DOCUMENTATION HANDBOOK FOR INSPECTORS

Revised January 2011

MEASURE	**DOCUMENT**	**FINALIZE**
WEIGH	**DOCUMENT**	**FINALIZE**
COUNT	**DOCUMENT**	**FINALIZE**
CALC	**DOCUMENT**	**FINALIZE**

NEVADA DOT

Susan Martinovich, P.E.
Director

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DOCUMENTATION HANDBOOK

This handbook explains and illustrates the Unit of Measures (UOM) used in documentation. This handbook does not replace the Documentation Manual. It is designed to assist the **Inspectors** in the field to assure the field books are setup properly for the item of work being inspected. It will also be helpful in setting up a page for an item that has not been placed in a field book.

WHY TRAINING IS REQUIRED:

1. To improve the quality of documentation.
2. To expedite and improve the accuracy in processing payments.
3. To meet federal guidelines.

TOOLS AVAILABLE TO THE INSPECTOR

1. Proper Training
2. Proper Equipment
3. Documentation and Construction Manuals
4. Standard Plans and Standard Specifications
5 Contract Plans and Special Provisions
6. Agreement Estimate Breakout List (AEB)
7. Materials Sampling & Testing Checklist
8. Officeperson, Resident Engineer, or Asst Resident Engineer
9. Construction Division
10. Bid Tabulation Sheet

DUTIES OF THE INSPECTOR (Construction Manual page 2-7)

1. Observing and documenting the Contractor's workmanship, materials, and methods for conformance with the plans and specifications.
2. Communicating the project requirements to the Contractor's field staff for work under construction or about to be constructed.
3. Interpreting the plans and specifications
4. Documenting inspection operations in the "Daily Construction Report".
5. Measuring work and materials for payment in accordance with the Documentation Manual.
6. Observing construction operations for compliance with safety regulations, traffic control requirements, and construction-related government regulations.

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DUTIES OF THE INSPECTOR (Standard Specifications 105.10):

1. Inspect all work done and all materials furnished.
2. Not authorized to alter or waive the provisions of the contract.
3. Not authorized to issue instructions contrary to the plans and specifications, or to act as a foreman for the Contractor.
4. Does have authority to reject work or materials until questions can be referred and decided by the Resident Engineer.

DOCUMENTATION MANUAL: Procedures for documentation of contract quantities were compiled in the 1970's into a manual (Documentation Manual) as mandated by the FHWA. It is used to uniform procedures statewide. This allows Headquarters Staff and FHWA Staff to locate necessary documentation in a timelier manner. It also enables field personnel to work on various crews without having to learn a new system with each move.

ORGANIZATION OF PROJECT DOCUMENTS: All contract files must adhere to Chapter 1 of the Documentation Manual. The four major file categories are:

1. CONTRACT FILES
2. MATERIALS AND TESTING FILES
3. GENERAL CORRESPONDENCE
4. PERSONNEL RECORDS

ABBREVIATIONS: The **Inspector** should be familiar with the abbreviations used daily in the construction field. See Chapter 1 of the Documentation Manual. Throughout this Manual, abbreviations are used to reduce repetition. Some of the more common abbreviations are listed below:

AEB	Agreement Estimate Breakout
AP	Agreed Price
B/L	Bill of Ladings
BMP	Best Management Practices
CMP	Corrugated Metal Pipe
CP	Contract Payment
CPM	Critical Path Method
CTB	Cement Treated Base
DI	Drop Inlet
EEO	Equal Employment Opportunity
FA	Force Account
FEMA	Federal Emergency Management Agency
FHWA	Federal Highway Administration
GASB	Governmental Accounting Standards Board
GM MS	Ground Mounted Metal Supports
GM TS	Ground Mounted Timber Supports
HMA	Hot Mix Asphalt
LOA	Letters of Authorization
LS	Lump Sum
MSDS	Material Safety Data Sheet
Meas	Measure
NE	No Estimate
NDOT	Nevada Department of Transportation
PBS	Plantmix Bituminous Surface
PCCP	Portland Cement Concrete Pavement

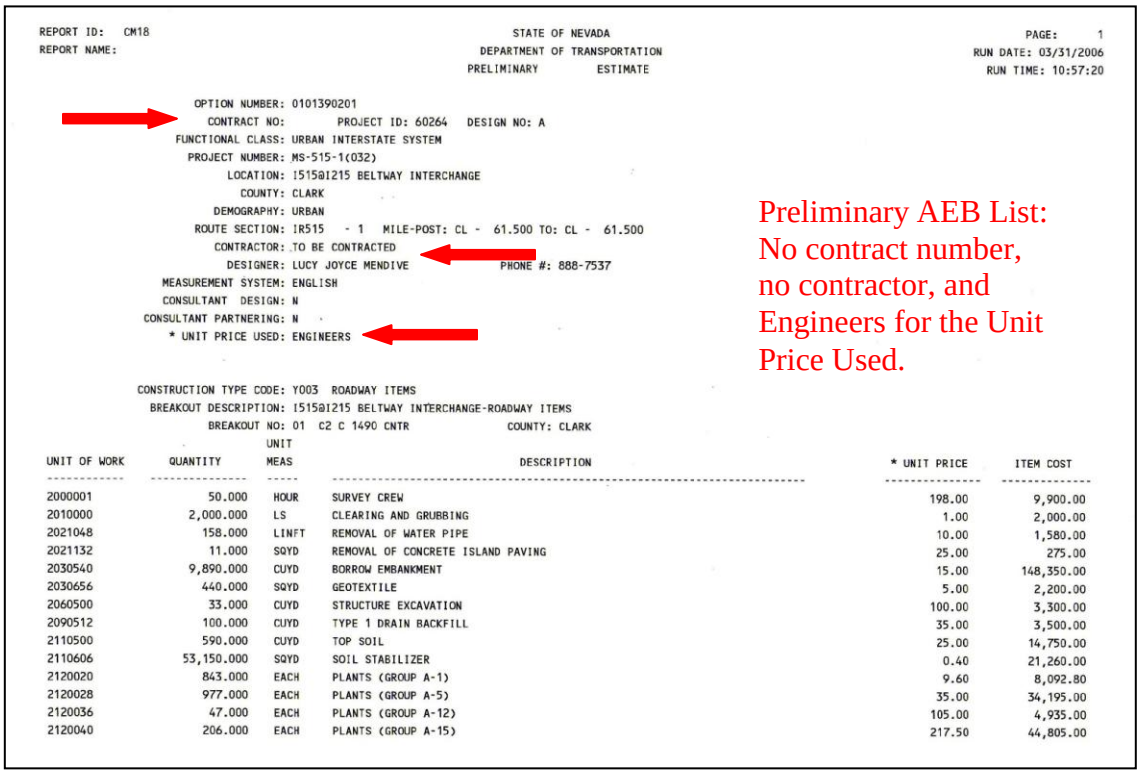
Pmt	Payment (refers to the progress payment, TAD)

PR	Prorated
Qty	Quantity
RCB	Reinforced Concrete Box
RCP	Reinforced Concrete Pipe
SID	Special Improvement District
TAD	Turnaround Document
UOM	Unit of Measure

UNIT OF MEASURE(UOM) English (Metric): The **Inspector** should be familiar with the different unit of measure used for items on a contract. See Chapter 1 of the Documentation Manual.

GALLON (LITER)	EACH (EACH)	POUND (KILOGRAM)	YDMI (CUMKM)
LINFT (LINM)	SQYD (SQM)	LS (LS)	STA (STA)
TON (MTON)	SQFT (SQM)	CUYD (CUM)	MILE (KILOMETER)
ACRE (HECTARE)	HOUR (HOUR)	DAY (DAY)	MONTH (MONTH)
CUFT (CUM)	FA (FA)		

AGREEMENT ESTIMATE BREAKOUT (AEB): Agreement estimate breakouts are used to identify construction types and funding sources. The breakout numbers and quantities in each breakout are established by Roadway Design. The **Inspector** should receive a copy of the AEB list for each contract they are involved in. If an item is necessary in one breakout but is not listed in that breakout, it can be added to reflect actual field conditions. See Chapter 1 of the Documentation Manual.



REPORT ID: CM18 — STATE OF NEVADA — PAGE: 1
REPORT NAME: — DEPARTMENT OF TRANSPORTATION — RUN DATE: 03/31/2006
PRELIMINARY ESTIMATE — RUN TIME: 10:57:20

OPTION NUMBER: 0101390201
CONTRACT NO: PROJECT ID: 60264 DESIGN NO: A
FUNCTIONAL CLASS: URBAN INTERSTATE SYSTEM
PROJECT NUMBER: MS-515-1(032)
LOCATION: I515@I215 BELTWAY INTERCHANGE
COUNTY: CLARK
DEMOGRAPHY: URBAN
ROUTE SECTION: IR515 - 1 MILE-POST: CL - 61.500 TO: CL - 61.500
CONTRACTOR: TO BE CONTRACTED
DESIGNER: LUCY JOYCE MENDIVE PHONE #: 888-7537
MEASUREMENT SYSTEM: ENGLISH
CONSULTANT DESIGN: N
CONSULTANT PARTNERING: N
* UNIT PRICE USED: ENGINEERS

Preliminary AEB List: No contract number, no contractor, and Engineers for the Unit Price Used.

CONSTRUCTION TYPE CODE: Y003 ROADWAY ITEMS
BREAKOUT DESCRIPTION: I515@I215 BELTWAY INTERCHANGE-ROADWAY ITEMS
BREAKOUT NO: 01 C2 C 1490 CNTR COUNTY: CLARK

UNIT OF WORK	QUANTITY	UNIT MEAS	DESCRIPTION	* UNIT PRICE	ITEM COST
2000001	50.000	HOUR	SURVEY CREW	198.00	9,900.00
2010000	2,000.000	LS	CLEARING AND GRUBBING	1.00	2,000.00
2021048	158.000	LINFT	REMOVAL OF WATER PIPE	10.00	1,580.00
2021132	11.000	SQYD	REMOVAL OF CONCRETE ISLAND PAVING	25.00	275.00
2030540	9,890.000	CUYD	BORROW EMBANKMENT	15.00	148,350.00
2030656	440.000	SQYD	GEOTEXTILE	5.00	2,200.00
2060500	33.000	CUYD	STRUCTURE EXCAVATION	100.00	3,300.00
2090512	100.000	CUYD	TYPE 1 DRAIN BACKFILL	35.00	3,500.00
2110500	590.000	CUYD	TOP SOIL	25.00	14,750.00
2110606	53,150.000	SQYD	SOIL STABILIZER	0.40	21,260.00
2120020	843.000	EACH	PLANTS (GROUP A-1)	9.60	8,092.80
2120028	977.000	EACH	PLANTS (GROUP A-5)	35.00	34,195.00
2120036	47.000	EACH	PLANTS (GROUP A-12)	105.00	4,935.00
2120040	206.000	EACH	PLANTS (GROUP A-15)	217.50	44,805.00

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REPORT ID: CM18
REPORT NAME:

STATE OF NEVADA
DEPARTMENT OF TRANSPORTATION
AGREEMENT ESTIMATE

PAGE: 1
RUN DATE: 05/26/2006
RUN TIME: 15:42:57

OPTION NUMBER: 0101390201
CONTRACT NO: 03297 PROJECT ID: 60264 DESIGN NO: A
FUNCTIONAL CLASS: URBAN INTERSTATE SYSTEM
PROJECT NUMBER: MS-515-1(032)
LOCATION: I515@I215 BELTWAY INTERCHANGE
COUNTY: CLARK
DEMOGRAPHY: URBAN
ROUTE SECTION: IR515 - 1 MILE-POST: CL - 61.500 TO: CL - 61.500
CONTRACTOR: CAPRIATI CONSTRUCTION CORP INC
3097 E WARM SPRINGS RD STE 300
LAS VEGAS NV 89120
DESIGNER: LUCY JOYCE MENDIVE PHONE #: 888-7537
MEASUREMENT SYSTEM: ENGLISH
CONSULTANT DESIGN: N
CONSULTANT PARTNERING: N
* UNIT PRICE USED: AWARDED

Executed AEB List:
Has a contract number, a contractor, and states Awarded for the Unit Price Used.

CONSTRUCTION TYPE CODE: Y003 ROADWAY ITEMS
BREAKOUT DESCRIPTION: I515@I215 BELTWAY INTERCHANGE-ROADWAY ITEMS
BREAKOUT NO: 01 C2 C 1490 CNTR COUNTY: CLARK

UNIT OF WORK	QUANTITY	UNIT MEAS	DESCRIPTION	* UNIT PRICE	ITEM COST
2000001	50.000	HOUR	SURVEY CREW	215.00	10,750.00
2010000	12,000.000	LS	CLEARING AND GRUBBING	1.00	12,000.00
2021048	158.000	LINFT	REMOVAL OF WATER PIPE	16.00	2,528.00
2021132	11.000	SQYD	REMOVAL OF CONCRETE ISLAND PAVING	160.00	1,760.00
2030540	9,890.000	CUYD	BORROW EMBANKMENT	21.00	207,690.00
2030656	440.000	SQYD	GEOTEXTILE	16.00	7,040.00
2060500	33.000	CUYD	STRUCTURE EXCAVATION	40.00	1,320.00
2090512	100.000	CUYD	TYPE 1 DRAIN BACKFILL	85.00	8,500.00
2110500	590.000	CUYD	TOP SOIL	30.00	17,700.00
2110606	53,150.000	SQYD	SOIL STABILIZER	0.30	15,945.00
2120020	843.000	EACH	PLANTS (GROUP A-1)	14.00	11,802.00
2120028	977.000	EACH	PLANTS (GROUP A-5)	34.00	33,218.00

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UNIT OF WORK	QUANTITY	UNIT MEAS	DESCRIPTION	* UNIT PRICE	ITEM COST
6230072	1.000	EACH	NO. 3-1/2 PULL BOX	580.00	580.00
6230086	1.000	EACH	SPECIAL PULL BOX	900.00	900.00
6231004	1,960.000	LINFT	1-INCH CONDUIT	11.00	21,560.00
6231032	20.000	LINFT	4-INCH CONDUIT	60.00	1,200.00
6231228	2,150.000	LINFT	3 PAIR CONDUCTOR NO. 18 CABLE	1.00	2,150.00
6240004	1,000.000	HOUR	FLAGGER	49.00	49,000.00
6250036	6.000	EACH	RENT CONSTRUCTION BARRICADES (TYPE IIIB)	50.00	300.00
6250044	3.000	EACH	RENT CHANGEABLE MESSAGE SIGN	6,600.00	19,800.00
6250060	3.000	EACH	RENT ARROW BOARD (TYPE C)	3,100.00	9,300.00
6250072	170.000	EACH	RENT TRAFFIC DRUMS	32.00	5,440.00
6250092	1.000	EACH	RENT TRUCK-MOUNTED IMPACT ATTENUATOR	11,000.00	11,000.00
6250500	1,114.000	SQFT	RENT CONSTRUCTION SIGNS	12.00	13,368.00
6280004	390,000.000	LS	MOBILIZATION	1.00	390,000.00
6370003	6,000.000	LS	TEMPORARY POLLUTION CONTROL	1.00	6,000.00
6370090	28,000.000	LS	DUST CONTROL	1.00	28,000.00
6400100	40.000	SQFT	MASONRY RETAINING WALL	60.00	2,400.00
			SUB TOTAL		3,901,538.00
			CONTINGENCIES (3.00%)		117,046.14
7360050	40,000.000	LS	INCIDENTAL CONSTRUCTION	1.00	40,000.00
			TOTAL COSTS		4,058,584.14
			COUNTY: CLARK PRIMARY AMOUNT: SECTION 115 PROJECTS (H170) AT (100%)		4,058,584.00
			SUB TOTAL		4,058,584.00
			TOTAL		4,058,584.00

Payment is made by Clark County

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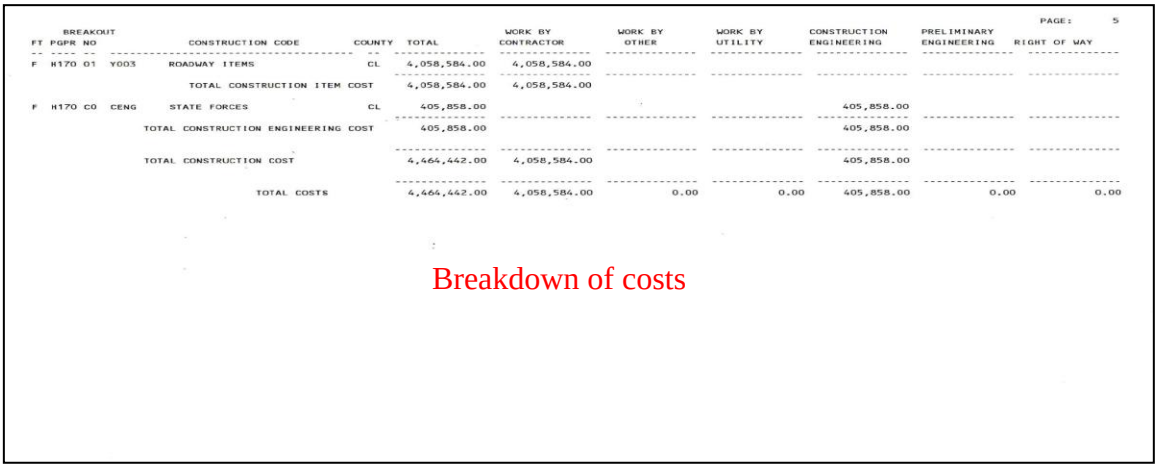

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FT	BREAKOUT PGPR NO	CONSTRUCTION CODE	COUNTY	TOTAL	WORK BY CONTRACTOR	WORK BY OTHER	WORK BY UTILITY	CONSTRUCTION ENGINEERING	PRELIMINARY ENGINEERING	RIGHT OF WAY
F	H170 01 Y003	ROADWAY ITEMS	CL	4,058,584.00	4,058,584.00					
		TOTAL CONSTRUCTION ITEM COST		4,058,584.00	4,058,584.00					
F	H170 C0 CENG	STATE FORCES	CL	405,858.00				405,858.00		
		TOTAL CONSTRUCTION ENGINEERING COST		405,858.00				405,858.00		
		TOTAL CONSTRUCTION COST		4,464,442.00	4,058,584.00			405,858.00		
		TOTAL COSTS		4,464,442.00	4,058,584.00	0.00	0.00	405,858.00	0.00	0.00

Breakdown of costs

DOCUMENTATION REQUIREMENTS: It is the responsibility of the **Inspector** to know which item can be paid to plan, or requires a measurement, or calculations. If there are any questions concerning payment please contacted the Headquarters Construction for assistance. See Chapter 2 of the Documentation Manual.

STANDARD SPECIFICATIONS – METHOD OF MEASUREMENT AND PAYMENT

Unit	Sig fig	Requirements	Remarks
Each	1	counted	
Linft	1	field meas	
Sqft	.01	field meas & calcs	If taking quantities from the Standard Plans for marking film or sign quantities from the Contract Plans, plan qty may be paid. Otherwise, calculations are required or in the Remarks column, state where the dimensions were found. If signs are added, an explanation is required in the Remarks column.
Sqyd	.1	field meas & calcs	If an area is too difficult to calculate, please call Headquarters Construction for assistance.
Cuft	.01	field meas & calcs	
Cuyd	.01	plan qty or field meas & calcs if different than plan qty	**Cannot pay plan on removal items, RipRap items, or items being weighed. Removal items must be measured before removed.**
Acre	.001	field meas & calcs	
Station	.01	field meas & calcs	
Mile	.001	field meas & calcs	
Ton	.01	weighed over scales	Scale sheets, delivery tickets, load books & spreadsheets, or field meas & calcs
Gallon	1	field meas & calcs	Must take a picture of the container label and place on a CALCULATION sheet and place in the CALCULATION book for backup
Pound	1	plan qty or field meas & calcs if different than plan qty	If an item is delivered in a container or sack, a picture of the container label must be taken and placed on a CALCULATION sheet and placed in the CALCULATION book for backup

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METRIC CONVERSIONS: Some jobs are still in the metric units. Familiarize yourself with the metric conversions. Each entry in the field books and the calculations sheets must be calculated using the metric conversions. Make sure to use the whole conversion, do not round the number. The following list of metric conversion factors (refer to Standard Specifications for Road and Bridge Construction (Silver book) page 570, making sure the numbers in the Silver Book matches the numbers listed below) shall be used for all quantity conversions for daily calculations:

QUANTITY	FROM ENGLISH	TO METRIC	MULT QUANTITY BY
Length	inch	mm	25.4
	ft	mm	304.8
	ft	m	0.3048
	yd	m	0.9144
	mile	km	1.609344
	mile	m	1609.344
	in/mi	mm/km	15.7828
Area	sqin	sqmm	645.16
	sqft	sqm	0.092903
	sqyd	sqm	0.836127
	acre	sqm	4046.873
	acre	hect	0.404687
	sqmi	sqkm	2.59
Volume	cuin	cumm	16387.06
	cuft	cum	0.0283168
	cuyd	cum	0.764555
	gallon	L	3.78541
	gal/yd	L/m	4.1398
	gal/sqyd	L/sqm	4.5273
	gal/cuyd	L/cum	4.9511
	gal/acre	L/hect	9.3539
	gal/ton	L/t	4.1727
Mass	ounces	g	28.349523
	pound	kg	0.453592
	kip (1,000 lbs.)	t	0.453592
	ton	t	0.907185
Force	pound	N	4.44822
	kip	kN	4.44822
Force/ Unit Length	lb/ft	N/m	14.5939
	lb/in	N/mm	0.175127
Pressure, Stress	lbs/sqft	Pa	47.8803
	kips/sqft	kPa	47.8803
	lbs/sqin	kPa	6.89476
	lbs/sqin	MPa	0.006895
	kips/sqin	MPa	6.89476

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QUANTITY	FROM ENGLISH	TO METRIC	MULT QUANTITY BY
Energy	foot pound	J	1.35582
Mass/ Length	ounces/sqyd	kg/sqm	0.0339057
	lbs/sqft	kg/sqm	4.8824
	lbs/sqyd	kg/sqm	0.54249
	lbs/cuft	kg/cum	16.01846
	lbs/cuft	Mg/cum	0.01601846
	lbs/cuyd	kg/cum	0.593276
	lbs/acre	kg/hect	1.1208
	tons/acre	t/hect	2.2417
Temperature	°F	°C	(°F-32)/1.8

SIGNIFICANT FIGURES: The Field books should have the significant figure noted on the top right-hand side of the page for each unit. Each entry in the field books and the calculation sheets must be rounded to the appropriate significant figure. See Chapter 2 of the Documentation Manual.

ENGLISH			METRIC		
gal	1		liter	(L)	1
each	1		each		1
pound	1		kilogram	(kg)	1
ydmi	1		cumkm		1
linft	1		linm		0.1
sqyd	**0.1**	**(calc quantity)**	**sqm**		**0.1**
dollars	0.01		dollars		0.01
station	0.01		station	*	0.1
ton	0.01		mton	**	0.01
sqft	0.01 ⇐	(Signs) ⇒	sqm		0.01
cuyd	1,.1,.01	(plan quantity)	cum		1,.1,.01
cuyd	**0.01**	**(calc quantity)**	**cum**		**0.01**
mile	0.001		kilometer	(km)	0.001
acre	0.001		hectare ***	(hect)	0.001
hour	0.5		hour		0.5
day	0.5		day		0.5
month	0.25, 0.5, 0.75, 1.0		month		0.25, 0.5, 0.75, 1.0
cuft	0.01 ⇐	(concrete) ⇒	cum		0.01
cuyd	0.01 ⇐	(riprap) ⇒	cum		1,.1,.01

(*) metric station = 100 linear meters
(**) metric ton = 1000 kilograms
(***) hectare = 10,000 square meters

ROUND AS FOLLOWS:

3.25 linft	rounds to	3 linft
3.21 linm	rounds to	3.2 linm
3.5 linft	rounds to	4 linft
3.46 linm	rounds to	3.5 linm
1.3278 mi/km	rounds to	1.328 mi/km
1.3273 mi/km	rounds to	1.327 mi/km
4.42 sqyd/sqm	rounds to	4.4 sqyd/sqm
4.47 sqyd/sqm	rounds to	4.5 sqyd/sqm

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NOTE: Significant figures in the structure list may be used for guardrail documentation during construction of a contract. When recapping the GUARDRAIL books, final totals shall be rounded to match the significant figures shown on the previous page.

Contact Headquarters Construction if a different significant figure is required on an item. For example: An Each item's significant figure is 1. If the Resident Engineer does not want to pay for the entire item in one entry or the Contractor wants part of his money because the item has been partially installed, then a new significant figure may be request.

FIELD BOOKS: Field books for documenting quantities are prepared by the **Officeperson** prior to the start of a contract. All documentation shall be kept current. Never erase in a book, always line out an entry and write the correction above the original entry. Never use white out, corrective tape, or ink. Do not tape drawings in field books. Use hard lead (3H or 4H), 5H is too hard, HB & 2H are too soft. The **Officeperson** should use red pencil and the Headquarters Construction staff uses green ink. Initial and sign each book when you first receive it. All stations must show RT, LT, or CL. **An explanation is required for any item that is paid over or under plan.** Ditto marks and arrows for consecutive entries are not allowed. See Chapter 2 of the Documentation Manual.

All field books used on the project (survey books, field lab books, field books for pay quantities, record of delivery books, and load books) **shall be numbered 1 thru 80 at the top of each right-hand page.**

Documentation for only a few selected items is illustrated in this handbook. Documentation for practically any item can be provided by setting up the books in the same manner according to the UOM. Some minor modifications may be required to show the unusual circumstances that may occur with different items, but the general format must be followed. If there are items that cannot be documented according to the following examples in this handbook or in the Documentation Manual, please call Headquarters Construction for assistance.

Any items requiring measurements, percentages, or final quantity calculations must be shown in the field book or on a CALCULATION sheet (Form No. 040-034) and filed in the CALCULATION book. Make sure to cross reference the quantity in the field book to the CALCULATION sheet and the CALCULATION sheet to the field book(s) and page(s) as described and illustrated in this handbook and Chapter 2 of the Documentation Manual.

It is important that all records be kept in a neat and legible manner. **All notes in the remarks column must be initialed** by the person or persons responsible for the entry. **All calculations must be checked and initialed by the checker.**

All forms (excluding scale sheets) must be done in black or blue ink. Do not use correction fluid on any original forms used as source documents.

FIELD LAB BOOKS: The field lab books shall be setup in the same manner as the Field Books. When the job is complete the field lab books will be turned into the **Officeperson**. If there are any questions concerning the field lab books, please contact Headquarters Construction Quality Assurance for assistance.

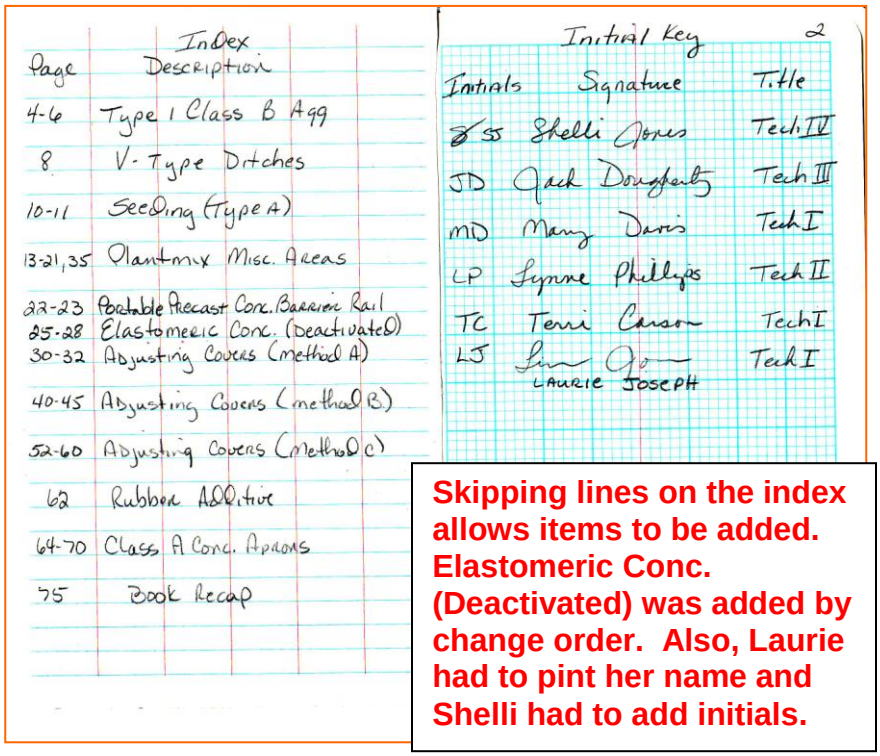
All Field and Field Lab Books will have a title page. See Chapter 2 of the Documentation Manual.

SECTION A

This section illustrates the different formats of an index and an initial key. Always check to assure the item you are working on is located on the index and the page numbers are correct. During the contract if anything is added to the book make sure it is placed on the index. Initial, sign, and place your title in **every** book you touch. If your signature is not legible, print your name under the signature. If you change your initials, place the new initials next to the original ones.

This format shall be used in the following books:

REMOVAL
EARTHWORK
LIQUID ASPHALT
ASPHALT CEMENT, MINERAL FILLER, RECORD OF DELIVERY
CONCRETE PAVING
ROADBED MODIFICATION
COLD RECYCLED BIT. SURFACE
MISC SURFACING ITEMS
CURB & GUTTER
FENCE
GUIDEPOST
MISCELLANEOUS
STRIPING
RENT CONST SIGN ETC.
PERM SIGN
LOAD BOOKS (If approval has been received to place more than one item in the book, only on small jobs).



