

Photo Tour  
of the  
Tin Pan Canyon  
Gob Reclamation Project

Raton, New Mexico



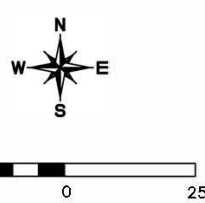
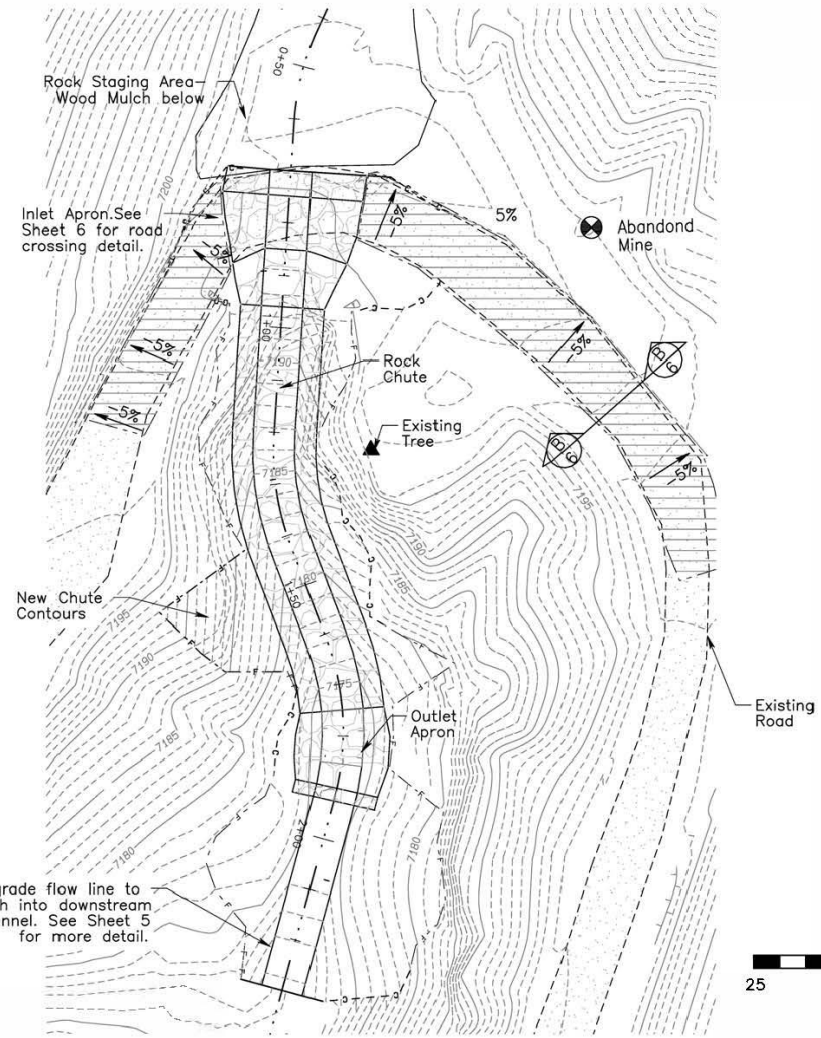
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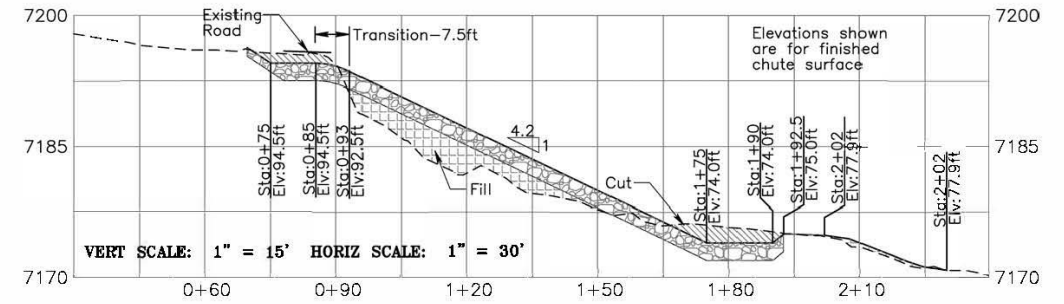


