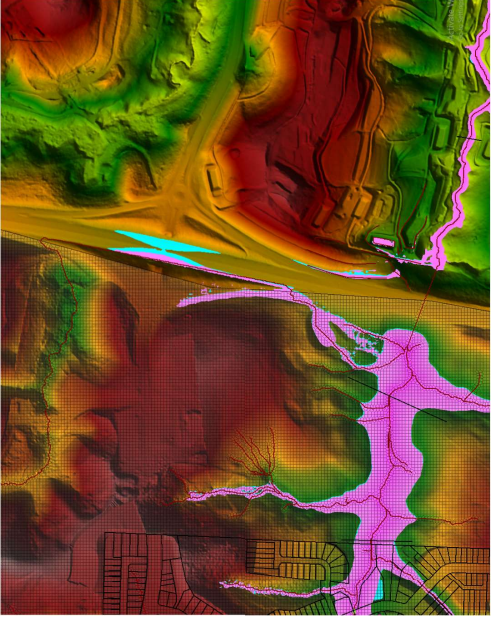
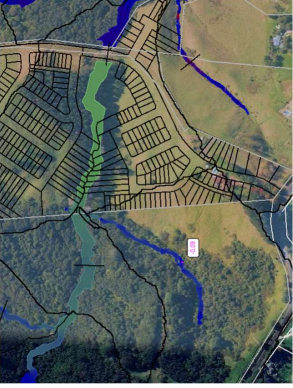
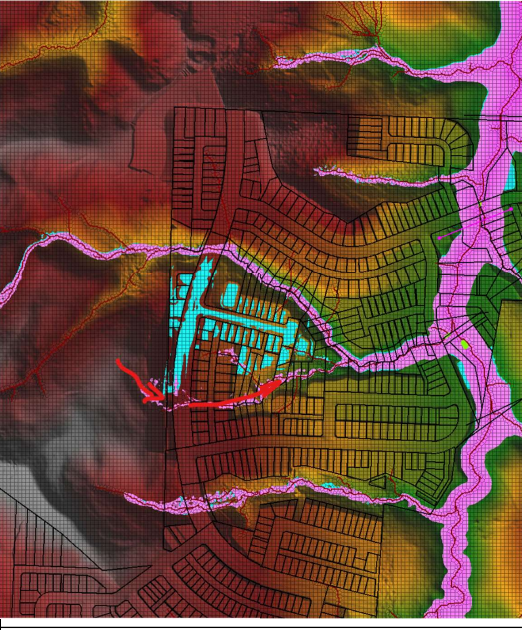
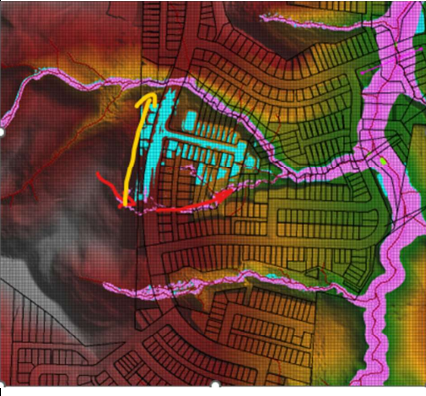


