

west virginia department of environmental protection

EARL RAY TOMBLIN, GOVERNOR

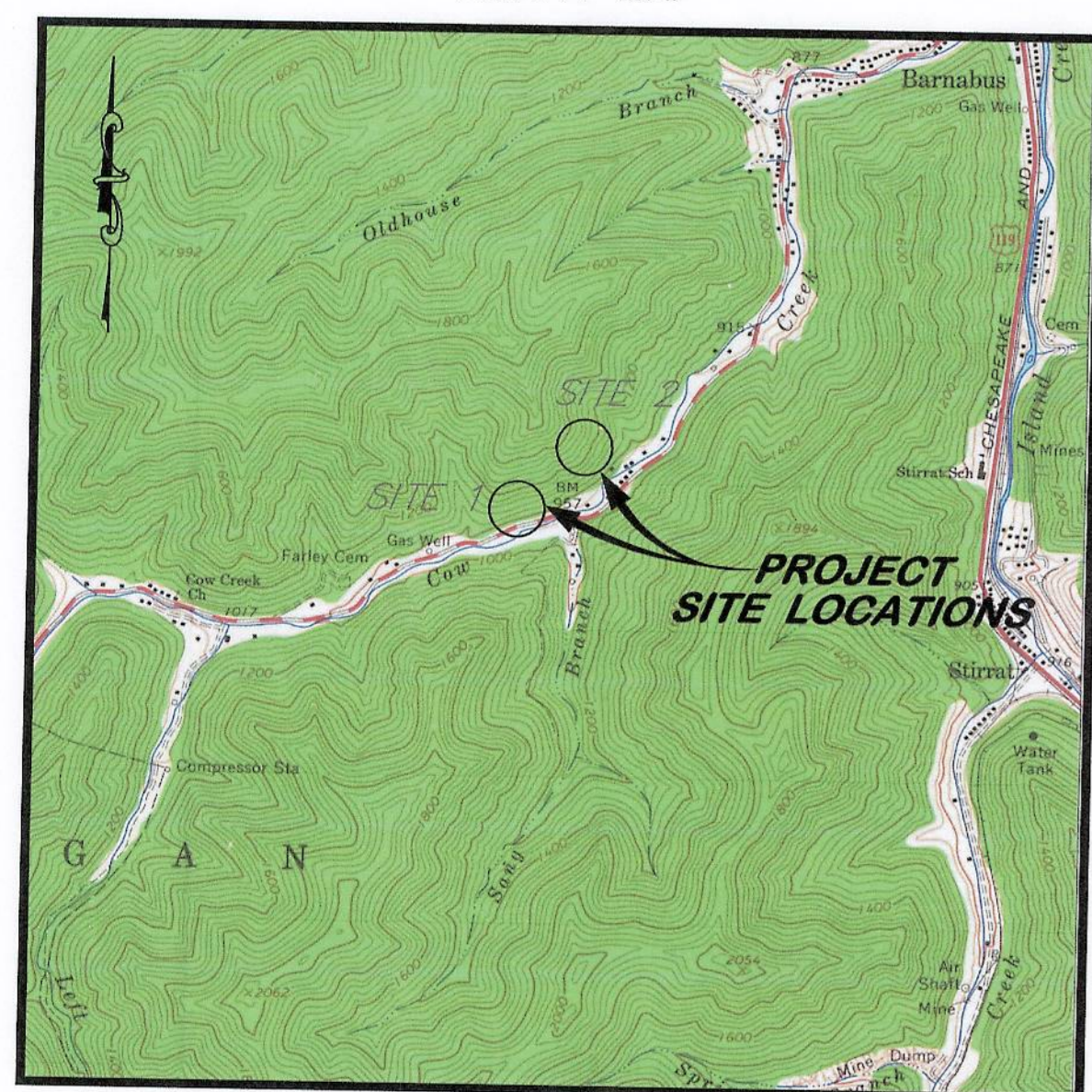
RANDY C. HUFFMAN, CABINET SECRETARY

OFFICE OF ABANDONED MINE LANDS AND RECLAMATION

COW CREEK (BROWNING) PORTALS

NEAR BARNABUS
LOGAN COUNTY, WEST VIRGINIA

VICINITY MAP



USGS 7.5' QUAD (BARNABUS)

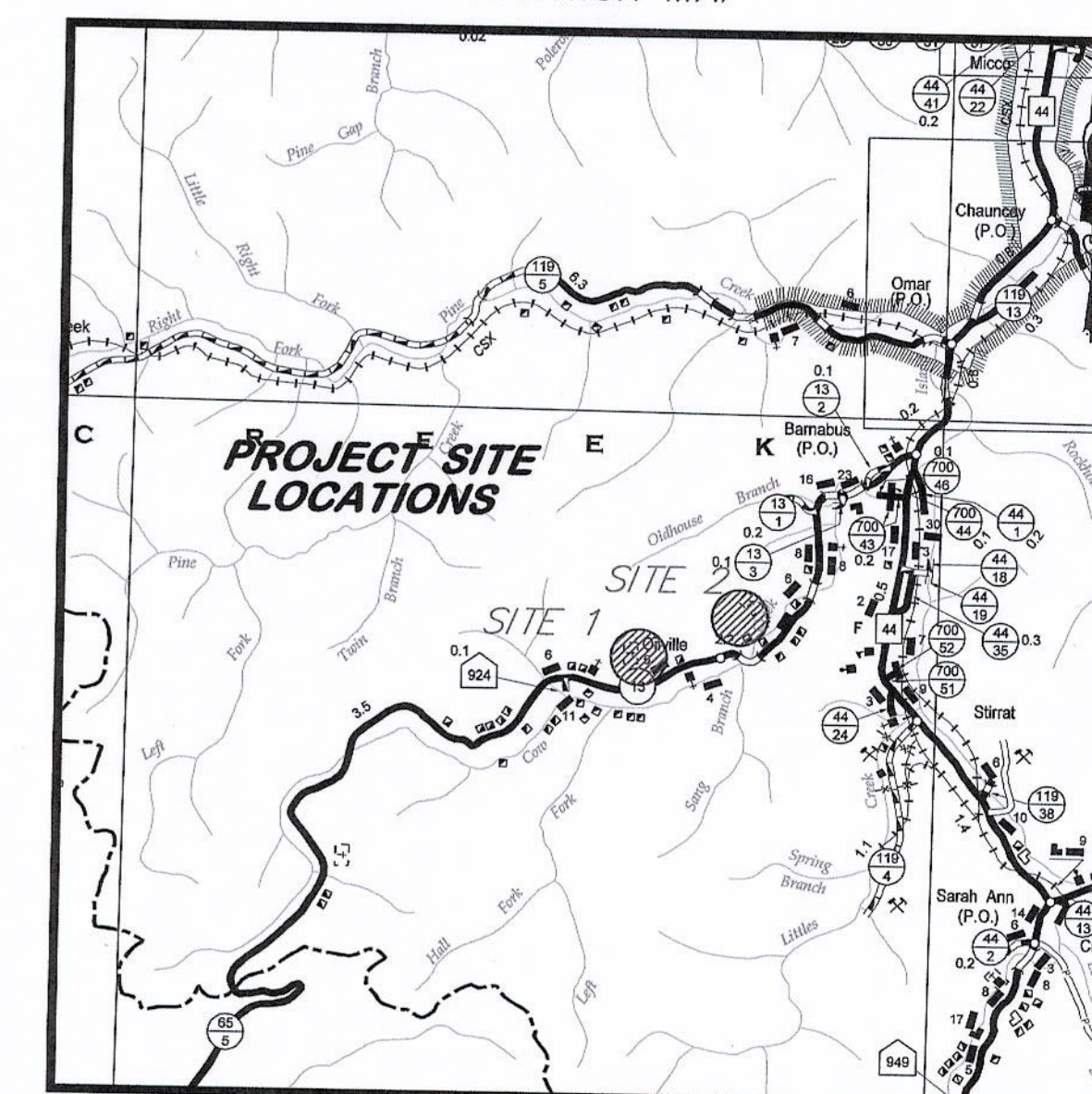
INDEX TO SHEETS

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3	SITE 2 - EXISTING CONDITIONS AND TAX MAP OVERLAY
4	SITE 1 - RECLAMATION PLAN AND SEDIMENT CONTROL PLAN
5	SITE 2 - RECLAMATION PLAN AND SEDIMENT CONTROL PLAN
6	PIPE PROFILE, DITCH PROFILE AND TYPICAL SECTIONS
7	TYPICAL DETAILS (1)
8	TYPICAL DETAILS (2)

BID SCHEDULE

ITEM NO.	DESCRIPTION	QUANTITY
1.0	MOBILIZATION AND DEMOBILIZATION (LIMITED TO 10% OF TOTAL BID)	LS
2.0	CONSTRUCTION LAYOUT (LIMITED TO 5% OF TOTAL BID)	LS
3.0	QUALITY CONTROL (LIMITED TO 3% OF TOTAL BID)	LS
4.1	SITE PREPARATION (LIMITED TO 10% OF TOTAL BID)	LS
4.2	GRAVEL DRIVE REHABILITATION	52 TONS
5.1	SILT FENCE	374 LF
5.2	STABILIZED CONSTRUCTION ENTRANCE	25 TONS
6.0	REVEGETATION	LS
7.1	12" HDPE PIPE	155 LF
7.2	6" GRASS LINED CHANNEL	120 LF
7.3	TYPE "G" DROP INLET	1 EA.
7.4	4' x 4' UNDERDRAIN	100 LF
7.5	UNDERDRAIN CONVEYANCE PIPE	100 LF
8.0	FOAM MINE SEAL	130 BAGS

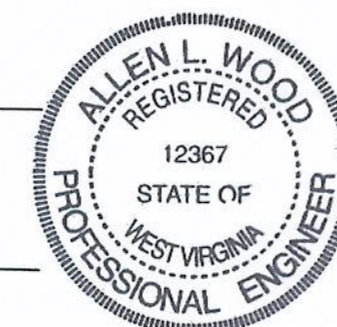
LOCATION MAP



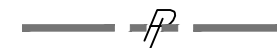
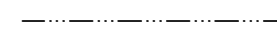
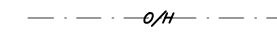
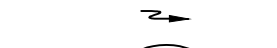
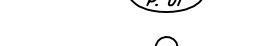

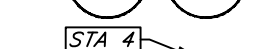
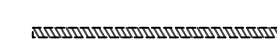

COUNTY HIGHWAY MAP, 1" = 1 MI.

