



January 8, 2009
BKF No. 20050061-10

John M. Ward, Principal
John Ward & Associates
792 Willborough Place
Burlingame, CA 94010

SUBJECT: Laurel Way Planned Development
Storm Drainage Analyses
Response to Peer Review Comments

Dear John:

The purpose of this supplemental letter is to address comments made by Balance Hydrologics, Inc. in its peer review letter of December 16, 2008. Our intent is to address applicable comments and have the EIR team acknowledge that the remainder of firm's comments can become conditions of approval that may be incorporated in the final design of improvement plans for Laurel Way Planned Development, assuming final city approval of the proposed project.

The following provides specific responses to peer review comments by Balance Hydrologics, Inc.:

A. Comments on BKF's Revised Report (5/30/08)

- A1. Comment: Provide parameters used to assess the flow capacity of the 18 and 24-inch diameter culverts.

Response: Parameters are attached in updated Table 3 of the Laurel Way Storm Drainage Report dated January 8, 2009.

- A2. Comment: An Operations Maintenance Plan should be provided with the Final Design

Response: Agreed. This is will be provided.

- A3. Comment: The detention basin over-detains flows.

Response: As a part of final design, the release rate can be increased. The concerns expressed do not appear warranted for the Laurel Way drainage area because of the significant amount of development that has occurred in the area without stormwater detention. Further discussions may be needed as to whether this remains a concern. As a practical matter, in our final design, we will likely reduce the amount of over-detention that is now occurring. This should be added as a condition of approval and included in final design.

- A4. Comment: Information is not sufficient for reviewing the Bay Area Hydrologic Model.

Response: From the previous review, we were requested to provide concept level designs. We propose to provide the additional design information as a part of the final design package. This should be added as a condition of approval and included in final design.

B. Comments on the Conceptual Development Plan (10/28/08)

- B1. Comment: Flow from Lots 11 through 13 may bypass the Filterra Unit.

Response: A revision is proposed to place a catch basin on the north side of the street that will discharge flows to a proposed curb drain on the south side of the street. The revision is shown on Figure 1. The Filterra units are sized to treat runoff from rainfall events up to 0.2 inches per hour. Lots 11 through 13 and roadway have a total drainage area of 1.0 acres. The peak flow rate during the treatment storm event will be about 0.2 cfs or 890 gpm. Because of the small flow rate, the velocity would be less than 3 feet per second in the gutter, even with the 8.6 percent slope. A standard catch basin can be used to capture the gutter flow.

- B2. Comment: No energy dissipater is shown below the replacement 24-inch line.

Response: To the extent feasible, the existing energy dissipation facilities at the existing storm drain system outfall will be used. As a part of Final Design, these facilities will be surveyed. Figure 2 shows energy dissipation facilities based on the ABAG Standards. If the existing facilities are not adequate, supplemental protection will be provided as shown. Final design will be confirmed at the time of construction document preparation and review by City of Redwood City Engineering Department

Mr. John Ward
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I trust this letter will adequately address the peer review comments. If agreed, we would appreciate such acknowledgment by Balance Hydrologic. Should you have any questions please contact Ed Boscacci or myself at (650) 482-6300.

Very truly yours,
BKF ENGINEERS

A handwritten signature in blue ink, appearing to read "Roland Haga".

Roland Haga, PE
Associate/Project Manager

Encl.: Updated Table 3, Laurel Way Storm Drainage Report
Figure 1- Exhibit in response to B1
Figure 2- Exhibit in response to B2

cc: Ed Boscacci, BKF Engineers

**Table 3
Laurel Way
Drainage Report**

Existing vs. Proposed Conditions

Existing Flow from 25-acre watershed

C	0.41	
i	2.93	inches per hour
A	25	acres
Q (100 year)	30.03	cfs

Capacity of existing 18 in. culvert

Length	42	ft
Slope	0.11	ft/ft
Area	1.8	ft ²
Headwater Elevation	226.4	ft
Center Line Elevation @ Inlet	222.4	ft
Tailwater Elevation	218.5	ft

Orifice Equation

Discharge Coefficient, c	0.6	
Head	4.1	ft
Q (100 year)	17.1	cfs

Manning's Equation

Wetted Area	1.8	ft ²
Wetted Perimeter	4.7	ft
Hydraulic Radius	0.4	ft
Manning's Coefficient, n (CMP)	0.024	
Q (100 year)	19.0	cfs

The capacity of the existing 18 in. culvert is 19.0 cfs which cannot handle the 100 year flow of 30.0 cfs.

