

CHAPTER – 6

DEVELOPMENT PROPOSAL & ENGINEERING DESIGN

6.1 GENERAL

The project road is to be developed as 2 lane paved shoulder road. The project road starts from km 125 of NH-54 at Keitum village (Distt. Serchip) and ends at km 250 (Design ch 243.30Km) of NH-54 near Thualthu village, Distt. Lawngtlai in the state of Mizoram.

The length of project road is 125.00 kms. (Design Length 118.30km)

6.2 ALIGNMENT OPTIONS

The alignment of the project road section of NH-54 has been fixed keeping the following factors in view in consultation with client:

- Vertical profile and sharp curve of existing road.
- The settlements along the project road
- Minimum construction cost.

Apart from this, ongoing developments including start and end sector of alignment, multi modal transport system has also been taken into consideration for fixing of proposed alignment.

Alignment options and Final DPR had been submitted to the client (MoRT&H) and same has already been approved by the client (MoRT&H) in the year 2013 which is follows Hnahthial bypass and 3 realignments at sharp curves and high gradient locations. Hill side widening had been proposed in full stretch of the project road.

The project was subsequently handed over to NHIDCL vide letter No. NH-12037/182/2015/SARDP-NE dated 16th April 2015 and has been proposed to be funded by Japan International Corporation Agency (JICA). Since then, JICA team has been checking/monitoring the DPR. The JICA team has proposed modifications in DPR with some revised policy decisions and updated IRC codes.

Now in the revised DPR the geometrics of the project road has been improved by broadening following the existing alignment and no realignment & Bypass has been proposed, except curve improvements. To minimize the earth cutting the proposed



alignment has been shifted towards in valley side as suggested by JICA to balance cutting/filling of the earthwork quantities.

6.3 PROPOSED ALIGNMENT

The take off point of the proposed project road sector is at Keitum village km 125 of NH-54 and merging point of the proposed project road at km 250 (Design ch 243.300Km) of NH-54 near Thualthu village. Total length of project road is 125.00 kms. (Design Length 118.33km)

6.4 TYPICAL CROSS SECTION

Two lane with paved shoulder configuration has been proposed for the project road. However in the steep sections of the project road, the exceptional width of 10m as almost 12 m has been proposed for a length of 17920 has to minimize the earthwork in cutting.

6.4.1 CROSS SECTION SCHEDULE

Description of Typical cross section used in project roads, are given below:

TCS – 1	:	2 Lane with paved shoulders (New Construction)
TCS – 2	:	2 Lane with paved shoulders one side drain (Reconstruction)
TCS – 3	:	2 Lane with paved shoulders Both side drain (Reconstruction)
TCS – 4	:	2 Lane without paved shoulder

Typical cross sections have been shown in drawing volume.

6.5 DESIGN SPEED

Project road has been designed for 40 km/ h. However in sharp curves and hair pin bands the design speed has been reduced up to 20 km/hr.

6.6 PAVEMENT DESIGN

6.6.1 GENERAL

For the project road, pavement design exercise has been carried out to determine the total thickness of the pavement structure for good performance against traffic loading.



6.6.2 DESIGN METHODOLOGY

The Consultant has adopted the following methodologies for designing the pavement under different situations:

i) *Overlay for strengthening of existing pavement*

Existing surface is in poor condition, hence overlay is not applicable for the project

ii) *New Pavement Design*

Initial design on IRC: 37-2012 using soaked CBR data for borrow material to be used in Sub-grade.

6.6.3 PARAMETERS FOR DESIGN

Design Life

The design life adopted in the analysis is 15 years for flexible pavement & 30 Year for Rigid pavement.

Design Traffic

a) Traffic Distribution Factors

Lane distribution factor of 0.5 has been adopted for 2-lane.

b) Vehicle Damage Factor

The vehicle damage factor (VDF) for different types of commercial vehicles as derived from the axle load study and details are presented in Chapter 5- Traffic survey and analysis.

c) Equivalent Standard Axle (ESA) Applications

Based on the traffic forecast presented in Chapter 5 and the VDF values and traffic distribution factors brought out earlier, the traffic loading in the design life in terms of cumulative number of ESA has been computed for design periods.

Design CBR

Soil samples collected from the existing alignment have been tested to determine Dry Density, Moisture Content and CBRs. The CBR of most of the samples is 5%.



The CBR for proposed sub-grade material has been adopted as 5%.

6.6.4 PAVEMENT DESIGN FOR PROJECT HIGHWAY

Different types of pavement are commonly used in the construction of roadways.

These are:

- Flexible Pavement
- Rigid Pavement

6.6.4.1 Flexible Pavement

As per IRC: 37: 2012, following would be the crust thickness for 5% CBR & 20 MSA:

Table 6.1: Pavement layer thickness details

Particulars	Thickness
BC	40 mm
DBM	100mm
WMM	250 mm
Granular Sub-base	300 mm
Total	690 mm

6.6.4.2 Design of Rigid Pavement

Rigid pavement has not been proposed due to high cost and traffic management problems during construction.

6.7 INTERSECTION DESIGN

6.7.1 GENERAL

The basic requirement for the design of intersections is not only to cater safe movements for the driver but also to provide them full traffic information by way of signs, pavement markings and traffic signals. At-grade intersections adversely

affect the quality of highway in terms of speed, capacity and safety because of interruptions to traffic flow. four legged intersections are more hazardous than 3 legged intersections.

Further, simplicity and uniformity is the guiding principles for intersections design and to ensure the safe passage of maneuvers and reduce conflict points either by elimination of certain maneuvers or separated in space, horizontally or vertically. Based upon these principles the At-grade intersections have been designed as minor / channelised without acceleration and deceleration lanes/ staggered / rotaries/ intersections depending upon the following parameters.

- Traffic volume and number of lanes on the project road;
- Traffic volume and number of lanes on the cross road;
- Turning traffic volumes;
- Type and category of cross road;
- Maneuvers like diverging, merging, weaving, crossing and reduced conflicts;
- Site conditions / constraints; and
- Any local importance

Standard drawings of the Junctions are given in the drawing volume of the report.

6.7.2 WARRANTS

IRC: SP-41 gives the monogram for warrants for the different types of at grade or grade separated intersections. These warrants are based upon the traffic volumes on each of the two intersecting road. The type of intersection proposed are based on these IRC guidelines.

Keeping in view the guidelines given in IRC: SP-41 and MORTH Type Designs for Intersections, Table 6.2 gives the locations of priority intersections with important roads that would be developed as per MORTH type designs for intersection.

