



**ISLAMIC REPUBLIC OF AFGHANISTAN
NATIONAL WATER AFFAIRS REGULATION AUTHORITY
CENTRAL PROJECT MANAGEMENT OFFICE**

Samangan Province

AeyBak District

Shahrak jadid 1 and 2 (SMN-ABK-006)

Check Dams





Sub Project DRAWINGS

October - 2020

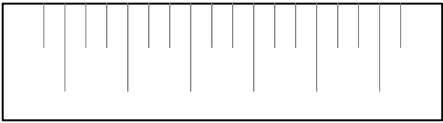
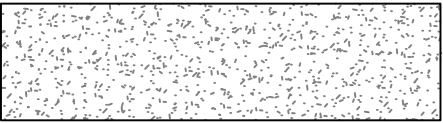
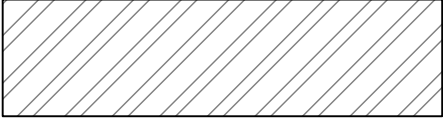
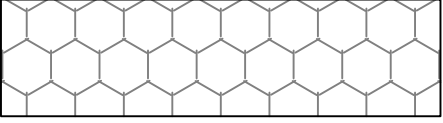
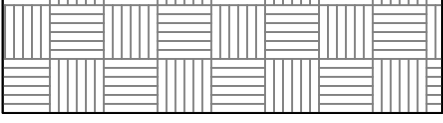
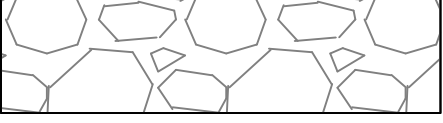
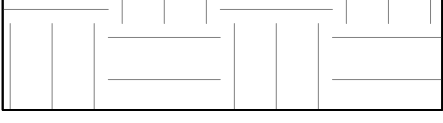
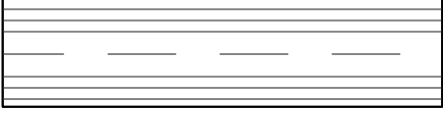

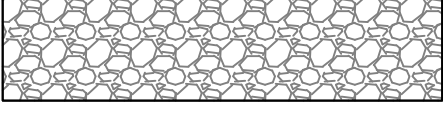
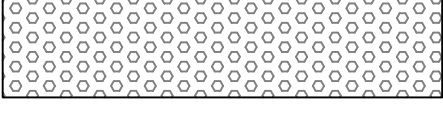
SUMMARY OF TECHNICAL SPECIFICATIONS





- 1- Mass Concrete M-20: Supplying, placing, adding boulders, compacting and curing mass concrete M-20 (1:1.5:3) including frameworks and expansion joints sealing works as per relevant drawing, specification and to the complete satisfaction of the site engineer. crushed aggregates should be used
- 2-A good quality Stone for stone masonry, mass concrete, gabion and All stone related construction work should be of and approved by The Engineer.
- 3-All Grouted stone pitching in stilling basin and foundations should be with ratio of 1:3.
- 4-All Masonry cutoff wall shall be with 1:4 Cement Sand Mortar or as specified on the drawing.
- 5-Bitumen coating should be used in all contraction / expansion joints.
- 6-Percentage of boulder in the mass concrete should be between (25-40)% of total volume, also the sizes of the boulder should not be neither more than 1/5th of the lateral dimension of the structural element, nor 20 cm, whichever is less)
- 7-Backfilling material should be properly tested and selected to be suitable as per standard practice.
- 8-For backfilling maximum thickness of each loose soil layer should not more than 15 cm.
- 9-Standard Compaction tests should be carried out for the backfilling.
- 10-The percentage of compaction should be not less than 95% of the maximum dry density.
- 11-All Quality control field tests should be carried out by the Contractor in a specified laboratory as accepted by the client.
- 12-Expansion joints for Mass Concrete and weir walls should be provided as (12-15)m center to center.
- 13-Stone size for gabion shall range from (20-30) cm.
- 14-Galvanized iron wire of specified thickness (3mm) should be properly woven and knotted together to form the required mesh in hexagonal / rectangular shape of size (6-8)cm for gabion basket and (10-12)cm for gabion mattress to fabricate gabion boxes to the satisfaction of the Engineer.
- 15-Principal wire along the gabion edges (selvedges) for Gabion boxes should be of Galvanized Iron having minimum thickness of 4mm
- 16- Gabion Galvanized Iron wire tensile strength should be 350-575 N/mm². two type of Gabions should be used (1.5X0.5X1)M WITH 18.5KG/BOX OF WEIGHT AT THE TOP OF AND (2X1X1)M WITH 25KG/BOX OF WEIGHT AT BASE OF THE STRUCTURE.
- 17- All PCC under footings to have cement, sand and aggregate as specified on the drawings.
- 18- Reinforcement yield stress fy shall not be less than 2500 kg/cm².
- 19- Concrete design should be based on a compressive strength of fc =200 kg/cm² as specified on the drawings.
- 20- Weight per unit volume of concrete W=2400 kgf/m³
- 21- Sand or fine aggregate shall be free from salt, alkali, calcium sulphate or vegetation and it shall not contain more than 0.5 percent by weight of clay.
- 22- Aggregate:- Coarse aggregate shall consist of crushed gravel with the max. size of 20mm.
- 23- The maximum slump for Mass concrete should be between (2.5-4) cm.
- 24- To increase the workability of the concrete provide the chemical admixture (Super plasticizer)
- 25- Water used for concrete mixture and concrete curing shall be from a source approved by the Engineer and at the time of use shall be free from contaminants.
- 26- Concrete compaction should be done by using concrete vibrator at the time of pouring in such a way to form a solid compact concrete.
- 27- Concrete curing should be continued for 14 days.
- 28- During Cold weather concreting should be stopped or the contractor has to consider cold weather concreting procedure as accepted by the engineer.
- 29- Concrete shuttering/framework should be of Steel type.
- 30-Concrete shuttering can be removed as per below minimum duration:

Side of beams,walls,columns	16-24 hours
Forms from beneath the slabs(spaning upto 6m)	14 days
Forms from beneath the slabs(spaning above 6m)	21days
- 31- As the geo technical survey is not conducted in the site of check dam, so any changes in the quantities of the contract is changeable due to need of site and guide of the site engineers and project manager.
- 32- Further, air-entraining admixture (AEA) to be added during mixing of concrete according to ASTM C260.
- 33- In-place, air content shall range 5 to 6 percent of the volume of concrete.
- 34- where weir or protection walls are touch to hard rock, dowel bar 20mm with epoxy should be used.
- 35- in mass concrete when cold and warm joint occur, stone grubbing should be used.
- 36- In expansion joints should have water stopper. installation of best quality PVC water stopper with 22.5 cm width(The water stopper shall be of extruded polyvinyl chloride complying with BS 2571: Class 3, Compound Type G4) and (2) cm thick cork filling as per relevant design drawings, technical specification and with satisfaction of Engineer Supervisor.

 Islamic Republic of Afghanistan	 National Water Affair Regulation Authority	 Asian Development Bank (ADB)	 Central Project Management Office	Project SMN-ABK-006	Drawing Content Technical Specifications	Employer						DWG NO 1/23
						Surveyed by :	Designed by:	Drawn by:	Checked by:	Croos Checked by:	Approved by:	Date:
						Abdul Wahed	Eng. Muhammad Akram Paktinyar	Eng.Khoshal Wardak	Eng. Muhammad Akram Paktinyar	Eng. Fardeen Azimi	Eng. Said Moqeen Sadat	Octobar-2020




Legend Table

	Slope		PCC
	Mass concrete		Gabion
	Compacted Backfilling		Stone Masonry
	Ground		
	Embankment Backfilling		
	Dry Stone pitching		
	Gravel		
	Gravel Filter		





 Islamic Republic of Afghanistan	 National Water Affair Regulation Authority	 Asian Development Bank (ADB)	 Central Project Management Office	Project	Drawing Content	Employer					DWG NO
				SMN-ABK-006	Legends	Surveyed by :	Designed by:	Drawn by:	Checked by:	Cross Checked by:	Approved by:
				Abdul Wahed	Eng. Muhammad Akram Paktinyar	Eng.Khoshal Wardak	Eng. Muhammad Akram Paktinyar	Eng. Fardeen Azimi	Eng. Said Moqem Sadat	Date: October-2020	

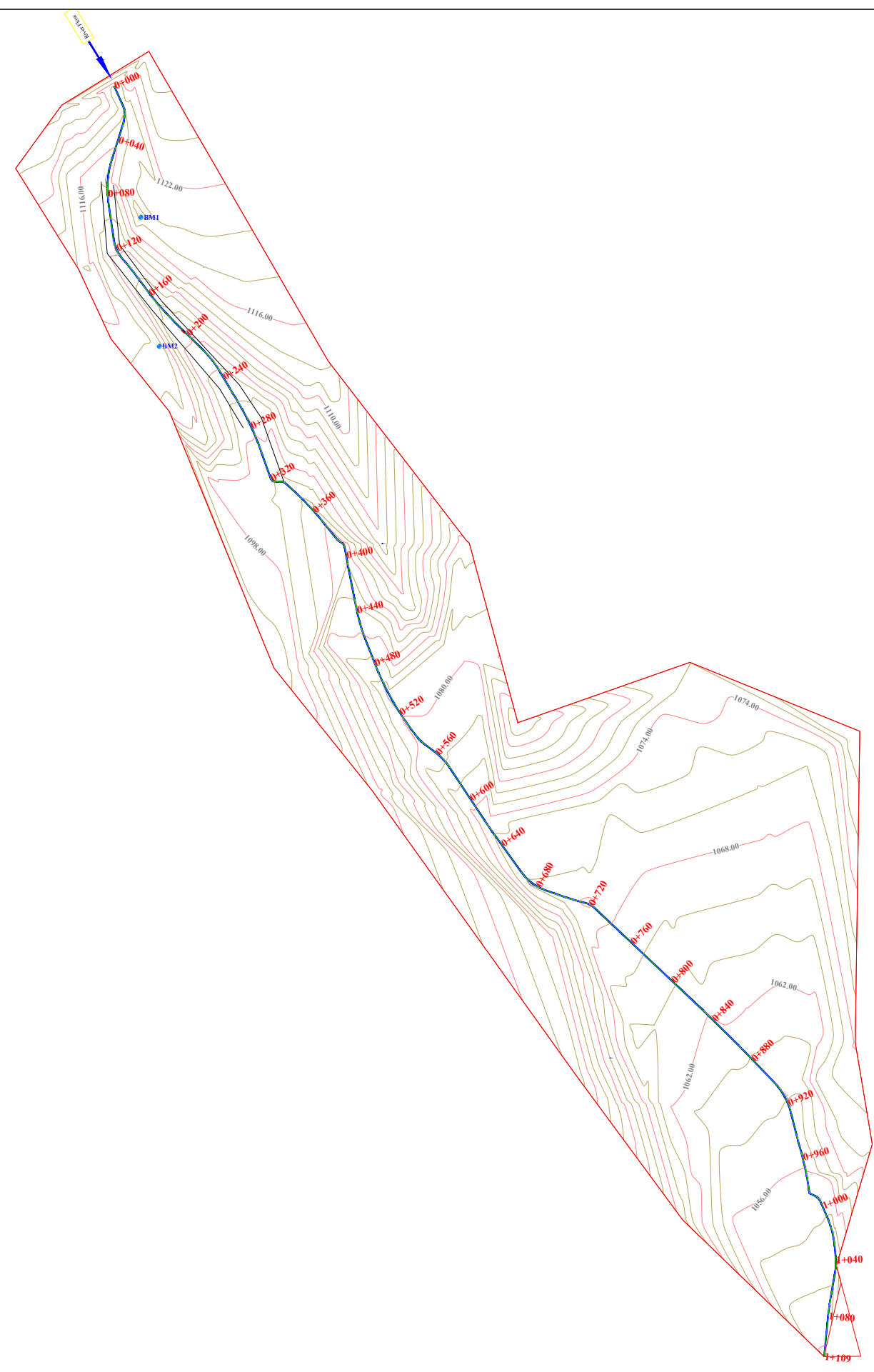
Shahrak jadid 1 and 2
 Watershed area=4.72 sq.km

