To: **Minister of Finance**
Minister for Canterbury Earthquake Recovery
Associate Minister of Finance (Hon Steven Joyce)

CERA
Canterbury Earthquake Recovery Authority

IN CONFIDENCE

Rezoning Lucas Lane

Date	26 October 2012	**Priority**	URGENT
Report No	M/12-13/149	**File Reference**	

Action Sought

		Deadline
Hon Bill English *Minister of Finance*	**Agree** to the recommendations in this paper	3pm, 30 October 2012 in order for an announcement on 31 October
Hon Gerry Brownlee *Minister for Canterbury Earthquake Recovery*	**Agree** to the recommendations in this paper	3pm, 30 October 2012 in order for an announcement on 31 October
Hon Steven Joyce *Associate Minister of Finance*	**Agree** to the recommendations in this paper	3pm, 30 October 2012 in order for an announcement on 31 October

Contact for Telephone Discussion (if required)

Name	**Position**	**Telephone**	**1st Contact**
Diane Turner	General Manager, Strategy Planning and Policy		☑
John WA Scott	Senior Advisor, Policy	Withheld under section 9(2)(a)	
Withheld under section 9(2)(a)	Graduate Advisor, Policy		

Minister's office comments

- ☐ Noted
- ☐ Seen
- ☐ Approved
- ☐ Needs change
- ☐ Withdrawn
- ☐ Not seen by Minister
- ☐ Overtaken by events
- ☐ Referred to

_____

Comments

Rezoning Lucas Lane

Purpose

1 This paper seeks your agreement to rezone eight white zoned properties in Lucas Lane from white to green, and for the Crown to contribute to the cost of removing the land slip hazard in order to provide certainty to property owners.

Executive summary

2 On 11 July 2011 the Port Hills was zoned white whilst further assessments were undertaken following the 13 June 2011 earthquakes [CAB Min (11) 26/16 refers].

3 As of 14 September 2012 eight properties remain in the White Zone. These properties are located in Lucas Lane and remained white zoned while further investigations took place into the potential life risk associated with a land slip.

4 In July 2012 Christchurch City Council (CCC) commissioned GNS Science (GNS) to provide a preliminary report on Lucas Lane to assist CERA with zoning decisions. In end-August 2012 CCC commissioned Aurecon New Zealand Ltd (Aurecon) to provide a second report outlining an analysis of the available engineering options for Lucas Lane.

5 The GNS report identified that the land slip hazard is the result of uncontrolled filling of former quarry areas above Lucas Lane placed sometime from 1946 onwards. The instability of this slope has been exacerbated by the 2010/2011 earthquakes. GNS observed land cracking, which is thought to have been caused by these earthquakes.

6 The hazard is unengineered fill situated on privately owned land above a residential subdivision that was consented after 1984, which was after the fill was placed. A slip could cause up to 2m in height of debris to inundate the properties below.

7 The GNS report has not quantified the level of life risk faced by the occupants of these properties, as it would take several years to gain the necessary insight into the groundwater conditions affecting the slip, and its likely response to rainfall.

8 The GNS report identifies between three and seven green zoned properties that face a similar threat from the hazard as properties in the white zone. Officials have considered these properties when developing potential policy responses. See attachment A for annotated photos of the area.

Withheld under section 9(2)(a)

9 The GNS report show that Alderson Avenue is not identified as being affected by the land slip hazard. Officials recommend rezoning this property green.

10 Based on the Aurecon report commissioned in August, officials have considered the effect of each of the options outlined below on all at-risk properties:

Option	Gross Cost	Comment
Do nothing	$0	6 properties have section 124 so property owners cannot live in their homes. Inequity with other zoning decisions.
Retreat from all at risk properties (7 white zone and 3-7 green zone properties)	$5-7m	Highest cost option.
Remove hazard (benching and gabion wall installation) Protects all at-risk properties (7 white and 3-7 green zoned properties) ***Recommended option***	$1.5m	While there are risks around timeliness and cost, these are judged to be manageable. Works could potentially be completed by end May 2013.
Mitigate hazard (This would involve red zoning 7 white zoned properties and constructing a bund to protect 3-7 green zoned properties)	$4	Likely not complete until 2014. Would need to acquire properties in red zone before bund construction could begin.

11 Officials recommend that the most feasible and cost-effective option available to address the land slip is to remove the hazard at source. By removing the hazard these properties would meet the green zone criteria as damage could then be addressed on an individual basis.

12 Removing the hazard would involve benching (removing a large volume of earth to stabilise the slope and placing the cut material in a nearby site as engineered fill) and installing 1m to 1.5m high gabion walls (small rock-filled fences) or similar retention structure at the bottom of the slope. It is expected this would cost approximately $1.5 million and the works could be completed by the end of May 2013. This would protect all at-risk properties including seven white zoned properties in the white zone and between three and seven properties (depending on what level of hazard is deem acceptable) in the green zone.

13 The amount of fill proposed to be removed is approximately 40,000m^3. CERA and CCC have held discussions with the owner of the property on which the hazard is situated, and he has indicated that he would be supportive of works to remove the hazard and the fill being placed elsewhere on his property. Suitable fill locations have been identified.

14 A resource consent is needed in order to undertake these works. As the consent may be processed on a non-notified basis under the Canterbury Earthquake (Resource Management Act) Order 2011, it ought to be able to be processed in a timely manner. The resource consent could be obtained in parallel with detailed design work. Conditions for long-term monitoring of the benches and drains can be proposed as part of the resource consent application.

15 There are other properties in the Port Hills or other parts of Canterbury that have earthquake caused/exacerbated land damage that has resulted in an elevated life risk. However, they do not face the same scale of hazard or level of risk and it can be addressed on an individual basis. Rezoning the properties in Lucas Lane with earthworks will provide certainty for property owners.

16 Officials believe that given the potential life risk affecting properties in Lucas Lane, the scale of the earthquake-exacerbated hazard, the solution has the potential to be timely and the fact that the issues cannot be addressed on an individual basis (other than by abandoning the properties), means that it is appropriate for the Crown to be involved in order to meet its rebuild objectives of certainty for property owners and confidence in the zoning.

