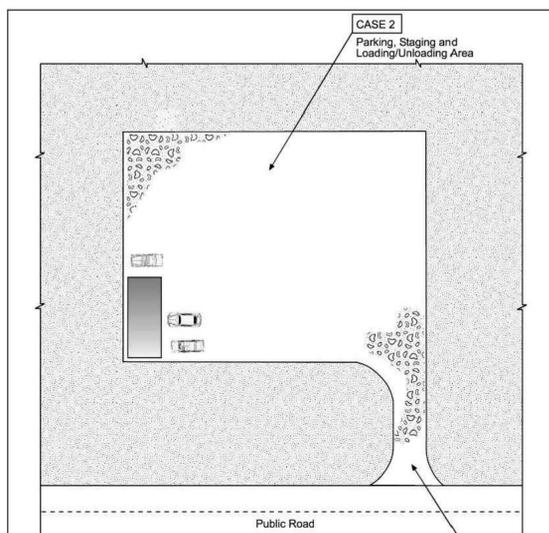
- INSPECT BMPs EACH WORKDAY, AND MAINTAIN THEM IN EFFECTIVE OPERATING CONDITION. MAINTENANCE OF BMPs SHOULD BE PROACTIVE, NOT REACTIVE. INSPECT BMPs AS SOON AS POSSIBLE (AND ALWAYS WITHIN 24 HOURS) FOLLOWING A STORM THAT CAUSES SURFACE EROSION, AND PERFORM NECESSARY MAINTENANCE.
- FREQUENT OBSERVATIONS 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 REPLACEMENT SHOULD BE INITIATED UPON DISCOVERY OF THE FAILURE.
- SEDIMENT ACCUMULATED UPSTREAM OF INLET PROTECTION SHALL BE REMOVED AS NECESSARY TO MAINTAIN BMP EFFECTIVENESS, TYPICALLY WHEN STORAGE VOLUME REACHES 50% OF CAPACITY, A DEPTH OF 6" WHEN SILT FENCE IS USED, OR 1/4 OF THE HEIGHT FOR STRAW BALES.
- INLET PROTECTION IS TO REMAIN IN PLACE UNTIL THE UPSTREAM DISTURBED AREA IS PERMANENTLY STABILIZED, UNLESS THE LOCAL JURISDICTION APPROVES EARLIER REMOVAL OF INLET PROTECTION IN STREETS.
- WHEN INLET PROTECTION AT AREA INLETS IS REMOVED, THE DISTURBED AREA SHALL BE COVERED WITH TOP SOIL, SEEDED AND MULCHED, OR OTHERWISE STABILIZED IN A MANNER APPROVED BY THE LOCAL JURISDICTION.

(DETAIL ADAPTED FROM TOWN OF PARKER, COLORADO AND CITY OF AURORA, COLORADO, NOT AVAILABLE IN AUTOCAD)

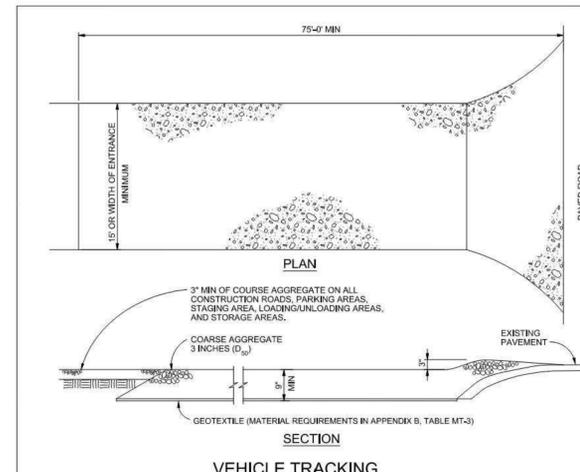
NOTE: MANY JURISDICTIONS HAVE BMP DETAILS THAT VARY FROM UDFCD STANDARD DETAILS. CONSULT WITH LOCAL JURISDICTIONS AS TO WHICH DETAIL SHOULD BE USED WHEN DIFFERENCES ARE NOTED.

NOTE: THE DETAILS INCLUDED WITH THIS FACT SHEET SHOW COMMONLY USED, CONVENTIONAL METHODS OF INLET PROTECTION IN THE DENVER METROPOLITAN AREA. THERE ARE MANY PROPRIETARY INLET PROTECTION METHODS ON THE MARKET. UDFCD NEITHER ENDORSES NOR DISAPPROVES USE OF PROPRIETARY INLET PROTECTION; HOWEVER, IF THE EVENT PROPRIETARY METHODS ARE USED, THE APPROPRIATE DETAIL FROM THE MANUFACTURER MUST BE INCLUDED IN THE SWMP AND THE BMP MUST BE INSTALLED AND MAINTAINED AS SHOWN IN THE MANUFACTURER'S DETAILS.

NOTE: SOME MUNICIPALITIES DISCOURAGE OR PROHIBIT THE USE OF STRAW BALES FOR INLET PROTECTION. CHECK WITH LOCAL JURISDICTION TO DETERMINE IF STRAW BALE INLET PROTECTION IS ACCEPTABLE.



	Case 1	Case 2
Gravel Thickness	9"	3"
Filter Fabric	YES	NO



**VEHICLE TRACKING INSTALLATION REQUIREMENTS**

- ALL ENTRANCES TO THE CONSTRUCTION SITE ARE TO BE STABILIZED PRIOR TO CONSTRUCTION BEGINNING.
- CONSTRUCTION ENTRANCES ARE TO BE BUILT WITH AN APRON TO ALLOW FOR TURNING TRAFFIC, BUT SHOULD NOT BE BUILT OVER EXISTING PAVEMENT EXCEPT FOR A SLIGHT OVERLAP.
- AREAS TO BE STABILIZED ARE TO BE PROPERLY GRADED AND COMPACTED PRIOR TO LAYING DOWN GEOTEXTILE AND STONE.
- CONSTRUCTION ROADS, PARKING AREAS, LOADING/UNLOADING ZONES, STORAGE AREAS, AND STAGING AREAS ARE TO BE STABILIZED.
- CONSTRUCTION ROADS ARE TO BE BUILT TO CONFORM TO SITE GRADES, BUT SHOULD NOT HAVE SIDE SLOPES OR ROAD GRADES THAT ARE EXCESSIVELY STEEP.