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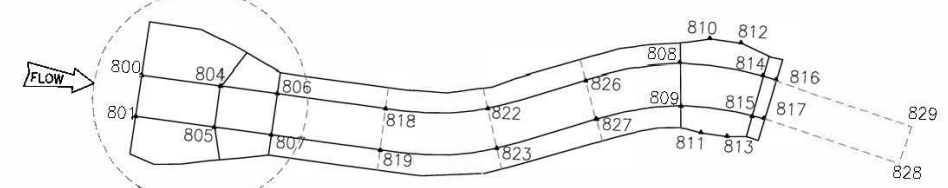
### ROCK-LINED CHUTE - PLAN



### ROCK-LINED CHUTE - Q PROFILE



### ROCK-LINED CHUTE - LAYOUT



See Sheet 6 for more detailed road layout.

Pt #	Northing	Easting	Elevation	Descriptor
800	2162702.1	481525.0	7196.2	Start Inlet
801	2162702.6	481517.0	7196.2	Start Inlet
804	2162687.1	481524.0	7194.5	Start Transition
805	2162687.6	481516.1	7194.5	Start Transition
806	2162676.2	481523.3	7192.5	Start 2:1 Side Slopes
807	2162676.7	481515.4	7192.5	Start 2:1 Side Slopes
808	2162599.8	481534.8	7174.0	Begin Outlet Apron
809	2162599.2	481526.8	7174.0	Begin Outlet Apron
810	2162594.3	481539.9	7176.5	Outlet apron top rock
811	2162594.7	481521.9	7176.5	Outlet apron top rock
812	2162588.5	481539.5	7176.5	Outlet apron top rock
813	2162590.6	481521.6	7176.5	Outlet apron top rock
814	2162583.7	481533.6	7174.0	End Outlet Apron
815	2162585.5	481525.8	7174.0	End Outlet Apron
816	2162581.3	481533.0	7175.0	End/Top Chute Anchor
817	2162583.0	481525.2	7175.0	End/Top Chute Anchor
818	2162657.2	481522.1	7188.0	Rock Chute
819	2162657.7	481514.1	7188.0	Rock Chute
822	2162638.5	481522.8	7183.3	Rock Chute
823	2162636.7	481515.0	7183.3	Rock Chute
826	2162620.1	481529.3	7178.6	Rock Chute
827	2162617.3	481521.9	7178.6	Rock Chute
828	2162547.0	481515.4	7175.0	End Grading
829	2162544.9	481523.2	7175.0	End Grading

**Natural Channel Design, Inc**

2900 N. West St. Suite #5  
Flagstaff, Arizona 86004  
(928) 774-2336

DRAWN BY: D. HALLORAN & J. FLEISHMAN

DESIGNED BY: M. KEARLY

REV	DATE	BY	REVISION

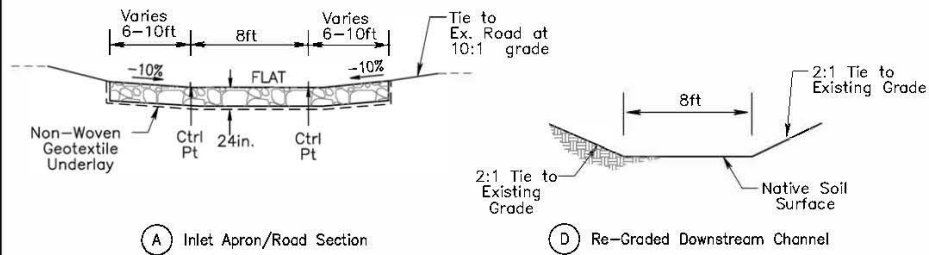
## Rock Chute Overview & Layout

## Tin Pan Canyon Headcut Stabilization Project



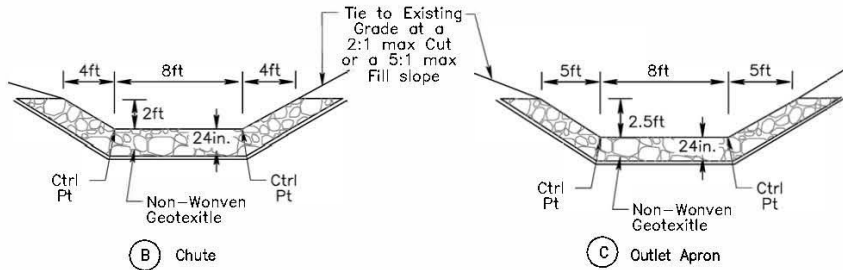
UNAUTHORIZED CHANGES & USES THE ENGINEER PREPARING THESE PLANS WILL NOT BE RESPONSIBLE FOR OR LIABLE FOR UNAUTHORIZED CHANGES TO OR USES OF THESE PLANS. ALL CHANGES MUST BE IN WRITING AND MUST BE APPROVED BY THE PREPARER OF THESE PLANS.

