

PMComanchePeakPEm Resource

From: Woodlan, Don [Donald.Woodlan@luminant.com]
Sent: Monday, June 25, 2012 2:51 PM
To: Monarque, Stephen; Roy, Tarun; ComanchePeakCOL Resource
Cc: Conly, John; 'tapia_joseph@mnes-us.com'; Bird, Bobby; Evans, Todd; nicholas_kellenberger@mnes-us.com; russell_bywater@mnes-us.com; Deborah_Jerez-MacPherson@mnes-us.com; mory_diane@mnes-us.com; Nancy_Martinez@mnes-us.com
Subject: 2012-06-25 Woodlan, Conference Call re Groundwater Modeling System (GMS)
Attachments: 2012-06-25 Draft Hydro Modeling Telecon_R0b.pdf

Tarun and Steve,

As I promised last week, attached are the draft talking points that the Luminant team intends to use for the conference call. Please propose a date and time for the call as soon as you reasonably can.

Thanks,

Donald R. Woodlan

Manager, Nuclear Regulatory Affairs

Luminant Power

O- 254-897-6887 C- 214-542-7761

From: Woodlan, Don
Sent: Friday, June 15, 2012 8:29 AM
To: 'Monarque, Stephen'; Roy, Tarun; ComanchePeakCOL Resource
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Subject: 2012-06-15 Woodlan, Conference Call re Groundwater Modeling System (GMS)

Tarun and Steve,

As we have discussed in the past, it is important to interact with the NRC as we execute our Integrated Hydrology Closure Plan (IHCP). As such, we are proposing a conference call to describe/discuss assumptions made and how they're being used in the Groundwater Modeling System (GMS) model for IHCP, and to get early feedback of any NRC concerns.

We believe we will have talking point material available on about 6/22/12. June 26 through June 29 are available dates for the Luminant team for the conference call.

Please let me know if the NRC staff can support such a call and if so, please propose a specific date and time. We can use the Luminant licensing bridge.

Thanks,

Donald R. Woodlan

Manager, Nuclear Regulatory Affairs

Luminant Power

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Subject: 2012-06-25 Woodlan, Conference Call re Groundwater Modeling System (GMS)
Sent Date: 6/25/2012 2:50:41 PM
Received Date: 6/25/2012 2:52:12 PM
From: Woodlan, Don

Created By: Donald.Woodlan@luminant.com

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Comanche Peak Nuclear Power Plant Units 3 and 4



Hydrologic Modeling Status Teleconference

Presented by:
Beth Rowan, Enercon
on
June ??, 2012



Agenda

- ❑ Site settings and conditions affecting maximum groundwater level (GWL_{MAX}) and potential migration pathways
- ❑ Discharge points from engineered fill
- ❑ Post-construction site groundwater conditions
- ❑ Model challenges
- ❑ Current approach

