

For Information
on 1 November 2000

Legislative Council Panel on Environmental Affairs

**Strategic Sewage Disposal Scheme I : Completion of sewer tunnel
System from Kwai Chung to Stonecutters Island**

Introduction

At the special meeting of the Panel on Environmental Affairs on 25 October 2000 to discuss the Administration's proposal to increase the approved project estimate (APE) of 320DS "Strategic Sewage Disposal Scheme Stage I : completion of sewer tunnel system from Kwai Chung to Stonecutters Island", Members asked the Administration to provide further information for discussion at the special meeting on 1 November 2000. This paper aims to provide Members with the requested information of the project.

Administration's Responses on Members' Request for Information

- I. Hon Albert CHAN requested information on the overall original and revised project estimates for SSDS Stage I, the cost of each of the 19 projects under the Strategic Sewage Disposal Scheme (SSDS) Stage I, the reasons for seeking additional funding from the Finance Committee on previous occasions, and the timetable for completion/progress of these projects.*

Government's Reply:

2. Stage I of the SSDS was originally funded under the Sewage Services Trading Fund (SSTF) which was in turn financed by a capital injection from the Capital Investment Fund. The capital injection as approved by Finance Committee (FC) in March 1994 for the completion of the SSDS Stage I was \$5,174 million (August 1993 price) or \$ 6,693 million in money-of-the-day (MOD) price.
3. In addition to the SSTF, a separate public works project item (PWP) was created

to provide funding for the detailed design and investigation of the SSDS Stage I works. FC approved on 14 May 1993 an APE of \$130 million for this PWP Item, 142DS – Strategic Disposal Scheme, Stage I : Kowloon System – Consultants’ fees and investigation.

4. Following the forfeiture of the two tunnel contracts in December 1996, additional fund was needed for the completion of the works for the Eastern tunnels. On 12 December 1997, approval was given by FC for the creation and direct inclusion in Category A of PWP Item 286DS – Strategic Sewage Disposal Scheme Stage I : completion of sewage tunnel system from Chai Wan and Tseung Kwan O to Kwun Tong and from Kwun Tong to Stonecutters Island at an estimated cost of \$2,000 million (MOD price).

5. On 19 November 1997, the Provisional Legislative Council approved the closure of the SSTF with effect from 31 March 1998. The total spending for the SSDS Stage I at the time of closure of the SSTF was \$4,408.9 million (MOD price). Approval was given by FC on 27 February 1998 to transfer the 17 items created under the SSTF for SSDS Stage I to Capital Works Reserve Fund (CWRF) at a total estimated cost of \$1,672.4 million (MOD price). Details of these 17 items are listed in **Annex I**. In April 1998, therefore, the overall APE for completing the whole SSDS Stage I, comprising 19 project items (142DS, 286DS and the 17 items transferred from the SSTF), was **\$8,211.3 million**, namely:

- \$4,408.9 million spent under the SSTF
- the APE of \$130 million for 142DS (paragraph 3)
- the APE of \$2,000 million for 286DS (paragraph 4)
- the APEs of \$1,672.4 million for the 17 items transferred from the SSTF (paragraph 5)

6. Since the transfer of the SSDS Stage I works from the SSTF to CWRF, prior the funding request in respect of 320DS, the Administration has only approached the FC for additional funding for one SSDS Stage I project (with the exception of the latest funding request in respect of 320DS). On 25 June 1999, the Finance Committee approved an increase in the APE of 312DS (SSDS Stage I : Construction and Supervision of the Main Works) from \$118.2 million by \$98.8 million to \$217.0 million. This increase was required to cover the additional construction supervision costs due to the extended construction period of the SSDS Stage I resulting mainly from the forfeiture of the two previous tunnel contracts.

7. For item 318DS (SSDS Stage I : Environmental Impact Assessment Study), insufficient funds were transferred on the closure of the SSTF. It had been projected that \$57 million out of the \$68.3 million allocated for this item would have been spent by 31

March 1998, so only \$11.3 million was injected into this item in the CWRP. After the closure of the SSTF, actual expenditure was found to have been only \$43.4 million, leaving a shortfall of \$13.6 million. On 20 August 1998, Secretary for the Treasury exercised her authority and approved an increase in the APE of 318DS from \$11.3 million by \$13.6 million to \$24.9 million.