Table 6.2: Details of Major/Minor intersections

S.No	Location	Type of Junction	Remarks
1	174.02	Y	Major
2	201.07	Y	Major
3	214.7	Y	Major
4	137600	T	Minor
5	143670	Y	Minor
6	149285	T	Minor

6.8 DRAINAGE

Lined drain has been proposed along the project road on hill side. Sub surface drain (Perforated pipe with filter material) has been provided below the lined drain. Catch water drain on hill slope and ground water pipe across the road has been provided in the project road.

6.9 PROTECTION WORKS

Project road will be widened on hill side as well as on valley side. Breast walls, rock protection wall, and rock fill prevention fence has been proposed on the hill side. Toe wall, Retaining walls gabion walls, reinforced earth walls and rock anchors are proposed on valley side for stability of embankment.

- Breast Wall 83940 m
- Retainning wall 42470 m
- RE Wall 4760 m
- Gabion wall 5578 cum
- Rock fill prevention wall 4900 m

6.10 ROAD FURNITURE AND OTHER FEATURES

The road furniture, traffic safety features and other facilities proposed for the



project road are:

- Bus Bays
- Truck Lay byes
- Road Markings
- Traffic Signs
- Kilometre Stones
- 200m Stones and Boundary Stones
- Delineators and Object Markers
- Crash Barrier
- Facilities for Pedestrians
- Toll Plaza

6.10.1 BUS BAYS

At 12 locations bus shelter have been proposed.

Table 6.3: Bus Bay locations

SI No	Chainage (Km)	Village/Town
1	125575	KEITUM
2	132750	BUNGTLANG
3	137730	RAWPUI
4	149350	PANGZAWL
5	158150	THILTLANG
6	173100	HNAHTHIAL
7	179315	LEITE
8	201460	DAWN
9	210200	ZOBAWK
10	214685	HRANGCHALKAWN

SI No	Chainage (Km)	Village/Town
11	223475	BUALTE
12	233650	THUALTHU

6.10.2 TRUCK LAY BYE

No Truck lay bye is proposed along the project road.

6.10.3 ROAD MARKING

Road markings perform the important function of guiding and controlling traffic on a highway. The markings serve as psychological barriers and signify the delineation of traffic paths and their lateral clearance from traffic hazards for safe movement of traffic. Road markings are therefore essential to ensure smooth and orderly flow of traffic and to promote road safety. The Code of Practice for Road Markings, IRC: 35-1997 has been used in the study as the design basis. The location and type of marking lines, material and colour is followed using IRC: 35-1997 –“Code of Practice for Road Markings”. The code applied reflects road marking paint developed under MoRTH’s research scheme R-40 will be used. The road markings were carefully planned on carriageways, intersections and bridge locations.

6.10.4 CAUTIONARY, MANDATORY AND INFORMATORY SIGNS

Cautionary, mandatory and informatory signs have been provided depending on the situation and function they perform in accordance with the IRC: 67-2012 guidelines for Road Signs.

6.10.5 KILOMETER STONE DETAILS

The details of kilometre stones are in accordance with IRC: 8-1980 guidelines. Kilometre stones are located at each kilometer on valley sides of the project highway.

6.10.6 HECTOMETER (200 M) STONES AND BOUNDARY STONES

Hectometer (200 m) Stones shall be provided at every 200 m distance on valley sides of the project highway. The details of 200m stones and boundary stones



conform to IRC: 26-1967.

6.10.7 DELINEATORS AND OBJECT MARKERS

Roadway delineators are intended to mark the edges of the roadway so as to guide drivers on the alignment ahead. Object markers are used to indicate hazards and obstructions within the vehicle flow path, for example, channeling islands close to the intersections. Delineators and object markers are provided as per the details given in the drawings and are provided in accordance with the provisions of IRC: 79-1989. Delineators are provided for all curves of radius less than 1000m. They are not provided at locations where Chevron sign boards are provided.

6.10.8 SOLAR LED TRAFFIC BLINKERS

Solar LED traffic blinkers shall be provided at all junctions as per manual.

6.10.9 GUARD RAILS/ METAL BEAM CRASH BARRIER

W-Beam Metal Crash Barrier has been proposed for the major hazard locations e.g. on road sections where embankments height is more than 3m or in bridge approaches. Guard rail have been proposed for built-up area.

6.10.10 FACILITIES FOR PEDESTRIANS

Facilities for safe and unhindered movement of pedestrians are proposed on the project highway wherever it passes through urban/built up area in accordance with the provisions contained in IRC: 103.

6.10.11 TOLL PLAZA

No Toll Plaza is proposed along the project road.

6.11 BRIDGES /STRUCTURES

There are 4 nos of bridges proposed on project road. Out of four bridges three minor bridges are reconstructed and one major bridge is retained. Following major and minor bridges form part of the Project Road:

Sn	Str Type	River Name	Design Chainage (km)	No of Span	Proposed span (m)	Deck width (m)	Remarks
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Sn	Str Type	River Name	Design Chainage (km)	No of Span	Proposed span (m)	Deck width (m)	Remarks
1	Minor Bridge	Maudarh Lui	190.190	1	16	12.9	Reconstruction
2	Major Bridge	Mat River	193.425	3	16.7+45.1+31.2	7.5	Retain
3	Minor Bridge		198.425	1	8	12.9	Reconstruction
4	Minor Bridge		216.460	1	8	12.9	Reconstruction

6.12 CULVERTS

There are 760 culverts proposed on the project road. Out of which 36 are box culverts and 724 are pipe culverts. A summary of the structures proposed are given in table below.

S. No	Location	Proposal	Type of Culvert	No of Span	Dia/ Span
1	125+020	Re-construction	Pipe	1	1.2
2	125+220	Re-construction	Pipe	1	1.2
3	125+300	Re-construction	Pipe	1	1.2
4	125+350	Re-construction	Pipe	1	1.2
5	125+420	Re-construction	Pipe	1	1.2
6	125+460	Re-construction	Pipe	1	1.2
7	125+610	Re-construction	Pipe	1	1.2
8	125+830	Re-construction	Pipe	1	1.2
9	125+980	Re-construction	Pipe	1	1.2
10	126+225	Re-construction	Pipe	1	1.2
11	126+260	Re-construction	Pipe	1	1.2
12	126+480	Re-construction	Pipe	1	1.2
13	126+525	Re-construction	Pipe	1	1.2
14	126+630	Re-construction	Pipe	1	1.2
15	126+690	Re-construction	Pipe	1	1.2
16	126+840	Re-construction	Pipe	1	1.2
17	126+900	Re-construction	Pipe	1	1.2
18	127+070	New	Pipe	1	1.2
19	127+200	New	Pipe	1	1.2
20	127+390	Re-construction	Pipe	1	1.2
21	127+650	Re-construction	Pipe	1	1.2
22	127+735	Re-construction	Pipe	1	1.2
23	128+500	Re-construction	Pipe	1	1.2



