

Initial Environmental Examination

Project No.: 50063
31 August 2016

(Draft) – Appendixes

UZB: Kashkadarya Regional Road Project

Prepared by the Republican Road Fund for the Asian Development Bank.

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«26» 08 2016 y. № ARM/28-20-3063

« » 201 г. №

Ms. XiaohongYang
Director
Transport and Communications Division
Central and West Asia Department

Subject: Project - Reconstruction of the 77 km on the route Karshi-Shakhrisabz-Kitob. Initial Environmental Examination (IEE)

Dear Ms. Yang,

The Republican Road Fund has no objection to disclose the IEE prepared by the Consultant (Sheladia Associates, Inc.) in the website of ADB.

Sincerely,

Deputy Director
Republican Road Fund


Murodbek Allabergenov

APPENDIX A: ALIGNMENT SHEET

#	Location	Km	Photo	Issue
Section 1 (KM28-76)				
1	First ADB road section start point (4R79)	28		Pavement in good condition. Mainly agricultural land. Small trees (conifers) have been planted by the Hokhimat to delineate the boundaries of the ROW.
2	Road in agricultural area	32.2		Road will be expanded to four lanes totaling 13 meters (including shoulder). According to the PMU none of these trees are within the ROW. However, it has been noted that within the total 128km of roadway to be rehabilitated (including ADB and government financed sections) more than 40,000 trees will

				be cut down.
3	Chim village	37.4		The road crosses numerous irrigation channels and passes close to utilities, such as electricity and water supply. Coordination with utilities operators will be required to ensure continued supply of electricity and water during the construction phase.
4	Center of Chim village	38.5		Noise and air quality monitoring and modeling will be undertaken in Chim to assess potential impacts to residents in the village. Although current traffic volumes were relatively low and noise levels did not seem excessive, future traffic growth in the operational phase of the project may result in noise

				levels above uzbek standards.
5	West of Chim village	42.8		<p>An existing bridge crossing an irrigation channel. This bridge will remain in situ while it is widened during the construction phase. Standard mitigation measures will be proposed in the EMP to prevent pollution of these channels which are important for the surrounding agricultural land.</p>
6	500 meters south of Mangit village	52.6		<p>Some small shops and cafes were located at this point of the road. They are unlikely to be impacted by the project works, with the exception of some short term elevated noise and dust levels during the construction phase. It is also important to ensure that access</p>



				is open to all of commercial and residential areas adjacent to the road during the construction phase.
7	Toqboy	59.6		A graveyard is located within 5 meters of the right hand side of the road. According to the design, the road centerline will move approximately 6 meters to the left to avoid impacts to this site.

8	Qozoq	64		Numerous schools, kindergartens and colleges were noted within the vicinity of the project road. None of the schools were closer than 25 meters from the road edge. Safety measures, including road crossings and speed limits will be recommended for these areas.
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Section 2 (KM98 – 127)			
9	Start of second ADB road section, Shahrizabz	98.4	 <p>The second portion of ADB financed road starts in the center of Shahrizabz. Noise and air quality will be a short term impact in this area, and potentially also during the operational phase of the project. As such, monitoring and modeling of noise will be required in order to quantify impacts and possible mitigation measures. Traffic safety plans will also need to be prepared by the contractor to ensure the free movement of vehicles in this busy section.</p>

10	Shahrizabz	102		<p>Once the road leaves the center of Shahrizabz the road traverses predominantly commercial and industrial areas, here it crosses a railway line.</p>
11	Northern outskirts of Shahrizabz	103		<p>Another cemetery is located close to the road. However, according to the design, this cemetery will not be affected by the road widening works.</p>

1 2	Akdarya	10 9		<p>The road crosses a tributary of the Kashkardarya river. Monitoring of water quality during the construction phase will be undertaken to assess if the construction works are impacting negatively on this tributary.</p>
1 3	Kitab	12 0		<p>The road crosses the Kashkardarya river at this point. Water quality monitoring will also be undertaken at this site. Construction camps (temporary and permanent) will not be allowed within 500 meters of the rivers.</p>

1 4	South of Kishlyk	12 2		<p>The road moves out of the agricultural landscape and starts to rise into pastureland. Population density in this area is very low. The pavement is four lanes and as such no widening of the road is required.</p>
1 5	Kishlyk	12 6		<p>The road continues to rise up the hills. Long strips of mulberry line the road, but these will not need to be cut.</p>

1 6	Road end.	12 7		The road ends at this check- point.
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APPENDIX B: LOCATION MAPS

Overview of Karshi – Shahrizabz – Kitob Road Sections to be financed under Road Fund and ADB



ADB Section 1 of Karshi – Shahrizabz – Kitob Road on 4R79 and 4K319



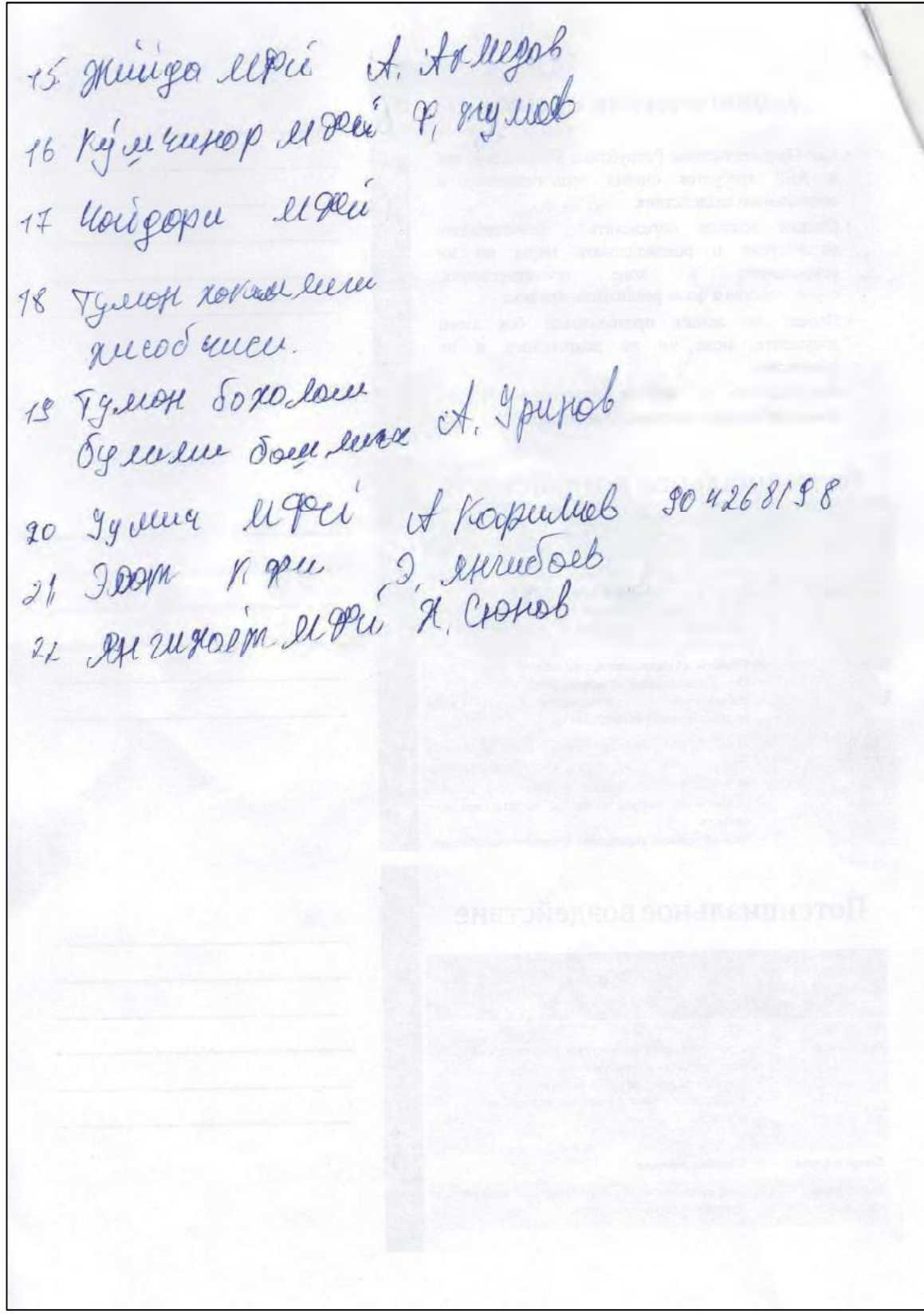


ADB Section 2 of Karshi – Shahrizabz – Kitob Road on M39

APPENDIX C: PUBLIC CONSULTATION ATTENDEES

Yakkabog (24/05/2016)

- Тўғилмиш ва қотнашувчилар
Релизлари
- 1) Тўғилмиш қотилиш Н.В. Ҳ. Абдураҳимов 91 960 28,21
 - 2) Тўғилмиш ҳокимлиги
ташқиллий сурхуа раҳбар - Р. Хидиров
 - 3) Тўғилмиш ҳокимлиги боғи Э. Бекнаев 90616,76 93
лиқ таҳқиқотчи
 - 4) Тўғилмиш ер шўхлик қодостр
хизматлари бўлими инженири С. Одилов ~~98 722 5588~~
95680 8538
 - 5) Тўғилмиш ободончилик маркази
Бўлими боғи вақти - С. Одилов 98 45829,12
 - 6) Тўғилмиш қишлоқ қурилиш
боғи бригадари - Р. Оминов 98 722 5588
 - 7) Тўғилмиш йўл қурилиш
инженири - Қ. Макқолов 91 458 0501
 - 8) Тўғилмиш экологича - Я. Жумаев
инженер вақти
 - 9) жалбул мўйиш, шорошлов 90. 109 8071
 - 10) Қураб шўх мўйиш С. Қодиров
 - 11) Оқ тоғ мўйиш Қ. Қенжаев 91 462 9966
 - 12) Шўх боғи мўйиш
 - 13) Пан тоғор мўйиш С. Хўжақулов
 - 14) Қарзори мўйиш



Shahrizabz (25/05/2016)

25.05.2016y

- 1) Шахрисабз туман хокимлиги
бизиниши ушибосари - А. Сафаров.
- 2) Шахрисабз туман бош архитектору
- З. Мухаммад.
- 3) Шахрисабз туман Хунжагуровон маҳалла
раиси Д. Исломов.
- 4) Шахрисабз туман Чингиз маҳалла
раиси К. Худайберг.
- 5) Шахрисабз туман Янгишиноқ маҳалла
раиси А. Каримов.
- 6) Туман Экология бўлими бошлиқи М. Бегамев.
- 7) Туман кадастр бўлими У. Сувонов.
- 8) Туман Маҳалла ташкилоти О. Эргашев.
- 9) Туман архитектура бўлими мутахассиси М. Чирчиқов.
- 10) Туман ер ресурслари бўлими мутахассиси Б. Нурдодов.
- 11) Туман "Давран" фирмаси раҳбари М. Саидов.
- 12) Туман Олмоғон МФЙ раиси А. Арзиев.
- 13) Туман Сармосиё МФЙ раиси Н. Узоқов.
- 14) Туман Бустон МФЙ раиси З. Бердиев.
- 15) Туман хокимлиги мутахассиси Т. Хамроев.
- 16) Туман "Пардаев Мамоли Корбугаевич"
фирмаси раҳбари М. Пардаев.
- 17) Кен МФЙ раиси А. Каримов.
- 18) Туман Олмоғон раиси О. Нурдодова.
- 19) Туман "Стрин газ" сервиси М. Раҳимов.
- 20) Туман "Кен стандарт" сервиси С. Хайруллаева.
- 21) Туман Оқдарё КФЙ раиси С. Хайруллаева.
- 22) Туман навруз МФЙ раиси Т. Мураев.
- 23) Туман хокимлиги Ф. Ташаев.
- 24) Туман Момастон КФЙ раиси М. Эшдаев.
- 25) Туман кадастр УК раҳбари Б. Чирчиқов.
- 26) Туман сомондорэ заҳравна Т. Нурдодова.

27. Тушан „Шарк Азис“ заправка О. Умиров
28. Тушан хокимлиги И. Исовилов
29. Тушан кадастр ходими Б. Мирзаев
30. Тушан ер ресурлари Д. Белимов
31. Тушан „Кунхона“ МФЙ К. Юсуфова
32. Тушан архитектура ходими Д. Муродов
33. Тушан. навруз МФЙ С. Шакиров

Chim (24/05/2016)

- кадастр бўлими
1. Бекназаров Раўзуплар 53-25-400
 2. Шерапиев Даврон 91-471-24-06
- Архитектура
1. Закимов Дилшод 91-218-00-70
 2. Мирзаев колбек (93-364)-93-936-42-20
 1. Тогаев Маъшиқ - 91-473-82-51
 2. Жилитов Дрисор - 91-953-97-99
 3. Эрматова Адолат -
 4. Байназаров Акбар - 94-336-31-05
 5. Мусурмонов Фархер - 91-461-75-49
 6. Эрматови Шохноза - 94-461-26-24
 7. Бозорова Адолат - 91-958-84-13
 8. Эшмуродова Зулфия -
 9. Ашурова Узунбой
 10. Мураев сунат - 91-468-47-06
 11. Турегайатов Сардор - 90-213-44-11
 12. Баратов Мурабек -
 13. Абдулатифов Шодир
 14. Саидов Элдор
 15. Баймуродов Кубонтебек
 16. Худойкулов Махмуд
 17. Курбоназаров - Азиз - 91-224-71-47
 18. Сирарова Болжор - 53-25-890
 19. Саидова Дилеруз - 90-617-01-22
- Бахт боғи
20. Шохматова Дилеруз - 90-425-49-04
- 18-сонли боғи

21. Хаеванов Шерзоф - 91-597-32-10
22. Ёсирова Исроил 91-225-70-66
23. Бахкажаров Иброҳим - 91-225-57-87
24. 52-мактаб директори
Буронов У.К - 91-957-68-38
25. Жабаров Ширин - 94-528-19-53
Чил қисмига утаски широхана
Боймиш
26. Шодмонов Турра Қодродов Султан
91-952-86-57
27. Махмадпашев Ботир - 91-463-34-84
Халилпаша
28. Шодманова Саёра - 91-641-94-02
Халтақил хисобчи
29. Миршатови Дулсема - 91-450-54-68
30. Шоёрнов Тониб - 91-949-55-11
Халилтон
31. Аббасов Умида - 91-222-99-09
32. Норқиев Бағзоф - 91-561-18-11
Хисобчи Халилпаша
33. Чил Қ.Р.И раиси Ширинжодов Турра
91-952-87-59
34. Сарбазар МФИ Турраев Мусулмон
91-962-76-61