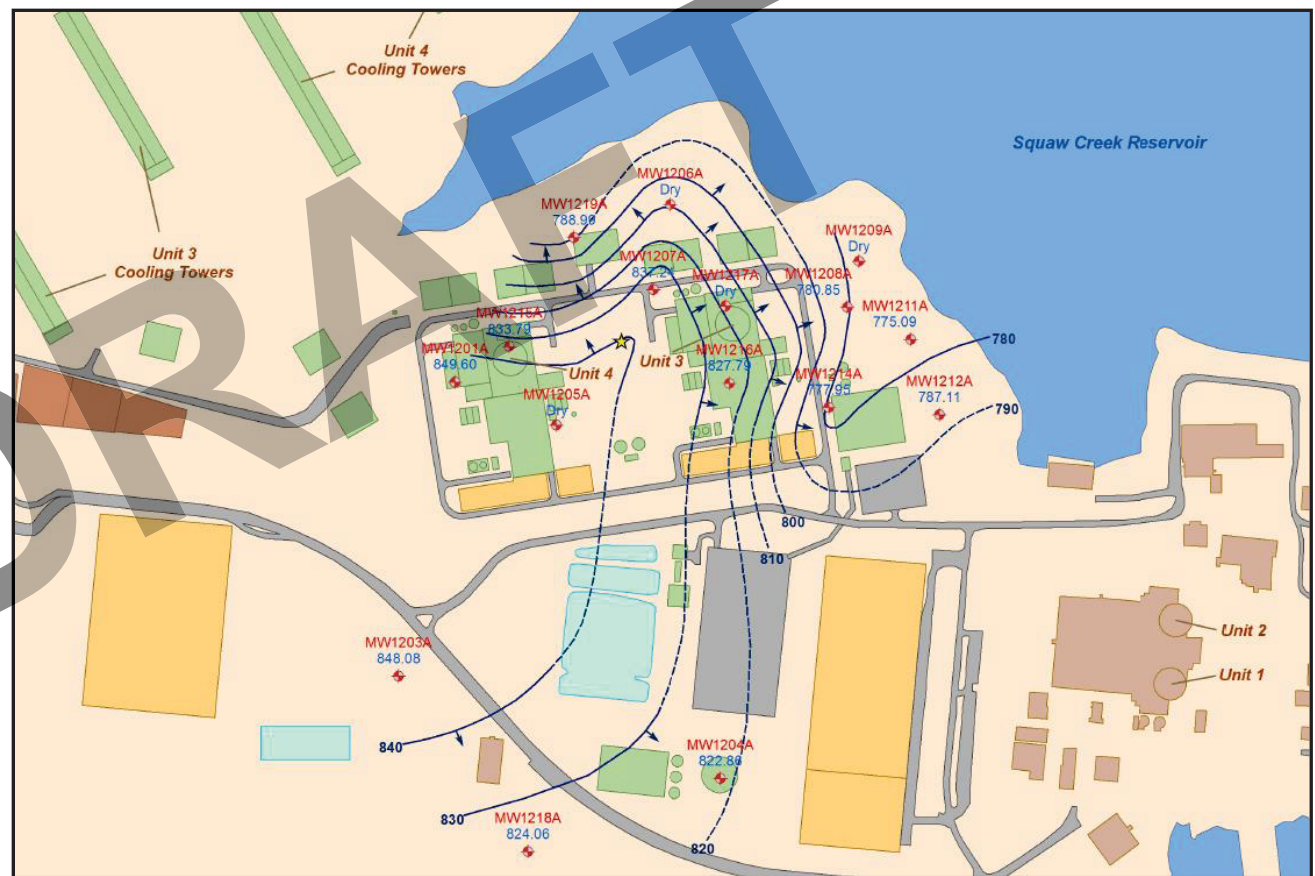


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Site Settings and Conditions Affecting GWL_{MAX} and Potential Migration Pathways

- Groundwater currently monitored at the site is found in residuum and fill that will be removed during construction
- Some wells in existing fill are dry or have groundwater levels equal to Squaw Creek Reservoir (SCR)





□ Bedrock wells
(B&C on the figure)
for the most part
are effectively dry
or exhibited very
slow recharge over
the 18-month
monitoring period



