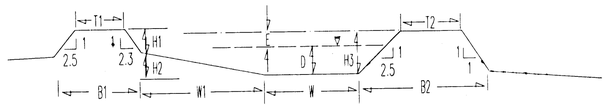
TYPICAL SECTION – UNLINED CHANNEL (TYPE A)

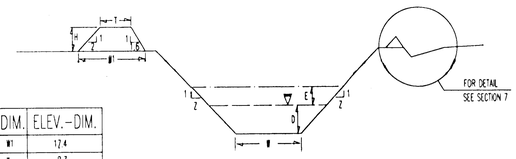


ITEM	DIM.	ELEV.-DIM.
BOTTOM WIDTH (ft)	W	33.0
SLOPE WIDTH (ft)	W1	47.2
BERM HEIGHT (ft)	H1	1.7
SLOPE HEIGTH (ft)	H2	1.5
BERM HEIGTH (ft)	H3	3.9
W BERM WIDTH (ft)	B1	22.2
E BERM WIDTH (ft)	B2	25.3
W BERM TOP (ft)	T1	13.1

ITEM	DIM.	ELEV.-DIM.
E BERM TOP (ft)	T2	12.5
DEPTH OF FLOW (ft)	D	0.85
FREEBOARD (ft)	E	1.0 minimum
CHANNEL SLOPE (%)		0.3
INFLOW RATE (cfs)		202.05
VELOCITY (fps)		2.88
MANNING'S NUMBER		0.025

1

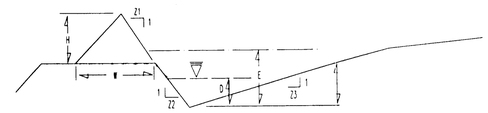
TYPICAL SECTION – UNLINED CHANNEL (TYPE B)



ITEM	DIM.	ELEV.-DIM.
BERM BOTTOM WIDTH (ft)	W1	17.4
BERM TOP WIDTH (ft)	T	8.3
BERM HEIGHT (ft)	H	2.9
BOTTOM WIDTH (ft)	W	15.3
FREEBOARD (ft)	E	1.0 minimum
INFLOW RATE (cfs)		202.05
VELOCITY (fps)		4.56
CHANNEL SLOPE (%)		0.3
SIDE SLOPES (ft)	Z	2.5
MANNING'S NUMBER		0.025
DEPTH OF FLOW (ft)	D	2.14

2

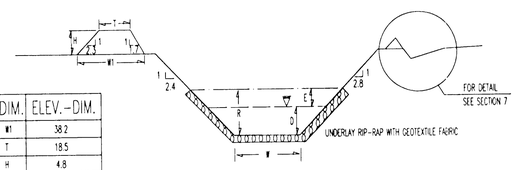
TYPICAL ARRANGEMENT – SAFETY BERM & CATCH DRAIN



ITEM	DIM.	ELEV.-DIM.
FLOW DEPTH (ft)	D	0.43
FLOW W/ FREEBOARD	E	1.43
BERM HEIGHT (ft)	H	2.0
BERM WIDTH (ft)	W	3.0
BERM SLOPES (ft)	Z1	1.5
DITCH WEST SLOPE (ft)	Z2	1.5
DITCH EAST SLOPE (ft)	Z3	5
DITCH DEPTH (ft)	T	0.75
FLOW RATE (cfs)		1.52
VELOCITY (fps)		3.5

7

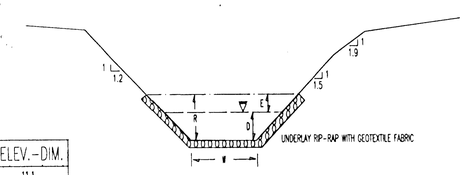
TYPICAL SECTION – PROTECTED CHANNEL (TYPE A)



ITEM	DIM.	ELEV.-DIM.
BERM BOTTOM WIDTH (ft)	W1	38.2
BERM TOP WIDTH (ft)	T	18.5
BERM HEIGHT (ft)	H	4.8
BOTTOM WIDTH (ft)	W	15.5
FREEBOARD (ft)	E	1.0 minimum
INFLOW RATE (cfs)		173.29
VELOCITY (fps)		3.25
CHANNEL SLOPE (%)		0.3
RIP-RAP D50 SIZE		9"
MANNING'S NUMBER		0.038
DEPTH OF FLOW (ft)	D	2.44
FLOW DEPTH + FREEBOARD	R	3.44