8. As a result of the increases in the APEs of 312DS and 318DS, the overall APE of SSDS Stage I has been increased from \$8,211.3 million by \$112.4 million to **\$8,323.7 million**.

9. The Government proposed in October 2000 that the APE for 320DS “SSDS Stage I : Completion of Sewer Tunnel System from Kwai Chung to Stonecutters Island” be increased from \$487.6 million by \$115.0 million to \$602.6 million in MOD prices. This however would not lead to an increase of the overall APE of the SSDS Stage I works. As some SSDS Stage I works are near completion, we anticipate that we would achieve savings of \$186.7 million from 12 SSDS Stage I projects. According to our current forecast, if the proposed increase in the approved project estimate for this project is approved, the overall estimate for the completion of SSDS Stage I will be **\$8,252.0 million**, which is \$72 million less than the total APEs of SSDS Stage I works of \$8,323.7 million. A breakdown of the latest estimate is at **Annex II**.

10. With the exception of the six sewage transfer tunnels, all other works under the SSDS Stage I have been substantially completed. We have excavated a total length of 23.3 km (98.8%) of the six sewage tunnels as at 23 October 2000. Excavation of the remaining length of 0.277km (1.2%) of tunnels is expected to be completed in the next few weeks. Details on the latest progress of the excavation works for each of the six sewage collection tunnels are tabulated as follows:

Tunnel	Total Length (m)	Length excavated by previous contractor before forfeiture		Length excavated by new contractors up to 23.10.00		Total length excavated up to 23.10.00	
		(m)	(%)	(m)	(%)	(m)	(%)
AB : Chai Wan to Kwun Tong	4,830	625	12.9%	4,205.0	87.1%	4,830.0	100%
C : Tseung Kwan O to Kwun Tong	5,332	188	3.5%	5,144.0	96.5%	5,332.0	100%
D : Kwun Tong to To Kwa Wan	3,572	283	7.9%	3,289.0	92.1%	3,572.0	100%
E : To Kwa Wan to Stonecutters Island	5,495	123.6	2.2%	5,264.4	95.8%	5,388.0	98.1%

Tunnel	Total Length (m)	Length excavated by previous contractor before forfeiture		Length excavated by new contractors up to 23.10.00		Total length excavated up to 23.10.00	
		(m)	(%)	(m)	(%)	(m)	(%)
F : Tsing Yi to Stonecutters Island	3,580	481.2	13.4%	2,927.1	81.8%	3,408.3	95.2%
G : Kwai Chung to Tsing Yi	779	112.5	14.4%	668.3	85.8%	780.8	100%
Total length in metres	23,588	1,813.3	7.7%	21,497.8	91.1%	23,311.1	98.8%

11. Apart from the excavation works, we have already completed the permanent tunnel linings for Tunnels D and G. The works for permanent lining of Tunnel AB will commence shortly while those for Tunnel C are in steady progress. Based on the current progress, we forecast that the full SSDS Stage I will be commissioned in stages within the last two quarters of 2001.

II. Hon Emily LAU sought clarification on the expenses in (b) and (c) in Annex D of the Administration's paper, and the \$200 million spent on geological investigations as reported by the Administration at the meeting on 25 October 2000.

Government's Reply:

12. As part of the planning and preliminary design process, a sum of about \$200 million were spent on geological investigations carried out for the proposed works under SSDS Stage I and for some other works under the subsequent stages of SSDS. These site investigation works are funded under PWP Item 4122DS, "Strategic Sewage Disposal Scheme – Site Investigations and Engineering Studies". The sum included expenditures for the consultancy fees for the site investigation and engineering studies for the SSDS (all stages) and the costs for the associated site investigation works carried out from 1991 to 1993. Hence, the \$200 million was not all spent solely for geological investigations in respect of 320DS and was not funded under the 320DS project vote.