Capacity of proposed 24 in. culvert

Length	70	ft	
Slope	0.05	ft/ft	
Area	3.1	ft ²	
Headwater Elevation	226.6	ft	(Proposed Road Elevation of 228' with 1.4' of Freeboard - Assumed)
Center Line Elevation @ Inlet	222.6	ft	
Tailwater Elevation	220.1	ft	

Orifice Equation

Discharge Coefficient, c	0.6	
Head	4.0	ft
Q (100 year)	30.3	cfs

Manning's Equation

Wetted Area	3.1	ft ²
Wetted Perimeter	6.3	ft
Hydraulic Radius	0.5	ft
Manning's Coefficient, n (RCP)	0.013	
Q (100 year)	50.6	cfs

Therefore, the proposed 24 in. culvert can handle the existing 100 yr. flow from the 25-acre watershed.

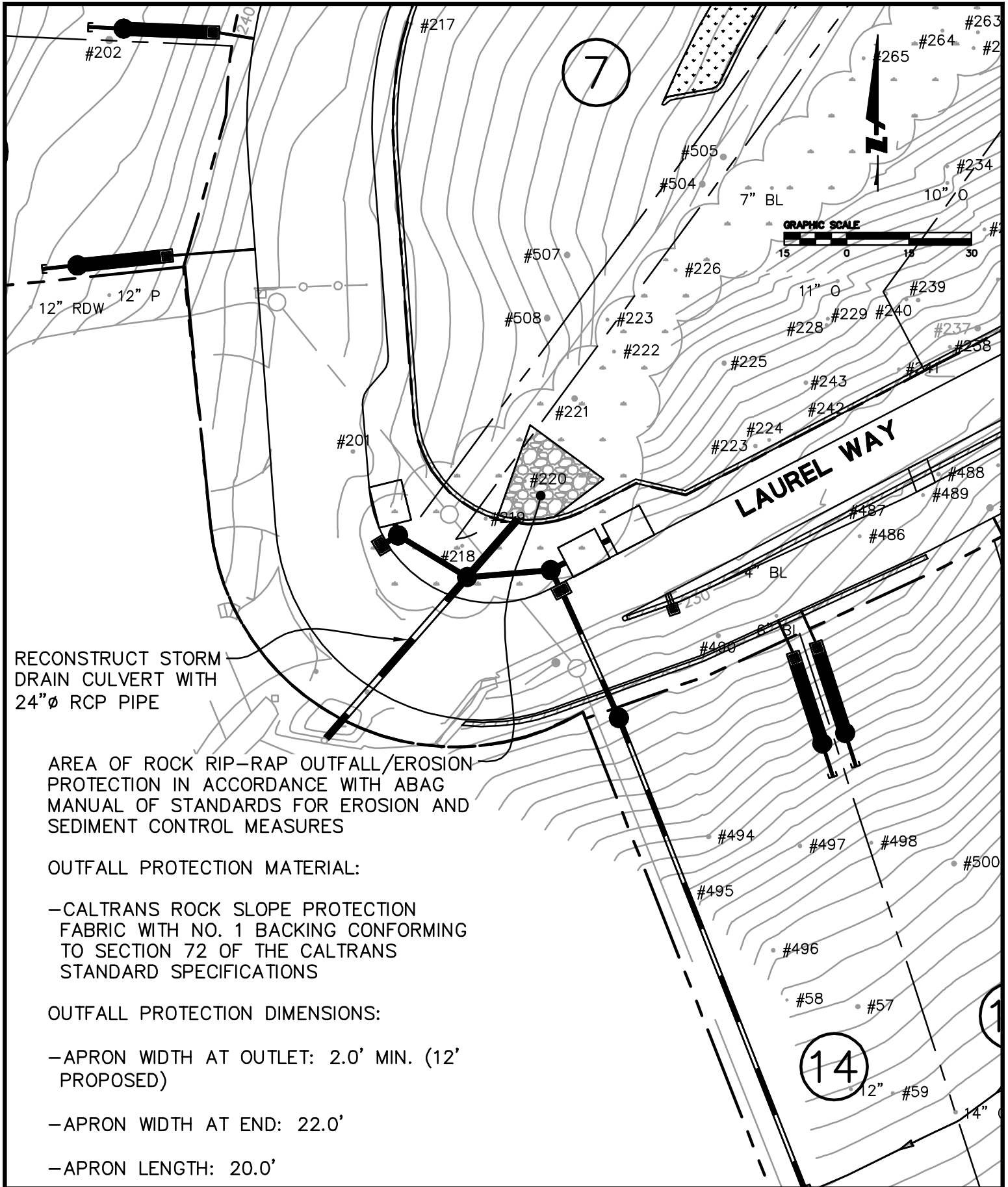
Existing Site Flow

C	0.30	
i	2.93	inches per hour
A	5.06	acres
Q (100 year)	4.45	cfs

Proposed Site Flow

C	0.56	
i	2.93	inches per hour
A	5.06	acres
Q (100 year)	8.27	cfs

Refer to Tables 4 through 11 for individual drainage area detention and treatment measures.