35- Қоробот ҚФҲ - Ҷеом Санаъ 91-468-00-71

36. Ҷамаати Шуҳрат - 94-339-10-50

37. Ҷамаати Шуҳрат - 94-339-10-50

38. Ҷамаати Шуҳрат - 94-339-10-50

39. Ҷамаати Шуҳрат - 94-339-10-50

40. Ҷамаати Шуҳрат - 94-339-10-50

41. Ҷамаати Шуҳрат - 94-339-10-50

42. Ҷамаати Шуҳрат - 94-339-10-50

43. Ҷамаати Шуҳрат - 94-339-10-50

44. Ҷамаати Шуҳрат - 94-339-10-50

45. Ҷамаати Шуҳрат - 94-339-10-50

46. Ҷамаати Шуҳрат - 94-339-10-50

47. Ҷамаати Шуҳрат - 94-339-10-50

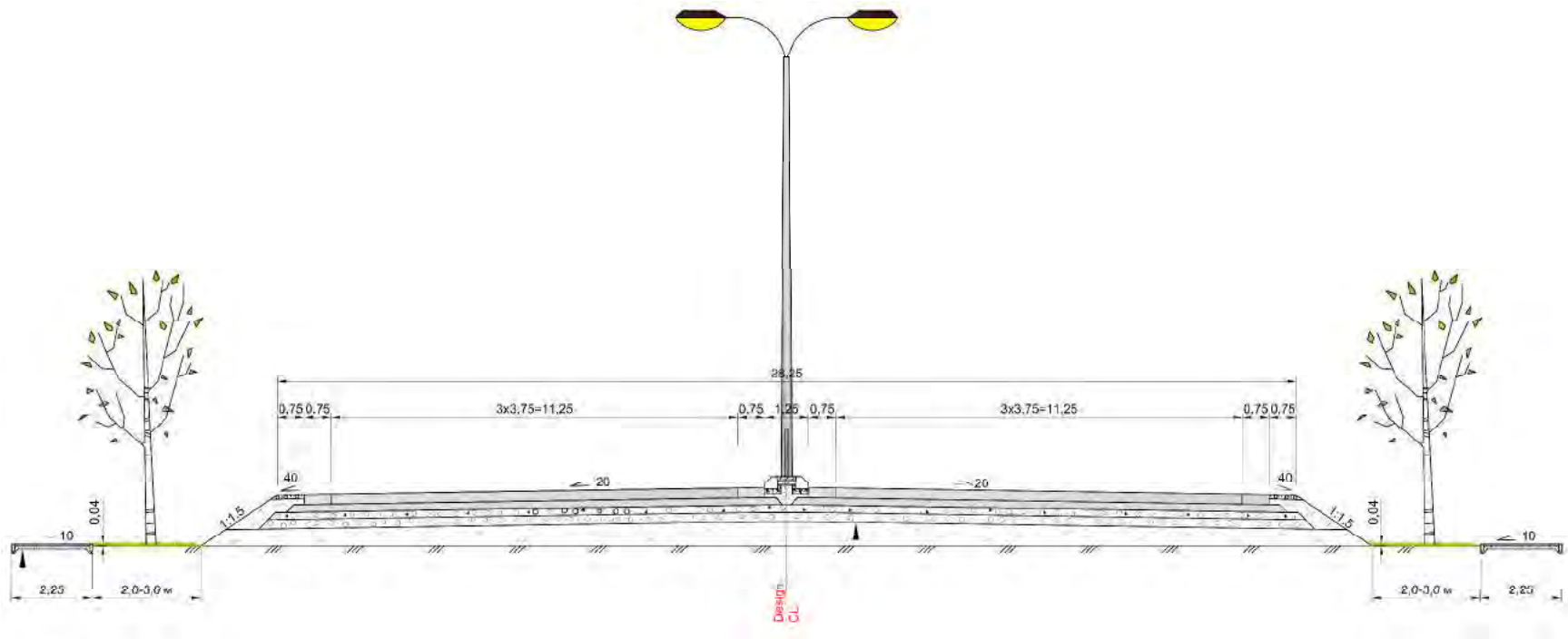
48. Ҷамаати Шуҳрат - 94-339-10-50

49. Ҷамаати Шуҳрат - 94-339-10-50

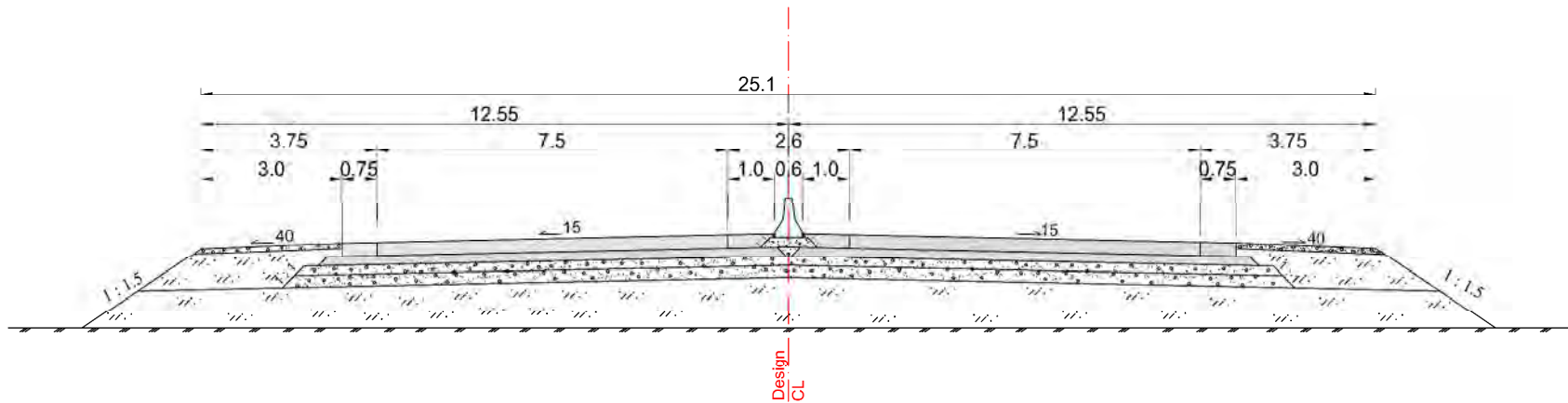
50. Ҷамаати Шуҳрат - 94-339-10-50

APPENDIX D: TYPICAL CROSS SECTIONS

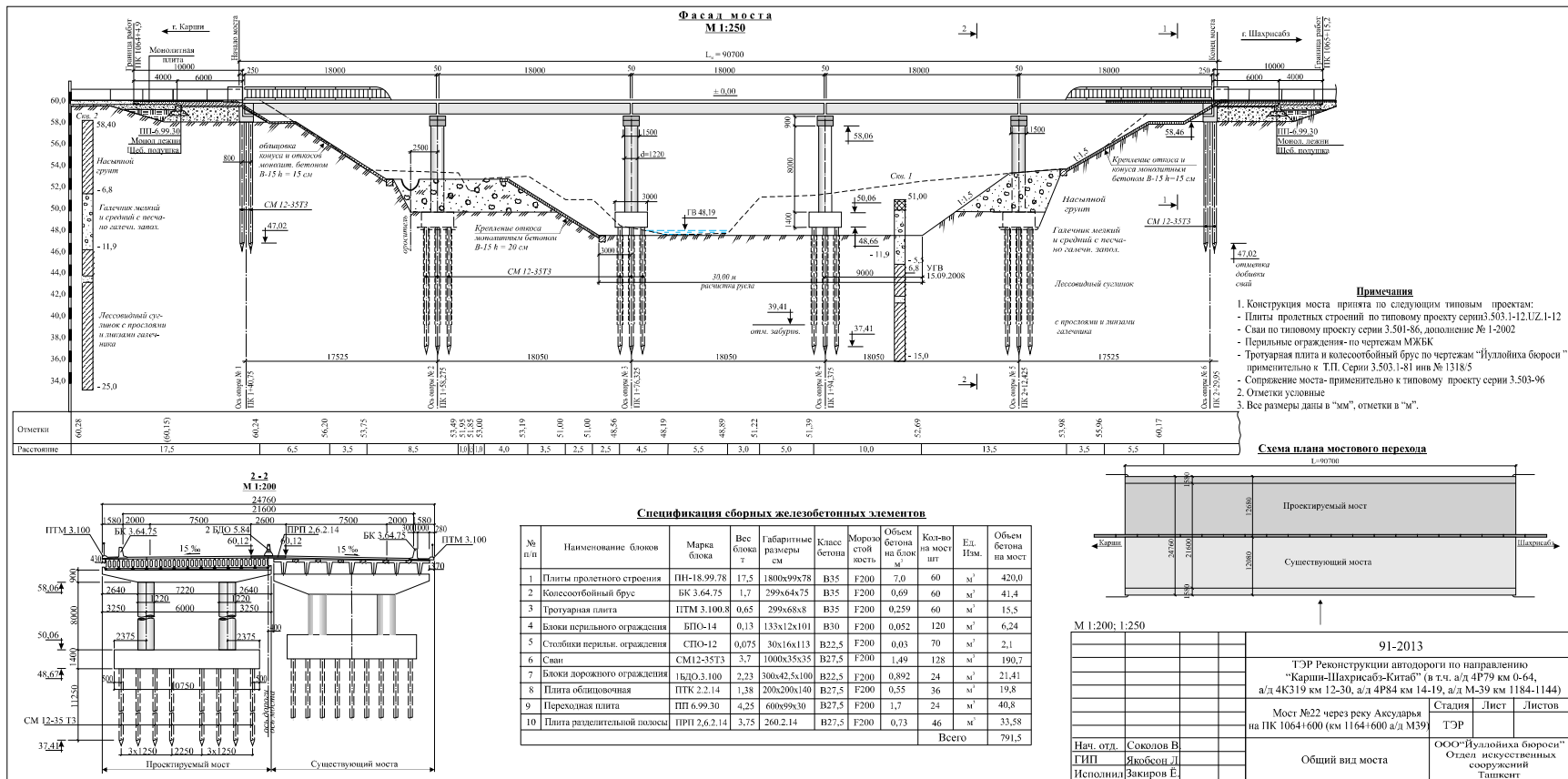
Typical cross section in settlements

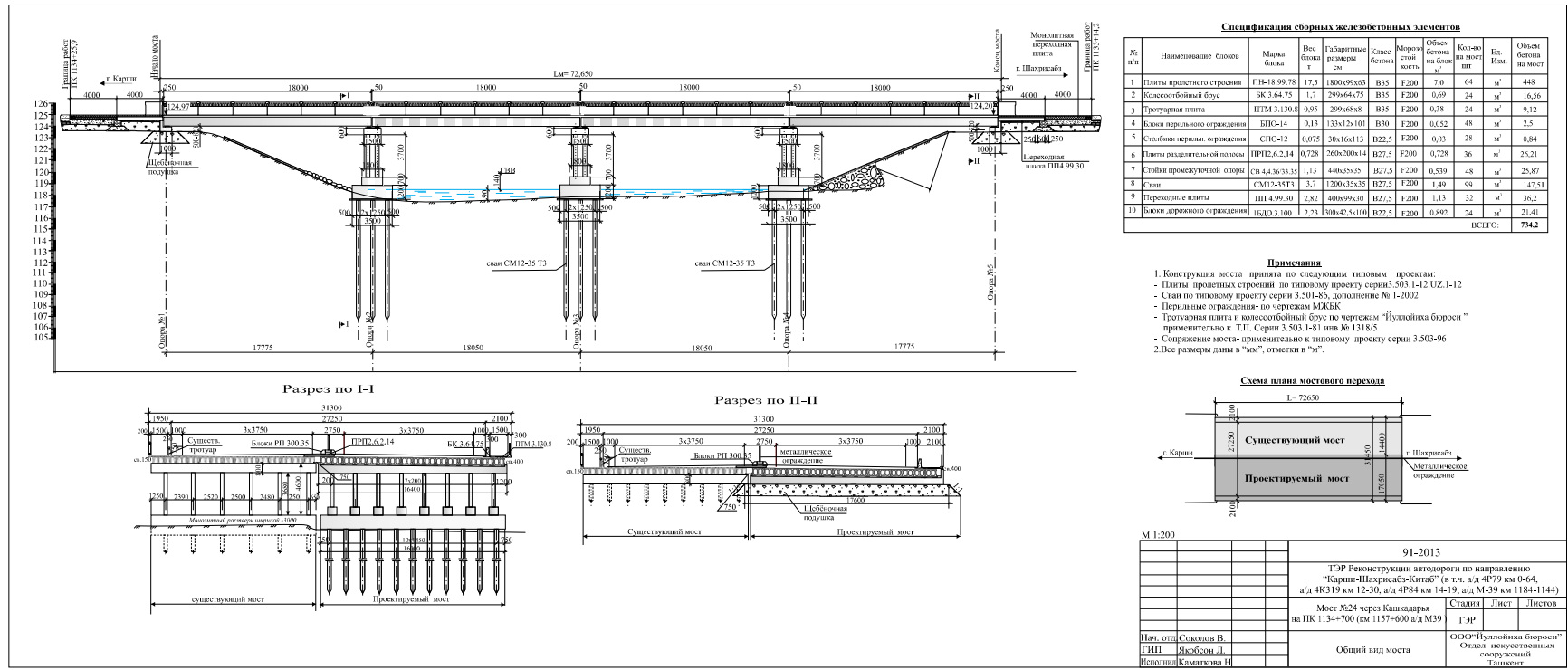


Typical cross section outside settlements



APPENDIX E: BRIDGE PROFILES





APPENDIX F: TRAFFIC ACCIDENT DATA²⁷

²⁷ Observations are provided as per reports of the Directorate of Internal Affairs, Road police dept.

OBSERVATIONS
of road traffic accidents
across 4K319 (4P83) road “railway station Tanhoz – Yakkabog town – Esat village – Kozok village”
at the section 12-30km

#	Rprtg year	Clashing			Roll-over			Head-on crash			Run-over pedestrian			Run-over animal transport			Run-over bicyclist		
		Quantity	Injured	Fatalities	Quantity	Injured	Fatalities	Quantity	Injured	Fatalities	Quantity	Injured	Fatalities	Quantity	Injured	Fatalities	Quantity	Injured	Fatalities
A	B	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
1	2006	2	2	3	1	2					2	1	1				1	0	1
2	2007	3	4	3				1		1	4	1	3						
3	2008	2	1	2	1	1					2	1	1						
4	2009	5	8	5							3	1	2						
5	2010				2	1	1				1		1						
6	2011	2	2		2	2											1	1	
7	2012	3	3								1	1							
8	2013	1	1								1	1					1	1	
9	2014	4	4		1	1					6	5	2						
10	2015	5	6								3	2	1						
TOTAL		27	31	13	7	7	1	1	0	1	23	13	11	0	0	0	3	2	1

No data available about run-over to the standing pedestrian, run-over animals, roll off the road and other accidents.