13. Item (b) in Annex D of the paper discussed at the special meeting of the Panel on 25 October covers the cost for undertaking additional ground strengthening and stabilisation measures to traverse weak ground in Tunnel F. Such measures include ground

strengthening by grouting, as well as installation of reinforcement bars, steel casing tubes and steel support frames as ground supports. Since the additional ground strengthening and stabilisation measures were very time-consuming, the cost also covers the contractor's prolongation cost arising from the extended period of construction.

14. Item (c) in Annex D of the paper mentioned above covers mainly the cost of additional works to complete the permanent tunnel lining in Tunnel F. The ground strengthening and stabilisation measures carried out during excavation are temporary in nature to enable tunnelling to proceed safely. After completion of excavation through the weak ground, there is a need to carry out additional works for more permanent ground strengthening and stabilisation. It is also necessary to undertake ancillary works such as reinstatement of local enlargement of excavation which had been formed in the tunnel to facilitate excavation through the weak ground. There are some local deviations of tunnel alignment from the designed profile in certain areas arising from the great difficulties in alignment control during excavation through areas of weak ground. Additional works are therefore necessary to rectify these local deviations.

III. Hon Miriam LAU asked about the legal ownership of the mucking system left by the previous contractor and the terms in the present contract as regards the ownership and use of system.

Government's Reply:

15. Upon forfeiture of the tunnelling contracts in 1996, legal ownership of the property of all constructional plant (including the mucking system) originally owned by the previous contractor was vested in the Government. Under the terms of the new contract, the new contractor is allowed to use the mucking system for the completion of the tunnel works while the ownership of the plant remains vested in Government.

16. When the problem with the mucking system became manifest in early 1998, we obtained expert advice. This confirmed that the problem could only be identified after the system was put to repeated use under fullload. Therefore, there was no way that the new contractor could have reasonably discovered the problem during the tender stage because he simply had no chance at that stage to put the system into such regular use. As no major problems arising from the usage of the mucking system had been reported in the past, it was a reasonable assumption at the time of tender of the completion contract that the forfeited mucking system was suitable for the hauling works in question.

17. When the problem with the mucking system unfolded, the contractor claimed for the replacement cost and associated losses. The Consulting Engineer analysed the terms of the contract regarding risk allocation in detail and concluded that the claim should be resolved in favour of the contractor. Drainage Services Department then referred the Consulting Engineer's assessment to the Department of Justice (D of J) for advice. Given the particular background circumstances of the claim, D of J was of the opinion that if the claim from the contractor were to be pursued to arbitration, the contractor would have had a good case against the Government. The legal view was therefore that there was good justification for endorsing the recommendation of the Consulting Engineer that the claim should be resolved under the terms of the contract in favour of the contractor.

18. As the replacement cost and associated losses in relation to the mucking system all arose from the equipment left over by the contractor of the two forfeited tunnelling contracts, we would pursue a claim for losses arising from re-entry of the two tunnelling contracts through arbitration.

IV. Prof Hon NG Ching-fai sought information on the main provisions in the previous contract and the present contract (and the differences) in respect of works covered by 320DS.

Government's Reply:

19. The present contract was prepared on substantially the same terms as the previous contract. There are no major differences in the main provisions between the previous contract and the present contract for the tunnel construction works. Under the terms of both the previous and the present contracts, there are provisions to provide and pay for the relevant additional measures for traversing through weak ground.

20. In view of the experience gained in dealing with previous defaulting contractor, we have included additional safeguards in the current contract by requiring the contractor to provide

- performance bonds amounting to 10% of the tendered sums (instead of 1% in normal contracts including the forfeited ones); and
- Parent Company Guarantees on their performance.

These measures were added to increase the commitment of both the contractor and their corporate group with a view to reducing the chance of them acting in default.

V. *Hon CHOY So-yuk asked what information concerning the Junk Bay subsidence had been provided to the international review panel (IRP) on SSDS, and the IRP's initial views on whether the subsidence problem would have impact on SSDS.*

Government's Reply:

21. The IRP has been provided with very extensive information in respect of the tunnelling works under SSDS Stage I. A summary of the information provided to the IRP as well as meetings and site visits arranged for the IRP is enclosed as **Annex III**.

