

Construction Drawings for
Final Cover and Drainage System
at the
Mira Loma Landfill
June 2014

WASTE MANAGEMENT DEPARTMENT

PREPARED BY
WASTE MANAGEMENT DEPARTMENT
HANS KERNKAMP, General Manager - Chief Engineer
14310 FREDERICK STREET
MORENO VALLEY, CALIFORNIA 92553
TEL. (951) 486-3200 FAX. (951) 486-3250

APPROVED: _____
Hans Kernkamp, General Manager - Chief Engineer, R.C.E. 45868 Exp. 12/31/2014

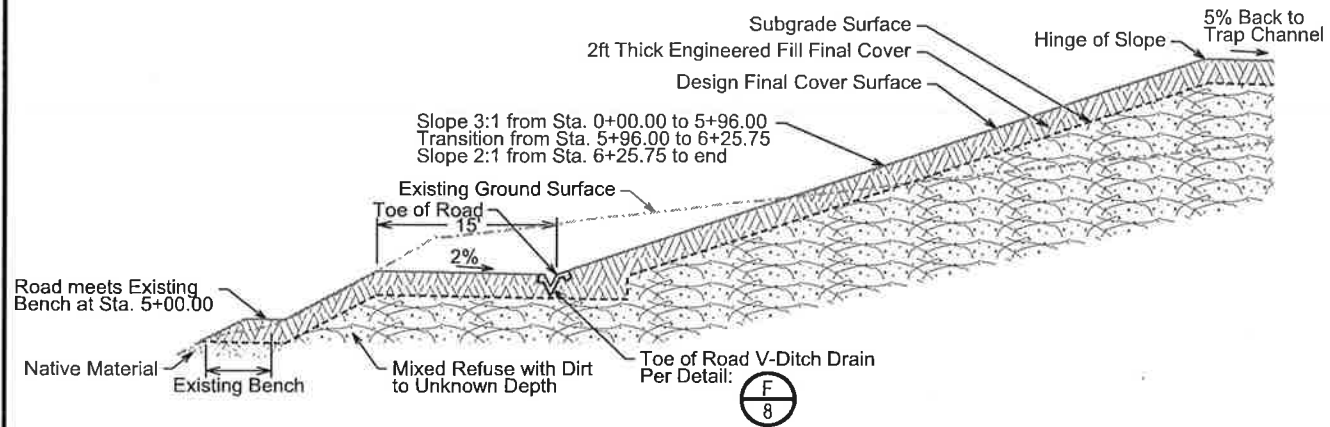
RECOMMENDED: _____
Joseph R. McCann, Assistant Chief Engineer, R.C.E. 51694 Exp. 6/30/2016

SUBMITTED: _____
Andrew Cortez, Engineering Project Manager, R.C.E. 62528 Exp. 12/31/2015

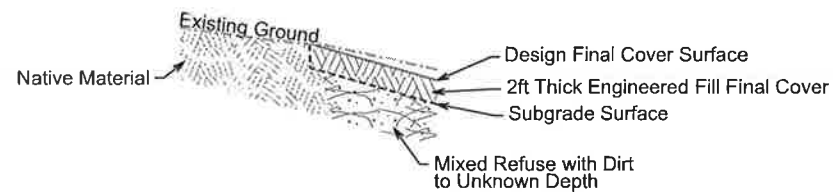
DESIGNED: _____
Sarah Lunetta, Assistant Civil Engineer, R.C.E. 78469 Exp. 9/30/2015



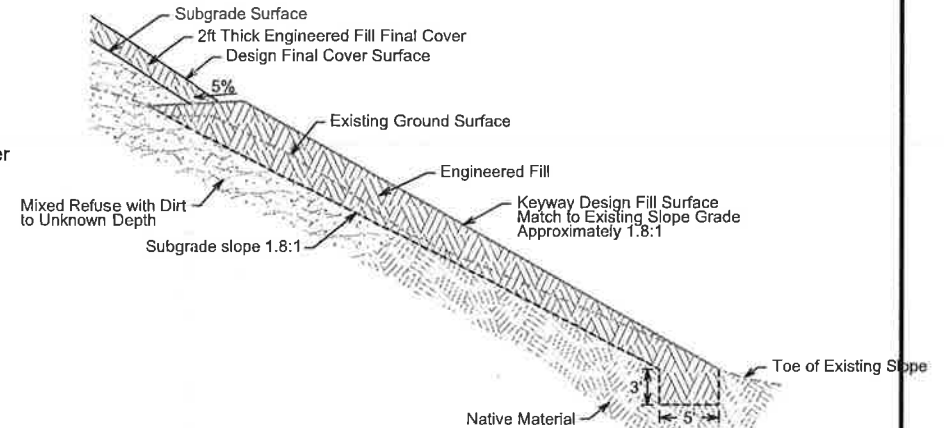
Riverside County
Waste Management Department