**MAINTENANCE REQUIREMENTS**

- REGULAR INSPECTIONS ARE TO BE MADE OF ALL STABILIZED AREAS, ESPECIALLY AFTER STORM EVENTS.
- STONES ARE TO BE REAPPLIED PERIODICALLY AND WHEN REPAIR IS NECESSARY.
- SEDIMENT TRACKED ONTO PAVED ROADS IS TO BE REMOVED DAILY BY SHOVELING OR SWEEPING. SEDIMENT IS NOT TO BE WASHED DOWN STORM SEWER DRAINS.
- STORM SEWER INLET PROTECTION IS TO BE IN PLACE, INSPECTED, AND CLEANED IF NECESSARY.
- OTHER ASSOCIATED SEDIMENT CONTROL MEASURES ARE TO BE INSPECTED TO ENSURE GOOD WORKING CONDITION.

**Revegetation Chapter 14**

**Table 14-10. Recommended Seed Mix for Transition Areas<sup>1</sup>**

Common Name (Variety)	Scientific Name	Growth Season	Growth Form	Seeds/Lb	Lbs PLS/Acre Drilled	Lbs PLS/Acre Broadcast or Hydroseeded
Sheep fescue (Duarar)	<i>Festuca ovina</i>	Cool	Bunch	680,000	1.3	2.6
Western wheatgrass (Arriba)	<i>Pascopyrum smithii</i>	Cool	Sod	110,000	7.9	15.8
Alkali sacaton	<i>Sporobolus airoides</i>	Warm	Bunch	1,758,000	0.5	1.0
Slender wheatgrass	<i>Elymus trachycaulus</i>	Cool	Bunch	159,000	5.5	11.0
Canadian bluegrass (Ruebens)	<i>Poa compressa</i>	Cool	Sod	2,500,000	0.3	0.6
Switchgrass (Pathfinder)	<i>Panicum virgatum</i>	Warm	Sod/Bunch	389,000	1.3	2.6
Annual rye	<i>Lolium multiflorum</i>	Cool	Cover crop	227,000	10.0	20.0
				<b>TOTAL</b>	<b>26.8</b>	<b>53.6</b>
<b>Wildflowers</b>						
Blanket flower	<i>Faillardia aristata</i>	---	---	132,000	0.25	0.50
Prairie coneflower	<i>Ratibida columnaris</i>	---	---	1,230,000	0.20	0.40
Purple prairie clover	<i>Petalostemon purpurea</i>	---	---	210,000	0.20	0.40
Gayfeather	<i>Liatris punctata</i>	---	---	138,000	0.06	0.12
Flax	<i>Linum lewisii</i>	---	---	293,000	0.20	0.40
Penstemon	<i>Penstemon strictus</i>	---	---	592,000	0.20	0.40
Yarrow	<i>Achillea millefolium</i>	---	---	2,770,000	0.03	0.06
				<b>TOTAL</b>	<b>1.14</b>	<b>2.28</b>

<sup>1</sup>For side slopes or between wet and dry areas.  
<sup>2</sup>Substitute 1.7 lbs PLS/acre of inland saltgrass (*Distichlis spicata*) in salty soils.

**SEED MIX FOR POND BOTTOMS**

THE CITY OF COLORADO SPRINGS ENGINEERING DEPARTMENT GENERAL SPECIFICATIONS SHOULD BE USED AS A RESOURCE WHEN DEVELOPING SPECIFICATIONS FOR RE-VEGETATION. GENERAL GUIDELINES AND RECOMMENDATIONS FOR RE-VEGETATION INCLUDE:

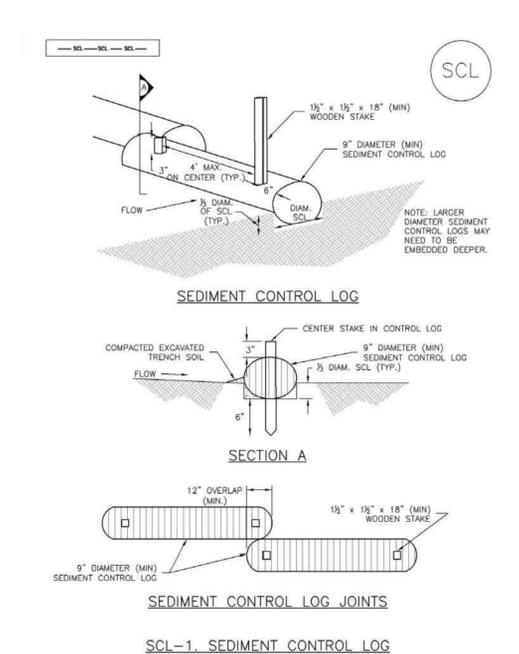
- SEED MIXTURES SHOULD BE SOWN AT THE PROPER TIME OF YEAR FOR THE MIXTURE. GENERALLY, THERE ARE TWO OPTIMAL SEEDING PERIODS DURING THE YEAR. THE FIRST PERIOD IS IN THE SPRING, MARCH TO MAY. THE SECOND PERIOD IS IN LATE SUMMER TO EARLY FALL, AUGUST TO SEPTEMBER.
- SEED SHOULD BE DRILL-SEEDED, WHENEVER POSSIBLE.
- BROADCAST SEEDING OR HYDRO-SEEDED MAY BE SUBSTITUTED ON SLOPES STEEPER THAN 3:1 OR ON OTHER AREAS NOT PRACTICAL TO DRILL SEED.
- SEEDING RATES SHOULD BE DOUBLED FOR BROADCAST SEEDING OR INCREASED BY 50% IF USING A BRILLION DRILL OR HYDRO-SEEDED.
- BROADCAST SEED SHOULD BE LIGHTLY HAND-RAKED INTO THE SOIL.
- SEED DEPTH SHOULD BE 1/3 TO 1/2 INCH FOR MOST MIXTURES.
- SEEDED AREAS SHOULD BE MULCHED, AND THE MULCH SHOULD BE ADEQUATELY SECURED.
- IF HYDRO-SEEDED IS CONDUCTED, MULCHING SHOULD BE CONDUCTED AS A SEPARATE, SECOND OPERATION.
- CONTAINERIZED NURSERY STOCK SHOULD BE KEPT IN A LIVE AND HEALTHY CONDITION PRIOR TO INSTALLATION.
- CONTAINERIZED TREES AND SHRUBS SHOULD BE INSTALLED ACCORDING TO THE PLANTING DETAILS PROVIDED IN THE COLORADO SPRINGS LANDSCAPE CODE AND POLICY MANUAL, UNIT FOUR, APPENDICES FOR TREE AND SHRUB PLANTING DETAILS.
- LIVE STAKES, POLES AND WILLOW BUNDLES SHOULD BE INSTALLED WHEN DORMANT (LATE WINTER AND EARLY SPRING).
- IF BEAVER ARE KNOWN TO BE IN THE AREA, BEAVER PROTECTION SHOULD BE PROVIDED FOR TREES AND SHRUBS.