24	128+010	New	Pipe	1	1.2
25	128+060	New	Pipe	1	1.2
26	128+260	Re-construction	Pipe	1	1.2
27	128+350	Re-construction	Pipe	1	1.2
28	128+440	New	Pipe	1	1.2
29	128+500	Re-construction	Pipe	1	1.2
30	128+640	Re-construction	Pipe	1	1.2
31	128+785	Re-construction	Pipe	1	1.2
32	129+060	New	Pipe	1	1.2
33	129+260	New	Pipe	1	1.2
34	129+320	Re-construction	Pipe	1	1.2
35	129+535	Re-construction	Pipe	1	1.2
36	129+700	Re-construction	Pipe	1	1.2
37	129+960	New	Pipe	1	1.2
38	130+120	Re-construction	Pipe	1	1.2
39	130+250	New	Pipe	1	1.2
40	130+310	Re-construction	Pipe	1	1.2
41	130+380	Re-construction	Pipe	1	1.2
42	130+480	Re-construction	Pipe	1	1.2
43	130+700	New	Pipe	1	1.2
44	131+000	New	Pipe	1	1.2
45	131+105	Re-construction	Pipe	1	1.2
46	131+215	Re-construction	Pipe	1	1.2
47	131+530	Re-construction	Pipe	1	1.2
48	131+640	Re-construction	Pipe	1	1.2
49	131+700	New	Pipe	1	1.2
50	131+930	Re-construction	Pipe	1	1.2
51	132+155	New	Pipe	1	1.2
52	132+290	New	Pipe	1	1.2
53	132+460	Re-construction	Pipe	1	1.2
54	132+595	Re-construction	Pipe	1	1.2
55	132+780	New	Pipe	1	1.2
56	132+950	Re-construction	Pipe	1	1.2
57	133+030	Re-construction	Pipe	1	1.2
58	133+290	Re-construction	Pipe	1	1.2
59	133+325	Re-construction	Pipe	1	1.2
60	133+435	Re-construction	Pipe	1	1.2
61	133+530	Re-construction	Pipe	1	1.2
62	133+630	Re-construction	Pipe	1	1.2
63	133+820	Re-construction	Pipe	1	1.2
64	133+975	New	Pipe	1	1.2
65	134+195	Re-construction	Pipe	1	1.2
66	134+310	Re-construction	Pipe	1	1.2
67	134+470	Re-construction	Pipe	1	1.2
68	134+640	New	Pipe	1	1.2
69	134+890	New	Pipe	1	1.2
70	135+105	Re-construction	Pipe	1	1.2
71	135+350	Re-construction	Pipe	1	1.2
72	135+580	New	Pipe	1	1.2
73	135+830	New	Pipe	1	1.2
74	135+970	New	Pipe	1	1.2
75	136+160	Re-construction	Pipe	1	1.2
76	136+400	Re-construction	Pipe	1	1.2
77	136+510	New	Pipe	1	1.2
78	136+550	Re-construction	Pipe	1	1.2

79	136+750	New	Pipe	1	1.2
80	136+910	Re-construction	Pipe	1	1.2
81	137+090	Re-construction	Pipe	1	1.2
82	137+190	Re-construction	Pipe	1	1.2
83	137+340	New	Pipe	1	1.2
84	137+540	New	Pipe	1	1.2
85	137+715	Re-construction	Pipe	1	1.2
86	137+790	Re-construction	Pipe	1	1.2
87	137+895	Re-construction	Pipe	1	1.2
88	138+120	New	Pipe	1	1.2
89	138+345	Re-construction	Pipe	1	1.2
90	138+565	Re-construction	Pipe	1	1.2
91	138+815	Re-construction	Pipe	1	1.2
92	139+015	New	Pipe	1	1.2
93	139+220	Re-construction	Pipe	1	1.2
94	139+470	New	Pipe	1	1.2
95	139+720	New	Pipe	1	1.2
96	139+960	New	Pipe	1	1.2
97	140+200	New	Pipe	1	1.2
98	140+420	Re-construction	Pipe	1	1.2
99	140+530	Re-construction	Pipe	1	1.2
100	140+760	Re-construction	Pipe	1	1.2
101	140+970	New	Pipe	1	1.2
102	141+170	Re-construction	Pipe	1	1.2
103	141+310	Re-construction	Pipe	1	1.2
104	141+550	Re-construction	Pipe	1	1.2
105	141+650	Re-construction	Pipe	1	1.2
106	141+725	Re-construction	Pipe	1	1.2
107	141+900	Re-construction	Pipe	1	1.2
108	142+025	Re-construction	Pipe	1	1.2
109	142+145	Re-construction	Pipe	1	1.2
110	142+295	Re-construction	Pipe	1	1.2
111	142+470	Re-construction	Pipe	1	1.2
112	142+670	Re-construction	Pipe	1	1.2
113	142+700	Re-construction	Pipe	1	1.2
114	142+865	Re-construction	Pipe	1	1.2
115	143+000	Re-construction	Pipe	1	1.2
116	143+380	Re-construction	Pipe	1	1.2
117	143+550	Re-construction	Pipe	1	1.2
118	143+790	Re-construction	Pipe	1	1.2
119	143+980	New	Pipe	1	1.2
120	144+190	New	Pipe	1	1.2
121	144+320	Re-construction	Pipe	1	1.2
122	144+410	New	Pipe	1	1.2
123	144+560	New	Pipe	1	1.2
124	144+810	Re-construction	Pipe	1	1.2
125	145+060	New	Pipe	1	1.2
126	145+245	Re-construction	Pipe	1	1.2
127	145+460	Re-construction	Pipe	1	1.2
128	145+510	Re-construction	Pipe	1	1.2
129	145+570	Re-construction	Pipe	1	1.2
130	145+725	Re-construction	Pipe	1	1.2
131	145+990	Re-construction	Pipe	1	1.2
132	146+095	Re-construction	Pipe	1	1.2
133	146+205	New	Pipe	1	1.2