Technical director of “Kashkadaryaavtoyul” (sign) B.Fayziev

Executive: S.Amanov

APPENDIX G: WIND ROSES²⁸

²⁸ <http://world-weather.com.de/archive/uzbekistan/shahrisabz/>

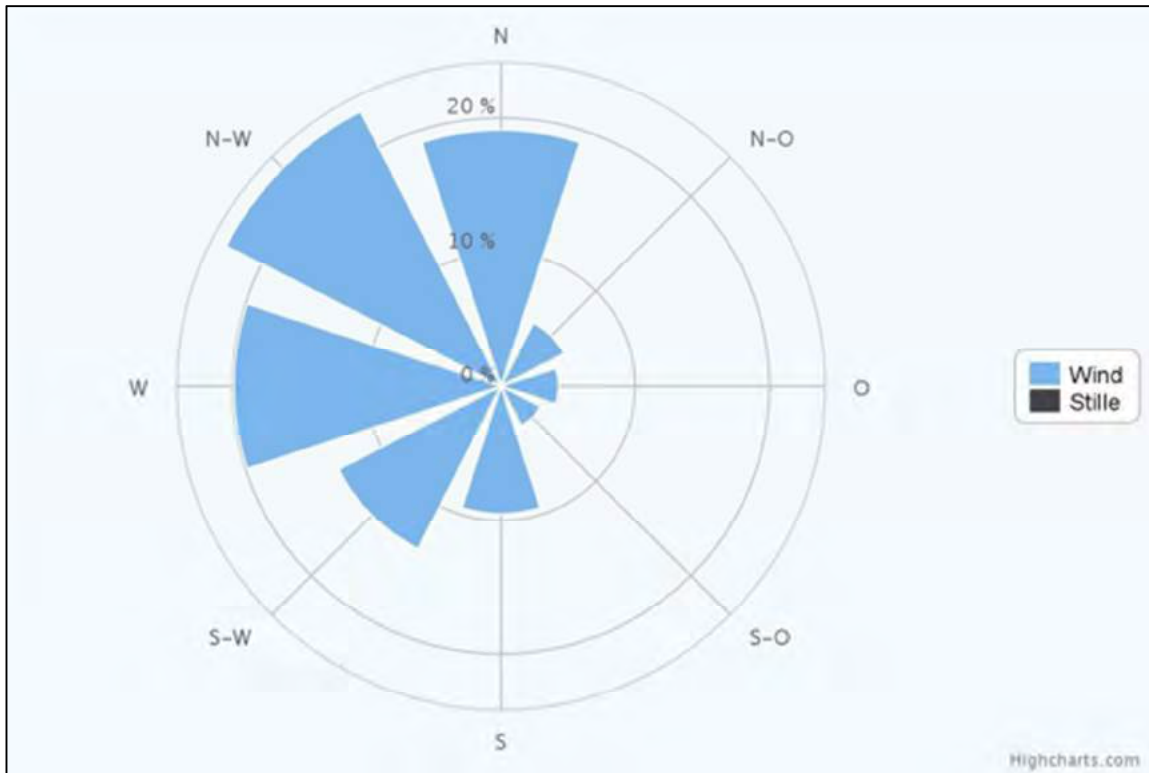


Figure H-1: Karshi Wind Rose

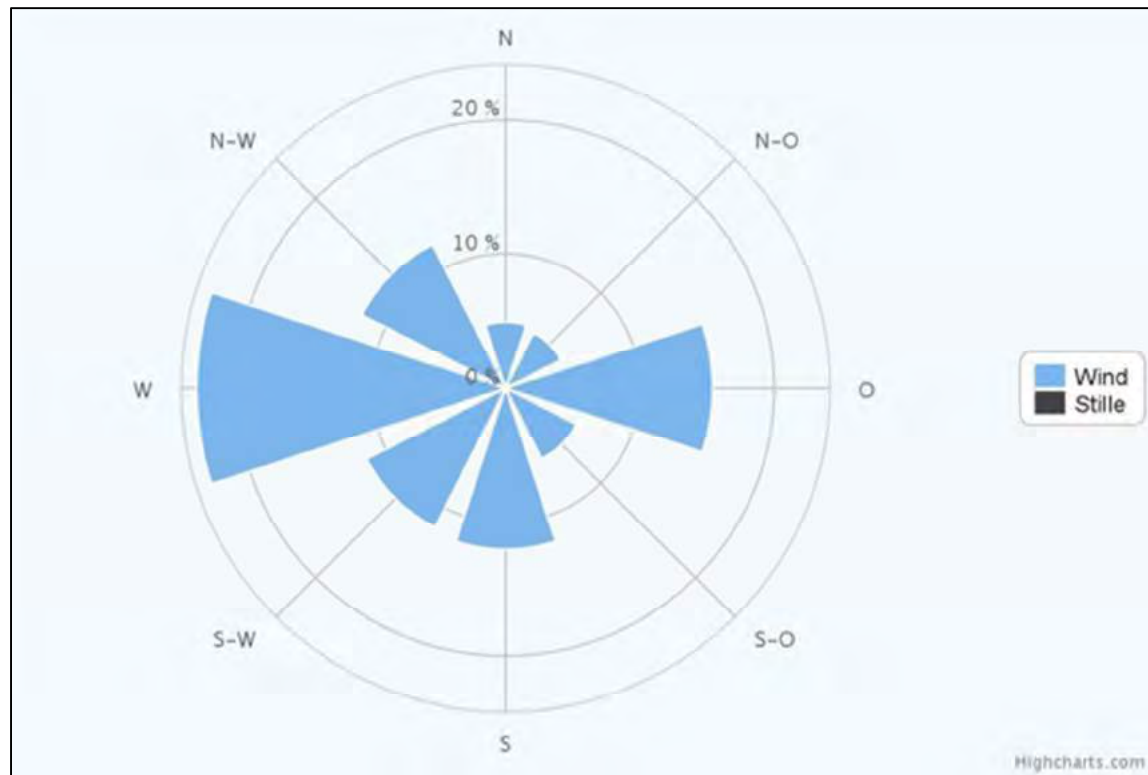
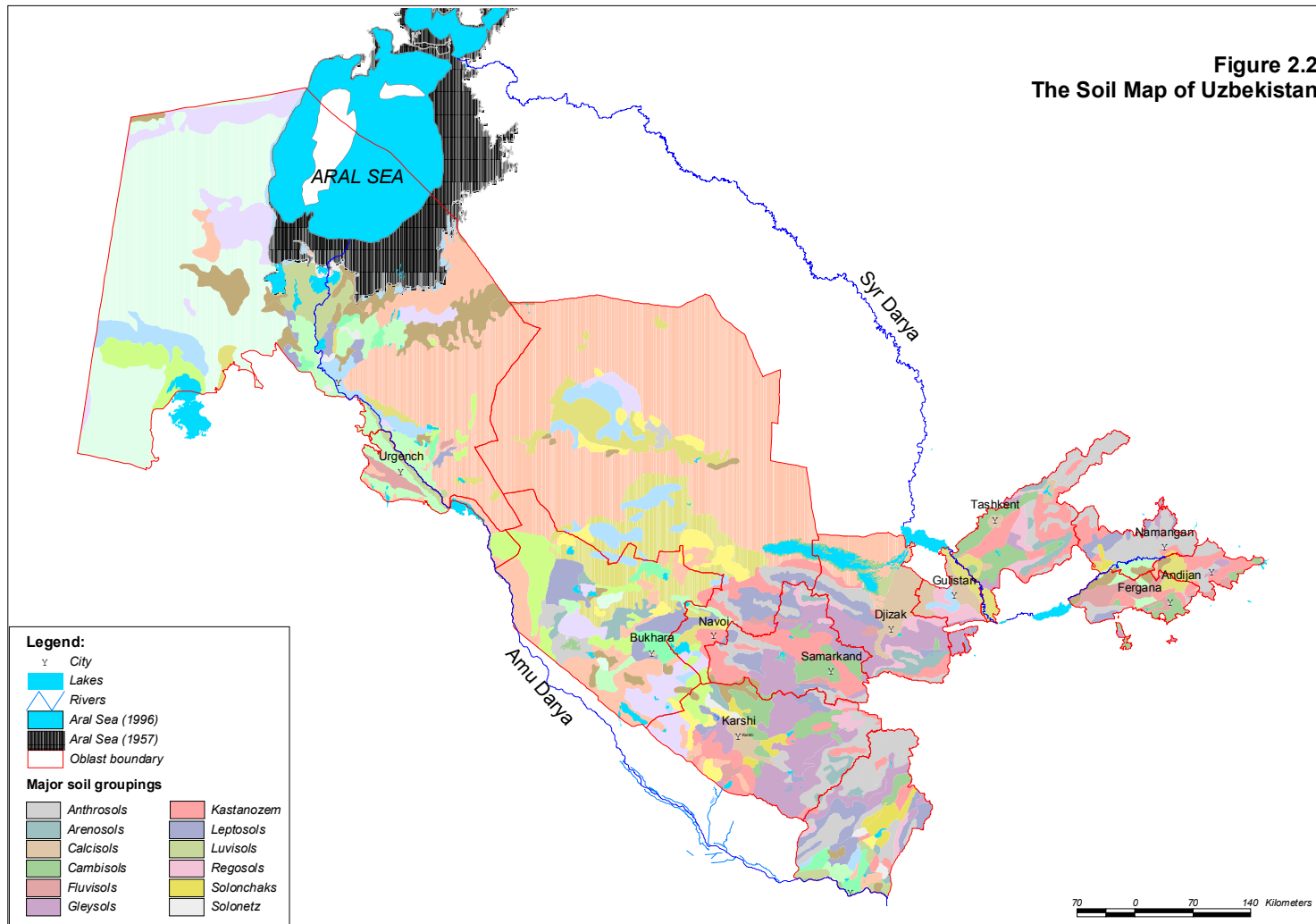


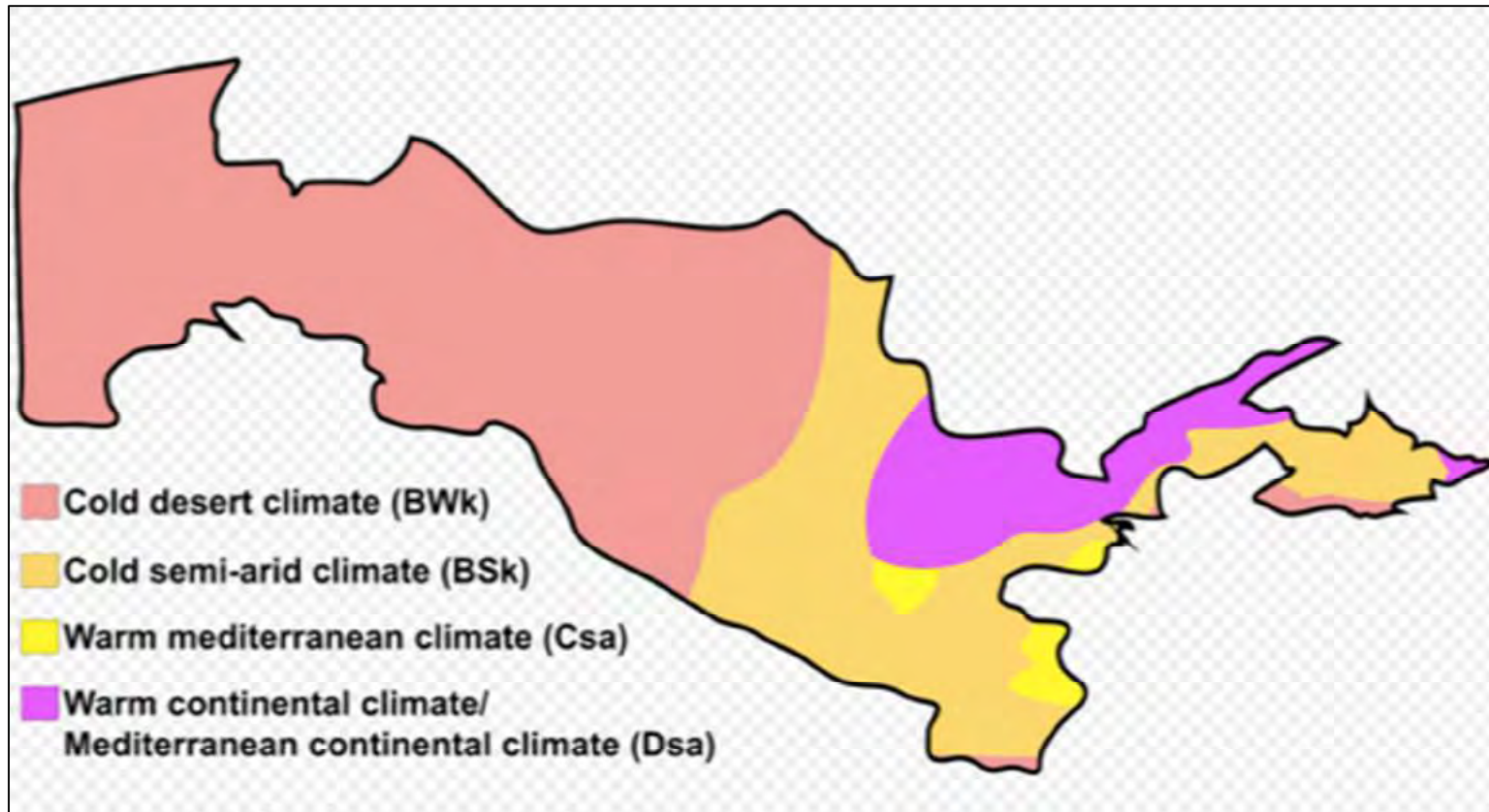
Figure H-2: Shahrizabz Wind RoseAppendix H: Soil Map²⁹

