04-Ala-80 KP 1.6-2.7
04-265-E.A. 0120L4
Project Cost: $253,000,000
Source Fund: TBSRA

Fact Sheet Exceptions to Advisory Design Standards

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1. PROPOSED PROJECT

A. Project Description

The Oakland Touchdown (OTD) portion of the San Francisco-Oakland Bay Bridge East Span Seismic Safety Project (ESSSP) involves the construction of the final 300 meters of both westbound and eastbound structures of the east span, as well as the roadway approaches to the new east span. In order to provide contractor access for the Self-Anchored Suspension Span (SAS) portion of the new east span by January 2010 (Contract 04-0120F4), the OTD work has been split into two distinct contracts. This Fact Sheet will approve the nonstandard features in OTD Phase 1 Contract (04-0120L4) only.

These two Contracts implement the following:

<u>OTD Phase 1 Contract (04-0120L4):</u>

- The new westbound and eastbound foundations (except for the eastbound abutment), as well as the entire westbound and Frame 1 of the eastbound structure will be constructed. This would allow access to the contractor responsible for constructing the SAS structure.
- A detour for the maintenance road will be constructed and non-public traffic will be placed on this detour. An eastbound detour will be constructed south of the existing eastbound roadway. The final AC and striping will be done in OTD Phase 2 Contract (04-0120M4). Public traffic will use the eastbound detour during the OTD phase 2 contract.

<u>OTD Phase 2 Contract (04-0120M4):</u>

- Traffic will be placed on the westbound structure.
- Traffic will be placed on the eastbound detour.
- Following these traffic shifts, the existing upper deck will be demolished from bent E39 to bent E28 (the portion not directly over traffic).
- Frame 2 of the eastbound structure will be constructed.
- Portions of the existing westbound and eastbound roadways will be removed and replaced with lightweight concrete and the structural roadway for the permanent eastbound alignment.
- Eastbound traffic will be shifted to its new permanent alignment with standard width lanes and shoulders approximately 7 months following the switch of traffic to the permanent westbound alignment with the contractor working extended shifts/work weeks on critical activities.

See Attachment A for a Project Location Map.

B. Existing Highway

This 1.1 kilometer long structure and roadway is part of the Interstate 80 freeway connecting the cities of San Francisco in San Francisco County and Oakland in Alameda County. The roadway consists of five 3.6-meter wide lanes and right shoulder widths that vary from 0.3 to 3 meters in both directions of travel. Left shoulder widths vary from 0.3 to 3 meters on the westbound and eastbound directions.

C. Safety Improvements

This project is a major portion of the seismic retrofit by replacement of the east span of the San Francisco Oakland Bay Bridge (SFOBB). The SFOBB is an important link in the statewide transportation system, listed as a lifeline structure, and is currently vulnerable to a major earthquake. A new East span of SFOBB is essential to public safety and the economy of the region. The improvements on the Phase 1 contract would involve the construction of the new westbound structure, a portion of the eastbound abutment, and 6 Piers of the new eastbound structure. The Phase 2 contract will construct the remainder of the eastbound structure, and will place both westbound and eastbound traffic in their final configurations.

Phase 1 is part of an overall improvement on the Bridge structure as well as on the roadway segment approaching the East Side of the Bridge starting at the Toll Plaza. Phase 1 does not present any road improvements per se, but will provide access to the contractor working on the construction of the SAS portion, per the contractual obligations of the Department. No traffic shifts in either direction will be implemented as part of the Phase 1 contract. Phase 2 contract will finish the roadway alignments in both directions.

