

REVISIONS		
REV. NO.	DESCRIPTION	DATE

**TYPICAL FORMLINER AND CONCRETE FINISH NOTES:**

THE EXPOSED CONCRETE SURFACES OF THE RETAINING WALLS, ABUTMENTS, PIERS AND WING WALLS SHALL HAVE A TEXTURED SURFACE TREATMENT AS INDICATED IN THE PLANS. THE SURFACE TREATMENT SHALL BE AN AGED ASHLAR STONE PATTERN WITH A 0.5" MINIMUM TO 1.00" MAXIMUM RELIEF FROM THE OUTERMOST FACE OF THE SIMULATED STONE FINISH TO THE BASE OF THE SIMULATED MORTAR JOINT LINE. SIMULATED MORTAR JOINT LINES SHALL HAVE A 0.75" NOMINAL WIDTH, SEE 'DETAIL A' (THIS SHEET).

ONCE THE FINISH TEXTURE AND MANUFACTURER(S) HAVE BEEN APPROVED BY THE ENGINEER, THE CONCRETE FINISH TREATMENTS SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS AND SPECIFICATIONS. ANY ADDITIONAL MANUFACTURER'S REQUIREMENTS NECESSARY TO OBTAIN FULL WARRANTY SHALL ALSO APPLY.

ALL EXPOSED SURFACES OF THE 42" VERTICAL FACED PARAPET, PEDESTRIAN RAIL CONCRETE POSTS, ABUTMENTS, WING WALLS, CAST IN PLACE RETAINING WALLS, MSE RETAINING WALLS, PIERS, SLOPE WALLS AND EXTERIOR AND BOTTOM FACES OF P.C. CONCRETE FASCIA BEAMS SHALL BE FINISHED WITH A CLASS 7 PAINT FINISH IN ACCORDANCE WITH SECTION 509 OF THE STANDARD SPECIFICATIONS. CLASS 7 PAINT FINISH SHALL CONSIST OF FEDERAL STANDARD 595 COLORS FS 30324 AND FS 30475.

THE CONTRACTOR SHALL SUBMIT THE MANUFACTURER'S INSTALLATION INSTRUCTIONS AND PRODUCT DATA FOR THE TEXTURE SURFACE TREATMENTS. SHOP DRAWINGS SHALL INDICATE FORMLINER LAYOUT INCLUDING FORM FACING JOINTS, FORM JOINT SEALANT DETAILS AND TERMINATION DETAILS AS WELL AS RUSTICATION, REVEAL AND CHAMFER STRIPS. LOCATION AND PATTERNS OF FORM TIES AND ANY OTHER ITEMS THAT MAY VISUALLY AFFECT CAST-IN-PLACE OR PRE-CAST CONCRETE SHALL BE INCLUDED.

THE CONTRACTOR SHALL PROVIDE THE ENGINEER, FOR APPROVAL, A SAMPLE PANEL OF THE ASHLAR STONE PATTERN SURFACE TREATMENT(S). THE SAMPLE PANELS SHALL BE 18" X 18" WITH SURFACE TREATMENTS.

FOLLOWING APPROVAL OF THE SAMPLE PANELS, THE CONTRACTOR SHALL PROVIDED ONE FULL SCALE MOCK-UP PANEL OF EACH SURFACE TREATMENT USING PROPOSED MATERIALS, METHODS AND WORKMANSHIP. THE PANELS SHALL BE APPROVED BY THE ENGINEER ON THE SITE. THE MOCK-UP PANELS SHALL BE A MINIMUM OF 50 SQUARE FEET IN SIZE AND MAY BE INCORPORATED INTO THE ACTUAL STRUCTURE WHERE/IF APPLICABLE.

THE MOCK-UP PANEL SHALL INCORPORATE PROPOSED CONCRETE MIX, FORM WORK, TIES, FORMLINER, FORM RELEASE AGENTS, PLACEMENT RATE, FORM PRESSURES, JOINT SEALER, VIBRATING AND FORM STRIPPING PRACTICES.

FOR CAST-IN-PLACE WORK, THE MOCK-UP PANEL SHALL INCLUDE ONE (1)-VERTICAL EXPANSION JOINT, ONE (1)-VERTICAL CONSTRUCTION JOINT, ONE (1)-VERTICAL FORMLINER BUTT JOINT, ONE (1)-HORIZONTAL FORMLINER BUTT JOINT AND THE PROPOSED END TREATMENT FOR THE TOP, BOTTOM AND SIDES OF THE RETAINING WALLS AND WING WALLS. PATCHING AND REPAIR PROCEDURES FOR SPALLED CONCRETE AND VOIDS CAUSED BY HONEYCOMBING OR BUG HOLES SHALL BE PERFORMED ON THE MOCK-UP PANELS.