**ALLOWABLE PLANT VARIETIES (SEE DRAINAGE CRITERIA MANUAL, VOLUME 1, CHAPTER 14, TABLE 14-5)**

- SPECIES**
- WESTERN WHEATGRASS (PASCOPYRUM SMITHII)
  - SWITCHGRASS (PANICUM VIRGATUM)
  - SLENDER WHEATGRASS (ELYMUS TRACHYCAULUS SSP. TRACHYCAULUS)
  - PUBESCENT WHEATGRASS (TRIGIA INTERMEDIA SSP. TRICHOPHORUM)
  - INDIAN GRASS (ACHNATHERUM HYMENOIDES)
  - BIG BLUESTEM (POA AMPLA)
  - BLUE GRAMA (BOUTELOUA GRACILIS)
  - SWITCHGRASS (PANICUM VIRGATUM)
  - SIDE-OATS GRAMA (BOUTELOUA CURTIPENDULA)
  - NEEDLE AND THREAD (HESPEROSTIPA COMATA SSP. COMATA)

\*SEED MIX SHOULD BE APPROVED BY THE COUNTY

**Sediment Control Log (SCL) SC-2**



**Sediment Control Log (SCL) SC-2**

- SEDIMENT CONTROL LOG INSTALLATION NOTES**
- SEE PLAN VIEW FOR LOCATION AND LENGTH OF SEDIMENT CONTROL LOGS.
  - SEDIMENT CONTROL LOGS THAT ACT AS A PERIMETER CONTROL SHALL BE INSTALLED PRIOR TO ANY UPGRADING LAND-DISTURBING ACTIVITIES.
  - SEDIMENT CONTROL LOGS SHALL CONSIST OF STRAW, COMPOST, EXCELISOR OR COCONUT FIBER, AND SHALL BE FREE OF ANY NOXIOUS WEED SEEDS OR DEFECTS INCLUDING RIPS, HOLES AND OBVIOUS WEAR.
  - SEDIMENT CONTROL LOGS MAY BE USED AS SMALL CHECK DAMS IN DITCHES AND SWALES. HOWEVER, THEY SHOULD NOT BE USED IN PERENNIAL STREAMS OR HIGH VELOCITY DRAINAGE WAYS.
  - IT IS RECOMMENDED THAT SEDIMENT CONTROL LOGS BE TRENCHED INTO THE GROUND TO A DEPTH OF APPROXIMATELY 1/3 OF THE DIAMETER OF THE LOG. IF TRENCHING TO THIS DEPTH IS NOT FEASIBLE AND/OR DESIRABLE (SHORT TERM INSTALLATION WITH DESIRE NOT TO DAMAGE LANDSCAPE) A LESSER TRENCHING DEPTH MAY BE ACCEPTABLE WITH MORE ROBUST STAKING.
  - THE UPHILL SIDE OF THE SEDIMENT CONTROL LOG SHALL BE BACKFILLED WITH SOIL THAT IS FREE OF ROCKS AND DEBRIS. THE SOIL SHALL BE TIGHTLY COMPACTED INTO THE SHAPE OF A RIGHT TRIANGLE USING A SHOVEL OR WEIGHTED LAWN ROLLER.
  - FOLLOW MANUFACTURERS' GUIDANCE FOR STAKING. IF MANUFACTURERS' INSTRUCTIONS DO NOT SPECIFY SPACING, STAKES SHALL BE PLACED ON 4' CENTERS AND EMBEDDED A MINIMUM OF 6" INTO THE GROUND. 3" OF THE STAKE SHALL PROTRUDE FROM THE TOP OF THE LOG. STAKES THAT ARE BROKEN PRIOR TO INSTALLATION SHALL BE REPLACED.

**SEDIMENT CONTROL LOG 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 REPLACEMENT SHOULD BE INITIATED UPON DISCOVERY OF THE FAILURE.
- SEDIMENT ACCUMULATED UPSTREAM OF SEDIMENT CONTROL LOG SHALL BE REMOVED AS NEEDED TO MAINTAIN FUNCTIONALITY OF THE BMP. TYPICALLY WHEN DEPTH OF ACCUMULATED SEDIMENTS IS APPROXIMATELY 1/3 OF THE HEIGHT OF THE SEDIMENT CONTROL LOG.
- SEDIMENT CONTROL LOGS SHALL BE REMOVED AT THE END OF CONSTRUCTION. IF DISTURBED AREAS EXIST AFTER REMOVAL, THEY SHALL BE COVERED WITH TOP SOIL, SEEDED AND MULCHED OR OTHERWISE STABILIZED IN A MANNER APPROVED BY THE LOCAL JURISDICTION.

(DETAILS ADAPTED FROM TOWN OF PARKER, COLORADO, JEFFERSON COUNTY, COLORADO, DOUGLAS COUNTY, COLORADO, AND CITY OF AURORA, 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.

REVISIONS NO. DESCRIPTION DATE

UNTIL SUCH TIME AS THESE DRAWINGS ARE APPROVED BY THE REVIEW ENGINEER, THE TERRA NOVA ENGINEERING, INC. APPROVES THEIR USE ONLY FOR THE PROJECT AND FOR THE PURPOSES SPECIFIED BY WRITTEN AUTHORIZATION.