17 The owner/occupier of the land from which the hazard originates may face potential liability if the hazard were to eventuate (i.e. slip and inundate the houses below). Crown intervention may result in some of that potential liability shifting to the Crown if the works were to fail. If the earthworks are carried out appropriately that risk substantially reduced. In the interests of certainty and the potential for timeliness, officials recommend that the benefits of such intervention outweigh the risks.

18 The gross cost will be met by the Crown. CCC will be asked to contribute to the costs of construction.

19 The land owner faces a potential liability if the hazard were to eventuate. However, recovering costs from the land owner would entail legal action, the outcome of which would be uncertain. Discussions will also be held with EQC as to their responsibility.

Consultation

20 Treasury, Christchurch City Council and the Ministry of Business, Innovation and Employment (Building and Housing) were consulted on a draft of this paper.

21 The Department of the Prime Minister and Cabinet was informed.

Recommendations

1 **Note** that on 16 July 2012 Cabinet authorised the Minister of Finance, the Minister for Canterbury Earthquake Recovery and the Associate Minister of Finance (Hon Steven Joyce) to make any outstanding decisions on the Port Hills White Zone until 31 October 2012 [CER Min (12) 5/2 refers];

2 **Note** that as at 14 September 2012 there are eight properties remaining in the Port Hills White Zone;

3 **Agree** to rezone the eight remaining white zoned properties green (as in attachment B);

YES / NO **Minister of Finance**	YES / NO **Minister for Canterbury Earthquake Recovery**	YES / NO **Associate Minister of Finance**

4 **Agree** to fund the construction of earthworks, (including detailed design, cut benches and bulk fill placement, and erection of small scale erosion protection including gabion walls for mass movement protection) in Lucas Lane in the Port Hills to a total value of $2.000 million;

YES / NO **Minister of Finance**	YES / NO **Minister for Canterbury Earthquake Recovery**	YES / NO **Associate Minister of Finance**

5 **Note** that the costs in recommendation 4 are proposed to be shared between the Christchurch City Council and the Crown;

6 **Note** that an appropriation was established in 2011/12 for the Initial Procurement of Rockfall Protection Systems in the Port Hills [CAB Min (12) 18/3 refers];

7 **Note** that the appropriation "Procurement of Rockfall Protection Systems" is no longer required and it is proposed that $2.000 million be transferred from this appropriation to a new appropriation for land slip protection;

8 **Agree** to establish a new Non-Departmental Other Expense appropriation "Construction of Land Slip Removal in the Port Hills" with this appropriation to be the responsibility of the Minister for Canterbury Earthquake Recovery;

YES / NO **Minister of Finance**	**YES / NO** **Minister for Canterbury Earthquake Recovery**	**YES / NO** **Associate Minister of Finance**

9 **Agree** that the scope of this appropriation be "This appropriation is limited to the construction of land slip removal in Lucas Lane in the Port Hills";

YES / NO **Minister of Finance**	**YES / NO** **Minister for Canterbury Earthquake Recovery**	**YES / NO** **Associate Minister of Finance**

10 **Agree** to the following changes to appropriations to provide for the decisions in the above recommendations, with a corresponding impact on the operating balance:

	$m – increase/(decrease)				
Vote Canterbury Earthquake Recovery **Minister for Canterbury Earthquake Recovery**	2012/13	2013/14	2014/15	2015/16	2016/17 & outyears
Non-Departmental Other Expense Procurement of Rockfall Protection Systems	(2.000)	-	-	-	-
Non-Departmental Other Expense Construction of Land Slip Removal in the Port Hills	2.000	-	-	-	-
Total	-	-	-	-	-

YES / NO **Minister of Finance**	**YES / NO** **Minister for Canterbury Earthquake Recovery**	**YES / NO** **Associate Minister of Finance**

11 **Agree** that the proposed changes to appropriations for 2012/13 above be included in the 2012/13 Supplementary Estimates and that, in the interim, the increase be met from Imprest Supply;

YES / NO **Minister of Finance**	**YES / NO** **Minister for Canterbury Earthquake Recovery**	**YES / NO** **Associate Minister of Finance**

12 **Agree** that all the expenses (net of any cost sharing where applicable) incurred under appropriations agreed in this paper be a charge against the Canterbury Earthquake Recovery Fund, established as part of Budget 2011;

YES / NO **Minister of Finance**	**YES / NO** **Minister for Canterbury Earthquake Recovery**	**YES / NO** **Associate Minister of Finance**

13 **Note** officials are preparing a communications plan to inform affected residents of these decisions;

Diane Turner,
General Manager, Strategy, Planning and Policy

NOTED / APPROVED / NOT APPROVED	NOTED / APPROVED / NOT APPROVED	NOTED / APPROVED / NOT APPROVED
Hon Bill English	Hon Gerry Brownlee	Hon Steven Joyce
Minister of Finance	**Minister for Canterbury Earthquake Recovery**	**Associate Minister of Finance**
Date: 28 / 10 / 2012	Date: 28 / 10 / 2012	Date: / / 2012

Attachment A: Annotated photos of Lucas Lane
Attachment B: Lucas Lane - Proposed Zoning Change
Attachment C: Estimated Landslide Runout Height
Attachment D: Recommended Option – Removal of the Hazard

Background

22 On 16 July 2012 Cabinet authorised the Minister of Finance, the Minister for Canterbury Earthquake Recovery and the Associate Minister of Finance (Hon Steven Joyce) to have authority to make any outstanding decisions on the Port Hills White Zone until 31 October 2012 [CER Min (12) 5/2 refers].

23 On 11 July 2011 the Port Hills was zoned white whilst further assessments were undertaken following the 13 June 2011 earthquakes [CAB Min (11) 26/16 refers].

24 Between 5 September 2011 and 14 September 2012, approximately 12,000 properties in the Port Hills were zoned green. 443 properties were zoned red on the basis that they faced an unacceptable level of life risk from either cliff collapse or rock roll exacerbated or caused by the earthquakes. An engineering solution to mitigate the life risk was deemed not to be timely or cost effective, would be disruptive for land owners and uncertain in terms of detailed design, its success and its possible commencement, and the health or wellbeing of residents is at risk from remaining in the area for prolonged periods.

