

EARTHWORK



Check closer that all areas are covered.
Muck is the most common area of error.



Check a few key areas by hand to confirm that the
computer calculations are correct.



Check that the areas in Geopack are labeled
correctly.



Don't mix 2105 and 2106 pay items

EARTHWORK - 2105

EARTHWORK SUMMARY

A

S.P.	STATION TO STATION	EXCAVATION		EMBANKMENT			TOTAL EXCAVATION	TOTAL EMBANKMENT	
		COMMON ①	SUBGRADE	SUITABLE GRADING	SELECT GRANULAR BORROW	TOPSOIL			
						TOPSOIL			TOPSOIL BORROW SPECIAL 1
CU YD	CU YD	CU YD	CU YD	CU YD	CU YD	CU YD	CU YD		
0283-26	NB TH 35 (35WNB2)								
	1038+82.12 TO 1074+86.99	6862	2358	5278	2707	1171	878	9220	10034
	PROJECT TOTAL	6862	2358	5278	2707	1171	878	9220	10034

① INCLUDE 2629 CU YD OF TOPSOIL EXCAVATION.



EARTHWORK - 2105

Includes an earthwork balance which shows.....

Calculations

Shrinkage factors

Borrow quantities

EARTHWORK BALANCE

EXCAVATION (CU YD)

COMMON 6862 (EV)

SUBGRADE 2358 (EV)

9220 (EV)

BORROW (CU YD)

TOPSOIL (AVAIL.) 2629 (EV)/2

SUITABLE GRADING 6591 (EV)/1.2

TOPSOIL BORROW SPECIAL 1 = 878 (CV)

SELECT GRANULAR 2707 (CV)

= 1315 (CV)

= 5493 (CV)

3585 (CV)

EMBANKMENT (CU YD)

1171 (CV) TOPSOIL
878 (CV) TOPSOIL BORROW
SPECIAL 1

5278 (CV) SUITABLE GRADING
2707 (CV) SELECT GRANULAR

215 (CV) MATERIAL DISPOSE
OFFSITE

144 (CV) TOPSOIL TO BE
DISPOSED ONSITE

10393 (CV)

EARTHWORK

- 2105

Another way to show the calculations is....

➤ Calculations

➤ Shrinkage factors

➤ Borrow quantities

EARTHWORK BALANCE SUMMARY	
EXCAVATION (CU YD)	
COMMON EXCAVATION	12751 (EV)
SUBGRADE EXCAVATION	20603 (EV)
MUCK EXCAVATION	454 (EV)
TOTAL EXCAVATION =	33354 (EV)
- TOPSOIL EXCAVATION	8693 (EV) ①
- RUBBLE	1460 (EV)
TOTAL EXCAVATION SUITABLE FOR EMBANKMENT =	23201 (EV) ②
EMBANKMENT (CU YD)	
SELECT GRANULAR REQUIRED	20452 (CV)
SELECT GRANULAR AVAILABLE	0 (CV)
SELECT GRANULAR BORROW =	20452 (CV)
SELECT GRANULAR MODIFIED 10% REQUIRED	12527 (CV)
SELECT GRANULAR MODIFIED 10% AVAILABLE	0 (CV)
SELECT GRANULAR MODIFIED 10% BORROW =	12527 (CV)
SUITABLE GRADING MATERIAL REQUIRED	24602 (CV)
SUITABLE GRADING MATERIAL AVAILABLE	19334 (CV)
COMMON BORROW =	5268 (CV)
AGGREGATE BACKFILL REQUIRED	20 (CV)
AGGREGATE BACKFILL AVAILABLE	0 (CV)
AGGREGATE BACKFILL =	20 (CV)
TOPSOIL MODIFIED REQUIRED	32 (CV)
TOPSOIL MODIFIED AVAILABLE	0 (CV)
TOPSOIL BORROW MODIFIED =	32 (CV)
TOPSOIL REQUIRED	4405 (CV)
TOPSOIL AVAILABLE	4347 (CV)
TOPSOIL BORROW	58 (CV)

① APPLY 200% SHRINKAGE FACTOR = 4347 CU YD (CV)
② APPLY 120% SHRINKAGE FACTOR = 19334 CU YD (CV)

EARTHWORK - 2106



Do NOT show topsoil quantities



Puts more risk on the Contractor

EARTHWORK SUMMARY

LOCATION	EXCAVATION		EMBANKMENT			TOTAL EXCAVATION CU YD	TOTAL EMBANKMENT CU YD
	COMMON (CV)	SUBGRADE	COMMON (CV)	SELECT GRANULAR (CV)	SELECT GRANULAR MOD 10% (CV)		
	CU YD	CU YD	CY YD	CU YD	CU YD		
394MED							
970+53 TO 979+90	476		608		515	476	1123
998+33 TO 1012+54	1072	1952	391	1946	615	3024	2983
NELOOP POND	6370		527			6370	527
NE RAMP POND	3427		391			3427	391
PROJECT TOTALS	11345	1952	1917	1946	1130	13297	5024

EARTHWORK - 2106


Can only show topsoil quantity when it is the 2105 special borrow item.


EARTHWORK SUMMARY

ALIGNMENTS	EXCAVATION		EMBANKMENT			TOTAL EXCAVATION	TOTAL EMBANKMENT
	COMMON	SUBGRADE	COMMON	SELECT GRANULAR (CV)	TOPSOIL BORROW SPECIAL 1		
	CU YD	CU YD	CU YD	CU YD	CU YD		
EB36	6896	4416	15150			11312	15150
JTURNW	205	260	335			465	335
DEMONTREVILLE	429	312	460			741	460
ASH POND	423			205	217	423	422
MASH POND	150			66	84	150	150
TOTALS	8103	4988	15945	271	301	13091	16517

EARTHWORK - 2106

 You can add a note to the common excavation that it includes the removal of 6" bituminous pavement....

 However, do NOT include any quantities with the note.

 Do give calculate the quantities and give them to estimating.