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ATTN: PETER MARTZ  
P.O. BOX 50223  
COLORADO SPRINGS, CO 80949  
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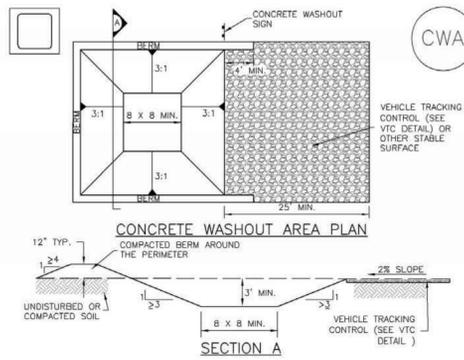
Terra Nova Engineering, Inc.  
Civil Engineering  
721 S. ZUBO STREET  
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FAX: 719-635-6426  
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WATERBURY FILING NO. 1 & 2  
GRADING EROSION & STORMWATER CONTROL PLAN  
EROSION CONTROL DETAILS

DESIGNED BY DLF  
DRAWN BY QNA  
CHECKED BY QNA  
H-SCALE NA  
V-SCALE N/A  
JOB NO. 1715.00  
DATE ISSUED 7/20/22  
SHEET NO. 8 OF 10

**Concrete Washout Area (CWA)**

**MM-1**



**CWA-1. CONCRETE WASHOUT AREA**

**CWA INSTALLATION NOTES**

- SEE PLAN VIEW FOR:
  - CWA INSTALLATION LOCATION.
- DO NOT LOCATE AN UNLINED CWA WITHIN 400' OF ANY NATURAL DRAINAGE PATHWAY OR WATERBODY. DO NOT LOCATE WITHIN 1,000' OF ANY WELLS OR DRINKING WATER SOURCES. IF SITE CONSTRAINTS MAKE THIS INFEASIBLE, OR IF HIGHLY PERMEABLE SOILS EXIST ON SITE, THE CWA MUST BE INSTALLED WITH AN IMPERMEABLE LINER (1.6 MIL MIN. THICKNESS) OR SURFACE STORAGE ALTERNATIVES USING PREFABRICATED CONCRETE WASHOUT DEVICES OR A LINED ABOVE GROUND STORAGE ARE SHOULD BE USED.
- THE CWA SHALL BE INSTALLED PRIOR TO CONCRETE PLACEMENT ON SITE.
- CWA SHALL INCLUDE A FLAT SUBSURFACE PIT THAT IS AT LEAST 8' BY 8' SLOPES LEADING OUT OF THE SUBSURFACE PIT SHALL BE 3:1 OR FLATTER. THE PIT SHALL BE AT LEAST 3' DEEP.
- BERM SURROUNDING SIDES AND BACK OF THE CWA SHALL HAVE MINIMUM HEIGHT OF 1'.
- VEHICLE TRACKING PAD SHALL BE SLOPED 2% TOWARDS THE CWA.
- SIGNS SHALL BE PLACED AT THE CONSTRUCTION ENTRANCE, AT THE CWA, AND ELSEWHERE AS NECESSARY TO CLEARLY INDICATE THE LOCATION OF THE CWA TO OPERATORS OF CONCRETE TRUCKS AND PUMP TRUCKS.
- USE EXCAVATED MATERIAL FOR PERIMETER BERM CONSTRUCTION.

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**MM-1**

**Concrete Washout Area (CWA)**

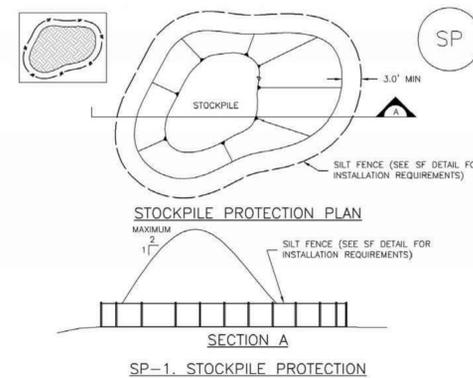
**CWA MAINTENANCE NOTES**

- 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 REPLACEMENT SHOULD BE INITIATED UPON DISCOVERY OF THE FAILURE.
  - THE CWA SHALL BE REPAIRED, CLEANED, OR ENLARGED AS NECESSARY TO MAINTAIN CAPACITY FOR CONCRETE WASTE. CONCRETE MATERIALS, ACCUMULATED IN PIT, SHALL BE REMOVED ONCE THE MATERIALS HAVE REACHED A DEPTH OF 2'.
  - CONCRETE WASHOUT WATER, WASTED PIECES OF CONCRETE AND ALL OTHER DEBRIS IN THE SUBSURFACE PIT SHALL BE TRANSPORTED FROM THE JOB SITE IN A WATER-TIGHT CONTAINER AND DISPOSED OF PROPERLY.
  - THE CWA SHALL REMAIN IN PLACE UNTIL ALL CONCRETE FOR THE PROJECT IS PLACED.
  - WHEN THE CWA IS REMOVED, COVER THE DISTURBED AREA WITH TOP SOIL, SEED AND MULCH OR OTHERWISE STABILIZED IN A MANNER APPROVED BY THE LOCAL JURISDICTION.
- (DETAIL ADAPTED FROM DOUGLAS COUNTY, COLORADO AND THE CITY 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.

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**Stockpile Management (SP)**