134	146+420	Re-construction	Pipe	1	1.2
135	146+700	Re-construction	Pipe	1	1.2
136	146+820	Re-construction	Pipe	1	1.2
137	146+850	New	Pipe	1	1.2
138	146+910	Re-construction	Pipe	1	1.2
139	147+050	New	Pipe	1	1.2
140	147+200	Re-construction	Pipe	1	1.2
141	147+270	Re-construction	Pipe	1	1.2
142	147+340	New	Pipe	1	1.2
143	147+400	New	Pipe	1	1.2
144	147+510	Re-construction	Pipe	1	1.2
145	147+690	Re-construction	Pipe	1	1.2
146	147+840	Re-construction	Pipe	1	1.2
147	147+880	New	Pipe	1	1.2
148	147+940	Re-construction	Pipe	1	1.2
149	148+020	New	Pipe	1	1.2
150	148+090	Re-construction	Pipe	1	1.2
151	148+120	Re-construction	Pipe	1	1.2
152	148+245	Re-construction	Pipe	1	1.2
153	148+440	New	Pipe	1	1.2
154	148+675	Re-construction	Pipe	1	1.2
155	148+705	Re-construction	Pipe	1	1.2
156	148+860	New	Pipe	1	1.2
157	148+905	Re-construction	Pipe	1	1.2
158	148+950	New	Pipe	1	1.2
159	149+095	Re-construction	Pipe	1	1.2
160	149+280	New	Pipe	1	1.2
161	149+440	Re-construction	Pipe	1	1.2
162	149+545	Re-construction	Pipe	1	1.2
163	149+700	Re-construction	Pipe	1	1.2
164	149+755	Re-construction	Pipe	1	1.2
165	149+800	New	Pipe	1	1.2
166	149+845	Re-construction	Pipe	1	1.2
167	150+125	Re-construction	Pipe	1	1.2
168	150+235	Re-construction	Pipe	1	1.2
169	150+300	Re-construction	Pipe	1	1.2
170	150+425	Re-construction	Pipe	1	1.2
171	150+680	New	Pipe	1	1.2
172	150+930	Re-construction	Pipe	1	1.2
173	151+240	Re-construction	Pipe	1	1.2
174	151+380	Re-construction	Pipe	1	1.2
175	151+510	Re-construction	Pipe	1	1.2
176	151+645	Re-construction	Pipe	1	1.2
177	151+900	New	Pipe	1	1.2
178	152+135	Re-construction	Pipe	1	1.2
179	152+200	Re-construction	Pipe	1	1.2
180	152+300	Re-construction	Pipe	1	1.2
181	152+400	Re-construction	Pipe	1	1.2
182	152+440	New	Pipe	1	1.2
183	152+505	Re-construction	Pipe	1	1.2
184	152+675	Re-construction	Pipe	1	1.2
185	152+720	Re-construction	Pipe	1	1.2
186	152+845	Re-construction	Pipe	1	1.2
187	152+900	Re-construction	Pipe	1	1.2
188	153+100	Re-construction	Pipe	1	1.2



189	153+180	New	Pipe	1	1.2
190	153+270	Re-construction	Pipe	1	1.2
191	153+345	Re-construction	Pipe	1	1.2
192	153+595	Re-construction	Pipe	1	1.2
193	153+690	Re-construction	Pipe	1	1.2
194	153+825	New	Pipe	1	1.2
195	153+925	Re-construction	Pipe	1	1.2
196	154+060	New	Pipe	1	1.2
197	154+210	Re-construction	Pipe	1	1.2
198	154+500	Re-construction	Pipe	1	1.2
199	154+590	New	Pipe	1	1.2
200	154+630	Re-construction	Pipe	1	1.2
201	154+710	New	Pipe	1	1.2
202	154+860	New	Pipe	1	1.2
203	154+915	Re-construction	Pipe	1	1.2
204	155+220	New	Pipe	1	1.2
205	155+515	Re-construction	Pipe	1	1.2
206	155+590	New	Pipe	1	1.2
207	155+680	Re-construction	Pipe	1	1.2
208	155+890	New	Pipe	1	1.2
209	155+940	Re-construction	Pipe	1	1.2
210	156+040	New	Pipe	1	1.2
211	156+160	Re-construction	Pipe	1	1.2
212	156+325	Re-construction	Pipe	1	1.2
213	156+520	Re-construction	Pipe	1	1.2
214	156+670	New	Pipe	1	1.2
215	156+860	Re-construction	Pipe	1	1.2
216	157+060	New	Pipe	1	1.2
217	157+260	New	Pipe	1	1.2
218	157+555	Re-construction	Pipe	1	1.2
219	157+660	New	Pipe	1	1.2
220	157+870	New	Pipe	1	1.2
221	158+000	Re-construction	Pipe	1	1.2
222	158+210	New	Pipe	1	1.2
223	158+440	New	Pipe	1	1.2
224	158+530	Re-construction	Pipe	1	1.2
225	158+740	New	Pipe	1	1.2
226	158+880	New	Pipe	1	1.2
227	158+930	Re-construction	Pipe	1	1.2
228	158+980	New	Pipe	1	1.2
229	159+100	Re-construction	Pipe	1	1.2
230	159+160	New	Pipe	1	1.2
231	159+240	New	Pipe	1	1.2
232	159+300	Re-construction	BOX	2	2
233	159+450	Re-construction	Pipe	1	1.2
234	159+525	Re-construction	Pipe	1	1.2
235	159+640	New	Pipe	1	1.2
236	159+680	New	Pipe	1	1.2
237	159+790	Re-construction	Pipe	1	1.2
238	159+960	New	Pipe	1	1.2
239	160+240	New	Pipe	1	1.2
240	160+460	New	Pipe	1	1.2
241	160+500	New	Pipe	1	1.2
242	160+750	Re-construction	Pipe	1	1.2
243	160+945	New	Pipe	1	1.2