22. In relation to the construction of the tunnel between Tseung Kwan O and Kwun Tong (Tunnel C), Government has provided the IRP with information including geological conditions, water ingress problems and the settlements in the Tseung Kwan O areas. IRP members have visited Tunnel C and Tseung Kwan O. All Government papers submitted to the Legislative Council Panels and the Advisory Council on the Environment on this subject have also been made available to the IRP. In addition, records of settlements in Tseung Kwan O have been sent to the IRP.

23. The IRP has reviewed the Stage I tunnel construction progress and the schedule for their completion. They have recommended that all Stage I tunnels be completed as soon as possible.

Environment and Food Bureau
Drainage Services Department
October 2000

**SSDS Stage I items transferred from SSTF to CWRF
(As at April 1998)**

Project Code and Title	Project Scope	APE(\$M)
287DS - Strategic Sewage Disposal Scheme Stage I : Principal Collection and Treatment System - Advance Works	Site facilities for Resident Site Staff; excavation of production shafts and pumping station foundation; diaphragm walls; piled foundation for sedimentation tanks	31.1
288DS - Strategic Sewage Disposal Scheme Stage I : Chemical Dosing Facilities	Provision of chemical dosing facilities at Stonecutters Island Sewage Treatment Works	39.2
304DS - Strategic Sewage Disposal Scheme Stage I : Sewer Tunnel System from Chai Wan and Tseung Kwan O to Kwun Tong	Sewage tunnel from Chai Wan and Tseung Kwan O to Kwun Tong [#]	36.3
305DS - Strategic Sewage Disposal Scheme Stage I : Stonecutters Island Sewage Treatment Works Sludge Treatment Facilities	Provision of sludge treatment facilities at Stonecutters Island Sewage Treatment Works	43.7
306DS - Strategic Sewage Disposal Scheme Stage I : Stonecutters Island Sewage Treatment Works - Sedimentation Tacks (Civil works)	Construction of foundation works, structural and site works of the sedimentation tanks at Stonecutters Island Sewage Treatment Works	24.5
307DS - Strategic Sewage Disposal Scheme Stage I : Pumping Stations E&M Equipment	Provision of E&M equipment for pumping stations at the Stonecutters Island STW, Kwun Tong and Tseung Kwan O and a central monitoring and control system	214.3
308DS - Strategic Sewage Disposal Scheme Stage I : Stonecutters Island Sewage Treatment Works – Pumping Stations, Buildings and Site Development	Construction of pumping stations and buildings at Stonecutters Island and site development facilities	97.3
309DS - Strategic Sewage Disposal Scheme Stage I : Upgrading Existing Preliminary Treatment Works	Upgrading of existing preliminary treatment works at Chai Wan, Shau Kei Wan, Tseung Kwan O, Kwun Tong, Tsing Yi, Kwai Chung and To Kwa Wan	234.1
310DS - Strategic Sewage Disposal Scheme Stage I : Sedimentation Tanks	Provision of E&M equipment for the sedimentation tanks at the Stonecutters Island	125.1

Project Code and Title	Project Scope	APE(\$M)
E&M Equipment	Sewage Treatment Works	
311DS - Strategic Sewage Disposal Scheme Stage I : Sewer Tunnel System from Kwun Tong and Kwai Chung to Stonecutters Island	Sewage tunnel from Kwun Tong and Kwai Chung to Stonecutters Island [#]	39.4
312DS - Strategic Sewage Disposal Scheme Stage I : Construction Supervision of the Main Works	Construction supervision of 11 main works contracts of the SSDS Stage I and includes the Consultant's fee for construction supervision and Resident Site Staff costs.	118.2
315DS - Strategic Sewage Disposal Scheme Stage I Outfall	Construction of a 1740 m long outfall tunnel together with two 3.25 in diameter riser shafts and a 1200 m long diffuser pipeline	117.6
316DS - Strategic Sewage Disposal Scheme Stage I : Construction of Sludge Transfer Facilities and Supply of Sludge Containers	Provision of sludge handling and transfer facilities at Stonecutters Island Sewage Treatment Works and South East New Territories and West New Territories landfills and supply of 400 numbers of sludge containers	23.7
A09DS - Strategic Sewage Disposal Scheme Stage I : Pilot Plant Study on Chemical Dosing and Disinfection	Pilot plant study on chemical dosing and disinfection	2.0
317DS - Strategic Sewage Disposal Scheme Stage I : Baseline Monitoring and Performance Verification	Environmental survey and monitoring work to assess impact of the outfall discharge on the marine environment	27.0
318DS - Strategic Sewage Disposal Scheme Stage I : Environmental Impact Assessment Study	Environmental impact assessment (EIA)	11.3
320DS - Strategic Sewage Disposal Scheme Stage I : Completion of Sewer Tunnel System from Kwai Chung to Stonecutters Island	Completion of sewer tunnel system from Kwai Chung to Stonecutters Island under the new Contract DC/96/20	487.6