FILE NAME:	DATE: 01-28-2019
Tin Pan PROJECT NO:	SHEET: 4A of 7
18-306NM	



(A) Inlet Apron/Road Section

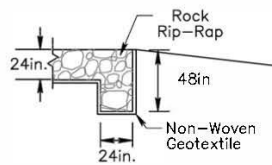
(D) Re-Graded Downstream Channel



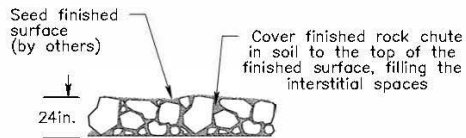
(B) Chute

(C) Outlet Apron

TYPICAL CROSS SECTIONS  
(NOT TO SCALE)

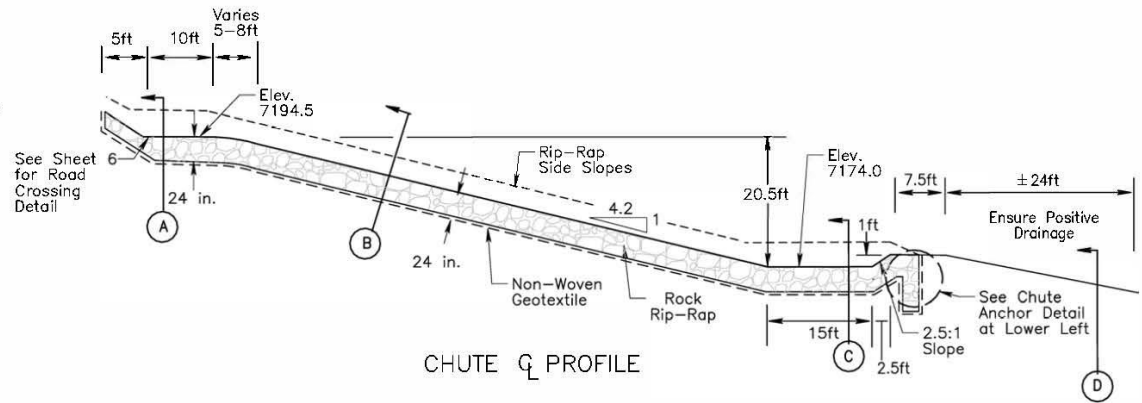


CHUTE ANCHOR DETAIL  
(NOT TO SCALE)

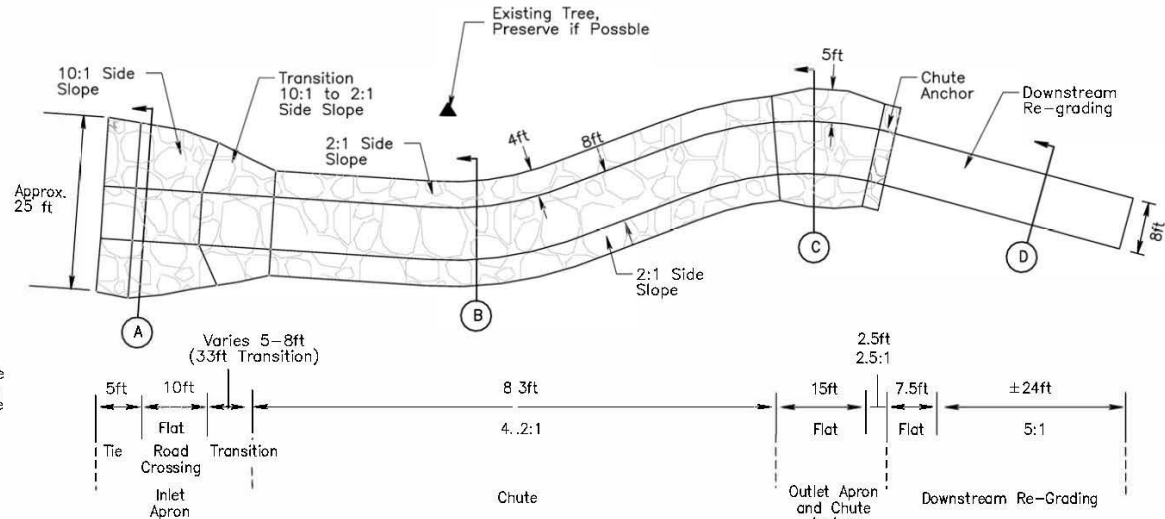


Cover soil should be native soils derived from those areas of the excavation outside of coal gob waste

