

Our ref: SSD-9835-PA-158

Julie Shires
Group General Manager Infrastructure
Venues NSW
Level 1M, 44 Driver Avenue,
MOORE PARK NSW 2021

Attn: Ben Raggatt (ben.raggatt@venuesnsw.com)

10/07/2023

Dear Ms. Shires,

**Sydney Football Stadium Redevelopment (SSD-9835)
Event Noise Monitoring Reports (Elton John and Bruno Mars), Conditions E9 and E10**

I refer to the Event Noise Monitoring Reports (noise reports) prepared for the Elton John and Bruno Mars concerts in accordance with condition E9, and submitted to the Planning Secretary under condition E10 of SSD-9835.

In accordance with condition E10, the Applicant is to obtain written advice from the Planning Secretary regarding;

- compliance with condition E9 and validation of the Operational Noise Management Plan (ONMP) after each event; and
- any additional management measures and or refinement of the ONMP having regard to compliance with condition E9.

The Planning Secretary's written advice pursuant to condition E10 is contained in Attachment 1 and Attachment 2 of this letter, and relates to the two Bruno Mars and two Elton John concerts respectively.

I note that VNSW has also submitted the noise reports to NSW EPA in accordance with condition E10.

In summary, compliance was not achieved in relation to conditions E9(a), (b), and (c), and an update to the ONMP will be required in accordance with condition E10(b). In regard to the content of the noise reports, you are required to comply with the Direction below.

As nominee of the Planning Secretary, I direct VNSW to carry out the following pursuant to condition A3(a) of SSD-9835:

1. prepare one additional noise report in accordance with condition E9 and the Planning Secretary's written advice included in Attachment 1 and 2 of this letter, for the next concert scheduled for the stadium;
2. submit the additional noise report required under item 1 above, to the Planning Secretary in accordance with condition E10; and
3. update the ONMP in accordance with conclusions 2 and 3b of Attachment 2 of this letter prior to the next concert event occurring at the stadium.

I remind you to comply with the written Direction of the Planning Secretary as required by condition A2(b).

This letter does not preclude the Department from investigating the matters addressed in the Planning Secretary's written advice contained in Attachment 1 and 2, and information may be requested by the Department's Compliance Branch.

If you wish to discuss the matter further, please contact Hala Fua at hala.fua@planning.nsw.gov.au.

Yours sincerely

A handwritten signature in black ink, appearing to read "D Crinnion".

Dominic Crinnion
Director
Infrastructure Management
As nominee of the Planning Secretary

Attachment 1**E9 Compliance Matrix for the Bruno Mars noise report**

Condition	Planning Secretary's written advice
E9	Condition E9 requires VNSW to provide the Planning Secretary with real time noise measurement data from the first three music concerts. The data should be obtained at noise compliance points including intermediate locations such as the Permanent Noise Monitoring System (PNMS). The Bruno Mars noise report contained attended noise measurement data collected at the worst affected receiver locations, but not at intermediate points such as the PNMS microphones. The Bruno Mars report advised that the PNMS was not operative because technical issues affected the operation, storage, and retrieval of data from the system during the Bruno Mars concerts. Therefore, real time noise data from the PNMS was not included in the Bruno Mars noise report. <u>Conclusion 1</u> VNSW must operate the PNMS during all events occurring at the stadium, so that real time noise data can be obtained. This is critical to noise management at the stadium, and for complying with condition E6 which relevantly states that <i>"The noise monitoring system as required by condition D45 must be ... operative for all events at the stadium ..."</i>.
E9(a)	Condition E9 also requires VNSW to provide the Planning Secretary with supporting noise analysis in accordance with condition E9(a). The analysis must demonstrate how a range of measurements at receiver locations and intermediate sites (i.e. PNMS microphone locations) were undertaken over the first three concerts to validate propagation predictions, and allow for comparisons of stadium levels to noise objectives (i.e. noise limits). Given that the PNMS was not operative to undertake measurements at intermediate sites due to technical difficulties, comparisons of stadium levels to noise limits were not included in the Bruno Mars noise report. The Planning Secretary considers that VNSW did not comply with condition E9(a) because the noise report does not demonstrate how measurements were undertaken at intermediate sites to validate propagation predictions, and allow for robust comparisons of stadium levels to noise limits. <u>Conclusion 2a</u> As two subsequent concerts (both Elton John concerts) were monitored with the PNMS operative, one additional noise report is required to satisfy the three-concert threshold prescribed in this condition. Therefore, as foreshadowed in the Department's Request for Further Information (RFI) letter dated 2 May 2023, the Planning Secretary has determined to issue a Direction to VNSW (the covering letter to this attachment) under the SSD-9835 consent, to prepare one additional noise report for the next concert scheduled at the stadium.

