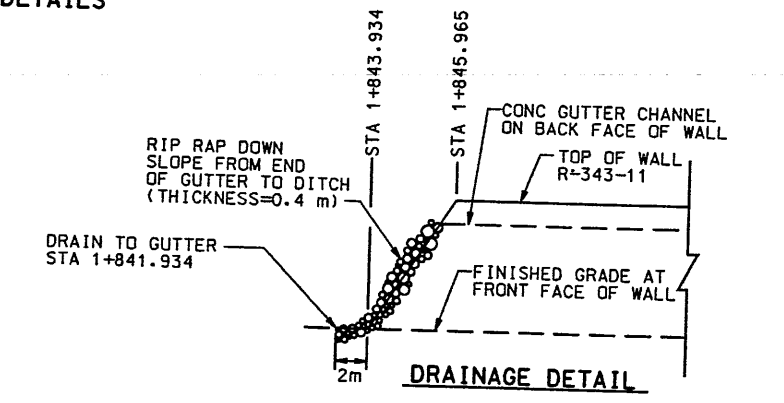
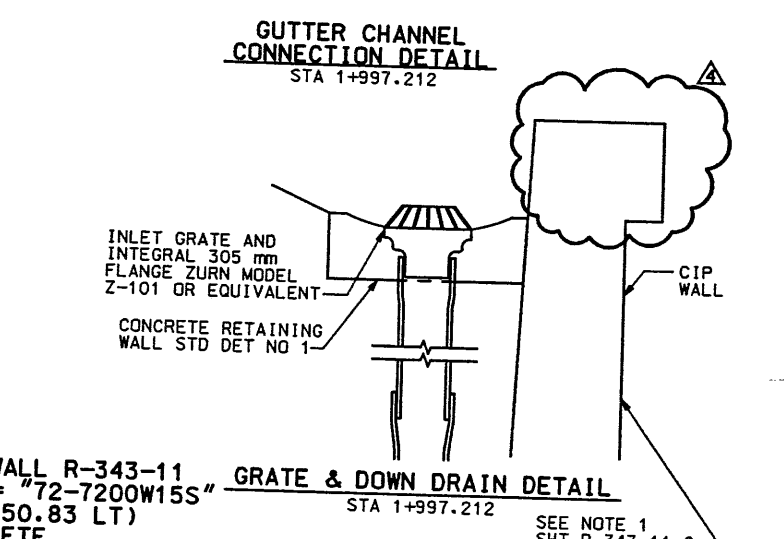
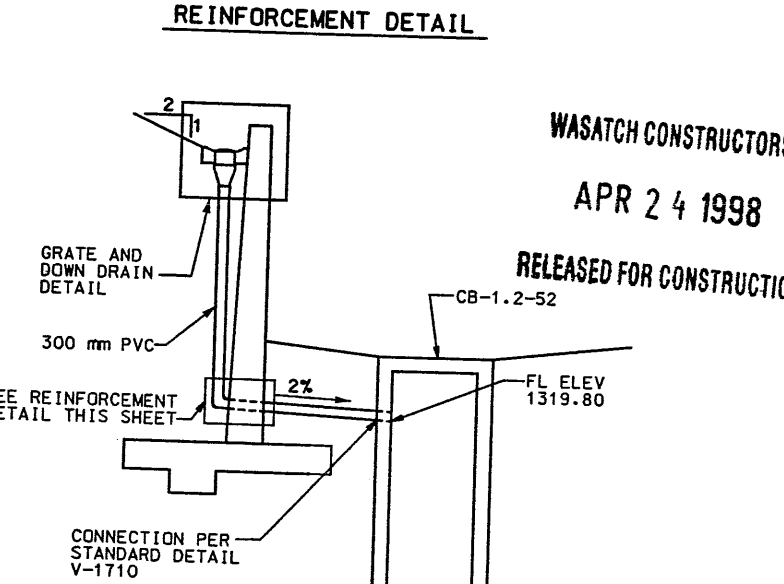
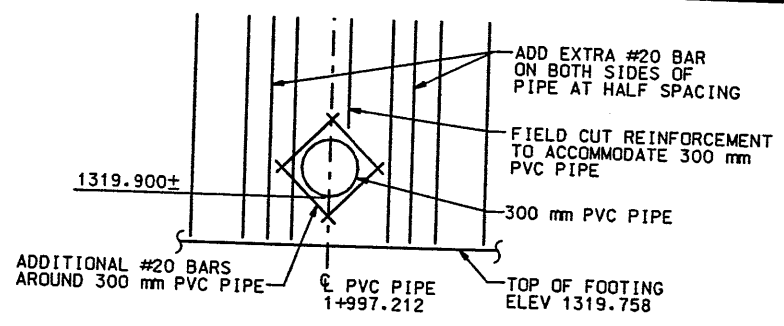
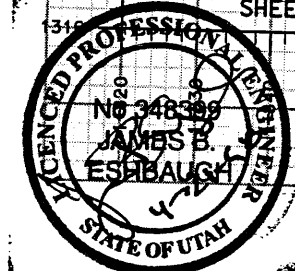
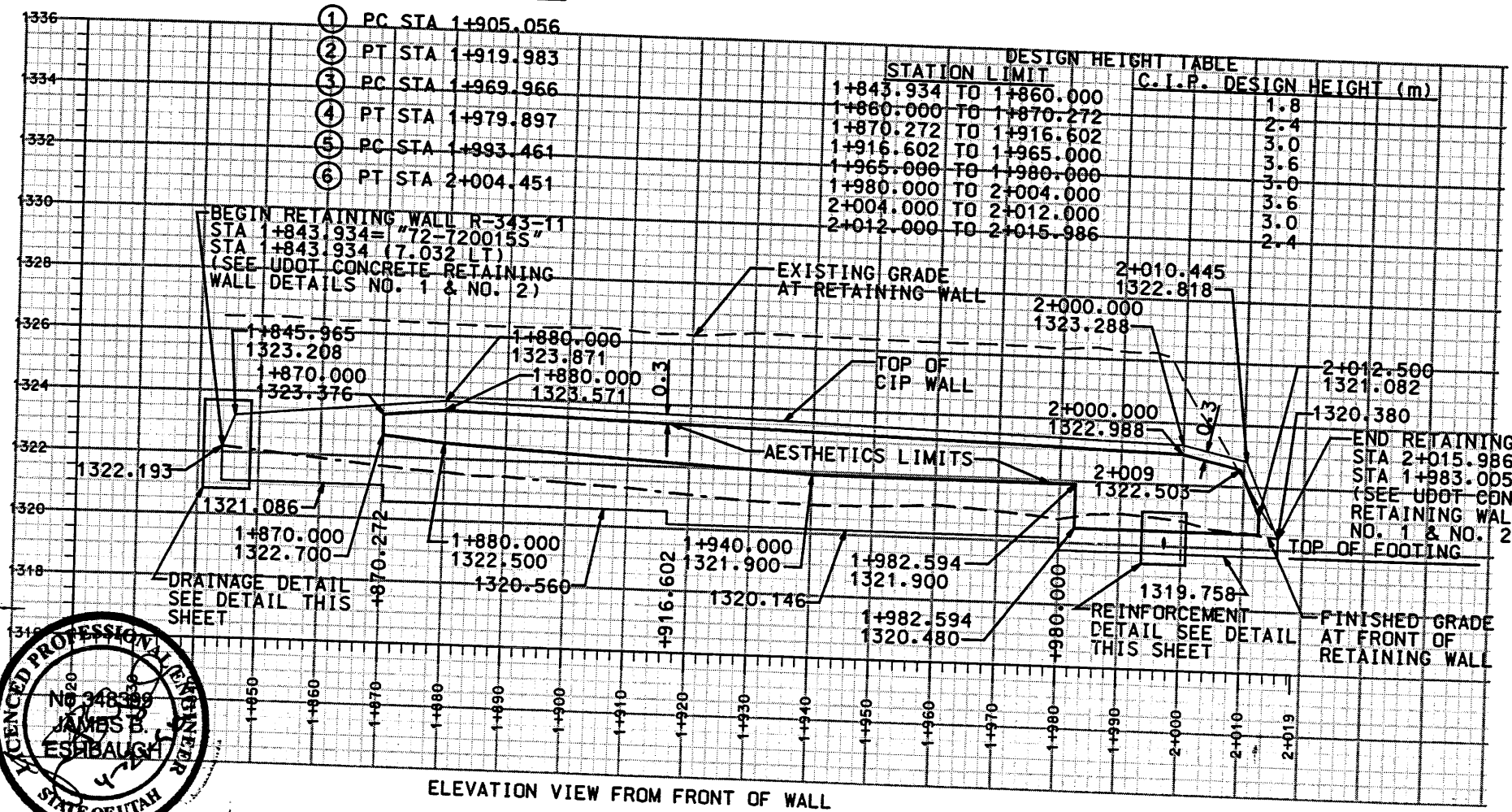


WALL R-343-11
ALIGNMENT GEOMETRY



APPROVED FOR CONSTRUCTION

WASATCH CONSTRUCTORS
APR 24 1998
RELEASED FOR CONSTRUCTION

UTAH DEPARTMENT OF TRANSPORTATION
URS Greiner
SVERDRUP/DE LEUW

NO.	DATE	DESCRIPTION
1	9-4-97	INITIAL RELEASE
2	9-30-97	TOTAL SHEET REVISION
3	4-17-98	ASTHETIC REVISION
4	4-21-98	ASTHETIC REVISION FIELD DESIGN CHANGE #1-0172

DESIGN: JIM ESKIBAUH
PROJECT DESIGN ENGINEER
DATE: 9/97

DRAWN: DON GRUHL
DATE: 9/97

PROJECT MANAGER: 1212407

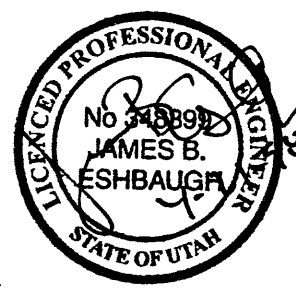
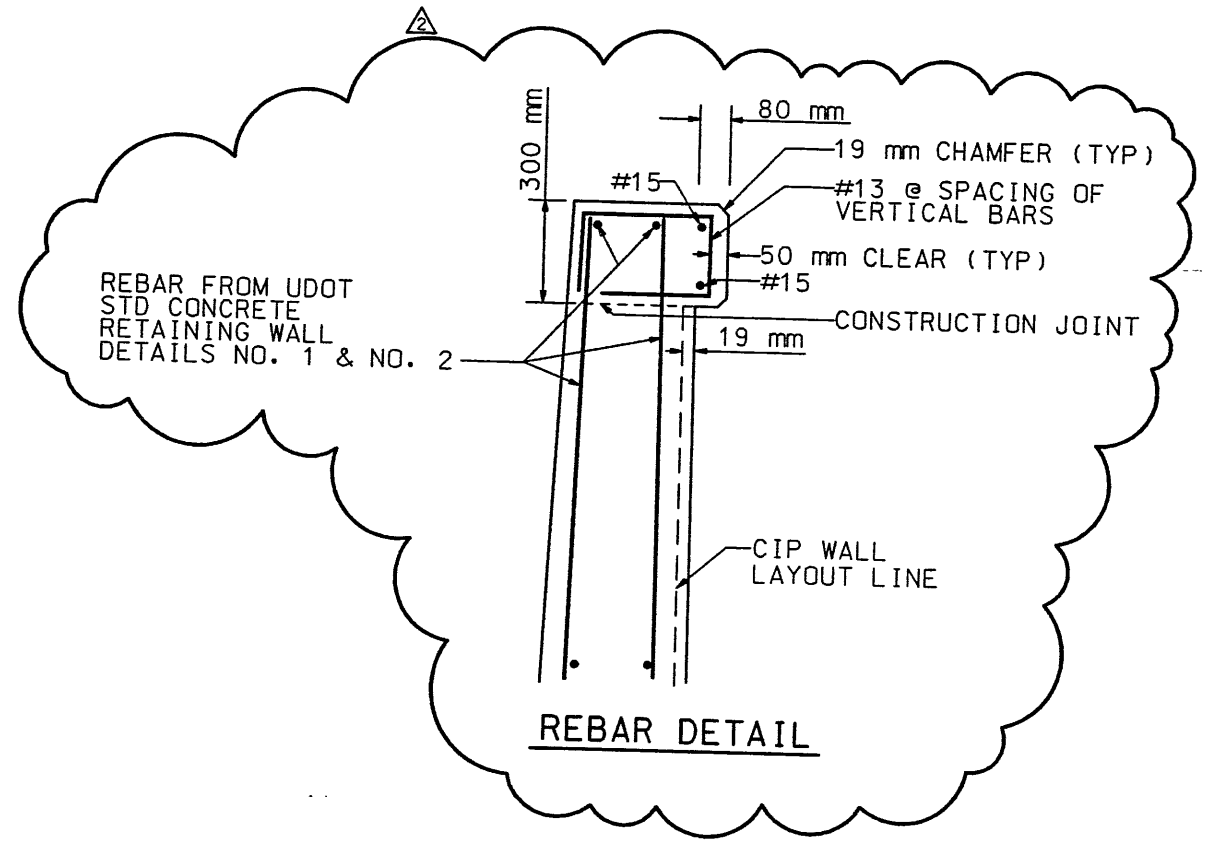
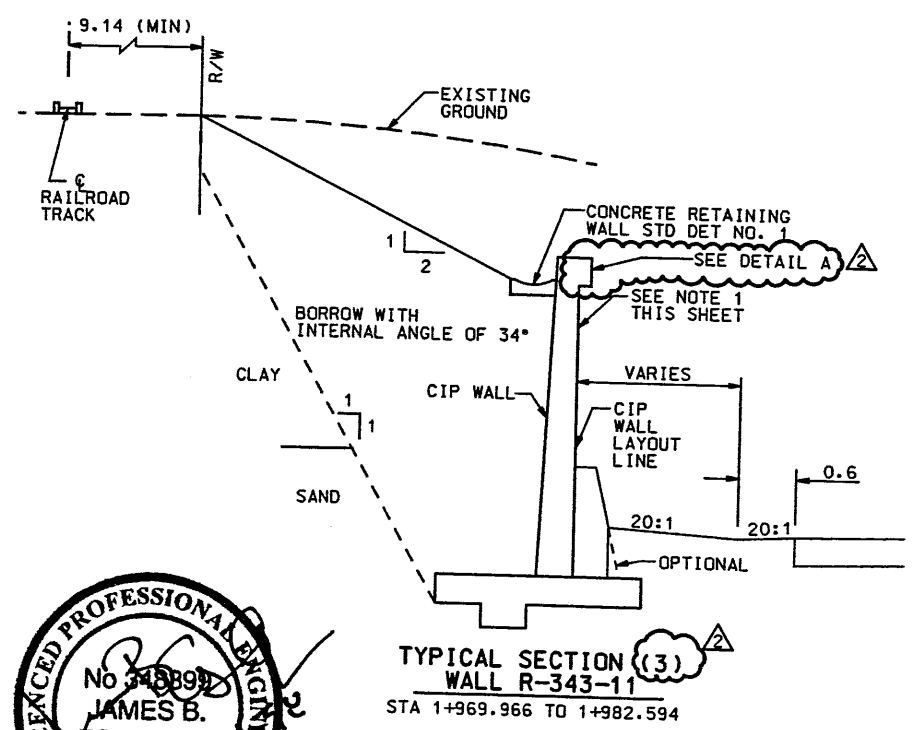
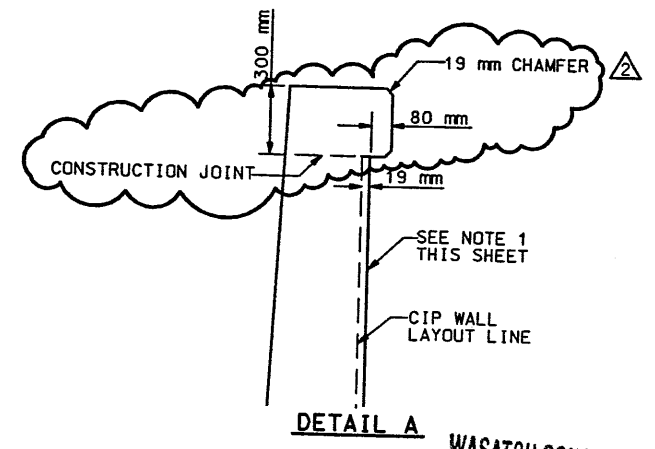
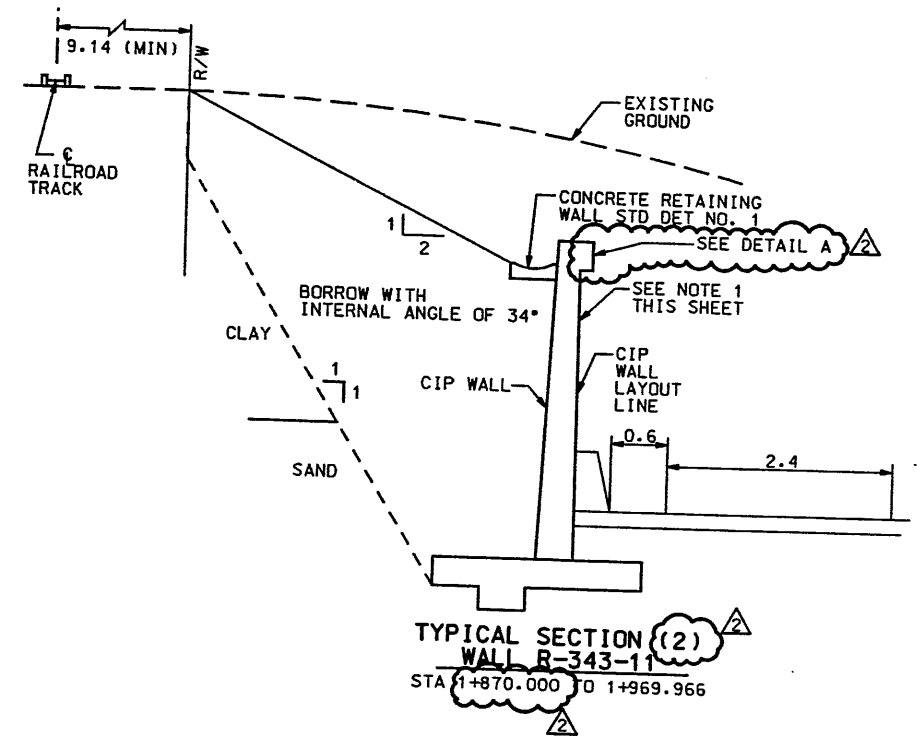
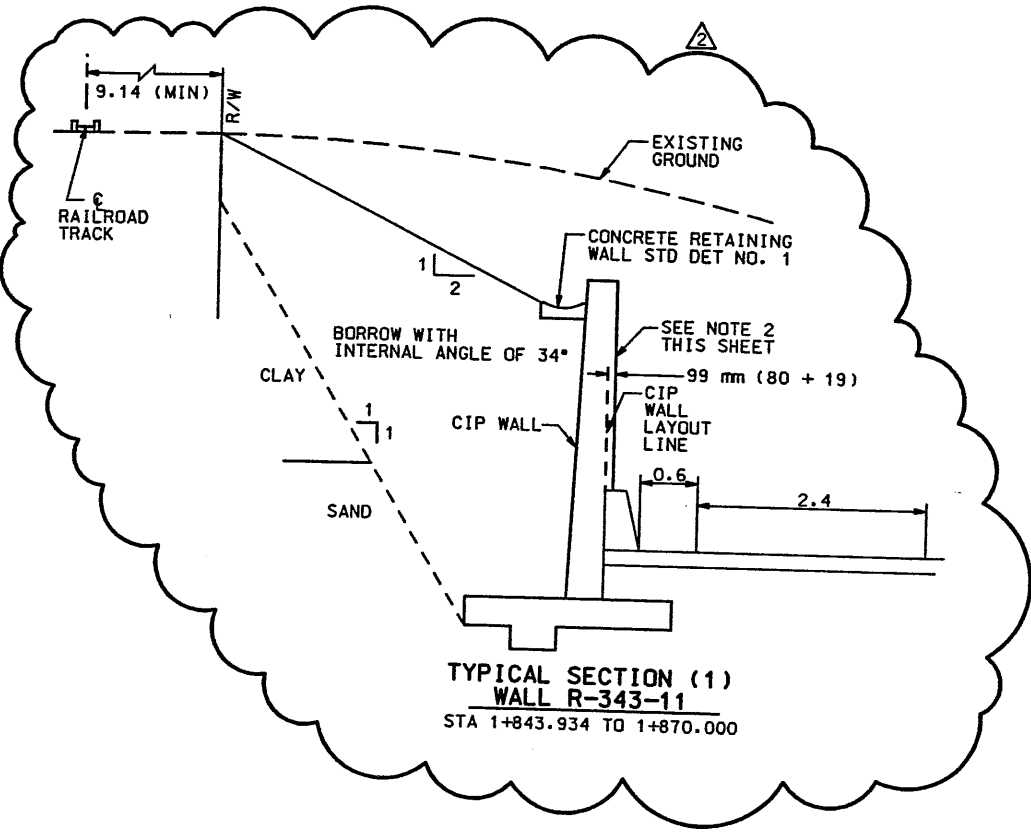
I-15 CORRIDOR RECONSTRUCTION
SITUATION/LAYOUT
RET WALL R-343-11
SECTION 1.2
PROJECT NUMBER: #SP-15-7(135)296

SALT LAKE COUNTY
DWG. NO. 1.2R-343-11.1
SHT. 1 OF 5
REF.

Date: 21-Apr-1998 Time: 15:56 User: nmc0046/jm
 File: c:\p1\15_cadd\12_97\sheet1_115.dwg

SEE OTHER TYPICAL SECTIONS ON SHEET 1.2R-343-11.2a

- NOTE:
- (1) CORRIDOR STANDARD PLAN RETAINING WALL AESTHETICS DWG CS-6 TEXTURE TYPE C - SEE DETAIL A
 - (2) 80 mm COPING WIDTH WILL EXTEND DOWN TO BARRIER
 - (3) 80mm COPING WIDTH WILL EXTEND DOWN TO FOOTING



WASATCH CONSTRUCTORS
 APR 24 1998
 RELEASED FOR CONSTRUCTION

APPROVED FOR CONSTRUCTION		DESCRIPTION	
NO.	DATE	INITIAL RELEASE	FIELD DESIGN CHANGE #
1	9-30-97		1-0172
2	4-20-98		
UTAH DEPARTMENT OF TRANSPORTATION			
URS Greiner			
SVERDRUP/DE LEUW			
DESIGN	PRV	9/97	CHECK
JIM ESHAUGH	JIM	9/97	JIM
PROJECT DESIGN ENGINEER	DATE	9/97	9/97
DRAWN	CHK	9/97	9/97
DOUG	JIM		
QUANT.	CHECK		
			1212407
I-15 CORRIDOR RECONSTRUCTION			
MISC DETAILS RET WALL R-343-11			
SECTION 1.2			
PROJECT NUMBER *SP-15-7(135)296			
SALT LAKE COUNTY			
DWG. NO. 1.2R-343-11.2			
SHT. 2 OF 5			

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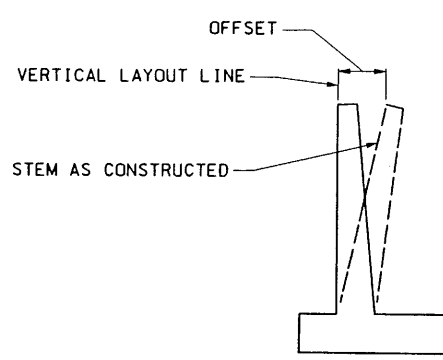
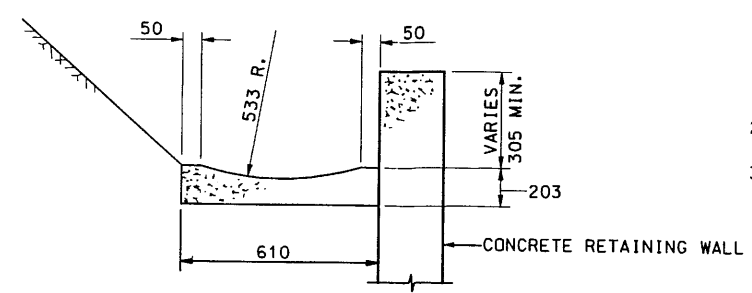


TABLE OF OFFSETS
(IN METERS)

H	OFF.	H	OFF.
1.200	0.006	4.800	0.032
1.800	0.010	5.400	0.038
2.400	0.013	6.000	0.044
3.000	0.016	6.600	0.050
3.600	0.019	7.200	0.057
4.200	0.025	7.800 TO 11.000	0.064

APPROXIMATE WALL OFFSET VALUES

VALUES FOR OFFSETTING FORMS TO BE DETERMINED BY THE ENGINEER



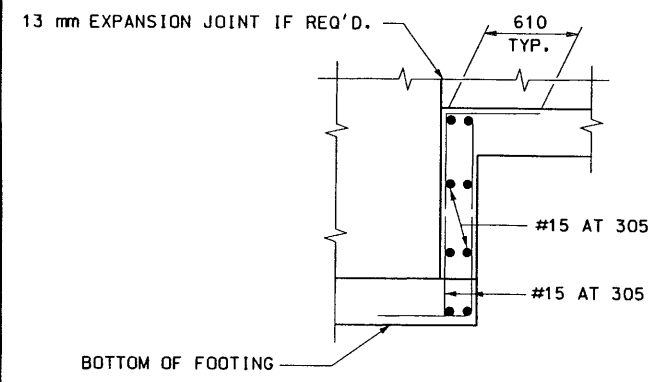
TYPICAL GUTTER DETAIL

GENERAL NOTES

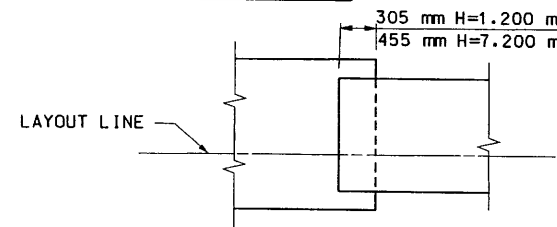
1. USE EPOXY-COATED REINFORCING STEEL CONFORMING TO AASHTO M 31M GRADE 400.
2. DESIGN H MAY BE EXCEEDED BY 150 mm BEFORE GOING TO THE NEXT SIZE.
3. ALL DIMENSIONS SHOWN ARE IN METERS UNLESS SPECIFIED OTHERWISE.

DESIGN DATA

CAST-IN-PLACE CONCRETE: $f_c = 10 \text{ MPa}$; $f_d(\text{REINF.}) = 160 \text{ MPa}$; $n=8$.
 EARTH: UNIT DENSITY = 1920 kg/m^3
 IN CASE OF SLOPING GROUND CONDITIONS ABOVE THE TOP OF THE WALL, EARTH PRESSURE SHALL BE DETERMINED FROM THE RANKINE EQUATIONS FOR LATERAL EARTH PRESSURE WITH $\phi = 33^\circ 42'$.
 610 mm SURCHARGE: EQUIVALENT FLUID PRESSURE = 5.6 KN/m^3 MAX. FOR DETERMINATION OF THE PRESSURE.



ELEVATION

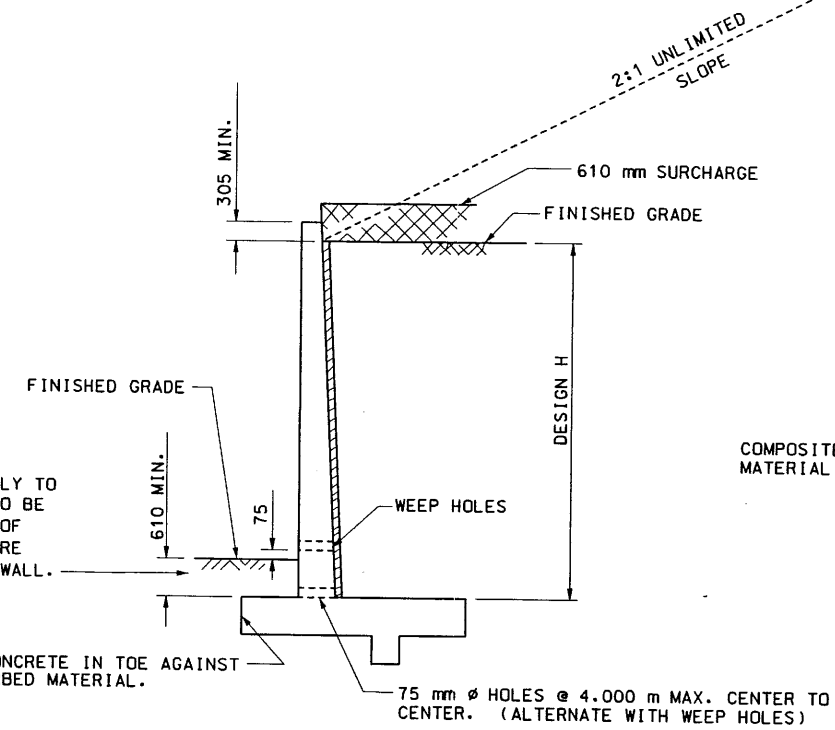


PLAN

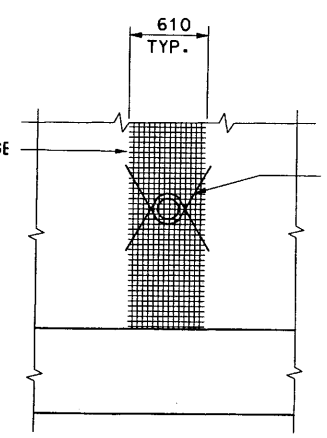
FOOTING STEP DETAILS

BACKFILL SUFFICIENTLY TO PREVENT PONDING. TO BE DONE AFTER REMOVAL OF WALL FORMS AND BEFORE BACKFILLING BEHIND WALL.

PLACE CONCRETE IN TOE AGAINST UNDISTURBED MATERIAL.

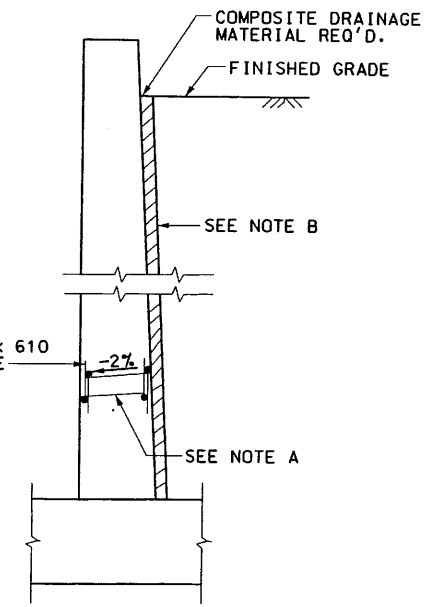


DESIGN AND DRAINAGE



PARTIAL ELEVATION

@ BACK FACE OF WALL



SECTION

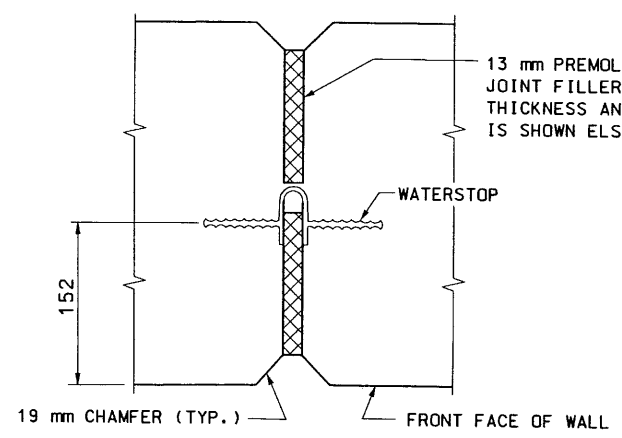
WEEP HOLE DETAIL

WATER STOP NOTES

1. WATERSTOP TO HAVE FIVE OR MORE PAIRS OF RAISED RIBS TO PROVIDE 65 mm^2 MIN. RIB CROSS-SECTIONAL AREA ON EACH HALF OF THE WATERSTOP. HEIGHT OF RIBS TO BE 2 mm M.N.
2. HOLES WILL BE PERMITTED IN THE OUTER 13 mm OF THE WEB FOR WIRE, RINGS, ETC. TIE WEB TO #10 REINFORCING BARS @ 305 mm MAX. INTERVALS TO SUPPORT THE WATERSTOP IN PROPER POSITION DURING CONCRETE PLACEMENT. ALTERNATIVE DETAIL MAY BE SUBMITTED TO THE ENGINEER FOR APPROVAL.

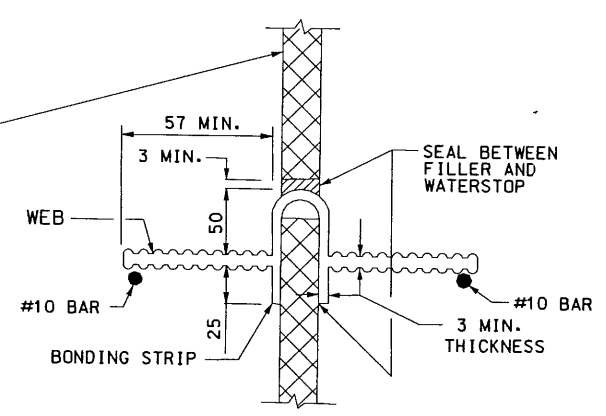
NOTES:

- A. 100 mm ϕ DRAINS @ 4.000 m MAX. CENTER TO CENTER.
- B. COMPOSITE DRAINAGE MATERIAL REQUIRED FROM BOTTOM OF WALL TO TOP OF FINISHED GRADE.



WALL EXPANSION JOINT (PLAN VIEW)

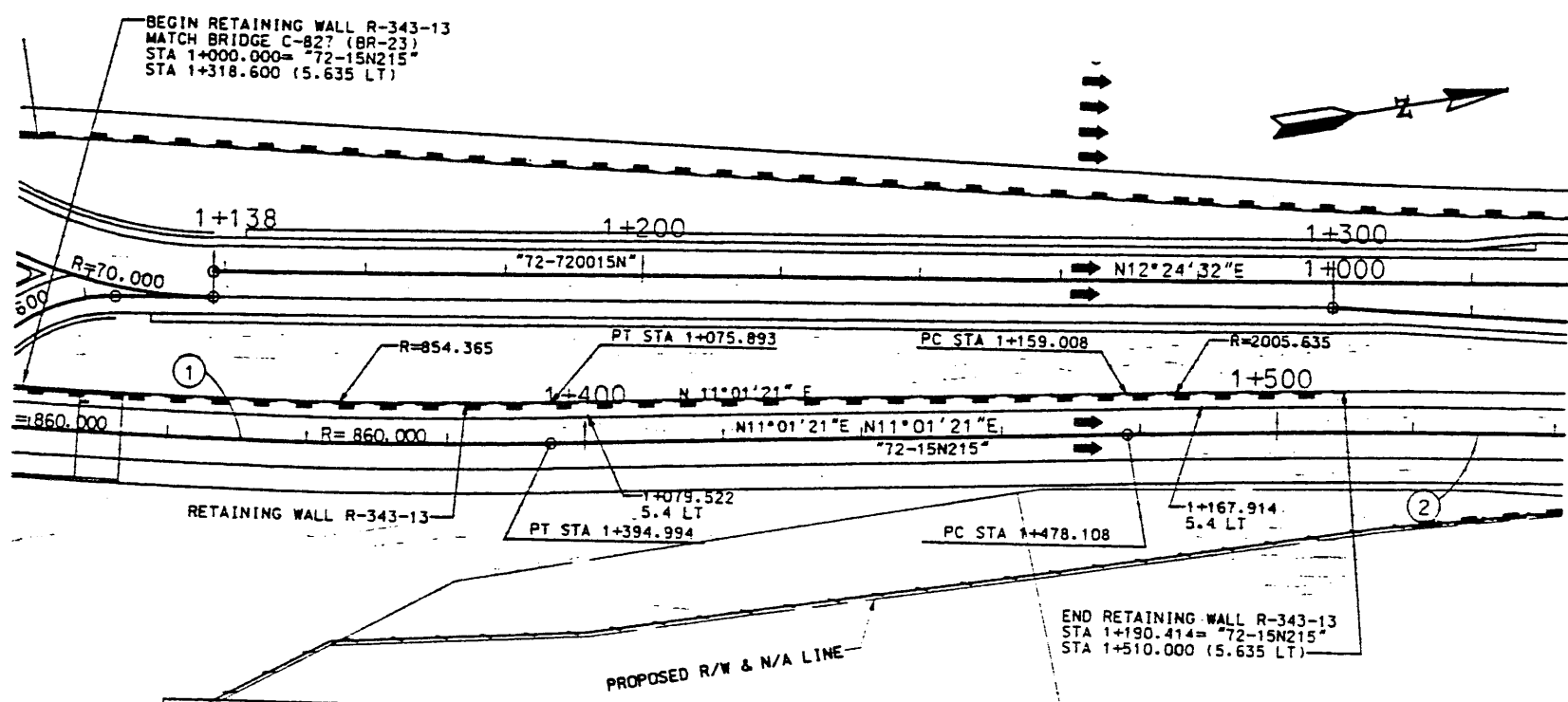
PLACE JOINTS AT 30.500 m MAX. SPACING



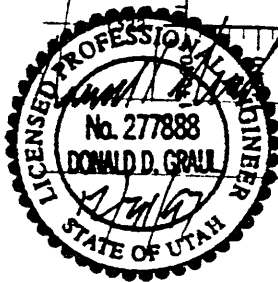
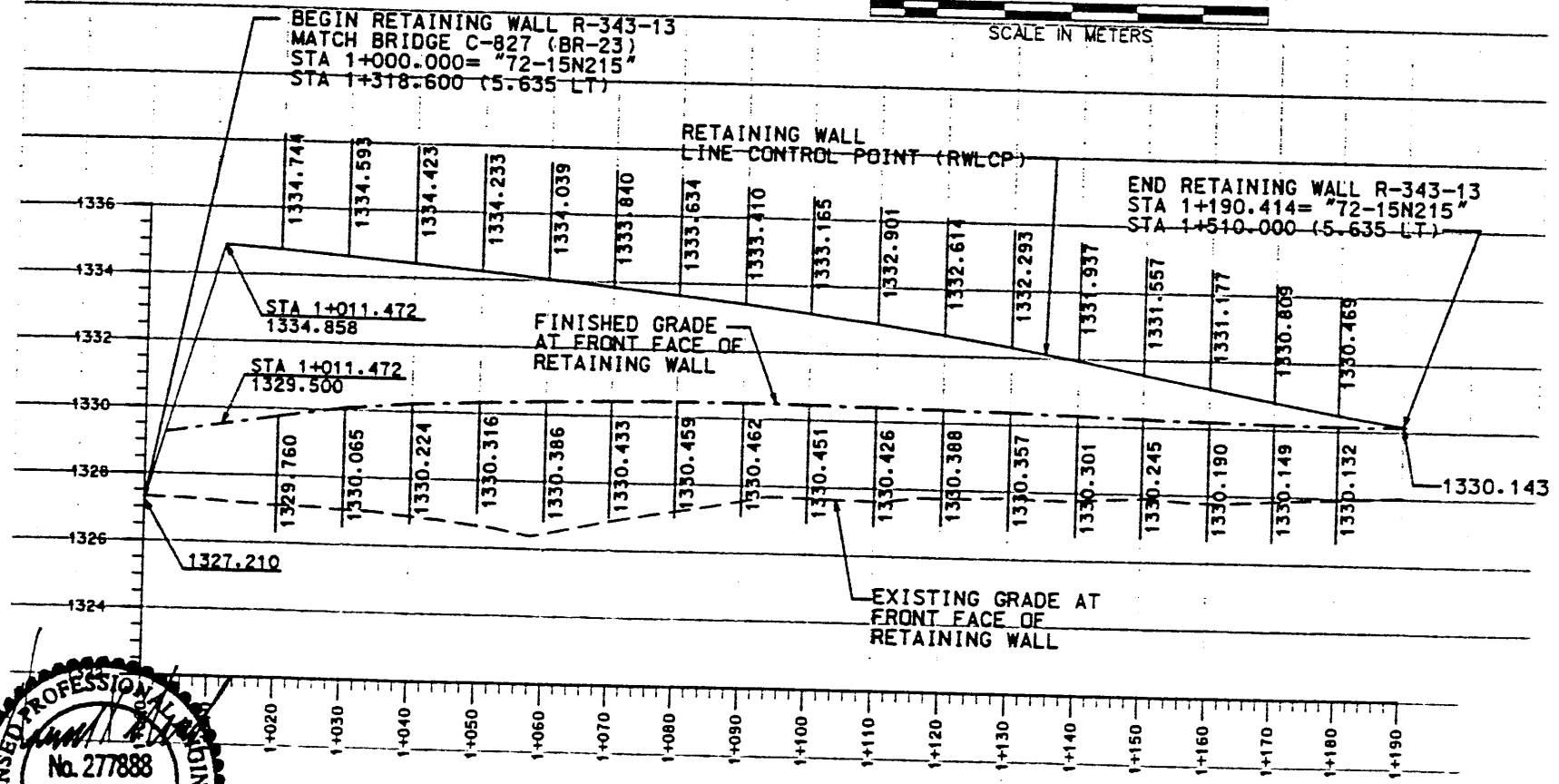
WATERSTOP DETAIL

UTAH DEPARTMENT OF TRANSPORTATION SALT LAKE CITY, UTAH STRUCTURES DIVISION	CHECK	CHECK	CHECK
DESIGN	DRAWN	QUANT.	
DATE	GROUP LEADER	DATE	CHIEF STRUCTURAL ENGR.
APPROVAL	APPROVED	DATE	
CONCRETE RETAINING WALL STANDARD DETAILS NO. 1	PROJECT NUMBER	*SP-15-7(135)296	
SALT LAKE COUNTY	1.2R-343-11.4	DRG. NO.	
SHT. 51	OF 51	REVISIONS	
		NO.	DATE
		BY	REMARKS
			3/22/95

Date: 30-DEC-1997 Time: 13:43 User: rnmw 87011r

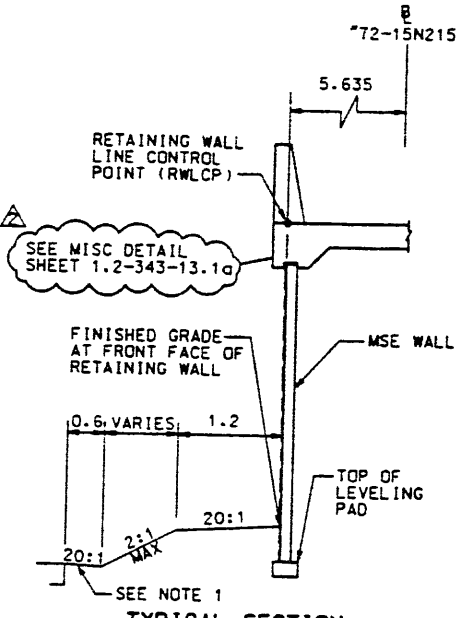
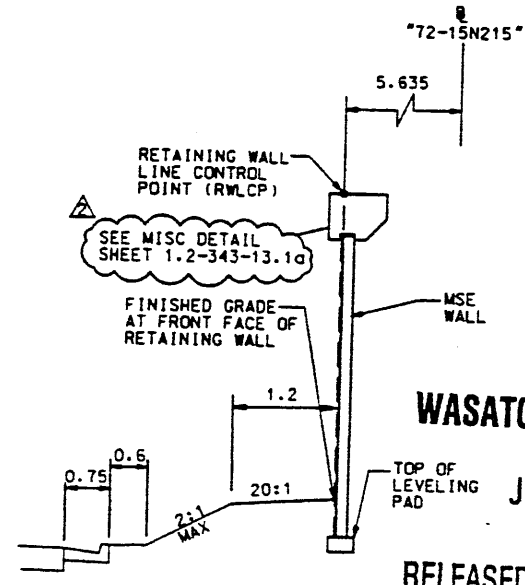


CURVE NO.	△	R	L	T
①	13°51'59"	860.000	208.131	104.576
②	3°37'22"	2000.000	126.455	63.249

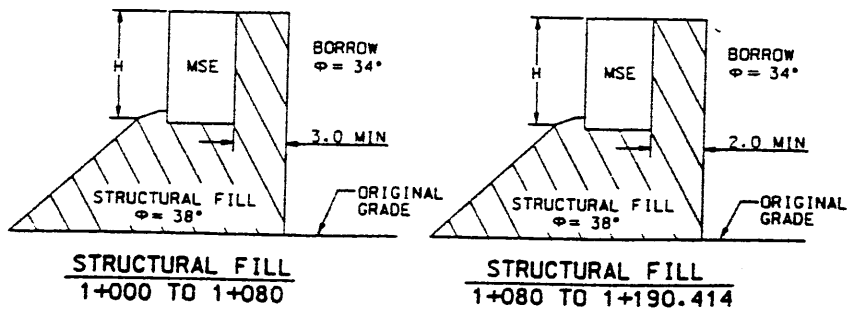


NOTE:
THE FOUNDATION BEARING MATERIALS SHOULD BE OBSERVED BY THE GEOTECHNICAL ENGINEER DURING SITE PREPARATION. ANY UNDESIRABLE MATERIALS WILL NEED TO BE REMOVED AND REPLACED WITH BORROW IN ORDER TO ACHIEVE ACCEPTABLE CONDITIONS AT THE BASE OF THE WALL.

NOTE:
ALL STRUCTURAL FILL PLACED BELOW AND BEHIND THE WALL AS SHOWN ON THE PLANS SHALL HAVE AN INTERNAL FRICTION ANGLE OF AT LEAST 38°



NOTE:
1. FOR STA 1+011.472 TO STA 1+012.831 CURB AND GUTTER SECTION APPLIES PER ROADWAY PLAN



APPROVED FOR CONSTRUCTION

UTAH DEPARTMENT OF TRANSPORTATION
URS Greiner
SVERDRUP/DE LEUW

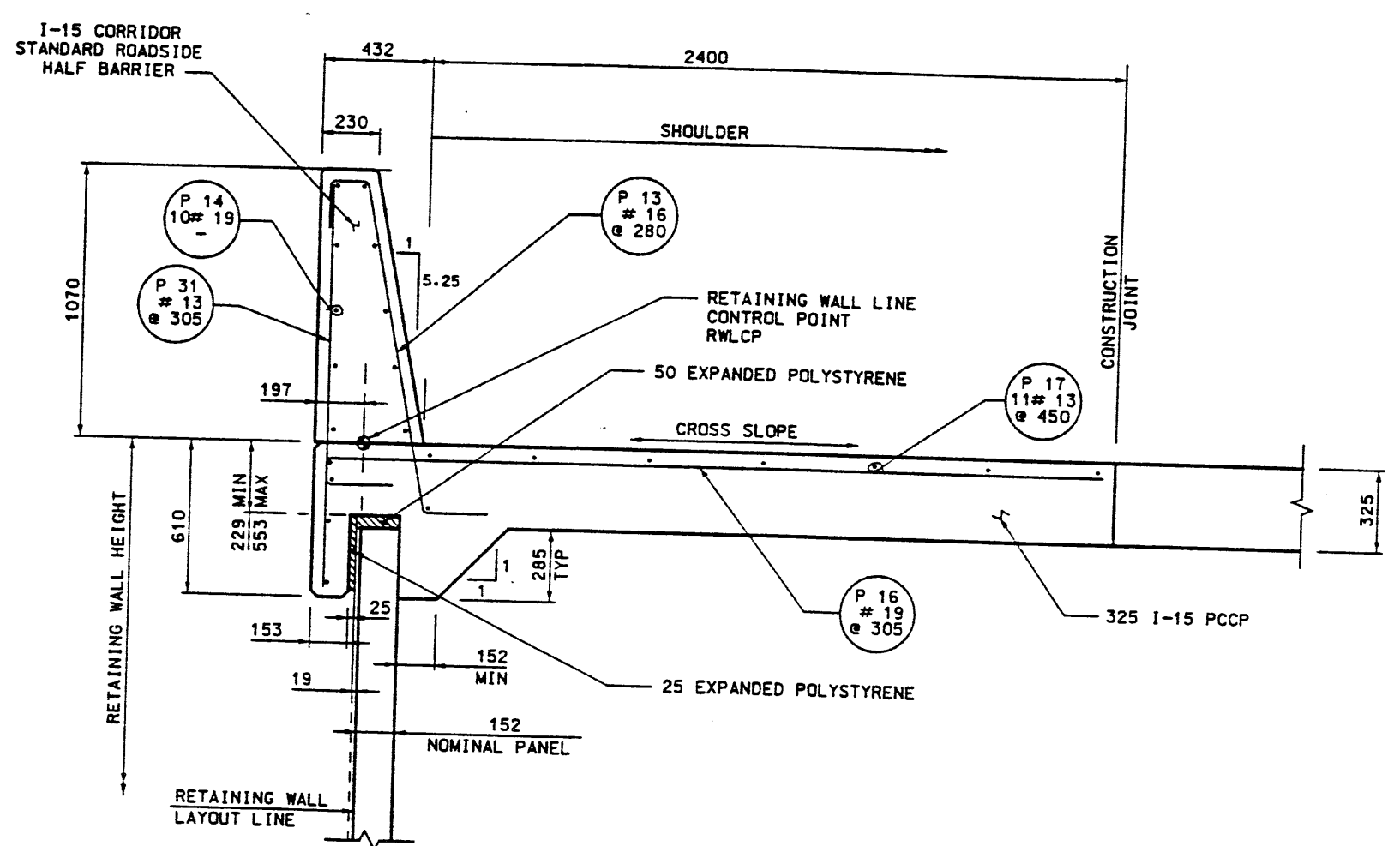
1-15 CORRIDOR RECONSTRUCTION
SITUATION/LAYOUT
RET WALL R-343-13
SECTION 1.2
PROJECT NUMBER #SP-15-7(135)296

NO.	DATE	DESCRIPTION
1	10-11-97	INITIAL RELEASE
2	12-31-97	RELEASED FOR GPP / MOMENT SLAB

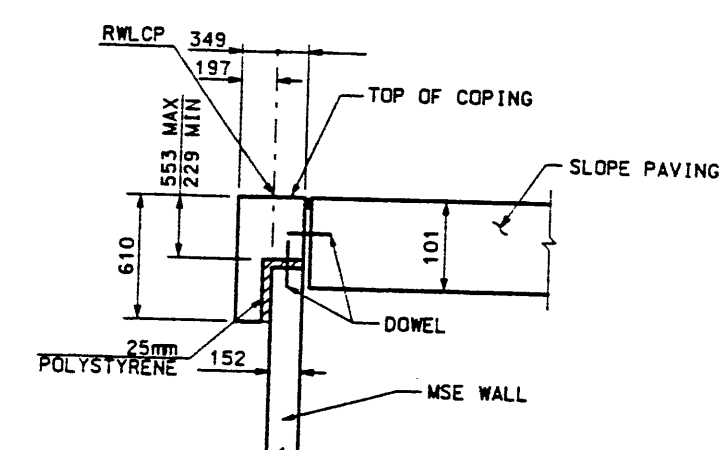
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JAM	JAM	9/97	JAM	JAM	9/97
JAM	JAM	9/97	JAM	JAM	9/97

SALT LAKE COUNTY
DWC NO. 1.2R-343-13.1
SMT 1 of 10
REF.

I:\names\p\15\cadd\15_cadd\15_r-343-13\sheet_1.rvt
 Date: 30-DEC-1997 Time: 10:28
 User: rnmast@trj



MSE SINGLE STAGE WITH BARRIER ON MOMENT SLAB
NO SCALE

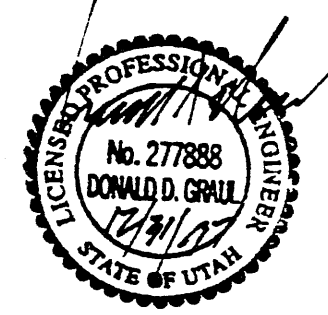


CROSS SECTION C-C WITH ABUTMENT SLOPE (NON SPUI)
SLOPE PAVING / COPING DETAILS
NO SCALE

BARRIER REINFORCING STEEL SCHEDULE				
MARK	LOCATION	SIZE NO.	LENGTH	SKETCH
P13	OUTSIDE	16	1994	
P14	OUTSIDE LONGITUDINAL	19	VARIES	
P15	OUTSIDE	13	VARIES	
P16	OUTSIDE BARRIER ON MSE WALL	19	3240	
P17	OUTSIDE BARRIER ON MSE WALL	13	VARIES	
P18	OUTSIDE BARRIER	19	2340	
P30		16	2440	
P31		13	1370	
P32		19	4310 MAX	

- NOTES:**
- 50mm MINIMUM COVER OVER REINFORCING.
 - USE 325 PCCP $f'c=27.5$ MPa (4,000 PSI) FOR MOMENT SLAB.

WASATCH CONSTRUCTORS
JAN 02 1998
RELEASED FOR CONSTRUCTION



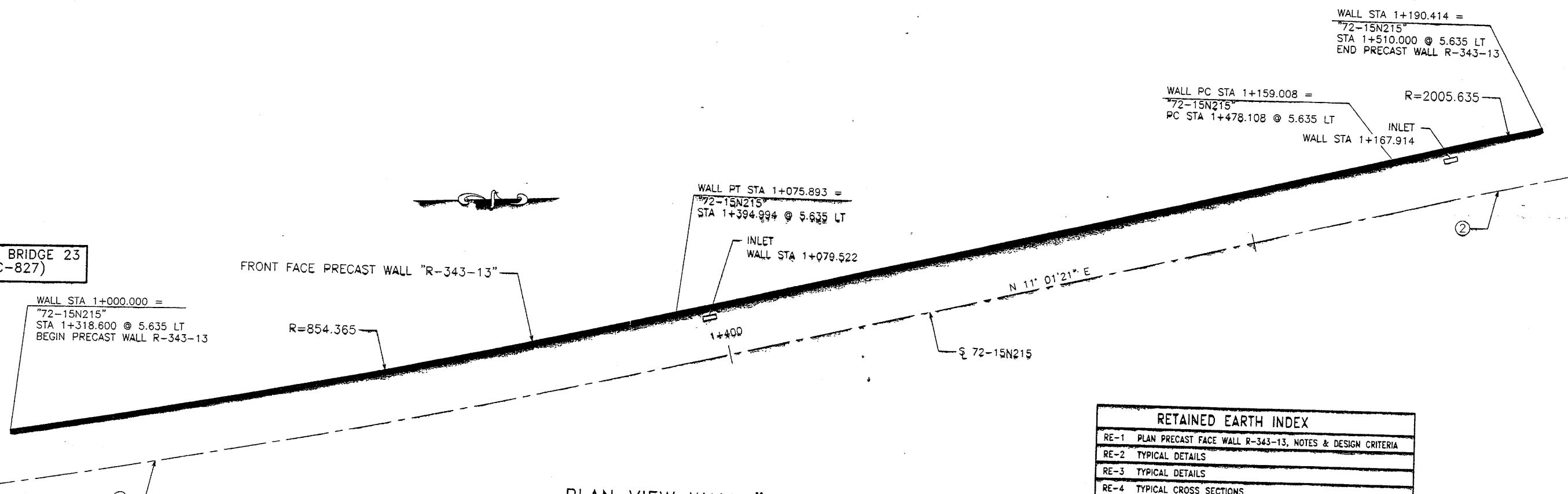
APPROVED FOR CONSTRUCTION
 DATE: 12/31/97
 RELEASED FOR DEPARTMENT BLM: *OTC*

UTAH DEPARTMENT OF TRANSPORTATION
 SVERDRUP/DE LEUW
 DESIGN: [] CHECK: []
 DRAWN: [] SECTION ENGINEER: []
 PROJECT NUMBER: #SP-15-7(135)296
 SECTION: 1.2
 QUANTITY: 1212310

I-15 CORRIDOR RECONSTRUCTION
 MISC. DETAILS
 RET. WALL R-343-13
 SECTION 1.2
 SALT LAKE COUNTY
 1.2R-343-13.1a
 SHT. 2 of 10

E:\PROJECT\239-0007\72SERIES\72-13A.P
10-07-97
FINAL P

APPROVED FOR CONSTRUCTION		
NO.	DATE	DESCRIPTION
1	10-07-97	RELEASE FOR CONSTRUCTION



MATCH BRIDGE 23
(C-827)

RETAINED EARTH INDEX	
RE-1	PLAN PRECAST FACE WALL R-343-13, NOTES & DESIGN CRITERIA
RE-2	TYPICAL DETAILS
RE-3	TYPICAL DETAILS
RE-4	TYPICAL CROSS SECTIONS
RE-5	ELEVATION PRECAST WALL "R-343-13"
RE-6	ELEVATION PRECAST WALL "R-343-13"
RE-7	SPECIAL PANEL DETAILS
RE-8	SPECIAL PANEL DETAILS

PLAN VIEW WALL "R-343-13"

SCALE: 1=250 (FULL SIZE)
SCALE: 1=500 (HALF SIZE)

CURVE DATA				
No.	RADIUS	LENGTH	TANGENT	Δ
1	860.000	208.131	104.576	13°51'59"
2	2000.000	126.455	63.249	3°37'22"

All Dimensions Are In Meters Unless Noted Otherwise

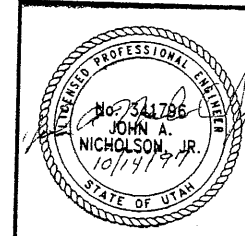
DESIGN PARAMETERS	
ANGLE OF INTERNAL FRICTION (SELECT)	= 38°
ANGLE OF INTERNAL FRICTION (BASE)	= 38°
ANGLE OF INTERNAL FRICTION (RANDOM)	= 38°
UNIT WEIGHT BACKFILL	= 135 PCF.
TRAFFIC SURCHARGE	= 250 PSF
SEISMIC ACCELERATION COFF.	= 0.12g (TYP)
SEISMIC ACCELERATION COFF.	= 0.32g (AT BRIDGE ABUTMENTS)
DESIGN CRITERIA	
SAFETY FACTOR (OVERTURNING)	= 2.0
SAFETY FACTOR (SLIDING)	= 1.5
SAFETY FACTOR (PULLOUT)	= 1.5
DESIGN LIFE	= 75 YEARS

GENERAL NOTES

- ALL WALLS ARE SHOWN FRONT FACE. NOTE STATIONING.
- PANEL TYPE IS DESIGNATED ON EACH PANEL. CONNECTOR LABELS INDICATE NUMBER OF CONNECTORS PER SOIL REINFORCING MESH LOCATION.
EXAMPLE: 5B2-10 IS A "B2-10" PANEL WITH FIVE (5) CONNECTORS PER SOIL REINFORCING MESH LOCATION.
IF NO CONNECTORS ARE SHOWN, FOUR (4) CONNECTOR PANELS SHALL BE USED:
- SOIL REINFORCING MESH TYPE IS DESIGNATED ON EACH PANEL. MESH LABELS INDICATE WIRE SIZE AND SPACING. LONGITUDINAL WIRE AND CROSSBAR SIZES ARE THE SAME UNLESS NOTED OTHERWISE.
EXAMPLE: 4W11-6 MESH HAS FOUR (4) W11 LONGITUDINAL WIRES WITH W11 CROSSBARS AT 6" CENTERS.
EXAMPLE: 4W20-12 MESH HAS FOUR (4) W20 LONGITUDINAL WIRES WITH W20 CROSSBARS AT 12" CENTERS.
EXAMPLE: 5W11-6 MESH HAS FIVE (5) W11 LONGITUDINAL WIRES WITH W11 CROSSBARS AT 6" CENTERS.
EXAMPLE: 5W11-12 MESH HAS FIVE (5) W11 LONGITUDINAL WIRES WITH W11 CROSSBARS AT 12" CENTERS.
EXAMPLE: 6W11-12 MESH HAS SIX (6) W11 LONGITUDINAL WIRES WITH W11 CROSSBARS AT 12" CENTERS.
IF NO MESH IS SHOWN, 4W11-6 MESH SHALL BE USED.
- SEE RETAINED EARTH INSTALLATION MANUAL FOR PROPER WALL ERECTION PROCEDURES AND GUIDELINES.
- CONSTRUCTION PROCEDURES SHALL PREVENT BACKFILL SATURATION AND PONDING.
- HEAVY EQUIPMENT SHALL NOT BE USED WITHIN ONE METER OF THE BACK OF THE RETAINED EARTH PANELS. HAND COMPACTORS SHALL BE USED IN THIS AREA.
- CARE SHALL BE TAKEN TO PREVENT DAMAGE TO GALVANIZING. DAMAGED GALVANIZING SHALL BE COATED WITH ZINC RICH PAINT.
- BEARING PADS AND FILTER FABRIC ARE NOT REQUIRED BETWEEN THE LEVELING PAD AND THE FIRST ROW OF PANELS. TEMPORARY WEDGES MAY BE USED TO PROVIDE PROPER ALIGNMENT.
- VSL RETAINED EARTH IS PROTECTED UNDER U.S. PATENT 4,725,170.
- ALL PANELS SHALL HAVE AN ARCHITECTURAL FINISH, SEE SHEET RE-3 FOR DETAIL.

WASATCH CONSTRUCTORS
OCT 15 1997
RELEASED FOR CONSTRUCTION

METRIC



CERTIFIED FOR INTERNAL STABILITY OF RETAINED EARTH™ STRUCTURES ONLY. EXTERNAL STABILITY, INCLUDING BUT NOT LIMITED TO FOUNDATION AND SLOPE STABILITY, IS THE RESPONSIBILITY OF THE OWNER. DESIGN IS BASED ON THE ASSUMPTION THAT THE MATERIAL WITHIN THE RETAINED EARTH™ MASS, METHODS OF CONSTRUCTION, AND QUALITY OF PREFABRICATED MATERIALS CONFORM TO THE MANUFACTURER'S SPECIFICATION.

RETAINED EARTH™ WALLS
PLAN VIEW PRECAST WALL "R-343-13"
UTAH I-15 INTERCHANGE
SALT LAKE COUNTY, UTAH
UTAH DEPARTMENT OF TRANSP.

SCALE: 1.2R-343-13.2
JOB NO: 239-0007/10
RE-1

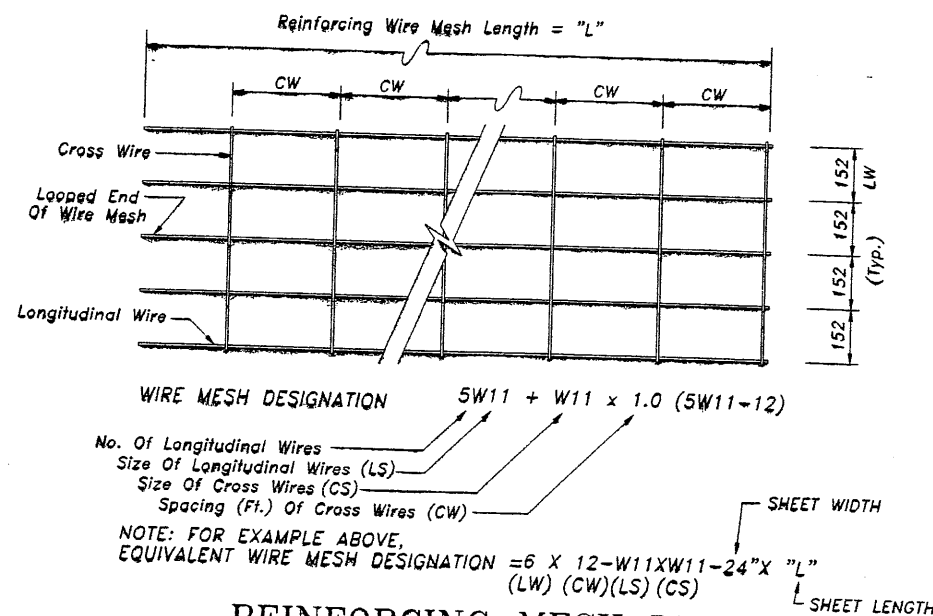
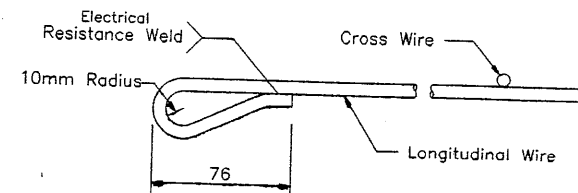
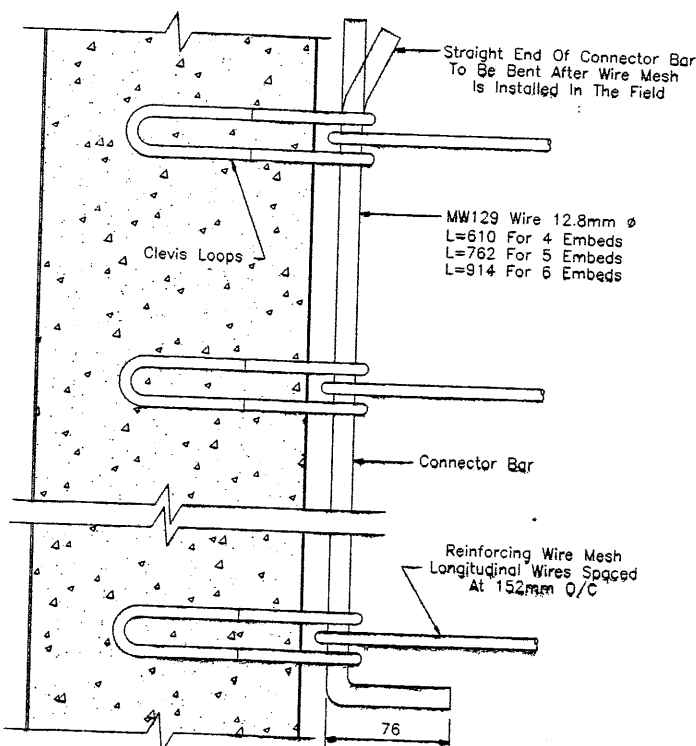
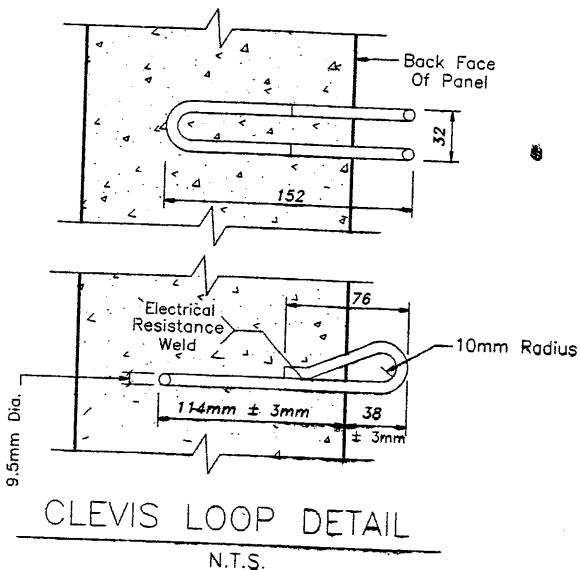
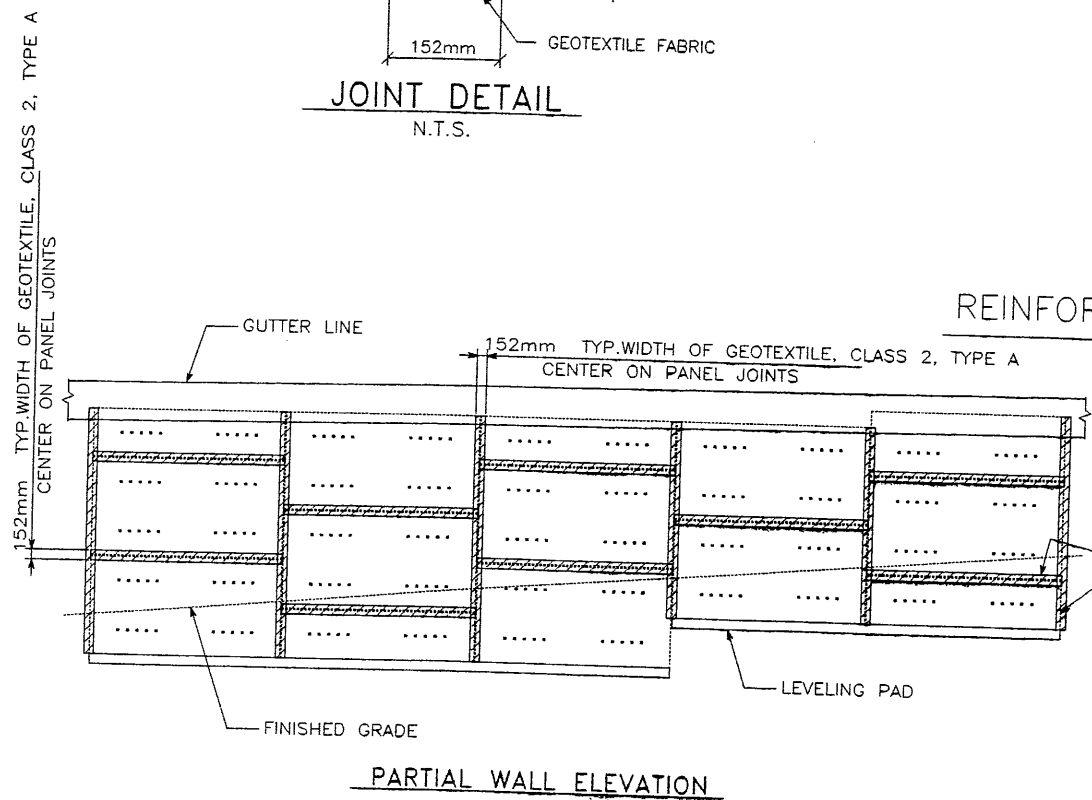
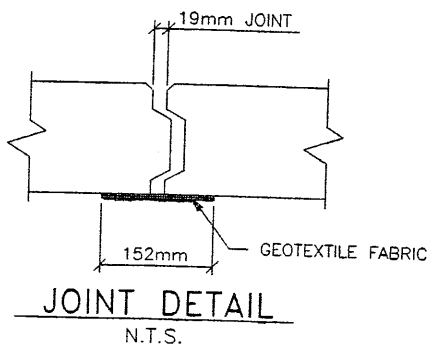
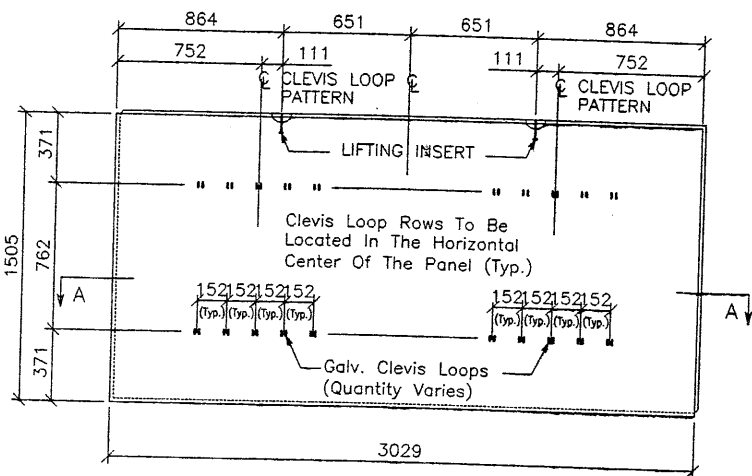
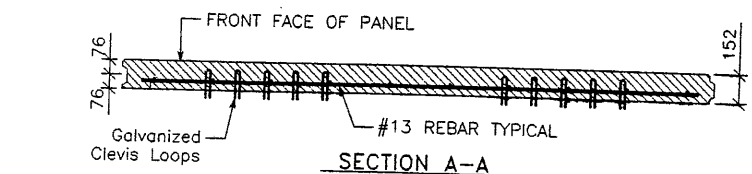
VSL CORPORATION
2840 Reno Place, Suite 200
Raleigh, NC 27612
Telephone: (919) 781-6272
Fax: (919) 781-4669

ATLANTA, GA / DALLAS, TX / FAYETTEVILLE, NC (CORPORATE OFFICE)
MIAMI, FL / SAN JOSE, CA / SPRINGFIELD, VA

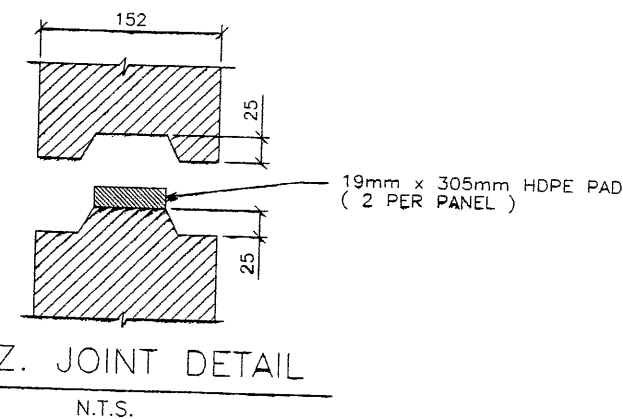
VSL
VSL RETAINED EARTH™

FINAL PLOT 10-07-97

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NOTE: W11 (71 sq mm) And W20 (129 sq mm) Steel Wire Material And Welding Of Cross Wires And Loops Shall Conform To ASTM A82 And ASTM 185, Fy = 448 MPa. Mesh Shall Be Galvanized To ASTM A-123 To A Minimum Effective Thickness Of 0.086 mm.

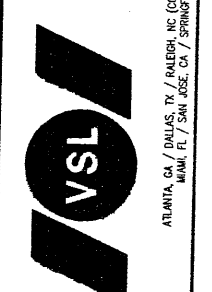


CERTIFIED FOR INTERNAL STABILITY OF RETAINED EARTH™ STRUCTURES ONLY. EXTERNAL STABILITY, INCLUDING BUT NOT LIMITED TO FOUNDATION AND SLOPE STABILITY, IS THE RESPONSIBILITY OF THE OWNER. DESIGN IS BASED ON THE ASSUMPTION THAT THE MATERIAL WITHIN THE RETAINED EARTH™ MASS, METHODS OF CONSTRUCTION, AND QUALITY OF PREFABRICATED MATERIALS CONFORM TO THE MANUFACTURER'S SPECIFICATION.

APPROVED FOR CONSTRUCTION		
NO.	DATE	DESCRIPTION
1	10-07-97	RELEASE FOR CONSTRUCTION

DES.	MM	DRN	DDO	CHK.	DATE	NO.	REVISION	BY	CHK
09-03-97		09-03-97	DDO						
09-03-97									

VSL CORPORATION
2840 Plaza Place, Suite 200
Raleigh, NC 27612
Telephone: (919) 781-6272
Fax: (919) 781-6993

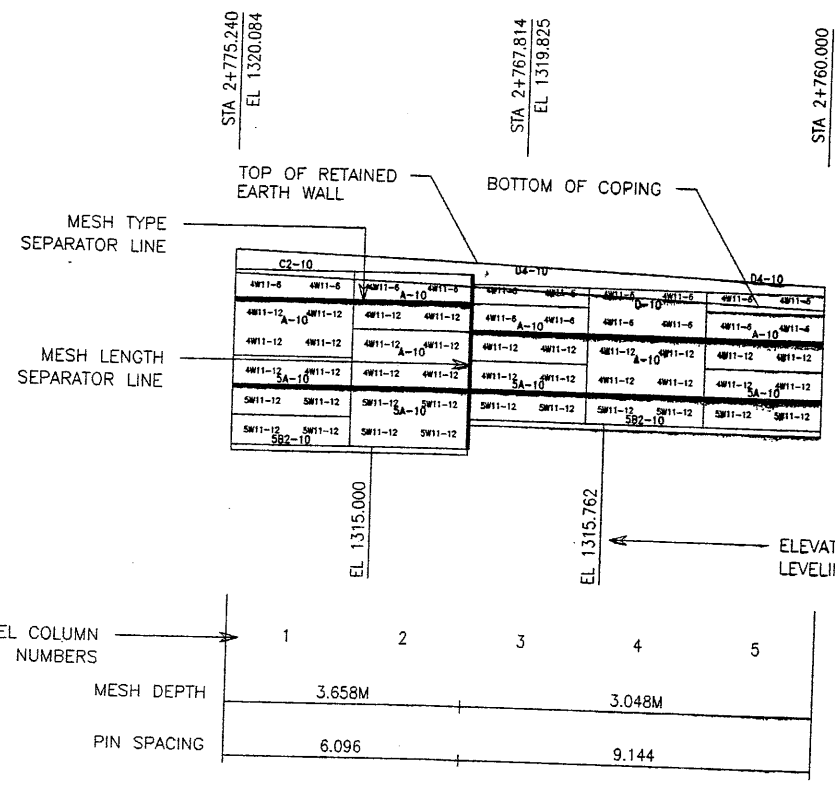


WATCH CONSTRUCTORS
OCT 15 1997
RELEASED FOR CONSTRUCTION

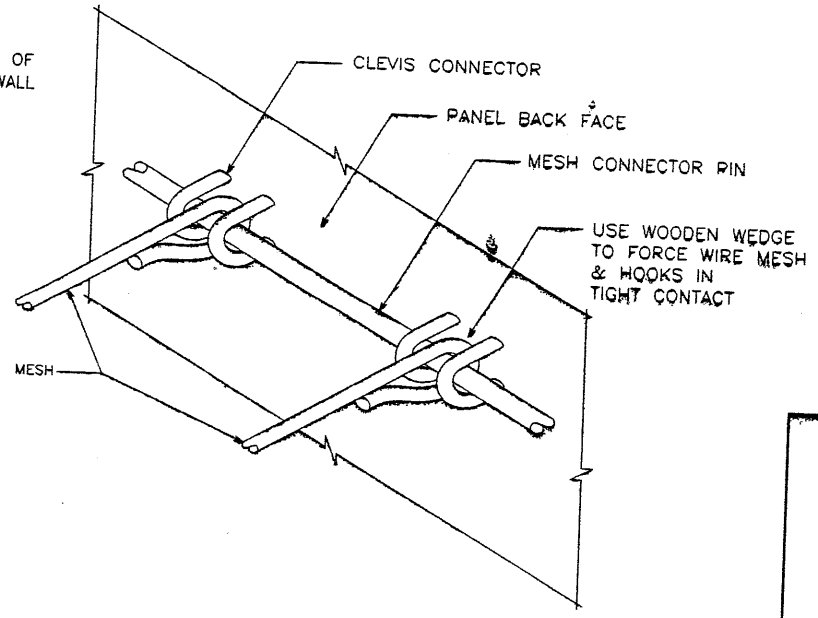
METRIC
JOHN A. NICHOLSON, JR.
10/19/97
STATE OF UTAH

RETAINED EARTH™ WALLS
PRECAST WALL "R-343-13"
TYPICAL DETAILS
UTAH I-15 INTERCHANGE
SALT LAKE COUNTY, UTAH
UTAH DEPARTMENT OF TRANSP.
SCALE: 1.2R-343-13.3
JOB NO. 239-0007 4/10
RE-2

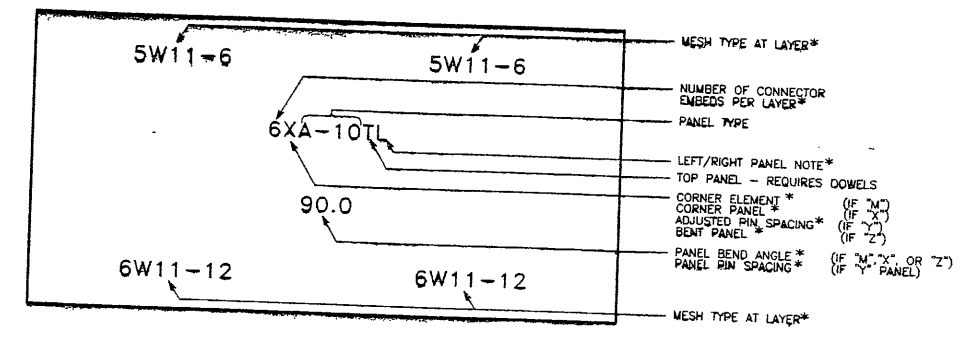
FINAL PI 0-07-97 E:\PROJECT\239-0007\2SERIES\72-13\RE-3



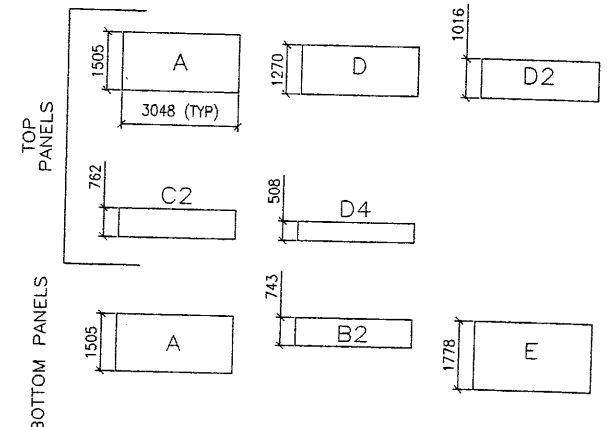
1 WALL ELEVATION KEY (FRONT FACE SHOWN)



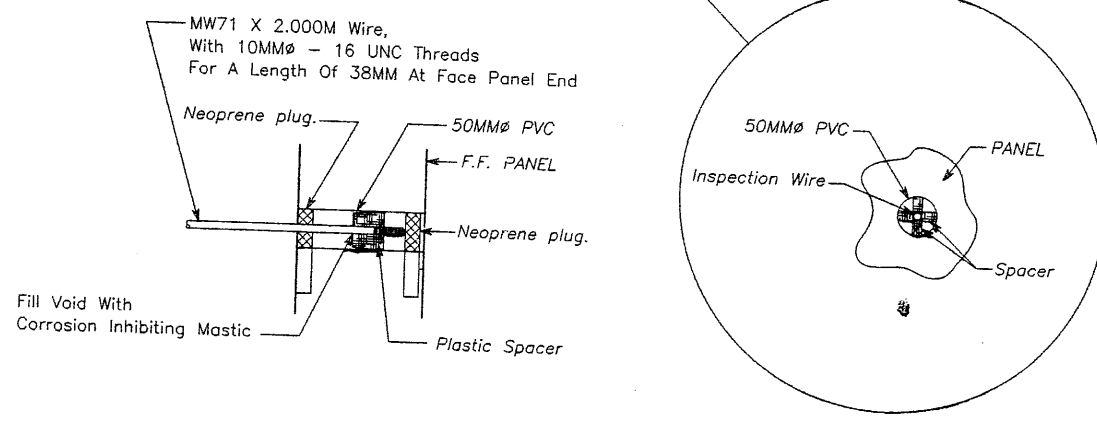
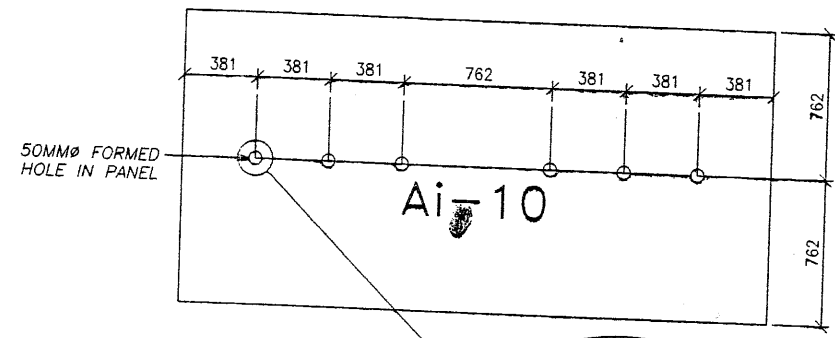
2 MESH CLEVIS CONNECTOR
VSL RETAINED EARTH IS PROTECTED UNDER U.S. PATENT 4,725,170.