244	161+100	Re-construction	Pipe	1	1.2
245	161+400	Re-construction	Pipe	1	1.2
246	161+600	New	Pipe	1	1.2
247	161+705	New	BOX	2	2
248	161+995	Re-construction	Pipe	1	1.2
249	162+035	New	Pipe	1	1.2
250	162+145	New	Pipe	1	1.2
251	162+290	New	Pipe	1	1.2
252	162+470	New	Pipe	1	1.2
253	162+750	New	Pipe	1	1.2
254	162+865	Re-construction	Pipe	1	1.2
255	163+045	Re-construction	Pipe	1	1.2
256	163+145	Re-construction	Pipe	1	1.2
257	163+360	New	Pipe	1	1.2
258	163+530	New	Pipe	1	1.2
259	163+590	Re-construction	Pipe	1	1.2
260	163+710	Re-construction	Pipe	1	1.2
261	163+840	Re-construction	Pipe	1	1.2
262	163+900	New	Pipe	1	1.2
263	163+980	New	Pipe	1	1.2
264	164+070	Re-construction	Pipe	1	1.2
265	164+250	Re-construction	Pipe	1	1.2
266	164+330	Re-construction	Pipe	1	1.2
267	164+400	Re-construction	Pipe	1	1.2
268	164+580	New	Pipe	1	1.2
269	164+660	Re-construction	Pipe	1	1.2
270	164+770	Re-construction	Pipe	1	1.2
271	164+910	Re-construction	Pipe	1	1.2
272	165+190	Re-construction	Pipe	1	1.2
273	165+285	Re-construction	Pipe	1	1.2
274	165+530	Re-construction	Pipe	1	1.2
275	165+585	Re-construction	Pipe	1	1.2
276	165+820	New	Pipe	1	1.2
277	165+960	New	Pipe	1	1.2
278	166+270	New	Pipe	1	1.2
279	166+460	Re-construction	Pipe	1	1.2
280	166+605	Re-construction	Pipe	1	1.2
281	166+830	New	Pipe	1	1.2
282	167+130	Re-construction	Pipe	1	1.2
283	167+230	Re-construction	Pipe	1	1.2
284	167+300	Re-construction	Pipe	1	1.2
285	167+610	New	Pipe	1	1.2
286	167+760	Re-construction	Pipe	1	1.2
287	167+900	Re-construction	Pipe	1	1.2
288	168+080	Re-construction	Pipe	1	1.2
289	168+260	Re-construction	Pipe	1	1.2
290	168+400	Re-construction	Pipe	1	1.2
291	168+490	Re-construction	Pipe	1	1.2
292	168+790	New	Pipe	1	1.2
293	168+930	Re-construction	Pipe	1	1.2
294	169+190	Re-construction	Pipe	1	1.2
295	169+460	New	Pipe	1	1.2
296	169+660	New	Pipe	1	1.2
297	169+780	New	Pipe	1	1.2
298	169+960	Re-construction	Pipe	1	1.2

299	170+220	New	Pipe	1	1.2
300	170+350	Re-construction	Pipe	1	1.2
301	170+600	Re-construction	Pipe	1	1.2
302	170+840	Re-construction	Pipe	1	1.2
303	171+100	New	Pipe	1	1.2
304	171+185	Re-construction	Pipe	1	1.2
305	171+330	Re-construction	Pipe	1	1.2
306	171+370	Re-construction	Pipe	1	1.2
307	171+520	Re-construction	Pipe	1	1.2
308	171+670	Re-construction	Pipe	1	1.2
309	171+950	New	Pipe	1	1.2
310	172+180	New	Pipe	1	1.2
311	172+360	Re-construction	Pipe	1	1.2
312	172+570	Re-construction	Pipe	1	1.2
313	172+620	New	Pipe	1	1.2
314	172+705	New	Pipe	1	1.2
315	172+845	Re-construction	Pipe	1	1.2
316	172+915	Re-construction	Pipe	1	1.2
317	173+070	Re-construction	Pipe	1	1.2
318	173+285	Re-construction	Pipe	1	1.2
319	173+390	Re-construction	Pipe	1	1.2
320	173+460	New	Pipe	1	1.2
321	173+560	New	Pipe	1	1.2
322	173+600	Re-construction	Pipe	1	1.2
323	173+730	Re-construction	Pipe	1	1.2
324	173+780	New	Pipe	1	1.2
325	173+820	New	Pipe	1	1.2
326	173+910	Re-construction	Pipe	1	1.2
327	174+100	Re-construction	Pipe	1	1.2
328	174+190	Re-construction	Pipe	1	1.2
329	174+280	Re-construction	Pipe	1	1.2
330	174+460	Re-construction	Pipe	1	1.2
331	174+540	New	Pipe	1	1.2
332	174+690	Re-construction	Pipe	1	1.2
333	174+780	Re-construction	Pipe	1	1.2
334	174+900	Re-construction	Pipe	1	1.2
335	175+140	Re-construction	Pipe	1	1.2
336	175+340	New	Pipe	1	1.2
337	175+420	Re-construction	Pipe	1	1.2
338	175+510	Re-construction	Pipe	1	1.2
339	175+680	Re-construction	Pipe	1	1.2
340	175+990	Re-construction	Pipe	1	1.2
341	176+160	New	Pipe	1	1.2
342	176+430	Re-construction	Pipe	1	1.2
343	176+520	Re-construction	Pipe	1	1.2
344	176+640	New	Pipe	1	1.2
345	176+840	New	Pipe	1	1.2
346	176+940	Re-construction	Pipe	1	1.2
347	177+120	New	Pipe	1	1.2
348	177+180	Re-construction	Pipe	1	1.2
349	177+320	Re-construction	Pipe	1	1.2
350	177+540	New	Pipe	1	1.2
351	177+615	Re-construction	Pipe	1	1.2
352	177+720	Re-construction	Pipe	1	1.2
353	177+830	New	Pipe	1	1.2

354	178+040	New	Pipe	1	1.2
355	178+110	Re-construction	Pipe	1	1.2
356	178+320	New	Pipe	1	1.2
357	178+410	Re-construction	Pipe	1	1.2
358	178+610	Re-construction	Pipe	1	1.2
359	178+930	New	Pipe	1	1.2
360	179+040	New	Pipe	1	1.2
361	179+170	Re-construction	Pipe	1	1.2
362	179+350	Re-construction	Pipe	1	1.2
363	179+440	Re-construction	Pipe	1	1.2
364	179+720	Re-construction	Pipe	1	1.2
365	179+820	Re-construction	Pipe	1	1.2
366	180+120	New	Pipe	1	1.2
367	180+320	Re-construction	Pipe	1	1.2
368	180+360	New	Pipe	1	1.2
369	180+515	Re-construction	Pipe	1	1.2
370	180+690	Re-construction	Pipe	1	1.2
371	180+780	Re-construction	Pipe	1	1.2
372	180+995	Re-construction	Pipe	1	1.2
373	181+040	New	Pipe	1	1.2
374	181+100	New	Pipe	1	1.2
375	181+230	New	Pipe	1	1.2
376	181+270	Re-construction	Pipe	1	1.2
377	181+495	Re-construction	Pipe	1	1.2
378	181+630	New	Pipe	1	1.2
379	181+770	Re-construction	Pipe	1	1.2
380	181+975	Re-construction	Pipe	1	1.2
381	182+160	New	Pipe	1	1.2
382	182+390	New	Pipe	1	1.2
383	182+480	New	Pipe	1	1.2
384	182+640	Re-construction	Pipe	1	1.2
385	182+820	Re-construction	Pipe	1	1.2
386	183+080	New	Pipe	1	1.2
387	183+170	New	Pipe	1	1.2
388	183+240	New	Pipe	1	1.2
389	183+340	Re-construction	Pipe	1	1.2
390	183+390	New	Pipe	1	1.2
391	183+430	Re-construction	BOX	2	2
392	183+590	Re-construction	Pipe	1	1.2
393	183+720	Re-construction	Pipe	1	1.2
394	183+910	Re-construction	Pipe	1	1.2
395	184+180	New	Pipe	1	1.2
396	184+360	Re-construction	Pipe	1	1.2
397	184+580	Re-construction	Pipe	1	1.2
398	184+790	Re-construction	Pipe	1	1.2
399	184+960	Re-construction	BOX	2	2
400	185+040	Re-construction	Pipe	1	1.2
401	185+210	New	BOX	2	2
402	185+360	Re-construction	Pipe	1	1.2
403	185+650	Re-construction	Pipe	1	1.2
404	185+820	New	Pipe	1	1.2
405	186+000	Re-construction	Pipe	1	1.2
406	186+110	Re-construction	Pipe	1	1.2
407	186+360	Re-construction	Pipe	1	1.2
408	186+425	Re-construction	Pipe	1	1.2