Total 1672.4

[#] 304DS and 311DS are project items covering the works under the original tunnel contracts. After their forfeiture in December 1996, these project items provide funds for the tunnel maintenance contract for maintaining the unfinished tunnels and taking security of all the tunnel sites before commencement of the completion works. With the completion of the tunnel maintenance contract in January 1998, the works under these project items are substantially completed.

Latest project estimate for the Strategic Sewage Disposal Scheme Stage I

PWP Item No.	Title	APE under CWRF (1) (\$ million)	Expenditure under SSTF (2) (\$ million)	Total Approved Funds (1)+(2) (\$ million)	Latest Project Estimate (\$ million)
142DS	Strategic Sewage Disposal Scheme Stage I : Kowloon System - consultants' fees and investigations	130.0	-	130.0	105.0
286DS	Strategic Sewage Disposal Scheme Stage I : completion of sewage tunnel system from Chai Wan and Tseung Kwan O to Kwun Tong and from Kwun Tong to Stonecutters Island	2,000.0	-	2,000.0	2,000.0
287DS	Strategic Sewage Disposal Scheme Stage I : principal collection and treatment system - advance works	31.1	531.3	562.4	555.8
288DS	Strategic Sewage Disposal Scheme Stage I : chemical dosing facilities	39.2	104.1	143.3	132.8
304DS	Strategic Sewage Disposal Scheme Stage I : sewer tunnel system from Chai Wan and Tseung Kwan O to Kwun Tong	36.3	306.1	342.4	306.4
305DS	Strategic Sewage Disposal Scheme Stage I : Stonecutters Island sewage treatment works - sludge treatment facilities	43.7	231.3	275.0	262.0

PWP Item No.	Title	APE under CWRP (1) (\$ million)	Expenditure under SSTF (2) (\$ million)	Total Approved Funds (1)+(2) (\$ million)	Latest Project Estimate (\$ million)
306DS	Strategic Sewage Disposal Scheme Stage I : Stonecutters Island sewage treatment works - sedimentation tanks (civil works)	24.5	347.6	372.1	365.1
307DS	Strategic Sewage Disposal Scheme Stage I : pumping stations E&M equipment	214.3	223.1	437.4	437.4
308DS	Strategic Sewage Disposal Scheme Stage I : Stonecutters Island sewage treatment works - pumping stations, buildings and site development	97.3	299.8	397.1	397.1
309DS	Strategic Sewage Disposal Scheme Stage I : upgrading existing preliminary treatment works	234.1	607.6	841.7	812.8
310DS	Strategic Sewage Disposal Scheme Stage I : sedimentation tanks E&M equipment	125.1	276.4	401.5	392.0
311DS	Strategic Sewage Disposal Scheme Stage I : sewer tunnel system from Kwun Tong and Kwai Chung to Stonecutters Island	39.4	389.7	429.1	390.0
312DS	Strategic Sewage Disposal Scheme Stage I : construction supervision of the main works	217.0 (Note 1)	502.0	719.0	719.0
315DS	Strategic Sewage Disposal Scheme Stage I outfall	117.6	445.1	562.7	560.0