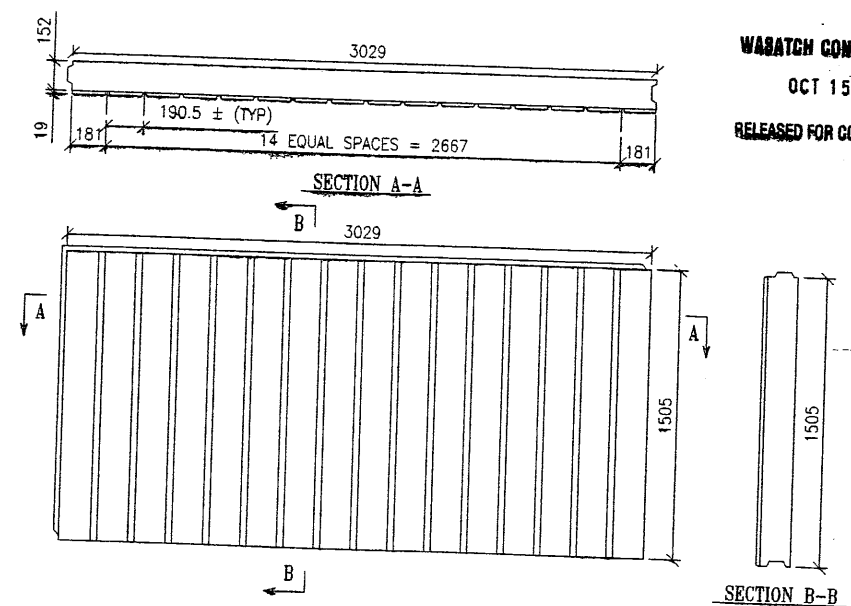
3 PANEL LABELS



4 PANEL TYPES
ALL DIMENSIONS ARE IN MILLIMETERS



5 INSPECTION WIRE DETAIL (PANEL FRONT FACE SHOWN)



6 ARCHITECTURAL PANEL FINISH (PANEL FRONT FACE SHOWN)

APPROVED FOR CONSTRUCTION

NO.	DATE	DESCRIPTION
1	10-07-97	RELEASE FOR CONSTRUCTION

NO.	DATE	REVISION	BY	CHK

VSL CORPORATION
2840 Pico Place, Suite 200
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Telephone: (919) 781-6272
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WABATCH CONSTRUCTORS
OCT 15 1997
RELEASED FOR CONSTRUCTION

VSL

RETAINED EARTH™ WALLS
PRECAST WALL "R-343-13"
TYPICAL DETAILS

UTAH I-15 INTERCHANGE
SALT LAKE COUNTY, UTAH
UTAH DEPARTMENT OF TRANSP.

SCALE:
1.2R-343-13.4

JOB NO:
239-0007

RE-3

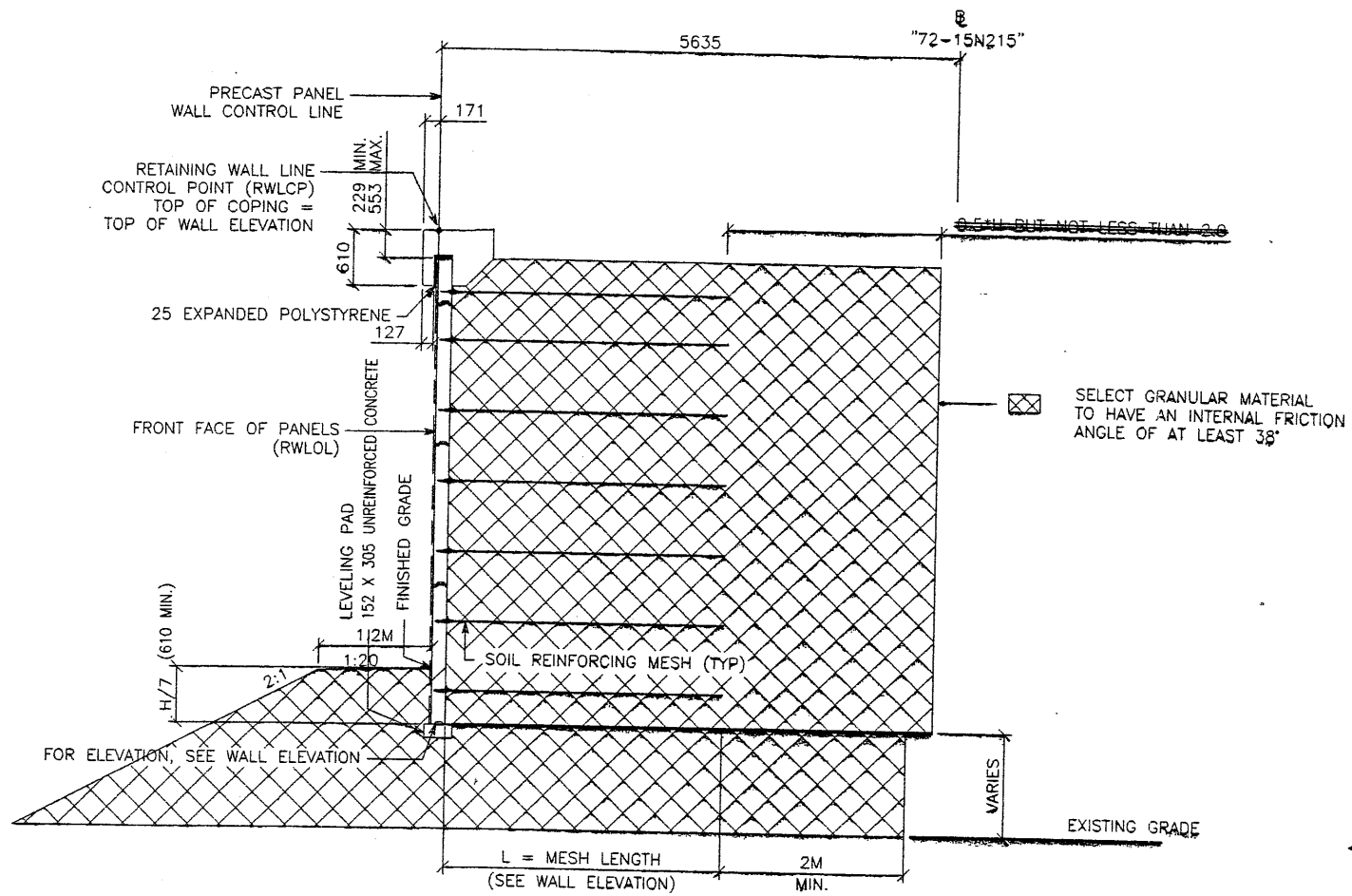
PROFESSIONAL ENGINEER
JOHN A. NICHOLSON, JR.
10/9/97
STATE OF UTAH

CERTIFIED FOR INTERNAL STABILITY OF RETAINED EARTH™ STRUCTURES ONLY. EXTERNAL STABILITY, INCLUDING BUT NOT LIMITED TO FOUNDATION AND SLOPE STABILITY, IS THE RESPONSIBILITY OF THE OWNER. DESIGN IS BASED ON THE ASSUMPTION THAT THE MATERIAL WITHIN THE RETAINED EARTH™ MASS, METHODS OF CONSTRUCTION, AND QUALITY OF PREFABRICATED MATERIALS CONFORM TO THE MANUFACTURER'S SPECIFICATION.

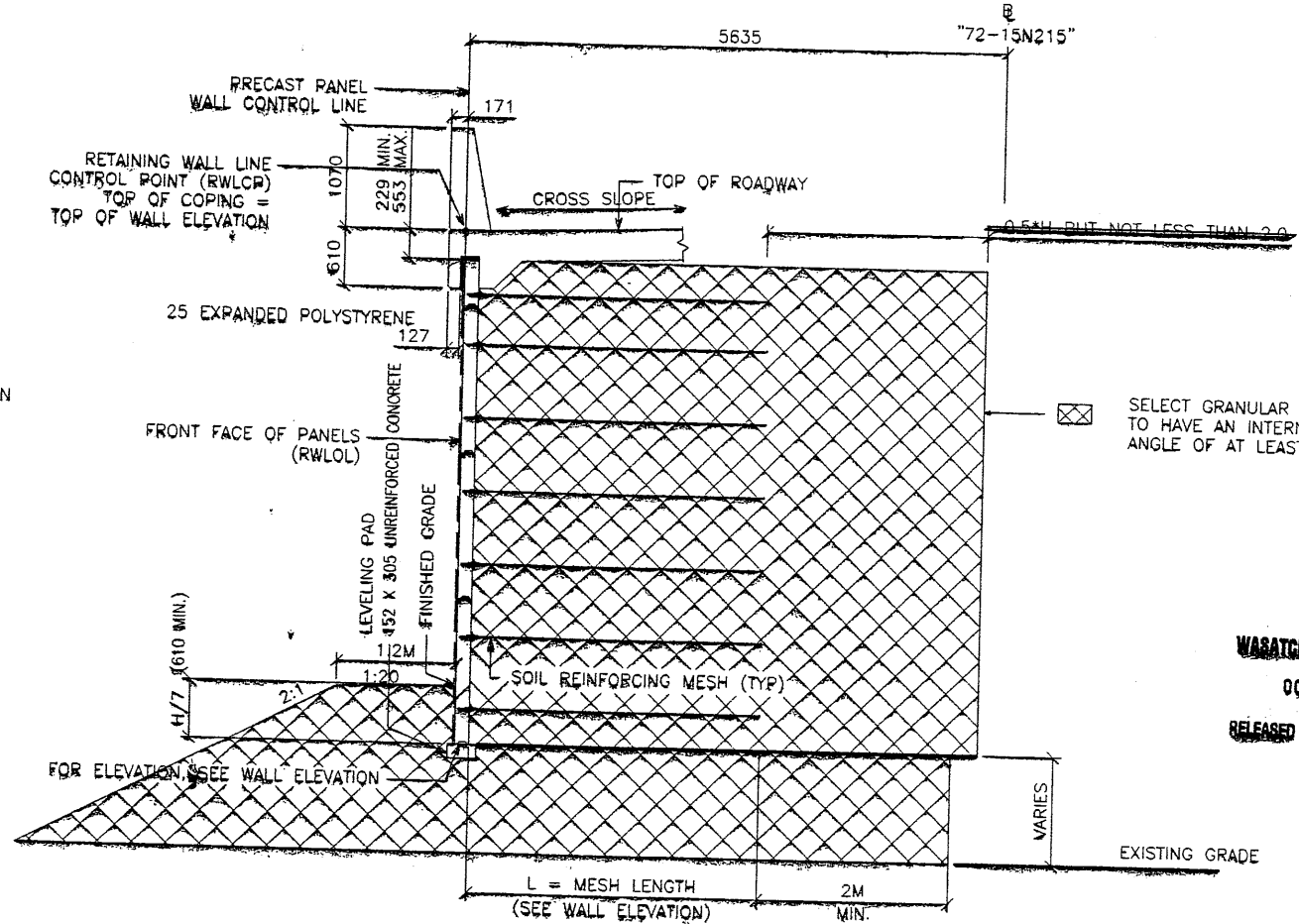
E:\PROJECT\239-0007\72SERIES\72-13\REF

FINAL PL 7-07-97

APPROVED FOR CONSTRUCTION		
NO.	DATE	DESCRIPTION
△	10-07-97	RELEASE FOR CONSTRUCTION <i>OK</i>



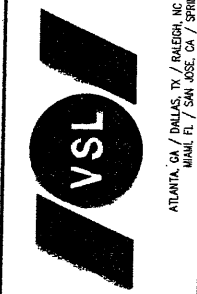
TYPICAL CROSS SECTION STA 1+000.000 TO 1+011.472
 (MSE SINGLE STAGE WITH MOMENT SLAB)
 SCALE: 1:40 (FULL SIZE)
 SCALE: 1:80 (HALF SIZE)



TYPICAL CROSS SECTION STA 1+011.472 TO 1+190.414
 (MSE SINGLE STAGE WITH MOMENT SLAB)
 SCALE: 1:40 (FULL SIZE)
 SCALE: 1:80 (HALF SIZE)

*Note: See S+L Sht 1.2R-343-13.1
 For limits of Structural Fill*

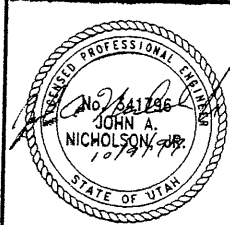
WARATCH CONSTRUCTORS
 OCT 15 1997
 RELEASED FOR CONSTRUCTION



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RETAINED EARTH™ WALLS
 PRECAST WALL "R-343-13"
 TYPICAL CROSS SECTIONS
 UTAH 1-15 INTERCHANGE
 SALT LAKE COUNTY, UTAH
 UTAH DEPARTMENT OF TRANSP.

METRIC



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SCALE:	1.2R-343-13.5
JOB NO:	239-0007 <i>6/10</i>
RE-4	

NO.	DATE	DESCRIPTION	BY	CHK

DES	09-03-97	MM	
DRN	09-03-97	DDO	
CHK	09-03-97	MM	

VSL CORPORATION	2840 Plaza Place, Suite 200	Raleigh, NC 27612	Telephone: (919) 781-8272	Fax: (919) 781-4869
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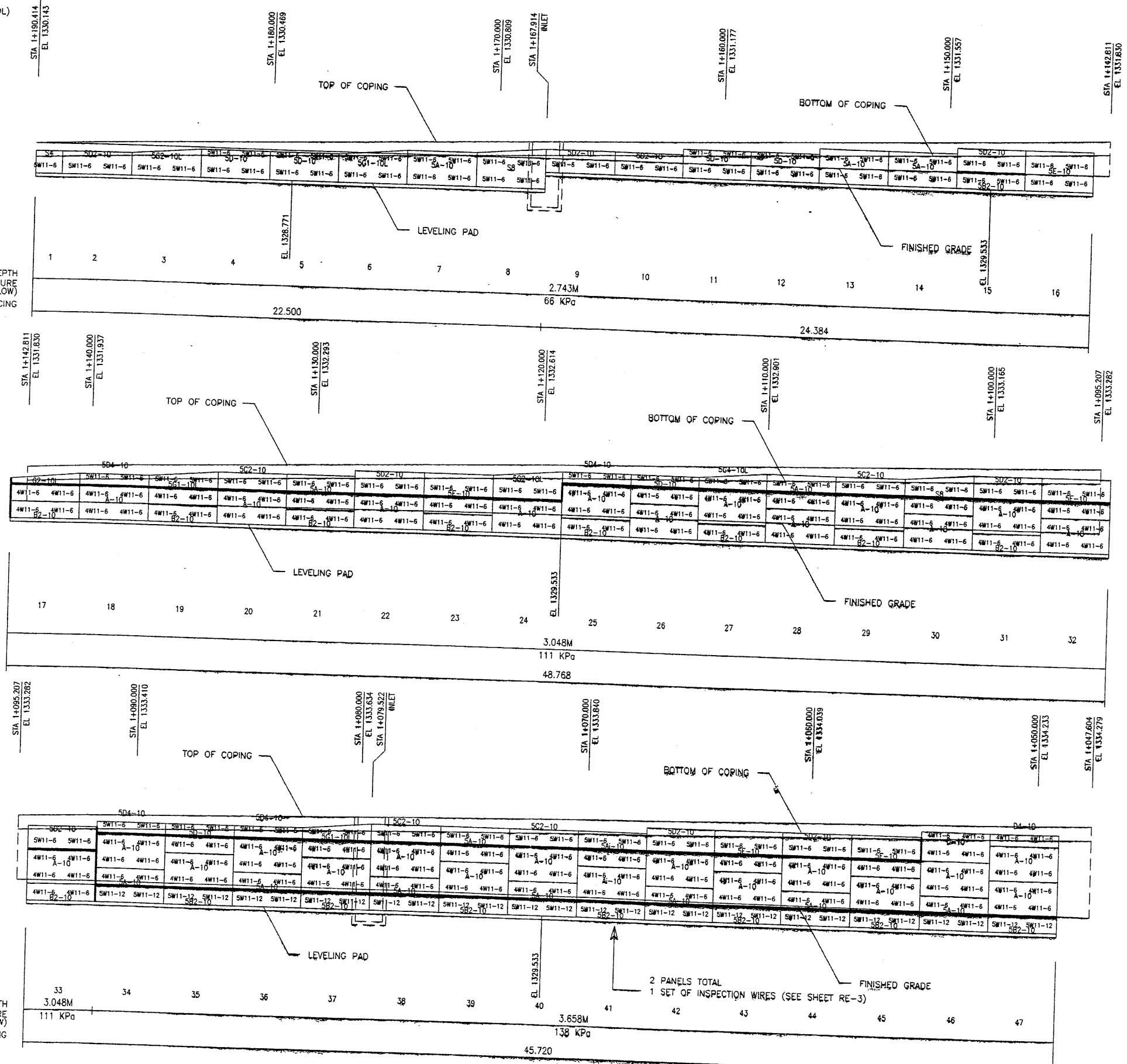
E:\PROJECT\239-000\72SERIES\72-13\W72-17
 0-07-97
 FINAL PI

WALL STA 1+190.414 =
 "72-15N215"
 STA 1+510.000 @ 5.635 LT
 NOMINAL PANEL FACE (RWLOL)

MESH DEPTH
 MAXIMUM BEARING PRESSURE
 (SEE NOTE BELOW)
 PIN SPACING

MESH DEPTH
 MAXIMUM BEARING PRESSURE
 (SEE NOTE BELOW)
 PIN SPACING

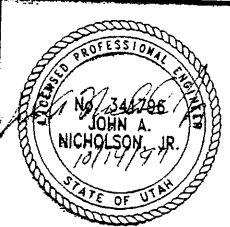
MESH DEPTH
 MAXIMUM BEARING PRESSURE
 (SEE NOTE BELOW)
 PIN SPACING



ELEVATION PRECAST WALL R-343-13
 (FRONT FACE SHOWN)
 (TOTAL SURFACE AREA OF PANELS = 206.59 SM)

SCALE 1:100 (FULL SIZE)
 SCALE 1:200 (HALF SIZE)

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 STABILITY, IS THE RESPONSIBILITY OF THE OWNER. DESIGN IS BASED ON THE
 ASSUMPTION THAT THE MATERIAL WITHIN THE RETAINED EARTH™ MASS, METHODS
 OF CONSTRUCTION, AND QUALITY OF PREFABRICATED MATERIALS CONFORM TO
 THE MANUFACTURER'S SPECIFICATION.

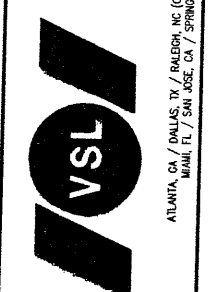


APPROVED FOR CONSTRUCTION

NO.	DATE	DESCRIPTION
1	10-07-97	RELEASE FOR CONSTRUCTION

DES.	DRN.	CHK.	RETAINED EARTH™	NO.	DATE	REVISION	BY	CHK
09-03-97	09-15-97	09-03-97						

VSL CORPORATION
 2840 Plaza Place, Suite 200
 Raleigh, NC 27612
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 Fax: (919) 781-4989



WASATCH CONSTRUCTORS
 OCT 15 1997
 RELEASED FOR CONSTRUCTION

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RETAINED EARTH™ WALLS
 PRECAST WALL "R-343-13"
 UTAH I-15 INTERCHANGE
 SALT LAKE COUNTY, UTAH
 UTAH DEPARTMENT OF TRANSP.

SCALE:
 1.2R-343-13.6
 JOB NO:
 239-0007/10
 RE-5

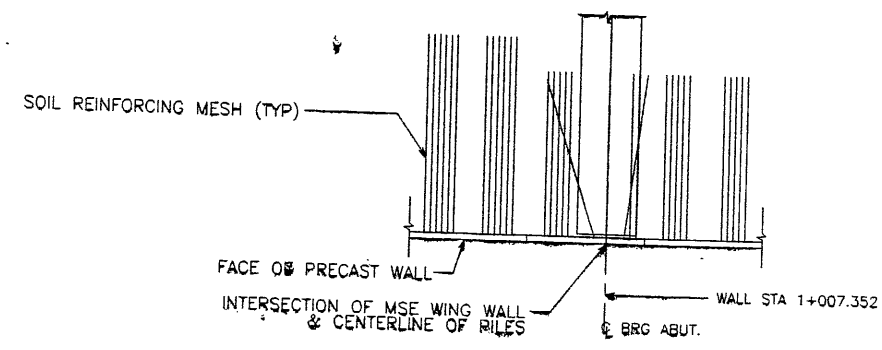
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-07-97

FINAL PLC

APPROVED FOR CONSTRUCTION		
NO.	DATE	DESCRIPTION
1	10-07-97	RELEASE FOR CONSTRUCTION

NO.	DATE	REVISION

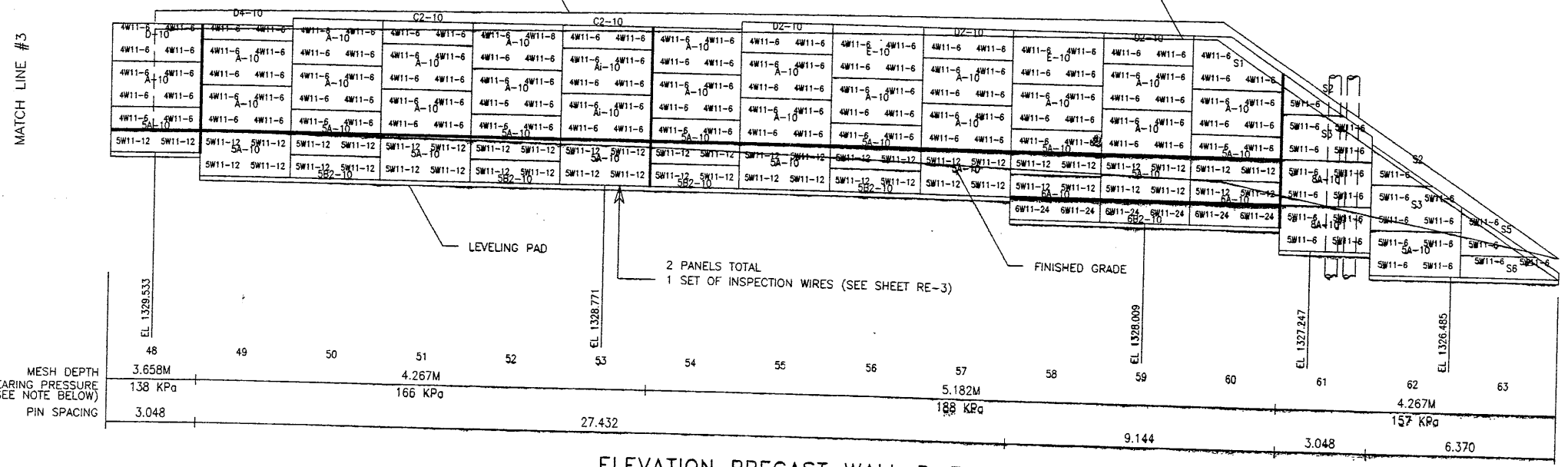


WALL STA 1+000.000 =
 "72-15N215"
 STA 1+318.600 @ 5.635 LT
 NOMINAL PANEL FACE (RWLOL)

WARATCH CONSTRUCTORS
 OCT 15 1997
 RELEASED FOR CONSTRUCTION

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MATCH BRIDGE 23
 (C-827)

ELEVATION PRECAST WALL R-343-13
 (FRONT FACE SHOWN)
 (TOTAL SURFACE AREA OF PANELS = 206.59 SM)

SCALE 1:100 (FULL SIZE)
 SCALE 1:200 (HALF SIZE)

MESH DEPTH	MAXIMUM UNFACTORED BEARING PRESSURE (SEE NOTE BELOW)	PIN SPACING
3.658M	138 KPa	3.048
4.267M	166 KPa	3.048

METRIC

APPROVER NOTE:
 MAXIMUM UNFACTORED BEARING PRESSURES
 ARE INDICATED BELOW "MESH DEPTH LINE"
 REVIEWER TO VERIFY MAXIMUM BEARING
 CAPACITY OF FOUNDATION.

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 STABILITY, IS THE RESPONSIBILITY OF THE OWNER. DESIGN IS BASED ON THE
 ASSUMPTION THAT THE MATERIAL WITHIN THE RETAINED EARTH™ MASS, METHODS
 OF CONSTRUCTION, AND QUALITY OF PREFABRICATED MATERIALS CONFORM TO
 THE MANUFACTURER'S SPECIFICATION.

RETAINED EARTH™ WALLS
 PRECAST WALL "R-343-13"
 UTAH I-15 INTERCHANGE
 SALT LAKE COUNTY, UTAH
 UTAH DEPARTMENT OF TRANSP.

SCALE:
 1.2R-343-13.7

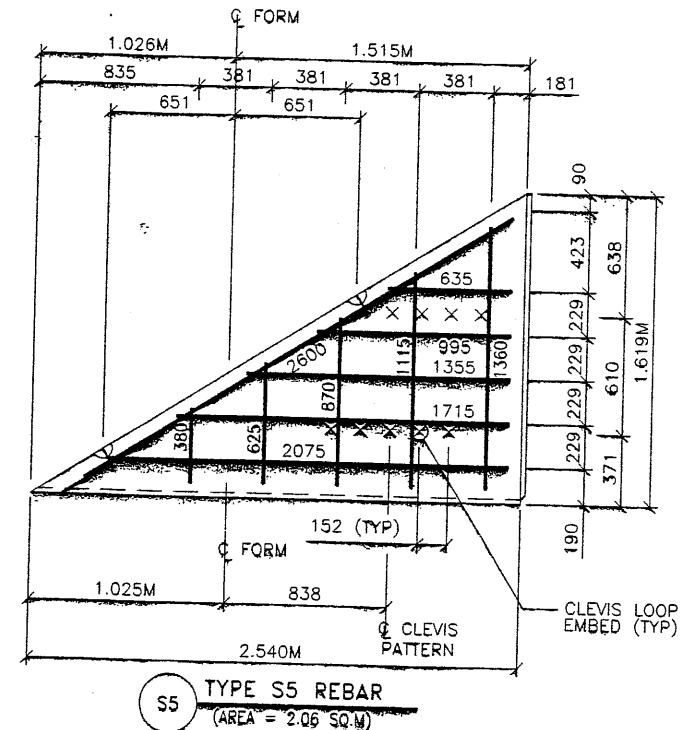
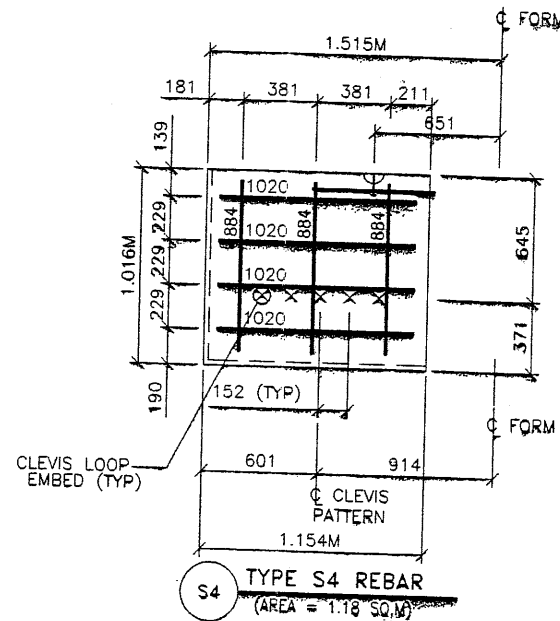
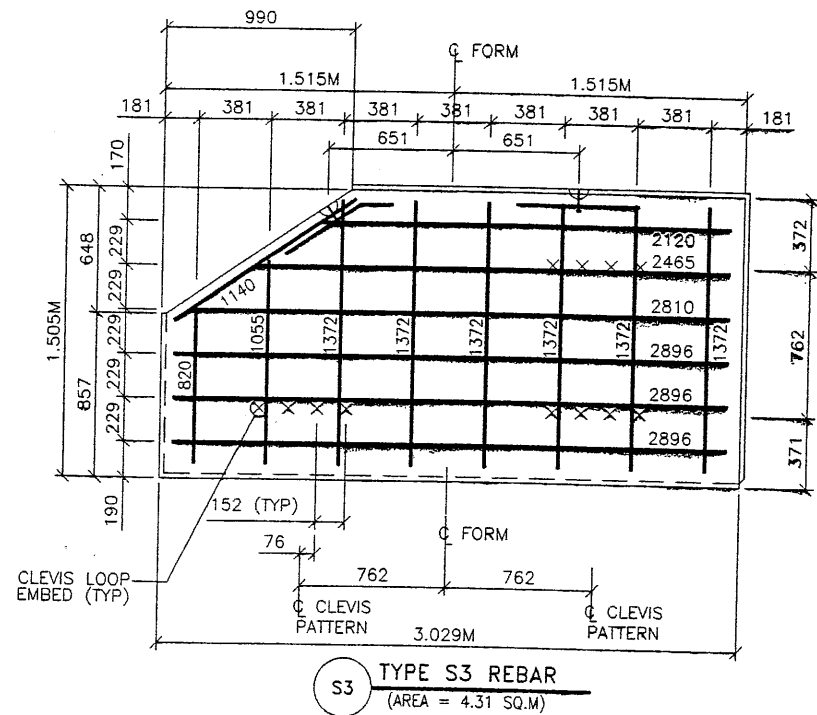
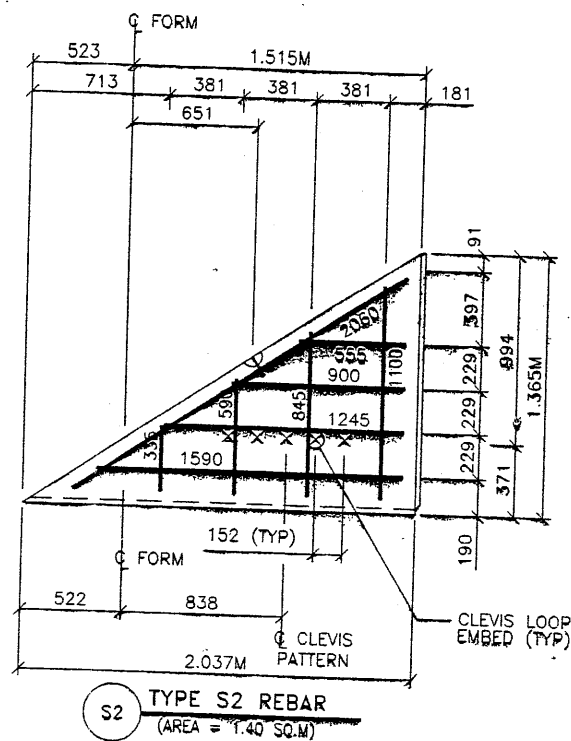
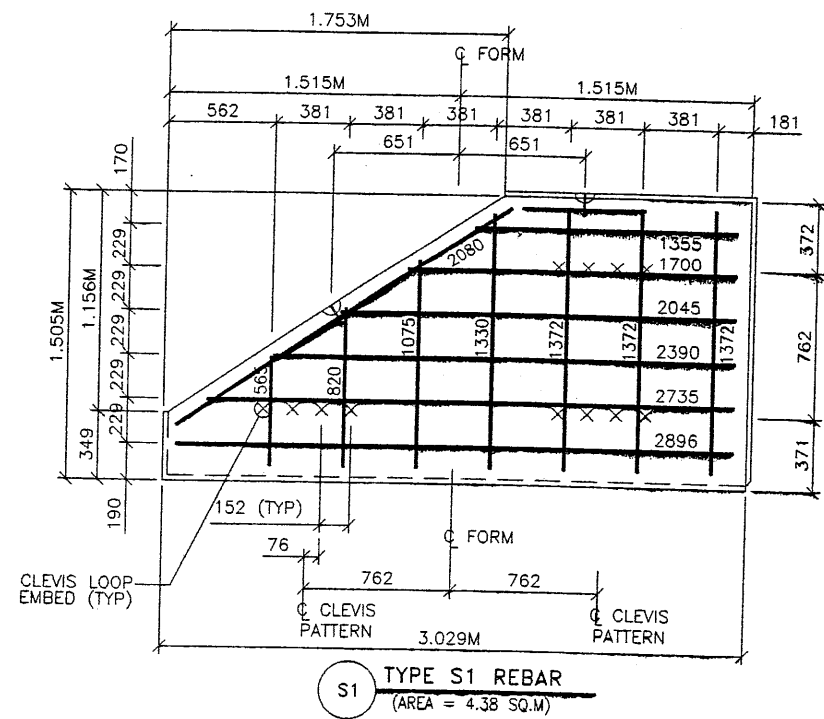
JOB NO:
 239-0007 8/10

RE-6

E:\PROJECT\239-0007\72SERIES\72-14B\

-06-97

FINAL PLOT



APPROVED FOR CONSTRUCTION		
NO.	DATE	DESCRIPTION
1	11-11-97	RELEASE FOR CONSTRUCTION

- PANEL REINFORCEMENT NOTES:
1. PANELS ARE SHOWN BACK FACE.
 2. HORIZONTAL REINFORCEMENT SHALL HAVE 50 mm MINIMUM COVER TO THE BACK FACE.
 3. ALL REINFORCEMENT SHALL HAVE 50 mm MINIMUM COVER TO THE SIDES.
 4. ALL REINFORCING BARS ARE #13 METRIC. LABELS ON EACH BAR INDICATE LENGTH. EXAMPLE: 1345 IS A #13 BAR 1345 mm LONG.
 5. PANEL REINFORCEMENT BARS SHALL BE DEFORMED BILLET STEEL BARS FOR CONCRETE REINFORCEMENT CONFORMING TO THE SPECIFICATIONS OF ASTM DESIGNATION A615, GRADE 60.
 6. ALL REINFORCING STEEL TO BE GALVANIZED IN ACCORDANCE WITH ASTM 767 CLASS I.
 7. CONCRETE PANELS TO HAVE 28 DAY COMPRESSIVE STRENGTH OF 27,500 KPa.
 8. EQUIVALENT WELDED WIRE FABRIC MAY BE USED.
 9. ALL PANELS TO USE 9.5mmØ CLEVIS LOOPS. VSL RETAINED EARTH™ IS PROTECTED UNDER PATENT 4,725,170.
 - 10.

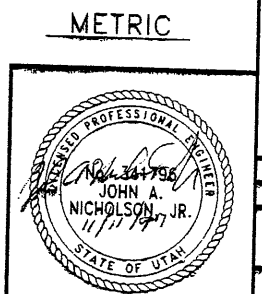
WARREN CONSTRUCTORS
NOV 13 1997
RELEASE FOR CONSTRUCTION

VSL CORPORATION
 2840 Plaza Place, Suite 200
 Raleigh, NC 27612
 Telephone: (919) 761-6272
 Fax: (919) 761-4989



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RETAINED EARTH™ WALLS
 PRECAST WALL "R-343-13"
 SPECIAL PANEL REINFORCEMENT
 UTAH I-15 INTERCHANGE
 SALT LAKE COUNTY, UTAH
 UTAH DEPARTMENT OF TRANSP.

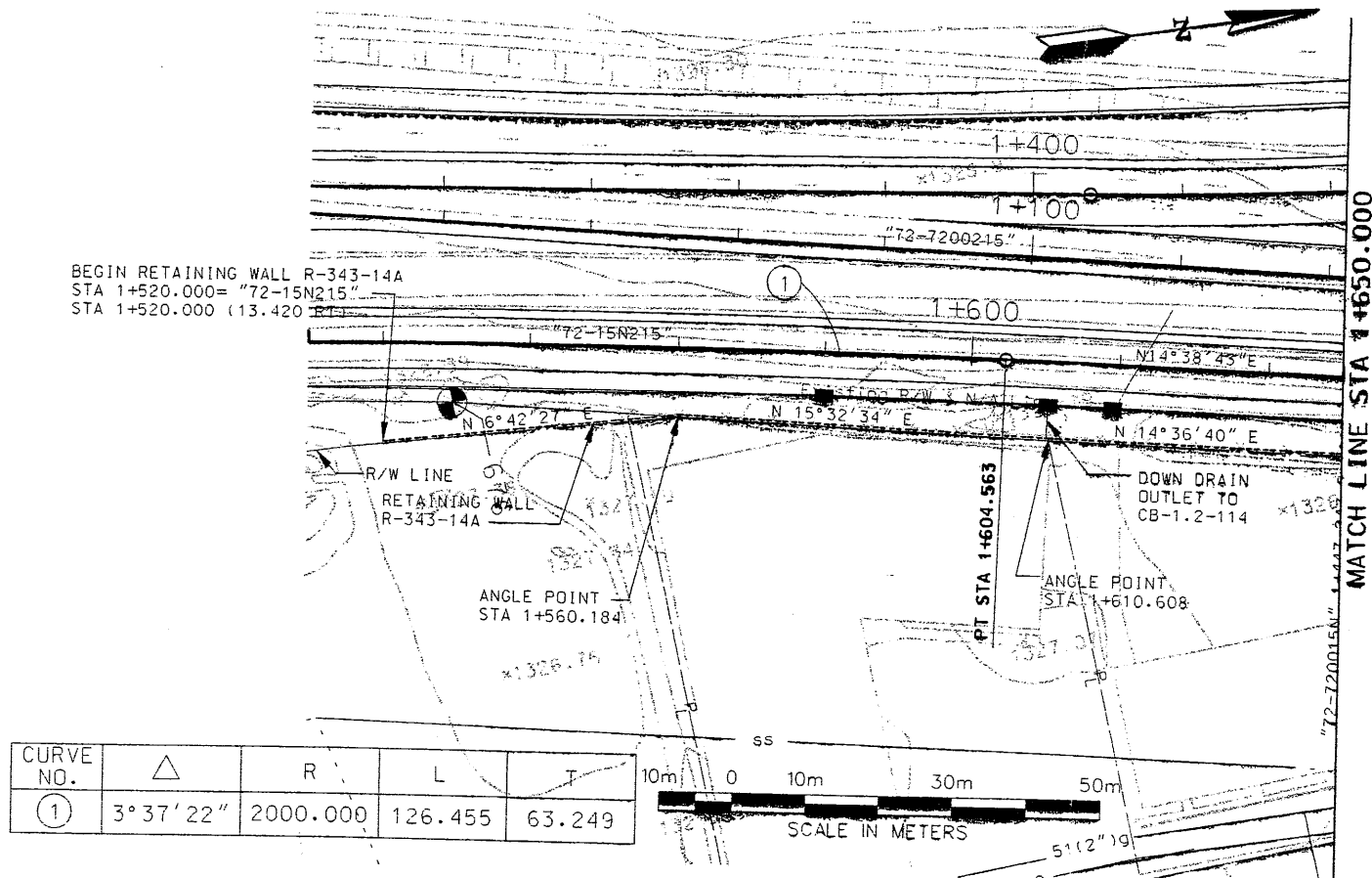


CERTIFIED FOR INTERNAL STABILITY OF RETAINED EARTH™ STRUCTURES ONLY. EXTERNAL STABILITY, INCLUDING BUT NOT LIMITED TO FOUNDATION AND SLOPE STABILITY, IS THE RESPONSIBILITY OF THE OWNER. DESIGN IS BASED ON THE ASSUMPTION THAT THE MATERIAL WITHIN THE RETAINED EARTH™ MASS, METHODS OF CONSTRUCTION, AND QUALITY OF PREFABRICATED MATERIALS CONFORM TO THE MANUFACTURER'S SPECIFICATION.

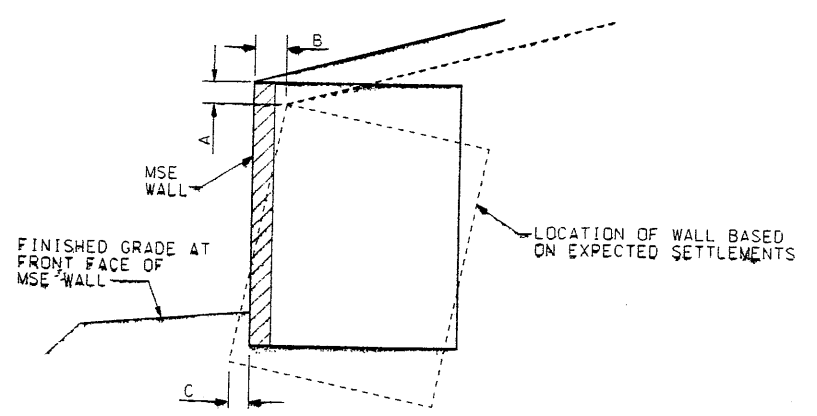
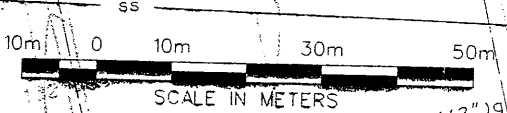
SCALE:
 1.2R-343-13.8
 JOB NO:
 239-0007
 RE-7

Active File Levels(1-64)
 First Reference File Levels(1-43, 46, 47, 49, 50, 54, 60-64)
 Second Reference File Levels(1-22, 24-32, 34, 35, 37-62, 64)
 Third Reference File Levels(1-2, 4-6)

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 Date: 15-Oct-1997 Time: 16:43
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 Rotation: 0.00000000
 Pen Table: US1.PL
 Queue: \CVMS\pl\occe 9900 - InterPlot
 State of Utah
 DONALD D. GRALL
 No. 277888
 LICENSED PROFESSIONAL ENGINEER



CURVE NO.	△	R	L	T
①		2000.000	126.455	63.249

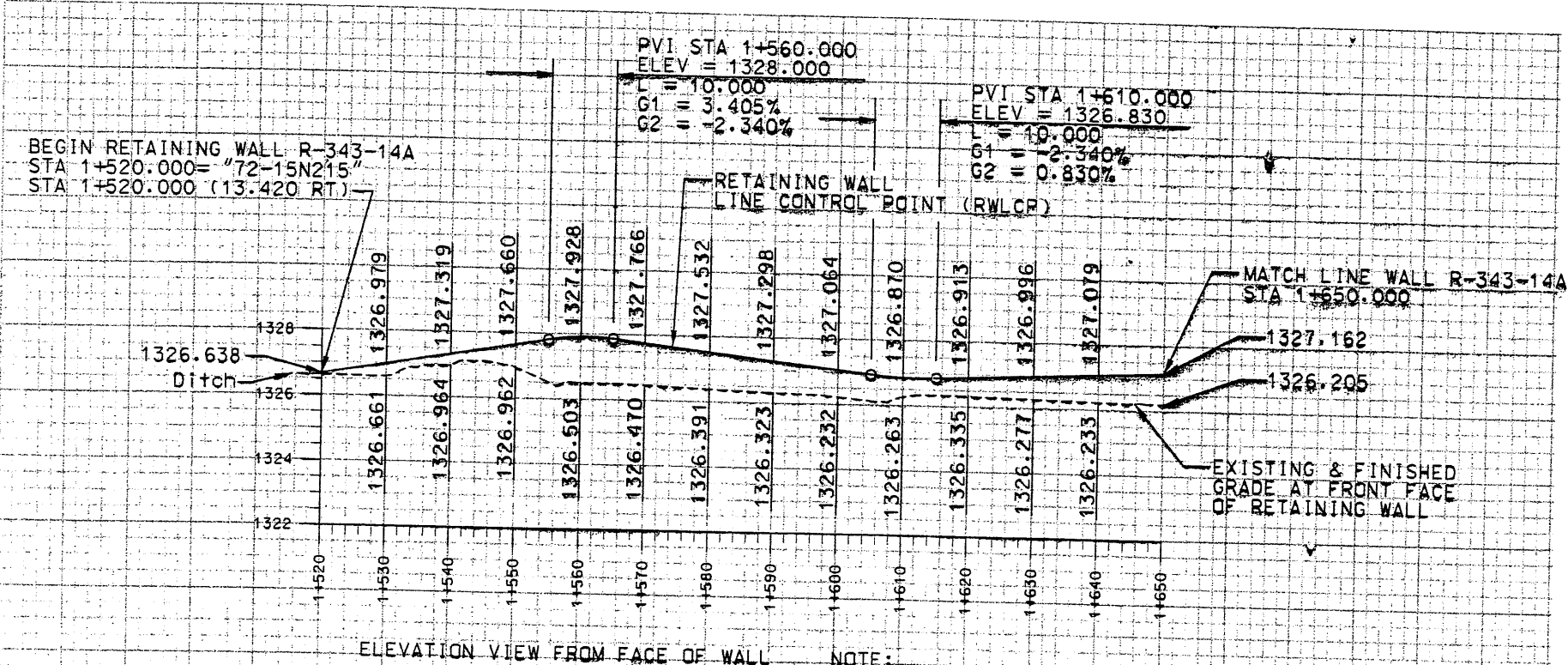


ESTIMATED SETTLEMENT TABLE

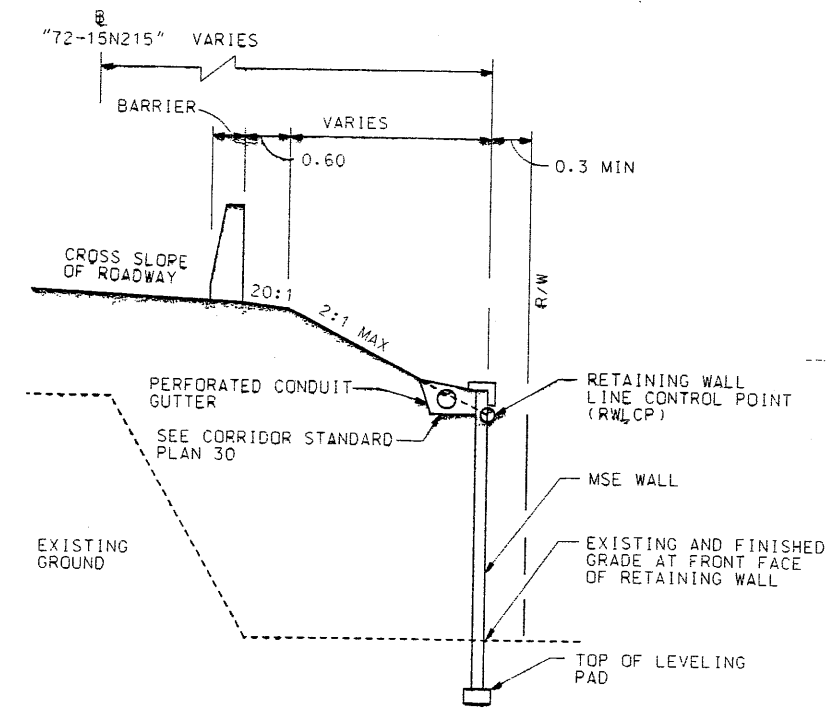
STATION LIMITS	REFERENCE STATION	WALL SETTLEMENT mm	TOP OF WALL ROTATION mm	LATERAL DISPLACEMENT AT BOTTOM OF WALL mm
		A	B	C
1+520.000 TO 1+814.715	1+770***	10 TO 30	7	**

** LATERAL DISPLACEMENT AT BOTTOM OF WALL SHOULD BE LESS THAN ONE HALF OF THE SETTLEMENT AT FRONT FACE OF WALL. TERRACON RECOMMENDS CONSTRUCTING THE WALL TOE AT THE DESIGN LOCATION.
 *** THESE VALUES CALCULATED AT REFERENCED STATION; ROTATIONS AT OTHER STATIONS CAN BE ESTIMATED IN PROPORTION TO WALL HEIGHT.

WAMATCH CONSTRUCTORS
 OCT 20 1997
 RELEASED FOR CONSTRUCTION



NOTE:
 THE FOUNDATION BEARING MATERIALS SHOULD BE OBSERVED BY THE GEOTECHNICAL ENGINEER DURING SITE PREPARATION. ANY UNDESIRABLE MATERIALS WILL NEED TO BE REMOVED AND REPLACED WITH BORROW IN ORDER TO ACHIEVE ACCEPTABLE CONDITIONS AT THE BASE OF THE WALL.

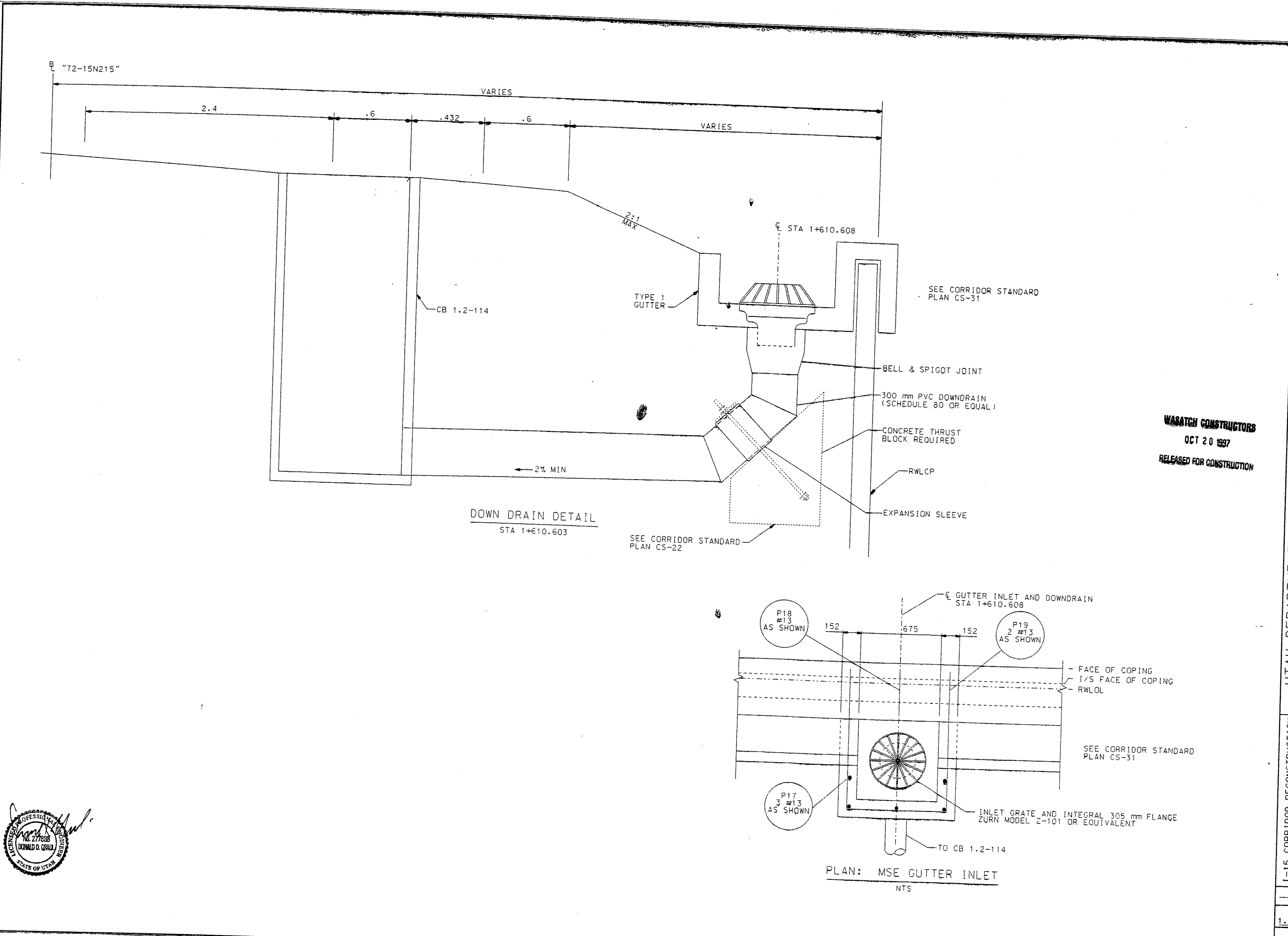


TYPICAL SECTION WALL R-343-14A
 STA 1+520.00 TO STA 1+600.000
 STA 1+620 TO STA 1+700

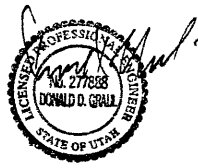
UTAH DEPARTMENT OF TRANSPORTATION		URS Greiner SVERDRUP/DE LEUW		1212405
I-15 CORRIDOR RECONSTRUCTION	SITUATION/LAYOUT RET WALL R-343-14A	DESIGN WH 9/97	CHECK JMM 9/97	
SECTION 1.2		PROJECT DESIGN ENGINEER	CHECK JMM 9/97	
PROJECT NUMBER *SP-15-7(135)296		APPROVED 9/97	CHECK	
SALT LAKE COUNTY				
DWG. NO. 1.2R-343-14A.1				
SHT. 1 OF 13				

Active File Levels: I-40, 42, 44
 First Reference Filename:
 Second Reference File Levels:
 Third Reference File Levels:
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Date: 15-OCT-1997 Time: 16:21
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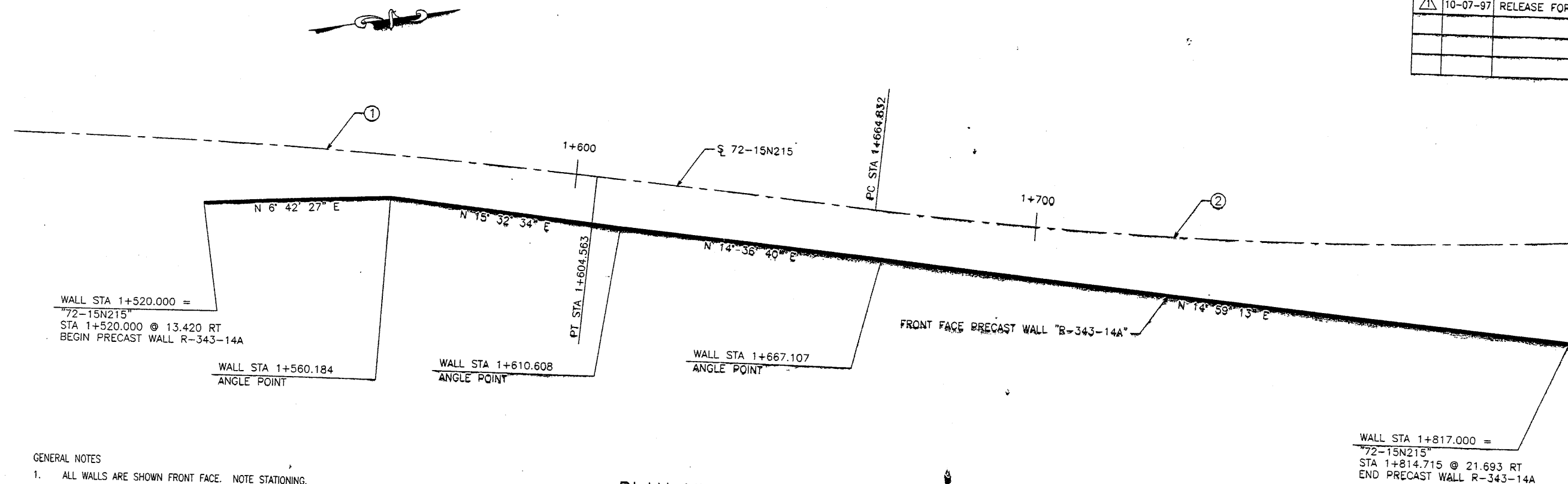
WASATCH CONSTRUCTORS
 OCT 20 1997
 RELEASED FOR CONSTRUCTION



I-15 CORRIDOR RECONSTRUCTION		UTAH DEPARTMENT OF TRANSPORTATION		APPROVED FOR CONSTRUCTION	
DETAILS RET WALL R-343-14A		URS Greiner SVERDRUP/DE LEUW		DESCRIPTION	
SECTION 1.2		DESIGN DA 9/97		INITIAL RELEASE	
PROJECT NUMBER *SP-15-7(135)296		DRAWN RS 9/97			
SALT LAKE COUNTY		APPROVED 9/97			
DWG. NO. 1.2R-343-14A.2A		PROJECT DESIGN ENGINEER			
SHT. 3 OF 13		APPROVED 9/97			
RFF		PROJECT MANAGER		1212402	

FINAL PL -07-97 E:\PROJECT\239-0007\72SERIES\72-14A\

APPROVED FOR CONSTRUCTION		
NO.	DATE	DESCRIPTION
△	10-07-97	RELEASE FOR CONSTRUCTION <i>OK</i>



- GENERAL NOTES**
- ALL WALLS ARE SHOWN FRONT FACE. NOTE STATIONING.
 - PANEL TYPE IS DESIGNATED ON EACH PANEL. CONNECTOR LABELS INDICATE NUMBER OF CONNECTORS PER SOIL REINFORCING MESH LOCATION.
EXAMPLE: 5B2-10 IS A "B2-10" PANEL WITH FIVE (5) CONNECTORS PER SOIL REINFORCING MESH LOCATION.
IF NO CONNECTORS ARE SHOWN, FOUR (4) CONNECTOR PANELS SHALL BE USED:
 - SOIL REINFORCING MESH TYPE IS DESIGNATED ON EACH PANEL. MESH LABELS INDICATE WIRE SIZE AND SPACING. LONGITUDINAL WIRE AND CROSSBAR SIZES ARE THE SAME UNLESS NOTED OTHERWISE:
EXAMPLE: 4W11-6 MESH HAS FOUR (4) W11 LONGITUDINAL WIRES WITH W11 CROSSBARS AT 6" CENTERS.
EXAMPLE: 5W11-12 MESH HAS FIVE (5) W11 LONGITUDINAL WIRES WITH W11 CROSSBARS AT 12" CENTERS.
 - SEE RETAINED EARTH INSTALLATION MANUAL FOR PROPER WALL ERECTION PROCEDURES AND GUIDELINES.
 - CONSTRUCTION PROCEDURES SHALL PREVENT BACKFILL SATURATION AND PONDING.
 - HEAVY EQUIPMENT SHALL NOT BE USED WITHIN ONE METER OF THE BACK OF THE RETAINED EARTH PANELS. HAND COMPACTORS SHALL BE USED IN THIS AREA.
 - CARE SHALL BE TAKEN TO PREVENT DAMAGE TO GALVANIZING. DAMAGED GALVANIZING SHALL BE COATED WITH ZINC RICH PAINT.
 - BEARING PADS AND FILTER FABRIC ARE NOT REQUIRED BETWEEN THE LEVELING PAD AND THE FIRST ROW OF PANELS. TEMPORARY WEDGES MAY BE USED TO PROVIDE PROPER ALIGNMENT.
 - VSL RETAINED EARTH IS PROTECTED UNDER U.S. PATENT 4,725,170.
 - ALL PANELS SHALL HAVE AN ARCHITECTURAL FINISH, SEE SHEET RE-3 FOR DETAIL.

PLAN VIEW WALL "R-343-14A"
SCALE: 1=500 (FULL SIZE)
SCALE: 1=1000 (HALF SIZE)

DESIGN PARAMETERS	
ANGLE OF INTERNAL FRICTION (SELECT) = 34°	
COEFFICIENT OF FRICTION AT BASE = 0.47	
ANGLE OF INTERNAL FRICTION (RANDOM) = 34°	
UNIT WEIGHT BACKFILL = 135 PCF.	
TRAFFIC SURCHARGE = 250 PSF	
SEISMIC ACCELERATION COFF. = 0.12g (TYP)	
SEISMIC ACCELERATION COFF. = 0.32g (AT BRIDGE ABUTMENTS)	
DESIGN CRITERIA	
SAFETY FACTOR (OVERTURNING) = 2.0	
SAFETY FACTOR (SLIDING) = 1.5	
SAFETY FACTOR (PULLOUT) = 1.5	
DESIGN LIFE = 75 YEARS	

CURVE DATA				
No.	RADIUS	LENGTH	TANGENT	△
①	2000.000	126.455	63.249	3°37'22"
②	1100.000	454.979	230.789	23°41'55"

All Dimensions Are in Meters Unless Noted Otherwise

RETAINED EARTH INDEX	
RE-1	PLAN PRECAST FACE WALL R-343-14A, NOTES & DESIGN CRITERIA
RE-2	TYPICAL DETAILS
RE-3	TYPICAL DETAILS
RE-4	TYPICAL CROSS SECTION
RE-5	ELEVATION PRECAST WALL "R-343-14A"
RE-6	ELEVATION PRECAST WALL "R-343-14A"
RE-7	ELEVATION PRECAST WALL "R-343-14A"
RE-8	ELEVATION PRECAST WALL "R-343-14A"
RE-9	ELEVATION PRECAST WALL "R-343-14A"
RE-10	SPECIAL PANEL DETAILS

WASATCH CONSTRUCTORS
OCT 20 1997
RELEASED FOR CONSTRUCTION

REVISION		NO.	DATE	BY	CHK

D.S.	09-18-97	MM
DRN.	09-18-97	DDO
CHK.	09-18-97	MM

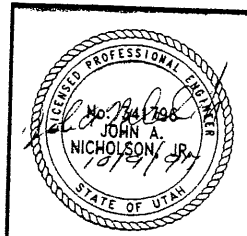
VSL CORPORATION
2840 Plaza Place, Suite 200
Eden, NC 27612
Telephone: (919) 761-6272
Fax: (919) 761-4989

VSL
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RETAINED EARTH™ WALLS
PLAN VIEW PRECAST WALL "R-343-14A"
UTAH I-15 INTERCHANGE
SALT LAKE COUNTY, UTAH
UTAH DEPARTMENT OF TRANSP.

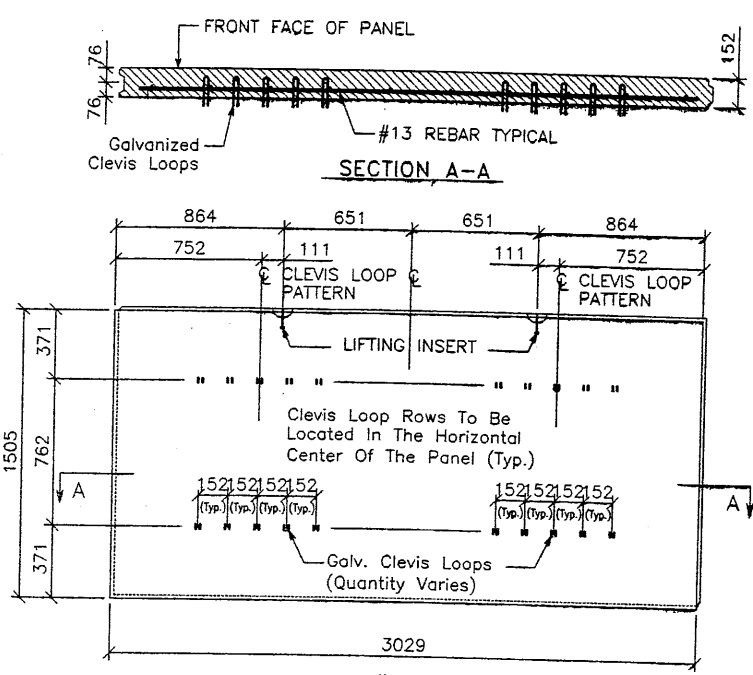
SCALE: 1:2R-343-14A.3
JOB NO: 239-0007
4/13
RE-1

CERTIFIED FOR INTERNAL STABILITY OF RETAINED EARTH™ STRUCTURES ONLY. EXTERNAL STABILITY, INCLUDING BUT NOT LIMITED TO FOUNDATION AND SLOPE STABILITY, IS THE RESPONSIBILITY OF THE OWNER. DESIGN IS BASED ON THE ASSUMPTION THAT THE MATERIAL WITHIN THE RETAINED EARTH™ MASS, METHODS OF CONSTRUCTION, AND QUALITY OF PREFABRICATED MATERIALS CONFORM TO THE MANUFACTURER'S SPECIFICATION.

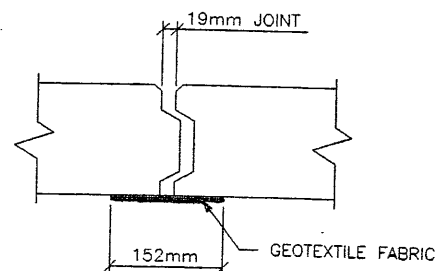


METRIC

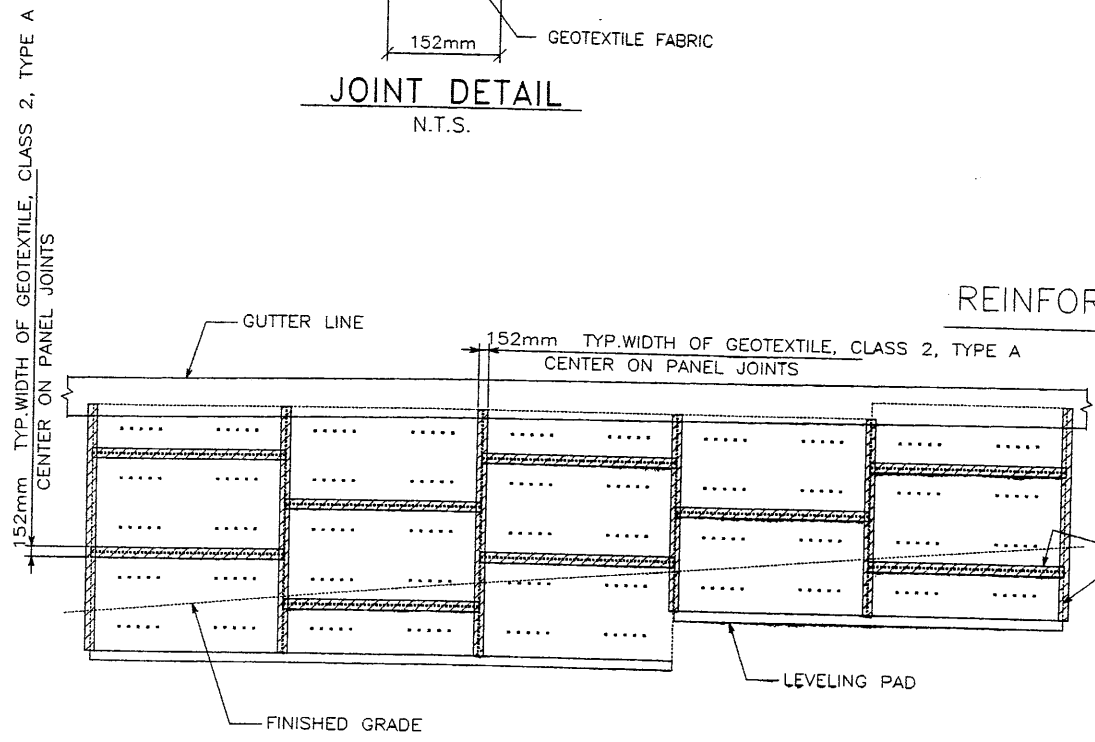
FINAL P 10-07-97 E:\PROJECT\239-0007\72SERIES\72-14A



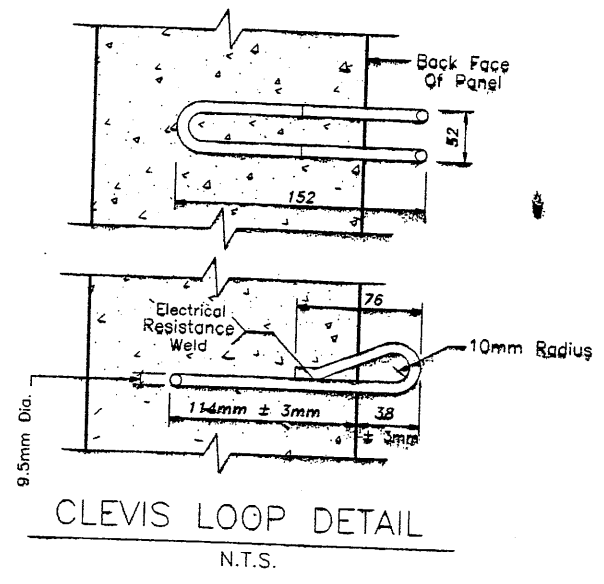
STANDARD "5A-10" PANEL
Back Face View



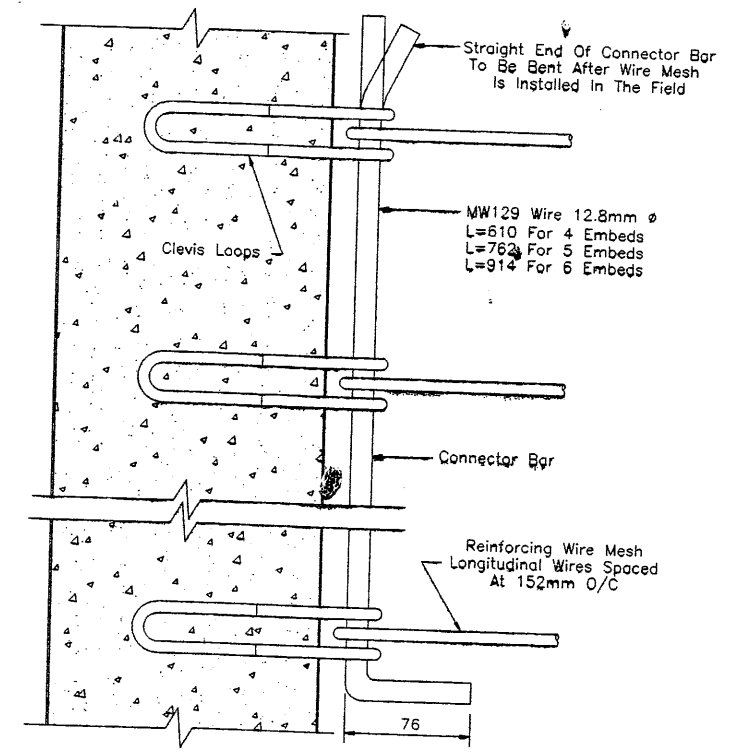
JOINT DETAIL
N.T.S.



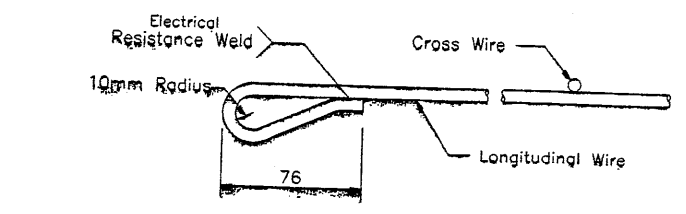
PARTIAL WALL ELEVATION



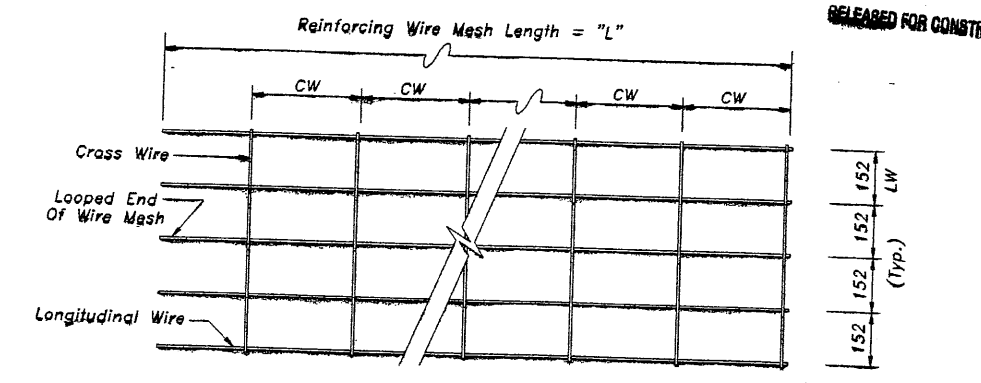
CLEVIS LOOP DETAIL
N.T.S.



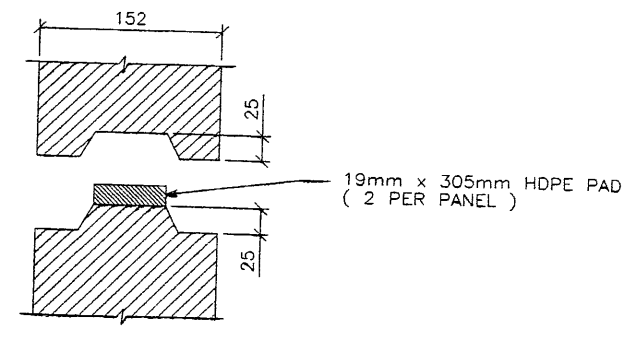
REINFORCING MESH CONNECTION DETAIL
N.T.S.



WIRE MESH LOOP DETAIL
N.T.S.



REINFORCING MESH DETAIL
WIRE MESH DESIGNATION: 5W11 + W11 x 1.0 (5W11-12)
NOTE: FOR EXAMPLE ABOVE, EQUIVALENT WIRE MESH DESIGNATION = 6 X 12-W11XW11-24" X "L" (LW) (CW)(LS) (CS)



HORZ. JOINT DETAIL
N.T.S.

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NO.	DATE	DESCRIPTION
1	10-07-97	RELEASE FOR CONSTRUCTION

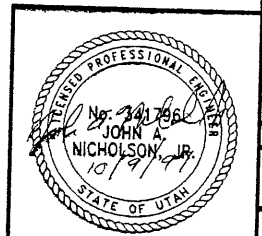
WARATCH CONSTRUCTORS
OCT 20 1997
RELEASED FOR CONSTRUCTION

VSL CORPORATION
2840 Plaza Place, Suite 200
Raleigh, NC 27612
Telephone: (919) 781-6772
Fax: (919) 781-6993



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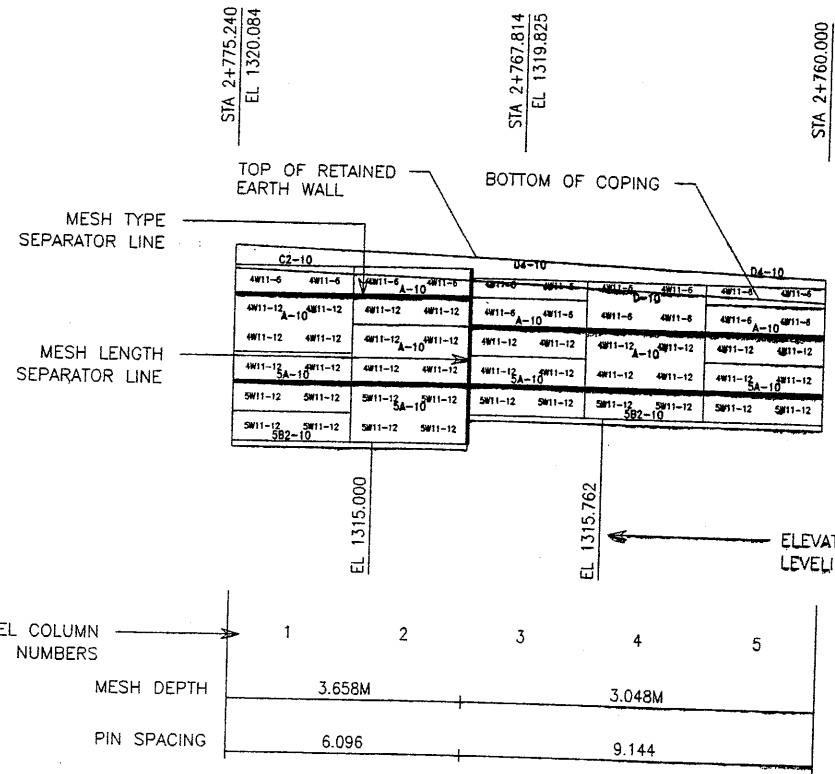
RETAINED EARTH™ WALLS
PRECAST WALL "R-343-14A"
TYPICAL DETAILS
UTAH I-15 INTERCHANGE
SALT LAKE COUNTY, UTAH
UTAH DEPARTMENT OF TRANSP.



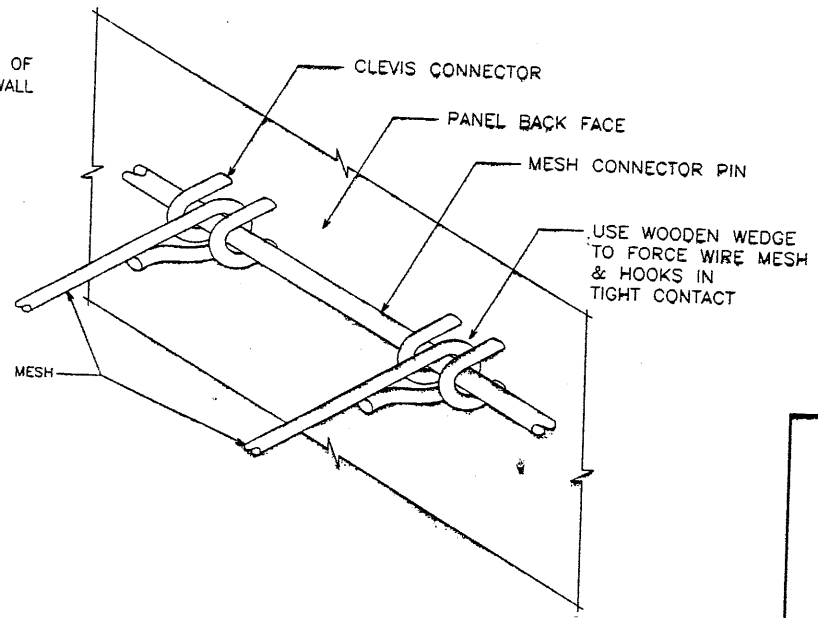
CERTIFIED FOR INTERNAL STABILITY OF RETAINED EARTH™ STRUCTURES ONLY. EXTERNAL STABILITY, INCLUDING BUT NOT LIMITED TO FOUNDATION AND SLOPE STABILITY, IS THE RESPONSIBILITY OF THE OWNER. DESIGN IS BASED ON THE ASSUMPTION THAT THE MATERIAL WITHIN THE RETAINED EARTH™ MASS, METHODS OF CONSTRUCTION, AND QUALITY OF PREFABRICATED MATERIALS CONFORM TO THE MANUFACTURER'S SPECIFICATION.

SCALE:	1.2R-343-14A.4
JOB NO:	239-0007
DATE:	5/13
REVISION:	RE-2

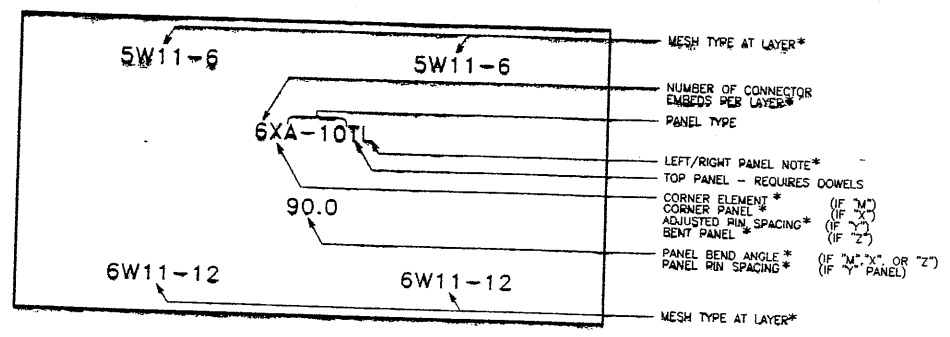
FINAL PLOT 1-07-97 E:\PROJECT\239-0007\2SERIES\72-14A\RE-3



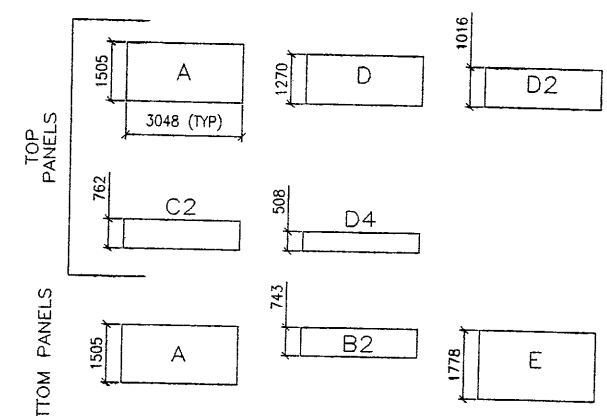
1 WALL ELEVATION KEY
(FRONT FACE SHOWN)



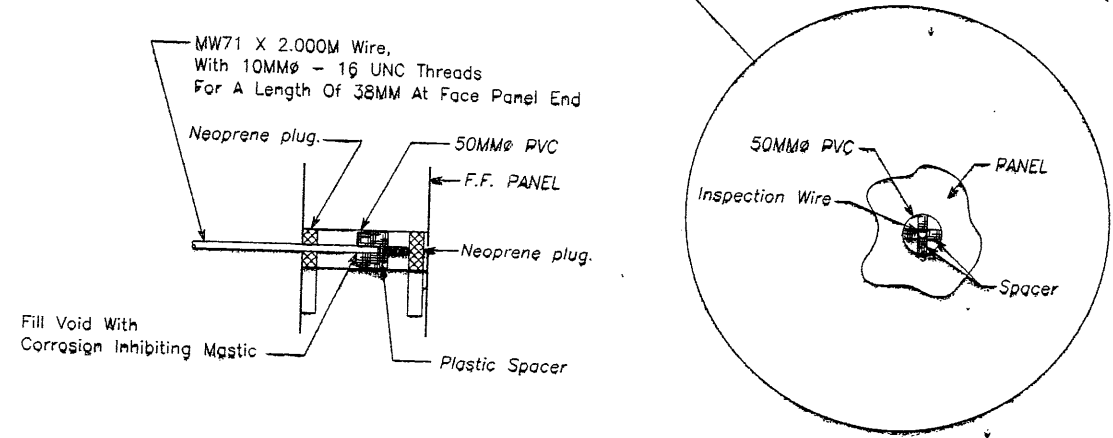
2 MESH CLEVIS CONNECTOR
VSL RETAINED EARTH IS PROTECTED UNDER U.S. PATENT 4,725,170.