CHUTE FINISH DETAIL  
(NOT TO SCALE)



CHUTE Q PROFILE



SITE LAYOUT WILL BE CONDUCTED BY NCD STAFF IN THE FIELD.

ROCK-LINED CHUTE  
PLAN & PROFILE VIEW  
(NOT TO SCALE)

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REV	DATE	BY	REVISION

DETAIL: Rock Chute

Tin Pan Canyon  
Headcut Stabilization Project



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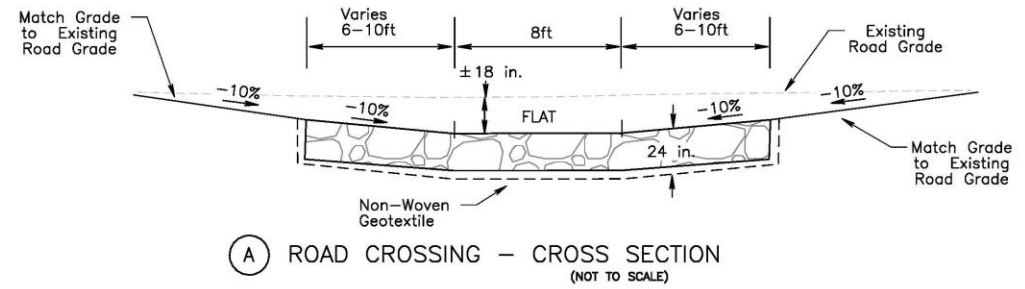
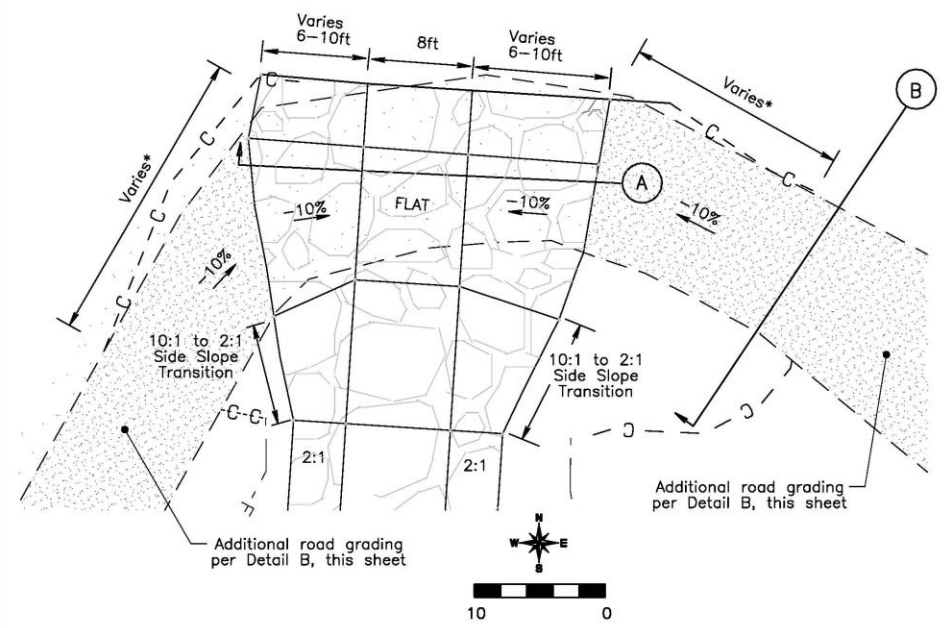
DIAL 811 BEFORE YOU DIG