Legend

-  37.18489, 67.89084
-  Sangoba
-  Shahrak jadid 1 and 2



 Islamic Republic of Afghanistan	 National Water Affair Regulation Authority	 Asian Development Bank (ADB)	 Central Project Management Office	Project	Drawing Content	Employer					DWG NO
				SMN-ABK-006	Google Map	Surveyed by :	Designed by:	Drawn by:	Checked by:	Croos Checked by:	Approved by:
				Abdul Wahed	Eng. Muhammad Akram Paktinyar	Eng.Khoshal Wardak	Eng. Muhammad Akram Paktinyar	Eng. Fardeen Azimi	Eng. Said Moqeen Sadat	Date: October-2020	



Islamic Republic of Afghanistan



National Water Affairs Regulation Authority

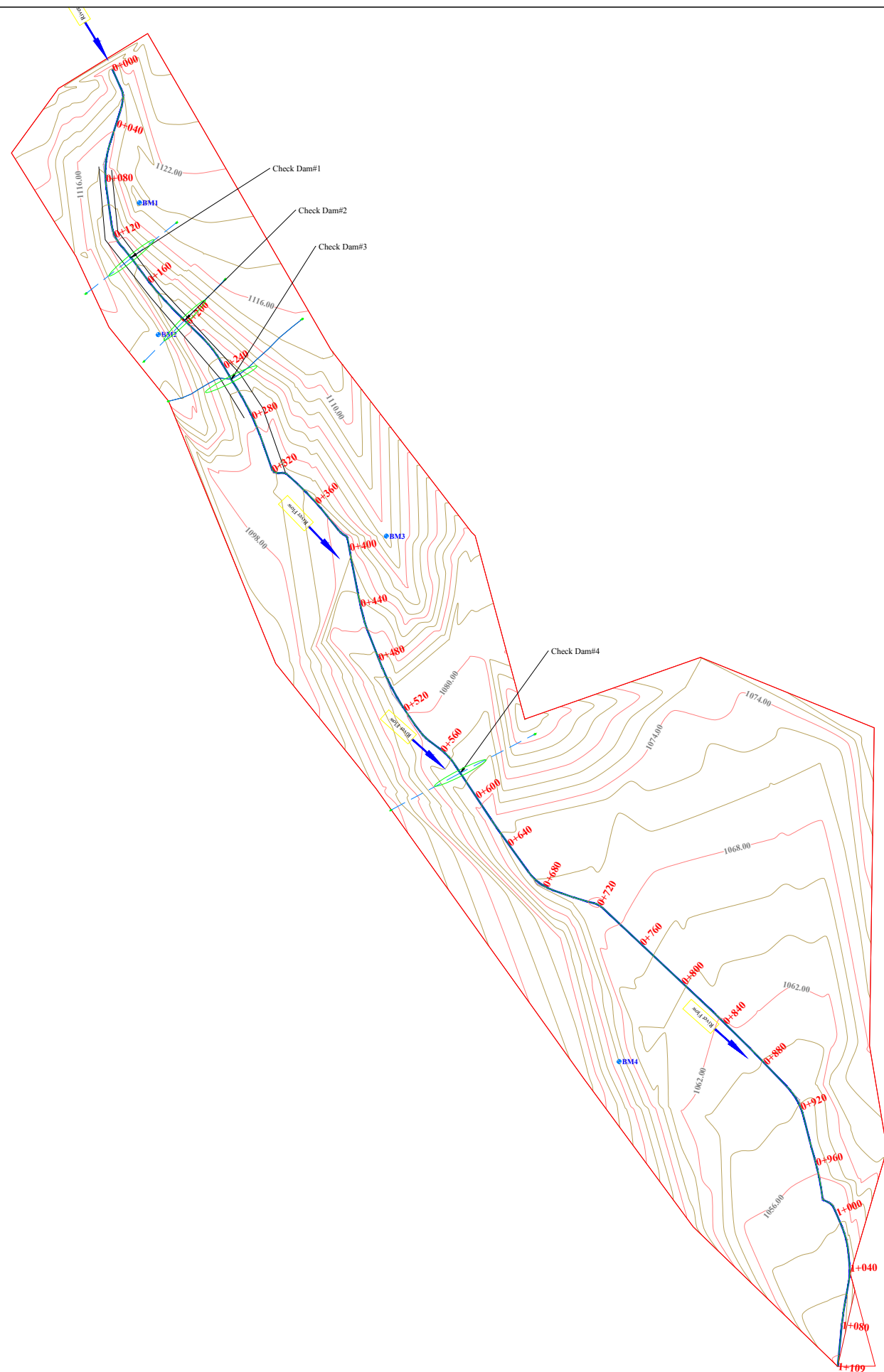


Asian Development Bank (ADB)



Central Project Management Office

Project	Drawing Content	Employer						DWG NO
		Surveyed by :	Designed by:	Drawn by:	Checked by:	Cross Checked by:	Approved by:	
SMN-ABK-006	Contour Map	Abdul Wahed	Eng. Muhammad Akram Paktinyar	Eng. Khoshal Wardak	Eng. Muhammad Akram Paktinyar	Eng. Fardeen Azimi	Eng. Said Moqem Sadat	4/23
								Date: October-2020



Benchmarks Table

Point #	Description	Northing	Easting	Elevation
1	BM1	4115959.00	401549.00	1121.00
3	BM2	4115866.75	401562.16	1113.41
98	BM3	4115725.86	401721.65	1103.11
191	BM4	4115358.41	401884.43	1071.94

Drawn Scale=NTS
All Dimension Shown in (m)



Islamic Republic of
Afghanistan



National Water Affair
Regulation Authority



Asian Development
Bank (ADB)



Central Project
Management Office

Project

SMN-ABK-006

Drawing Content

Topography Map

Employer

Surveyed by :

Abdul Wahed

Designed by:

Eng. Muhammad
Akram Paktinyar

Drawn by:

Eng. Khoshal
Wardak

Checked by:

Eng. Muhammad
Akram Paktinyar

Cross Checked by:

Eng. Fardeen
Azimi

Approved by:

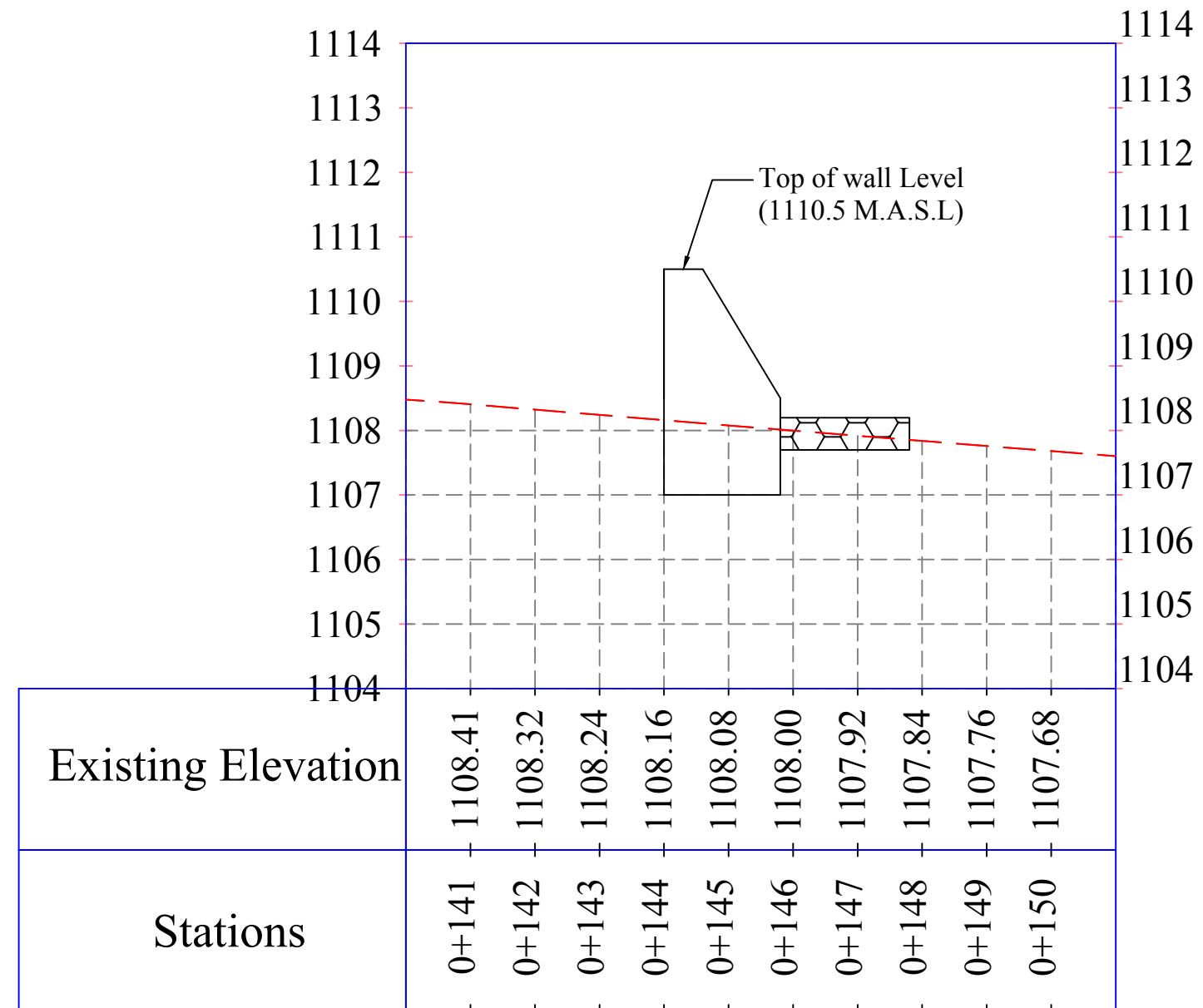
Eng. Said Moqem
Sadat





DWG NO

5/23

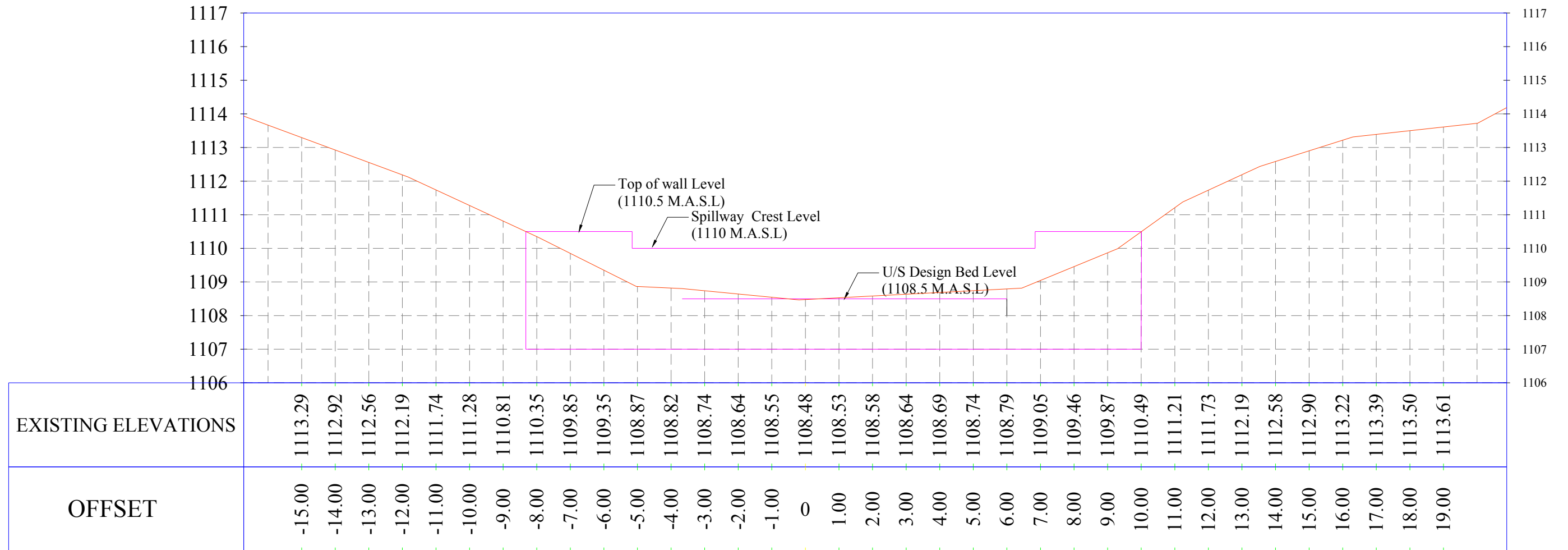
Date:
October-2020

Profile Check Dam 1 Shahrak Jadid Samangan



 Islamic Republic of Afghanistan	 National Water Affair Regulation Authority	 Asian Development Bank (ADB)	 Central Project Management Office	Project	Drawing Content	Employer					DWG NO	
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						Abdul Wahed	Eng. Muhammad Akram Paktinyar	Eng.Khoshal Wardak	Eng. Muhammad Akram Paktinyar	Eng. Fardeen Azimi	Eng. Said Moqem Sadat	Date: Octobar-2020