Request No.	Category of information request	Applicant Response (02 July 2025)	
Flooding		Reason for request	
FR-01	Flood Risk	Adverse effects on downstream properties - There are noticeable increase of flood depth and extent at some downstream and upstream properties. The most significant effect will be increased flooding at the trafficable lanes and northbound off ramp at SH1. The post development peak depth at the upstream side of SH1 is predicted to reach more than 10m with an increase of 0.31m. This is due to the limited capacity of the 2.05m ID culvert. Please consider options to improve the culvert capacity. - The increased flood depth at the upstream property at 180 Upper Orewa Road is counter-intuitive, it is mostly likely a model data issue unless it is specifically designed to provide flood attenuation at this location. Please clarify. 	- The increased depth at the northbound lane is due to a localized inflow being applied at that location. This should not differ between pre- and post-development. The updated model will correct this anomaly. - Regarding the culvert, the design has been developed through an iterative modelling process to balance upstream storage and ensure post-development conditions match pre-development flood levels. In the latest version, the redesigned Culvert 11 achieves this balance, and the model now shows no increase in flood level at 180 Upper Orewa Road. - The revised model indicates that, under the 1% AEP event with a 3.8°C climate change uplift, there is approximately 10 m of freeboard at the upstream side of Culvert 11, with no overtopping observed. Increasing the culvert capacity beyond this point would result in higher downstream discharges and potentially adverse effects on downstream properties. Accordingly, we do not support increasing the culvert capacity, as the current design achieves the required performance without introducing additional downstream impacts. 
FR02	Flood Risk	An area of the proposed development on the northern side is predicted to be extensively flooded in shallow depth possibly due to inadequate provision of overland flow path. Please check. CM comment - Any portion of the development footprint intersecting the floodplain must be designed to safely accommodate and proposed habitable floor levels development must be outside any floodplain. Where flood hazards cannot be mitigated through appropriate design development in those areas is unlikely to be supported.	Post Development flood risk This is attributed to an anomaly in the design DEM. The proposal includes diversion of upstream flow to the eastern stream. The updated model will demonstrate this diversion.



Tidal level can have an impact on flood levels.



FR 03

Flood Risk

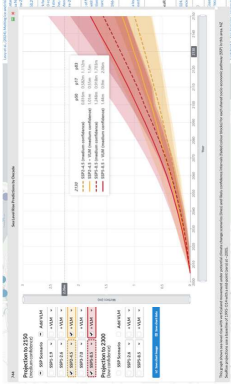
A normal depth water level boundary is adopted in the HEC-RAS model with a hydraulic gradient of 0.02 or 2% assumed for the receiving estuary channel. A constant tidal level boundary which takes into account of Sea Level Rise (SLR) and Vertical Land Movement (VLM) is considered more appropriate. The SLR scenario should be as per the Coastal Hazards and Climate Change Guideline (July 2024, MfE) for up to year 2130.

Tidal level can have an impact on flood levels.

The model has applied an initial tide level condition of 3.1mRL which comprises of a mean high water springs (2.1m) plus 1m in sea level rise. The MHWs level was obtained from Council RFHA Model Build with values ranging from (1.1mRL – 2.0mRL – NZVD2016)

The SLR with an allowance for VLM based on the 50th Percentile is as follows

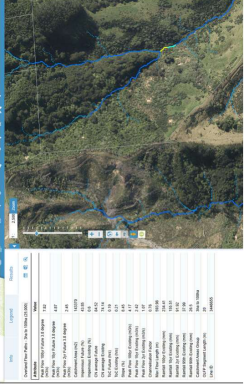
- SSP2-4.5 – 1.01m
- SSP2-8.5 – 1.44m

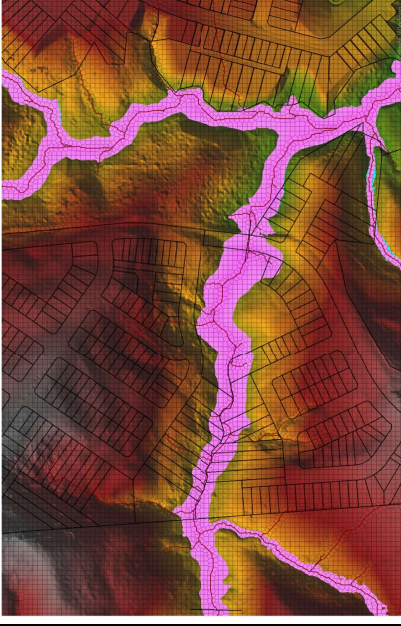
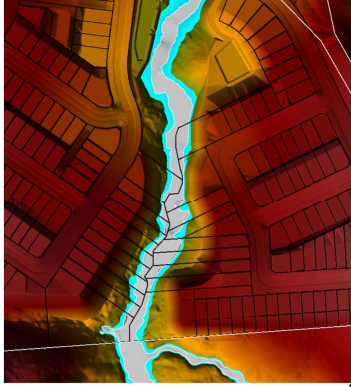


Assuming the worst-case scenario, this brings the total tide level to 3.54mRL

We believe given the invert measured at the motorway is at RL 6.3, the tidal level is well below the invert level, the backwater effect outlet of the culvert at this area will be negligible.