3

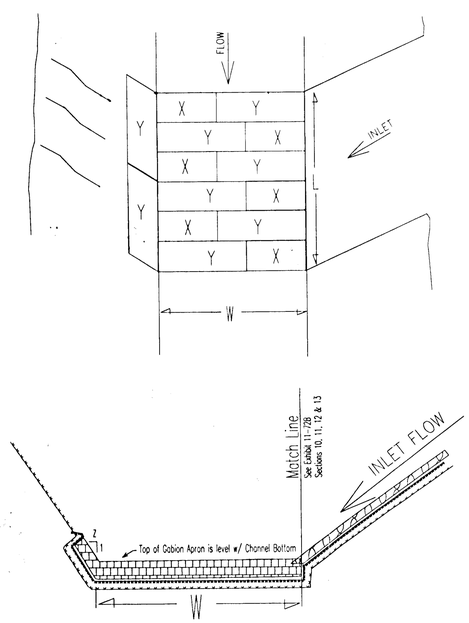
TYPICAL SECTION – PROTECTED CHANNEL (TYPE B)



ITEM	DIM.	ELEV.-DIM.
BOTTOM WIDTH (ft)	W	11.1
FREEBOARD (ft)	E	1.0 minimum
INFLOW RATE (cfs)		173.29
VELOCITY (fps)		9.11
CHANNEL SLOPE (%)		6.0
RIP-RAP D50 SIZE		9"
MANNING'S NUMBER		0.045
DEPTH OF FLOW (ft)	D	1.46
FLOW DEPTH + FREEBOARD	R	2.46

4

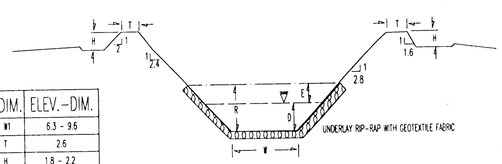
TYPICAL SECTION – GABION CHANNEL PROTECTION AT INLETS



ITEM	DIM.	ELEV.-DIM.
CHANNEL WIDTH (ft)	W	15.0
PROTECTION LENGTH (ft)	L	18.0
SLOPE OF SPLASH PROTECTION	Z	2.4
SMALL GABION (L x W x D)	X	6' X 3' X 1'
LARGE GABION (L x W x D)	Y	9' x 3' x 1'

8

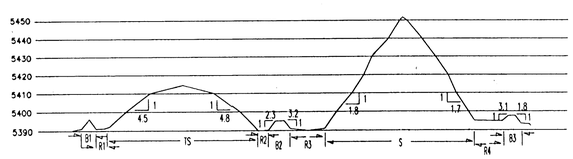
TYPICAL SECTION – PROTECTED CHANNEL (TYPE C)



ITEM	DIM.	ELEV.-DIM.
BERM BOTTOM WIDTH (ft)	W1	6.3 - 9.6
BERM TOP WIDTH (ft)	T	2.6
BERM HEIGHT (ft)	H	1.8 - 2.2
BOTTOM WIDTH (ft)	W	14.9
FREEBOARD (ft)	E	1.0 minimum
INFLOW RATE (cfs)		173.29
VELOCITY (fps)		6.58
CHANNEL SLOPE (%)		2.2
RIP-RAP D50 SIZE		9"
MANNING'S NUMBER		0.036
DEPTH OF FLOW (ft)	D	1.38
FLOW DEPTH + FREEBOARD	R	2.38

5

TYPICAL SECTION – SPOIL & TOPSOIL PILES



ITEM	DIM.	ELEV.-DIM.
BERM WIDTH (ft)	B1	17.4
BERM WIDTH (ft)	B2	28.3
BERM WIDTH (ft)	B3	10.1
ROAD/DRAINAGE WIDTH (ft)	R1	13.9
ROAD/DRAINAGE WIDTH (ft)	R2	14.6
ROAD/DRAINAGE WIDTH (ft)	R3	26.6
ROAD/DRAINAGE WIDTH (ft)	R4	44.5
TOPSOIL WIDTH (ft)	TS	199.5
SPOIL WIDTH (ft)	S	202.1

6

LEGEND

- RIP-RAP
- GABION BASKET
- GEOTEXTILE FABRIC
- EARTH

BHP Minerals

NAVAJO MINE

FRUITLAND, NEW MEXICO

"AS-BUILT"

LOWE DIXON DIVERSION GENERAL ARRANGEMENTS AND TYPICAL SECTIONS

DRAWN BY JPD	SCALE N/A		
APPROVED BY	DATE 1/4/95		
DRAWING NO		LOCATION NO	

EXHIBIT 11-72A

NO.	DATE	BY	REVISION DESCRIPTION	ENG	G.O.	P.E.	P.S.	CHKD
1	10-28-10	SJP	RE-DESIGNED INLET FLOWS CHANGED TYPICAL SECTIONS ACCORDINGLY					
2	02-17-10	JPD	SUBMITTED TO OSM					

APPROVALS

APPROVED 24 OCT 1995

LEONARD RAYMOND NEW MEXICO 6600 REGISTERED PROFESSIONAL ENGINEER 10-12-2