A Road and Slope Cross-Section
Not to Scale

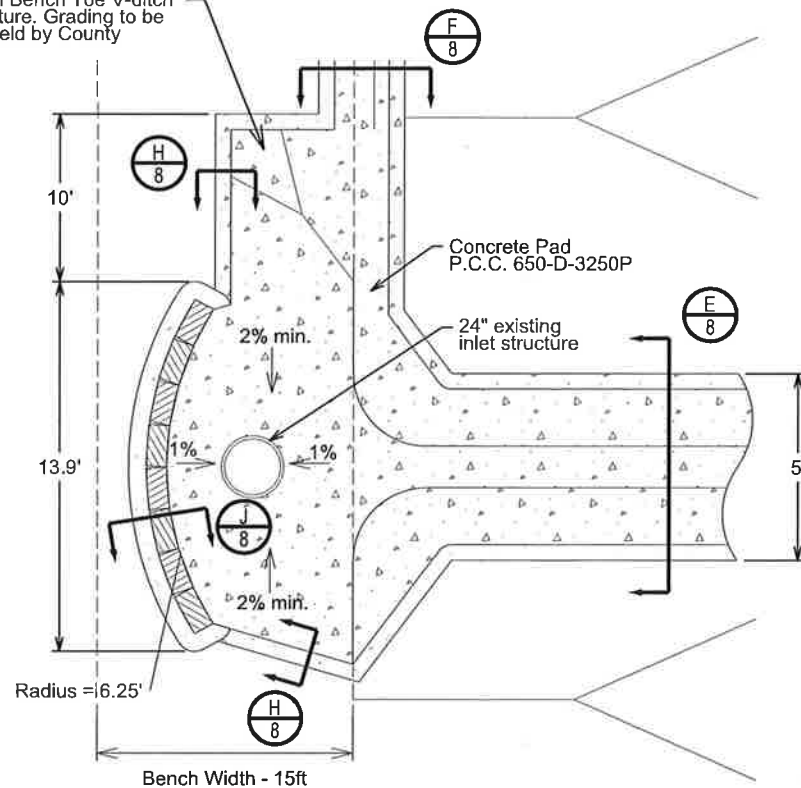


B Edge of Excavation Cross-Section
Not to Scale



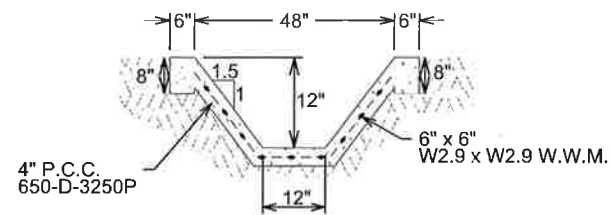
C Keyway Cross-Section
Not to Scale

10' transition from Bench Toe V-ditch to Drainage structure. Grading to be approved in the field by County Representative.

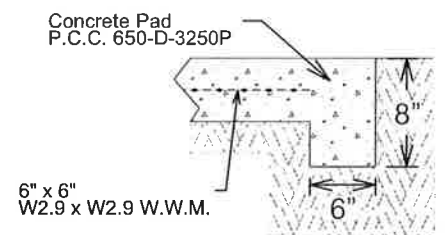


CONSTRUCTION NOTES
① MASONRY BLOCK DIMENSIONS: 6" X 8" X 16"
② CONCRETE BLOCKS SHALL BE PLACED WHILE THE FOOTING IS STILL FRESH. ALL CELLS TO BE FILLED SOLID WITH GROUT AND RODDED SO GROUT IS MONOLITHIC WITH FRESH FOOTING.

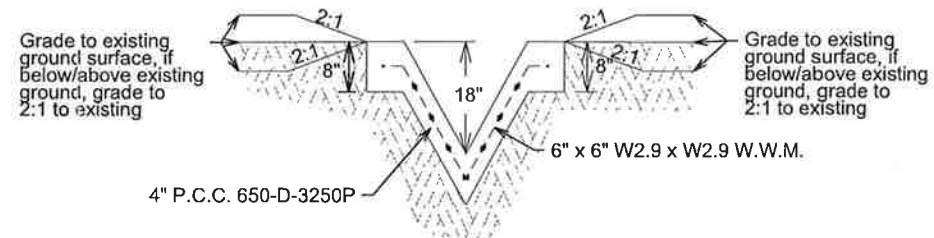
D Inlet Structure and Splash Wall
Not to Scale



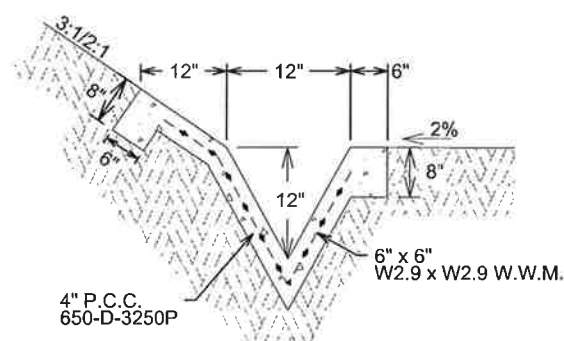
E Concrete Trap Channel
Not to Scale



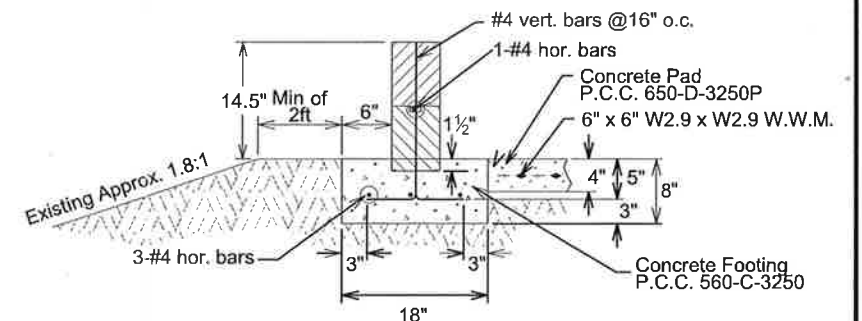
H Inlet Structure Cut-off Wall
Not to Scale



G V-Ditch Drain
Not to Scale



F Road V-Ditch Drain
Not to Scale



J Masonry Block Splash Wall Detail
Not to Scale

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DESIGNED BY: SNL
DRAWN BY: SNL
CHECKED BY: AMC
DATE: 12 June 2014
DATE OF TOPOGRAPHY: 2007

Riverside County
Waste Management Department
Hans Kernkamp, General Manager-Chief Engineer

Mira Loma Landfill
Final Cover and Drainage System
Cross-Sections and
Drainage Details

SCALE: NTS
FOLDER: T:/Mira Loma/14ml/Cover&
FOLDER: DrainageProject/Project Drawings
FILE: MLCover-S08-Details.dgn
MODEL: Default
SHEET 8 OF 8