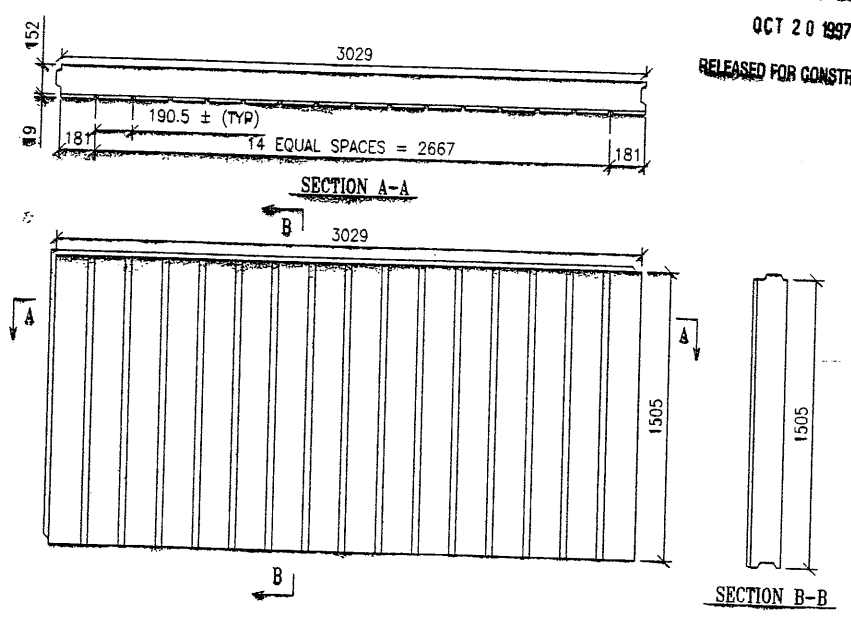
3 PANEL LABELS



4 PANEL TYPES
ALL DIMENSIONS ARE IN MILLIMETERS



5 INSPECTION WIRE DETAIL
(PANEL FRONT FACE SHOWN)



6 ARCHITECTURAL PANEL FINISH
(PANEL FRONT FACE SHOWN)

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NO.	DATE	DESCRIPTION
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NO.	DATE	REVISION	BY	CHK

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OCT 20 1997
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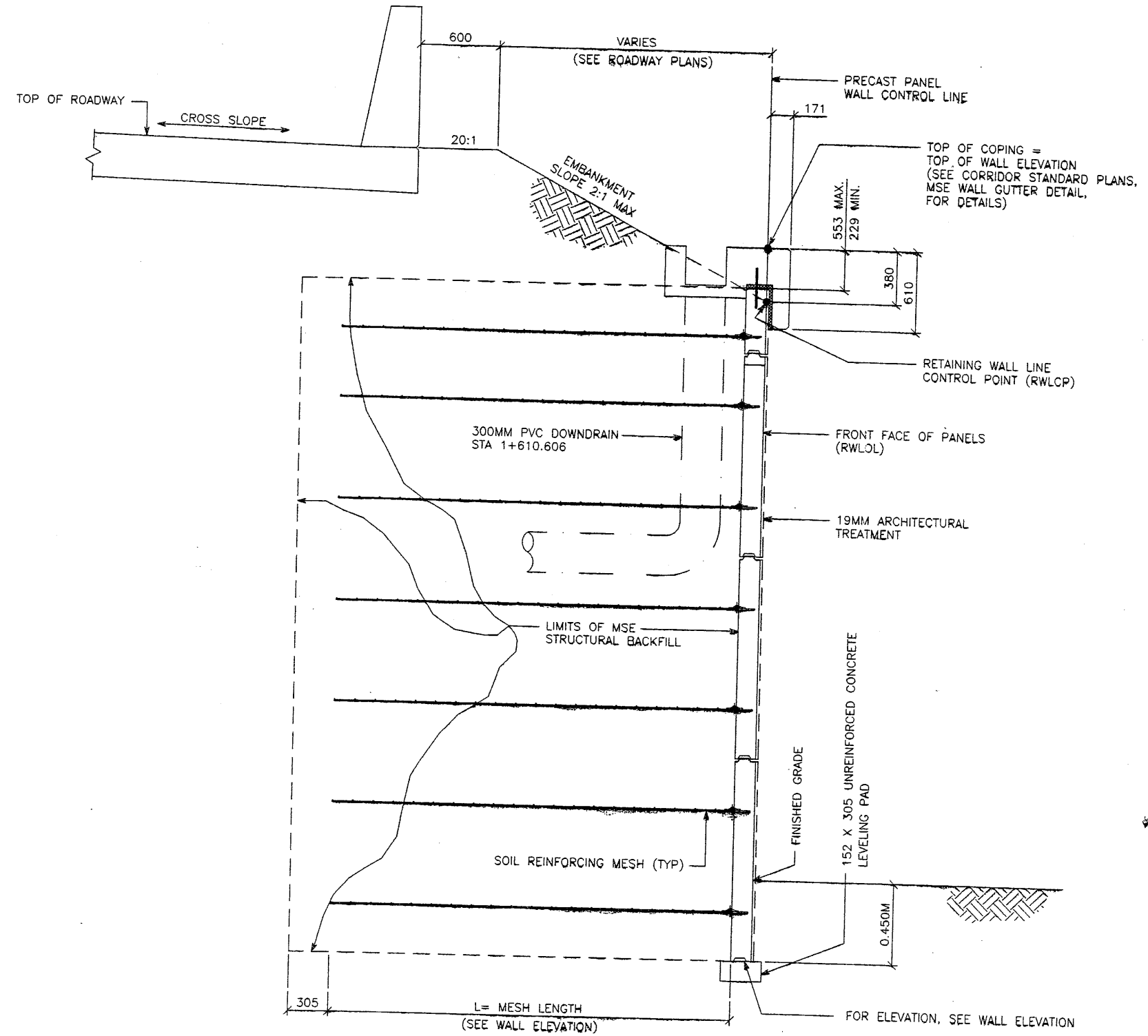
RETAINED EARTH™ WALLS
PRECAST WALL "R-343-14A"
TYPICAL DETAILS
UTAH I-15 INTERCHANGE
SALT LAKE COUNTY, UTAH
UTAH DEPARTMENT OF TRANSP.

METRIC

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SCALE:
1.2R-343-14A.5
JOB NO:
239-0007 6/13
RE-3

E:\PROJECT\239-0007\72SERIES\72-14A\RE
 0-07-97
 FINAL PL



TYPICAL CROSS SECTION
 (MSE SINGLE STAGE WITH GUTTER DETAIL)
 SCALE: 1:20 (FULL SIZE)
 SCALE: 1:40 (HALF SIZE)

NOTE: SEE SHEETS 14A.1, 14A.2, AND 14A.2A FOR GUTTER DETAILS

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NO.	DATE	DESCRIPTION
1	10-07-97	RELEASE FOR CONSTRUCTION

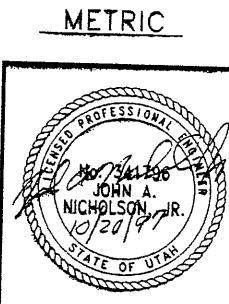
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RETAINED EARTH™ WALLS
 PRECAST WALL "R-343-14A"
 TYPICAL CROSS SECTIONS
 UTAH I-15 INTERCHANGE
 SALT LAKE COUNTY, UTAH
 UTAH DEPARTMENT OF TRANSP.



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SCALE:	1.2R-343-14A.6
JOB NO:	239-0007 7/13
REVISION	RE-4

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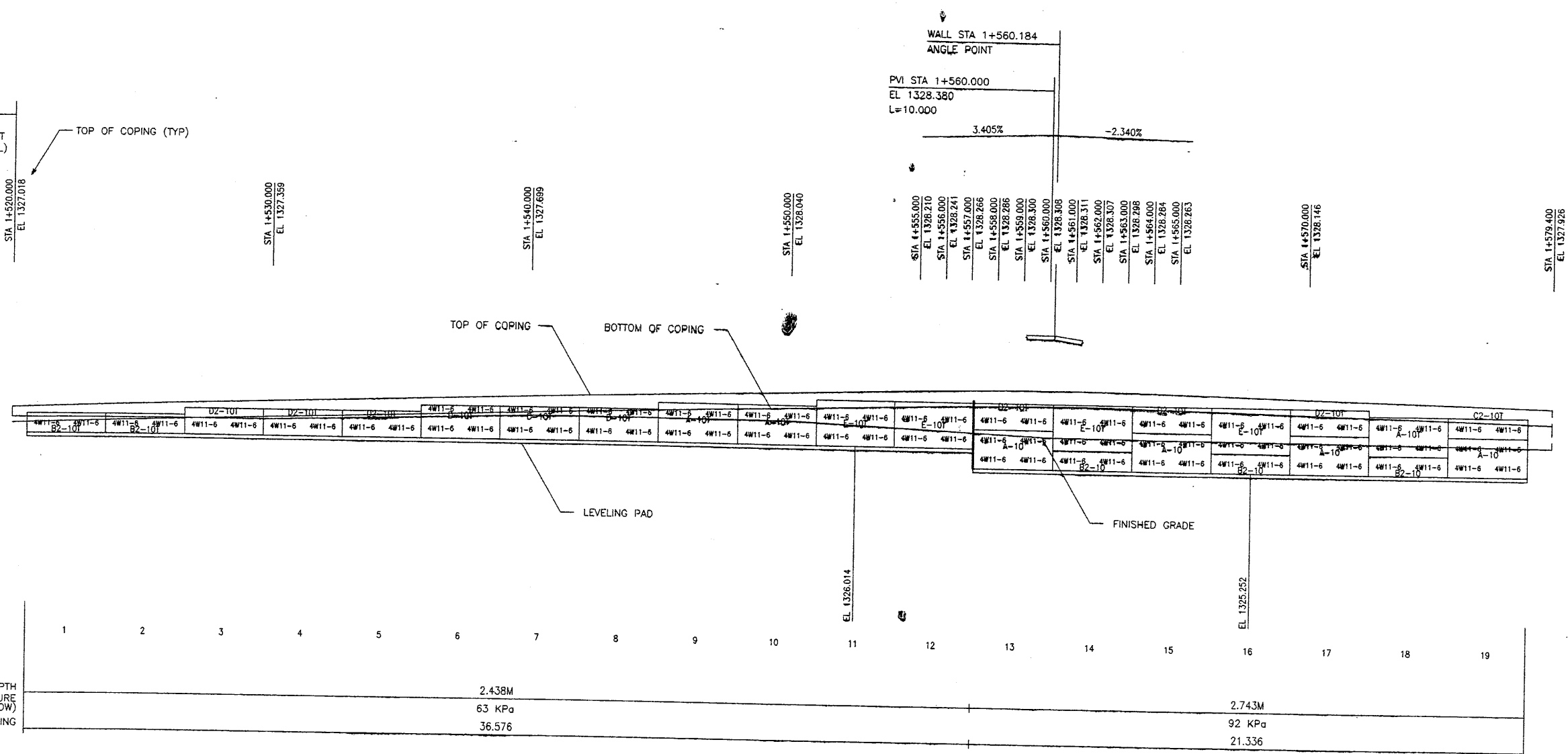
10-07-97

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APPROVED FOR CONSTRUCTION		
NO.	DATE	DESCRIPTION
△	10-07-97	RELEASE FOR CONSTRUCTION <i>OK</i>

DES.	MM	DRN.	DDO	CHK.	MM	NO.	DATE	REVISION	BY	CHK

BEGIN WALL R-343-14A
WALL STA 1+520.000 =
"72-15N215"
STA 1+520.000 @ 13.420 RT
NOMINAL PANEL FACE (RWLOL)



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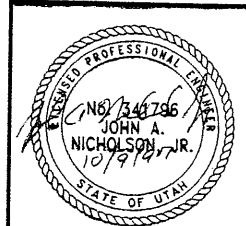
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in part without the written
consent of VSL is prohibited.
Approved by VSL: [Signature]
THE REFLECTOR

MESH DEPTH	2.438M	2.743M
MAXIMUM BEARING PRESSURE (SEE NOTE BELOW)	63 KPa	92 KPa
PIN SPACING	36.576	21.336

ELEVATION PRECAST WALL R-343-14A
(FRONT FACE SHOWN) SCALE 1:100 (FULL SIZE)
(TOTAL SURFACE AREA OF PANELS = 621.32 SM) SCALE 1:200 (HALF SIZE)

APPROVER NOTE:
MAXIMUM FINAL UNFACTORED BEARING PRESSURES
ARE INDICATED BELOW "MESH DEPTH LINE"
REVIEWER TO VERIFY MAXIMUM BEARING
CAPACITY OF FOUNDATION.

METRIC

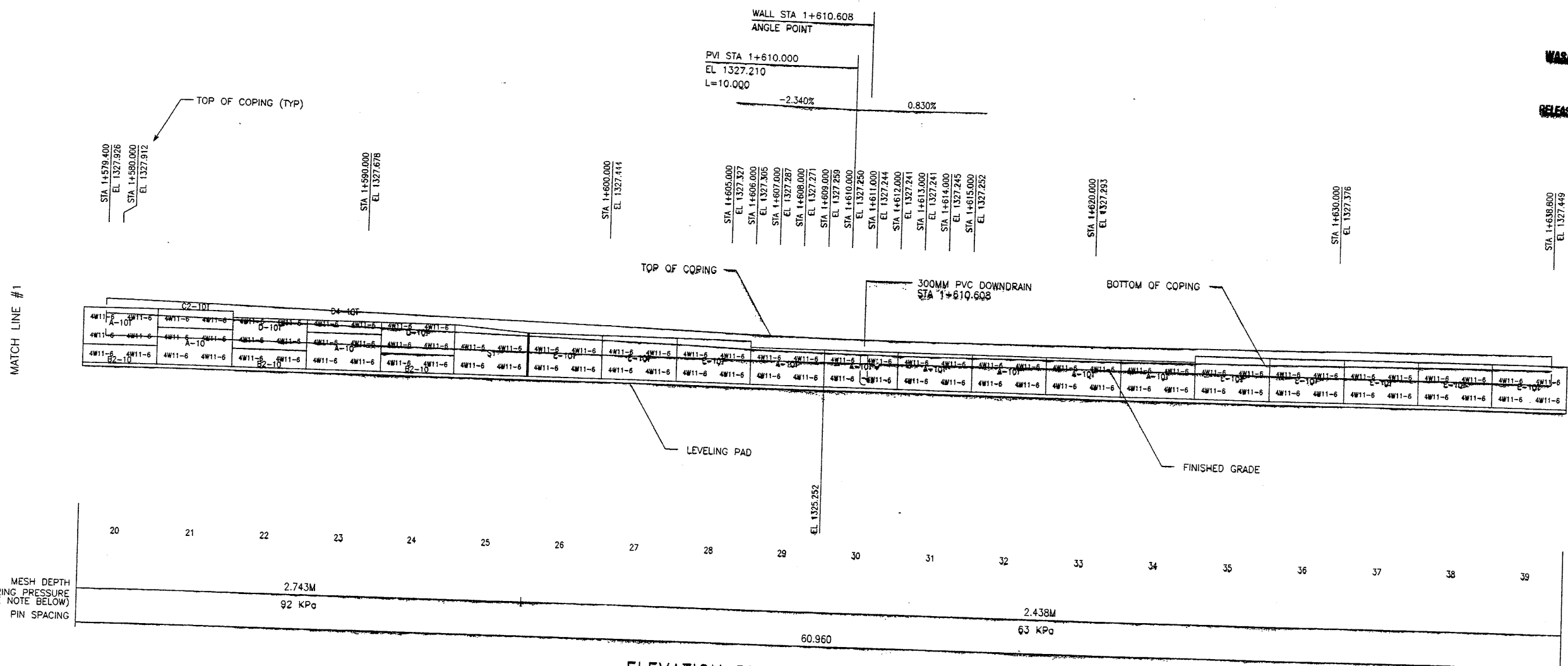


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STABILITY, IS THE RESPONSIBILITY OF THE OWNER. DESIGN IS BASED ON THE
ASSUMPTION THAT THE MATERIAL WITHIN THE RETAINED EARTH™ MASS, METHODS
OF CONSTRUCTION, AND QUALITY OF PREFABRICATED MATERIALS CONFORM TO
THE MANUFACTURER'S SPECIFICATION.

RETAINED EARTH™ WALLS
PRECAST WALL "R-343-14A"
UTAH I-15 INTERCHANGE
SALT LAKE COUNTY, UTAH
UTAH DEPARTMENT OF TRANSP.

SCALE:
1:2R-343-14A.7
JOB NO:
239-0007/13
RE-5

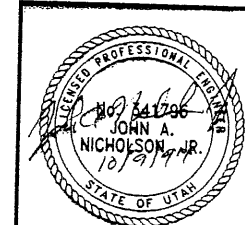
APPROVED FOR CONSTRUCTION		
NO.	DATE	DESCRIPTION
1	10-07-97	RELEASE FOR CONSTRUCTION



ELEVATION PRECAST WALL R-343-14A
 (FRONT FACE SHOWN)
 (TOTAL SURFACE AREA OF PANELS = 621.32 SM)
 SCALE 1:100 (FULL SIZE)
 SCALE 1:200 (HALF SIZE)

APPROVER NOTE:
 MAXIMUM FINAL UNFACTORED BEARING PRESSURES
 ARE INDICATED BELOW "MESH DEPTH LINE"
 REVIEWER TO VERIFY MAXIMUM BEARING
 CAPACITY OF FOUNDATION.

METRIC



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RETAINED EARTH™ WALLS
 PRECAST WALL "R-343-14A"
 UTAH I-15 INTERCHANGE
 SALT LAKE COUNTY, UTAH
 UTAH DEPARTMENT OF TRANSP.

SCALE:	1.2R-343-14A.8
JOB NO:	239-0007 9/13
	RE-6

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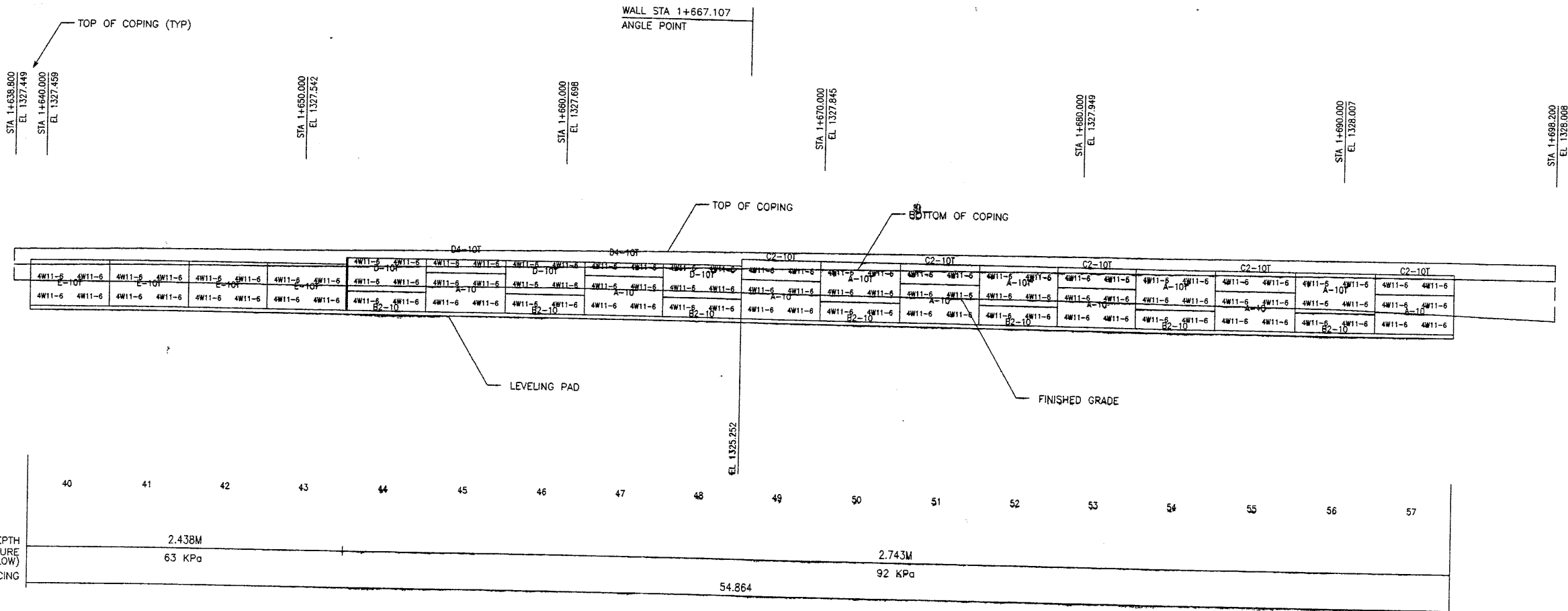
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 OCT 20 1997
 WASATCH CONSTRUCTORS

NO.	DATE	DESCRIPTION	MM	DDO	MM	NO.	DATE	BY
1	10-07-97	RELEASE FOR CONSTRUCTION						CHK

APPROVED FOR CONSTRUCTION		
NO.	DATE	DESCRIPTION
1	10-07-97	RELEASE FOR CONSTRUCTION <i>dl</i>

DES.	DRN.	CHK.	RETAINED EARTH™	NO.	DATE	BY	CHK.
MM	DDO	MM					
09-18-97	09-18-97	09-18-97					



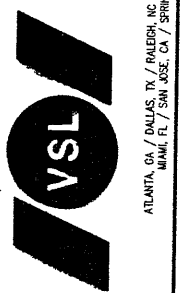
ELEVATION PRECAST WALL R-343-14A
 (FRONT FACE SHOWN)
 (TOTAL SURFACE AREA OF PANELS = 683.82 SM)
 SCALE 1:100 (FULL SIZE)
 SCALE 1:200 (HALF SIZE)

MESH DEPTH 2.438M
 MAXIMUM BEARING PRESSURE (SEE NOTE BELOW) 63 KPa
 PIN SPACING 54.864

40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57
----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----

WASATCH CONSTRUCTORS
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 Raleigh, NC 27604
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RETAINED EARTH™ WALLS
 PRECAST WALL "R-343-14A"
 UTAH I-15 INTERCHANGE
 SALT LAKE COUNTY, UTAH
 UTAH DEPARTMENT OF TRANSP.

METRIC

SCALE: 1.2R-343-14A.9
 JOB NO: 239-0007
 RE-7



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APPROVER NOTE:
 MAXIMUM FINAL UNFACTORED BEARING PRESSURES ARE INDICATED BELOW "MESH DEPTH LINE". REVIEWER TO VERIFY MAXIMUM BEARING CAPACITY OF FOUNDATION.

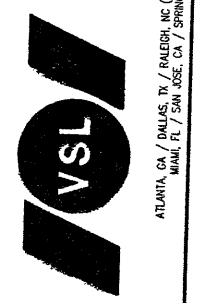
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 0-07-97
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APPROVED FOR CONSTRUCTION		
NO.	DATE	DESCRIPTION
△	10-07-97	RELEASE FOR CONSTRUCTION <i>dl</i>

WABATCH CONSTRUCTORS
 OCT 20 1997
 RELEASED FOR CONSTRUCTION

DES.	MM	DDO	MM	RETAINED EARTH™
08-18-97	08-18-97	08-18-97	08-18-97	VSL

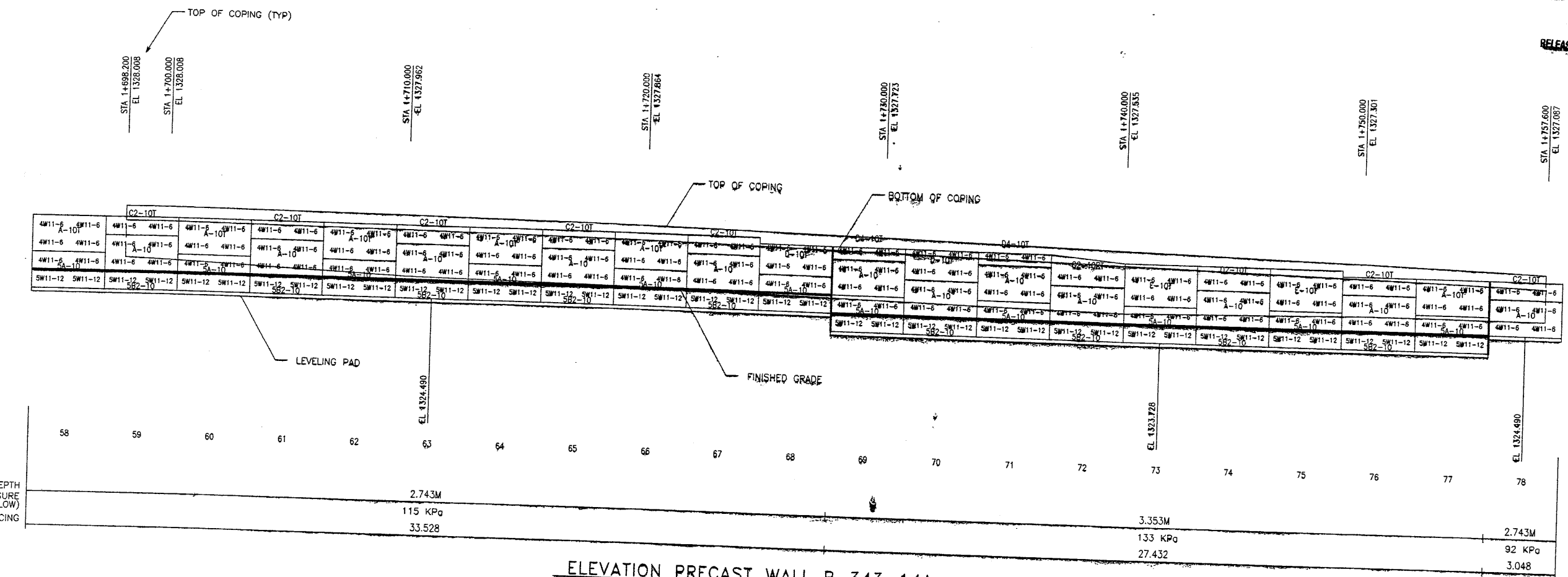
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 2840 Peach Place, Suite 200
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RETAINED EARTH™ WALLS
 PRECAST WALL "R-343-14A"
 UTAH I-15 INTERCHANGE
 SALT LAKE COUNTY, UTAH
 UTAH DEPARTMENT OF TRANSP.

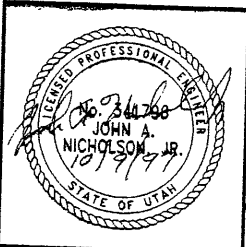
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 1.2R-343-14A.10
 JOB NO:
 239-0007 *n/13*
 RE-8



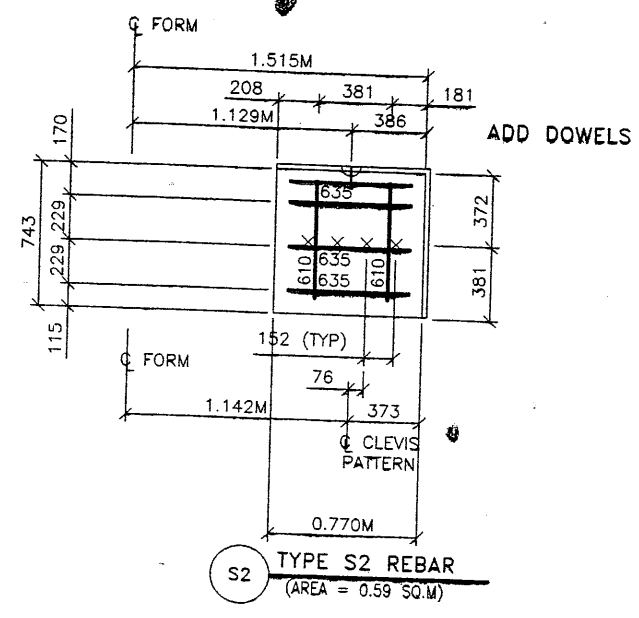
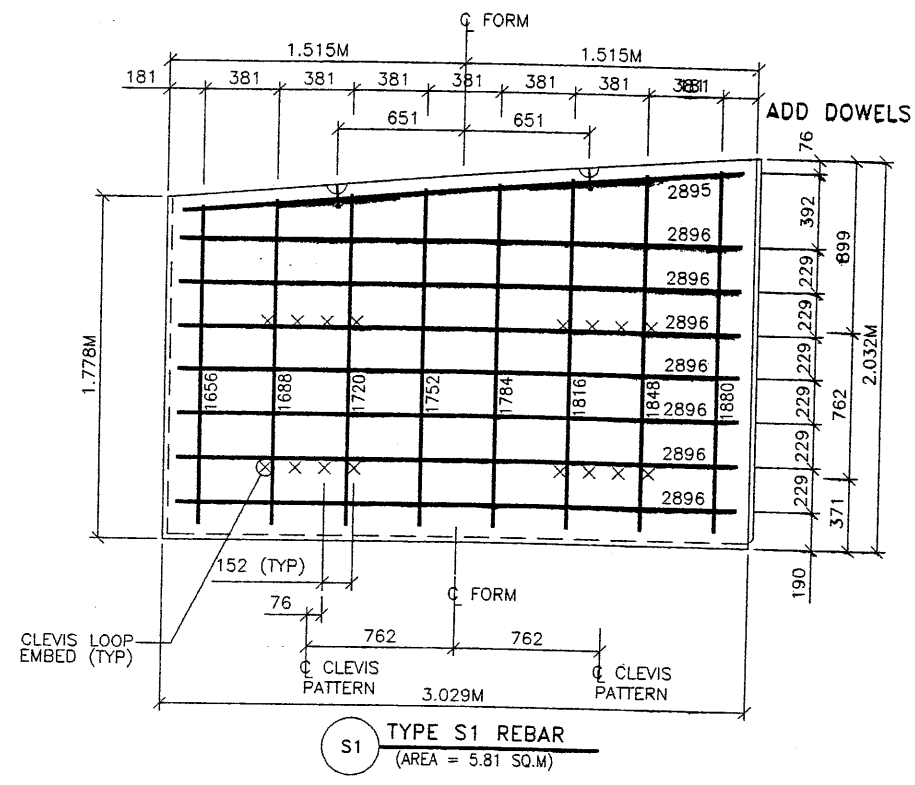
STATION	MESH DEPTH	MAXIMUM BEARING PRESSURE (SEE NOTE BELOW)	PIN SPACING
58			
59			
60			
61			
62			
63	2.743M	115 KPq	33.528
64			
65			
66			
67			
68			
69			
70			
71			
72			
73	3.353M	133 KPq	27.432
74			
75			
76			
77			
78	2.743M	92 KPq	3.048

ELEVATION PRECAST WALL R-343-14A
 (FRONT FACE SHOWN)
 (TOTAL SURFACE AREA OF PANELS = 621.32 SM)
 SCALE 1:100 (FULL SIZE)
 SCALE 1:200 (HALF SIZE)

APPROVER NOTE:
 MAXIMUM FINAL UNFACTORED BEARING PRESSURES
 ARE INDICATED BELOW "MESH DEPTH LINE."
 REVIEWER TO VERIFY MAXIMUM BEARING
 CAPACITY OF FOUNDATION.



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 ASSUMPTION THAT THE MATERIAL WITHIN THE RETAINED EARTH™ MASS, METHODS
 OF CONSTRUCTION, AND QUALITY OF PREFABRICATED MATERIALS CONFORM TO
 THE MANUFACTURER'S SPECIFICATION.



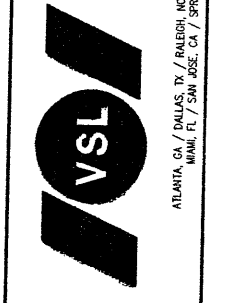
APPROVED FOR CONSTRUCTION		
NO.	DATE	DESCRIPTION
1	10-07-97	RELEASE FOR CONSTRUCTION

- PANEL REINFORCEMENT NOTES:
- PANELS ARE SHOWN BACK FACE.
 - HORIZONTAL REINFORCEMENT SHALL HAVE 50 mm MINIMUM COVER TO THE BACK FACE.
 - ALL REINFORCEMENT SHALL HAVE 50 mm MINIMUM COVER TO THE SIDES.
 - ALL REINFORCING BARS ARE #13 METRIC. LABELS ON EACH BAR INDICATE LENGTH. EXAMPLE: 1345 IS A #13 BAR 1345 mm LONG.
 - PANEL REINFORCEMENT BARS SHALL BE DEFORMED BILLET STEEL BARS FOR CONCRETE REINFORCEMENT CONFORMING TO THE SPECIFICATIONS OF ASTM DESIGNATION A615, GRADE 60.
 - ALL REINFORCING STEEL TO BE GALVANIZED IN ACCORDANCE WITH ASTM 767 CLASS I.
 - CONCRETE PANELS TO HAVE 28 DAY COMPRESSIVE STRENGTH OF 27,500 KPa.
 - EQUIVALENT WELDED WIRE FABRIC MAY BE USED.
 - ALL PANELS TO USE 9.5mmØ CLEVIS LOOPS.
 - VSL RETAINED EARTH™ IS PROTECTED UNDER PATENT 4,725,170.

WASATCH CONSTRUCTORS
 OCT 20 1997
 RELEASED FOR CONSTRUCTION

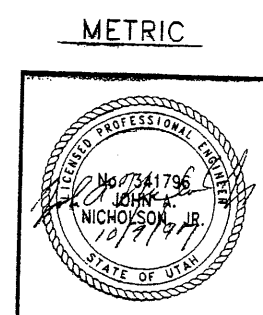
NO.	DATE	REVISION	BY	CHK

VSL CORPORATION
 2840 Plaza Place, Suite 200
 Raleigh, NC 27616
 Telephone: (919) 781-6272
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RETAINED EARTH™ WALLS
 PRECAST WALL "R-343-14A"
 SPECIAL PANEL REINFORCEMENT
 UTAH I-15 INTERCHANGE
 SALT LAKE COUNTY, UTAH
 UTAH DEPARTMENT OF TRANSP.

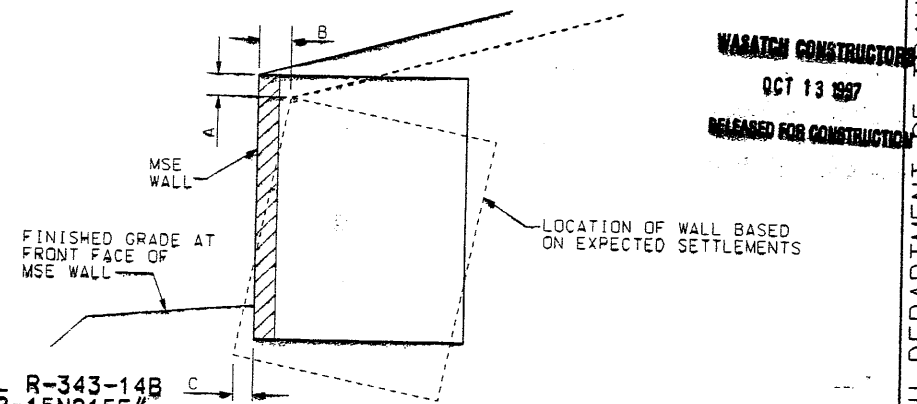
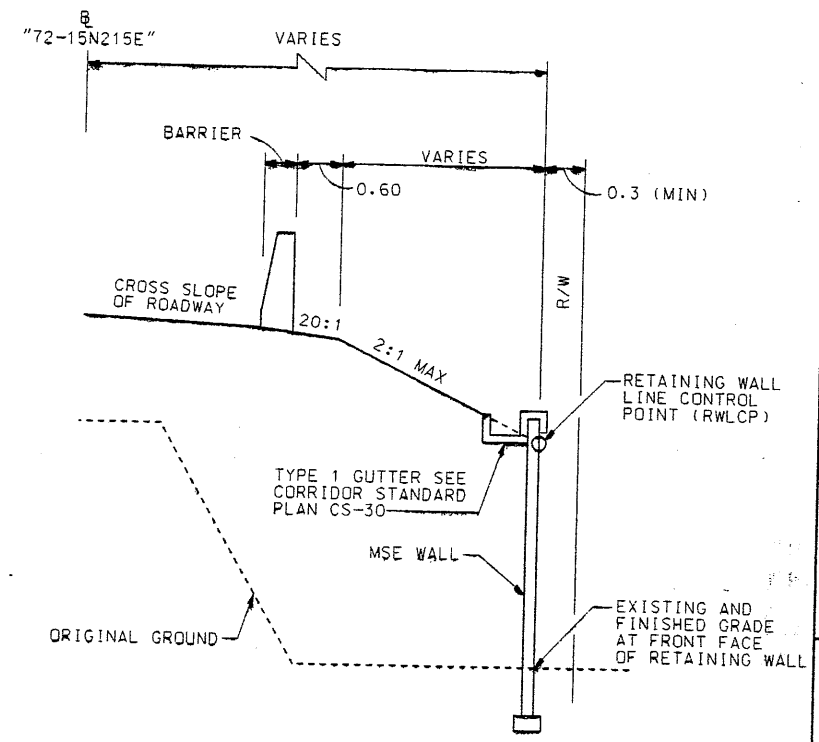
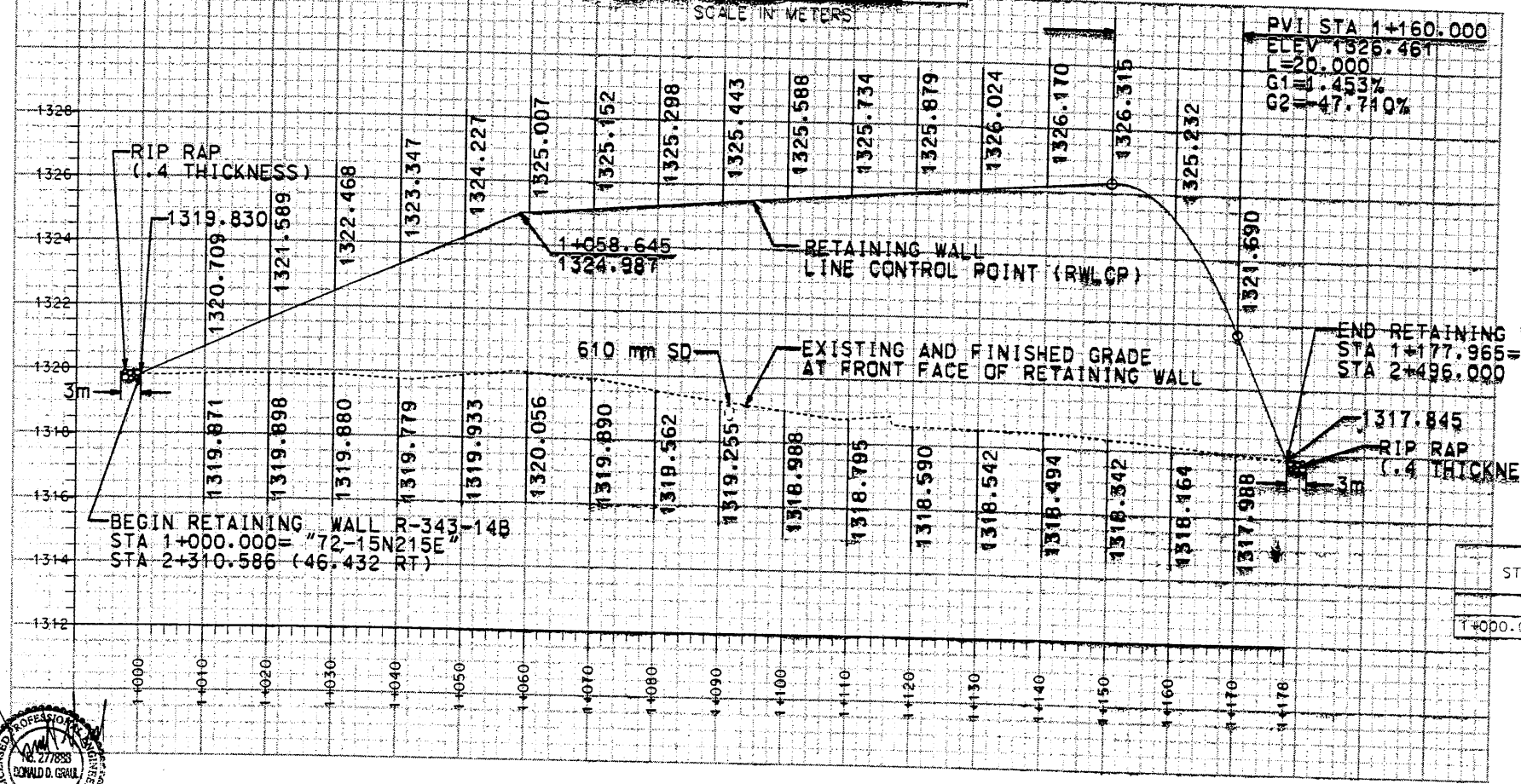
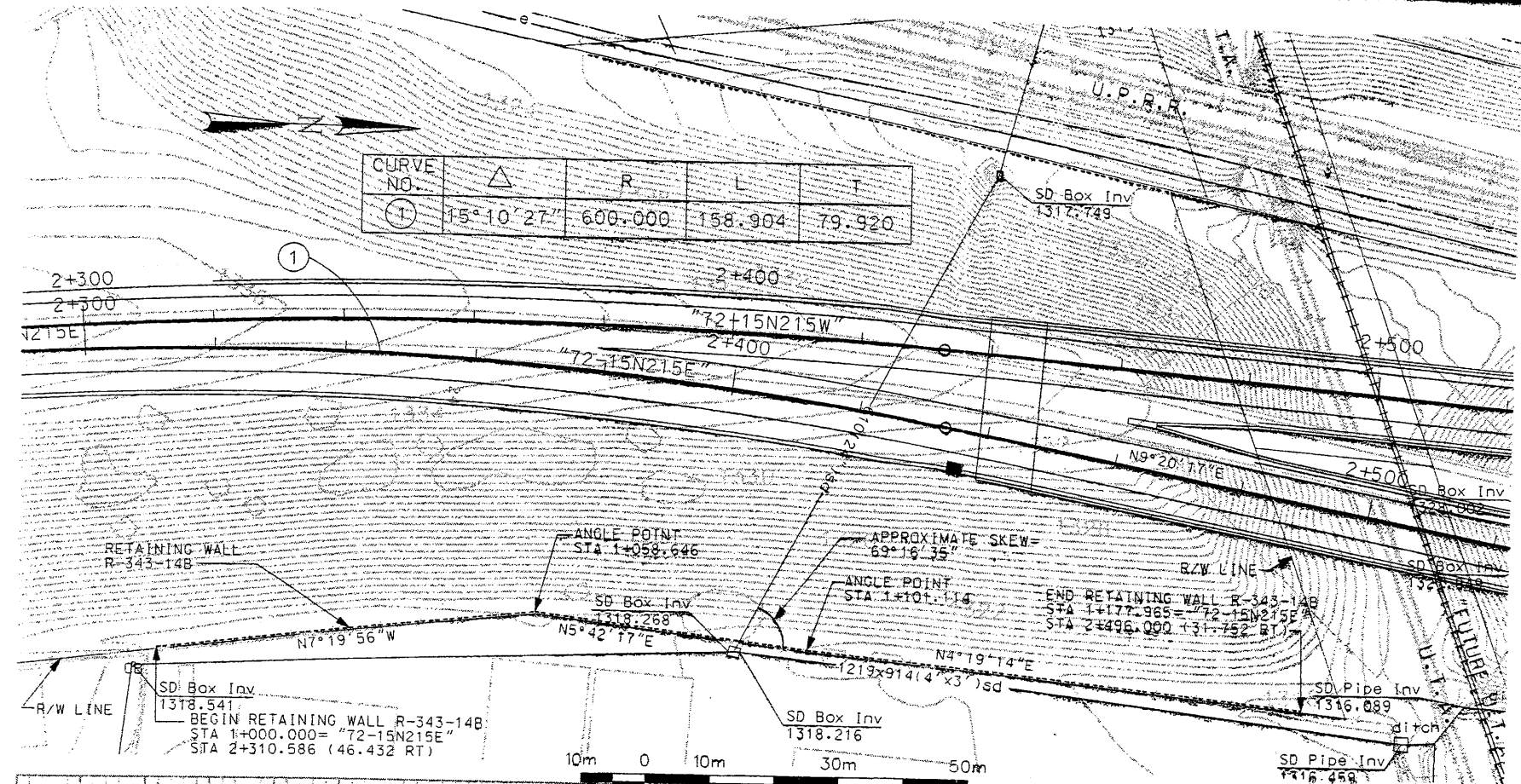


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SCALE:
 1.2R-343-14A.12
 JOB NO:
 239-0007/13
 RE-10

Active File Levels: [1-64]
 First Reference File Levels: [1-64]
 Second Reference File Levels: [1-64]
 Third Reference File Levels: [1-64]
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 Eighth Reference File Levels: [1-64]
 Ninth Reference File Levels: [1-64]
 Tenth Reference File Levels: [1-64]

Date: 09-OCT-1997 Time: 11:47
 User Name: fukl.cdi



ESTIMATED SETTLEMENT TABLE

STATION LIMITS	REFERENCE STATION	WALL SETTLEMENT mm	TOP OF WALL ROTATION mm	LATERAL DISPLACEMENT AT BOTTOM OF WALL mm
1+000.000 TO 1+177.965	1+140***	30 TO 50	47	**

** LATERAL DISPLACEMENT AT BOTTOM OF WALL SHOULD BE LESS THAN ONE HALF OF THE SETTLEMENT AT FRONT FACE OF WALL. TERRACON RECOMMENDS CONSTRUCTING THE WALL TOE AT THE DESIGN LOCATION.
 *** THESE VALUES CALCULATED AT REFERENCED STATION; ROTATIONS AT OTHER STATIONS CAN BE ESTIMATED IN PROPORTION TO WALL HEIGHT.

ELEVATION VIEW FROM FRONT OF WALL

NOTE: THE FOUNDATION BEARING MATERIALS SHOULD BE OBSERVED BY THE GEOTECHNICAL ENGINEER DURING SITE PREPARATION. ANY UNDESIRABLE MATERIALS WILL NEED TO BE REMOVED AND REPLACED WITH BORROW IN ORDER TO ACHIEVE ACCEPTABLE CONDITIONS AT THE BASE OF THE WALL.



WASATCH CONSTRUCTORS
 OCT 13 1997
 RELEASED FOR CONSTRUCTION

UTAH DEPARTMENT OF TRANSPORTATION
 SVERDRUP/DE LEUW

I-15 CORRIDOR RECONSTRUCTION
 SITUATION/LAYOUT RET WALL R-343-14B

SECTION 1.2
 PROJECT NUMBER *SP-15-7(135)296

APPROVED FOR CONSTRUCTION

NO.	DATE	DESCRIPTION
1	10-9-97	INITIAL RELEASE
2		
3		

DESIGN: JMM 9/97
 CHECK: BH 9/97
 DRAWN: DMK 9/97
 CHECK: JBE 9/97
 QUANT: /
 CHECK: /

12.12.404

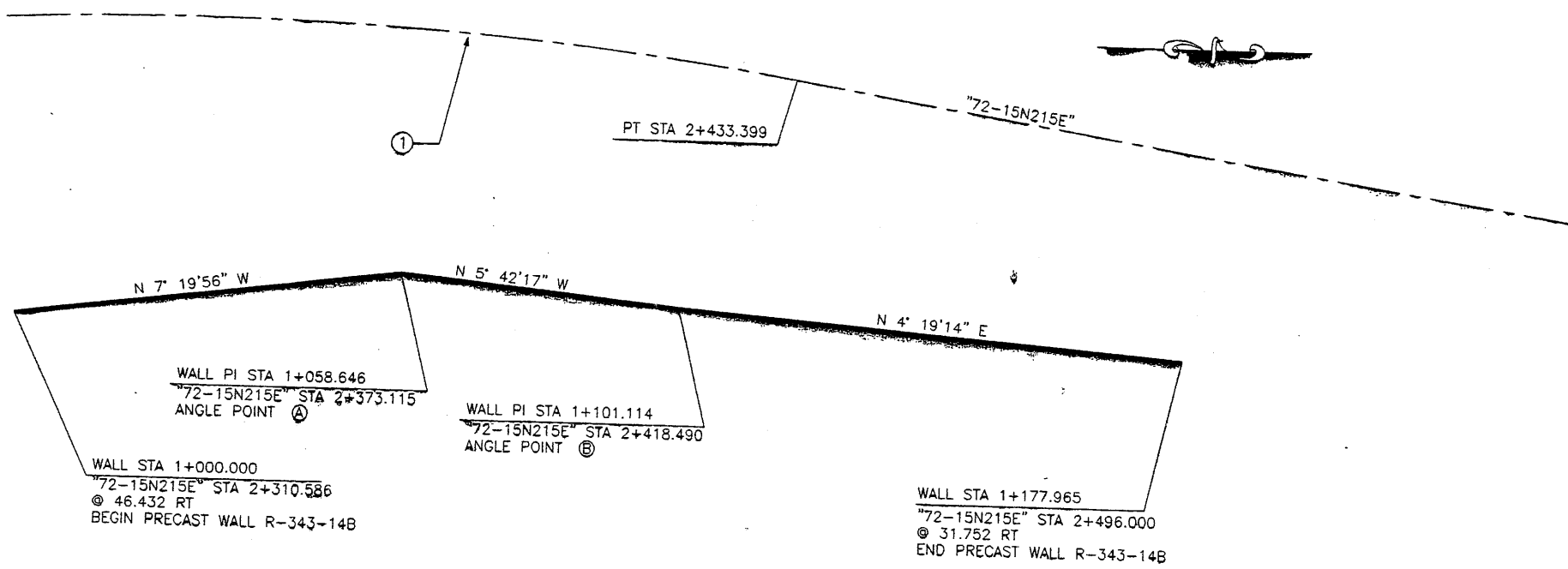
SALT LAKE COUNTY
 D.W.C. NO. 1.2R-343-14B.1
 SHT. 1 OF 11

FINAL 2-06-97

E:\PROJECT\239-0007\72SERIES\72-14

APPROVED FOR CONSTRUCTION		
NO.	DATE	DESCRIPTION
△	10-06-97	RELEASE FOR CONSTRUCTION

DES.	DRN.	CHK.	NO.	DATE	BY	CHK



- GENERAL NOTES**
- ALL WALLS ARE SHOWN FRONT FACE. NOTE STATIONING.
 - PANEL TYPE IS DESIGNATED ON EACH PANEL. CONNECTOR LABELS INDICATE NUMBER OF CONNECTORS PER ROW.
EXAMPLE: 5B2-10 IS A "B2-10" PANEL WITH FIVE (5) CONNECTORS PER ROW. IF NO CONNECTORS ARE SHOWN, FOUR (4) CONNECTOR PANELS SHALL BE USED:
 - SOIL REINFORCING MESH TYPE IS DESIGNATED ON EACH PANEL. MESH LABELS INDICATE WIRE SIZE AND SPACING. LONGITUDINAL WIRE AND CROSSBAR SIZES ARE THE SAME UNLESS NOTED OTHERWISE:
EXAMPLE: 4W11-6 MESH HAS FOUR (4) W11 LONGITUDINAL WIRES WITH W11 CROSSBARS AT 6" CENTERS.
EXAMPLE: 4W11-12 MESH HAS FOUR (4) W11 LONGITUDINAL WIRES WITH W11 CROSSBARS AT 12" CENTERS.
EXAMPLE: 4W20-12 MESH HAS FOUR (4) W20 LONGITUDINAL WIRES WITH W20 CROSSBARS AT 12" CENTERS.
EXAMPLE: 4W20-24 MESH HAS FOUR (4) W20 LONGITUDINAL WIRES WITH W20 CROSSBARS AT 24" CENTERS.
EXAMPLE: 5W11-12 MESH HAS FIVE (5) W11 LONGITUDINAL WIRES WITH W11 CROSSBARS AT 12" CENTERS.
EXAMPLE: 5W11-24 MESH HAS FIVE (5) W11 LONGITUDINAL WIRES WITH W11 CROSSBARS AT 24" CENTERS.
EXAMPLE: 5W20-24 MESH HAS FIVE (5) W20 LONGITUDINAL WIRES WITH W20 CROSSBARS AT 24" CENTERS.
EXAMPLE: 6W11-6 MESH HAS SIX (6) W11 LONGITUDINAL WIRES WITH W11 CROSSBARS AT 6" CENTERS.
EXAMPLE: 6W11-24 MESH HAS SIX (6) W11 LONGITUDINAL WIRES WITH W11 CROSSBARS AT 24" CENTERS.
EXAMPLE: 6W20-24 MESH HAS SIX (6) W20 LONGITUDINAL WIRES WITH W20 CROSSBARS AT 24" CENTERS.
 - SEE RETAINED EARTH INSTALLATION MANUAL FOR PROPER WALL ERECTION PROCEDURES AND GUIDELINES.
 - CONSTRUCTION PROCEDURES SHALL PREVENT BACKFILL SATURATION AND PONDING.
 - HEAVY EQUIPMENT SHALL NOT BE USED WITHIN ONE METER OF THE BACK OF THE RETAINED EARTH PANELS. HAND COMPACTORS SHALL BE USED IN THIS AREA.
 - CARE SHALL BE TAKEN TO PREVENT DAMAGE TO GALVANIZING. DAMAGED GALVANIZING SHALL BE COATED WITH ZINC RICH PAINT.
 - BEARING PADS AND FILTER FABRIC ARE NOT REQUIRED BETWEEN THE LEVELING PAD AND THE FIRST ROW OF PANELS. TEMPORARY WEDGES MAY BE USED TO PROVIDE PROPER ALIGNMENT.
 - VSL RETAINED EARTH IS PROTECTED UNDER U.S. PATENT 4,725,170.
 - ALL PANELS SHALL HAVE AN ARCHITECTURAL FINISH, SEE SHEET RE-3 FOR DETAIL.

PLAN VIEW WALL "R-343-14B"

SCALE: 1=500 (FULL SIZE)
SCALE: 1=1000 (HALF SIZE)

CURVE DATA				
No.	RADIUS	LENGTH	TANGENT	△
①	600.000	158.904	79.920	15°10'27" R

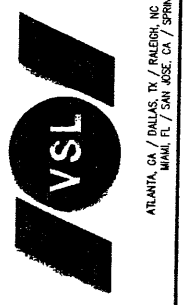
All Dimensions Arg In Meters Unless Noted Otherwise

DESIGN PARAMETERS	
ANGLE OF INTERNAL FRICTION (SELECT)	= 34°
ANGLE OF INTERNAL FRICTION (BASE)	= 30°
ANGLE OF INTERNAL FRICTION (RANDOM)	= 34°
UNIT WEIGHT BACKFILL	= 135 PCF (21.2 kN/m ³)
TRAFFIC SURCHARGE	= 250 PSF
SEISMIC ACCELERATION COEFF.	= 0.13g
	= 0.32g (AT BRIDGE ABUT.TYP)
DESIGN CRITERIA	
SAFETY FACTOR (OVERTURNING)	= 2.0
SAFETY FACTOR (SLIDING)	= 1.5
SAFETY FACTOR (PULLOUT)	= 1.5
DESIGN LIFE	= 75 YEARS

RETAINED EARTH INDEX	
RE-1	PLAN PRECAST FACE WALL R-343-14B, NOTES & DESIGN CRITERIA
RE-2	TYPICAL DETAILS
RE-3	TYPICAL DETAILS
RE-4	TYPICAL CROSS SECTIONS
RE-5	SPECIAL DETAILS
RE-6	ELEVATION PRECAST WALL "R-343-14B"
RE-7	ELEVATION PRECAST WALL "R-343-14B"
RE-8	ELEVATION PRECAST WALL "R-343-14B"
RE-9	SPECIAL PANEL DETAILS
RE-10	SPECIAL PANEL DETAILS

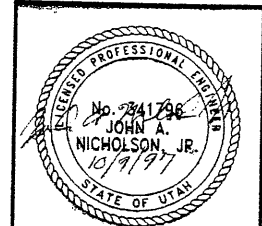
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OCT 13 1997
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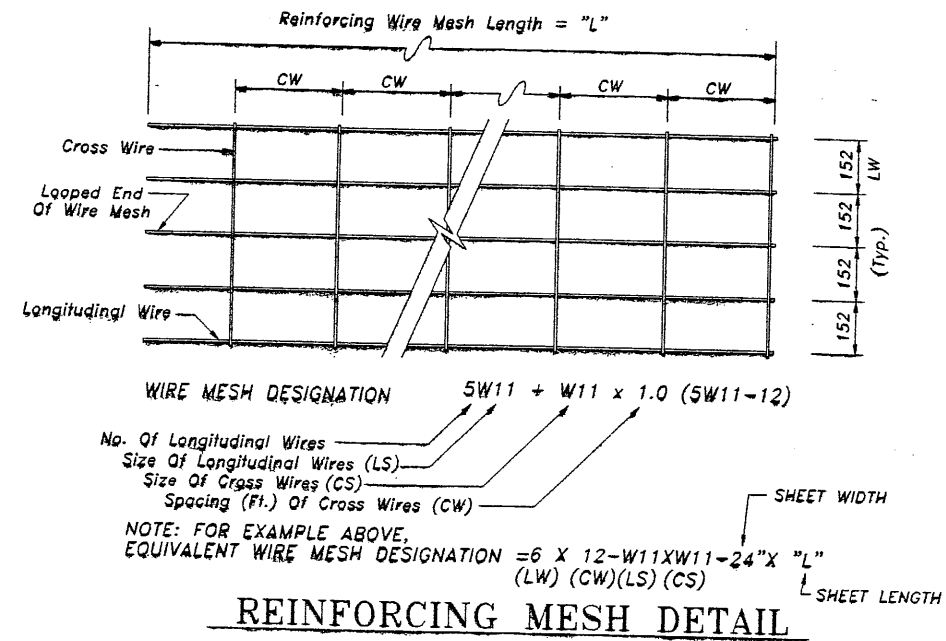
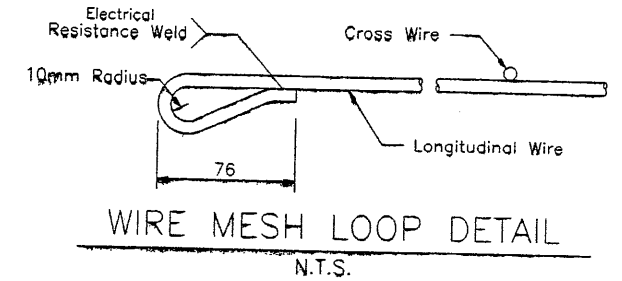
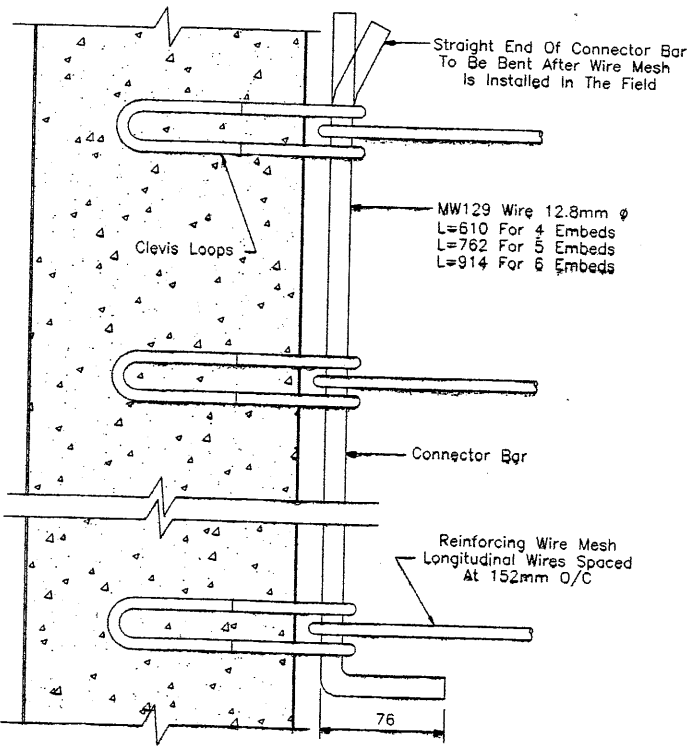
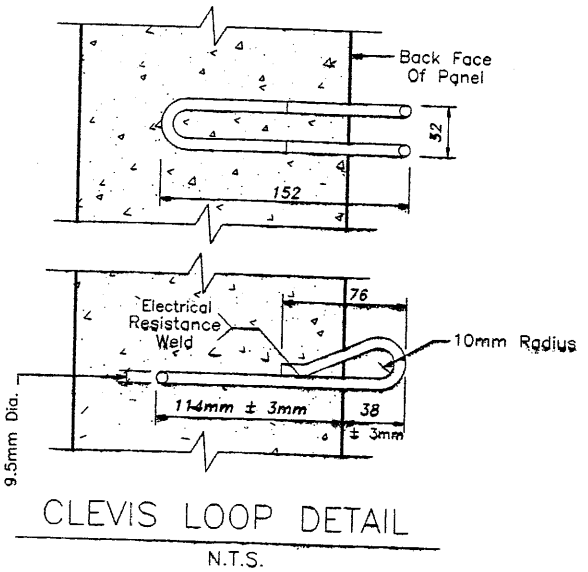
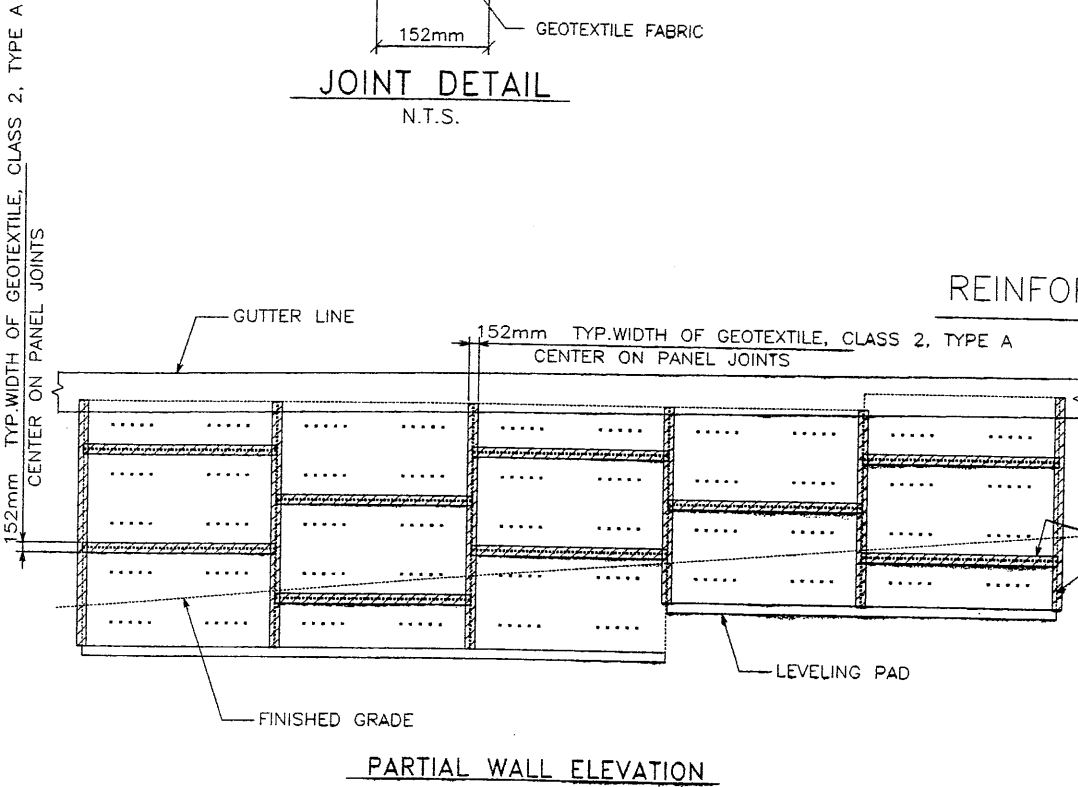
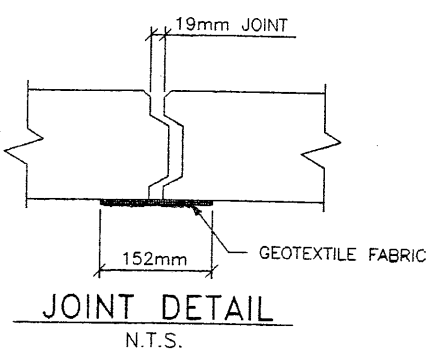
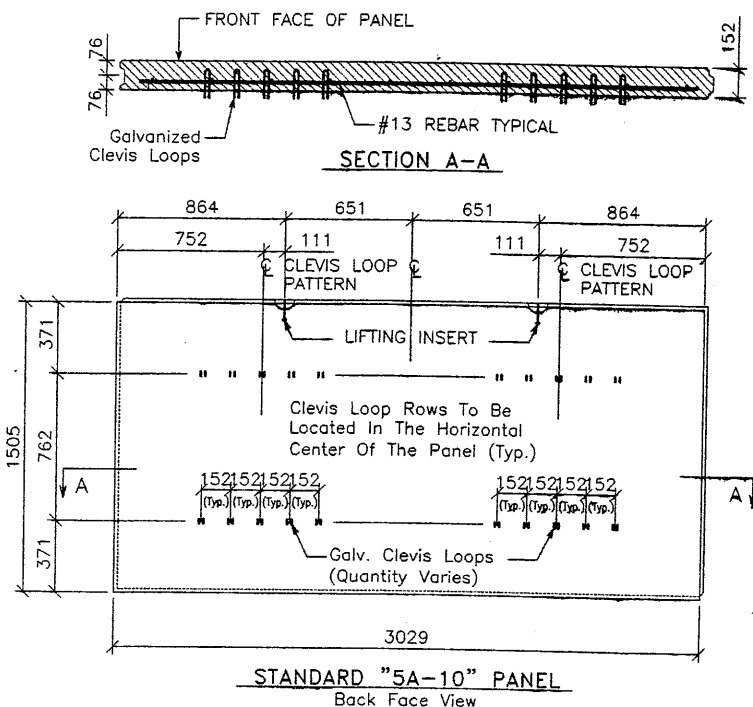
METRIC



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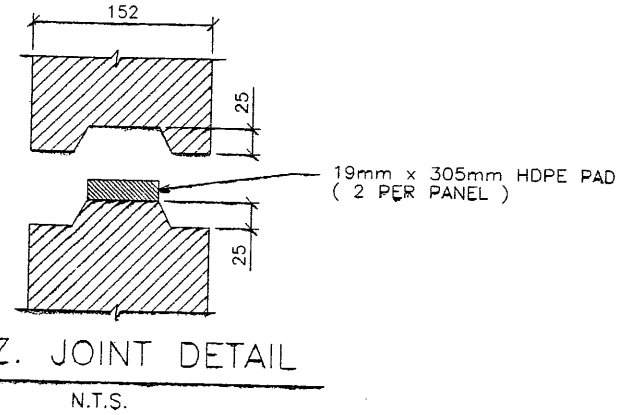
RETAINED EARTH™ WALLS	
PLAN VIEW PRECAST WALL "R-343-14B"	
UTAH I-15 INTERCHANGE	
SALT LAKE COUNTY, UTAH	
UTAH DEPARTMENT OF TRANSP.	
SCALE:	1.2R-343-14B.2
JOB NO:	239-0007 2/11
	RE-1

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NOTE: FOR EXAMPLE ABOVE, EQUIVALENT WIRE MESH DESIGNATION = 6 X 12-W11XW11-24" X "L" (LW) (CW)(LS) (CS)

NOTE: W11 (71 sq mm) And W20 (129 sq mm) Steel Wire Material And Welding Of Cross Wires And Loops Shall Conform To ASTM A82 And ASTM 185, Fy = 448 MPa. Mesh Shall Be Galvanized To ASTM A-123 To A Minimum Effective Thickness Of 0.086 mm.



WARATCH CONSTRUCTORS
OCT 13 1997
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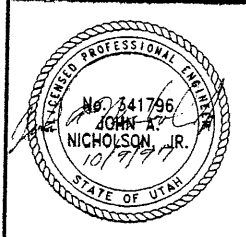
VSL CORPORATION
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Raleigh, NC 27612
Telephone: (919) 781-6272
Fax: (919) 781-6889

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RETAINED EARTH™ WALLS
PRECAST WALL "R-343-14B"
TYPICAL DETAILS
UTAH I-15 INTERCHANGE
SALT LAKE COUNTY, UTAH
UTAH DEPARTMENT OF TRANSP.



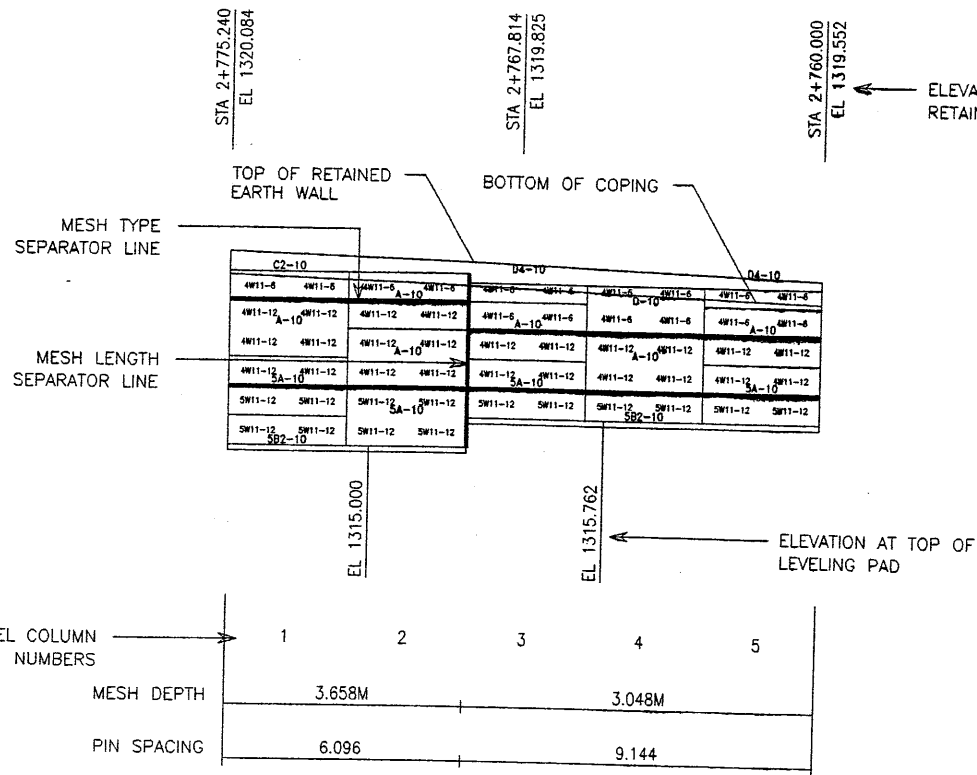
CERTIFIED FOR INTERNAL STABILITY OF RETAINED EARTH™ STRUCTURES ONLY. EXTERNAL STABILITY, INCLUDING BUT NOT LIMITED TO FOUNDATION AND SLOPE STABILITY, IS THE RESPONSIBILITY OF THE OWNER. DESIGN IS BASED ON THE ASSUMPTION THAT THE MATERIAL WITHIN THE RETAINED EARTH™ MASS, METHODS OF CONSTRUCTION, AND QUALITY OF PREFABRICATED MATERIALS CONFORM TO THE MANUFACTURER'S SPECIFICATION.

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JOB NO:	239-0007
DATE:	3/11
REVISION:	RE-2

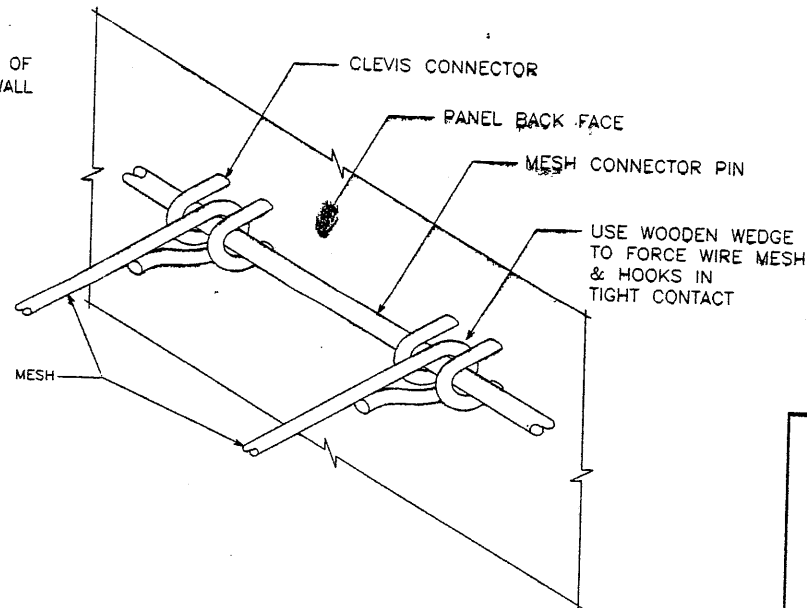
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7-06-97

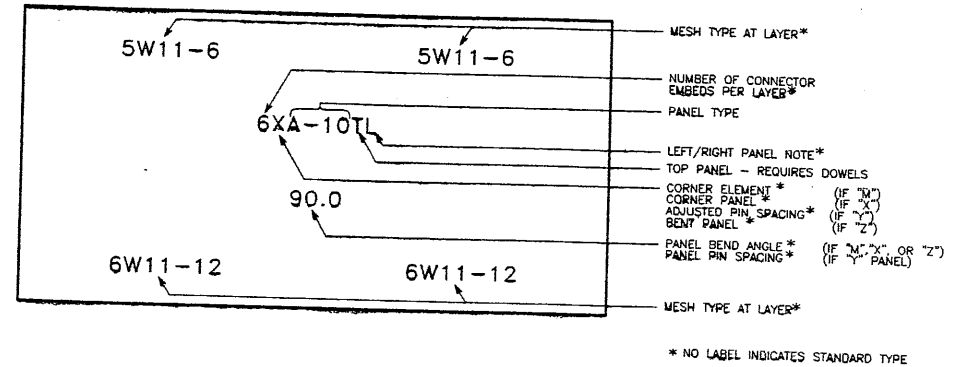
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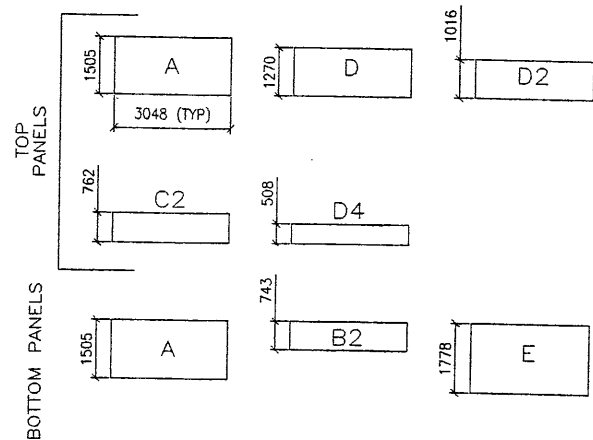
1 WALL ELEVATION KEY (FRONT FACE SHOWN)



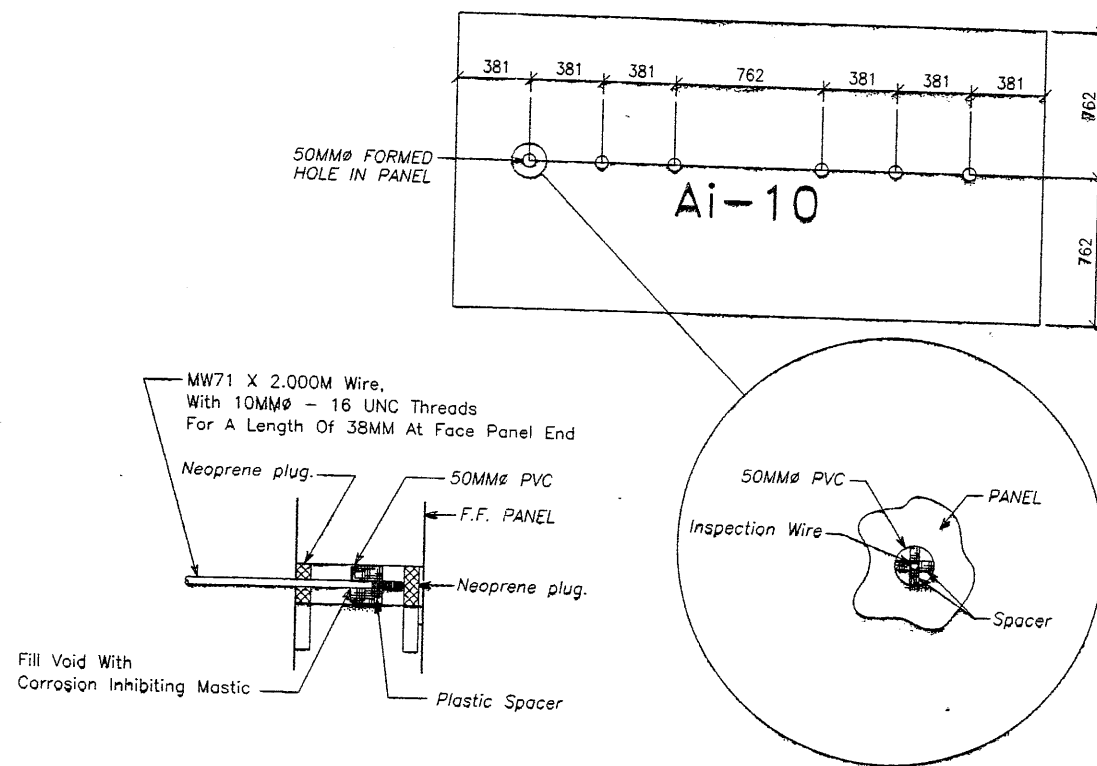
2 MESH CLEVIS CONNECTOR
VSL RETAINED EARTH IS PROTECTED UNDER U.S. PATENT 4,725,170.



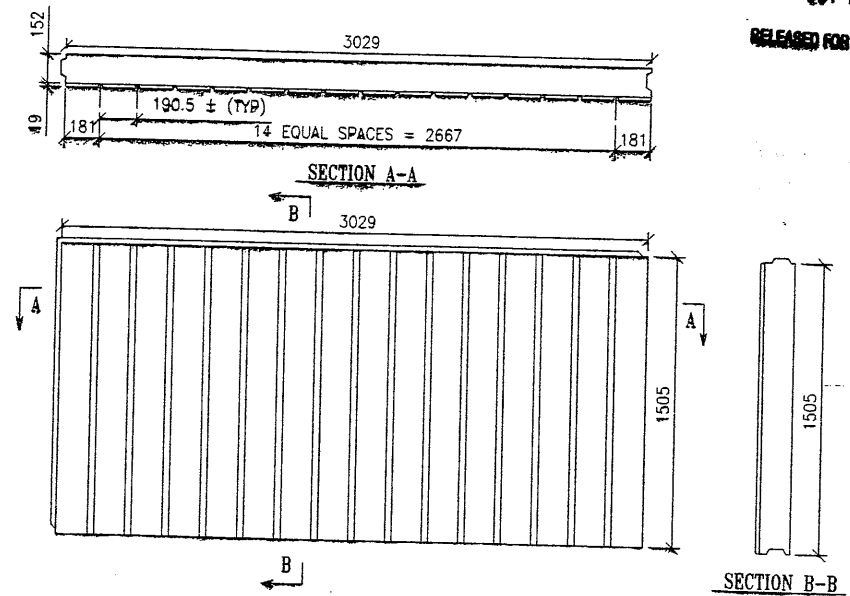
3 PANEL LABELS



4 PANEL TYPES
ALL DIMENSIONS ARE IN MILLIMETERS



5 INSPECTION WIRE DETAIL (PANEL FRONT FACE SHOWN)



6 ARCHITECTURAL PANEL FINISH (PANEL FRONT FACE SHOWN)

APPROVED FOR CONSTRUCTION

NO.	DATE	DESCRIPTION
△	10-06-97	RELEASE FOR CONSTRUCTION

NO.	DATE	REVISION	BY	CHK

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2840 Pike Road, Suite 200
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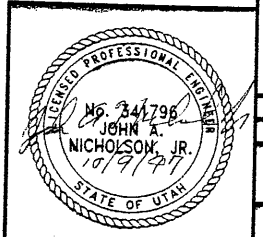
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RETAINED EARTH™ WALLS
PRECAST WALL "R-343-14B"
TYPICAL DETAILS

UTAH I-15 INTERCHANGE
SALT LAKE COUNTY, UTAH
UTAH DEPARTMENT OF TRANSP.



