## Alan Reay

| From: | Clark Hyland [clark@fatigueandfracture.com] |
| :--- | :--- |
| Sent: | Sunday, 21 August 2011 1:04 p.m. |
| To: | Alan Reay |
| Subject: | RE: Remedial Work to 249 Madras Street Walls: Feb 1990 |

Hi Alan,
Thanks for pointing that out. I had overlooked that.

Kind Regards

## Clark Hyland

Hyland Fatigue + Earthquake Engineering
P 092620203 F 092620243 M 021348352
W www.fatigueandfracture.com

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From: Alan Reay [mailto:areay@arcl.co.nz]
Sent: Saturday, 20 August 2011 8:45 p.m
To: Clark Hyland
Subject: RE: Remedial Work to 249 Madras Street Walls: Feb 1990

## Clark

My understanding is that the details of the bolting are shown on CD2 and 3 which I sent to you on the $4^{\text {th }}$ of May The parts and portions are referred to in the calcs in the same email
Alan
Regards,
Alan M. Reay B.E.(Hons), Ph D.
F.I.P.E.N.Z

Director


Alan Reay Consultants
395 Madras SI | PO Box 3911 | Christchurch | New Zealand
Tel +64 33660434 | Fax +64 33793981 | wnw.arcl.co.nz
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From: Clark Hyland [mailto:clark@fatigueandfracture.com]
Sent: Saturday, 13 August 2011 11:05 p.m.
To: Alan Reay
Cc: 'Mike Stannard'; 'David Hopkins'
Subject: Remedial Work to 249 Madras Street Walls: Feb 1990

Dear Alan,

I would appreciate your assistance to clarify the details of the remedial work undertaken on walls $D$ and $D / E$ following the Alan Reay Consultants Limited letter of Geoff Banks to Grant Wilkinson of Holmes Consulting Group on 2 February, 1990 (File 3608).

Regards
Dr Clark Hyland PhD CPEng
Director
Hyland Fatigue + Earthquake Engineering
PO Box 97282, Manukau 2241, NZ
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## Alan Reay

| From: | Clark Hyland [clark@fatigueandfracture.com] |
| :--- | :--- |
| Sent: | Thursday, 18 August 2011 11:25 p.m. |
| To: | Alan Reay |
| Subject: | RE: Remedial Work to 249 Madras Street Walls: Feb 1990 |

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Hi Alan,
We don't have details of the connections into the slabs on the Line E wall.
ie how may bolts were in the slab ? One line of thought is that these sheared off near the
start of the collapse sequence.
It would also be helpful to know if the diaphragm ties were designed using the provisions
of NZS 4203:1984 using the Parts and Portions provisions for diaphragm design as indicated
in the letter between HCG and ARCL.
There may be some issues with those provisions that need addressing in other buildings.
Happy to discuss.
Kind Regards
```

Clark Hyland
Hyland Fatigue + Earthquake Engineering P 092620203 F 092620243 M 021348352 W www.fatigueandfracture.com

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-----Original Message-----
From: Alan Reay [mailto:areay@arcl.co.nz]
Sent: Thursday, 18 August 2011 9:03 p.m.
To: clark@fatigueandfracture.com
Subject: Fwd: Remedial Work to 249 Madras Street Walls; Feb 1990
Clark
Can you explain what you need clarified. I wish to assist but am unclear as to the issue with the info provided re the work undertaken
Alan
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>> From: Clark Hyland [clark@fatigueandfracture.com](mailto:clark@fatigueandfracture.com)
>> Date: 13 August 2011 11:05:12 PM NZST

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To: Alan Reay <areay@arcl.co.nz>
>> Cc: 'Mike Stannard' <Mike.Stannard@dbh.govt.nz>, 'David Hopkins'
<David.Hopkins@dbh.govt.nz
>> >
Subject: Remedial Work to 249 Madras Street Walls: Feb }199
>>
Dear Alan,
I would appreciate your assistance to clarify the details of the
remedial work undertaken on walls D and D/E following the Alan Reay
Consultants Limited letter of Geoff Banks to Grant Wilkinson of
Holmes Consulting Group on 2 February, 1990 (File 3608).
Regards
Dr Clark Hyland PhD CPEng
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