**MM-2**



**SP-1. STOCKPILE PROTECTION**

**STOCKPILE PROTECTION INSTALLATION NOTES**

- SEE PLAN VIEW FOR:
  - LOCATION OF STOCKPILES.
  - TYPE OF STOCKPILE PROTECTION.
- INSTALL PERIMETER CONTROLS IN ACCORDANCE WITH THEIR RESPECTIVE DESIGN DETAILS. SILT FENCE IS SHOWN IN THE STOCKPILE PROTECTION DETAILS; HOWEVER, OTHER TYPES OF PERIMETER CONTROLS INCLUDING SEDIMENT CONTROL LOGS OR ROCK SOCKS MAY BE SUITABLE IN SOME CIRCUMSTANCES. CONSIDERATIONS FOR DETERMINING THE APPROPRIATE TYPE OF PERIMETER CONTROL FOR A STOCKPILE INCLUDE WHETHER THE STOCKPILE IS LOCATED ON A PERVIOUS OR IMPERVIOUS SURFACE, THE RELATIVE HEIGHTS OF THE PERIMETER CONTROL AND STOCKPILE, THE ABILITY OF THE PERIMETER CONTROL TO CONTAIN THE STOCKPILE WITHOUT FAILING IN THE EVENT THAT MATERIAL FROM THE STOCKPILE SEEPS OR SLUMPS AGAINST THE PERIMETER, AND OTHER FACTORS.
- STABILIZE THE STOCKPILE SURFACE WITH SURFACE ROUGHENING, TEMPORARY SEEDING AND MULCHING, EROSION CONTROL BLANKETS, OR SOIL BINDERS. SOILS STOCKPILED FOR AN EXTENDED PERIOD (TYPICALLY FOR MORE THAN 60 DAYS) SHOULD BE SEEDED AND MULCHED WITH A TEMPORARY GRASS COVER ONCE THE STOCKPILE IS PLACED (TYPICALLY WITHIN 14 DAYS). USE OF MULCH ONLY OR A SOIL BINDER IS ACCEPTABLE IF THE STOCKPILE WILL BE IN PLACE FOR A MORE LIMITED TIME PERIOD (TYPICALLY 30-60 DAYS).
- FOR TEMPORARY STOCKPILES ON THE INTERIOR PORTION OF A CONSTRUCTION SITE, WHERE OTHER DOWNGRADIANT CONTROLS, INCLUDING PERIMETER CONTROL, ARE IN PLACE, STOCKPILE PERIMETER CONTROLS MAY NOT BE REQUIRED.

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**MM-2**

**Stockpile Management (SM)**

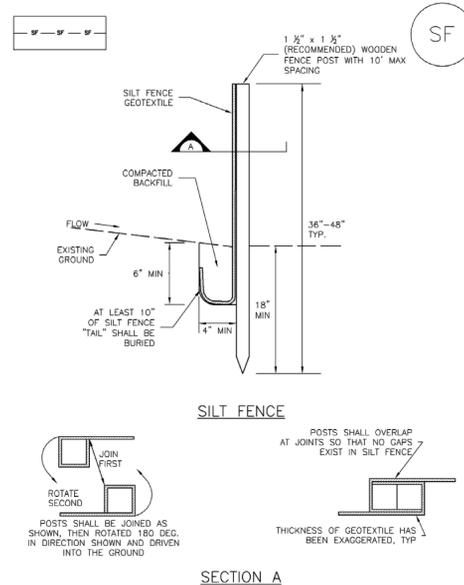
**STOCKPILE PROTECTION MAINTENANCE NOTES**

- 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 REPLACEMENT SHOULD BE INITIATED UPON DISCOVERY OF THE FAILURE.
- STOCKPILE PROTECTION MAINTENANCE NOTES**
- IF PERIMETER PROTECTION MUST BE MOVED TO ACCESS SOIL STOCKPILE, REPLACE PERIMETER CONTROLS BY THE END OF THE WORKDAY.
  - STOCKPILE PERIMETER CONTROLS CAN BE REMOVED ONCE ALL THE MATERIAL FROM THE STOCKPILE HAS BEEN USED.
- (DETAILS ADAPTED FROM 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.

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**Silt Fence (SF)**

**SC-1**



**SILT FENCE**

**SECTION A**

**SF-1. SILT FENCE**

**SC-1**

**Silt Fence (SF)**

**SILT FENCE INSTALLATION NOTES**

- SILT FENCE MUST BE PLACED AWAY FROM THE TOE OF THE SLOPE TO ALLOW FOR WATER PONDING. SILT FENCE AT THE TOE OF A SLOPE SHOULD BE INSTALLED IN A FLAT LOCATION AT LEAST SEVERAL FEET (2-5 FT) FROM THE TOE OF THE SLOPE TO ALLOW ROOM FOR PONDING AND DEPOSITION.
- A UNIFORM 6" X 4" ANCHOR TRENCH SHALL BE EXCAVATED USING TRENCHER OR SILT FENCE INSTALLATION DEVICE. NO ROAD GRADERS, BACKHOES, OR SIMILAR EQUIPMENT SHALL BE USED.
- COMPACT ANCHOR TRENCH BY HAND WITH A "JUMPING JACK" OR BY WHEEL ROLLING. COMPACTION SHALL BE SUCH THAT SILT FENCE RESISTS BEING PULLED OUT OF ANCHOR TRENCH BY HAND.
- SILT FENCE SHALL BE PULLED TIGHT AS IT IS ANCHORED TO THE STAKES. THERE SHOULD BE NO NOTICEABLE SAG BETWEEN STAKES AFTER IT HAS BEEN ANCHORED TO THE STAKES.
- SILT FENCE FABRIC SHALL BE ANCHORED TO THE STAKES USING 1" HEAVY DUTY STAPLES OR NAILS WITH 1" HEADS. STAPLES AND NAILS SHOULD BE PLACED 3" ALONG THE FABRIC DOWN THE STAKE.
- AT THE END OF A RUN OF SILT FENCE ALONG A CONTOUR, THE SILT FENCE SHOULD BE TURNED PERPENDICULAR TO THE CONTOUR TO CREATE A "J-HOOK." THE "J-HOOK" EXTENDING PERPENDICULAR TO THE CONTOUR SHOULD BE OF SUFFICIENT LENGTH TO KEEP RUNOFF FROM FLOWING AROUND THE END OF THE SILT FENCE (TYPICALLY 10' - 20').
- SILT FENCE SHALL BE INSTALLED PRIOR TO ANY LAND DISTURBING ACTIVITIES.