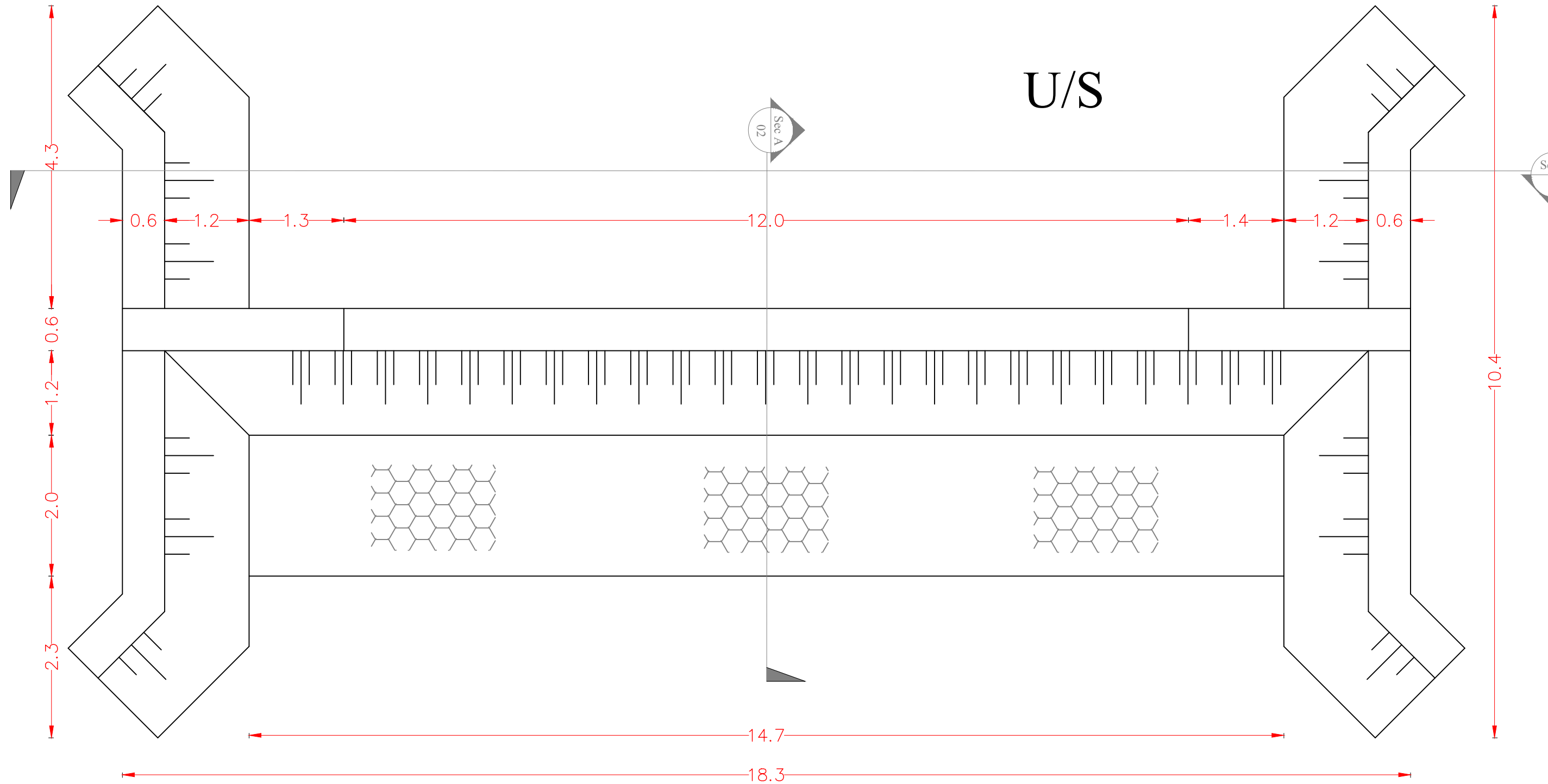
Shahrak Jadid Check Dam 1 Cross Section at RD(0+140.00)







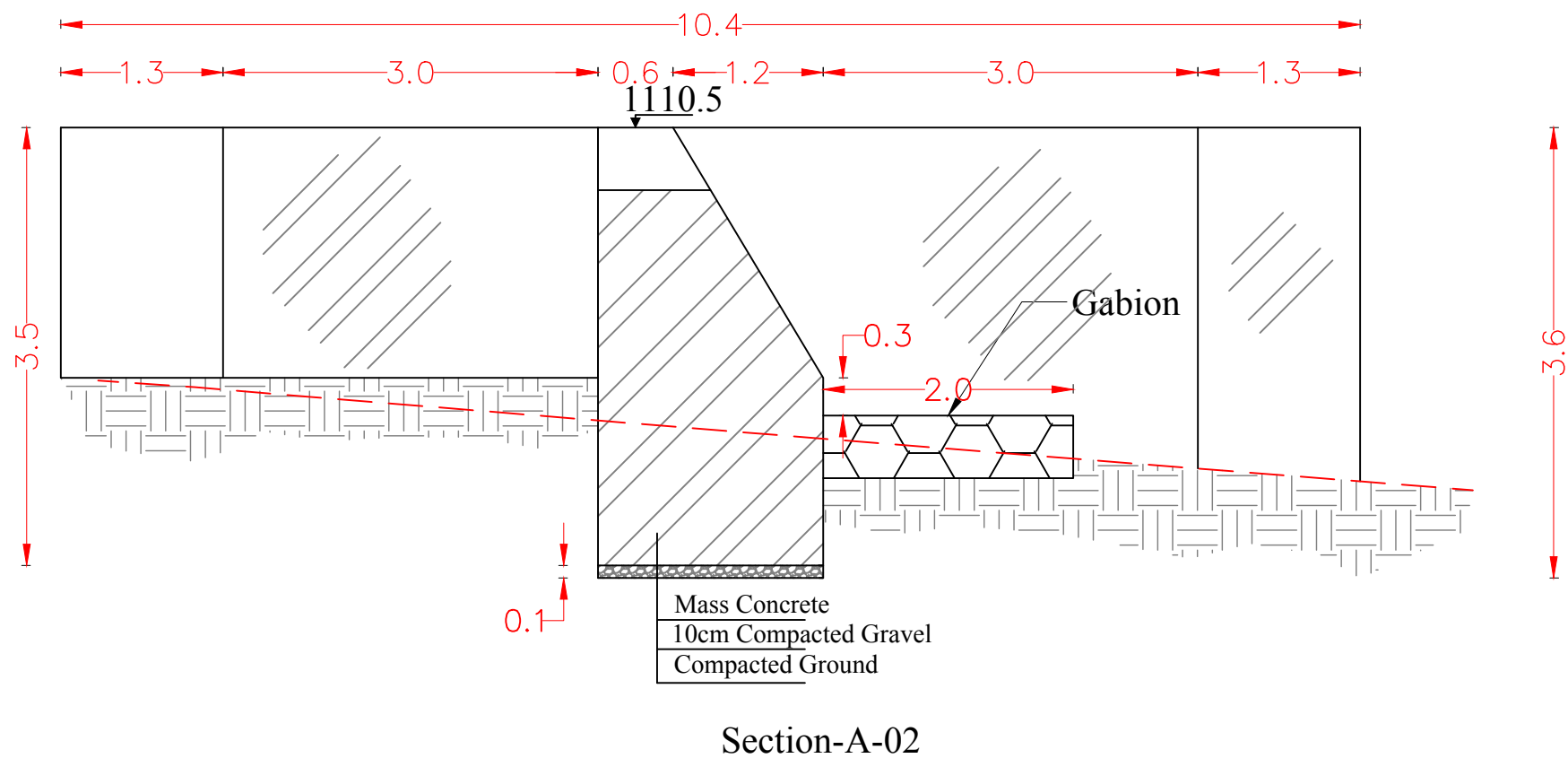
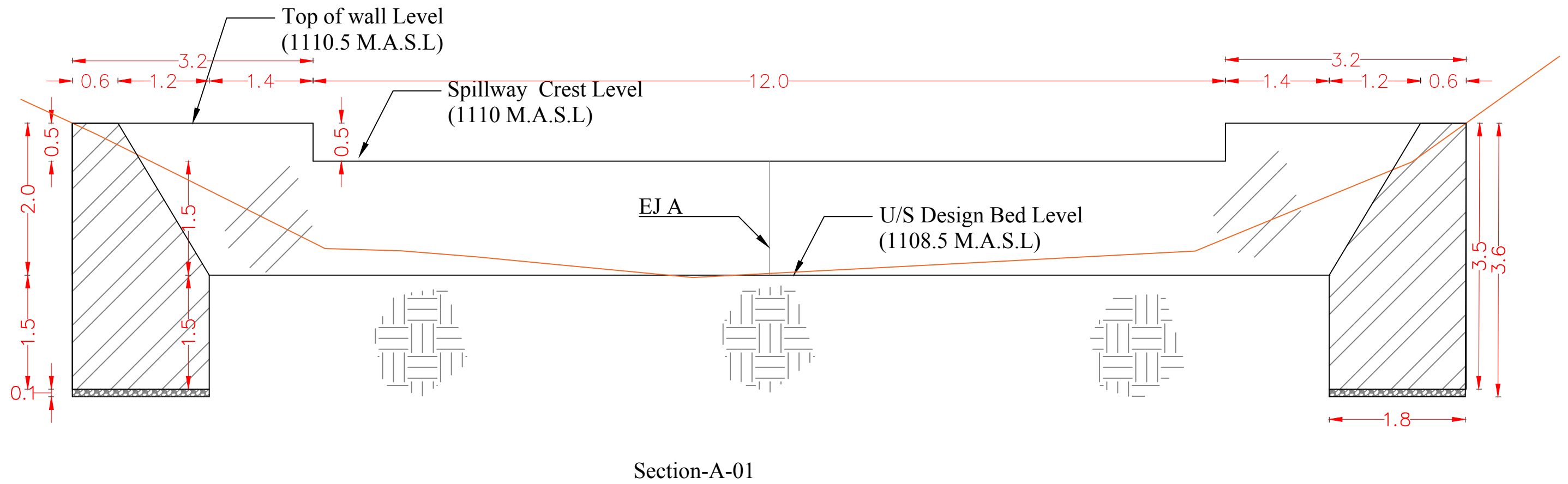
 Islamic Republic of Afghanistan	 National Water Affair Regulation Authority	 Asian Development Bank (ADB)	 Central Project Management Office	Project	Drawing Content	Employer					DWG NO	
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						Abdul Wahed	Eng. Muhammad Akram Paktinyar	Eng.Khoshal Wardak	Eng. Muhammad Akram Paktinyar	Eng. Fardeen Azimi	Eng. Said Moqem Sadat	Date: Octobar-2020