The model is currently being updated with downstream condition applied as a stage hydrograph representing the tidal condition.

FR 04	Model Review	The inflows from subcatchments have been modelled using HEC-HMS for both the existing and post development scenarios. For the post development scenario, the urbanised subcatchment should be modelled as Heterogeneous Catchment as per TP108 with the pervious and the drained impervious areas modelled separately with separate time of concentrations.	Modelling pervious and impervious area separately can impact peak flows	The HEC-HMS model was re-run using heterogeneous catchment methodology. While most subcatchments showed reduced peak flows, minor increases occurred in three. The original model applied conservative flows. The hydraulic model will be updated accordingly. Refer to Attachment A for a comparison of flows and time of concentration values. Between the submitted model and the updated model based on the Heterogeneous method.
FR 05	Model Review	The existing development at CMT PD 19 and CMT PD 1, including added impervious area and terrain changes due to earthwork should be take into account for hydrological and hydraulic modelling for this development. The ultimate zoning or land uses in the overall catchment area for the future 50yr beyond the development sites should be taken into account for hydrological modelling, to ensure the flood risk is not under - estimated for the life of the development. CM - Please also confirm whether the land use assumptions reflect Council's preferred growth strategy and align with the 50-year adaptive planning horizon	Change of roughness value can impact flood depth	- The pre-development model is being updated to reflect existing earthworks, based on EPA plans of the neighbouring development. - The model includes maximum probable development based on Unitary Plan zoning and the Delmore Masterplan.
FR 06	Model Review	A runoff curve number of 75.7 is used for existing catchment. The land cover type, e.g. forest land and presence of good top soil should be taken into account when determining the pre-development runoff curve numbers.	Excessive flood depths at some nodes can distort the model results.	Curve Numbers were determined based on the Geotech report assessment and are consistent with values adopted in Council's RFHA modelling (GeoMaps). The CN is considered appropriate for the site conditions. 
FR 07	Model Review	The land cover data for the proposed development scenario does not cover the new development to the west of SH1 and south of Grand Drive. Please check.		The lumped inflow does not traverse this area as it is applied directly to the stream west of the Ara Hills development. Changing the land cover in this area will not alter the results of the lumped hydraulic model. This will be amended for the Rain on Grid model requested.

FR 08	Model Review	 The subcatchment sizes are fairly large ranging from under 10 hectares to over 40 hectares. The flood flow from these subcatchments are loaded into the streams directly. The flood risk associated with overland flow paths within the subcatchments have not been modelled. It is recommended a post development scenario with rain on grid approach should be run to understand the overland flow flood risk with the proposed development terrain. The design terrain for the portion of development at the western appears to be incomplete.	Need to understand flood risk along future overland flow paths.	Rain on Grid model will be provided as part of a sensitivity check.
FR 09	Model Review		Future design terrain should be used in the model.	 The latest tin surface has included this area, this will be part of the updated hydraulic model.

SCS Curve Number [PD_Scenario - DeImore-Het]			
Filter: --None--		Sorting: Alphabetic	
Subbasin	Initial Abstraction (MM)	Curve Number	Impervious (%)
CMT PD 0-I	0	98	0.0
CMT PD 0-P	5	74	0.0
CMT PD 1-I	0	98	0.0
CMT PD 1-P	5	74	0.0
CMT PD 10-I	0	98	0.0
CMT PD 10-P	5	74	0.0
CMT PD 11-I	0	98	0.0
CMT PD 11-P	5	74	0.0
CMT PD 12-I	0	98	0.0
CMT PD 12-P	5	74	0.0
CMT PD 13-I	0	98	0.0
CMT PD 13-P	5	74	0.0
CMT PD 14-I	0	98	0.0
CMT PD 14-P	5	74	0.0
CMT PD 15-I	0	98	0.0
CMT PD 15-P	5	74	0.0
CMT PD 16-I	0	98	0.0
CMT PD 16-P	5	74	0.0
CMT PD 17-I	0	98	0.0
CMT PD 17-P	5	74	0.0
CMT PD 18-I	0	98	0.0
CMT PD 18-P	5	74	0.0
CMT PD 19-I	0	98	0.0
CMT PD 19-P	5	74	0.0
CMT PD 2-I	0	98	0.0
CMT PD 2-P	5	74	0.0
CMT PD 20-I	0	98	0.0
CMT PD 20-P	5	74	0.0
CMT PD 21-I	0	98	0.0
CMT PD 21-P	5	74	0.0
CMT PD 22-I	0	98	0.0
CMT PD 22-P	5	74	0.0
CMT PD 23-I	0	98	0.0
CMT PD 23-P	5	74	0.0
CMT PD 24-I	0	98	0.0
CMT PD 24-P	5	74	0.0
CMT PD 25-I	0	98	0.0
CMT PD 25-P	5	74	0.0