D. Total Project Cost

The total project cost for the Phase 1 contract (Contract 04-0120L4) in 2007 dollars is $253,000,000

The cost estimate is broken down as follows:

Project Report and Environmental Document Report:		$ 2,000,000
Design Phase (PS&E)		$ 5,000,000
Construction Phase:		
	District Items:	$ 55,000,000
	Structure Items:	$177,500,000
	Right-of-Way/Utilities:	$ 2,500,000
	Construction Administration	$ 11,000,000
Total:		$253,000,000

2. FEATURES REQUIRING AN EXCEPTION

Attention is directed to Attachments B, "Nonstandard Features Exhibit - Advisory" which graphically depicts the nonstandard features for the proposed project. The nonstandard features are described as follows:

(1) Design Exception Feature #1 – Lane Drop Transitions

The following are the existing nonstandard lane drop transitions for the freeway, and standards contained in Index 206.3(1). Also included are Attachment B locations:

Structure	Attachment B Location	Location	Existing Nonstandard Lane Drop Transitions	HDM Index 206.3(1) Lane Drop Transitions Standards
Westbound	1	Mainline toll lanes approaching existing WB structure	Transition Length = 157 m from W90+30 to W91+87; Transition Length = 58 m from W91+87 to W92+45; Transition Length = 141 m from W92+45 to W93+86	Minimum Transition Length= 216 m (for a facility with a design Speed of 90 km/h and lane width of 3.6 m)

Note: Advisory (per Caltrans Metric HDM, 5th Edition – Last Updated: 6-26-06)

Standard for which exception is requested

HDM Index 206.3(1).

206.3 Pavement Reductions

(1) Through Lane Drops. When a lane is to be dropped, it should be done by tapering over a distance equal to (2/3)WV, where W = Width of lane to be dropped and V = Design Speed.

Reason for requesting exception

Lane drop transitions could not be provided because of the physical constraint associated with the location of the metering lights and the toll plaza. In order to provide the required lane drop transition, the metering lights, and the toll plaza facilities would have to be relocated to the east, thus also requiring the relocation of the 80/580/980/W.Grand connectors to the Toll Plaza. Due to the limited amount of land, the Bay would have to be substantially filled in order to accomplish these relocations. The environmental impacts would require a full FEIS/R process.

Added cost to make standard

In order to comply with all the geometric standards, the metering lights, toll plaza facilities, and the 80/580/980/W.Grand connectors would have to be relocated at a cost of approximately $ 2 billion.

(2) Design Exception Feature #2 - Lane Width Reductions

The following are the existing nonstandard Lane Width Reductions for the freeway, and standards contained in Index 206.3(3). Also included are Attachment B locations:

Structure	Attachment B Location	Location	Existing Nonstandard Lane Width Reductions	HDM Index 206.3(3) Lane Width Reductions
Westbound	1	Mainline toll lanes approaching existing WB structure	Transition Length = 157 m from W90+30 to W91+87; Transition Length = 58 m from W91+87 to W92+45; Transition Length = 141 m from W92+45 to W93+86	Minimum Transition Length= 216 m (for a facility with a design Speed of 90 km/h and lane width of 3.6 m)

Note: Advisory (per Caltrans Metric HDM, 5th Edition – Last Updated: 6-26-06)

Standard for which exception is requested

HDM Index 206.3(3). *Lane Reductions.* At any location where lane widths are being reduced, the minimum length over which to accomplish the transition should be equal to (2/3)WV.

Reason for requesting exception

Lane drop transitions could not be provided because of the physical constraint associated with the location of the metering lights and the toll plaza. In order to provide the required lane drop transition, the metering lights, and the toll plaza facilities would have to be relocated to the east, thus also requiring the relocation of the 80/580/980/W.Grand connectors to the Toll Plaza. Due to the limited amount of land, the Bay would have to be substantially filled in order to accomplish these relocations. The environmental impacts would require a full FEIS/R process.

Added cost to make standard

In order to comply with all the geometric standards, the metering lights, toll plaza facilities, and the 80/580/980/W.Grand connectors would have to be relocated at a cost of approximately $ 2 billion.

