

CONSTRUCTION SEQUENCE

1. PREPARE FOUNDATION FOR CONSTRUCTION OF LEVELING PAD AND PLACEMENT OF INITIAL PANEL COURSE.
2. CONSTRUCT LEVELING PAD.
3. PLACE PANEL COURSE JOINT MATERIALS.
4. PLACE MSE WALL PANELS.
5. PLACE APPROVED BACKFILL UP TO THE BOTTOM ROW OF PANEL TIE STRIPS.
6. PLACE SOIL REINFORCEMENT.
7. REPEAT STEPS 3 THROUGH 6 AS APPROPRIATE TO TOP OF WALL ELEVATION.
8. CONSTRUCT CONCRETE BARRIER RAIL AND SLAB, WHERE APPLICABLE.

LEGEND

- BW = BASE WIDTH
- CIP = CAST-IN-PLACE
- EOP = EDGE OF PAVEMENT
- FG = FINISH GRADE
- H = HEIGHT
- LOL = WALL LAYOUT LINE
- MSE = MECHANICALLY STABILIZED EARTH
- OG = ORIGINAL GRADE
- PCF = POUNDS PER CUBIC FOOT
- PSF = POUNDS PER SQUARE FOOT
- PSI = POUNDS PER SQUARE INCH
- TLP = TOP OF LEVELING PAD
- TOW = TOP OF WALL
- TSF = TONS PER SQUARE FOOT

MSE WALL GEOTECHNICAL DESIGN DATA

FROM GEOTECHNICAL REPORT FOR HORSE DRIVE INTERCHANGE PREPARED BY OWENS GEOTECHNICAL, INC UNDER PROJECT NO. E-06-109, AND DATED MARCH 26, 2007.

MECHANICALLY STABILIZED EARTH BACKFILL:
FILLS NOT MEETING THE FOLLOWING SPECIFIED SOIL PARAMETERS WILL NOT BE APPROVED.

- MINIMUM INTERNAL ANGLE OF FRICTION = 34°
- COHESION = 0 PSF
- MINIMUM UNIT WEIGHT = 135 PCF

- FOUNDATION SOILS:
- MINIMUM INTERNAL ANGLE OF FRICTION = 36°
 - COHESION = 0 PSF
 - MINIMUM UNIT WEIGHT = 135 PCF

- RETAINED FILLS:
- MINIMUM INTERNAL ANGLE OF FRICTION = 34°
 - COHESION = 0 PSF
 - MINIMUM UNIT WEIGHT = 135 PCF

- EXTERNAL DESIGN PARAMETERS
- SLIDING FRICTION COEFFICIENT = 0.67
 - ALLOWABLE BEARING CAPACITY (FS = 2.5) = 0.78 x BW TSF, 6.1 TSF MINIMUM
 - ULTIMATE BEARING CAPACITY = 1.90 x BW TSF, 15.2 TSF MINIMUM
 - MINIMUM FOOTING EMBEDMENT = 3 FEET TO TOP OF LEVELING PAD
 - MINIMUM SOIL REINFORCEMENT LENGTH = 70% OF WALL HEIGHT BUT NOT LESS THAN 8 FT.