Compute: All Elements

Calculator...

Apply

Close

Reference: 3725
Client: Venevo Ltd
Project: Outshore Development
Address: 55 Russell Road Orrewa
Description: Post Dev Tc

Revision	Description	Prepared By	Checked By	Approved By
A	TRIST ISSUE	MS		

Catchment Label	Catchment Area ha	Subcatchment 1 ha	Subcatchment 2 ha	Catchment slope m/m	Catchment Length km	Channel Factor	Impervious (Sub C1) %	Impervious (Sub C2) %	Impervious (Combined) %	Soil Type	SCS Curve Number	Weighted CN	I _p weighted mm	t _e hours	Lag Time hours	Storage s
CMT PD 0	14.34000	14.3400		0.036	0.599	0.8	45%		45%	Pasture - Type C (Med./Sandstone)	74	84.8	2.75	0.25621	0.70360	46
CMT PD 1	5.55000	5.5500		0.061	0.261	0.8	3%	3%	3%	Pasture - Type C (Med./Sandstone)	74	74.7	4.85	0.16667	0.1111	86
CMT PD 10	10.61000	10.6100		0.061	0.558	0.6	7%	7%	7%	Pasture - Type C (Med./Sandstone)	74	75.7	4.65	0.16667	0.1111	82
CMT PD 11	9.89000	9.8900		0.076	0.429	0.8	3%	3%	3%	Pasture - Type C (Med./Sandstone)	74	74.7	4.85	0.16443	0.12296	86
CMT PD 12	6.19000	6.1900		0.066	0.322	0.6	65%		65%	Pasture - Type C (Med./Sandstone)	74	89.6	1.75	0.16667	0.1111	29
CMT PD 13	6.17000	6.1700		0.068	0.665	0.6	65%		65%	Pasture - Type C (Med./Sandstone)	74	89.6	1.75	0.16667	0.1111	29
CMT PD 14	6.94000	6.9400		0.094	0.430	0.8	10%	10%	10%	Pasture - Type C (Med./Sandstone)	74	76.4	4.50	0.16998	0.11332	78
CMT PD 15	10.62000	10.6200		0.086	0.457	0.6	65%		65%	Pasture - Type C (Med./Sandstone)	74	89.6	1.75	0.16667	0.1111	29
CMT PD 16	4.26000	4.2600		0.105	0.358	0.6	65%		65%	Pasture - Type C (Med./Sandstone)	74	89.6	1.75	0.16667	0.1111	29
CMT PD 17	1.54000	1.5400		0.164	0.171	0.6	65%		65%	Pasture - Type C (Med./Sandstone)	74	89.6	1.75	0.16667	0.1111	29
CMT PD 18	4.58000	4.5800		0.075	0.412	0.6	7%	7%	7%	Pasture - Type C (Med./Sandstone)	74	75.7	4.65	0.16667	0.1111	82
CMT PD 19	6.67000	6.6700		0.096	0.290	0.8	3%	3%	3%	Pasture - Type C (Med./Sandstone)	74	74.7	4.85	0.16667	0.1111	86
CMT PD 2	2.55000	2.5500		0.150	0.187	0.8	3%	3%	3%	Pasture - Type C (Med./Sandstone)	74	74.7	4.85	0.16667	0.1111	86
CMT PD 20	7.52000	7.5200		0.061	0.446	0.6	65%		65%	Pasture - Type C (Med./Sandstone)	74	89.6	1.75	0.16667	0.1111	29
CMT PD 21	14.74000	14.7400		0.084	0.472	0.8	3%		3%	Pasture - Type C (Med./Sandstone)	74	74.7	4.85	0.16667	0.1111	86
CMT PD 22	24.15000	24.1500		0.082	0.507	0.6	7%		7%	Pasture - Type C (Med./Sandstone)	74	75.7	4.65	0.19543	0.13296	82
CMT PD 23	14.33000	14.3300		0.099	0.469	0.6	7%		7%	Pasture - Type C (Med./Sandstone)	74	75.7	4.65	0.16667	0.1111	82
CMT PD 24	3.01000	3.0100		0.070	0.247	0.8	35%		35%	Pasture - Type C (Med./Sandstone)	74	82.4	3.25	0.16667	0.1111	54
CMT PD 25	23.64000	23.6400		0.048	0.680	0.6	7%	7%	7%	Pasture - Type C (Med./Sandstone)	74	75.7	4.65	0.21335	0.14223	82
CMT PD 26	4.77000	4.7700		0.049	0.335	0.8	3%		3%	Pasture - Type C (Med./Sandstone)	74	74.7	4.85	0.17911	0.11940	86
CMT PD 27	2.44000	2.4400		0.105	0.326	0.8	3%		3%	Pasture - Type C (Med./Sandstone)	74	74.7	4.85	0.16667	0.1111	86
CMT PD 28	7.03000	7.0300		0.158	0.254	0.8	25%		25%	Pasture - Type C (Med./Sandstone)	74	80.0	3.75	0.16667	0.1111	64