Index

Page	Description
4-6	Type I Class B Agg
8	V-Type Ditches
10-11	Seeding (Type A)
13-21, 35	Plantmix Misc. Areas
22-23	Portable Precast Conc. Barrier Rail
25-28	Elastomeric Conc. (Deactivated)
30-32	Adjusting Covers (method A)
40-45	Adjusting Covers (method B)
52-60	Adjusting Covers (method C)
62	Rubber Additive
64-70	Class A Conc. Aprons
75	Book Recap

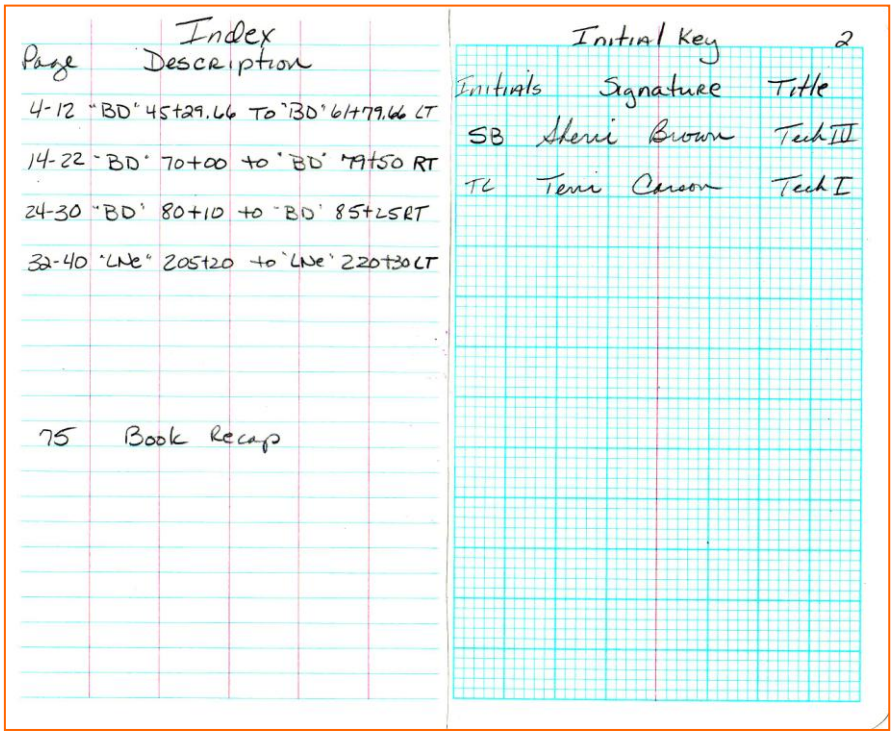
Initial Key 2

Initials	Signature	Title
SS	Shelli Jones	Tech IV
JD	Jack Dougherty	Tech III
MD	Mary Davis	Tech I
LP	Lynne Phillips	Tech II
TC	Terri Carson	Tech I
LJ	Laurie Joseph	Tech I

Skipping lines on the index allows items to be added. Elastomeric Conc. (Deactivated) was added by change order. Also, Laurie had to pint her name and Shelli had to add initials.

This format shall be used in the following books: (Use when multiple areas or structures are placed in a book)

LANDSCAPING
TRAFFIC SIGNALS
LIGHTING SYSTEMS
PIPE
RCB
MISC STRUCTURES
RETAINING WALLS
SOUND WALLS
MSE WALLS
GUARDRAIL
EARTHWORK (if only one item is placed in a book)



Index

Page	Description
4-12	"BD" 45+29.66 To "BD" 61+79.66 LT
14-22	"BD" 70+00 to "BD" 79+50 RT
24-30	"BD" 80+10 to "BD" 85+25 RT
32-40	"LNE" 205+20 to "LNE" 220+30 LT
75	Book Recap

Initial Key 2

Initials	Signature	Title
SB	Sheri Brown	Tech III
TC	Terri Carson	Tech I

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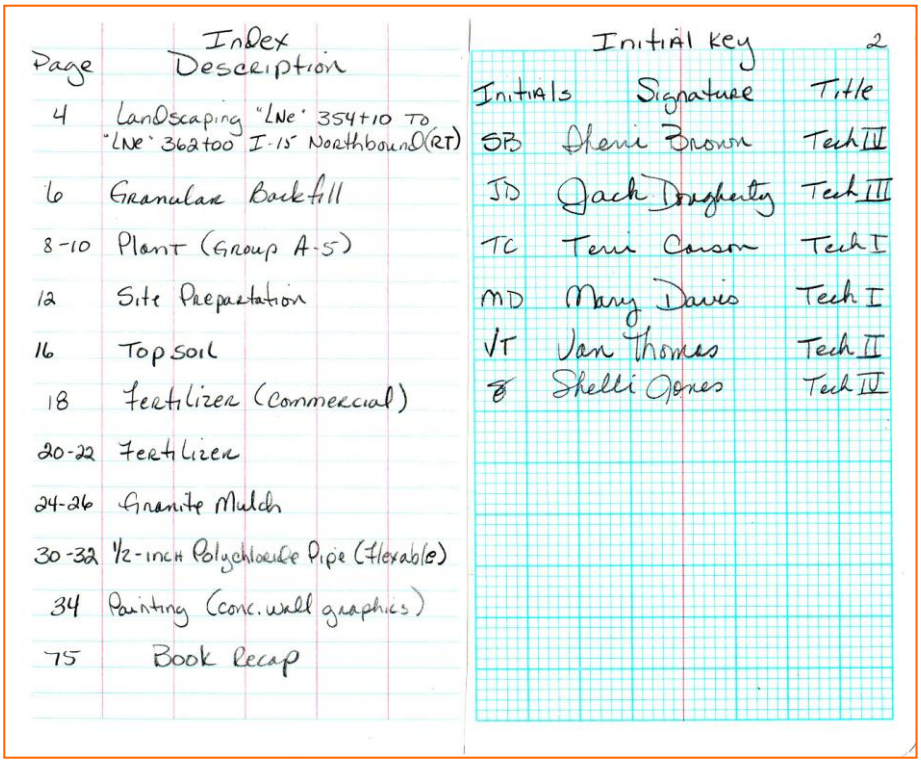
This format shall be used in the following books:

LANDSCAPING
TRAFFIC SIGNALS
LIGHTING SYSTEMS
(Use when only one area is placed in a book)



Index

Page	Description
4	Landscaping "LNE" 354+10 To "LNE" 362+00 I-15 Northbound (RT)
6	Granular Backfill
8-10	Plant (Group A-5)
12	Site Preparation
16	Topsoil
18	Fertilizer (Commercial)
20-22	Fertilizer
24-26	Granite Mulch
30-32	½-inch Polychloride Pipe (Flexable)
34	Painting (Conc. wall graphics)
75	Book Recap

Initial key 2

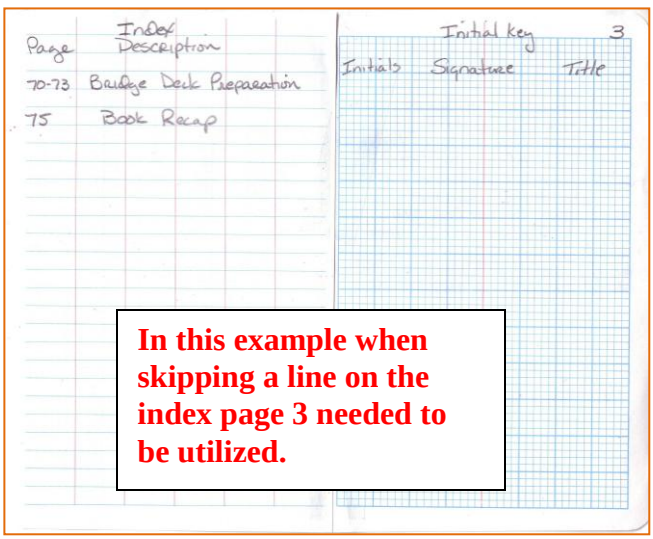
Initials	Signature	Title
SB	Sheri Brown	Tech III
JD	Jack Dougherty	Tech III
TC	Terri Carson	Tech I
MD	Mary Davis	Tech I
VT	Van Thomas	Tech II
~~SJ~~	Shelli Jones	Tech IV

Index

Page	Description
4-8	Stakeout Data (I-675)
10-14	Structure Excavation
15-18	Granular Backfill
20-22	Laminated Elastomeric Bearing Pads
25-29	Class A Conc. (Mod) (Maj)
30-34	Class D Conc. (Mod) (Maj)
36	Elastomeric Concrete
38-45	Groove Concrete Deck Slab
48-50	Bridge Deck Curing Compound
51-60	Reinforcing Steel
62-68	Drilled Shaft Foundation (Grind)

Initial key 2

Initials	Signature	Title
~~SJ~~	Shelli Jones	Tech IV
MD	Mary Davis	Tech I
TC	Terri Carson	Tech I
JD	Jack Dougherty	Tech III
TJ	Tom Jones	Tech 3



Index

Page	Description
70-73	Bridge Deck Preparation
75	Book Recap

Initial key 3

Initials	Signature	Title

In this example when skipping a line on the index page 3 needed to be utilized.

This format shall be used in the following books:

STRUCTURE
(Use when only one structure is placed in a book)

If there is a format of an index that is not described in this handbook that is shown in the Documentation Manual, please notify Headquarters Construction.

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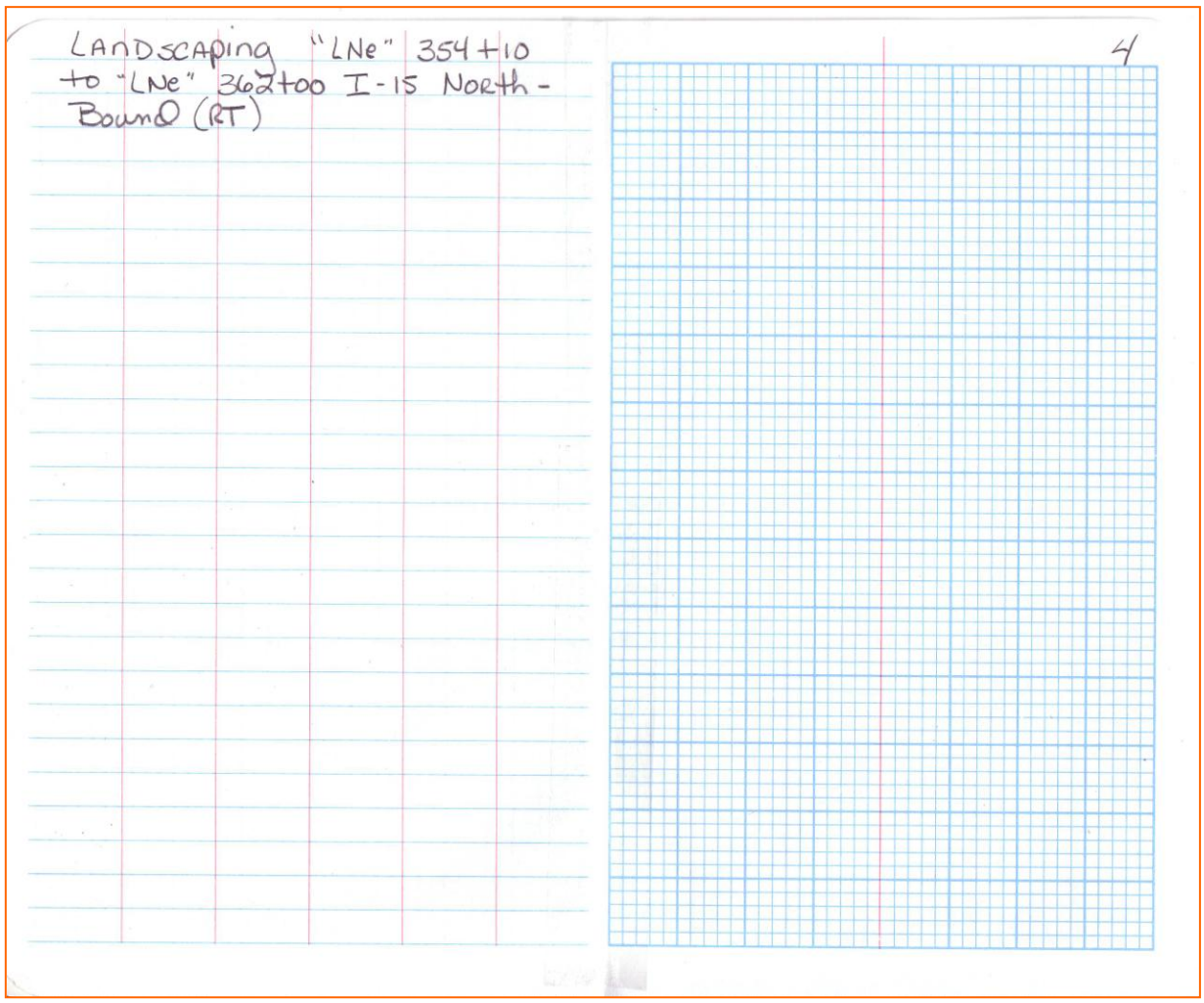
SECTION B

The following is an illustration of a Description Page that shall be used to identify one or more areas placed in a field book that will not require stakeout data.

The **Officeperson** shall complete a full description as shown on the structure list in the contract plans for each area placed in a field book.

DESCRIPTION PAGE



Rev 01/11

The following is an illustration of a Stakeout Data page that shall be used to identify one or more areas placed in a field book that may require stakeout data.

The **Officeperson** will complete the headings on the Stakeout Data page as illustrated below.

Be sure to allow adequate space in the book before setting up the next section (Construction Record). As shown in the structure list of the plans, the full description shall be placed at the top of the Stakeout Data page as illustrated below.

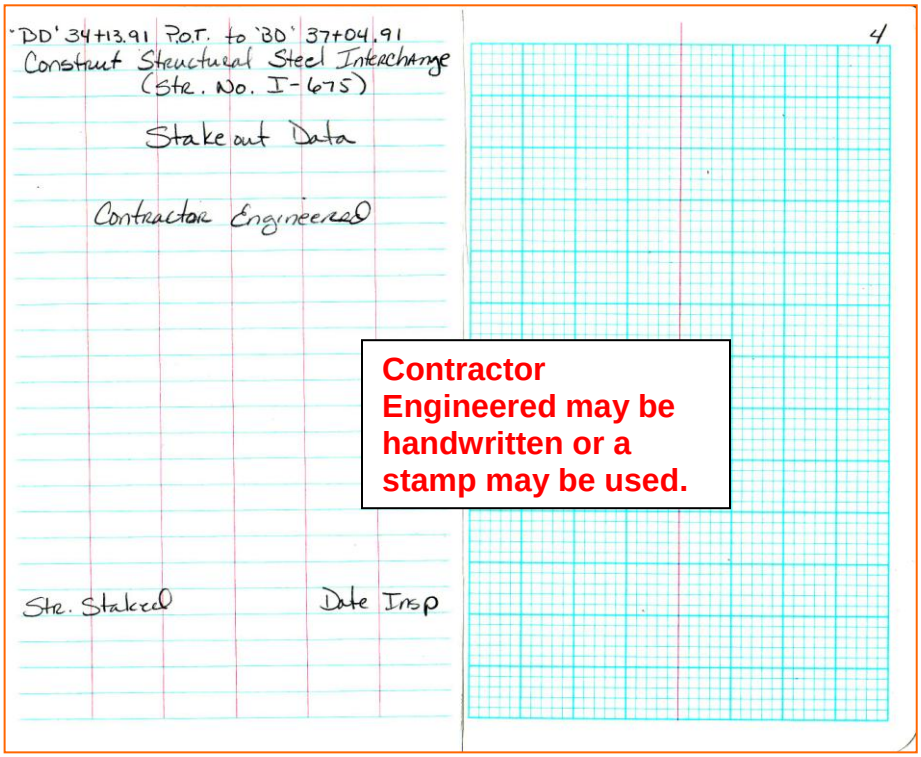
If the area is to be staked by NDOT then the Stakeout Data section must contain all the stakeout data for the structure, cross-sections, and all grade elevations pertinent to the structure, etc. The person entering the stakeout data must date and initial the page(s) and initial and sign the initial key.

When stakeout information is located elsewhere, the Stakeout Data section must make reference to the page and book number of the stakeout information and the stakeout information must be referenced to the page of the book.

If the area is not staked, it must be noted on the Stakeout Data page why there is no stakeout needed and the explanation must be initialed.

Per subsection 200.01.01 of the contract documents, if the area is to be engineered by the Contractor, it must be noted in the Stakeout Data section, as illustrated below**. The Contractor's stakeout information must be given to the Resident Engineer before the final pickup, which will become part of the contract documents forwarded to the Engineering Files.**

Additional structure installations resulting from change orders shall be documented exactly as described for planned installations. The change order number must be reference at the top of the page with the description.



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SECTION C

Calculations made for determining pay quantities (final or estimated) for contract items requiring computations that are too extensive to place in the field book shall be made on a CALCULATION sheet, (Form No. 040-034) and filed in a loose-leaf binder labeled CALCULATION book. This book shall be kept in the field office.

All calculations and backup filed in the CALCULATION book shall be placed on a CALCULATION sheet or attached to the back of the CALCULATION sheet. The top portion of the CALCULATION sheet must be completed. **Each page in the CALCULATION book must be numbered consecutively and referenced to the field book(s) and page(s).** Quantities shown in the field books must be referenced to the page in the CALCULATION book where the calculations can be found, as described below and illustrated in this section and in Chapter 2 of the Documentation Manual.

The CALCULATION book shall be setup in the same manner as a field book, see Chapter 2 of the Documentation Manual.

Page 1 is the Title page.
Page 2 is the Index (excluding the book recap page).
Page 3 will be the Initial Key.
Page 4 shall be a blank page and the first CALCULATION sheet will be page number 5.

Each page in the CALCULATION book must have the following information:

1. Page number
2. Contract number
3. Initials of the person responsible for the calculation
4. Initials of the checker
5. Date
6. Description
7. Location
8. Reference field book number or the field book title
9. Page(s) of the field book(s)

The CALCULATION book serves two important purposes:

1. It will reduce congestion in the field books.

2. It will eliminate the necessity of re-copying figures from worksheets into the field books, and thereby decreases the chance of errors in transferring numbers.

Upon completion of a contract, the calculations shall be removed from the three-ring binder by the Headquarters Construction Staff and placed in a file folder, which will be filed in the Engineering Files with the other project records.

Forms change periodically, please assure that you are using the most current form available, see Chapter 26 (Distribution of Documents).

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STATE OF NEVADA PAGE NO. 11

DEPARTMENT OF TRANSPORTATION

CALCULATION SHEET

CONTRACT NO. 3247 CALCS BY JT CHECKED BY SP DATE 6/3/06

DESCRIPTION Retaining Wall-A Structure Excavation

LOCATION STA. "BD" ~ 48+31.65 to STA. "BD" ~ 45+35.45 206 0500

REFERENCE FIELD BOOK NO. Ret Wall BK1 PAGE(S) 8 10 FIELD MEASURED

From: STA. "48+31.65
To: STA. "47+89.36

Avg C = (4.61' + 5.02') = 9.63 / 2 = 4.82'
(42.29')(9') = 380.61 sf
(380.61 sf)(4.82') = 1834.54 cf
1834.54 cf / 27 = 67.95 cy SP

From: STA. "BD" ~ 47+89.36
To: STA. "BD" ~ 47+47.04

Avg C = (5.02' + 5.12') = 10.14 / 2 = 5.07'
(42.32')(9') = 380.88 sf
380.88 sf (5.07') = 1931.06 cf
1931.06 cf / 27 = 71.52 cy SP

From: STA. "BD" ~ 47+47.04
To: STA. "BD" ~ 47+00.72

Avg C = (5.12' + 5.08') = 10.15 / 2 = 5.08'
(46.32')(9') = 416.88 sf
416.88 sf (5.08') = 2117.75 cf
2117.75 cf / 27 = 78.44 cy SP

From: STA. "BD" ~ 47+00.72
To: STA. "BD" ~ 46+62.40

Avg C = (5.03' + 4.58') = 9.61 / 2 = 4.81'
(38.32')(9') = 344.88 sf
(344.88 sf)(4.81') = 1658.87 cf
1658.87 cf / 27 = 61.44 cy SP

From: STA. "BD" ~ 46+62.40
To: STA. "BD" ~ 46+02.08

Avg C = (4.58' + 3.89') = 8.47 / 2 = 4.24'
(60.32')(9') = 542.88 sf
(542.88 sf)(4.24') = 2301.81
2301.81 cf / 27 = 85.25 cy SP

From: STA. "BD" ~ 46+02.08
To: STA. "BD" ~ 45+77.77

Avg C = (3.89' + 4.31') = 8.15 / 2 = 4.08'
(24.31')(9') = 218.79 sf
(218.79 sf)(4.08') = 892.66 cf
892.66 cf / 27 = 33.06 cy SP

From: STA. "BD" ~ 45+77.77
To: STA. "BD" ~ 45+35.45

Avg C = (4.31' + 6.13') = 10.44 / 2 = 5.22'
(42.32')(9') = 380.88 sf
(380.88 sf)(5.22') = 1988.19 cf
1988.19 cf / 27 = 73.64 cy SP

PAGE TOTAL: 471.30 cy SP

NDOT 040-034 01-98

SECTION D

There are several steps to follow to assure the correct number of valves and manholes are being billed to the different entities for payment. **Please refer to Chapter 18 of the Documentation Manual as only a very brief explanation is in this handbook.**

The **Officeperson** and the **Inspector** will enter the appropriate information as described on this page. If the station in the field book does not match the station in the field, the **Inspector** will line through the original station and write the new station above, as illustrated in this section and in Chapter 18 of the Documentation Manual. A reason for the change is **required** in the remarks column.

There are three methods for documentation of manholes:

Method A is used when removal of the existing pavement by cold milling is not required. Once all paving is completed, locate and adjust the cover to the final finished pavement level, as illustrated in this section.

Method B is used when removal of the existing pavement by cold milling is required. Before cold milling, lower the cover sufficiently to accommodate the required pavement removal depth. After the new pavement is placed and completed, locate and adjust the cover to the final pavement level, as illustrated in this section.

Method C is used when the method of adjustment is outside the areas described in Methods A and B, when removal of cold milling and paving is not used. Method C shall be setup as either lowered and raised or just raised depending on what is called for in the field, as illustrated in this section.

The illustrations in this section show the format used for an item, which is located on a structure list from the contract plans and **must be listed separately.** If there are questions on whether an each item can be listed separately or combined, please call Headquarters Construction for assistance.

The **Officeperson** shall complete for each page the item number, item description, plan quantity, the significant figure on the top right-hand side of the page, all column headings, Raised or Raised and Lowered, page total in the bottom left-hand corner of the page, and the AEB number, station, type, and owner for each manhole if indicated on a structure list. **Skip at least one line between entries. A separate page shall be provided for each bid item. Make sure to leave enough pages between items for any added or missed items.**

Daily, the **Inspector** shall document the station, AEB#, type, and owner, if not already entered, qty, date, initials, and any remarks that are needed. Per Policy and Procedures Directive Construction 03-98 it will be the **responsibility of the Inspector to identify the type and owner of all manhole covers to be adjusted on a given contract.** If the **Officeperson** has already entered the type and owner it will be the **Inspector's** responsibility to confirm the type and owner. **Skip at least one line between entries.**

Note: All entries must be entered as called out in the plans and document left, right, or centerline, where applicable. **If manholes are found in the field, that are not listed on the plans or are added by change order, the type, owner, and a note in the remarks field is required.**

Payment for Each items will be based on field count.

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Item No: 6090112
Item: Adjusting Covers (method A)
Plan Qty: 6 EACH

Sig fig = 1 30

Station		Qty	Date	Insp	AGS#	Pmt#	Type owner	Remarks
"BD" 56+34.81 10.00' RT	Raised	1	10-2-08	MD	2		sewer CCSD	
"BD" 56+39.10 5.00' RT	Raised	1	10-2-08	MD	2		Sewer CCSD	
"BD" 56+62.75 8.00' RT	Raised				2		Sewer CCSD	
"BD" 56+78.12 25.00' RT	Raised				5		Phone Sprint	
"BD" 56+92.90 15.00' RT	Raised	1	10-2-08	MD	5		Phone Sprint	
"BD" 57+17.54 12.00' RT	Raised				3		Gas SWG	

Page total:

Payment for Each items will be based on field count, CANNOT PAY PLAN. This format shall be used for Method A and for Method C (when raising the manhole is the only adjustment needed).

Item No. 6090116
Item: Adjusting Covers (method B)
Plan Qty: 5 Each

Sig fig = 1 40
.5 Lowered
.5 Raised

Station		Qty	Date	Insp	AGS#	Pmt#	type owner	Remarks
"BD" 57+1900 22.00' LT	Lowered Raised				5		Phone Sprint	
"BD" 57+49.00 22.00 LT	Lowered Raised	.5 .5	10-2-08 10-10-08	MD MD	2		Sewer CCSD	
"BD" 57+71.99 25.00' LT	Lowered Raised	.5	10-2-08	MD	2		Sewer CCSD	
"BD" 58+02.05 15.00' RT	Lowered Raised	.5 .5	10-2-08 10-10-08	MD MD	2		Sewer CCSD	
"BD" 58+37.93 ~~58+37.43~~ ~~5.00'~~ 6.00' RT	Lowered Raised	.5	10-2-08	MD	2		Sewer CCSD	MANHOLE was NOT IN the location listed in plans
"BD" 55+30.15 5.00 LT	Lowered Raised	.5 .5	10-2-08 10-3-08	MD MD	3		Gas SWG	found in field NOT in Plans see Calc sheet #10

Page total:

Payment for Each items will be based on field count, CANNOT PAY PLAN. This format shall be used for Method B and for Method C (when the adjustments needed are lowering and raising the manhole).

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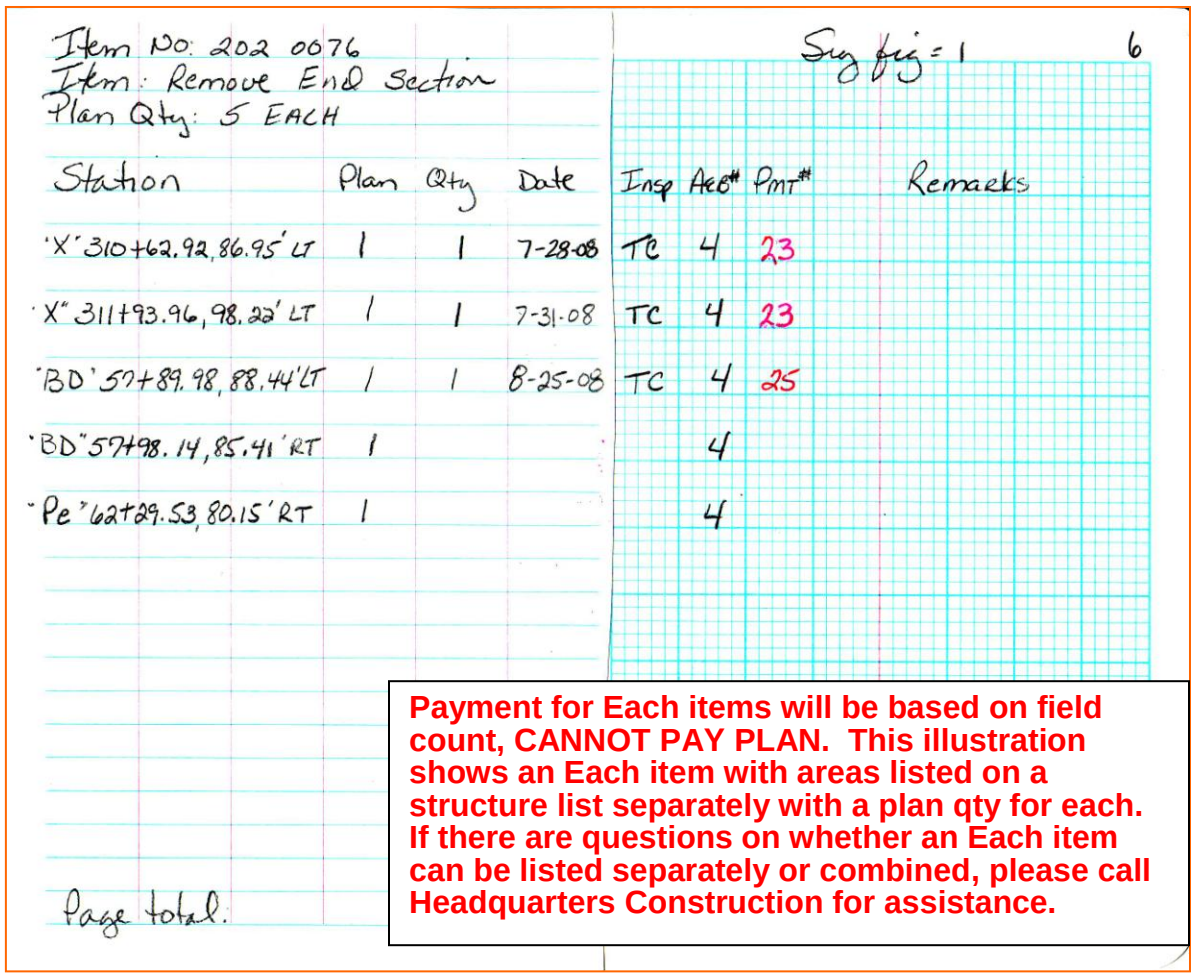
SECTION E

The illustrations in this section show the formats to be used for UOM items, which are located on a structure list from the contract plans and **must have each location listed separately with the plan quantity for that location.**

The **Officeperson** shall complete for each page the item number, item description, plan quantity, the significant figure on the top right-hand side of the page, all column headings, page total in the bottom left-hand corner of the page, the AEB number, and the station(s) and plan qty for each location if indicated on a structure list. If an item is not on a structure list, omit the plan column**. Skip at least one line between entries. A separate page shall be provided for each bid item. Make sure to leave enough pages between items for any added or missed items. All calculations must be checked and initialed.**

Daily, the **Inspector** shall document the station(s) and AEB# if not already entered, quantity (measured, counted, or calced), date, initials, and any remarks that are needed. **Skip at least one line between entries.**

Note: All entries must be entered as called out in the plans and document left, right, or centerline, where applicable.



Item No: 202 0076
Item: Remove End Section
Plan Qty: 5 EACH

Sig fig = 1 6

Station	Plan	Qty	Date	Insp	AEB#	PMT#	Remarks
"X" 310+62.92, 86.95' LT	1	1	7-28-08	TC	4	23	
"X" 311+93.96, 98.22' LT	1	1	7-31-08	TC	4	23	
"BD" 57+89.98, 88.44' LT	1	1	8-25-08	TC	4	25	
"BD" 57+98.14, 85.41' RT	1				4		
"Pe" 62+29.53, 80.15' RT	1				4		

Page total:

Payment for Each items will be based on field count, CANNOT PAY PLAN. This illustration shows an Each item with areas listed on a structure list separately with a plan qty for each. If there are questions on whether an Each item can be listed separately or combined, please call Headquarters Construction for assistance.

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Item No. 201 0512
Item: Removal of Trees (6" to 12")
Plan Qty: 2 EACH

Sig fig = 1 — 4

Station	Plan	Trees to be Removed	Counted By	Date Counted	Trees Removed	Date Removed	Insp	AEB#	Pmt#	Remarks
"BD" 55+43.72 RT	1	1	JD	6-10-08	1	6-12-08	JD	2	19	
"BD" 56+72.94 LT	1							2		

Page total:

Payment for Each items will be based on field count, CANNOT PAY PLAN. This illustration shows an Each item listed on a structure list separately with a plan qty for each. Removal items MUST be measured before removal, CANNOT PAY PLAN. If there are questions on whether an Each item can be listed separately or combined, please call Headquarters Construction for assistance.

Item No. 502 0616
Item: Portable Precast Concrete Barrier Rail
Plan Qty: 667 Linft

Sig fig = 1 — 22

Station to Station	Plan	Meas Linft	Date	Insp	AEB#	Pmt#	Remarks
"BD" 37+55.12 TO "BD" 38+15.12 LT	60	63	9-30-08	TC	2		Complete
"BD" 37+55.14 TO "BD" 38+02.14 RT	47	22	9-30-08	TC	2		
		22	10-4-08	TC	2		Complete
"Pe" 0+78 TO "Pe" 4+40 LT	362				1		
"Pe" 0+00 TO "Pe" 1+98 RT	198				1		

Page total:

Payment for Linft items will be based on field measurements, CANNOT PAY PLAN. This illustration shows a Linft item with areas listed on a structure list separately with a plan qty for each.