409	186+495	Re-construction	Pipe	1	1.2
410	186+560	Re-construction	Pipe	1	1.2
411	186+700	Re-construction	Pipe	1	1.2
412	186+770	Re-construction	Pipe	1	1.2
413	187+000	Re-construction	Pipe	1	1.2
414	187+095	Re-construction	Pipe	1	1.2
415	187+355	Re-construction	Pipe	1	1.2
416	187+645	Re-construction	Pipe	1	1.2
417	187+850	Re-construction	Pipe	1	1.2
418	187+960	New	Pipe	1	1.2
419	188+170	Re-construction	Pipe	1	1.2
420	188+300	Re-construction	Pipe	1	1.2
421	188+590	New	Pipe	1	1.2
422	188+770	New	Pipe	1	1.2
423	188+890	Re-construction	Pipe	1	1.2
424	189+035	Re-construction	Pipe	1	1.2
425	189+080	Re-construction	Pipe	1	1.2
426	189+200	New	Pipe	1	1.2
427	189+290	Re-construction	Pipe	1	1.2
428	189+520	Re-construction	Pipe	1	1.2
429	189+695	Re-construction	Pipe	1	1.2
430	189+780	Re-construction	Pipe	1	1.2
431	189+820	New	Pipe	1	1.2
432	189+880	New	Pipe	1	1.2
433	189+940	Re-construction	Pipe	1	1.2
434	190+070	Re-construction	Pipe	1	1.2
435	190+240	New	Pipe	1	1.2
436	190+345	Re-construction	Pipe	1	1.2
437	190+530	Re-construction	Pipe	1	1.2
438	190+720	Re-construction	Pipe	1	1.2
439	190+940	Re-construction	BOX	2	2
440	191+040	New	Pipe	1	1.2
441	191+200	Re-construction	Pipe	1	1.2
442	191+300	Re-construction	Pipe	1	1.2
443	191+340	New	Pipe	1	1.2
444	191+430	Re-construction	Pipe	1	1.2
445	191+660	New	BOX	2	2
446	191+780	New	Pipe	1	1.2
447	192+000	Re-construction	Pipe	1	1.2
448	192+200	New	Pipe	1	1.2
449	192+290	Re-construction	Pipe	1	1.2
450	192+490	New	Pipe	1	1.2
451	192+580	Re-construction	Pipe	1	1.2
452	192+820	New	BOX	2	2
453	192+940	Re-construction	Pipe	1	1.2
454	192+980	New	Pipe	1	1.2
455	193+100	New	BOX	3	3
456	193+630	Re-construction	BOX	2	2
457	193+825	Re-construction	Pipe	1	1.2
458	193+910	New	Pipe	1	1.2
459	194+090	Re-construction	Pipe	1	1.2
460	194+180	New	Pipe	1	1.2
461	194+230	New	Pipe	1	1.2
462	194+285	Re-construction	Pipe	1	1.2

463	194+390	Re-construction	Pipe	1	1.2
464	194+470	Re-construction	Pipe	1	1.2
465	194+670	Re-construction	Pipe	1	1.2
466	194+860	Re-construction	Pipe	1	1.2
467	195+100	Re-construction	Pipe	1	1.2
468	195+250	Re-construction	Pipe	1	1.2
469	195+380	Re-construction	Pipe	1	1.2
470	195+480	Re-construction	Pipe	1	1.2
471	195+580	New	Pipe	1	1.2
472	195+720	Re-construction	Pipe	1	1.2
473	196+020	Re-construction	Pipe	1	1.2
474	196+165	Re-construction	Pipe	1	1.2
475	196+430	Re-construction	Pipe	1	1.2
476	196+550	Re-construction	Pipe	1	1.2
477	196+720	Re-construction	Pipe	1	1.2
478	196+900	New	Pipe	1	1.2
479	197+120	New	BOX	3	3
480	197+330	Re-construction	BOX	3	3
481	197+440	New	BOX	3	3
482	197+550	Re-construction	BOX	3	3
483	197+680	Re-construction	Pipe	1	1.2
484	197+750	Re-construction	Pipe	1	1.2
485	197+880	Re-construction	Pipe	1	1.2
486	197+970	Re-construction	Pipe	1	1.2
487	198+060	Re-construction	Pipe	1	1.2
488	198+130	Re-construction	Pipe	1	1.2
489	198+220	Re-construction	Pipe	1	1.2
490	198+320	Re-construction	Pipe	1	1.2
491	198+430	Re-construction	BOX	4	6
492	198+575	Re-construction	Pipe	1	1.2
493	198+700	New	Pipe	1	1.2
494	198+770	New	Pipe	1	1.2
495	198+870	Re-construction	Pipe	1	1.2
496	199+050	Re-construction	Pipe	1	1.2
497	199+195	Re-construction	Pipe	1	1.2
498	199+400	Re-construction	Pipe	1	1.2
499	199+540	Re-construction	Pipe	1	1.2
500	199+820	Re-construction	Pipe	1	1.2
501	199+970	New	Pipe	1	1.2
502	200+210	Re-construction	Pipe	1	1.2
503	200+430	Re-construction	Pipe	1	1.2
504	200+495	Re-construction	Pipe	1	1.2
505	200+760	Re-construction	Pipe	1	1.2
506	200+860	New	Pipe	1	1.2
507	200+990	New	BOX	2	2
508	201+255	Re-construction	Pipe	1	1.2
509	201+440	Re-construction	Pipe	1	1.2
510	201+590	Re-construction	Pipe	1	1.2
511	201+640	Re-construction	Pipe	1	1.2
512	201+710	New	Pipe	1	1.2