GENERAL NOTES

1. DESIGN SPECIFICATIONS:
AASHTO STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES 2002 (17TH EDITION) AND PUBLICATION NO. FHWA-NHI-00-043 (UPDATED VERSION OF FHWA-SA-096-071).
2. CONSTRUCTION SPECIFICATIONS:
STATE OF NEVADA DEPARTMENT OF TRANSPORTATION "STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, 2001" EXCEPT AS NOTED BELOW AND IN THE SPECIAL PROVISIONS FOR THIS CONTRACT.
3. LOADING:
LIVE LOAD SURCHARGE;
PRESSURE EQUAL TO 2'-0" OF SOIL.
SEISMIC ACCELERATION;
A = 0.15g;
K_h = 0.08g (½ OF "A")
TRAFFIC BARRIER;
P = 10 KIPS APPLIED LATERALLY AT THE TOP OF BARRIER RAIL. THE LOAD SHALL BE DISTRIBUTED TO RESISTING ELEMENTS AS PER AASHTO SECTION 3.24.5.2 AND 5.8.12.2.
4. REINFORCING STEEL:
ALL REINFORCING STEEL SHALL BE ASTM A615, GRADE 60 OR ASTM A706. DIMENSIONS RELATING TO BAR SPACING ARE CENTER TO CENTER. BENDING DIMENSIONS ARE FROM OUT TO OUT OF THE BARS. BAR SIZES ARE INDICATED BY THE FIRST TWO NUMBERS IN THE BAR MARK. THE LENGTH OF BAR SIZES (4) AND (5), WHEN CONSIDERED AS BARS TO CONTROL TEMPERATURE, SHRINKAGE, AND DISTRIBUTION STRESSES BY THE BRIDGE ENGINEER MAY BE ADJUSTED BY THE CONTRACTOR UPON CONCURRENCE AND APPROVAL OF THE BRIDGE ENGINEER.
5. CONCRETE:
ALL CONCRETE SHALL BE CLASS A MODIFIED (MAJOR) WITH f'c = 4500 psi AT 28 DAYS. TYPE V CEMENT WITH A MAXIMUM WATER/CEMENT RATIO OF 0.45 SHALL BE USED FOR CONCRETE IN CONTACT WITH SOIL.
6. METHOD OF DESIGN:
"SIMPLIFIED COHERENT GRAVITY METHOD" IS USED FOR THE DESIGN.
7. LEVELING PAD:
THE NUMBER AND ELEVATION OF LEVELING PAD STRIPS SHALL CONFORM TO THE MSE WALL MANUFACTURER'S DESIGN AND SHALL BE SHOWN ON THE APPROVED SUBMITTAL DRAWINGS.
8. AESTHETIC TREATMENT:
VERTICAL RUSTICATION OF THE WALL PANELS SHALL MATCH DETAILS SHOWN ON THESE PLANS.
9. FINE SURFACE FINISH:
EXCEPT FOR HORIZONTAL SIDEWALK AND ROADWAY SURFACES, ALL EXPOSED FACES OF BARRIER RAILS AND BARRIER SLABS ARE TO BE FINE SURFACE FINISHED. SEE SPECIAL PROVISIONS OF THIS CONTRACT.
10. PANEL DETAILS:
THE SHAPE OF THE WALL PANELS SHALL BE UNRESTRICTED. INDIVIDUAL MSE WALL PANELS SHALL BE LIMITED IN SIZE TO 30 SQUARE FEET MAXIMUM. JOINT TREATMENT BETWEEN WALL PANELS SHALL BE SPECIFIED BY THE WALL MANUFACTURER AND SHOWN ON THE SUBMITTAL DRAWINGS. THE WALL PANEL AND REINFORCING STRIP DETAILS AROUND OPENINGS AND PENETRATIONS THROUGH THE WALL SHALL BE DESIGNED BY THE WALL MANUFACTURER AND SHOWN ON THE APPROVED SUBMITTAL DRAWINGS.
11. PLAN DIMENSIONS AND ELEVATIONS:
ALL PLAN DIMENSIONS SHOWN ARE MEASURED HORIZONTALLY OR VERTICALLY UNLESS OTHERWISE NOTED AND REFLECT THE ULTIMATE SHAPE AND LOCATION OF ALL ELEMENTS AT A MEAN TEMPERATURE OF 70° F.
12. CONTRACTOR COORDINATION:
CONTRACTOR SHALL COORDINATE ALL EXISTING CONDITIONS DURING CONSTRUCTION OF THE PROJECT. THE CONTRACTOR SHALL COORDINATE THE LOCATION OF ANY EXISTING, NEW, RELOCATED, OR ABANDONED UTILITIES WITH PROJECT PLANS AND NOTIFY RESPECTIVE OWNERS BEFORE COMMENCING THE WORK OF EXCAVATION. CONFLICTS SHALL BE BROUGHT TO THE ATTENTION OF THE BRIDGE ENGINEER AND RESOLVED PRIOR TO PROCEEDING WITH THE WORK. REFER TO ROADWAY AND UTILITY PLANS FOR ADDITIONAL INFORMATION.