Checkdam # 1

U/S

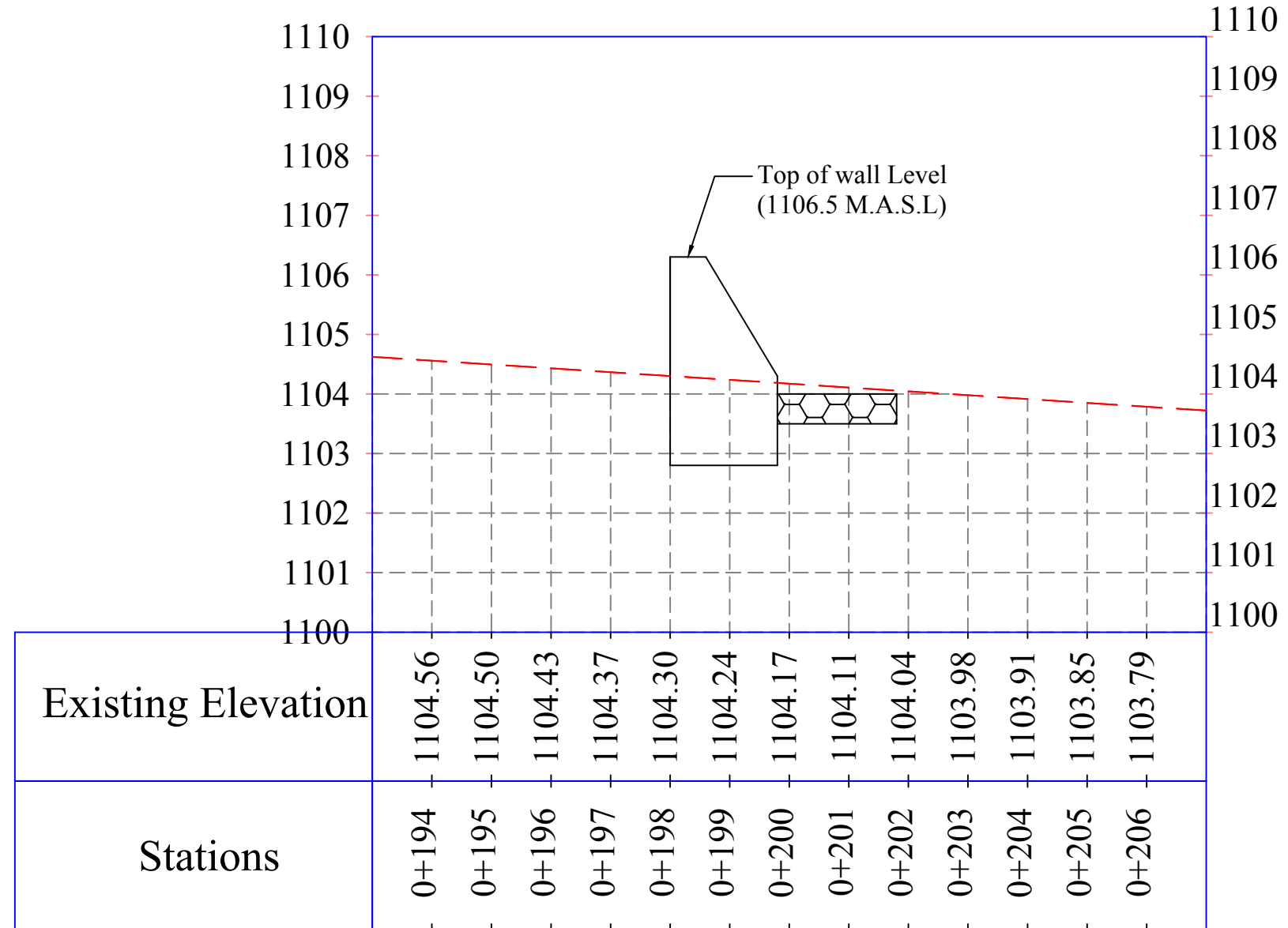






 Islamic Republic of Afghanistan	 National Water Affair Regulation Authority	 Asian Development Bank (ADB)	 Central Project Management Office	Project	Drawing Content	Employer					DWG NO	
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						Abdul Wahed	Eng. Muhammad Akram Paktinyar	Eng.Khoshal Wardak	Eng. Muhammad Akram Paktinyar	Eng. Fardeen Azimi	Eng. Said Moqem Sadat	Date: October-2020



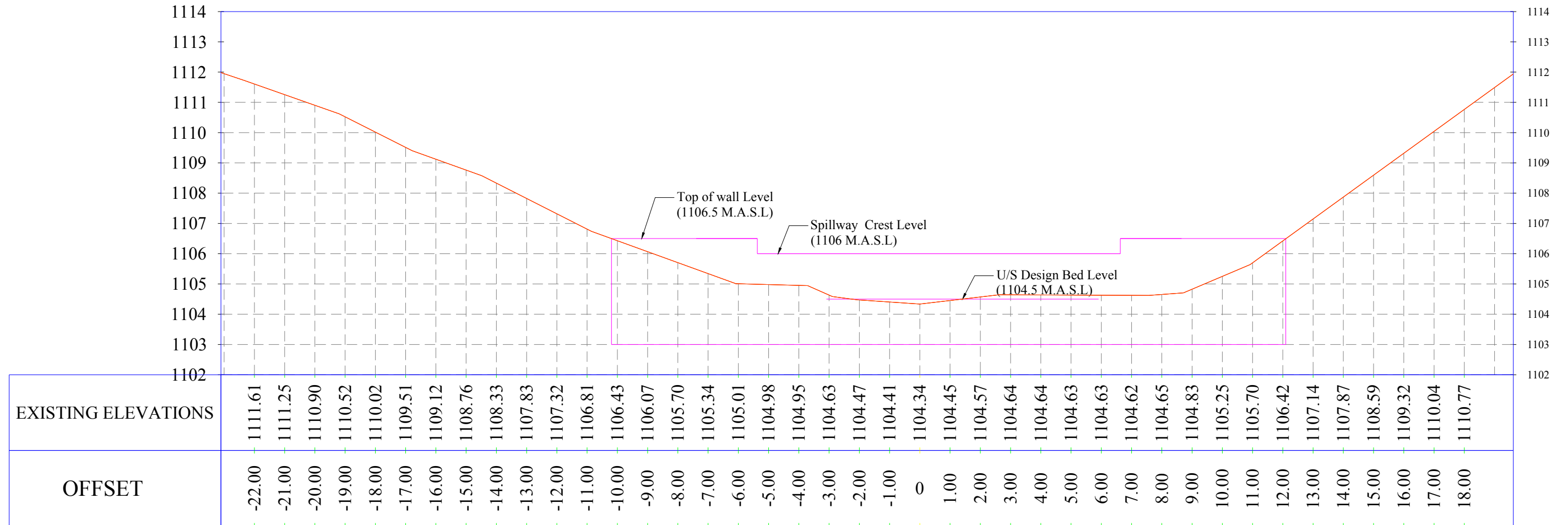
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						Abdul Wahed	Eng. Muhammad Akram Paktinyar	Eng. Khoshal Wardak	Eng. Muhammad Akram Paktinyar	Eng. Fardeen Azimi	Eng. Said Moqeesm Sadat	Date: October-2020

Profile Check Dam 2 Shahrak Jadid Samangan



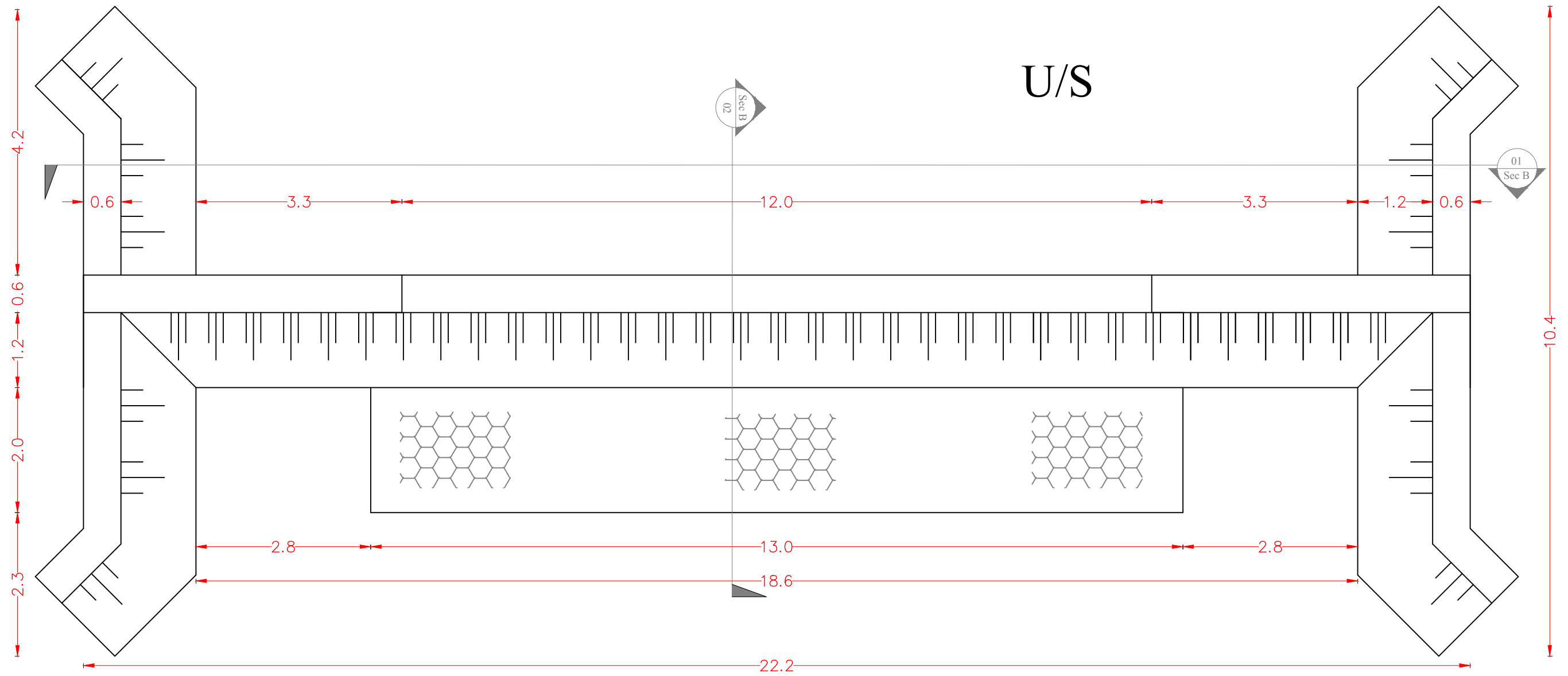
 Islamic Republic of Afghanistan	 National Water Affair Regulation Authority	 Asian Development Bank (ADB)	 Central Project Management Office	Project	Drawing Content	Employer					DWG NO	
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						Abdul Wahed	Eng. Muhammad Akram Paktinyar	Eng. Khoshal Wardak	Eng. Muhammad Akram Paktinyar	Eng. Fardeen Azimi	Eng. Said Moqem Sadat	Date: October-2020





Shahrak Jadid Check Dam 2 Cross Section at RD(0+197.45)

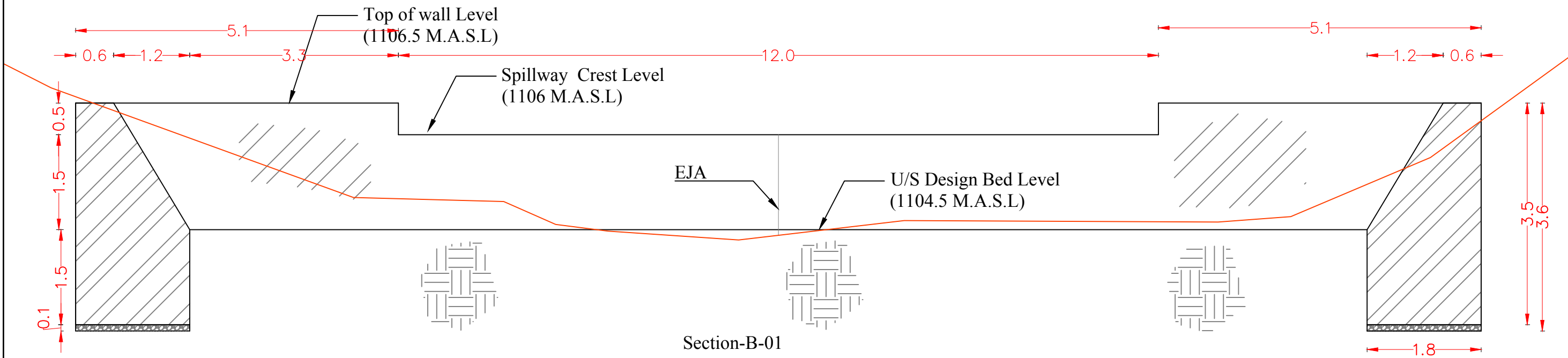


 Islamic Republic of Afghanistan	 National Water Affair Regulation Authority	 Asian Development Bank (ADB)	 Central Project Management Office	Project	Drawing Content	Employer					DWG NO	
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						Abdul Wahed	Eng. Muhammad Akram Paktinyar	Eng.Khoshal Wardak	Eng. Muhammad Akram Paktinyar	Eng. Fardeen Azimi	Eng. Said Moqees Sadat	Date: October-2020