25 As of 14 September 2012 eight properties remain in the White Zone. These properties are located in Lucas Lane, and remained white zoned while further investigations took place into the potential life risk associated with a land slip. The land slip hazard comprises a very steep soil slope located on private land above the white zoned properties.

26 The remaining properties in the white zone are [redacted] Lucas Lane and Alderson Avenue. In mid-August Christchurch City Council (CCC) placed section 124 Building Act notices on six of the eight white zoned properties (4 to 8 Lucas Lane) following upslope mass movement as a result of heavy rainfall.

27 In May 2012 CERA commissioned Aurecon New Zealand Ltd (Aurecon) to perform a desktop review of land movement sites in the Port Hills, to assess whether any potentially posed an immediate threat to people, property or infrastructure. Of the more than 20 sites identified, only that in Lucas Lane was believed to have a life risk warranting further investigation.

28 In July 2012 CCC commissioned GNS to provide a preliminary report on Lucas Lane to assist CERA with zoning decisions. In end-August 2012 CCC commissioned Aurecon to provide a second report outlining an analysis of the available engineering options for Lucas Lane.

29 Cabinet has agreed that the criteria for zoning in the Port Hills are as follows:

29.1 Outside of the areas identified by GNS as high risk, properties have been zoned green where land damage and any life risk could be addressed on an individual basis.

29.2 In the areas identified by GNS as high risk, red zones have been declared where:

29.2.1 annual individual fatality risk associated with residential dwellings in the area is higher than 1 in 10,000 at 2016 risk levels as per the GNS modelling, subject to expert advice in very particular circumstances[1]; or

29.2.2 there is potential for immediate cliff collapse or land slip, as assessed by GNS, caused or accentuated by the Canterbury earthquakes with associated risk to life; and

[1] *This is an exceptional circumstances clause and needs the agreement of both CERA and the Christchurch City Council.*

29.2.3 an engineering solution to mitigate the life risk is judged not to be desirable, as it would (amongst other factors);

29.2.3.1. be uncertain in terms of detailed design, its success and its possible commencement; and/or

29.2.3.2. be disruptive for landowners as the commencement date is uncertain and the length of time they would need to be out of their homes to allow mitigation to occur; and/or

29.2.3.3. not be timely: for example the work required would probably lead to social dislocation for those communities in the short-to-medium term; and/or

29.2.3.4. not be cost effective, especially where the cost of mitigation is greater than the value of the properties; and

29.2.4 The health and wellbeing of residents is at risk from remaining in the area for prolonged periods.

29.3 In the areas identified by GNS as high risk, green zones have been declared where land damage and any life risk could be addressed on an individual basis and any life risk from rock roll was less than 1 in 10,000 at 2016 risk levels as per the GNS modelling [CAB Min (12) 35/2A refers].

Comment / Discussion

Life risk / Summary of the report

30 In October 2012 GNS provided CCC and CERA with an advanced draft of its report on Lucas Lane. This report identified that the land slip hazard is the result of uncontrolled filling of former quarry areas above Lucas Lane placed sometime from 1946 onwards. The instability of this slope has been exacerbated by the 2010/2011 earthquakes. GNS observed deep land cracking, which is thought to have been caused by these earthquakes. The hazard is situated on privately owned land, which is currently green zoned, but will be subject to the zoning review.

31 The report identified that potential saturation of the slope and water infiltration onto the cracked land caused by heavy sustained rainfall could cause up to 3,200m^3 of uncontrolled fill to inundate the houses below. This volume is thought to represent an upper bound. The likelihood of this kind of event has been increased by the deep cracks which were caused by the earthquakes and allow for easier water infiltration.

32 Future earthquakes could also cause a smaller scale slip (compared to a rain-induced slip), depending on the ground acceleration and level of ground water. The debris is likely to fail in a liquid-like form and travel at high velocities, posing a significant risk to the houses in the inundation zone.

33 Some of the houses are not currently occupied as they are subject to section 124 notices under the Building Act. The GNS report has not quantified the level of life risk faced by the occupants of these properties as it would take several years to gain the necessary insight into the groundwater conditions affecting the slip, and its likely response to rainfall. This time delay does not meet the Government's rebuild criteria for Canterbury of certainty and confidence.

34 The GNS report uses two methods to calculate the extent of the hazard i.e. the likely distance and volume of debris that will travel downslope. These two methods each identify which properties are the most affected by the hazard and have a potential life risk. A summary of the findings is below:

Method	White zone – high hazard	Green zone – high hazard	Green zone – lower hazard
Travel angle	Lucas Lane	Lucas Lane	
3D model	Lucas Lane	Lucas Lane	Lucas Lane, and Alderson Avenue

Withheld under section 9(2)(a)

Travel Angle

35 The first method is the travel angle, which is a geometrical relationship based on data from previously observed land slips in the same material worldwide and locally. This method shows that numbers Lucas Lane are exposed to risk from this land slip hazard. This risk area is denoted by the solid purple line on the map in attachment C.

3D model

36 The second method used by GNS is a 3D model of expected debris flow heights and velocity. This has been estimated for two scenarios – a slip with a runout volume of 1,700m^3, and a slip with a runout volume of 3,200m^3, which is the upper bound of credible volumes based on the site-specific ground conditions. For each scenario, an area of estimated debris flow inundation and debris height has been identified and expected velocities estimated. The 3,200m^3 scenario showing estimated landslide runout height is included as attachment C.

37 In the 1,700m^3 scenario, properties Withheld under section 9(2)(a) Lucas Lane would be most affected by debris flow, with a run out height of up to 0.5m for most properties, and up to 2m on other properties. In the 3,200m^3 scenario, some properties could face inundation heights of greater than 2m of debris. The same properties were inundated under both scenarios with the height of debris inundation varying.

38 The 3D model assumes that no buildings are present. The model shows three properties in the green zone 9(2)(a) Lucas Lane) as being subject to a level of hazard comparable with some properties in the white zone. While these green zoned properties do not currently have Building Act s124 notices, if white zoned properties were to be zoned red and subsequently removed these adjacent properties could potentially have section 124 notices placed on them. Officials have considered these properties when developing potential policy responses.