Condition	Planning Secretary's written advice
	<u>Conclusion 2b</u> Should the typical north speaker facing south configuration not be adopted at the next concert, the additional noise report must include justification for the selection of the most affected attended noise monitoring locations (as they relate respectively to the northern and eastern PNMS microphones), that accounts for the atypical speaker layout, for establishing transfer functions.
E9(b)	Condition E9 also requires VNSW to provide the Planning Secretary with supporting noise analysis in accordance with condition E9(b). The analysis must demonstrate how the noise data was used / will be used to inform the setting of noise level triggers for the stadium microphones to ensure compliance with the noise objectives (i.e. noise limits) established for the stadium. Section 5.3 of the Bruno Mars noise report states that data from the PNMS “...is required to establish robust transfer functions”, which is necessary for determining noise level triggers for the PNMS microphones. However, the noise report does not demonstrate how PNMS data obtained during the Bruno Mars concerts was used or will be used in relation to future concerts, to set noise level triggers because no measurements could be retrieved from the PNMS. The Planning Secretary considers that VNSW did not comply with condition E9(b) because the noise report does not demonstrate how noise data was used to determine PNMS noise level triggers for the two Bruno Mars concerts, or will be used to determine noise triggers for future concerts. <u>Conclusion 3</u> As noted in Planning Secretary's conclusion 2a, the Planning Secretary is directing VNSW to prepare and submit one additional noise report for a subsequent concert in order to demonstrate how collected noise data was used or will be used to inform noise triggers.
E9(c)	Condition E9 also requires VNSW to provide the Planning Secretary with supporting noise analysis in accordance with condition E9(c). The analysis must demonstrate equivalent noise levels at sensitive receivers as identified in the Stage 2 SSDA – Noise and Vibration Assessment (NVA) prepared by ARUP dated 30 August 2019, are being achieved at all times. The 'equivalent' noise levels referenced in this condition are the concert LAeq and 63Hz limits specified in Table 41 of the 2019 ARUP NVA. These NVA limits were proposed by VNSW and agreed on, and subsequently approved in the ONMP. These limits do not include the Lmax 80 criterion, however VNSW asserts in their response to the Department's RFI, that “... Leq levels were not 10dB below Lmax levels and criteria were in the order of 4-5dB too onerous ...”. Attended monitoring in-lieu of the PNMS shows that concert noise levels exceeded the LAeq and 63Hz limits in Table 41 of the 2019 ARUP NVA. The Planning Secretary considers that VNSW did not comply with condition E9(c) because the noise report does not demonstrate concert LAeq and 63Hz noise levels complying with the limits in Table 41 of the 2019 ARUP NVA at all times.

Condition	Planning Secretary's written advice
	<u>Conclusion 4</u> As noted in Planning Secretary's conclusion 2a, the Planning Secretary is directing VNSW to prepare and submit one additional noise report for a subsequent concert in order to demonstrate that equivalent noise levels as identified in the Stage 2 SSDA – Noise and Vibration Assessment (NVA) prepared by ARUP dated 30 August 2019, are being achieved at all times.

Attachment 2

E9 Compliance Matrix for the Elton John noise report.

Condition	Planning Secretary's written advice
E9	Condition E9 requires VNSW to provide the Planning Secretary with real time noise measurement data from the first three music concerts. The data should be obtained at noise compliance points including intermediate locations such as the Permanent Noise Monitoring System (PNMS). The Elton John noise report contained attended noise measurement data collected at the worst affected receiver locations, and at the PNMS microphones. However, wind speed and rain data were not included. The Department considers this data necessary for excluding weather affected noise measurements, and is a parameter required to be stored in accordance with section 4.6.3 of the ONMP. <u>Conclusion 1</u> VNSW must include wind speed and rain data in the additional noise report required under the Planning Secretary's Direction.
E9(a)	Condition E9 also requires VNSW to provide the Planning Secretary with supporting noise analysis in accordance with condition E9(a). The analysis must demonstrate how a range of measurements at receiver locations and intermediates sites (i.e. PNMS microphone locations) were undertaken over the first three concerts to validate propagation predictions, and allow for comparisons of stadium levels to noise objectives (i.e. noise limits). Attended noise monitoring was undertaken during sound checks on the Tuesday night session to establish transfer functions between the PNMS and 252 Moore Park Road, and allow for comparisons of stadium levels to noise limits at this receiver. Attended noise monitoring was also undertaken to the east at 5 Poate Street, however no transfer functions were established between the eastern PNMS and 5 Poate St. This is necessary so as to manage noise that accounts for different systems, future operations and layouts, and propagation in both directions. <u>Conclusion 2</u> Transfer functions must be established for both the eastern and northern PNMS microphone as they relate to 5 Poate St and 252 Moore Park Rd respectively in future. To effect this, the ONMP must be updated to require transfer functions being established between the northern microphone and 252 Moore Park Rd, and between the eastern microphone and 5 Poate St, where the typical north speaker facing south configuration is adopted. Also, summary tables of the attended noise measurements, and PNMS corrected data for 5 Poate St must be included in the additional noise report required under the Planning Secretary's Direction.
E9(b)	Condition E9 also requires VNSW to provide the Planning Secretary with supporting noise analysis in accordance with condition E9(b). The analysis must demonstrate how the