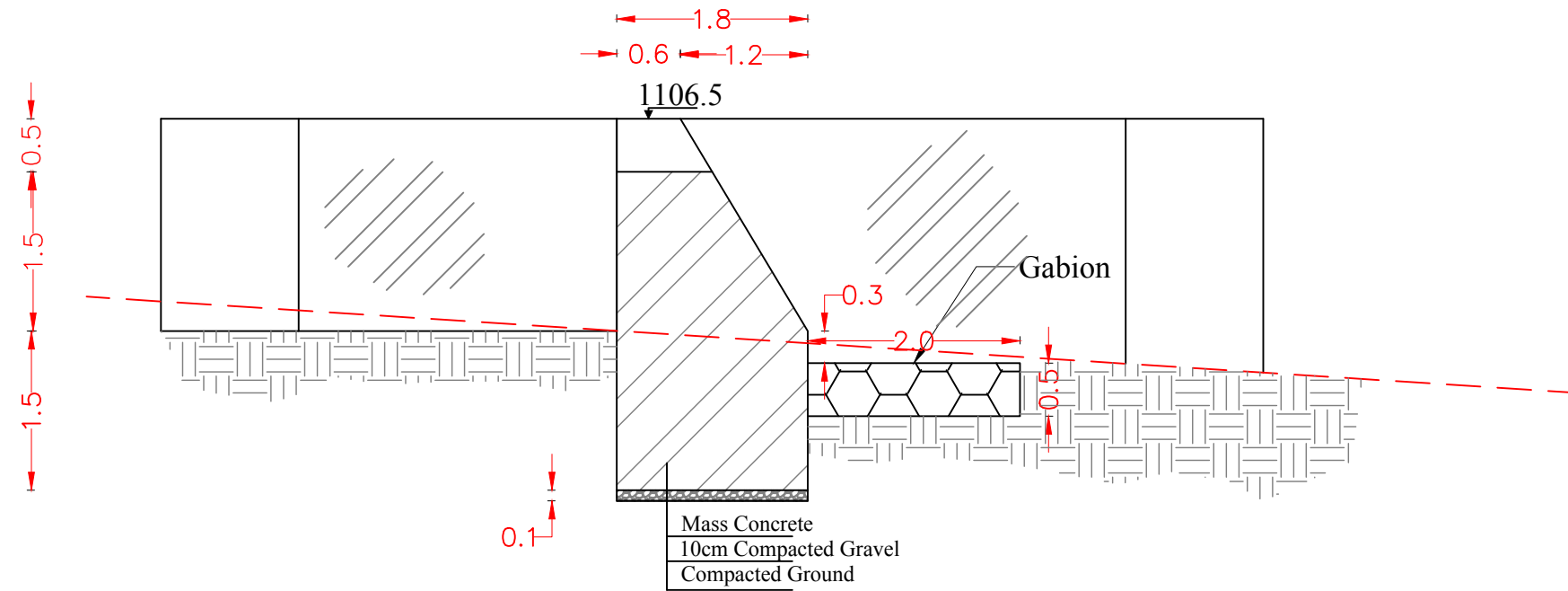
Checkdam # 2







 Islamic Republic of Afghanistan	 National Water Affair Regulation Authority	 Asian Development Bank (ADB)	 Central Project Management Office	Project	Drawing Content	Employer					DWG NO
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				Abdul Wahed	Eng. Muhammad Akram Paktinyar	Eng.Khoshal Wardak	Eng. Muhammad Akram Paktinyar	Eng. Fardeen Azimi	Eng. Said Moqem Sadat	Date: Octobar-2020	



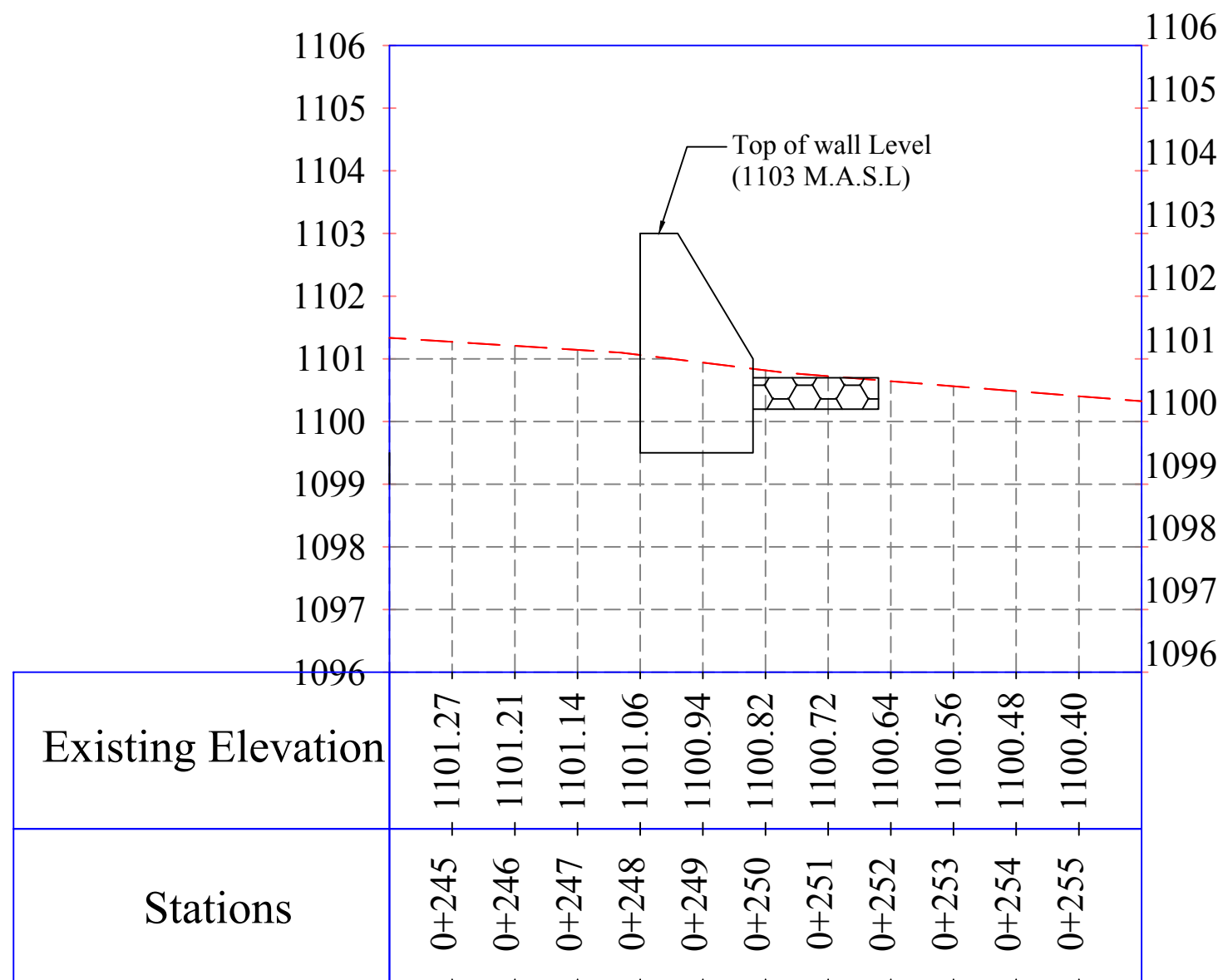
Section-B-01



Section-B-02

 Islamic Republic of Afghanistan	 National Water Affair Regulation Authority	 Asian Development Bank (ADB)	 Central Project Management Office	Project	Drawing Content	Employer					DWG NO	
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						Abdul Wahed	Eng. Muhammad Akram Paktinyar	Eng.Khoshal Wardak	Eng. Muhammad Akram Paktinyar	Eng. Fardeen Azimi	Eng. Said Moqem Sadat	Date: October-2020

Profile Check Dam 3 Shahrak Jadid Samangan



Islamic Republic of
Afghanistan



National Water Affairs
Regulation Authority



Asian Development
Bank (ADB)



Central Project
Management Office

Project

SMN-ABK-006

Drawing Content

Longitudinal Section
Check dam #3

Employer

Surveyed by :

Abdul Wahed

Designed by:

Eng. Muhammad
Akram Paktinyar

Drawn by:

Eng. Khoshal
Wardak

Checked by:

Eng. Muhammad
Akram Paktinyar

Cross Checked by:

Eng. Fardeen
Azimi

Approved by:

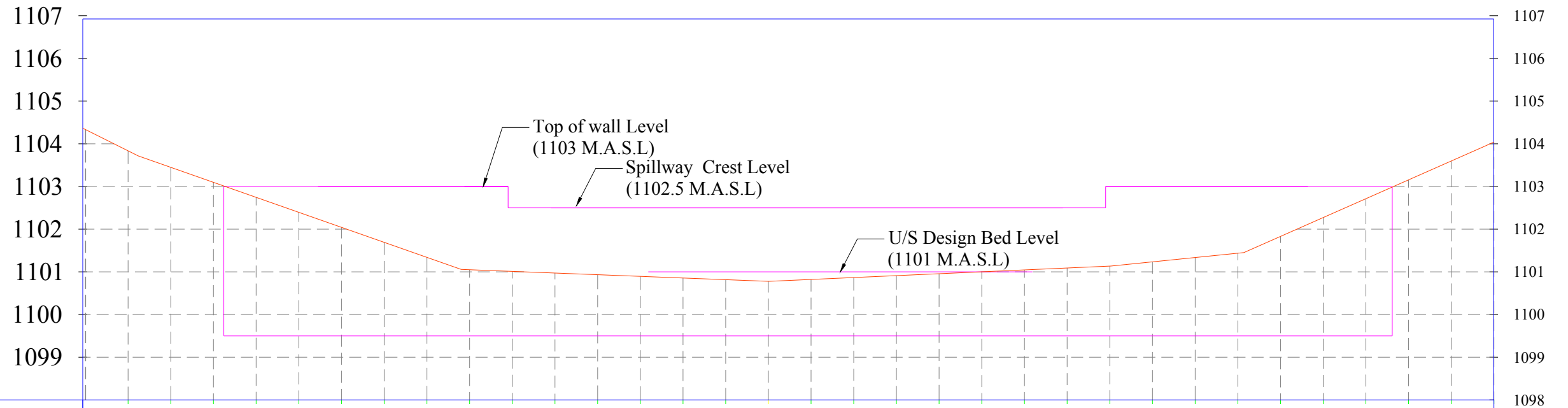
Eng. Said Moqem
Sadat

DWG NO

14/23

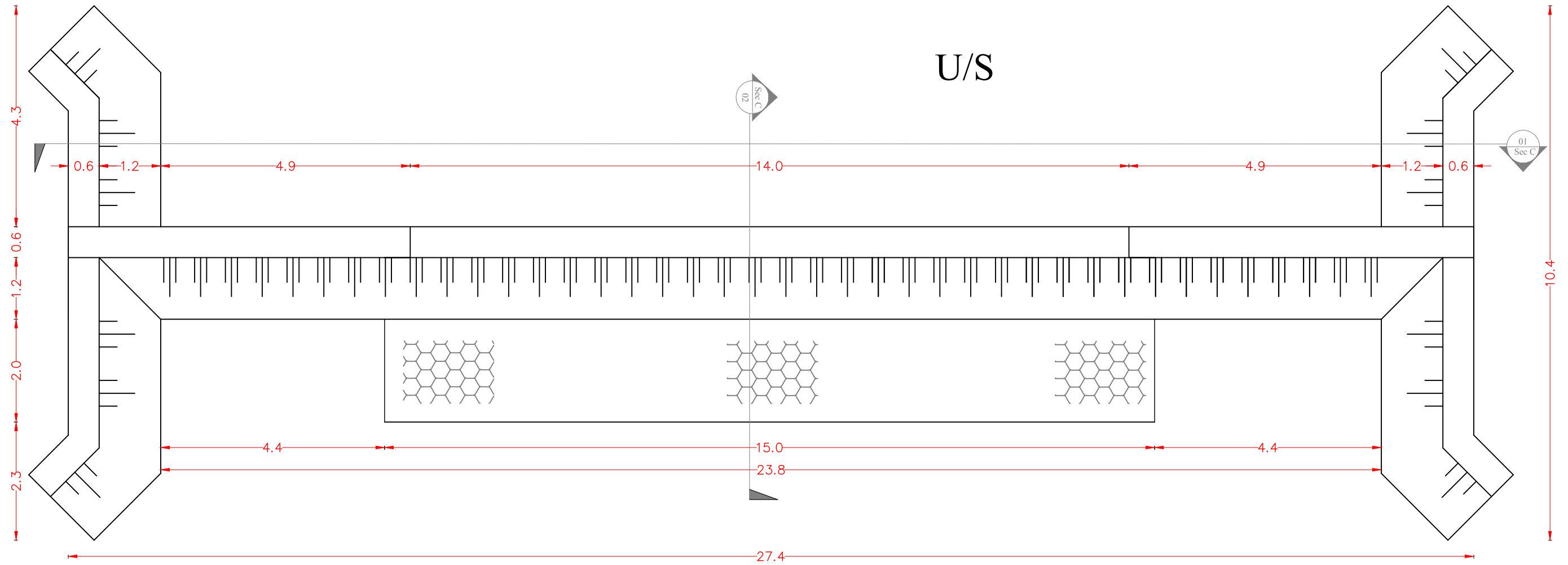
Date:
October-2020





Shahrak Jadid Check Dam 3 Cross Section at RD(0+250.31)