10.24827

CHT PD 3	3.59000	3.59000		0.087	0.326	0.6	65%		45%	Posture – Type C (Med/Sandstone)	74	84.8	2.75	0.16667	0.1111	46
CHT PD 4	39.86000	39.86000		0.060	0.729	0.6	40%		40%	Posture – Type C (Med/Sandstone)	74	83.6	3.00	0.19069	0.1279	50
CHT PD 5	3.59000	3.59000		0.048	0.237	0.6	65%		65%	Posture – Type C (Med/Sandstone)	74	88.6	1.75	0.16667	0.1111	29
CHT PD 6	16.82000	16.82000		0.061	0.604	0.6	7%		7%	Posture – Type C (Med/Sandstone)	74	75.7	4.65	0.83205	0.12203	82
CHT PD 7	6.39000	6.39000		0.086	0.333	0.6	65%		65%	Posture – Type C (Med/Sandstone)	74	89.6	1.75	0.16667	0.1111	29
CHT PD 8	2.89000	2.89000		0.092	0.161	0.8	3%		3%	Posture – Type C (Med/Sandstone)	74	74.7	4.85	0.16667	0.1111	86
CHT PD 9	1.59000	1.59000		0.199	0.153	0.8	3%		3%	Posture – Type C (Med/Sandstone)	74	74.7	4.85	0.16667	0.1111	86
PRE1-1	265.27000	265.27000		0.014	3.000	0.6	50%		50%	Posture – Type C (Med/Sandstone)	74	86.0	2.50	0.72889	0.48593	41
PRE2-2	3.14000	3.14000		0.014	0.100	0.6	65%		65%	Posture – Type C (Med/Sandstone)	74	89.6	1.75	0.16667	0.1111	29
PRE3-1	38.04000	38.04000		0.020	1.111	0.6	65%		65%	Posture – Type C (Med/Sandstone)	74	89.6	1.75	0.32663	0.21775	29

Reference	3725
Client	Vineway Ltd
Project	Delmore Development
Address	55 Russell Road Orewa
Description	Heterogeneous Tc Calc