Condition	Planning Secretary's written advice
	noise data was used / will be used to inform the setting of noise level triggers for the stadium microphones to ensure compliance with noise limits. Section 6 of the noise report states that once transfer functions were derived, they were "... then applied to the PNMS to establish concert noise limits for the sound system within SFS ..." These are considered to be the noise level triggers for the PNMS microphones referenced in this condition. However, PNMS trigger levels were not provided in the noise report, only transfer functions. It is necessary to identify the trigger levels in the additional noise report required under the Planning Secretary's Direction, to ensure compliance with noise limits. <u>Conclusion 3a</u> VNSW must identify the PNMS trigger levels for the northern and eastern PNMS microphones in the additional noise report required under the Planning Secretary's Direction. <u>Conclusion 3b</u> VNSW must establish transfer functions between the eastern PNMS microphone and 5 Poate St in future. To effect this, the ONMP must be updated to require transfer functions being established between the northern microphone and 252 Moore Park Rd, and between the eastern microphone and 5 Poate St, where the typical north speaker facing south configuration is adopted. <u>Conclusion 3c</u> VNSW must provide PNMS corrected data for 5 Poate St from the eastern PNMS microphone in the additional noise report required under the Planning Secretary's Direction.
E9(c)	Condition E9 also requires VNSW to provide the Planning Secretary with supporting noise analysis in accordance with condition E9(c). The analysis must demonstrate equivalent noise levels at sensitive receivers as identified in the Stage 2 SSDA – Noise and Vibration Assessment (NVA) prepared by ARUP dated 30 August 2019, are being achieved at all times. The 'equivalent' noise levels referenced in this condition are the concert LAeq and 63Hz limits specified in Table 41 of the 2019 ARUP NVA. These NVA limits were proposed by VNSW and agreed on, and subsequently approved in the ONMP. These limits do not include the Lmax 80 criterion, however VNSW asserts in their response to the Department's RFI, that "...Lmax criteria should apply in lieu of an impractically onerous Leq criteria." Attended monitoring and PNMS data shows that concert noise levels exceeded the LAeq limits in Table 41 of the 2019 ARUP NVA. Further, section 4.6.5 of the ONMP states that, "<i>Real-time feedback provided on the monitoring system displays shall be used by the sound desk operator to adjust sound system noise levels and maintain compliance with noise limits in Table 10, to be overseen by an Event Representative.</i>" This method does not appear to have been followed because noise levels were not adjusted to maintain compliance with the noise limits in Table 10 of the ONMP.

Condition	Planning Secretary's written advice
	The Planning Secretary considers that VNSW did not comply with condition E9(c) because the noise report does not demonstrate concert LAeq noise levels achieving the limits in Table 41 of the 2019 ARUP NVA at all times. This also represents a non-compliance with condition E5 which requires the project to comply with the approved ONMP at all times, including the noise limits in Table 10 and Table 11 (when considering direct measurements for both concerts, or Elton John concert 1 where only PNMS corrected data is considered). Further, the Planning Secretary considers that VNSW did not comply with condition E9(c) because the approved method for monitoring noise levels prescribed in section 4.6.5 of the ONMP was not followed. This also represents a non-compliance with condition E5. <u>Conclusion 4</u> As noted in Planning Secretary's conclusion 2a in Attachment 1, the Planning Secretary is directing VNSW to prepare and submit one additional noise report for a subsequent concert in order to demonstrate that equivalent noise levels as identified in the Stage 2 SSDA – Noise and Vibration Assessment (NVA) prepared by ARUP dated 30 August 2019, are being achieved at all times.