Allen L. Wood
APPROVED

6/1/15
DATE



LEGEND

-  APPROX. PROPERTY LINE
-  EXIST. DRAIN OR WATER COURSE
-  EXISTING UTILITY LINE
-  DIRECTION OF FLOW
-  TAX MAP AND PARCEL NO.
-  EXISTING UTILITY OR LIGHT POLE
-  EXISTING OR PROBABLE MINE OPENING
-  EXISTING SURVEY CONTROL
-  EXISTING CULVERT OR PIPE

PROPERTY LINE AND ROAD NUMBER INFORMATION REPRESENTS AN APPROXIMATE BEST FIT ESTIMATE OF PROPERTY LINE BOUNDARIES AS OBTAINED FROM COUNTY TAX MAPS ACQUIRED THROUGH THE WEST VIRGINIA STATE TAX DEPARTMENT IN CHARLESTON, WV. PROPERTY LINES SET OUT AND DESIGNATED WITHIN THESE CONSTRUCTION PLANS DO NOT REPRESENT A TRUE AND ACCURATE BOUNDARY SURVEY.

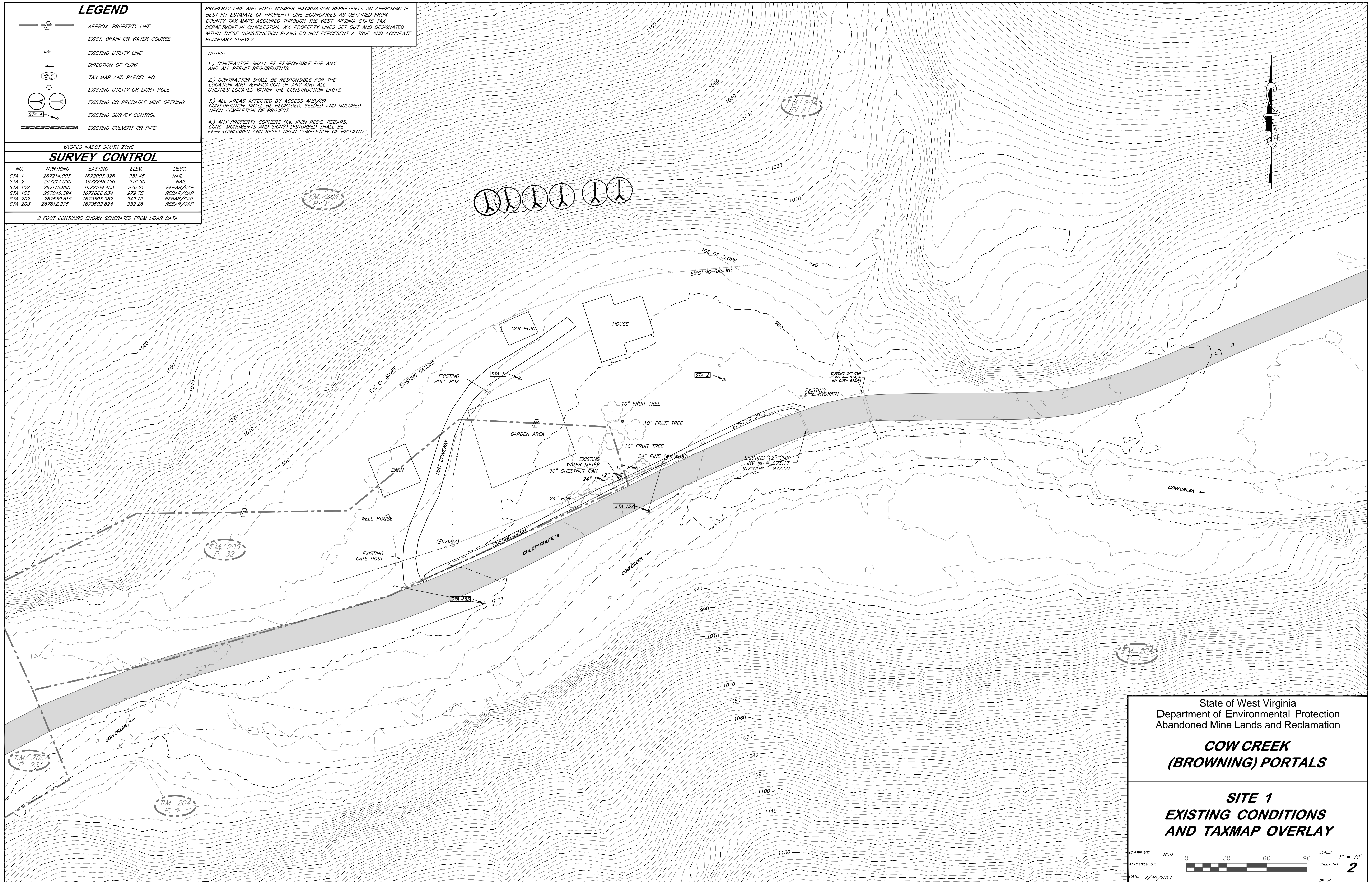
- NOTES:
- 1.) CONTRACTOR SHALL BE RESPONSIBLE FOR ANY AND ALL PERMIT REQUIREMENTS.
 - 2.) CONTRACTOR SHALL BE RESPONSIBLE FOR THE LOCATION AND VERIFICATION OF ANY AND ALL UTILITIES LOCATED WITHIN THE CONSTRUCTION LIMITS.
 - 3.) ALL AREAS AFFECTED BY ACCESS AND/OR CONSTRUCTION SHALL BE REGRADED, SEEDED AND MULCHED UPON COMPLETION OF PROJECT.
 - 4.) ANY PROPERTY CORNERS (i.e. IRON RODS, REBARS, CONC. MONUMENTS AND SIGNS) DISTURBED SHALL BE RE-ESTABLISHED AND RESET UPON COMPLETION OF PROJECT.

WSPCS NAD83 SOUTH ZONE

SURVEY CONTROL

NO.	NORTHING	EASTING	ELEV.	DESC.
STA 1	267214.908	1672093.326	981.46	NAIL
STA 2	267214.095	1672246.196	976.95	NAIL
STA 152	267115.865	1672189.453	976.21	REBAR/CAP
STA 153	267046.594	1672066.834	979.75	REBAR/CAP
STA 202	267689.615	1673908.982	949.12	REBAR/CAP
STA 203	267612.276	1673692.824	952.26	REBAR/CAP


2 FOOT CONTOURS SHOWN GENERATED FROM LIDAR DATA




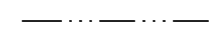





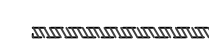

State of West Virginia
Department of Environmental Protection
Abandoned Mine Lands and Reclamation

**COW CREEK
(BROWNING) PORTALS**

**SITE 1
EXISTING CONDITIONS
AND TAXMAP OVERLAY**

DRAWN BY: RCD		SCALE: 1" = 30'
APPROVED BY:		SHEET NO. 2
DATE: 7/30/2014		OF 8

LEGEND

-  APPROX. PROPERTY LINE
-  EXIST. DRAIN OR WATER COURSE
-  EXISTING UTILITY LINE
-  DIRECTION OF FLOW
-  TAX MAP AND PARCEL NO.
-  EXISTING UTILITY OR LIGHT POLE
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2 FOOT CONTOURS SHOWN GENERATED FROM LIDAR DATA



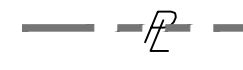
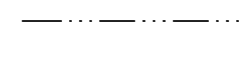
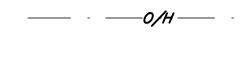

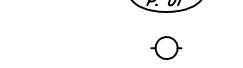


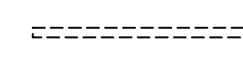

State of West Virginia
Department of Environmental Protection
Abandoned Mine Lands and Reclamation

**COW CREEK
(BROWNING) PORTALS**

**SITE 2
EXISTING CONDITIONS
AND TAXMAP OVERLAY**

DRAWN BY: RCD		SCALE: 1" = 30'
APPROVED BY:		SHEET NO. 3
DATE: 7/30/2014		OF 8

LEGEND

-  APPROX. PROPERTY LINE
-  EXIST. DRAIN OR WATER COURSE
-  EXISTING UTILITY LINE
-  DIRECTION OF FLOW
-  TAX MAP AND PARCEL NO.
-  EXISTING UTILITY OR LIGHT POLE
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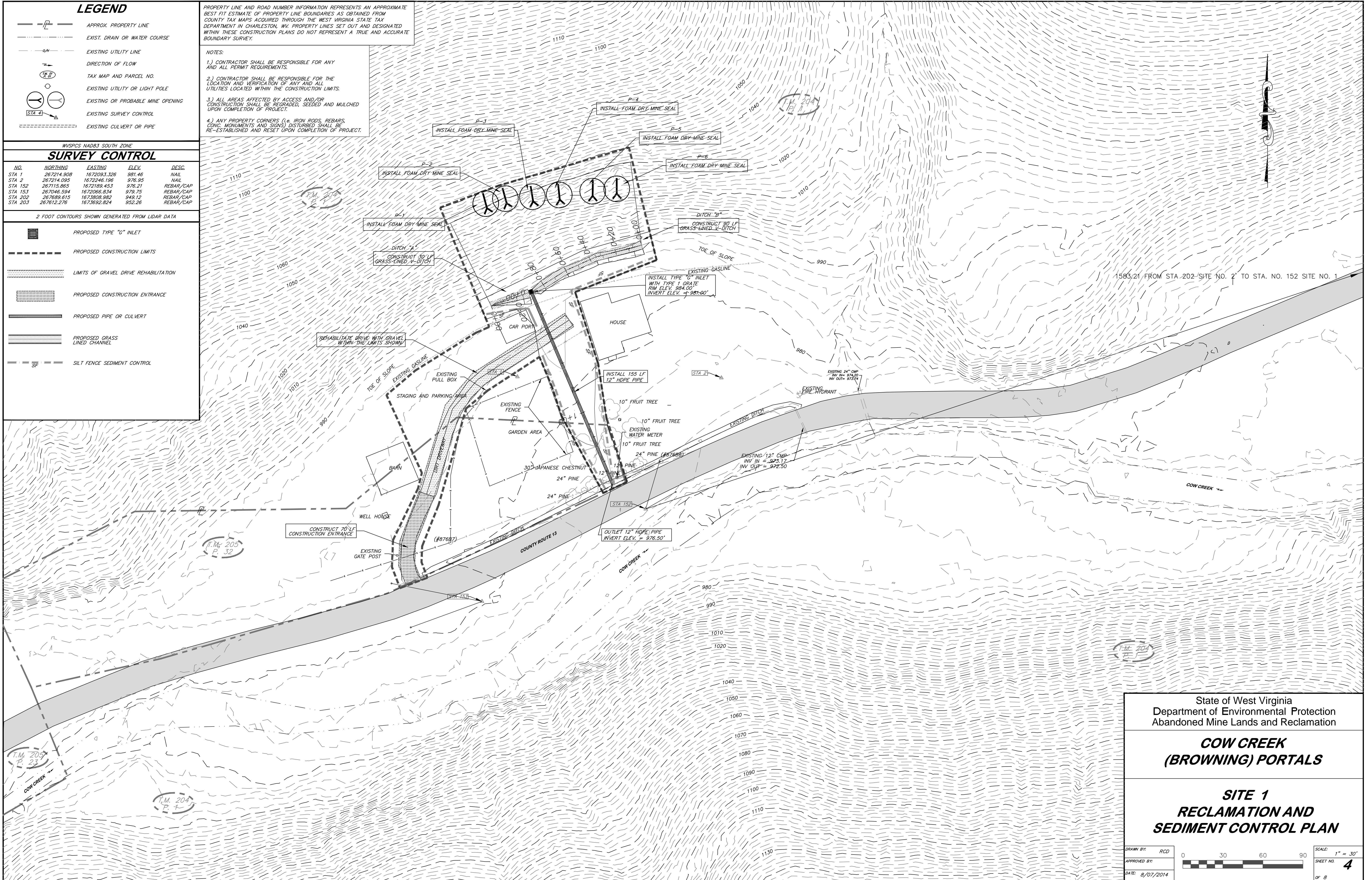
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SURVEY CONTROL