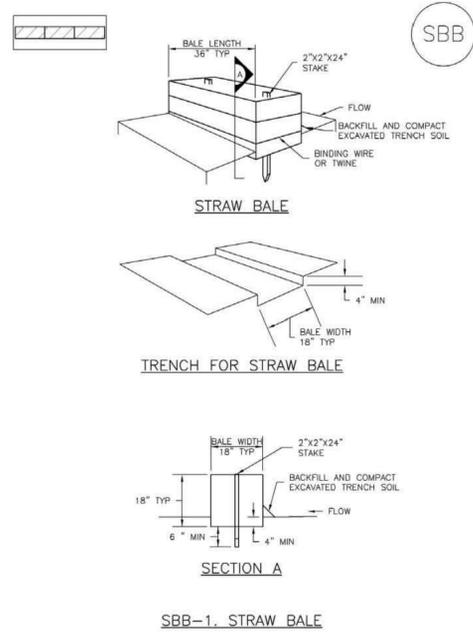
**SILT FENCE MAINTENANCE NOTES**

- 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 REPLACEMENT SHOULD BE INITIATED UPON DISCOVERY OF THE FAILURE.
  - SEDIMENT ACCUMULATED UPSTREAM OF THE SILT FENCE SHALL BE REMOVED AS NEEDED TO MAINTAIN THE FUNCTIONALITY OF THE BMP, TYPICALLY WHEN DEPTH OF ACCUMULATED SEDIMENTS IS APPROXIMATELY 6".
  - REPAIR OR REPLACE SILT FENCE WHEN THERE ARE SIGNS OF WEAR, SUCH AS SAGGING, TEARING, OR COLLAPSE.
  - SILT FENCE IS TO REMAIN IN PLACE UNTIL THE UPSTREAM DISTURBED AREA IS STABILIZED AND APPROVED BY THE LOCAL JURISDICTION, OR IS REPLACED BY AN EQUIVALENT PERIMETER SEDIMENT CONTROL BMP.
  - WHEN SILT FENCE IS REMOVED, ALL DISTURBED AREAS SHALL BE COVERED WITH TOPSOIL, SEEDED AND MULCHED OR OTHERWISE STABILIZED AS APPROVED BY LOCAL JURISDICTION.
- (DETAIL ADAPTED FROM TOWN OF PARKER, COLORADO AND CITY OF AURORA, 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.

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**SC-3**

**Straw Bale Barrier (SBB)**



**STRAW BALE**

**TRENCH FOR STRAW BALE**

**SECTION A**

**SBB-1. STRAW BALE**

**Straw Bale Barrier (SBB)**

**SC-3**

**STRAW BALE INSTALLATION NOTES**

- SEE PLAN VIEW FOR:
  - LOCATION(S) OF STRAW BALES.
- STRAW BALES SHALL CONSIST OF CERTIFIED WEED FREE STRAW OR HAY. LOCAL JURISDICTIONS MAY REQUIRE PROOF THAT BALES ARE WEED FREE.
- STRAW BALES SHALL CONSIST OF APPROXIMATELY 5 CUBIC FEET OF STRAW OR HAY AND WEIGH NOT LESS THAN 35 POUNDS.
- WHEN STRAW BALES ARE USED IN SERIES AS A BARRIER, THE END OF EACH BALE SHALL BE TIGHTLY ABUTTING ONE ANOTHER.
- STRAW BALE DIMENSIONS SHALL BE APPROXIMATELY 36"X18"X18".
- A UNIFORM ANCHOR TRENCH SHALL BE EXCAVATED TO A DEPTH OF 4". STRAW BALES SHALL BE PLACED SO THAT BINDING TWINE IS ENCOMPASSING THE VERTICAL SIDES OF THE BALES(S). ALL EXCAVATED SOIL SHALL BE PLACED ON THE UPHILL SIDE OF THE STRAW BALE(S) AND COMPACTED.
- TWO (2) WOODEN STAKES SHALL BE USED TO HOLD EACH BALE IN PLACE. WOODEN STAKES SHALL BE 2"x2"x24". WOODEN STAKES SHALL BE DRIVEN 6" INTO THE GROUND.

**STRAW BALE 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 REPLACEMENT SHOULD BE INITIATED UPON DISCOVERY OF THE FAILURE.
  - STRAW BALES SHALL BE REPLACED IF THEY BECOME HEAVILY SOILED, ROTTEN, OR DAMAGED BEYOND REPAIR.
  - SEDIMENT ACCUMULATED UPSTREAM OF STRAW BALE BARRIER SHALL BE REMOVED AS NEEDED TO MAINTAIN FUNCTIONALITY OF THE BMP, TYPICALLY WHEN DEPTH OF ACCUMULATED SEDIMENTS IS APPROXIMATELY 1/2 OF THE HEIGHT OF THE STRAW BALE BARRIER.
  - STRAW BALES ARE TO REMAIN IN PLACE UNTIL THE UPSTREAM DISTURBED AREA IS STABILIZED AND APPROVED BY THE LOCAL JURISDICTION.
  - WHEN STRAW BALES ARE REMOVED, ALL DISTURBED AREAS SHALL BE COVERED WITH TOPSOIL, SEEDED AND MULCHED OR OTHERWISE STABILIZED AS APPROVED BY LOCAL JURISDICTION.
- (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.

SBB-2 Urban Drainage and Flood Control District November 2010  
Urban Storm Drainage Criteria Manual Volume 3

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UNTIL SUCH TIME AS APPROVED DRAWINGS ARE PROVIDED BY THE ENGINEER, THE USER SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND AUTHORIZATIONS. TERRA NOVA ENGINEERING, INC. APPROVES THEIR USE ONLY FOR THE PROJECT AND SITE SPECIFICALLY IDENTIFIED BY WRITTEN AUTHORIZATION.

PREPARED FOR:  
4-WAY RANCH JOINT VENTURE  
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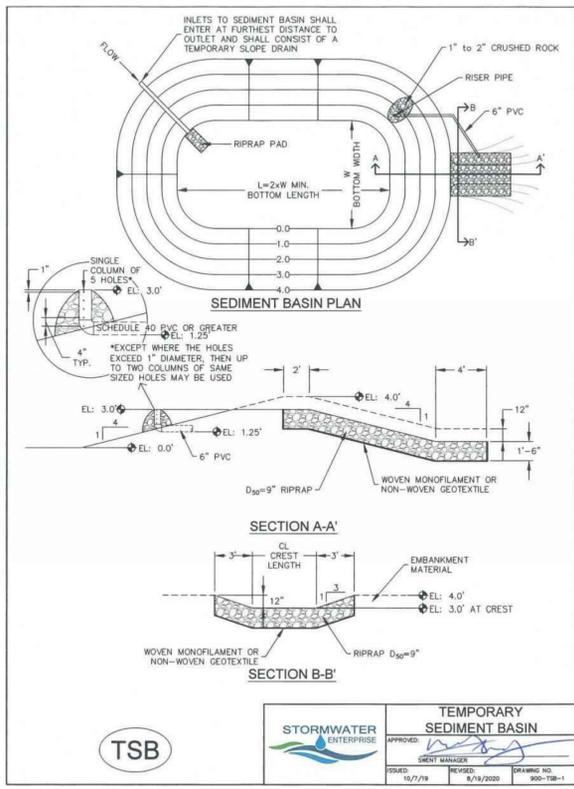
**Terra Nova**  
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**WATERBURY FILING NO. 1 & 2**