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Item No: 616 0712
Item: 72-inch Chain-Link Fence
Plan Qty: 7900 Linft

Sig fig = 1 — 7
50% Post
50% Wire

Station to Station	Plan	Meas. Linft	Pay Qty
"BD" 42+50 to	4000	1500	750
"BD" 72+50 LT		750	375
		1000	500
		1200	600
		550	275
		1500	750
		1000	500
		500	250
		50	50

Final in-place meas.	Date Insp	Insp	Acc#	Pmt#	Remarks
	9-8-08	VT	2		Posts
	9-10-08	VT	2		Posts
	9-10-08	VT	2		Wire
	9-11-08	VT	2		Posts
	9-12-08	VT	2		Posts
	9-15-08	VT	2		Wire
	9-16-08	VT	2		Wire
	9-17-08	VT	2		Wire
4050	9-18-08	VT	2		Re-measure Total area. Complete

Page total:

Payment for Linft items will be based on field measurements, CANNOT PAY PLAN. This illustration shows a Linft item with areas listed separately on a structure list with a plan qty for each. After each section of fence has been completed, the final in-place measurement, date, and initials of the person responsible for the measurements shall be documented.

Item No: 202 1304
Item: Removal of Fence
Plan Qty: 1690 Linft

Sig fig = 1 — 48

Station to Station	Plan	Actual Length	Meas By
"BD" 27+63.45 To "BD" 31+04.41 135.09' RT to 151.81' LT	449	449	JD
"BD" 45+29.66 To "BD" 53+80.11 114.21' LT To 85.42' LT	832	829	JD
"BD" 50+03.98 to "BD" 53+94.69 133.23' RT To 41.24' RT	399		
"BD" 53+94.69 To "BD" 53+95.05 51.23' RT To 41.24' RT	10		

Date Meas.	Length Removed	Date Removed	Insp	Acc#	Pmt#	Remarks
9-18-08	449	9-21-08	JD	2		Complete
9-18-08	829	9-21-08	JD	2		Complete
				2		
				2		

Page total:

Payment for Linft items will be based on field measurements, CANNOT PAY PLAN. This illustration shows a Linft item with areas listed separately on a structure list with a plan qty for each. The actual length and the length removed for each area must match, if they don't a complete explanation is required.

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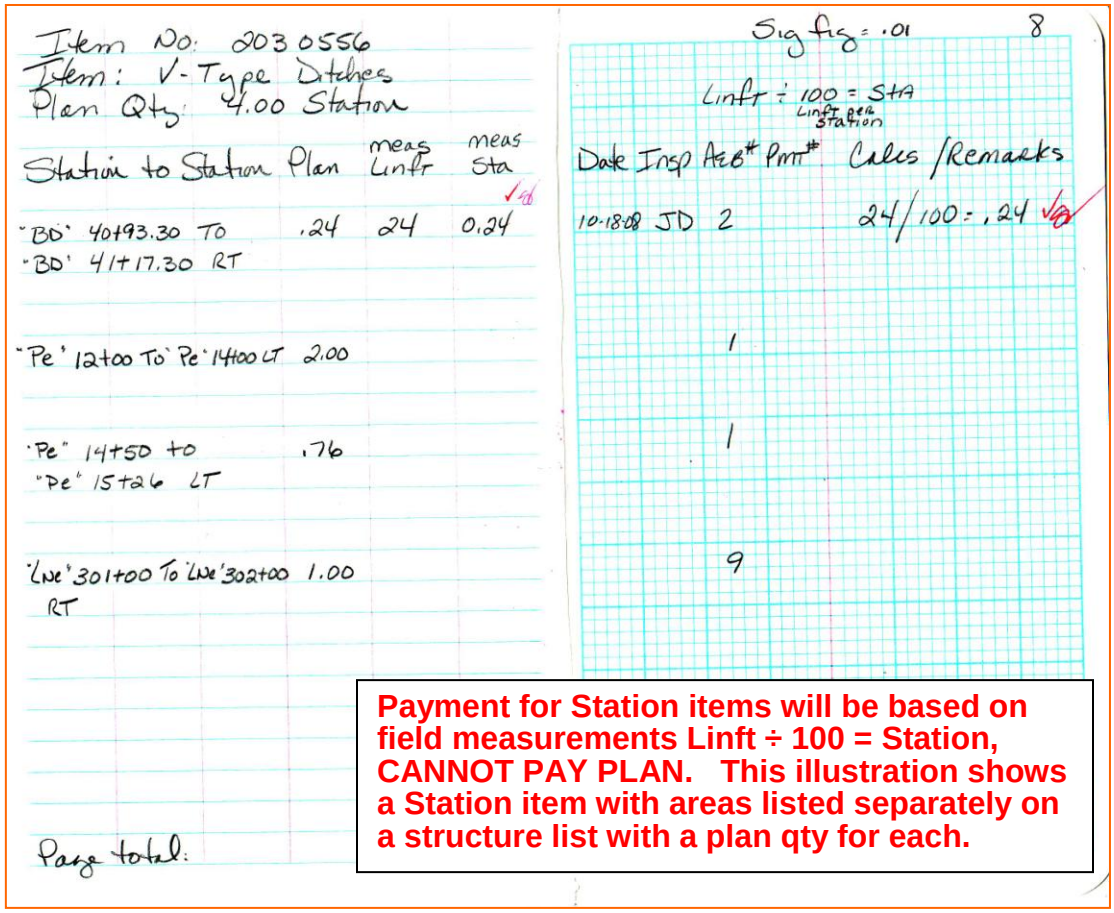


Item No: 203 0556
Item: V-Type Ditches
Plan Qty: 4.00 Station

Station to Station	Plan	meas Linft	meas Sta
"BD" 40+93.30 TO "BD" 41+17.30 RT	.24	24	0.24
"Pe" 12+00 To "Pe" 14+00 LT	2.00		
"Pe" 14+50 to "Pe" 15+26 LT	.76		
"Lwe" 301+00 To "Lwe" 302+00 RT	1.00		

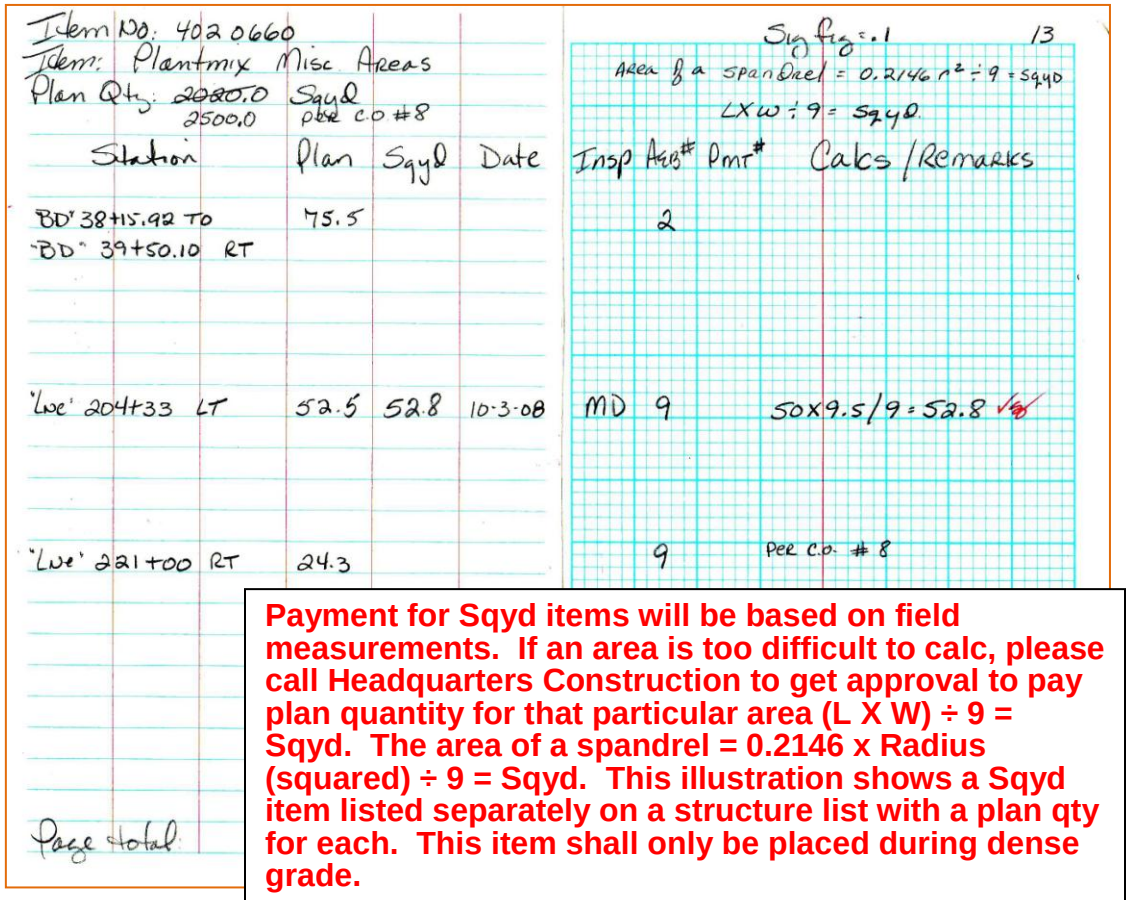
Page total:

Sig fig = .01 8

Linft ÷ 100 = Sta (Linft per Station)

Date	Insp	Acct#	Pmt#	Calcs / Remarks
10-18-08	JD	2		24/100 = .24
		1		
		1		
		9		

Payment for Station items will be based on field measurements Linft ÷ 100 = Station, CANNOT PAY PLAN. This illustration shows a Station item with areas listed separately on a structure list with a plan qty for each.



Item No: 402 0660
Item: Plantmix Misc Areas
Plan Qty: ~~2080.0~~ 2500.0 Sqyd per C.O. #8

Station	Plan	Sqyd	Date
"BD" 38+15.92 TO "BD" 39+50.10 RT	75.5		
"Lwe" 204+33 LT	52.5	52.8	10-3-08
"Lwe" 221+00 RT	24.3		

Page total:

Sig fig = .1 13

Area of a spandrel = 0.2146 r² ÷ 9 = Sqyd

L x W ÷ 9 = Sqyd

Insp	Acct#	Pmt#	Calcs / Remarks
	2		
MD	9		50x9.5/9 = 52.8
	9		per C.O. # 8

Payment for Sqyd items will be based on field measurements. If an area is too difficult to calc, please call Headquarters Construction to get approval to pay plan quantity for that particular area (L X W) ÷ 9 = Sqyd. The area of a spandrel = 0.2146 x Radius (squared) ÷ 9 = Sqyd. This illustration shows a Sqyd item listed separately on a structure list with a plan qty for each. This item shall only be placed during dense grade.

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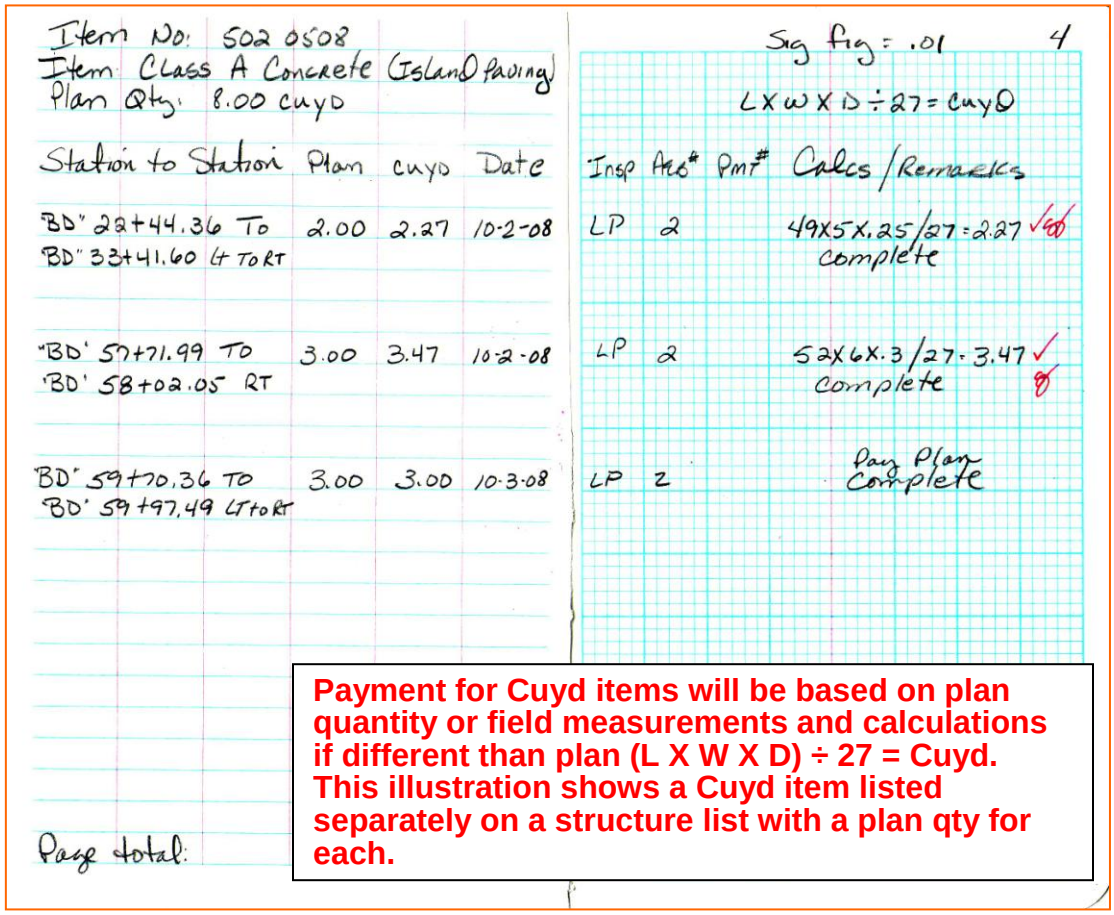

Item No: 502 0508
Item Class A Concrete (Island Paving)
Plan Qty: 8.00 cuyd

Sig fig = .01 4

L x W x D ÷ 27 = cuyd

Station to Station	Plan	cuyd	Date	Insp	Area #	Pmt #	Calcs / Remarks
"BD" 22+44.36 To "BD" 33+41.60 Lt To Rt	2.00	2.27	10-2-08	LP	2		49x5x.25/27=2.27 ✓ Complete
"BD" 57+71.99 To "BD" 58+02.05 Rt	3.00	3.47	10-2-08	LP	2		52x6x.3/27=3.47 ✓ Complete
"BD" 59+70.36 To "BD" 59+97.49 Lt To Rt	3.00	3.00	10-3-08	LP	2		Pay Plan Complete

Page total:

Payment for Cuyd items will be based on plan quantity or field measurements and calculations if different than plan (L X W X D) ÷ 27 = Cuyd. This illustration shows a Cuyd item listed separately on a structure list with a plan qty for each.

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SECTION F

The illustrations in this section show the formats used for items, which are located on the Estimate of Quantities or listed on a Structures' structure list. The format is the same except the plan quantity at the top of the page will be the total plan for that item if listed on the Estimate of Quantities or if on a Structures' structure list will be the plan for that structure.

The **Officeperson** shall complete for each page the item number, item description, plan quantity, the significant figure on the top right-hand side of the page, all column headings, page total in the bottom left-hand corner of the page, and the AEB number and the station(s) for each location if indicated on a structure list. **Skip at least one line between entries. A separate page shall be provided for each bid item. Make sure to leave enough pages between items for any added or missed items.**

Daily, the **Inspector** shall document the station(s) and AEB# if not already entered, quantity (measured, counted, or calced), date, initials, and any remarks that are needed. **Skip at least one line between entries.**

Note: All entries must be entered as called out in the plans and document left, right, or centerline, where applicable.

Tip: When paying 50% (.5) for an Each item, make sure to leave enough room for the remaining 50% (.5) to be place on the next line. See Chapter 7 of the Documentation Manual. Payment for reference monuments may be made after they are placed and the caps have been set. The NDOT Location Crew or the Contractor, who will file the information with the appropriate entity, shall stamp the monument caps. The stamped information is not required in the field book.

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Item No: 6330000
Item: Non-Reflective Pavement Markers
Plan Qty: 19033 Each

Sig Fig = 1 18

Station to Station	Qty	Date	Insp	AEB#	Pmt#	Remarks
"Lne" 382+43 To "Lne" 395+02 LT	78	9-23-08	TC	9		NB Lane #1
"Lne" 395+02 To "Lne" 482+43 LT	93	9-23-08	TC	9		SB Lane #2

Page total:

Payment for Each items will be based on field count, CANNOT PAY PLAN. This illustration shows an Each item combined and is located on the Estimate of Quantities and must have all the information entered by the Inspector. If there are questions on whether an Each item can be listed separately or combined, please call Headquarters Construction for assistance.

Item No: 6250512
Item: Rem Port Precast Conc. Barrier Rail
Plan Qty: 462 Linft

Sig Fig = 1 52

Station to Station	meas Linft	Date	Insp	AEB#	Pmt#	Remarks
"Lne" 220+10 to "Lne" 224+30 LT	420	9-15-08	MD	9		

Page total:

Payment for Linft items will be based on field measurements, CANNOT PAY PLAN. This illustration shows a Linft item located on the Estimate of Quantities and must have all the information entered by the Inspector.

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Item No: 632 ~~2026~~ A P O 0001 Per Co. # 10
Item: Epoxy Pavement Striping (Solid white)
Plan Qty: 8.000 mile

Sig fig = .001 8

Linft ÷ 5280 = mile (Linft per mile)

Station to Station	meas Linft	meas mile	Date	Insp	AEB#	Pmt#	Calcs / Remarks
"Pe" 4+36 To "Pe" 10+86 RT	650	.123	10-2-08	JD	1		650/5280 = .123
"Pe" 7+62 To "Pe" 22+12 RT	1450	.275	10-3-08	JD	1		1450/5280 = .275

Page total:

Payment for Mile items will be based on field measurements, CANNOT PAY PLAN. Linft ÷ 5280 = Mile This illustration shows a Mile item located on the Estimate of Quantities and must have all the information entered by the Inspector.

Item No: 634 0620
Item: Perm. Pavement Marking film (Type 2) (Varies)
Plan Qty: 5795.00 Sq ft.

Sig fig = .01 32

L x W = Sq ft
2007 Standard Plans pg. T-89-90
Turn Arrow = 15.50 only = 21.00

Station	Sqft	Date	Insp	AEB#	Pmt#	Calcs / Remarks
"Pe" 10+20 RT	15.50	10-20-08	TC	1		Turn Arrow
"Pe" 11+00 RT	21.00	10-20-08	TC	1		only

Page total:

Payment for Sqft items will be based on field measurements L X W = Sqft, or the Standard Plans for Road and Bridge Construction or the MUTCD Manual. This illustration shows a Sqft item located on the Estimate of Quantities and must have all the information entered by the Inspector.

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Item No: 502 1008
Item: Groove Concrete Deck Slab
Plan Qty: 5161.0 Sqyd

Sig fig: .1 38

L x W ÷ 9 = Sqyd

Location	Sqyd	Date	Insp	AEB#	Pmt#	Calcs / Remarks
"BD" 34+13.91 To "BD" 37+04.91 LT	2491.7	9/12/08	JD	3		345 x 65 ÷ 9 = 2491.67

Page total:

Payment for Sqyd items will be based on field measurements. If an area is too difficult to calc, please call Headquarters Construction to get approval to pay plan quantity for that particular area (L X W) ÷ 9 = Sqyd. The area of a spandrel = (0.2146 x Radius squared) ÷ 9 = Sqyd. This illustration shows a Sqyd item located on a Structures' structure list and the plan quantity is the plan for that structure. The information must be entered by the Inspector.

Item No: 211 0524
Item: Seeding (Type A)
Plan Qty: 3.000 Acre

Sig. fig. = .001 10

L x W ÷ 43560 = Acre
(Sq Ft per Acre)

Station to Station	Acre	Date	Insp	AEB#	Pmt#	Calcs / Remarks
"Pe" 6+00 To "Pe" 8+00 LT	.188	10-4-08	JD	1		200 x 41 / 43560 = .188
"Pe" 12+50 To "Pe" 13+00 RT	.047	10-18-08	JD	1		50 x 41 / 43560 = .047

Page total:

Payment for Acre items will be based on field measurements (L X W) ÷ 43560 = Acre, CANNOT PAY PLAN. This illustration shows an Acre item located on the Estimate of Quantities and must have all the information entered by the Inspector.

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Item No. 502 0976
Item Elastomeric Concrete
Plan Qty: 200.00 cuft

Station	cuft	Date	Insp
"Lwe" 402+70 LT	15.00	10-13-08	LP
"Lee" 425+30 LT	30.00	10-13-08	LP

Page total:

Sig fig = .01 25

L X W X D = cuft

Acct#	Pmt#	Calcs / Remarks
9		15X2X.5 = 15.00
9		20X3X.5 = 30.00

Payment for Cuft items will be based on field measurements L X W X D = Cuft, CANNOT PAY PLAN. This illustration shows a Cuft item located on the Estimate of Quantities and must have all the information entered by the Inspector.

Item No. 502 0848
Item Class D Concrete (Mod) (Maj)
Plan Qty: 4493.00 cuyd

Location	cuyd	Date	Insp
Abut #1	96a06	9-16-08	JD
Abut #2	948.04	9-16-08	JD

Page total:

Sig fig = .01 30

L X W X D ÷ 27 = Cuyd

Acct#	Pmt#	Calcs / Remarks
3		per bill of Materials plan sheet B-44
3		22X17.90X65/27=948.04

Payment for Cuyd items will be based on plan quantity or field measurements and calculations if different than plan (L X W X D) ÷ 27 = Cuyd. This illustration shows a Cuyd item located on a Structures' structure list and the plan quantity is the plan for that structure. When paying for concrete on a structure, payment will be paid according to the Bill of Materials or calculations. When entering the location, the description must match what is shown on the Bill of Materials. If paying plan, the plan must match the areas listed on the Bill of Materials. If this UOM is on the Estimate of Quantities then the plan is the total plan for the item. The information must be entered by the Inspector.

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Item No: 6470508
Item: Paint-on-Waterproofing
Plan Qty: 500 gallons

Station to Station	# Drums	gal	Date
"Lse" 120+16 To "Lse" 139+04 LT	2	110	10-02-08
"Pe" 10+20 To "Pe" 12+10 RT	2.5	138	10-5-08

Page total:

Sig fig = 1 42

The picture of the label from the container must be attached to a Calc Sheet & placed in the Calc folder.

Insp	AEB#	Pmt#	Calcs / Remarks
TC	9		2X55 = 110 √ See Calc Sheet #28
TC	1		2.5 X55 = 137.5 √ See Calc Sheet #28

Payment for Gallon items will be based on field measurements and calculations. A picture of a label must be taken and placed on a CALCULATION sheet for backup to confirm the quantity of the container. This illustration shows a Gallon item located on the Estimate of Quantities and must have all the information entered by the Inspector. If this UOM is located on a Structures' structure list the plan at the top of the page will be the plan for that structure.

Item No: 5050500
Item: Reinforcing Steel
Plan Qty: 1,056,713 pound

Location	Lbs	Date	Insp
Abut #2	45757	9-22-08	JD
Abut #1	65400	9/22/08	JD
Abut #1	65400	9/25/08	JD

Sig fig = 1 51

AEB#	Pmt#	Calcs / Remarks
3		130734 X.35 = 45756.90 √ 35% complete
3		130800 X.5 = 65400 50% complete
3		130800 - 65400 = 65400 100% complete

Payment for Pound items will be based on plan quantity or field measurements and calculations if different than plan. This illustration shows a Pound item located on a Structures' structure list and the plan quantity is the plan for that structure. When paying for reinforcing steel on a structure, payment will be paid according to the Bill of Materials or calculations. When entering the location, the description must match what is shown on the Bill of Materials. If paying plan, the plan must match the areas listed on the Bill of Materials to the sig fig. If the UOM is on the Estimate of Quantities then the plan at the top of the page is the total plan for that item. The information must be entered by the Inspector.

Page total:

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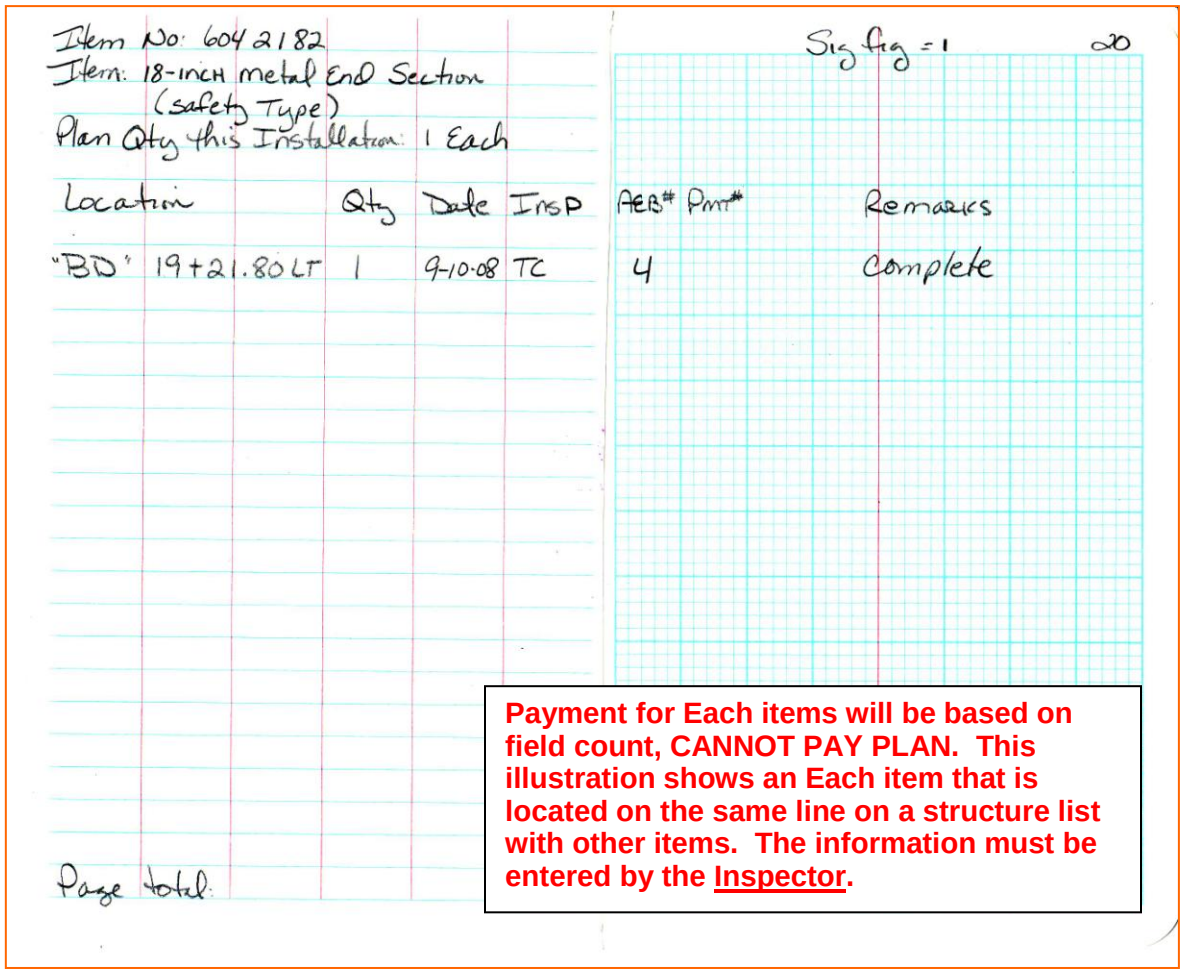
SECTION G

The illustrations in this section show the formats used for items, which are located on a structure list from the contract plans and are listed on the structure list with other items at the same location. The plan qty at the top of the page will be the plan for the installation listed on the page.

The **Officeperson** shall complete for each page the item number, item description, plan quantity this installation, the significant figure on the top right-hand side of the page, all column headings, and the page total in the bottom left-hand corner of the page. **Skip at least one line between entries. A separate page shall be provided for each bid item. Make sure to leave enough pages between items for any added or missed items. All calculations will be checked and initialed.**

Daily, the **Inspector** shall document the station(s), quantity (measured, counted, or calculated), date, initials, AEB#, and any remarks that are needed. **Skip at least one line between entries.**

Note: All entries must be entered as called out in the plans and document left, right, or centerline, where applicable.