FILL PATTERNS

| New Materials | Existing Materials |
|---------------|--------------------|
| | |
| | |
| | |
| | |

LINE PATTERNS

| | |
|--|--|
| | Grading Limits (Line not to scale) |
| | Edge of (Trash) Fill |
| | Property Line |
| | Constructed Hinge Line |
| | Constructed Toe Line |
| | Ground Contours |
| | Design Contours |
| | Edge of Asphalt Road |
| | Approx. Location of High Pressure Gas Line |
| | Approx. Location of Buried JCSD Culvert Easement |

MISCELLANEOUS

| | |
|--|--|
| | Protect in Place Monument Point |
| | CalTrans Storm Drain |
| | Slope Call-out (Horz:Vert or Percent) |
| | Construction Note Call-out |
| | Flow direction |

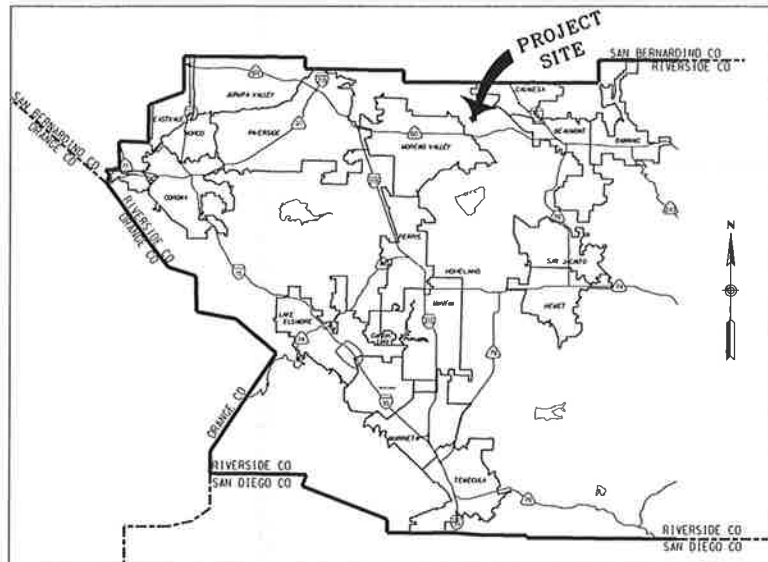
Detail Callouts

| | |
|--|---|
| | TYPICAL SECTION OR DETAIL LABEL OR NUMBER |
| | SHEET NUMBER WHERE DETAIL OR SECTION IS SHOWN |

2B Detail sheet 2 Detail "B"

Station Callout

| ALIGNMENT TITLE/NAME | Sta | R 4+00 |
|----------------------|--------------|--------|
| R | Road | |
| T | Trap Channel | |
| V | V-ditch | |



ABBREVIATIONS

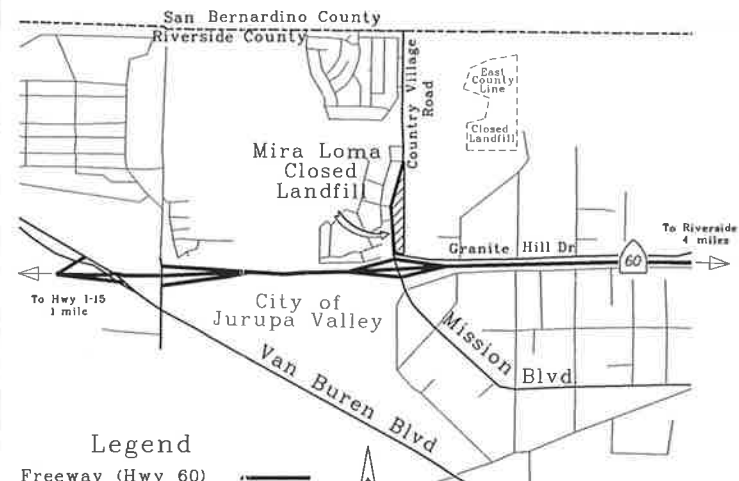
| | |
|----------|--------------------------------|
| A.C. | ASPHALT CONCRETE |
| APPROX. | APPROXIMATE |
| B.C. | BEGINNING OF CURVE |
| B.V.C. | BEGINNING OF VERTICAL CURVE |
| CL | CENTER LINE |
| clr. | CLEARANCE |
| △ | CURVE DELTA |
| E. | EASTING |
| E.C. | END OF CURVE |
| EL. | ELEVATION |
| E.V.C. | END OF VERTICAL CURVE |
| F. | FILL |
| FL | FLOW LINE |
| G.B. | GRADE BREAK |
| INV | INVERT OF PIPE, CHANNEL ETC. |
| L | LENGTH OF CURVE |
| N. | NORTHING |
| N.T.S. | NOT TO SCALE |
| P.T. | POINT OF TERMINATION |
| P.V.I | POINT OF VERTICAL INTERSECTION |
| P/L | PROPERTY LINE |
| R | RADIUS |
| R.C. | REINFORCED CONCRETE |
| R.C.F.C. | RIVERSIDE COUNTY FLOOD CONTROL |
| R.P. | RADIUS POINT OF CURVE |
| STA. | STATION |
| T | TANGENCY |
| TYP. | TYPICAL |
| TOP | TOP (HINGE) OF SLOPE |
| TOE | TOE OF SLOPE |

GENERAL NOTES

- Details of construction, materials and workmanship not shown in these drawings shall conform to the pertinent requirements of the Standard Specifications and any applicable Contract Specifications.
- Contractor shall provide all utilities (water, electrical, and telephone service) as necessary to successfully complete any and all construction activities.
- All existing utilities such as fences, monitoring wells, pipelines, gas lines, probes, etc. shall be protected from damage or replaced at Contractor's expense.
- All existing and proposed dimensions shall be verified by the Contractor prior to starting work. The Department shall be notified of all discrepancies immediately.
- Topography is developed by digital photogrammetric methods and field topographic survey (in the area where daily cover is currently being excavated along with daily waste fill operations). Grid ticks are based on North American datum of 1983 (NAD83). California coordinate system Zone VI NAVD 88 is to be used for all survey work.
- All elevations are in feet, based on U.S.C. & G.S. Datum.