RECONSTRUCT STORM
DRAIN CULVERT WITH
24"Ø RCP PIPE

AREA OF ROCK RIP-RAP OUTFALL/EROSION
PROTECTION IN ACCORDANCE WITH ABAG
MANUAL OF STANDARDS FOR EROSION AND
SEDIMENT CONTROL MEASURES

OUTFALL PROTECTION MATERIAL:

-CALTRANS ROCK SLOPE PROTECTION
FABRIC WITH NO. 1 BACKING CONFORMING
TO SECTION 72 OF THE CALTRANS
STANDARD SPECIFICATIONS

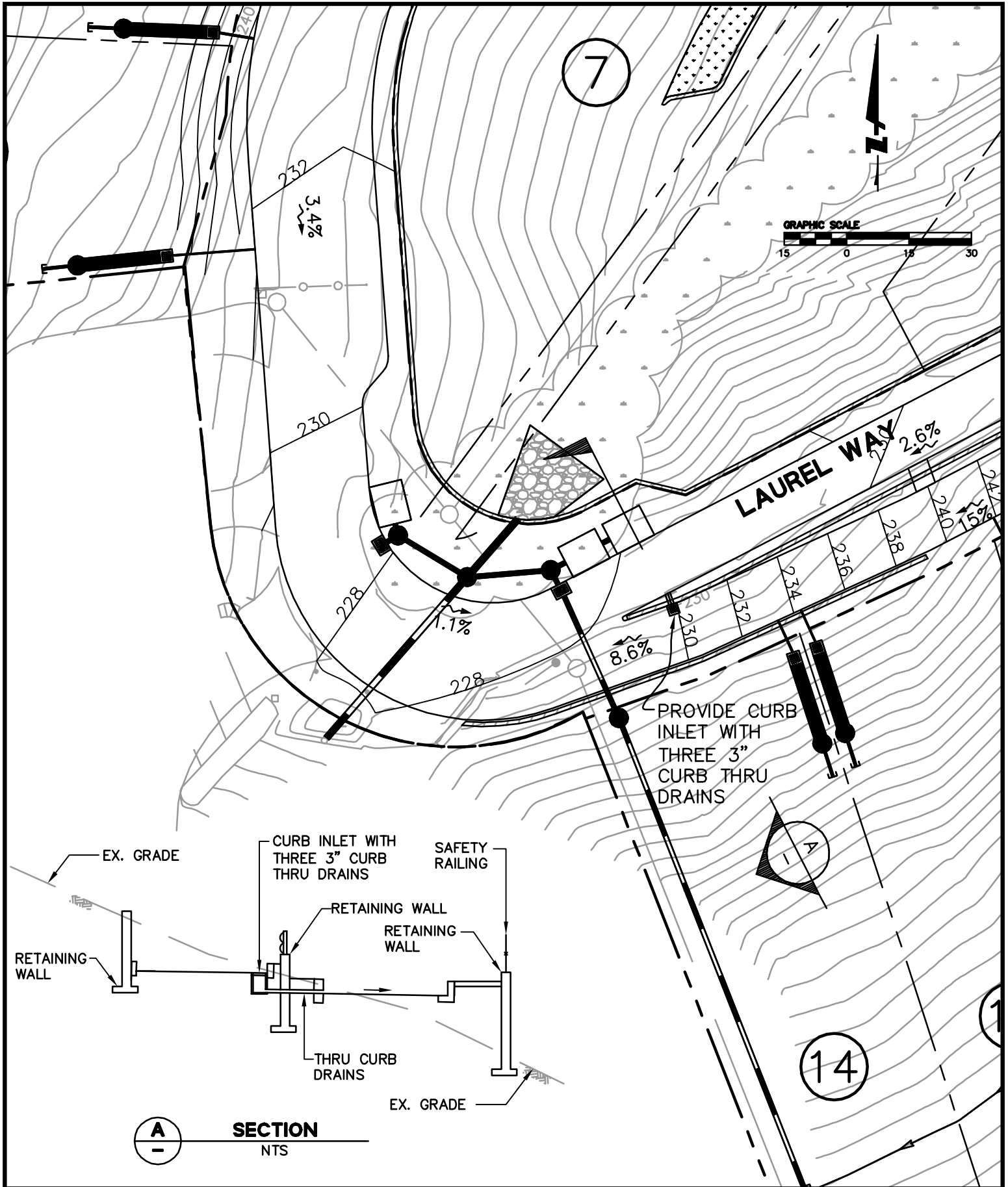
OUTFALL PROTECTION DIMENSIONS:

- APRON WIDTH AT OUTLET: 2.0' MIN. (12'
PROPOSED)
- APRON WIDTH AT END: 22.0'
- APRON LENGTH: 20.0'



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Subject	LAUREL WAY JOINT VENTURE		
	FIGURE 1		
Job No.	20050061		
By	MD	Date	12/23/08 Chkd. RH
		SHEET	1 OF 2



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Subject LAUREL WAY JOINT VENTURE
FIGURE 2
Job No. 20050061
By MD Date 12/23/08 Chkd. RH
SHEET 2 OF 2