FILE NAME:  
Tin Pan  
PROJECT NO:  
18-308NM

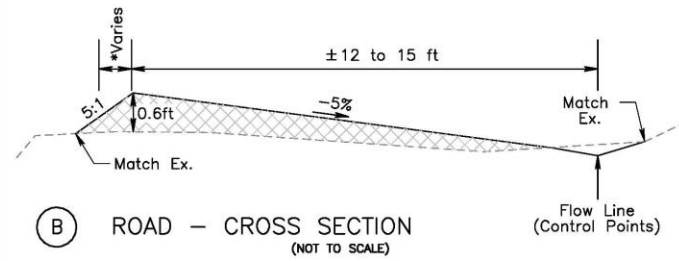
DATE: 01-28-2019

SHEET: 5A of 7

**ROAD CROSSING – PLAN VIEW (NOT TO SCALE)**



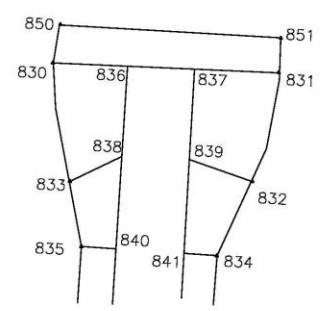
**(A) ROAD CROSSING – CROSS SECTION (NOT TO SCALE)**



**(B) ROAD – CROSS SECTION (NOT TO SCALE)**

Road Grading Point Table				
Pt#	Northing	Easting	Elevation	Descriptor
266	2162648.0	481600.3	7198.9	flow line
272	2162674.4	481578.4	7196.5	flow line
273	2162690.0	481561.8	7195.8	flow line
279	2162700.3	481536.1	7195.0	flow line
280	2162654.3	481479.8	7195.7	flow line
286	2162663.6	481484.6	7195.6	flow line
287	2162692.7	481501.7	7195.2	flow line
293	2162698.0	481507.8	7195.0	flow line

**ROAD CROSSING – LAYOUT**



Road Crossing Point Table				
Pt#	Northing	Easting	Elev	Descriptor
830	2162698.4	481507.9	7195.5	Edge Riprap
831	2162696.5	481534.7	7195.5	Edge Riprap
832	2162684.6	481531.6	7195.5	Edge Riprap
833	2162684.9	481509.9	7195.5	Edge Riprap
834	2162675.9	481527.3	7194.6	Begin 2:1 Side Slope
835	2162676.9	481511.4	7194.6	Begin 2:1 Side Slope
836	2162697.8	481516.7	7194.5	Bottom of Slope
837	2162697.2	481524.7	7194.5	Bottom of Slope
838	2162687.6	481516.1	7194.5	Bottom of Slope
839	2162687.1	481524.0	7194.5	Bottom of Slope
840	2162676.7	481515.4	7193.6	Bottom of Slope
841	2162676.2	481523.3	7193.6	Bottom of Slope
850	2162703.3	481508.9	7196.7	Top Rip Rap-Tie to Ex Grade
851	2162701.4	481535.5	7196.7	Top Rip Rap-Tie to Ex Grade

**SURVEY INFORMATION**

**DATUM & COORDINATE GRID INFORMATION**

Coordinate Projection:	New Mexico State Plane, East 3001 Zone, US Survey Feet
Datum:	North American Datum 1083 (Conus) (Mol)
Geoid Model:	Geoid09 (Conus)

**CONTROL POINT LIST**

NO.	Northing	Easting	Elevation	Station Name	Description
1	2162547.901	481341.891	7206.860	NCD-1	Re-bar with Blue Plastic Cap
2	2162660.624	481551.618	7198.390	NCD-2	Re-bar with Blue Plastic Cap

Design is based on LIDAR data obtained from Vermejo Park Ranch with supplemental on-site topographic survey performed by NCD on 10/9/2018. The LIDAR data was adjusted to match local survey control set during the 10/9/18 survey. The location of CP1 and CP2 is shown on Sheet 3 in the Project Overview Plan View. If the control points (rebar with caps) have been disturbed, NCD can assist in adjusting the elevation control provided herein to new control that may need to be set during construction.

**NOTES**

It is understood that NCD will be on-site during portions of construction to observe construction (per a separate contract with NMAML) and consult as necessary to ensure the intent of this design is met.