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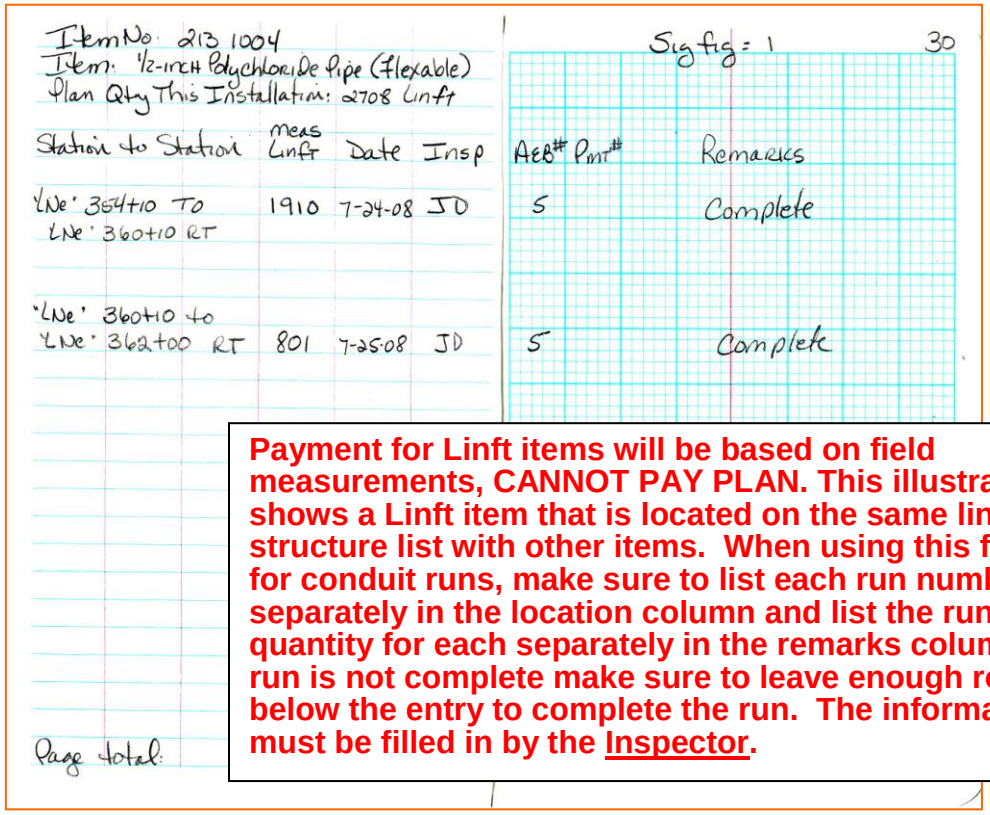


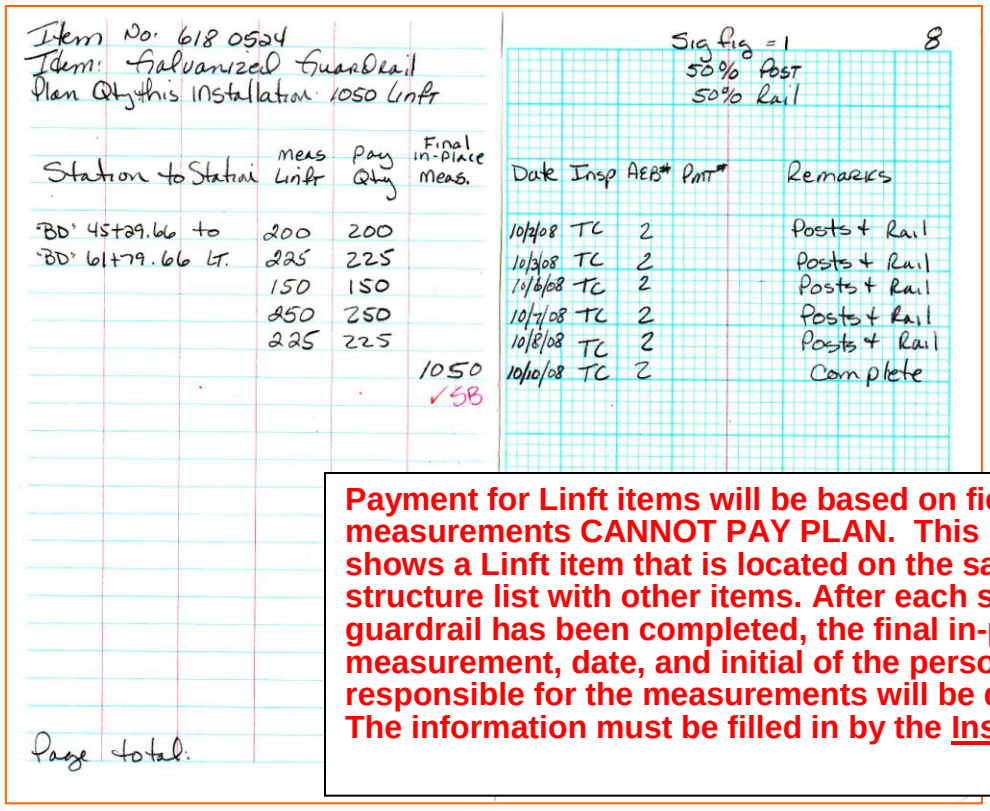
Item No. 213 1004
Item: 1/2-inch Polychloride Pipe (flexable)
Plan Qty This Installation: 2708 Linft

Sig fig = 1 — 30

Station to Station	meas Linft	Date	Insp	AEB#	Pmt#	Remarks
"LNe" 354+10 To "LNe" 360+10 RT	1910	7-24-08	JD	5		Complete
"LNe" 360+10 to "LNe" 362+00 RT	801	7-25-08	JD	5		Complete

Page total:

Payment for Linft items will be based on field measurements, CANNOT PAY PLAN. This illustration shows a Linft item that is located on the same line on a structure list with other items. When using this format for conduit runs, make sure to list each run number separately in the location column and list the runs and quantity for each separately in the remarks column. If a run is not complete make sure to leave enough room below the entry to complete the run. The information must be filled in by the Inspector.



Item No. 618 0524
Item: Galvanized Guardrail
Plan Qty this installation: 1050 Linft

Sig fig = 1 — 8
50% Post
50% Rail

Station to Station	meas Linft	Pay Qty	Final in-Place meas.	Date	Insp	AEB#	Pmt#	Remarks
"BD" 45+29.66 to "BD" 61+79.66 Lt.	200	200		10/2/08	TC	2		Posts + Rail
	225	225		10/3/08	TC	2		Posts + Rail
	150	150		10/6/08	TC	2		Posts + Rail
	250	250		10/7/08	TC	2		Posts + Rail
	225	225		10/8/08	TC	2		Posts + Rail
			1050 ✓SB	10/10/08	TC	2		Complete

Page total:

Payment for Linft items will be based on field measurements CANNOT PAY PLAN. This illustration shows a Linft item that is located on the same line on a structure list with other items. After each section of guardrail has been completed, the final in-place measurement, date, and initial of the person responsible for the measurements will be documented. The information must be filled in by the Inspector.

No payment for guardrail in excess of planned quantity may be made unless supported by change order or final measurements. **All guardrail must be measured at the time of installation. Per subsection 109.06 of the Standard Specifications for Road and Bridge Construction (Silver book), partial payment may be made for guardrail when only the posts have been put in. Therefore when the guardrail posts are complete in place, 50% of the guardrail quantity shall be allowed. The remaining 50% shall be paid when the guardrail is complete.**

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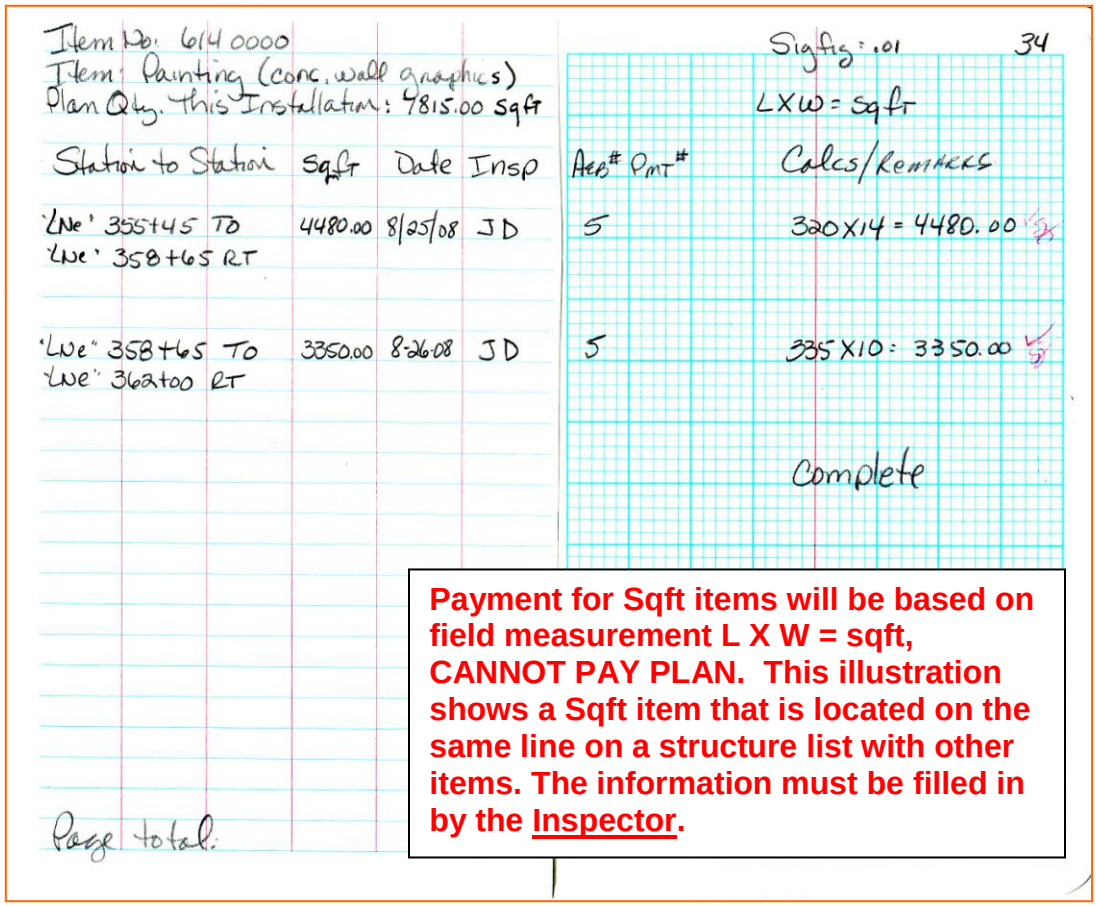


Item No: 614 0000
Item: Painting (conc. wall graphics)
Plan Qty. this Installation: 4815.00 sqft

Station to Station	Sqft	Date	Insp
"LNe" 355+45 TO "LNe" 358+65 RT	4480.00	8/25/08	JD
"LNe" 358+65 TO "LNe" 362+00 RT	3350.00	8-26-08	JD

Page total:

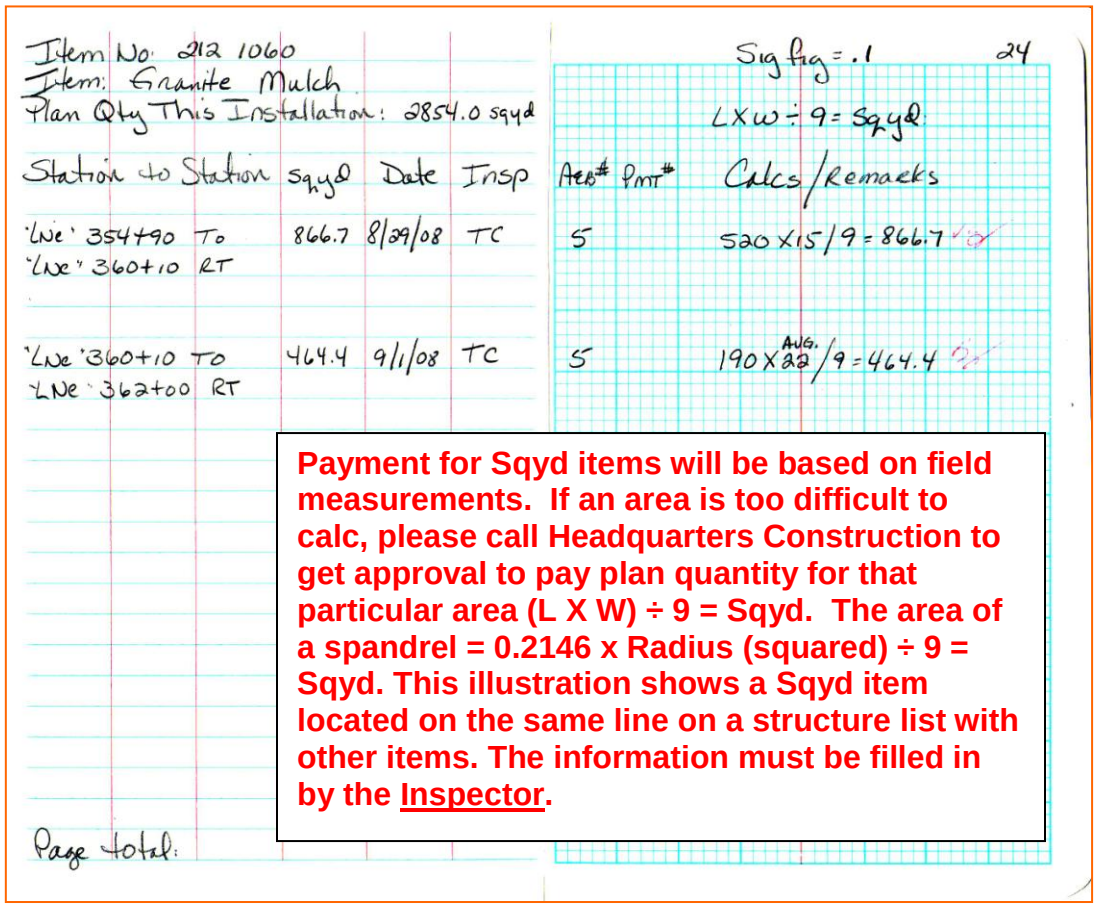
Sig fig: .01 34

L X W = sqft

Area #	Pmt #	Calcs/Remarks
5		320 X 14 = 4480.00
5		335 X 10 = 3350.00

Complete

Payment for Sqft items will be based on field measurement L X W = sqft, CANNOT PAY PLAN. This illustration shows a Sqft item that is located on the same line on a structure list with other items. The information must be filled in by the Inspector.



Item No: 212 1060
Item: Granite Mulch
Plan Qty This Installation: 2854.0 sqyd

Station to Station	Sqyd	Date	Insp
"LNe" 354+90 To "LNe" 360+10 RT	866.7	8/29/08	TC
"LNe" 360+10 TO "LNe" 362+00 RT	464.4	9/1/08	TC

Page total:

Sig fig = .1 24

L X W ÷ 9 = Sqyd

Area #	Pmt #	Calcs/Remarks
5		520 X 15 / 9 = 866.7
5		190 X AVG. 22 / 9 = 464.4

Payment for Sqyd items will be based on field measurements. If an area is too difficult to calc, please call Headquarters Construction to get approval to pay plan quantity for that particular area (L X W) ÷ 9 = Sqyd. The area of a spandrel = 0.2146 x Radius (squared) ÷ 9 = Sqyd. This illustration shows a Sqyd item located on the same line on a structure list with other items. The information must be filled in by the Inspector.

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Item No: 206 0500
Item: Structure Excavation
Plan Qty this installation: 14.00 cuyd

Location	cuyd	Date	Insp
"BD" 19+21.80 LT	14.00	9-8-08	TC
"BD" 19+21.80 LT	.78	9-9-08	TC

Page total:

Sig fig = .01 10

L X W X D ÷ 27 = cuyd

AEB#	Pmt#	Calcs / Remarks
	4	Pay plan
	4	pipe was extended See page 18 (76 ÷ 72) X 14 = 14.78 cy complete

Payment for Cuyd items will be based on plan quantity or field measurements and calculations if different than plan (L X W X D) ÷ 27 = Cuyd. This illustration shows a Cuyd item located on the same line on a structure list with other items. When using this format for RipRap items they must be field measured and have calculations, CANNOT PAY PLAN. As shown in this illustration the pipe was extended so a proration was done to adjust the structure excavation. The same would be done for granular backfill. The information must be filled in by the Inspector.

Item No: 212 1004
Item: Top Soil
Plan Qty This Installation: 220.00 cuyd

Station to Station	Trk#	#Loads	cuyd
"LNe" 354+30 To "LNe" 358+00 RT	23	8	72.00
"LNe" 358+10 To "LNe" 359+40 RT	23	5	45.00
"LNe" 359+45 To "LNe" 361+90 RT	16	9	72.00

Page total:

Sig fig = .01 16

L X W X D ÷ 27 = cuyd

Date Insp	AEB#	Pmt#	Calcs / Remarks
8-18-08 MD		5	Truck #23 9X4.5X6/27 = 9.00
8-18-08 MD		5	
8-20-08 MD		5	Truck #16 9X4X6/27 = 8.00

Complete

Payment for Cuyd items delivered by truck not weighed over a scale will be based on field measurements and calculations, (L X W X D) ÷ 27 = Cuyd. Note: The calculations show the capacity for each truck. Multiply the number of loads by the truck capacity to get Cuyds. This illustration shows a Cuyd item located on the same line on a structure list with other items. The information must be filled in by the Inspector.

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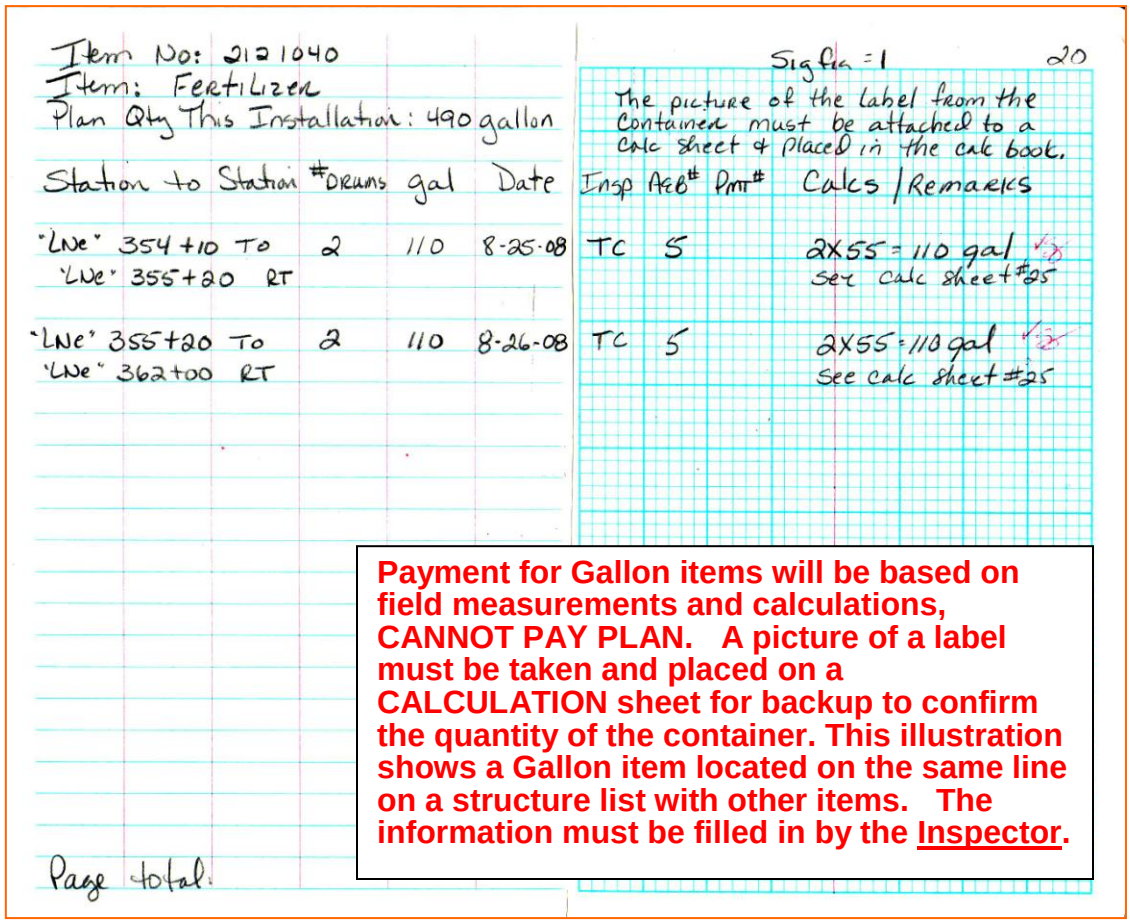


Item No: 212040
Item: Fertilizer
Plan Qty This Installation: 490 gallon

Station to Station	#Drums	gal	Date
"LNe" 354+10 To "LNe" 355+20 RT	2	110	8-25-08
"LNe" 355+20 To "LNe" 362+00 RT	2	110	8-26-08

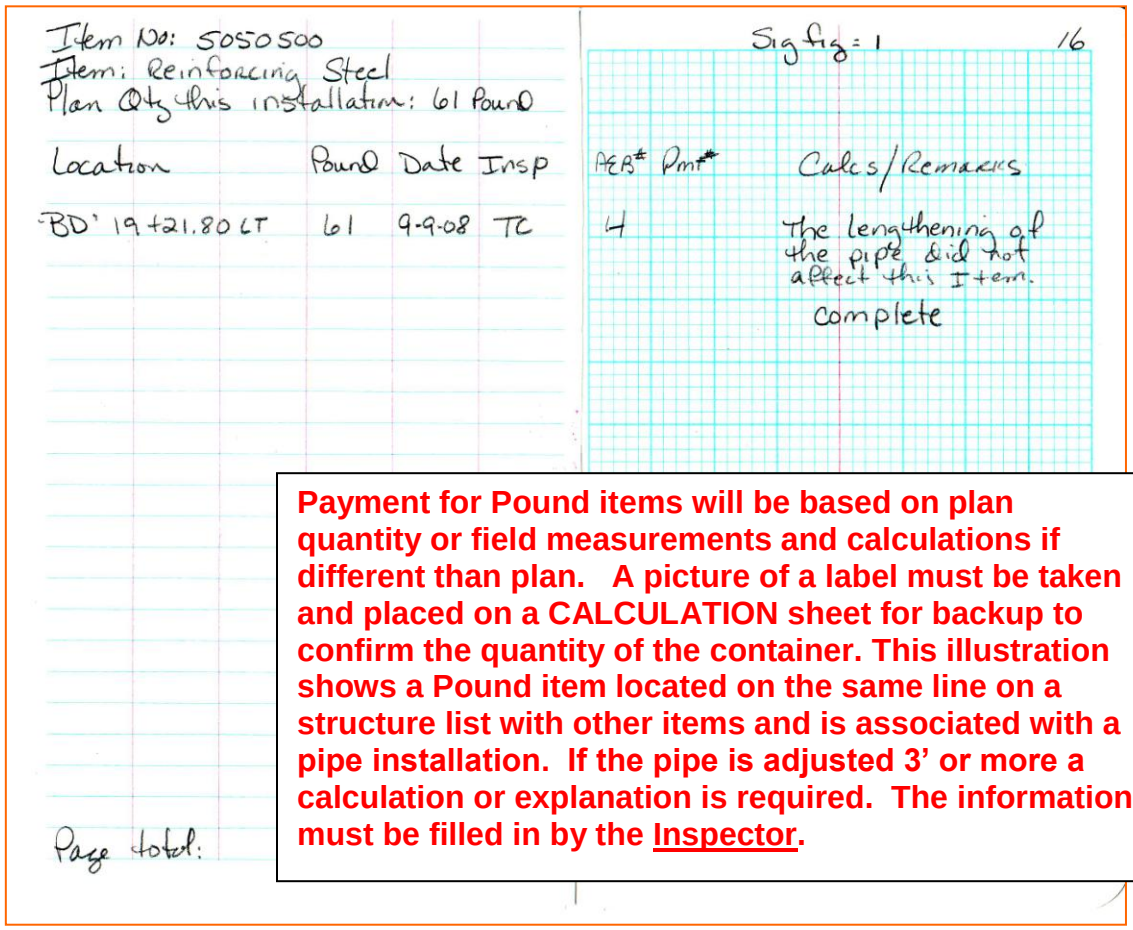
Page total:

Sig fig = 1 20

The picture of the label from the contained must be attached to a calc sheet & placed in the calc book.

Insp	AEA#	Pmt#	Calcs / Remarks
TC		5	2X55 = 110 gal see calc sheet #25
TC		5	2X55 = 110 gal see calc sheet #25

Payment for Gallon items will be based on field measurements and calculations, CANNOT PAY PLAN. A picture of a label must be taken and placed on a CALCULATION sheet for backup to confirm the quantity of the container. This illustration shows a Gallon item located on the same line on a structure list with other items. The information must be filled in by the Inspector.



Item No: 5050500
Item: Reinforcing Steel
Plan Qty this installation: 61 Pound

Location	Pound	Date	Insp
"BD" 19+21.80 LT	61	9-9-08	TC

Page total:

Sig fig = 1 16

AEA#	Pmt#	Calcs / Remarks
4		The lengthening of the pipe did not affect this Item. Complete

Payment for Pound items will be based on plan quantity or field measurements and calculations if different than plan. A picture of a label must be taken and placed on a CALCULATION sheet for backup to confirm the quantity of the container. This illustration shows a Pound item located on the same line on a structure list with other items and is associated with a pipe installation. If the pipe is adjusted 3' or more a calculation or explanation is required. The information must be filled in by the Inspector.

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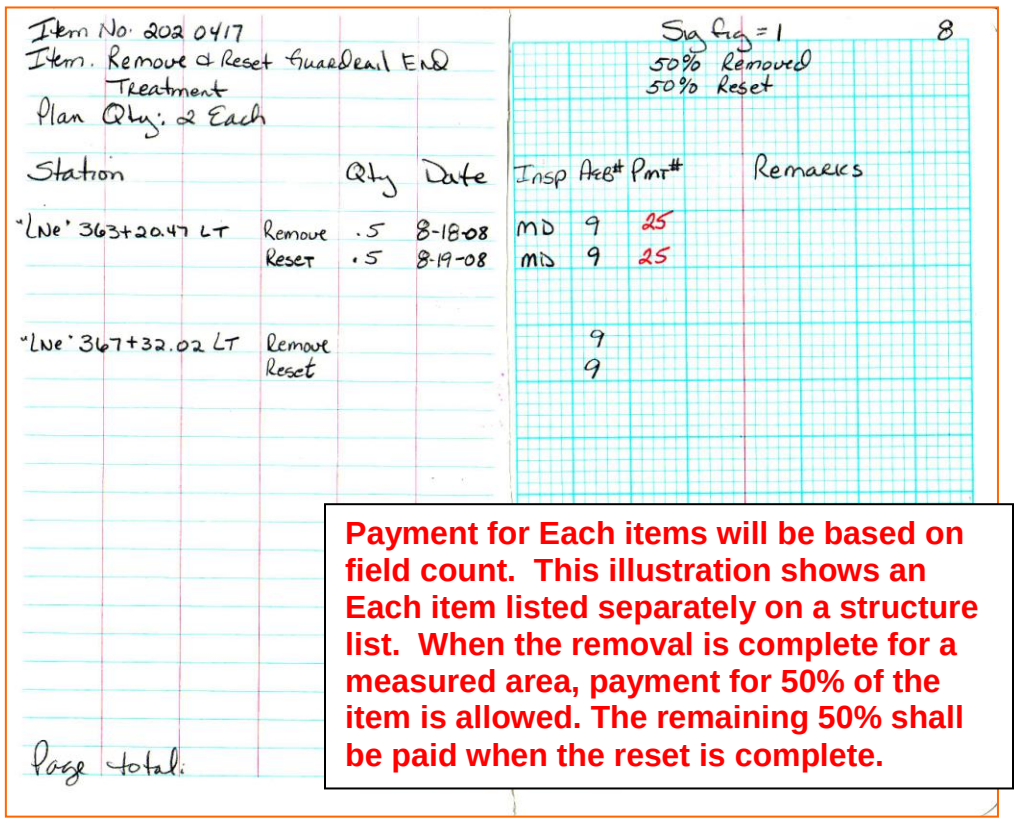
SECTION H

The illustrations in this section show the formats used for items that have two entries for payment. These items will be located on the Estimate of Quantities, a structure list, or Sign Summary sheet in the contract plans.

The **Officeperson** shall complete for each page the item number, item description, plan quantity, the significant figure on the top right-hand side of the page, all column headings, Remove and Reset or Saw and Seal headings, and page total in the bottom left-hand corner of the page. If an item is located on a structure list, insert the plan column between the station or station to station and quantity column. Make sure to put the AEB number, and station or station to station and plan qty for each location if indicated on a structure list, as illustrated in this section. **Skip at least one line between entries. A separate page shall be provided for each bid item. Make sure to leave enough pages between items for any added or missed items. All calculations must be checked and initialed.**

Daily, the **Inspector** shall document the station or station to station and AEB# if not already entered, quantity, remove and reset or saw and seal quantity (pay qty), final in-place meas (as illustrated in this section), date, initials, and any remarks that are needed. **Skip at least one line between entries.**

Note: All entries must be entered as called out in the plans and document left, right, or centerline, where applicable.