PWP Item No.	Title	APE under CWRP (1) (\$ million)	Expenditure under SSTF (2) (\$ million)	Total Approved Funds (1)+(2) (\$ million)	Latest Project Estimate (\$ million)
316DS	Strategic Sewage Disposal Scheme Stage I : construction of sludge transfer facilities and supply of sludge containers	23.7	28.7	52.4	46.0
A09DS	Strategic Sewage Disposal Scheme Stage I : pilot plant study on chemical dosing and disinfection	2.0	11.5	13.5	11.5
317DS	Strategic Sewage Disposal Scheme Stage I : baseline monitoring and performance verification	27.0	9.8	36.8	36.8
318DS	Strategic Sewage Disposal Scheme Stage I : environmental impact assessment study	24.9 (Note 2)	43.4	68.3	68.3
320DS	Strategic Sewage Disposal Scheme Stage I : completion of sewer tunnel system from Kwai Chung to Stonecutters Island	487.6	51.4	539.0	654.0 (Note 4)
	Total	3,914.8	4,408.9	8,323.7	8,252.0
				(Note 3)	

Notes

1. The original approved project estimate for **312DS** was \$118.2 million by the time of closure of the SSTF in March 1998. On 25 June 1999, the Finance Committee approved an increase in the approved project estimate of this project from \$118.2 million by \$98.8 million to \$217.0 million.
2. The original approved project estimate for **318DS** was \$11.3 million by the time of closure of the SSTF in March 1998. On 20 August 1998, Secretary for the Treasury approved an increase in the approved project estimate of this project from \$11.3 million by \$13.6 million to \$24.9 million.

3. The original overall estimate for the 19 projects was \$8,211.3 million by the time of closure of the SSTF in March 1998. As a result of the increases in the approved project estimate of **312DS** and **318DS**, the overall approved project estimate has increased from \$8,211.3 million by \$112.4 million to \$8,323.7 million.
4. We are seeking approval under this submission to increase the approved project estimate of **320DS** from \$487.6 million by \$115.0 million to \$602.6 million.

List of Geological and Tunnelling Information in relation to the Strategic Sewage Disposal Scheme available to the IRP

A lot of information has been made available to members of the IRP for the review of SSDS. Apart from the cost data relating to the construction of SSDS tunnels, the following activities and information specifically relating to the geology and tunnelling aspects have been provided to the IRP for consideration.

Date of Activity	IRP Activities Relating to Tunnel Construction and TKO Settlements	Version
26/04/2000	Familiarisation Briefing of IRP Tunnel Expert by DSD	---
27 – 28/04/2000	Visit by IRP Tunnel Expert to Tunnels AB, C, D, E & F	---
24/05/2000	Visit to Tunnel D by all IRP members except Tunnel Expert	---
26/05/2000	Visit to subsided areas in Tseung Kwan O Town Centre by all IRP members	---
12/09/2000	Visit to Tunnels B & F by IRP Tunnel Expert	---
14/09/2000	Meeting between IRP Tunnel Expert and DSD	---
Date to IRP	Papers to LegCo and ACE	Version
Included in Information Digest	Information Notes to ACE on the Progress of Tunnelling Works under the SSDS Stage I (5 reports)	1/99 to 12/99
Included in Information Digest	Paper to LegCo Panel on Planning, Lands and Works on “Procedures and Measures adopted for the Award of Sewage Tunnel Completion Contracts”	1998
Included in Information Digest	Paper to LegCo Panel on Environmental Affairs on “Strategic Sewage Disposal Scheme”	1999