Mira Loma Landfill Vicinity Map

Por. Secs. 4 T2S R6W S.B.B.M.

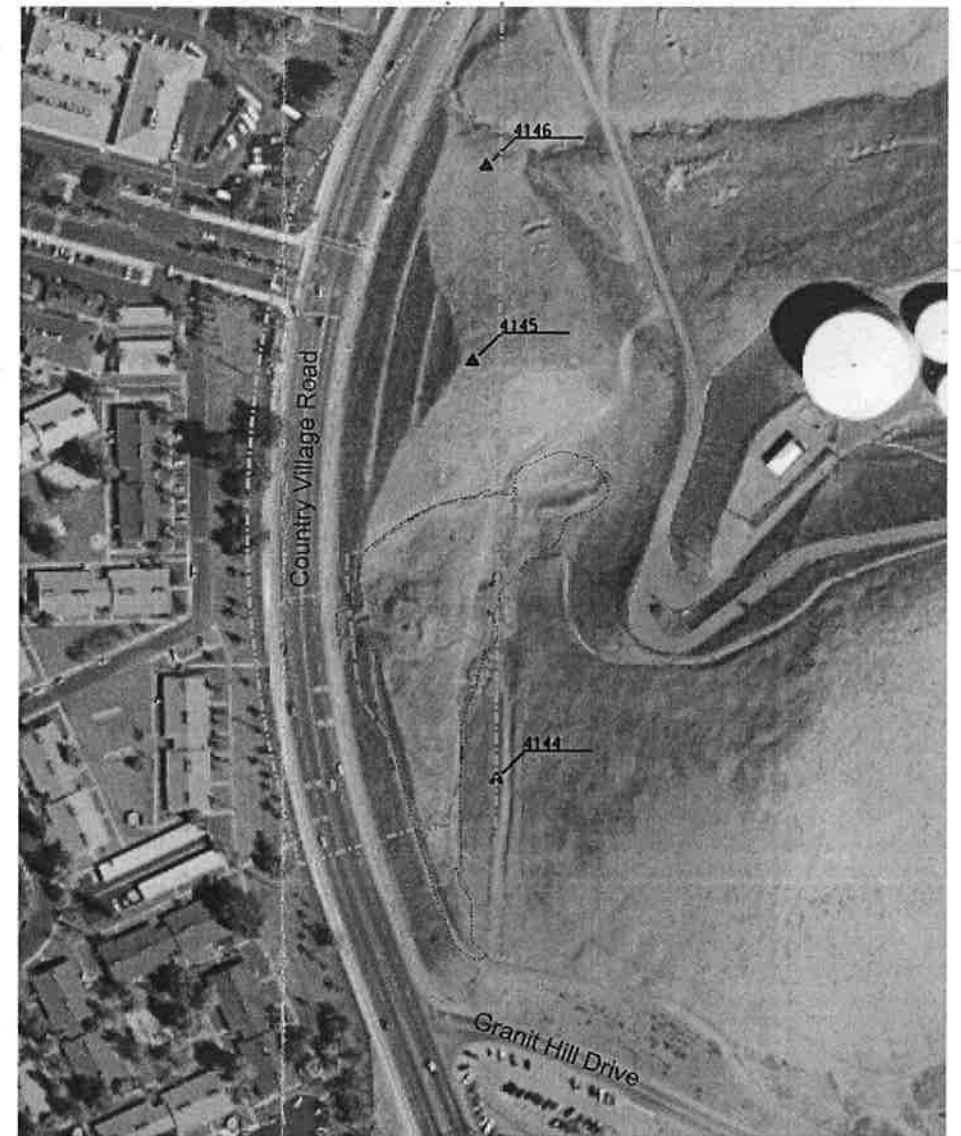


Legend

| | |
|--|---------------------------|
| | Freeway (Hwy 60) |
| | Paved Access Roads |
| | Other Roads |
| | Mira Loma Closed Landfill |

INDEX OF DRAWINGS

| SHEET NO. | FILE NAME | TITLE |
|-----------|----------------------------------|--|
| 1 | MLCover-S01-TitleSheet.dgn | Title Sheet |
| 2 | MLCover-S02-IndexSheet.dgn | General Notes, Legends, & Survey Control |
| 3 | MLCover-S03-Subgrade.dgn | General Site Map & Contractor Haul Route |
| 4 | MLCover-S04-SubgradeISO.dgn | Subgrade Grading Plan |
| 5 | MLCover-S05-FinalCover&Drain.dgn | Subgrade Grading Plan Isopach |
| 6 | MLCover-S06-Keyway.dgn | Keyway Grading Plan |
| 7 | MLCover-S07-Profiles.dgn | Road and Drainage Profiles |
| 8 | MLCover-S08-Details.dgn | Cross-Sections and Drainage Details |



SURVEY CONTROL POINTS

| Num. | Easting | Northing | Elevation | Description |
|------|--------------|--------------|-----------|-----------------------------------|
| 4144 | 6,180,768.86 | 2,317,513.86 | 860.98 | FD. 3/4" IP. W/RCFC TS PLUG FLUSH |
| 4145 | 6,180,734.57 | 2,318,092.82 | 903.65 | FD. 3/4" IP. W/RCFC TS PLUG FLUSH |
| 4146 | 6,180,752.72 | 2,318,364.83 | 842.16 | FD. 3/4" IP. W/RCFC TS PLUG FLUSH |

| NO. | REVISIONS | BY | APPROVED | DATE |
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|----------------------|-------------|
| DESIGNED BY: | SNL |
| DRAWN BY: | SNL |
| CHECKED BY: | AMC |
| DATE: | 6 June 2014 |
| DATE OF PHOTOGRAPHY: | n/a |