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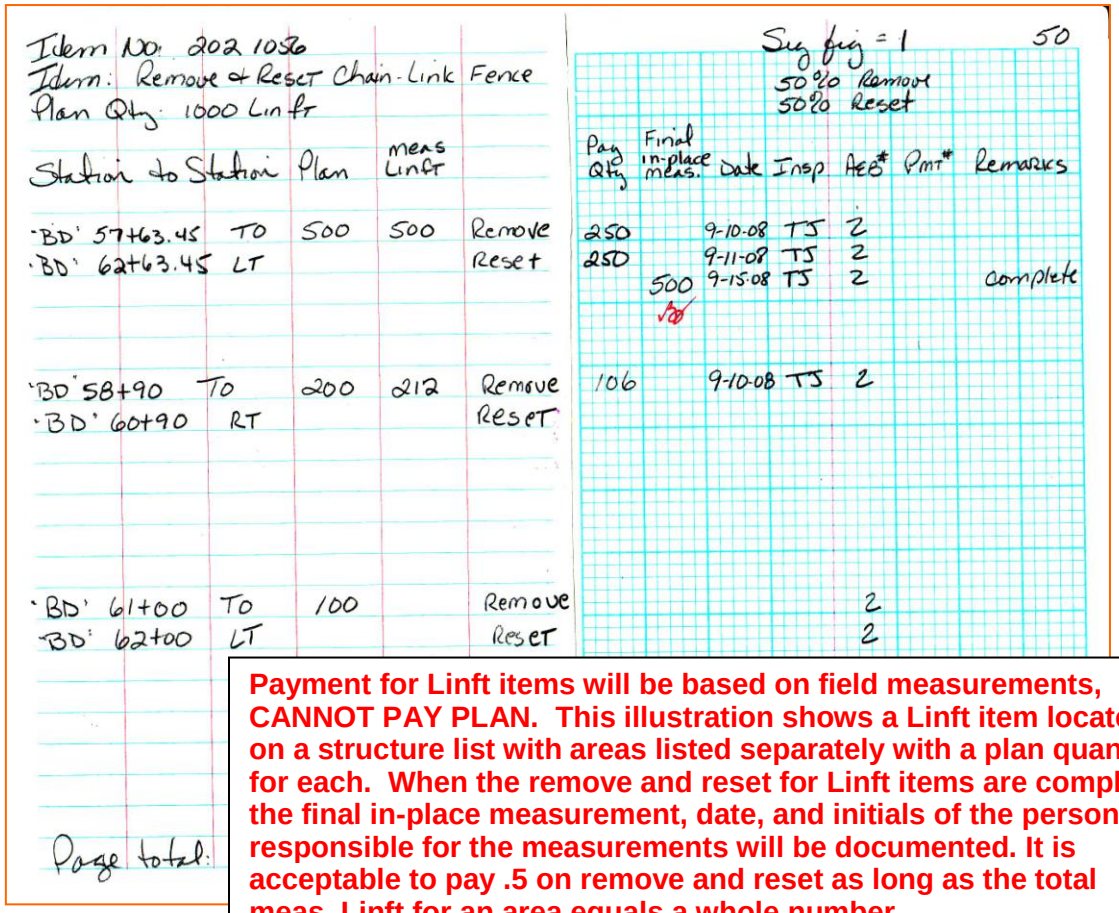


Item No: 202 1056
Item: Remove & Reset Chain-Link Fence
Plan Qty: 1000 Linft

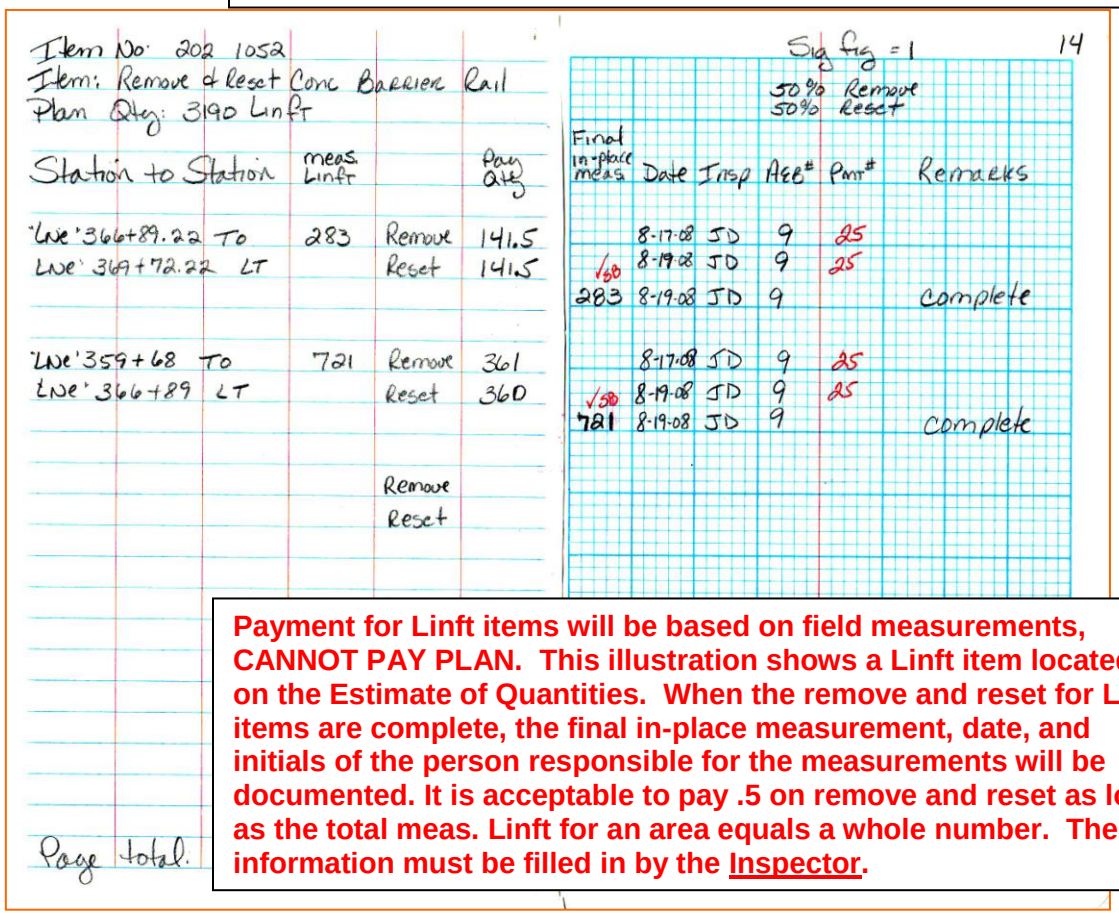
Station to Station		Plan	meas Linft	
'BD' 57+63.45	TO	500	500	Remove
'BD' 62+63.45	LT			Reset
'BD' 58+90	TO	200	212	Remove
'BD' 60+90	RT			Reset
'BD' 61+00	TO	100		Remove
'BD' 62+00	LT			Reset

Page total:

Sig fig = 1 — 50
50% Remove
50% Reset

Pay Qty	Final in-place meas.	Date	Insp	AEE#	PMT#	Remarks
250		9-10-08	TJ	2		
250		9-11-08	TJ	2		
	500 √50	9-15-08	TJ	2		complete
106		9-10-08	TJ	2		
				2		
				2		

Payment for Linft items will be based on field measurements, CANNOT PAY PLAN. This illustration shows a Linft item located on a structure list with areas listed separately with a plan quantity for each. When the remove and reset for Linft items are complete, the final in-place measurement, date, and initials of the person responsible for the measurements will be documented. It is acceptable to pay .5 on remove and reset as long as the total meas. Linft for an area equals a whole number.



Item No: 202 1052
Item: Remove & Reset Conc Barrier Rail
Plan Qty: 3190 Linft

Station to Station		meas Linft		Pay Qty
LNE '366+89.22	TO	283	Remove	141.5
LNE '369+72.22	LT		Reset	141.5
LNE '359+68	TO	721	Remove	361
LNE '366+89	LT		Reset	360
			Remove	
			Reset	

Page total:

Sig fig = 1 — 14
50% Remove
50% Reset

Final in-place meas	Date	Insp	AEE#	PMT#	Remarks
	8-17-08	JD	9	25	
√50	8-19-08	JD	9	25	
283	8-19-08	JD	9		complete
	8-17-08	JD	9	25	
√50	8-19-08	JD	9	25	
721	8-19-08	JD	9		complete

Payment for Linft items will be based on field measurements, CANNOT PAY PLAN. This illustration shows a Linft item located on the Estimate of Quantities. When the remove and reset for Linft items are complete, the final in-place measurement, date, and initials of the person responsible for the measurements will be documented. It is acceptable to pay .5 on remove and reset as long as the total meas. Linft for an area equals a whole number. The information must be filled in by the Inspector.

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Item No. 409 0560
Item: Saw & Seal Trans weakened Plane Joints
Plan Qty: 284,000 Linft

Sig fig = 1 — 40
50% Saw
50% Seal

Station to Station	Meas Linft		Pay Qty	Date Insp	AEB#	Pmt#	Joint x Joint Length
"BD" 10+00 TO "BD" 25+00 LT	1500	Saw	750	9/12/08 TJ	2		95 x 15.79 = 1500
		Seal	750	9/12/08 TJ	2		
"BD" 25+15 TO "BD" 50+00 LT	2485	Saw	1242.5	9/13/08 TJ	2		127 x 19.57 = 2485
		Seal	1242.5	9/13/08 TJ	2		
		Saw					
		Seal					
		Saw					
		Seal					

Page total:

Payment for Linft items will be based on field measurements, CANNOT PAY PLAN. This illustration shows a Linft item located on the Estimate of Quantities. When the saw is complete for a measured area, payment for 50% of the item is allowed. The remaining 50% will be paid when the seal is complete. No percentages other than 50% for sawing and 50% for sealing shall be allowed. It is acceptable to pay .5 on sawing and sealing as long as the total meas. Linft for an area equals a whole number. The information must be filled in by the Inspector.

Item No. 627 0536
Item Perm. Signs Remove & Reset
Plan Qty: 60.40 sqft

Sig fig = .01 — 62
50% Remove
50% Reset

Install No.	Location/Message	Panel Size	Sqft	Pay Qty	Date Insp	AEB#	Pmt#	Remarks
26R	"L" 24+90 LT Stop	36X36	9.00	Remove 4.50	8-20-08 JD	1		
				Reset 4.50	8-25-08 JD	1		
31R	"L" 48+10 LT DO NOT PASS	24X30	5.00	Remove 2.50	8-20-08 JD	1		
				Reset				
45R	"O" 179+10 LT wrong way	36X24	6.00	Remove		2		
				Reset		2		

Page total:

Payment for Sqft (signs only) will be based on plan or if different than plan a complete explanation as to how the Sqft were derived or calculations are needed L X W = Sqft. When the sign is removed for a measured area, payment for 50% of the item is allowed. The remaining 50% will be paid when the sign is reset. The total remove and reset shall equal the total sqft listed for the sign.

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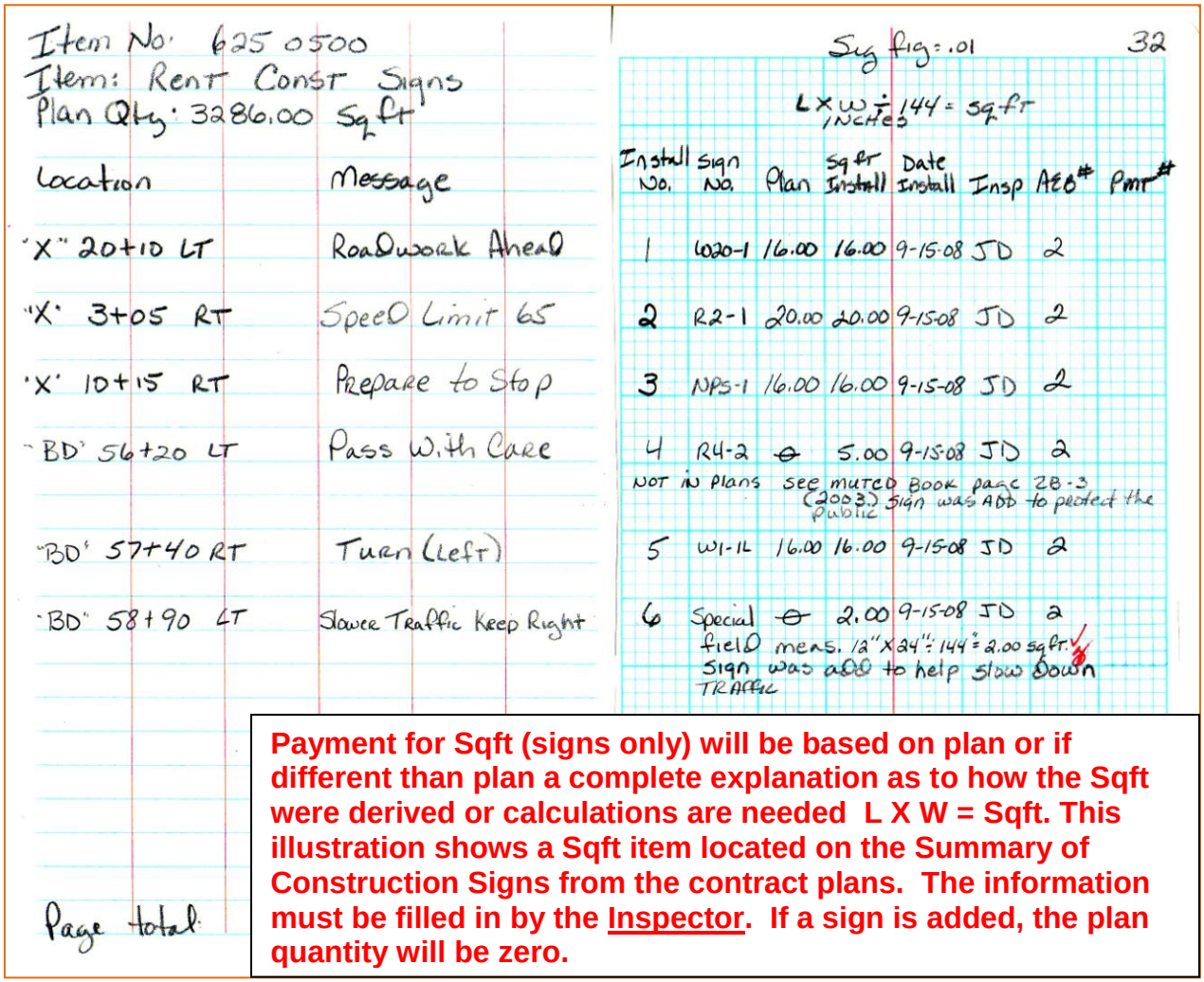
SECTION I

The illustrations in this section show the formats used for rent and permanent sign items, which are located on the Summary of Construction Signs and Barricades and the Sign Summary sheets from the contract plans.

The **Officeperson** shall complete for each page the item number, item description, plan quantity, the significant figure on the top right-hand side of the page, all column headings, and page total in the bottom left-hand corner of the page for both the rent and permanent sign items. The **Officeperson** shall also complete for the permanent signs from the Sign Summary sheets the install no., location/message, panel size, sign no., sqft, and AEB number. For Permanent Signs, Remove the **Officeperson** shall complete the headings the same as for the Permanent Signs except there will be no column for sign no. **Skip at least one line between entries. A separate page shall be provided for each bid item. Make sure to leave enough pages between items for any added or missed items.**

Daily, the **Inspector** for Rent Const. Signs shall document all information and for Permanent Signs shall document the AEB# if not already entered, date, initials, and any remarks that are needed. **Skip at least one line between entries.**

Note: All entries must be entered as called out in the plans and document left, right, or centerline, where applicable.



Item No: 625 0500
Item: Rent Const Signs
Plan Qty: 3286.00 Sq ft

Sig fig: .01 — 32

L x W (inches) ÷ 144 = sq ft

Location	Message	Install No.	Sign No.	Plan	Sq ft Install	Date Install	Insp	AEB#	Pmt#
"X" 20+10 LT	Roadwork Ahead	1	W20-1	16.00	16.00	9-15-08	JD	2	
"X" 3+05 RT	Speed Limit 65	2	R2-1	20.00	20.00	9-15-08	JD	2	
"X" 10+15 RT	Prepare to Stop	3	NPS-1	16.00	16.00	9-15-08	JD	2	
"BD" 56+20 LT	Pass With Care	4	R4-2	~~0~~	5.00	9-15-08	JD	2	
		NOT IN PLANS SEE MUTCD BOOK page 2B-3 (2003) Sign was ADD to protect the public							
"BD" 57+40 RT	Turn (Left)	5	W1-1L	16.00	16.00	9-15-08	JD	2	
"BD" 58+90 LT	Slower Traffic Keep Right	6	Special	~~0~~	2.00	9-15-08	JD	2	
		field meas. 12" x 24" = 144 = 2.00 sq ft. Sign was ADD to help slow down TRAFFIC							

Page total

Payment for Sqft (signs only) will be based on plan or if different than plan a complete explanation as to how the Sqft were derived or calculations are needed L X W = Sqft. This illustration shows a Sqft item located on the Summary of Construction Signs from the contract plans. The information must be filled in by the Inspector. If a sign is added, the plan quantity will be zero.

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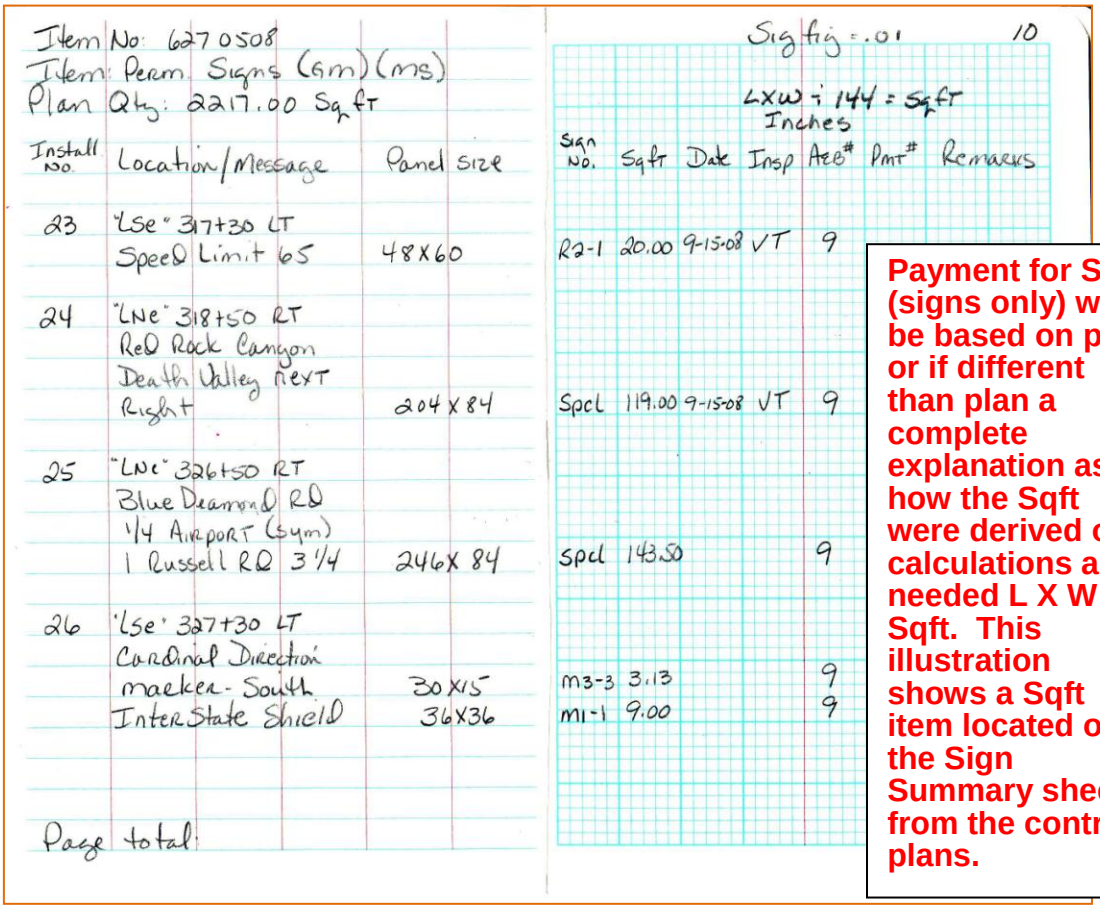


Item No: 6270508
Item: Perm. Signs (Gm) (ms)
Plan Qty: 2217.00 Sq Ft

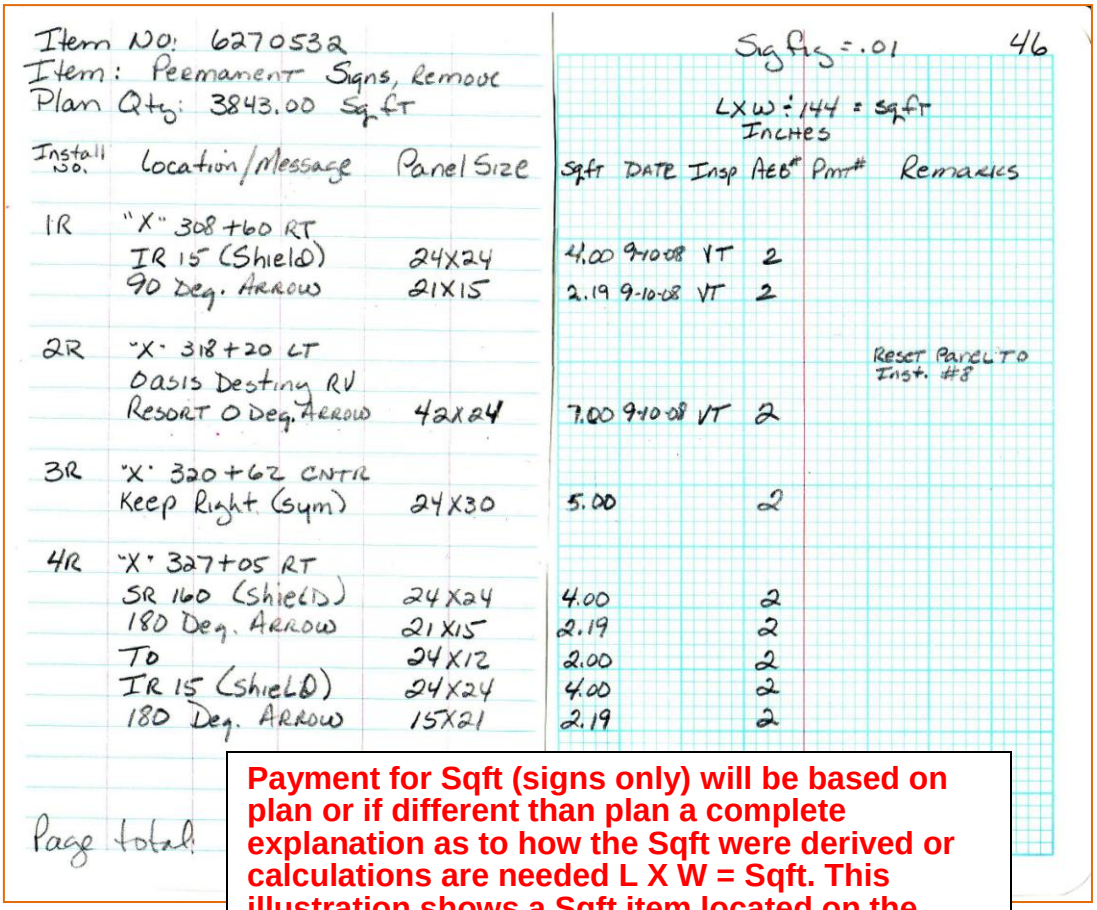
Sig fig = .01 — 10

LXW ÷ 144 = Sqft
Inches

Install No.	Location/Message	Panel Size	Sign No.	Sqft	Date Insp	AEB#	Pmt#	Remarks
23	"Lse" 317+30 LT Speed Limit 65	48X60	R2-1	20.00	9-15-08 VT	9		
24	"LNe" 318+50 RT Red Rock Canyon Death Valley Next Right	204 X 84	Spcl	119.00	9-15-08 VT	9		
25	"LNe" 326+50 RT Blue Diamond RD 1/4 Airport (Sym) I Russell RD 3 1/4	246X 84	spcl	143.50		9		
26	"Lse" 327+30 LT Cardinal Direction marker - South Interstate Shield	30X15 36X36	M3-3 M1-1	3.13 9.00		9 9		

Page total:

Payment for Sqft (signs only) will be based on plan or if different than plan a complete explanation as to how the Sqft were derived or calculations are needed L X W = Sqft. This illustration shows a Sqft item located on the Sign Summary sheets from the contract plans.



Item No: 6270532
Item: Peermanent Signs, Remove
Plan Qty: 3843.00 Sq Ft

Sig fig = .01 — 46

LXW ÷ 144 = Sqft
Inches

Install No.	Location/Message	Panel Size	Sqft	DATE Insp	AEB#	Pmt#	Remarks
1R	"X" 308+60 RT IR 15 (Shield) 90 Deg. Arrow	24X24 21X15	4.00 2.19	9-10-08 VT 9-10-08 VT	2 2		
2R	"X" 318+20 LT Oasis Desting RV Resort O Deg. Arrow	42X24	7.00	9-10-08 VT	2		Reset Panel to Inst. #8
3R	"X" 320+62 CNTR Keep Right (Sym)	24X30	5.00		2		
4R	"X" 327+05 RT SR 160 (Shield) 180 Deg. Arrow To IR 15 (Shield) 180 Deg. Arrow	24X24 21X15 24X12 24X24 15X21	4.00 2.19 2.00 4.00 2.19		2 2 2 2 2		

Page total:

Payment for Sqft (signs only) will be based on plan or if different than plan a complete explanation as to how the Sqft were derived or calculations are needed L X W = Sqft. This illustration shows a Sqft item located on the Sign Summary sheets from the contract plans.

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SECTION J

The illustration in this section shows the format used for earthwork items with a UOM of cubic yard (Cuyd), which are located on the Profile sheets and/or the Summary of Earthwork sheets. Each area is called a “Balance” and each balance will be placed on a separate page. The final total of a balance should equal the quantity shown in “This Section” for the balance. If it does not equal, then calculations or backup is required. The sum of all balances should equal the total plan quantity for that item. If a large discrepancy exists, an error has been made or an error exists on the plan quantity and must be investigated.

The **Officeperson** shall complete for each page the item number, item description, plan quantity, the significant figure on the top right-hand side of the page, the balance (stations this balance), this section (plan this balance), all column headings, and page total in the bottom left-hand corner of the page. Leave at least one blank page in the book between each balance. In some cases of very large balances that may require considerable time to complete, leave additional pages. **Skip at least one line between entries. A separate page shall be provided for each bid item. Make sure to leave enough pages between balances and items for any added or missed items. Calculations must be checked and initialed.**

As construction progresses throughout each balance, it will be the Resident Engineer's or his designated **Inspector's** responsibility at the end of each payment cycle, to estimate, to their best ability, the percent complete of each balance. The **Inspector** shall document the est qty, accum. total, date, initials, AEB#, and any calculations and remarks that are needed. **Skip at least one line between entries.**

When stakeout or plan quantities are to become final quantities, after the balance is 100% complete, the plan quantity total shall be reflected as the last entry in the accum. total column. No other documentation is required.

When quantities change and are re-computed for any reason, the change will be adjusted upward or downward accordingly from the plan quantities. **Any payment other than plan quantity must have documentation to support the new total.** When **Eaglepoint or other computer programs** are used to determine final quantities, hard copies are required for the CALCULATION book. They must indicate station, end areas, etc., accompanied by an explanation of how quantities are derived, so any individual unfamiliar with road construction or engineering can retrace the calculation of quantities.

When quantities are recalculated at the request of the Contractor or Resident Engineer, the new calculated quantity shall be used for payment. If the Contractor requests final measurement and the quantities determined are equal to or less than the plan quantities plus authorized changes, the Contractor shall reimburse NDOT for NDOT’s expenses incurred by the final measurement.

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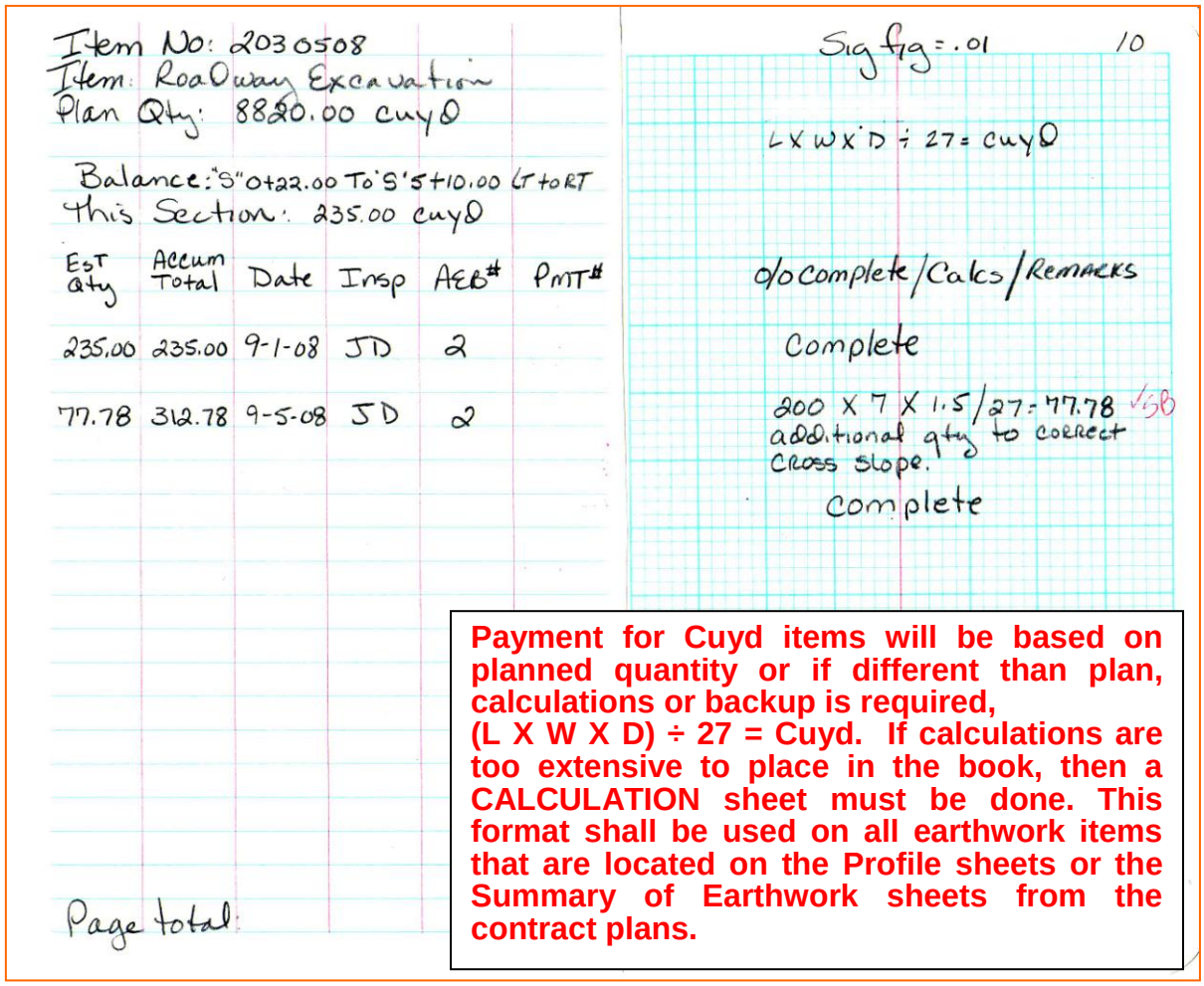
An optional method of prorating the final quantities, is to calculate a prorating factor and apply the factor to the borrow quantities in each roadway balance, see page 63 for proration calculation.

Note: All entries must be entered as called out in the plans and document left, right, or centerline, where applicable. See Chapter 5 of the Documentation Manual for a more detailed description of these items.



Item No: 2030508
Item: Roadway Excavation
Plan Qty: 8820.00 cuyd

Balance: "S" 0+22.00 To "S" 5+10.00 LT to RT
This Section: 235.00 cuyd

Est Qty	Accum Total	Date	Insp	AEB#	PMT#
235.00	235.00	9-1-08	JD	2	
77.78	312.78	9-5-08	JD	2	

Page total:

Sig fig = .01 10

L x W x D ÷ 27 = cuyd

% complete / Calcs / Remarks

Complete

200 x 7 x 1.5 / 27 = 77.78 √50
additional qty to correct cross slope.

complete

Payment for Cuyd items will be based on planned quantity or if different than plan, calculations or backup is required,
(L X W X D) ÷ 27 = Cuyd. If calculations are too extensive to place in the book, then a CALCULATION sheet must be done. This format shall be used on all earthwork items that are located on the Profile sheets or the Summary of Earthwork sheets from the contract plans.

SECTION K

This section illustrate items that are paid by the ton and are located on the Estimate of Quantities. See Chapters 8 and 9 in the Documentation Manual for more information.

On some contracts The **Weighmaster** shall prepare a HAUL TICKET (Form No. 040-049) for the truck driver indicating the following information: Date, load no., type of material, truck no., contract no., tons, and initials. These tickets shall be transferred to a DAILY RECORD OF SCALE WEIGHTS, aka 40-load sheet (Form No. 040-009), as described and illustrated in this section. If the Contractor generates COMPUTERIZED TICKETS, as illustrated in this section, it shall be given to the truck driver in lieu of the HAUL TICKET. If there are any questions concerning HAUL TICKET (Form No. 040-049), please contact Headquarters Construction Quality Assurance for assistance.

The documentation requirement for roadway aggregates and paving items (materials weighed by a **State Weighmaster** over the Contractor's scales certified in accordance with subsection 109.01 of the Standard Specifications for Road and Bridge Construction (Silver book)) are explained and illustrated in this section for computerized tickets and for the DAILY RECORD OF SCALE WEIGHTS.

The **Weighmaster** shall do the following:

1. Prepare the DAILY RECORD OF SCALE WEIGHTS as illustrated in this section. Record the sheet number, pit number or commercial source, material type, date, and contract number. This information is required on each sheet. Due to some pits being on private property and having royalties involved, the Deposit No. shall be recorded in the Pit No. space. Make sure to cross off Pit No. and place Deposit No. above.