(3) Design Exception Feature #3 - Median Width

The following are the existing nonstandard median widths for the freeway, and standards contained in Index 305.1(1). Also included are Attachment B locations:

Structure	Attachment B Location	Location	Existing Nonstandard Median Widths	HDM Index 305.1 (1) Median Widths
Eastbound and Westbound Mainline lanes	2	Existing Median	Existing median less than 10.8 m from E87+20 to E91+20	Minimum Width= 10.8 m

Note: Advisory (per Caltrans Metric HDM, 5th Edition – Last Updated: 6-26-06)

Standard for which exception is requested

HDM Index 305.1(1)

The minimum median width for freeways and expressways in urban areas should be 10.8 m.

Reason for requesting exception

The Phase 2 contract (04-0120M4), will construct medians with the minimum width advised by the Highway Design Manual.

Added cost to make standard

The Phase 2 of the Oakland Touchdown project (04-0120M4) will correct the remaining existing nonstandard conditions at a cost of about $60 million.

3. TRAFFIC DATA

Current and design peak period hourly volumes are as follows:

Direction/Peak	Existing	2025 Forecast
One Way	9,410	12,700

Current AADT is 300,300 vehicles, with an anticipated 2025 AADT volume of 405,600 vehicles.

4. ACCIDENT ANALYSIS

The following table is a summary of TASAS table B accident data from 1/1/03 to 12/31/05 for 04 Ala 80 1.0-1.7

Actual Number of Accidents			Total MV+ or MVM	Actual Accident Rates			Average Accident Rates		
Total	Fatal	Injury		Fat	F+I	Total	Fat	F+I	Total
211	1	56	218.97	0.005	0.26	0.96	0.005	0.30	0.97

Primary collision factors		
Number	PCT	Code
16	7.6	1-Influence alcohol
24	11.4	2-Follow too close
0	0	3-Failure to yield
12	5.7	4-Improper turn
84	39.8	5-Speeding
53	25.1	6-Other violations
15	7.1	B-Improper driving
1	0.5	C-Other than driver
6	2.8	D-Unknown
0	0	E-Fell sleep
0	0	< - Not stated

Road Surface		
Number	PCT	Code
183	86.7	A-Dry
26	12.3	B-Wet
1	0.5	C-Snowy, Icy
0	0.0	D-Slippery
1	0.5	< - Not Stated

Roadway Condition		
Number	PCT	Code
4	1.9	D-Construct-Repair-Zone
201	95.3	H-No unusual Condition
0	0.0	F-Flooded

Side of Highway		
Number	PCT	Code
84	39.8	E-Eastbound
127	60.2	W-Westbound

Type of Collision		
Number	PCT	Code
0	0.0	A-Head-on
74	35.1	B-Sideswipe
108	51.2	C-Rear End
3	1.4	D-Broadside
25	11.8	E-Hit Object
0	0.0	F-Overturn
1	0.5	< - Not Stated

Accident Rates expressed as number of accidents/million vehicle miles (MVM)

Most of the Accidents have occurred on the Westbound side of the highway. No fatalities have occurred due to flooding. The Phase 2 contract (04-0120M4), will correct the abrupt curve at the east end of the bridge and the smoother alignment will potentially help reduce the percentage of accidents caused due to sideswipe. Sideswipe accidents are at 35 percent for the period between 1/1/03 and 12/31/05.

5. INCREMENTAL IMPROVEMENTS

None

6. FUTURE CONSTRUCTION

As mentioned throughout this document, immediately following the completion of this Phase 1 contract, State will embark on the construction of the Phase 2 contract (Contract 04-0120M4), which is already programmed into the Toll Bridge Seismic Retrofit Program. The Phase 2 contract has a tentative start construction date of 2010, and an end completion date of early 2013. Under this Phase 2 contract, the Department will complete the construction of the eastbound structure, as well as proceeding with the construction of the I-80 median area and the eastbound roadway. The following list highlights the major phase of work for the Phase 2 contract:

<u>OTD Phase 2 Contract (04-0120M4):</u>

- Traffic will be placed on the westbound structure.
- Traffic will be placed on the eastbound detour.
- Following these traffic shifts, the existing upper deck will be demolished from bent E39 to bent E28 (the portion not directly over traffic).
- Frame 2 of the eastbound structure will be constructed.