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SCALE: 1.2R-343-14B.4

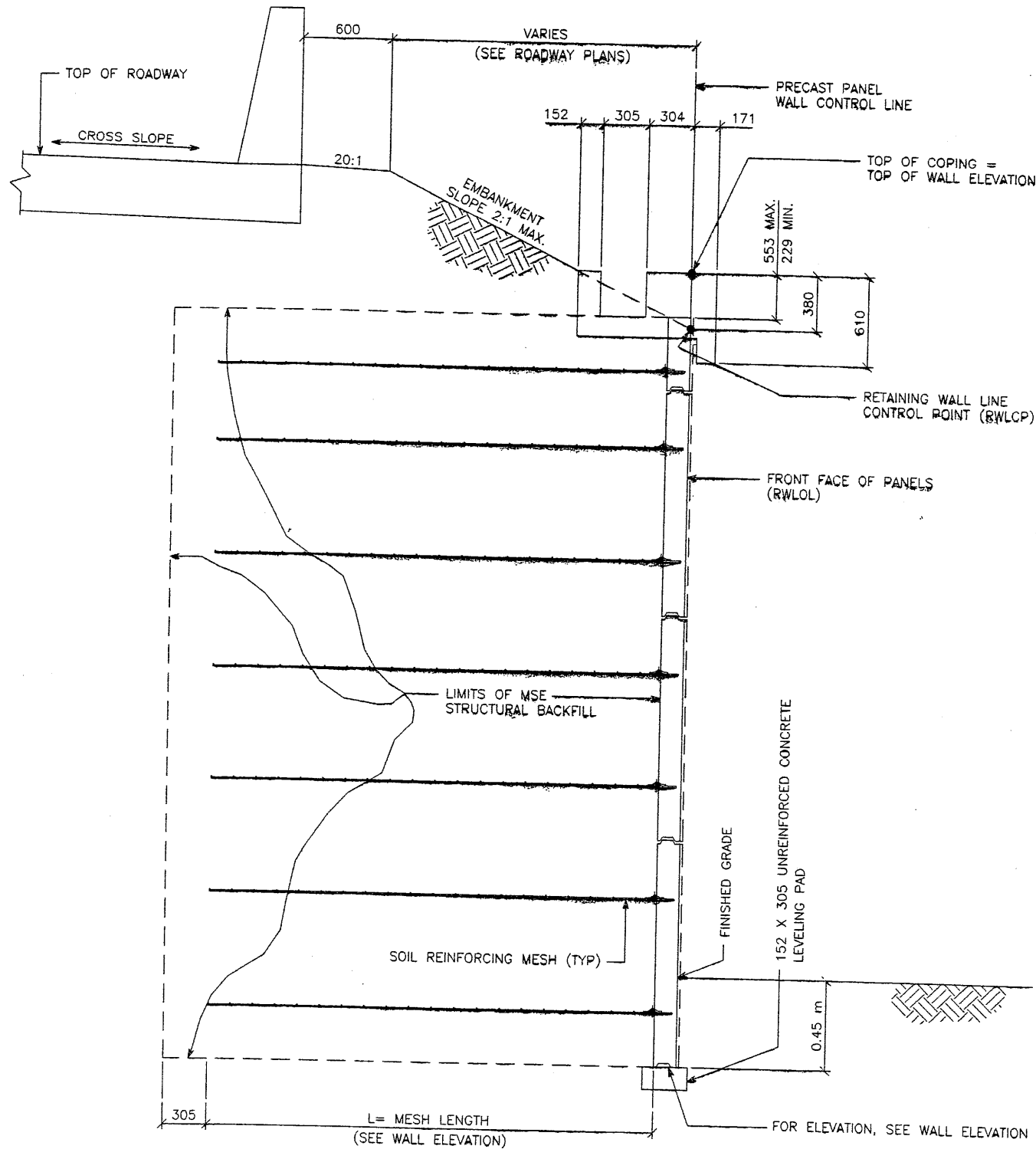
JOB NO: 239-0007

RE-3

E:\PROJECT\239-0007\SERIES\72-14B\RE-4

0-06-97

FINAL



TYPICAL CROSS SECTION
(MSE SINGLE STAGE WITH GUTTER DETAIL)
 SCALE: 1:20 (FULL SIZE)
 SCALE: 1:40 (HALF SIZE)

APPROVED FOR CONSTRUCTION		
NO.	DATE	DESCRIPTION
△	10-06-97	RELEASE FOR CONSTRUCTION

NO.	DATE	REVISION	BY

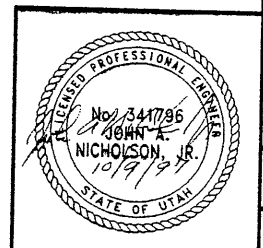
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WASATCH CONSTRUCTORS
 OCT 13 1997
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RETAINED EARTH™ WALLS
 PRECAST WALL "R-343-14B"
 TYPICAL CROSS SECTIONS
 UTAH 1-15 INTERCHANGE
 SALT LAKE COUNTY, UTAH
 UTAH DEPARTMENT OF TRANSP.



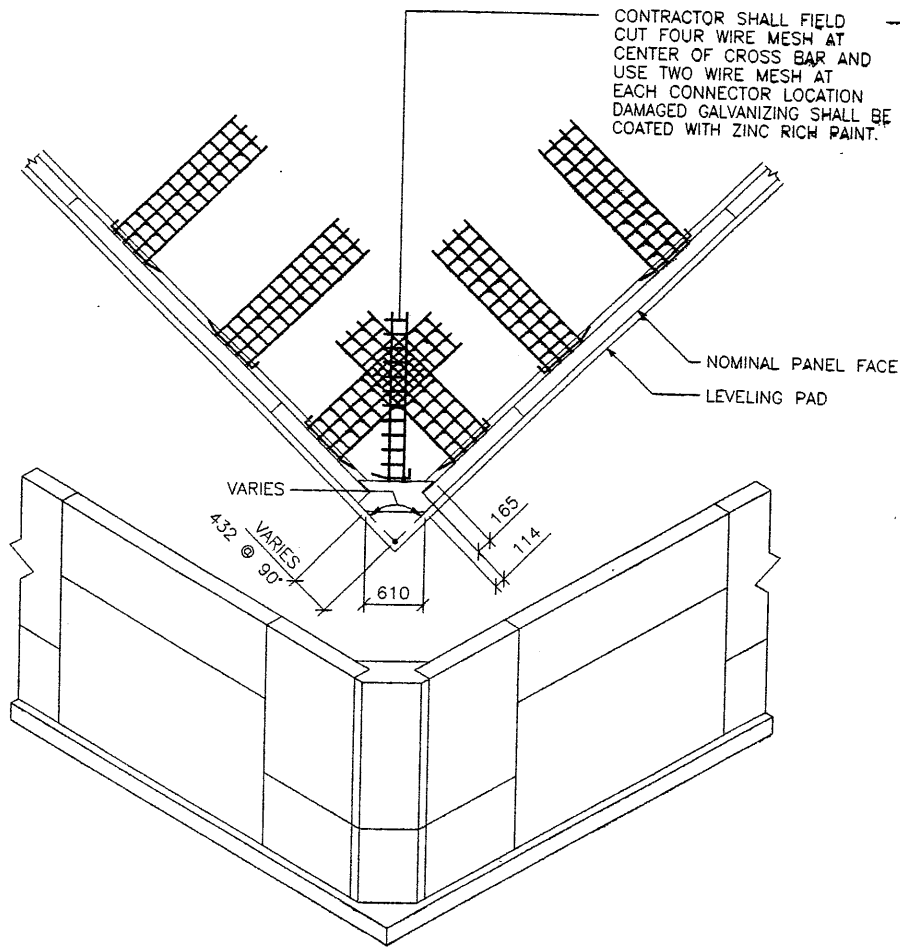
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SCALE:	1.2R-343-14B.5
JOB NO.:	239-0007 5/11
	RE-4

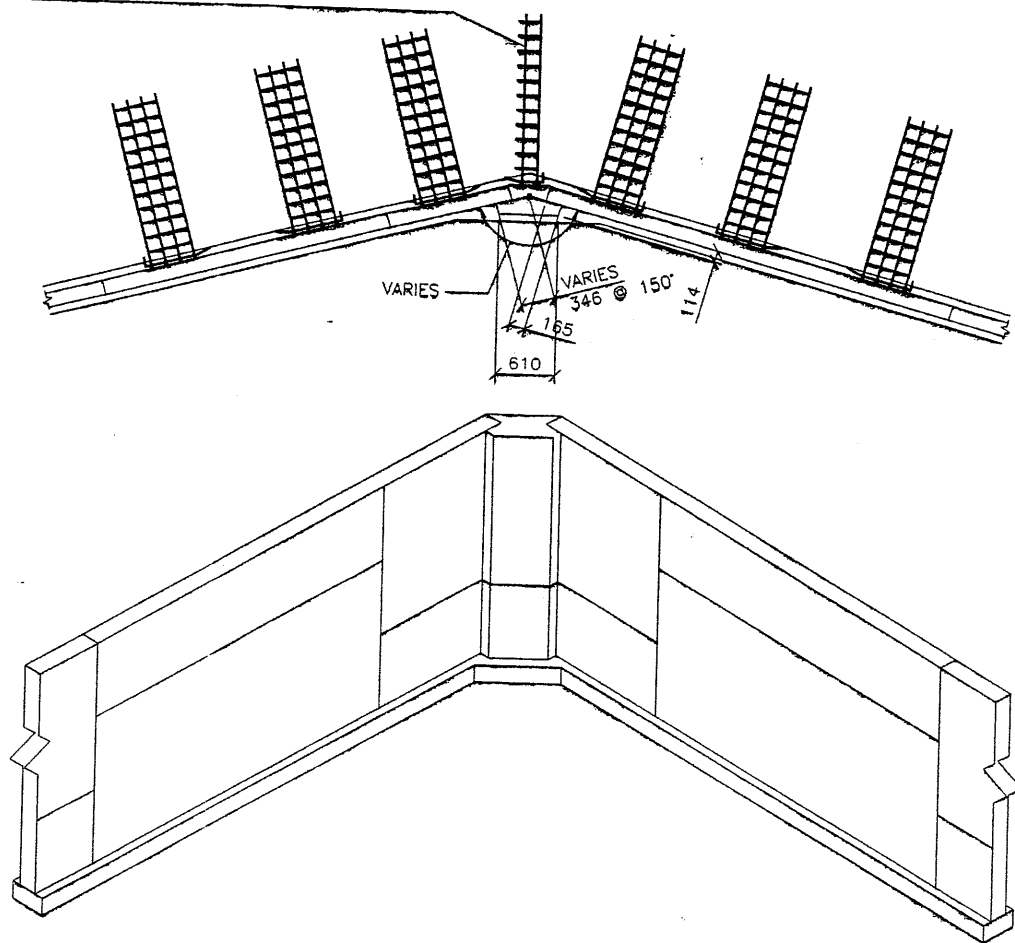
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3-06-97

FINAL



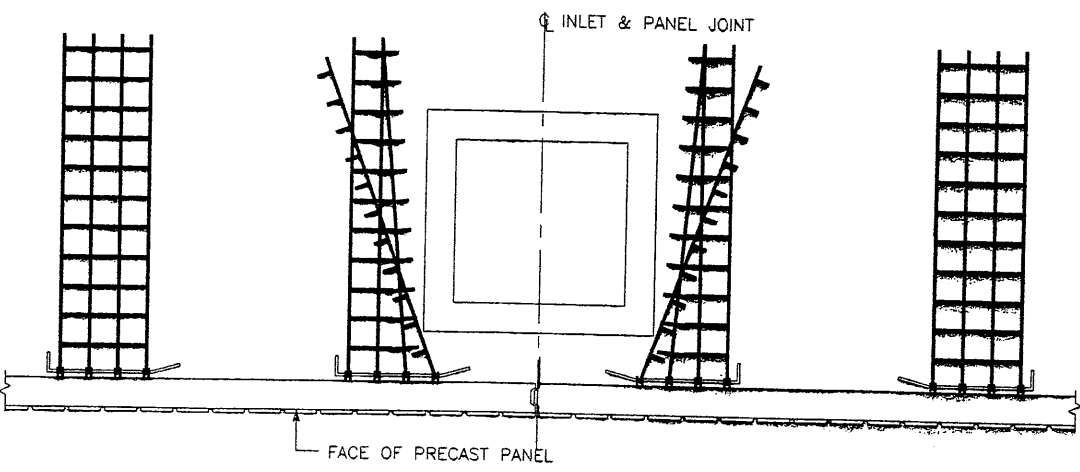
80 OUTSIDE CORNER ELEMENT
PLAN VIEW / ISOMETRIC



80 INSIDE CORNER ELEMENT
PLAN VIEW / ISOMETRIC

CONTRACTOR SHALL FIELD CUT FOUR WIRE MESH AT CENTER OF CROSS BAR AND USE TWO WIRE MESH AT EACH CONNECTOR LOCATION. DAMAGED GALVANIZING SHALL BE COATED WITH ZINC RICH PAINT.

INLET/MANHOLE SHALL BE CENTERED ON CENTERLINE OF CLOSEST OBSTRUCTED PANEL JOINT.
SEE WALL ELEVATIONS FOR LOCATION.
FIELD CUT & SKEW SOIL REINFORCING TO AVOID INLET. DAMAGED GALVANIZING SHALL BE COATED WITH ZINC RICH PAINT.

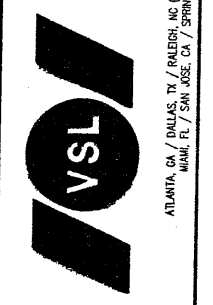


100 INLET OBSTRUCTION DETAIL

APPROVED FOR CONSTRUCTION		
NO.	DATE	DESCRIPTION
△	10-06-97	RELEASE FOR CONSTRUCTION

DES.	MM	JPS	MM	RETAINED EARTH™	NO.	DATE	BY	CHK
09-15-97	MM	JPS	MM	VSL				
09-15-97								
09-15-97								

VSL CORPORATION
2640 Plaza Place, Suite 200
Raleigh, NC 27612
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Fax: (919) 781-4995

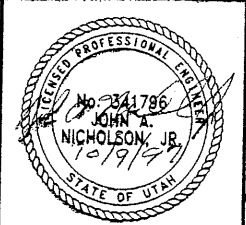


WASATCH CONSTRUCTORS
OCT 13 1997
RELEASED FOR CONSTRUCTION

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RETAINED EARTH™ WALLS
PRECAST WALL "R-343-14B"
SPECIAL DETAILS
UTAH I-15 INTERCHANGE
SALT LAKE COUNTY, UTAH
UTAH DEPARTMENT OF TRANSP.

METRIC



CERTIFIED FOR INTERNAL STABILITY OF RETAINED EARTH™ STRUCTURES ONLY. EXTERNAL STABILITY, INCLUDING BUT NOT LIMITED TO FOUNDATION AND SLOPE STABILITY, IS THE RESPONSIBILITY OF THE OWNER. DESIGN IS BASED ON THE ASSUMPTION THAT THE MATERIAL WITHIN THE RETAINED EARTH™ MASS, METHODS OF CONSTRUCTION, AND QUALITY OF PREFABRICATED MATERIALS CONFORM TO THE MANUFACTURER'S SPECIFICATION.

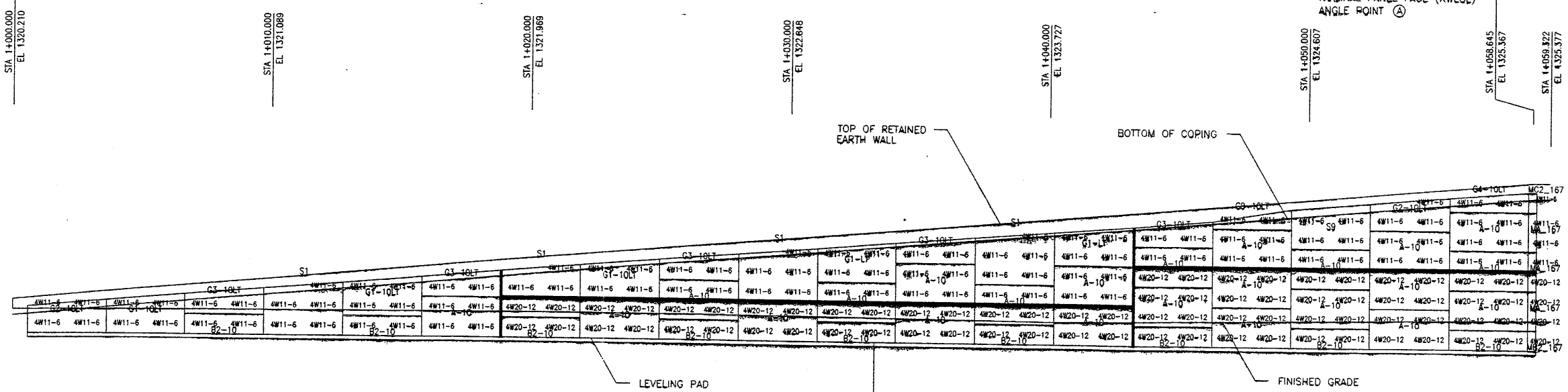
SCALE:
1.2R-343-14B.6
JOB NO:
239-0007 6/11
RE-5

E:\PROJECT\239-0007\7SERIES\72-14B\72-1
 0-06-97
 FINAL

APPROVED FOR CONSTRUCTION		
NO.	DATE	DESCRIPTION
△	10-06-97	RELEASE FOR CONSTRUCTION

WALL STA 1+000.000
 "72-15N215E" STA 2+310.586
 @ 46.432 RT
 NOMINAL PANEL FACE (RWLOL)
 BEGIN WALL R-343-14B

WALL STA 1+058.645
 "72-15N215E" STA 2+373.115
 @ 38.332 RT
 NOMINAL PANEL FACE (RWLOL)
 ANGLE POINT (A)

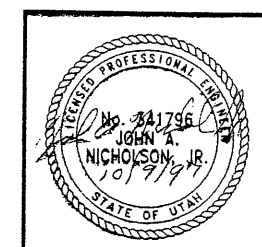


MESH DEPTH	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
MAXIMUM BEARING PRESSURE (SEE NOTE BELOW)	2.438																				
							136 KPa														
										58.222											

ELEVATION PRECAST WALL 72-14B
 (FRONT FACE SHOWN)
 (TOTAL SURFACE AREA OF PANELS = 1,061.14 SM)
 SCALE 1:100 (FULL SIZE)
 SCALE 1:200 (HALF SIZE)

WASATCH CONSTRUCTORS
 OCT 13 1997
 RELEASED FOR CONSTRUCTION

METRIC



APPROVER NOTE:
 MAXIMUM FINAL UNFACTORED BEARING PRESSURES
 ARE INDICATED BELOW "MESH DEPTH LINE"
 REVIEWER TO VERIFY MAXIMUM BEARING
 CAPACITY OF FOUNDATION.

CERTIFIED FOR INTERNAL STABILITY OF RETAINED EARTH™ STRUCTURES ONLY.
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 STABILITY, IS THE RESPONSIBILITY OF THE OWNER. DESIGN IS BASED ON THE
 ASSUMPTION THAT THE MATERIAL WITHIN THE RETAINED EARTH™ MASS, METHODS
 OF CONSTRUCTION, AND QUALITY OF PREFABRICATED MATERIALS CONFORM TO
 THE MANUFACTURER'S SPECIFICATION.

DES.	DRN.	CHK.	RETAINED EARTH™	NO.	DATE	REVISION	BY	CHK
MM	JPS	MM						
09-15-97	09-15-97	09-15-97						

VSL CORPORATION
 2840 Plaza Place, Suite 200
 Raleigh, NC 27612
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 Fax: (919) 781-6869

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VSL

UTAH I-15 INTERCHANGE
 SALT LAKE COUNTY, UTAH
 UTAH DEPARTMENT OF TRANSPORTATION

SCALE:
 1:2R-343-14B.7
 JOB NO:
 239-0007/7/h
 RE-6

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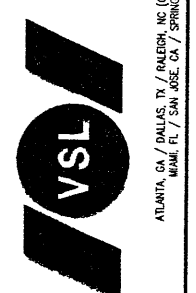
0-06-97

FINAL PL

APPROVED FOR CONSTRUCTION		
NO.	DATE	DESCRIPTION
1	10-06-97	RELEASE FOR CONSTRUCTION

DES.	MM	DRN.	CHK.	NO.	DATE	REVISION
09-15-97	MM	09-15-97	MM			
09-15-97	JPS					
09-15-97	MM					

VSL CORPORATION
 2840 Plaza Place, Suite 200
 Raleigh, NC 27612
 Telephone: (919) 781-4272
 Fax: (919) 781-4989

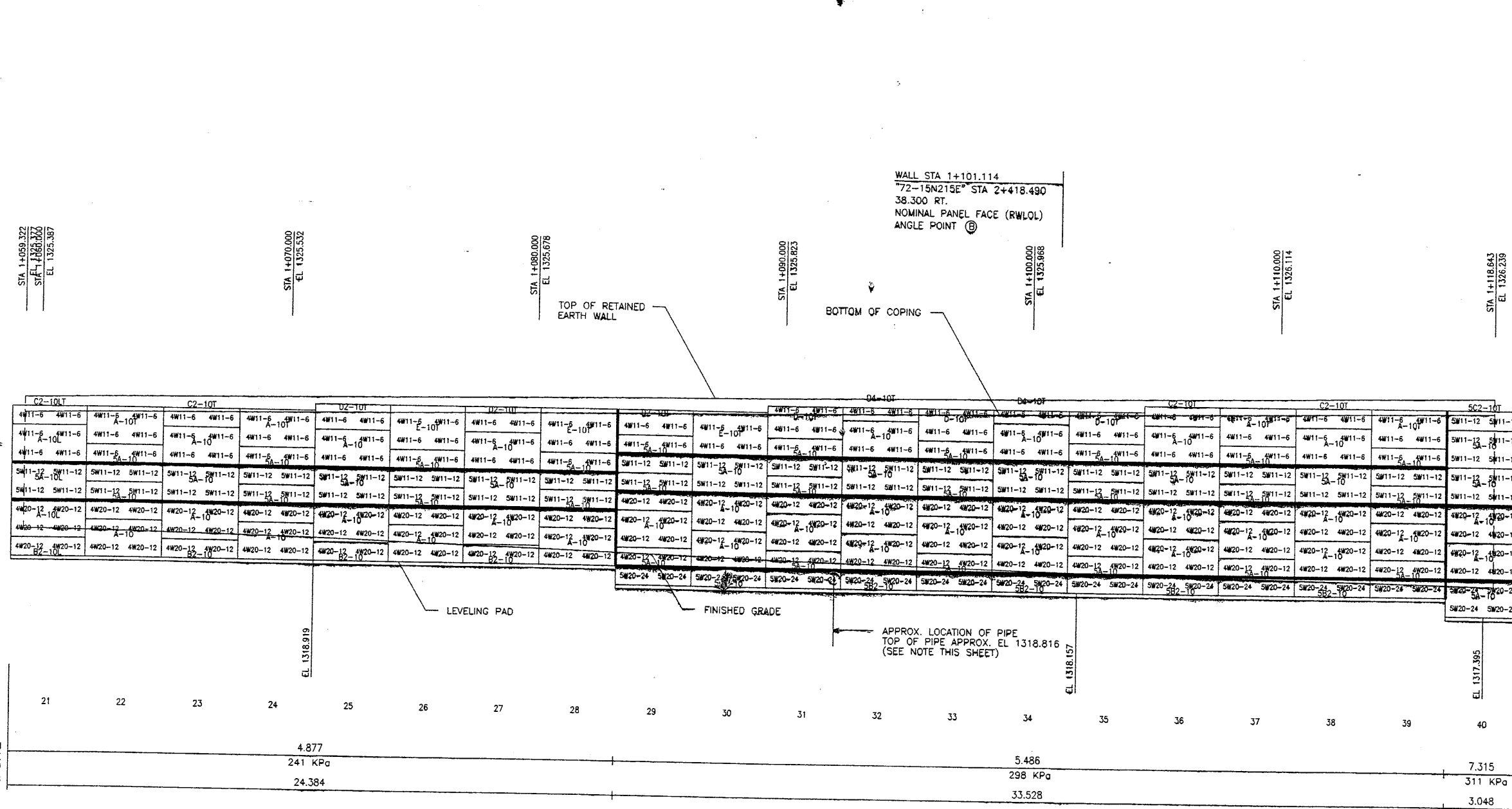


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WASATCH CONSTRUCTORS
 OCT 13 1997
 RELEASED FOR CONSTRUCTION

RETAINED EARTH™ WALLS
 PRECAST WALL "72-14B"
 UTAH I-15 INTERCHANGE
 SALT LAKE COUNTY, UTAH
 UTAH DEPARTMENT OF TRANSP.

SCALE:
 1:2R-343-14B.8
 JOB NO:
 239-0007
 RE-7



WALL STA 1+101.114
 "72-15N215E" STA 2+418.490
 38.300 RT.
 NOMINAL PANEL FACE (RWLOL)
 ANGLE POINT B

STA 1+059.322
 STA 1+066.302
 EL 1325.387

STA 1+075.000
 EL 1325.532

STA 1+080.000
 EL 1325.678

STA 1+090.000
 EL 1325.823

STA 1+100.000
 EL 1325.968

STA 1+110.000
 EL 1326.114

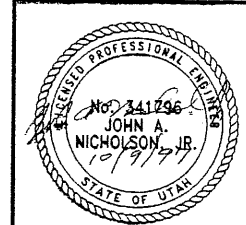
STA 1+118.643
 EL 1326.259

ELEVATION PRECAST WALL 72-14B
 (FRONT FACE SHOWN)
 (TOTAL SURFACE AREA OF PANELS = 1,061.14 SM)
 SCALE 1:100 (FULL SIZE)
 SCALE 1:200 (HALF SIZE)

CONTRACTOR NOTE:
 CONTRACTOR PLEASE VERIFY PIPE
 LOCATION (VERTICAL AND HORIZONTAL).
 FIELD CUT PANEL AS REQUIRED TO FIT
 AROUND PIPE. NOTIFY VSL IF PIPE
 INTERFERES WITH SOIL REINFORCING MESH.

APPROVER NOTE:
 MAXIMUM FINAL UNFACTORED BEARING PRESSURES
 ARE INDICATED BELOW "MESH DEPTH LINE"
 REVIEWER TO VERIFY MAXIMUM BEARING
 CAPACITY OF FOUNDATION.

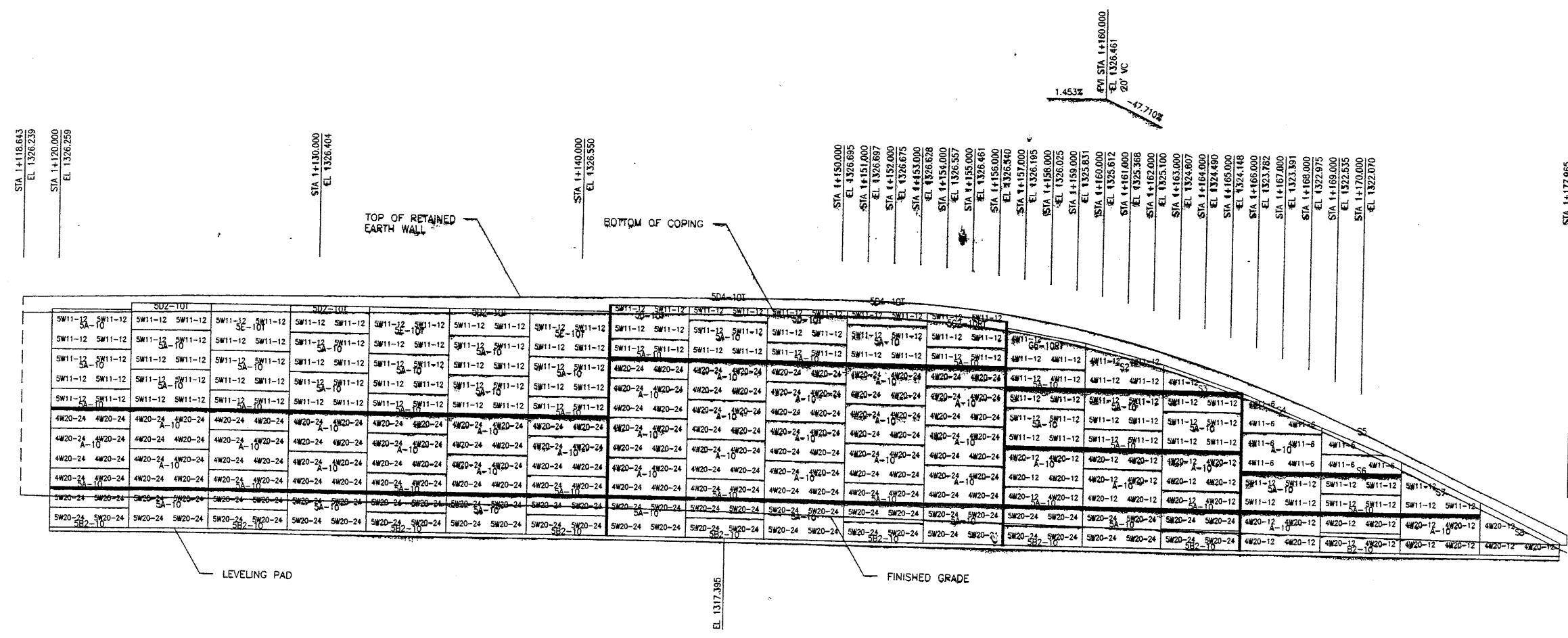
CERTIFIED FOR INTERNAL STABILITY OF RETAINED EARTH™ STRUCTURES ONLY.
 EXTERNAL STABILITY, INCLUDING BUT NOT LIMITED TO FOUNDATION AND SLOPE
 STABILITY, IS THE RESPONSIBILITY OF THE OWNER. DESIGN IS BASED ON THE
 ASSUMPTION THAT THE MATERIAL WITHIN THE RETAINED EARTH™ MASS, METHODS
 OF CONSTRUCTION, AND QUALITY OF PREFABRICATED MATERIALS CONFORM TO
 THE MANUFACTURER'S SPECIFICATION.



FINAL PLAN 10-06-97

E:\PROJECT\239-000\72SERIES\72-14B\72-14

APPROVED FOR CONSTRUCTION		
NO.	DATE	DESCRIPTION
1	10-06-97	RELEASE FOR CONSTRUCTION



WALL STA 1+177.965
 "72-15N215E" STA 2+496.000
 @ 31.752 RT
 NOMINAL PANEL FACE (RWL/L)
 END WALL R-343-14B

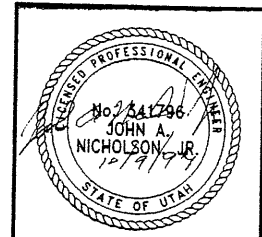
41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59
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MESH DEPTH	7.315	9.144	6.096	4.267
MAXIMUM BEARING PRESSURE (SEE NOTE BELOW)	311 KPa	304 KPa	310 KPa	207 KPa
PIN SPACING		57.912	310 KPa	

ELEVATION PRECAST WALL 72-14B
 (FRONT FACE SHOWN)
 (TOTAL SURFACE AREA OF PANELS = 1,061.14 SM)
 SCALE 1:100 (FULL SIZE)
 SCALE 1:200 (HALF SIZE)

APPROVER NOTE:
 MAXIMUM FINAL UNFACTORED BEARING PRESSURES
 ARE INDICATED BELOW "MESH DEPTH LINE"
 REVIEWER TO VERIFY MAXIMUM BEARING
 CAPACITY OF FOUNDATION.

METRIC



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RETAINED EARTH™ WALLS
PRECAST WALL "72-14B"
 UTAH I-15 INTERCHANGE
 SALT LAKE COUNTY, UTAH
 UTAH DEPARTMENT OF TRANSP.

VSL CORPORATION
 2640 Plaza Place, Suite 200
 Raleigh, NC 27612
 Telephone: (919) 761-6272
 Fax: (919) 761-4889

ATLANTA, GA / DALLAS, TX / RALEIGH, NC (CORPORATE OFFICE)
 MIAMI, FL / SAN JOSE, CA / SPRINGFIELD, VA

DES: 09-15-97
 DRN: 09-15-97
 CHK: 09-15-97

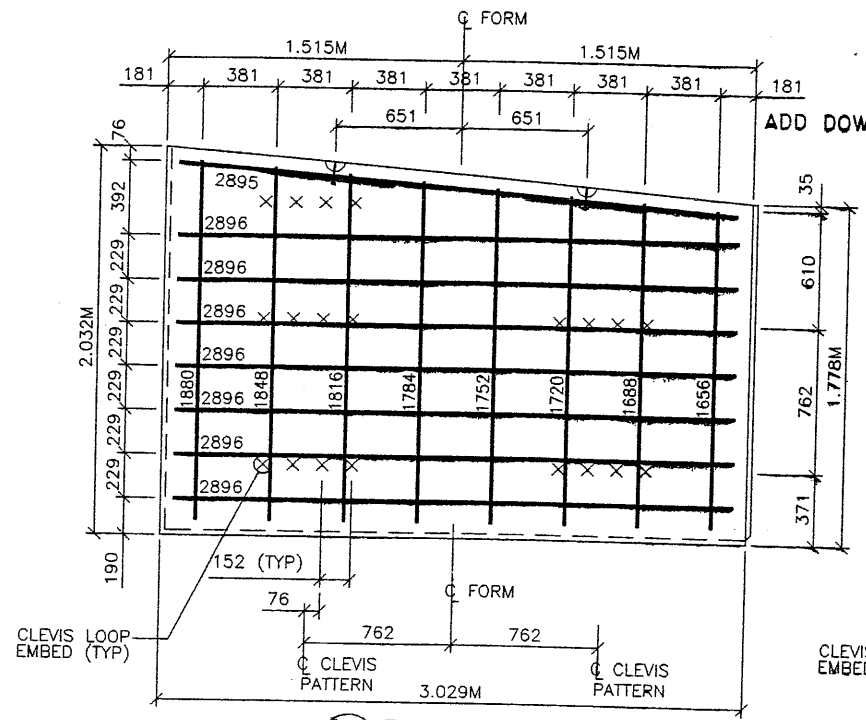
NO. DATE REVISION
 BY CHK

SCALE:
 1:2R-343-14B.9
 JOB NO:
 239-0007
 RE-8

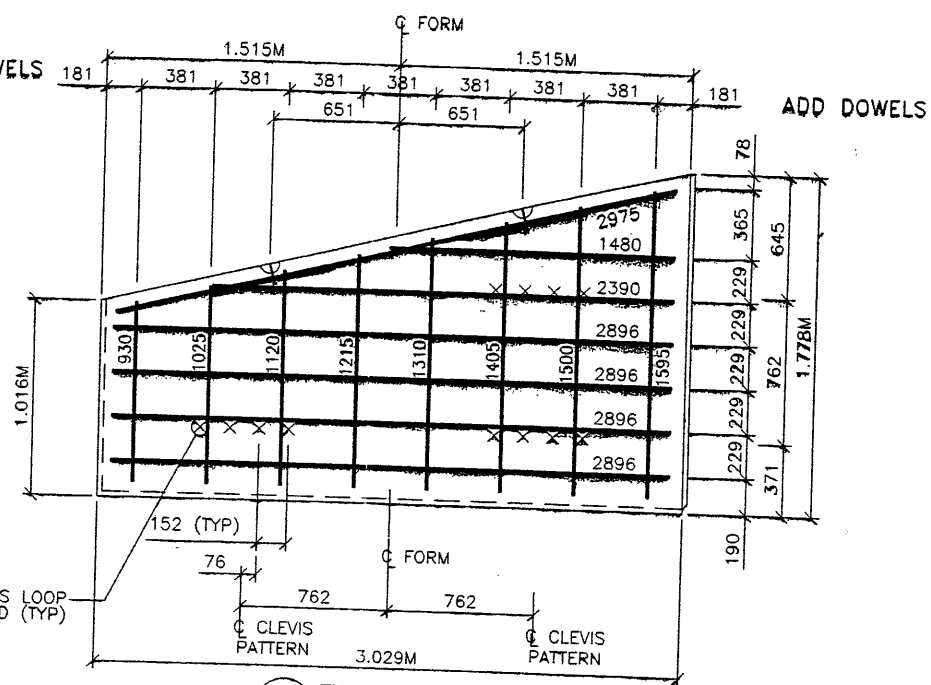
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3-06-97

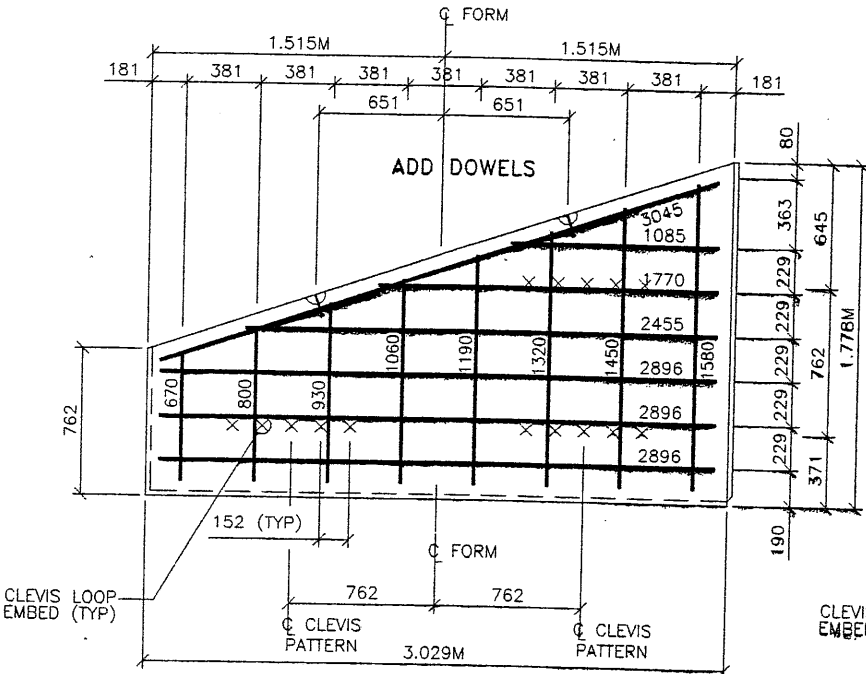
FINAL PL



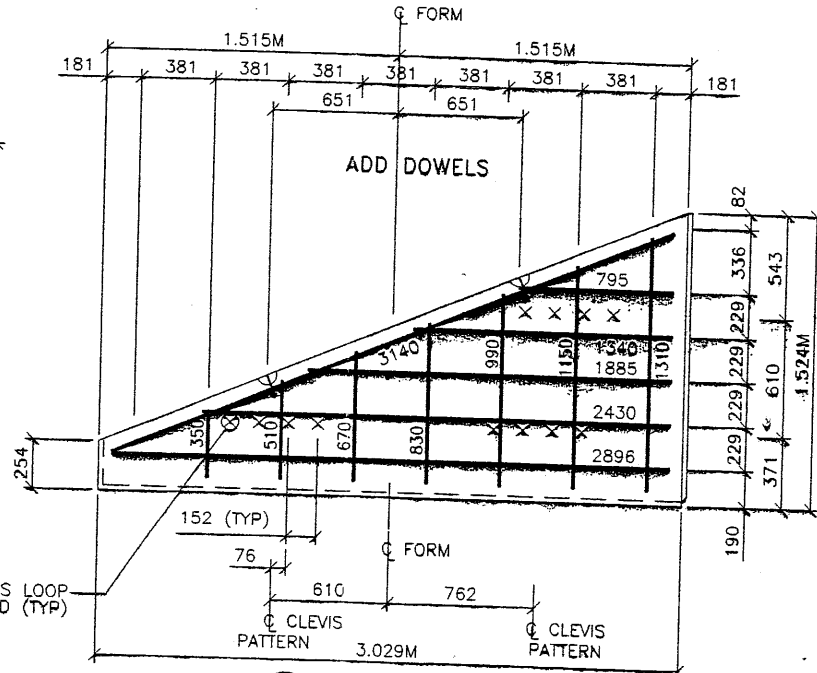
S1 TYPE S1 REBAR
(AREA = 5.81 SQ.M)



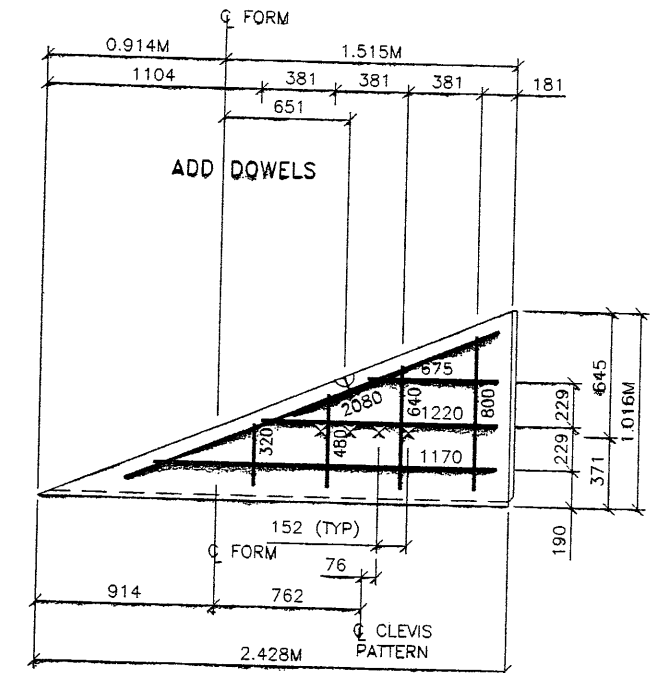
S2 TYPE S2 REBAR
(AREA = 4.26 SQ.M)



S3 TYPE S3 REBAR
(AREA = 3.87 SQ.M)



S4 TYPE S4 REBAR
(AREA = 2.71 SQ.M)



S5 TYPE S5 REBAR
(AREA = 1.24 SQ.M)

APPROVED FOR CONSTRUCTION		
NO.	DATE	DESCRIPTION
△	10-06-97	RELEASE FOR CONSTRUCTION

- PANEL REINFORCEMENT NOTES:**
1. PANELS ARE SHOWN BACK FACE.
 2. HORIZONTAL REINFORCEMENT SHALL HAVE 50 mm MINIMUM COVER TO THE BACK FACE.
 3. ALL REINFORCEMENT SHALL HAVE 50 mm MINIMUM COVER TO THE SIDES.
 4. ALL REINFORCING BARS ARE #13 METRIC. LABELS ON EACH BAR INDICATE LENGTH. EXAMPLE: 1345 IS A #13 BAR 1345 mm LONG.
 5. PANEL REINFORCEMENT BARS SHALL BE DEFORMED BILLET STEEL BARS FOR CONCRETE REINFORCEMENT CONFORMING TO THE SPECIFICATIONS OF ASTM DESIGNATION A615, GRADE 60.
 6. ALL REINFORCING STEEL TO BE GALVANIZED IN ACCORDANCE WITH ASTM 767 CLASS I.
 7. CONCRETE PANELS TO HAVE 28 DAY COMPRESSIVE STRENGTH OF 27,500 KPa.
 8. EQUIVALENT WELDED WIRE FABRIC MAY BE USED.
 9. ALL PANELS TO USE 9.5mmØ CLEVIS LOOPS.
 10. VSL RETAINED EARTH™ IS PROTECTED UNDER PATENT 4,725,170.

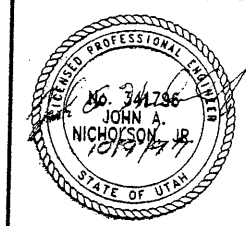
VSL CORPORATION
2840 Plaza Place, Suite 800
Raleigh, NC 27607-6772
Tel: (919) 781-4868
Fax: (919) 781-4869

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VSL

WASATCH CONSTRUCTORS
OCT 13 1997
RELEASED FOR CONSTRUCTION

METRIC

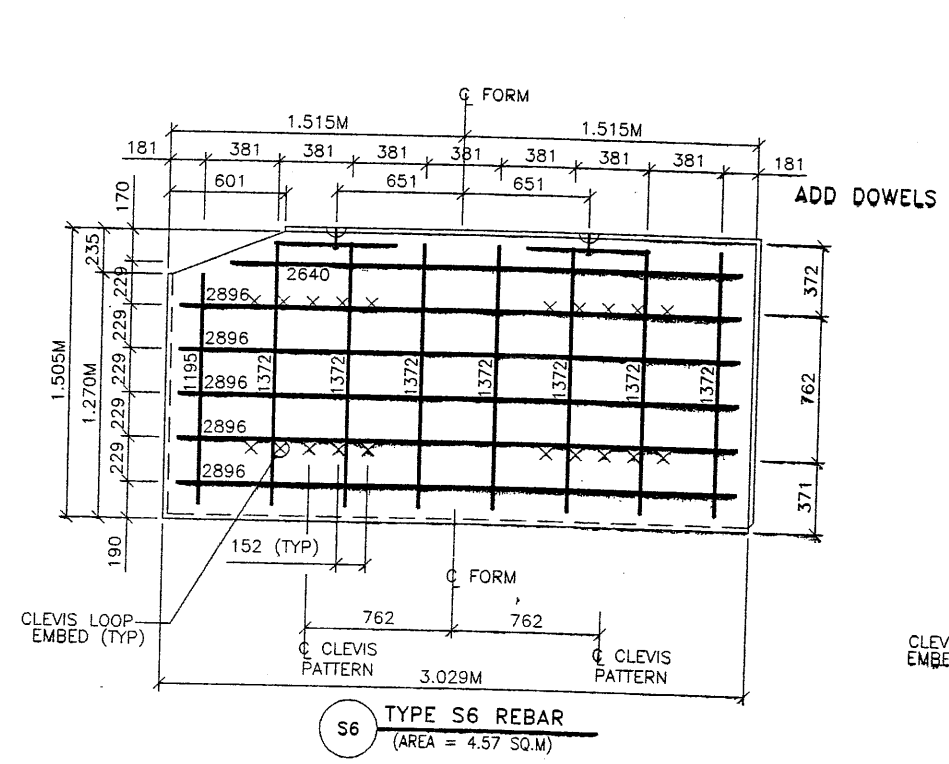


CERTIFIED FOR INTERNAL STABILITY OF RETAINED EARTH™ STRUCTURES ONLY. EXTERNAL STABILITY, INCLUDING BUT NOT LIMITED TO FOUNDATION AND SLOPE STABILITY, IS THE RESPONSIBILITY OF THE OWNER. DESIGN IS BASED ON THE ASSUMPTION THAT THE MATERIAL WITHIN THE RETAINED EARTH™ MASS, METHODS OF CONSTRUCTION, AND QUALITY OF PREFABRICATED MATERIALS CONFORM TO THE MANUFACTURER'S SPECIFICATION.

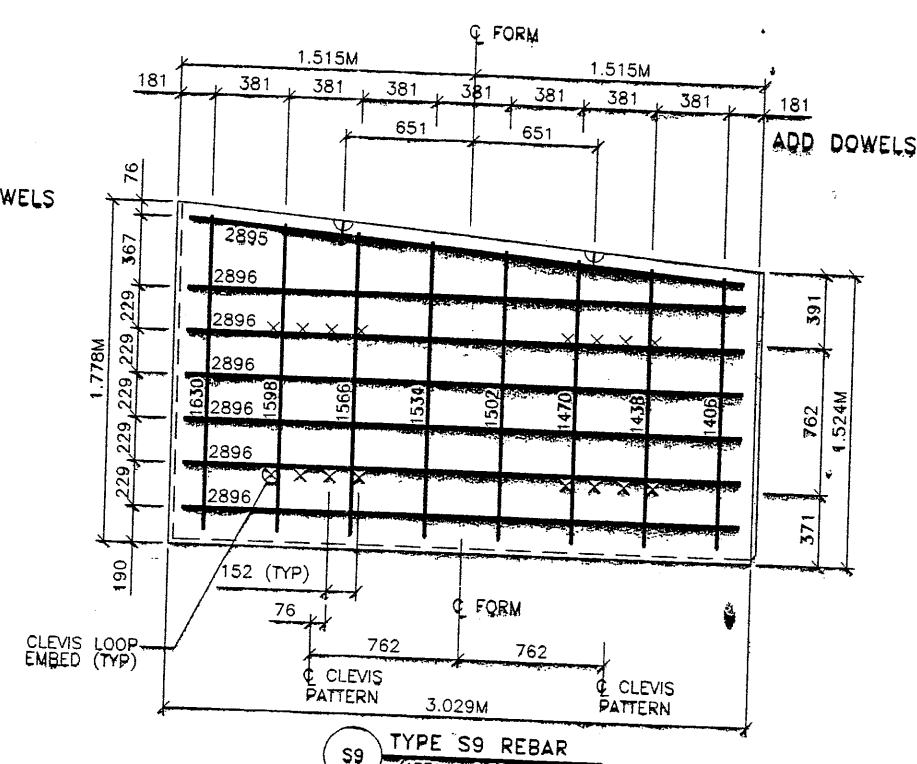
RETAINED EARTH™ WALLS
PRECAST WALL "R-343-14B"
SPECIAL PANEL REINFORCEMENT
UTAH I-15 INTERCHANGE
SALT LAKE COUNTY, UTAH
UTAH DEPARTMENT OF TRANSP.

SCALE:
1.2R-343-14B.10
JOB NO:
239-0007
RE-9

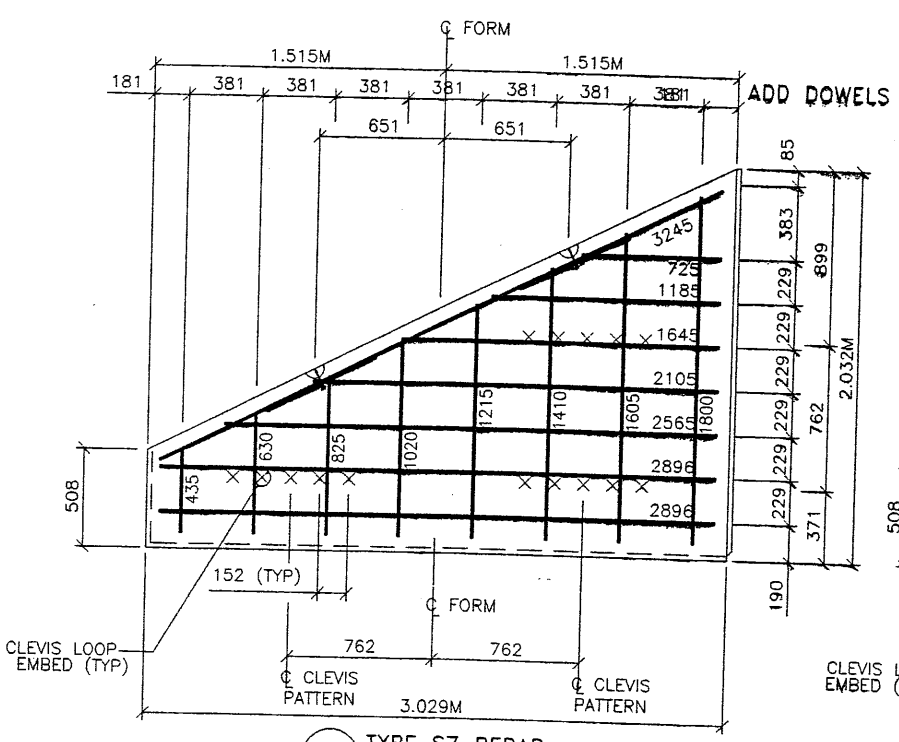
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 3-06-97
 FINAL



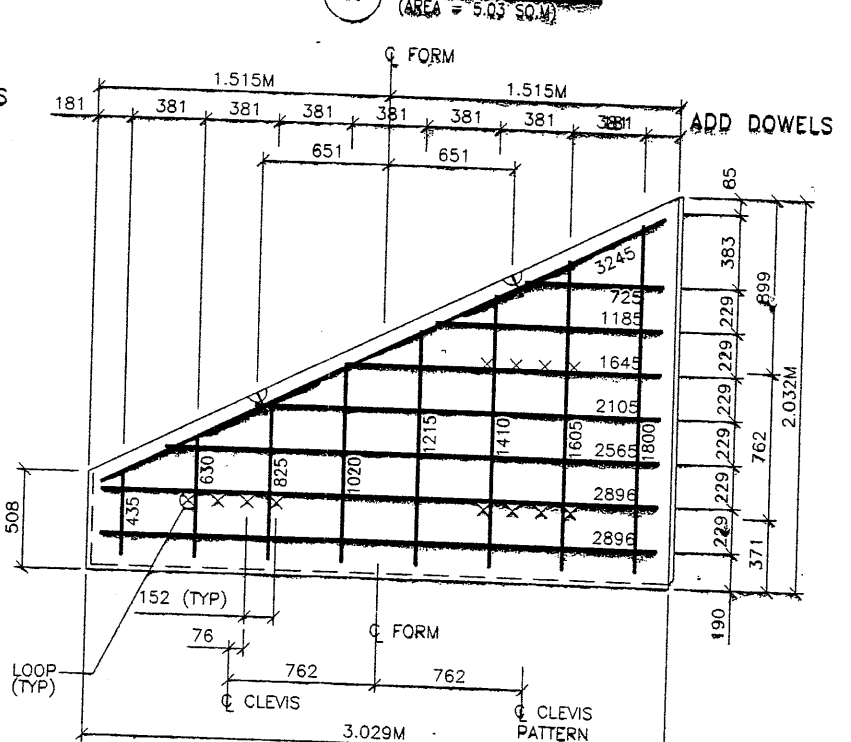
S6 TYPE S6 REBAR
 (AREA = 4.57 SQ.M)



S9 TYPE S9 REBAR
 (AREA = 5.03 SQ.M)



S7 TYPE S7 REBAR
 (AREA = 3.87 SQ.M)



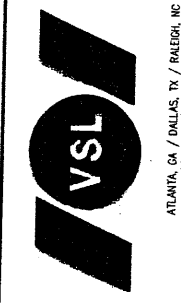
S8 TYPE S8 REBAR
 (AREA = 3.87 SQ.M)

APPROVED FOR CONSTRUCTION		
NO.	DATE	DESCRIPTION
1	10-26-97	RELEASE FOR CONSTRUCTION

- PANEL REINFORCEMENT NOTES:
- PANELS ARE SHOWN BACK FACE.
 - HORIZONTAL REINFORCEMENT SHALL HAVE 50 mm MINIMUM COVER TO THE BACK FACE.
 - ALL REINFORCEMENT SHALL HAVE 50 mm MINIMUM COVER TO THE SIDES.
 - ALL REINFORCING BARS ARE #13 METRIC. LABELS ON EACH BAR INDICATE LENGTH. EXAMPLE: 1345 IS A #13 BAR 1345 mm LONG.
 - PANEL REINFORCEMENT BARS SHALL BE DEFORMED BILLET STEEL BARS FOR CONCRETE REINFORCEMENT CONFORMING TO THE SPECIFICATIONS OF ASTM DESIGNATION: A615, GRADE 60.
 - ALL REINFORCING STEEL TO BE GALVANIZED IN ACCORDANCE WITH ASTM 767 CLASS 1.
 - CONCRETE PANELS TO HAVE 28 DAY COMPRESSIVE STRENGTH OF 27,500 KPa.
 - EQUIVALENT WELDED WIRE FABRIC MAY BE USED.
 - ALL PANELS TO USE 9.5mm Ø CLEVIS LOOPS.
 - VSL RETAINED EARTH™ IS PROTECTED UNDER PATENT 4,725,170.

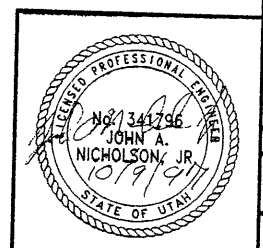
WASATCH CONSTRUCTORS
 OCT 13 1997
 RELEASED FOR CONSTRUCTION

VSL CORPORATION
 2840 Plaza Place, Suite 200
 Raleigh, NC 27612
 Telephone: (919) 781-6272
 Fax: (919) 781-4969



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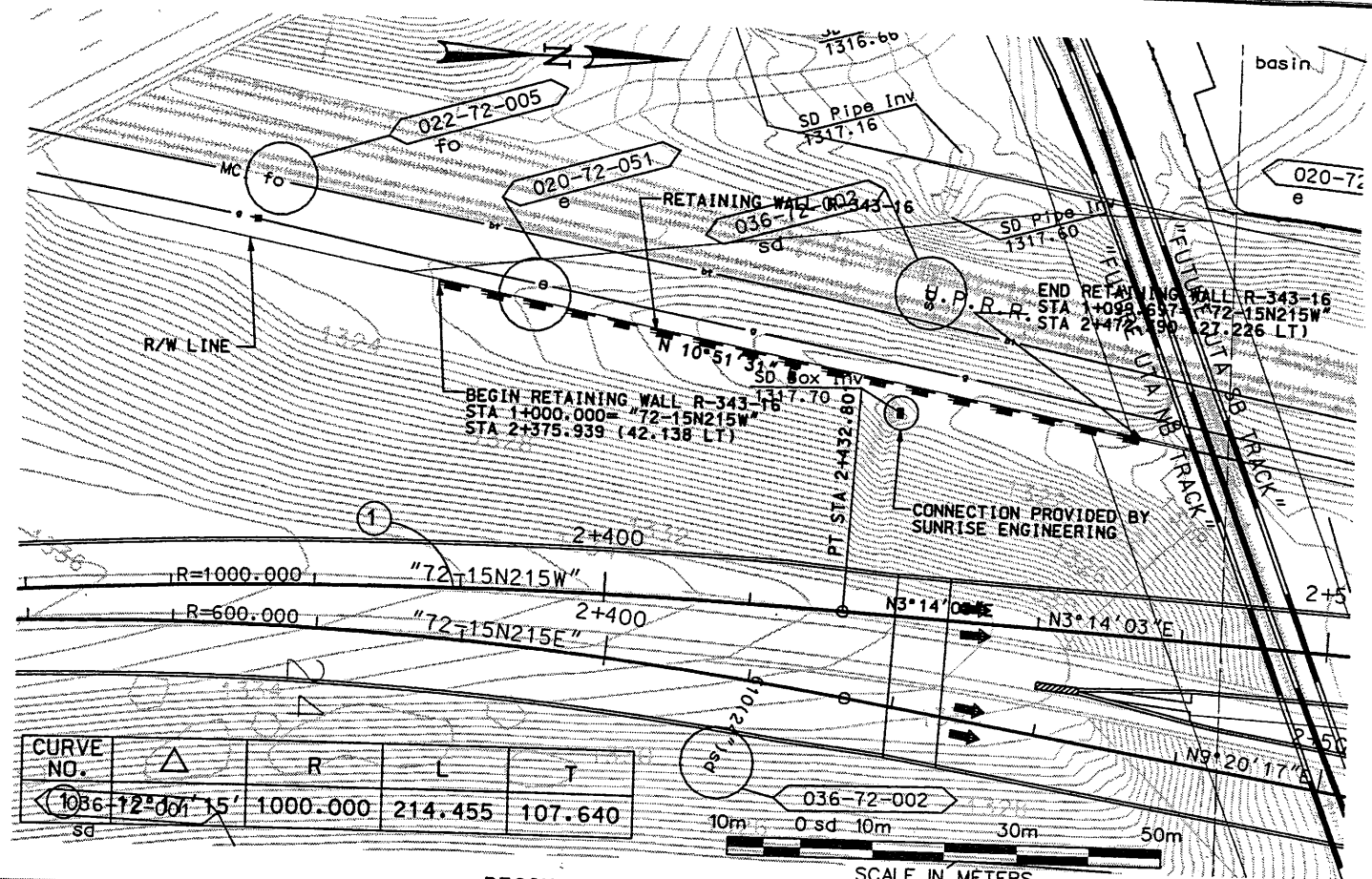
RETAINED EARTH™ WALLS
 PRECAST WALL "R-343-14B"
 SPECIAL PANEL REINFORCEMENT
 UTAH I-15 INTERCHANGE
 SALT LAKE COUNTY, UTAH
 UTAH DEPARTMENT OF TRANSP.



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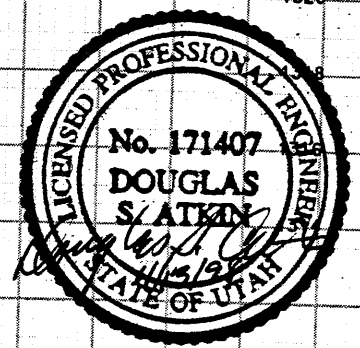
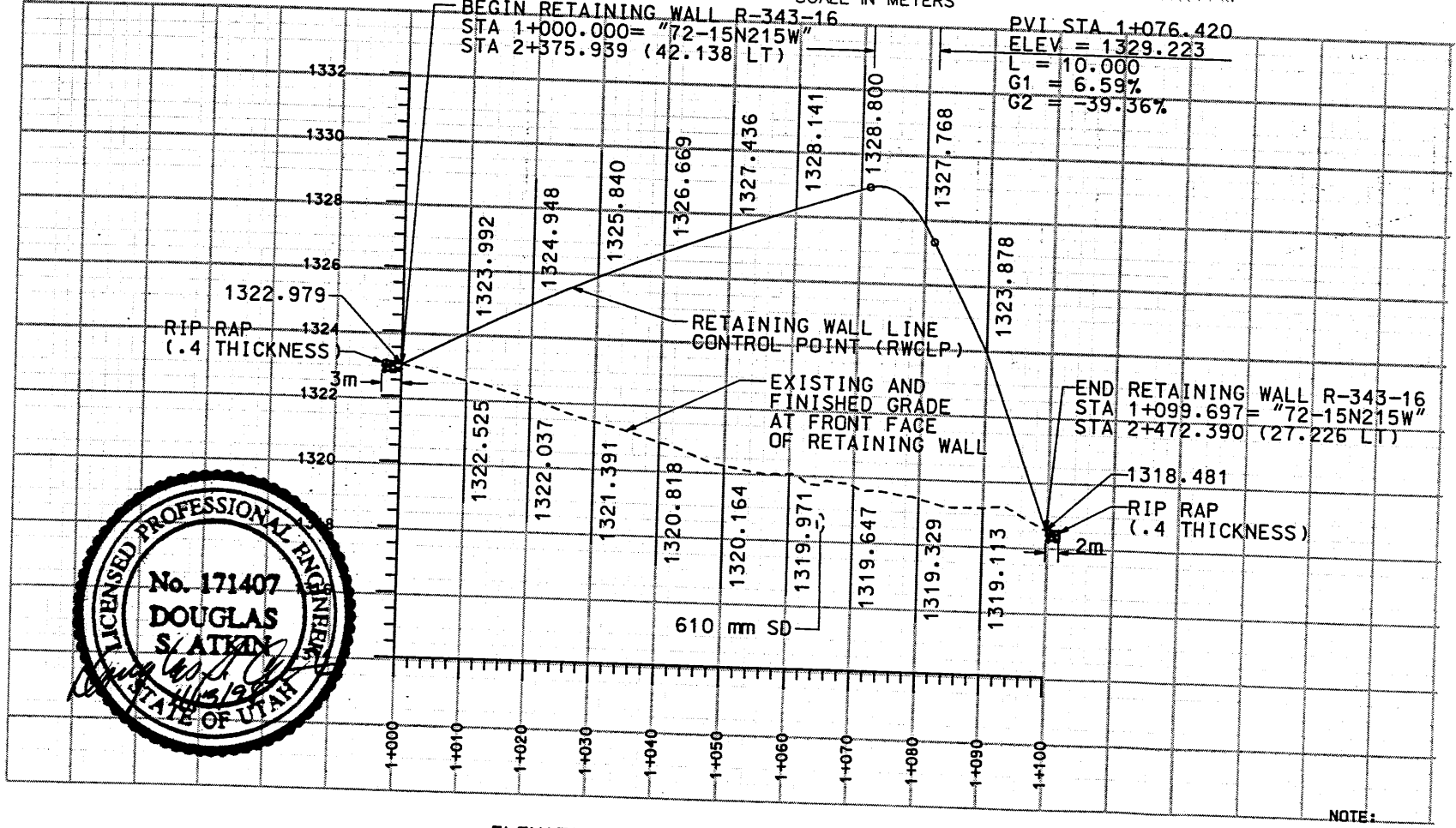
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 JOB NO:
 239-0007/II
 RE-10

Date: 13-NOV-1998 Time: 18:22 User: ramer mockkk



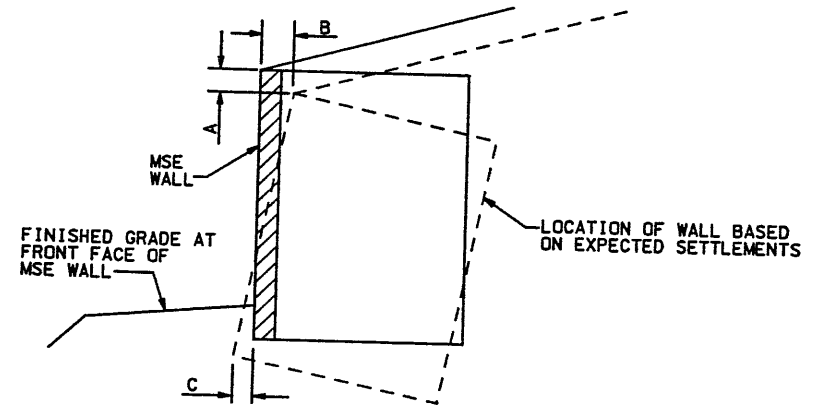
CURVE NO.	Δ	R	L	T
1036-72-001	15'	1000.000	214.455	107.640

SCALE IN METERS
 BEGIN RETAINING WALL R-343-16
 STA 1+000.000 = "72-15N215W"
 STA 2+375.939 (42.138 LT)
 PVI STA 1+076.420
 ELEV = 1329.223
 L = 10.000
 G1 = 6.59%
 G2 = -39.36%



ELEVATION VIEW FROM BACK OF WALL

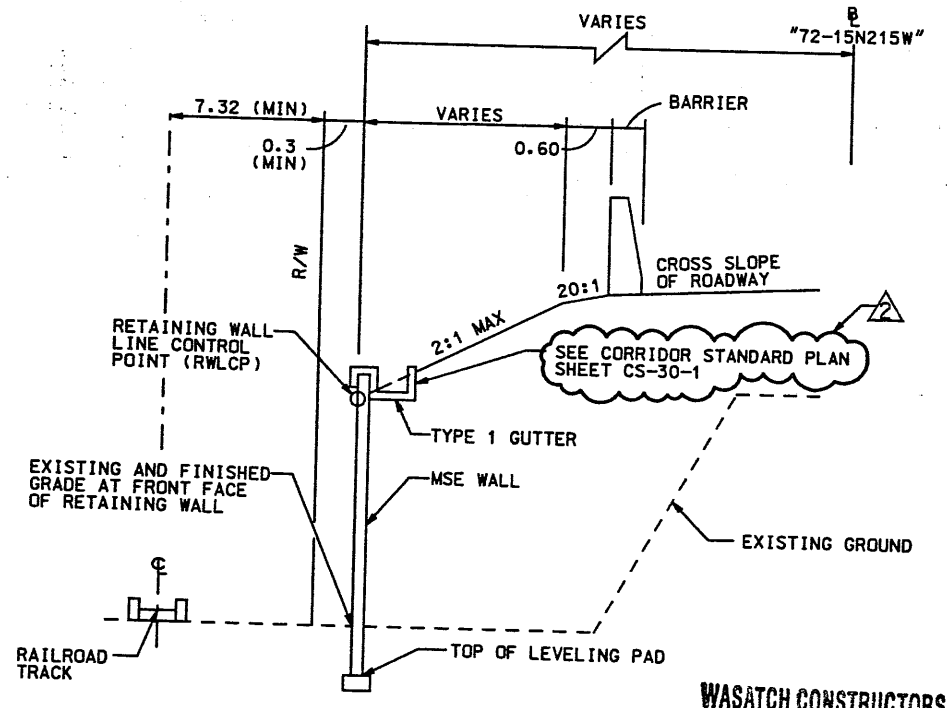
NOTE:
 THE FOUNDATION BEARING MATERIALS SHOULD BE OBSERVED BY THE GEOTECHNICAL ENGINEER DURING SITE PREPARATION. ANY UNDESIRABLE MATERIALS WILL NEED TO BE REMOVED AND REPLACED WITH BORROW IN ORDER TO ACHIEVE ACCEPTABLE CONDITIONS AT THE BASE OF THE WALL.



ESTIMATED SETTLEMENT TABLE

STATION LIMITS	REFERENCE STATION	WALL SETTLEMENT mm	TOP OF WALL ROTATION mm	LATERAL DISPLACEMENT AT BOTTOM OF WALL mm
1+000.000 TO 1+099.697	1+078***	A	B	C
		30 TO 50	47	**

** LATERAL DISPLACEMENT AT BOTTOM OF WALL SHOULD BE LESS THAN ONE HALF OF THE SETTLEMENT AT FRONT FACE OF WALL. TERRACON RECOMMENDS CONSTRUCTING THE WALL TOE AT THE DESIGN LOCATION.
 *** THESE VALUES CALCULATED AT REFERENCED STATION: ROTATIONS AT OTHER STATIONS CAN BE ESTIMATED IN PROPORTION TO WALL HEIGHT.



TYPICAL SECTION WALL R-343-16 STA 1+000.000 TO STA 1+099.697

WASATCH CONSTRUCTORS
 NOV 24 1998
 RELEASED FOR CONSTRUCTION

APPROVED FOR CONSTRUCTION

UTAH DEPARTMENT OF TRANSPORTATION
 URS Greiner
 SVERDRUP/DE LEUW

1-15 CORRIDOR RECONSTRUCTION	SALT LAKE COUNTY
SITUATION/LAYOUT RET WALL R-343-16	DWG. NO. 1.2R-343-16.1
SECTION 1.2	SHT. 1 OF 10
PROJECT NUMBER #SP-15-7(135)296	REF. 20

NO.	DATE	DESCRIPTION
1	10-1-97	INITIAL RELEASE
2	11-13-98	NDC-0284

DESIGN	CHECK	DATE
JMM	KJM	9/97
DMK	DMR	9/97
DATE	DATE	DATE

APPROVAL RECORD	APPROVED	DATE
PROJECT DESIGN ENGINEER	DATE	DATE
PROJECT MANAGER	DATE	DATE
QUANT.	1214000	

E:\PROJECT\239-0007\72SERIES\72-16

3-23-97

FINAL

WALL STA 1+000.000 =
72-15N215W
STA 2+375.939 @ 42.138 LT
BEGIN PRECAST WALL R-343-16

FRONT FACE PRECAST WALL "R-343-16"

WALL STA 1+099.697 =
72-15N215W
STA 2+472.390 @ 27.226 LT
END PRECAST WALL R-343-16

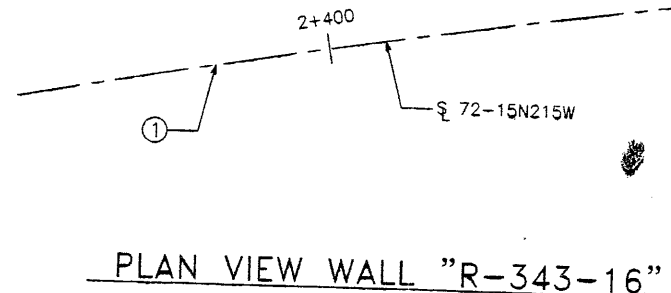
N 10° 51' 31" E

CURVE DATA				
No.	RADIUS	LENGTH	TANGENT	△
①	1000.000	214.455	107.640	12°17'15"

All Dimensions Are In Meters Unless Noted Otherwise

GENERAL NOTES

- ALL WALLS ARE SHOWN FRONT FACE. NOTE STATIONING.
- PANEL TYPE IS DESIGNATED ON EACH PANEL. CONNECTOR LABELS INDICATE NUMBER OF CONNECTORS PER SOIL REINFORCING MESH LOCATION.
EXAMPLE: 5B2-10 IS A "B2-10" PANEL WITH FIVE (5) CONNECTORS PER SOIL REINFORCING MESH LOCATION.
IF NO CONNECTORS ARE SHOWN, FOUR (4) CONNECTOR PANELS SHALL BE USED:
- SOIL REINFORCING MESH TYPE IS DESIGNATED ON EACH PANEL. MESH LABELS INDICATE WIRE SIZE AND SPACING. LONGITUDINAL WIRE AND CROSSBAR SIZES ARE THE SAME UNLESS NOTED OTHERWISE.
EXAMPLE: 4W11-6 MESH HAS FOUR (4) W11 LONGITUDINAL WIRES WITH W11 CROSSBARS AT 6" CENTERS.
EXAMPLE: 4W11-12 MESH HAS FOUR (4) W11 LONGITUDINAL WIRES WITH W11 CROSSBARS AT 12" CENTERS.
EXAMPLE: 4W20-12 MESH HAS FOUR (4) W20 LONGITUDINAL WIRES WITH W20 CROSSBARS AT 12" CENTERS.
EXAMPLE: 4W20-24 MESH HAS FOUR (4) W20 LONGITUDINAL WIRES WITH W20 CROSSBARS AT 24" CENTERS.
EXAMPLE: 5W11-12 MESH HAS FIVE (5) W11 LONGITUDINAL WIRES WITH W11 CROSSBARS AT 12" CENTERS.
EXAMPLE: 5W20-24 MESH HAS FIVE (5) W20 LONGITUDINAL WIRES WITH W20 CROSSBARS AT 24" CENTERS.
EXAMPLE: 6W20-24 MESH HAS SIX (6) W20 LONGITUDINAL WIRES WITH W20 CROSSBARS AT 24" CENTERS.
- SEE RETAINED EARTH INSTALLATION MANUAL FOR PROPER WALL ERECTION PROCEDURES AND GUIDELINES.
- CONSTRUCTION PROCEDURES SHALL PREVENT BACKFILL SATURATION AND PONDING.
- HEAVY EQUIPMENT SHALL NOT BE USED WITHIN ONE METER OF THE BACK OF THE RETAINED EARTH PANELS. HAND COMPACTORS SHALL BE USED IN THIS AREA.
- CARE SHALL BE TAKEN TO PREVENT DAMAGE TO GALVANIZING. DAMAGED GALVANIZING SHALL BE COATED WITH ZINC RICH PAINT.
- BEARING PADS AND FILTER FABRIC ARE NOT REQUIRED BETWEEN THE LEVELING PAD AND THE FIRST ROW OF PANELS. TEMPORARY WEDGES MAY BE USED TO PROVIDE PROPER ALIGNMENT.
- VSL RETAINED EARTH IS PROTECTED UNDER U.S. PATENT 4,725,170.
- ALL PANELS SHALL HAVE AN ARCHITECTURAL FINISH, SEE SHEET RE-3 FOR DETAIL.



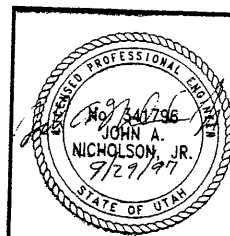
SCALE: 1=250 (FULL SIZE)
SCALE: 1=500 (HALF SIZE)

DESIGN PARAMETERS	
ANGLE OF INTERNAL FRICTION (SELECT)	= 34°
ANGLE OF INTERNAL FRICTION (BASE)	= 30°
ANGLE OF INTERNAL FRICTION (RANDOM)	= 34°
UNIT WEIGHT BACKFILL	= 135 PCF.
TRAFFIC SURCHARGE	= 250 PSF
SEISMIC ACCELERATION COEFF.	= 0.13g (TYP)
SEISMIC ACCELERATION COEFF.	= 0.32g (AT BRIDGE ABUTMENTS)
DESIGN CRITERIA	
SAFETY FACTOR (OVERTURNING)	= 2.0
SAFETY FACTOR (SLIDING)	= 1.5
SAFETY FACTOR (PULLOUT)	= 1.5
DESIGN LIFE	= 75 YEARS

ALLOWABLE BEARING CAPACITY = 260 kPa

RETAINED EARTH INDEX	
RE-1	PLAN PRECAST FACE WALL R-343-16, NOTES & DESIGN CRITERIA
RE-2	TYPICAL DETAILS
RE-3	TYPICAL DETAILS
RE-4	TYPICAL CROSS SECTIONS
RE-5	ELEVATION PRECAST WALL "R-343-16"
RE-6	ELEVATION PRECAST WALL "R-343-16"
RE-7	SPECIAL PANEL DETAILS
RE-8	SPECIAL PANEL DETAILS
RE-9	SPECIAL PANEL DETAILS

METRIC



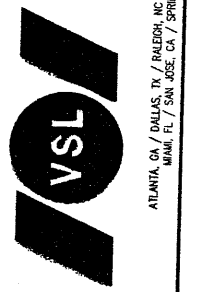
CERTIFIED FOR INTERNAL STABILITY OF RETAINED EARTH™ STRUCTURES ONLY. EXTERNAL STABILITY, INCLUDING BUT NOT LIMITED TO FOUNDATION AND SLOPE STABILITY, IS THE RESPONSIBILITY OF THE OWNER. DESIGN IS BASED ON THE ASSUMPTION THAT THE MATERIAL WITHIN THE RETAINED EARTH™ MASS, METHODS OF CONSTRUCTION, AND QUALITY OF PREFABRICATED MATERIALS CONFORM TO THE MANUFACTURER'S SPECIFICATION.

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WASATCH CONSTRUCTORS
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DES.	MM	DRN.	MM	CHK.	NO.	DATE	BY	CHK
09-15-97		09-15-97		09-15-97				

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Raleigh, NC 27612
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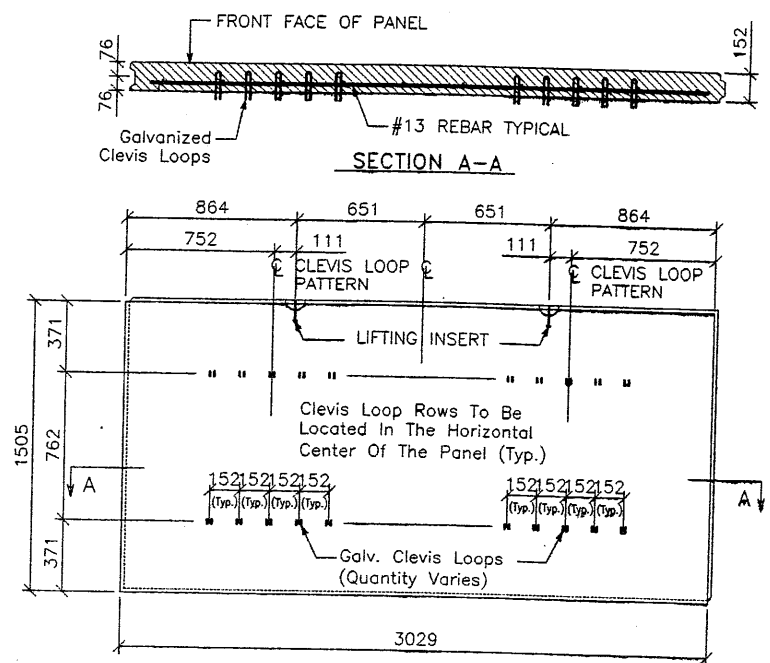
RETAINED EARTH™ WALLS
PLAN VIEW PRECAST WALL "R-343-16"
UTAH I-15 INTERCHANGE
SALT LAKE COUNTY, UTAH
UTAH DEPARTMENT OF TRANSP.

SCALE:	1.2R-343-16.2
JOB NO:	239-0007
	2/10
	RE-1

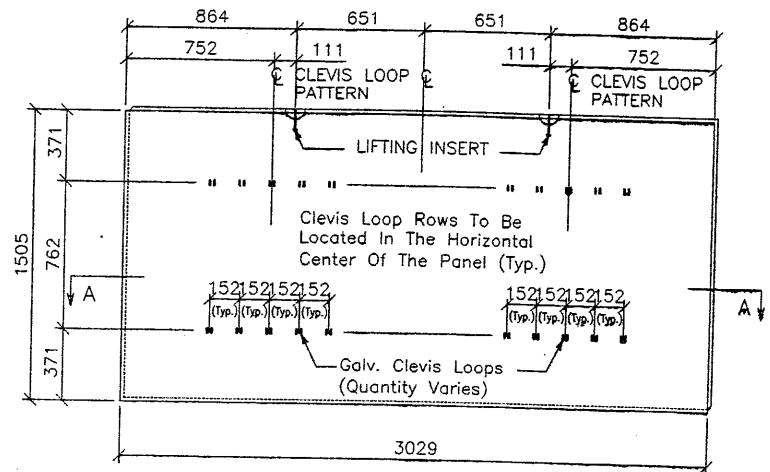
9-22-97

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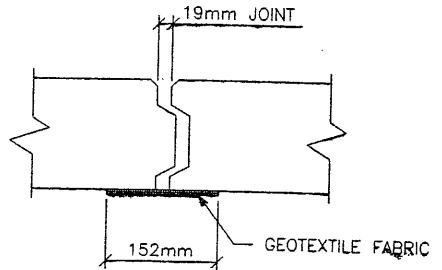
FINAL P.