Revision	Description	Prepared By	Checked By	Approved By
A	FIRST ISSUE	HS		

11.60368

Catchment Label	Catchment Area <i>ha</i>	Subcatchment 1 <i>ha</i>	Subcatchment 2 <i>ha</i>	Catchment Slope <i>m/m</i>	Catchment Length <i>km</i>	Channel Factor	Impervious (Sub C1) %	Impervious (Sub C2) %	Impervious (Combined) %	Soil Type	SCS Curve Number	Weighted CN	I _o weighted <i>mm</i>	t _c <i>hours</i>	Lag Time <i>hours</i>	Storage <i>S</i> <i>mm</i>
CMT PD 0-I	0.42720	0.4272		0.036	0.599	0.8	0%		0%	Pasture - Type C (Mud/Sandstone)	74	74.0	5.00	0.29009	0.19339	89
CMT PD 0-P	13.81280	13.8128		0.036	0.599	0.8	100%		100%	Pasture - Type C (Mud/Sandstone)	74	98.0	0.00	0.22129	0.14753	5
CMT PD 1-I	0.17850	0.1785		0.061	0.281	0.6	0%		0%	Pasture - Type C (Mud/Sandstone)	74	74.0	5.00	0.16667	0.11111	89
CMT PD 1-P	5.77150	5.7715		0.061	0.281	0.8	100%		100%	Pasture - Type C (Mud/Sandstone)	74	98.0	0.00	0.16667	0.11111	5
CMT PD 10-I	0.74270	0.7427		0.081	0.558	0.6	0%		0%	Pasture - Type C (Mud/Sandstone)	74	74.0	5.00	0.16667	0.11111	89
CMT PD 10-P	9.86730	9.8673		0.081	0.558	0.6	100%		100%	Pasture - Type C (Mud/Sandstone)	74	98.0	0.00	0.16667	0.11111	5
CMT PD 11-I	0.29670	0.2967		0.076	0.429	0.8	0%		0%	Pasture - Type C (Mud/Sandstone)	74	74.0	5.00	0.18600	0.12400	89
CMT PD 11-P	9.59330	9.5933		0.076	0.429	0.6	100%		100%	Pasture - Type C (Mud/Sandstone)	74	98.0	0.00	0.16667	0.11111	5
CMT PD 12-I	0.18390	0.1839		0.066	0.322	0.6	0%		0%	Pasture - Type C (Mud/Sandstone)	74	74.0	5.00	0.16667	0.11111	89
CMT PD 12-P	5.94610	5.9461		0.066	0.322	0.6	100%		100%	Pasture - Type C (Mud/Sandstone)	74	98.0	0.00	0.16667	0.11111	5
CMT PD 13-I	0.18510	0.1851		0.068	0.665	0.6	0%		0%	Pasture - Type C (Mud/Sandstone)	74	74.0	5.00	0.19287	0.12858	89
CMT PD 13-P	5.98490	5.9849		0.068	0.665	0.8	100%		100%	Pasture - Type C (Mud/Sandstone)	74	98.0	0.00	0.19617	0.13078	5

CMT PD 14-I	0.20820	0.2082		0.094	0.430	0.8	0%		0%			Pasture - Type C (Mud/Sandstone)	74	74.0	5.00	0.17483	0.11655	89
CMT PD 14-P	6.73180	6.7318		0.094	0.430	0.6	100%		100%			Pasture - Type C (Mud/Sandstone)	74	98.0	0.00	0.16667	0.11111	5
CMT PD 15-I	0.31860	0.3186		0.086	0.457	0.8	0%		0%			Pasture - Type C (Mud/Sandstone)	74	74.0	5.00	0.16667	0.11111	89
CMT PD 15-P	10.30140	10.3014		0.086	0.457	0.6	100%		100%			Pasture - Type C (Mud/Sandstone)	74	98.0	0.00	0.16667	0.11111	5
CMT PD 16-I	0.12780	0.1278		0.105	0.358	0.6	0%		0%			Pasture - Type C (Mud/Sandstone)	74	74.0	5.00	0.16667	0.11111	89
CMT PD 16-P	4.13220	4.1322		0.105	0.358	0.8	100%		100%			Pasture - Type C (Mud/Sandstone)	74	98.0	0.00	0.16667	0.11111	5
CMT PD 17-I	0.04620	0.0462		0.164	0.171	0.6	0%		0%			Pasture - Type C (Mud/Sandstone)	74	74.0	5.00	0.16667	0.11111	89
CMT PD 17-P	1.49380	1.4938		0.164	0.171	0.8	100%		100%			Pasture - Type C (Mud/Sandstone)	74	98.0	0.00	0.16667	0.11111	5
CMT PD 18-I	0.32060	0.3206		0.075	0.412	0.8	0%		0%			Pasture - Type C (Mud/Sandstone)	74	74.0	5.00	0.18232	0.12154	89
CMT PD 18-P	4.25940	4.2594		0.075	0.412	0.8	100%		100%			Pasture - Type C (Mud/Sandstone)	74	98.0	0.00	0.16667	0.11111	5