2. Weigh the material and record the ticket number, truck number, gross, tare and net weight in pounds or kilograms (circle one), and net weight (circle Tons or Metric Tons). If a single beam scale is used, gross weights and tare weights must be shown on every load. If a scale with a tare bar, or certified load scales on a silo are used, the gross weights do not need to be shown and the tare weights shall be indicated only when the trucks are tared twice each shift.

3. Record the time every five loads on the DAILY RECORD OF SCALE WEIGHTS.

4. Calculate and record the total of every 10 loads for the Gross, Tare, Net, and Tons on the DAILY RECORD OF SCALE WEIGHTS. Record the accumulative ton total in the Remarks column for every 10 loads.

5. Deduct any waste from the total tons delivered and calculate a new total. If there is no waste, place 0 waste below the total on the DAILY RECORD OF SCALE WEIGHTS. All waste must be explained.

6. Sign the bottom of the DAILY RECORD OF SCALE WEIGHTS as **Weighmaster.**

7. Turn the DAILY RECORD OF SCALE WEIGHTS into the office daily.

If NDOT is not the Weighmaster, the Contractor must sign the DAILY RECORD OF SCALE WEIGHTS as Weighmaster.

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There may be some cases where the scales being used on the contract do not have sufficient length to weigh both truck and trailer loads at the same time. When this happens, the weights of the truck and trailer must be entered separately on the DAILY RECORD OF SCALE WEIGHTS. Be sure to use the correct tare weights for the separate truck and trailer.

Whenever the moisture content of aggregate base materials exceeds optimum plus one percent, the excess shall be calculated by the **Officeperson** or **Inspector** and deducted from the weight of material delivered for the day. (Refer to subsection 302.04.01 of the Standard Specifications for Road and Bridge Construction (Silver book) for method of deducting excess water.) Also, see Chapter 8 of the Documentation Manual. **Assure the actual moisture tests were taken after the material was weighed and prior to additional water added in the field. If moisture was not weighed, it should not be deducted and a note should be placed on the DAILY RECORD OF SCALE WEIGHTS or the COMPUTERIZED TICKET relaying this information.**

Calculations for water deductions, if necessary, shall be shown on the scale sheet as illustrated in this section. The formula below will be used to arrive at the daily pay total of aggregate base material when a deduction is necessary:

$$\frac{\text{total aggregate}}{1 + (\text{actual moisture \%} \div 100)} = \text{dry agg}$$

$$\text{dry agg} \times [1 + ((\text{optimum \%} + 1\%) \div 100)] = \text{dry agg pay quantity}$$

For instance, the daily total for aggregate is 1000 tons, actual moisture is 10.9% and optimum moisture is 8.5%, the calculated quantity for payment would be:

$$\frac{1000.00}{1.109} = 901.71 \times 1.095 = 987.37 \text{ dry agg pay total}$$

If calculations are needed and there are more then one AEB number evolved, make sure to prorate the new pay total to all the AEB numbers as illustrated in this section.

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Forms change periodically, please assure that you are using the most current form available, see Chapter 26 (Distribution of Documents) of the Documentation Manual.

STATE OF NEVADA
DEPARTMENT OF TRANSPORTATION

Sheet No. 1

Pit No.

Or Commercial Source Granite / Patrick

DAILY RECORD OF SCALE WEIGHTS

Material Type Type 1 Class B AGG

Date 9-30-08

Contract No. 3247

Ticket No. Circle	Truck No. Units	Gross Weight (Lbs) Kg	Tare Weight (Lbs) Kg	Net Weight (Lbs) Kg	Net Weight (Tons) Metric Tons	Time	Remarks
234	6	88180	34380	53800	2690	6:20A	1ST TARE "A" 1+00 LT
235	43	84188	33757	50431	2522	6:25A	1ST TARE
236	47	90121	34710	55411	2771	6:30A	1ST TARE
237	50	92370	34727	57643	2882	6:35A	1ST TARE
238	6	90900	34380	56520	2826	7:00A	
240	43	87259	33757	53502	2675		"A" 9+75 LT
241	47	89316	34710	54606	2730		"X" 10+15 LT
242	50	93755	34727	59028	2951		
243	6	89901	34380	55521	2776		
244	43	88952	33757	55195	2760	7:50A	
		894942	343285	551657	275.83		275.83
245	47	91976	34710	57266	2863		
246	50	92686	34727	57959	2898	8:30A	"X" 20+03 LT
		184662	69437	115225	57.61		Tons Delvd = 333.44 Tons Wasted = 0 Tons Placed = 333.44

AEB #1

AEB #2

Ton items are located on the Estimate of Quantities from the contract plans. Ton items must be weighed, CANNOT PAY PLAN. Moistures apply to both Type A and Type B aggregate. Place no adj. if no adjustment is needed. The act. and opt. moistures must still be placed on the DAILY RECORD OF SCALE WEIGHTS or the COMPUTERIZED TICKET.

Make sure all stations are represented and match the load books and equations are used to show "Line" changes. Each station must show left, right, or center line.

AEB #1 = 163.66
AEB #2 = 169.78

Act Moisture = 9.6%
Opt Moisture = 8.5%

333.44 ÷ 1.096 = 304.23
304.23 X 1.095 = 333.13

163.66 ÷ 333.13 = .49
169.78 ÷ 333.13 = .51

333.13 X .49 = 163.23
333.13 X .51 = 169.90
333.13

Adj. Pay Totals =
163.23 AEB #1
169.90 AEB #2

NOTES: Take tare weights twice each shift, once prior to starting work in the morning and again at some other time during the day.
Note times tares were taken. Record time every five loads.

Dave Smith ..... Weighmaster
Steve Ely ..... Resident Engineer

Rocky Rhoades ..... Checked by
Terri McCafferty ..... Checked Against Book by

NDOT 040-009 (Rev. 12-00)

DISTRIBUTION: ORIGINAL—Retained by State; COPY—To Contractor.

(O)-557

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Some Contractors are equipped with automated scales, which produce a COMPUTERIZED ticket with each load as illustrated below. On projects where these facilities are available, these tickets may be used in lieu of the DAILY RECORD OF SCALE WEIGHTS to document roadway aggregates. **Each COMPUTERIZED ticket must contain the date, material source, material type, ticket number, truck number, gross, tare and net weights, tons, time and accumulative total.**

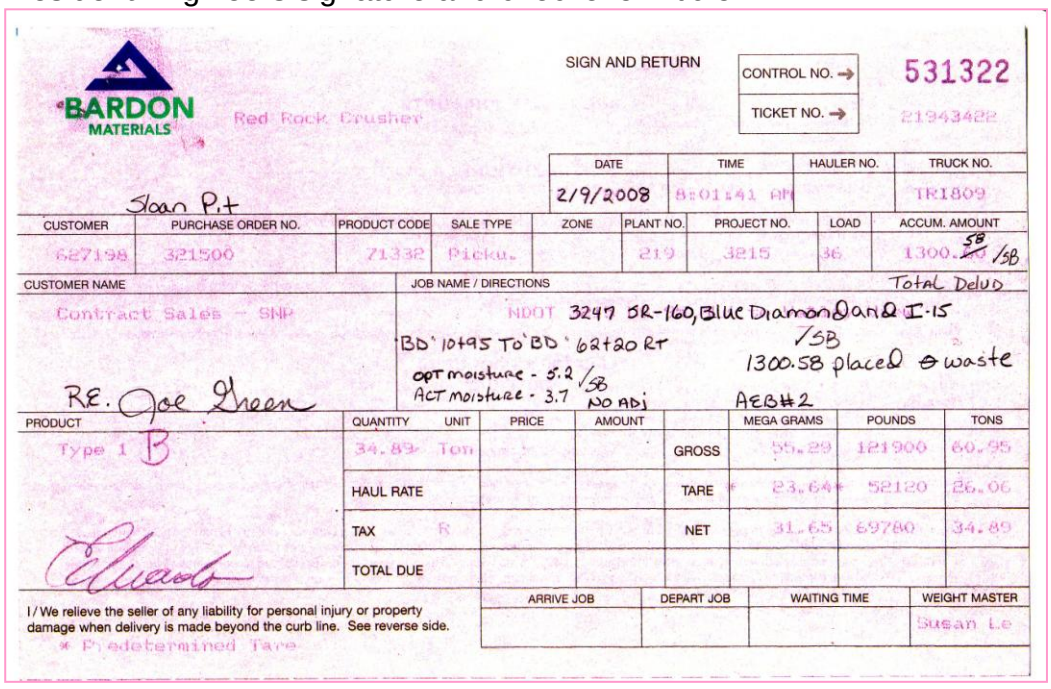
The **Inspector** must verify that the tickets are accumulative and the ending total is correct. If the tickets are not accumulating then a 40-load sheet must be completed. If there is waste for the day, record on the last scale ticket of the day or if zero waste, place 0 waste on the last scale ticket for the day.

The last ticket along with the load books, become the source documents and shall be turned in at the completion of the contract.

Special care must be taken to insure that only those loads used on the contract are included in the accumulated total shown on the ticket and accumulative tons are zeroed each day.

On the last ticket of the day, the following information must be recorded:

Beginning and ending stations, making sure all stations are represented and match the load book and the DAILY PLANT REPORT OF ASPHALT MIXTURES(FORM 040-011)if applicable.
Stations shall have a line designation left, right, or center line
AEB number
Pit information
Optimum and actual moistures, making sure to show calculations for any adjustments that are needed (see the illustration of the 40-load sheet in this section for calculations) **Scale tickets for paving items do not need moisture information**
Waste, if zero waste place 0 waste
Resident Engineers signature and checker's initials



BARDON MATERIALS — Red Rock Crusher

SIGN AND RETURN — CONTROL NO. → 531322 — TICKET NO. → 21243422

Sloan Pit

DATE	TIME	HAULER NO.	TRUCK NO.
2/9/2008	8:01:41 AM		TRI809

CUSTOMER	PURCHASE ORDER NO.	PRODUCT CODE	SALE TYPE	ZONE	PLANT NO.	PROJECT NO.	LOAD	ACCUM. AMOUNT
627198	321500	71332	Picku.		219	3215	36	1300.58 /SB

CUSTOMER NAME: Contract Sales - SNP

JOB NAME / DIRECTIONS: Total Delvd
NDOT 3247 SR-160, Blue Diamond and I-15
BD 10+95 To BD 62+20 RT
opt moisture - 5.2 /SB
Act moisture - 3.7 NO ADJ
/SB
1300.58 placed & waste
AEB#2

RE. Joe Green

PRODUCT	QUANTITY	UNIT	PRICE	AMOUNT		MEGA GRAMS	POUNDS	TONS
Type 1 B	34.89	Ton			GROSS	55.29	121900	60.95
HAUL RATE					TARE	23.64	52120	26.06
TAX	R				NET	31.65	69780	34.89
TOTAL DUE								

I / We relieve the seller of any liability for personal injury or property damage when delivery is made beyond the curb line. See reverse side.
* Predetermined Tare

ARRIVE JOB	DEPART JOB	WAITING TIME	WEIGHT MASTER
			Susan Le

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SECTION L

Separate load books shall be used for all major roadway aggregates such as type 1-2 class A-B aggregate base and shouldering material and paving items. Minor items such as sand blotter, screenings, etc., may be combined and put in one book if room permits, as long as the book is properly indexed and the record of delivery to the jobsite can be readily found. A page in a load book is illustrated below.

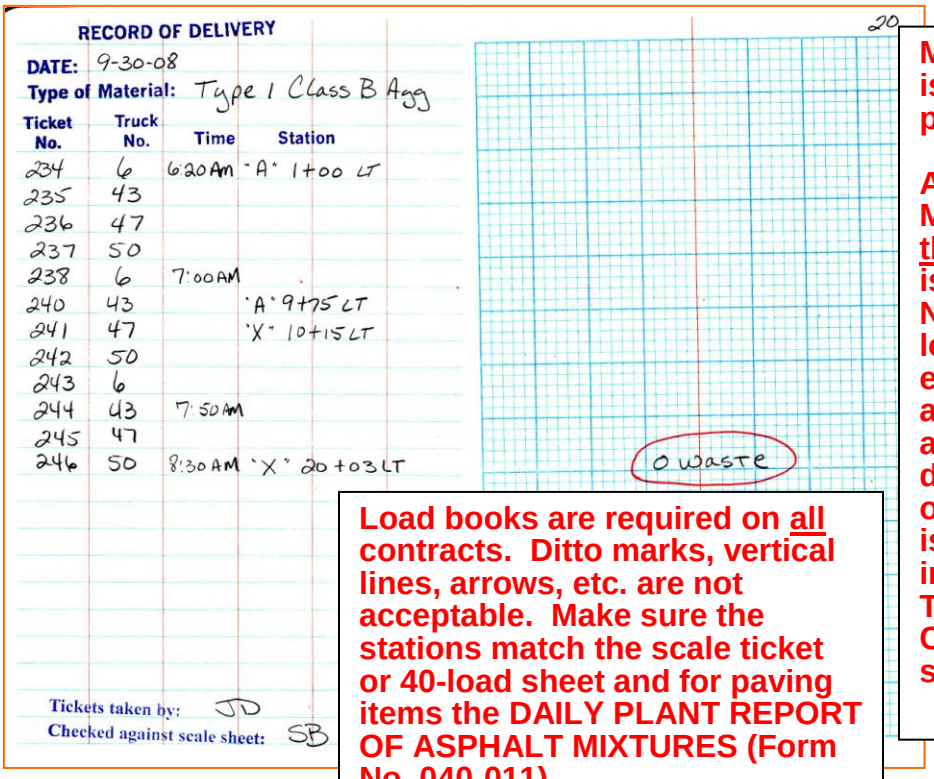
The **Officeperson** shall complete for each page all headings, Record of Delivery, date, type of material, ticket no., truck no., time, station, tickets taken by, and checked against scale sheet. Alternate load books may be used in order that one book remains in the office for checking and posting while the other is being used in the field. The headings may be handwritten or stamped. A stamp can be ordered through Headquarters Construction.

When the load is delivered to the jobsite, the truck driver will hand the ticket to the **Inspector**. The **Inspector** will record the **date, type of material, ticket no**., **truck no., time every fifth load**, and **beginning and ending station for each page** in the load book. Make sure all stations have a line designation left, right, or center line and equations are listed to explain any changes in the line. The **Inspector** shall initial tickets taken by:.

The **Inspector,** at the end of the shift, will turn the DAILY RECORD OF SCALE WEIGHTS or the COMPUTERIZED tickets, the load book, and the **Street Inspector's** portion of the DAILY PLANT REPORT OF ASPHALT MIXTURES (FORM 040-011) into the field office.

The DAILY RECORD OF SCALE WEIGHTS or the last COMPUTERIZED ticket for the day and the load books together become the source documents and must be turned in at the completion of the job.

Below is an illustration of a page in a TYPE 1 CLASS B AGG. LOAD book.



RECORD OF DELIVERY

DATE: 9-30-08

Type of Material: Type 1 Class B Agg

Ticket No.	Truck No.	Time	Station
234	6	6:20 AM	"A" 1+00 LT
235	43		
236	47		
237	50		
238	6	7:00 AM	
240	43		"A" 9+75 LT
241	47		"X" 10+15 LT
242	50		
243	6		
244	43	7:50 AM	
245	47		
246	50	8:30 AM	"X" 20+03 LT

20

0 waste

Tickets taken by: JD

Checked against scale sheet: SB

Load books are required on all contracts. Ditto marks, vertical lines, arrows, etc. are not acceptable. Make sure the stations match the scale ticket or 40-load sheet and for paving items the DAILY PLANT REPORT OF ASPHALT MIXTURES (Form No. 040-011).

Make sure the following is recorded on each page:

A complete date, Type of Material, Ticket No. not the load No. (unless there is no Ticket No.), Truck No., time is every 5th load, beginning and ending station per page, any equations to explain a change in the line designation, Lt, Rt, or C/L on each station, all waste is explained and circled in red(including 0 waste). Tickets taken by and Checked against scale sheet are initialed.

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SECTION M

When an NDOT Weighmaster and COMPUTERIZED tickets are not available, a copy of the Contractor's scale sheet should be obtained as source documentation. If the Contractor's scale sheet is not available, the ticket information must be transferred to a DAILY RECORD OF SCALE WEIGHTS, along with all other required information, and signed by the Contractor's Weighmaster. **Only as a last resort shall the Resident Engineer sign as Weighmaster on the DAILY RECORD OF SCALE WEIGHTS unless he actually weighed the material.**

If weights are not attainable and payment will be based on the plan quantity as shown on the summary sheet in the plans, use the appropriate calculation shown below to obtain the tons for payment. **Make sure to call Headquarters Construction for approval to pay plan.**

ENGLISH-CUBIC YARDS

UNIT WEIGHT = POUNDS PER CUBIC FOOT

POUNDS PER CUBIC FOOT X 27 = POUNDS PER CUBIC YARDS

$$\frac{\text{LENGTH X WIDTH X DEPTH}}{27} = \text{CUBIC YARDS}$$

CUBIC YARDS X POUNDS PER CUBIC YARDS = POUNDS

$$\frac{\text{POUNDS}}{2000} = \text{TONS}$$

ENGLISH-CUBIC FOOT

UNIT WEIGHT = POUNDS PER CUBIC FOOT

LENGTH X WIDTH X DEPTH = CUBIC FEET

CUBIC FEET X POUNDS PER CUBIC FOOT = POUNDS

$$\frac{\text{POUNDS}}{2000} = \text{TONS}$$

The **Unit Weight** is taken from the COMPACTION REPORT (Form No. 040-004) line 28 or from the NUCLEAR COMPACTION REPORT FOR SOILS AND AGGREGATES (Form No. 040-007), under the Harvard Miniature Compaction section, Calc. Max. Density pcf. Attach the test report(s) to a CALCULATION sheet (Form No. 040-034). Make sure to cross reference the quantity in the field book to the CALCULATION sheet and the CALCULATION sheet to the field book(s) and page(s) as described and illustrated in Section C and Chapter 2 of the Documentation Manual.

The above calculations are only used when weights cannot be obtained for an item paid by the ton and approval has been received from Headquarters Construction.

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SECTION N

There are two versions of the DAILY DIARY REPORT (Form No. 040-056A), the Hard copy and the Electronic version. Both versions are described Chapter 2 and 9 of the Documentation Manual. For the electronic version, a copy will be printed and signed by the employee and copies will be made and used for distribution. The distribution for both versions is listed at the bottom of each form. **The DAILY DIARY REPORT will be submitted weekly.**

If a hotplant or a marination plant supplies material for multiple projects for different Resident Engineers, it is up to the **Hotplant and/or Marination Inspector** to find out the contract numbers and record those numbers at the top of each diary page. The original diary shall be sent to the appropriate department for review. A copy shall be kept with the **Inspector's** contract and copies made and sent to the other Resident Engineers for the remainder of the projects. This does not relieve any of the other documentation requirements. Follow the distribution instructions at the bottom of the form.

For quality control purposes, a daily diary must be kept by the **Hotplant and Marination Inspectors.** If there are any questions concerning the DAILY DIARY REPORT (Form No. 040-056A), please contact Headquarters Construction Quality Assurance for assistance.

SECTION O

Construction **Inspectors** assigned to a particular phase of construction activity are required to prepare a DAILY CONSTRUCTION REPORT (Form No. 040-056). This report shall be completed and submitted to the field office daily. Any construction activity where active work is being done shall be reported. To avoid duplication, only one report per shift for a particular operation shall be submitted, even if more than one **Inspector** was involved. If there are any questions concerning the DAILY CONSTRUCTION REPORT (Form No. 040-056), please contact Headquarters Construction Quality Assurance for assistance.

SECTION P

The DAILY PLANT REPORT OF ASPHALT MIXTURES (Form No. 040-011) must be completed on each day of the paving operation, even if the amount is small.

The **Hotplant Inspector** must document all information required in the center section of the DAILY PLANT REPORT OF ASPHALT MIXTURES. It is very important that all information is accurate and complete. It is also important that the information recorded on this report is not in conflict with the hotplant diary.

The **Street Inspector** must document all information required on the right-hand side of the DAILY PLANT REPORT OF ASPHALT MIXTURES. It is very important that all information is accurate and complete and the stations and waste correspond to what is shown in the load book and the DAILY RECORD OF SCALE WEIGHTS (Form No. 040-009), or the last COMPUTERIZED ticket for that day. All stations must have a line designation and show left, right, or center line. If there are any questions concerning the DAILY PLANT REPORT OF ASPHALT MIXTURES (Form No. 040-011), please contact Headquarters Construction Quality Assurance for assistance.

Forms change periodically, please assure that you are using the most current form available, see Chapter 26 of the Documentation Manual.

Rev 04/11

SECTION Q

Asphalt cement (AC-20, AC-20P, AC-30, PG76-22, SC-800, etc.) shall be documented in an ASPHALT CEMENT book with a RECORD OF DELIVERY section and PLANT RECORD section for each type of asphalt. **Mineral Filler** shall be documented in a MINERAL FILLER book. If the contract is small and room permits the Asphalt Cement (Record of Delivery and Plant Record) and the Mineral Filler (Record of Delivery) shall be placed in one book and titled PAVING B/L book. An illustration of a Record of Delivery is shown in this section.

Asphalt Cement Plant Record (sample record) the **Inspector** shall record asphalt samples taken by the Contractor's personnel from the line between the storage tank and the plant bituminous metering device. One sample must be taken for each 25 tons (23 metric tons) of asphalt used or on the last sample of the day any portion thereof. For performance grade (PG) asphalts, refer to subsection 106.04 of the special provisions of the appropriate contract for sampling frequency. The plant record is also used in calculating liquidated damages on asphalt as explained in Chapter 23 of the Documentation Manual. An illustration of a Plant Record is shown in this section.

If the marination is being done for more then one contract it is the responsibility of the **Marination Inspector** to collect the Bill of Ladings (B/L) and the certification and record the contract numbers on the top of the B/L and certification and turn in daily. It will be up to the **Officeperson** to make copies and send to the other crews for their records. **It is important to make sure there are enough B/Ls to cover what was used on all the contracts.**

When a load of asphalt or mineral filler is received, the **Inspector** shall obtain the weigh ticket (B/L) indicating the weight of the material and the certification (an illustration of a B/L and cert are shown in this section). The **Inspector** shall record the load no., date delivered, truck and trailer no., B/L, tons and accumulative tons delivered, initials, and any remarks in the load book on the Record of Delivery. For ease in cross checking, the load number and contract number must be written on the corresponding weigh ticket (B/L) and the certification in the upper right-hand corner. If the B/L for mineral filler does not have a B/L number, the control number shall be recorded in the remarks column and the B/L no. column will be left blank. The company/supplier can be called to supply the B/L number and/or the ticket.

Liquid asphalts (MC-70, MC-250, etc.) and Diluted emulsified asphalts (CMS-2S, SS-1h, LMCRS-2H, etc.) shall be documented in a LIQUID ASPHALT book with a "Record of Delivery" section, and a "Record of Application and Payment" section, as illustrated in this section. **Remember, the tons delivered column in the LIQUID ASPHALT book for the emulsified asphalts will be raw tons delivered.** A B/L for SS-1h is illustrated in this section.

Requirements for Certification on all B/Ls shall follow a certain criteria as described in the Standard Specifications for Road and Bridge Construction (Silver book) or the Contract Special Provisions for that item. For example: Mineral Filler certification requirements shall be found in section 705.03.03 of the Standard Specifications for Road and Bridge Construction (Silver book), the certification has to conform to ASTM C1097.

The B/Ls are collected and recorded on the Record of Delivery to assure there are enough B/Ls to cover what was delivered and used on the contract. The entry in the field book along with the weigh ticket, documents the load and quantity received at the plant.

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Item: PG 76-22 NV

Sig fig: .01 5

Record of Delivery

Load No.	Date	Trk No	Trl No	B/L No	Tons Delvd	Accum Tons Delvd	Insp	Remarks
21	8-6-08	12380	212428	56007	22.55	825.55	TC	
22	8-6-08	192520	212788	56015	23.72	849.27	TC	
23	8-7-08	12380	212489	56020	22.89	872.16	TC	
24	8-7-08	23X0	2788	56028	23.09	895.25	TC	
25	8-7-08	192324	272783	56040	24.66	919.91	TC	
26	8-7-08	192329	212733	56045	24.44	944.35	TC	
27	8-7-08	192329	2127	56049	13.96	958.31	TC	
28	8-9-08	192380	212788	56693	23.91	982.22	TC	
29	8-9-08	192380	212788	56694	23.74	1005.96	TC	
30	8-9-08	192380	212788	56695	23.45	1029.41	TC	
31	8-9-08	192380	212788	56704	22.97	1052.38	TC	
32	8-17-08	192380	212788	56708	23.04	1075.42	TC	
33	8-18-08	192380	212788	56711	23.36	1098.78	TC	
34	8-18-08	192380	212788		20.85	1119.63	TC	√SB Control # 125731

This illustration of a RECORD OF DELIVERY will be used for all types of asphalt and mineral filler. If the job is a wet tons job there will be no bid items for asphalt cement or mineral filler. This format will also be used for liquid and emulsified asphalts. Liquid and emulsified asphalts will have a bid item number, so the titles at the top of the page will change to reflect the item no., item, and plan quantity. Make sure when using this format for emulsified asphalt, the tons delvd column is changed to raw tons delvd and the raw tons from the B/L are recorded.

Item: PG 76-22 NV

16

Plant Record

Sample No.	Date	Time	Insp
21	7/23/08	5:30 AM	TC
22	8/5/08	5:45 AM	TC
23	8/5/08	6:00 AM	TC
24	8/5/08	6:30 AM	TC
25	8/5/08	6:50 AM	TC
26	8/5/08	7:15 AM	TC
27	8/6/08	5:20 AM	TC
28	8/6/08	5:45 AM	TC
29	8/6/08	6:15 AM	TC
30	8/7/08	6:00 AM	TC
31	8/7/08	6:30 AM	TC
32	8/7/08	6:50 AM	TC
33	8/7/08	7:20 AM	TC
34	8/7/08	7:45 AM	TC
35	8/9/08	4:00 AM	TC
36	8/9/08	4:25 AM	TC
37	8/9/08	5:00 AM	TC
38	8/9/08	5:30 AM	TC
39	8/17/08	6:10 AM	TC
40	8/18/08	6:30 AM	TC
41	8/18/08	7:00 AM	TC

The Inspector will document the sample no., date, time, and initials. The sample number and date must match the field number and date sampled on the TRANSMITTAL FOR ASPHALT SAMPLES (Form No. 020-016).

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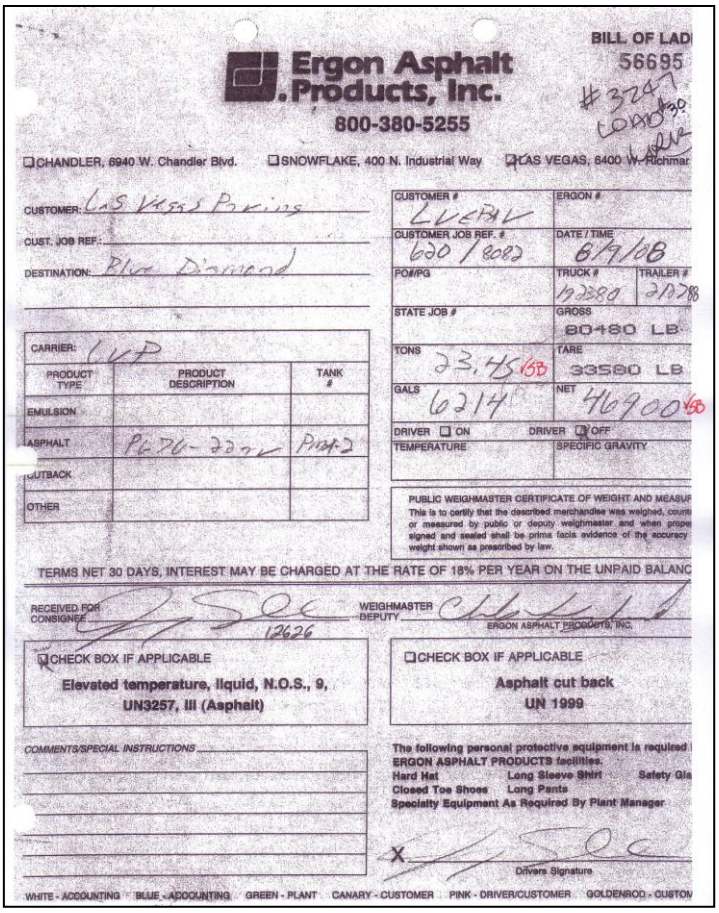


Ergon Asphalt Products, Inc.
800-380-5255

BILL OF LAD
56695
#3247
Load #30

☐CHANDLER, 6940 W. Chandler Blvd. ☐SNOWFLAKE, 400 N. Industrial Way ☐LAS VEGAS, 6400 W. Richmar

CUSTOMER: Las Vegas Paving
CUST. JOB REF.:
DESTINATION: Blue Diamond

CUSTOMER # LVEPAV
ERGON #
CUSTOMER JOB REF. # 620 / 8002
DATE / TIME 8/8/08
PO#/PG
TRUCK # 12380
TRAILER # 21788
STATE JOB #
GROSS 80480 LB
TONS 23.45 GD
TARE 33580 LB
GALS 6214
NET 46900 GD
DRIVER ☐ ON DRIVER ☐ OFF
TEMPERATURE
SPECIFIC GRAVITY

CARRIER: UP

PRODUCT TYPE	PRODUCT DESCRIPTION	TANK #
EMULSION		
ASPHALT	PG 76-22NV	Pmt-2
CUTBACK		
OTHER		

PUBLIC WEIGHMASTER CERTIFICATE OF WEIGHT AND MEASUR
This is to certify that the described merchandise was weighed, count or measured by public or deputy weighmaster, and when prope signed and sealed shall be prima facie evidence of the accuracy weight shown as prescribed by law.

TERMS NET 30 DAYS, INTEREST MAY BE CHARGED AT THE RATE OF 18% PER YEAR ON THE UNPAID BALANC

RECEIVED FOR CONSIGNEE 12626
WEIGHMASTER DEPUTY
ERGON ASPHALT PRODUCTS, INC.