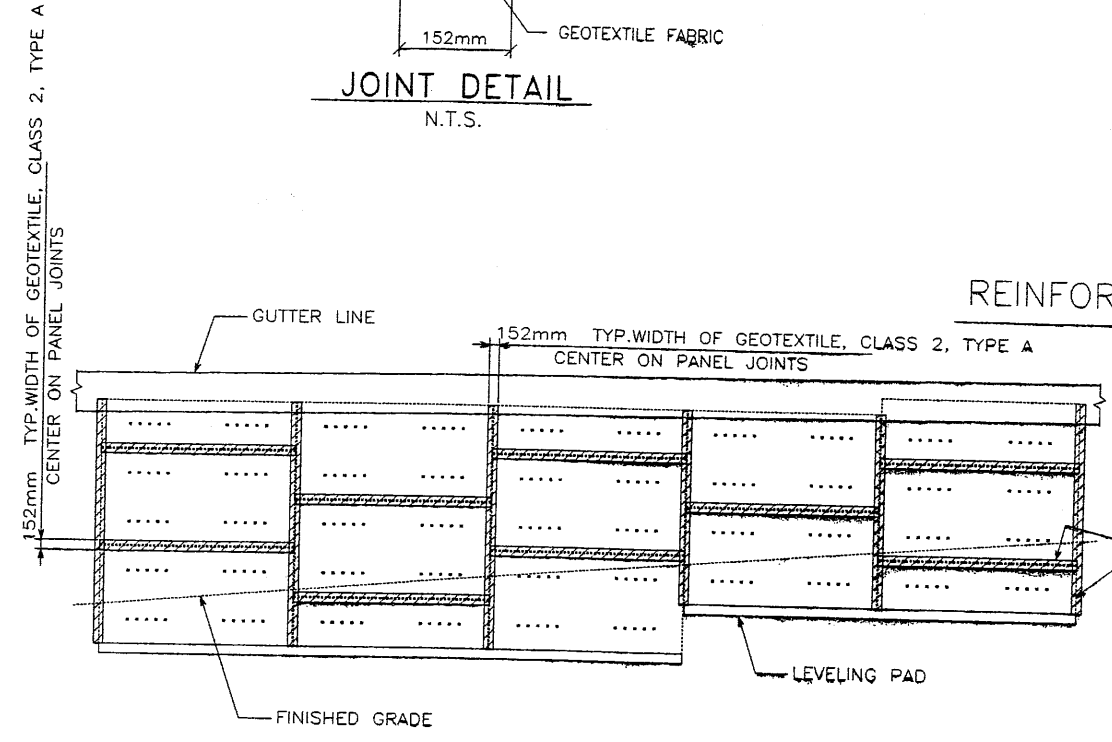
SECTION A-A



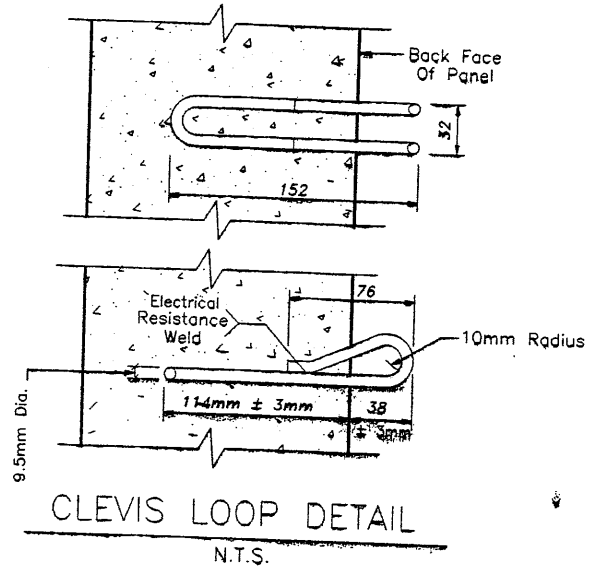
STANDARD "5A-10" PANEL
Back Face View



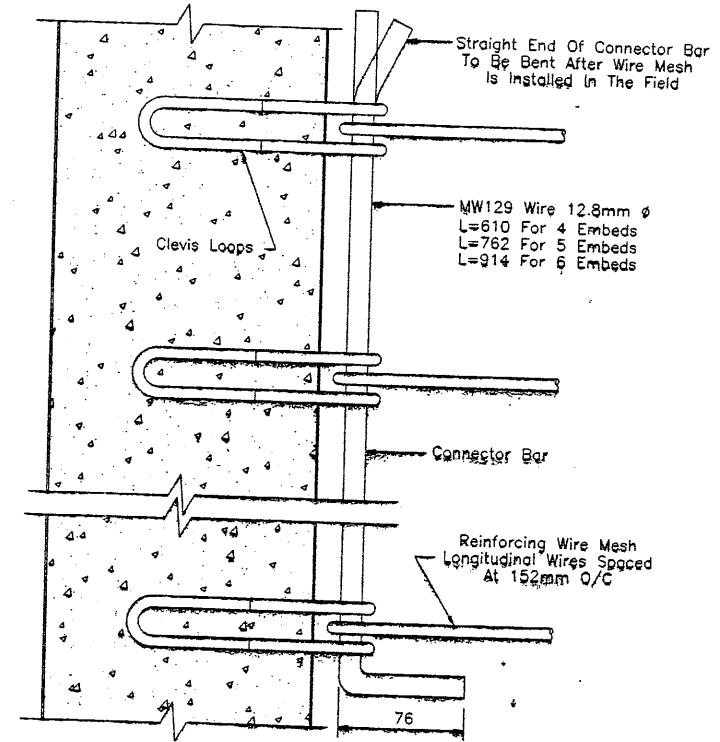
JOINT DETAIL
N.T.S.



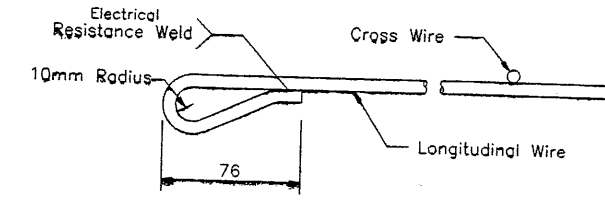
PARTIAL WALL ELEVATION



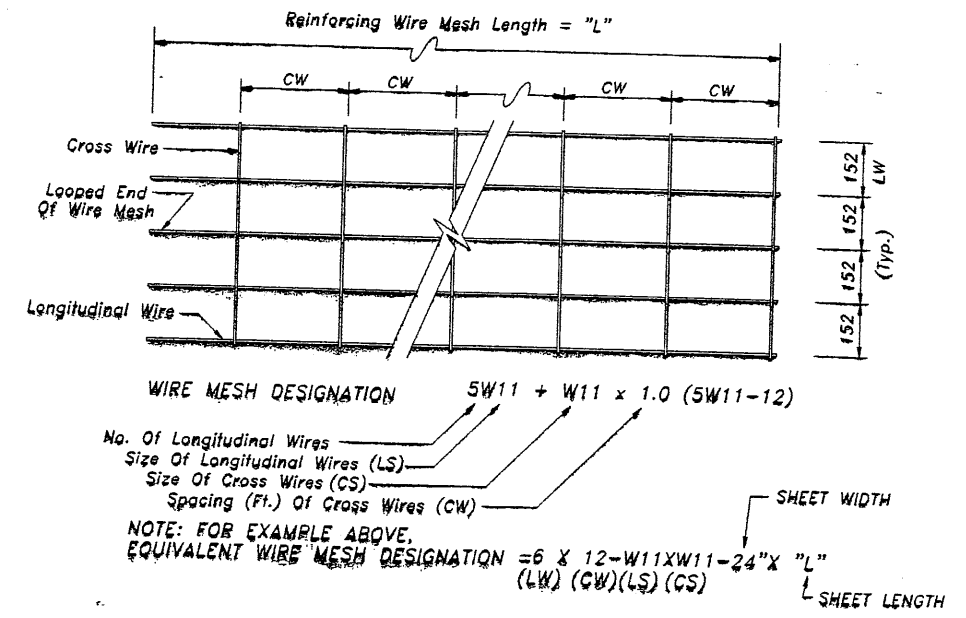
CLEVIS LOOP DETAIL
N.T.S.



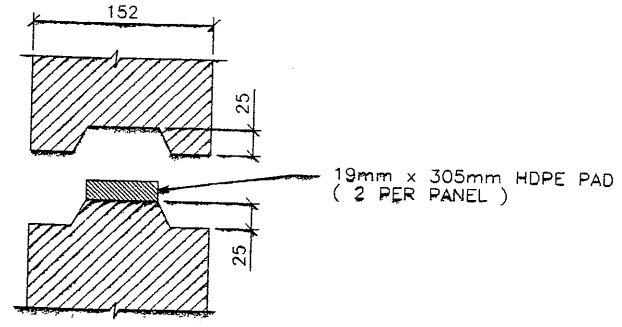
REINFORCING MESH CONNECTION DETAIL
N.T.S.



WIRE MESH LOOP DETAIL
N.T.S.



NOTE: W11 (71 sq mm) And W20 (129 sq mm) Steel Wire Material And Welding Of Cross Wires And Loops Shall Conform To ASTM A62 And ASTM 185. Fy = 448 MPa. Mesh Shall Be Galvanized To ASTM A-123 To A Minimum Effective Thickness Of 0.086 mm.



HORZ. JOINT DETAIL
N.T.S.

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WABATCH CONSTRUCTORS
OCT 08 1997
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DRN. 09-15-97	DDO						
CHK. 09-15-97	MM						

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2840 Rapp Place, Suite 200
Raleigh, NC 27612
Telephone: (919) 781-8272
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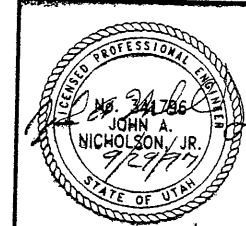
ATLANTA, GA / DALLAS, TX / BALTIMORE, MD (CORPORATE OFFICE)
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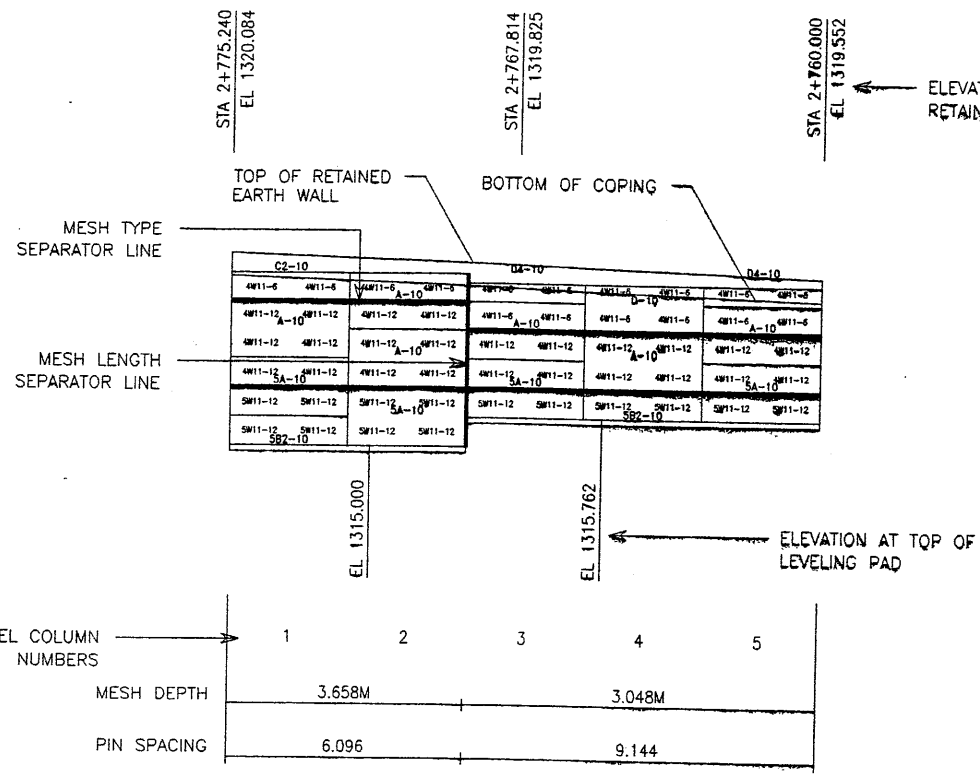
RETAINED EARTH™ WALLS
PRECAST WALL "R-343-16"
TYPICAL DETAILS

UTAH I-15 INTERCHANGE
SALT LAKE COUNTY, UTAH
UTAH DEPARTMENT OF TRANSP.

SCALE:
1.2R-343-16.3
JOB NO:
239-0007/3/10
RE-2

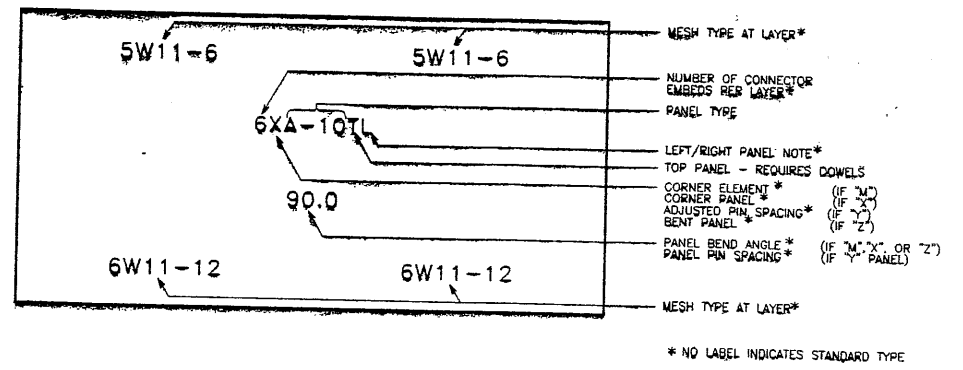
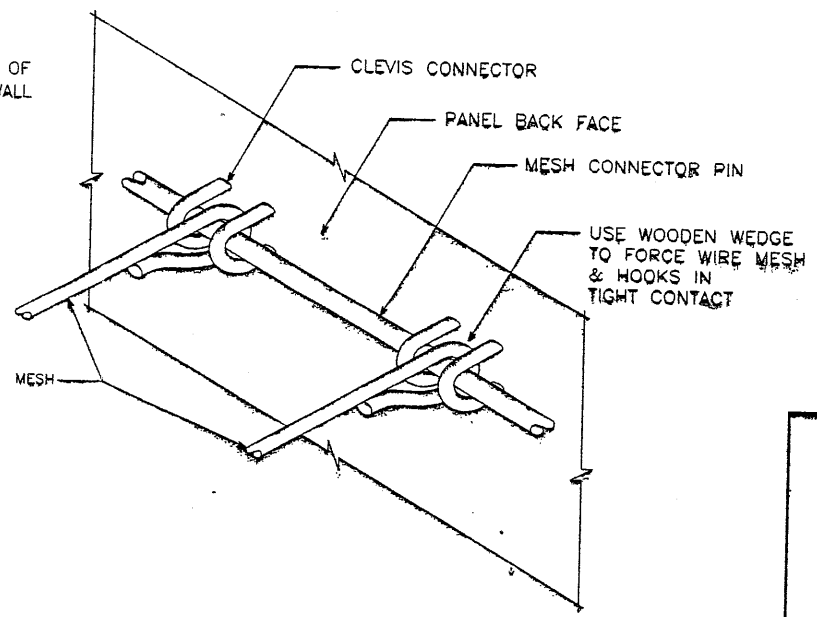
CERTIFIED FOR INTERNAL STABILITY OF RETAINED EARTH™ STRUCTURES ONLY. EXTERNAL STABILITY, INCLUDING BUT NOT LIMITED TO FOUNDATION AND SLOPE STABILITY, IS THE RESPONSIBILITY OF THE OWNER. DESIGN IS BASED ON THE ASSUMPTION THAT THE MATERIAL WITHIN THE RETAINED EARTH™ MASS, METHODS OF CONSTRUCTION, AND QUALITY OF PREFABRICATED MATERIALS CONFORM TO THE MANUFACTURER'S SPECIFICATION.



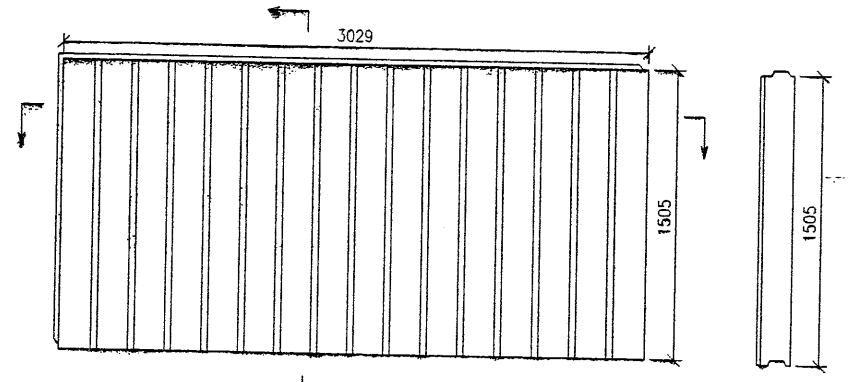
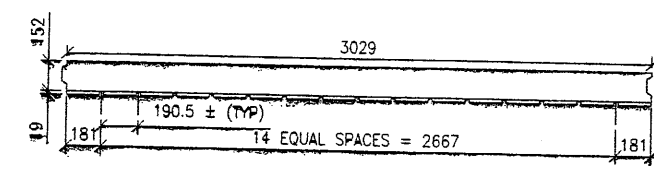


1

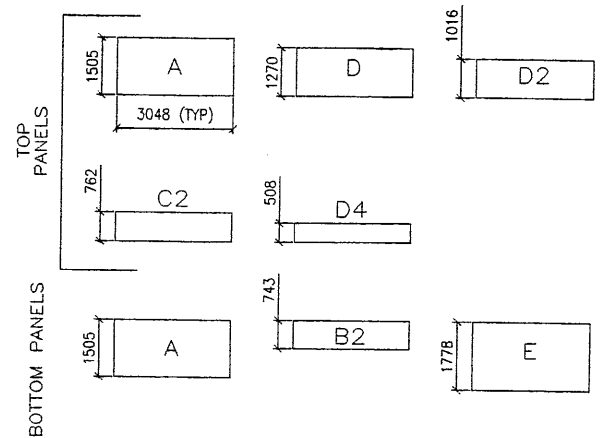
2 VSL RETAINED EARTH IS PROTECTED UNDER U.S. PATENT 4,725,170.



3



6



4 ALL DIMENSIONS ARE IN MILLIMETERS

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WASATCH CONSTRUCTORS
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NO.	DATE	REVISION	CHK

DES.	MM	DOO	MM	RETAINED EARTH™
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09-15-97		09-15-97		

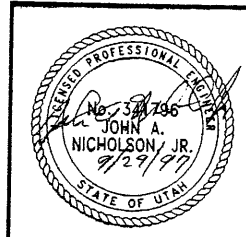
VSL CORPORATION
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RETAINED EARTH™ WALLS
PRECAST WALL "R-343-16"
TYPICAL DETAILS
UTAH I-15 INTERCHANGE
SALT LAKE COUNTY, UTAH
UTAH DEPARTMENT OF TRANSP.

SCALE:	1.2R-343-16.4
JOB NO:	239-0007
	4/10
	RE-3

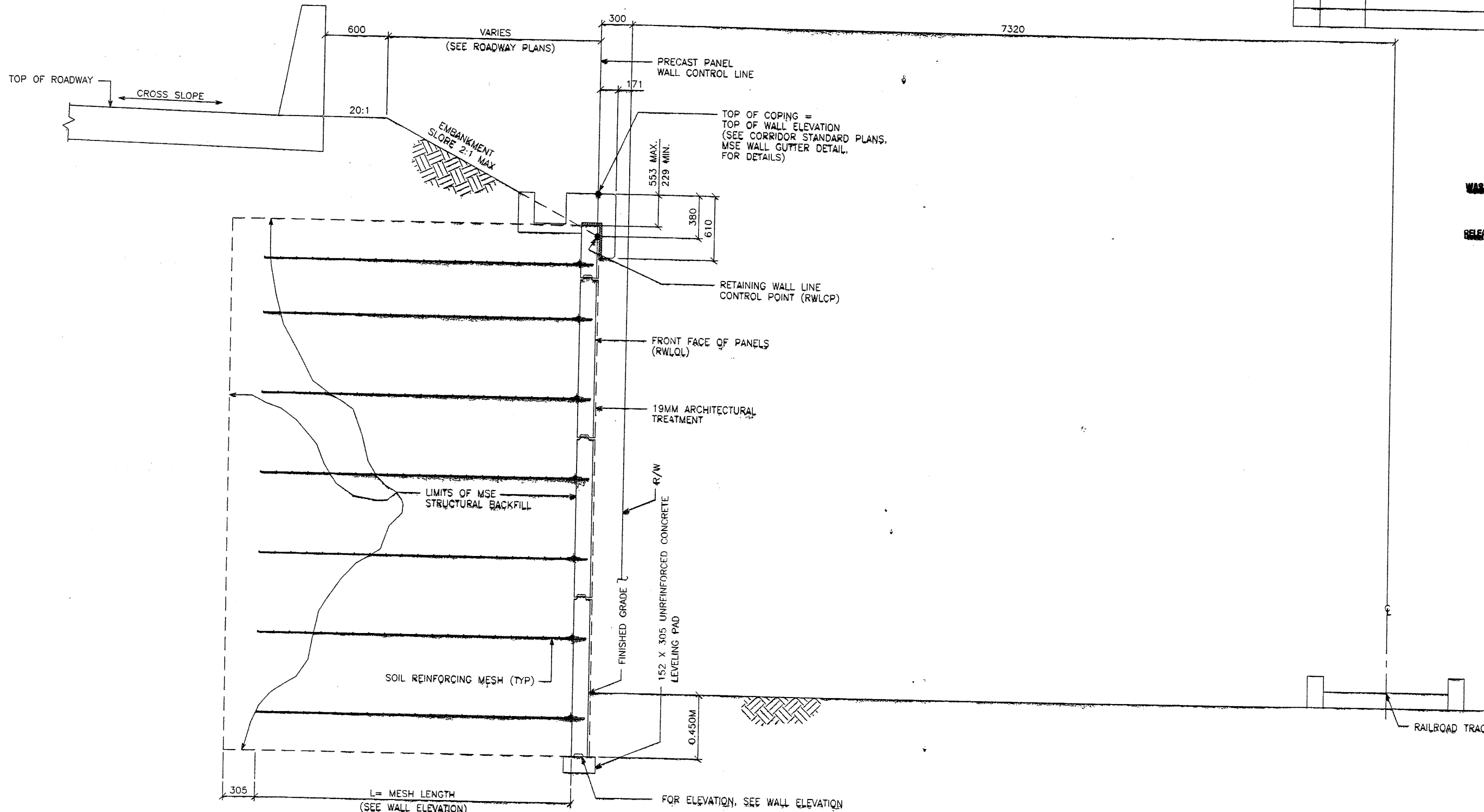


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E:\PROJECT\239-0007\72SERIES\72-16\F

1-22-97

FINAL P



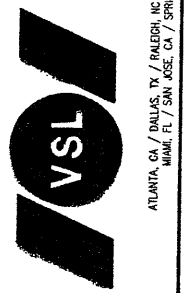
TYPICAL CROSS SECTION
(MSE SINGLE STAGE WITH GUTTER DETAIL)
 SCALE: 1:20 (FULL SIZE)
 SCALE: 1:40 (HALF SIZE)

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NO.	DATE	REVISION	CHK

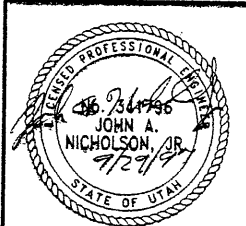
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RETAINED EARTH™ WALLS
PRECAST WALL "R-343-16"
TYPICAL CROSS SECTIONS
UTAH I-15 INTERCHANGE
SALT LAKE COUNTY, UTAH
UTAH DEPARTMENT OF TRANSP.

METRIC



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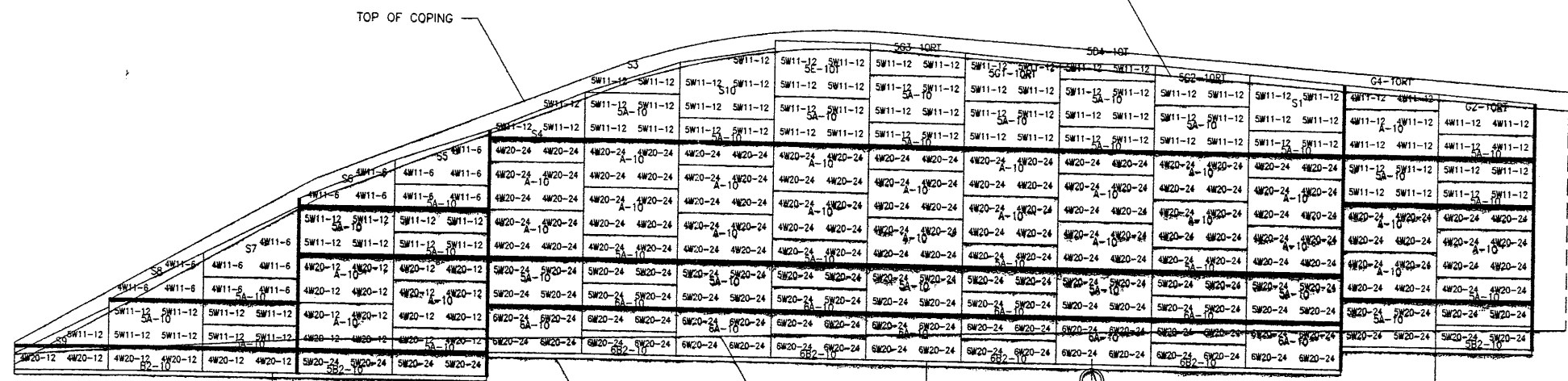
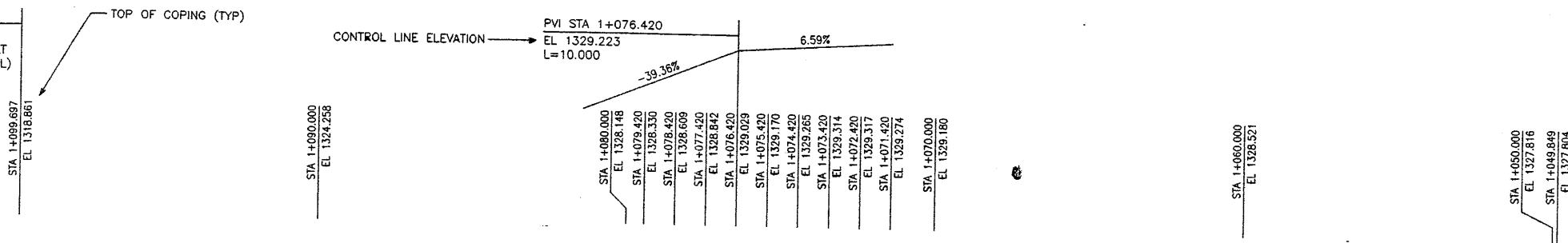
SCALE:	1.2R-343-16.5
JOB NO:	239-0007 5/10
	RE-4

E:\PROJECT\239-0007\2SERIES\72-16\W72-1'

9-22-97

FINAL

END WALL R-343-16
WALL STA 1+099.697 =
"72-15N215W"
STA 2+472.390 @ 27.226 LT
NOMINAL PANEL FACE (RWLOL)



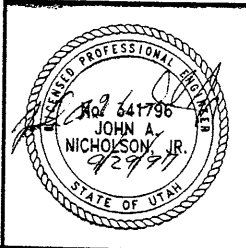
MESH DEPTH
MAXIMUM BEARING PRESSURE (SEE NOTE BELOW)
PIN SPACING

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
	4.267M		5.486M					8.534M						6.706M	
	170 KPa		298 KPa					366 KPa						303 KPa	
		15.240						27.432						6.096	

ELEVATION PRECAST WALL R-343-16
SCALE 1:100 (FULL SIZE)
SCALE 1:200 (HALF SIZE)

APPROVER NOTE:
MAXIMUM FINAL UNFACTORED BEARING PRESSURES
ARE INDICATED BELOW "MESH DEPTH LINE"
REVIEWER TO VERIFY MAXIMUM BEARING
CAPACITY OF FOUNDATION.

METRIC



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STABILITY, IS THE RESPONSIBILITY OF THE OWNER. DESIGN IS BASED ON THE
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09-15-97						REVISION

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VSL CORPORATION
2840 Plaza Place, Suite 200
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RETAINED EARTH™ WALLS
PRECAST WALL "R-343-16"
UTAH I-15 INTERCHANGE
SALT LAKE COUNTY, UTAH
UTAH DEPARTMENT OF TRANSP.

SCALE:	1.2R-343-16.6
JOB NO:	239-0007 6/10
	RE-5

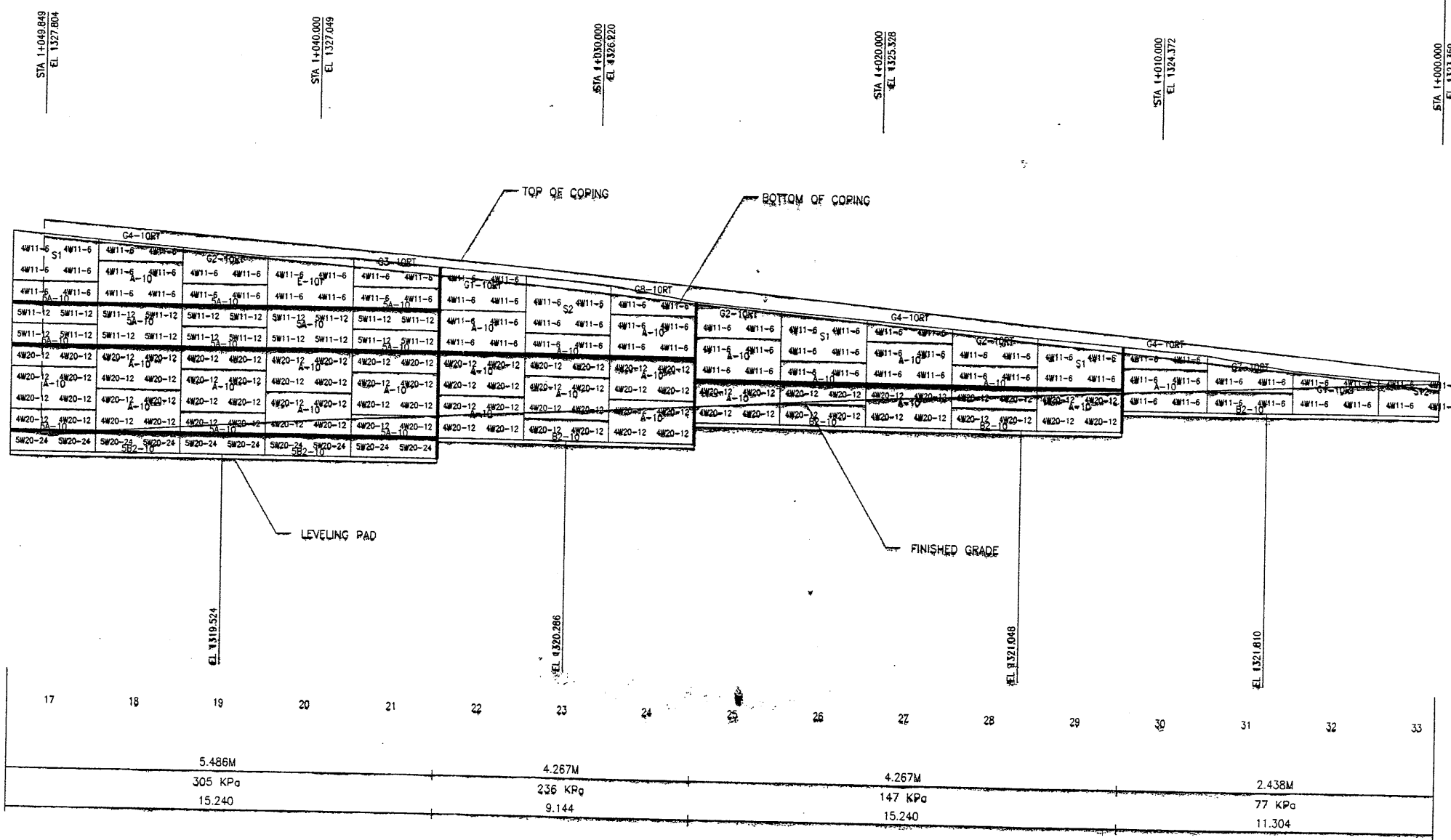
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1-22-97

FINAL P

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BEGIN WALL R-343-16
WALL STA 1+000.000 =
"72-15N215W"
STA 2+375.939 @ 42.138 LT
NOMINAL PANEL FACE (RWLOL)



ELEVATION PRECAST WALL R-343-16
SCALE 1:100 (FULL SIZE)
SCALE 1:200 (HALF SIZE)

APPROVER NOTE:
MAXIMUM FINAL UNFACTORED BEARING PRESSURES
ARE INDICATED BELOW "MESH DEPTH LINE"
REVIEWER TO VERIFY MAXIMUM BEARING
CAPACITY OF FOUNDATION.

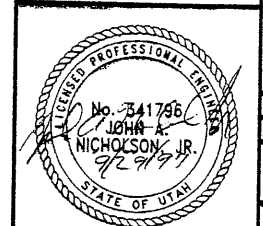
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RETAINED EARTH™ WALLS
PRECAST WALL "R-343-16"
UTAH 1-15 INTERCHANGE
SALT LAKE COUNTY, UTAH
UTAH DEPARTMENT OF TRANSP.

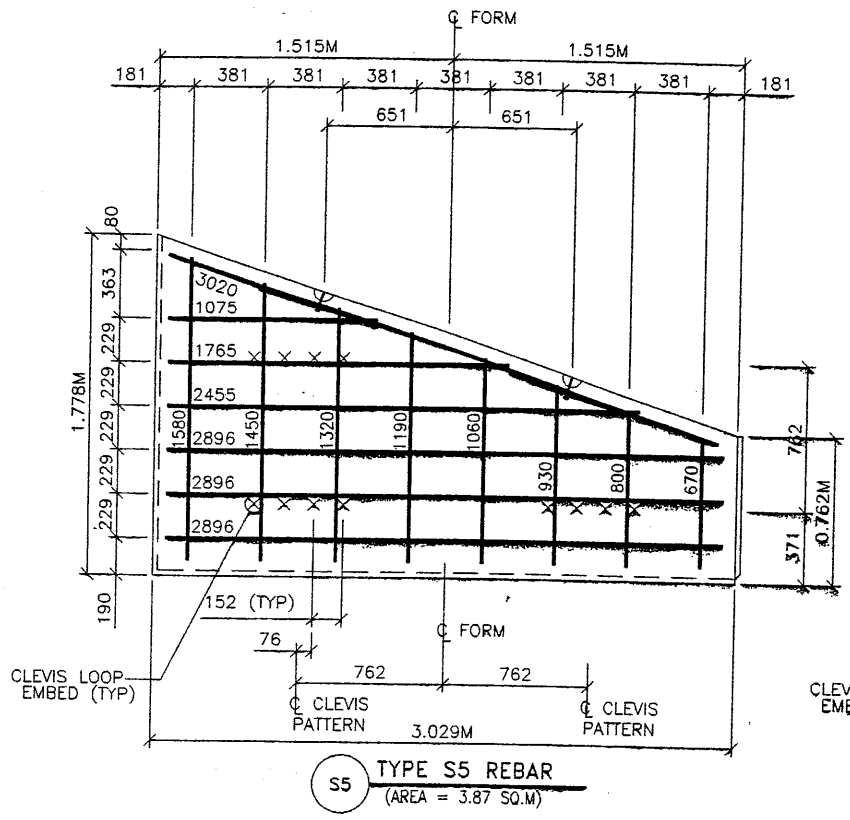


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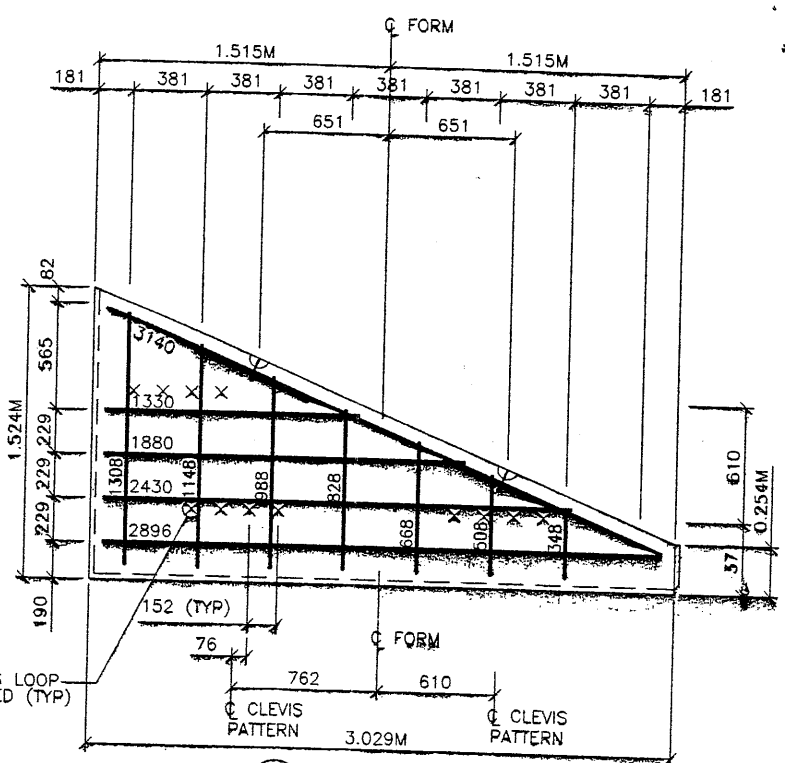
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JOB NO:	239-0007 7/10
REVISION	RE-6

DES.	DRN.	CHK.	NO.	DATE	BY	CHK.
09-15-97	MM	09-15-97	DDO			
09-15-97	MM	09-15-97	MM			

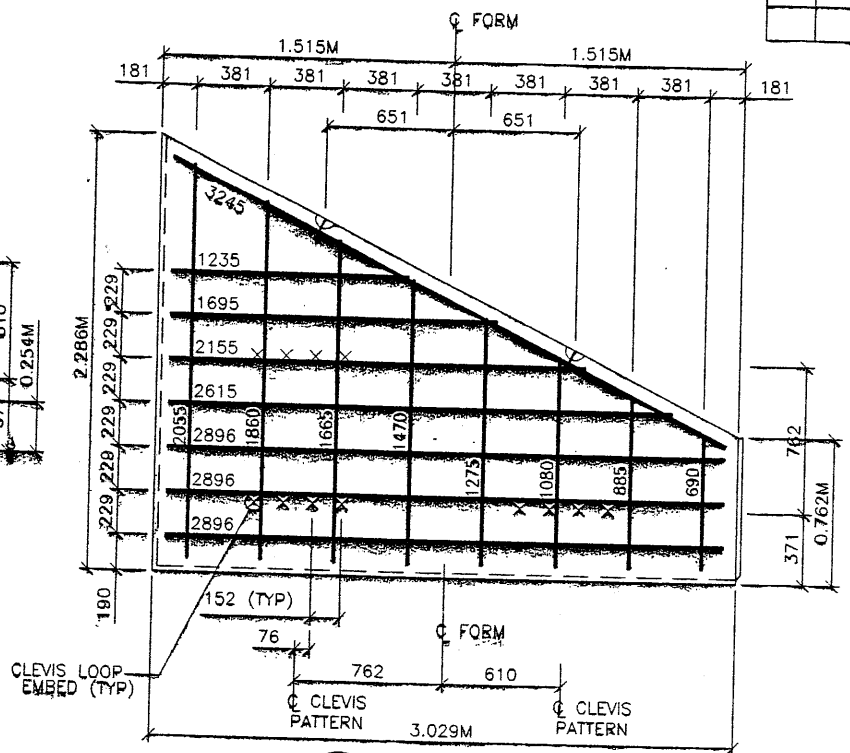
APPROVED FOR CONSTRUCTION		
NO.	DATE	DESCRIPTION
△	9-23-97	RELEASE FOR CONSTRUCTION



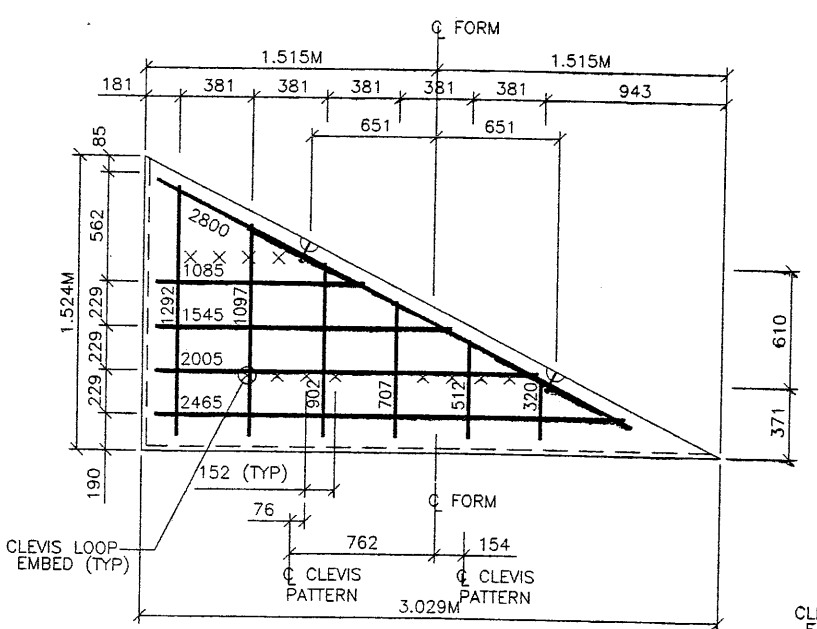
S5 TYPE S5 REBAR
(AREA = 3.87 SQ.M)



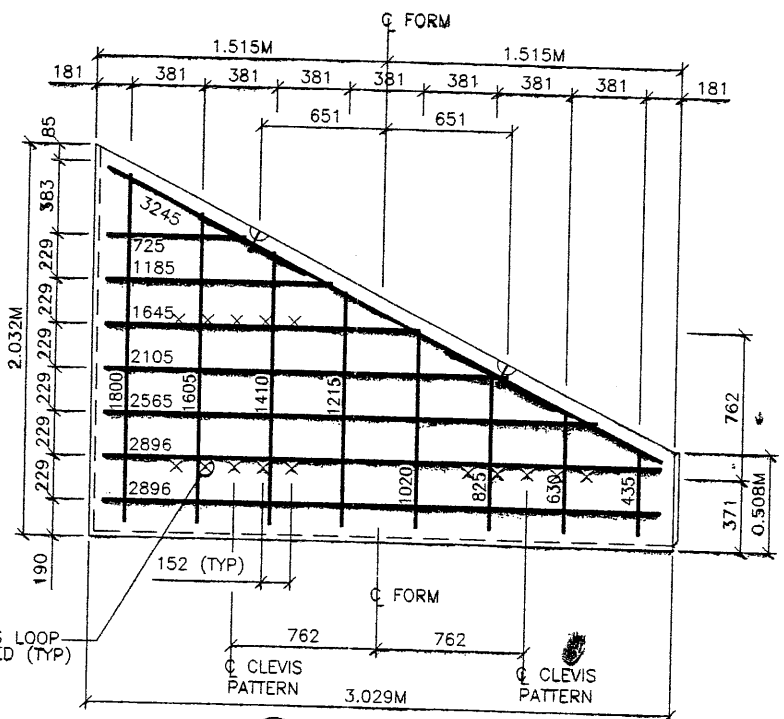
S6 TYPE S6 REBAR
(AREA = 2.71 SQ.M)



S7 TYPE S7 REBAR
(AREA = 4.65 SQ.M)



S8 TYPE S8 REBAR
(AREA = 2.32 SQ.M)

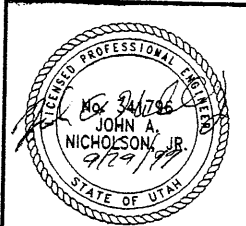


S9 TYPE S9 REBAR
(AREA = 3.87 SQ.M)


- PANEL REINFORCEMENT NOTES:**
1. PANELS ARE SHOWN BACK FACE.
 2. HORIZONTAL REINFORCEMENT SHALL HAVE 50 mm MINIMUM COVER TO THE BACK FACE.
 3. ALL REINFORCEMENT SHALL HAVE 50 mm MINIMUM COVER TO THE SIDES.
 4. ALL REINFORCING BARS ARE #13 METRIC. LABELS ON EACH BAR INDICATE LENGTH.
 5. EXAMPLE: 1345 IS A #13 BAR 1345 mm LONG. PANEL REINFORCEMENT BARS SHALL BE DEFORMED BILLET STEEL BARS FOR CONCRETE REINFORCEMENT CONFORMING TO THE SPECIFICATIONS OF ASTM DESIGNATION A615, GRADE 60.
 6. ALL REINFORCING STEEL TO BE EPOXY COATED TO 0.5mm THICKNESS. REFER TO SPECIAL PROVISIONS, SECTION 508.
 7. CONCRETE PANELS TO HAVE 28 DAY COMPRESSIVE STRENGTH OF 27,500 KPa.
 8. EQUIVALENT WELDED WIRE FABRIC MAY BE USED.
 9. ALL PANELS TO USE 9.5mmØ CLEVIS LOOPS.
 10. VSL RETAINED EARTH™ IS PROTECTED UNDER PATENT 4,725,170.

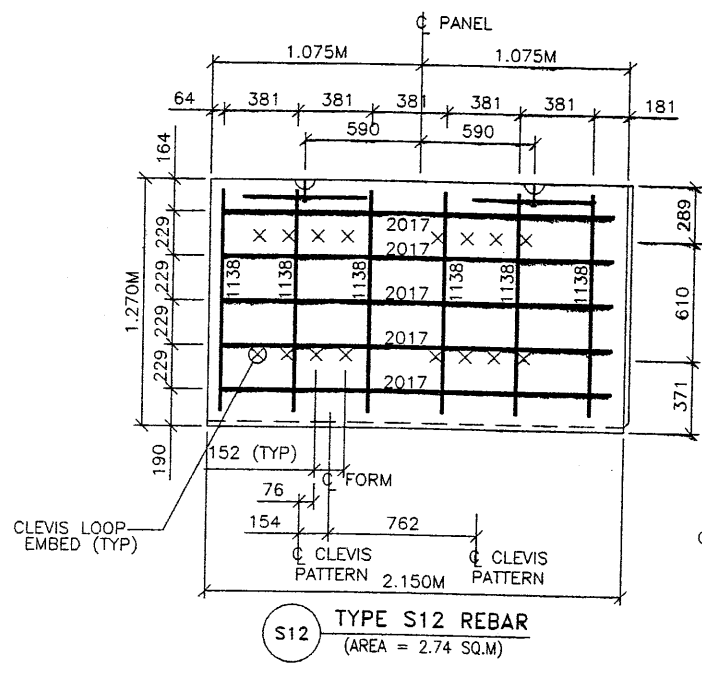
WATCH CONSTRUCTORS
OCT 08 1997
RELEASED FOR CONSTRUCTION

METRIC

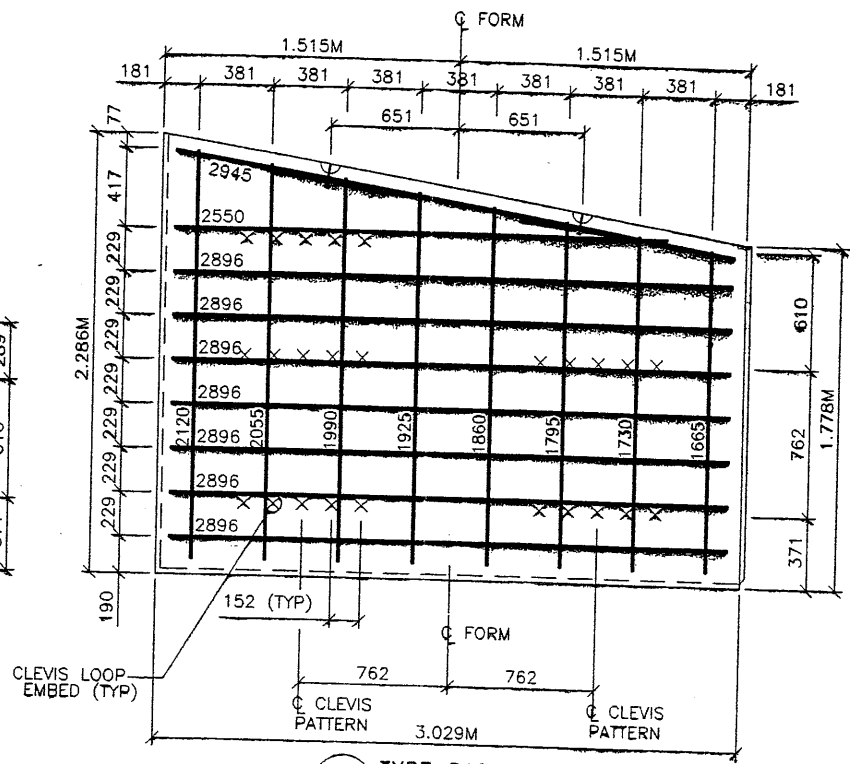


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VSL CORPORATION 2840 Floro Place, Suite 200 Raleigh, NC 27612 Telephone: (919) 781-6272 Fax: (919) 781-4969		DES. 09-23-97 JUN	DRN. 09-23-97 000	CHK. 09-23-97 JUN	RETAINED EARTH™	NO. DATE	REVISION	BY	CHK
 ATLANTA, GA / DALLAS, TX / DANESH, NC (CORPORATE OFFICE) MAAMI, FL / SAN JOSE, CA / SPRINGFIELD, VA		RETAINED EARTH™ WALLS PRECAST WALL "R-343-16" SPECIAL PANEL REINFORCEMENT UTAH I-15 INTERCHANGE SALT LAKE COUNTY, UTAH UTAH DEPARTMENT OF TRANSP.			SCALE:	1.2R-343-16.9	JOB NO:	239-0007 9/10	RE-8



S12 TYPE S12 REBAR
(AREA = 2.74 SQ.M)



S10 TYPE S10 REBAR
(AREA = SQ.M)

APPROVED FOR CONSTRUCTION		
NO.	DATE	DESCRIPTION
△	9-23-97	RELEASE FOR CONSTRUCTION

- PANEL REINFORCEMENT NOTES:
- PANELS ARE SHOWN BACK FACE.
 - HORIZONTAL REINFORCEMENT SHALL HAVE 50 mm MINIMUM COVER TO THE BACK FACE.
 - ALL REINFORCEMENT SHALL HAVE 50 mm MINIMUM COVER TO THE SIDES.
 - ALL REINFORCING BARS ARE #13 METRIC. LABELS ON EACH BAR INDICATE LENGTH. EXAMPLE: 1345 IS A #13 BAR 1345 mm LONG.
 - PANEL REINFORCEMENT BARS SHALL BE DEFORMED BILLET STEEL BARS FOR CONCRETE REINFORCEMENT CONFORMING TO THE SPECIFICATIONS OF ASTM DESIGNATION A615, GRADE 60.
 - ALL REINFORCING STEEL TO BE EPOXY COATED TO 0.5mm THICKNESS. REFER TO SPECIAL PROVISIONS, SECTION 508.
 - CONCRETE PANELS TO HAVE 28 DAY COMPRESSIVE STRENGTH OF 27,500 KPa.
 - EQUIVALENT WELDED WIRE FABRIC MAY BE USED.
 - ALL PANELS TO USE 9.5mmØ CLEVIS LOOPS.
 - VSL RETAINED EARTH™ IS PROTECTED UNDER PATENT 4,725,170.

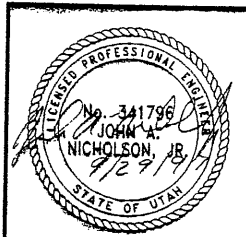
NO.	DATE	REVISION	BY	CHK

VSL CORPORATION
2840 Plaza Place, Suite 200
Raleigh, NC 27612
Telephone: (919) 781-6772
Fax: (919) 781-6969

VSL
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MIAMI, FL / SAN JOSE, CA / SPRINGFIELD, VA

WARREN CONSTRUCTORS
OCT 08 1997
RELEASED FOR CONSTRUCTION

METRIC



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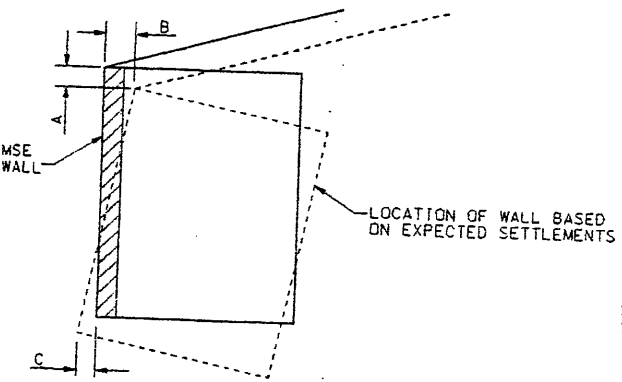
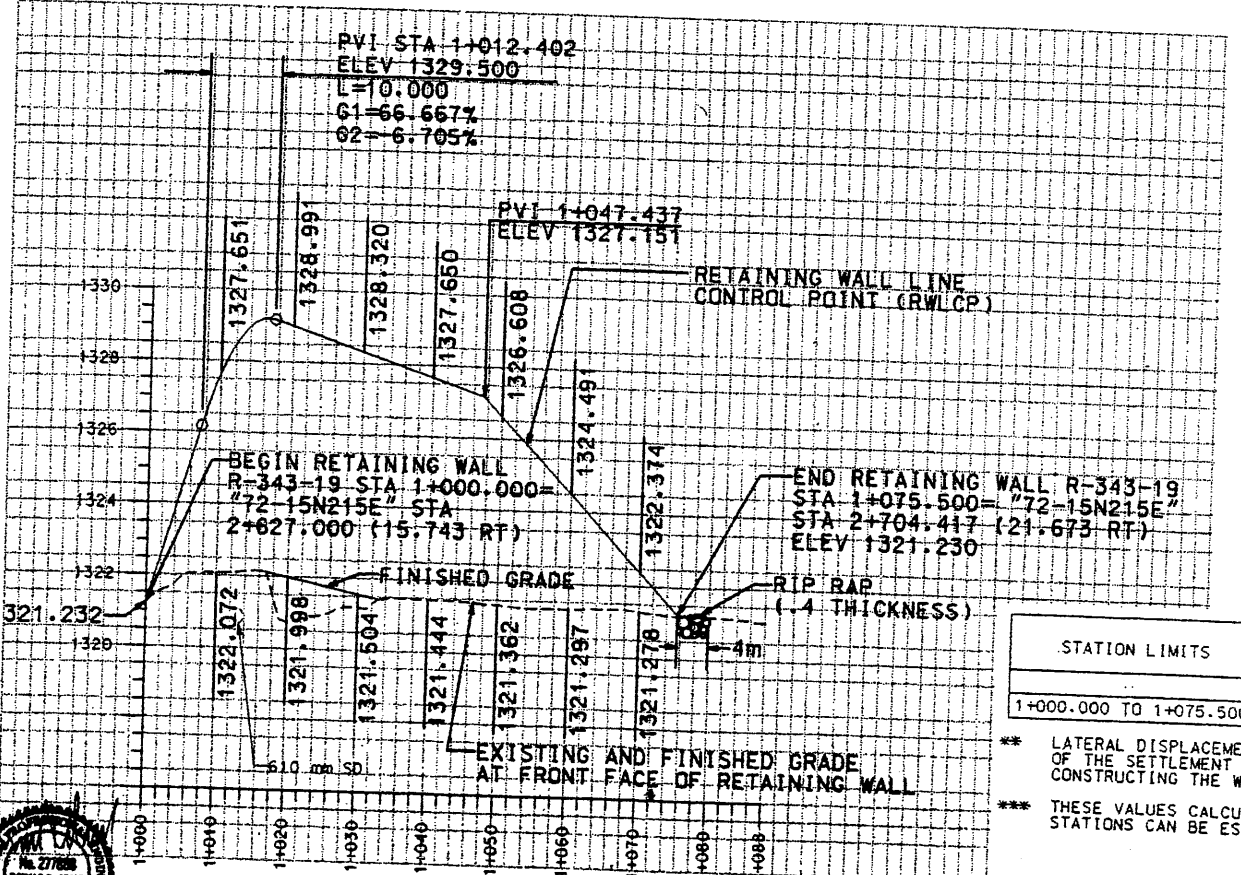
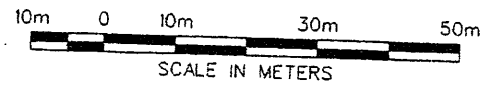
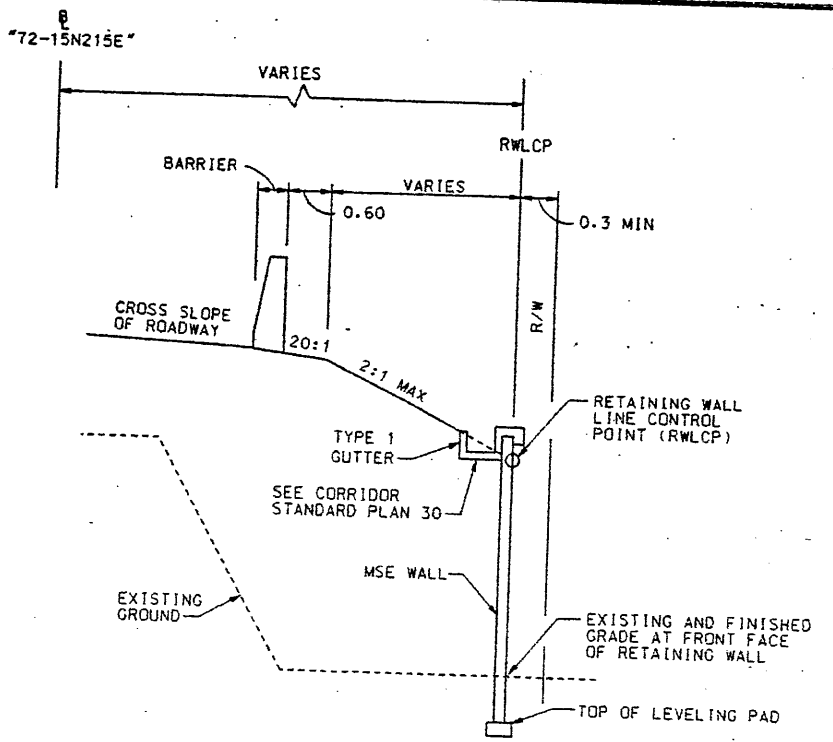
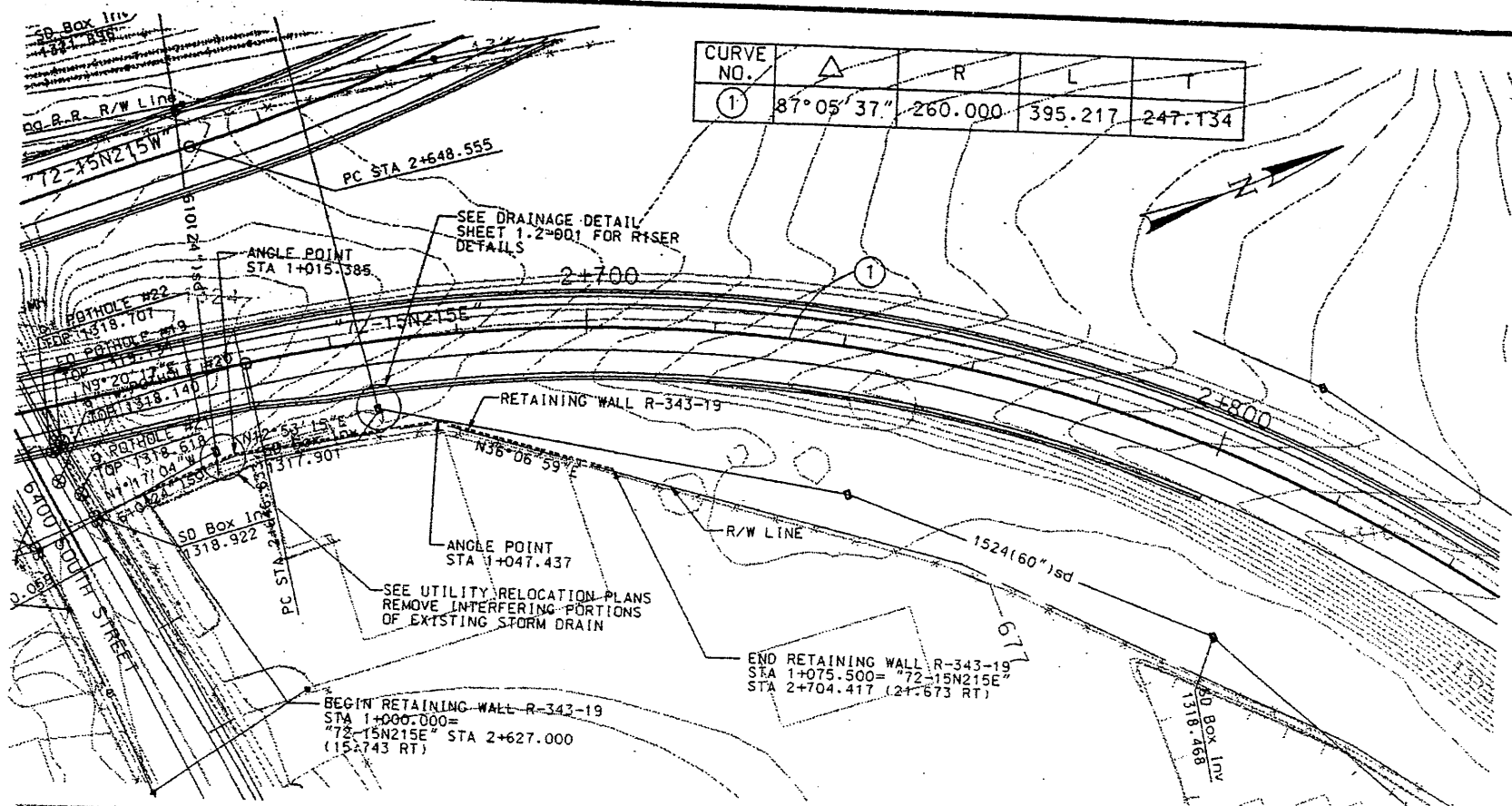
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RETAINED EARTH™ WALLS
PRECAST WALL "R-343-16"
SPECIAL PANEL REINFORCEMENT

UTAH I-15 INTERCHANGE
SALT LAKE COUNTY, UTAH
UTAH DEPARTMENT OF TRANSP.

SCALE: 1:2R-343-16.10
JOB NO: 239-0007 10/10
RE-9

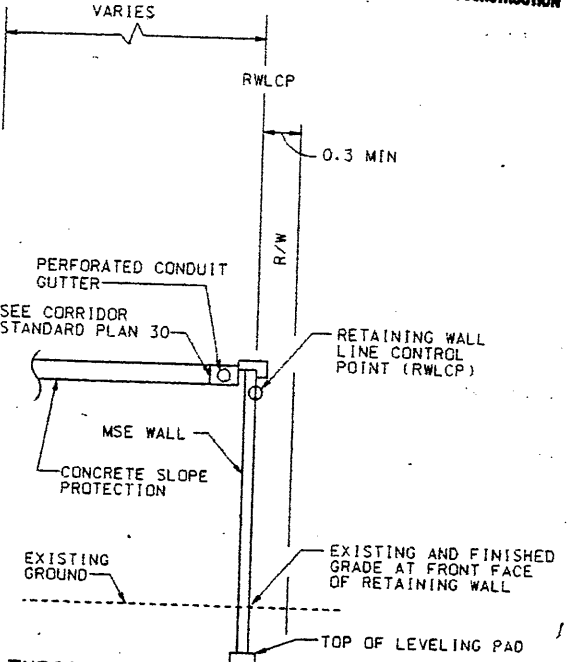
CURVE NO.	Δ	R	L	T
1	87°05'37"	260.000	395.217	247.134



ESTIMATED SETTLEMENT TABLE

STATION LIMITS	REFERENCE STATION	WALL SETTLEMENT mm	TOP OF WALL ROTATION mm	LATERAL DISPLACEMENT AT BOTTOM OF WALL mm
1+000.000 TO 1+075.500	1+012.402***	A	B	C

** LATERAL DISPLACEMENT AT BOTTOM OF WALL SHOULD BE LESS THAN ONE HALF OF THE SETTLEMENT AT FRONT FACE OF WALL. TERRACON RECOMMENDS CONSTRUCTING THE WALL TOE AT THE DESIGN LOCATION.
 *** THESE VALUES CALCULATED AT REFERENCED STATION; ROTATIONS AT OTHER STATIONS CAN BE ESTIMATED IN PROPORTION TO WALL HEIGHT.



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 OCT 27 1997
 WASATCH CONSTRUCTION

Scale: 500,000/100,000
 Rotations: 10/0000
 Pen: Tabular VEX, PLOT, L00E9400, 040
 Output: CHMIS2, L00E9400, 040



UTAH DEPARTMENT OF TRANSPORTATION
 URS Greiner
 SVERDRUP/DE LEUW

APPROVED FOR CONSTRUCTION

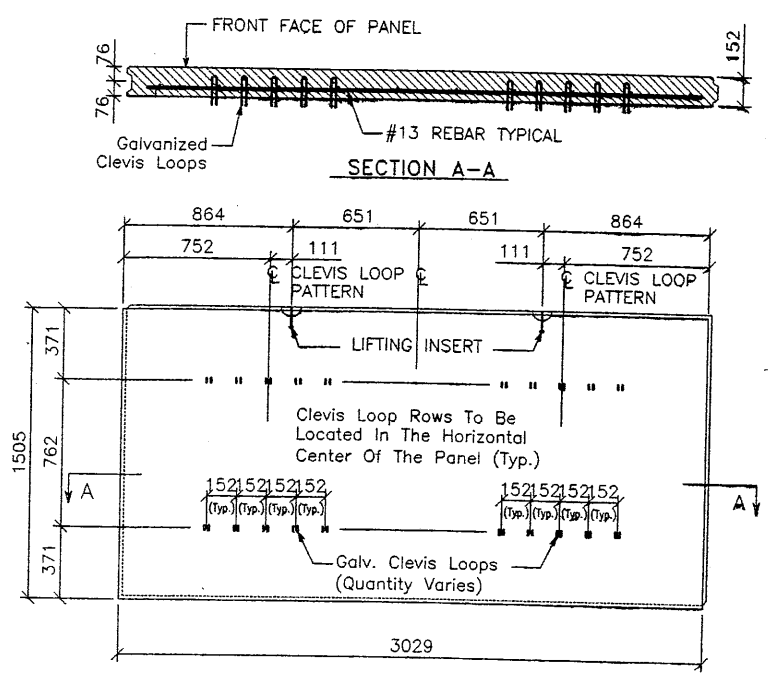
NO.	DATE	DESCRIPTION
1	10-21-97	INITIAL RELEASE

DESIGN: JMM 10/97
 CHECK: JMM 10/97
 DRAWN: DMK 10/97
 CHECK: JMM 10/97
 QUANT.:
 PROJECT MANAGER: 1212420

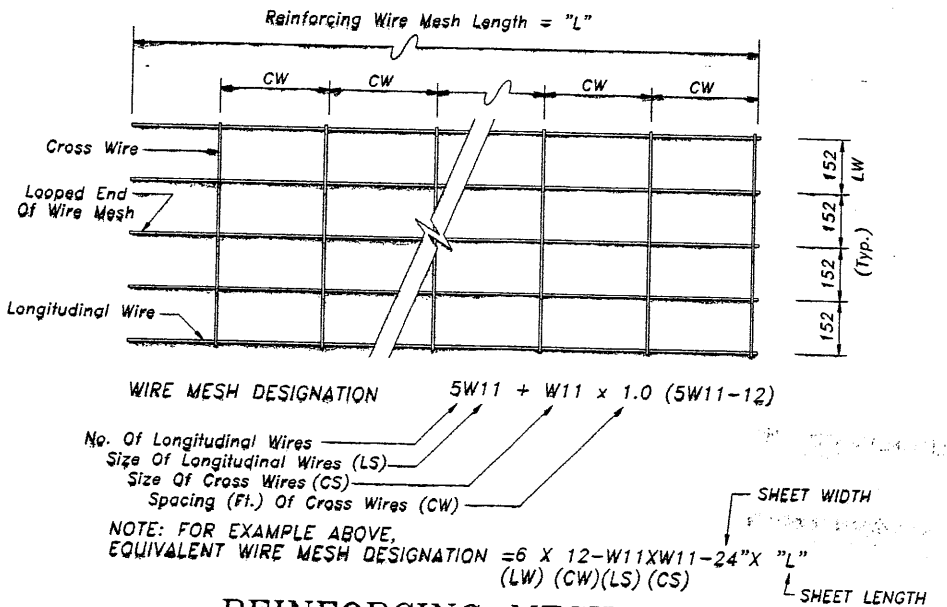
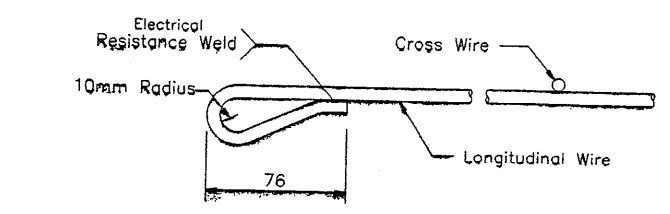
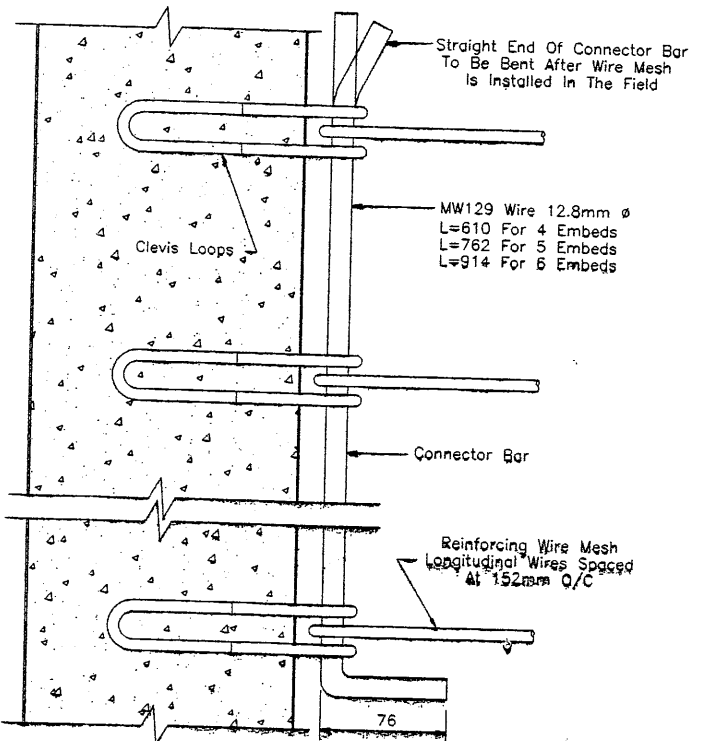
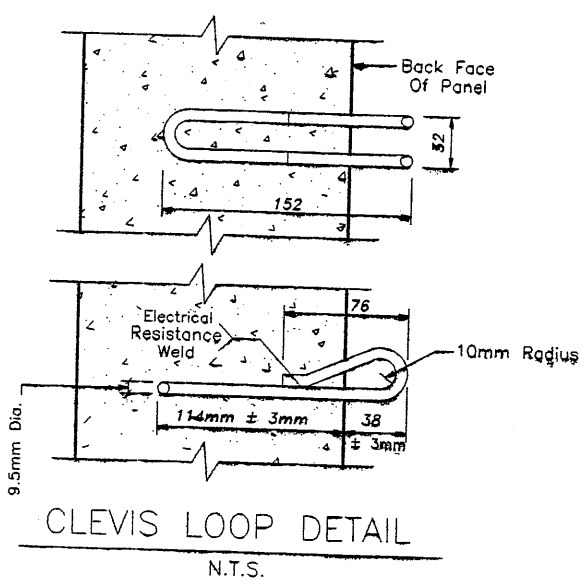
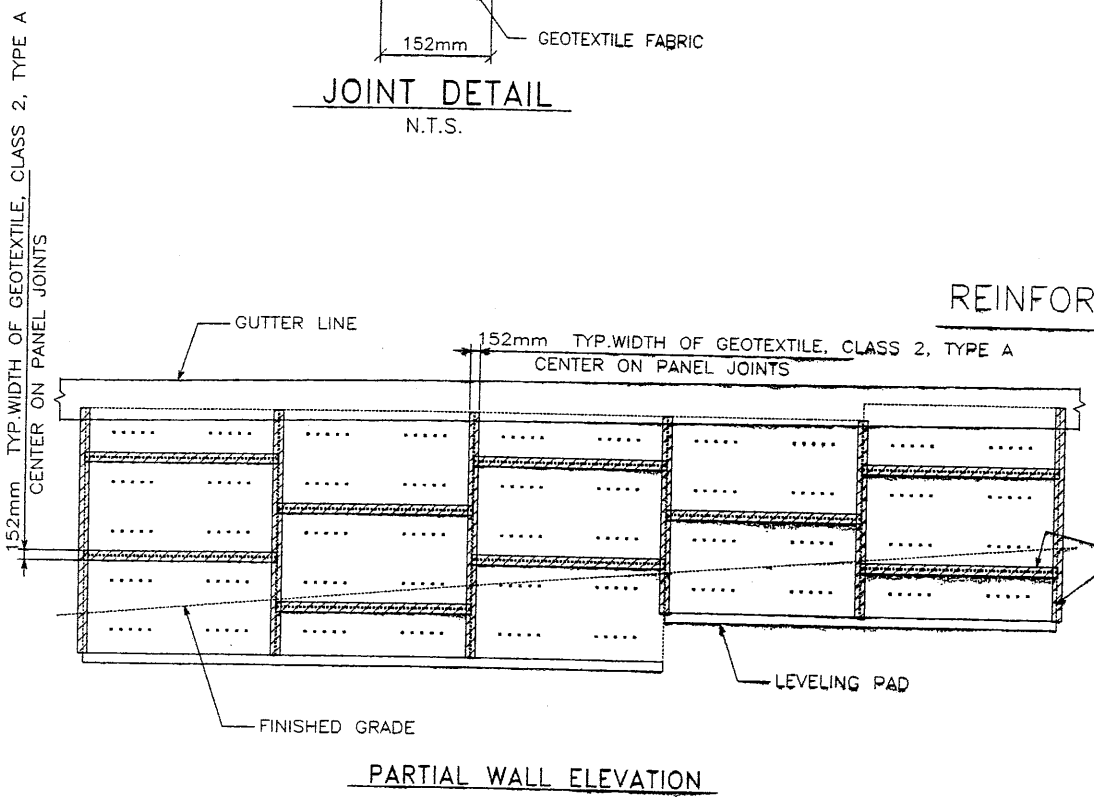
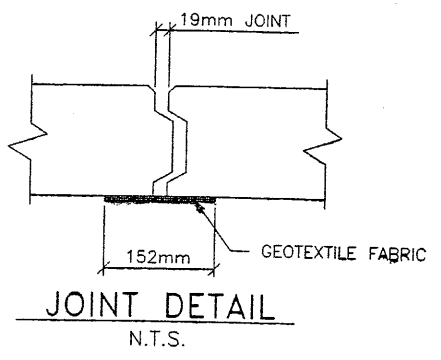
1-15 CORRIDOR RECONSTRUCTION
 SITUATION/LAYOUT
 RET WALL R-343-19
 SECTION 1.2
 PROJECT NUMBER #SP-15-7(135)296

SALT LAKE COUNTY
 DWG. NO. 1.2R-343-19.1
 SHEET 1 OF 11
 REF.

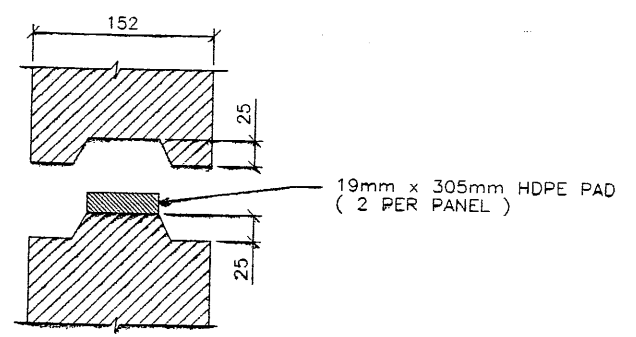
FINAL F 7-08-97 E:\PROJECT\239-0007\2SERIES\72-19\



STANDARD "5A-10" PANEL
Back Face View



NOTE: W11 (71 sq mm) And W20 (129 sq mm) Steel Wire Material And Welding Of Cross Wires And Loops Shall Conform To ASTM A82 And ASTM 185, $F_y = 448$ MPa. Mesh Shall Be Galvanized To ASTM A-123 To A Minimum Effective Thickness Of 0.086 mm.

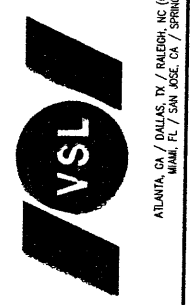


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APPROVED FOR CONSTRUCTION		
NO.	DATE	DESCRIPTION
△	10-08-97	RELEASE FOR CONSTRUCTION

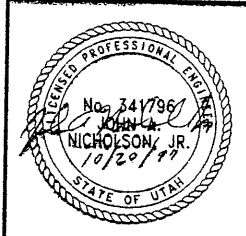
DES.	MM	DRN.	DDO	CHK.	MM	NO.	DATE	REVISION	BY	CHK
09-17-97		09-17-97		09-17-97						

VSL CORPORATION
2840 Plaza Place, Suite 200
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Fax: (919) 781-4989



WABATCH CONSTRUCTORS
OCT 27 1997
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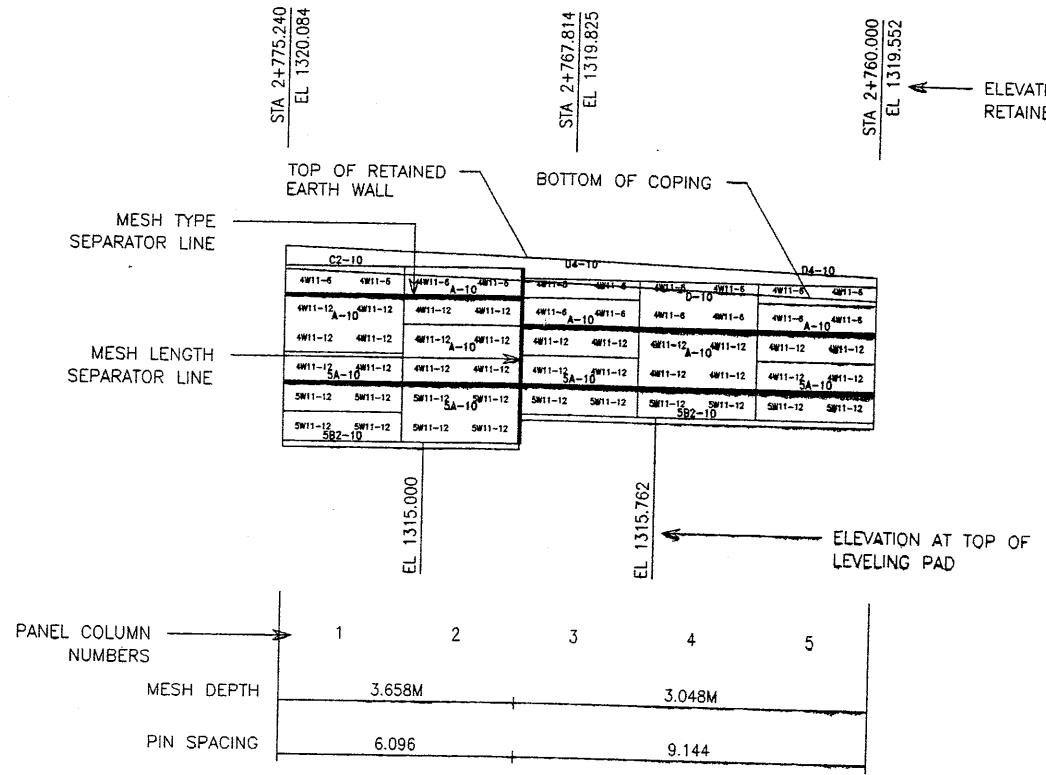
RETAINED EARTH™ WALLS
PRECAST WALL "R-343-19"
TYPICAL DETAILS
UTAH I-15 INTERCHANGE
SALT LAKE COUNTY, UTAH
UTAH DEPARTMENT OF TRANSP



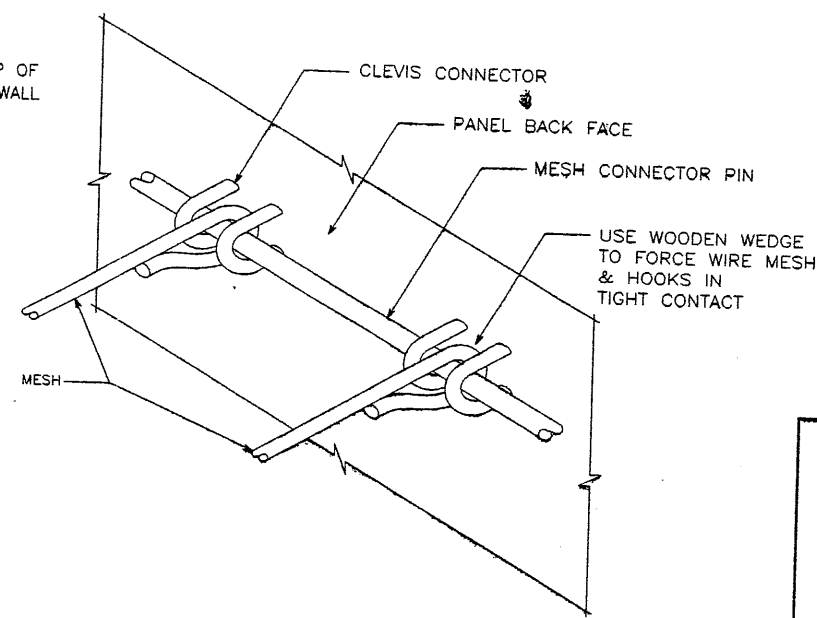
SCALE:	1.2R-343-19.3
JOB NO:	239-0007/3/11
	RE-2

FINAL P. 7-08-97 E:\PROJECT\239-0007\72SERIES\72-19 RE-3

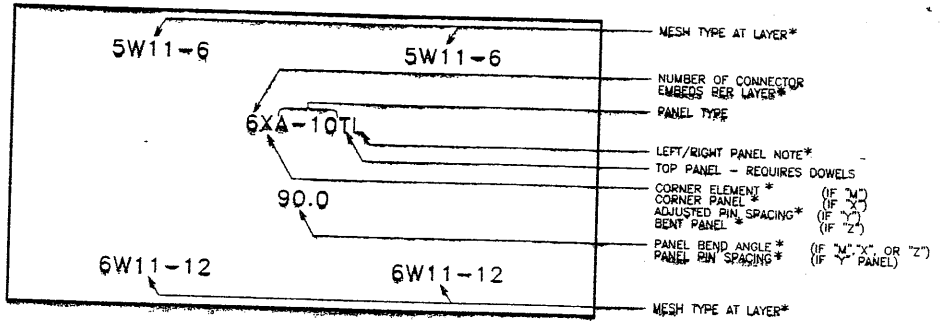
APPROVED FOR CONSTRUCTION		
NO.	DATE	DESCRIPTION
△	10-08-97	RELEASE FOR CONSTRUCTION <i>OK</i>



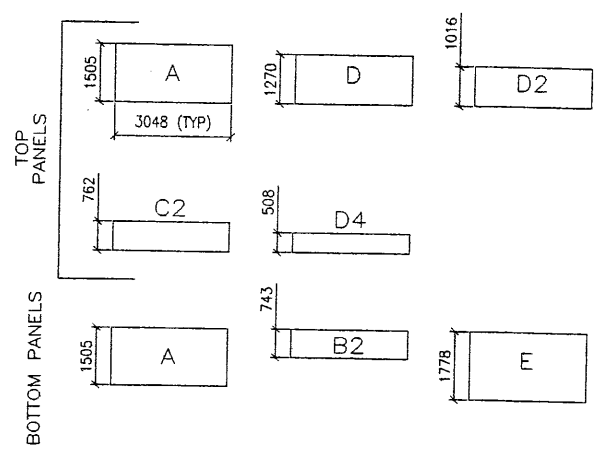
1 WALL ELEVATION KEY
(FRONT FACE SHOWN)



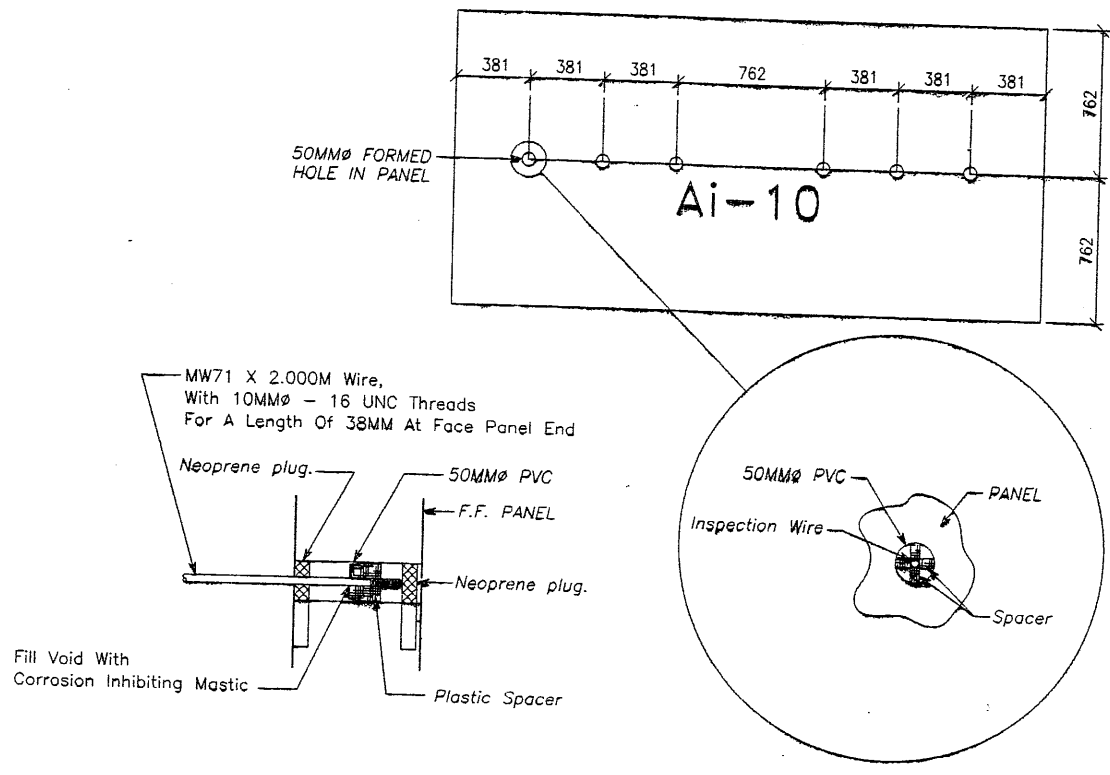
2 MESH CLEVIS CONNECTOR
VSL RETAINED EARTH IS PROTECTED UNDER U.S. PATENT 4,725,170.