WVSPCS NAD83 SOUTH ZONE

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STA 203	267612.276	1673692.824	952.26	REBAR/CAP

- 2 FOOT CONTOURS SHOWN GENERATED FROM LIDAR DATA
-  PROPOSED TYPE "G" INLET
 -  PROPOSED CONSTRUCTION LIMITS
 -  LIMITS OF GRAVEL DRIVE REHABILITATION
 -  PROPOSED CONSTRUCTION ENTRANCE
 -  PROPOSED PIPE OR CULVERT
 -  PROPOSED GRASS LINED CHANNEL
 -  SILT FENCE SEDIMENT CONTROL



State of West Virginia
Department of Environmental Protection
Abandoned Mine Lands and Reclamation

**COW CREEK
(BROWNING) PORTALS**

**SITE 1
RECLAMATION AND
SEDIMENT CONTROL PLAN**

DRAWN BY: RCD	SCALE: 1" = 30'
APPROVED BY:	SHEET NO. 4
DATE: 8/07/2014	OF 8

LEGEND

- APPROX. PROPERTY LINE
- EXIST. DRAIN OR WATER COURSE
- EXISTING UTILITY LINE
- DIRECTION OF FLOW
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(STATE PLAN COORDINATE SYSTEM OF 1983, WEST VIRGINIA SOUTH ZONE)

SURVEY CONTROL

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STA 203	267612.276	1673692.824	952.26	REBAR/CAP

CONTOURS SHOWN GENERATED FROM LIDAR DATA

- PROPOSED TYPE "G" INLET
- PROPOSED CONSTRUCTION LIMITS
- LIMITS OF GRAVEL DRIVE REHABILITATION
- PROPOSED CONSTRUCTION ENTRANCE
- PROPOSED PIPE OR CULVERT
- LIMITS OF ACCESS ROAD STONE
- SILT FENCE SEDIMENT CONTROL



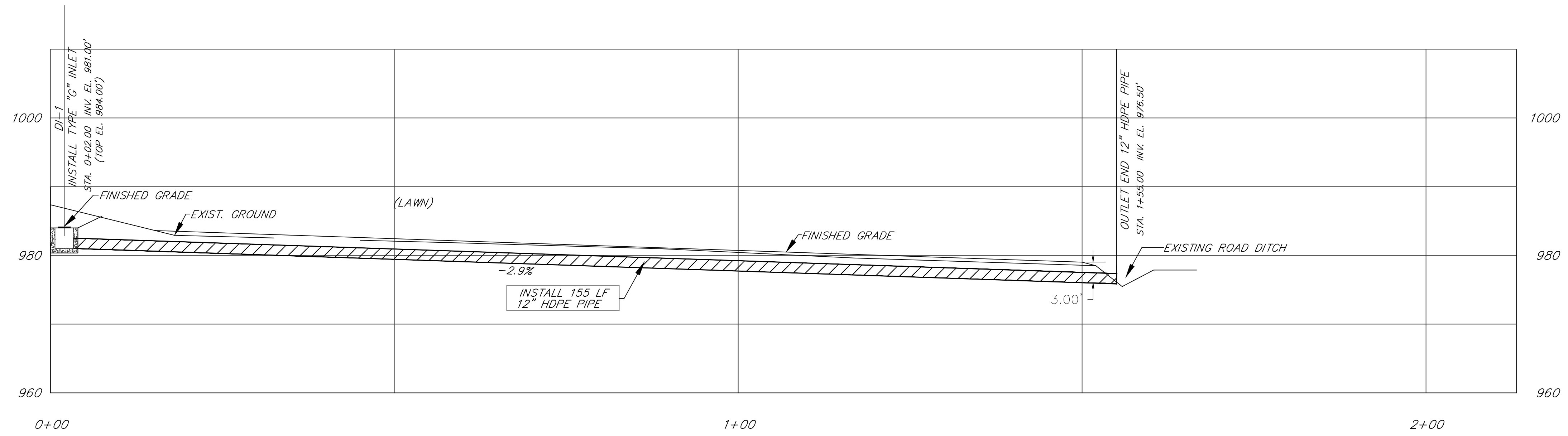
State of West Virginia
Department of Environmental Protection
Abandoned Mine Lands and Reclamation

**COW CREEK
(BROWNING) PORTALS**

**SITE 2
RECLAMATION AND
SEDIMENT CONTROL PLAN**

DRAWN BY: RCD
APPROVED BY:
DATE: 8/07/2014

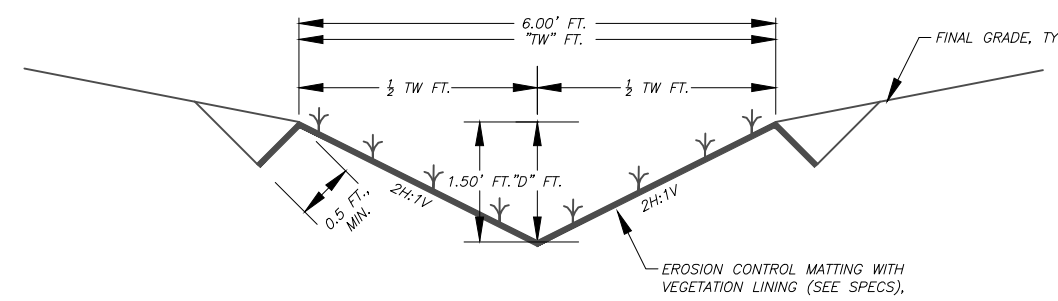
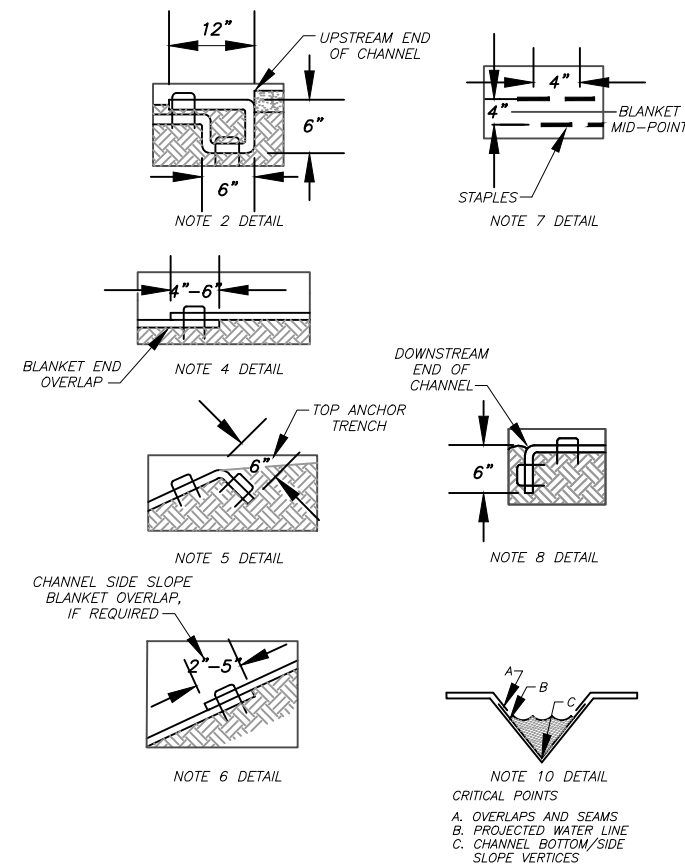
0 30 60 90
SCALE: 1" = 30'
SHEET NO. **5**
OF 8



PROFILE - 12" HDPE PIPE (SITE 1)
SCALE: 1" = 10'

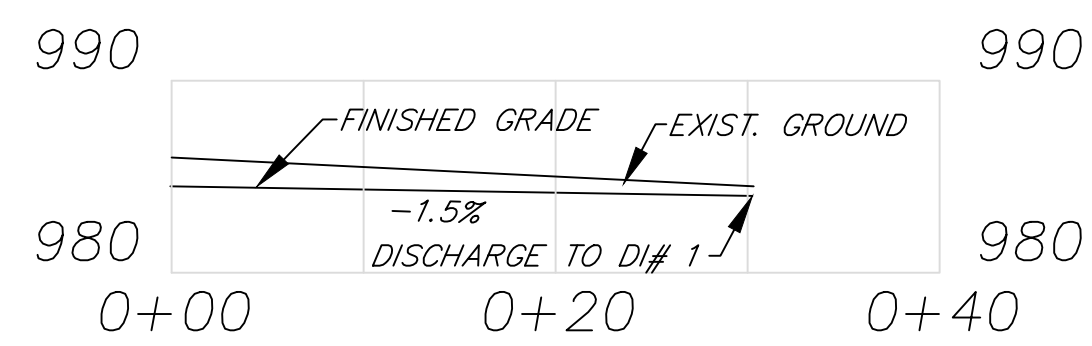
NOTES:

1. PREPARE SOIL BEFORE INSTALLING BLANKETS, INCLUDING ANY NECESSARY APPLICATION OF LIME, FERTILIZER, AND SEED.
2. BEGIN AT THE UPSTREAM END OF THE CHANNEL BY ANCHORING THE BLANKET IN A 6" DEEP X 6" WIDE TRENCH WITH APPROXIMATELY 12" OF BLANKET EXTENDING BEYOND THE UP-SLOPE PORTION OF THE TRENCH. ANCHOR THE BLANKET WITH A ROW OF STAPLES/STAKES APPROXIMATELY 12" APART IN THE BOTTOM OF THE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING. APPLY SEED TO COMPACTED SOIL AND FILL REMAINING 12" PORTION OF BLANKET BACK OVER SEED AND COMPACTED SOIL. SECURE BLANKET OVER COMPACTED SOIL WITH A ROW OF STAPLES/STAKES SPACED APPROXIMATELY 12" ACROSS THE WIDTH OF THE BLANKET.
3. ROLL CENTER BLANKET IN DIRECTION OF WATER FLOW IN BOTTOM OF CHANNEL. BLANKETS WILL UNROLL WITH APPROPRIATE SIDE AGAINST THE SOIL SURFACE. ALL BLANKETS MUST BE SECURELY FASTENED TO SOIL SURFACE BY PLACING STAPLES/STAKES IN APPROPRIATE LOCATIONS AS SHOWN IN THE STAPLE PATTERN GUIDE.
4. PLACE CONSECUTIVE BLANKETS END OVER END (SHINGLE STYLE) WITH A 4" - 6" OVERLAP. USE A DOUBLE ROW OF STAPLES STAGGERED 4" APART AND 4" ON CENTER TO SECURE BLANKETS.
5. FULL LENGTH EDGE OF BLANKETS AT TOP OF SIDE SLOPES MUST BE ANCHORED WITH A ROW OF STAPLES/STAKES APPROXIMATELY 12" APART IN A 6" DEEP X 6" WIDE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING.
6. ADJACENT BLANKETS MUST BE OVERLAPPED APPROXIMATELY 2" - 5" (DEPENDS ON BLANKET TYPE) AND STAPLED.
7. IN HIGH FLOW CHANNEL APPLICATIONS, A STAPLE CHECK SLOT IS RECOMMENDED AT 30 TO 40 FOOT INTERVALS. USE A DOUBLE ROW OF STAPLES STAGGERED 4" APART AND 4" ON CENTER OVER ENDS BOTH OF THE CHANNEL.
8. THE DOWNSTREAM END OF THE CHANNEL BLANKET MUST BE ANCHORED WITH A ROW OF STAPLES/STAKES APPROXIMATELY 12" APART IN A 6" DEEP X 6" WIDE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING.
9. IN LOOSE SOIL CONDITIONS, THE USE OF STAPLE OR STAKE LENGTHS GREATER THAN 6" MAY BE REQUIRED TO PROPERLY ANCHOR THE BLANKET.
10. HORIZONTAL STAPLE SPACING SHOULD BE ALTERED, IF NECESSARY, TO ALLOW STAPLES TO SECURE THE CRITICAL POINTS ALONG THE CHANNEL SURFACE.
11. PERMANENT SEED MIXTURE, IN ACCORDANCE WITH THE SPECIFICATIONS, SHALL BE USED FOR VEGETATED CHANNELS EXCEPT CROWNWETCH (*CORONILLA MARII*) AT 20 LB./AC. SHALL BE SUBSTITUTED FOR BIRDFOOT PEACOCK.
12. "TW" = TOP WIDTH = 6.00"
"D" = DEPTH = 1.50"

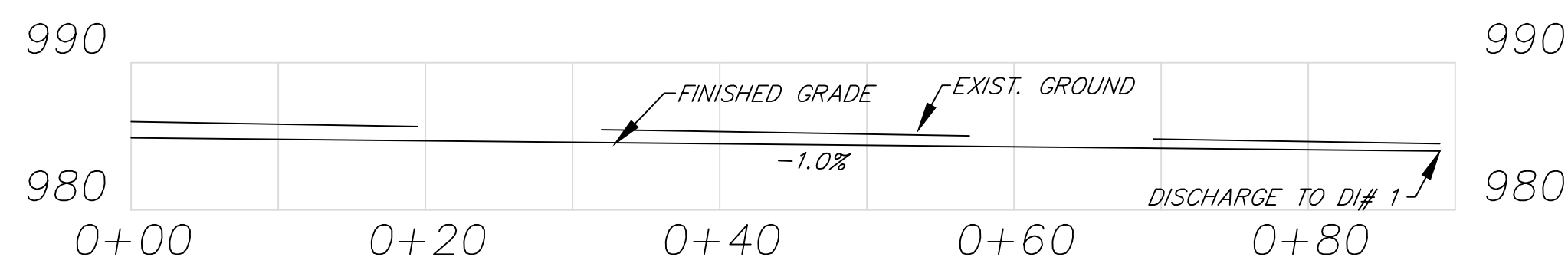


GRASS LINED "V" CHANNEL

**DETAIL 7.5.1
GRASS LINED CHANNEL**
NOT TO SCALE



PROFILE VIEW DITCH "A" (SITE 1)
SCALE: 1" = 10'



PROFILE VIEW DITCH "B" (SITE 1)
SCALE: 1" = 10'

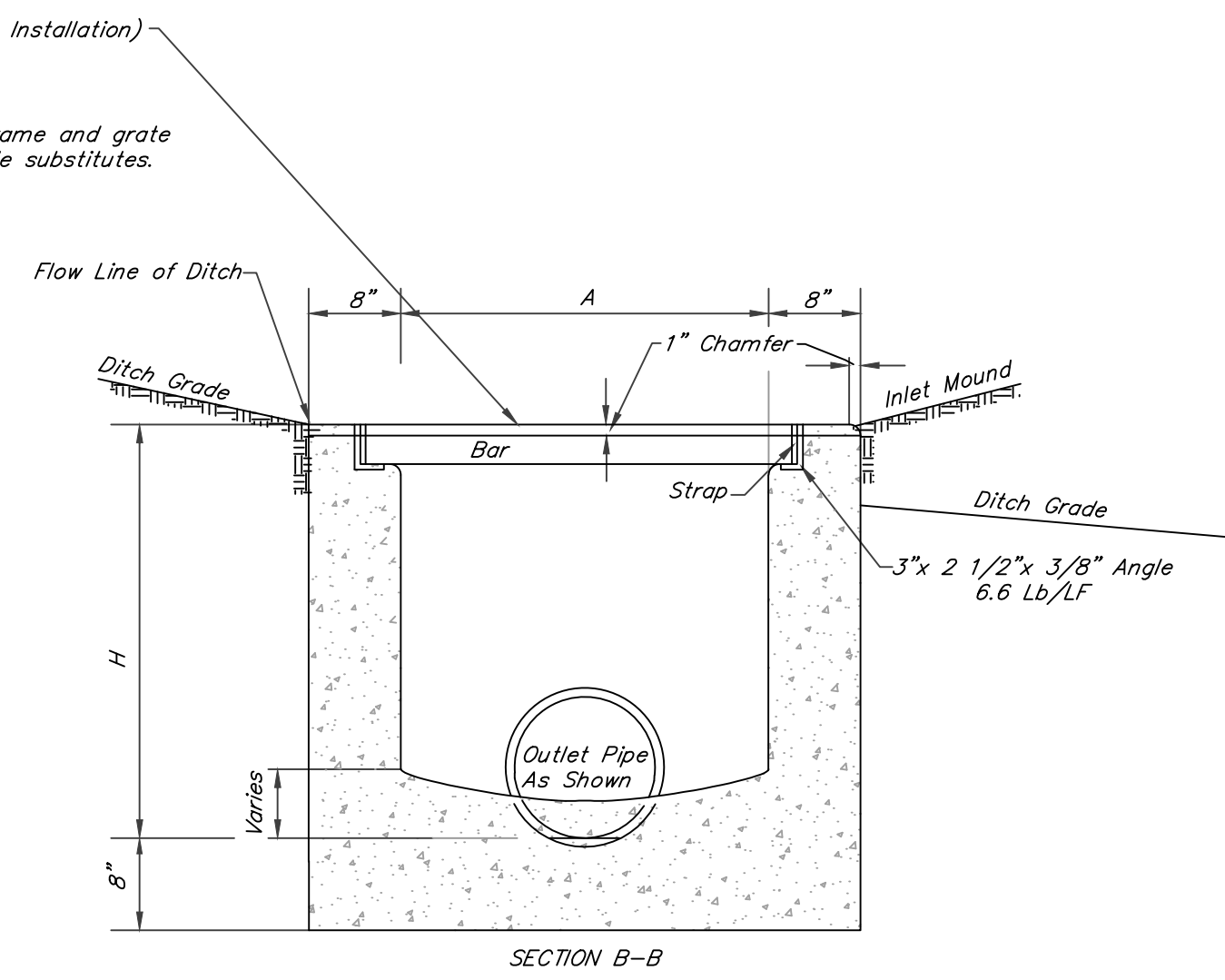
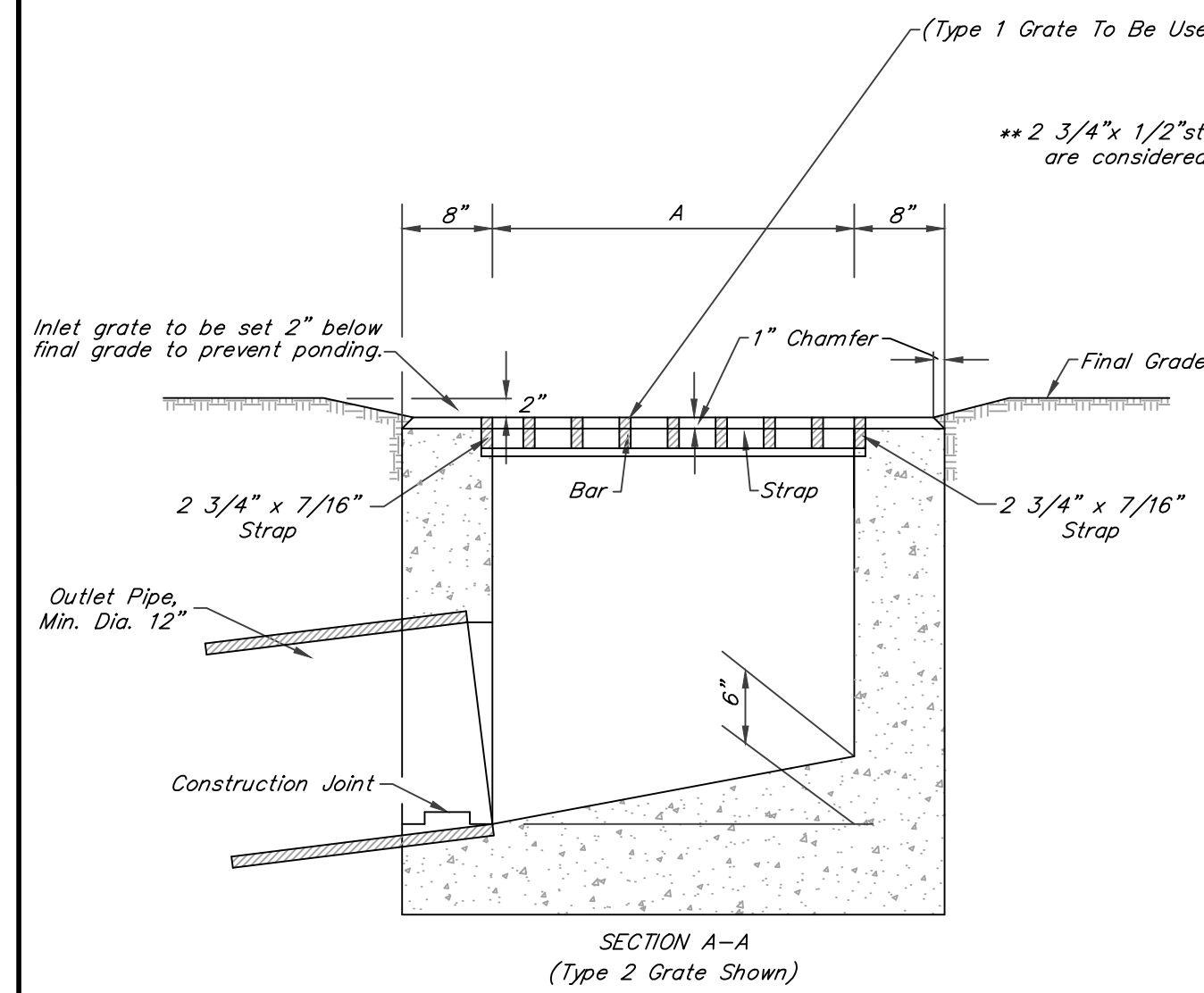
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**COW CREEK
(BROWNING) PORTALS**