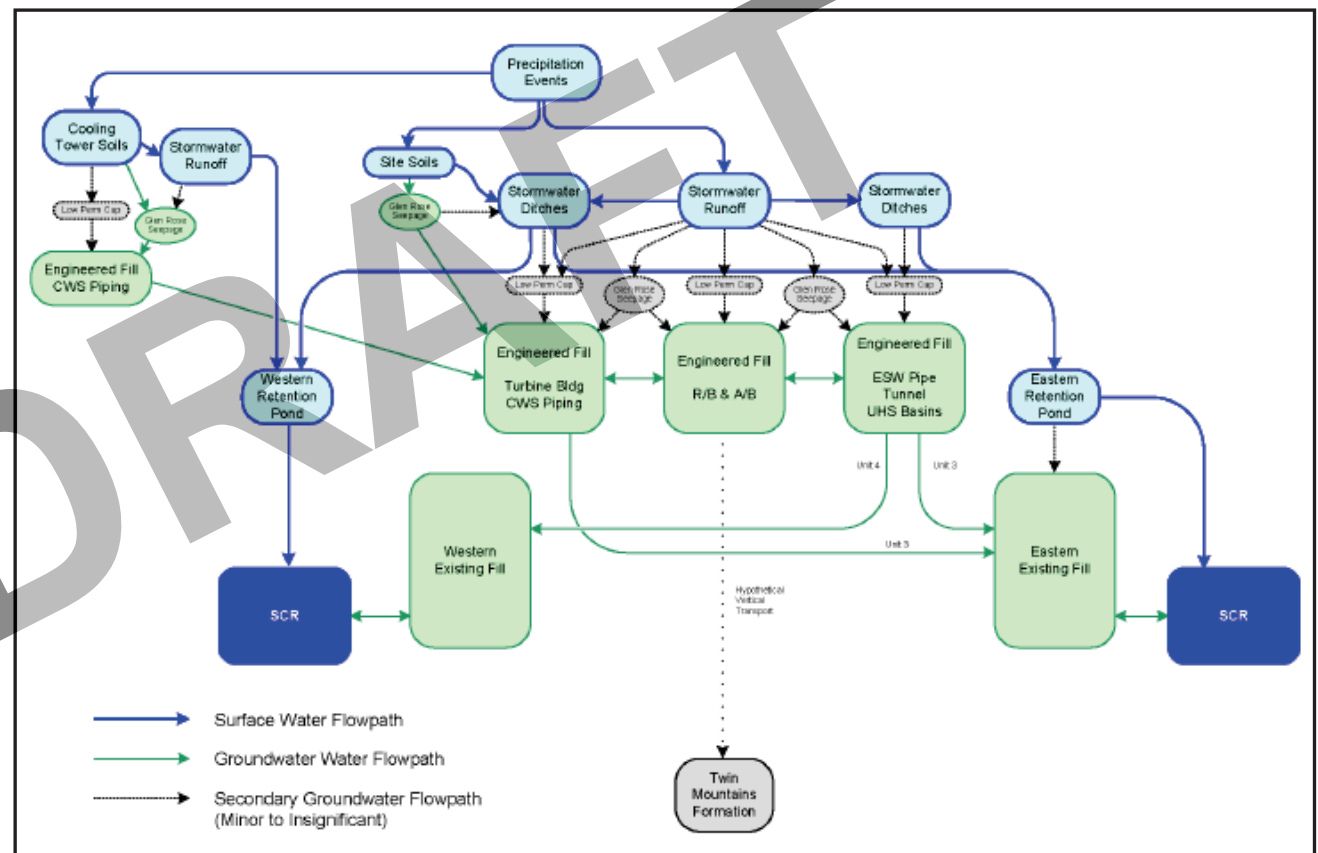


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Site Settings and Conditions Affecting GWL_{MAX} and Potential Migration Pathways