²⁹ http://www.apipnm.org/swlwprn/reports/y_nr/z_uz/uz_map/uzmp221.pdf



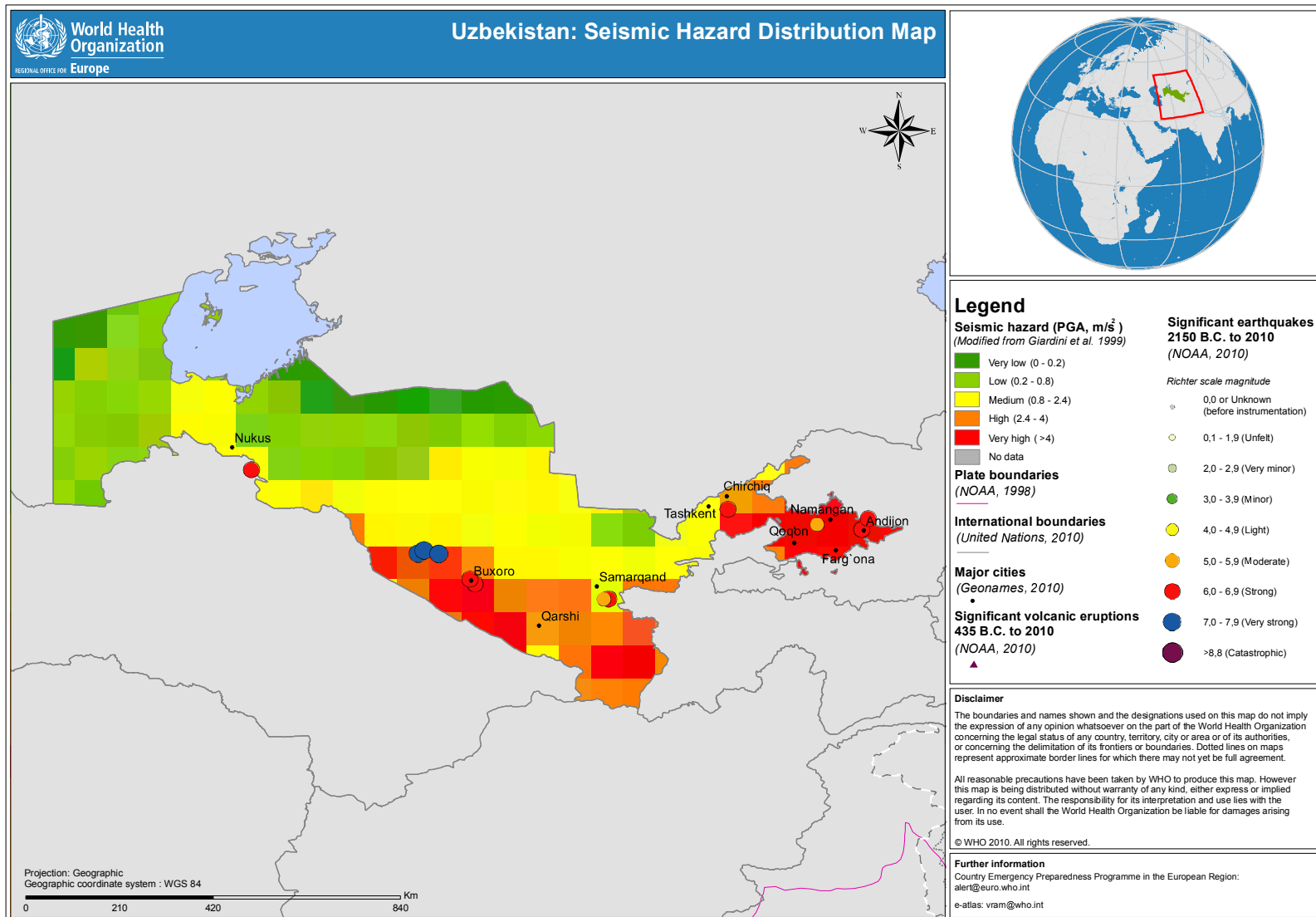
APPENDIX H: CLIMATE CLASSIFICATION MAP³⁰

³⁰ https://en.wikipedia.org/wiki/Geography_of_Uzbekistan



APPENDIX J: SEISMIC HAZARD MAP³¹

³¹ <http://data.euro.who.int/e-atlas/europe/images/map/uzbekistan/uzb-seismic.pdf>



APPENDIX K – MINOR ALIGNMENT CHANGES (WITHIN ROW)

Chainage km	Distance to Existing CL (m)		Chainage km	Distance to Existing CL (m)		Chainage km	Distance to Existing CL (m)	
	lhs	rhs		lhs	rhs		lhs	rhs
28+000	2.90		50+000	7.00		71+000		5.50
28+500	6.40		50+500	5.80		71+500		4.60
29+000		3.30	51+000	6.50		72+000	6.20	
29+500		5.80	51+500	6.10		72+500	6.10	
30+000		7.30	52+000	5.80		73+000		6.60
30+500		7.60	52+500	5.90		73+500		3.80
31+000		5.70	53+000	6.40		74+000	5.80	
31+500		6.50	53+500	8.90		74+500	4.60	
32+000		6.30	54+000	5.40		75+000	5.70	
32+500		5.90	54+500	5.60		75+500	5.90	
33+000		5.90	55+000	6.40		76+000	6.10	
33+500		6.40	55+500	5.90				
34+000		6.20	56+000		6.10			
34+500		7.00	56+500		5.70			
35+000		6.20	57+000		5.60			
35+500	2.20		57+500		6.60			
36+000	3.30		58+000		5.90			
36+500	5.40		58+500		5.60			
37+000	5.40		59+000	6.10				
37+500	7.00		59+500	6.50				
38+000	2.00		60+000	6.20				
38+500		2.30	60+500		5.60			
39+000		4.00	61+000		4.90			
39+500		5.40	61+500		5.00			
40+000		5.70	62+000		5.40			
40+500		5.90	62+500		6.50			
41+000		3.80	63+000		6.70			
41+500		4.20	63+500	7.20				
42+000		3.90	64+000	7.50				
42+500	2.90		64+500	6.20				
43+000	5.50		65+000	6.50				
43+500	5.90		65+500	5.70				
44+000	6.40		66+000	1.80				
44+500	6.00		66+500	5.90				
45+000	6.30		67+000	5.10				
45+500	6.00		67+500	5.60				
46+000	5.60		68+000	5.40				
46+500	5.90		68+500	5.20				
47+000	6.10		69+000	6.60				
47+500	6.40		69+500	6.30				
48+000	6.10		70+000	6.10				
48+500	6.80		70+500		4.80			

APPENDIX L - KMK 2.01.08-96; SHNK 2.07.01-03; KMK 2.10.09-97 REGULATIONS ON ENVIRONMENTAL PROTECTION IN CONSTRUCTION, REHABILITATION AND MAINTENANCE OF ROADS

1. Projects of new road construction or reconstruction of existing roads should be executed after the procedure of environmental impact assessment which should be spent in accordance with RD 199. 0027714. 24-93.
2. This procedure should be executed in full for the construction of roads of I and II categories (highways and expressways). For roads of other categories it is necessary to develop the conclusion of environmental impact (Project of ZVOS). While approving this document the State Environmental committee of the Republic of Uzbekistan approves the amount and the way of further ecological tracking of the design works.
3. Environmental impact assessment and forecasting of it should be based on general and specific ecological requirements, specified for roads of different categories.
 - 3.1. The road should fit well into the environmental landscape.
 - 3.2. Roads of I and II categories should bypass settlements taking into account prevailing wind direction in most rough periods of the year by air pollution characteristic.
 - 3.3. To achieve the lowest level of waste gases discharge from auto engines the construction of roads of III and IV categories (also local roads in settlements) should provide the best organization of traffic with optimal speed.
 - 3.4. Polluted waste waters from the road, bridges, car wash points, maintenance points and others should be drained into waste treatment facilities or to evaporation fields.
 - 3.5. Roads should not affect the hydrology regime of water flows; create drainless water bodies and wetland areas.
 - 3.6. The noise level of traffic flow should not exceed the set sanitary norms.
 - 3.7. To mitigate the negative impact to the surrounding area the protective green line with trees should be set along the road. These should be trees which are resistant to negative environment.
 - 3.8. The rehabilitation of all affected lands should be organized during the road construction.
 - 3.9. Roads of I and II categories should be designed in the way they wouldn't have any negative impact to the living and reproduction areas of wild animals, birds and reservoir inhabitants.
 - 3.10. In areas with noncohesive sediments (deserts) and significant wind activity the road construction should not allow the disruption of stability of ground surface.
4. The procedure of environmental impact assessment and also counting, assessment and forecasting developments for ZVOS development should be based on regulations and standards valid for the State Environment Committee of the Republic of Uzbekistan and displayed in the «Indexes of legislation used by the State Environmental Committee of the Republic of Uzbekistan». Additionally it is recommended to use encyclopedic and historical materials, research and technologies and statistical data of ecology from different ministries agencies and entities.

APPENDIX M – LETTER CONFIRMING THE STATUS OF SITES OF CULTURAL HERITAGE

From: Ministry of cultural and sport affairs of the Republic of Uzbekistan
Main scientific agency of protection and use of cultural heritage objects
In Kashkadarya and Surkhandarya region

To: Khokimiyat of Kashkadarya region

No: 96

Date: 05.05.2016

According to the resolution of the regional khokimiyat # X-349/11 dated from 26th of November, 2012 in Guzar region Kovchin village there is the complex of the Republican importance “Tokhir and Zukhra” located along the Karshi-Shakhrisabz road on the 22-23km from the right side which square is 0.78ha.

Head of the agency

J. Khalilov

APPENDIX N – CULVERTS

Culvert No.	Location		Main parameters											Comments	
	Design km	+	Type and material	Opening (m)	Length, m						Crossing angle between pipe and road centerline	Needed			
					pipes not to be rehabilitated	To be extended			to be reconstructed	r/c segments, pcs.		metal pipes, m			
						Total length	including			Total			thereunder new		
8	existing part	part to be added	12	13											
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	
4R79, km 28 - 64															
Under main road															
1	295	67	r/c pipe	1.2					30.28	90°	12	12			
2	297	54	r/c pipe	2,0x2,0					32.63	69°	32	32			
3	305	15	r/c pipe	1.2					32.79	72°	13	13			
4	307	65	r/c pipe	1.2					35.31	58°	14	14			
5	314	99	metal pipe	0.9	45.3					65°				no works	
6	316	97	r/c pipe	1.2					32.79	76°	13	13			
7	318	12	metal pipe	0.5	49.8					61°				no works	
8	319	29	r/c pipe	1.2					32.79	73°	13	13			

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9	321	85	r/c pipe	1.2					32.79	68°	13	13		
10	325	69	r/c pipe	1.2					32.79	71°	13	13		
11	327	97	r/c pipe	1.2					32.79	79°	13	13		
12	328	8	r/c pipe	1.2					32.79	81°	13	13		
13	332	15	r/c pipe	1.2					30.28	90°	12	12		
14	339	26	r/c pipe	1.2					32.79	102°	13	13		
15	343	80	r/c pipe	1.2					30.28	90°	12	12		
16	346	17	r/c pipe	1.2					32.79	75°	13	13		
17	348	70	r/c pipe	2,0x2,0					30.59	90°	30	30		
18	352	40	r/c pipe	1.2					32.79	100°	13	13		
19	357	00	r/c pipe	1.2					30.28	90°	12	12		
20	362	66	r/c pipe	1.2					30.28	90°	12	12		
21	364	75	r/c pipe	1.2					32.79	107°	13	13		
22	367	21	r/c pipe	1.2					32.79	79°	13	13		
23	368	58	r/c pipe	1.2					30.28	90°	12	12		
24	373	36.5	r/c pipe	1.2					30.28	90°	12	12		
25	375	17	r/c pipe	2x1,2					35.31	66°	28	28		
26	380	56	r/c pipe	1.2					30.28	90°	12	12		
27	382	70	r/c pipe	1.2					32.79	84°	13	13		
28	389	95	r/c pipe	1.2					32.79	74°	13	13		
29	416	40.5	r/c pipe	2,0x2,0	19.7	39.07	19.7	19.37		72°	19	19		
30	429	32	r/c pipe	2x2,0x2,0	23.2	39.52	23.2	16.32		90°	32	32		
31	475	73	r/c pipe	1.2					32.79	99°	13	13		
32	491	44	r/c pipe	1.2					30.28	90°	12	12		
33	505	98	r/c pipe	1.2					30.28	90°	12	12		
34	517	42	r/c pipe	1.2					32.79	100°	13	13		
35	529	15	r/c pipe	1.2					30.28	90°	12	12		
36	537	25	r/c pipe	1.2					30.28	90°	12	12		
37	542	52	r/c pipe	1.2					32.79	113°	13	13		
38	549	31	r/c pipe	1.2					30.28	90°	12	12		

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39	560	25	r/c pipe	1.2					30.28	90°	12	12		
40	562	38	r/c pipe	1.2					32.79	81°	13	13		
41	564	49	r/c pipe	1.2					32.79	76°	13	13		
42	566	16	r/c pipe	1.2					30.28	90°	12	12		
43	568	05	r/c pipe	1.2					30.28	90°	12	12		
44	568	58	r/c pipe	1.2					30.28	90°	12	12		
45	572	24	r/c pipe	1.2					35.31	121°	14	14		
46	574	90	r/c pipe	1.2					32.79	79°	13	13		
47	577	00	r/c pipe	1.2					30.28	90°	12	12		
48	579	29	r/c pipe	1.2					30.28	90°	12	12		
49	581	50	r/c pipe	1.2					32.79	81°	13	13		
50	585	00	r/c pipe	1.2					30.28	90°	12	12		
51	589	37	r/c pipe	1.2					32.79	80°	13	13		
52	595	83	r/c pipe	1.2					32.79	99°	13	13		
53	596	53	r/c pipe	1.2					52.91	145°	21	21		
54	599	95	r/c pipe	1.2					32.79	102°	13	13		
55	606	49	r/c pipe	1.2					30.28	90°	12	12		
56	609	07	r/c pipe	1.2					30.28	90°	12	12		
57	627	25	r/c pipe	1.2					30.28	90°	12	12		
58	633	11	r/c pipe	1.2					32.79	101°	13	13		
59	633	18	r/c pipe	1.2					32.79	98°	13	13		
Subtotal:			r/c pipe (1 pc.)	2x2,0x2,0	23.2	39.52	23.2	16.32			32	32		
			r/c pipe (3 pcs.)	2,0x2,0	19.7	39.07	19.7	19.37	63.22		81	81		
			r/c pipe (1 pc.)	2x1,2					35.3		28	28		
			r/c pipe (52 pcs.)	1.2					1672.51		663	663		

			metal pipe (1 pc.)	0.9	45.3								
			metal pipe (1 pc.)	0.5	49.8								
4K319, km 30 - 18													
Under main road													
60	642	31	r/c pipe	2,0x2,0					30.59	90°	30	30	
61	646	51	r/c pipe	1.2					30.28	90°	12	12	
62	652	17	r/c pipe	1.2					30.28	90°	12	12	
63	658	57	r/c pipe	1.2					30.28	90°	12	12	
64	666	43	r/c pipe	2,0x2,0					30.59	90°	30	30	
65	667	88	r/c pipe	1.2					30.28	90°	12	12	
66	670	00	r/c pipe	1.2					30.28	90°	12	12	
67	671	75	r/c pipe	1.2					30.28	90°	12	12	
68	676	16	r/c pipe	1.2					30.28	90°	12	12	
69	679	12	r/c pipe	1.2					30.28	90°	12	12	
70	680	70	r/c pipe	1.2					30.28	90°	12	12	
71	682	53	r/c pipe	2,0x2,0					30.59	90°	30	30	
72	686	77	r/c pipe	1.2					30.28	90°	12	12	
73	689	87	r/c pipe	1.2					32.79	113°	13	13	
74	694	11	r/c pipe	1.2					30.28	90°	12	12	
75	698	45	r/c pipe	2,0x2,0					32.63	70°	32	32	
76	698	77	r/c pipe	1.2					35.31	65°	14	14	
77	704	56	r/c pipe	2,0x2,0					30.59	90°	30	30	
78	715	12	r/c pipe	1.2					37.82	123°	15	15	
79	717	55	r/c pipe	1.2					32.79	104°	13	13	
80	718	41.5	r/c pipe	1.2					30.28	90°	12	12	
81	723	75	r/c pipe	2,0x2,0					32.63	79°	32	32	
82	726	91	r/c pipe	1.2					32.79	99°	13	13	