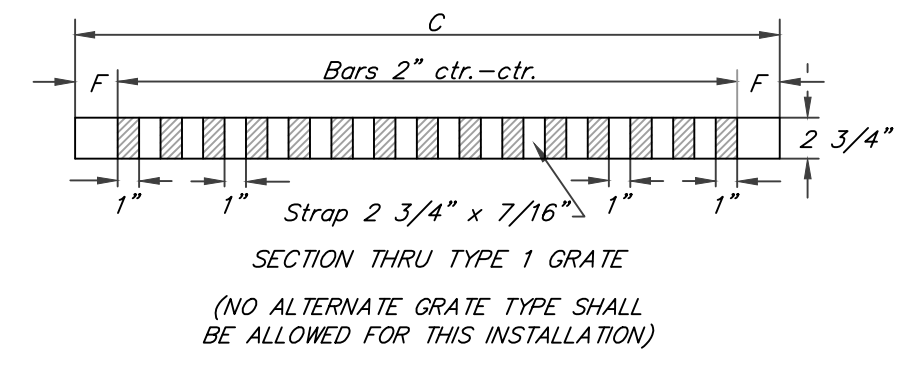
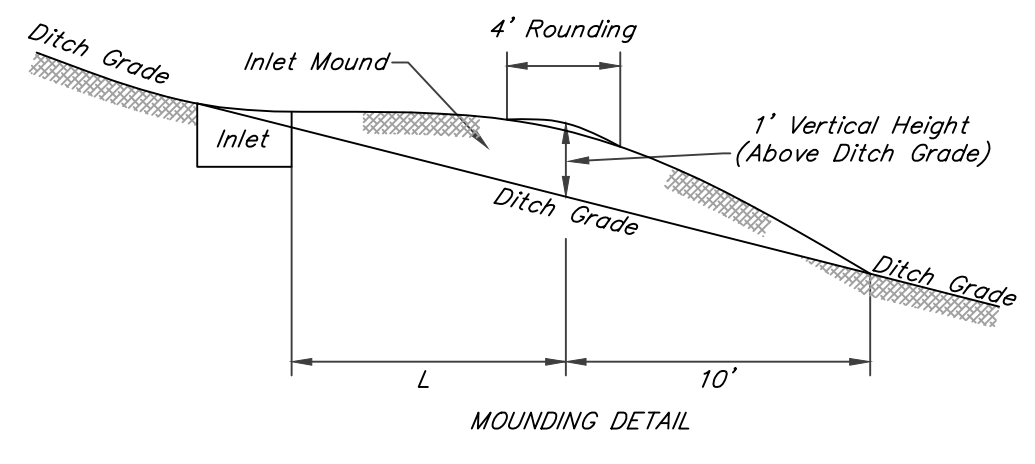
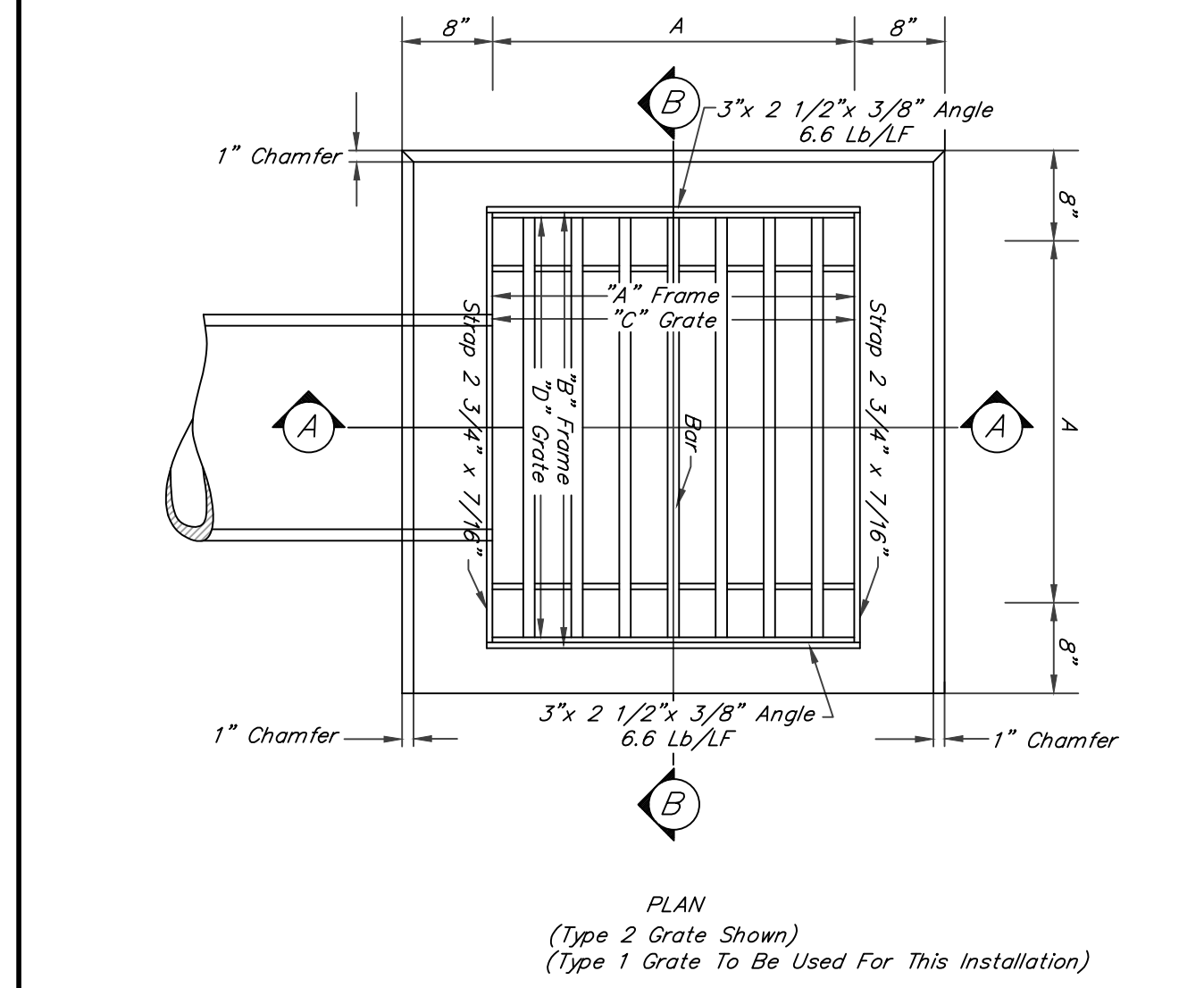
**SITE 1
PIPE PROFILE AND
DITCH PROFILES AND SECTION**