Hans Kernkamp, General Manager-Chief Engineer

Mira Loma Landfill
Final Cover and Drainage System

General Notes & Legends

| | |
|---------|----------------------------------|
| SCALE: | as shown |
| FOLDER: | Mira Loma/14ml/Cover& |
| FOLDER: | DrainageProject/Project Drawings |
| FILE: | MLCover-S02-IndexSheet.dgn |
| MODEL: | Title Sheet |
| SHEET | 2 OF 8 |

Construction Notes

- 1 Excavate refuse from within 15ft of slope to native material and replace excavated refuse material with engineered fill to subgrade design, as shown. Exact limits of refuse to be excavated from slope to be determined in the field by the County. The County approximates approximately 110CY of material to be removed. Excavation shall be paid as Bid Item # 3 - "Landfill Re-Grading" and the approximate area is included in the 1.90 acres.
- 2 Limits of two foot excavation may be extended if refuse is found beyond current grading limits. Construct limit of Final Cover Engineered Fill per detail:
- 3 Approximate Edge of Fill, as determined by the June 2013 CalRecycle site investigation, within RCWMD's property. Limits extend onto a private owner's property to the east and on to CalTrans' property to the south.
- 4 Construct key-way per Sheet 6 and detail:
- 5 Construct road and slope per detail:

Legend

Grading Limits (Line not to scale)

Edge of (Trash) Fill

Property Line

Constructed Hinge Line

Constructed Toe Line

Ground Contours

Design Contours

Edge of Asphalt Road

Approx. Location of High Pressure Gas Line

Approx. Location of Buried JCSD Culvert Easement

Protect in Place Monument Point

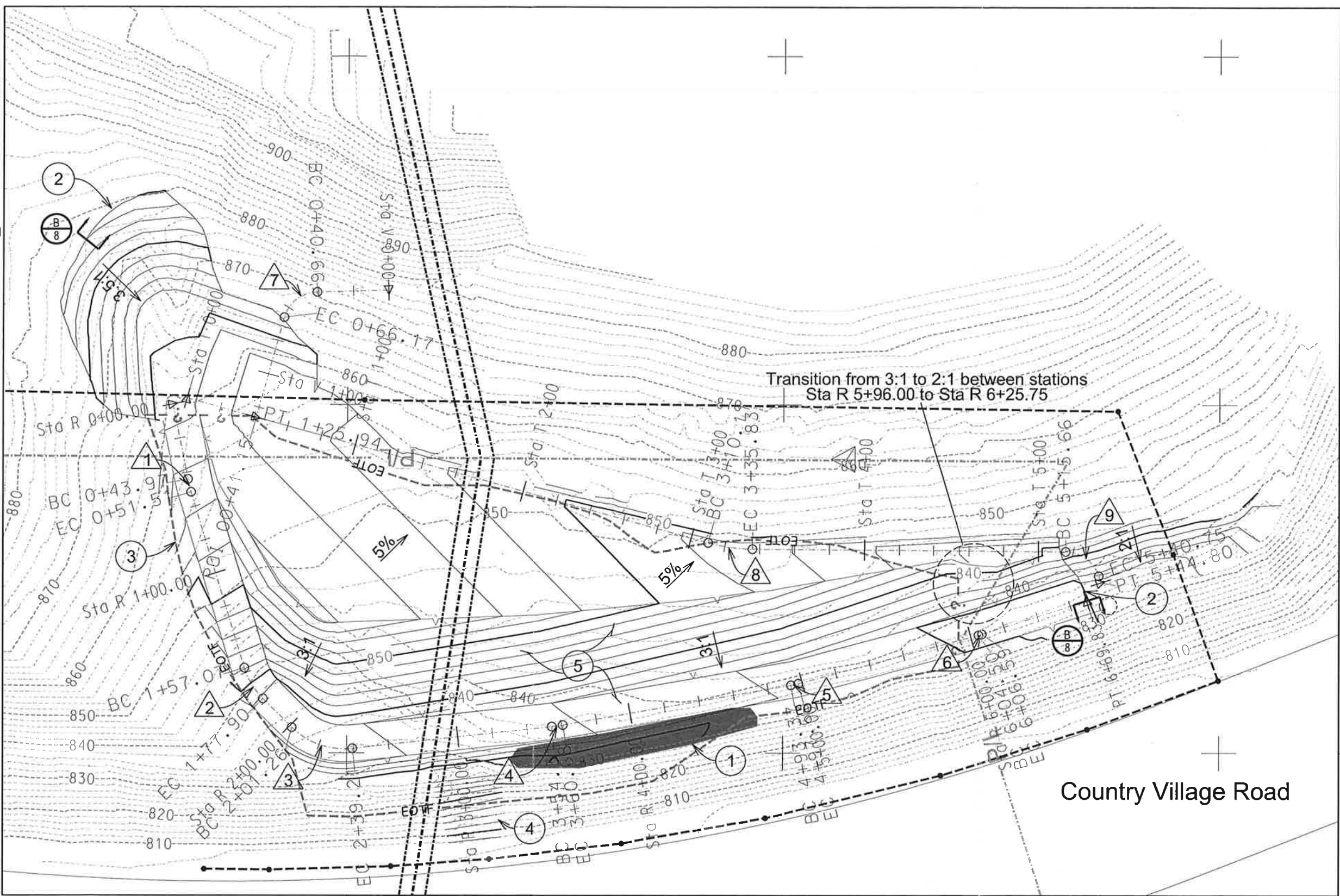
CalTrans Storm Drain (Protect in Place)