513	201+845	Re-construction	Pipe	1	1.2
514	201+945	Re-construction	Pipe	1	1.2
515	202+300	Re-construction	Pipe	1	1.2
516	202+580	Re-construction	Pipe	1	1.2
517	202+880	Re-construction	Pipe	1	1.2
518	203+120	Re-construction	Pipe	1	1.2
519	203+210	New	Pipe	1	1.2
520	203+465	Re-construction	Pipe	1	1.2
521	203+580	New	Pipe	1	1.2
522	203+770	Re-construction	Pipe	1	1.2
523	204+060	New	Pipe	1	1.2
524	204+250	Re-construction	Pipe	1	1.2
525	204+390	Re-construction	Pipe	1	1.2
526	204+510	Re-construction	Pipe	1	1.2
527	204+740	New	Pipe	1	1.2
528	204+920	Re-construction	Pipe	1	1.2
529	205+100	Re-construction	Pipe	1	1.2
530	205+300	Re-construction	Pipe	1	1.2
531	205+380	New	Pipe	1	1.2
532	205+650	Re-construction	Pipe	1	1.2
533	205+900	Re-construction	Pipe	1	1.2
534	206+000	Re-construction	Pipe	1	1.2
535	206+100	Re-construction	Pipe	1	1.2
536	206+250	Re-construction	Pipe	1	1.2
537	206+495	Re-construction	BOX	2	2
538	206+610	Re-construction	Pipe	1	1.2
539	206+735	Re-construction	Pipe	1	1.2
540	206+930	New	Pipe	1	1.2
541	207+180	Re-construction	Pipe	1	1.2
542	207+365	Re-construction	Pipe	1	1.2
543	207+420	Re-construction	Pipe	1	1.2
544	207+580	Re-construction	Pipe	1	1.2
545	207+690	Re-construction	Pipe	1	1.2
546	207+980	Re-construction	Pipe	1	1.2
547	208+095	Re-construction	Pipe	1	1.2
548	208+425	New	Pipe	1	1.2
549	208+645	Re-construction	Pipe	1	1.2
550	208+810	Re-construction	Pipe	1	1.2
551	208+965	Re-construction	Pipe	1	1.2
552	209+200	New	Pipe	1	1.2
553	209+360	New	Pipe	1	1.2
554	209+600	Re-construction	Pipe	1	1.2
555	209+690	Re-construction	Pipe	1	1.2
556	209+790	Re-construction	Pipe	1	1.2
557	209+990	New	Pipe	1	1.2
558	210+150	Re-construction	Pipe	1	1.2
559	210+420	Re-construction	Pipe	1	1.2
560	210+575	Re-construction	Pipe	1	1.2
561	210+880	Re-construction	Pipe	1	1.2
562	211+090	Re-construction	Pipe	1	1.2
563	211+300	Re-construction	Pipe	1	1.2
564	211+440	Re-construction	Pipe	1	1.2
565	211+630	Re-construction	Pipe	1	1.2
566	211+770	Re-construction	Pipe	1	1.2



567	211+940	Re-construction	Pipe	1	1.2
568	212+040	Re-construction	Pipe	1	1.2
569	212+205	Re-construction	Pipe	1	1.2
570	212+305	Re-construction	Pipe	1	1.2
571	212+560	Re-construction	Pipe	1	1.2
572	212+745	Re-construction	Pipe	1	1.2
573	213+010	New	Pipe	1	1.2
574	213+185	Re-construction	Pipe	1	1.2
575	213+500	New	Pipe	1	1.2
576	213+680	New	Pipe	1	1.2
577	213+880	Re-construction	Pipe	1	1.2
578	214+105	Re-construction	Pipe	1	1.2
579	214+425	Re-construction	Pipe	1	1.2
580	214+715	Re-construction	Pipe	1	1.2
581	214+790	New	Pipe	1	1.2
582	214+980	New	Pipe	1	1.2
583	215+125	Re-construction	Pipe	1	1.2
584	215+400	Re-construction	Pipe	1	1.2
585	215+700	Re-construction	Pipe	1	1.2
586	215+960	New	Pipe	1	1.2
587	216+190	Re-construction	Pipe	1	1.2
588	216+340	New	Pipe	1	1.2
589	216+710	Re-construction	Pipe	1	1.2
590	216+820	Re-construction	Pipe	1	1.2
591	216+940	Re-construction	Pipe	1	1.2
592	217+025	Re-construction	BOX	2	2
593	217+170	Re-construction	Pipe	1	1.2
594	217+430	Re-construction	Pipe	1	1.2
595	217+615	Re-construction	Pipe	1	1.2
596	217+705	Re-construction	Pipe	1	1.2
597	217+800	Re-construction	BOX	2	2
598	217+920	Re-construction	BOX	2	2
599	218+140	Re-construction	Pipe	1	1.2
600	218+210	Re-construction	Pipe	1	1.2
601	218+350	Re-construction	Pipe	1	1.2
602	218+490	New	Pipe	1	1.2
603	218+670	Re-construction	Pipe	1	1.2
604	218+820	Re-construction	Pipe	1	1.2
605	218+955	Re-construction	Pipe	1	1.2
606	219.020	Re-construction	Pipe	1	1.2
607	219.100	Re-construction	Pipe	1	1.2
608	219.160	Re-construction	Pipe	1	1.2
609	219.430	Re-construction	Pipe	1	1.2
610	219.780	Re-construction	Pipe	1	1.2
611	219.910	Re-construction	Pipe	1	1.2
612	220.220	Re-construction	Pipe	1	1.2
613	220.540	Re-construction	Pipe	1	1.2
614	220.860	Re-construction	Pipe	1	1.2
615	220.980	New	Pipe	1	1.2
616	221.220	New	Pipe	1	1.2
617	221.430	Re-construction	Pipe	1	1.2
618	221.670	New	Pipe	1	1.2
619	221.970	Re-construction	Pipe	1	1.2
620	222.025	Re-construction	Pipe	1	1.2
621	222.116	Re-construction	Pipe	1	1.2