39 A further four green zoned properties 9(2)(a) Lucas Lane and Withheld under section 9(2)(a) Alderson Avenue) face a more marginal level of hazard (up to 0.5m debris inundation height). If this is deemed an unacceptable level of potential hazard, these properties may be considered as part of the set of at-risk properties.

Summary

Withheld under section 9(2)(a)

40 Both methods show that Alderson Avenue is not identified as being affected by the land slip hazard. As such, officials recommend rezoning this property green.

41 The August Aurecon report describes a set of options to respond to the hazard. The report indicates that due to the scale of the hazard, the property owners are not able to address the hazard on an individual basis.

42 Based on this Aurecon report, officials have considered the effect of each of the options outlined below on all at-risk properties:

Option	Approx Gross Cost	Comment
Do nothing	$0	6 properties have section 124 so property owners cannot live in their homes. Inequity with other zoning decisions.
Retreat from all at risk properties (7 white zone and 3-7 green zone properties)	$5-7m	Highest cost option.
Remove hazard (benching and gabion installation) Protects all at-risk properties (7 white and 3-7 green zoned properties) ***Recommended option***	$1.5m	While there are risks around timeliness and cost, these are judged to be manageable. Works could potentially be completed by end May 2013.
Mitigate hazard (This would involve red zoning 7 white zoned properties and constructing a bund to protect 3-7 green zoned properties)	$4m	Likely not complete until 2014. Would need to acquire properties in red zone before bund construction could begin.

Recommended option – remove hazard

43 Officials recommend that the most feasible and cost-effective option available to address the land slip is to remove the hazard at source. By removing the hazard these properties would meet the green zone criteria as damage could then be addressed on an individual basis.

44 Removing the hazard would involve benching (removing a large volume of earth to stabilise the slope and placing the cut material in a nearby site as engineered fill) and installing 1m to 1.5m high gabion walls (small rock filled fences) or a similar retention structure at the bottom of the slope. It is expected this would cost approximately $1.5 million and the works could be completed by the end of May 2013. This would protect all at-risk properties including those in the white and green zones.

45 Aurecon has calculated that the amount of fill proposed to be removed is approximately 40,000m^3. CERA and CCC have held discussions with the owner of the property on which the hazard is situated, and he has indicated that he would be supportive of works to remove the hazard and the fill being placed elsewhere on his property. Suitable fill locations have been identified. A legal agreement would be required to formalise this understanding and secure arrangements for future monitoring.

46 A resource consent is needed in order to undertake these works, but CCC staff have indicated they do not foresee any problems. The resource consent could be processed under the Canterbury Earthquake (Resource Management Act) Order 2011, which would mean the consent need not be publically notified. Consultation will be required with anyone who may be adversely affected. If consultation is required, the consent authority must allow at least 10 working days for a response to an invitation to consult, and consultation may proceed in such a manner as the consent authority considers appropriate. An application for resource consent could be prepared and lodged in parallel with detailed design work. Conditions regarding long-term monitoring of the benches and drains will be proposed as part of the resource

consent application. Resource consent from the Regional Council may also be required for the discharge of sediment from the earthworks. Consideration needs to be given to the potential for contaminants to be found on the site, which would trigger requirements to comply with the Resource Management (National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health) Regulations 2011.

47 If the Crown chooses to proceed with works to stabilise the area, the Crown and its engineers may be exposed to liability if the works fail. Any liability in respect of the works is likely to be shared between the parties involved in carrying out the works. The potential for liability is not considered to be significant if the works are carried out appropriately under the direction of a Chartered Professional Engineer.

48 Discussions with CCC staff have indicated that they are supportive of this option, and will uplift the section 124 notices from the properties in Lucas Lane once the work has been completed and received sign off from a Chartered Professional Engineer.

Alternative options

Do nothing

49 To do nothing would involve rezoning all eight white zoned properties green and providing no Crown assistance. Six of the eight properties currently have a s124 notice, meaning that these owners are unable to occupy their homes.

50 Officials have had an initial discussion with EQC, which has provisionally indicated that the hazard is not defined by them as an "imminent loss" situation. CERA will continue to have discussions with EQC on this issue.

51 The owners of the affected properties could seek to compel the owner of the hazard to address it. However, that process would not be timely, and would not provide certainty to the property owners.

52 While the life risk impacting properties has not been quantified, and can be avoided by prohibiting access to the properties, to do nothing would raise equity issues with other properties in the Port Hills, which have been zoned red due to an unacceptable level of life risk from either rock roll or cliff collapse.

Red zoning

53 Alternatively, all at risk properties could be zoned red. This would involve rezoning seven of the eight properties white zoned red. This would leave three-seven green zone properties at risk of debris inundation of up to 1.5m. Officials would recommend either rezoning these properties red now or including them as part of the Port Hills zoning review.

54 Red zoning would provide certainty to those property owners in the white zone. Of the options considered, red zoning has the greatest fiscal cost to the Crown. The estimated gross cost would be approximately $5 - $7 million. This amount includes the three-seven green zoned properties that are at risk – which we would, if this option were chosen, be zoned red too. The figure of $5 - 7 million does not include insurance recoveries. Anecdotal evidence suggests that at least two of the current white zoned properties are rebuilds.

Partial mitigation

55 The Crown could mitigate the hazard, which would involve red zoning seven of the white zoned properties and building a bund to protect the remaining green at-risk properties. Partial mitigation would be necessary because the risk would be transferred to the currently green zoned properties if the white zoned properties were demolished.

56 It is expected that the gross cost of this option would be approximately $4 million: approximately $2.5 million for purchase of the properties, and $1.5 million for the construction of the bund. While detailed design could begin immediately, construction could not begin until the red zoned properties had been purchased and dwellings demolished. As the red zone offer is voluntary, and property owners would have until 31 August 2013 to accept (or potentially later), it is estimated that the work would not be completed until 2014.

57 Officials do not recommend this option on the basis that it would involve removing houses to achieve the same effect as the preferred option (removal of hazard), it would cost more than the preferred option.

Potential precedents set in Canterbury / Rest of NZ

58 Other properties in the Port Hills or other parts of Canterbury have earthquake caused/exacerbated land damage that has resulted in an elevated life risk. However, no other properties have been identified which face the same scale of hazard that is unable to be addressed on an individual basis.