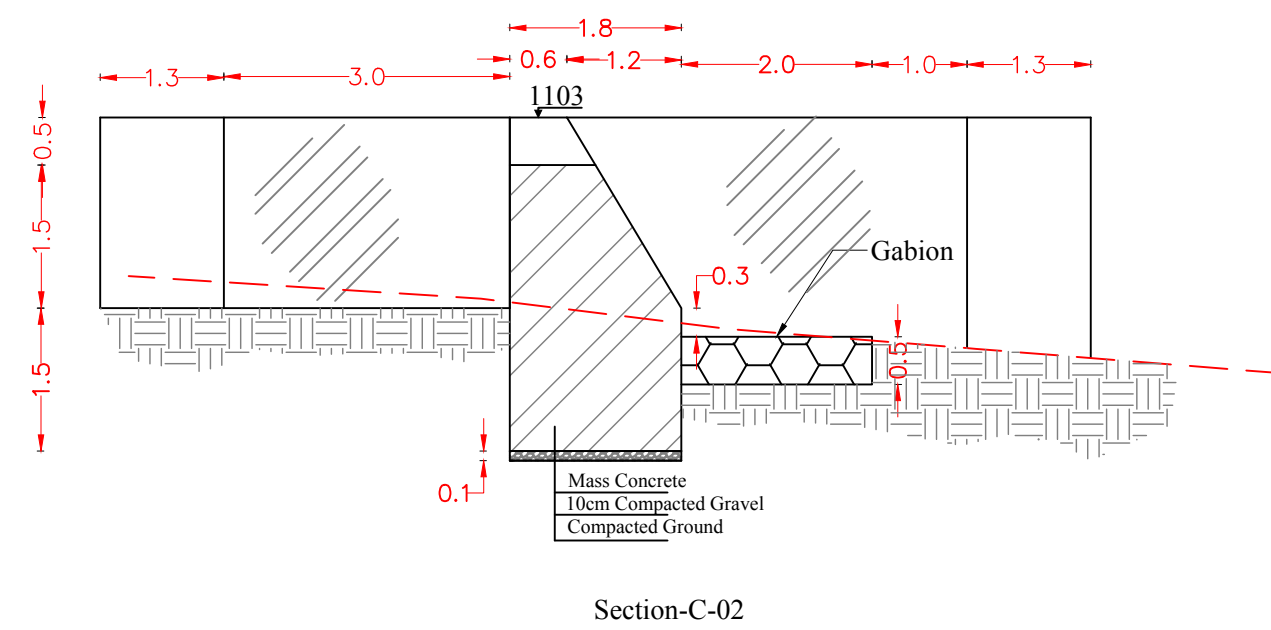
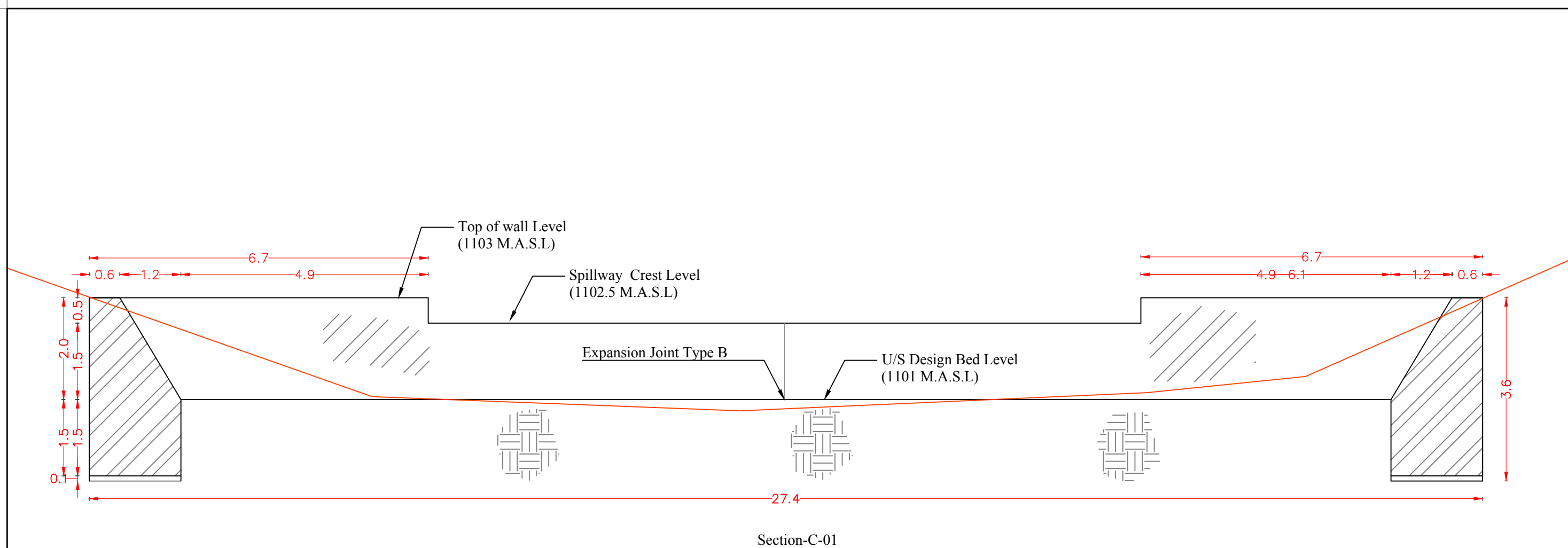






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OFFSET	-15.00	-14.00	-13.00	-12.00	-11.00	-10.00	-9.00	-8.00	-7.00	-6.00	-5.00	-4.00	-3.00	-2.00	-1.00	0	1.00	2.00	3.00	4.00	5.00	6.00	7.00	8.00	9.00	10.00	11.00	12.00	13.00	14.00	15.00	16.00

Checkdam # 3

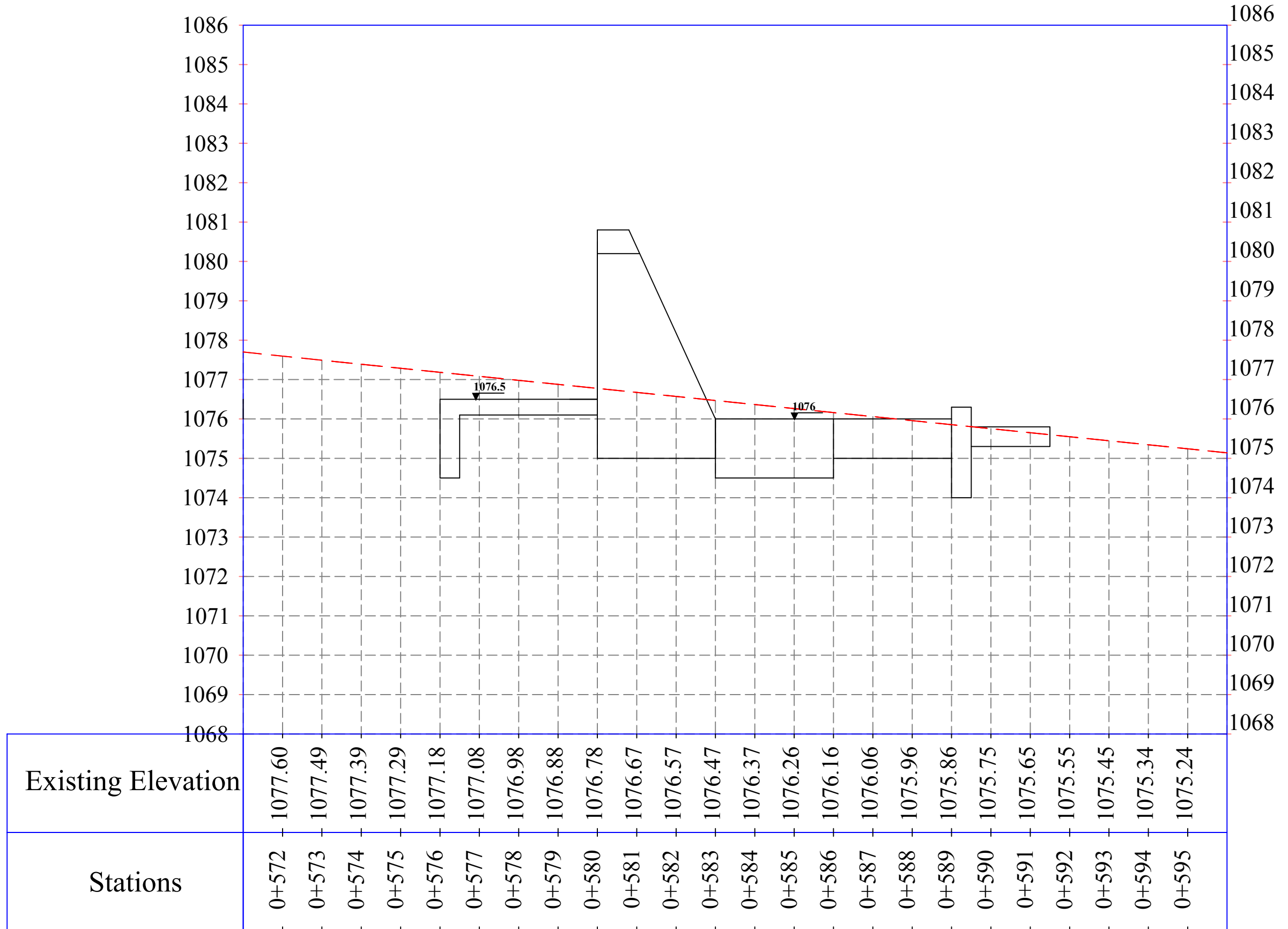


 Islamic Republic of Afghanistan	 National Water Affair Regulation Authority	 Asian Development Bank (ADB)	 Central Project Management Office	Project	Drawing Content	Employer						DWG NO
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						Abdul Wahed	Eng. Muhammad Akram Paktinyar	Eng.Khoshal Wardak	Eng. Muhammad Akram Paktinyar	Eng. Fardeen Azimi	Eng. Said Moqeen Sadat	Date: Octobar-2020