GRADING AND EROSION CONTROL PLAN  
EROSION CONTROL DETAILS

DESIGNED BY	DLF
DRAWN BY	QNA
CHECKED BY	QNA
H-SCALE	NA
V-SCALE	N/A
JOB NO.	1715.00
DATE ISSUED	7/20/22
SHEET NO.	9 OF 10



**TABLE SB-1, SIZING INFORMATION FOR STANDARD SEDIMENT BASIN**

UPSTREAM DRAINAGE AREA (ROUNDED TO NEAREST ACRE), (AC)	Basin Bottom Width (W), (FT)	Spillway Crest Length (CL), (FT)	Hole Diameter (HD), (IN)
1	12 1/2	2	3/2
2	21	3	1 1/4
3	28	4	1 1/2
4	33 1/2	5	1 3/4
5	38 1/2	6	1 3/4
6	43	7	1 3/4
7	47 1/2	8	1 3/4
8	51	9	1 3/4
9	55	10	1 3/4
10	59 1/2	11	1 3/4
11	61	12	1 3/4
12	64	13	1 3/4
13	67 1/2	14	1 3/4
14	70 1/2	15	1 3/4
15	73 1/2	16	1 3/4
		17	1 3/4
		18	1 3/4
		19	1 3/4
		20	1 3/4
		21	1 3/4
		22	1 3/4

**INSTALLATION NOTES**

- FOR STANDARD BASIN, BOTTOM DIMENSION MAY BE MODIFIED AS LONG AS BOTTOM AREA IS NOT REDUCED.
- EMBANKMENT MATERIAL SHALL CONSIST OF SOIL FREE OF DEBRIS, ORGANIC MATERIAL, AND ROCKS OR CONCRETE GREATER THAN 3 INCHES, AND SHALL HAVE A MINIMUM OF 15 PERCENT BY WEIGHT PASSING THE No. 200 SIEVE.
- EMBANKMENT MATERIAL SHALL BE COMPACTED TO AT LEAST 95 PERCENT OF MAXIMUM DENSITY IN ACCORDANCE WITH ASTM D-698.
- PIPE SCHEDULE 40 OR GREATER SHALL BE USED.
- THE DETAILS SHOWN ON THESE SHEETS PERTAIN TO STANDARD SEDIMENT BASIN(S) FOR DRAINAGE AREAS LESS THAN 15 ACRES. SEE CONSTRUCTION DRAWINGS FOR EMBANKMENT, STORAGE VOLUME, SPILLWAY, OUTLET, AND OUTLET PROTECTION DETAILS FOR ANY SEDIMENT BASIN(S) THAT HAVE BEEN INDIVIDUALLY DESIGNED FOR DRAINAGE AREAS LARGER THAN 15 ACRES. DESIGN CALCULATIONS MUST BE APPROVED PRIOR TO IMPLEMENTATION.

**MAINTENANCE NOTES**

- FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN CONTROL MEASURES IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.
- SEDIMENT ACCUMULATED IN BASIN SHALL BE REMOVED EFFECTIVELY, TYPICALLY WHEN SEDIMENT DEPTH REACHES ONE FOOT (I.E. TWO FEET BELOW SPILLWAY CREST).
- SEDIMENT BASINS ARE TO REMAIN IN PLACE UNTIL THE UPSTREAM DISTURBED AREA IS PERMANENTLY STABILIZED.
- PERMANENTLY STABILIZE AREA AFTER SEDIMENT BASIN REMOVAL.

**TSB**

**TEMPORARY SEDIMENT BASIN**

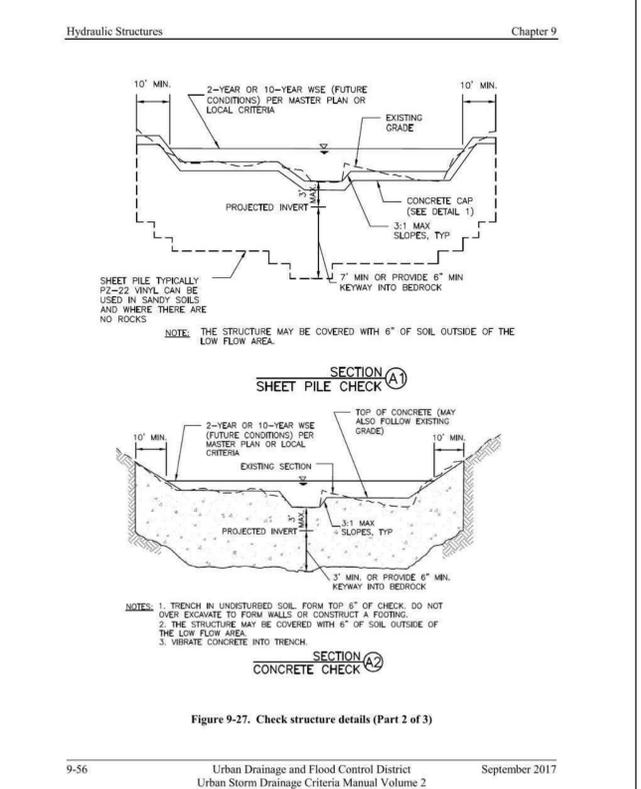
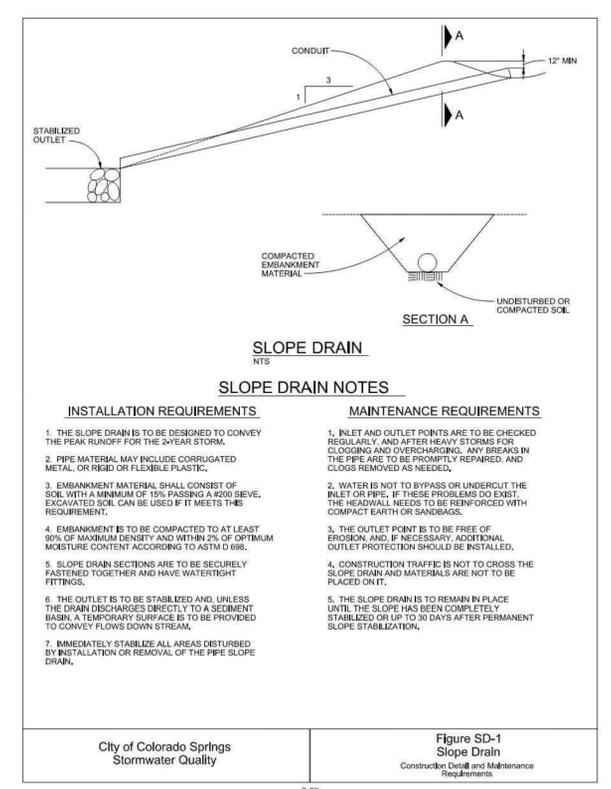
APPROVED: [Signature]