83	728	25	r/c pipe	1.2					30.28	90°	12	12		
84	730	62	r/c pipe	1.2					32.79	78°	13	13		
85	732	57	r/c pipe	2,0x2,0					30.59	90°	30	30		
86	734	30	r/c pipe	1.2					30.28	90°	12	12		
87	735	68	r/c pipe	1.2					30.28	90°	12	12		
88	740	50	r/c pipe	1.2					30.28	90°	12	12		
89	742	90	r/c pipe	1.2					32.79	105°	13	13		
90	746	45	r/c pipe	2,0x2,0	20.0	31.2	20.0	11.2		90°	11	11		
91	749	61	r/c pipe	1.2					30.28	90°	12	12		
92	757	49	r/c pipe	1.2					30.28	90°	12	12		
93	759	02	r/c pipe	1.2					30.28	90°	12	12		
Subtotal:			r/c pipe (8 pcs.)	2,0x2,0	20.0	31.20	20.0	11.20	218.2		225	225		
			r/c pipe (27 pcs.)	1.2					812.40		322	322		
M39, km 1173 - 1144														
Under main road														
94	983	80	r/c pipe	1.2					50.40	118°	20	20		
95	989	65	r/c pipe	1.2					47.88	115°	19	19		
96	990	25	r/c pipe	2,0x2,0					46.91	90°	46	46		
97	990	41.5	metal pipe	1.0					47.5	75°			47.5	
98	995	00	r/c pipe	1.2					42.85	90°	17	17		
99	996	20	r/c pipe	2,0x2,0					46.91	87°	46	46		
100	1000	51	r/c pipe	1.2					45.37	100°	18	18		
101	1002	21	r/c pipe	1.2					42.85	90°	17	17		
102	1003	56	r/c pipe	2,0x2,0					48.95	102°	48	48		
103	1004	24	r/c pipe	1.2					45.37	98°	18	18		
104	1006	26	r/c pipe	1.2					42.85	90°	17	17		
105	1008	68	r/c pipe	1.2					42.85	90°	17	17		

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106	1011	04	r/c pipe	1.2					42.85	90°	17	17		
107	1011	23	r/c pipe	1.2					42.85	90°	17	17		
108	1013	42	r/c pipe	1.2					42.85	90°	17	17		
109	1015	10	metal pipe	1.0	35.9				7.0	90°			7.0	
110	1016	13.5	metal pipe	1.0	65.3					117°				only head and wing walls
111	1016	15.8	r/c pipe	2,0x2,0	58.0					117°				
112	1016	41.5	r/c pipe	1.2					45.37	95°	18	18		
113	1019	94	r/c pipe	2,0x2,0					46.91	90°	46	46		
114	1021	69	r/c pipe	1.2					55.43	90°	22	22		
115	1025	56.5	r/c pipe	1.2	56.5	61.63	56.5	5.13		90°	2	2		
116	1029	64.5	r/c pipe	1.2					42.85	90°	17	17		
117	1030	95	r/c pipe	1.2					45.37	96°	18	18		
118	1035	00	r/c pipe	1.2					42.85	90°	17	17		
119	1039	47	metal pipe	1.2	34.5				7.3	96°			7.3	
120	1040	70	r/c pipe	1.2					42.85	90°	17	17		
121	1044	53	r/c pipe	1.2					42.85	90°	17	17		
122	1044	90	r/c pipe	1.2					42.85	90°	17	17		
123	1051	36.5	r/c pipe	1.2					42.85	90°	17	17		
124	1053	08	r/c pipe	1.2					45.37	95°	18	18		
125	1057	17	r/c pipe	1.2					42.85	90°	17	17		
126	1059	98	metal pipe	2x1,0					44.0	112°			88.0	
127	1063	39	r/c pipe	1.0	28.4	30.44	28.4	2.04		90°	2	2		
128	1063	90	r/c pipe	1.5	37.5	41.58	37.5	4.08		58°	4	4		
129	1066	19	r/c pipe	1.0	30.3					90°				only head and wing walls
130	1067	92	r/c pipe	1.2					32.79	100°	13	13		

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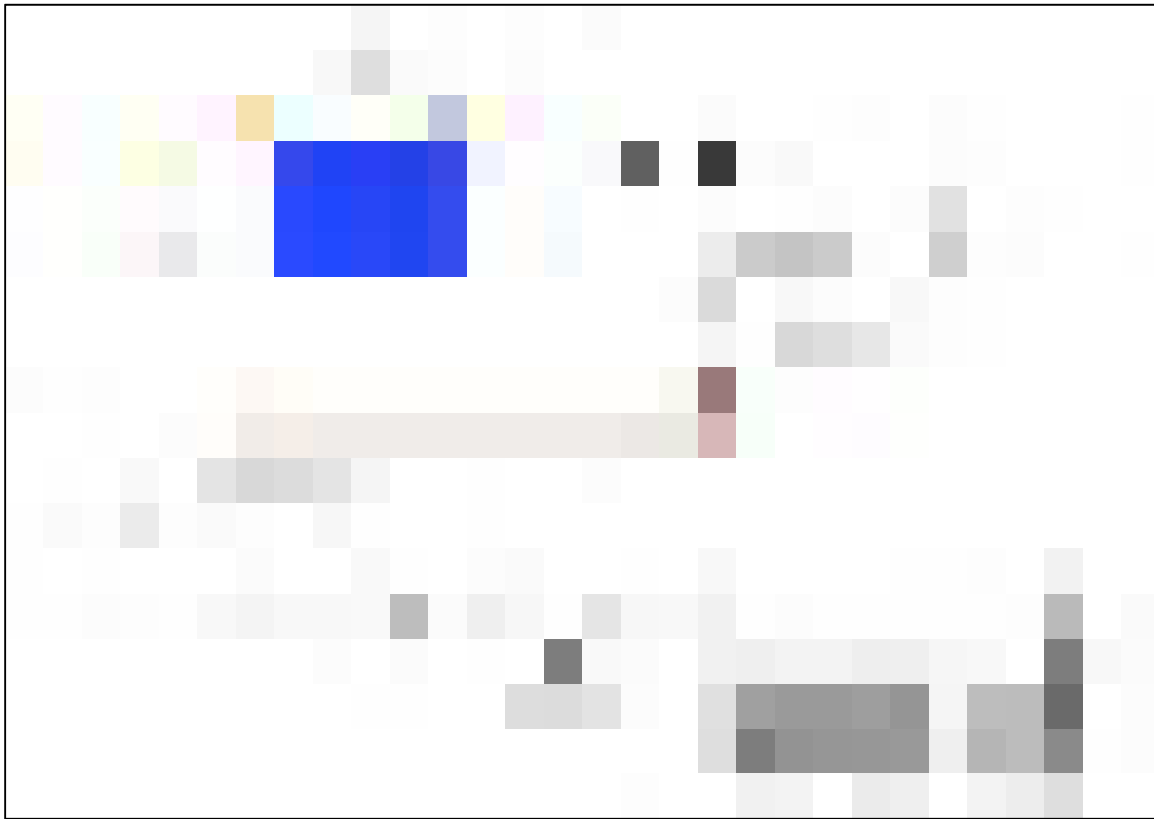
131	1070	14	r/c pipe	1.0	29.1	33.18	29.1	4.08		98°	4	4	
132	1077	97	r/c pipe	1.0	26.8	34.96	26.8	8.16		99°	8	8	
133	1082	37.5	r/c pipe	1.0	40.4	48.56	40.4	8.16		90°	8	8	
134	1087	57	r/c pipe	1.0	27.9	35.03	27.9	7.13		86°	7	7	
135	1087	67	r/c pipe	1.0	28.8	33.9	28.8	5.1		82°	5	5	
136	1091	17	r/c pipe	1.0	26.5	32.62	26.5	6.12		101°	6	6	
137	1092	04	r/c pipe	1.2	33.5	41.17	33.5	7.67		111°	3	3	
138	1099	46	r/c pipe	1.2	27.9	30.51	27.9	2.61		105°	1	1	
139	1101	75	r/c pipe	1.5	28.4	32.48	28.4	4.08		104°	4	4	
140	1110	06	r/c pipe	1.0	26.4	41.69	26.4	15.29		103°	15	15	
141	1117	12	r/c pipe	1.2	29.2	41.89	29.2	12.69		101°	5	5	
142	1119	20	r/c pipe	1.0	29.1	41.32	29.1	12.22		90°	12	12	
143	1120	99.5	r/c pipe	1.0	26.4	41.69	26.4	15.29		97°	15	15	
144	1123	71	r/c pipe	1.0	31.0	43.24	31.0	12.24		75°	12	12	
145	1127	58	metal pipe	1.0					40.0	96°			40.0
146	1127	62	r/c pipe	1.0	29.7					90°			only head and wing walls
147	1128	81	r/c pipe	1.0	28.6	40.82	28.6	12.22		94°	12	12	
148	1139	79	r/c pipe	1.0	26.0	41.29	26.0	15.29		90°	15	15	
149	1157	11	r/c pipe	1.0	40.1	43.15	40.1	3.05		110°	3	3	
150	1164	70	r/c pipe	1.2	40.5					115°			only head and wing walls
151	1166	12.5	r/c pipe	1.0	33.7					96°			
152	1179	10	r/c pipe	2x1,2	60.1					92°			
153	1187	67.5	r/c pipe	1.0	32.0					91°			
154	1195	78.5	r/c pipe	1.2	82.0					90°			
155	1200	43	r/c pipe	1.2	68.5					113°			
156	1204	98	r/c pipe	1.0	65.4					67°			
157	1207	78.5	r/c pipe	1.0	68.3					99°			
158	1217	85.5	r/c pipe	1.0	82.0					114°			

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159	1221	98	r/c pipe	1.0	90.1					88°				
160	1226	50	r/c pipe	1.5	57.7					90°				
161	1228	52	r/c pipe	1.0	75.2					132°				
162	1235	91	r/c pipe	1.0	24.6	40.9	24.6	16.3		93°	16	16		
163	1239	91	r/c pipe	1.5	39.6	46.73	39.6	7.13		96°	7	7		
164	1240	56	metal pipe	0.7	53.5					101°				only head and wing walls
Subtotal:			r/c pipe (5 pcs.)	2,0x2,0	58.0				189.68		186	186		
			r/c pipe (4 pcs.)	1.5	163.2	120.79	105.5	15.29			15	15		
			r/c pipe (1 pc.)	2x1,2	60.1									
			r/c pipe (30 pcs.)	1.2	338.1	175.2	147.1	28.1	1013.25		413	413		
			metal pipe (1 pc.)	2x1,0					44.0				88.0	
			metal pipe (1 pc.)	1.2	34.5				7.3				7.3	
			r/c pipe (24 pcs.)	1.0	946.8	582.79	440.1	142.69			140	140		
			metal pipe (4 pcs.)	1.0	101.2				94.5				94.5	
			metal pipe (1 pc.)	0.7	53.5									
Total:			r/c pipe (1 pc.)	2x2,0x2,0	23.2	39.52	23.2	16.32			32	32		

	r/c pipe (16 pcs.)	2,0x2,0	97.7	70.27	39.7	30.57	471.1		492	492		
	r/c pipe (4 pcs.)	1.5	163.2	120.79	105.5	15.29			15	15		
	r/c pipe (2 pcs.)	2x1,2	60.1				35.31		28	28		
	r/c pipe (109 pcs.)	1.2	338.1	175.2	147.1	28.1	3498.16		1398	1398		
	r/c pipe (24 pcs.)	1.0	946.8	582.79	440.1	142.69			140	140		
	metal pipe (1 pc.)	1.2	34.5				7.3				7.3	
	metal pipe (1 pc.)	2x1,0					44.0				88.0	
	metal pipe (4 pcs.)	1.0	101.2				94.5				94.5	
	metal pipe (1 pc.)	0.9	45.3									
	metal pipe (1 pc.)	0.7	53.5									
	metal pipe (1 pc.)	0.5	49.8									

APPENDIX O – VEHICLE WASH BAY DESIGN



APPENDIX P – CONSULTATION PRESENTATION



**PUBLIC HEARINGS ON KARSHI – SHAHRISABZ –
KITOB ROAD
UNDER THE THIRD CAREC CORRIDOR ROAD
INVESTMENT PROGRAM**

(SECTION FINANCED BY ASIAN DEVELOPMENT BANK, CA. 77 KM)
KASHKADARYA REGION, KAMASHI DISTRICT
CHIM, REPUBLIC OF UZBEKISTAN

Project Description

Section	Funding	Description
Section 1 - <u>km 0 to design km 28 (4R79 road)</u>	Government	<ul style="list-style-type: none"> • 6 lanes within the city of Karshi • From km ca. 3.9 the project features 4 lanes • The new alignment follows the existing road, which will be paved with cement concrete.
Section 2 - <u>km 28 to design km 76 (4R79 and 4K319 roads)</u>	ADB	<ul style="list-style-type: none"> • The new alignment follows the existing road. • Due to the widening from 2 to 4 lanes numerous trees, some farmers and one residential house will be affected by the road construction. • The new pavement consists of cement concrete. • In total 10 bridges are located in this section. They will be widened or replaced depending on the existing condition.

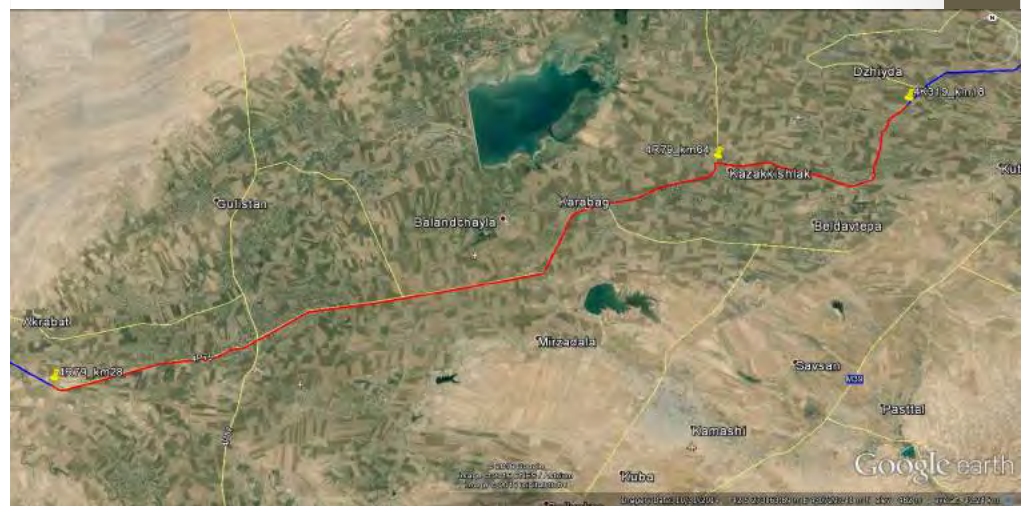
Project Description

Section	Funding	Description
Section 3 - <u>km 76 to design km 98 (4K319, 4R84 and M39 roads)</u>	Government	<ul style="list-style-type: none"> • In this sub-section at present construction works are in progress under Road Fund financing. • The new pavement consists of cement concrete.
Section 4 - <u>km 98 to design km 127 (M39 road)</u>	ADB	<ul style="list-style-type: none"> • The existing road is already 4 lanes wide. • Widening is partly foreseen to accommodate the new cross section, which features 6 lanes in the cities of Shahrizabz and Kitob. • Some limited impact to residential houses and trees is likely to occur. • The new pavement consists of cement concrete.