THE MOCK-UPS SHALL BE ACCEPTED BY THE ENGINEER PRIOR TO BEGINNING FORM WORK FOR THE PROJECT. THE ACCEPTED MOCK-UPS WILL BE THE STANDARD FOR TECHNICAL AND AESTHETIC MERIT. FOLLOWING ACCEPTANCE OF THE MOCK-UP PANELS FOR FORMLINER AND REPAIR WORK, ALL PORTIONS OF THE PANELS SHALL HAVE AN ODOT CLASS 7 PAINT FINISH AS REQUIRED ABOVE. THE COLOR AND FINISH AS DESCRIBED ABOVE SHALL BE SUBJECT TO APPROVAL BY THE ENGINEER.

FORM WORK SHALL BE DESIGNED BY THE CONTRACTOR TO COMPLY WITH ALL REQUIREMENTS BY THE FORMLINER MANUFACTURER. IN ADDITION, ALL REQUIREMENTS OF THE FORMLINER MANUFACTURER FOR HANDLING AND INSTALLATION OF THE FORMLINERS, APPLICATION OF RELEASE AGENTS, PLACEMENT OF CONCRETE, VIBRATING OF CONCRETE AND REMOVAL OF FORMS SHALL BE FOLLOWED. FORMLINER BUTT JOINT(S) SHALL BE CAREFULLY ALIGNED TO PROVIDE A SURFACE FREE FROM VISIBLE SEAM LINES.

PRIOR TO CONCRETE PLACEMENT IN THE CASE OF CAST-IN-PLACE RETAINING WALLS OR WINGS, THE ENGINEER SHALL VERIFY THE LINES, FORMLINER PANEL PATTERNS AND ARTWORK PATTERNS. AFTER STRIPPING OF THE FORMS, THE ENGINEER APPROVED COLORS AND FINISHES SHALL BE APPLIED TO THE RETAINING WALLS, ABUTMENT, WING WALLS AND PIERS TO MATCH THE APPROVED COLOR AND FINISHES FROM THE MOCK-UP PANEL(S) IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

**GENERAL NOTES FOR MSE WALLS:**

MATERIALS, DESIGN, AND METHODS USED IN CONSTRUCTION OF RETAINING WALLS SHALL BE IN ACCORDANCE WITH 2009 OKLAHOMA DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION, UNLESS OTHERWISE NOTED.

THE REINFORCED ZONE MATERIALS SHALL EXTEND HORIZONTALLY FROM THE BACK OF THE PANELS TO THE END OF THE EARTH REINFORCEMENTS. THE REINFORCED ZONE MATERIAL SHALL EXTEND VERTICALLY FROM THE TOP OF THE LEVELING PAD TO THE TOP OF THE PANELS.

MINIMUM COVER OF 2.0' SHALL BE PROVIDED FROM THE TOP OF THE LEVELING PAD FINISHED GRADE.

STANDARD PRECAST CONCRETE PANELS SHALL HAVE A MAXIMUM PANEL HEIGHT OF SIX (6') FEET AND A MINIMUM PANEL HEIGHT OF FOUR (4') FEET.

AN OPEN JOINT SHALL BE PROVIDED AROUND THE PERIMETER OF THE CONCRETE PANELS. THEN NOMINAL JOINT OPENING SHALL BE BETWEEN 3/8" AND 3/4". THE JOINT CONFIGURATION SHALL BE SUCH THAT THE FILTER FABRIC OR PAD MATERIALS ARE NOT EXPOSED AT THE WALL FACE.

PANELS SHALL FOLLOW THE CURVATURE OF THE WALL AS SHOWN IN THE PLANS. A ONE PIECE CORNER PANEL SHALL BE PROVIDED FOR WALL ANGLE CHANGES OF GREATER THAN 30 DEGREES. BUTTING OF CHAMFERED PANELS WILL BE ALLOWED FOR ANGLE CHANGES OF 30 DEGREES OR LESS.

A CONCRETE COPING SHALL BE PROVIDED ALONG THE TOP OF WALLS. THE JOINTS BETWEEN ALL COPING SEGMENTS SHALL BE SEALED TO PREVENT INFILTRATION OF WATER INTO THE RETAINING WALL BACKFILL. SEALING SHALL BE IN ACCORDANCE WITH SECTION 504 OF THE STANDARD SPECIFICATIONS. ALL COST FOR SEALING COPING SEGMENTS SHALL BE INCLUDED IN THE UNIT PRICE BID PER SQ. YARD OF "(PL) MSE RETAINING WALLS". IF CAST-IN-PLACE COPING IS USED, THEN JOINTS SHALL BE PLACED TO COINCIDE WITH PRECAST PANEL JOINTS. THE WALL FACE PANELS SHALL EXTEND UP INTO THE COPING A MINIMUM OF 2 INCHES.