59 Officials are aware of approximately 4 properties in the green zone in the Port Hills that have section 124 notices due to land movement issues. These are individual (or in one case a group of two) properties, and as such the hazard can be dealt with on an individual basis.

60 Officials consider that given the potential life risk affecting properties in Lucas Lane, the scale of the hazard, and the fact that it cannot be addressed on an individual basis means that it is appropriate for the Crown to be involved in order to meet its rebuild objectives of certainty for property owners and confidence in the zoning.

61 Central government funding of even a share of the land slip-related cost should not be seen as a nationwide precedent. There are a number of unique features about the Christchurch situation; in this case, the earthquakes have been a contributing factor that has exacerbated the risk of land slip.

Potential liability

62 The hazard in Lucas Lane has arisen because unengineered fill was placed on the land. As the human intervention (placing the fill) is the cause of the hazard, there is a potential liability for the occupier of the land. An occupier of land is potentially liable for damage caused by an isolated escape of something harmful (in this case the fill) that was brought onto or accumulated on the occupier's land in the course of a non-natural use of that land.[2] This means the owner/occupier of the land which the hazard originates may face liability if the hazard were to eventuate (i.e. slip and inundate the houses below).

63 If the Crown chooses to undertake works to stabilise the area, the Crown (and its engineers) will be exposed to the same potential liability if the works fail. However, it is considered that the risk is not high, and in the interests of confidence in the zoning and certainty for property owners, officials recommend that the benefits of such intervention outweigh the risks.

[2] This is known as the principle in "*Rylands and Fletcher*"

64 We are yet to assess EQCs responsibility in this matter. Since there is no dwelling located on the property on which the hazard originates, there is no EQC coverage for this property. CERA will pursue discussions with EQC on any responsibility it may have for addressing this hazard in order to protect at-risk properties in Lucas Lane. This may result in these home owners having no future EQC coverage, which could have ramifications for their future insurability.

65 CCC are the consenting authority. A potential liability may exist in relation to their responsibilities under the Resource Management Act and the Building Act.

Financial implications

66 The cost of removing the hazard is significantly lower than the cost of red zoning. It is expected that the gross cost of removing the hazard would be approximately $1.5 million.

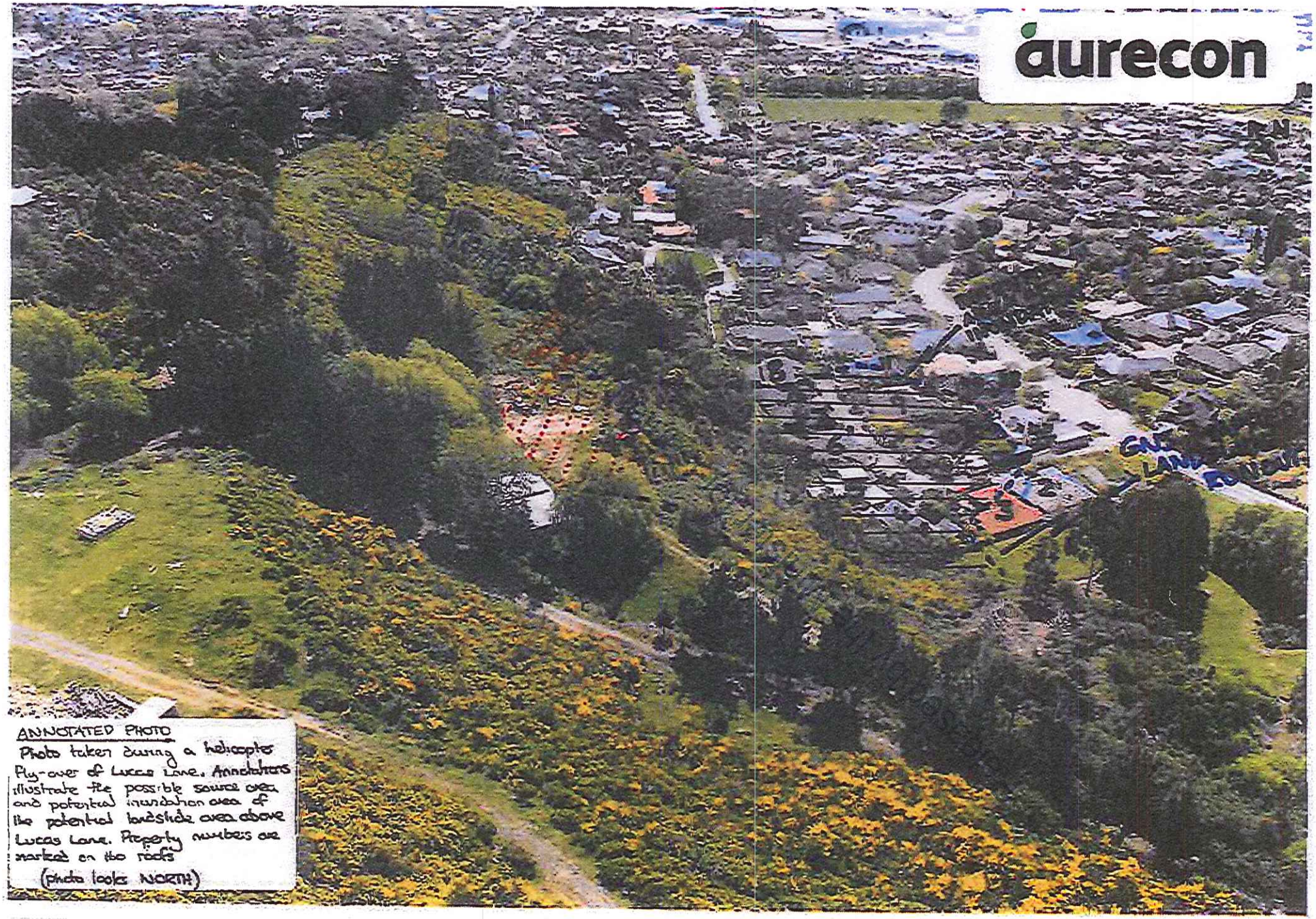
67 In May 2012 Cabinet approved the establishment the Initial Procurement of Rockfall Protection Systems in the Port Hills of $10 million [CAB Min (12) 18/3 refers]. This appropriation is no longer required. It is proposed to establish a new appropriation "Construction of Land Slip Removal in the Port Hills" and to transfer $2 million from the Initial Procurement of Rockfall Protection Systems into this new appropriation. This will be a charge against the Canterbury Earthquake Recovery Fund, as the rock fall procurement expense has been removed from forecasts following a change in policy direction.