- Portions of the existing westbound and eastbound roadways will be removed and replaced with lightweight concrete and the structural roadway for the permanent eastbound alignment.
- Eastbound traffic will be shifted to its new permanent alignment with standard lane and shoulder widths.

7. PROJECT REVIEWS, CONCURRENCE

Gordon Brown, Design Reviewer for the Division of Design reviewed and concurred with this Fact Sheet exception to Advisory Design Standards for this project on 7/24/07

8. ATTACHMENTS

Attachment A:	Project Location Map
Attachment B:	Nonstandard Features Exhibit – Advisory

ATTACHMENT A
Project Location

04-Ala-80 KP 1.6-2.7
04-265-E.A. 0120L4
Project Cost: $253,000,000

DIST	COUNTY	ROUTE	KILOMETER POST TOTAL PROJECT	PREFIX	SUFFIX
04	Ala	80	1.6/2.7		

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Caltrans Metric

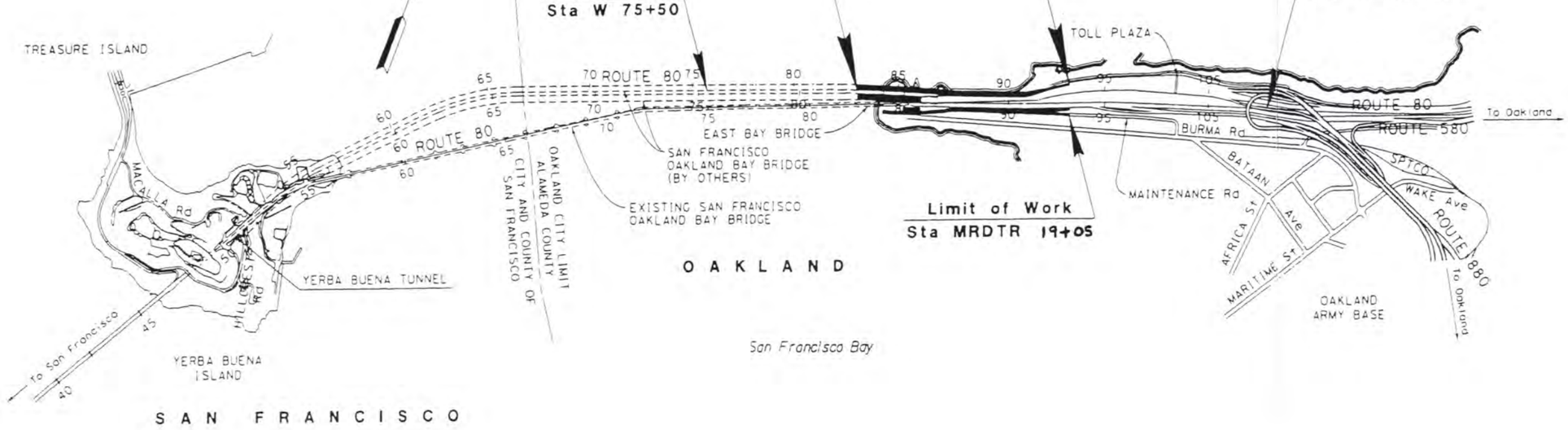
END CONSTRUCTION
STA W 93+86 KP 2.7
PM 1.7