THE COPING SHALL BE DESIGNED TO CONTAIN AN INTEGRAL MOMENT SLAB AS SHOW IN THE PLANS. THE COPING/MOMENT SLAB SHALL BE DESIGNED IN ACCORDANCE WITH THE CURRENT EDITION OF THE AASHTO LRFD DESIGN SPECIFICATIONS AND CURRENT INTERIMS. THE COPING/MOMENT SLAB SHALL BE DESIGNED FOR THE REQUIRED LOADING AT THE LUMINAIRE LOCATIONS AS SHOWN IN THE PLANS. DESIGN CALCULATIONS AND DRAWINGS SHALL BE SUBMITTED TO ODOT BRIDGE DIVISION FOR REVIEW AND ACCEPTANCE PRIOR TO BEGINNING CONSTRUCTION. IF DESIRED, THE CONTRACTOR MAY INCORPORATE THE CONCRETE SIDEWALK MONOLITHICALLY INTO THE COPING/MOMENT SLAB DESIGN.

IF COPING IS PRECAST, A SMOOTH LEVEL-UP STRIP SHALL BE PROVIDED ON TOP OF THE PRECAST PANELS PRIOR TO INSTALLATION OF THE COPING. SHIMS MAY BE USED ON TOP OF THE LEVEL-UP STRIP TO FACILITATE ALIGNMENT.

IF EXISTING OR FUTURE STRUCTURES, PIPES, FOUNDATIONS OR GUARDRAIL POSTS WHICH ARE WITHIN REINFORCED SOIL VOLUME INTERFERE WITH THE NORMAL PLACEMENT OF REINFORCING MESH AND SPECIFIC DIRECTION HAS NOT BEEN PROVIDED ON THE PLANS. THE CONTRACTOR SHALL NOTIFY THE ENGINEER TO DETERMINE WHAT SOURCE OF ACTION SHOULD BE TAKEN.

**DESIGN NOTES:**

MECHANICALLY STABILIZED EARTH (MSE) WALLS SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR AND SHALL BE DESIGN BY A REGISTERED PROFESSIONAL ENGINEER IN THE STATE OF OKLAHOMA IN ACCORDANCE WITH THE CURRENT EDITION OF THE AASHTO LRFD DESIGN SPECIFICATIONS AND CURRENT INTERIMS. DESIGN CALCULATIONS AND DRAWINGS SHALL BE SUBMITTED TO ODOT BRIDGE DIVISION FOR REVIEW AND ACCEPTANCE PRIOR TO CONSTRUCTION.

THERE SHALL BE NO SURCHARGE WITHIN 25 FEET OF THE CREST OF THE TEMPORARY EXCAVATION SLOPE DURING CONSTRUCTION OF THE RETAINING WALLS.

WHERE RECOMMENDED TEMPORARY EXCAVATION SLOPES WOULD RESULT IN RIGHT-OF-WAY ENCROACHMENT, OR FOR THE PURPOSES OF SOIL STABILITY DURING EXCAVATION, TEMPORARY SHEET PILING SHALL BE REQUIRED. AT THE CONTRACTOR'S OPTION AND WITH APPROVAL OF THE ENGINEER, THE TEMPORARY SHEET PILING MAY BE CUT A MINIMUM OF 2' BELOW THE GROUND LINE AND LEFT IN PLACE.

CARE SHALL BE TAKEN IN THE DESIGN AND DURING CONSTRUCTION TO DEVELOP AND MAINTAIN RAPID, POSITIVE DRAINAGE AWAY FROM THE RETAINING WALL AREA. WATER SHOULD NOT BE ALLOWED TO POND ADJACENT TO EITHER THE UP SLOPE OR DOWN SLOPE SIDES OF THE RETAINING WALL. PROPER SURFACE DRAINAGE IS NEEDED TO PREVENT WATER FROM FLOWING OVER THE FACE OF THE WALL AND SATURATING EITHER THE FILL BEHIND THE WALL OR THE SUBGRADE SOILS AT THE BASE OF THE WALL.