- Conceptual model of potential surface water and groundwater flowpaths



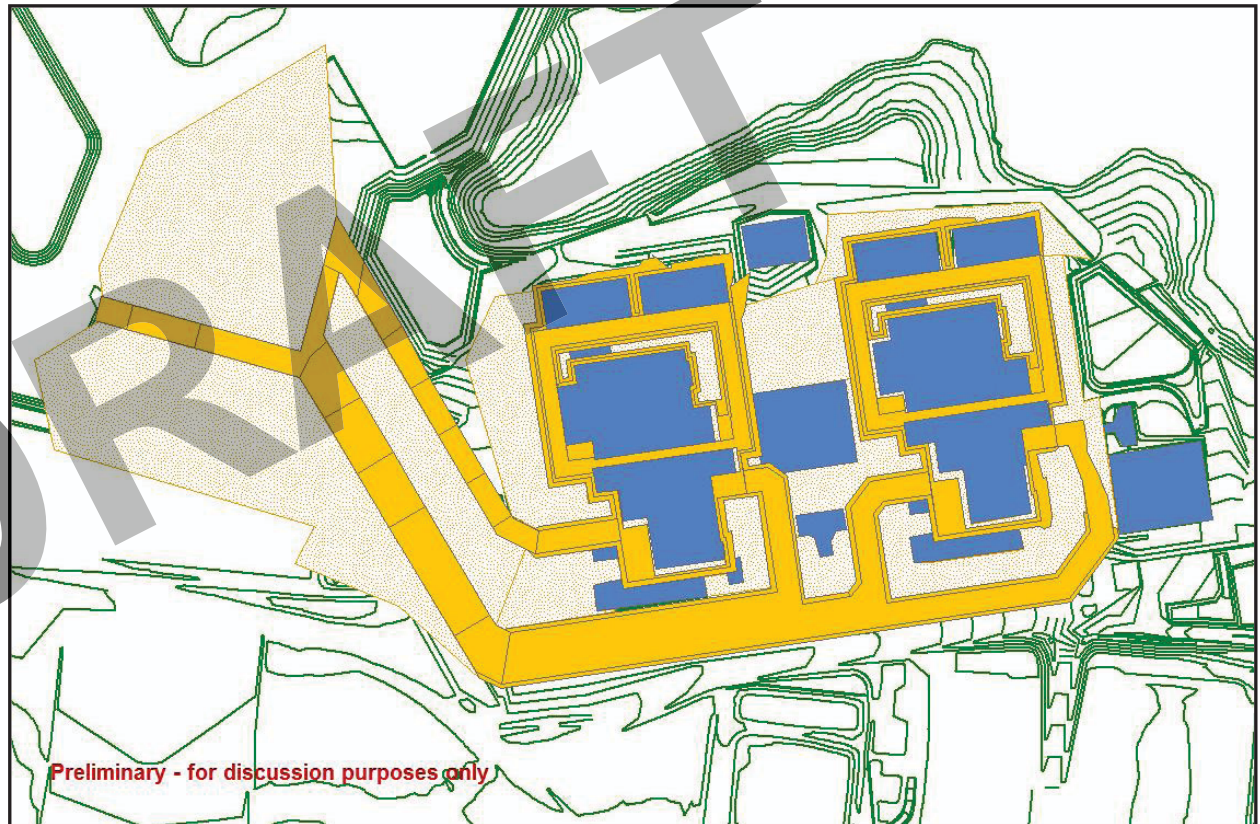


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Site Settings and Conditions Affecting GWL_{MAX} and Potential Migration Pathways

- Land cover used to estimate infiltration
 - Blue = buildings
 - Gold = engineered fill
 - Beige hatched pattern = rock present at land surface
- Runoff versus infiltration from USDA TR-55 report



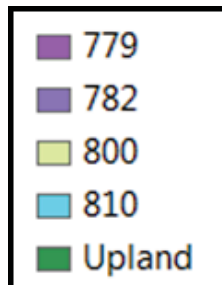


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Site Settings and Conditions Affecting GWL_{MAX} and Potential Migration Pathways

- Elevations of base of engineered fill



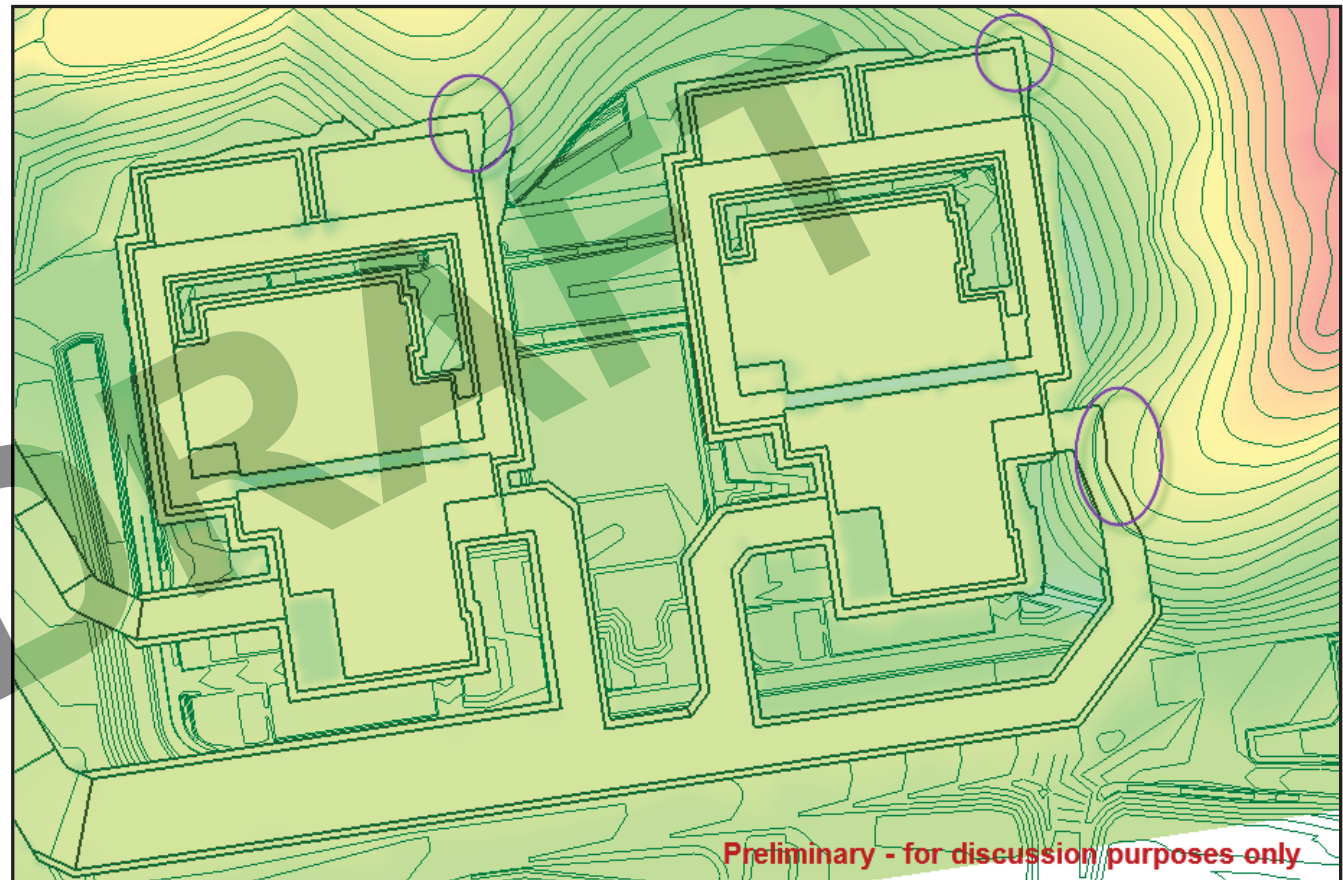


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Discharge Points from Engineered Fill