BEGIN CONSTRUCTION
STA W 83+11.00 KP 1.6
PM 1.0

Begin Work
Sta W 75+50

End Work
Sta W 107+00

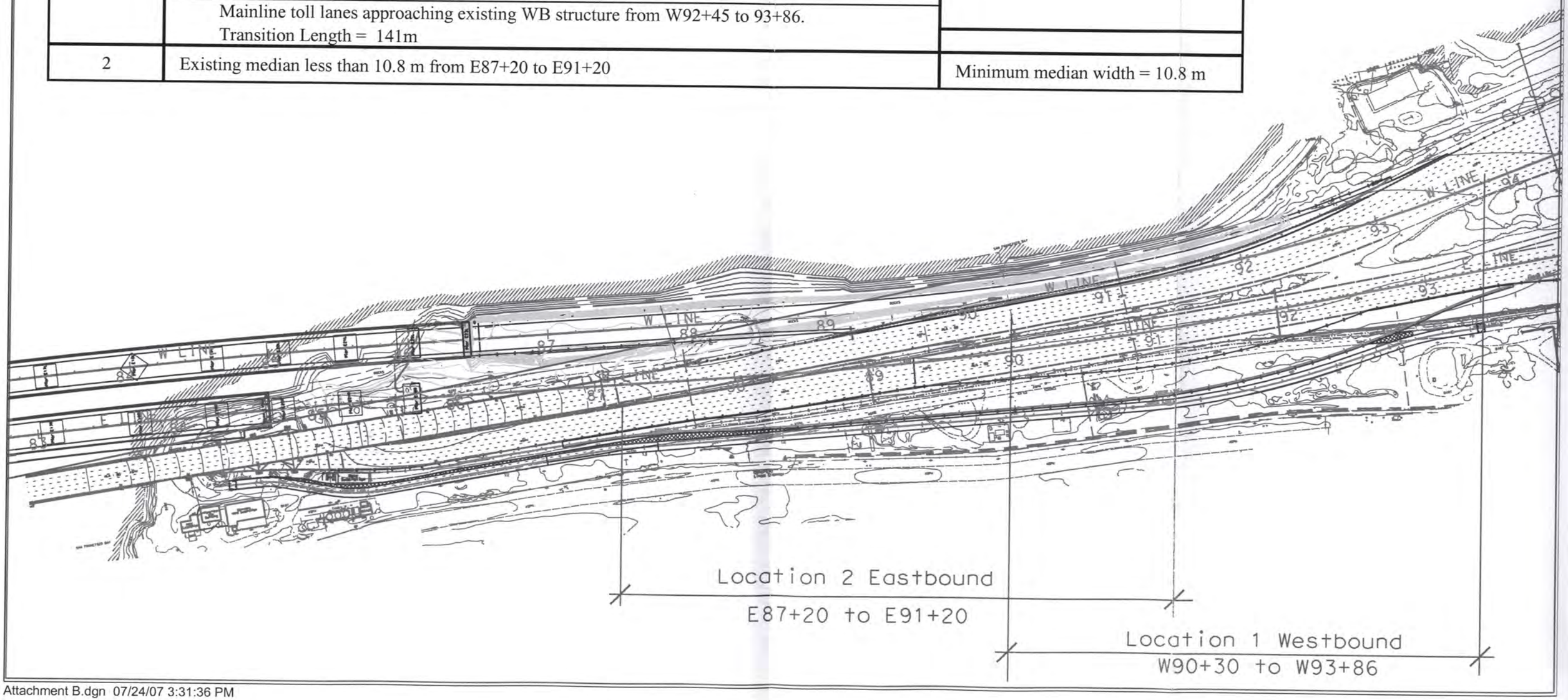
Limit of Work
Sta MRDTR 19+05



ATTACHMENT B
Locations for Requested Design Exceptions

04-Ala-80 KP 1.6-2.7
04-265-E.A. 0120L4
Project Cost: $253,000,000

LOCATION	CONDITION	HDM STANDARD
1	Lane Drop Transitions; Lane Width Transitions	Minimum Transition Length= 216 m
	Mainline toll lanes approaching existing WB structure from W90+30 to 91+87. Transition Length = 157m	
	Mainline toll lanes approaching existing WB structure from W91+87 to 92+45. Transition Length = 58m	
	Mainline toll lanes approaching existing WB structure from W92+45 to 93+86. Transition Length = 141m	
2	Existing median less than 10.8 m from E87+20 to E91+20	Minimum median width = 10.8 m



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