CONVENTIONAL DE-WATERING METHODS SHOULD BE ADEQUATE FOR TEMPORARY REMOVAL OF ANY GROUNDWATER ENCOUNTERED DURING THE SHALLOW EXCAVATION PROCESS. MORE EXTENSIVE DE-WATERING MAY BE REQUIRED FOR EXCAVATIONS TO REMOVE SOFT SOILS AND/OR IF CONSTRUCTION OCCURS DURING WET PERIODS OF THE YEAR.

CONTRACTOR SHALL BE RESPONSIBLE FOR DESIGN OF THE MSE WALLS FOR:

- (1) GLOBAL STABILITY: SLIDING, OVERTURNING, BEARING CAPACITY, AND ECCENTRICITY.
- (2) INTERNAL STABILITY INCLUDING: TENSILE STRESSES, PULLOUT, FACING CONNECTION, AND SLIDING ALONG REINFORCEMENT.
- (3) LOCAL STABILITY INCLUDING: BULGING AND MAXIMUM UNREINFORCED HEIGHTS.
- (4) DESIGN THE MSE WALLS TO ACCOUNT FOR DEAD AND LIVE LOADS, SEISMIC LOADS, HORIZONTAL LOADS FROM GUARDRAILS OR BARRIERS, HYDROSTATIC LOADS, AND OTHER LOADS AS APPROPRIATE.
- (5) DESIGN THE MSE WALLS SUCH THAT THE TOE IS AT A DEPTH THAT NO SCOURING OR UNDERMINING WILL OCCUR.

THE CONTRACTOR SHALL REFER TO THE MSE WALL FOUNDATION SHEETS (B009-B010) AND THE GEOTECHNICAL REPORT FOR THE GEOTECHNICAL DATA AT THIS SITE. ANY ADDITIONAL GEOTECHNICAL DATA REQUIRED FOR THE DESIGN BY THE CONTRACTOR, SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.

FOR FURTHER DESIGN INFORMATION NOT PROVIDED IN THE PLANS OR GEOTECHNICAL REPORT, REFER TO THE 2009 OKLAHOMA DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION.

**PAYMENT:**

THE PAYMENT FOR MSE RETAINING WALL SHALL BE BASED ON THE SURFACE AREA SHOWN ON THE PLAN AND PROFILE SHEETS FROM THE TOP OF THE RETAINING WALLS TO TOP OF LEVELING PAD NOT TO EXCEED 2 FEET BELOW FINISH GRADE AT FACE OF WALL. NO ADDITIONAL PAYMENT WILL BE ALLOWED FOR VARYING OF THE LEVELING PAD ELEVATION. THE ACTUAL TOPS OF LEVELING PADS SHALL BE DETERMINED BY THE CONTRACTOR TO PROVIDE SUPPORT FOR THE PROPOSED WALL SYSTEM AND SUBMITTED TO THE ENGINEER FOR APPROVAL.

ALL COST INCURRED DURING CONSTRUCTION OF THE MSE RETAINING WALLS SHALL BE INCLUDED IN THE UNIT PRICE BID PER SQUARE YARD OF "(PL) MSE RETAINING WALL". THE COST SHALL INCLUDE BUT NOT LIMITED TO: EXCAVATION, BACKFILL, BACKFILL MATERIAL, DRAINAGE SYSTEMS, GEOCOMPOSITES, FILTER FABRICS, PERFORATED AND NON-PERFORATED PIPE, CONCRETE, REINFORCING STEEL, SHEETING AND SHORING, DRIVING SHOES, COPING, EARTH REINFORCEMENT, CONCRETE PANELS, CONCRETE SURFACE FORM LINERS, FINISH, LEVELING PADS, CONCRETE MOW STRIPS, CONCRETE DRAINAGE DITCHES, AND ENGINEERING AND ASSOCIATED COSTS.

RETAINING WALL PAY QUANTITIES						
DESCRIPTION	UNIT	RW-1	RW-2	TRW-1	TRW-2	TOTAL
MSE RETAINING WALL	SY	439.00	456.00			895.00
TEMPORARY RETAINING WALL	SY			50.00	563.00	613.00
(SP) GRAFFITI TREATMENT	SF	5309.00	5456.00			10765.00

BRIDGE "A" SH-33 OVER COTTONWOOD CREEK		LOGAN COUNTY		Design	JDG	07/16
<b>GENERAL NOTES MSE WALL</b>				Detail	MAP	07/16
				Check	JDG	07/16
				Squad:	PEARSON	
				Engr.:	HERNANDEZ	
<b>STATE OF OKLAHOMA</b>		<b>DEPARTMENT OF TRANSPORTATION</b>				
		JOB/PIECE NO.	21860(04)		SHEET NO. RW01	