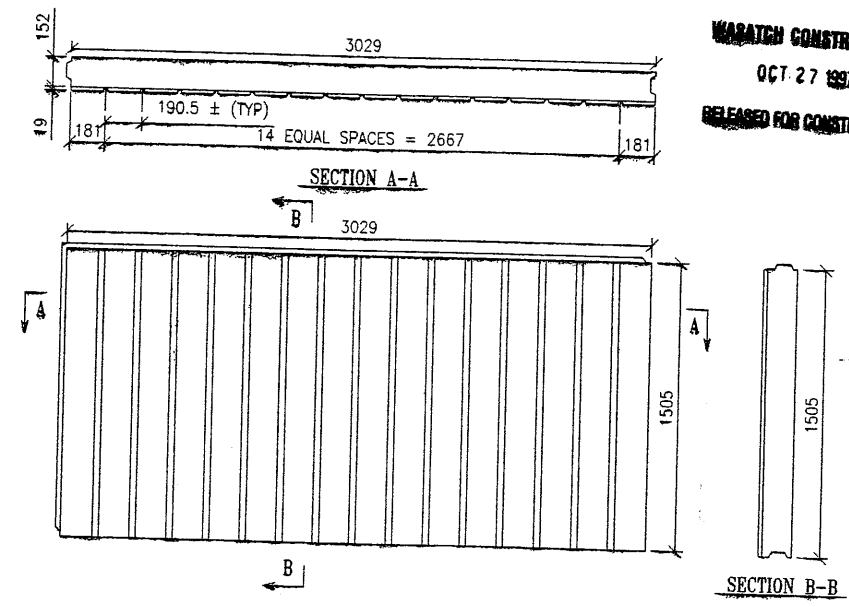
3 PANEL LABELS



4 PANEL TYPES
ALL DIMENSIONS ARE IN MILLIMETERS



5 INSPECTION WIRE DETAIL
(PANEL FRONT FACE SHOWN)



6 ARCHITECTURAL PANEL FINISH
(PANEL FRONT FACE SHOWN)

WATCH CONSTRUCTORS
OCT 27 1997
RELEASED FOR CONSTRUCTION

NO.	DATE	REVISION	BY	CHK

DES. 09-17-97 MM
DRN. 09-17-97 DDO
CHK. 09-17-97 MM

VSL CORPORATION
2810 Plano Place, Suite 200
Ft. Worth, TX 76102
Tel: (817) 435-6272
Fax: (817) 435-6889

ATLANTA, GA / DALLAS, TX / BALTIMORE, MD (CORPORATE OFFICE)
MIAMI, FL / SAN JOSE, CA / SPRINGFIELD, VA

VSL

RETAINED EARTH™ WALLS
PRECAST WALL™ R-343-19.4
TYPICAL DETAILS

UTAH I-15 INTERCHANGE
SALT LAKE COUNTY, UTAH
UTAH DEPARTMENT OF TRANSP.

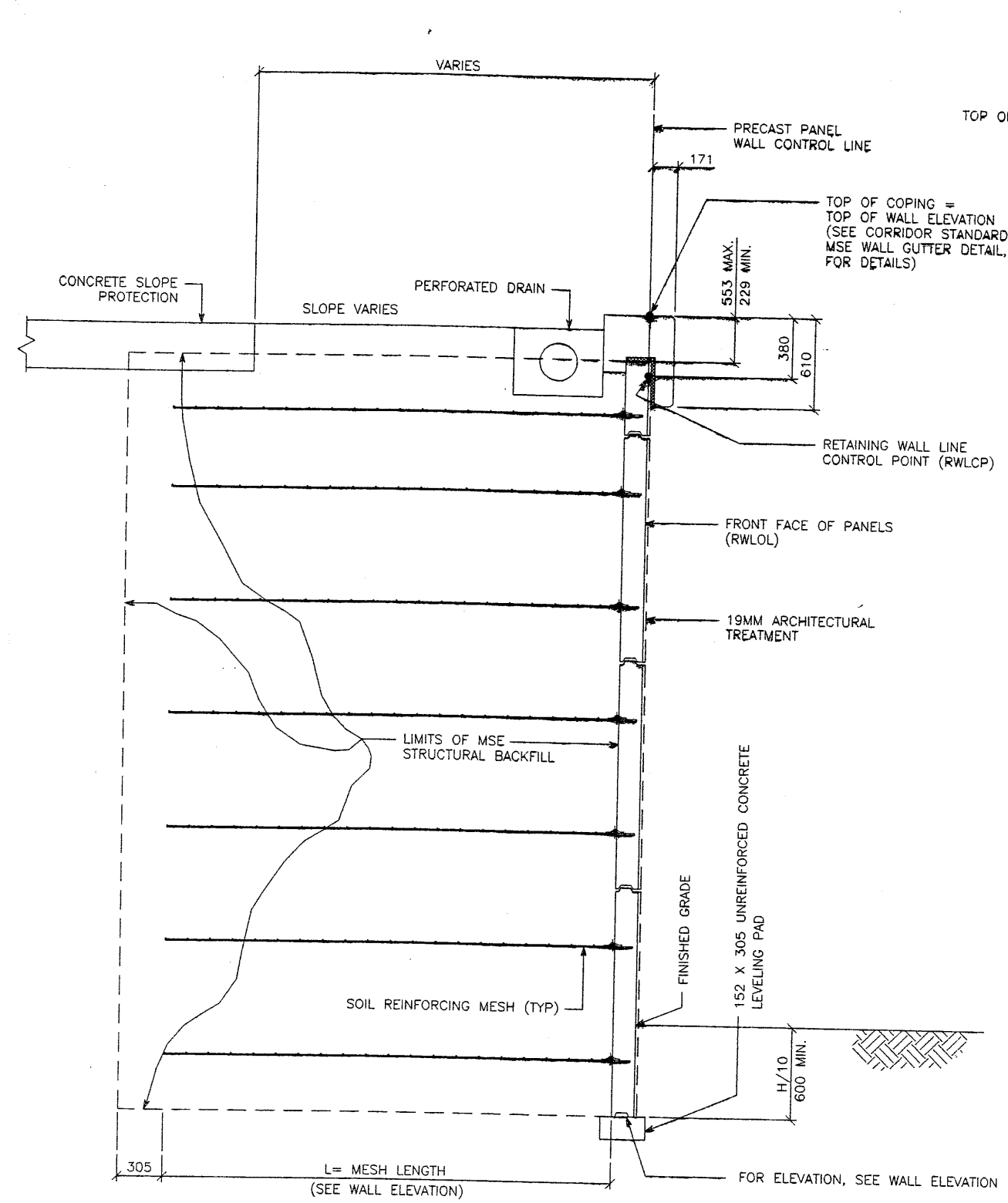
SCALE: 1:2R-343-19.4
JOB NO: 239-0007
RE-3

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NICHOLSON, JR.
10/20/97
STATE OF UTAH

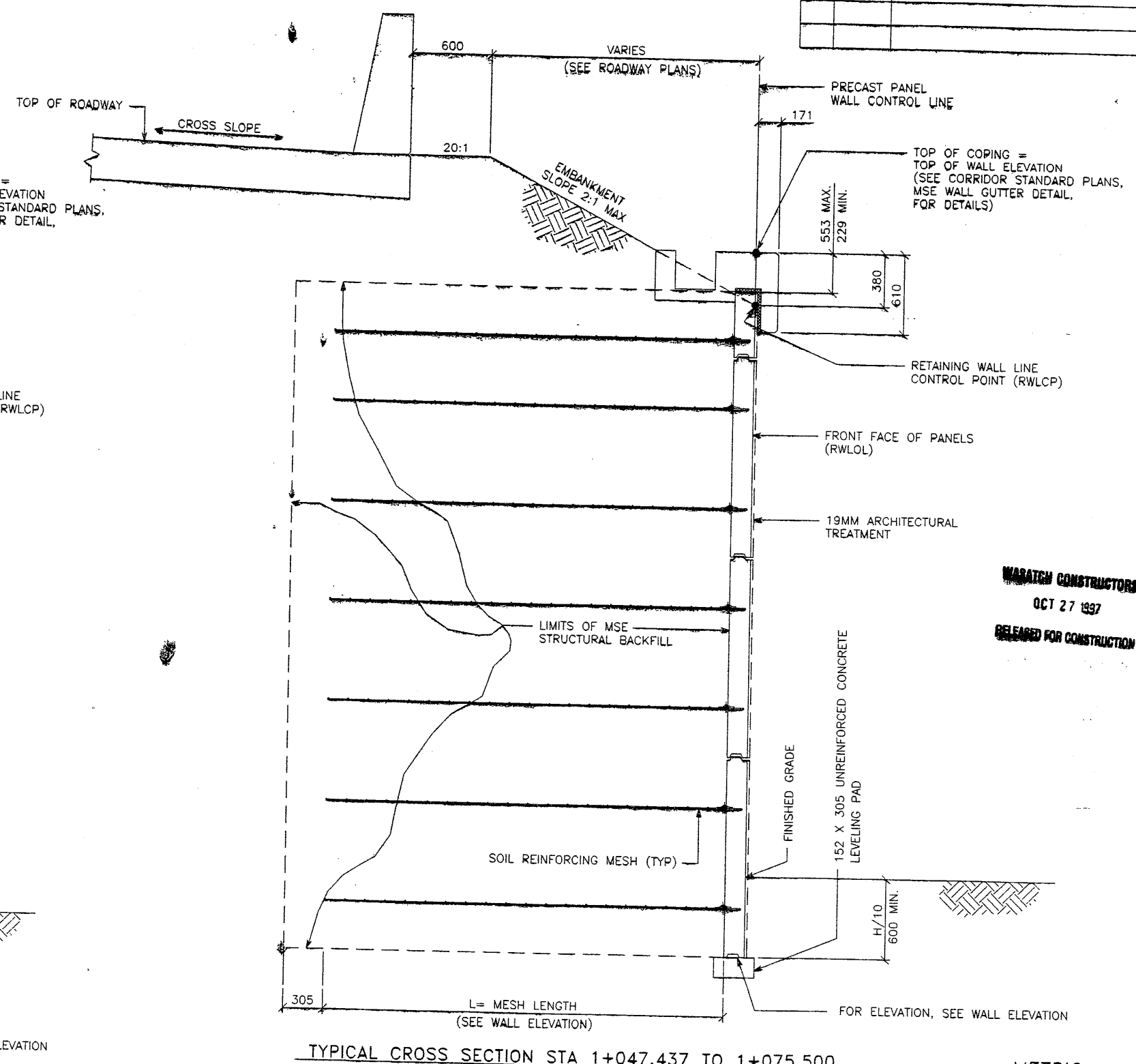
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 0-08-97
 FINAL

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NO.	DATE	DESCRIPTION
1	10-08-97	RELEASE FOR CONSTRUCTION



TYPICAL CROSS SECTION STA 1+000.000 TO 1+047.437

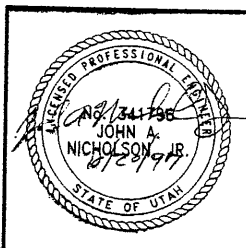
(SEE DWG. NO. 1.2R-343-19.1 FOR ADDITIONAL INFORMATION)
 SCALE: 1:20 (FULL SIZE)
 SCALE: 1:40 (HALF SIZE)



TYPICAL CROSS SECTION STA 1+047.437 TO 1+075.500
 (MSE SINGLE STAGE WITH GUTTER DETAIL)

(SEE DWG. NO. 1.2R-343-19.1 FOR ADDITIONAL INFORMATION)
 SCALE: 1:20 (FULL SIZE)
 SCALE: 1:40 (HALF SIZE)

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WARREN CONSTRUCTORS
 OCT 27 1997
 RELEASED FOR CONSTRUCTION

NO.	DATE	DESCRIPTION	BY	CHK

DES.	09-17-97	MM	
DRN.	09-17-97	DDO	
CHK.	09-17-97	MM	

VSL CORPORATION	
2840 Plaza Place, Suite 200	
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Fax: (919) 781-4669	

ATLANTA, GA / DALLAS, TX / RALEIGH, NC (CORPORATE OFFICE)	
MIAMI, FL / SAN JOSE, CA / SPRINGFIELD, VA	

VSL

RETAINED EARTH™ WALLS
 PRECAST WALL "R-343-19"
 TYPICAL CROSS SECTIONS
 UTAH I-15 INTERCHANGE
 SALT LAKE COUNTY, UTAH
 UTAH DEPARTMENT OF TRANS.

SCALE:	1.2R-343-19.5
JOB NO.:	239-0007 5/11
	RE-4

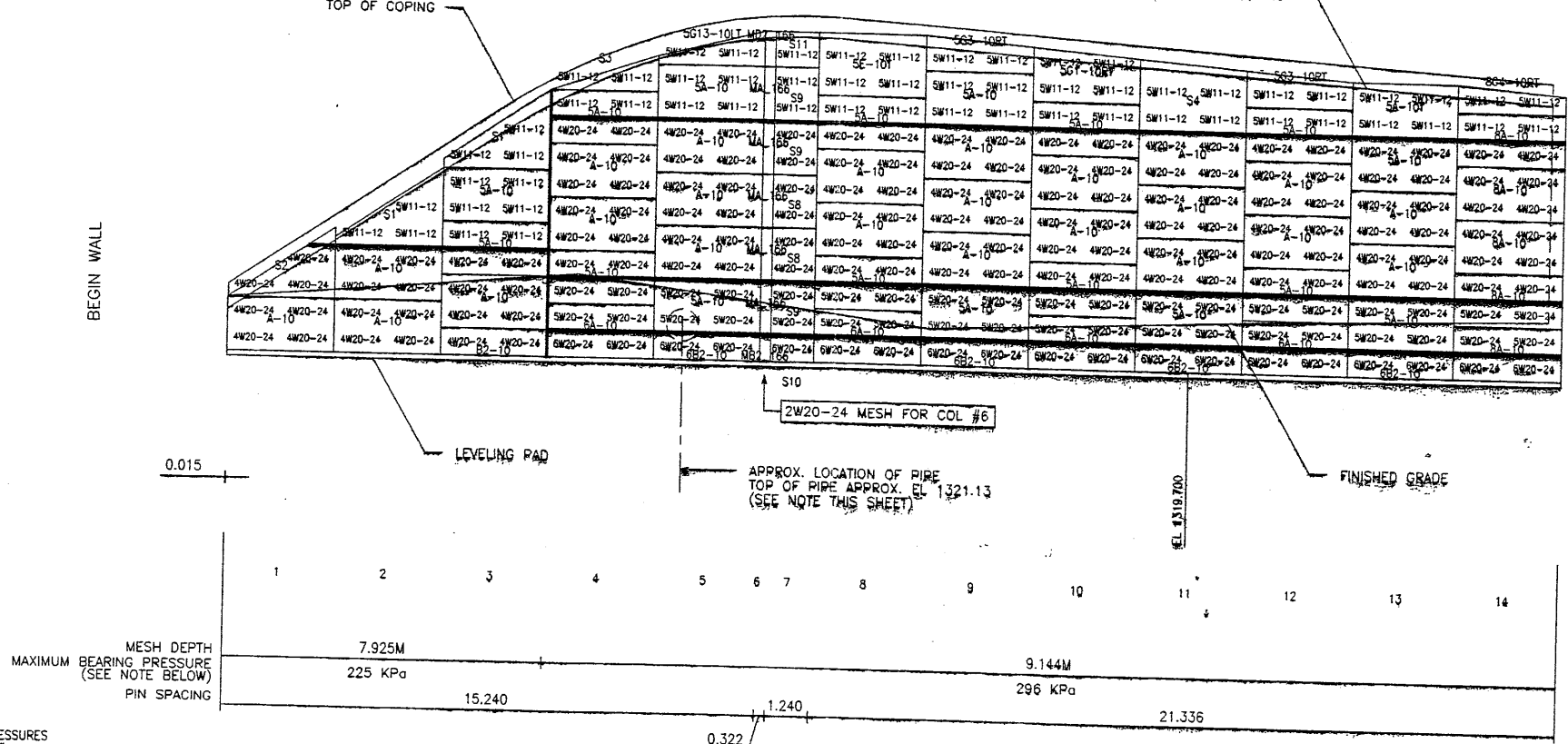
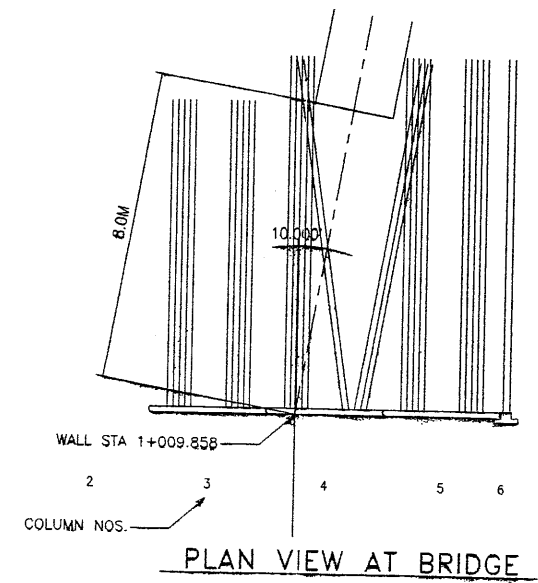
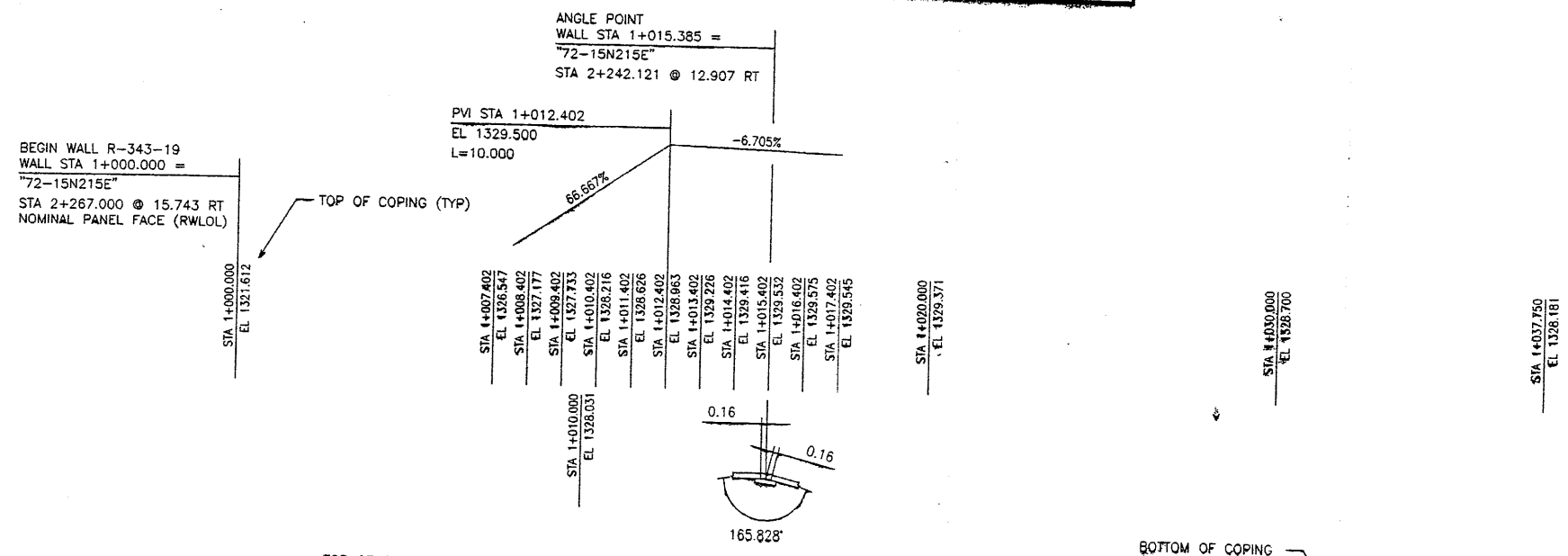
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0-16-97

FINAL P.

MEET BRIDGE

NOTE: CONTRACTOR TO COORDINATE MESH PLACEMENT WITH PILES AT BRIDGE ABUTMENT



ELEVATION PRECAST WALL R-343-19

(FRONT FACE SHOWN) SCALE 1:100 (FULL SIZE)
(TOTAL SURFACE AREA OF PANELS = 471.63 SM) SCALE 1:200 (HALF SIZE)

APPROVER NOTE:
MAXIMUM FINAL UNFACTORED BEARING PRESSURES ARE INDICATED BELOW "MESH DEPTH LINE" REVIEWER TO VERIFY MAXIMUM BEARING CAPACITY OF FOUNDATION.

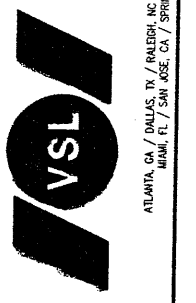
CONTRACTOR NOTE:
CONTRACTOR PLEASE VERIFY PIPE LOCATION (VERTICAL AND HORIZONTAL). FIELD CUT PANEL AS REQUIRED TO FIT AROUND PIPE. NOTIFY VSL IF PIPE INTERFERES WITH SOIL REINFORCING MESH.

CERTIFIED FOR INTERNAL STABILITY OF RETAINED EARTH™ STRUCTURES ONLY. EXTERNAL STABILITY, INCLUDING BUT NOT LIMITED TO FOUNDATION AND SLOPE STABILITY, IS THE RESPONSIBILITY OF THE OWNER. DESIGN IS BASED ON THE ASSUMPTION THAT THE MATERIAL WITHIN THE RETAINED EARTH™ MASS, METHODS OF CONSTRUCTION, AND QUALITY OF PREFABRICATED MATERIALS CONFORM TO THE MANUFACTURER'S SPECIFICATION.

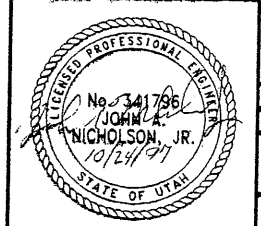
APPROVED FOR CONSTRUCTION		
NO.	DATE	DESCRIPTION

DES.	DRN.	CHK.	NO.	DATE	REVISION	BY	CHK.

VSL CORPORATION
2810 Plaza Place, Suite 200
Raleigh, NC 27604
Tel: (919) 781-4872
Fax: (919) 781-4869



UTAH DEPARTMENT OF TRANSPORTATION
SALT LAKE COUNTY, UTAH
UTAH 1-15 INTERCHANGE
PRECAST WALL "R-343-19"

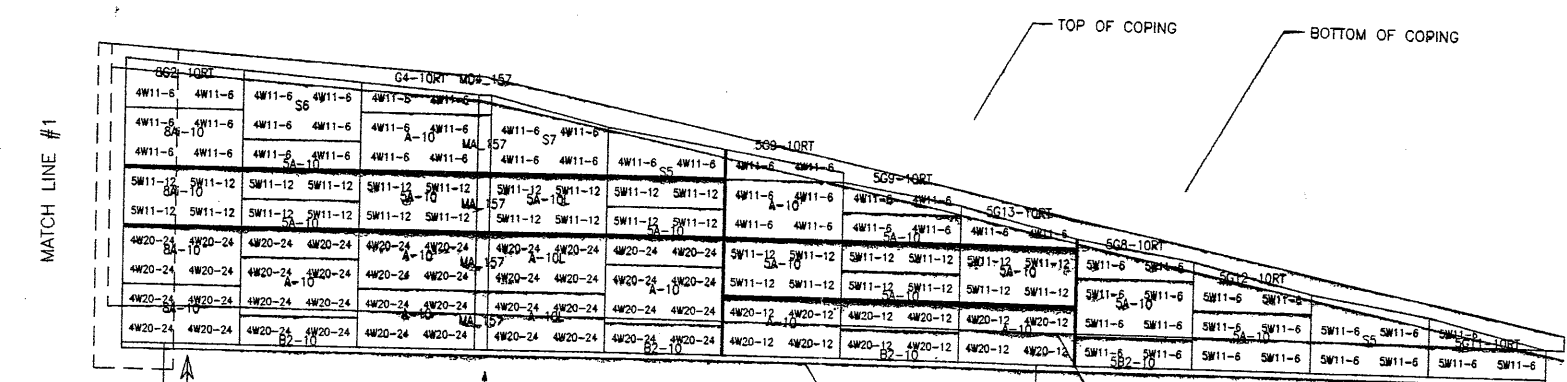
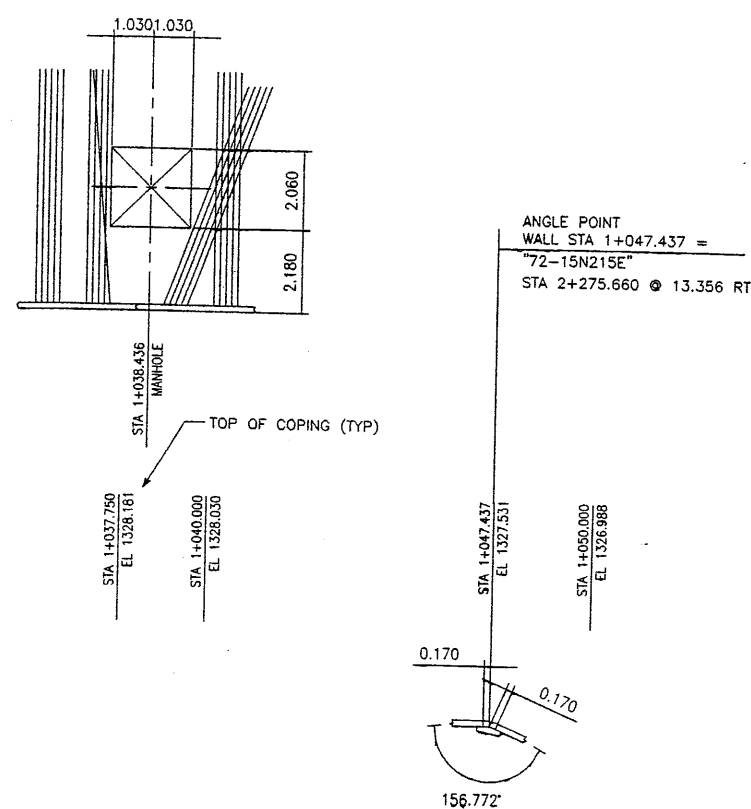


SCALE: 1:2R-343-19.6
JOB NO: 239-0007
RE-5

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0-16-97

FINAL

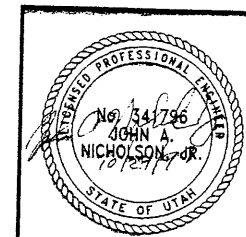


STATION	15	16	17	18	19	20	21	22	23	24	25	26	27	0+460
MESH DEPTH					6.096M			4.267M				2.438M		
MAXIMUM BEARING PRESSURE (SEE NOTE BELOW)					233 KPa			185 KPa				118 KPa		
PIN SPACING	9.144							27.432						

APPROVER NOTE:
 MAXIMUM FINAL UNFACTORED BEARING PRESSURES
 ARE INDICATED BELOW "MESH DEPTH LINE"
 REVIEWER TO VERIFY MAXIMUM BEARING
 CAPACITY OF FOUNDATION.

ELEVATION PRECAST WALL R-343-19
 (FRONT FACE SHOWN)
 (TOTAL SURFACE AREA OF PANELS = 471.63 SM)
 SCALE 1:100 (FULL SIZE)
 SCALE 1:200 (HALF SIZE)

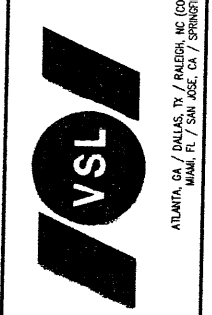
CERTIFIED FOR INTERNAL STABILITY OF RETAINED EARTH™ STRUCTURES ONLY.
 EXTERNAL STABILITY, INCLUDING BUT NOT LIMITED TO FOUNDATION AND SLOPE
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 OF CONSTRUCTION, AND QUALITY OF PREFABRICATED MATERIALS CONFORM TO
 THE MANUFACTURER'S SPECIFICATION.



APPROVED FOR CONSTRUCTION		
NO.	DATE	DESCRIPTION

DES.	MM.	DDO	MM	NO.	DATE	REVISION	CHK
09-17-97							
09-17-97							
09-17-97							

VSL CORPORATION
 2840 Plaza Place, Suite 200
 Raleigh, NC 27612
 Telephone: (919) 791-8272
 Fax: (919) 791-4869



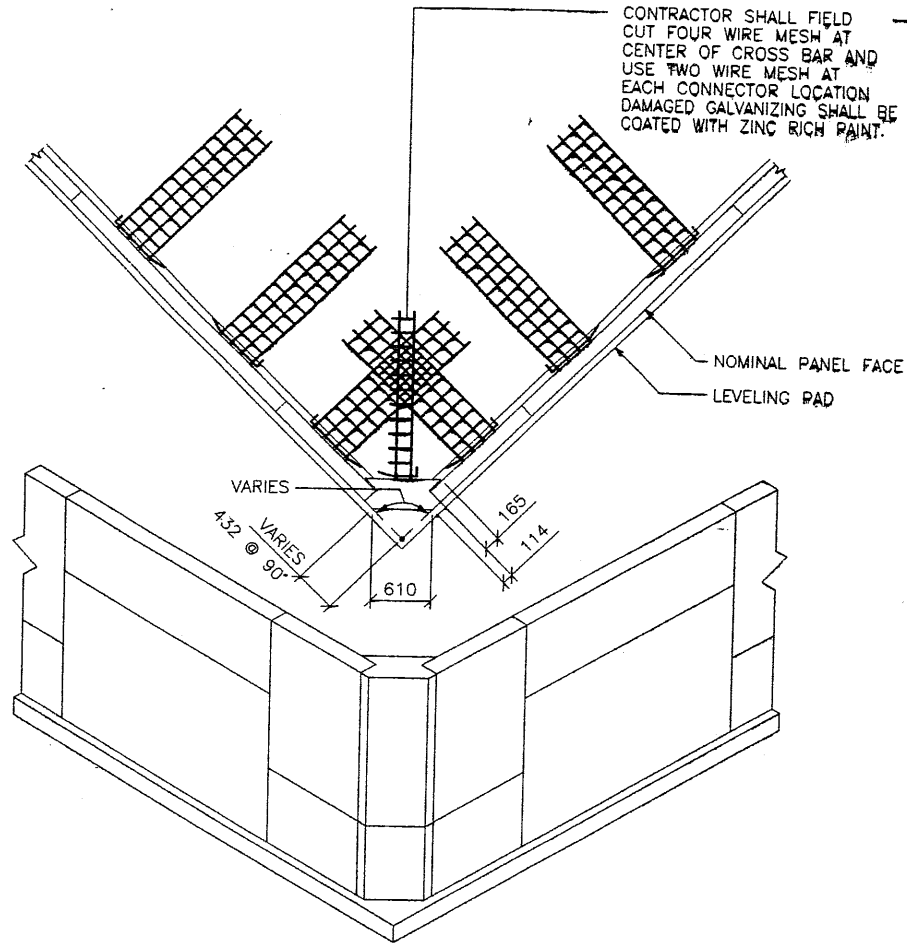
RETAINED EARTH™ WALLS
 PRECAST WALL "R-343-19"
 UTAH I-15 INTERCHANGE
 SALT LAKE COUNTY, UTAH
 UTAH DEPARTMENT OF TRANSP.

SCALE:	1.2R-343-19.7
JOB NO:	239-0007
	RE-6

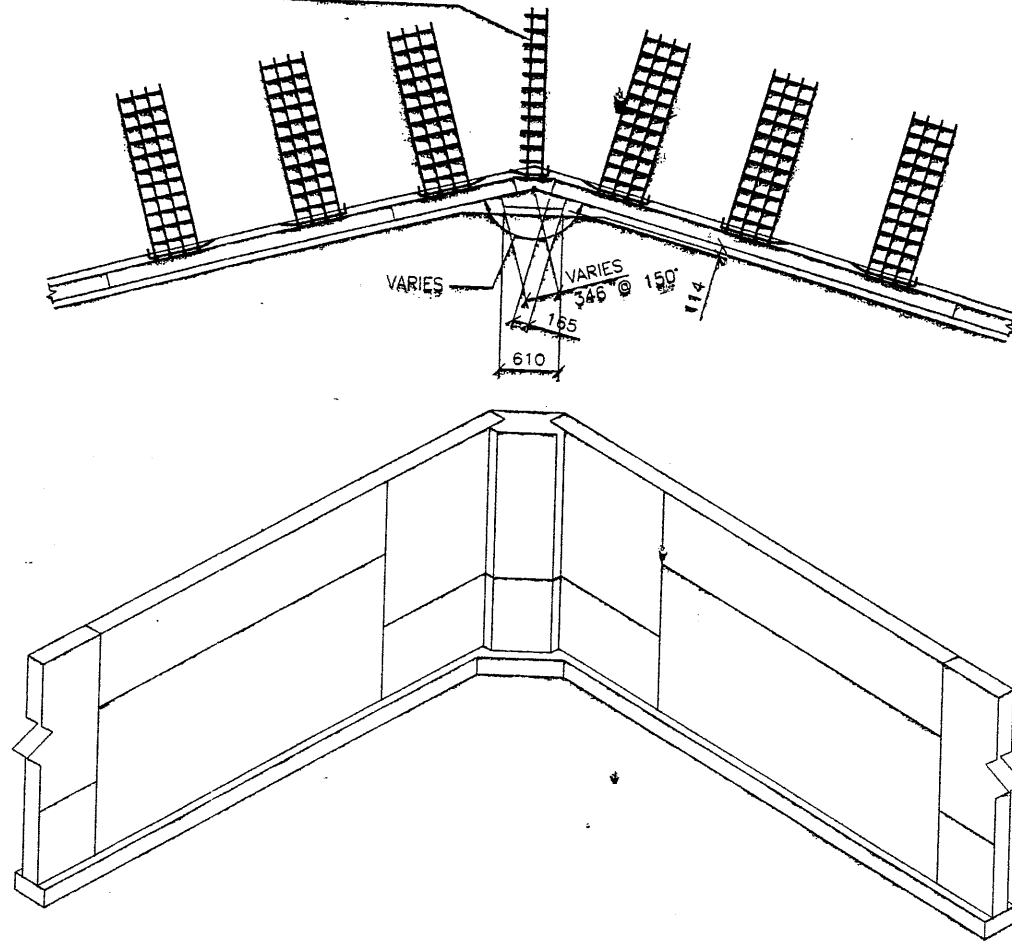
E:\PROJECT\239-0007\72SERIES\72-19.V

7-08-97

FINAL



80 OUTSIDE CORNER ELEMENT
PLAN VIEW / ISOMETRIC



80 INSIDE CORNER ELEMENT
PLAN VIEW / ISOMETRIC

APPROVED FOR CONSTRUCTION		
NO.	DATE	DESCRIPTION
△	10-08-97	RELEASE FOR CONSTRUCTION

NO.	DATE	REVISION	BY

VSL CORPORATION
2840 Piedmont Place, Suite 200
Atlanta, GA 30328-1811
Tel: (404) 811-6272
Fax: (404) 811-4868

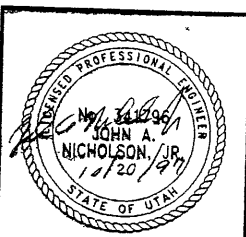
ATLANTA, GA / DALLAS, TX / RALEIGH, NC (CORPORATE OFFICE)
MIAMI, FL / SAN JOSE, CA / SPRINGFIELD, VA

VSL

WARATCH CONSTRUCTORS
OCT 27 1997
RELEASED FOR CONSTRUCTION

RETAINED EARTH™ WALLS
PRECAST WALL "R-343-19"
SPECIAL DETAILS

UTAH I-15 INTERCHANGE
SALT LAKE COUNTY, UTAH
UTAH DEPARTMENT OF TRANSP.



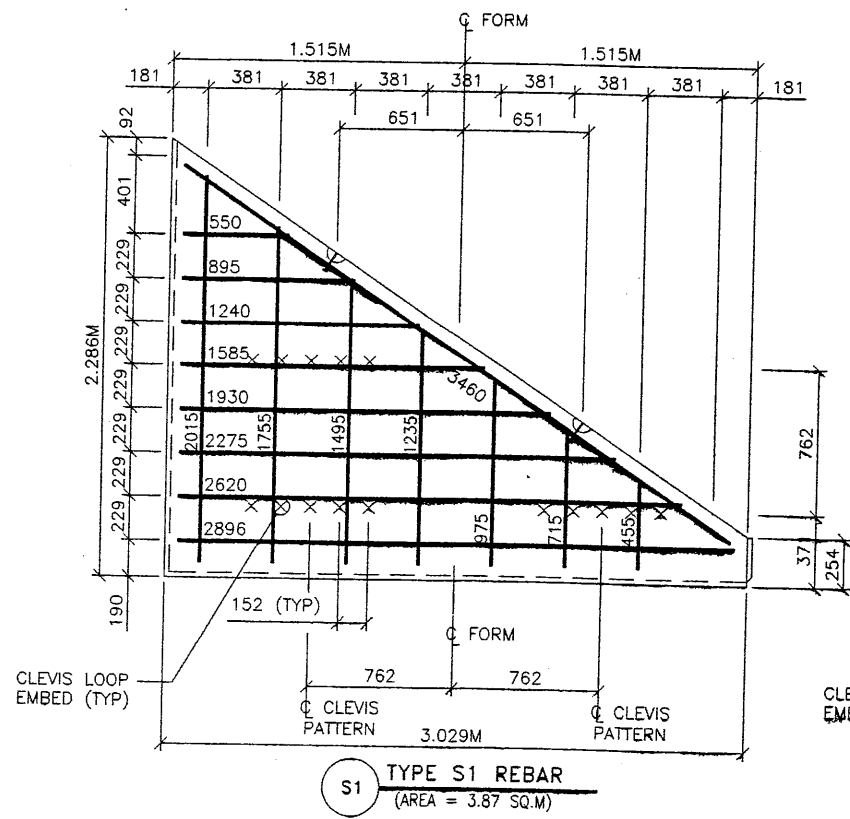
CERTIFIED FOR INTERNAL STABILITY OF RETAINED EARTH™ STRUCTURES ONLY. EXTERNAL STABILITY, INCLUDING BUT NOT LIMITED TO FOUNDATION AND SLOPE STABILITY, IS THE RESPONSIBILITY OF THE OWNER. DESIGN IS BASED ON THE ASSUMPTION THAT THE MATERIAL WITHIN THE RETAINED EARTH™ MASS, METHODS OF CONSTRUCTION, AND QUALITY OF PREFABRICATED MATERIALS CONFORM TO THE MANUFACTURER'S SPECIFICATION.

SCALE:
1.2R-343-19.8
JOB NO:
239-0007 8/11
RE-7

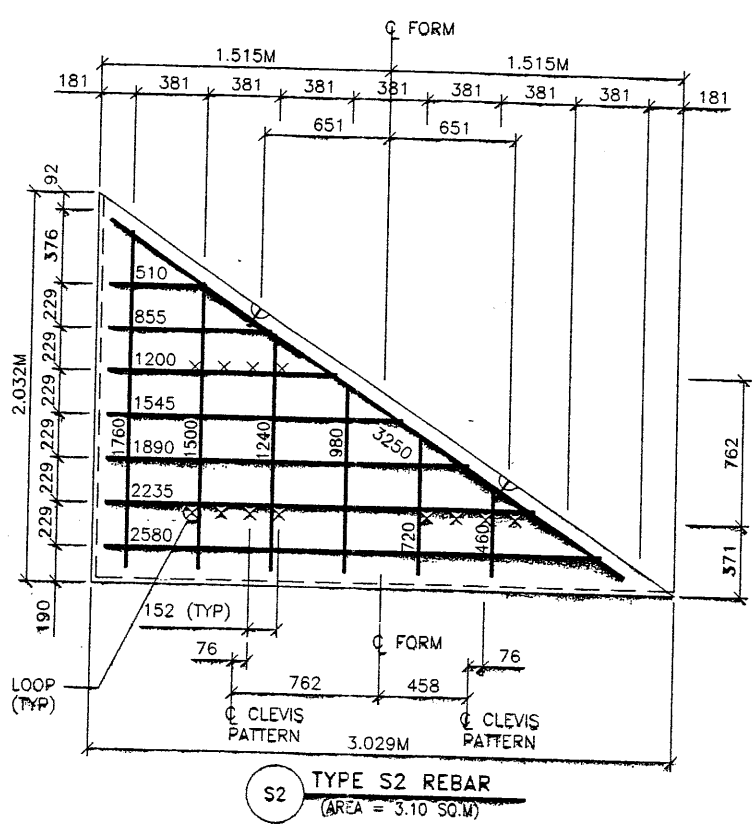
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7-16-97

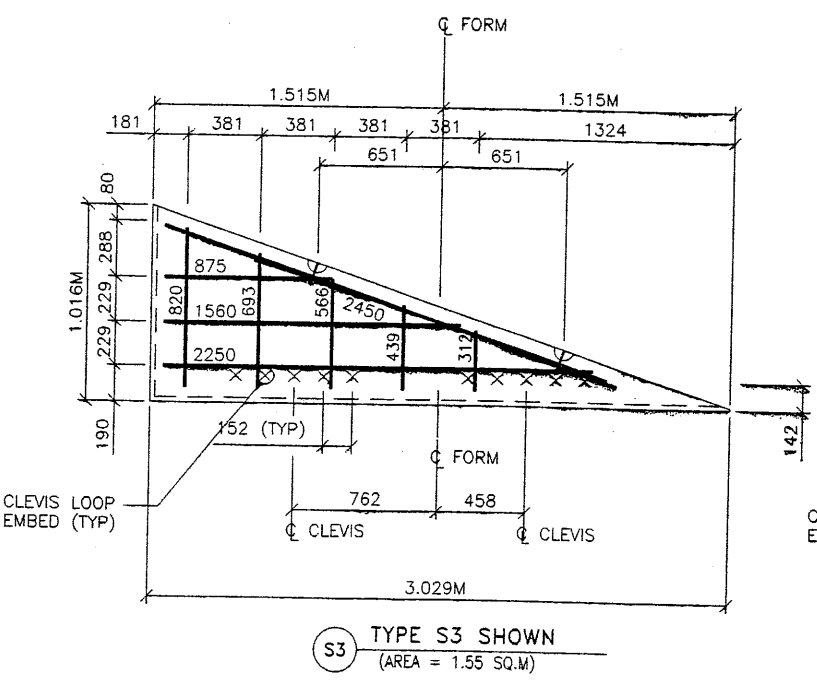
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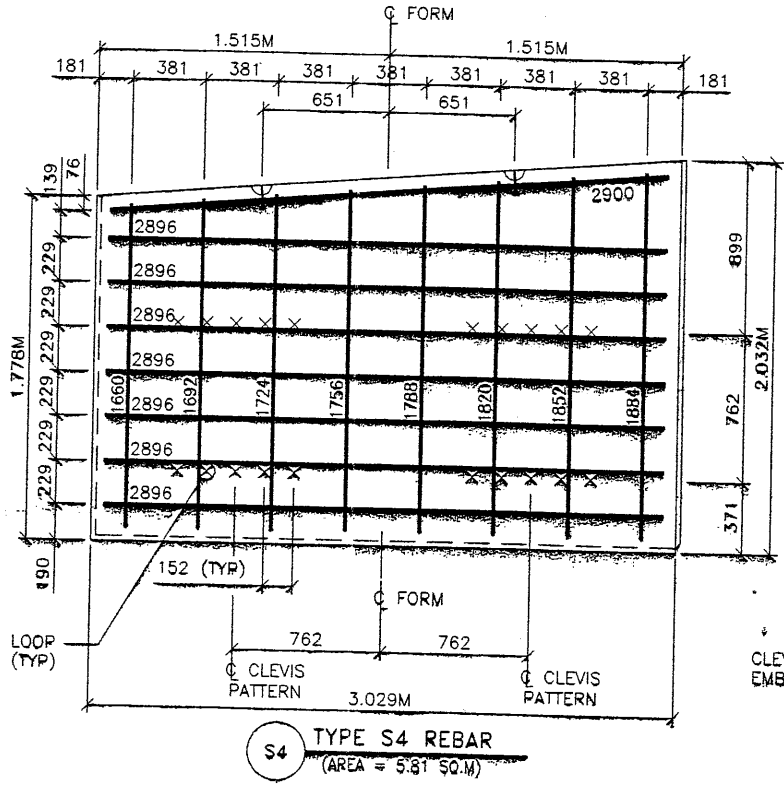
S1 TYPE S1 REBAR
(AREA = 3.87 SQ.M)



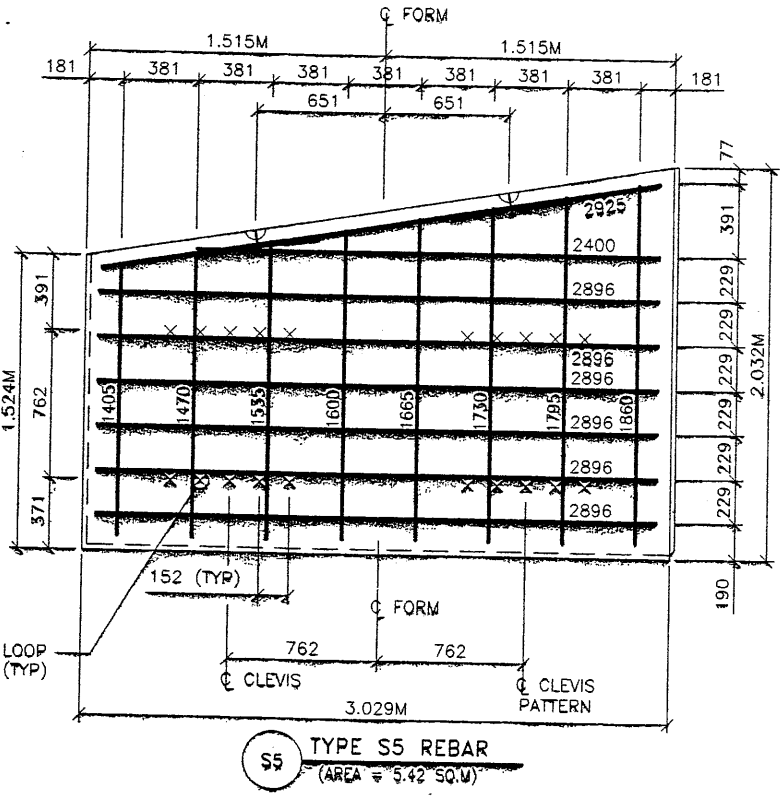
S2 TYPE S2 REBAR
(AREA = 3.10 SQ.M)



S3 TYPE S3 SHOWN
(AREA = 1.55 SQ.M)



S4 TYPE S4 REBAR
(AREA = 5.81 SQ.M)



S5 TYPE S5 REBAR
(AREA = 5.42 SQ.M)

APPROVED FOR CONSTRUCTION		
NO.	DATE	DESCRIPTION
1	10-16-97	RELEASE FOR CONSTRUCTION

- PANEL REINFORCEMENT NOTES:
1. PANELS ARE SHOWN BACK FACE.
 2. HORIZONTAL REINFORCEMENT SHALL HAVE 50 mm MINIMUM COVER TO THE BACK FACE.
 3. ALL REINFORCEMENT SHALL HAVE 50 mm MINIMUM COVER TO THE SIDES.
 4. ALL REINFORCING BARS ARE #13 METRIC. LABELS ON EACH BAR INDICATE LENGTH. EXAMPLE: 1345 IS A #13 BAR 1345 mm LONG.
 5. PANEL REINFORCEMENT BARS SHALL BE DEFORMED BILLET STEEL BARS FOR CONCRETE REINFORCEMENT CONFORMING TO THE SPECIFICATIONS OF ASTM DESIGNATION A615, GRADE 60.
 6. ALL REINFORCING STEEL TO BE GALVANIZED IN ACCORDANCE WITH ASTM 767 CLASS 1.
 7. CONCRETE PANELS TO HAVE 28 DAY COMPRESSIVE STRENGTH OF 27,500 KPa.
 8. EQUIVALENT WELDED WIRE FABRIC MAY BE USED.
 9. ALL PANELS TO USE 9.5mmØ CLEVIS LOOPS.
 10. VSL RETAINED EARTH™ IS PROTECTED UNDER PATENT 4,725,170.

WASATCH CONSTRUCTORS
OCT 27 1997
RELEASED FOR CONSTRUCTION

NO.	DATE	DESCRIPTION	BY	CHK

VSL CORPORATION
2840 Plaza Place, Suite 600
Raleigh, NC 27612
Telephone: (919) 781-8272
Fax: (919) 781-4863

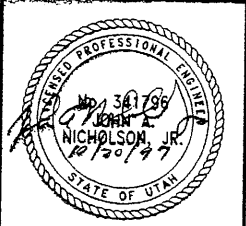
ATLANTA, GA / DALLAS, TX / FALCON, NC (CORPORATE OFFICE)
MIAMI, FL / SAN JOSE, CA / SPRINGFIELD, VA

VSL

RETAINED EARTH™ WALLS
PRECAST WALL "R-343-19"
SPECIAL PANEL REINFORCEMENT
UTAH I-15 INTERCHANGE
SALT LAKE COUNTY, UTAH
UTAH DEPARTMENT OF TRANSP

SCALE:
1.2R-343-19.9
JOB NO:
239-0007 9/11
RE-8

CERTIFIED FOR INTERNAL STABILITY OF RETAINED EARTH™ STRUCTURES ONLY. EXTERNAL STABILITY, INCLUDING BUT NOT LIMITED TO FOUNDATION AND SLOPE STABILITY, IS THE RESPONSIBILITY OF THE OWNER. DESIGN IS BASED ON THE ASSUMPTION THAT THE MATERIAL WITHIN THE RETAINED EARTH™ MASS, METHODS OF CONSTRUCTION, AND QUALITY OF PREFABRICATED MATERIALS CONFORM TO THE MANUFACTURER'S SPECIFICATION.

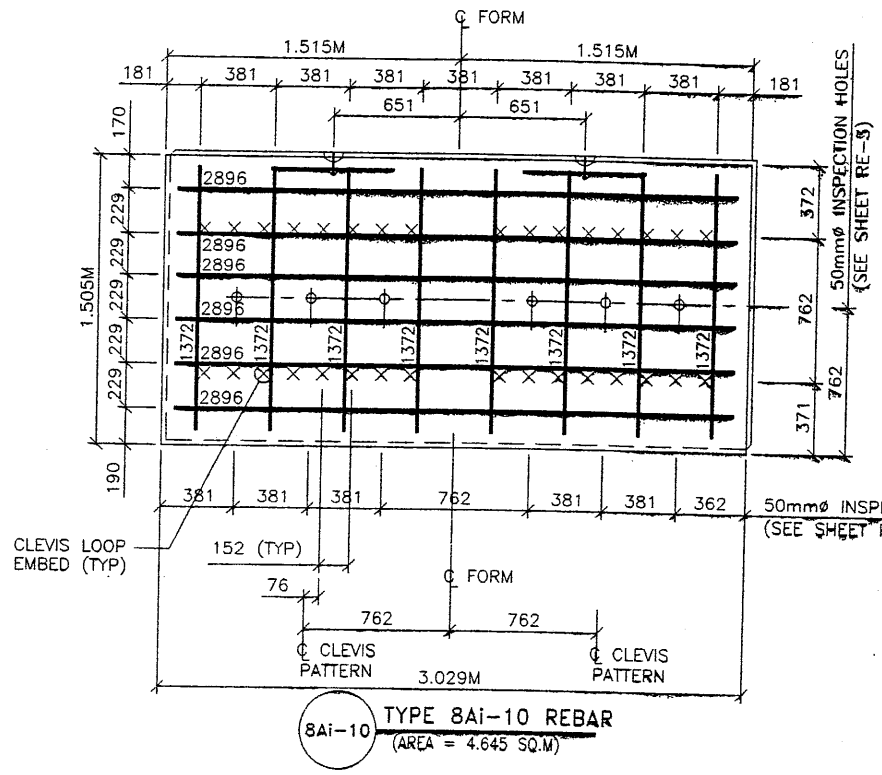


METRIC

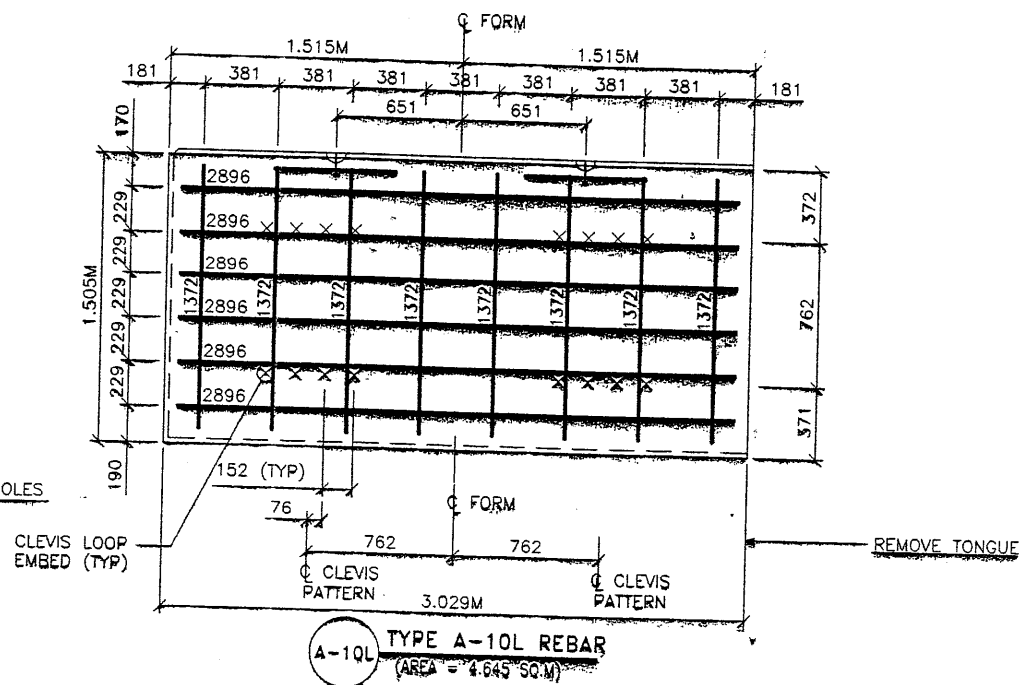
E:\PROJECT\239-0007\72SERIES\72-19\SP

7-16-97

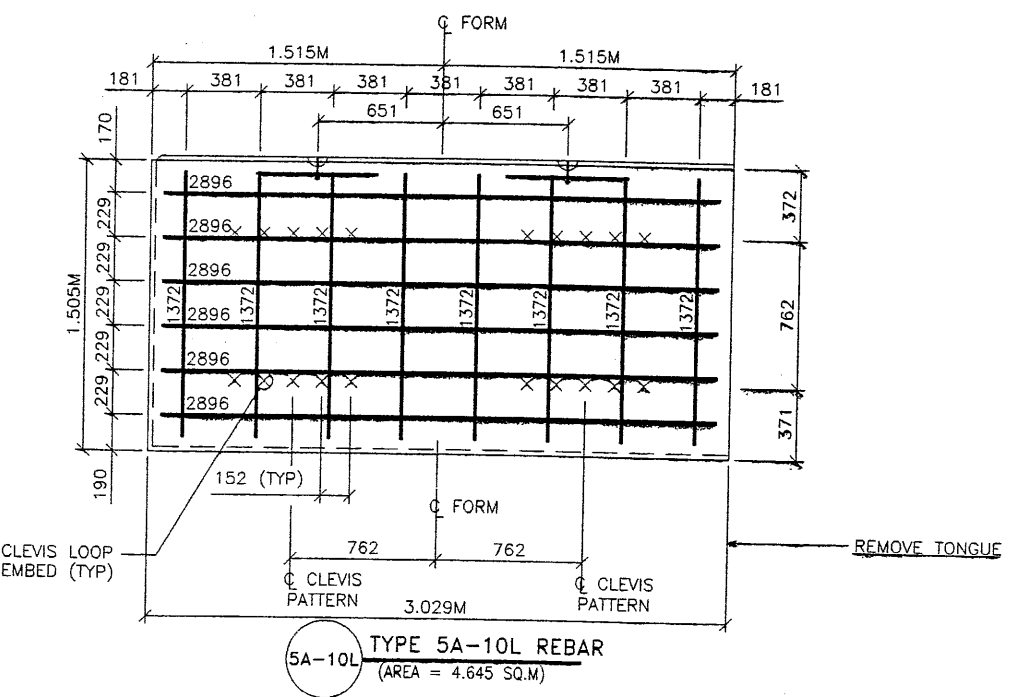
FINAL PL



8Ai-10 TYPE 8Ai-10 REBAR
(AREA = 4.645 SQ.M)



A-10L TYPE A-10L REBAR
(AREA = 4.645 SQ.M)



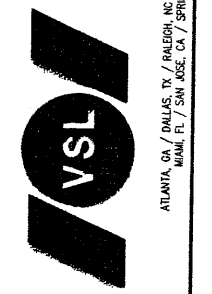
5A-10L TYPE 5A-10L REBAR
(AREA = 4.645 SQ.M)

APPROVED FOR CONSTRUCTION		
NO.	DATE	DESCRIPTION
1	10-16-97	RELEASE FOR CONSTRUCTION

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 - ALL PANELS TO USE 9.5mmØ CLEVIS LOOPS.
 - VSL RETAINED EARTH™ IS PROTECTED UNDER PATENT 4.725.170.

NO.	DATE	REVISION	BY	CHK

VSL CORPORATION
2810 Plaza Blvd, Suite 200
Folsom, CA 95630
Tel: (916) 781-6272
Fax: (916) 781-6869

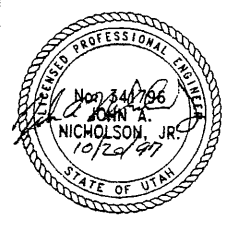


WATCH CONSTRUCTORS
OCT 27 1997
RELEASED FOR CONSTRUCTION

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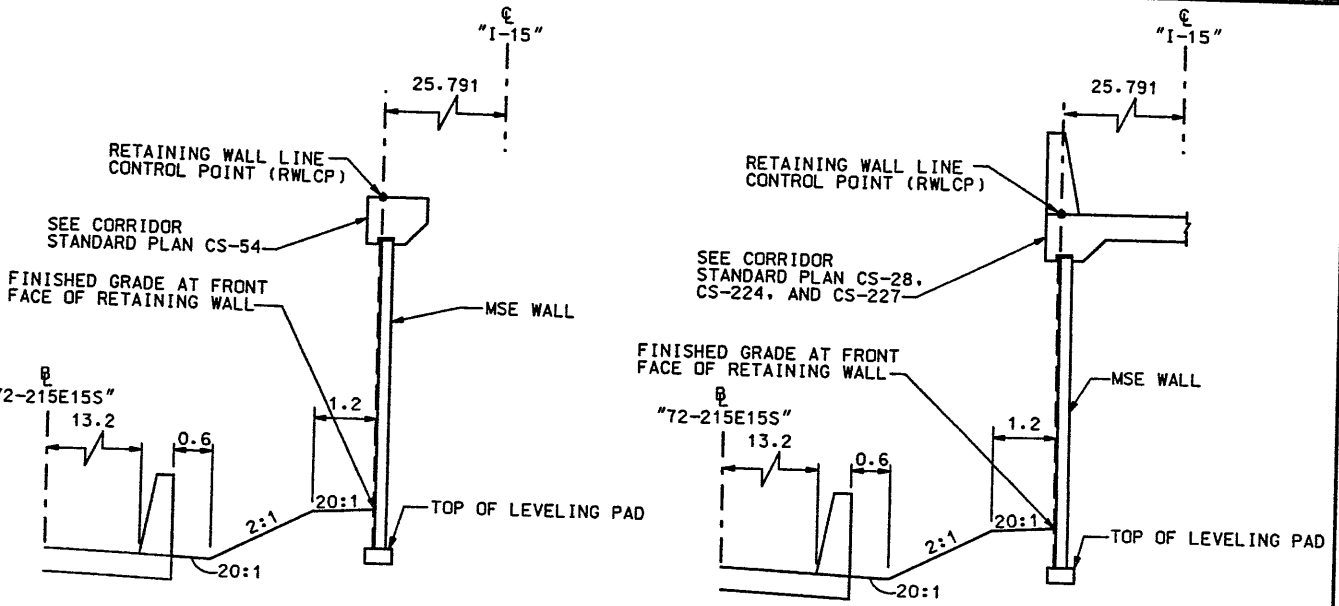
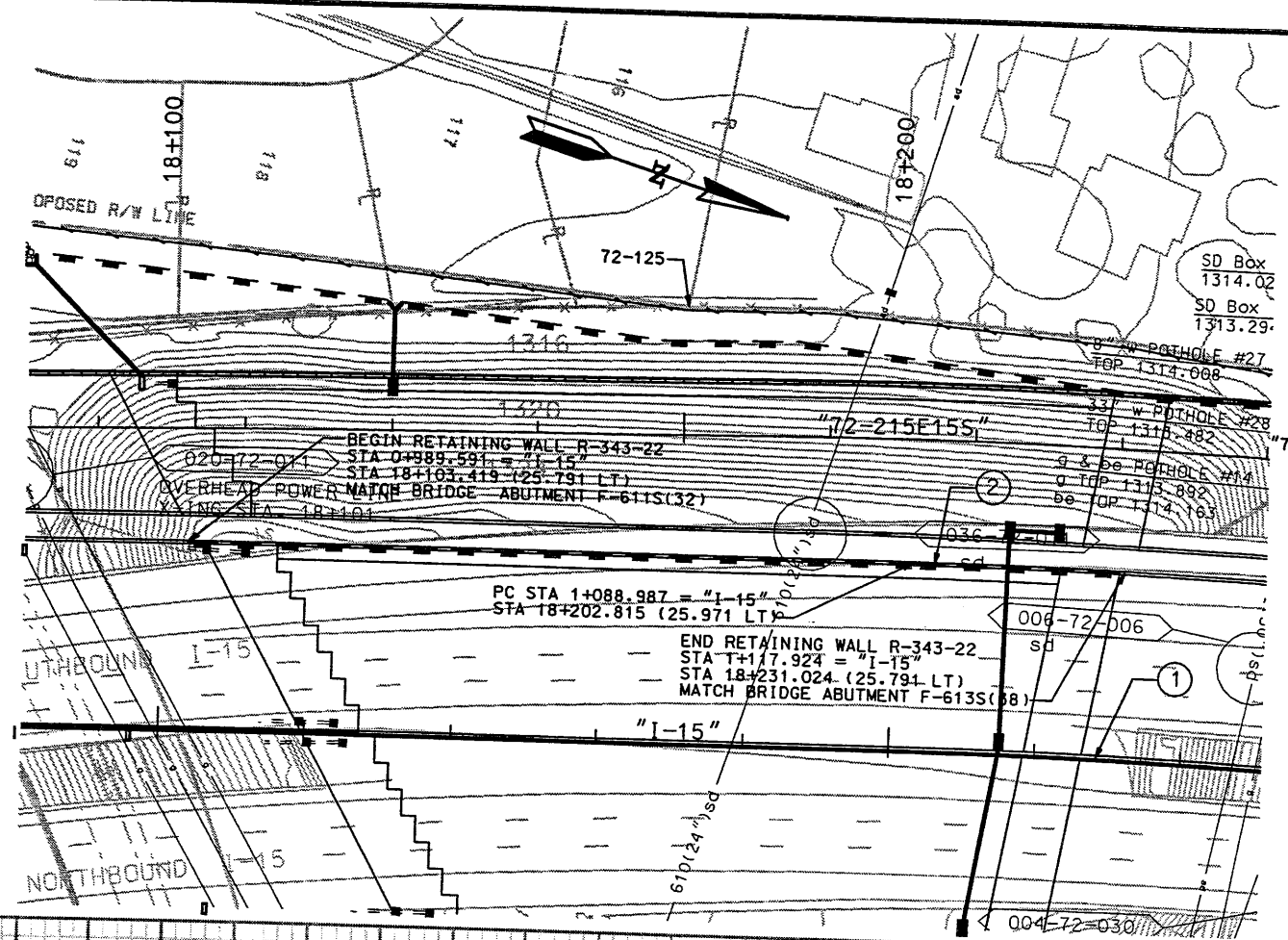
RETAINED EARTH™ WALLS
PRECAST WALL "R-343-19"
SPECIAL PANEL REINFORCEMENT
UTAH I-15 INTERCHANGE
SALT LAKE COUNTY, UTAH
UTAH DEPARTMENT OF TRANSP.

METRIC

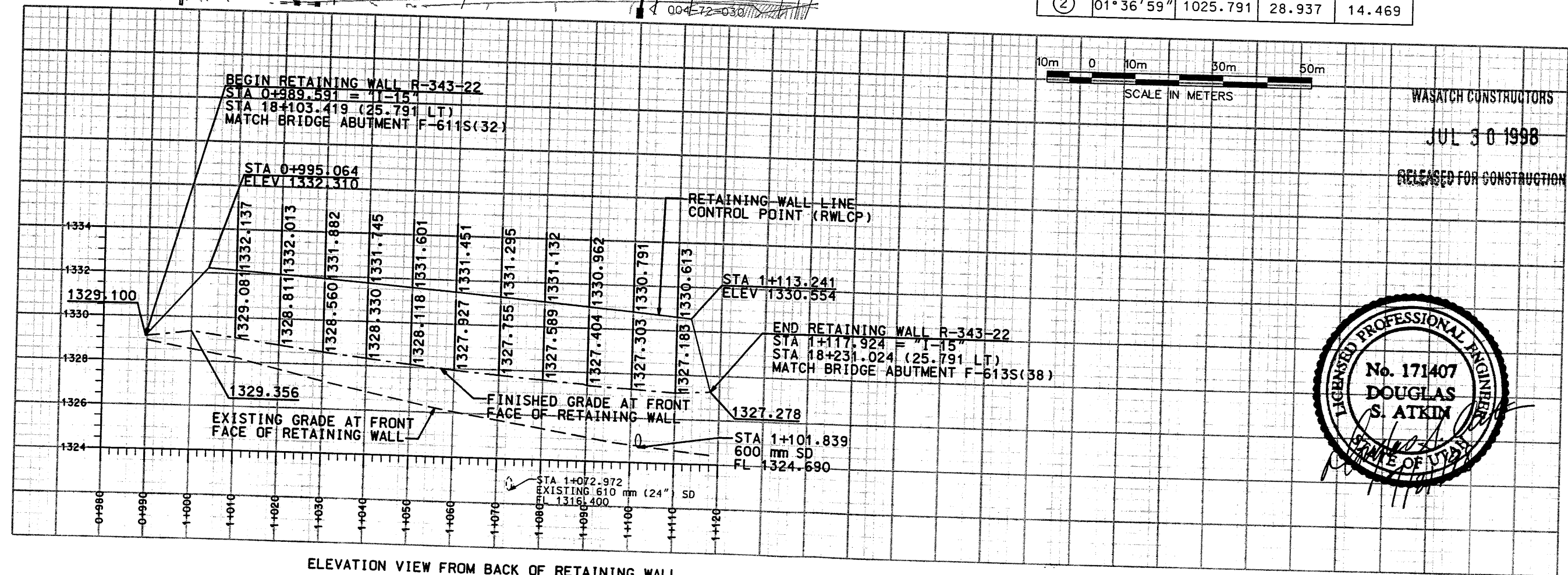


CERTIFIED FOR INTERNAL STABILITY OF RETAINED EARTH™ STRUCTURES ONLY. EXTERNAL STABILITY, INCLUDING BUT NOT LIMITED TO FOUNDATION AND SLOPE STABILITY, IS THE RESPONSIBILITY OF THE OWNER. DESIGN IS BASED ON THE ASSUMPTION THAT THE MATERIAL WITHIN THE RETAINED EARTH™ MASS, METHODS OF CONSTRUCTION, AND QUALITY OF PREFABRICATED MATERIALS CONFORM TO THE MANUFACTURER'S SPECIFICATION.

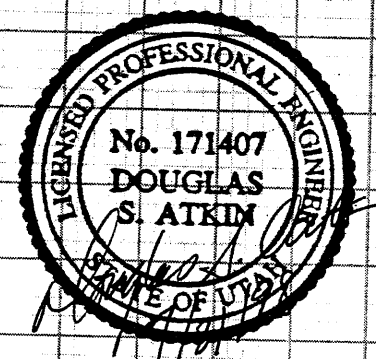
SCALE: 1:2R-343-19.11
JOB NO: 239-0007
RE-10



CURVE NO.	Δ	R	L	T
①	35° 08' 59"	1000.000	613.479	316.736
②	01° 36' 59"	1025.791	28.937	14.469



WASATCH CONSTRUCTORS
 JUL 30 1998
 RELEASED FOR CONSTRUCTION



NOTE:
 THE FOUNDATION BEARING MATERIALS SHOULD BE OBSERVED BY THE GEOTECHNICAL ENGINEER DURING SITE PREPARATION. ANY UNDESIRABLE MATERIALS WILL NEED TO BE REMOVED AND REPLACED WITH BORROW IN ORDER TO ACHIEVE ACCEPTABLE CONDITIONS AT THE BASE OF THE WALL.

APPROVED FOR CONSTRUCTION

UTAH DEPARTMENT OF TRANSPORTATION
 JRS Greiner
 SVERDRUP/DE LEUW

DESIGN: RICK CHAPMAN
 DRAWN: DON GRALL
 PROJECT DESIGN ENGINEER: PROJECT MANAGER

APPROVAL RECORD:
 11/97 DATE PROJECT DESIGN ENGINEER APPROVED 11/97 DATE PROJECT MANAGER

I-15 CORRIDOR RECONSTRUCTION
 SITUATION/LAYOUT
 RETAINING WALL R-343-22
 SECTION 1-2
 PROJECT NUMBER #SP-15-7(135)296

SALT LAKE COUNTY
 DWG. NO. 1.2R-343-22.1
 SHT. 1 OF 6
 REF.

ICE (X-UTAH.DWG)
 H:\RE_EARTH\PROJECT\239-0007\1998\3\72-22\SUBMITL-2\RE-1.DWG
 T 06-10-98
 FINAL

PRECAST WALL STA 0+989.591 =
 I-15 STA 18+103.419
 ● 25.791 LT
 BEGIN PRECAST WALL R-343-22

PRECAST WALL PC STA 1+088.987 =
 I-15 STA 18+202.815
 ● 25.791 LT

PRECAST WALL STA 1+117.924 =
 I-15 STA 18+231.024
 ● 25.791 LT
 END PRECAST WALL R-343-22

BRIDGE F-611S(32)

BRIDGE F-613S(38)

CURVE DATA				
No.	RADIUS	LENGTH	TANGENT	Δ
①	1000.000	613.479	316.736	35°08'59"
②	1025.791	28.937	14.469	01°36'59"

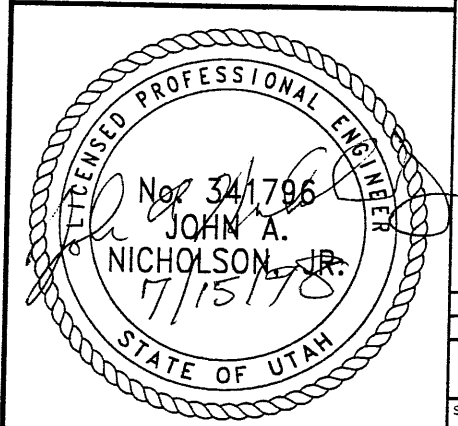
All Dimensions Are In Meters Unless Noted Otherwise

PLAN VIEW WALL "R-343-22"

SCALE: 1=250 (FULL SIZE)
 SCALE: 1=500 (HALF SIZE)

DESIGN PARAMETERS	
ANGLE OF INTERNAL FRICTION (SELECT) = 34°	
ANGLE OF INTERNAL FRICTION (BASE) = 31°	
ANGLE OF INTERNAL FRICTION (RANDOM) = 34°	
UNIT WEIGHT BACKFILL = 135 PCF. (21.2 KN/M ³)	
TRAFFIC SURCHARGE = 250 PSF (12 KPa)	
SEISMIC ACCELERATION COFF. = 0.12g (TYP)	
SEISMIC ACCELERATION COFF. = 0.32g (AT BRIDGE ABUTMENTS)	
DESIGN CRITERIA	
SAFETY FACTOR (OVERTURNING) = 2.0	
SAFETY FACTOR (SLIDING) = 1.5	
SAFETY FACTOR (PULLOUT) = 1.5	
DESIGN LIFE = 75 YEARS	

RETAINED EARTH INDEX	
RE-1	PLAN PRECAST FACE WALL R-343-22, NOTES & DESIGN CRITERIA
RE-2	TYPICAL CROSS SECTION
RE-3	ELEVATION PRECAST WALL "R-343-22"
RE-4	ELEVATION PRECAST WALL "R-343-22"
RE-5	SPECIAL PANEL DETAILS



METRIC

CERTIFIED FOR INTERNAL STABILITY OF RETAINED EARTH™ STRUCTURES ONLY.
 EXTERNAL STABILITY, INCLUDING BUT NOT LIMITED TO FOUNDATION AND SLOPE
 STABILITY, IS THE RESPONSIBILITY OF THE OWNER. DESIGN IS BASED ON THE
 ASSUMPTION THAT THE MATERIAL WITHIN THE RETAINED EARTH™ MASS, METHODS
 OF CONSTRUCTION, AND QUALITY OF PREFABRICATED MATERIALS CONFORM TO
 THE MANUFACTURER'S SPECIFICATION.

APPROVED FOR CONSTRUCTION		
NO.	DATE	DESCRIPTION
△	07-06-98	RELEASE FOR CONSTRUCTION

- GENERAL NOTES
- ALL WALLS ARE SHOWN FRONT FACE. NOTE STATIONING.
 - PANEL TYPE IS DESIGNATED ON EACH PANEL. CONNECTOR LABELS INDICATE NUMBER OF CONNECTORS PER ROW.
EXAMPLE: 5B2-10 IS A "B2-10" PANEL WITH FIVE (5) CONNECTORS PER ROW.
IF NO CONNECTORS ARE SHOWN, FOUR (4) CONNECTOR PANELS SHALL BE USED:
 - SOIL REINFORCING MESH TYPE IS DESIGNATED ON EACH PANEL. MESH LABELS INDICATE WIRE SIZE AND SPACING. LONGITUDINAL WIRE AND CROSSBAR SIZES ARE THE SAME UNLESS NOTED OTHERWISE.
EXAMPLE: 4W11-6 MESH HAS FOUR (4) W11 LONGITUDINAL WIRES WITH W11 CROSSBARS AT 6" CENTERS.
EXAMPLE: 5W11-12 MESH HAS FIVE (5) W11 LONGITUDINAL WIRES WITH W11 CROSSBARS AT 12" CENTERS.
EXAMPLE: 6W11-12 MESH HAS SIX (6) W11 LONGITUDINAL WIRES WITH W11 CROSSBARS AT 12" CENTERS.
EXAMPLE: 4W20-12 MESH HAS FOUR (4) W20 LONGITUDINAL WIRES WITH W20 CROSSBARS AT 12" CENTERS.
 - SEE RETAINED EARTH INSTALLATION MANUAL FOR PROPER WALL ERECTION PROCEDURES AND GUIDELINES.
 - CONSTRUCTION PROCEDURES SHALL PREVENT BACKFILL SATURATION AND PONDING.
 - HEAVY EQUIPMENT SHALL NOT BE USED WITHIN ONE METER OF THE BACK OF THE RETAINED EARTH PANELS. HAND COMPACTORS SHALL BE USED IN THIS AREA.
 - CARE SHALL BE TAKEN TO PREVENT DAMAGE TO GALVANIZING. DAMAGED GALVANIZING SHALL BE COATED WITH ZINC RICH PAINT.
 - BEARING PADS AND FILTER FABRIC ARE NOT REQUIRED BETWEEN THE LEVELING PAD AND THE FIRST ROW OF PANELS. TEMPORARY WEDGES MAY BE USED TO PROVIDE PROPER ALIGNMENT.
 - VSL RETAINED EARTH IS PROTECTED UNDER U.S. PATENT 4,725,170.
 - ALL PANELS SHALL HAVE AN ARCHITECTURAL FINISH. SEE VSL STANDARD SHEET STD-7 FOR DETAILS.