- ❑ Water exits the engineered fill at locations where this fill is in contact with existing fill or other fill that will be placed during construction



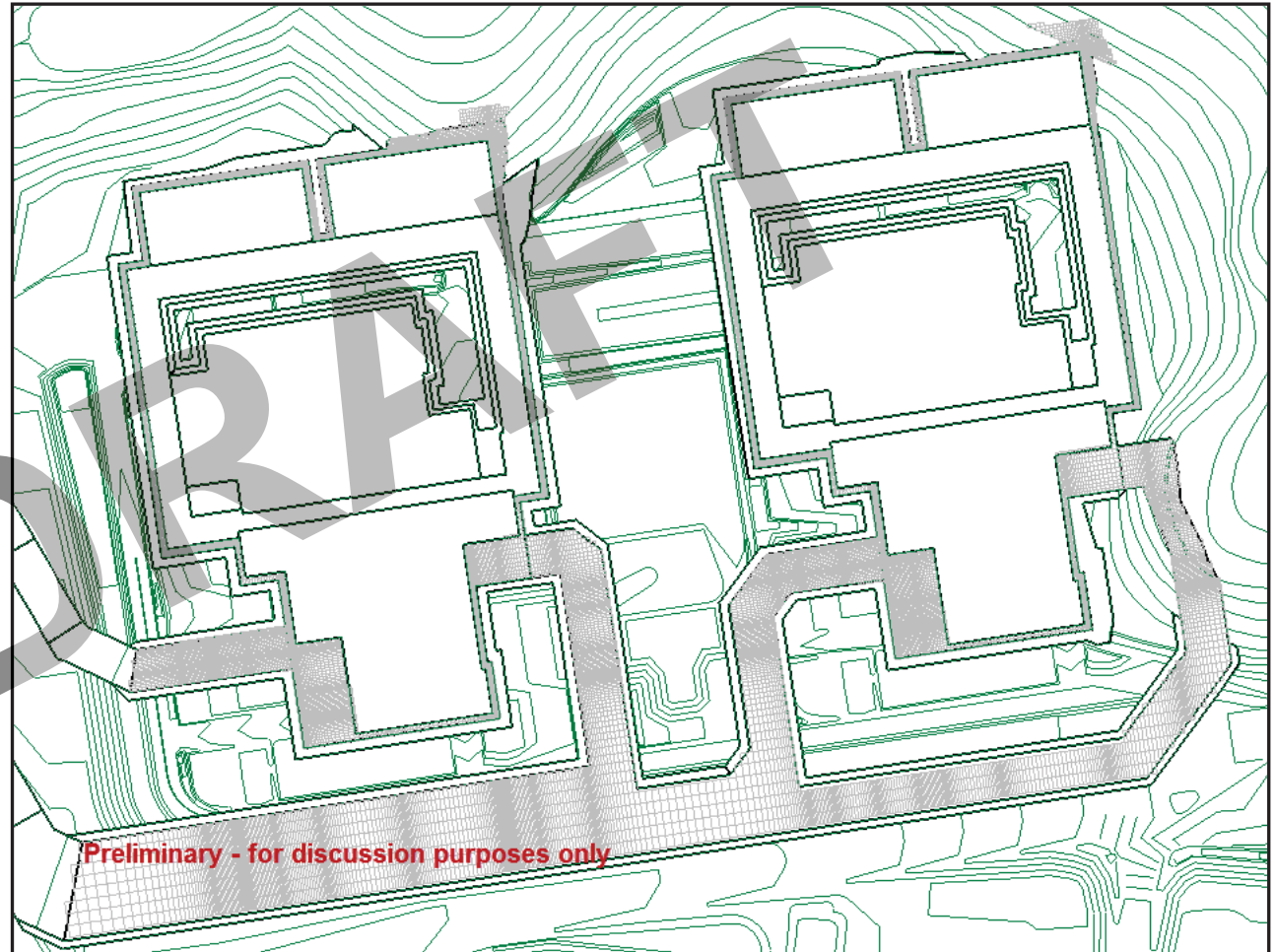


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Post-Construction Groundwater Conditions