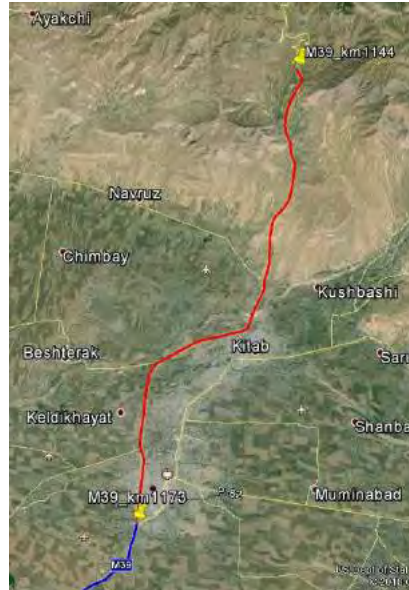
Location!



Location!



Location!



Environmental Assessment

- An assessment of the environmental and social impacts of the project is required by both the GoU and ADB.
- The assessment determines the ‘significant’ impacts and recommends mitigation during the design, construction and operational phases of the project.
- Project cannot progress without this document being prepared and approved.
- Consultation with ‘stakeholders’ is an essential component of the assessment.

Potential Impacts

Environmental / Social Characteristic	Potential Impact
Air	<ul style="list-style-type: none"> Dust during construction – from vehicle movement, stockpiles, batching plants, etc. Vehicle and machinery emissions both during construction and operational phases of the project
Water	<ul style="list-style-type: none"> Spill and leaks of hazardous liquids Sedimentation of water ways Over-extraction of local water supplies
Noise	<ul style="list-style-type: none"> Elevated noise levels during both construction and operational phases of the project
Waste	<ul style="list-style-type: none"> Illegal dumping of solid and liquid waste Poor management of hazardous waste leading to pollution of soil, groundwater and health impacts.

Potential Impacts

Environmental / Social Characteristic	Potential Impact
Health and Safety	<ul style="list-style-type: none"> Traffic accidents Noise and air quality issues during operation and construction Accidents to workers Accidents involving the public at work sites.
Flora and Fauna	<ul style="list-style-type: none"> Cutting of trees
Cultural Heritage	<ul style="list-style-type: none"> Road encroaching on cemeteries and sites of cultural value.

Mitigation

Potential Impact	
Air	<ul style="list-style-type: none"> Covering vehicles with tarps, spraying road with water, enclosing construction equipment, filters, etc. Correct siting of facilities Modeling of air emissions to quantify impacts.
Water	<ul style="list-style-type: none"> Plans to manage spills and leaks, spills kits, correct siting of equipment, bunding, etc. Monitoring of construction in rivers, vegetation of side slopes, correct siting of stockpiles. Obtaining permits for water use.
Noise	<ul style="list-style-type: none"> Modeling of noise to quantify impacts during operational phase, noise barriers, etc. Correct siting of facilities.
Waste	<ul style="list-style-type: none"> Contracts for waste disposal with licensed companies. Training of staff Suitable waste storage areas.

Mitigation

Environmental / Social Characteristic	Potential Impact
Health and Safety	<ul style="list-style-type: none"> Traffic management plan, warning signs, etc. OHS straining for staff. Correct PPE for staff. Ensure public cannot access work sites.
Flora and Fauna	<ul style="list-style-type: none"> Replant trees
Cultural Heritage	<ul style="list-style-type: none"> Consultation with local population and regulatory authorities.

Your!thoughts??!

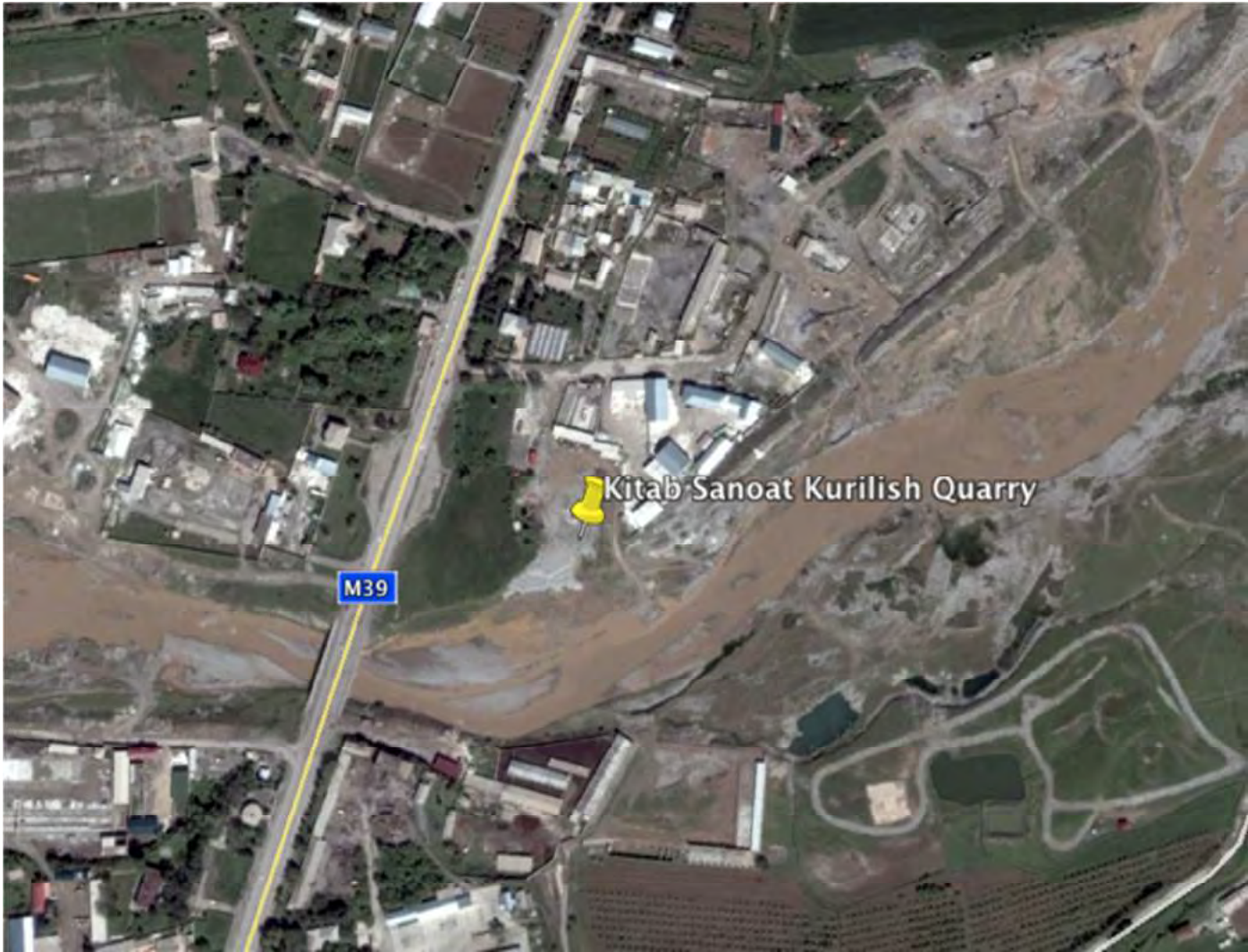
APPENDIX Q – BORROW PIT LOCATIONS













APPENDIX R – FEASIBILITY STUDY TREE PLANTING PLAN

6.9. Vegetation

Purpose of vegetation

The complex of measures to reduce the negative impacts of vehicles on farmland and on the inhabitants of settlements, as well as inversely proportional impact of man-made disasters on the canvas itself slopes and protection from water and wind erosion, and improved architectural and landscape and aesthetic condition of both the route and service facilities located along the road, is achieved through the creation of protective forest plantations.

The technology works on the creation of protective forest plantations on the site is to ensure the significant improvement of sanitary and epidemiological situation and the aesthetic design of territory as well as to reduce the outburst of salt, dust and fumes in the territory of the settlements and industrial centers, to stabilize the ecological balance, which will create places of recreation and service for both the vehicle and its passengers.

Method of vegetation

The project includes the creation of mixed tree and shrub plantings and complementing existing plants based on "Guidance on the design and cultivation of protective forest plantations and agro-technical erosion control measures in the Uzbek Soviet Socialist Republic", Tashkent, 1987.

Creating plantations and complementing existing plantations, is dictated, first of all, by the condition of soil and climatic conditions prevailing in the area.

The landscaping experience in these regions recommends using drought-resistant and soil-friendly shrubs and trees: oak, maple, elm, Sogdian ash, ordinary honey locust, acacia, and mulberry. From shrubs: quince, hawthorn, olive; inside the settlements: healing catalpa, hibiscus, forsythia, arborvitae, juniper, and others. Planting scheme in the settlements: 1 row with alternating tree with bush, the distance between them is 4 m, i.e. 8 m between trees and shrubs, planting is made staggered.

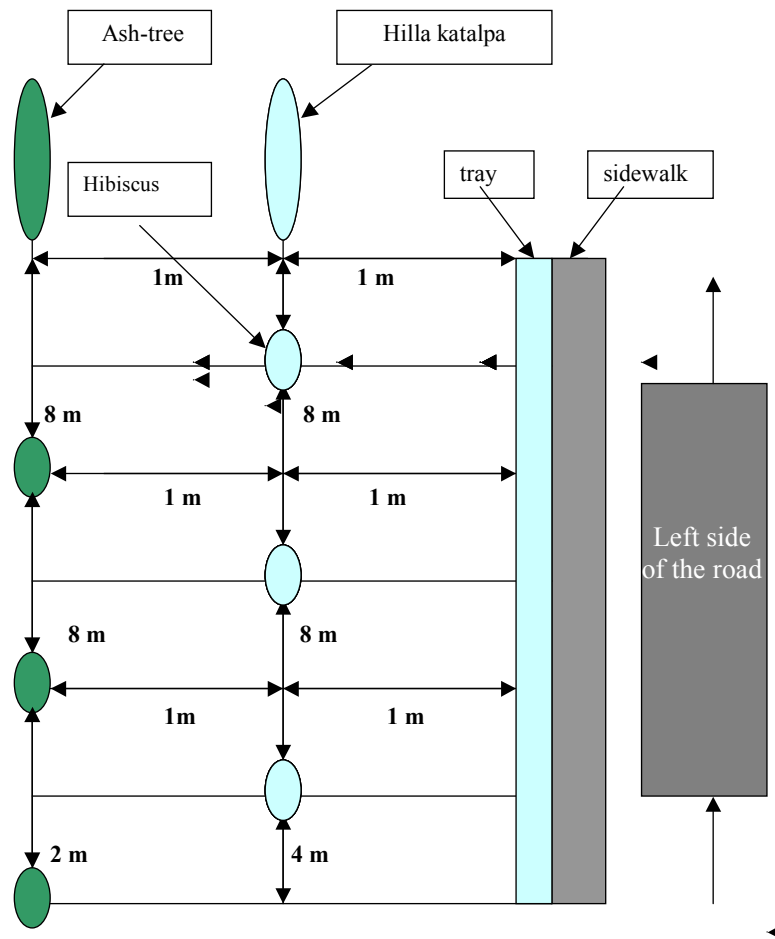
Scope of landscaping works in the territory of settlements

Due to limited territory in settlements, green belt has a preferable size from 1,5 to 2m. With such width of greenery in the settlement, a single-row forest belt is to be created. In this regard, trees are planted every 8 meters and shrubs are planted in-between in the same interval i.e. 8m. Plants will be allocated in a checkboard pattern. Watering will be implemented by irrigation system. It's preferable to create a lawn cover (See. Diagram №№ 1, 2 and Table. 1)

Landscaping area is: 27.225 ha. The need for planting is 17 016 pcs.; area of lawn (minus the area occupied by trees and bushes) - 25.846 ha; the need for lawn seeds - 8787.6 kg

Scheme № 1
Creation of single row planting of territory within settlements
(made up watering)

LEFT SIDE

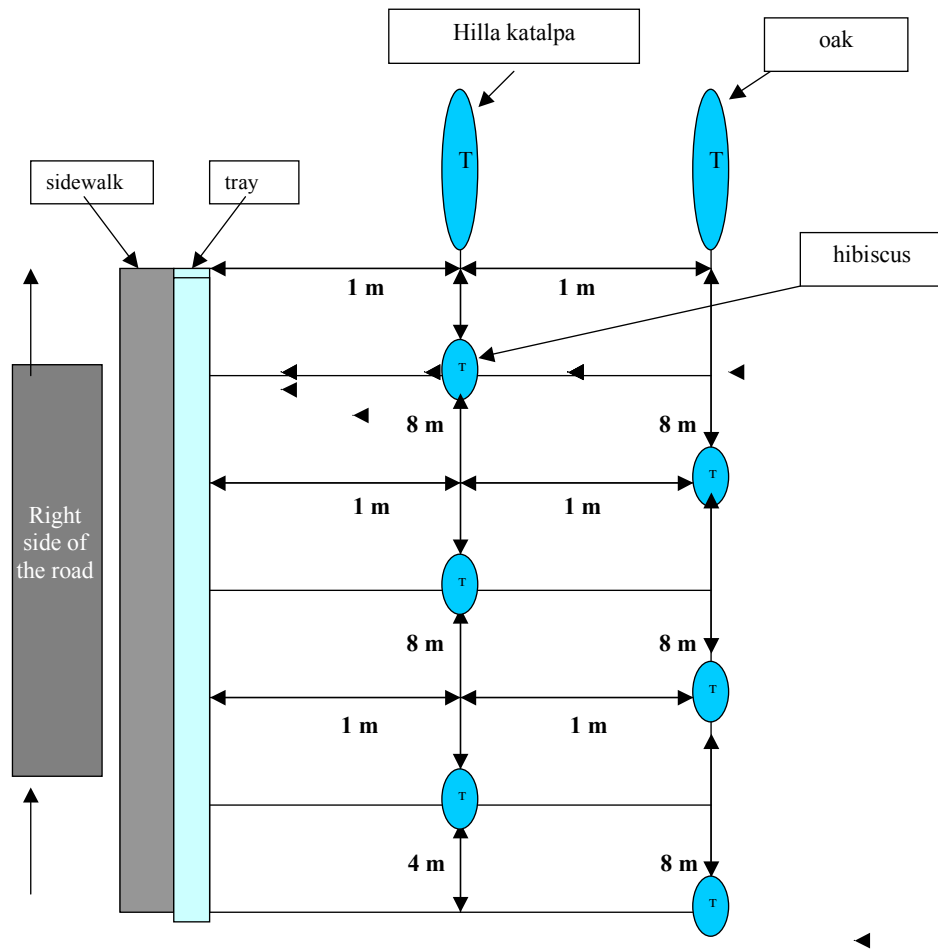


Need for planting materials:

Ash tree - 4254 pieces;
Hilla katalpa - 2127 pieces;
Hibiscus – 2127 pieces;