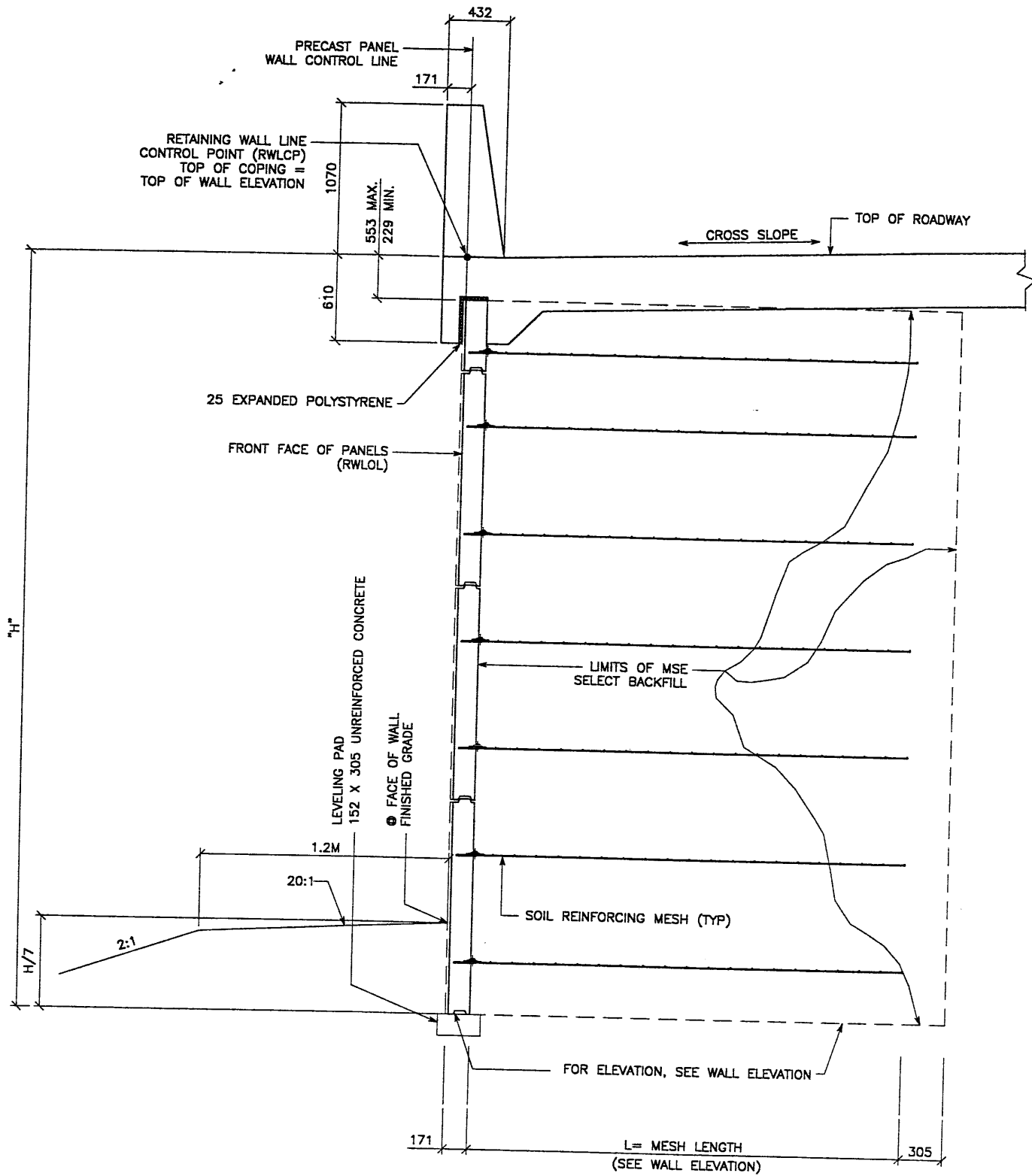
NO.	DATE	REVISION	BY	CHK

VSL CORPORATION
 2840 Roper Plaza, Suite 200
 Raleigh, NC 27617
 Telephone: (919) 781-6272
 Fax: (919) 781-4669

WASATCH CONSTRUCTORS
 JUL 30 1998
 RELEASED FOR CONSTRUCTION

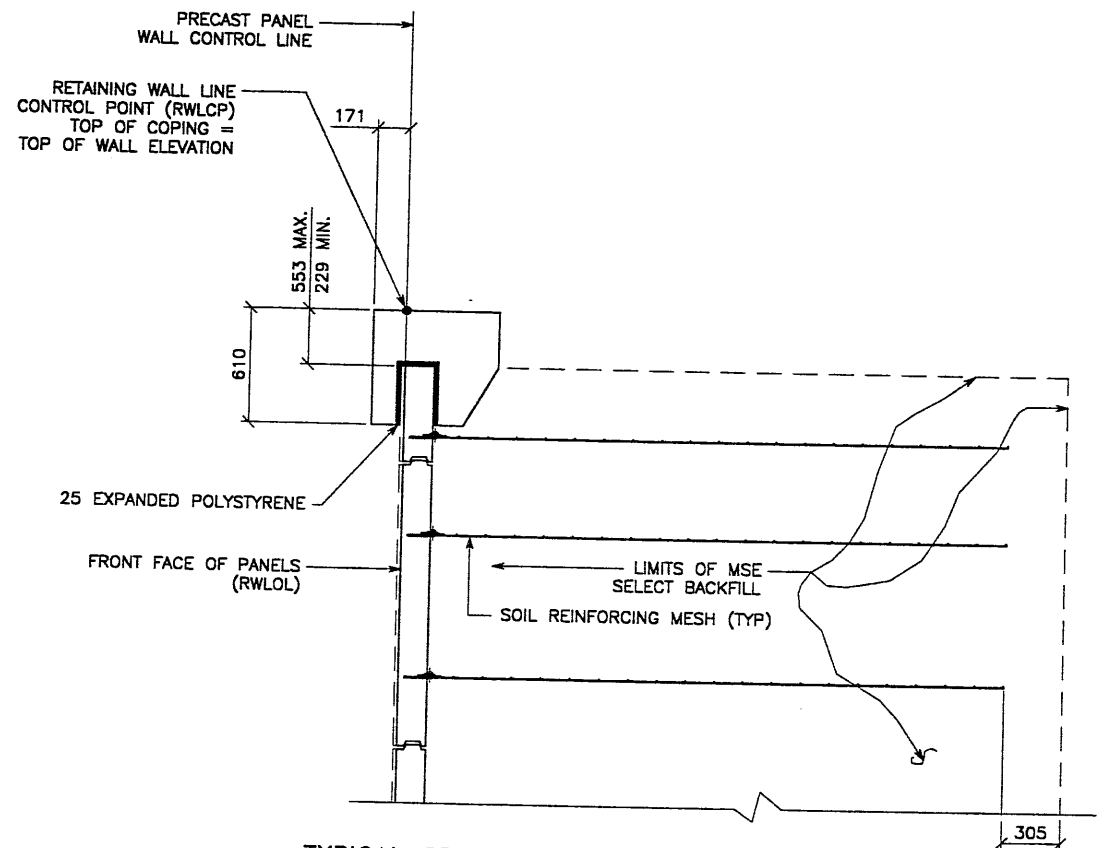
RETAINED EARTH™ WALLS
 PLAN VIEW PRECAST WALL "R-343-22"
 UTAH I-15 RECONSTRUCTION
 SALT LAKE COUNTY, UTAH
 UTAH DEPARTMENT OF TRANSP.

DWG. NO.
 1.2R-343-22.2
 JOB NO.
 239-0007
 SHT. NO.
 RE-1



TYPICAL CROSS SECTION - STA 0+995.064 TO STA 1+113.241
 (SEE DWG. NO. 1.2R-343-22.1 FOR ADDITIONAL INFORMATION)

SCALE: 1:20 (FULL SIZE)
 SCALE: 1:40 (HALF SIZE)



TYPICAL CROSS SECTION - STA 0+989.591 TO 0+995.064
 STA 1+113.241 TO 1+117.924

(SEE DWG. NO. 1.2R-343-22.1 FOR ADDITIONAL INFORMATION)
 SCALE: 1:20 (FULL SIZE)

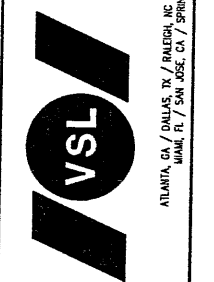
METRIC

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APPROVED FOR CONSTRUCTION		
NO.	DATE	DESCRIPTION
▲	07-06-98	RELEASE FOR CONSTRUCTION

DES.	NO.	DATE	REVISION	BY
JL	06-10-98			
LOP	06-10-98			
JL	06-10-98			

VSL CORPORATION
 2840 Plaza Place, Suite 200
 Raleigh, NC 27612
 Telephone: (919) 781-8772
 Fax: (919) 781-8889

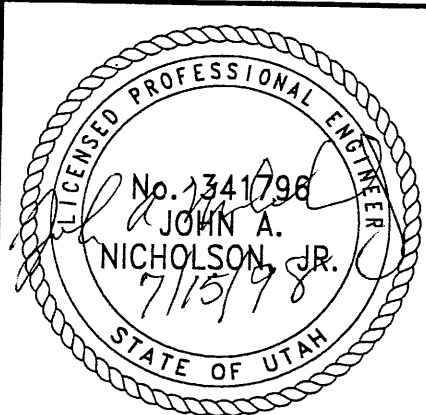


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WASATCH CONSTRUCTORS

JUL 30 1998

RELEASED FOR CONSTRUCTION



RETAINED EARTH™ WALLS
 PRECAST WALL R-343-22
 TYPICAL CROSS SECTION
 UTAH I-15 RECONSTRUCTION
 SALT LAKE COUNTY, UTAH
 UTAH DEPARTMENT OF TRANSP.

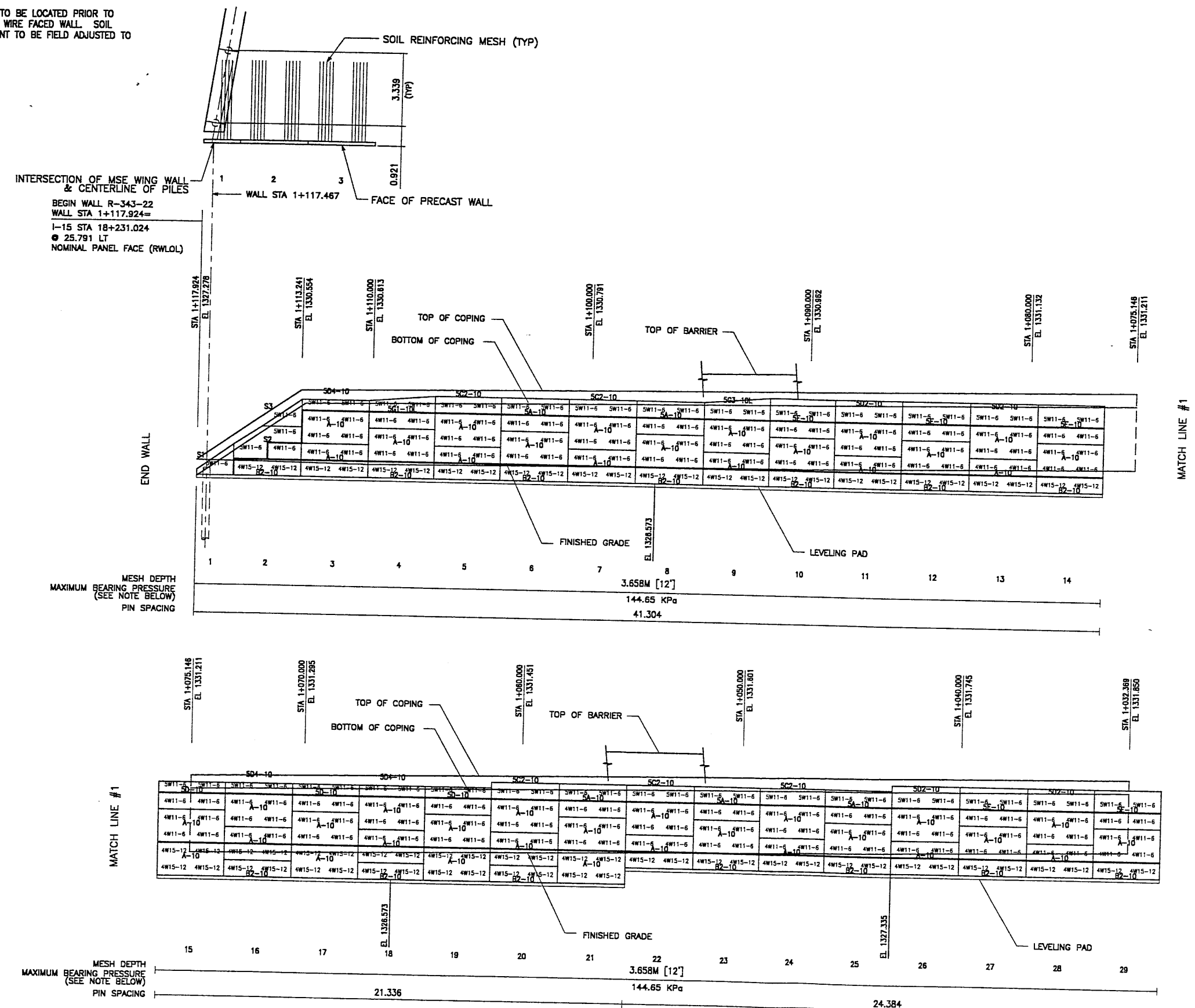
DWG. NO.	1.2R-343-22.3
JOB NO.	239-0007/3/6
SHT. NO.	RE-2

XR-REFERENCE (X-UTRHDWG)

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FINAL JT 06-10-98

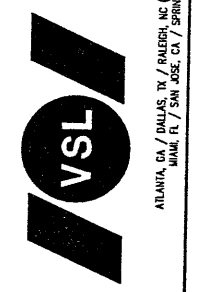
NOTE: PILES TO BE LOCATED PRIOR TO ERECTION OF WIRE FACED WALL. SOIL REINFORCEMENT TO BE FIELD ADJUSTED TO AVOID PILES.



APPROVED FOR CONSTRUCTION			
NO.	DATE	DESCRIPTION	CHK
▲	07-06-98	RELEASE FOR CONSTRUCTION	

DES.	DRN.	CHK.	NO.	DATE	REVISION	BY
JL	DDL	JL				
JL	DDL	JL				
JL	DDL	JL				

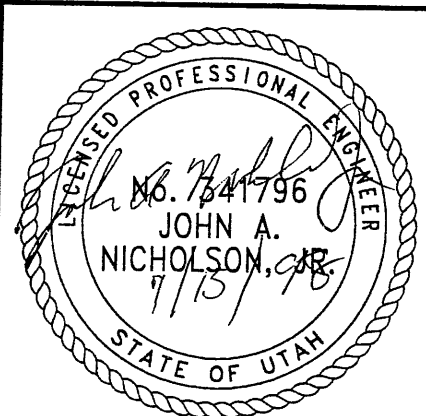
VSL CORPORATION
 7800 Price Street, Suite 200
 Redwood City, CA 94061
 Telephone: (919) 781-8272
 Fax: (919) 781-8689



VSL Corporation (VSL) is a Swiss company with a long history of innovation in the field of concrete structures. The company's products and services are used in a wide range of applications, from bridges and highways to industrial and commercial buildings. VSL is committed to providing high-quality, reliable solutions for its customers.

WASATCH CONSTRUCTORS
 JUL 30 1998
 RELEASED FOR CONSTRUCTION

RETAINED EARTH™ WALLS
 PRECAST WALL "R-343-22"
 UTAH I-15 RECONSTRUCTION
 SALT LAKE COUNTY, UTAH
 UTAH DEPARTMENT OF TRANSP.



DWG. NO.
1.2R-343-22.4
 JOB NO.
239-0007 4/6
 SHT. NO.
RE-3

ELEVATION PRECAST WALL R-343-22

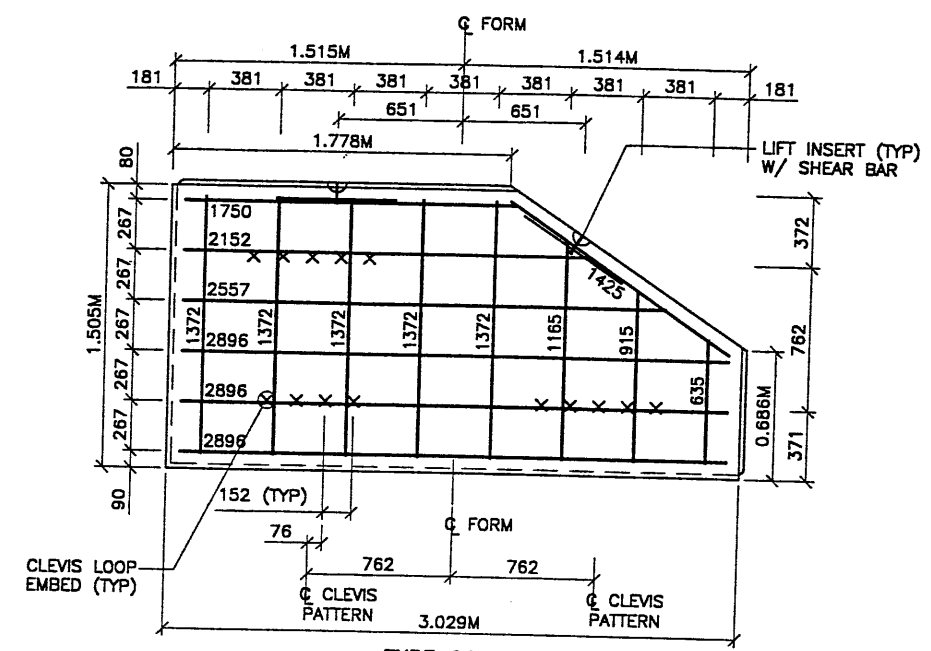
(FRONT FACE SHOWN)
 (TOTAL SURFACE AREA OF PANELS = 493.74 SM)

SCALE 1:100 (FULL SIZE)
 SCALE 1:200 (HALF SIZE)

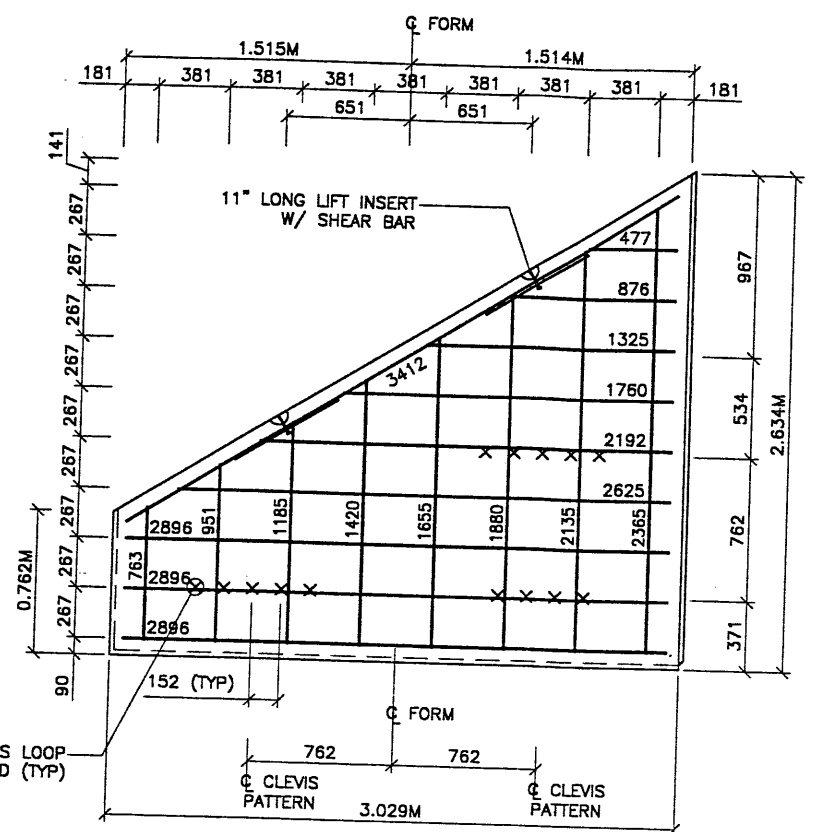
CERTIFIED FOR INTERNAL STABILITY OF RETAINED EARTH™ STRUCTURES ONLY. EXTERNAL STABILITY, INCLUDING BUT NOT LIMITED TO FOUNDATION AND SLOPE STABILITY, IS THE RESPONSIBILITY OF THE OWNER. DESIGN IS BASED ON THE ASSUMPTION THAT THE MATERIAL WITHIN THE RETAINED EARTH™ MASS, METHODS OF CONSTRUCTION, AND QUALITY OF PREFABRICATED MATERIALS CONFORM TO THE MANUFACTURER'S SPECIFICATION.

METRIC

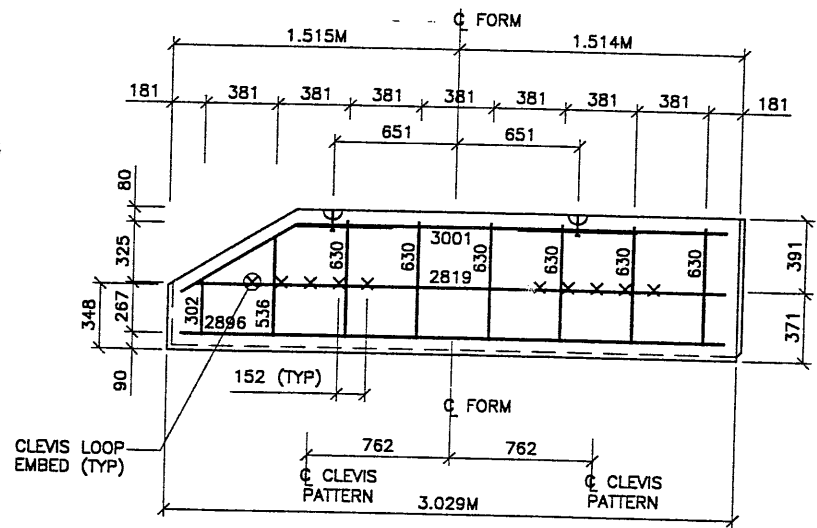
FINA T 06-10-98 H:\RE_EARTH\PROJECT\239-0007\1998\72-22\SPECIALS.DWG (X-UTAH.DWG)



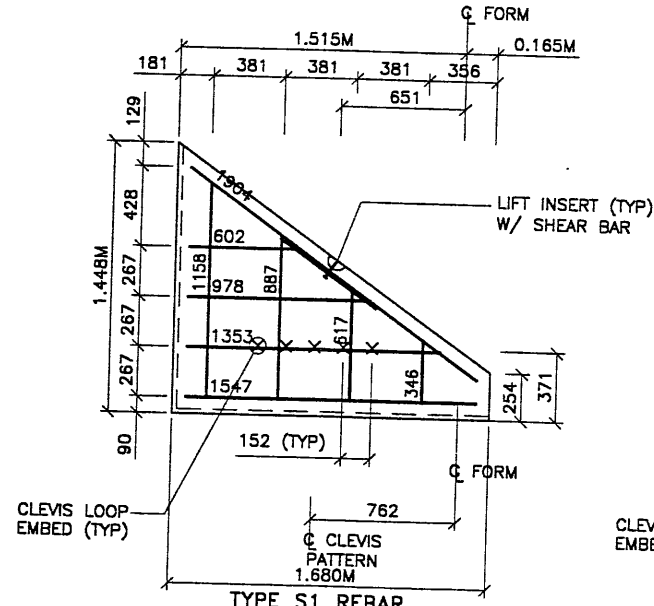
TYPE S2 REBAR
(AREA = 4.11 SQ.M)



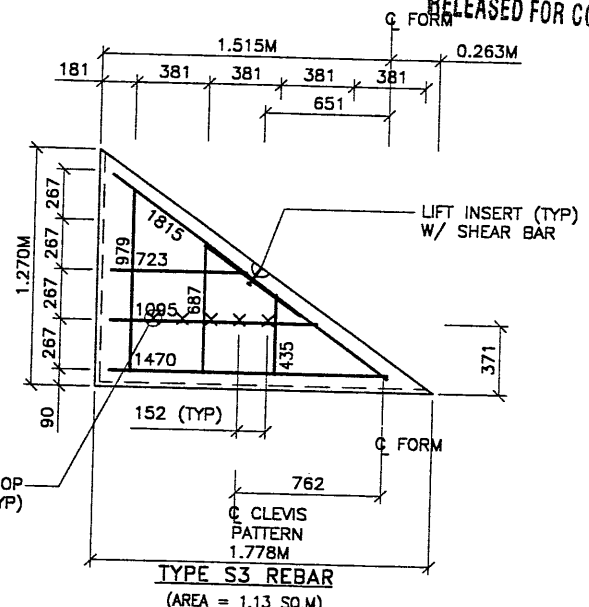
TYPE S5 REBAR
(AREA = 5.21 SQ.M)



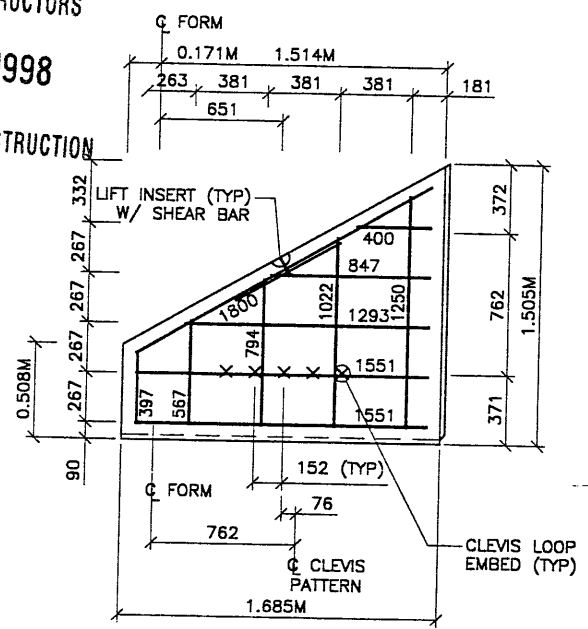
TYPE S4 REBAR
(AREA = 2.17 SQ.M)



TYPE S1 REBAR
(AREA = 1.43 SQ.M)



TYPE S3 REBAR
(AREA = 1.13 SQ.M)

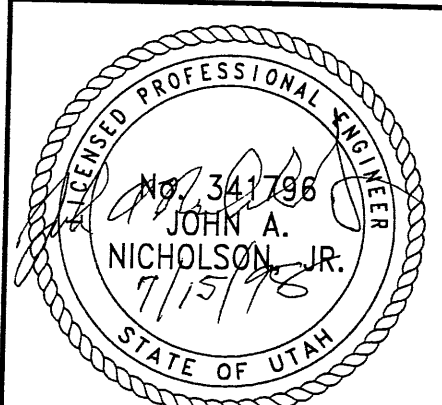


TYPE S6 REBAR
(AREA = 1.71 SQ.M)

APPROVED FOR CONSTRUCTION		
NO.	DATE	DESCRIPTION
Δ	07-06-98	RELEASE FOR CONSTRUCTION

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- PANELS ARE SHOWN BACK FACE.
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 - PANEL REINFORCEMENT BARS SHALL BE DEFORMED BILLET STEEL BARS FOR CONCRETE REINFORCEMENT CONFORMING TO THE SPECIFICATIONS OF ASTM DESIGNATION A615, GRADE 60.
 - ALL REINFORCING STEEL TO BE GALVANIZED IN ACCORDANCE WITH ASTM 767 CLASS I.
 - CONCRETE PANELS TO HAVE 28 DAY COMPRESSIVE STRENGTH OF 27,500 KPa.
 - EQUVALENT WELDED WIRE FABRIC MAY BE USED.
 - ALL PANELS TO USE 9.5mm# CLEVIS LOOPS.
 - VSL RETAINED EARTH™ IS PROTECTED UNDER PATENT 4,725,170.
 - LIFT INSERTS ARE 6 3/4" LONG IN ALL PANELS LESS THAN 1.524M TALL. PANELS TALLER THAN 1.524M SHALL HAVE 11" LONG LIFT ANCHORS.

WASATCH CONSTRUCTORS
JUL 30 1998
RELEASED FOR CONSTRUCTION



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METRIC

VSL CORPORATION
2840 Plaza Place, Suite 200
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VSL
ALBANY, GA / DALLAS, TX / RALEIGH, NC (CORPORATE OFFICE)
MIAMI, FL / SAN JOSE, CA / SPRINGFIELD, VA

RETAINED EARTH™ WALLS
PRECAST WALL "R-343-22"
SPECIAL PANEL DETAILS
UTAH I-15 RECONSTRUCTION
SALT LAKE COUNTY, UTAH
UTAH DEPARTMENT OF TRANSP.

DWG. NO.	1.2R-343-22.6
JOB NO.	239-0007/6
SHT. NO.	RE-5

WALL STA 1+001.049 =
"I-15"
STA 18+287.603 @ 25.791 LT
BEGIN PRECAST WALL 343-23

FRONT FACE PRECAST WALL "343-23"

BRIDGE F-613S(38)

WALL STA 1+241.729=
"I-15"
STA 18+522.231 @ 25.791 LT
END PRECAST WALL 343-23

BRIDGE C-832S(44)

CURVE DATA				
No.	RADIUS	LENGTH	TANGENT	Δ
①	1000.000	613.479	316.736	35°08'59"
②	1025.791	240.679	120.895	13°26'35"

All Dimensions Are in Meters Unless Noted Otherwise

GENERAL NOTES

- ALL WALLS ARE SHOWN FRONT FACE. NOTE STATIONING.
- PANEL TYPE IS DESIGNATED ON EACH PANEL. CONNECTOR LABELS INDICATE NUMBER OF CONNECTORS PER ROW.
EXAMPLE: 5B2-10 IS A "B2-10" PANEL WITH FIVE (5) CONNECTORS PER ROW.
IF NO CONNECTORS ARE SHOWN, FOUR (4) CONNECTOR PANELS SHALL BE USED:
- SOIL REINFORCING MESH TYPE IS DESIGNATED ON EACH PANEL. MESH LABELS INDICATE WIRE SIZE AND SPACING. LONGITUDINAL WIRE AND CROSSBAR SIZES ARE THE SAME UNLESS NOTED OTHERWISE:
EXAMPLE: 4W11-6 MESH HAS FOUR (4) W11 LONGITUDINAL WIRES WITH W11 CROSSBARS AT 6" CENTERS.
EXAMPLE: 5W11-12 MESH HAS FIVE (5) W11 LONGITUDINAL WIRES WITH W11 CROSSBARS AT 12" CENTERS.
EXAMPLE: 6W11-12 MESH HAS SIX (6) W11 LONGITUDINAL WIRES WITH W11 CROSSBARS AT 12" CENTERS.
EXAMPLE: 4W20-12 MESH HAS FOUR (4) W20 LONGITUDINAL WIRES WITH W20 CROSSBARS AT 12" CENTERS.
- SEE RETAINED EARTH INSTALLATION MANUAL FOR PROPER WALL ERECTION PROCEDURES AND GUIDELINES.
- CONSTRUCTION PROCEDURES SHALL PREVENT BACKFILL SATURATION AND PONDING.
- HEAVY EQUIPMENT SHALL NOT BE USED WITHIN ONE METER OF THE BACK OF THE RETAINED EARTH PANELS. HAND COMPACTORS SHALL BE USED IN THIS AREA.
- CARE SHALL BE TAKEN TO PREVENT DAMAGE TO GALVANIZING. DAMAGED GALVANIZING SHALL BE COATED WITH ZINC RICH PAINT.
- BEARING PADS AND FILTER FABRIC ARE NOT REQUIRED BETWEEN THE LEVELING PAD AND THE FIRST ROW OF PANELS. TEMPORARY WEDGES MAY BE USED TO PROVIDE PROPER ALIGNMENT.
- VSL RETAINED EARTH IS PROTECTED UNDER U.S. PATENT 4,725,170.
- ALL PANELS SHALL HAVE AN ARCHITECTURAL FINISH, SEE VSL STANDARD SHEET STD-7 FOR DETAILS.

DESIGN PARAMETERS	
ANGLE OF INTERNAL FRICTION (SELECT) = 34°	ANGLE OF INTERNAL FRICTION (BASE) = 31°
ANGLE OF INTERNAL FRICTION (RANDOM) = 34°	UNIT WEIGHT BACKFILL = 135 PCF. (21.2 KN/M ³)
TRAFFIC SURCHARGE = 250 PSF (12 KPa)	SEISMIC ACCELERATION COFF. = 0.12g (TYP)
SEISMIC ACCELERATION COFF. = 0.32g (AT BRIDGE ABUTMENTS)	
DESIGN CRITERIA	
SAFETY FACTOR (OVERTURNING) = 2.0	
SAFETY FACTOR (SLIDING) = 1.5	
SAFETY FACTOR (PULLOUT) = 1.5	
DESIGN LIFE = 75 YEARS	

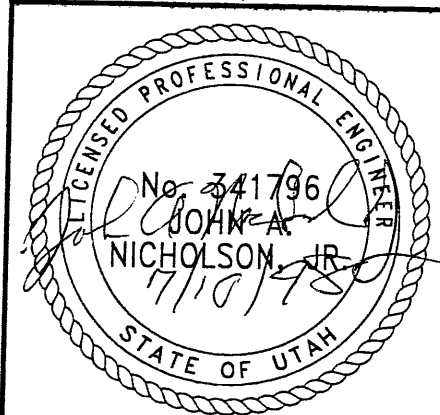
RETAINED EARTH INDEX	
RE-1	PLAN PRECAST FACE WALL R-343-23, NOTES & DESIGN CRITERIA
RE-2	TYPICAL CROSS SECTION
RE-3	ELEVATION PRECAST WALL "R-343-23"
RE-4	ELEVATION PRECAST WALL "R-343-23"
RE-5	SPECIAL PANEL DETAILS

PLAN VIEW WALL "R-343-23"

SCALE: 1=250 (FULL SIZE)
SCALE: 1=500 (HALF SIZE)

METRIC

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APPROVED FOR CONSTRUCTION		
NO.	DATE	DESCRIPTION
▲	7-02-98	RELEASE FOR CONSTRUCTION

DES.	DRN.	CHK.	JL	RSW	JL	NO.	DATE	REVISION	BY	CHK
06-03-98	06-03-98	06-03-98	JL	RSW	JL					

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Fax: (919) 286-4888



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WASATCH CONSTRUCTORS

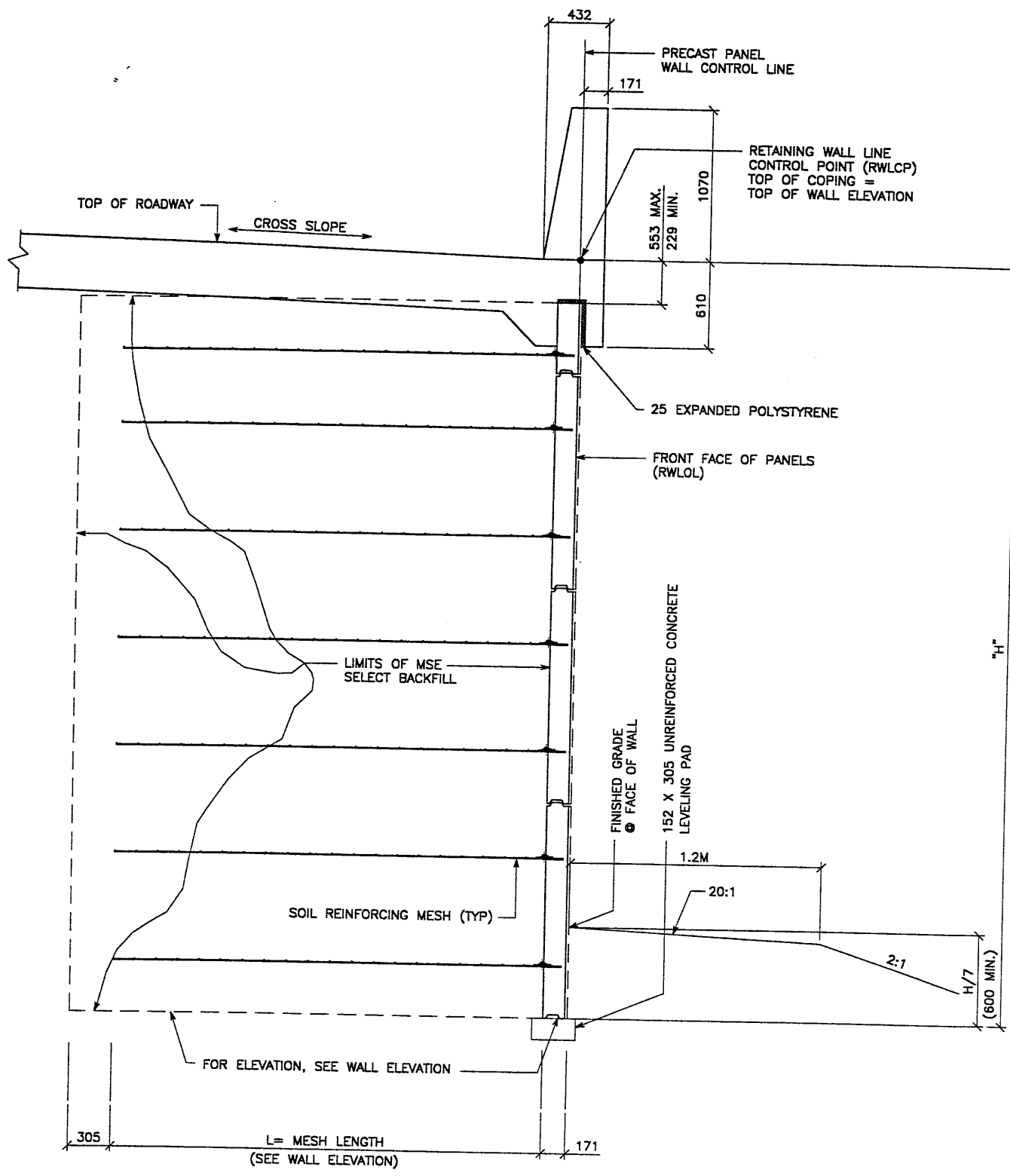
JUL 17 1998

RELEASED FOR CONSTRUCTION

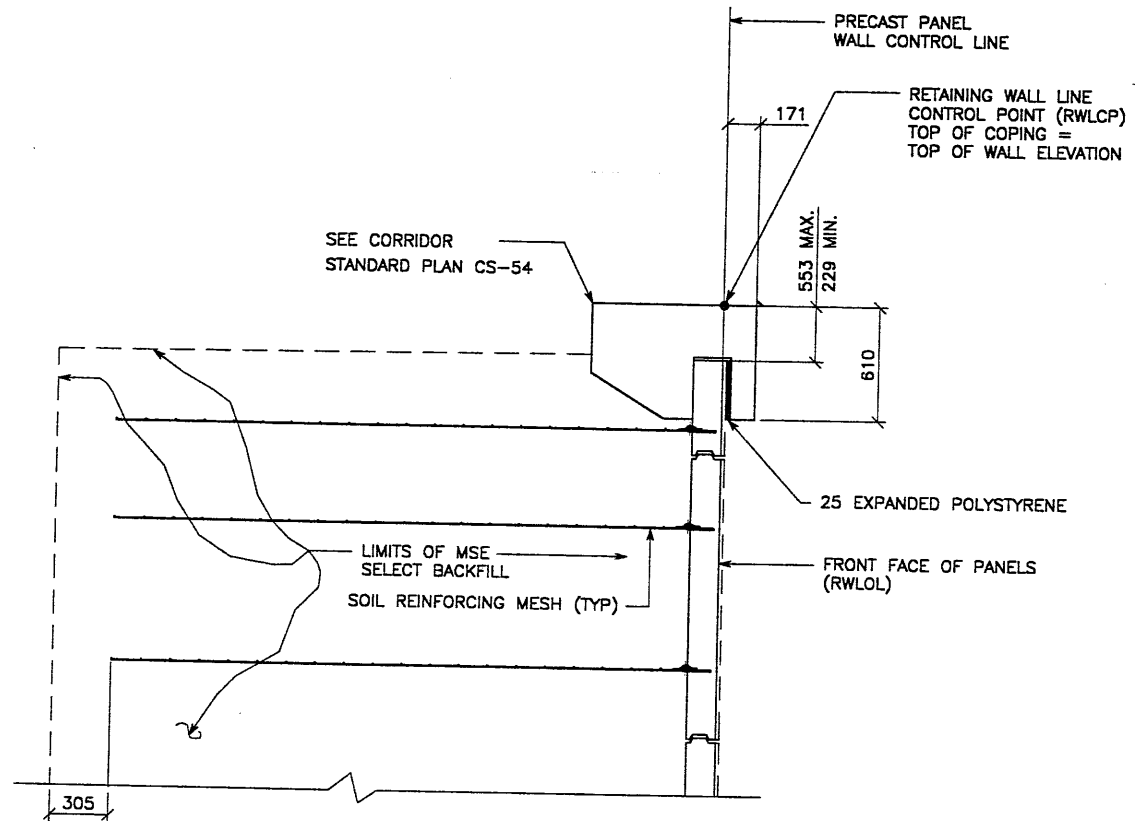
RETAINED EARTH™ WALLS
PLAN VIEW PRECAST WALL "R-343-23"
UTAH I-15 RECONSTRUCTION
SALT LAKE COUNTY, UTAH
UTAH DEPARTMENT OF TRANSP.

DWG. NO.	1.2R-343-23.2
JOB NO.	239-0007
SHT. NO.	RE-1

H:\RE_EARTH\PROJECT\239-0007\1998\7
 T 06-03-98
 FINAI
 V\72-23\RE-2
 VICE (X-UTAH.DWG)



TYPICAL CROSS SECTION - STA 1+006.525 TO STA 1+241.729
 (SEE DWG. NO. 1.2R-343-23.1 FOR ADDITIONAL INFORMATION)
 SCALE: 1:20 (FULL SIZE)
 SCALE: 1:40 (HALF SIZE)

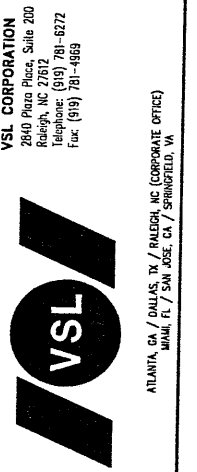


TYPICAL CROSS SECTION - STA 1+001.049 TO 1+006.525
 (SEE DWG. NO. 1.2R-343-23.1 FOR ADDITIONAL INFORMATION)
 SCALE: 1:20 (FULL SIZE)
 SCALE: 1:40 (HALF SIZE)

APPROVED FOR CONSTRUCTION		
NO.	DATE	DESCRIPTION
1	07-02-98	RELEASE FOR CONSTRUCTION

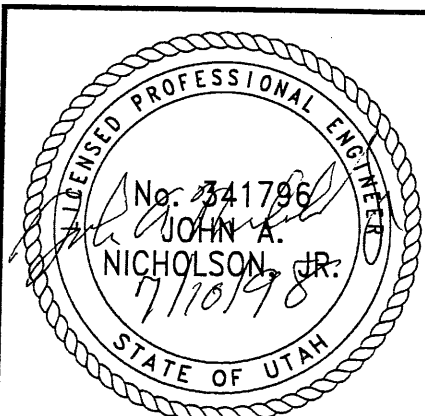
DES.	DRN.	CHK.	RETAINED EARTH™	NO.	DATE	REVISION	BY	CHK
JL	RSW	JL						
06-04-98	06-04-98	06-04-98						

VSL CORPORATION
 2640 Plaza Place, Suite 200
 Raleigh, NC 27612
 Telephone: (919) 781-6272
 Fac: (919) 781-6959



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WASATCH CONSTRUCTORS
JUL 17 1998
RELEASED FOR CONSTRUCTION



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METRIC

RETAINED EARTH™ WALLS PRECAST WALL "R-343-23" TYPICAL CROSS SECTION	DWG. NO. 1.2R-343-23.3
UTAH 1-15 RECONSTRUCTION SALT LAKE COUNTY, UTAH UTAH DEPARTMENT OF TRANSP.	JOB NO: 239-0007 3/6
	SHT. NO. RE-2

DE (X-UTAH.DWG)

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IES\72-23\72-23.DWG

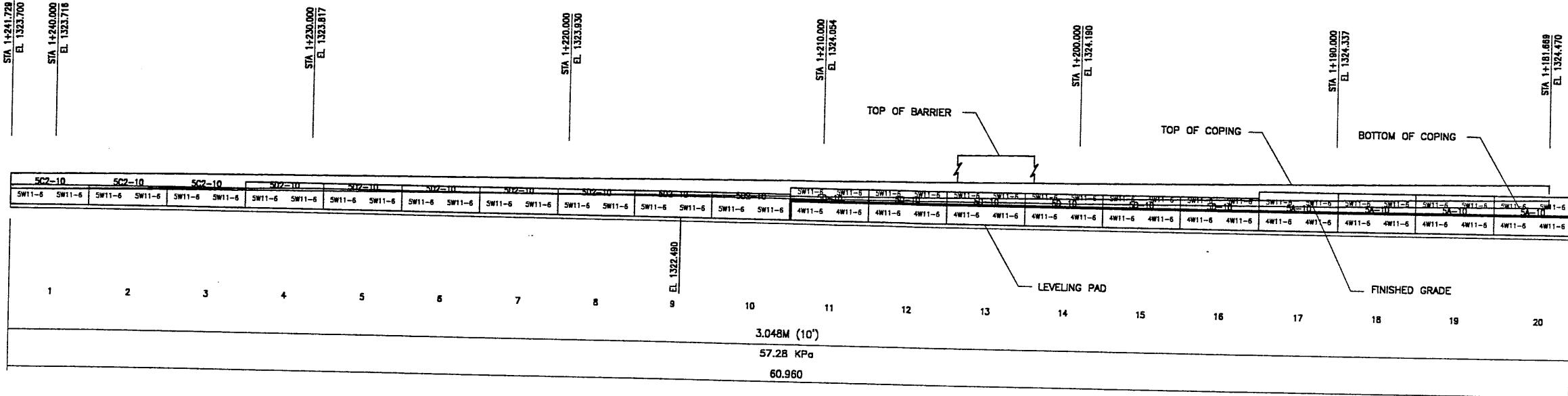
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FINA

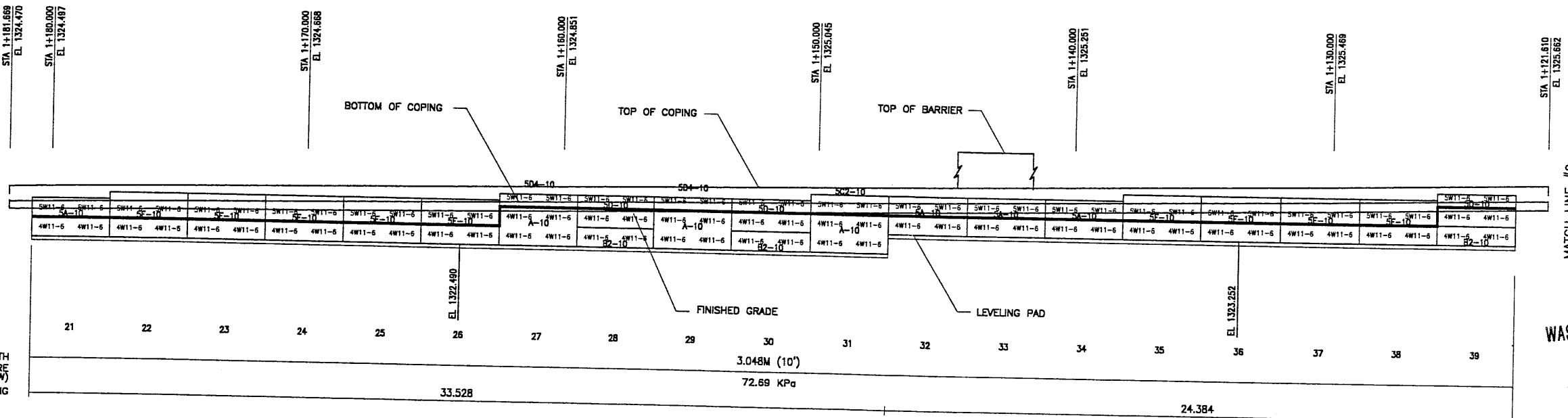
END WALL R-343-23
WALL STA 1+241.729 =
I-15 STA 18+552.231
● 25.791 LT
NOMINAL PANEL FACE (RWLOL)

APPROVED FOR CONSTRUCTION		
NO.	DATE	DESCRIPTION
▲	7-02-98	RELEASE FOR CONSTRUCTION

END WALL



MATCH LINE #1



MATCH LINE #2

WASATCH CONSTRUCTORS
JUL 17 1998
RELEASED FOR CONSTRUCTION

APPROVER NOTE:
MAXIMUM FINAL UNFACTORED BEARING PRESSURES
ARE INDICATED BELOW "MESH DEPTH LINE"
REVIEWER TO VERIFY MAXIMUM BEARING
CAPACITY OF FOUNDATION.

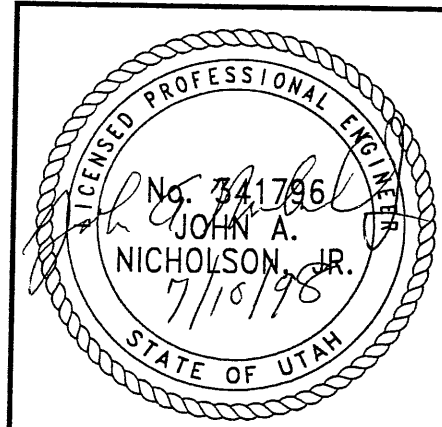
ELEVATION PRECAST WALL R-343-23

(FRONT FACE SHOWN)
(TOTAL SURFACE AREA OF PANELS = 419.08 SM)

SCALE 1:100 (FULL SIZE)
SCALE 1:200 (HALF SIZE)

METRIC

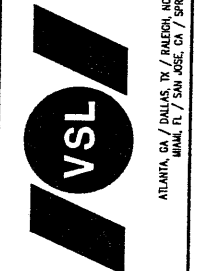
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RETAINED EARTH™ WALLS
PRECAST WALL "R-343-23"
UTAH I-15 RECONSTRUCTION
SALT LAKE COUNTY, UTAH
UTAH DEPARTMENT OF TRANSP.

DWG. NO.	1.2R-343-23.4
JOB NO.	239-0007
SHT. NO.	RE-3

VSL CORPORATION
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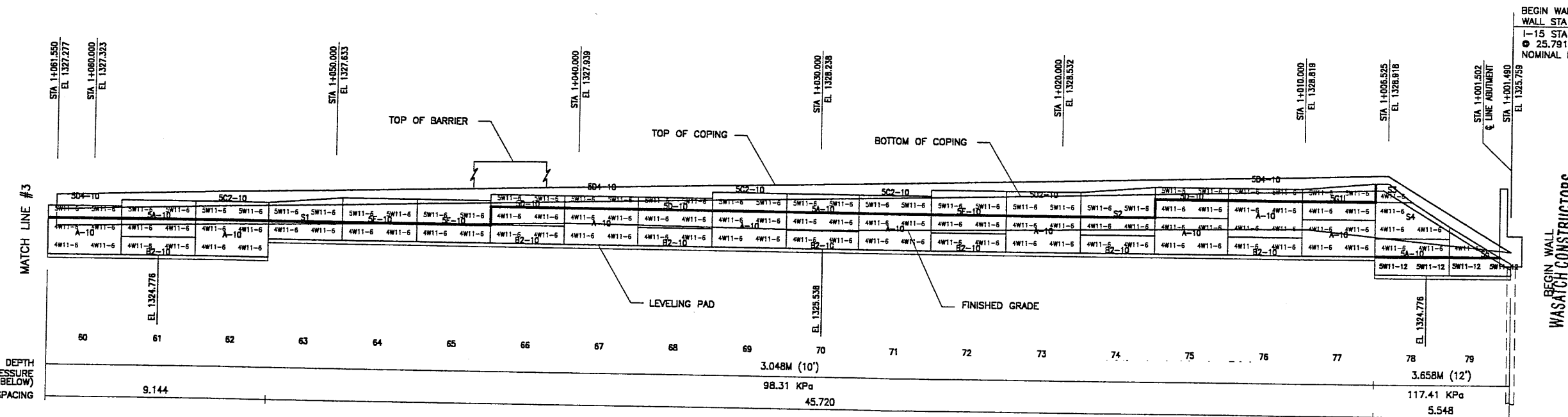
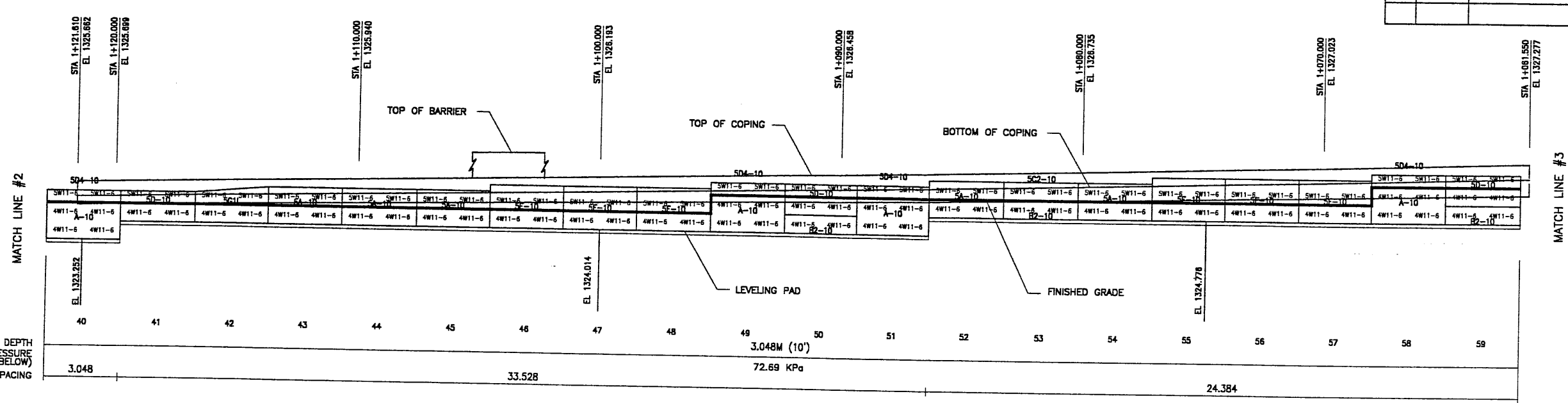


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NO.	DATE	DESCRIPTION	BY	CHK

H:\RE_EARTH\PROJECT\239-0007\199. JES\72-23\72-23.DWG 06-05-98 FINA

APPROVED FOR CONSTRUCTION		
NO.	DATE	DESCRIPTION
7-02-98		RELEASE FOR CONSTRUCTION



BEGIN WALL R-343-23
WALL STA 1+001.490 =
1-15 STA 18+287.603
25.791 LT
NOMINAL PANEL FACE (RWLOL)

BEGIN WALL
WASATCH CONSTRUCTORS
JUL 17 1998
RELEASED FOR CONSTRUCTION

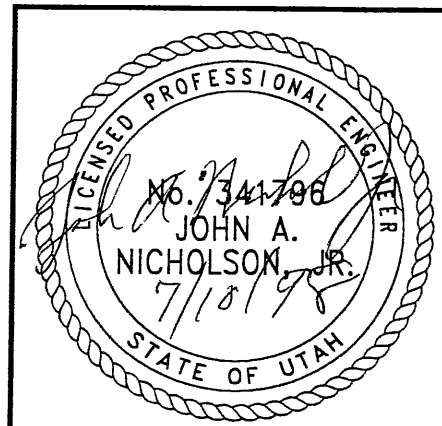
APPROVER NOTE:
MAXIMUM FINAL UNFACTORED BEARING PRESSURES
ARE INDICATED BELOW "MESH DEPTH LINE"
REVIEWER TO VERIFY MAXIMUM BEARING
CAPACITY OF FOUNDATION.

ELEVATION PRECAST WALL R-343-23

(FRONT FACE SHOWN)
(TOTAL SURFACE AREA OF PANELS = 419.08 SM)
SCALE 1:100 (FULL SIZE)
SCALE 1:200 (HALF SIZE)

METRIC

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THE MANUFACTURER'S SPECIFICATION.



DES.	06-05-98	JL
DRW.	06-05-98	RSW
CHK.	06-05-98	JL

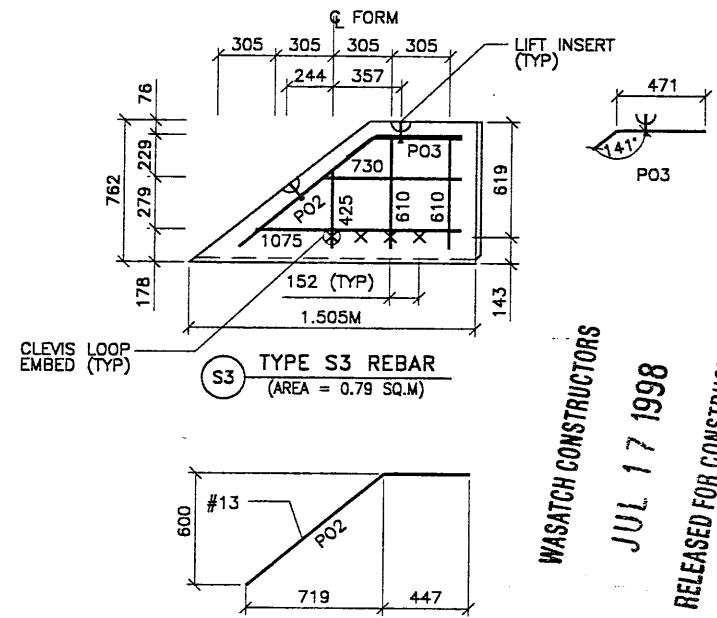
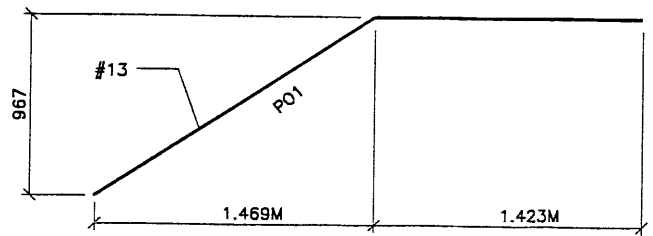
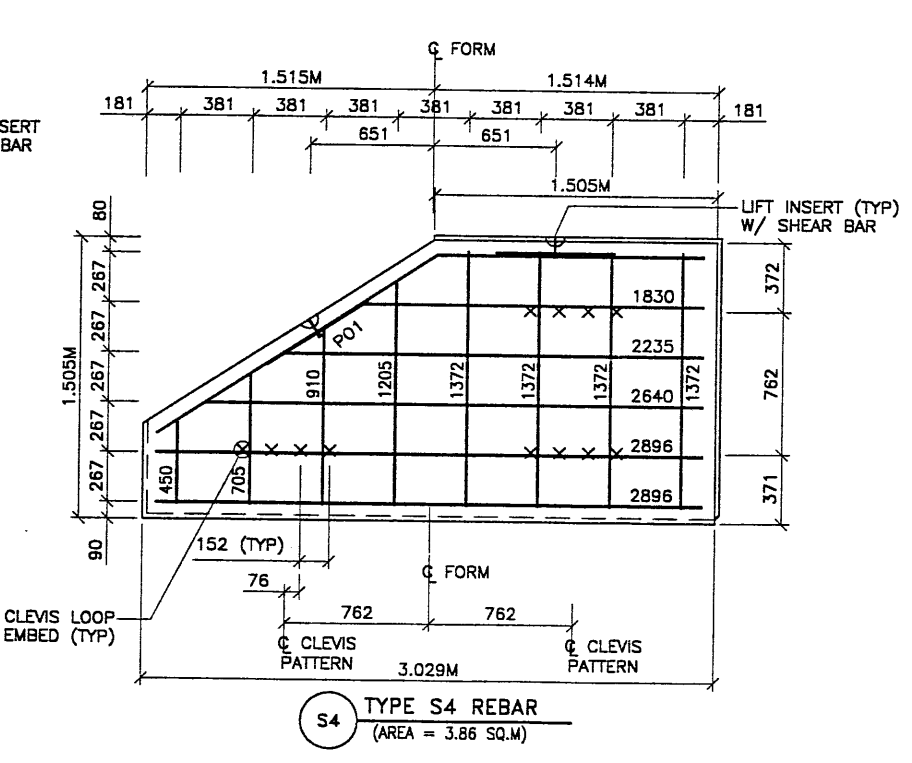
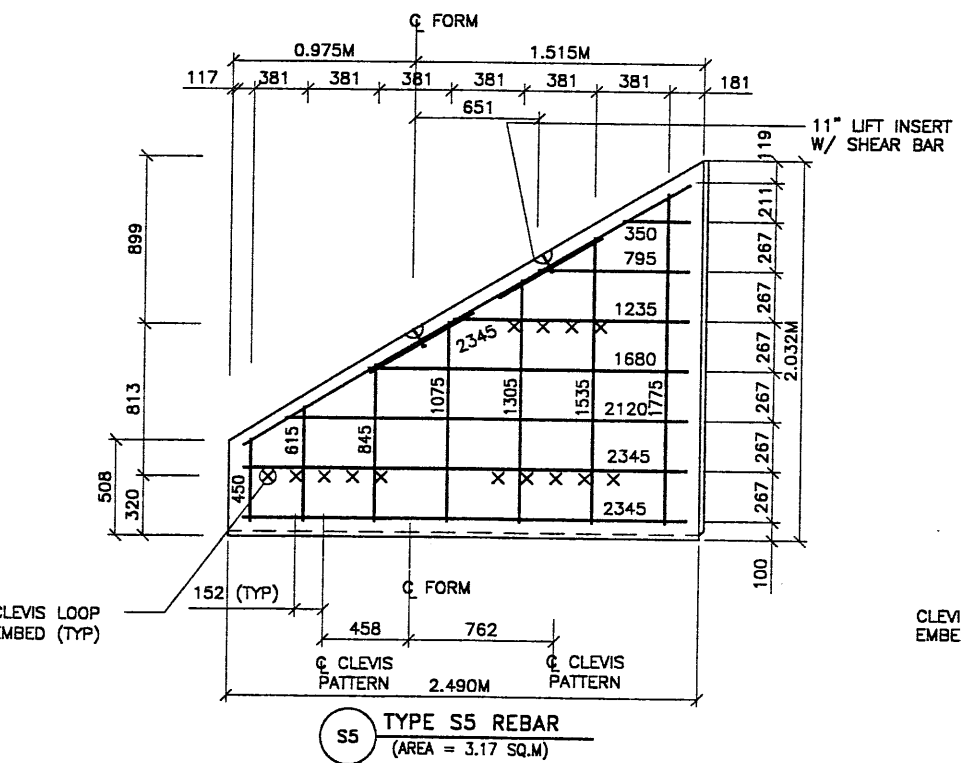
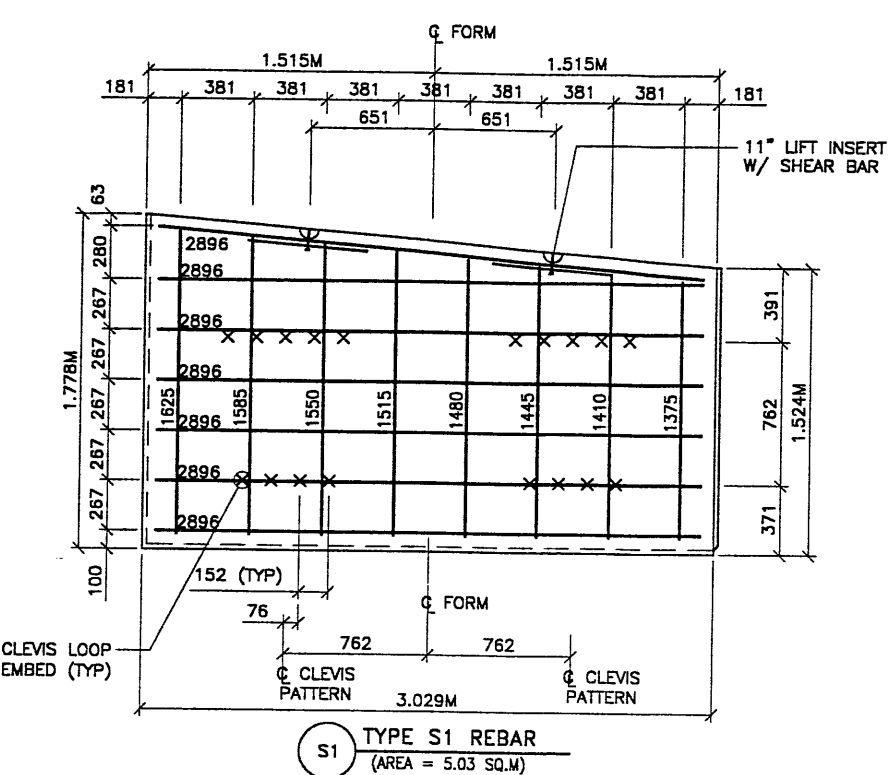
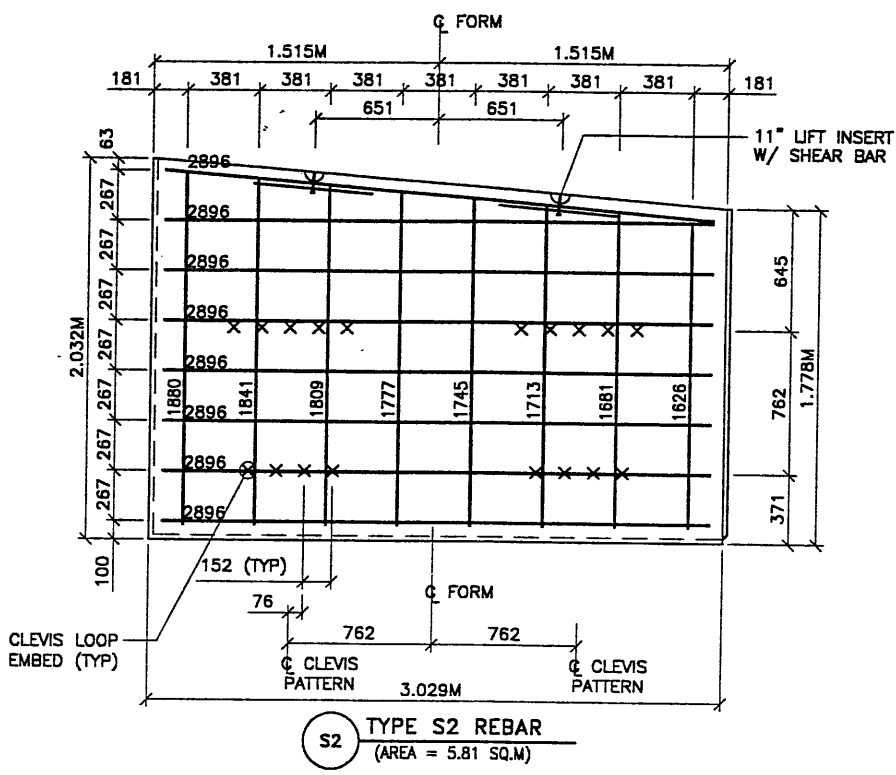
RETAINED EARTH™

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RETAINED EARTH™ WALLS
PRECAST WALL "R-343-23"
UTAH I-15 RECONSTRUCTION
SALT LAKE COUNTY, UTAH
UTAH DEPARTMENT OF TRANSP.

DWG. NO.
1.2R-343-23.5
JOB NO.
239-0007 5/6
SHT. NO.
RE-4

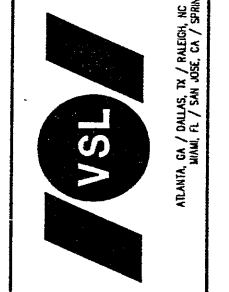


APPROVED FOR CONSTRUCTION		
NO.	DATE	DESCRIPTION
1	07-02-98	RELEASE FOR CONSTRUCTION

- PANEL REINFORCEMENT NOTES:
- PANELS ARE SHOWN BACK FACE.
 - HORIZONTAL REINFORCEMENT SHALL HAVE 50 mm MINIMUM COVER TO THE BACK FACE.
 - ALL REINFORCEMENT SHALL HAVE 50 mm MINIMUM COVER TO THE SIDES.
 - ALL REINFORCING BARS ARE #13 METRIC. LABELS ON EACH BAR INDICATE LENGTH. EXAMPLE: 1345 IS A #13 BAR 1345 mm LONG.
 - PANEL REINFORCEMENT BARS SHALL BE DEFORMED BILLET STEEL BARS FOR CONCRETE REINFORCEMENT CONFORMING TO THE SPECIFICATIONS OF ASTM DESIGNATION A615, GRADE 60.
 - ALL REINFORCING STEEL TO BE GALVANIZED IN ACCORDANCE WITH ASTM 787 CLASS I.
 - CONCRETE PANELS TO HAVE 28 DAY COMPRESSIVE STRENGTH OF 27,500 KPa.
 - EQUIVALENT WELDED WIRE FABRIC MAY BE USED.
 - ALL PANELS TO USE 9.5mmØ CLEVIS LOOPS.
 - VSL RETAINED EARTH™ IS PROTECTED UNDER PATENT 4,725,170.
 - LIFT INSERTS ARE 6 3/4" LONG IN ALL PANELS LESS THAN 1.524M TALL. PANELS TALLER THAN 1.524M SHALL HAVE 11" LONG LIFT ANCHORS.

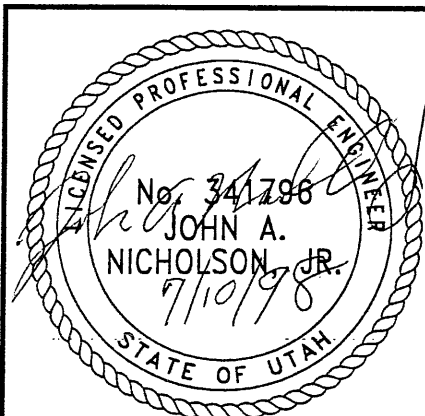
NO.	DATE	REVISION	BY	CHK

VSL CORPORATION
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WASATCH CONSTRUCTORS
 JUL 17 1998
 RELEASED FOR CONSTRUCTION



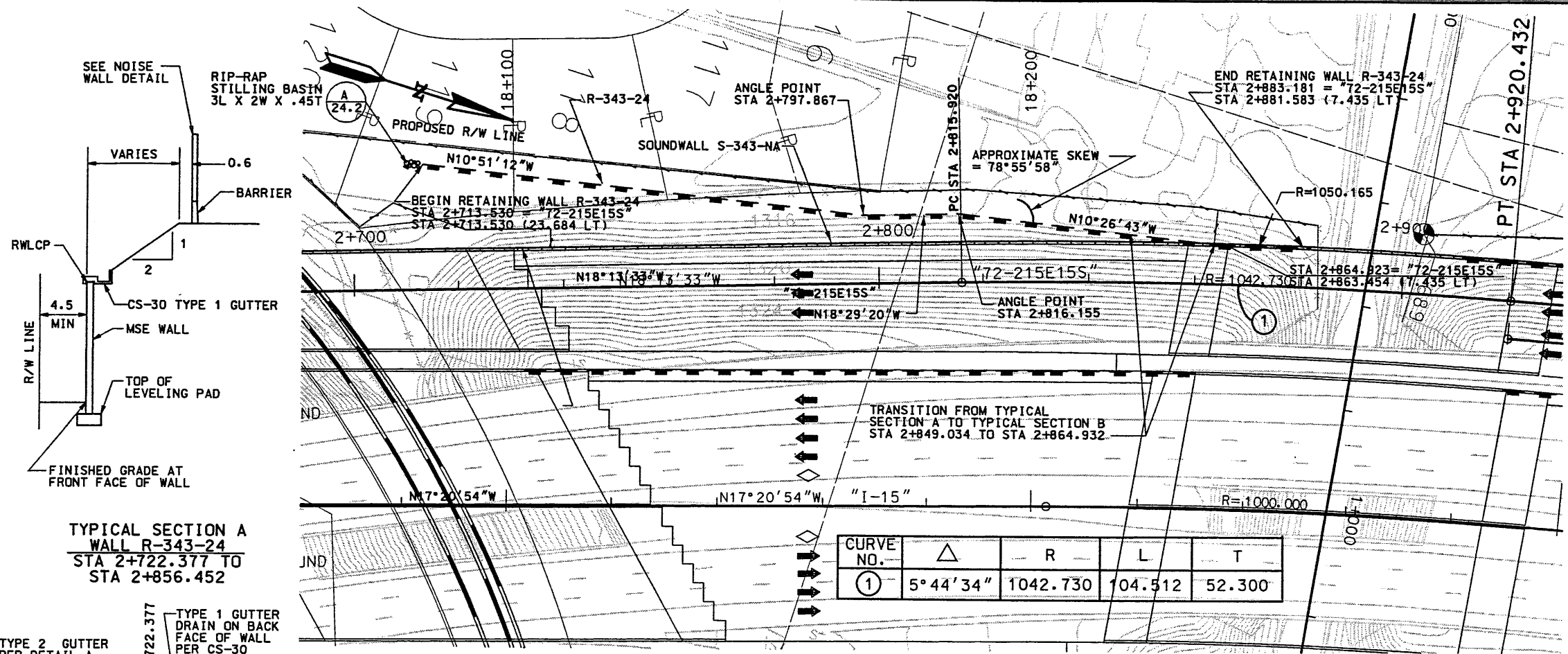
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RETAINED EARTH™ WALLS
 PRECAST WALL "R-343-23"
 SPECIAL PANEL DETAILS
 UTAH I-15 RECONSTRUCTION
 SALT LAKE COUNTY, UTAH
 UTAH DEPARTMENT OF TRANSP.

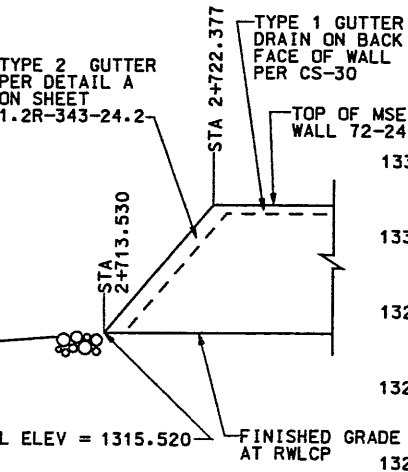
DWG. NO.	1.2R-343-23.6
JOB NO.	239-0007
SHT. NO.	RE-5

Date: 10-NOV-1998 Time: 15:52 Username: mookkv

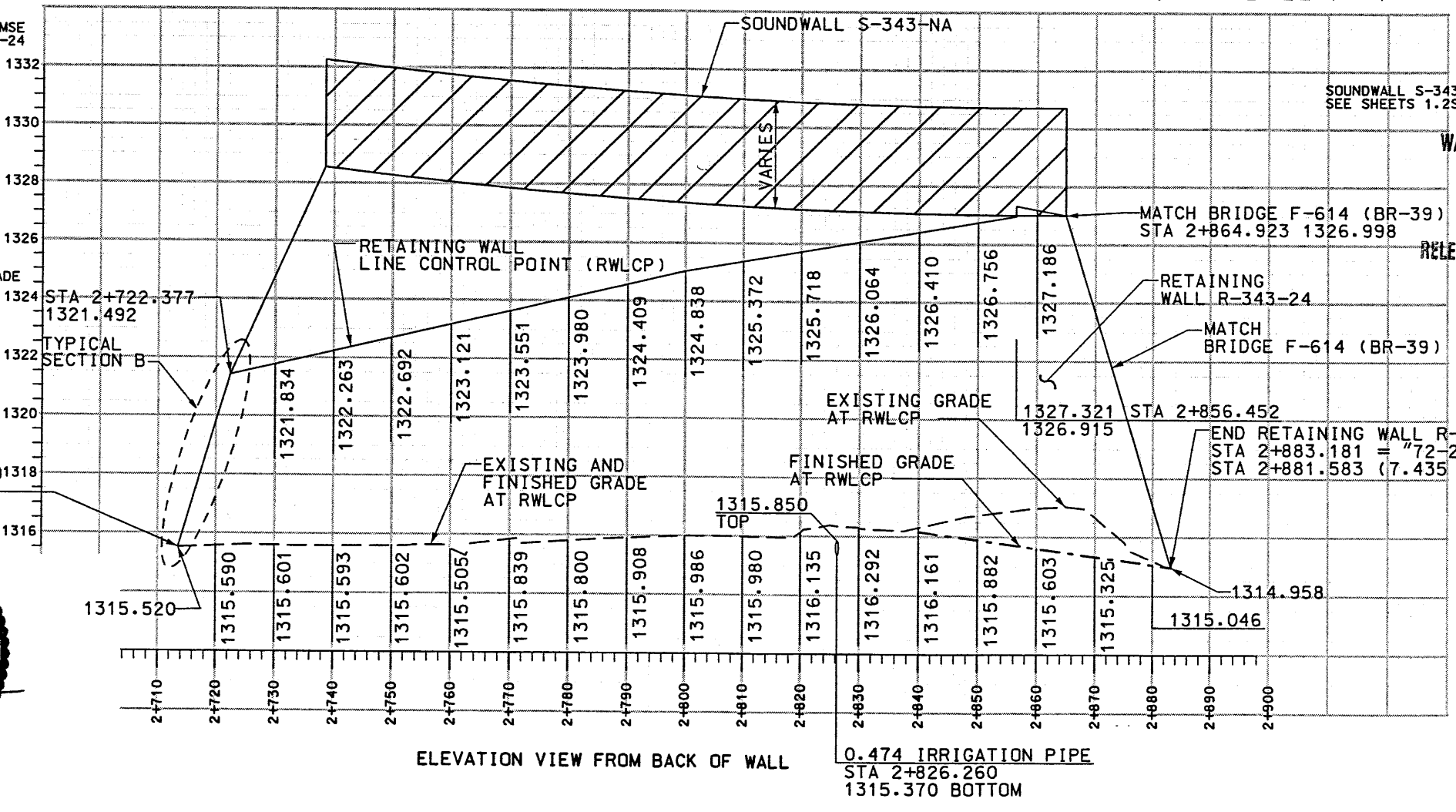
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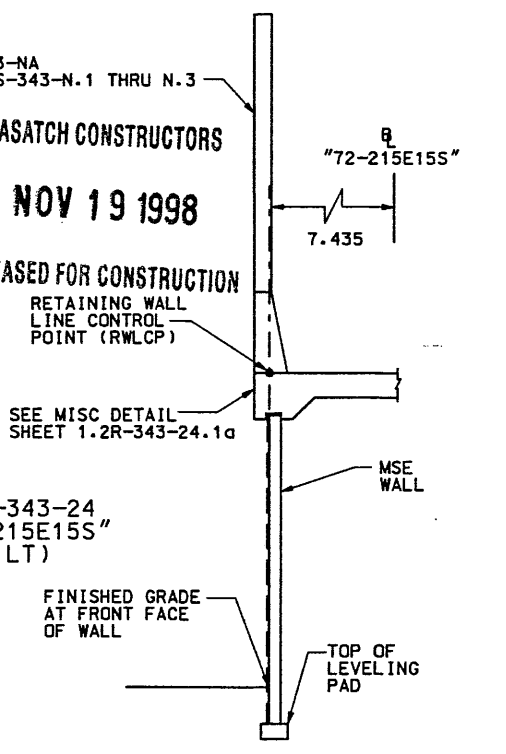
TYPICAL SECTION A
WALL R-343-24
STA 2+722.377 TO
STA 2+856.452



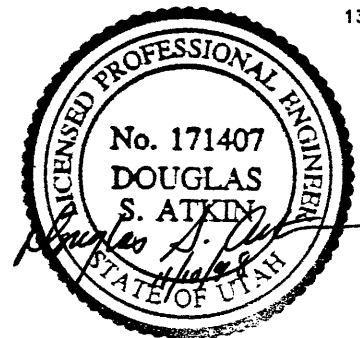
TYPICAL SECTION B
WALL R-343-24
STA 2+713.530 TO
STA 2+722.377



ELEVATION VIEW FROM BACK OF WALL



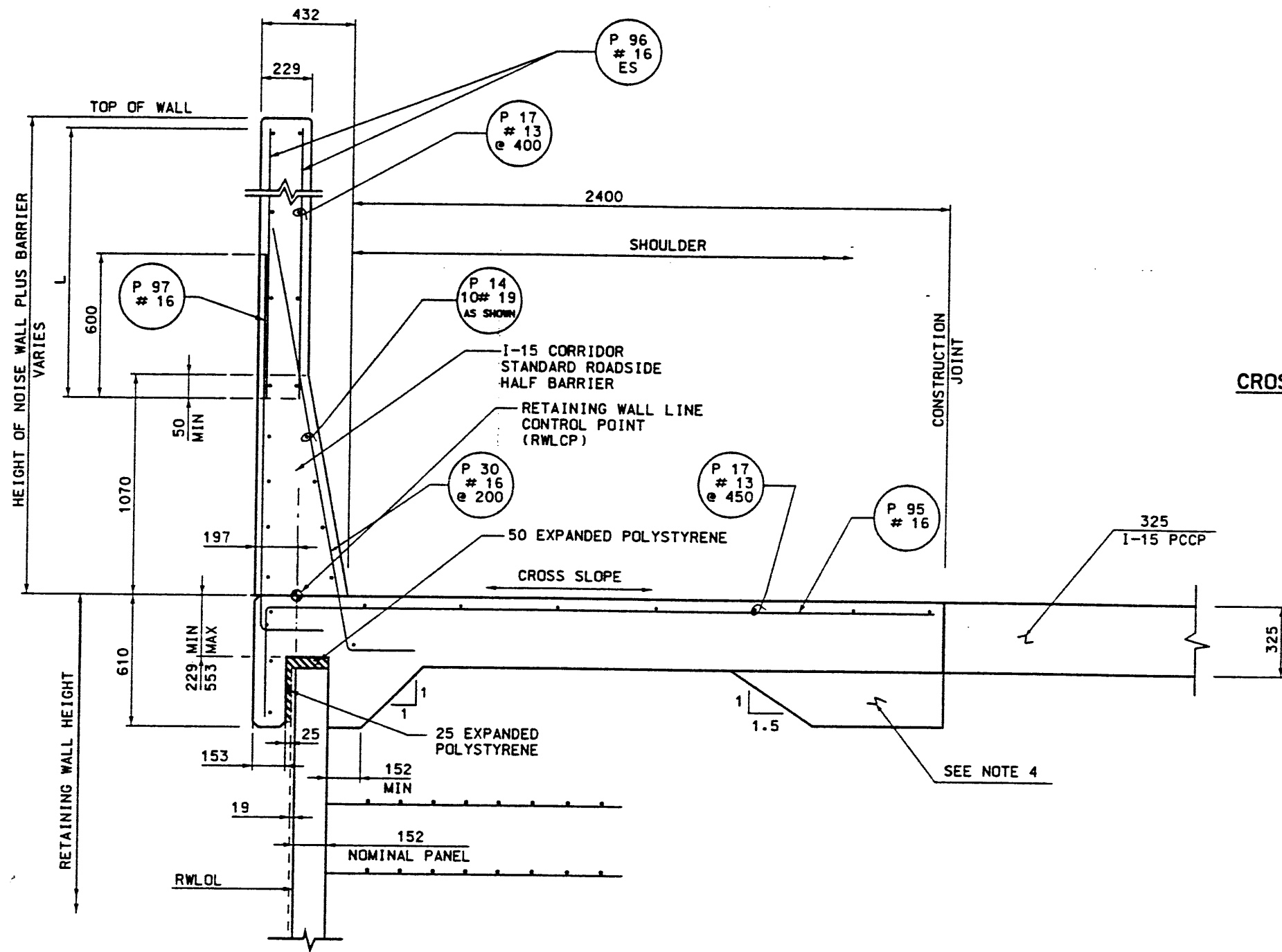
TYPICAL SECTION B
WALL R-343-24
STA 2+864.923



WASATCH CONSTRUCTORS
NOV 19 1998
RELEASED FOR CONSTRUCTION

APPROVED FOR CONSTRUCTION		DESCRIPTION	
NO.	DATE	INITIAL RELEASE	RELEASED FOR GDP / MOMENT SLAB
1	9-9-97		
2	12-31-97		
3	03-24-98		FIELD DESIGN CHANGE 1-0103
4	11-10-98		REFERENCED SOUNDWALL

UTAH DEPARTMENT OF TRANSPORTATION		DESIGNER		CHECK		QUANT.	
URS Greiner		DESIGN	EMR	8/97	CHECK	KJM	8/97
SVERDRUP/DE LEUW		PROJECT DESIGN ENGINEER	DATE	8/97	PROJECT MANAGER	DATE	8/97
I-15 CORRIDOR RECONSTRUCTION		SECTION 1-2		#SP-15-7(135)296		PROJECT NUMBER	
SALT LAKE COUNTY		DWG. NO.		1.2R-343-24.1		SHT. 1 OF 14	
REF.							