APPROXIMATE QUANTITIES

ITEM NO.	ITEM DESCRIPTION	UNIT	RET. WALL: RW-1	RET. WALL: RW-2	RET. WALL: RW-3	RET. WALL: RW-4	RET. WALL: RW-5	RET. WALL: RW-6
**	STRUCTURE EXCAVATION	CU YD	2,362	3,011	3,030	4,294	951	2,429
**	GRANULAR BACKFILL	CU YD	244	342	371	374	135	205
**	AESTHETIC PATTERNING	SQ YD	258	325	379	421	145	209
**	CLASS A CONCRETE, MODIFIED (MAJOR)	CU YD	432	543	633	638	242	350
**	CONCRETE STAIN	SQ YD	1008	1054	1025	1869	240	1079
**	FINE SURFACE FINISH	SQ YD	766	963	1123	1248	430	622
**	REINFORCING STEEL	POUND	38,332	48,186	58,181	62,485	21,579	31,106
**	MECHANICALLY STABILIZED EARTH WALL	SQ FT	12,694	14,520	14,717	22,916	4,327	13,753
**	MECHANICALLY STABILIZED EARTH BACKFILL	CU YD	8,095	8,699	7,914	17,187	1,717	10,549

** APPROXIMATE QUANTITIES SHOWN FOR THE RETAINING WALLS ARE FOR INFORMATION PURPOSES ONLY AND SHALL BE CONSIDERED INCIDENTAL TO THE LUMP-SUM PRICES QUOTED FOR THE SEPARATE ITEMS "RETAINING WALL: RW-1".

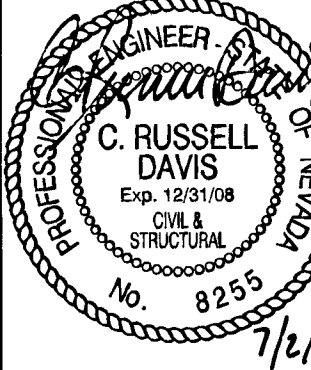
WALL QUANTITIES ARE BASED ON DETAILS SHOWN. THE QUANTITIES FOR MECHANICALLY STABILIZED EARTH BACKFILL ARE BASED ON THE WALL HEIGHT (H) AND THE REQUIRED SOIL REINFORCEMENT EMBEDMENT LENGTH PER THE GEOTECHNICAL DESIGN DATA. SEE SECTION 640 OF THE SPECIAL PROVISIONS REGARDING PAYMENT.

QUANTITIES SHOWN ON THIS SHEET FOR MSE WALLS INCLUDE QUANTITIES FOR SIDEWALK, CONCRETE BARRIER SLABS AND BARRIER RAILS WHERE LOCATED DIRECTLY OVER THE WALLS.

APPROVED

Joseph Morgan 7/14/08
DATE

LAS VEGAS VALLEY WATER DISTRICT
LWWD PROJECT # H80315

DESIGNED BY: R. DAVIS 6/30/2008	DRAWN BY: A. GRANT 6/30/2008	CHECKED BY: R. DAVIS 6/30/2008	PROJECT NO: 0002	SCALE: NONE	HORIZ. NONE	VERT. NONE
						
SHEET 416 RW2 OF 433 SHEETS DRAWING NO. 107V3759						

PUBLIC WORKS DEPARTMENT
400 E STEWART AVE
LAS VEGAS, NV 89101
702-228-6272

CITY OF LAS VEGAS, NV

R&H ENGINEERING, INC.
CONSULTING STRUCTURAL ENGINEERS
640 GARDNER DRIVE, SUITE 200 • LAS VEGAS, NEVADA • 89119
PHONE: (702) 253-7000 • FAX: (702) 253-0076