- Potential groundwater flow is anticipated to occur primarily through engineered fill (gray)



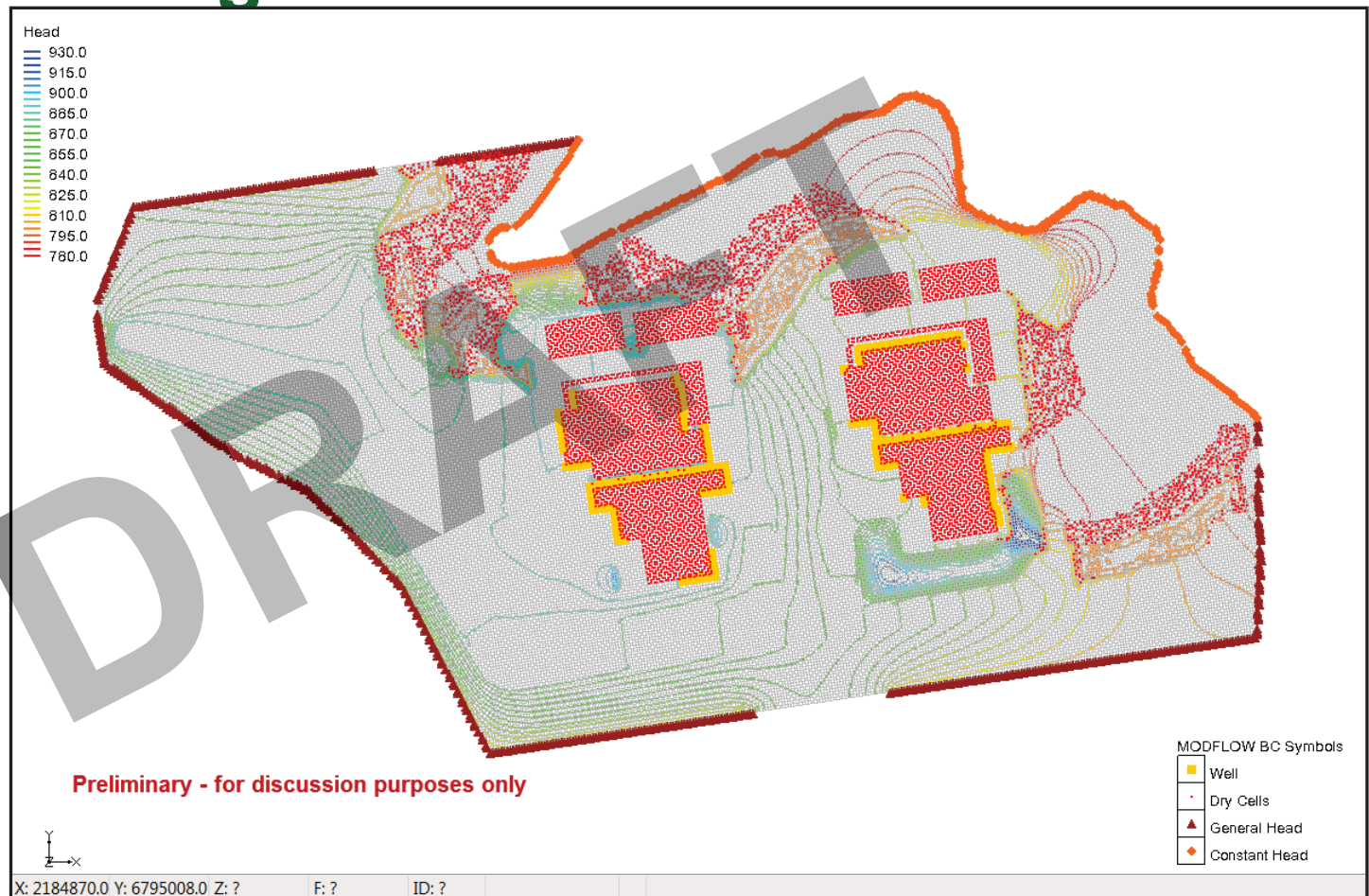


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Model Challenges

- ❑ Assuming saturated bedrock in the model results in:
 - Unrealistic head calculated in model
 - Dry cells