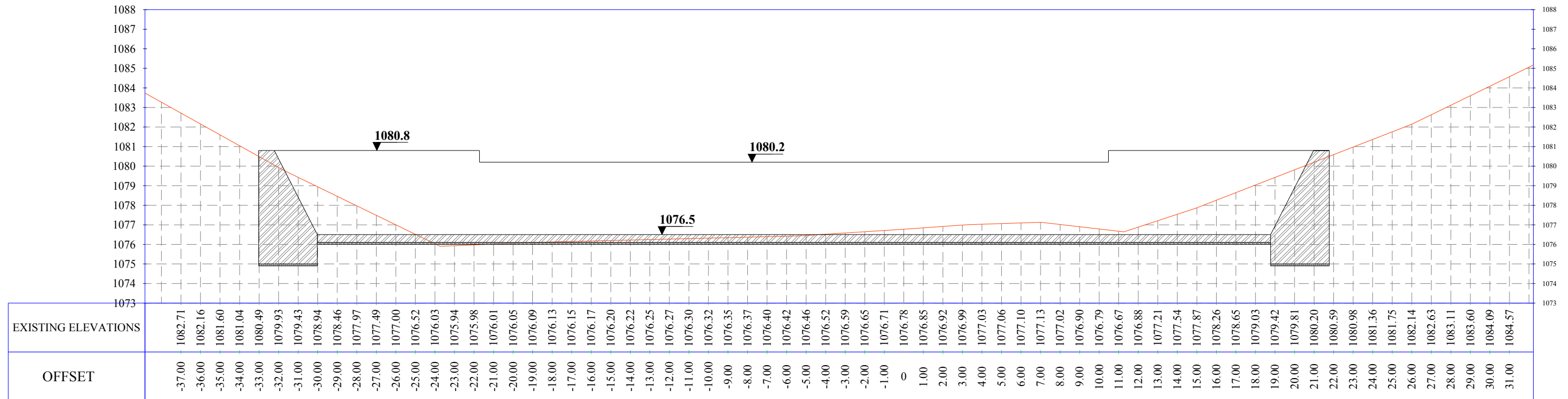
 Islamic Republic of Afghanistan	 National Water Affair Regulation Authority	 Asian Development Bank (ADB)	 Central Project Management Office	Project	Drawing Content	Employer					DWG NO
				SMN-ABK-006	Section 01-02 Check dam #3	Surveyed by : Abdul Wahed	Designed by : Eng. Muhammad Akram Paktinyar	Drawn by : Eng. Khoshal Wardak	Checked by : Eng. Muhammad Akram Paktinyar	Cross Checked by : Eng. Fardeen Azimi	Approved by : Eng. Said Moqem Sadat
											Date: October-2020





Profile Check Dam 4 Shahrak Jadid Samangan



 Islamic Republic of Afghanistan	 National Water Affair Regulation Authority	 Asian Development Bank (ADB)	 Central Project Management Office	Project	Drawing Content	Employer						DWG NO
				SMN-ABK-006	Longitudinal Section Check dam #4	Surveyed by :	Designed by:	Drawn by:	Checked by:	Croos Checked by:	Approved by:	18/23
				Abdul Wahed	Eng. Muhammad Akram Paktinyar	Eng. Khoshal Wardak	Eng. Muhammad Akram Paktinyar	Eng. Fardeen Azimi	Eng. Said Moqem Sadat	Date: Octobar-2020		

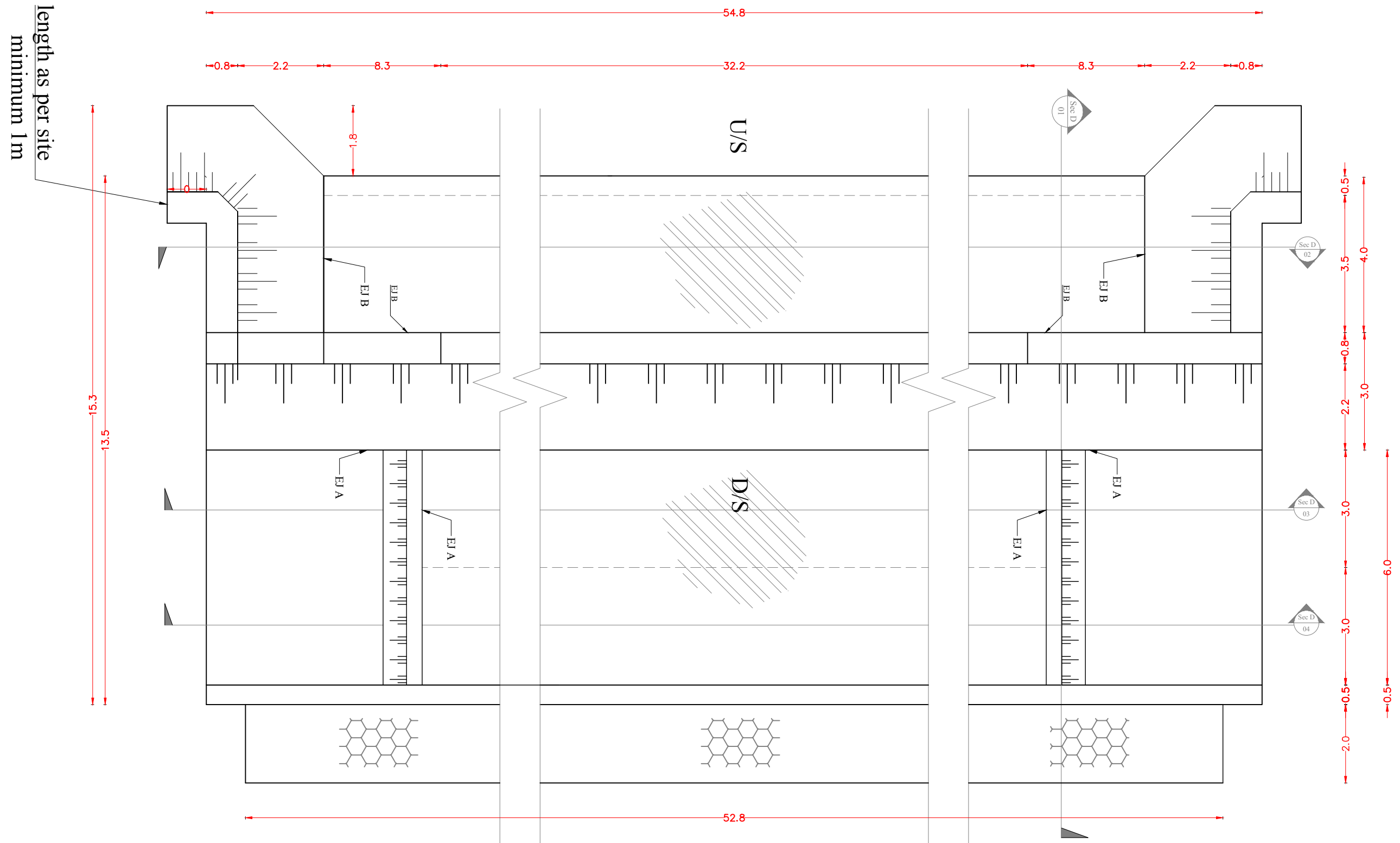
Shahrak Jadid Check Dam 4 Cross Section at RD(0+580.00)







 Islamic Republic of Afghanistan	 National Water Affair Regulation Authority	 Asian Development Bank (ADB)	 Central Project Management Office	Project	Drawing Content	Employer						DWG NO
				SMN-ABK-006	Cross Section Check dam #4	Surveyed by :	Designed by:	Drawn by:	Checked by:	Croos Checked by:	Approved by:	19/23
						Abdul Wahed	Eng. Muhammad Akram Paktinyar	Eng.Khoshal Wardak	Eng. Muhammad Akram Paktinyar	Eng. Fardeen Azimi	Eng. Said Moqeen Sadat	Date: Octobar-2020

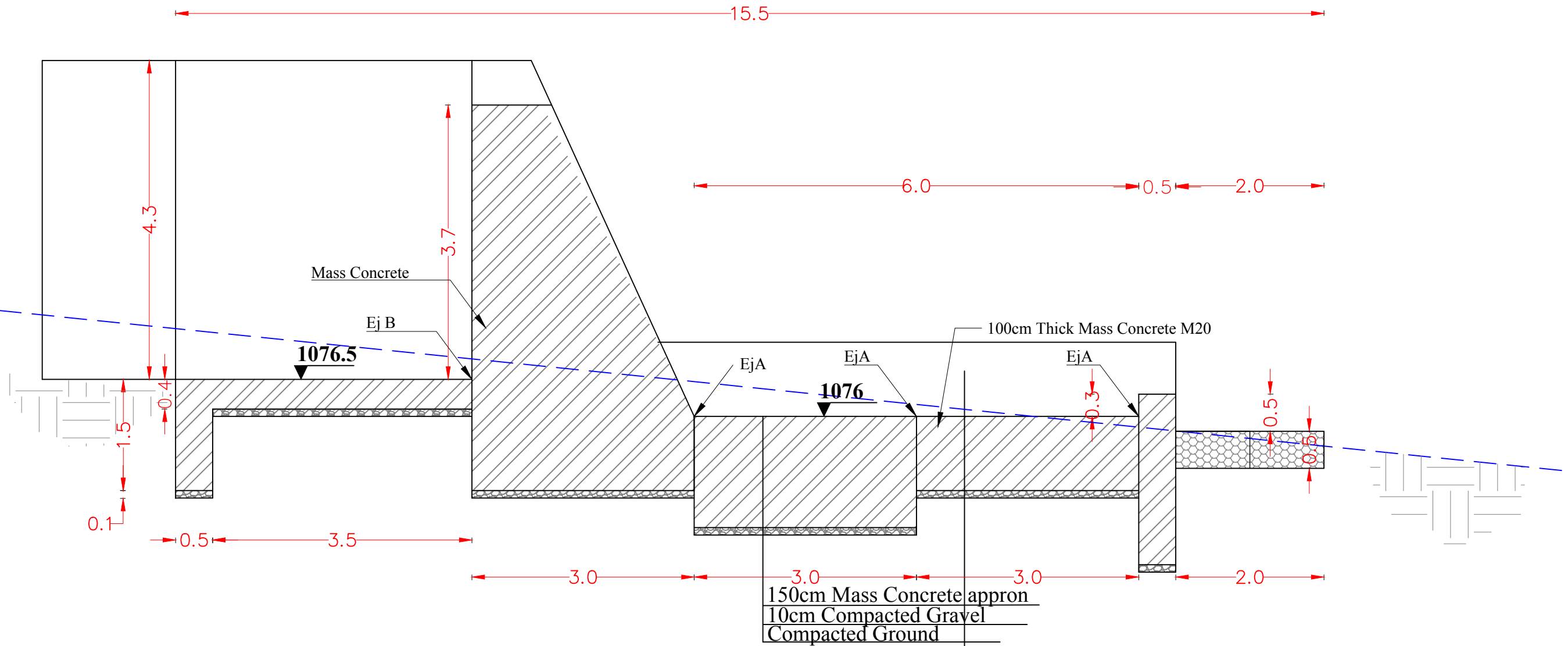
Note:

- All Expansion joints at upstream are type (B) except otherwise mentioned on the drawing.
- All Expansion joint at the downstream are type (A) except otherwise mentioned on the drawing.
- Contraction joint should not be more than 3m a parts in both directions in up stream and down stream aprons.
- Expansion joints are not more than 10 m apart in protection walls and check dam body except otherwise specified on the drawings.