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**DRAWN BY: D. HALLORAN & J. FLEISHMAN**

**DESIGNED BY: M. KEARLY**

REV	DATE	BY	REVISION

**Road Crossing Overview & Layout**

**Tin Pan Canyon  
Headcut Stabilization Project**

MICHAEL D. KEARLY  
 NEW MEXICO  
 23330  
 1/28/2019  
 PROFESSIONAL ENGINEER

UNAUTHORIZED CHANGES & USES THE ENGINEER  
 PREPARING THESE PLANS WILL NOT BE RESPONSIBLE FOR, OR LIABLE FOR, UNAUTHORIZED CHANGES TO OR USES OF THESE PLANS. ALL CHANGES MUST BE IN WRITING AND MUST BE APPROVED BY THE PREPARER OF THESE PLANS.

**FILE NAME:**  
Tin Pan  
PROJECT NO:  
18-306NM

**DIAL 811 BEFORE YOU DIG**

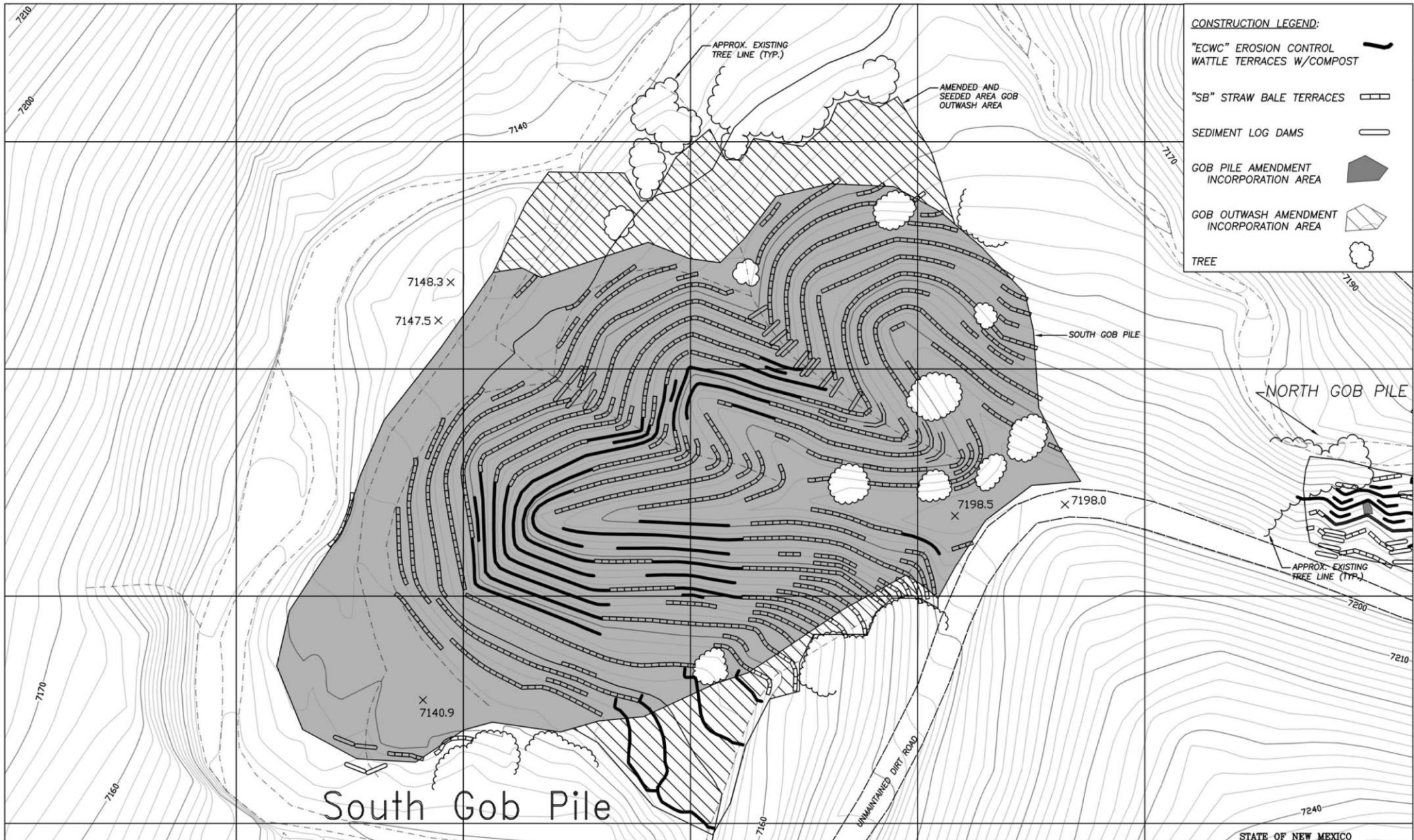
**DATE:** 01-28-2019  
**SHEET:** 6A of 7