DESIGNED BY: [Signature]

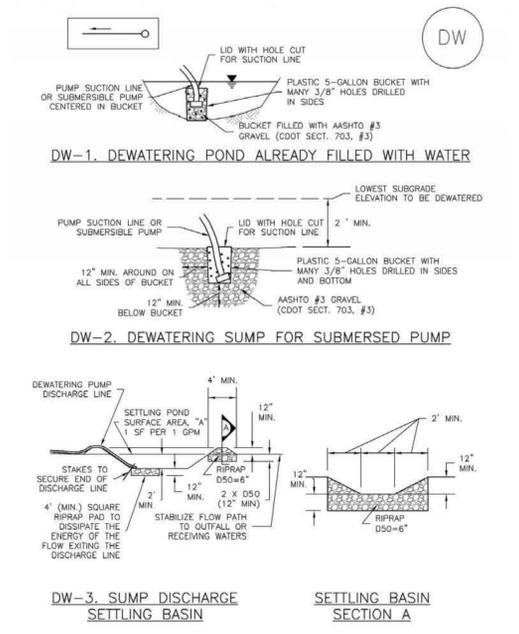
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REVISION: 8/19/2020

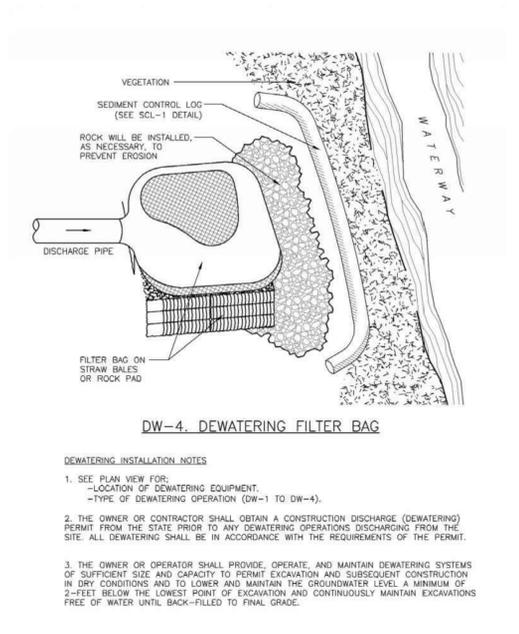
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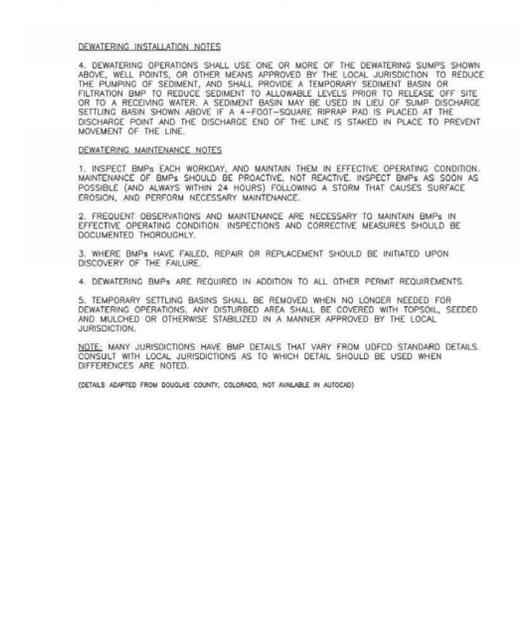
**Dewatering Operations (DW) SM-9**



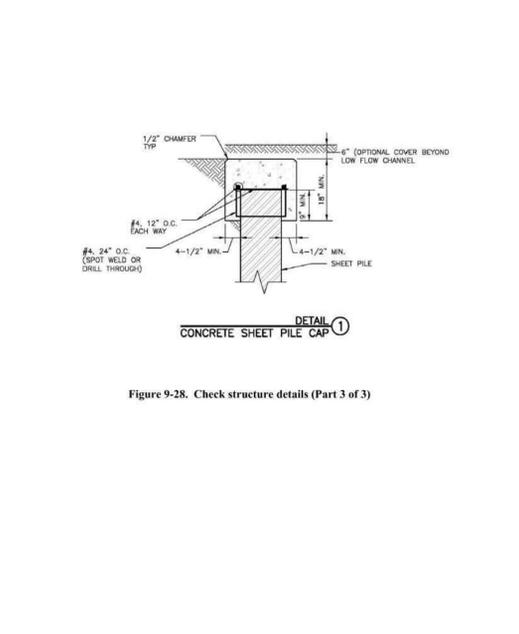
**SM-9 Dewatering Operations (DW)**



**Dewatering Operations (DW) SM-9**



**Chapter 9 Hydraulic Structures**



DATE: \_\_\_\_\_

REVISIONS: \_\_\_\_\_

NO. \_\_\_\_\_

DESCRIPTION: \_\_\_\_\_

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PREPARED FOR: 4-WAY RANCH JOINT VENTURE

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DESIGNED BY: DLF

DRAWN BY: QNA

CHECKED BY: QNA

H-SCALE: NA

V-SCALE: N/A

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