☐CHECK BOX IF APPLICABLE
Elevated temperature, liquid, N.O.S., 9, UN3257, III (Asphalt)

☐CHECK BOX IF APPLICABLE
Asphalt cut back UN 1999

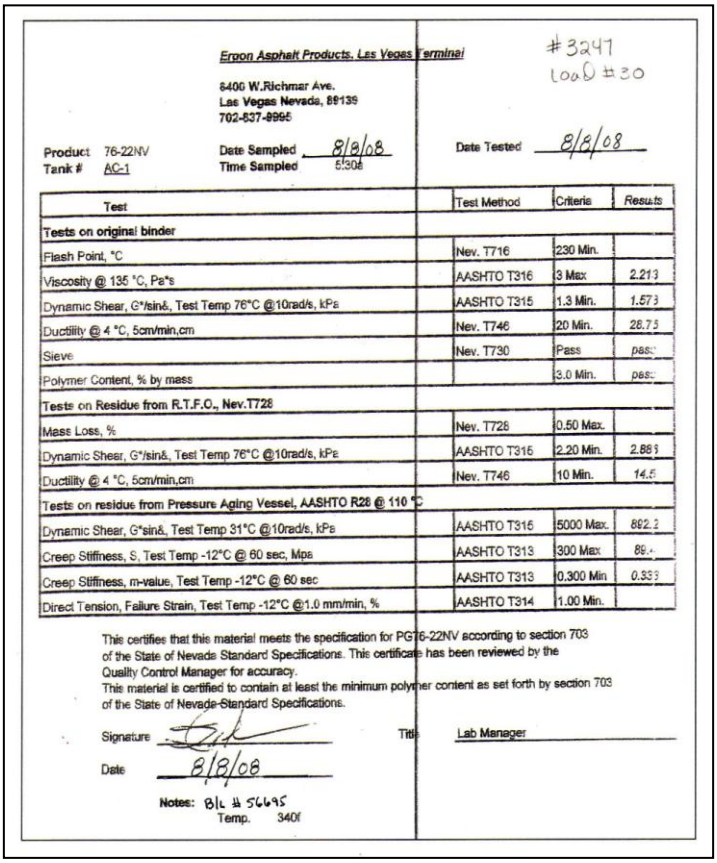
COMMENTS/SPECIAL INSTRUCTIONS

The following personal protective equipment is required ERGON ASPHALT PRODUCTS facilities.
Hard Hat Long Sleeve Shirt Safety Gla
Closed Toe Shoes Long Pants
Specialty Equipment As Required By Plant Manager

X
Drivers Signature

WHITE - ACCOUNTING BLUE - ACCOUNTING GREEN - PLANT CANARY - CUSTOMER PINK - DRIVER/CUSTOMER GOLDENROD - CUSTON

The Inspector will collect a B/L and certification for each delivery of asphalt or mineral filler. The Inspector will record the contract number and the corresponding load number from the RECORD OF DELIVERY in the upper right-hand corner on the B/L and on the certification. The Inspector will check and initial all weight calculations.



Ergon Asphalt Products, Las Vegas Terminal
6400 W.Richmar Ave.
Las Vegas Nevada, 89139
702-537-8995

#3247
Load #30

Product 76-22NV
Tank # AC-1
Date Sampled 8/8/08
Time Sampled 5:30a
Date Tested 8/8/08

Test	Test Method	Criteria	Results
Tests on original binder			
Flash Point, °C	Nev. T716	230 Min.	
Viscosity @ 135 °C, Pa*s	AASHTO T316	3 Max	2.213
Dynamic Shear, G*/sinδ, Test Temp 76°C @10rad/s, kPa	AASHTO T315	1.3 Min.	1.573
Ductility @ 4 °C, 5cm/min,cm	Nev. T746	20 Min.	28.75
Sieve	Nev. T730	Pass	pass
Polymer Content, % by mass		3.0 Min.	pass
Tests on Residue from R.T.F.O., Nev.T728			
Mass Loss, %	Nev. T728	0.50 Max.	
Dynamic Shear, G*/sinδ, Test Temp 76°C @10rad/s, kPa	AASHTO T315	2.20 Min.	2.869
Ductility @ 4 °C, 5cm/min,cm	Nev. T746	10 Min.	14.5
Tests on residue from Pressure Aging Vessel, AASHTO R28 @ 110 °C			
Dynamic Shear, G*sinδ, Test Temp 31°C @10rad/s, kPa	AASHTO T315	5000 Max.	892.2
Creep Stiffness, S, Test Temp -12°C @ 60 sec, Mpa	AASHTO T313	300 Max	89.4
Creep Stiffness, m-value, Test Temp -12°C @ 60 sec	AASHTO T313	0.300 Min	0.339
Direct Tension, Failure Strain, Test Temp -12°C @1.0 mm/min, %	AASHTO T314	1.00 Min.	

This certifies that this material meets the specification for PG76-22NV according to section 703 of the State of Nevada Standard Specifications. This certificate has been reviewed by the Quality Control Manager for accuracy.
This material is certified to contain at least the minimum polymer content as set forth by section 703 of the State of Nevada Standard Specifications.

Signature
Title Lab Manager
Date 8/8/08

Notes: B/L # 56695
Temp. 340f

Requirements for Certification on all B/Ls will follow a certain criteria as described in the Standard Specifications for Road and Bridge Construction (Silver book) or in the Contract Special Provisions for that item. For example: PG 76-22NV's criteria are located in the Contract Special Provisions, in section 703.03.02.

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Ergon Asphalt Products, Inc.

800-380-5255

BILL OF LADING

55933

Const. 3247

Load No. 1

8405 0516

☐ CHANDLER, 6940 W. Chandler Blvd. ☐ SNOWFLAKE, 400 N. Industrial Way ☐ LAS VEGAS, 6400 W. Richmar Ave.

CUSTOMER: Las Vegas Paving

CUST. JOB REF.:

DESTINATION:

CUSTOMER # LVPAV	ERGON #
CUSTOMER JOB REF. # 8082	DATE / TIME 10/08/08
PO#/PG	TRUCK # 182021 / TRAILER #
STATE JOB #	GROSS 35640
TONS 1.76 VTC	TARE 32120
GALS 429	NET 3520 VTC
DRIVER ☐ ON	DRIVER ☐ OFF
TEMPERATURE	SPECIFIC GRAVITY

CARRIER: CUST

PRODUCT TYPE	PRODUCT DESCRIPTION	TANK #
EMULSION	SS-1H 60/40 statemix	A-2
ASPHALT		
CUTBACK		
OTHER		

PUBLIC WEIGHMASTER CERTIFICATE OF WEIGHT AND MEASURE
This is to certify that the described merchandise was weighed, counted or measured by public or deputy weighmaster and when properly signed and sealed shall be prima facia evidence of the accuracy of weight shown as prescribed by law.

TERMS NET 30 DAYS, INTEREST MAY BE CHARGED AT THE RATE OF 18% PER YEAR ON THE UNPAID BALANCE.

RECEIVED FOR CONSIGNEE

WEIGHMASTER DEPUTY Scott Granlund
ERGON ASPHALT PRODUCTS, INC.

☐ CHECK BOX IF APPLICABLE
Elevated temperature, liquid, N.O.S., 9, UN3257, III (Asphalt)

☐ CHECK BOX IF APPLICABLE
Asphalt cut back
UN 1999

COMMENTS/SPECIAL INSTRUCTIONS

OIL	H2O
309 gls	130
2535 #	985
1.27 Tons	0.49
1.15 Met	0.44

1.274.49=1.76 VTC
1.27X1.4=1.78 max VTC

The following personal protective equipment is required in all ERGON ASPHALT PRODUCTS facilities.
Hard Hat **Long Sleeve Shirt** **Safety Glasses**
Closed Toe Shoes **Long Pants**
Specialty Equipment As Required By Plant Manager

Drivers Signature

WHITE - ACCOUNTING BLUE - ACCOUNTING GREEN - PLANT CANARY - CUSTOMER PINK - DRIVER/CUSTOMER GOLDENROD - CUSTOMER

If emulsified loads are delivered diluted, the weights of asphalt and water must be shown separately or 60/40 or 50/50 (cold recycle only) state mix must show on the (B/L) to assure the load was not over diluted. If the load is over diluted the Resident Engineer will inform the Contractor that it is unacceptable and any application will be done without payment. To assure the water ratio is correct, multiply the raw tons by 1.4 or 2 (cold recycle only) to get the max of diluted emulsified asphalt that can be paid. This calculation will be shown on all B/Ls for emulsified asphalt.

Rev 01/11

SECTION R

The **Inspector** shall complete the TRANSMITTAL FOR ASPHALT SAMPLES (Form No. 020-016), attach the transmittal to the asphalt sample, and turn the sample with the transmittal into the Materials Division. **A copy of the transmittal will be turned into the field office. The field number is the same number as shown on the PLANT RECORD as the sample number and the Date Sampled is the same as the Date on the PLANT RECORD.** The plant record is also used in calculating liquidated damages on asphalt so make sure the **numbers and dates match.** If there are any questions concerning the TRANSMITTAL FOR ASPHALT SAMPLES (Form No. 020-016), please contact the Material Division for assistance.

SECTION S

The TRANSMITTAL FOR TEST SAMPLES AND CERTIFICATIONS (Form No. 020-018), shall be completed by the **Officeperson, Tester, or the Inspector. The Materials Division requires the bid item number to be listed on the Material description line.** If there is not a bid item, make sure to put a complete description of the material. All information on the transmittal is required for test samples. All stations must have a line designation and show left, right, or center line. When there is more then one B/L and certification to be submitted for approval, combined them all on one transmittal. If there are any questions concerning the contact the TRANSMITTAL FOR TEST SAMPLES AND CERTIFICATIONS (Form No. 020-018), please contact the Material Division for assistance.

Forms change periodically, please assure that you are using the most current form available, see Chapter 26 of the Documentation Manual.

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SECTION T

Contracts containing liquid and emulsified asphalt items paid by the Ton shall be documented in a LIQUID ASPHALT book. Each item will have a Record of Delivery and a Record of Application & Payment as illustrated in this section. These items will be located on the Estimate of Quantities.

There are 2 ways to pay for Liquid asphalt:

1. Total B/L delivered
2. Weighing the trucks over the Contractor's scales (weighbacks)
   The gallon meter cannot be used for liquid asphalts.

There are three ways to pay for Emulsified Asphalt (diluted):

1. Total B/L delivered (diluted).
2. Weighing the trucks over the Contractor's scales (weighbacks)
3. Reading the gallon meter, must list beginning, ending meter reading, gallons used, and the correction factor used, a temperature chart is shown in this section and in Chapter 10 of the Documentation Manual.

Theoretical application rate found in the plans can be used on both the Liquid and Emulsified Asphalt, **only as the last resort**.

When the emulsified asphalt is delivered raw and placed in a tank, the distributor truck shall be tared before the oil and water is added. When the oil is added the truck shall be weighed and then weighed again when the water is added. The ratio of water is at a 60/40 or 50/50 (cold recycle only) ratio. Make sure to check the Specials Provisions for the contract to assure the correct ratio is being used. When the truck is finished spraying for the day, the truck shall be weighed once again to show what was placed for the day. See the illustration in this section.

In no case shall the liquid or emulsified asphalt pay quantity exceed the total certified asphalt delivered <u>less</u> any wasted material and, at a jobsite hotplant, <u>less</u> any material left in storage.

A B/L is shown in this section. The contract number and load number are required in the upper right-hand corner of the B/L and the certification.

Any items requiring measurements or final quantity calculations must be shown in the field book or on a CALCULATION sheet (Form No. 040-034) and filed in the CALCULATION book. Be sure to cross reference the quantity in the field book to the CALCULATION sheet and the CALCULATION sheet to the field book(s) and page(s), as described and illustrated in Section C and Chapter 2 of the Documentation Manual.

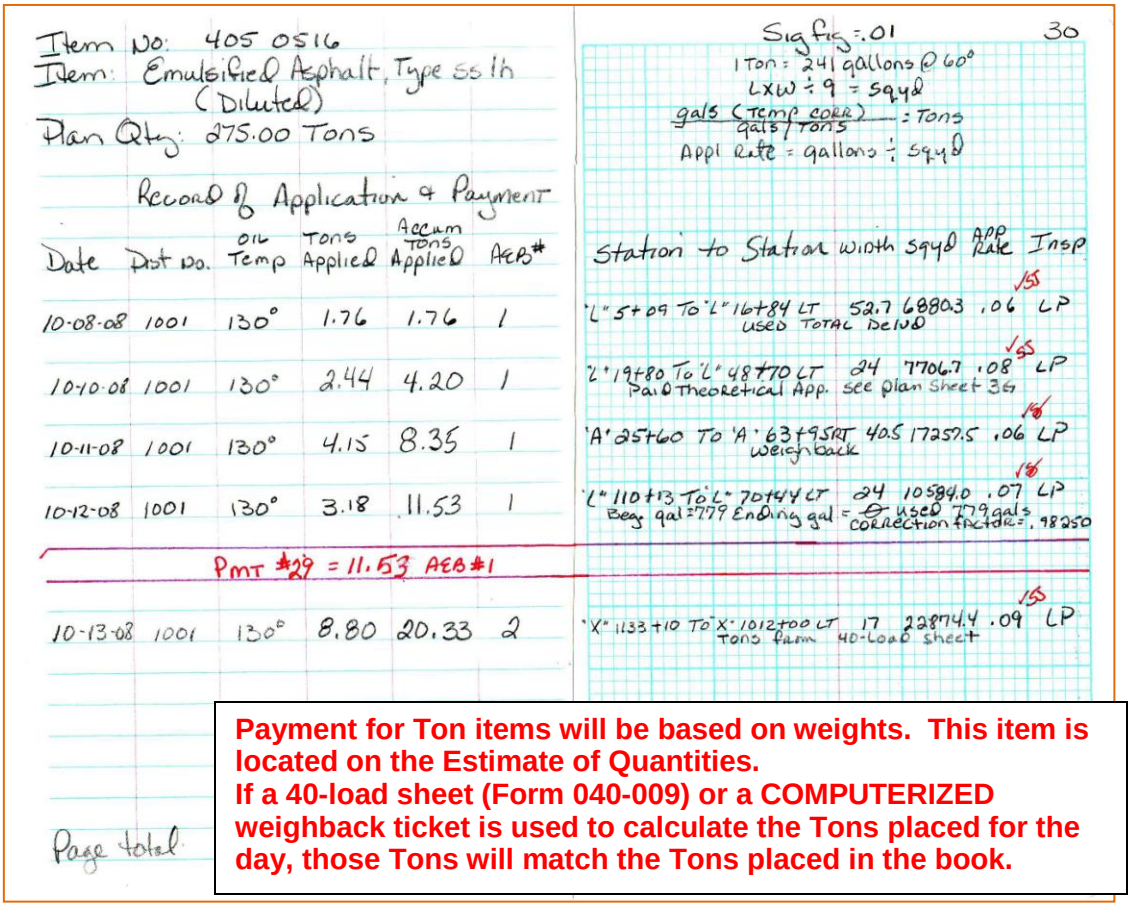
It is important that all records be kept in a neat and legible manner. All **notes in the remarks column must be initialed** by the person or persons responsible for the entry. **All calculations must be checked and initialed by the checker.**

If room permits, **Sand Blotter** (paid by the Ton) may be documented in the LIQUID ASPHALT book. Documentation for sand blotter shall follow the guidelines as described and illustrated in Chapter 8 of the Documentation Manual. **Payment will be based on delivery minus waste and/or material left in storage.**

The Record of Application & Payment for emulsified asphalt, illustrated in this section can also be used for liquid asphalt. Remember, the illustration in this section shows an equation using a temp correction. Liquid asphalt will not use this equation. **Rev 01/11**

The **Officeperson** shall complete for each page the item number, item description, plan quantity, the significant figure on the top right-hand side of the page, Record of Application & Payment, all column headings, and the page total in the bottom left-hand corner of the page. **A separate page shall be provided for each bid item. Make sure to leave enough pages between items for any added or missed items. Calculations must be checked and initialed.**

Daily, the **Inspector** shall record the date, distributor number, oil temp, tons applied, accumulative tons applied, and AEB#. Record the station to station (roadway stations where the material was applied), width of the roadway covered, Sqyd ((length x width) ÷ 9), application rate, and initials. All stations must have a line designation and show left, right, or center line. If the station to station does not equal the length used to calculate Sqyds, then the length must be written above the station to station. "Varies" will **not** be accepted in the width column, must have a quantity. **The gallon meter cannot be used for liquid asphalt. Skip at least one line between entries** and after the payment entry. The next entry shall be placed on the next line, as illustrated below.



Payment for Ton items will be based on weights. This item is located on the Estimate of Quantities.
If a 40-load sheet (Form 040-009) or a COMPUTERIZED weighback ticket is used to calculate the Tons placed for the day, those Tons will match the Tons placed in the book.

The tons applied on the "Record of Application and Payment" section shall be the tons of diluted emulsion mixed applied on the roadway.

To calculate tons or application rate, the following formulas apply:

$$\text{Tons} = \frac{\text{Sqyd X application rate}}{\text{Gallons/Ton (109.01 Standard Specs)}}$$

$$\text{appl rate} = \frac{\text{Tons X Gallons/Ton (109.01 Standard Specs)}}{\text{Sqyd}}$$

Rev 04/11

TEMPERATURE CHART

This chart is to be used when reading the gallon meter for **emulsified asphalts** (CMS-2S, SS-1h LMCRS-2H, etc).

TABLE C1 TEMPERATURE VOLUME CORRECTIONS FOR EMULSIFIED ASPHALT

LEGEND: t = Observed Temperature in Degrees Celsius (Fahrenheit)
M = Multiplier for Correcting Volumes to the Basis of 15.6°C (60°F)

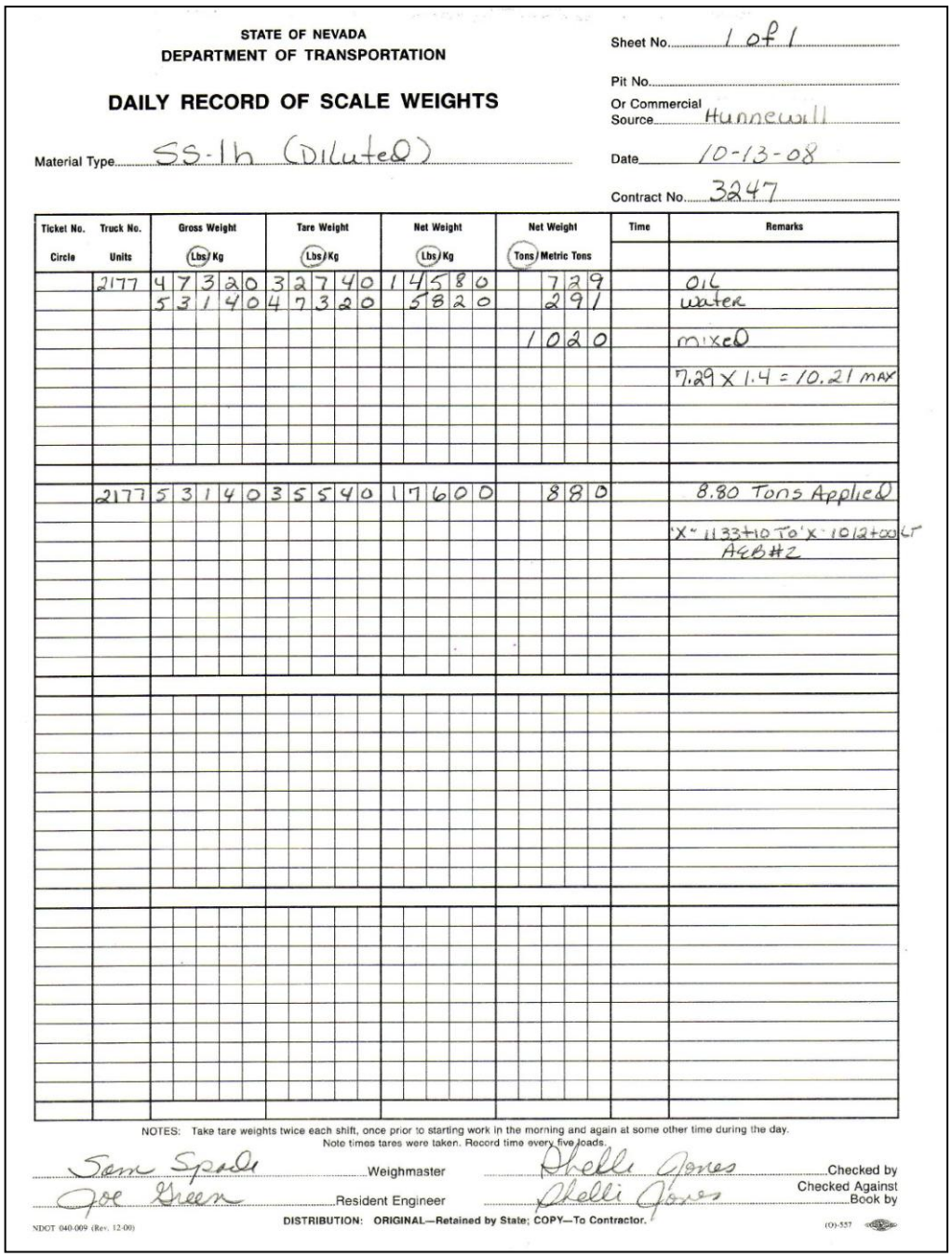
***Multiplier (M) for °C is a close approximation.**

°C[t]	°F	M*	°C[t]	°F	M*	°C[t]	°F	M*
10.0	50	1.00250	35.0	95	0.99125	60.0	140	0.98000
10.6	51	1.00225	35.6	96	0.99100	60.6	141	0.97975
11.1	52	1.00200	36.1	97	0.99075	61.1	142	0.97950
11.7	53	1.00175	36.7	98	0.99050	61.7	143	0.97925
12.2	54	1.00150	37.2	99	0.99025	62.2	144	0.97900
12.8	55	1.00125	37.8	100	0.99000	62.8	145	0.97875
13.3	56	1.00100	38.3	101	0.98975	63.3	146	0.97850
13.9	57	1.00075	38.9	102	0.98950	63.9	147	0.97825
14.4	58	1.00050	39.4	103	0.98925	64.4	148	0.97800
15.0	59	1.00025	40.0	104	0.98900	65.0	149	0.97775
15.6	60	1.00000	40.6	105	0.98875	65.6	150	0.97750
16.1	61	0.99975	41.1	106	0.98850	66.1	151	0.97725
16.7	62	0.99950	41.7	107	0.98825	66.7	152	0.97700
17.2	63	0.99925	42.2	108	0.98800	67.2	153	0.97675
17.8	64	0.99900	42.8	109	0.98775	67.8	154	0.97650
18.3	65	0.99875	43.3	110	0.98750	68.3	155	0.97625
18.9	66	0.99850	43.9	111	0.98725	68.9	156	0.97600
19.4	67	0.99825	44.4	112	0.98700	69.4	157	0.97575
20.0	68	0.99800	45.0	113	0.98675	70.0	158	0.97550
20.6	69	0.99775	45.6	114	0.98650	70.6	159	0.97525
21.1	70	0.99750	46.1	115	0.98625	71.1	160	0.97500
21.7	71	0.99725	46.7	116	0.98600	71.7	161	0.97475
22.2	72	0.99700	47.2	117	0.98575	72.2	162	0.97450
22.8	73	0.99675	47.8	118	0.98550	72.8	163	0.97425
23.3	74	0.99650	48.3	119	0.98525	73.3	164	0.97400
23.9	75	0.99625	48.9	120	0.98500	73.9	165	0.97375
24.4	76	0.99600	49.4	121	0.98475	74.4	166	0.97350
25.0	77	0.99575	50.0	122	0.98450	75.0	167	0.97325
25.6	78	0.99550	50.6	123	0.98425	75.6	168	0.97300
26.1	79	0.99525	51.1	124	0.98400	76.1	169	0.97275
26.7	80	0.99500	51.7	125	0.98375	76.7	170	0.97250
27.2	81	0.99475	52.2	126	0.98350	77.2	171	0.97225
27.8	82	0.99450	52.8	127	0.98325	77.8	172	0.97200
28.3	83	0.99425	53.3	128	0.98300	78.3	173	0.97175
28.9	84	0.99400	53.9	129	0.98275	78.9	174	0.97150
29.4	85	0.99375	54.4	130	0.98250	79.4	175	0.97125
30.0	86	0.99350	55.0	131	0.98225	80.0	176	0.97100
30.6	87	0.99325	55.6	132	0.98200	80.6	177	0.97075
31.1	88	0.99300	56.1	133	0.98175	81.1	178	0.97050
31.7	89	0.99275	56.7	134	0.98150	81.7	179	0.97025
32.2	90	0.99250	57.2	135	0.98125	82.2	180	0.97000
32.8	91	0.99225	57.8	136	0.98100	82.8	181	0.96975
33.3	92	0.99200	58.3	137	0.98075	83.3	182	0.96950
33.9	93	0.99175	58.9	138	0.98050	83.9	183	0.96925
34.4	94	0.99150	59.4	139	0.98025	84.4	184	0.96900
						85.0	185	0.96875

Rev 01/11

When the emulsified asphalt is delivered raw and placed in a tank the distributor truck shall be tared before the asphalt and water is added. When the asphalt is added, the truck shall be weighed and then weighed again when the water is added. The ratio of water is a 60/40 or 50/50 (cold recycle only) ratio. Make sure to check the Specials Provisions for the contract to assure the correct ratio is being used. When the truck is finished spraying for the day, the truck shall be weighed once again to determine what was placed for the day, as shown below. To assure the diluted mix is not over watered, multiply the raw tons by 1.4 or 2 (cold recycle only), as shown below.

Forms change periodically, please assure that you are using the most current form available, see Chapter 26 (Distribution of Documents).



STATE OF NEVADA
DEPARTMENT OF TRANSPORTATION

Sheet No. 1 of 1

Pit No.

Or Commercial Source Hunnewill

DAILY RECORD OF SCALE WEIGHTS

Material Type SS-1h (Diluted)

Date 10-13-08

Contract No. 3247

Ticket No. Circle	Truck No. Units	Gross Weight (Lbs/Kg)	Tare Weight (Lbs/Kg)	Net Weight (Lbs/Kg)	Net Weight (Tons/Metric Tons)	Time	Remarks
	2177	47320	32740	14580	729		oil
		53140	47320	5820	291		water
					1020		mixed
							7.29 X 1.4 = 10.21 MAX
	2177	53140	35540	17600	880		8.80 Tons Applied
							"X" 1133+10 TO "X" 1012+00 LT AGB #2

NOTES: Take tare weights twice each shift, once prior to starting work in the morning and again at some other time during the day. Note times tares were taken. Record time every five loads.

Sam Spade Weighmaster — Shelli Jones Checked by

Joe Green Resident Engineer — Shelli Jones Checked Against Book by

NDOT 040-009 (Rev. 12-00) DISTRIBUTION: ORIGINAL—Retained by State; COPY—To Contractor. (O)-557

Rev 01/11

SECTION U

The illustrations in this section are for cement and lime that are paid from the Bill of Lading (B/L) deliveries minus waste and what is left in storage. These items will be located on the Estimate of Quantities.

The **Officeperson** shall complete for each page the item number, item description, plan quantity, the significant figure on the top right-hand side of the page, Record of Delivery & Payment, all column headings, and the page total in the bottom left-hand corner of the page. **Before each payment and at the end of the contract, the Officeperson will assure there are enough B/L's to cover the tons used. Payment will be based on the tons delivered minus any waste and/or material left in storage. A separate page shall be provided for each bid item. Make sure to leave enough pages between items for any added or missed items. All calculations must be checked and initialed.**

When a load of cement is received, the **Inspector** shall obtain the weigh ticket (bill of lading) indicating the weight of the material and the certification. Document on the Record of Delivery & Payment the load no., date delivered, truck and trailer no., B/L no., tons delvd, accum tons delvd, tons wasted, tons left in storage, tons used, accum tons used, initials, and AEB #. For ease in cross checking, the load number and contract number must be written on the corresponding B/L and the certification in the upper right-hand corner. **All weight calculations shall be checked and initialed. For each pay period and when items are complete the Inspector will record any waste not already recorded and any left in storage.** A line shall be skipped after the subtotal and the next entry shall be placed on the next line, as illustrated in this section.

For each payment cycle, the **Officeperson** shall draw two red lines under the areas to be paid on a progress payment and record the payment number, amount to be paid, and the AEB number, as illustrated in this section. **Payment will be based on the tons delivered minus any waste and/or material left in storage.**

Any items requiring measurements or final quantity calculations must be shown in the field book or on a CALCULATION sheet (Form No. 040-034) and filed in the CALCULATION book. Be sure to cross reference the quantity in the field book to the CALCULATION sheet and the CALCULATION sheet to the field book(s) and page(s), as described and illustrated in Section C and Chapter 2 of the Documentation Manual.

It is important that all records be kept in a neat and legible manner. All **notes in the remarks column must be initialed** by the person or persons responsible for the entry. **All calculations must be checked and initialed by the checker.**

Item No. 408 2108
Item: Portland Cement
Plan Qty: 800.00 TON

Sig fig = .01 4

Record of Delivery & Payment

Load No	Date	Trk No.	Tel No.	B/L No.	Tons Delvd	Accum Tons Delvd	tons wasted	Tons Left in Storage	Tons used	Accum Tons used	Insp	AEB#
1	9-10-08	122	122A	10101	26.10	26.10	ø	ø	26.10	26.10	JD	2
2	9-12-08	110	110A	10102	25.89	51.99	ø	ø	25.89	51.99	JD	2
3	9-13-08	113	113A	10104	25.10	77.09	ø	ø	25.10	77.09	JD	2
4	9-15-08	111	111A	10201	24.00	101.09	ø	ø	24.00	101.09	JD	2
		PMT #27			101.09	AEB#2						
5	9-29-08	123	123A	10242	23.98	125.07	2.00	ø	21.98	123.07	JD	2
6	9-30-08	124	124A	10250	24.80	149.87	ø	ø	24.80	147.87	JD	2
		PMT #28			46.78	AEB#2						

The next entry will start on this line

Page total:

Payment will be based on the Tons delivered minus any waste and/or material left in storage. This item will be located on the Estimate of Quantities.

Item No. 4042053
Item: Lime (cold Recycle)
Plan Qty: 420.00 TON

Sig fig = .01 4

Record of Delivery & Payment

Load No	Date	Trk No	Tel No.	B/L No	Ton Delvd	Accum Tons Delvd	Tons wasted	Tons Left in Storage	tons used	Accum Tons used	Insp	AEB#
1	9-10-08	45	492	11017	25.15	25.15	2.00	ø	23.15	23.15	TC	9
2	9-11-08	390	391	11121	26.05	51.20	5.00	ø	21.05	44.20	TC	9
3	9-14-08	65	65A	11128	24.15	75.35	ø	ø	24.15	68.35	TC	9
4	9-15-08	1	1A	11129	23.25	98.60	2.00	10.00	11.25	79.60	TC	9
		PMT #6			79.60	AEB#9						

The next entry will start on this line

Page total:

Payment will be based on the Tons delivered minus any waste and/or material left in storage. This item will be located on the Estimate of Quantities.

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The illustrations in this section are for asphalt paid from the Bill of Lading (B/L) deliveries minus tons used for diluted mix, waste, and what is left in storage. These items will be located on the Estimate of Quantities.

The **raw** asphalt used in the cold recycle process and the diluted asphalt (**emulsified asphalt, diluted 50/50 by mass with water)** used as a fog seal are the same asphalt but will be two different item numbers. The asphalt used will be delivered **raw** and will be placed on a Record of Delivery & Payment as shown in the top illustration in this section. **Raw** Tons will be deducted from this Record of Delivery & Payment and diluted and used for the fog seal, as shown in the bottom illustration in this section.