CURVE TABLES

| ROAD ALIGNMENT | | | | |
|----------------|------|-----------|-------|-------|
| No. | R | Δ | T | L |
| 1 | 72.5 | 5°57'44" | 3.78 | 7.54 |
| 2 | 42.5 | 28°04'59" | 10.63 | 20.83 |
| 3 | 42.5 | 51°09'35" | 20.34 | 37.95 |
| 4 | 97.5 | 3°44'29" | 3.18 | 6.37 |
| 5 | 47.5 | 5°08'52" | 2.14 | 4.27 |
| 6 | 47.5 | 2°31'31" | 1.05 | 20.9 |

| V-Ditch Drain | | | | |
|---------------|------|-----------|-------|-------|
| No. | R | Δ | T | L |
| 7 | 20.0 | 73°05'01" | 14.82 | 25.51 |

| Trap Channel | | | | |
|--------------|------|-----------|-------|-------|
| No. | R | Δ | T | L |
| 8 | 98.0 | 15°02'23" | 12.94 | 25.72 |
| 9 | 20.0 | 71°53'24" | 14.5 | 25.09 |



N - 2,317,800 (NAD83, NAVD88) N - 2,317,550 (NAD83, NAVD88) N - 2,317,300 (NAD83, NAVD88)

| NO. | REVISIONS | BY | APPROVED | DATE |
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DESIGNED BY: SNL
DRAWN BY: SNL
CHECKED BY: AMC
DATE: 9 June 2014
DATE OF TOPOGRAPHY: 2007

Riverside County
Waste Management Department
Hans Kernkamp, General Manager/Chief Engineer
Scale: 22x34: 1"=30' 11x17: 1"=60'
Datum is mean sea level. Contour Interval is 2 feet

Mira Loma Landfill
Final Cover and Drainage System
Subgrade Grading Plan

| | |
|---------|----------------------------------|
| SCALE: | 22x34: 1"=30' 11x17: 1"=60' |
| FOLDER: | T:/Mira Loma/14ml/Cover& |
| FOLDER: | DrainageProject/Project Drawings |
| FILE: | MLCover-S03-Subgrade.dgn |
| MODEL: | Default |
| SHEET | 3 OF 8 |

Construction Notes

- 1

Excavate refuse from within 15ft of slope to native material and replace excavated refuse material with engineered fill to subgrade design, as shown. Exact limits of refuse to be excavated from slope to be determined in the field by the County. The County approximates approximately 110CY of material to be removed. Excavation shall be paid as Bid Item # 3 - "Landfill Re-Grading" and the approximate area is included in the 1.90 acres.
- 2

Limits of two foot excavation may be extended if refuse is found beyond current grading limits. Construct limit of Final Cover Engineered Fill per detail:
- B

8
- 3

Approximate Edge of Fill, as determined by the June 2013 CalRecycle site investigation, within RCWMD's property. Limits extend onto a private owner's property to the east and on to CalTrans' property to the south.
- C

8
- 4

Construct key-way per Sheet 6 and detail:
- A

8
- 5

Construct road and slope per detail:

Legend

- Grading Limits
(Line not to scale)

Edge of (Trash) Fill

Property Line

Constricted Hinge Line

Constructed Toe Line

Ground Contours

Design Contours

Edge of Asphalt Road

Approx. Location of High Pressure Gas Line

Approx. Location of Buried JCSO Culvert Easement

Protect in Place Monument Point

CalTrans Storm Drain (Protect in Place)

Resultant Fill Depth (to nearest ft)

Resultant Cut Depth (to nearest ft)

| NO. | REVISIONS | BY | APPROVED | DATE |
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DESIGNED BY: SNL
DRAWN BY: SNL
CHECKED BY: AMC
DATE: 11 June 2014
DATE OF TOPOGRAPHY: 2007

Hans Kernkamp, General Manager/Chief Engineer

Mira Loma Landfill
Final Cover and Drainage System
Subgrade Grading Plan
Isopach

SCALE: 22x34: 1"=30' 11x17: 1"=60'
FOLDER: T:/Mira Loma/14ml/Cover&
FOLDER: DrainageProject/Project Drawings
FILE: MLCover-S04-SubgradeISO.dgn
MODEL: Default
SHEET 4 OF 8

Construction Notes

- 1 Excavate a minimum of 2ft to construct 2ft of engineered fill Final Cover.
- 2 Approximate Edge of Fill, as determined by the June 2013 CalRecycle site investigation, within RCWMD's property. Unknown limits extend onto a private owner's property to the east and on to CalTrans' property to the south, as noted by "7" on the EOTF line.
- 3 Construct key-way per Sheet 6 and details:

- 4 Construct road, road v-ditch drain, and slope per details:

- 5 Construct Trap Channel per details:

- 6 Construct V-Ditch Drain per details:

- 7 Construct Inlet Structure and Splash Wall per details:


Legend

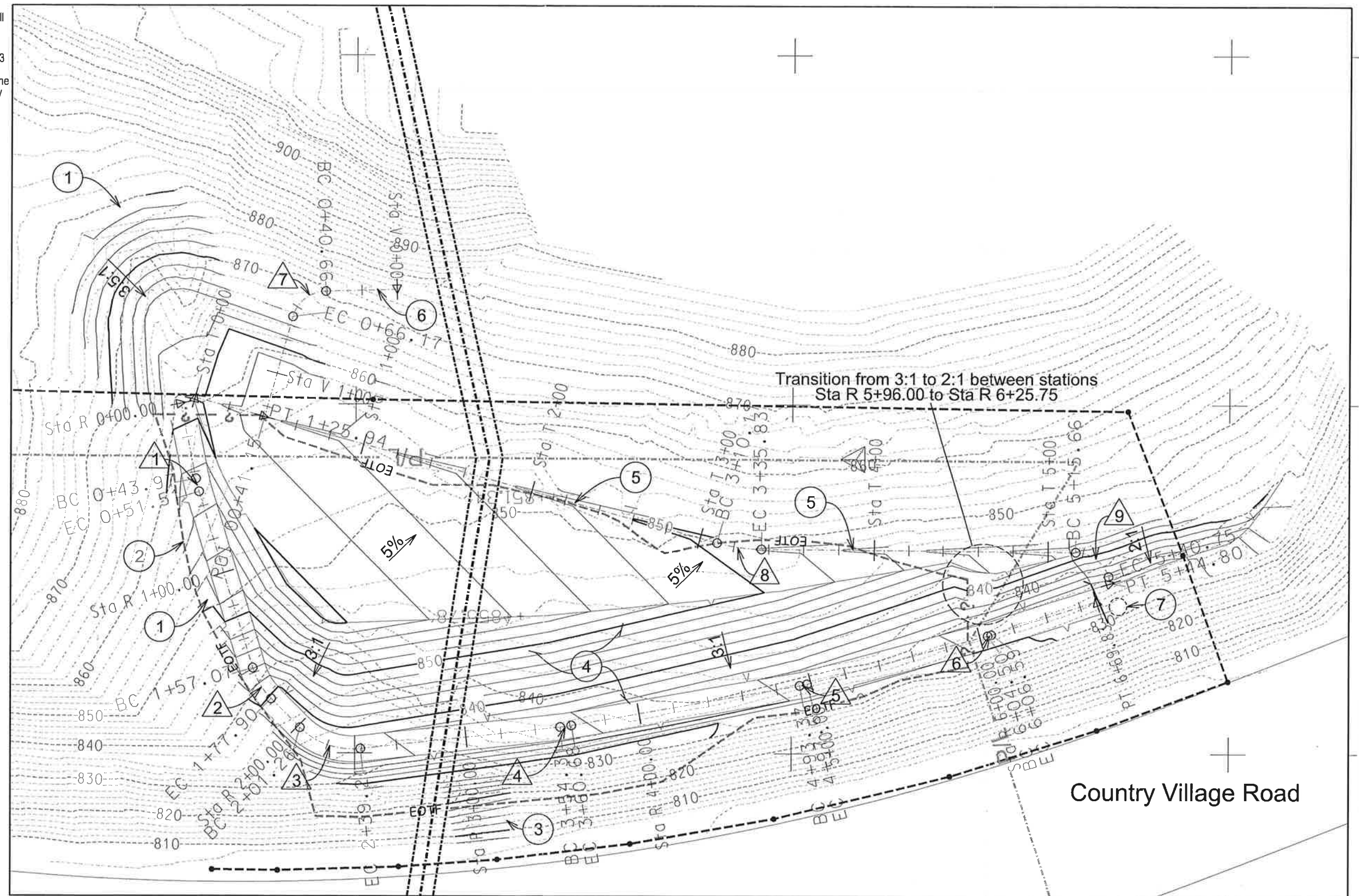
| | | | |
|--|---------------------------------------|--|--|
| | Grading Limits (Line not to scale) | | Edge of Asphalt Road |
| | Edge of (Trash) Fill | | Approx. Location of High Pressure Gas Line |
| | Property Line | | Approx. Location of Buried JCSD Culvert Easement |
| | Constructed Hinge Line | | Protect in Place Monument Point |
| | Constructed Toe Line | | CalTrans Storm Drain (Protect in Place) |
| | Ground Contours | | |
| | Design Contours | | |

CURVE TABLES

| ROAD ALIGNMENT | | | | |
|----------------|------|-----------|-------|-------|
| No. | R | Δ | T | L |
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| V-Ditch Drain | | | | |
|---------------|------|-----------|-------|-------|
| No. | R | Δ | T | L |
| 7 | 20.0 | 73°05'01" | 14.82 | 25.51 |

| Trap Channel | | | | |
|--------------|------|-----------|-------|-------|
| No. | R | Δ | T | L |
| 8 | 98.0 | 15°02'23" | 12.94 | 25.72 |
| 9 | 20.0 | 71°53'24" | 14.5 | 25.09 |



N - 2,317,800 (NAD83, NAVD88)

N - 2,317,550 (NAD83, NAVD88)

N - 2,317,300 (NAD83, NAVD88)

| NO. | REVISIONS | BY | APPROVED | DATE |
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| DESIGNED BY: | SNL |
| DRAWN BY: | SNL |
| CHECKED BY: | AMC |
| DATE: | 11 June 2014 |
| DATE OF TOPOGRAPHY: | 2007 |

Riverside County
Waste Management Department

Hans Kernkamp, General Manager/Chief Engineer

Scale: 22x34: 1"=30' 11x17: 1"=60'



Datum is mean sea level. Contour Interval is 2 feet

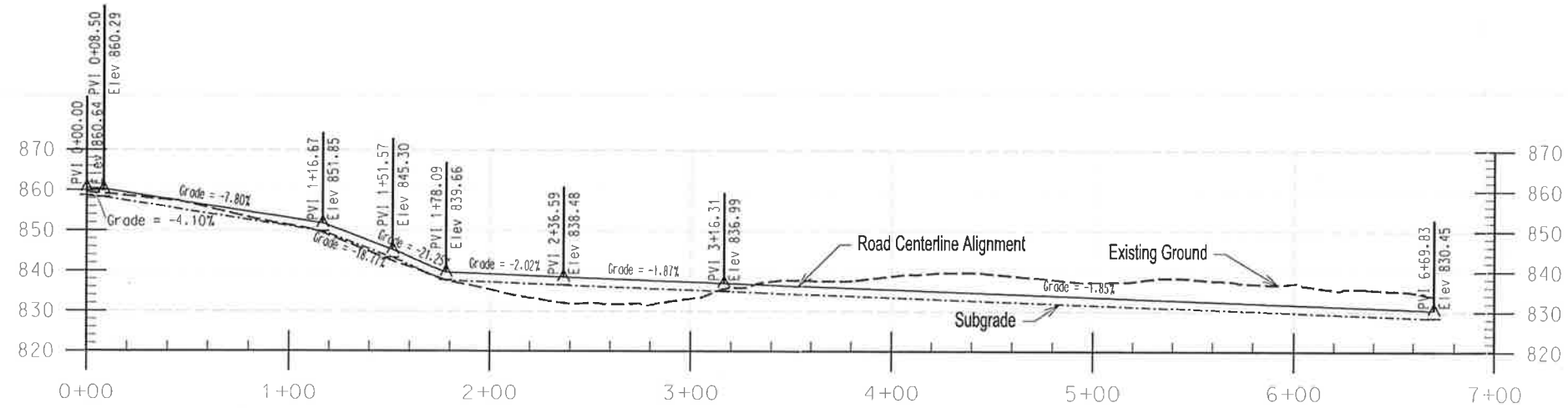
Mira Loma Landfill
Final Cover and Drainage System
Final Cover Grading and
Drainage System Plan