DRAWN BY: RCD
APPROVED BY:
DATE: 7/30/2014

SCALE: AS NOTED
SHEET NO. **6**
OF 8

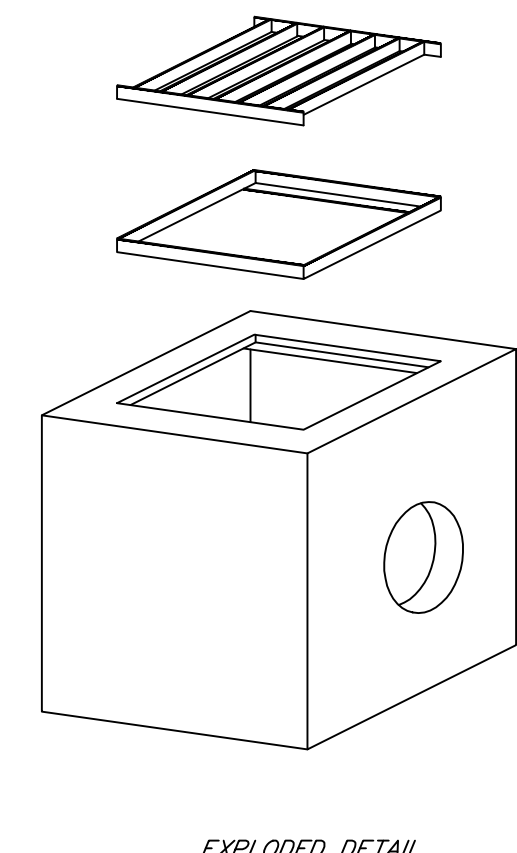


DITCH GRADE (%)		L, HORIZONTAL LENGTH (FT)
FROM	TO	
0	3	10
3	5	9
5	7.5	8
7.5	UP	SPECIAL DESIGN

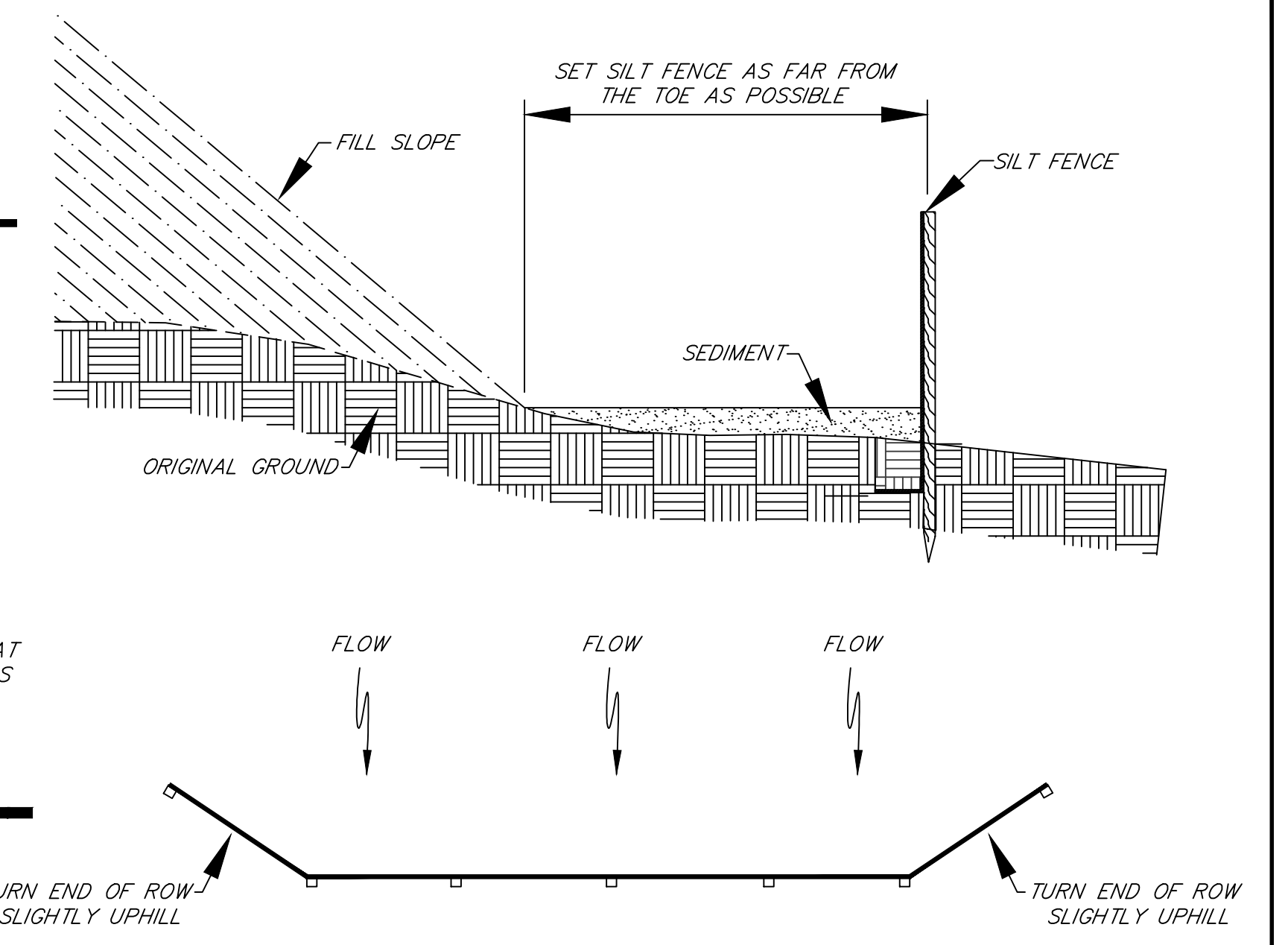
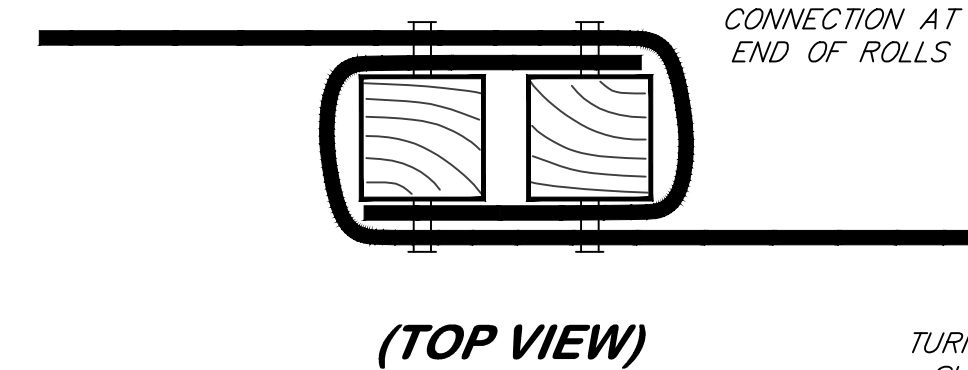
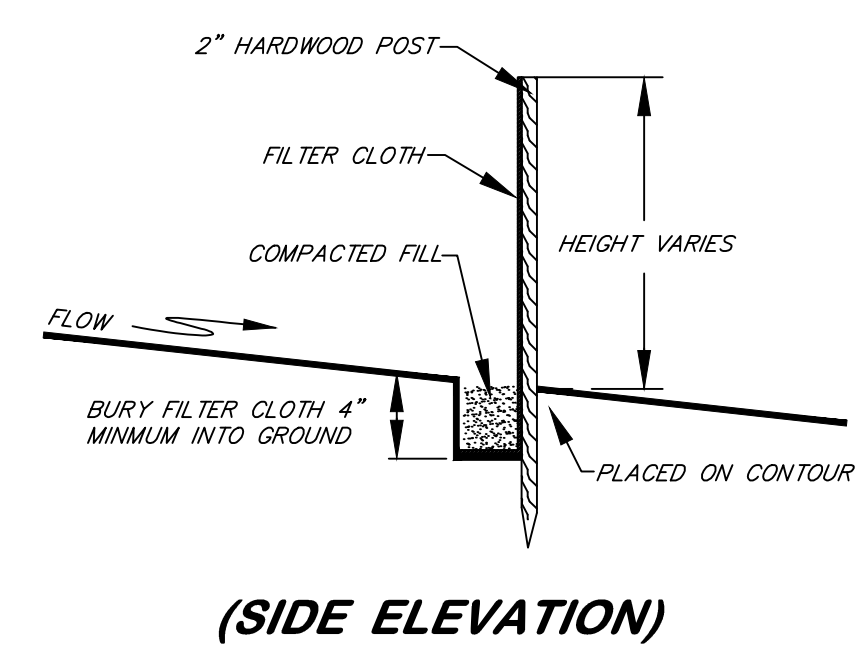
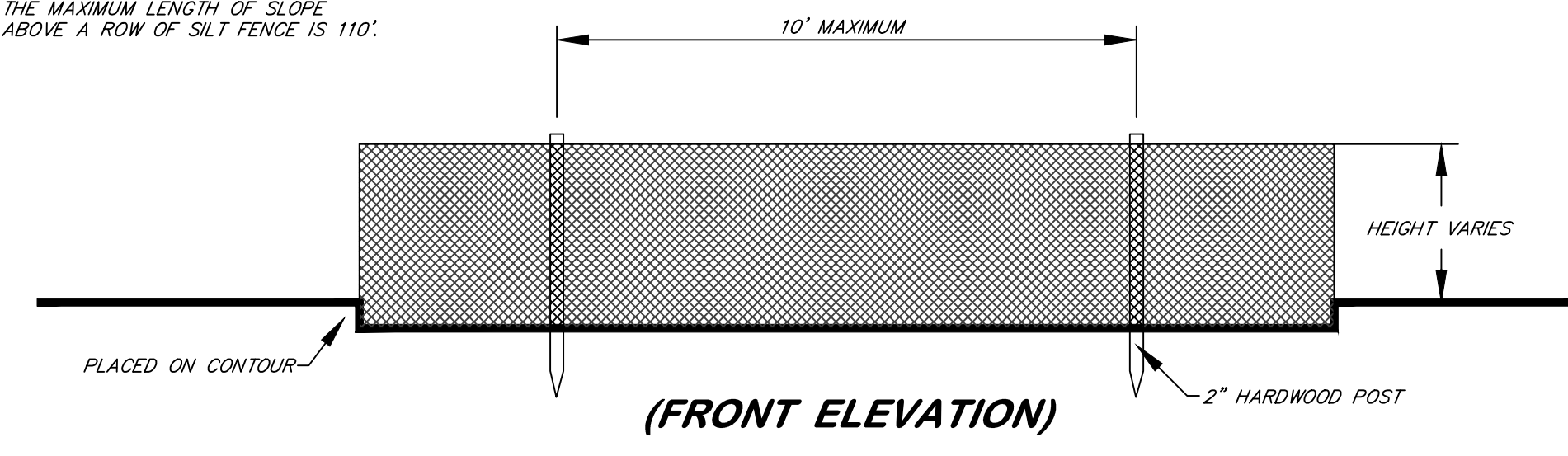


PIPE SIZE	A	B	C	D	H(Min)	F	No. X	Wt. Grate	Wt. Frame	*F	No. X	*Wt. Grate
12"	2'-8"	3'-2"	2'-7 3/4"	3'-1 3/4"	1'-6"	3 3/8"	7	223	62	3 3/8"	15	453
18"	2'-8"	3'-2"	2'-7 3/4"	3'-1 3/4"	2'-0"	3 3/8"	7	223	62	1 3/8"	15	453
24"	2'-8"	3'-2"	2'-7 3/4"	3'-1 3/4"	2'-6"	3 3/8"	7	223	62	1 3/8"	15	453

NOTES:
Wall and footer thickness is eight (8) inches. Construction between the footer and the top of the pipe may be of brick or precast concrete block. All other construction shall be of Class B concrete. Inlet may be precast, with lifting hooks out of sight after placing. Sufficient reinforcement will be included in precast inlets to resist handling stresses.
Inverts shall be shaped for self-cleaning, and shall be monolithic with footer.
A construction joint, approximately 2" x 4", will be used at the top of the self-cleaning invert. When precast construction is used, this construction joint will be omitted.
When the inlet is used for more than one pipe, the invert shall be shaped to provide smooth transitions for the flow line.
Type 1 Grate is for use in urban areas and Type 2 Grate is for use in rural areas, unless otherwise specified.
Grate to be used, either Type 1 or Type 2, will be as specified on plans.
All concrete is to be Class "B" Concrete.
The type and size of pipe to be used with the inlet is to be the type and size as called for on the plans.
Drawing shows pipe entering one side of the inlet; however, pipes may enter any or all sides of the inlet as called for on the plans.
When the bell end of concrete pipe is placed in the inlet, the inside of the bell shall be filled with concrete up to the flow line.
Typical "keyed" construction joint is shown on Section A-A herein. Other "keyed" or "doweled" type construction joints may be used if acceptable to the Engineer.