CMT PD 19-I	0.20010	0.2001		0.096	0.290	0.6	0%		0%	Pasture - Type C (Mud/Sandstone)	74	74.0	5.00	0.16667	0.1111	89
CMT PD 19-P	6.46990	6.4699		0.096	0.290	0.6	100%		100%	Pasture - Type C (Mud/Sandstone)	74	98.0	0.00	0.16667	0.1111	5
CMT PD 2-I	0.07650	0.0765		0.150	0.187	0.6	0%		0%	Pasture - Type C (Mud/Sandstone)	74	74.0	5.00	0.16667	0.1111	89
CMT PD 2-P	2.47350	2.4735		0.150	0.187	0.6	100%		100%	Pasture - Type C (Mud/Sandstone)	74	98.0	0.00	0.16667	0.1111	5
CMT PD 20-I	0.22560	0.2256		0.061	0.446	0.6	0%		0%	Pasture - Type C (Mud/Sandstone)	74	74.0	5.00	0.16667	0.1111	89
CMT PD 20-P	7.29440	7.2944		0.061	0.446	0.8	100%		100%	Pasture - Type C (Mud/Sandstone)	74	98.0	0.00	0.16667	0.1111	5
CMT PD 21-I	0.44220	0.4422		0.084	0.472	0.8	0%		0%	Pasture - Type C (Mud/Sandstone)	74	74.0	5.00	0.19250	0.12833	89
CMT PD 21-P	14.29780	14.2978		0.084	0.472	0.6	100%		100%	Pasture - Type C (Mud/Sandstone)	74	98.0	0.00	0.16667	0.1111	5
CMT PD 22-I	1.69050	1.6905		0.082	0.507	0.8	0%		0%	Pasture - Type C (Mud/Sandstone)	74	74.0	5.00	0.20341	0.13561	89
CMT PD 22-P	22.45950	22.4595		0.082	0.507	0.8	100%		100%	Pasture - Type C (Mud/Sandstone)	74	98.0	0.00	0.16667	0.1111	5
CMT PD 23-I	0.99610	0.9961		0.099	0.469	0.6	0%		0%	Pasture - Type C (Mud/Sandstone)	74	74.0	5.00	0.16667	0.1111	89
CMT PD 23-P	13.23390	13.2339		0.099	0.469	0.8	100%		100%	Pasture - Type C (Mud/Sandstone)	74	98.0	0.00	0.16667	0.1111	5
CMT PD 24-I	0.09030	0.0903		0.070	0.247	0.8	0%		0%	Pasture - Type C (Mud/Sandstone)	74	74.0	5.00	0.16667	0.1111	89
CMT PD 24-P	2.91970	2.9197		0.070	0.247	0.6	100%		100%	Pasture - Type C (Mud/Sandstone)	74	98.0	0.00	0.16667	0.1111	5
CMT PD 25-I	1.65480	1.6548		0.048	0.680	0.8	0%		0%	Pasture - Type C (Mud/Sandstone)	74	74.0	5.00	0.29013	0.19342	89
CMT PD 25-P	21.98520	21.9852		0.048	0.680	0.8	100%		100%	Pasture - Type C (Mud/Sandstone)	74	98.0	0.00	0.22132	0.14755	5
CMT PD 26-I	0.14310	0.1431		0.049	0.335	0.6	0%		0%	Pasture - Type C (Mud/Sandstone)	74	74.0	5.00	0.16667	0.1111	89
CMT PD 26-P	4.62690	4.6269		0.049	0.335	0.8	100%		100%	Pasture - Type C (Mud/Sandstone)	74	98.0	0.00	0.16667	0.1111	5
CMT PD 27-I	0.07320	0.0732		0.105	0.326	0.8	0%		0%	Pasture - Type C (Mud/Sandstone)	74	74.0	5.00	0.16667	0.1111	89
CMT PD 27-P	2.36680	2.3668		0.105	0.326	0.6	100%		100%	Pasture - Type C (Mud/Sandstone)	74	98.0	0.00	0.16667	0.1111	5
CMT PD 28-I	0.21090	0.2109		0.158	0.254	0.8	0%		0%	Pasture - Type C (Mud/Sandstone)	74	74.0	5.00	0.16667	0.1111	89
CMT PD 28-P	6.81910	6.8191		0.158	0.254	0.8	100%		100%	Pasture - Type C (Mud/Sandstone)	74	98.0	0.00	0.16667	0.1111	5
CMT PD 3-I	0.26950	0.2695		0.087	0.326	0.6	0%		0%	Pasture - Type C (Mud/Sandstone)	74	74.0	5.00	0.16667	0.1111	89
CMT PD 3-P	3.58050	3.5805		0.087	0.326	0.8	100%		100%	Pasture - Type C (Mud/Sandstone)	74	98.0	0.00	0.16667	0.1111	5
CMT PD 4-I	2.79020	2.7902		0.060	0.729	0.8	0%		0%	Pasture - Type C (Mud/Sandstone)	74	74.0	5.00	0.28401	0.18934	89