Included in Information Digest	Paper to LegCo Panel on Environmental Affairs on “Building Deep Tunnels”	1999
Included in Information Digest	Paper to LegCo Panel on Planning, Lands and Works and Panel on Housing on “Unusual Settlement in Tseung Kwan O”	1999
16/06/2000	Paper to LegCo Panel on Housing providing a brief account of the latest situation regarding the settlement phenomenon in Tseung Kwan O areas	4/2000
Date to IRP	Information Relating to Tseung Kwan O Settlements	Version
15/06/2000	Settlement Records for Tseung Kwan O Town Centre by TDD Consultants	6/2000
17/10/2000	Settlement Records for Tseung Kwan O Town Centre by TDD Consultants	10/2000
Date to IRP	Information on Actual Geology, Ground Treatment, Ground Support and Water Ingress Logged During Construction of SSDS Stage I	Version
27/05/2000	Summary of Actual Geology, Ground Treatment, Ground Support and Water Ingress Information for Tunnels AB, C, D, E, F and G	---
16/06/2000	Summary of Actual Geology, Ground Treatment, Ground Support and Water Ingress Information for Stage I Outfall	---
30/09/2000	Updated Summary of Actual Geology, Ground Treatment, Ground Support and Water Ingress Information for Tunnels C, D & F	---
09/10/2000	Additional Information on Actual Geology, Ground Treatment, Ground Support and Water Ingress of Tunnels AB & E	---
Date to IRP	Other Tunnelling Information Logged During Construction of SSDS Stage I	Version
27/05/2000	Progress Charts of Tunnel Excavation by DSD	---
27/05/2000	Details of TBM Used in Tunnels AB, E & F	---
16/06/2000	Details of TBM Used in Stage I Outfall and Record of Progress	---
16/06/2000	Other information Responding Questions of IRP Tunnel Expert	---
18/08/2000	Two Figures Showing the Grouting Scheme of the Tunnels	---

18/08/2000	Grouting Summaries for Pre-grouting and Post-grouting for Tunnels B & F	---
18/08/2000	Other Information Responding Questions of IRP Tunnel Expert	---
26/09/2000	Method Statements for Probing, Pre-grouting and Post-grouting for Tunnels B & F	---
26/09/2000	Other Information Responding Verbal Questions of IRP Tunnel Expert Raised in Mid September 2000	---
03/10/2000	Photographs for Tunnels AB, C, D and F to IRP Tunnel Expert	---
07/10/2000	More Photographs for Tunnel F to IRP Tunnel Expert	---
17/10/2000	Progress Summary of SSDS Stage I Tunnels (Situation as at 16 October 2000)	16.10.00
Date to IRP	SSDS Site Investigation and Water Ingress Prediction Information	Version
Included in Information Digest	SSDS Site Investigations & Engineering Studies – Connection of Flows from TKO Development : Geological Summary Final Report & Drawings	1993
Included in Information Digest	SSDS Site Investigations & Engineering Studies Stages II, III & IV : Geological Summary Final Report & Drawings	1994
Included in Information Digest	SSDS Site Investigations & Engineering Studies Stages II, III & IV : Oceanic Outfall – Correlation of Geophysical Surveys	1994
27/05/2000	Summary of Boreholes carried out for the SSDS Stage I by DSD	---
07/09/2000	“SSDS Stage I Tunnels : Report on Ingress of Water” by Dr. L. J. Endicott	3/1997
Date to IRP	General Geological Information	Version
27/05/2000	Report on Geology of Hong Kong Island and Kowloon by GEO	1986
27/05/2000	Guide to Rock and Soil Descriptions – Geoguide 3 by GEO	1988
27/05/2000	Hong Kong Geological Survey Maps Series HGM20 : Sheet 10 & 11	1991
27/05/2000	Hong Kong Geological Survey Maps Series HGP5 : Sheet 10-NE-B,D	1995
	Hong Kong Geological Survey Maps Series HGP5 : Sheet 11-NW-A, 11-NW-C, 11-NW-D & 11-NE-C	Draft
27/05/2000	Hong Kong Geological Survey Maps Series HGM100 : Geology of Hong Kong – Solid and Superficial Geology	Draft
27/05/2000	Hong Kong Geological Survey Maps Quaternary Geology : Maps 3 to 6	Draft
16/06/2000	Hong Kong Geological Survey Maps Quaternary Geology : Map 1 “Topography and Bathymetry”	Draft

16/06/2000	Hong Kong Geological Survey Maps Series HGM20 : Sheet 15	1987
16/06/2000	Report on Geology of Tsing Yi by GEO	1995
18/08/2000	Hong Kong Geological Survey Maps Series HGP5 : Sheets 11-NW-B & 11-NE-B	Draft
18/08/2000	Hong Kong Geological Survey Maps Series HGM20 : Sheet 12	1989
18/08/2000	Hong Kong Geological Survey Maps Quaternary Geology : Map 2 "Place Names, Fill and Borrow Areas"	Draft