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|---------|----------------------------------|
| SCALE: | 22x34: 1"=30' 11x17: 1"=60' |
| FOLDER: | T:/Mira Loma/14ml/Cover& |
| FOLDER: | DrainageProject/Project Drawings |
| FILE: | MLCover-S05-FinalCover&Drain.dgn |
| MODEL: | Default |
| SHEET | 5 OF 8 |

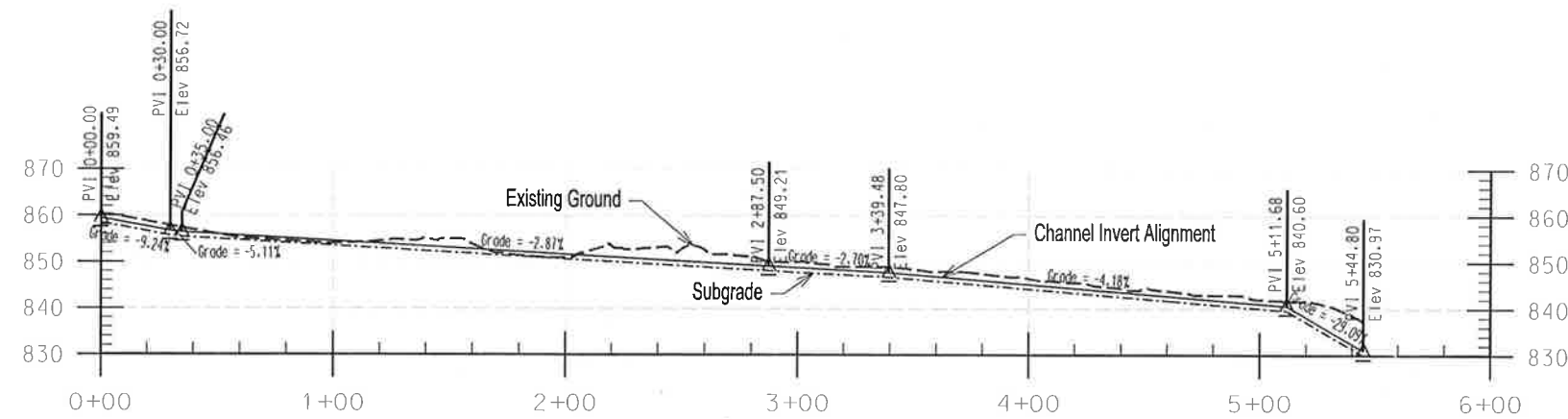
E - 6,180,600 (NAD83, NAVD88)

E - 6,180,800 (NAD83, NAVD88)

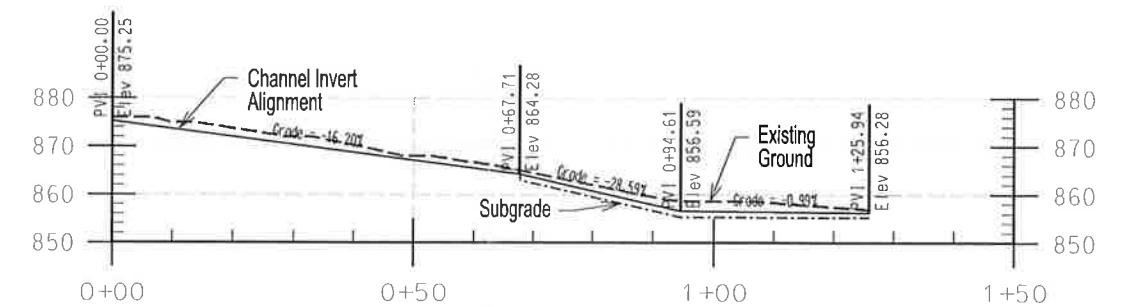
E - 6,181,000 (NAD83, NAVD88)



R Profile along Road
Horizontal Scale: 1"=80'
Vertical Scale: 1"=40'



T Profile along Trapezoidal Channel
Horizontal Scale: 1"=80'
Vertical Scale: 1"=40'



V Profile along V-Ditch Drain
Horizontal Scale: 1"=100'
Vertical Scale: 1"=50'

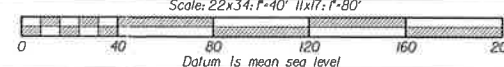
Legend
--- Existing Ground
- - - Subgrade Surface
— Final Surface/Grade

Abbreviations
Elev Elevation
PVI Point of Vertical Intersection

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DESIGNED BY: SNL
DRAWN BY: SNL
CHECKED BY: AMC
DATE: 12 June 2014
DATE OF TOPOGRAPHY: 2007

Riverside County
Waste Management Department
Hans Kernkamp, General Manager/Chief Engineer



Mira Loma Landfill
Final Cover and Drainage System
Road and Drainage Profiles

SCALE: As Stated
FOLDER: T:/Mira Loma/14ml/Cover&
FOLDER: DrainageProject/Project Drawings
FILE: MLCover-S07-Profiles.dgn
MODEL: Default
SHEET 7 OF 8