CMT PD 4-P	37.06980	37.0698		0.060	0.729	0.6	100%		100%	Pasture - Type C (Mud/Sandstone)	74	98.0	0.00	0.16667	0.1111	5
CMT PD 5-I	0.10770	0.1077		0.043	0.237	0.8	0%		0%	Pasture - Type C (Mud/Sandstone)	74	74.0	5.00	0.16667	0.1111	89
CMT PD 5-P	3.48230	3.4823		0.043	0.237	0.8	100%		100%	Pasture - Type C (Mud/Sandstone)	74	98.0	0.00	0.16667	0.1111	5
CMT PD 6-I	1.17740	1.1774		0.061	0.604	0.6	0%		0%	Pasture - Type C (Mud/Sandstone)	74	74.0	5.00	0.18669	0.12446	89
CMT PD 6-P	15.64260	15.6426		0.061	0.604	0.8	100%		100%	Pasture - Type C (Mud/Sandstone)	74	98.0	0.00	0.18989	0.12659	5
CMT PD 7-I	0.18900	0.1890		0.086	0.533	0.8	0%		0%	Pasture - Type C (Mud/Sandstone)	74	74.0	5.00	0.20664	0.13776	89
CMT PD 7-P	6.1100	6.110		0.086	0.533	0.6	100%		100%	Pasture - Type C (Mud/Sandstone)	74	98.0	0.00	0.16667	0.1111	5
CMT PD 8-I	0.08400	0.0840		0.092	0.161	0.8	0%		0%	Pasture - Type C (Mud/Sandstone)	74	74.0	5.00	0.16667	0.1111	89
CMT PD 8-P	2.71600	2.7160		0.092	0.161	0.8	100%		100%	Pasture - Type C (Mud/Sandstone)	74	98.0	0.00	0.16667	0.1111	5
CMT PD 9-I	0.03750	0.0375		0.199	0.153	0.6	0%		0%	Pasture - Type C (Mud/Sandstone)	74	74.0	5.00	0.16667	0.1111	89
CMT PD 9-P	1.21250	1.2125		0.199	0.153	0.8	100%		100%	Pasture - Type C (Mud/Sandstone)	74	98.0	0.00	0.16667	0.1111	5
PRE12-1	265.27000	265.2700		0.014	3.000	0.6	50%		50%	Pasture - Type C (Mud/Sandstone)	74	86.0	2.50	0.72889	0.48593	41
PRE29-2	3.14000	3.1400		0.014	0.100	0.6	65%		65%	Pasture - Type C (Mud/Sandstone)	74	89.6	1.75	0.16667	0.1111	29
PRE33-1	38.04000	38.0400		0.020	1.111	0.6	65%		65%	Pasture - Type C (Mud/Sandstone)	74	89.6	1.75	0.32663	0.21775	29