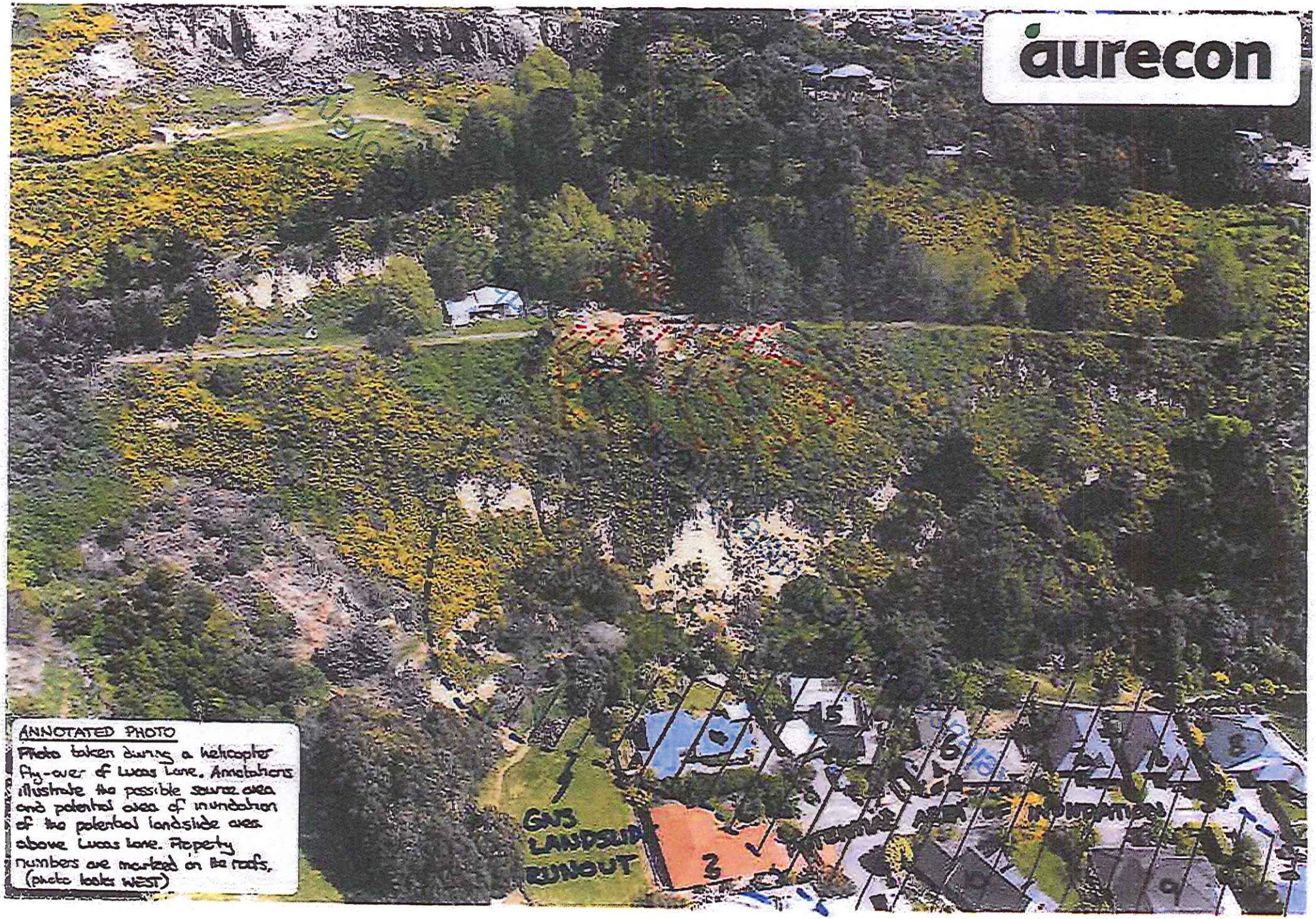
68 The cost of removing the hazard is proposed to be shared between the Christchurch City Council and the Crown. In the case of red zone offers for rock roll affected properties CERA and CCC have agreed to each pay 50 per cent of these costs.

69 Cost sharing discussions with CCC are ongoing and CCC has indicated that Council would need to pass a new resolution to fund any expenses in relation to Lucas Lane.

Publicity

70 A communications plan is being developed, including plans to call all affected property owners and a media statement for release by 31 October 2012.


aurecon
ANNOTATED PHOTO
Photo taken during a helicopter fly-over of Lucas Lane. Annotations illustrate the possible source area and potential inundation area of the potential landslide area above Lucas Lane. Property numbers are marked on the roofs
(photo looks NORTH)


aurecon
ANNOTATED PHOTO
Photo taken during a helicopter fly-over of Lucas Lane. Annotations illustrate the possible source area and potential area of inundation of the potential landslide area above Lucas Lane. Property numbers are marked on the roofs. (photo looks WEST)
GAS
LANDSLIP
RUNOUT
1
3
5
6
8
9

aurecon

ANNOTATED PHOTO

Photo taken during a helicopter fly-over of Lucas Lane. Annotations illustrate the possible source area and potential inundation area of the potential landslide area above Lucas Lane. Property numbers are marked on the roofs