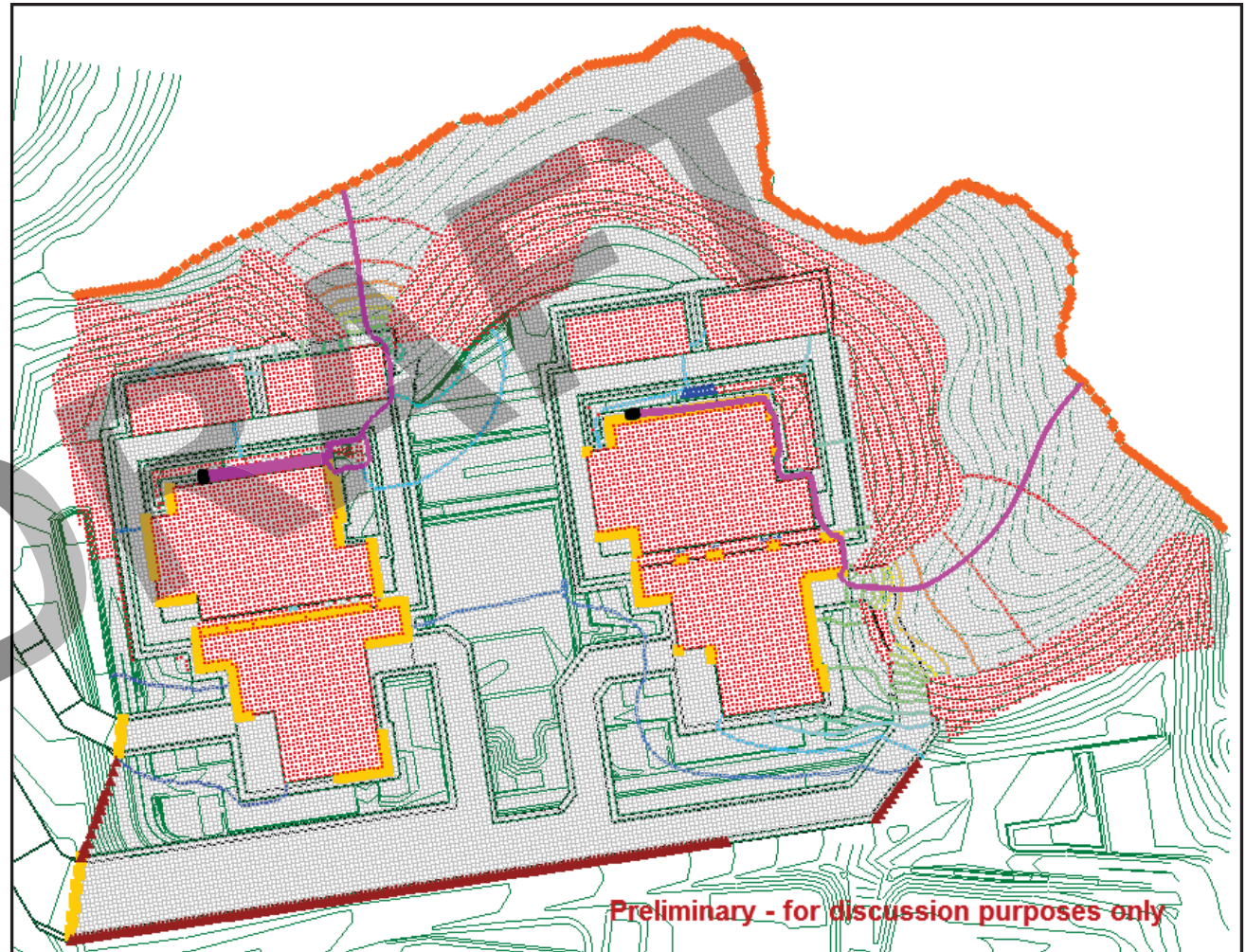


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Model Challenges

- ❑ When the head in the model is high enough to enable particle migration, dry cells are still present in the model domain
- ❑ Water movement occurs as drainage from the engineered fill to SCR via existing fill





Current Overall Approach

- ❑ Apply algebraic calculation for water level in engineered fill, based on
 - Volume of infiltrating water
 - Engineered fill volume
- ❑ Apply MODFLOW as confirmation and backup to volumetric approach