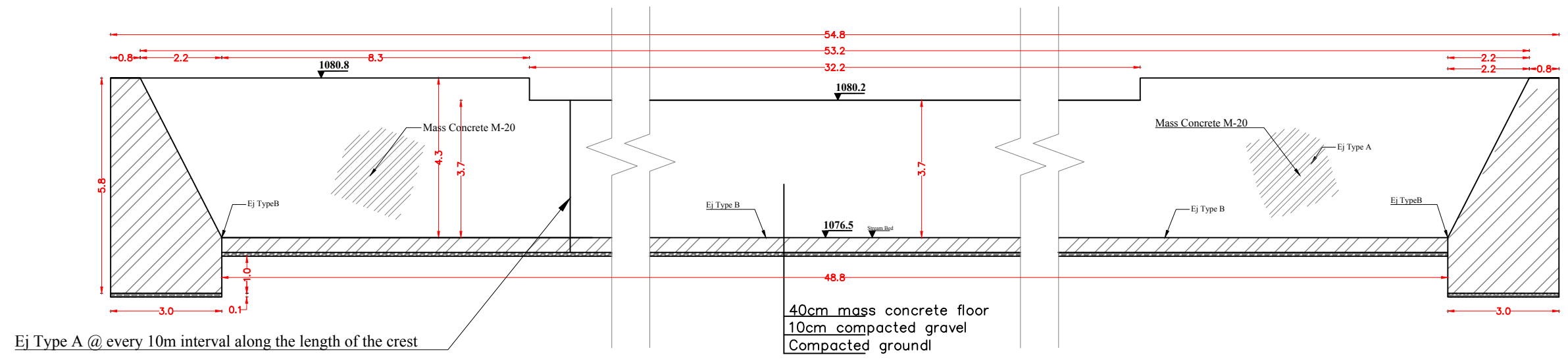
 Islamic Republic of Afghanistan	 National Water Affair Regulation Authority	 Asian Development Bank (ADB)	 Central Project Management Office	Project	Drawing Content	Employer						DWG NO
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											Date: October-2020	

Checkdam # 4

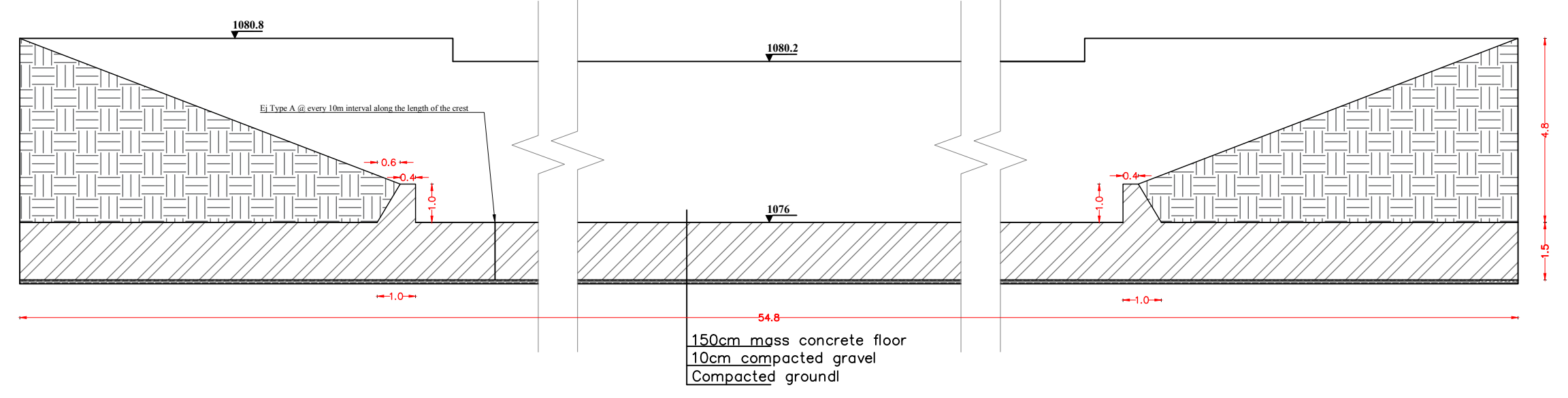


Section-D-01

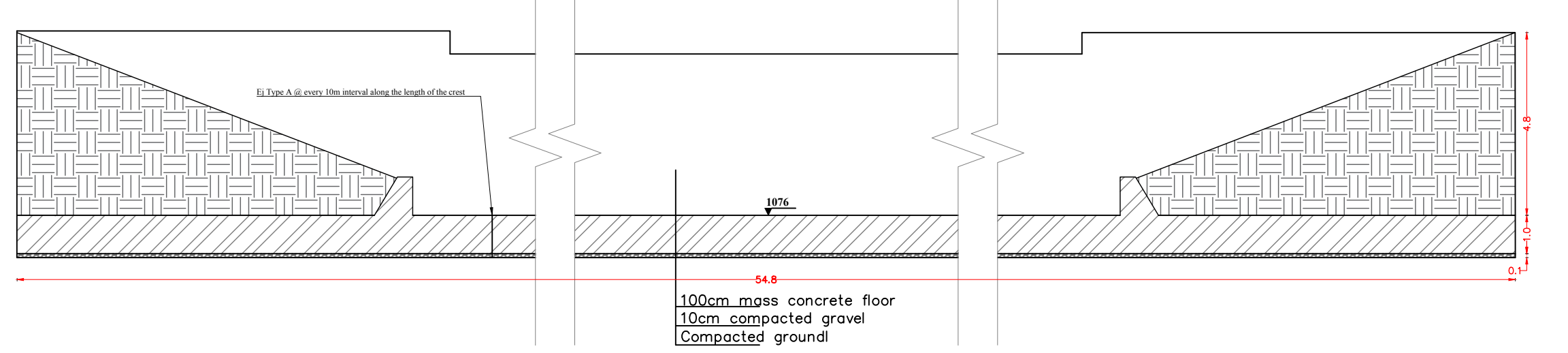
 Islamic Republic of Afghanistan	 National Water Affair Regulation Authority	 Asian Development Bank (ADB)	 Central Project Management Office	Project	Drawing Content	Employer					DWG NO	
				SMN-ABK-006	Section 01 Check dam #4	Surveyed by :	Designed by:	Drawn by:	Checked by:	Croos Checked by:	Approved by:	21/23
						Abdul Wahed	Eng. Muhammad Akram Paktinyar	Eng.Khoshal Wardak	Eng. Muhammad Akram Paktinyar	Eng. Fardeen Azimi	Eng. Said Moqeen Sadat	Date: October-2020







Section-D-02

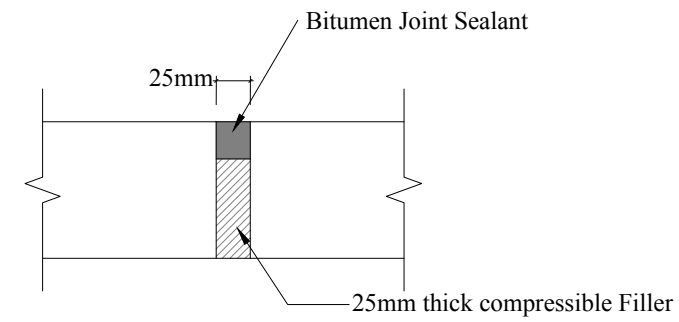


Section-D-03

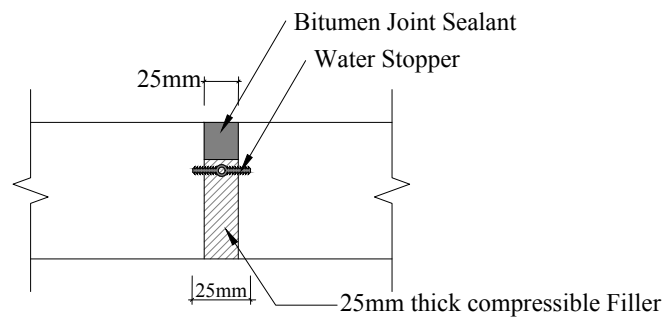


Section-D-04

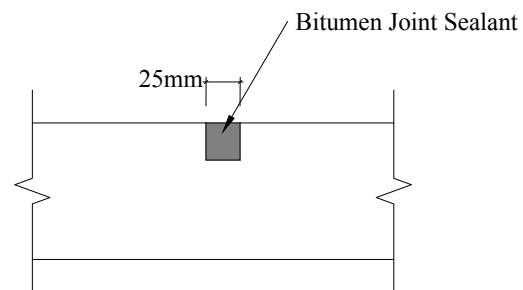
 Islamic Republic of Afghanistan	 National Water Affair Regulation Authority	 Asian Development Bank (ADB)	 Central Project Management Office	Project	Drawing Content	Employer					DWG NO
				SMN-ABK-006	Section 02-03-04 Check dam #4	Surveyed by : Abdul Wahed	Designed by: Eng. Muhammad Akram Paktinyar	Drawn by: Eng. Khoshal Wardak	Checked by: Eng. Muhammad Akram Paktinyar	Cross Checked by: Eng. Fardeen Azimi	Approved by: Eng. Said Moqeesm Sadat



EJ Expansion Joint
Type B

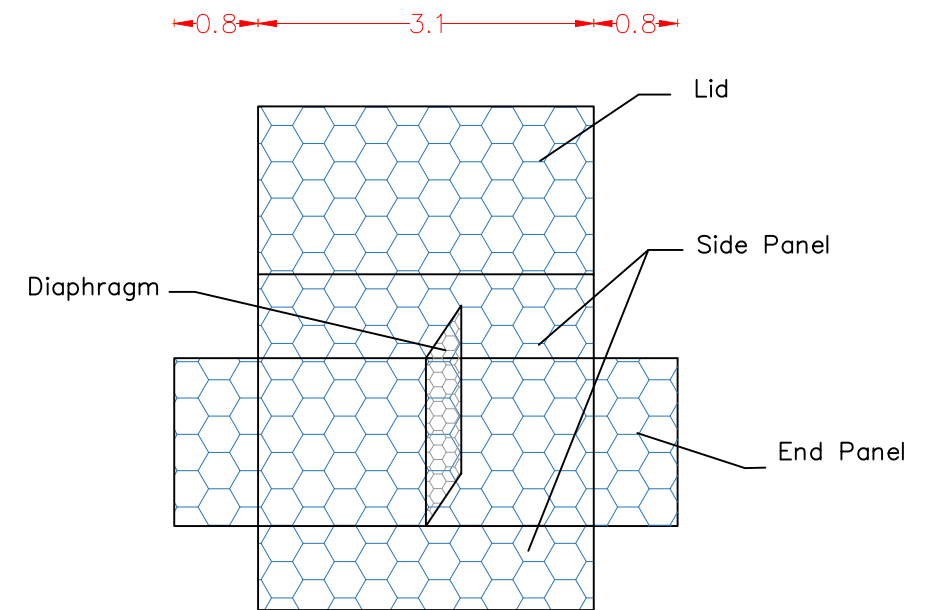
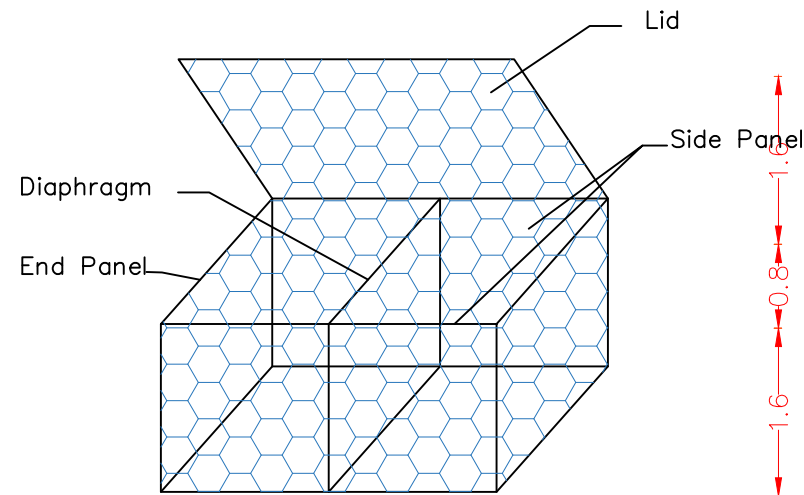


EJ Expansion Joint
Type A



CTJ Contraction
Joint

Gabion Formed into Box shape on site (2*1*0.5)



Note:

1. Gabions shall be manufactured from triple twist hexagonal woven wire mesh according to specification and drawing
2. Diaphragms to be at nominal 1m centers on the unit length, except for 1.5m long gabion which have no internal diaphragm
3. The mesh openings shall be hexagonal and of a nominal dimension of (10x8)cm
4. The wire mesh diameter for the body of the gabion should be 3 mm in diameter and of a 4mm diameter for the edge selvedge wire. which should be anti rusted or galvanized,
5. For gabion boxes's steel mesh leaf liaising that 3mm diameter steel wire to be utilized.
6. In order to prevent from curvature that cross bearing steel wire to be placed in every 50 cm space of height as well as width

Technical Specification:

Tensional Strength:

- Tensional resistance of the wire should be about (38-50)kg/m²

Torsion Strength:

- When a simple of 20m length wire is entwined on its axis and could keep its status without any changes.

Liner Expansion:

- Liner expansion should not be more than 12% in a 30cm length wire.

Stone or Rock for Fill:

- The size of stones to be placed inside the gabions must not be less than one and a half the largest opening of the mesh.
- Gabion fill shall be hard and durable and non frost susceptible rock or stone type.



Project	Drawing Content	Employer						DWG NO
		Surveyed by :	Designed by:	Drawn by:	Checked by:	Cross Checked by:	Approved by:	
SMN-ABK-006	Joint Details/ Gabion Details	Abdul Wahed	Eng. Muhammad Akram Paktinyar	Eng. Khoshal Wardak	Eng. Muhammad Akram Paktinyar	Eng. Fardeen Azimi	Eng. Said Moqeesm Sadat	23/23
								Date: October-2020