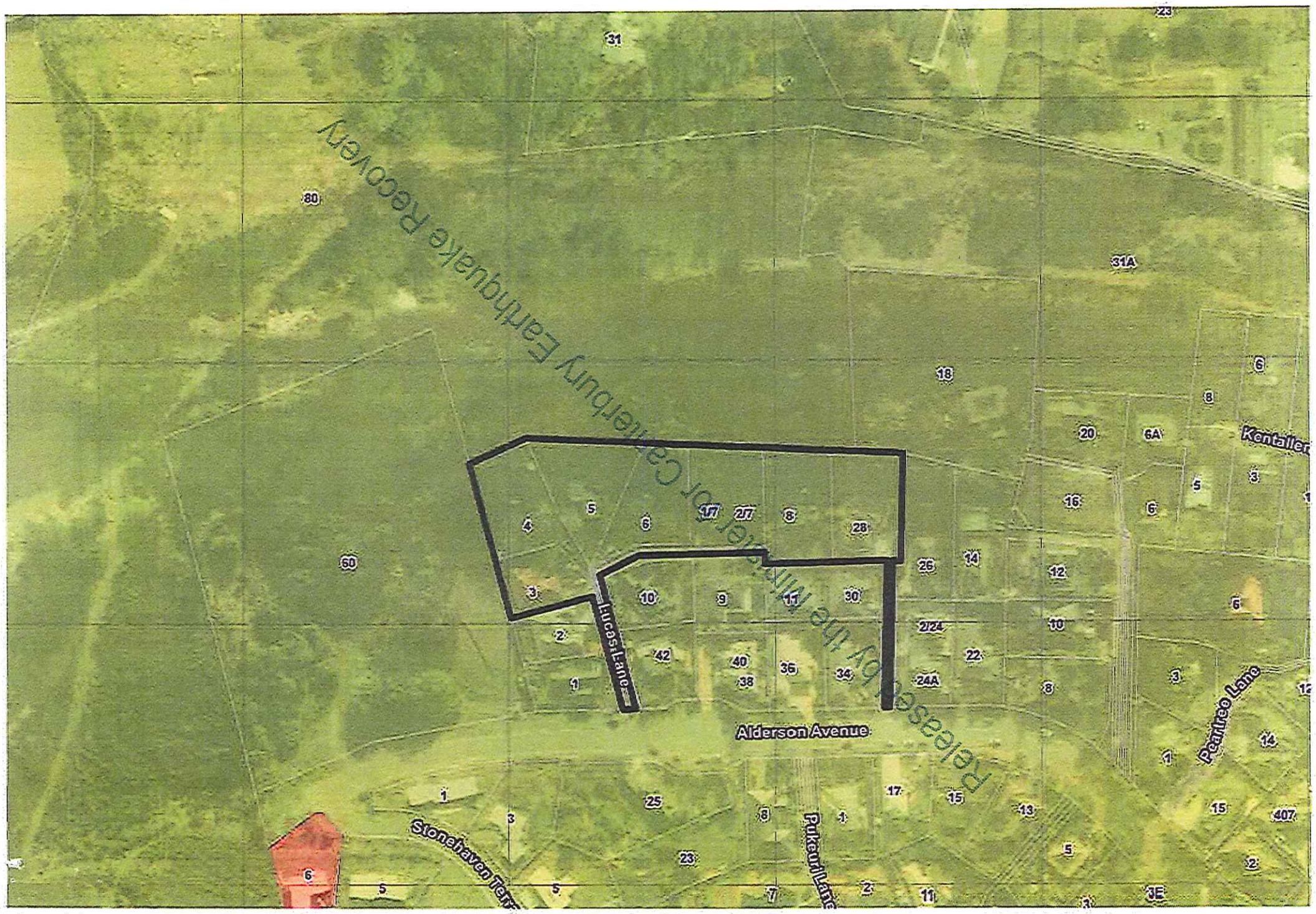
(photo looks NORTH-WEST)