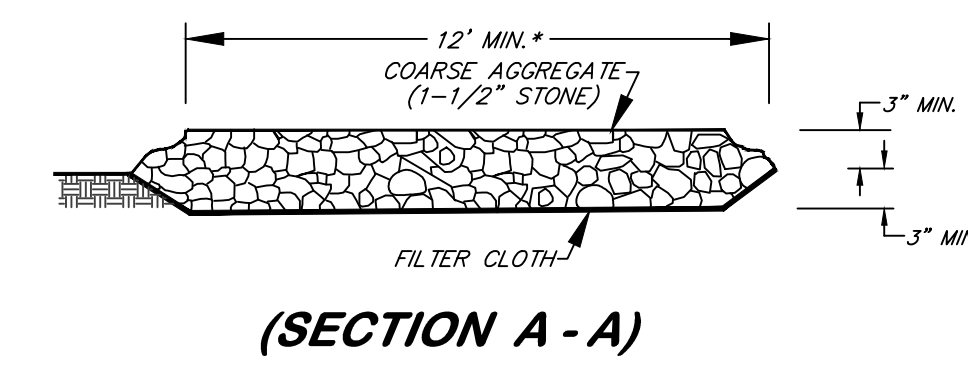
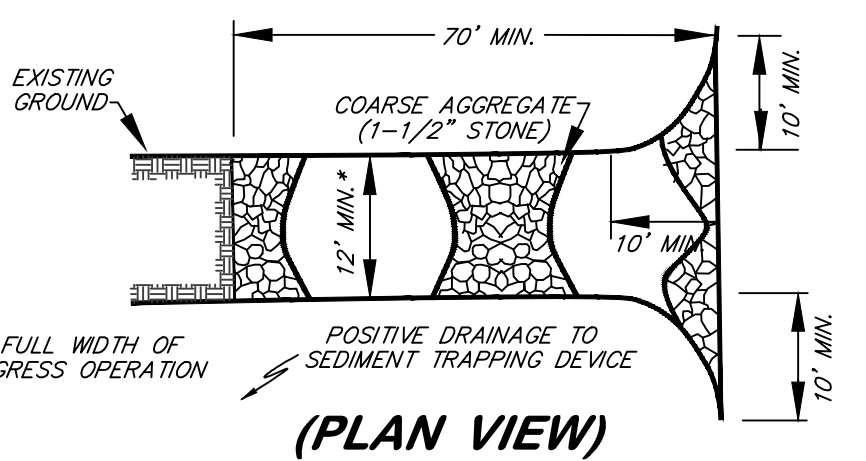
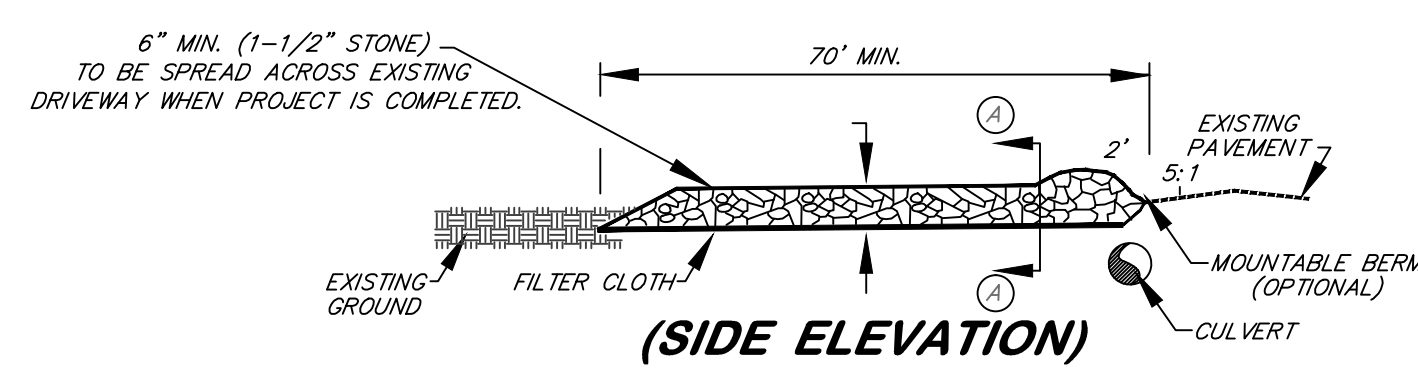


NOTE:
THE MAXIMUM LENGTH OF SLOPE ABOVE A ROW OF SILT FENCE IS 110'.

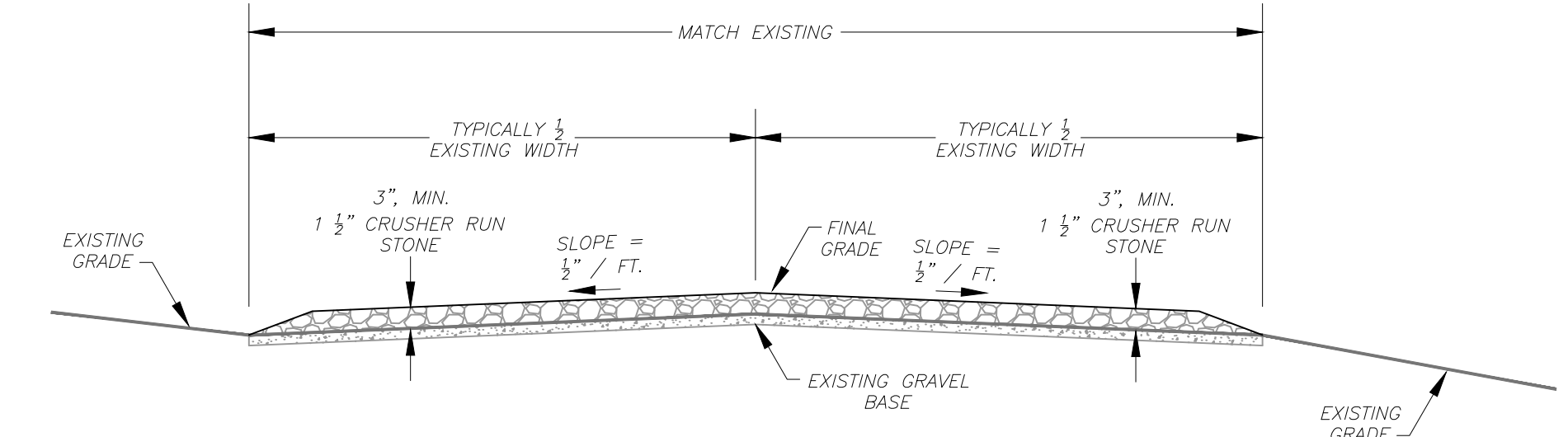


SILT FENCE
(FIG. 3.27.2)

PLACEMENT OF SILT FENCE
(FIG. 3.27.1)



STONE CONSTRUCTION ENTRANCE
(FIG. 3.02.1)



DETAIL 4.3
GRAVEL DRIVE REHABILITATION, TYP.
NOT TO SCALE

- NOTES:
- PRIOR TO STONE PLACEMENT, REGRADE EXISTING ROADWAY INTO "CROWNED" OR "SLOPE TO DITCH" CONFIGURATION AS DIRECTED BY THE ENGINEER. REMOVE, REFILL, AND COMPACT SOFT SPOTS AS DIRECTED BY THE ENGINEER. ALL CUT/FILL SLOPES SHALL BE 2H:1V.
 - 1 1/2" CRUSHER RUN STONE.
 - GRADE AND COMPACT BASE JUST PRIOR TO PLACEMENT OF REHABILITATION LAYER.
 - GRADE APPROVED MATERIAL AND ROLLER COMPACT 1 1/2" CRUSHER RUN ONCE PLACED.

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**COW CREEK
(BROWNING) PORTALS**

TYPICAL DETAILS (1)

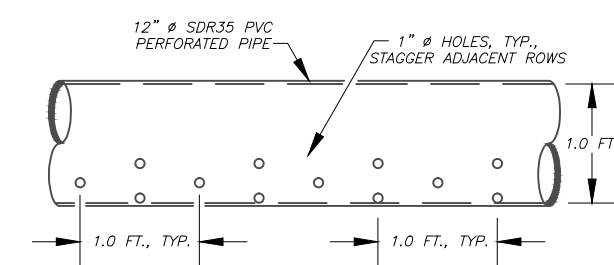
DRAWN BY: RCD
APPROVED BY:
DATE: 7/30/2014

SCALE: AS NOTED
SHEET NO. 7
OF 8

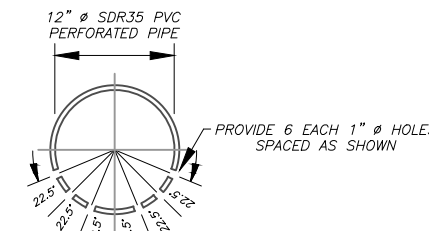
STANDARD DETAIL
TYPE G INLET

Unit price bid for Type "G" inlet will be for all depths, unless otherwise specified, and shall be paid for per each, also unless otherwise noted or specified.

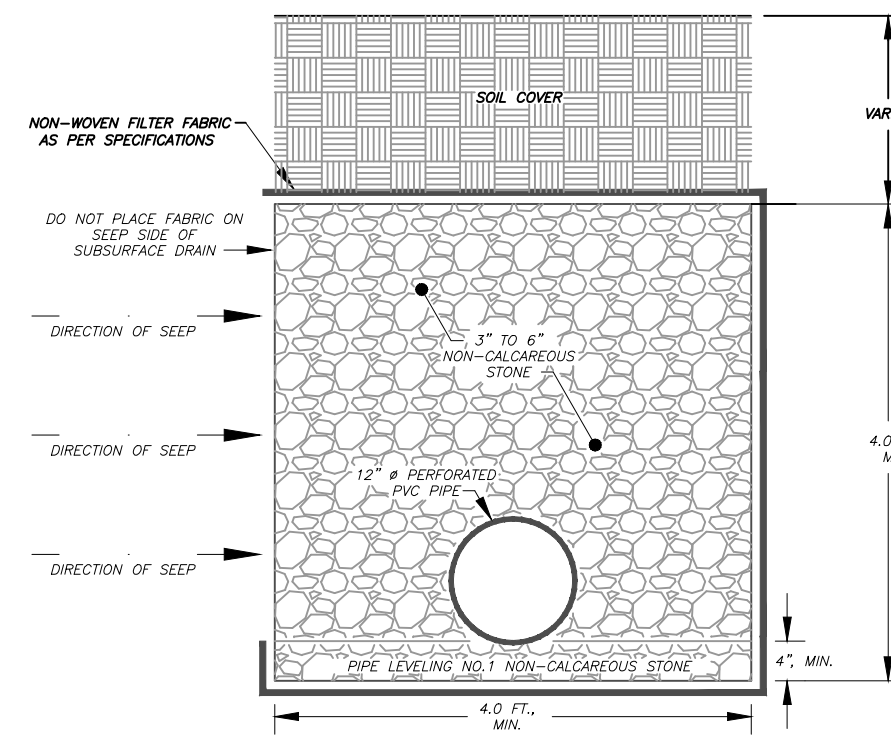
Grate and frame members may be galvanized in accordance with ASTM Specifications A123 in lieu of the painting specified below. Galvanized surfaces which have been abraded so that the base metal is exposed, and all field welded surfaces, shall be protected with zinc rich primer meeting the requirements of Subsection 711.21 of the Specifications, or by field galvanizing.
All grate and frame members shall meet the requirements for structural steel of Subsection 709.12 of the Standard Specifications. X members shall be joined to the end straps with 3/8" welds on both sides of each end. Frame members shall be joined with 3/8" welds at the outsides of the corners. The upper portion of the inlet shall be cast with frame in place or placed in fresh concrete immediately after casting. The grate and the inside of the frame shall be painted with Type "A" Asphalt-Base Emulsion meeting the requirements of ASTM Specification D 1187, or with Vinyl-Type Paint in accordance with the requirements of Section 615 of the Specifications except that the blast cleaning requirements prior to painting are waived. The color of the top coat for vinyl paint shall meet the requirements of Federal Standard 595, No. 14062.
Members and welds shall be cleaned before painting.



UNDERDRAIN PIPE LONGITUDINAL VIEW, TYP.