Scheme № 2
Creation of single row planting of territory within settlements
(made up watering)

RIGHT SIDE



Need for planting material:

Oak - 4254 pieces;
Hilla kaalpa - 2127 pieces;
Hibiscus – 2127 pieces;

Need for planting materials for landscaping the territory within settlements

№	Name of settlement	Full station		Length, m one direction	Width, m	Area, ha Including right and left sides	Need for planting materials, pieces	Lawn	
		Beginning IKK	End IKK					Area, ha	Seeds, kg
1	Arab	189+00	213+00	2400	2,5	1,2	750	1,14	387,6
2	Kovchin	223+00	240+00	1700	2,5	0,85	532	0,81	275,4
3	Koratikon	245+00	264+00	1900	2,5	0,95	594	0,90	306
4	Chim	362+00	425+00	6300	2,5	3,15	1968	2,99	1016,6
5	Korabog	560+00	586+00	2600	2,5	1,3	812	1,23	418,2
6	Tukboy	600+00	614+00	1400	2,5	0,7	438	0,66	224,4
7	Kozak	634+00	650+00	1650	2,5	0,825	516	0,78	265,2
8	Khonimkurgon	662+00	676+00	1400	2,5	0,7	438	0,66	224,4
9	Koramurcha	694+00	727+00	3350	2,5	1,675	1046	1,59	540,6
10	Esat	730+00	745+00	1450	2,5	0,725	454	0,688	233,9
11	Oktosh-Sabkhoz-Beshkaltak	820+00	926+00	10600	2,5	5,3	3312	5,04	1713,6
12	Shakhrisabz	953+00	1062+00	10900	2,5	5,45	3406	5,178	1760,5
13	Kitab	1102+00	1160+00	5800	2,5	2,9	1812	2,755	936,7
14	Kaynar	1229+00	1259+00	3000	2,5	1,5	938	1,425	484,5
TOTAL:				54450		27,225	17016	25,846	8787,6
Transcript									
1	Vegetation area							ha	27,225
2	Road length in one direction							km	54,450
Material resources									
3	Fertilizers							ton	2,5524
4	Pesticide							ton	0,59556
5	Water							m ³	13176,56
6	Sack cloth							m ²	4010,7
7	Binder from hemp fiber							ton	0,4837
8	Wood planting sticks 2200x60 mm.							ea.	30626,8
9	Vegetable soil							m ³	13933,22
10	Organic-mineral fertilizers							m ³	48,61
11	Organic fertilizers							m ³	437,64
12	Biogumus							ton	1008,43
13	Choke stone of mark 300							m ³	2069,1
Materials									
14	Lawn seeds							kg	15518,22
15	Planting - total:							ea.	17016
Including broad leaved trees								ea.	7294
1. oak								ea.	2431
2. ash tree								ea.	2431
3. maple tree								ea.	2432
Including shrub plants:								ea.	9722
1. cedar								ea.	2430
2. arbor vitae								ea.	2430
3. habiscus								ea.	2431
4. hilla katalpa								ea.	2431

Records on physical scope of work within settlements

No	Work and volume calculation	MOU	Amount
Division №1. Soil preparation			
1	Soil preparation (manually)	m ²	272 250
2	Cleaning a plot from garbage	m ²	272 250
3	Plot layout	m ²	272 250
4	Stocking of soil (organic fertilizers) (1 plant = 0,005 m ³ x 17016 ea. plants = 85,08 m ³ : (1 m ³ = 300 kg) = 2,5524 ton)	m ³	85,08
5	Preparing of vegetative earth by bulldozer (1 plant = 0,100059 m ³) x 17016 plants = 1702,6 m ³ x (1 m ³ = 1200 kg) 2043,12 ton.	m ³	1702,6
6	Manually loading of soil on trucks	m ³	1702,6
7	Transporting vegetation soil in a 5 km distane to planting place	ton	2043,12
8	Mechanic delivery of organic-mineral fertilizers to planting pits (1 plant = 0,005 m ³ or 1,5 кг x 17016 ea. = 25,524 t)	ton	25,524
Division №2. 1 year. Planting			
9	Preparing of standard planting plots for shrubs with round rootball 0,5x 0,4 m. manually with adding vegetative earth up to 25 %	pits	9 722
10	Planting of shrubs with rootball 0,5x0,4 m.	plant	9 722
11	Manual preparation of standard planting plots for trees – plants with bald root system.	pits	7 294
12	Tree planting – plants with bald root system into pits 0,7x0,7 m.	plant	7 294
13	Loading of hardwood (loading of plants w/o rootballs: 1 plant = 4 kg x 7294 ea.: (1 m ³ = 250 kg) = 29,176 t or 116,7 m ³ ; Loading of shrub plants with rootballs = 1 plant = 20 kg x 9722 ea. = 194,44 t or 129,6 m ³ (1 m ³ = 1500 kg) 129,6 m ³ + 116,7 m ³ = 246,3 m ³)	m ³	246,304
14	Unloading of hardwood (w/o rootball)	m ³	246,304
15	Transportation of plants to planting plot in a distance of 20 km (7294 ea. with bald roots x 4 kg = 29,176 t) + (9722 ea. with rootball x (1 plant = 30 kg) = 194,44 t) = 223,616 t.	ton	223,616
Division №3. Look after plants			
16	Look after shrubs with rootball of 0,5x0,4 m.	Plant	9722,0
17	Look after plant trees with bald root system (Complex norms)	Plant	7 294
Division №4. Hedging from pests and safety control measures			
18	Preparing of the water compound (1.0 liter for one plant or 1 kg x 17016 ea. x 2 times) 34.032 t.	ton	34,032
19	Watering of forest plantation manually (2 time period)	Piece	34032
20	Allocation of agricultural chemicals in a distance of 20 km. 17016 ea. x (35 ha for one plant) = 0.5955 t.	ton	0,59556
Division №5. Lawning			
21	Manually lawning with adding “biogumus” (1 plant = 0,8 m ² x for 17016 ea. = 13 612,8 m ² of planting area. Overall lawn plantation area = 27,225 ha – 1,36128 ha = 25, 8637 ha.	m ²	258 637

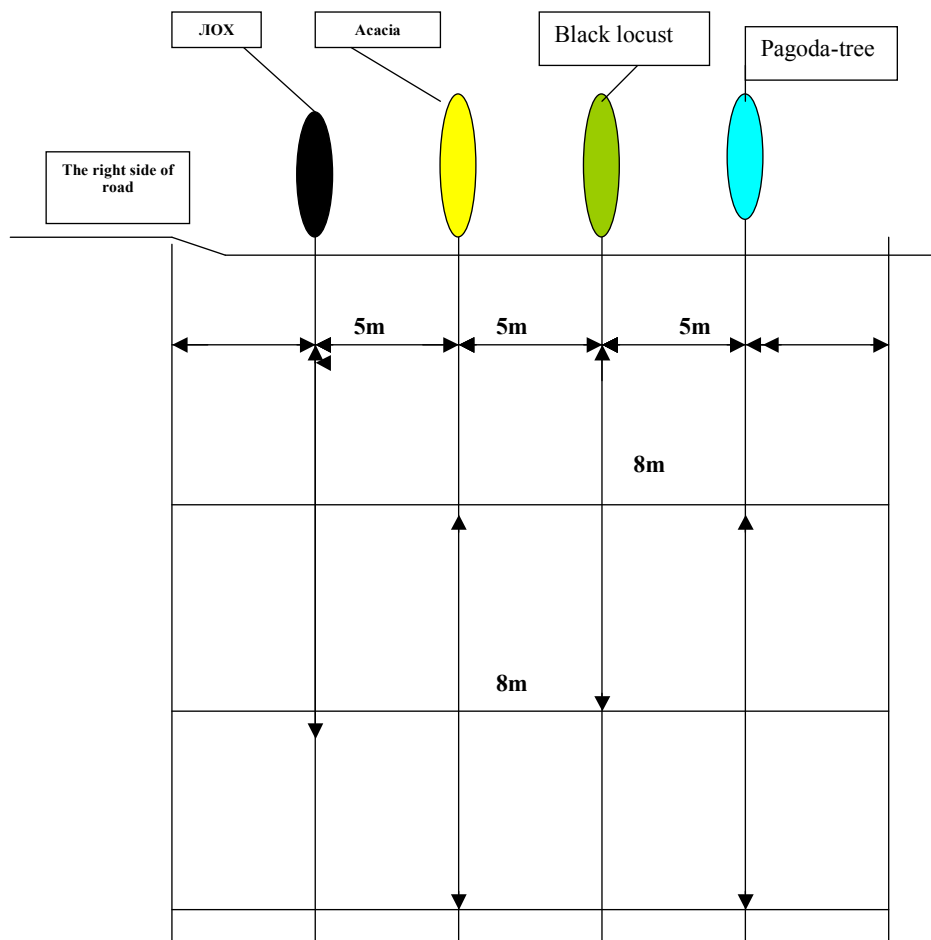
Greening of area out of settlements

Greened area has a size of 12 to 15 m. There are going to be 4 forest lanes out of settlements. Tree plants are planted in every 8 m distance of watering channel. There is going to be 5 m distance between lanes. (Refer the scheme №№ 3, 4 and table

2.). The greening area is going to be 170,63 ha. He need for the planting material is 42.658 ea.

Scheme № 3
Tree landscaping out of settlement

RIGHT SIDE



Every 200 m is to be planted by different type of tree.

Scheme of planting is 8 m between trees and 5 m between lanes.

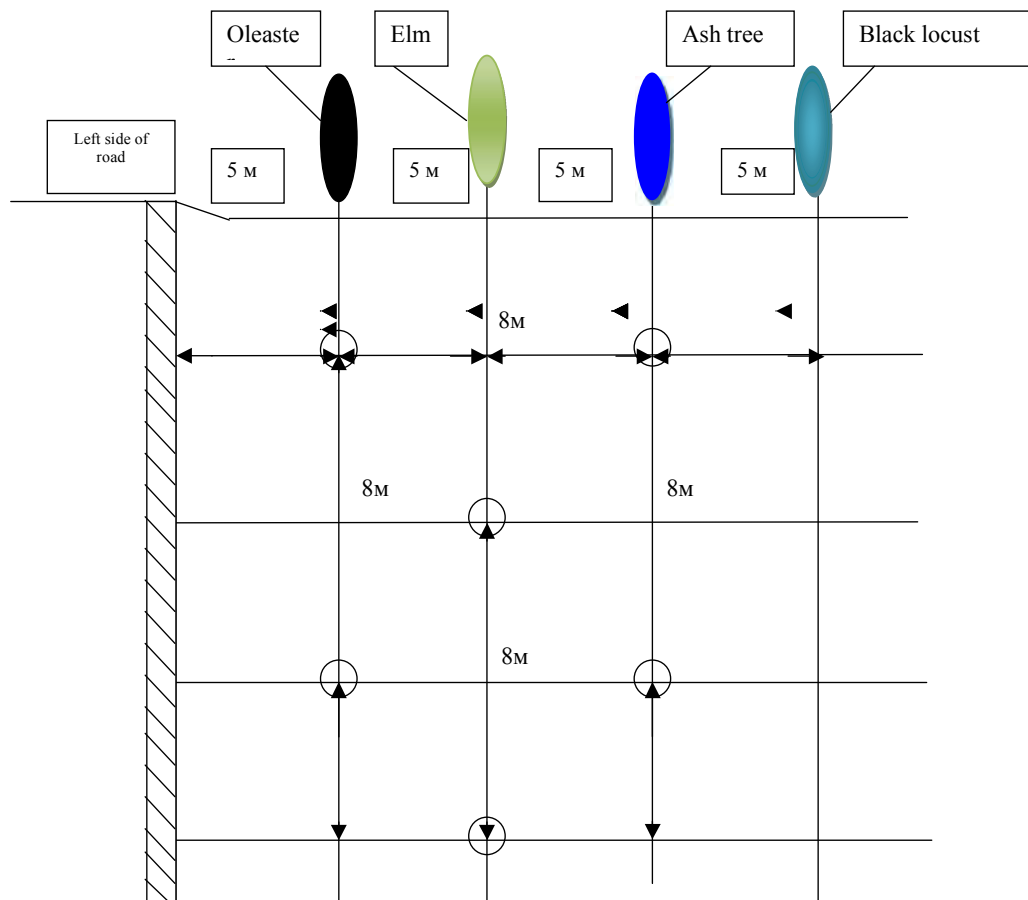
Need for planting materials: Total: 42 658 ea.

including: hardwoods - 15 999 ea,

bushes - 5 330 ea.

Scheme № 4
Tree planting for greening of roadside outside of populated area

LEFT SIDE



Every 200 meters it's needed to change a structure of plants
Need for planting material: Total: 42 658 ea.
 including: hardwood - 15 999 ea.
 bushes - 5 330 ea.

Need for planting materials on greening out of populated area

Distance, km	Name of populated area	Picketing state		Length to one direction, m	Width, m	Area, ha		Need for Planting material ea. (1ha=250 ea) Scheme 8x5 m
		start ПК	end ПК			Including right and left sides	Both sides	
8		100+00	189+00	8900	15	13,35	26,7	6 675
4	4P79	213+00	223+00	1000	15	1,5	3,0	750
4		240+00	245+00	500	15	0,75	1,5	375
4		264+00	362+00	9800	15	14,7	29,4	7 350
12		425+00	560+00	13500	15	20,25	40,5	10 125
4		586+00	595+00	1500	15	2,25	4,5	1 125
4		614+00	634+00	2000	15	3,0	6,0	1 500
Total				37200			111,6	27 900
2	4K319	650+00	662+00	1150	15	1,725	3,45	863
6		676+00	694+00	1800	15	2,7	5,4	1350
4		727+00	730+50	300	15	0,45	0,9	225
Total				3250			9,75	24 38
4	4P84	745+00	820+00	750	15	1,125	2,25	562
Total				750			2,25	562
2	M-39	926+00	953+00	2700	15	4,05	8,1	2025
2		1062+00	1102+00	4000	15	6,0	12,0	3000
2		1160+00	1229+00	6900	15	10,35	20,7	5175
		1259+00	1279+76,87	2076,87	15	3,115	6,23	1558
Total				15 676,87			47,03	11 758
Grand total				63626,87			170,63	42 658
Description								
1	Greening area						ha	170,63
2	Road length in one direction						km	63,62687
Material resources								
3	Organic fertilizers							426,58 т
4	pesticides							0,74652 т
Material resources								
5	Plants - total:						ea	42 658
	Including hardwood						ea	36 138
	1. elm						ea	6023
	2. Japanese sophora						ea	6023
	3. Sogdiana ash						ea	6023
	4. acacia						ea	6023
	6. black locust						ea	6023

	7. mulberry	ea	6023
	Including bush plants:	ea	6520
	1. oleaster (jiyda)	ea	3260
	2. oriental thuya	ea	3260