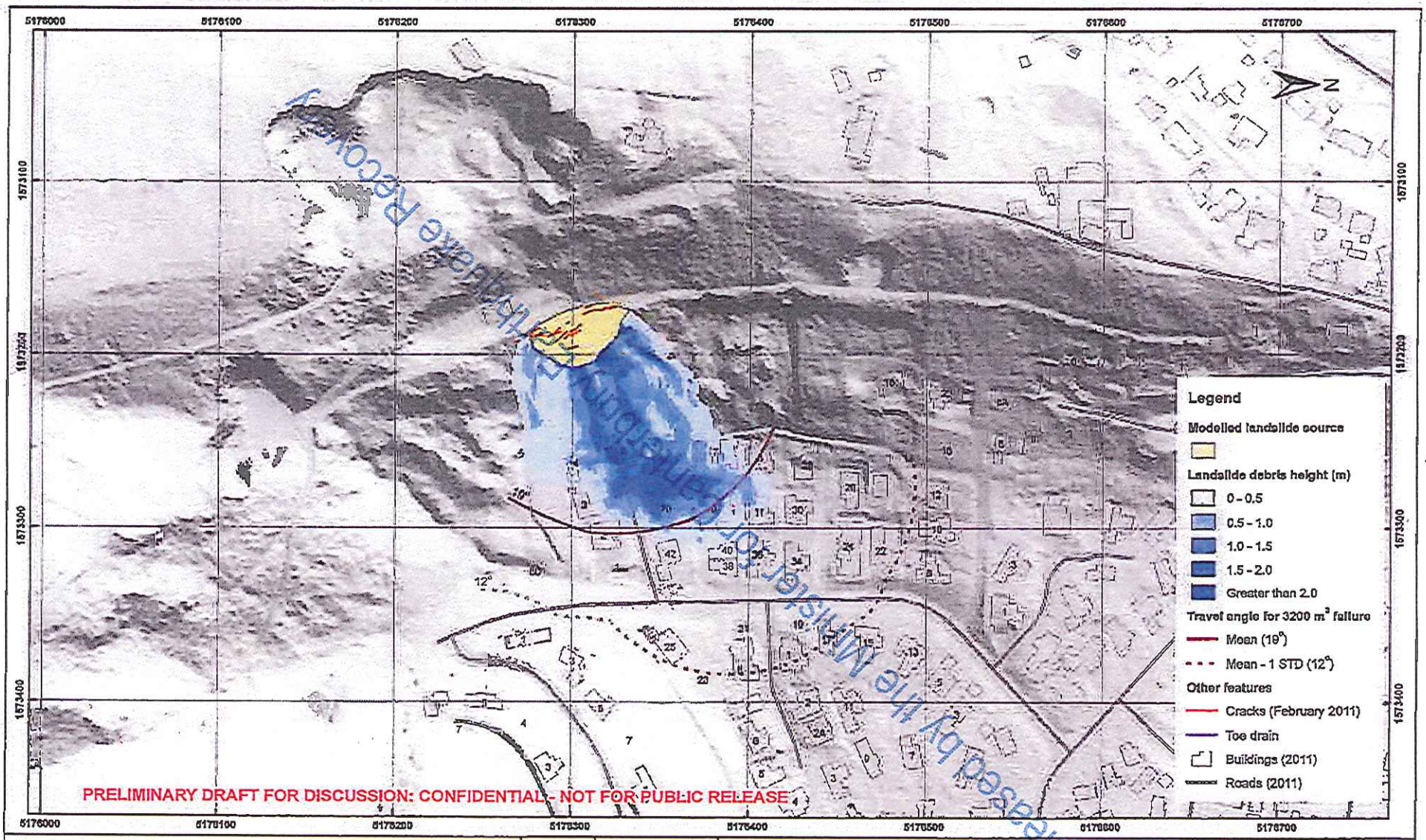
ANNOTATED PHOTO

Photo taken during a helicopter fly-over of Lucas Lane. Annotations illustrate the possible source area and potential inundation area of the potential landslide area above Lucas Lane. Property numbers are marked on the roofs.

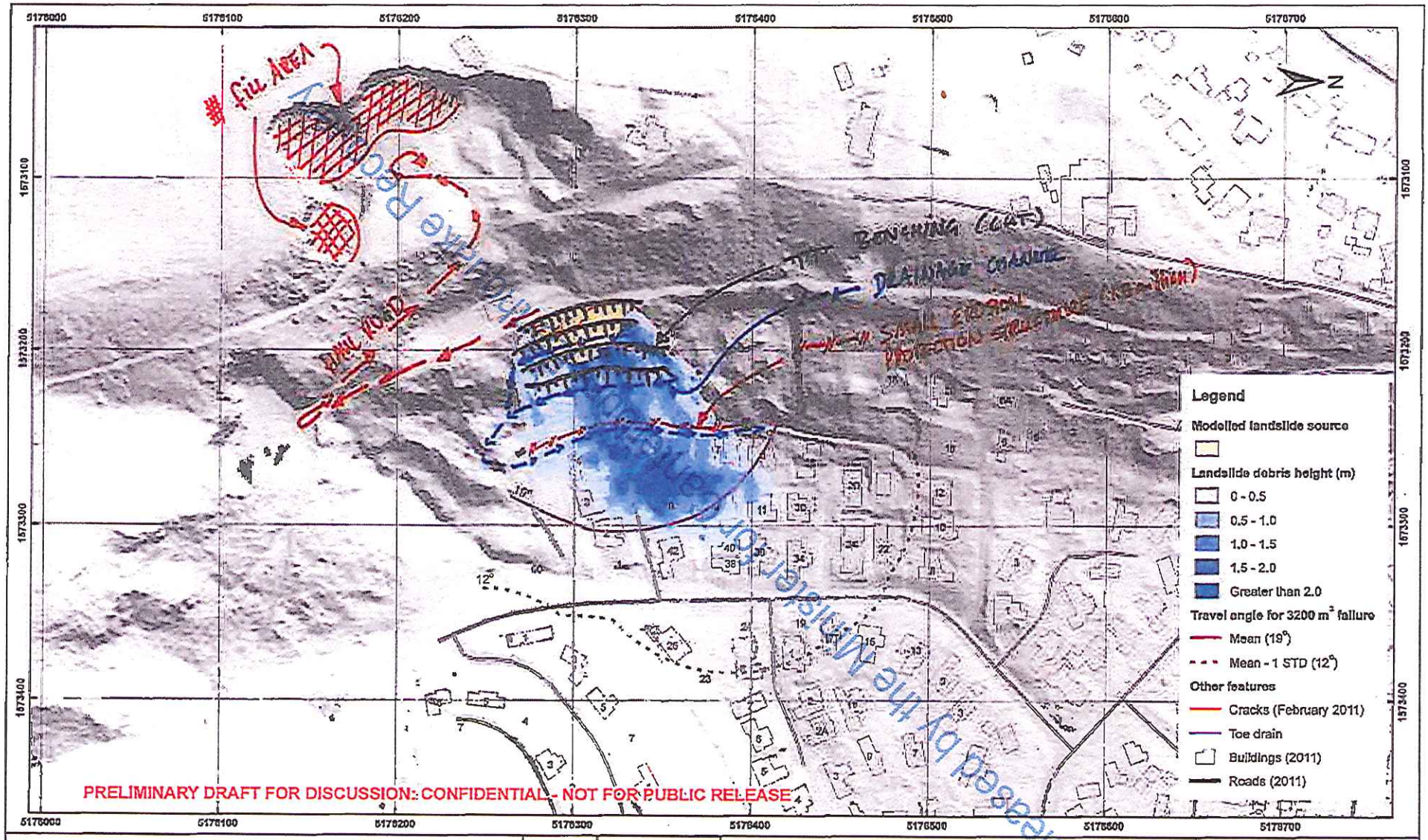
(photo looks NORTH-WEST)

aurecon


Released by the Minister for Canterbury Earthquake Recovery
Lucas Lane
Alderson Avenue
Stonehaven Terr
Pukeuri Lane
Peartree Lane
Kentaller



SCALE BAR: 0 100 200 m			
EXPLANATION: Roads and building footprints and types provided by Christchurch City Council (20/02/2012). PROJECTION: New Zealand Transverse Mercator 2000	DRW: DWH CHK: CM	GNS SCIENCE	Estimated Landslide Runout Height (landslide volume 3200 m³) Lucas Lane - Port Hills Christchurch
			APPENDIX C PRELIMINARY REPORT DATE: October 2012



SCALE BAR: 0 100 200 m

EXPLANATION:

Roads and building footprints and types provided by Christchurch City Council (20/02/2012).

PROJECTION: New Zealand Transverse Mercator 2000

DRW: DWH

CHK: CM

GNS SCIENCE

Estimated Landslide Runout Height (landslide volume 3200 m³)

Lucas Lane - Port Hills
Christchurch

APPENDIX C

PRELIMINARY

REPORT:

DATE: October 2012