September 2020



**CONSTRUCTION LEGEND:**

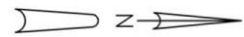
"ECWC" EROSION CONTROL WATTLE TERRACES W/COMPOST	
"SB" STRAW BALE TERRACES	
SEDIMENT LOG DAMS	
GOB PILE AMENDMENT INCORPORATION AREA	
GOB OUTWASH AMENDMENT INCORPORATION AREA	
TREE	

1) THIS MAP COMPLIES WITH NATIONAL MAP ACCURACY STANDARDS BASED ON FIELD SURVEY DATA PROVIDED BY SURVEYING CONTROL, INC., ALBUQUERQUE, NEW MEXICO.

2) AERIAL PHOTOGRAPHY EXPOSED ON APRIL 23, 2002 BY PACIFIC WESTERN TECHNOLOGIES, LTD., ALBUQUERQUE, NEW MEXICO, UTILIZING A ZEISS RMK A 15/23 AERIAL MAPPING CAMERA WITH A CALIBRATED FOCAL LENGTH OF 153.188 mm.

3) CONTOUR/PLANIMETRIC BASE MAPPING AND RELATED DIGITAL FILES PRODUCED BY THOMAS R. MANN & ASSOCIATES, INC., ALBUQUERQUE, NEW MEXICO.

4) 500' GRID BASED ON FIELD SURVEY DATA FURNISHED BY SURVEYING CONTROL, INC., ALBUQUERQUE, NEW MEXICO. THE HORIZONTAL COORDINATES ARE NEW MEXICO STATE PLANE COORDINATES - EAST ZONE, NAD 83 (HARN), AND HAVE BEEN ADJUSTED TO THE USCGS TRIANGULATION STATION "R 20". TO OBTAIN TRUE STATE PLANE GRID COORDINATES, MULTIPLY BY CF = 0.999573209. THE ELEVATIONS ARE REFERRED TO SEA LEVEL, NAVD 88, AND HAVE BEEN ADJUSTED TO "R 20" AS WELL.



ABANDONED MINE LAND PROGRAM  
 MINING AND MINERALS DIVISION  
 NEW MEXICO ENERGY, MINERALS, AND NATURAL RESOURCES DEPARTMENT

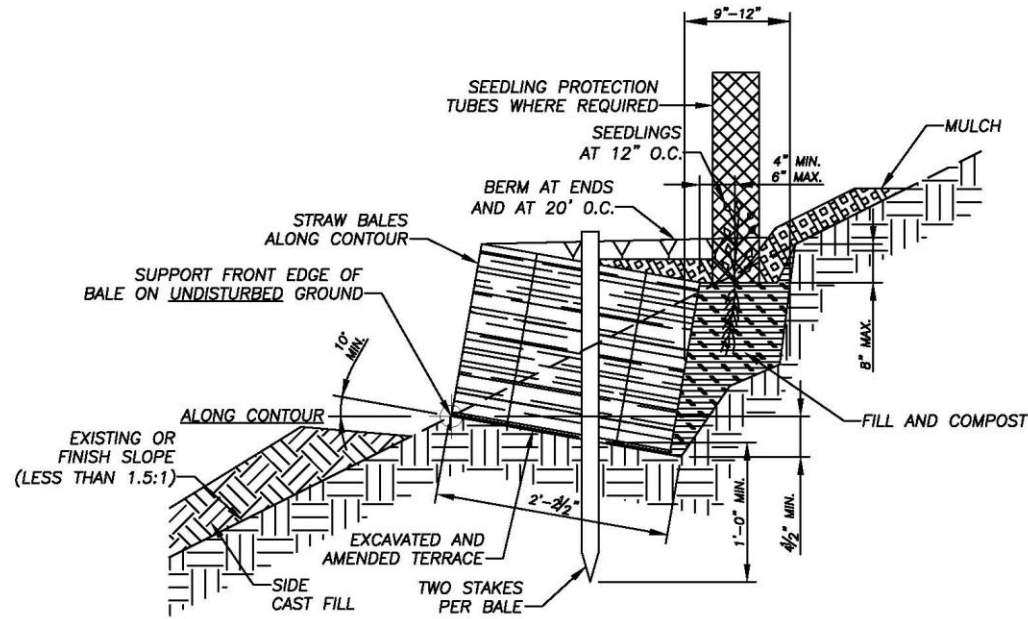
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 DATE: 12/18/2019