Log of physical work volume outside of populated area

№	Description of work and cost, characteristics of equipment and its weight	UOM	Amount
Section №1. 1 year. Soil preparation			
1	Site preparation by mechanical way	ha	170,63
2	Planting plowing in depth of 46-60 cm on hard soil	ha	170,63
3	Soil braking	ha	170,63
4	Earth disking of plowed on hard soil	ha	170,63
5	Plot marking	ha	170,63
6	Plowing of temporary irrigator by tractors with a power of 59 (80) kW (п.с.) (Total length 63 626,87 meter x 6 drills (3 drills to each side of road)	l. m. опротив.	381761
Section №2. Planting and maintenance of wood plants			
7	Digging pits manually with size of 0,6x0,6 m on hard soils	ea.	42 658
8	Mechanical distribution of organic-mineral fertilizers to planting pits (1 tree = 10 кг. x 42658 : 1000 : 10 =)	ton	426,58
9	Manually putting fertilizers into pits, mixing it with soil and back filling of pits	Pits	42 658
10	Planting of round hardwood plant	plant	42 658
11	Loading of hardwood (Loading of plants w/o chunk) /Applicable/ (1plant = 4 kg x 42658 kg hardwood : cube =250 kg)	m ³	682,528
12	Unloading of hardwood (Unloading of plants w/o chunks) /Applicable/	m ³	682,528
13	Transportation of plants to planting place by dump trucks up to 10 km (42 658 ea. with naked root system x 4 kg = weight of 1 plant)	ton	170,632
14	Watering of green plantation by hose of watering machine (Water consumption for 1 plant with naked root system 0,12 m ³ and 4 watering in a season, the rest of watering by natural flow, total watering 10 times)	m ³	5118,96
15	Cutting off lower branchwoods after planting	ea.	42 658
16	Mellowing of pan Ø 0,7 m (4 times) (applicable)	ea.	170 632
17	Soil cultivation in-between rows (5 times) (In accordance with IIIHK 4.02.47.-04 table.№ 2 area of pan of hardwood =0,79 m ² x 42658 ea : 10000 = 3,369982 ha. (170,63- 3,369982 = 167,26 ha. x 10000 = 1 672 601 : 1000 = 1672,601km. x (5 times; not included in calculation, though must be accomplished by agro-technical rules)	1 km	1672,601
18	Repeated plowing in-between rows of medium soil	1 km	1672,601
Section №3. 1 year. Pest management			
19	Preparation of water solution	ton	42,658
20	Spraying of plants manually (2 times)	ea.	42 658
21	Transportation of toxic chemicals to distance of 10 km	ton	0,74652

3. Total need for construction materials for greening of whole site

№ n/n	Description of material	UOM	Amount		
			Within of populated area	Outside of populated area	TOTAL
1	Area of planting greenery	ha	27,225	170,63	197,855
2	Extension in one direction				
Material resources					
3	fertilizers	ton	2,5524	426,58	429,1324
4	plants	Ea	17016	42 658	59 674
5	toxic chemicals	kg	595,56	746,515	1 342,075
6	water	m ³	13176,56	5118,96	18 295,52
7	sack cloth	m ²	4010,7	-	4010,7
8	String from hemp fiber	ton	0,4837	-	0,4837
9	Planting wooden sticks 2200x60 mm.	Ea	30626,8	-	30626,8
10	Stuffing mechanism of vegetable earth	m ³	13933,22	-	13933,22
11	Organic-mineral fertilizers	m ³	48,61	-	48,61
12	Organic fertilizers	m ³	437,64	-	437,64
13	Biohumus	ton	1008,43	-	1008,43
14	Key stone of benchmark 300	m ³	2069,1	-	2069,1
Construction materials					
15	Seeds of lawn	kg	15 518,22	-	15 518,22
16	Plants - total:	ea.	17016	42 658	59 674
	Including hardwood	ea.	7294	36138	43 432
	1. oak	ea.	2431		2 431
	2. Sogdiana ash tree	ea.	2431	6023	8 454
	3. ash-maple tree	ea.	2431		2 431
	4. elm tree	ea.		6023	6 023
	5. Japanese saphora	ea.		6023	6 023
	6. acacia	ea.		6023	6 023
	7. black locust	ea.		6023	6 023
	8. mulberry	ea.		6023	6 023
	Including bush plants:	ea.	9722	6 520	16 242
	1. cedar	ea.	2430		2430
	2. oriental thuya	ea.	2430	3260	5 690
	3. hibiscus	ea.	2431		2431
	4. khila catalpa	ea.	2431		2431
	5. oleaster	ea.		3260	3260

Total area of planting greenery is 197,86 ha. Need for planting materials is 59 674 ea., area for lawn (excluding area of trees and bushes) is 25,846 ha, need for lawn seeds is 15 518,22 kg.

It's necessary to note that, according to location of service point for passengers and vehicles, as well as presence of different communication facilities, scheme of greening and species of trees and bushes can be changed.

APPENDIX S – RAPID ENVIRONMENTAL ASSESSMENT

Instructions:

(i) The project team completes this checklist to support the environmental classification of a project. It is to be attached to the environmental categorization form and submitted to the Environment and Safeguards Division (RSES), for endorsement by Director, RSES and for approval by the Chief Compliance Officer.

(ii) This checklist focuses on environmental issues and concerns. To ensure that social dimensions are adequately considered, refer also to ADB's (a) checklists on involuntary resettlement and Indigenous Peoples; (b) poverty reduction handbook; (c) staff guide to consultation and participation; and (d) gender checklists.

(iii) Answer the questions assuming the “without mitigation” case. The purpose is to identify potential impacts. Use the “remarks” section to discuss any anticipated mitigation measures.

Country/Project Title: UZB: Karshi – Shahrizabz – Kitab Regional Road Project

Sector Division: CWTC

Screening Questions	Yes	No	Remarks
A. Project Siting Is the project area adjacent to or within any of the following environmentally sensitive areas?			The project is reconstruction of two portions of roadway between Karshi and Kitab totaling 77km. The road is located in Kashkadarya province.
▪ Cultural heritage site			No cultural heritage sites have been identified within the ROW, with the exception of two cemeteries. A chance find procedure will be adopted as part of the EMP and contract provisions.
▪ Protected Area			None present.
▪ Wetland			None present within two kilometers of the Project road.
▪ Mangrove			None present.
▪ Estuarine			None present.
▪ Buffer zone of protected area			None present.
▪ Special area for protecting biodiversity			None present.
B. Potential Environmental Impacts Will the Project cause...			

Screening Questions	Yes	No	Remarks
<ul style="list-style-type: none"> ▪ encroachment on historical/cultural areas; disfiguration of landscape by road embankments, cuts, fills, and quarries? 			Disfiguration of the landscape is unlikely as the project is a rehabilitation project of the existing roadway. Although no historical and cultural sites have been identified, a chance find procedure will be adopted. The project will utilize existing licensed quarries and borrow pits for the construction works. The project EMP will also include mitigation measures in the event that the Contractor decides to operate his own borrow pits.
<ul style="list-style-type: none"> ▪ encroachment on precious ecology (e.g. sensitive or protected areas)? 			No sites identified. However trees will be cut, none of which have been identified as having special status. A program for cutting and compensation has already been prepared by the local Hokhimat.
<ul style="list-style-type: none"> ▪ alteration of surface water hydrology of waterways crossed by roads, resulting in increased sediment in streams affected by increased soil erosion at construction site? 			The road crosses the Kashkadarya River and the Aksudarya River. Rehabilitation of the bridges crossing the rivers may result in impacts to water quality. Mitigation measures will be proposed in the IEE
<ul style="list-style-type: none"> ▪ deterioration of surface water quality due to silt runoff and sanitary wastes from worker-based camps and chemicals used in construction? 			It is unlikely that the construction camps will be located within the vicinity of the rivers, however, the EMP will make this condition specific
<ul style="list-style-type: none"> ▪ increased local air pollution due to rock crushing, cutting and filling works, and chemicals from asphalt processing? 			Poor siting of construction facilities could result in localized air pollution, and as such the EMP will include mitigation measures including requirements for associated facilities
<ul style="list-style-type: none"> ▪ risks and vulnerabilities related to occupational health and safety due to physical, chemical, biological, and radiological hazards during project construction and operation during project construction and operation? 			OHS risks will always exist on a project of this scale and magnitude. An OHS plan will be developed by the Contractor which will include training and awareness programs and the use of PPE.
<ul style="list-style-type: none"> ▪ noise and vibration due to blasting and other civil works? 			It is unlikely that blasting will be required, however other noise and vibration impacts may occur from the operation of construction equipment.
<ul style="list-style-type: none"> ▪ dislocation or involuntary resettlement of people? 			The project entails rehabilitation of the existing roadway. The Project construction has caused involuntary resettlement impacts on the local population living along with project corridor.
<ul style="list-style-type: none"> ▪ dislocation and compulsory resettlement of people living in right-of-way? 			The Project construction has led to both physical and economic displacement of households living along the project road.
<ul style="list-style-type: none"> ▪ disproportionate impacts on the poor, women and children, Indigenous Peoples or other vulnerable groups? 			

Screening Questions	Yes	No	Remarks
<ul style="list-style-type: none"> other social concerns relating to inconveniences in living conditions in the project areas that may trigger cases of upper respiratory problems and stress? 			Impacts will be negligible, site specific, and short-term.
<ul style="list-style-type: none"> hazardous driving conditions where construction interferes with pre-existing roads? 			Construction traffic will be controlled as part of the Contractors traffic management plan which will form part of the site specific EMP.
<ul style="list-style-type: none"> poor sanitation and solid waste disposal in construction camps and work sites, and possible transmission of communicable diseases (such as STI's and HIV/AIDS) from workers to local populations? 			Contractors will not be allowed to operate camps without the necessary permits for the disposal of solid and sanitary waste.
<ul style="list-style-type: none"> creation of temporary breeding habitats for diseases such as those transmitted by mosquitoes and rodents? 			Malaria is a low risk disease in Uzbekistan. Good waste management practices in construction camps will limit impacts caused by rodents.
<ul style="list-style-type: none"> accident risks associated with increased vehicular traffic, leading to accidental spills of toxic materials? 			Impacts are related to operation phase. Improved road conditions are likely to reduce incidences of traffic accidents but road safety measures need to be included in the design and enforcement be put in place.
<ul style="list-style-type: none"> increased noise and air pollution resulting from traffic volume? 			It is possible that increased noise and air emissions may occur during both construction and operation phase of the project. Modeling of noise and air quality will be undertaken in the IEE
<ul style="list-style-type: none"> increased risk of water pollution from oil, grease and fuel spills, and other materials from vehicles using the road? 			During construction, risk may come from poor site management and vehicle maintenance practice. Improved road conditions are likely to result in a decrease in road accidents.
<ul style="list-style-type: none"> social conflicts if workers from other regions or countries are hired? 			Impacts will be minor and temporary as most of the workers will be locally recruited.
<ul style="list-style-type: none"> large population influx during project construction and operation that causes increased burden on social infrastructure and services (such as water supply and sanitation systems)? 			The workers camp sites will be located outside residential and market areas and water extraction permits will be secured by the contractor ensuring that no conflict with existing water users.
<ul style="list-style-type: none"> risks to community health and safety due to the transport, storage, and use and/or disposal of materials such as explosives, fuel and other chemicals during construction and operation? 			Impacts are anticipated to be minimal due to the low population density within the project area. However, mitigation measures will be included in the EMP.

*Karshi – Shahrizabz – Kitab Regional Road Project
Initial Environmental Examination*

Screening Questions	Yes	No	Remarks
<ul style="list-style-type: none"> ▪ community safety risks due to both accidental and natural causes, especially where the structural elements or components of the project are accessible to members of the affected community or where their failure could result in injury to the community throughout project construction, operation and decommissioning. 			<p>Impacts are likely to be minimal – mitigation measures will include safety issues</p>

APPENDIX T – AIR QUALITY RESULTS

Table D.1: Air Quality Monitoring Results					
№	Parameter	Shakhrisabz km1170 of M-39 (km 103,4 of designed section)			
		GoU Limit	IFC Limit	Measured value	Compliance
1	Dust	0.5 mg/m ³	-	0,29 mg/m ³	Yes
2	NOx (1 hour)	0.2 mg/m ³	0.2 mg/m ³	0,00 mg/m ³	Yes
4	SOx (ten minute)	-	0.5 mg/m ³	0,00 mg/m ³	Yes
№	Ingredient	Value (one-time) Chim 37,4 km			
		GoU Limit	IFC Limit	Measured value	Compliance
1	Dust	0.5 mg/m ³	-	0,28 mg/m ³	Yes
2	NOx (1 hour)	0.2 mg/m ³	0.2 mg/m ³	0,00 mg/m ³	Yes
3	SOx (ten minute)	-	0.5 mg/m ³	0,00 mg/m ³	Yes
№	Ingredient	Esat 73,2 km			
		GoU Limit	IFC Limit	Measured value	Compliance
1	Dust	0.5 mg/m ³	-	0,30 mg/m ³	Yes
2	NOx (1 hour)	0.2 mg/m ³	0.2 mg/m ³	0,00 mg/m ³	Yes
3	SOx (ten minute)	-	0.5 mg/m ³	0,00 mg/m ³	Yes

Measurement tools: Gas testing pump ANT-3m and hygrometer.

APPENDIX U – WATER QUALITY RESULTS

№	Characteristics	Kashkadarya river 200 m up from the river flow	Kashkadarya river 20 m down the river flow	Kashkadarya river 200 m down the river flow	Standard
1	Rate of smell intensity	26	26	26	
2	Turbidity, sediments	present	present	present	
3	Souring m20, dm3	2,0	2,0	2,0	
4	Acidity m2	3,0	3,0	3,0	
5	PH	7,0	7,0	7,0	6.5 – 8.5
6	Total firmness mg/eq	3,20	3,20	3,20	<25
7	Dissolved solids mg/l	328,2	328,2	328,2	
8	Calcium mg/l	2,0	2,0	2,0	
9	Magnesium mg/l	2,2	2,2	2,2	
10	Chlorides mg/l	10,0	10,0	10,0	300
11	Sulphates mg/l	55,2	55,2	55,2	100

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12	Ammonia mg/l	-	-	-	
13	Nitrites mg/l	-	-	-	
14	Nitrates mg	4,4	4,4	4,4	9.10

Measuring tools: VShV 003-2M Taganrog, Russia RFm 00026 – Robotron GFR

APPENDIX V – NOISE MONITORING RESULTS

Table V-1: Noise Levels							
#	Place of monitoring	Period	Level of noise pressure / oscillating speed / in dB and octave bands with average nonmetric frequencies in hz				Accepted IFC/GoU sound level equivalent sound level, dBA
			63	250	1000	4000	
1	Chim village, km 37,4 of 4P79 road near the school №52 (left side)	Day time from 7am to 11pm	52	49	48	44	55
		Night time from 11pm to 7am	42	41	40	40	45
2	Esat village, at 73,2 km of the road near the school (right side)	Day time from 7am to 11pm	51	49	47	45	55
		Night time from 11pm to 7am	42	40	40	41	45
3	Shakhrisabz at km 1170 of m39 road near the market place	Day time from 7am to 11pm	54	50	55	54	60
		Night time from 11pm to 7am	52	51	53	51	60