The **Officeperson** shall complete for each page the item number, item description, plan quantity, the significant figure on the top right-hand side of the page, Record of Application & Payment, all column headings, and the page total in the bottom left-hand corner of the page. **Skip at least one line between entries. A separate page shall be provided for each bid item. Make sure to leave enough pages between items for any added or missed items. All calculations must be checked and initialed.**

When a load of raw asphalt is received, the **Inspector** shall obtain the weigh ticket (bill of lading) indicating the weight of the material and the certification. Document on the Record of Delivery & Payment the load no., date delivered, truck and trailer no., B/L no., **raw** tons delvd, accum **raw** tons delvd, **raw** tons wasted, **raw** tons left in storage, **raw** tons used for seal, **raw** tons used, accum **raw** tons used, initials, and AEB #. For ease in cross checking, the load number and contract number must be written on the corresponding B/L and the certification in the upper right-hand corner. **All weight calculations shall be checked and initialed. For each pay period and when items are complete the Inspector will record any waste not already recorded and any left in storage.** A line shall be skipped after the subtotal and the next entry shall be placed on the next line, as shown in the top illustration in this section.

For the diluted asphalt, **raw** tons will be subtracted from the Record of Delivery & Payment for the **raw** tons delivered (top illustration in this section). The **raw** tons will be diluted at a 50/50 ratio (bottom illustration in this section). Daily, the **Inspector** shall record the date, distributor number, oil temp, tons applied, accumulative tons applied, and AEB#. Record the station to station (roadway stations where the material was applied), width of the roadway covered, Sqyd ((length x width) ÷ 9), application rate, and initials. All stations must have a line designation and show left, right, or center line. If the station to station does not equal the length used to calculate Sqyds, then the length must be written above the station to station. "Varies" will **not** be accepted in the width column, must have a quantity. **Skip at least one line between entries.**

For each payment cycle, the **Officeperson** shall draw two red lines under the areas to be paid on a progress payment and record the payment number, amount to be paid, and the AEB number, as illustrated in this section. **Make sure to take the total tons paid each payment cycle and multiply by 50%. Compare this amount to the total tons deducted for the seal coat from the Record of Delivery & Payment for the raw tons to assure the quantities match. Payment for raw tons will be based on the tons delivered minus any waste and/or material left in storage and what was deducted for the seal coat.**

Any items requiring measurements or final quantity calculations must be shown in the field book or on a CALCULATION sheet (Form No. 040-034) and filed in the CALCULATION book. Be sure to cross reference the quantity in the field book to the CALCULATION sheet and the CALCULATION sheet to the field book(s) and page(s), as described and illustrated in Section C and Chapter 2 of the Documentation Manual.

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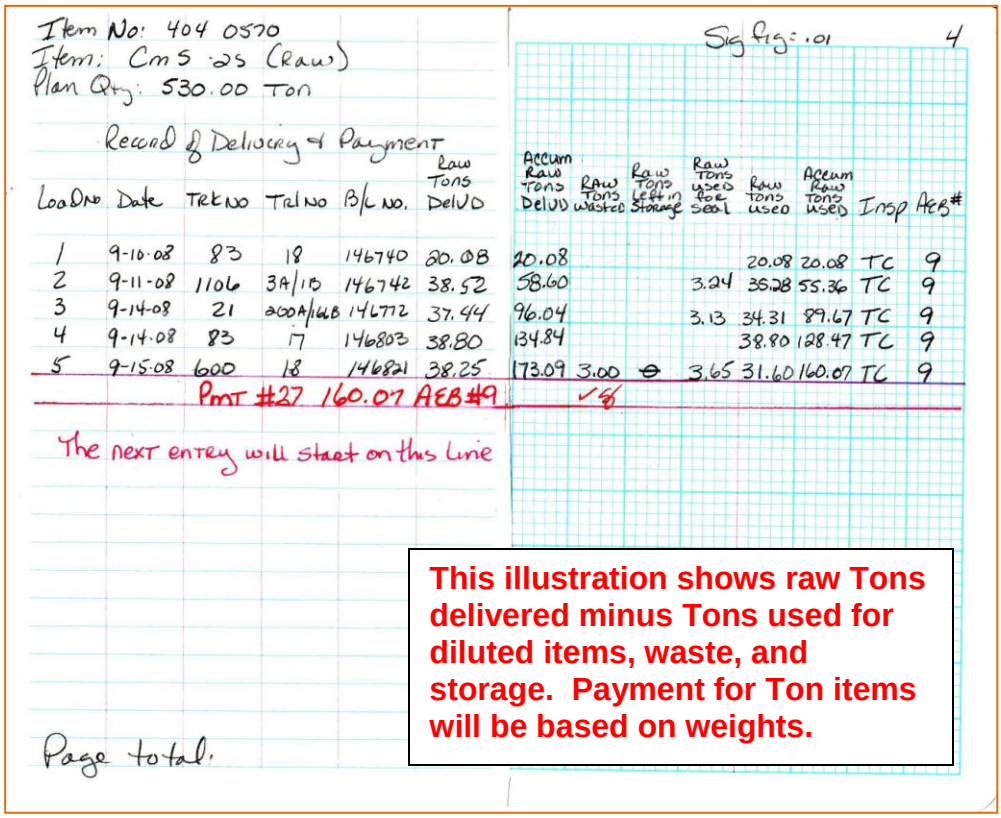
It is important that all records be kept in a neat and legible manner. All **notes in the remarks column must be initialed** by the person or persons responsible for the entry. **All calculations must be checked and initialed by the checker.**



Item No: 404 0570
Item: Cms -25 (Raw)
Plan Qty: 530.00 Ton

Sq ftg: .01 4

Record of Delivery & Payment

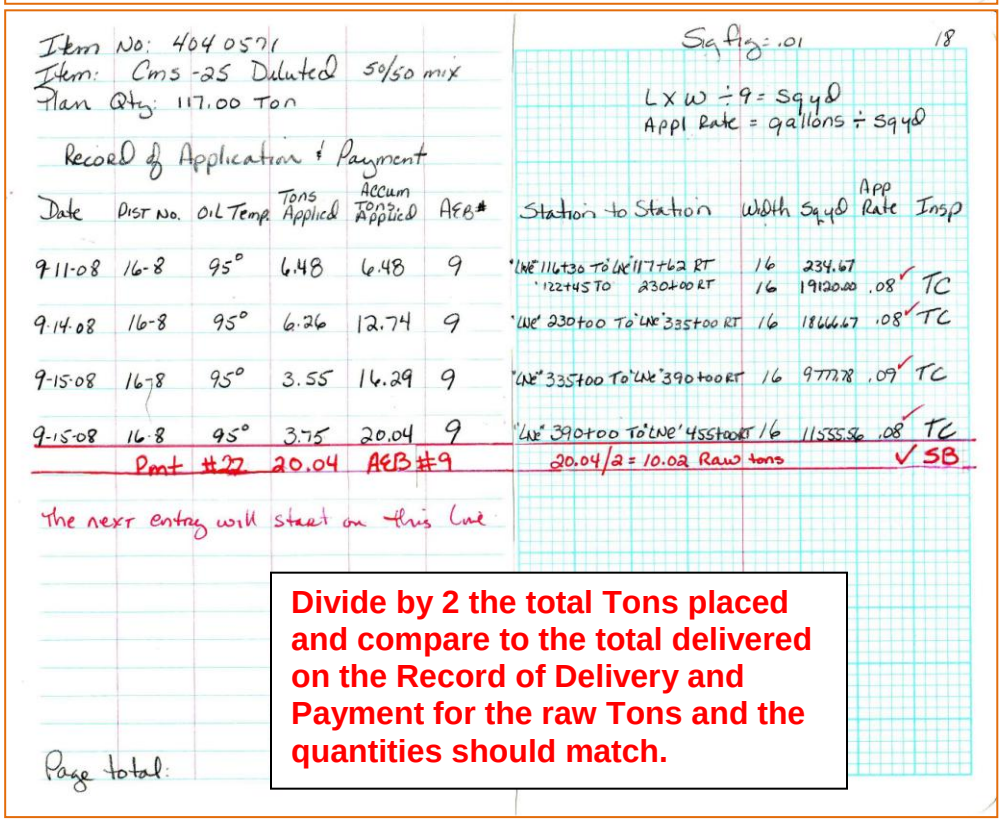
Load No	Date	Trk No	Trl No	B/L No.	Raw Tons Deliv'd	Accum Raw Tons Deliv'd	Raw Tons Wasted	Raw Tons Left in Storage	Raw Tons used for Seal	Raw Tons used	Accum Raw Tons used	Insp	AEB#
1	9-10-08	83	18	146740	20.08	20.08				20.08	20.08	TC	9
2	9-11-08	1106	3A/15	146742	38.52	58.60			3.24	35.28	55.36	TC	9
3	9-14-08	21	200A/46B	146772	37.44	96.04			3.13	34.31	89.67	TC	9
4	9-14-08	83	17	146803	38.80	134.84				38.80	128.47	TC	9
5	9-15-08	600	18	146821	38.25	173.09	3.00	⊖	3.65	31.60	160.07	TC	9

Pmt #27 160.07 AEB #9 ✓SB

The next entry will start on this line

Page total:

This illustration shows raw Tons delivered minus Tons used for diluted items, waste, and storage. Payment for Ton items will be based on weights.



Item No: 404 0571
Item: Cms -25 Diluted 50/50 mix
Plan Qty: 117.00 Ton

Sq ftg: .01 18

L x W ÷ 9 = Sq yd
Appl Rate = gallons ÷ Sq yd

Record of Application & Payment

Date	Dist No.	Oil Temp	Tons Applied	Accum Tons Applied	AEB#	Station to Station	Width	Sq yd	App Rate	Insp
9-11-08	16-8	95°	6.48	6.48	9	LINE 1164+30 TO LINE 1177+62 RT	16	234.67		
						122+45 TO 230+00 RT	16	19120.00	.08 ✓	TC
9-14-08	16-8	95°	6.26	12.74	9	LINE 230+00 TO LINE 335+00 RT	16	18666.67	.08 ✓	TC
9-15-08	16-8	95°	3.55	16.29	9	LINE 335+00 TO LINE 390+00 RT	16	9777.78	.09 ✓	TC
9-15-08	16-8	95°	3.75	20.04	9	LINE 390+00 TO LINE 455+00 RT	16	11555.56	.08 ✓	TC
		Pmt #27	20.04	AEB #9		20.04/2 = 10.02 Raw tons				✓SB

The next entry will start on this line

Page total:

Divide by 2 the total Tons placed and compare to the total delivered on the Record of Delivery and Payment for the raw Tons and the quantities should match.

Rev 01/11

SECTION V

The source documentation requirement for any work to be paid on a force account basis is the DAILY COSTS OF FORCE ACCOUNT (Form No. 040-008). Refer to subsection 109.01 (for standby time on equipment rental) and 109.03 (for specific requirements relating to force account) of the Standard Specifications for Road and Bridge Construction (Silver book).

Forms change periodically, please assure that you are using the most current form available, see Chapter 26 (Distribution of Documents).

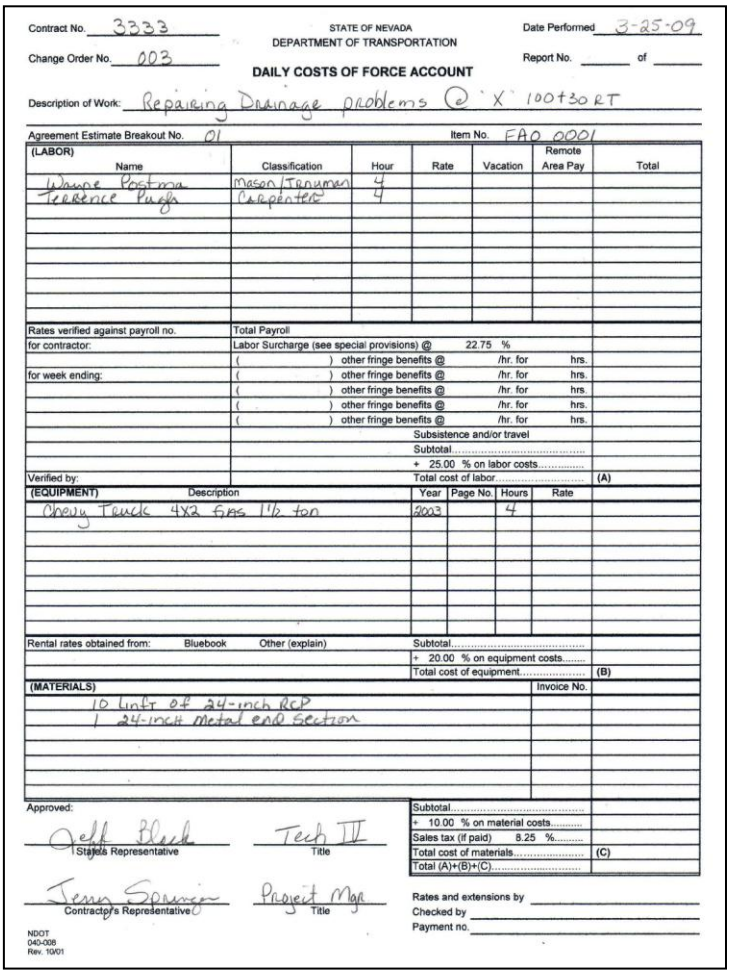
As illustrated below, it will be the **Inspector's** responsibility to:

Record the contract number, date, Change Order number, description of work, AEB number and item number on the top of the force account sheet.

Record the names, classification and hours worked of each person performing work on the force account. Overtime hours shall be listed separate from straight time hours.

Record the year and a complete description of each piece of equipment such as make, model, horsepower, capacity, size, etc. and the actual hours worked. Also record any attachments and give a description.

Record the materials used by giving a complete description and the quantities used on the force account work.



Contract No. 3333 — STATE OF NEVADA — DEPARTMENT OF TRANSPORTATION — Date Performed 3-25-09

Change Order No. 003 — Report No. _____ of _____

DAILY COSTS OF FORCE ACCOUNT

Description of Work: Repairing Drainage problems @ X 100+30 RT

Agreement Estimate Breakout No. 01 — Item No. FAO 0001

(LABOR) Name	Classification	Hour	Rate	Vacation	Remote Area Pay	Total
Wayne Postma	Mason/Journeyman	4				
Terrence Pugh	Carpenter					

Rates verified against payroll no. — Total Payroll

for contractor: — Labor Surcharge (see special provisions) @ 22.75 %

for week ending: — ( ) other fringe benefits @ /hr. for hrs. (×4)

Subsistence and/or travel

Subtotal

+ 25.00 % on labor costs

Verified by: — Total cost of labor (A)

(EQUIPMENT) Description	Year	Page No.	Hours	Rate
Chevy Truck 4X2 Flas 1½ ton	2003		4	

Rental rates obtained from: Bluebook Other (explain)

Subtotal

+ 20.00 % on equipment costs

Total cost of equipment (B)

(MATERIALS) — Invoice No.

10 Linft of 24-inch RCP

1 24-inch Metal end Section

Subtotal

+ 10.00 % on material costs

Sales tax (If paid) 8.25 %

Total cost of materials (C)

Total (A)+(B)+(C)

Approved:

Jeff Black — State's Representative — Tech II — Title

Jerry Spencer — Contractor's Representative — Project Mgr — Title

Rates and extensions by _____

Checked by _____

Payment no. _____

NDOT 040-008 Rev. 10/01

Review the force account sheet with the Contractor and obtain the Contractor's signature after the work for the day is completed. Do not fill in hourly rates, extended amounts, or material prices at this time, but turn the partially completed sheet into the field office daily. After the sheets are fully extended, a copy shall be forwarded to the Contractor.

Rev 01/11

SECTION W

Lump sum items (excluding mobilization 628 0004, and including rent traffic control devices 624 0160 and incidental construction 736 0050) shall be documented on a LUMP SUM PAYMENT RECORD (Form No. 040-039), as illustrated in this section, completed and signed at the end of each payment cycle by the **Resident Engineer** or **Inspector** who observed the work progress. In the space provided for Remarks, the **Resident Engineer** or **Inspector** shall explain how the estimated percent of work done to date was derived. The AEB number must be indicated on each sheet.

Forms change periodically, please assure that you are using the most current form available, see Chapter 26 (Distribution of Documents).

It is important that all records be kept in a neat and legible manner.

STATE OF NEVADA
DEPARTMENT OF TRANSPORTATION
LUMP SUM PAYMENT RECORD

Date 9-19-08 Payment No. 2

Contract No. 3800 AEB No. 1

Item No.	C. O. No.	Description
624-0160		Rent Traffic Control Devises

Lump Sum Amount: $ 5,000.00 x 100 % (Estimated Percent of Work Done to Date)

Equals: $ 5,000.00 Minus: $ 0 (Previous Payments)

Equals: $ 5,000.00 (Total Due This Payment)

REMARKS:

Complete

When documenting Rent Traffic Control Devices paid by lump sum, one payment of 100% can be made or several payments can be made over the length of the contract. If one payment of 100% is made, the IFS system will automatically prorate the amount over the length of the contract. If several payments are made during the length of the contract by the Resident Engineer, the IFS system will process 50% of each payment. When the Rent Traffic Control Devices are paid by lump sum the Traffic Control Supervisor shall submit a "Work Zone Traffic Control Checklist" four (4) times daily and must submit the completed forms with 24 hours.

Franklin Mint
Resident Engineer or Inspector

Checked by Joe Smith
Officeperson

NDOT 040-039
Rev 2-99

Rev 01/11

STATE OF NEVADA
DEPARTMENT OF TRANSPORTATION
LUMP SUM PAYMENT RECORD

Date 10-2-08 Payment No. 28

Contract No. 3247 AEB No. 6

Item No.	C. O. No.	Description
APO 0002	15	Remove Portion of Bridge Deck

Lump Sum Amount: $ 129,550.00 x 30 % (Estimated Percent of Work Done to Date)

Equals: $ 38,865.00 Minus: $ 0.00 (Previous Payments)

Equals: $ 38,865.00 (Total Due This Payment)

REMARKS:

Total Length = 200 Linft
To Date = 60 Linft

Frank Smith
Resident Engineer or Inspector

Checked by Bob Jones
Officeperson

NDOT 040-039
Rev 2-99

STATE OF NEVADA
DEPARTMENT OF TRANSPORTATION
LUMP SUM PAYMENT RECORD

Date 10-10-08 Payment No. 29

Contract No. 3247 AEB No. 6

Item No.	C. O. No.	Description
APO 0002	15	Remove Portion of Bridge Deck

Lump Sum Amount: $ 129,550.00 x 100 % (Estimated Percent of Work Done to Date)

Equals: $ 129,550.00 Minus: $ 38,865.00 (Previous Payments)

Equals: $ 90,685.00 (Total Due This Payment)

REMARKS:

Complete

Frank Smith
Resident Engineer or Inspector

Checked by Bob Jones
Officeperson

NDOT 040-039
Rev 2-99

SECTION X

Flagging and uniformed traffic control officer hours shall be documented on a UNIFORMED TRAFFIC CONTROL OFFICER & DAILY FLAGGING HOURS sheet (Form No. 040-036), as illustrated below. The form shall be prepared and signed by the **Inspector** at the end of each shift and signed by the Contractor. The **Inspector** shall check the appropriate box in the upper left-hand corner, check the expiration date on each flagger's card, enter a complete location **(station or cross streets)**, AEB#, hours worked, the significant figure to the nearest one-half (0.5) hour, and **an explanation as to why the flaggers were required.** A separate sheet may be prepared for each AEB or several AEBs may be documented on one sheet, providing the hours in each AEB are identified as illustrated below. It shall be turned in to the field office daily and a copy made for the Contractor.

NHP provides police on contracts on the interstate and will be paid by Force Account, as explained and illustrated in Chapter 3 of the Documentation Manual.

Contracts not on the interstate will use security or traffic control companies to control traffic. A request to sublet, subcontract, and certified payrolls are required. Uniformed traffic control officers will be paid the same wage as flaggers.

It is important that all records be kept in a neat and legible manner.

Forms change periodically, please assure that you are using the most current form available, see Chapter 26 (Distribution of Documents).

Flagger sheets must be originals, copies will not be accepted.

DATE 9-30-09

STATE OF NEVADA
DEPARTMENT OF TRANSPORTATION
UNIFORMED TRAFFIC CONTROL OFFICER AND FLAGGING HOURS

CHECK ONE:
☐ OFFICER
☑ FLAGGER

CONTRACT NUMBER: 3247

NAME	CARDED	LOCATION	AEB #	HOURS
Jed Beatty	yes	"X" 77+00 RT	1	3.0
Sara Bee	yes	"X" 82+50 LT	1	3.0
Ted Roosevelt	yes	"X" 85+00 LT	1	3.5
Jed Beatty		"X" 86+00 RT	2	5.0
Sara Bee		"X" 90+00 RT	2	5.0
Ted Roosevelt		"X" 95+00 RT	2	5.0
		AEB #1 = 9.5		
		AEB #2 = 15.0		
			TOTAL:	24.5

Total checked and posted by Sherri Brown
Officeperson

Flagging required for the following:

Traffic Control - flagging for paver

Approved: B. D. Keene
Contractor's Representative

Approved: Pat Stewart
State's Representative

NOTE: USE A SEPARATE SHEET FOR EACH BID ITEM.

NDOT 040-036
Rev 3-98

Rev 01/11

SECTION Y

Rent equipment, pilot car, survey crew, and traffic control supervisor shall be documented on the RENT EQUIPMENT, PILOT CAR, SURVEY CREW, TRAFFIC CONTROL SUPERVISOR, OFFICE SPACE AND BIOLOGIST sheet (Form No. 040-037), as illustrated in this section, shall be prepared and signed by the **Inspector** at the end of each shift and signed by the Contractor. **Make sure to circle the appropriate unit of payment – hours / days / month.** It shall be turned in to the field office daily and a copy made for the Contractor.

A separate form shall be prepared for each different type of equipment being used (loader, motor grader, dump truck, pilot car, etc.). Only one piece of equipment shall be listed on each line. If more that one piece of the same equipment is utilized the same day, each must be listed separately and the hours for each listed separately as illustrated in the top example in this section.

Rental of equipment is measured by time within one-half (.5) hour of actual working time and necessary traveling time of the equipment within the limits of the contract. If equipment has been ordered on the job on a standby basis by the engineer, half-time rates for the equipment will be paid. Refer to subsection 109.01 of the Standard Specifications for Road and Bridge Construction, Silver book), for further explanations of standby rates.

On any given day, the documented hours for each piece of equipment cannot exceed the number of hours in a day.

The AEB number shall be indicated on each sheet and the significant figure is to the nearest one-half (0.5) hour.

When preparing a sheet for traffic control supervisor and biologist (paid by the day), it is acceptable to document up to two weeks (coinciding with each payment cycle) on one sheet as illustrated in the bottom example in this section. **These are the only items that can be paid in this manner.**

If the dates the traffic control supervisor or biologist works coincides with the dates of the contract, an explanation is required if a day is not charged.

It is important that all records be kept in a neat and legible manner.

RENT EQUIPMENT, PILOT CAR, SURVEY CREW, TRAFFIC CONTROL SUPERVISOR, OFFICE SPACE AND BIOLOGIST sheets must be originals, copies will not be accepted.

Forms change periodically, please assure that you are using the most current form available, see Chapter 26 (Distribution of Documents).

Rev 01/11

DATE 9/26/09

STATE OF NEVADA
DEPARTMENT OF TRANSPORTATION
RENT EQUIPMENT, PILOT CAR, SURVEY CREW, TRAFFIC CONTROL SUPERVISOR, OFFICE SPACE AND BIOLOGIST

CONTRACT NUMBER: 3247

DESCRIPTION	AEB #	HOURS / (DAYS) / MONTH
Traffic Control Supervisor		
9-13-09	2	1.0
9-14-09	2	1.0
9-15-09	2	1.0
9-16-09	2	1.0
9-17-09	2	1.0
9-18-09	2	1.0
9-19-09	2	1.0
9-20-09	2	1.0
9-21-09	2	1.0
9-22-09	2	1.0
9-23-09	2	1.0
9-24-09	2	1.0
9-25-09	2	1.0
9-26-09	2	1.0
	TOTAL:	14.0

Total checked and posted by Sherri Brown
Officeperson

Approved: BB Kerr
Contractor's Representative

Approved: Lynne Phillips
State's Representative

NOTE: USE A SEPARATE SHEET FOR EACH BID ITEM.
CIRCLE THE APPROPRIATE UNIT (HOURS/ DAYS/ MONTH)

NDOT 040-037
Rev 6/09

DATE 9-30-09

STATE OF NEVADA
DEPARTMENT OF TRANSPORTATION
RENT EQUIPMENT, PILOT CAR, SURVEY CREW, TRAFFIC CONTROL SUPERVISOR, OFFICE SPACE AND BIOLOGIST

CONTRACT NUMBER: 3247

DESCRIPTION	AEB #	(HOURS) / DAYS / MONTH
Pilot Car	1	8.0
Pilot Car	2	4.0
AEB #1 = 8.0		
AEB #2 = 4.0		
	TOTAL:	12.0

Total checked and posted by Sherri Brown
Officeperson

Approved: Rose Gardner
Contractor's Representative

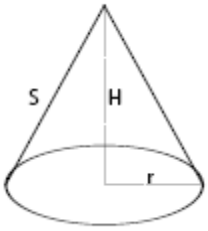
Approved: Terri Carson
State's Representative

NOTE: USE A SEPARATE SHEET FOR EACH BID ITEM.
CIRCLE THE APPROPRIATE UNIT (HOURS/ DAYS/ MONTH)

NDOT 040-037
Rev 6/09

SECTION Z

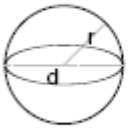
The following illustrations are to assist in keeping calculations simple. This page shows different equations for calculating volume and area. If there are any questions please call Headquarters Construction.



Volume of a Cone

CUFT = 1/3 Π r² H

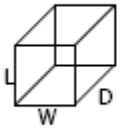
CUYD = [1/3 Π r² H] / 27



Volume of a Sphere

CUFT = 4/3 x Π r³

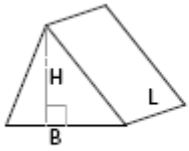
CUYD= (4/3 x Π r³) / 27



Volume of a Cube

CUFT = L x W x D

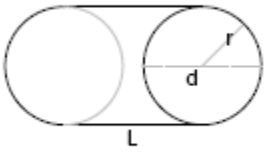
CUYD = (L x W x D) / 27



Volume of a Triangle

CUFT = 1/2 (B x H x L)

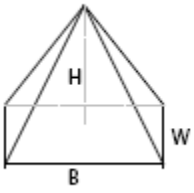
CUYD = [1/2(B x H x L)] / 27



Volume of a Cylinder / Pipe

CUFT = Π r² x L

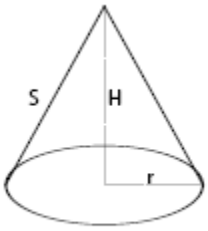
CUYD = (Π r² x L) / 27



Volume of a Pyramid

CUFT = 1/3 (B x W x H)

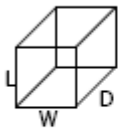
CUYD = [1/3 (B x W x H)] / 27



Area of a Cone

Surface Area (SQFT)=
(Π r S) + (Π r²)

Surface Area (SQYD)=
[(Π r S) + (Π r²)] / 9



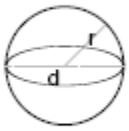
Area of a Cube

Surface Area SQFT =
(L x W x 2) + (L x D x 4)

Surface Area SQYD =
[(L x W x 2) + (L x D x 4)] / 9

Rev 01/11

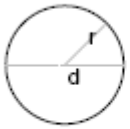
This page shows different equations for calculating area.



Area of a Sphere

Surface Area (SQFT) = $4\ \Pi\ r^2$

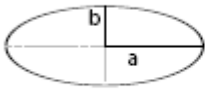
Surface Area (SQYD) = $(4\ \Pi\ r^2) / 9$



Area of a Circle

SQFT = $\Pi\ r^2$

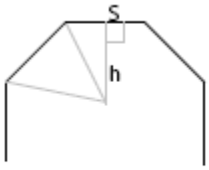
SQYD = $\Pi\ r^2 / 9$



Area of an Ellipse

SQFT= $\Pi\ a\ b$

SQYD= $(\Pi\ a\ b) / 9$

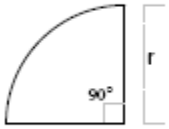


Area of a Polygons

SQFT = $1/2\ (N\ h\ S)$

SQYD = $[1/2\ (N\ h\ S)] / 9$

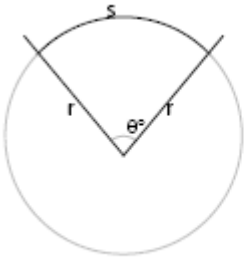
N = number of sides



Area of a Quadrant

SQFT = $\frac{\Pi\ r^2}{4}$

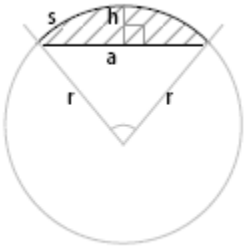
SQYD = $\left[\frac{\Pi\ r^2}{4}\right] / 9$



Sector of a Circle

SQFT = $1/2\ \left(\frac{\theta\ \Pi}{180}\right)\ r^2$

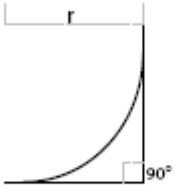
SQYD = $\left[1/2\ \left(\frac{\theta\ \Pi}{180}\right)\ r^2\right] / 9$



Segment of a Circle

SQFT = $1/2\ [s\ r - a\ (r - h)]$

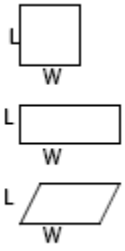
SQYD = $1/2\ [s\ r - a\ (r - h)] / 9$



Area of a Spandrel

SQFT = $0.2146\ r^2$

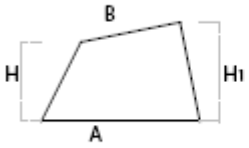
SQYD = $(0.2146\ r^2) / 9$



Area of a Square, Rectangle and Parallelogram

SQFT = L x W

SQYD = L x W / 9



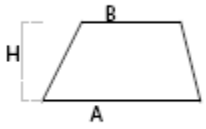
Area of a Trapezium

SQFT = $\frac{(H + H1)}{2}\ x\ \frac{(A + B)}{2}$

SQYD = $\left[\frac{(H + H1)}{2}\ x\ \frac{(A + B)}{2}\right] / 9$

Rev 01/11

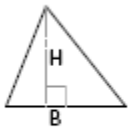
This page shows different equations for calculating area and a calculation for proration.



Area of a Trapezoid

SQFT = 1/2 H x (A + B)

SQYD = [1/2 H x (A + B)] / 9



Area of a Triangle

SQFT = 1/2 (B x H)

SQYD = [1/2 (B x H)] / 9

Proration: Example: Pipe plan = 40 linft
Pipe field measure = 45 linft
Structure Excavation plan = 120 cuyd
45 ÷ 40 = 1.125 x 120 = 135 cuyd new quantity for structure excavation

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