622	222.222	Re-construction	Pipe	1	1.2
623	222.340	Re-construction	Pipe	1	1.2
624	222.495	Re-construction	Pipe	1	1.2
625	222.760	Re-construction	Pipe	1	1.2
626	222.950	Re-construction	Pipe	1	1.2
627	223.080	Re-construction	Pipe	1	1.2
628	223.200	Re-construction	Pipe	1	1.2
629	223.320	Re-construction	Pipe	1	1.2
630	223.540	Re-construction	Pipe	1	1.2
631	223.620	Re-construction	Pipe	1	1.2
632	223.735	Re-construction	Pipe	1	1.2
633	223.806	Re-construction	Pipe	1	1.2
634	223.990	New	Pipe	1	1.2
635	224.162	Re-construction	Pipe	1	1.2
636	224.350	Re-construction	Pipe	1	1.2
637	224.467	Re-construction	Pipe	1	1.2
638	224.575	Re-construction	Pipe	1	1.2
639	224.960	Re-construction	Pipe	1	1.2
640	225.100	Re-construction	Pipe	1	1.2
641	225.280	Re-construction	Pipe	1	1.2
642	225.340	Re-construction	Pipe	1	1.2
643	225.490	Re-construction	BOX	3	3
644	225.600	Re-construction	BOX	3	3
645	225.800	Re-construction	BOX	3	3
646	225.920	Re-construction	Pipe	1	1.2
647	226.155	Re-construction	Pipe	1	1.2
648	226.290	Re-construction	Pipe	1	1.2
649	226.460	Re-construction	Pipe	1	1.2
650	226.600	New	Pipe	1	1.2
651	226.820	Re-construction	Pipe	1	1.2
652	226.990	New	Pipe	1	1.2
653	227.140	Re-construction	Pipe	1	1.2
654	227.300	New	Pipe	1	1.2
655	227.550	New	Pipe	1	1.2
656	227.700	Re-construction	Pipe	1	1.2
657	227.900	Re-construction	Pipe	1	1.2
658	228.060	Re-construction	Pipe	1	1.2
659	228.150	Re-construction	Pipe	1	1.2
660	228.340	Re-construction	Pipe	1	1.2
661	228.370	Re-construction	Pipe	1	1.2
662	228.525	Re-construction	Pipe	1	1.2
663	228.725	Re-construction	Pipe	1	1.2
664	228.820	Re-construction	Pipe	1	1.2
665	229.105	Re-construction	Pipe	1	1.2
666	229.270	Re-construction	Pipe	1	1.2
667	229.530	Re-construction	Pipe	1	1.2
668	229.570	Re-construction	Pipe	1	1.2
669	229.740	Re-construction	Pipe	1	1.2
670	229.900	Re-construction	Pipe	1	1.2
671	230.035	Re-construction	Pipe	1	1.2
672	230.258	Re-construction	Pipe	1	1.2
673	230.298	Re-construction	Pipe	1	1.2
674	230.480	Re-construction	Pipe	1	1.2
675	230.640	Re-construction	Pipe	1	1.2
676	230.780	Re-construction	Pipe	1	1.2



677	230.935	Re-construction	Pipe	1	1.2
678	231.110	Re-construction	Pipe	1	1.2
679	231.310	Re-construction	Pipe	1	1.2
680	231.400	Re-construction	Pipe	1	1.2
681	231.590	Re-construction	Pipe	1	1.2
682	231.780	Re-construction	Pipe	1	1.2
683	232.057	Re-construction	Pipe	1	1.2
684	232.160	Re-construction	Pipe	1	1.2
685	232.355	Re-construction	Pipe	1	1.2
686	232.500	Re-construction	Pipe	1	1.2
687	232.690	Re-construction	Pipe	1	1.2
688	232.840	New	Pipe	1	1.2
689	233.000	Re-construction	Pipe	1	1.2
690	233.120	Re-construction	BOX	2	2
691	233.280	Re-construction	Pipe	1	1.2
692	233.460	Re-construction	Pipe	1	1.2
693	233.650	Re-construction	Pipe	1	1.2
694	233.790	Re-construction	Pipe	1	1.2
695	233.980	Re-construction	Pipe	1	1.2
696	234.230	Re-construction	Pipe	1	1.2
697	234.420	Re-construction	Pipe	1	1.2
698	234.540	Re-construction	Pipe	1	1.2
699	234.735	Re-construction	Pipe	1	1.2
700	234.880	Re-construction	Pipe	1	1.2
701	234.890	Re-construction	Pipe	1	1.2
702	235.040	New	Pipe	1	1.2
703	235.270	Re-construction	BOX	2	2
704	235.460	Re-construction	BOX	4	4
705	235.540	Re-construction	Pipe	1	1.2
706	235.650	Re-construction	BOX	4	6
707	235.830	Re-construction	BOX	2	2
708	236.030	Re-construction	Pipe	1	1.2
709	236.300	Re-construction	Pipe	1	1.2
710	236.410	Re-construction	Pipe	1	1.2
711	236.540	Re-construction	Pipe	1	1.2
712	236.670	Re-construction	Pipe	1	1.2
713	236.770	Re-construction	Pipe	1	1.2
714	236.880	Re-construction	Pipe	1	1.2
715	237.090	Re-construction	Pipe	1	1.2
716	237.320	Re-construction	Pipe	1	1.2
717	237.440	Re-construction	Pipe	1	1.2
718	237.680	Re-construction	Pipe	1	1.2
719	237.820	Re-construction	Pipe	1	1.2
720	237.890	Re-construction	Pipe	1	1.2
721	238.120	Re-construction	Pipe	1	1.2
722	238.280	Re-construction	Pipe	1	1.2
723	238.370	Re-construction	Pipe	1	1.2
724	238.590	Re-construction	BOX	2	2
725	238.640	Re-construction	Pipe	1	1.2
726	238.710	Re-construction	Pipe	1	1.2
727	238.760	Re-construction	Pipe	1	1.2
728	238.950	Re-construction	Pipe	1	1.2
729	239.110	Re-construction	Pipe	1	1.2
730	239.220	Re-construction	Pipe	1	1.2
731	239.420	Re-construction	Pipe	1	1.2

732	239.540	Re-construction	Pipe	1	1.2
733	239.640	Re-construction	Pipe	1	1.2
734	239.770	Re-construction	Pipe	1	1.2
735	239.820	Re-construction	BOX	2	2
736	239.840	Re-construction	Pipe	1	1.2
737	240.100	Re-construction	Pipe	1	1.2
738	240.160	Re-construction	Pipe	1	1.2
739	240.300	Re-construction	Pipe	1	1.2
740	240.470	Re-construction	Pipe	1	1.2
741	240.570	Re-construction	BOX	2	2
742	240.750	Re-construction	Pipe	1	1.2
743	240.920	Re-construction	Pipe	1	1.2
744	241.080	Re-construction	Pipe	1	1.2
745	241.170	Re-construction	BOX	2	2
746	241.450	New	Pipe	1	1.2
747	241.630	Re-construction	Pipe	1	1.2
748	241.750	Re-construction	BOX	4	6
749	241.810	Re-construction	Pipe	1	1.2
750	241.870	Re-construction	BOX	2	2
751	241.950	Re-construction	Pipe	1	1.2
752	242.080	Re-construction	Pipe	1	1.2
753	242.120	Re-construction	BOX	2	2
754	242.380	Re-construction	Pipe	1	1.2
755	242.580	Re-construction	Pipe	1	1.2
756	242.640	Re-construction	Pipe	1	1.2
757	242.760	New	Pipe	1	1.2
758	242.980	Re-construction	Pipe	1	1.2
759	243.035	Re-construction	BOX	3	3
760	243.260	Re-construction	BOX	4	4