DRAWN BY: JAK  
 REVISED BY: YM

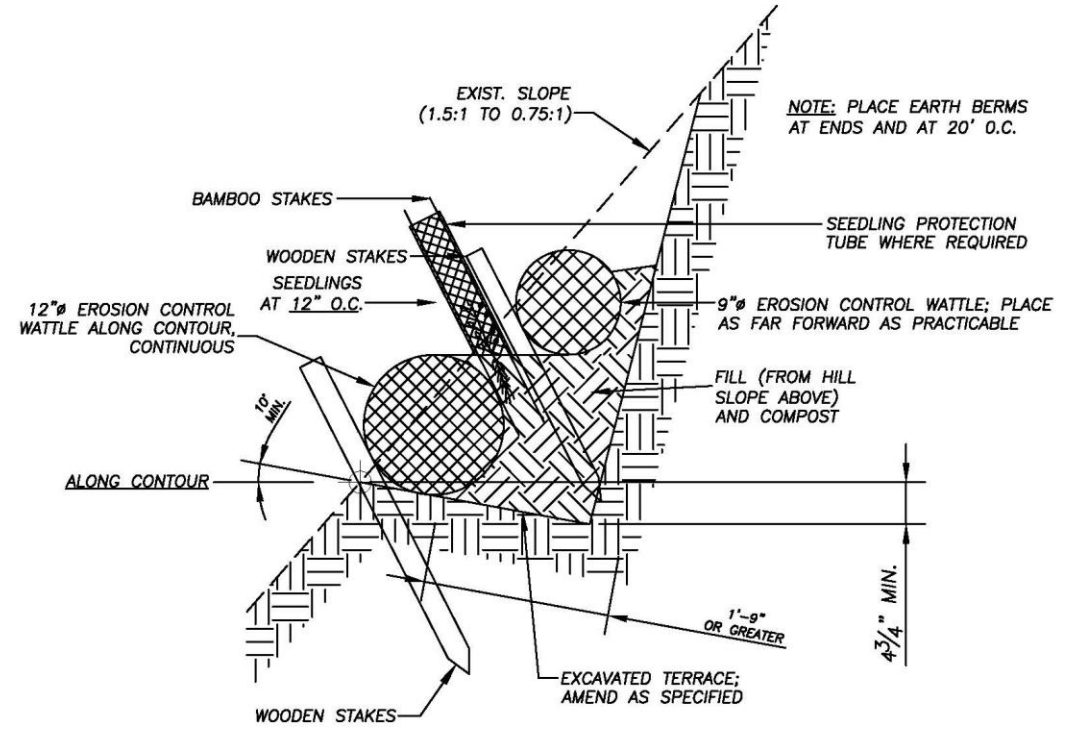
TIN PAN CANYON SOUTH GOB PILE PLAN VIEW

FILE: TIN PAN CANYON GOB RECLAMATION PROJECT  
 FIGURE: 3





TYPICAL SECTION - TYPE "SB"  
STRAW BALE TERRACE  
(ON SLOPES LESS STEEP THAN 1.5:1)



TYPICAL SECTION - EROSION CONTROL WATTLE TERRACE

STRAWBALE\_COIRROLL.DWG PLOT SCALE 1 = 16

**ABANDONED MINE LAND PROGRAM**  
MINING AND MINERALS DIVISION  
NEW MEXICO ENERGY, MINERALS, AND NATURAL RESOURCES DEPARTMENT



SCALE: NOT TO SCALE

DRAWN BY: JAK

DATE: 12/11/2019

REVISED BY: YM

STRAW BALE AND EROSION CONTROL WATTLE TERRACES

TIN PAN CANYON GOB RECLAMATION PROJECT

FIGURE: 5

October 2020



October 2020



October 2020



October 2020









November 2020





November 2020



November 2020

January 2021



February 2021



March 2021



July 2021





July 2023



August 2022



August 2022



August 2022





July 2023



July 2023

July 2023

