

Proceedings of the Institute of Acoustics

NOISE FROM THE CHANNEL TUNNEL TERMINAL THE LOCAL AUTHORITY EXPERIENCE

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1. DISCLAIMER

The views and experiences recorded in this paper are those of the author alone and not Shepway District Council, or Eurotunnel, or Transmanche Link or any consultant instructed by any of them.

2. SUMMARY

This paper records and comments on the agreement of noise criteria for construction of the Channel Tunnel within a wider general Scheme of Operations required by the Channel Tunnel Act 1987. It refers to the appointment of a Complaints Commissioner and the provision prior to construction of double glazing for householders affected by a predicted operational noise level. Some problems with noise from the development are referred to and based on experience, some recommendations are made for similar future projects.

3. OPERATION

Operational noise from the terminal is not dwelt on in this report. In relation to the Continental Main Line the principles are those which I am sure will be addressed next in this meeting. They apply from the tunnel portal through the terminal to the connection with the high speed rail link at Dollands Moor.

Other sources of noise are being dealt with now that detailed planning of the structures and services is taking place and a comprehensive noise prediction study has been undertaken.

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4. CONSTRUCTION

The Channel Tunnel Act 1987 requires that all developments relating to the project be carried out in accordance with a Scheme of Operations approved by the relevant local planning authority. The Scheme of Operations deals with ten matters, two of which concern us today.

A. The Hours during which, and the days on which, work is to be carried out within the limits of deviation.

B. The arrangements for the suppression of noise and dust caused by any operations within the limits of deviation.

There are also strictly specified grounds on which the Authority may refuse approval.

Each individual element of the project is subject to a "request for approval" which is in practice dealt with in much the same way as a planning application - although within highly specific parameters. A satisfactory statement showing how the Scheme of Operations will be complied with must accompany each request.

At an early stage in the development, agreement to the broad scheme of operations was sought by Eurotunnel. In order to achieve this for noise and hours of work an understanding of existing noise in the area was needed. A programme of background measurements made on behalf of Eurotunnel by Consultants was acceptable to the Council both in terms of location and results. The Council took measurements at additional sites, some at considerable distance to fill in what were thought to be gaps in the Eurotunnel programme. This decision resulted from contact with other local authorities where major engineering works such as open cast mining, new railway lines, and roads had taken place. It had been suggested that we needed to protect ourselves and Eurotunnel from spurious complaint and we were also warned of anomalous noise propagation causing disturbance in unlikely places. In the event, neither were experienced.

The programme established background noise levels for daytime evening and night during weekdays and weekends both in the summer and in the winter. Based on these levels, and using the principles in BS 5228, Eurotunnel proposed noise criteria. The

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Council favoured the principle of background plus to establish limits which would avoid nuisance and amenity loss. In the event, agreement was reached following minor reductions in L_{Aeq} and peak limits from those proposed by Eurotunnel using BS 5228.

I was apprehensive about this because I felt that

1. predicted levels, and therefore criteria, were too far in excess of established background levels,
2. by using L_{Aeq} , I anticipated that noise which would lead to complaint could be caused for short periods without exceeding the criteria,
3. the use of "slow" response to measure peaks could lose some higher instantaneous noise levels which might generate nuisance.

Once again my fears were not justified except perhaps in one case to which I will return in a few moments.

It is appropriate here to mention two important and unique features of this project. Firstly, the appointment of a Complaints Commissioner for the Channel Tunnel Development. Sir Donald Murray and his small team have fielded almost all complaints made against the project and by collating these and reassuring complainants has saved the Council hours of work. Because he is independent, he has been of particular help in seeing clearly what issues really are relevant and requiring attention and has been able to focus everyone's minds on the right way forward.

Secondly, the offer of secondary double glazing in advance of construction activity to all houses predicted to be affected by operational noise on much the same basis as the Noise Insulation Regulations. The real effect of operational noise will be reviewed in due time and some further offers may be made in the light of actual effect. I believe that this action has been of real benefit in protecting residents from construction noise.

Noise and complaint arose from a decision to import sea dredged sand to the site instead of using colliery spoil. The environmental benefit was unarguable and fully justified this action which avoided many many thousands of lorry movements through East Kent.

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The sand was dredged from the Goodwins and shipped to Seabrook between Hythe and Folkestone. From here it was pumped overland as a slurry to the terminal where it settled in lagoons. The sea water was returned through the pipeline.

The sand was removed from the lagoons using large motorscrapers which were very noisy indeed. Noise criteria were closely approached and maybe even slightly exceeded once or twice.

The adjacent population reacted strongly against this noise, mostly when work continued late or on Sundays to keep up with the programme. The effect was principally one of amenity loss. It was clear that people would put up with the noise during the week but demanded and sometimes did not get the peace and quiet they felt was their entitlement at weekends.

In addition, a peculiar noise phenomenon meant that certain property onshore experienced noise and vibration from the pumping equipment which was quite unexpected and technically unique. In the circumstances the problem was impossible to resolve. The householders affected were very greatly relieved when the project was complete.

Bearing in mind the overall benefit against transport of colliery waste by road, the Council considered and declined formal action under the Control of Pollution Act 1974. Part of this decision was adoption of best practicable means to avoid sleep disturbance. This entailed the offer of hotel accommodation to those affected when the shipping cycle dictated pumping during the night.

Other sources of noise complaint are those which are normally associated with large projects of this sort, i.e. reversing claxons, piling, and weekend working. One other instance of complaint is worthy of mention because it illustrates an important factor. When the short section of tunnel through Castle Hill was being driven, ventilation was provided using large fans. The arrangement should have been:

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1. Inlet, 2. Silencer, 3. Fan, 4. Ducting.

In fact the arrangement was:

1. Inlet, 2. Fan, 3. Silencer, 4. Ducting.

This was fine for those working in the tunnel but unacceptably noisy to the residents on the hilltop opposite. Human error had led to this misalignment and the problem once identified was as usual quickly and easily overcome.

Thus, the employment of human beings to dig or construct things using methods audible to other human beings has given rise to complaint because human beings can get things wrong and have very variable response and reaction to noise.

5. THE FUTURE

Looking to the future, with legislation now demanding Environmental Impact Analyses in respect of large developments, many of the lessons learned with the Channel Tunnel construction can be put to good use elsewhere. In relation to a "Rail Link Act" or similar provision for any other major undertaking, may I commend:-

1. Inclusion in a Scheme of Operations of a reason for refusing a request for approval under the heading of "best practicable means to avoid a nuisance in construction or operation not specified or inadequate".
2. Inclusion of penalty or enforcement arrangements for breaches of the Scheme of Operations either in general or in regard to individual elements.
3. In any agreement as to hours of working, what is meant by "work" should be clearly specified. For example, does it include using machines to move earth, or does it mean starting up machines to warm them up preparatory to moving earth.
4. Clear specification of the meaning of "essential work" "emergency work" or "twenty-four hour working" together with the previous suggestion will greatly assist in responding to what have been called "infringements of principle".