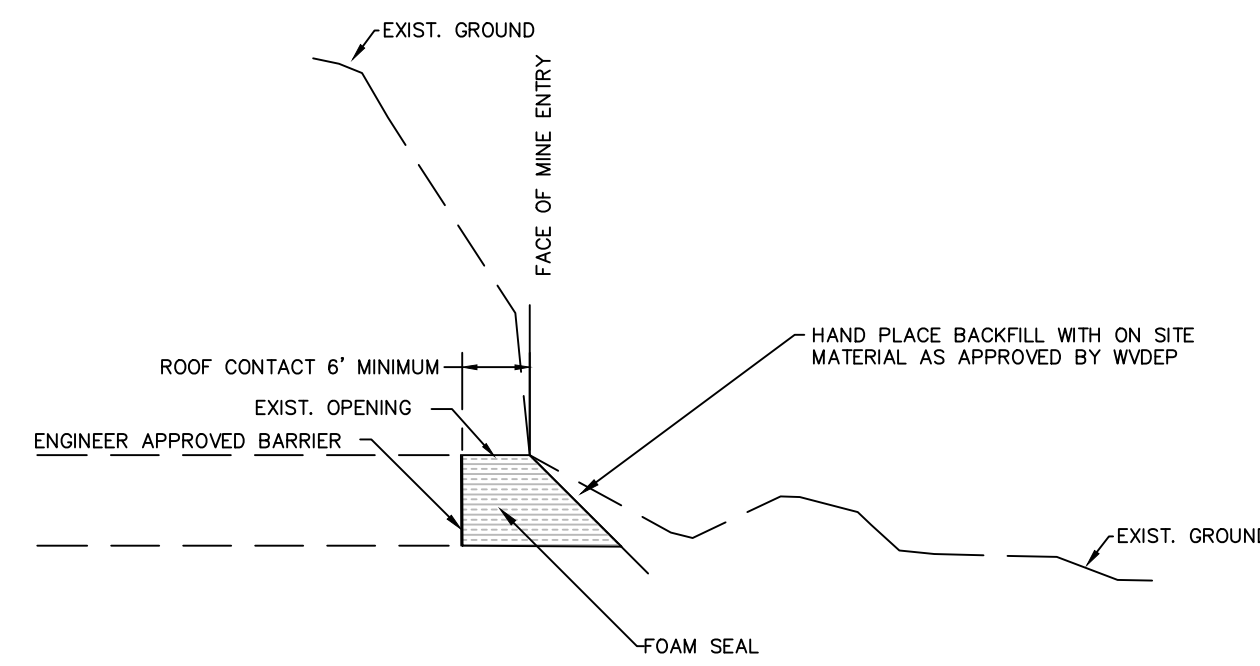
UNDERDRAIN PIPE CROSS SECTION, TYP.



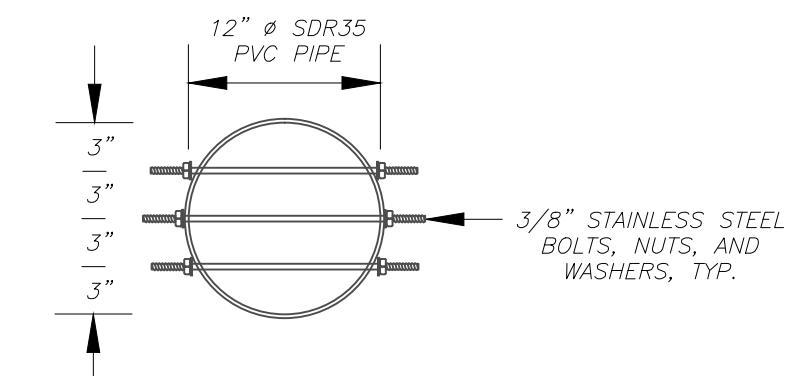
UNDERDRAIN DETAIL

NOTES:
1. THE FILTER FABRIC SHALL BE OVERLAPPED 1.0 FOOT, MINIMUM, AT ALL JOINTS.

**DETAIL 7.10.1
4' X 4' UNDERDRAIN
NOT TO SCALE**

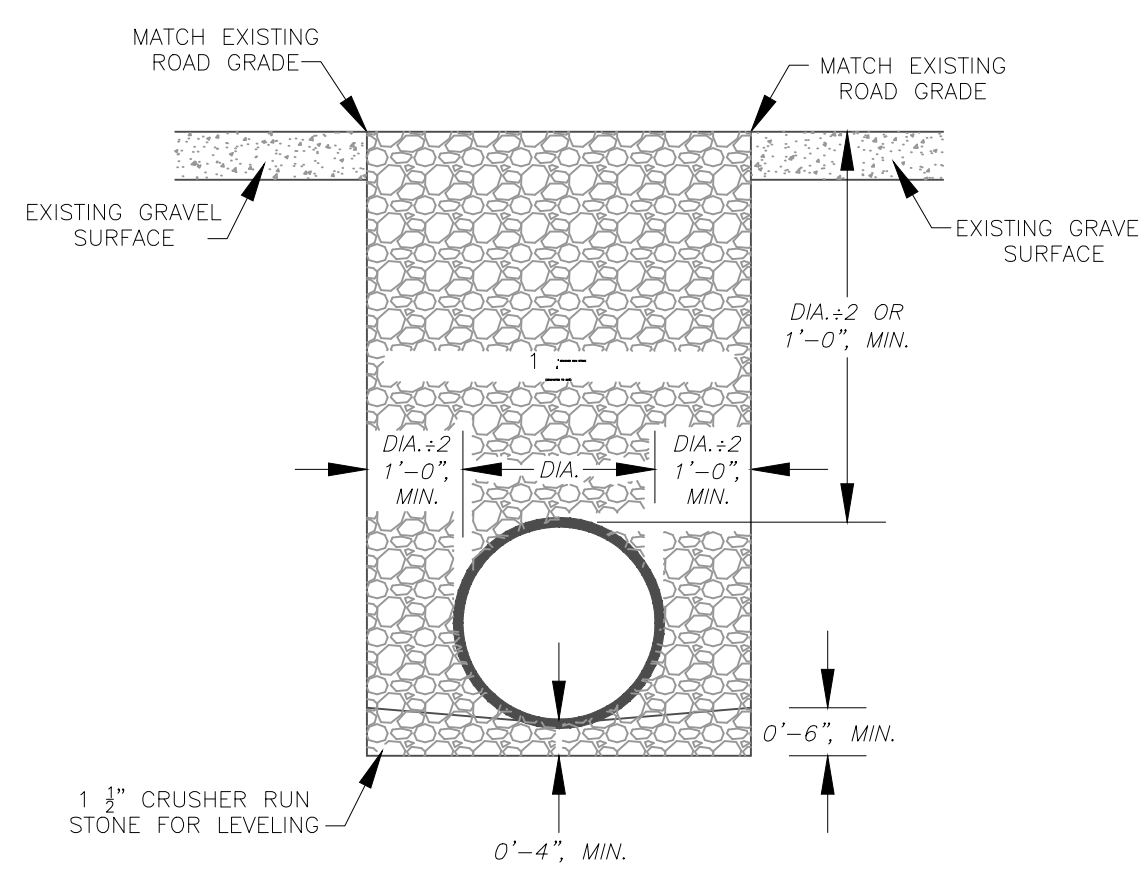


**FOAM MINE SEAL
NOT TO SCALE**

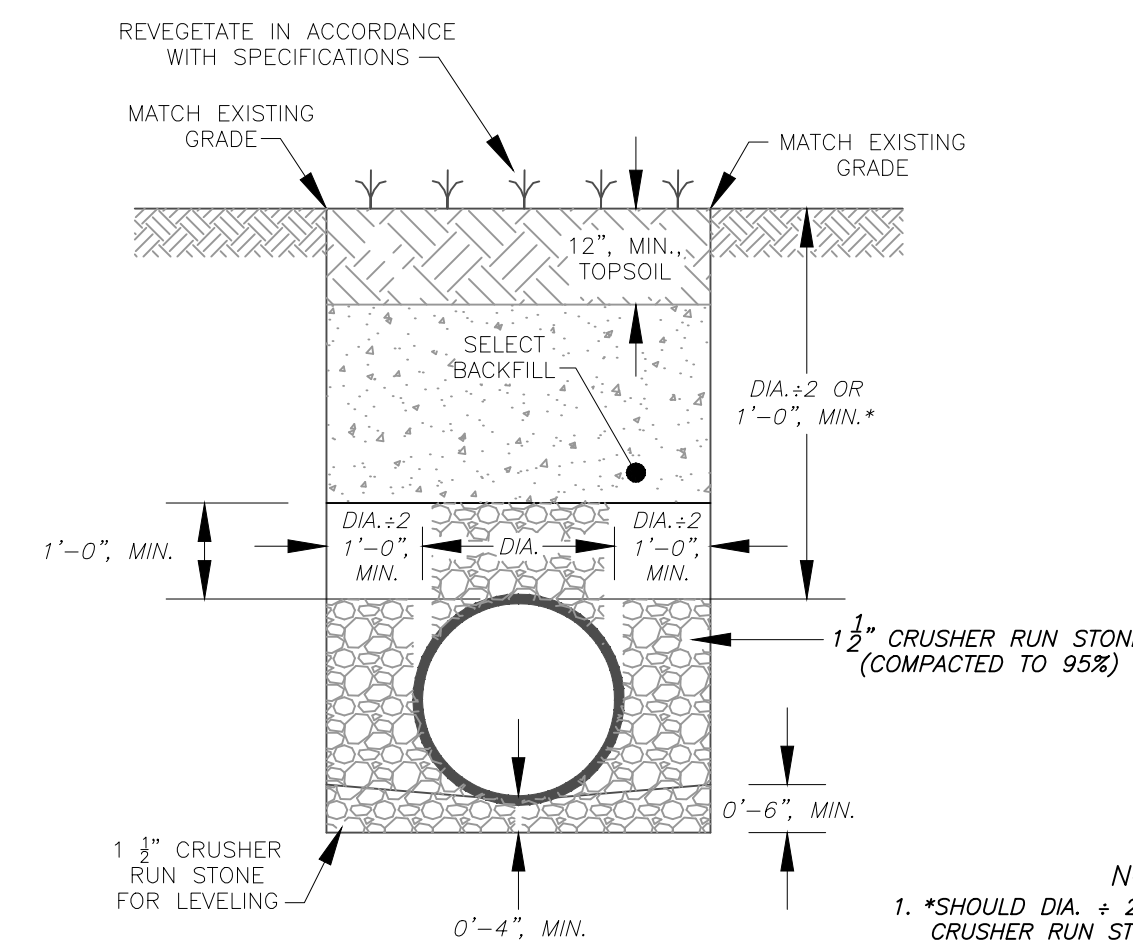


**12" Ø PVC PIPE ANIMAL GUARD
CROSS SECTION, TYP.**

SCALE: 1" = 1 FT.



**DETAIL 7.6.3d
PIPE TRENCH - AGGREGATE SURFACE
NOT TO SCALE**



**DETAIL 7.6.3E
PIPE TRENCH - VEGETATED SURFACE
NOT TO SCALE**

NOTE:
1. *SHOULD DIA. + 2 BE EQUAL TO 1'-0", THEN CRUSHER RUN STONE GOES ALL THE WAY TO SURFACE.

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**COW CREEK
(BROWNING) PORTALS**

TYPICAL DETAILS (2)

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DATE: 3/04/2015

SCALE: AS NOTED
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