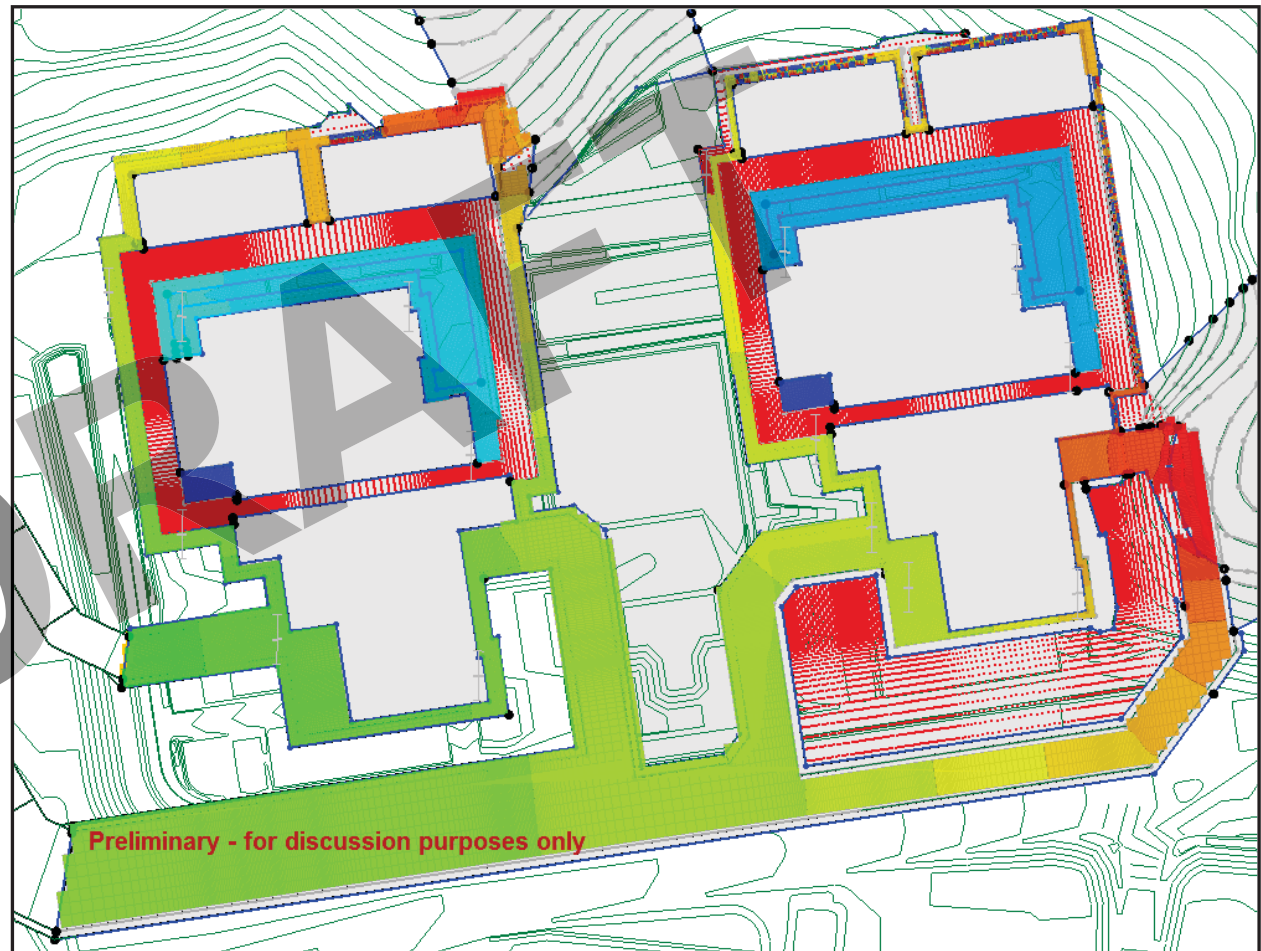


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Current Overall Approach

- ❑ Limit model domain to engineered fill areas
- ❑ Model still encounters dry cells at the boundary between engineered fill and existing fill
- ❑ Currently refining this approach to minimize dry cells and improve model convergence





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Summary

- ❑ Volumetric (algebraic) approach for calculating groundwater level
 - Fill porosity considered in engineered fill volume calculation
 - Infiltration volumes determined from PMP and land cover
- ❑ MODFLOW used to represent engineered fill
 - Fill placed in excavations in unsaturated bedrock
 - Water from engineered fill discharges (drains) to existing fill
 - Dry cells occur at boundary between the two types of fills
 - Limiting model domain and adjusting boundary conditions between fills helps to reduce problems



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Summary

- ❑ Currently refining MODFLOW representation for groundwater level evaluation to minimize dry cells and improve model convergence
 - Boundary assignments
 - Transient heads
- ❑ MODFLOW representation for pathway analysis
 - Maintain sufficient saturation for particle movement
 - Assume saturated bedrock for vertical pathway analysis