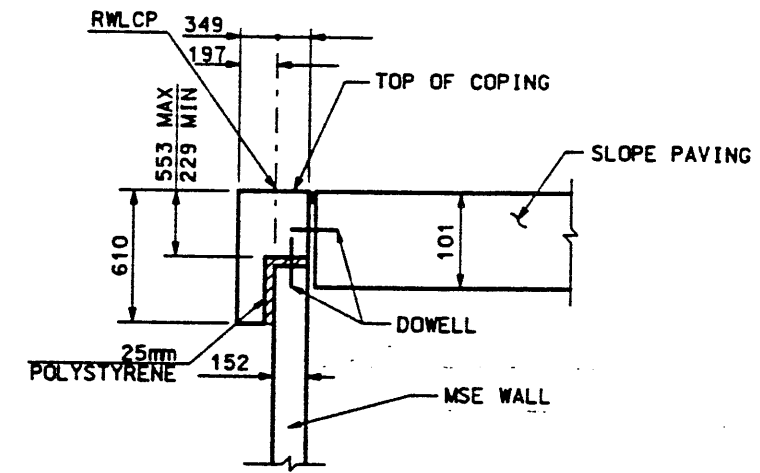


MSE SINGLE STAGE WITH SOUNDWALL AND BARRIER ON MOMENT SLAB

NO SCALE

NOTES:

- 50mm MINIMUM COVER OVER REINFORCING.
- USE 325 PCCP $f'c=27.5 \text{ MPa}$ (4,000 PSI) FOR MOMENT SLAB.
- TOE OF BARRIER/EDGE OF SHOULDER IS 235mm INSIDE RETAINING WALL LAYOUT LINE (RWLOL).
- ADD COUNTERWEIGHT FOR NOISE WALL PLUS BARRIER HEIGHT GREATER THAN 4.3m HIGH.



CROSS SECTION C-C WITH ABUTMENT SLOPE (NON SPUI)
SLOPE PAVING / COPING DETAILS

NO SCALE

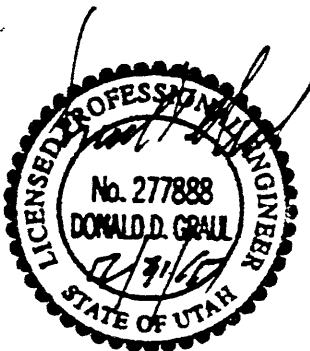
WASATCH CONSTRUCTORS

JAN 02 1998

RELEASED FOR CONSTRUCTION

NOISE WALL/BARRIER REINFORCING STEEL SCHEDULE		
HEIGHT OF NOISE WALL PLUS BARRIER (m)	BAR SIZE AND SPACING	
5	#16 @ 230	
4	#16 @ 300	
3	#16 @ 300	
MARK	LENGTH	SKETCH
P95	3010	
P96	L	
P97	2200	
P98	4310	

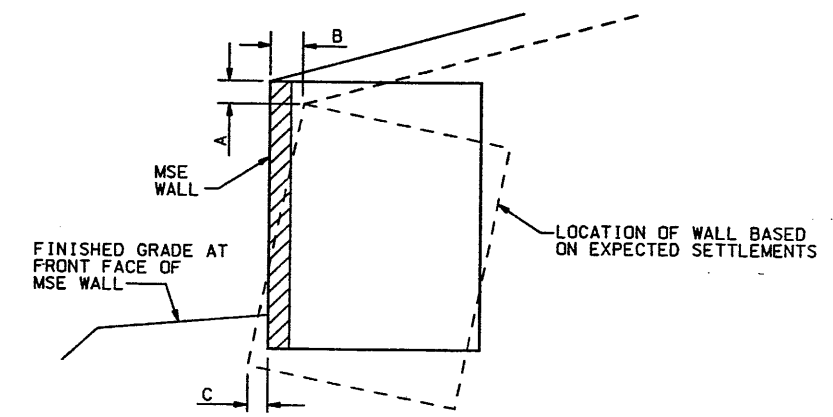
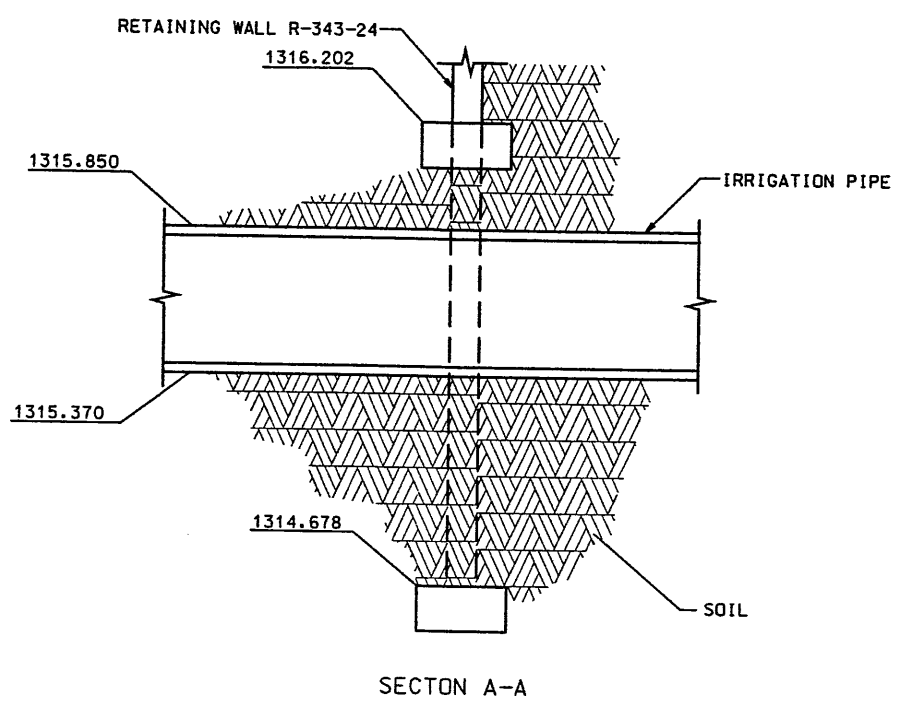
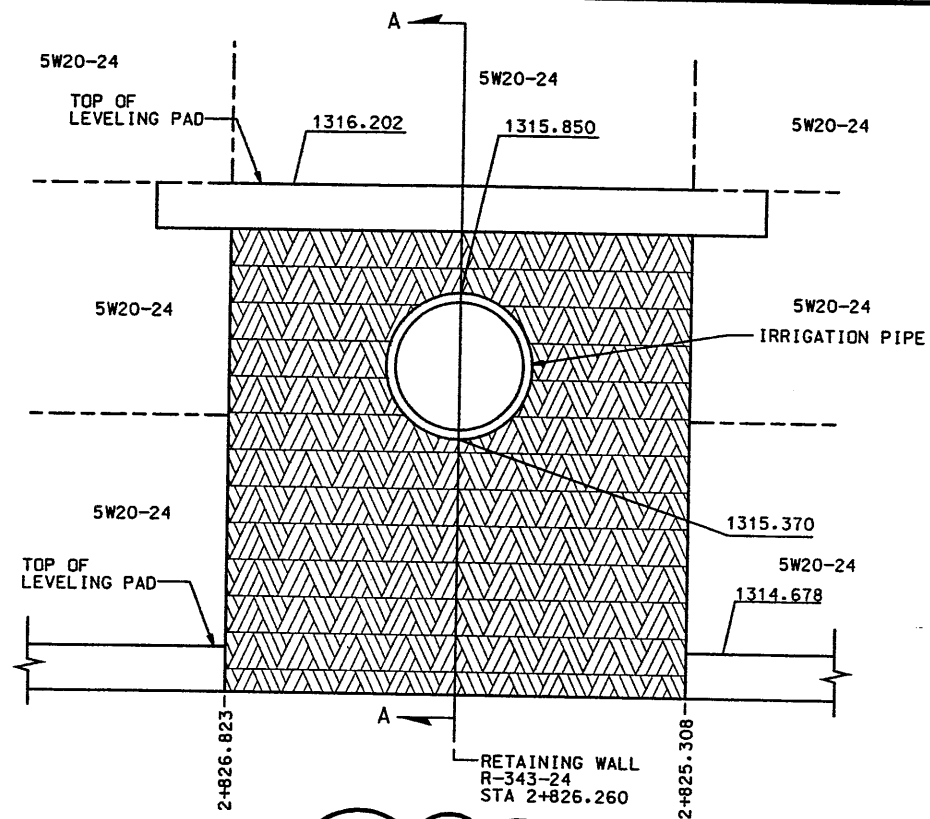
* BASED UPON 1086 MAX FROM BACK OF BARRIER TO OUTSIDE FACE OF COPING.



APPROVED FOR CONSTRUCTION		DESCRIPTION	
NO.	DATE	NO.	DATE
Δ	12/31/97		
RELEASED FOR CONSTRUCTION			
UTAH DEPARTMENT OF TRANSPORTATION		SVERDRUP/DE LEUW	
DESIGN	MC	CHECK	JE
DATE	12/31/97	CHECK	JE
DRAWN	RS	CHECK	JE
DATE	12/31/97	CHECK	JE
QUANT.		CHECK	
QUANT.		CHECK	
1212310			
I-15 CORRIDOR RECONSTRUCTION			
MISC DETAILS			
RET. WALL R-343-24			
SECTION 1.2			
PROJECT NUMBER #SP-15-7(135)206			
SALT LAKE COUNTY			
DWC. NO.			
1.2R-343-24.1a			
SHT. 2 OF 14			

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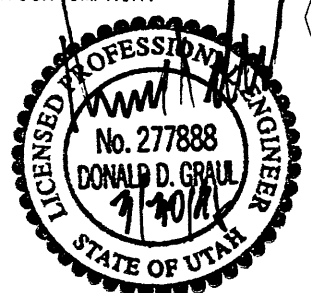
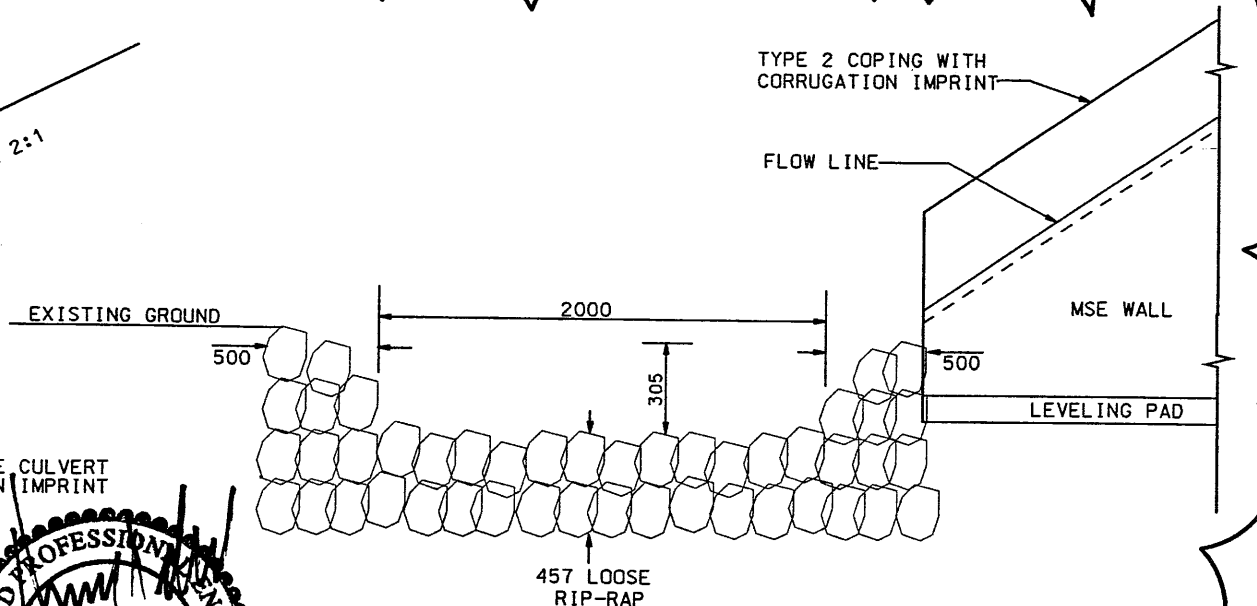
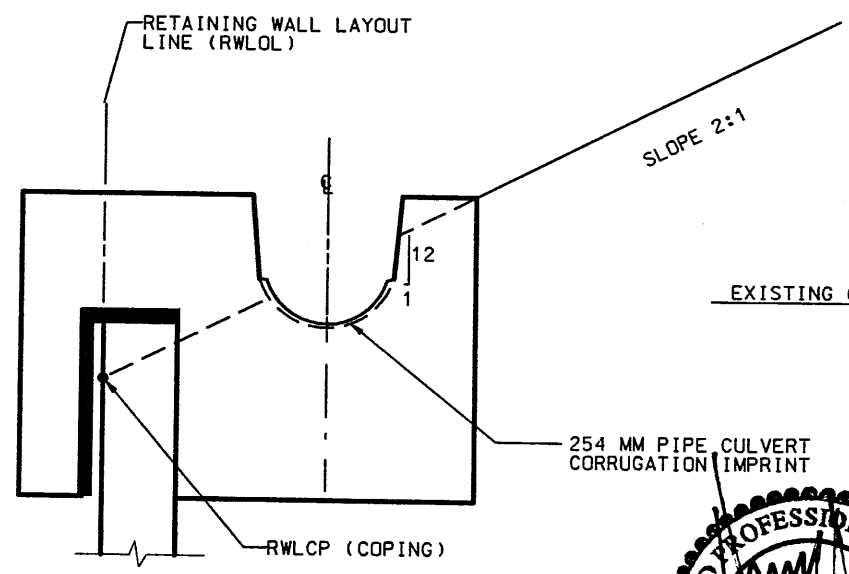
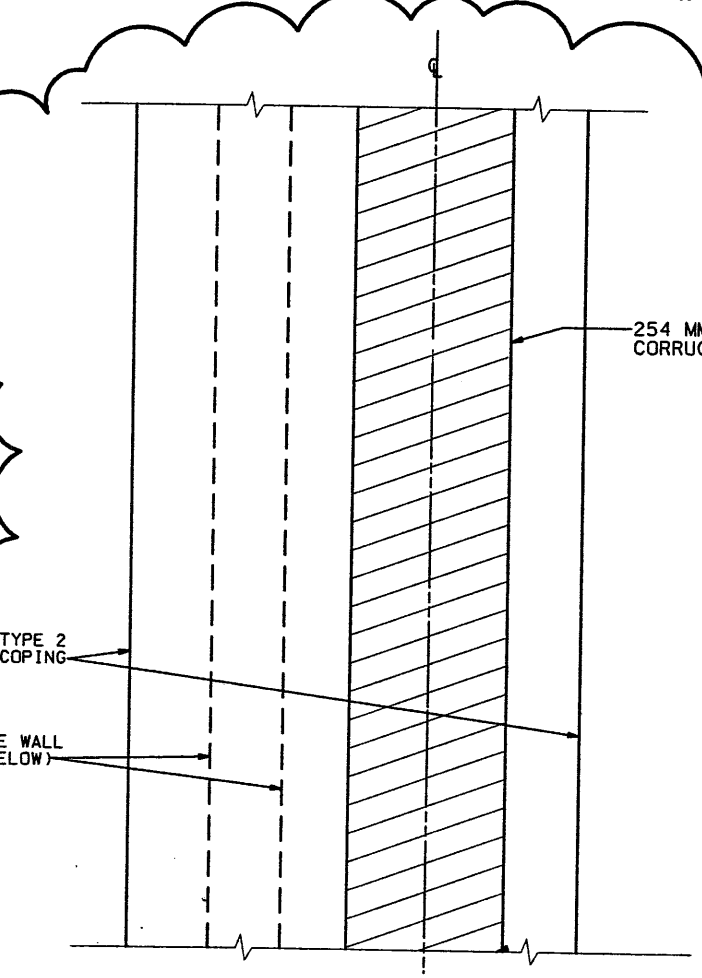
WASATCH CONSTRUCTORS
APR - 9 1998
RELEASED FOR CONSTRUCTION



ESTIMATED SETTLEMENT TABLE

STATION LIMITS	REFERENCE STATION	WALL SETTLEMENT	TOP OF WALL ROTATION mm	LATERAL DISPLACEMENT AT BOTTOM OF WALL mm
2+713.530 TO 2+883.181	2+865***	25 TO 50	19	**

** LATERAL DISPLACEMENT AT BOTTOM OF WALL SHOULD BE LESS THAN ONE HALF OF THE SETTLEMENT AT FRONT FACE OF WALL. TERRACON RECOMMENDS CONSTRUCTING THE WALL TOE AT THE DESIGN SECTION.
 *** THESE VALUES CALCULATED AT REFERENCED STATION; ROTATIONS AT OTHER STATIONS CAN BE ESTIMATED IN PROPORTION TO WALL HEIGHT.



UTAH DEPARTMENT OF TRANSPORTATION
 URS Greiner
 SVERDRUP/DE LEUW

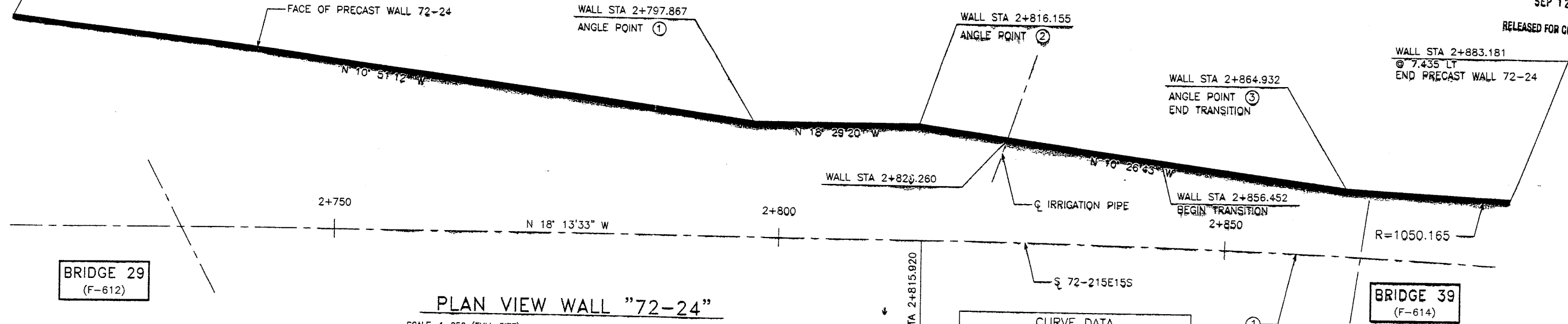
APPROVED FOR CONSTRUCTION	NO.	DATE	DESCRIPTION
	1	9-9-97	INITIAL RELEASE
	2	03-24-98	FIELD DESIGN CHANGE 1-0103

DESIGN	DA	9/97	CHECK	JC	9/97
DRAWN	RS	9/97	CHECK	DA	9/97
PROJECT MANAGER	NAME		CHECK		1212402

I-15 CORRIDOR RECONSTRUCTION
 MSC DETAILS WALL R-343-24
 SECTION 1.3
 PROJECT NUMBER #SP-15-7(135)296

SALT LAKE COUNTY
 DWG. NO. 1.2R-343-24.2
 SHT. 3 OF 14

WALL STA 2+713.530 =
72-215E15S
STA 2+713.530 @ 23.684 LT
BEGIN PRECAST WALL 72-24



PLAN VIEW WALL "72-24"
SCALE: 1=250 (FULL SIZE)
SCALE: 1=500 (HALF SIZE)

CURVE DATA				
No.	RADIUS	LENGTH	TANGENT	Δ
①	1042.730	104.512	52.300	5°44'34"

All Dimensions Are in Meters Unless Noted Otherwise

RETAINED EARTH INDEX	
RE-1	PLAN PRECAST FACE WALL 72-24, NOTES & DESIGN CRITERIA
RE-2	TYPICAL DETAILS
RE-3	TYPICAL DETAILS
RE-4	TYPICAL CROSS SECTIONS
RE-5	ELEVATION PRECAST WALL "72-24"
RE-6	ELEVATION PRECAST WALL "72-24"
RE-7	ELEVATION PRECAST WALL "72-24"
RE-8	TYPICAL PANEL REINFORCEMENT
RE-9	"G" PANEL REINFORCEMENT
RE-10	SPECIAL PANEL DETAILS
RE-11	SPECIAL PANEL DETAILS

DESIGN PARAMETERS	
ANGLE OF INTERNAL FRICTION (SELECT) = 34°	
ANGLE OF INTERNAL FRICTION (BASE) = 30°	
ANGLE OF INTERNAL FRICTION (RANDOM) = 34°	
UNIT WEIGHT BACKFILL = 135 PCF.	
TRAFFIC SURCHARGE = 250 PSF	
SEISMIC ACCELERATION COFF. = 0.12g (TYP)	
SEISMIC ACCELERATION COFF. = 0.32g (AT BRIDGE ABUTMENTS)	
DESIGN CRITERIA	
SAFETY FACTOR (OVERTURNING) = 2.0	
SAFETY FACTOR (SLIDING) = 1.5	
SAFETY FACTOR (PULLOUT) = 1.5	
DESIGN LIFE = 75 YEARS	

GENERAL NOTES

- ALL WALLS ARE SHOWN FRONT FACE. NOTE STATIONING.
- PANEL TYPE IS DESIGNATED ON EACH PANEL. CONNECTOR LABELS INDICATE NUMBER OF CONNECTORS PER ROW.
EXAMPLE: 5B2 IS A "B2" PANEL WITH FIVE (5) CONNECTORS PER ROW.
IF NO CONNECTORS ARE SHOWN, FOUR (4) CONNECTOR PANELS SHALL BE USED:
- SOIL REINFORCING MESH TYPE IS DESIGNATED ON EACH PANEL. MESH LABELS INDICATE WIRE SIZE AND SPACING. LONGITUDINAL WIRE AND CROSSBAR SIZES ARE THE SAME UNLESS NOTED OTHERWISE:
EXAMPLE: 4W11-6 MESH HAS FOUR (4) W11 LONGITUDINAL WIRES WITH W11 CROSSBARS AT 6" CENTERS.
EXAMPLE: 4W11-12 MESH HAS FOUR (4) W11 LONGITUDINAL WIRES WITH W11 CROSSBARS AT 12" CENTERS.
EXAMPLE: 4W20-12 MESH HAS FOUR (4) W20 LONGITUDINAL WIRES WITH W20 CROSSBARS AT 12" CENTERS.
EXAMPLE: 4W20-24 MESH HAS FOUR (4) W20 LONGITUDINAL WIRES WITH W20 CROSSBARS AT 24" CENTERS.
EXAMPLE: 5W11-6 MESH HAS FIVE (5) W11 LONGITUDINAL WIRES WITH W11 CROSSBARS AT 6" CENTERS.
EXAMPLE: 5W11-12 MESH HAS FIVE (5) W11 LONGITUDINAL WIRES WITH W11 CROSSBARS AT 12" CENTERS.
EXAMPLE: 5W11-24 MESH HAS FIVE (5) W11 LONGITUDINAL WIRES WITH W11 CROSSBARS AT 24" CENTERS.
EXAMPLE: 5W20-24 MESH HAS FIVE (5) W20 LONGITUDINAL WIRES WITH W20 CROSSBARS AT 24" CENTERS.
EXAMPLE: 6W11-6 MESH HAS SIX (6) W11 LONGITUDINAL WIRES WITH W11 CROSSBARS AT 6" CENTERS.
EXAMPLE: 6W11-24 MESH HAS SIX (6) W11 LONGITUDINAL WIRES WITH W11 CROSSBARS AT 24" CENTERS.
EXAMPLE: 6W20-24 MESH HAS SIX (6) W20 LONGITUDINAL WIRES WITH W20 CROSSBARS AT 24" CENTERS.

IF NO MESH IS SHOWN, 4W20-24 MESH SHALL BE USED.
- SEE RETAINED EARTH INSTALLATION MANUAL FOR PROPER WALL ERECTION PROCEDURES AND GUIDELINES.
- CONSTRUCTION PROCEDURES SHALL PREVENT BACKFILL SATURATION AND PONDING.
- HEAVY EQUIPMENT SHALL NOT BE USED WITHIN ONE METER OF THE BACK OF THE RETAINED EARTH PANELS. HAND COMPACTORS SHALL BE USED IN THIS AREA.
- CARE SHALL BE TAKEN TO PREVENT DAMAGE TO GALVANIZING. DAMAGED GALVANIZING SHALL BE COATED WITH ZINC RICH PAINT.
- BEARING PADS AND FILTER FABRIC ARE NOT REQUIRED BETWEEN THE LEVELING PAD AND THE FIRST ROW OF PANELS. TEMPORARY WEDGES MAY BE USED TO PROVIDE PROPER ALIGNMENT.
- VSL RETAINED EARTH IS PROTECTED UNDER U.S. PATENT 4,725,170.
- ALL PANELS SHALL HAVE AN ARCHITECTURAL FINISH, SEE SHEET RE-3 FOR DETAIL.

APPROVED FOR CONSTRUCTION		
NO.	DATE	DESCRIPTION
①	9/9/97	RELEASED FOR CONSTRUCTION R-343-24

WASATCH CONSTRUCTORS
SEP 12 1997
RELEASED FOR CONSTRUCTION

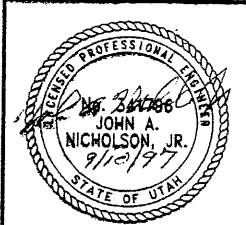
DES.	MM	DD	MM	NO.	DATE	BY	CHK
09-03-97	09-03-97	09-03-97	09-03-97				

VSL CORPORATION
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ATLANTA, GA / DALLAS, TX / BALDWIN, NC (CORPORATE OFFICE)
MIAMI, FL / SAN JOSE, CA / SPRINGFIELD, VA

RETAINED EARTH™ WALLS
PLAN VIEW PRECAST WALL "72-24"
UTAH I-15 INTERCHANGE
SALT LAKE COUNTY, UTAH
UTAH DEPARTMENT OF TRANSP.

DWG. NO.
1.2R-343-24.3
JOB NO.
239-0007
SHT. NO.
RE-1

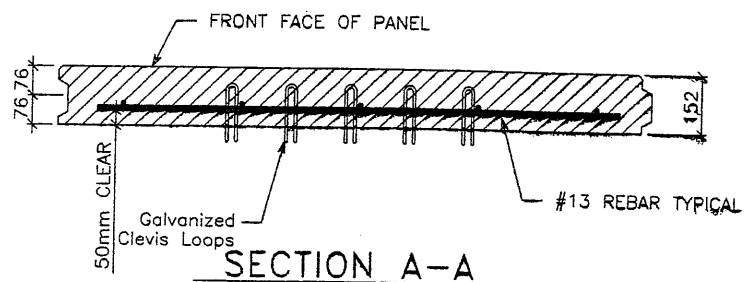


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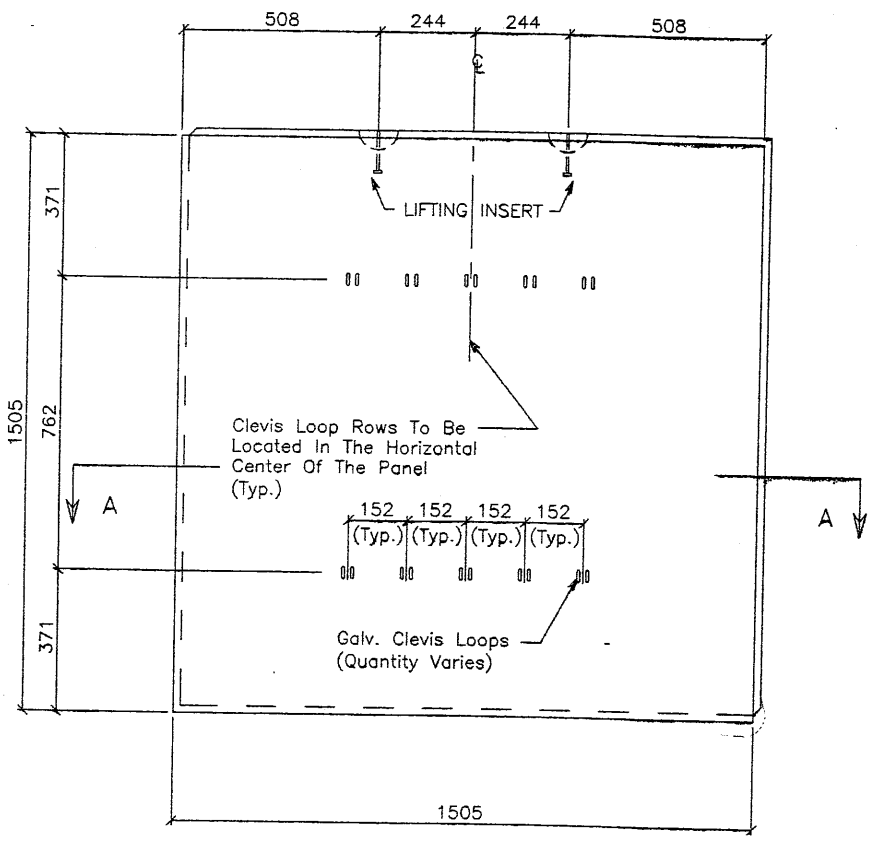
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E:\PROJECT\239-0007\RIES\72-24\RE-2

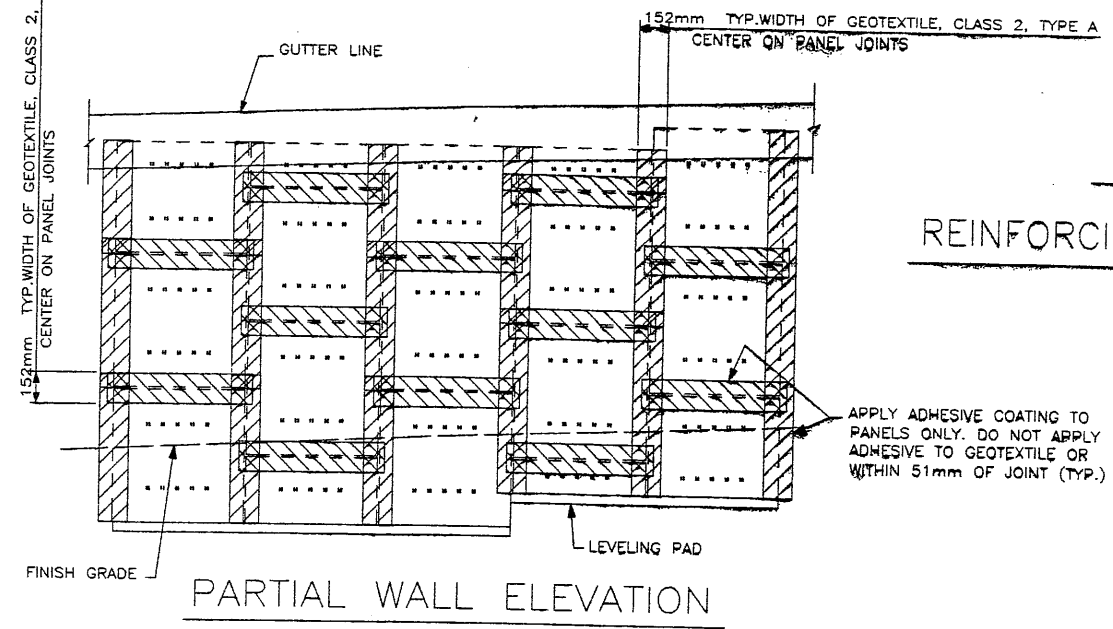
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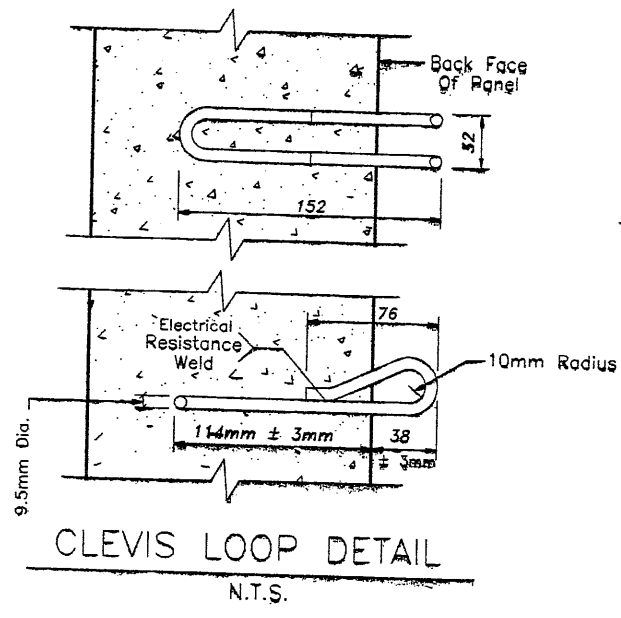
SECTION A-A



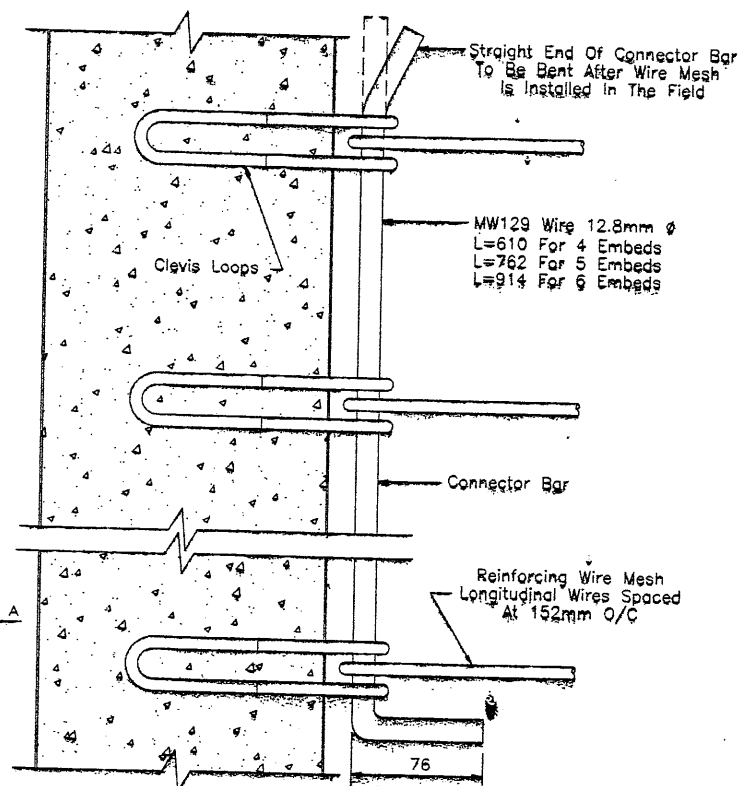
STANDARD "5A" PANEL
Back Face View



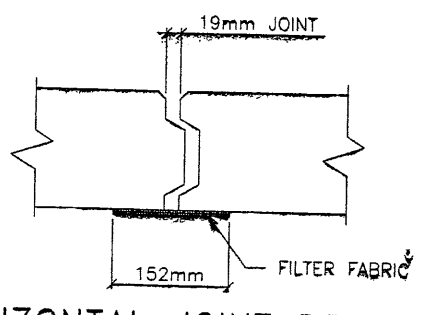
PARTIAL WALL ELEVATION



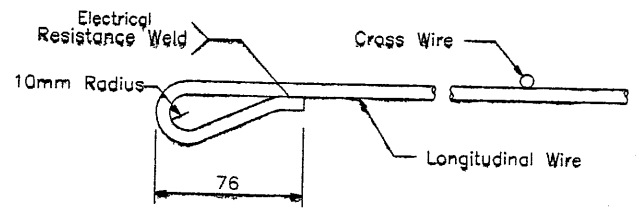
CLEVIS LOOP DETAIL
N.T.S.



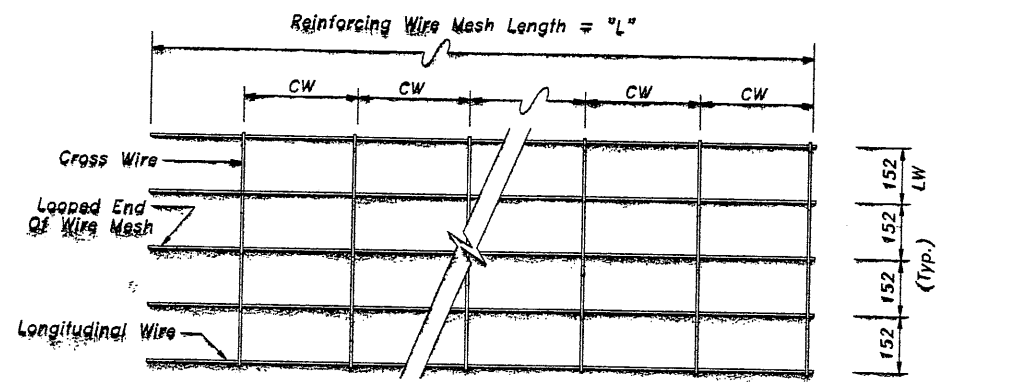
REINFORCING MESH CONNECTION DETAIL
N.T.S.



HORIZONTAL JOINT DETAIL
N.T.S.

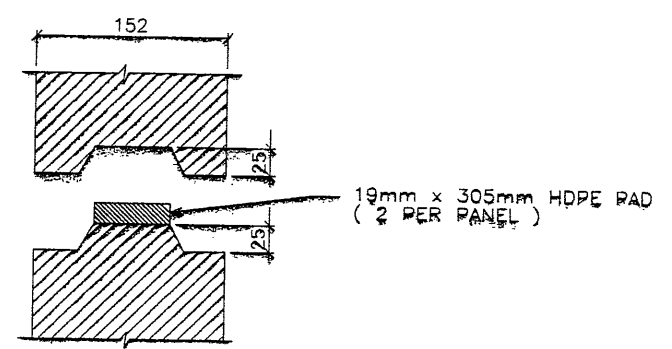


WIRE MESH LOOP DETAIL
N.T.S.



WIRE MESH DESIGNATION: 5W11 + W11 x 1.0 (5W11-12)
 No. Of Longitudinal Wires
 Size Of Longitudinal Wires (LS)
 Size Of Cross Wires (CS)
 Spacing (Ft.) Of Cross Wires (CW)
 SHEET WIDTH
 SHEET LENGTH
 NOTE: FOR EXAMPLE ABOVE,
 EQUIVALENT WIRE MESH DESIGNATION = 6 X 12-W11XW11-24" X "L"
 (LW) (CW) (LS) (CS)

NOTE: W11 (71 sq mm) And W20 (129 sq mm) Steel Wire Material And Welding Of Cross Wires And Loops Shall Conform To ASTM A82 And ASTM 185, Fy = 448 MPa. Mesh Shall Be Galvanized To ASTM A-123 To A Minimum Effective Thickness Of 0.086 mm.



PANEL JOINT DETAIL
N.T.S.

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APPROVED FOR CONSTRUCTION

NO.	DATE	DESCRIPTION
1	9/9/97	RELEASED FOR CONSTRUCTION R-343-24

WASATCH CONSTRUCTORS
SEP 12 1997
RELEASED FOR CONSTRUCTION

DES.	DRN.	CHK.	NO.	DATE	BY
09-03-97	09-03-97	09-03-97			

VSL CORPORATION
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Raleigh, NC 27612
Phone: (919) 781-6272
Fax: (919) 781-4685



ATLANTA, GA / DALLAS, TX / BALDWIN, NC (CORPORATE OFFICE)
MIAMI, FL / SAN JOSE, CA / SPRINGFIELD, VA

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RETAINED EARTH™ WALLS
PRECAST WALL "72-24"
TYPICAL DETAILS
UTAH 1-15 INTERCHANGE
SALT LAKE COUNTY, UTAH
UTAH DEPARTMENT OF TRANSP.

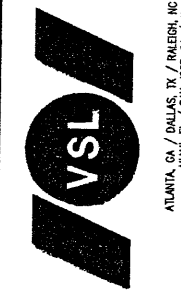


DWG. NO.	1.2R-343-24.4
JOB NO.	239-0007/14
SHT. NO.	RE-2

APPROVED FOR CONSTRUCTION		
NO.	DATE	DESCRIPTION
1	9/9/97	RELEASED FOR CONSTRUCTION R-343-24

WASATCH CONSTRUCTORS
 SEP 12 1997
 RELEASED FOR CONSTRUCTION

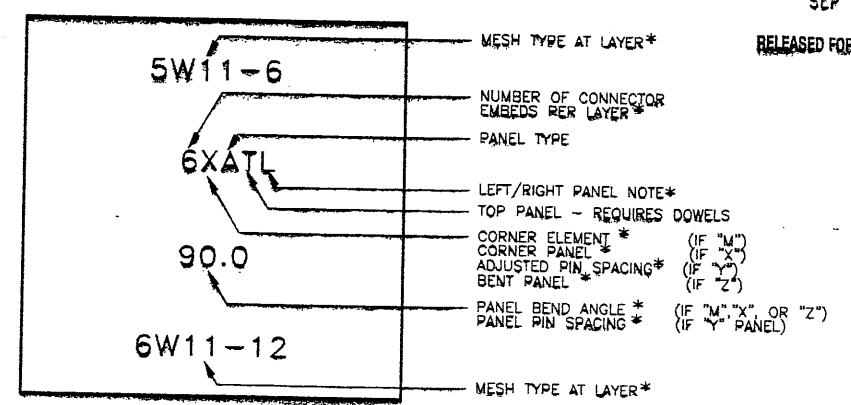
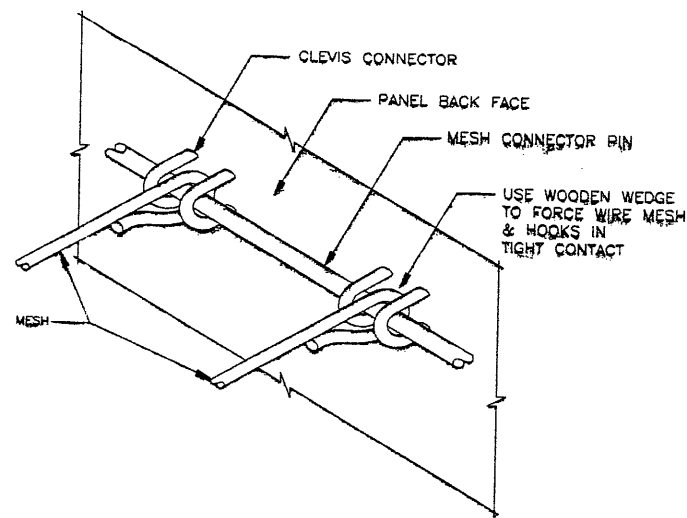
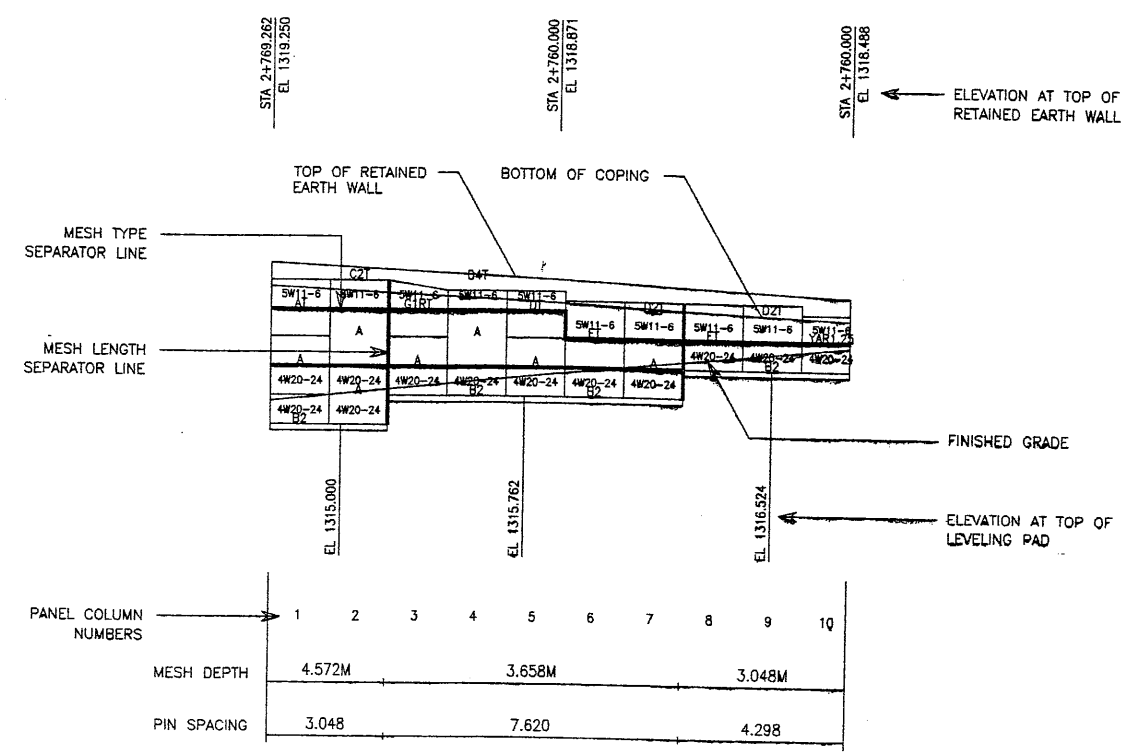
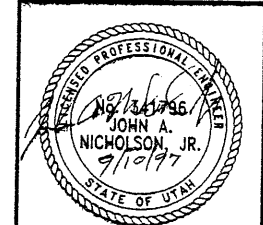
VSL CORPORATION
 2840 Plaza Place, Suite 200
 Raleigh, NC 27612 761-4272
 Telefax: (919) 761-4865
 Fax: (919) 761-4865



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RETAINED EARTH™ WALLS
 PRECAST WALL "72-24"
 TYPICAL DETAILS
 UTAH I-15 INTERCHANGE
 SALT LAKE COUNTY, UTAH
 UTAH DEPARTMENT OF TRANSP.

DWG. NO.	1.2R-343-24.5
JOB NO.	239-0007
SHT. NO.	RE-3

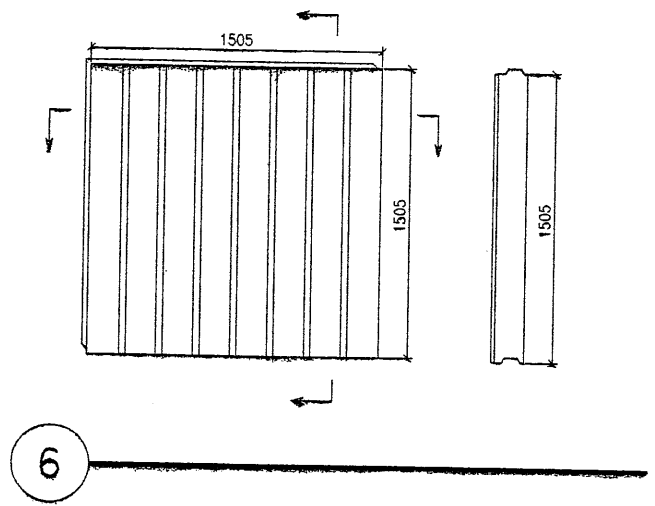
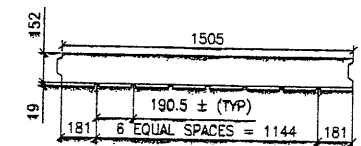


* NO LABEL INDICATES STANDARD TYPE

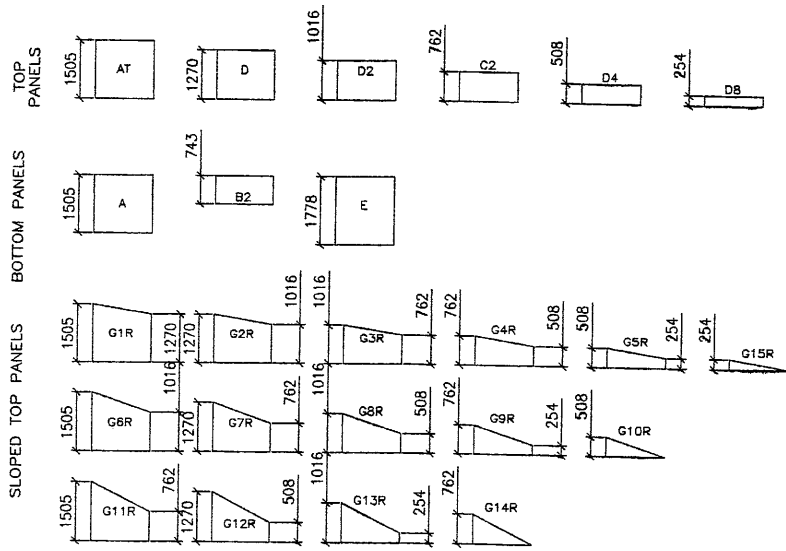
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2
 VSL RETAINED EARTH IS PROTECTED UNDER U.S. PATENT 4,725,170.

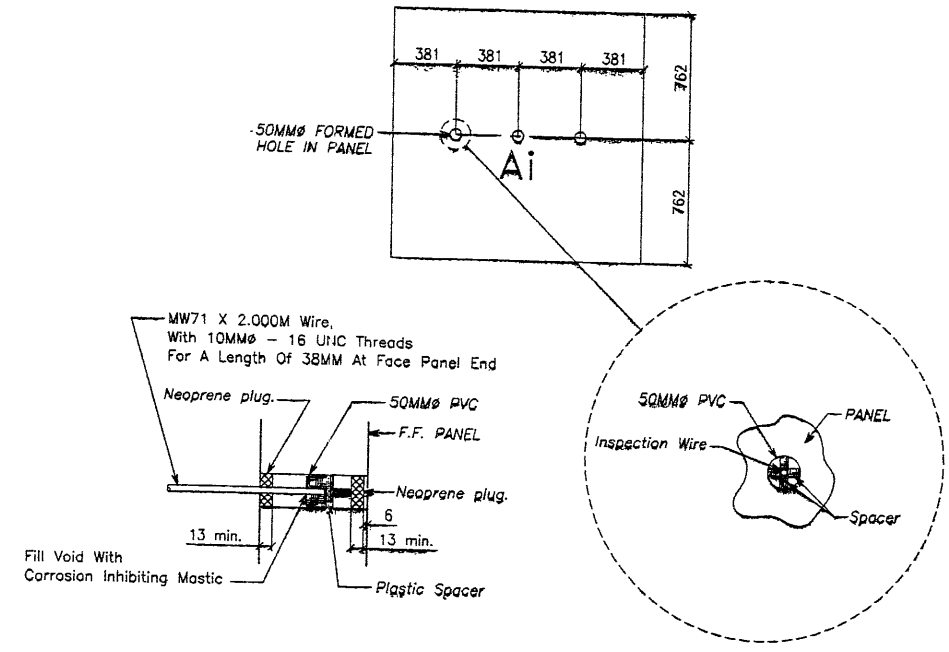
3



6



4
 ALL DIMENSIONS ARE IN MILLIMETERS



5

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E:\APROJECT\239-0007\RIES\72-24\RE-4

03-97

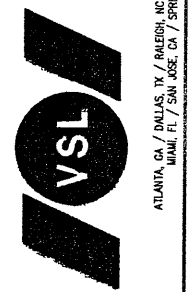
FINAL PLOT

APPROVED FOR CONSTRUCTION		
NO.	DATE	DESCRIPTION
1	9/9/97	RELEASED FOR CONSTRUCTION R-343-24

WASATCH CONSTRUCTORS
 SEP 12 1997
 RELEASED FOR CONSTRUCTION

NO.	DATE	REVISION	BY	CHK

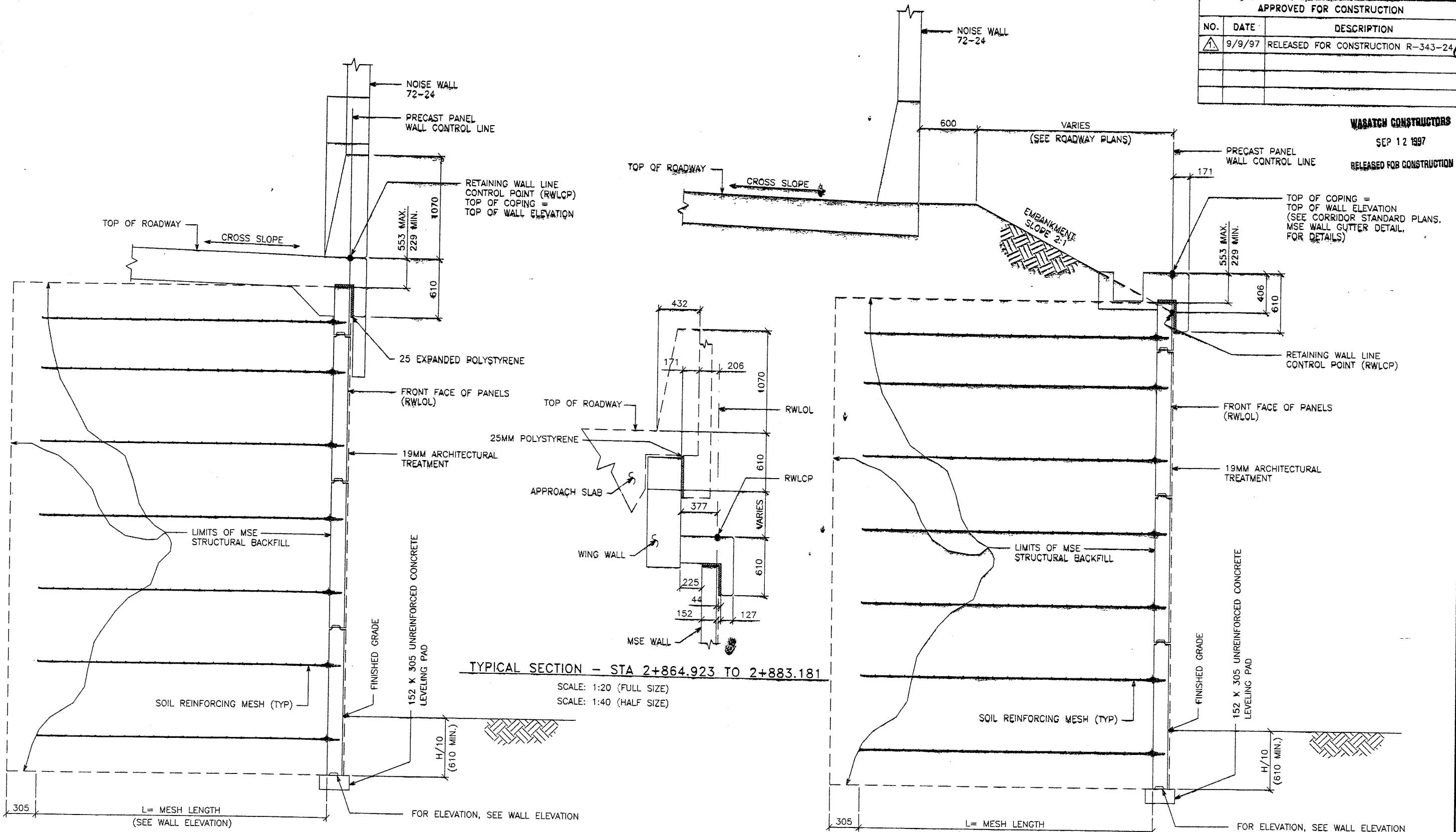
VSL CORPORATION
 2840 Plaza Place, Suite 200
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 Fax: (919) 781-4669



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RETAINED EARTH™ WALLS
 PRECAST WALL "72-24"
 TYPICAL CROSS SECTIONS
 UTAH I-15 INTERCHANGE
 SALT LAKE COUNTY, UTAH
 UTAH DEPARTMENT OF TRANSP.

DWG. NO.	1.2R-343-24.6
JOB NO.	239-0007
SHT. NO.	RE-4

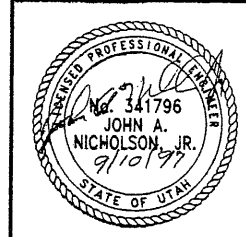


TYPICAL CROSS SECTION - STA 2+864.923
 (MSE SINGLE STAGE WITH MOMENT SLAB)
 SCALE: 1:20 (FULL SIZE)
 SCALE: 1:40 (HALF SIZE)

TYPICAL CROSS SECTION - STA 2+713.530 TO 2+843.794
 (MSE SINGLE STAGE WITH GUTTER DETAIL)
 SCALE: 1:20 (FULL SIZE)
 SCALE: 1:40 (HALF SIZE)

NOTE: FOR WALL STA 2+843.794 TO 2+864.272 SEE CORRIDOR STANDARD PLANS, FOR DETAILS OF TRANSITION FROM MSE SINGLE STAGE WALL WITH GUTTER TO MSE SINGLE STAGE WALL WITH MOMENT SLAB.

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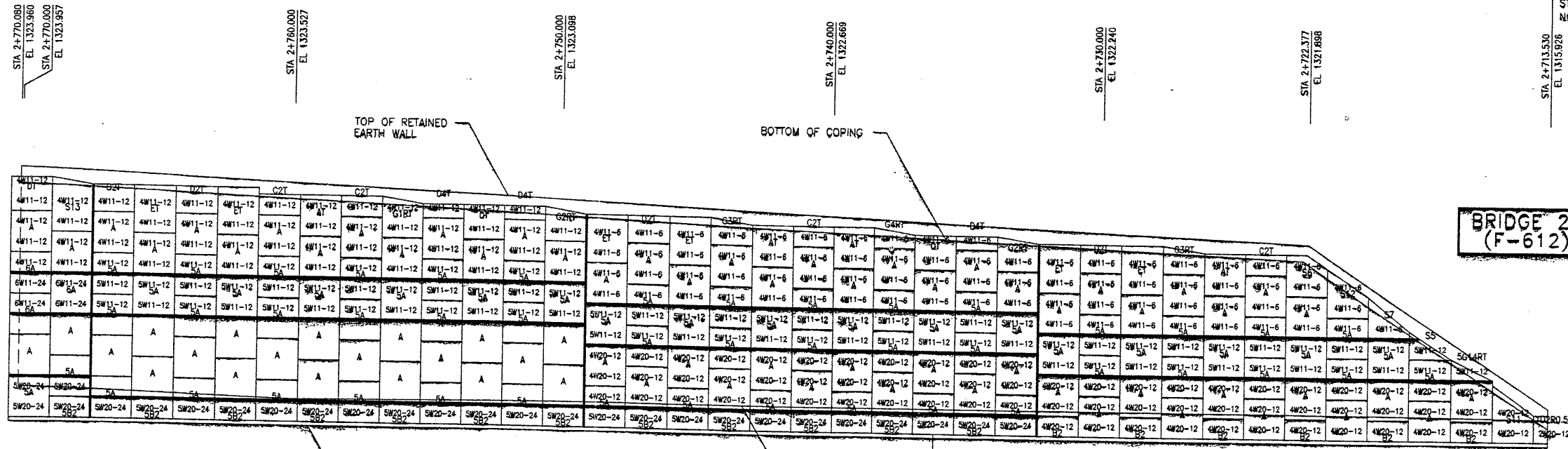


METRIC

APPROVED FOR CONSTRUCTION		
NO.	DATE	DESCRIPTION
1	9/9/97	RELEASED FOR CONSTRUCTION R-343-24

BEGIN WALL STA 2+713.530 =
 S 72-215E15S
 STA 2+713.530 (23.684 LT)
 NOMINAL PANEL FACE (RWLOL)

WASATCH CONSTRUCTORS
 SEP 12 1997
 RELEASED FOR CONSTRUCTION



75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100	101	102	103	104	105	106	107	108	109	110	111	112
7.315					6.706										6.096					5.486																	
351 KPa					324 KPa										291 KPa					268 KPa																	
MESH DEPTH					MESH DEPTH										MESH DEPTH					MESH DEPTH																	
351 KPa					324 KPa										291 KPa					268 KPa																	
PIN SPACING					PIN SPACING										PIN SPACING					PIN SPACING																	

ELEVATION PRECAST WALL 72-24
 SCALE 1:100 (FULL SIZE)
 SCALE 1:200 (HALF SIZE)

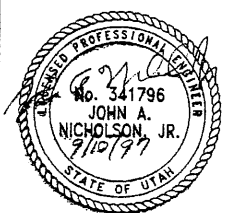
BRIDGE 29
(F-612)

MATCH LINE #2

BEGIN WALL

APPROVER NOTE:
 MAXIMUM FINAL UNFACTORED BEARING PRESSURES
 ARE INDICATED BELOW "MESH DEPTH LINE"
 REVIEWER TO VERIFY MAXIMUM BEARING
 CAPACITY OF FOUNDATION.

METRIC



CERTIFIED FOR INTERNAL STABILITY OF RETAINED EARTH™ STRUCTURES ONLY.
 EXTERNAL STABILITY, INCLUDING BUT NOT LIMITED TO FOUNDATION AND SLOPE
 STABILITY, IS THE RESPONSIBILITY OF THE OWNER. DESIGN IS BASED ON THE
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 OF CONSTRUCTION, AND QUALITY OF PREFABRICATED MATERIALS CONFORM TO
 THE MANUFACTURER'S SPECIFICATION.

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 Fax: (919) 781-4889



VSL Corporation (VSL) does a series of preliminary design and calculations for the owner. It is the owner's responsibility to verify each item of information in this report. The owner is responsible for the design and construction of the structure. VSL is not responsible for the design and construction of the structure.

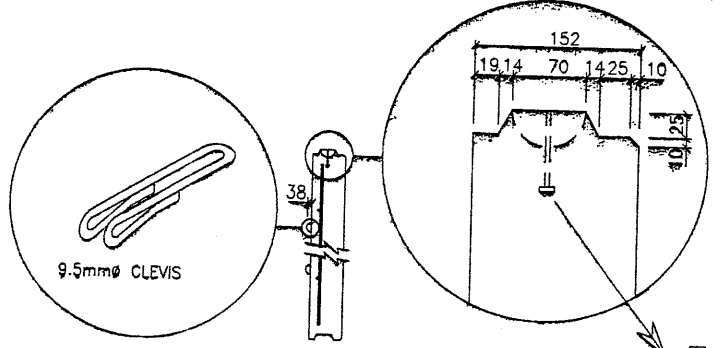
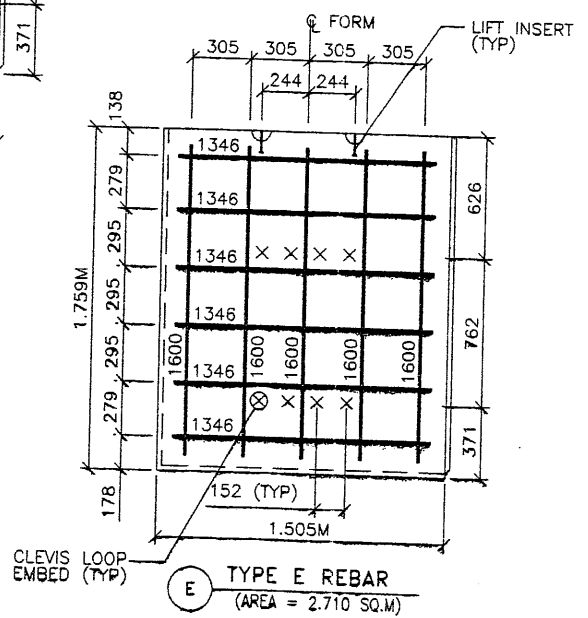
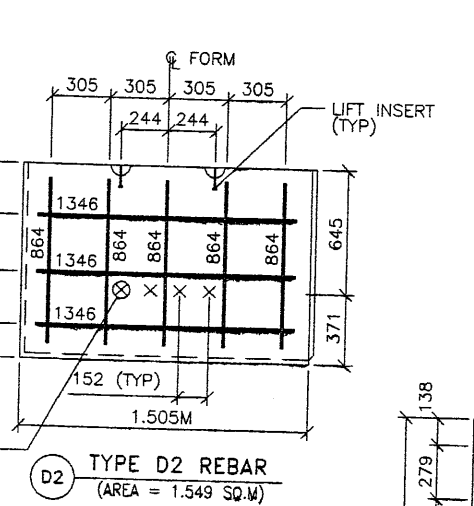
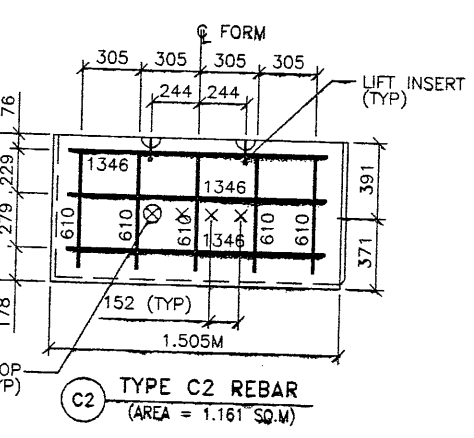
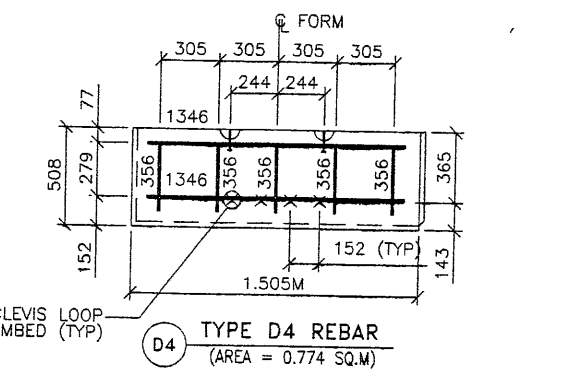
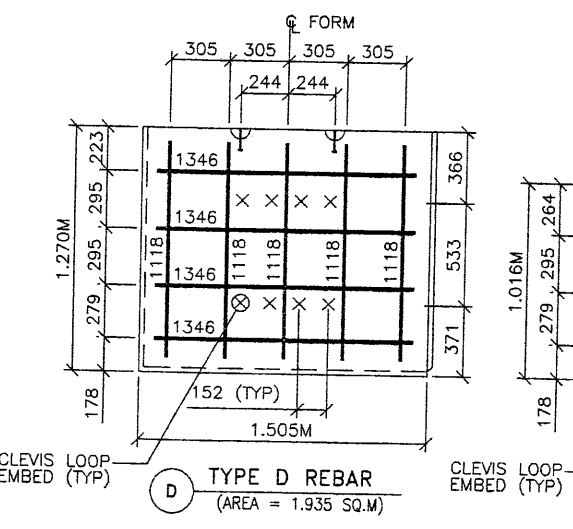
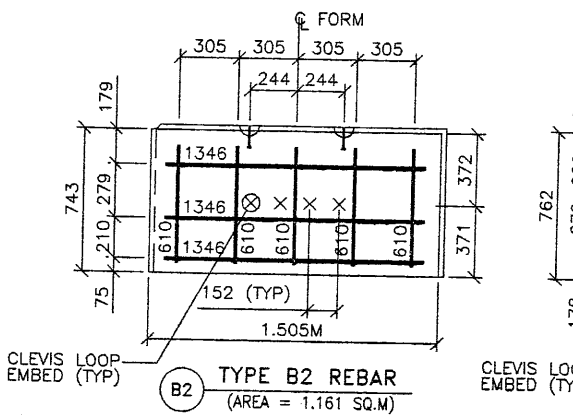
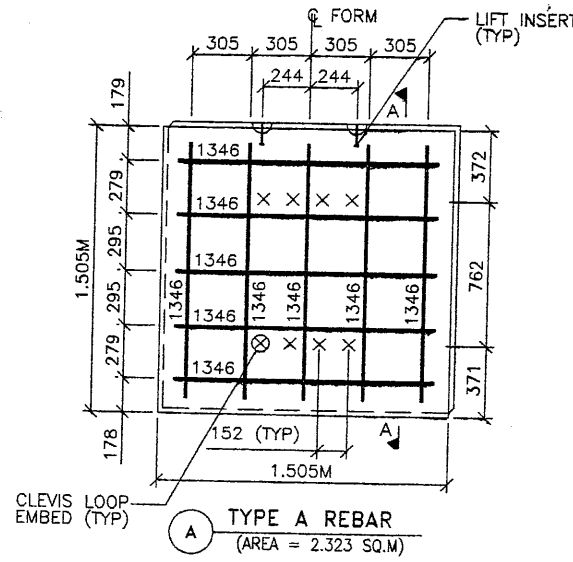
RETAINED EARTH™ WALLS
 PRECAST WALL "72-24"
 I-15 INTERCHANGE
 SALT LAKE COUNTY, UTAH
 UTAH DEPARTMENT OF TRANSP.

DWG. NO.	1.2R-343-24.9
JOB NO.	239-0007
SHT. NO.	RE-7

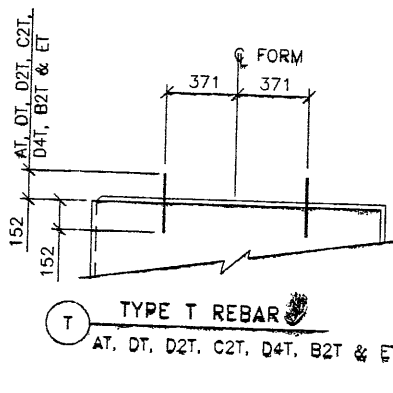
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03-97

FINAL PLO



A-A SECTION A-A



APPROVED FOR CONSTRUCTION		
NO.	DATE	DESCRIPTION
1	9/9/97	RELEASED FOR CONSTRUCTION R-343-24

- PANEL REINFORCEMENT NOTES:**
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WASATCH CONSTRUCTORS
SEP 12 1997
RELEASED FOR CONSTRUCTION

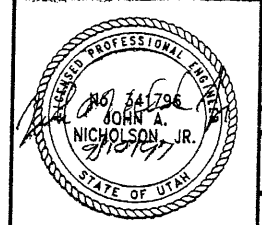
VSL CORPORATION
8940 Plaza Place, Suite 200
Raleigh, NC 27617
Telephone: (919) 781-6272
Fax: (919) 781-1889



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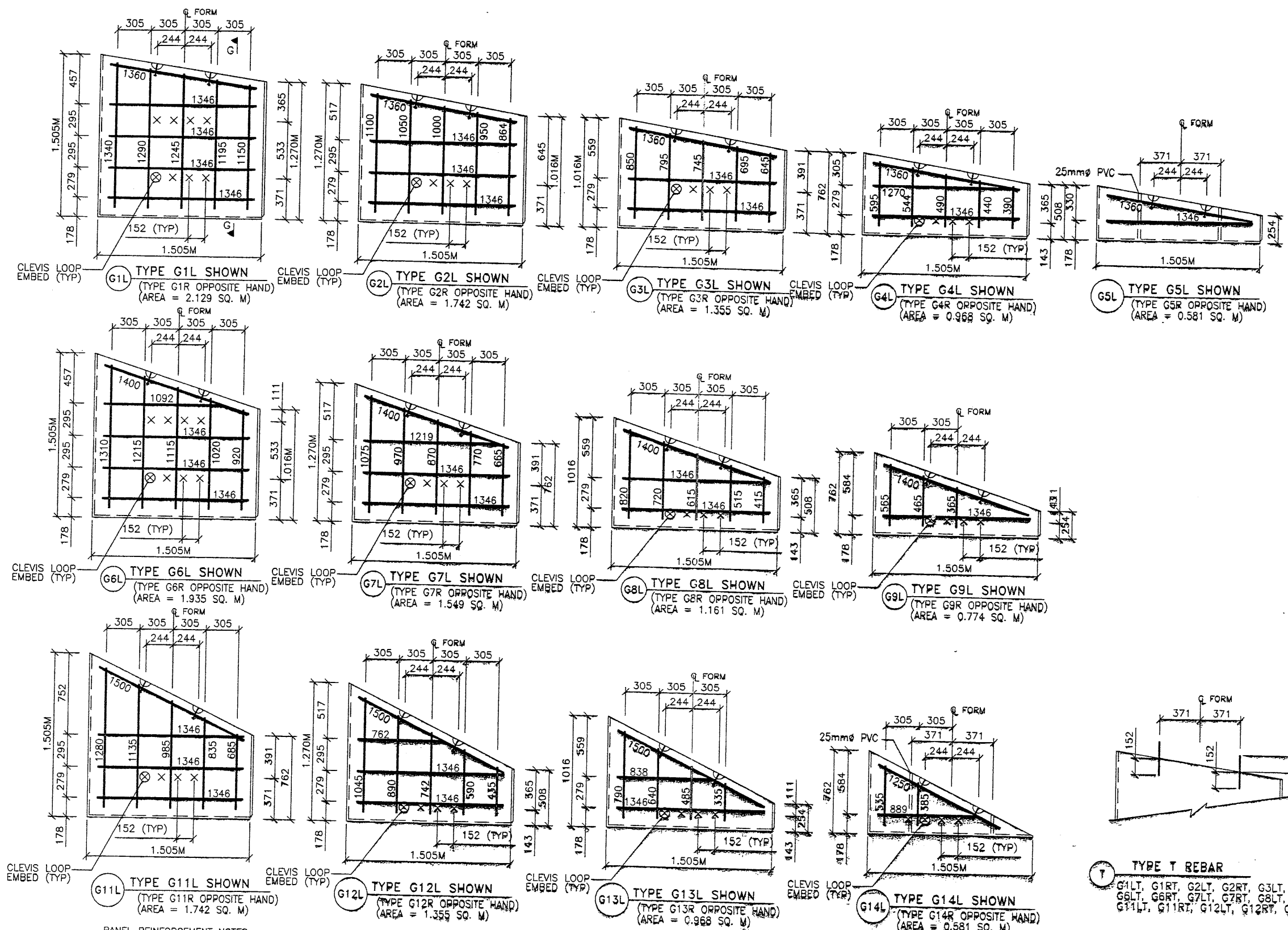
RETAINED EARTH™ WALLS
PRECAST WALL "72-24"
PANEL REINFORCEMENT 1.524M x 1.524M
UTAH I-15 INTERCHANGE
SALT LAKE COUNTY, UTAH
UTAH DEPARTMENT OF TRANSP.

METRIC



CERTIFIED FOR INTERNAL STABILITY OF RETAINED EARTH™ STRUCTURES ONLY. EXTERNAL STABILITY, INCLUDING BUT NOT LIMITED TO FOUNDATION AND SLOPE STABILITY, IS THE RESPONSIBILITY OF THE OWNER. DESIGN IS BASED ON THE ASSUMPTION THAT THE MATERIAL WITHIN THE RETAINED EARTH™ MASS, METHODS OF CONSTRUCTION, AND QUALITY OF PREFABRICATED MATERIALS CONFORM TO THE MANUFACTURER'S SPECIFICATION.

DWG. NO. 1.2R-343-24.10
JOB NO. 239-0007
SHT. NO. RE-8



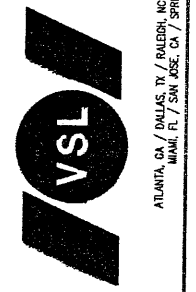
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APPROVED FOR CONSTRUCTION		
NO.	DATE	DESCRIPTION
9/9/97		RELEASED FOR CONSTRUCTION R-343-24

WASATCH CONSTRUCTORS
SEP 12 1997
RELEASED FOR CONSTRUCTION

DES.	MM	DDO	MM	NO.	DATE	BY
09-03-97						CHK
09-03-97						REVISION
09-03-97						NO.
09-03-97						DATE
09-03-97						NO.
09-03-97						DATE

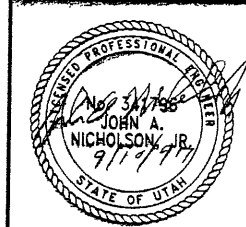
VSL CORPORATION
2840 Plaza Floor, Suite 200
Raleigh, NC 27612
Telephone: (919) 761-6772
Fax: (919) 761-4989



VSL Corporation (VSL) hereby certifies that the design, drawings, specifications and calculations on this sheet, the use of which is intended to be a part of the construction of the structure, are the work of a duly licensed Professional Engineer in the State of Utah. The use of this information in whole or in part for any other purpose without the written consent of VSL is prohibited, and VSL shall not be held responsible for any consequences thereof.

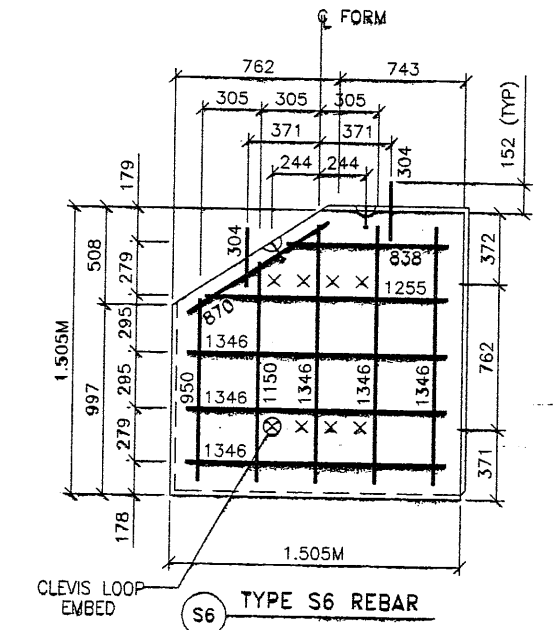
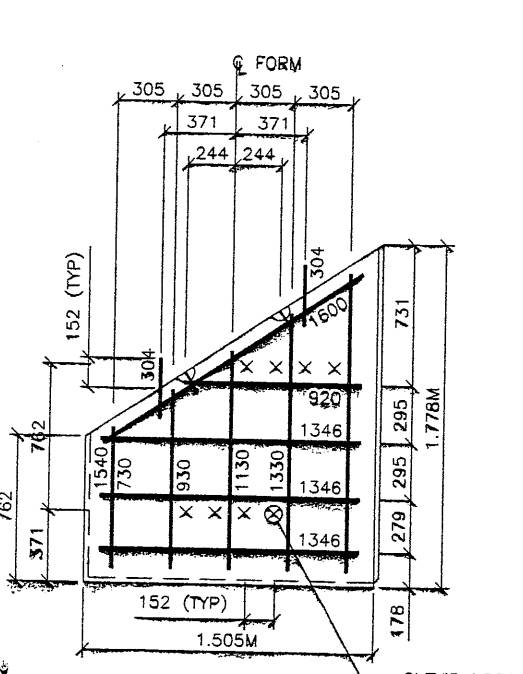
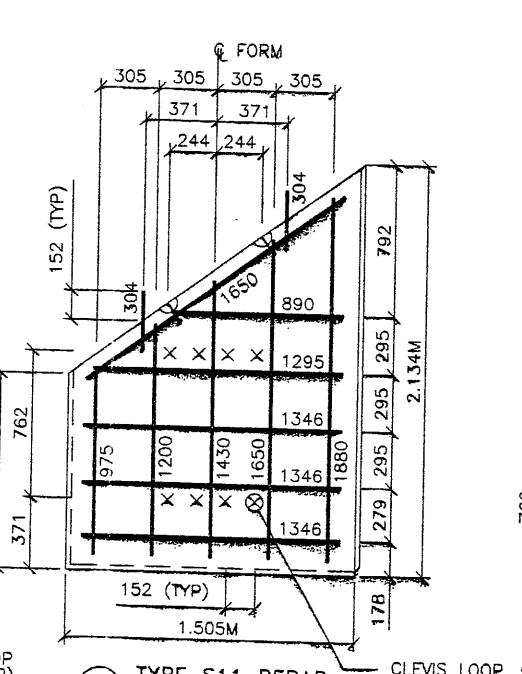
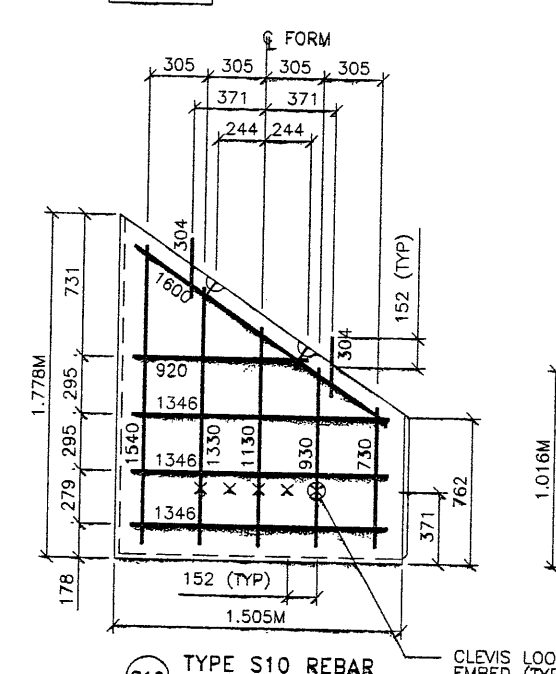
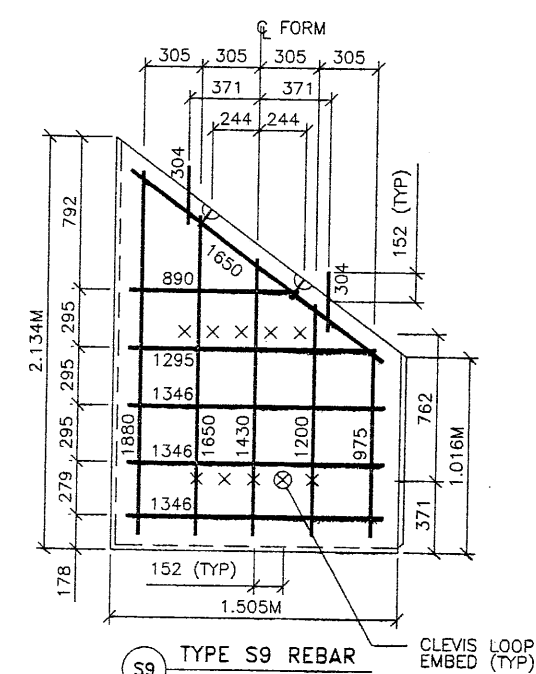
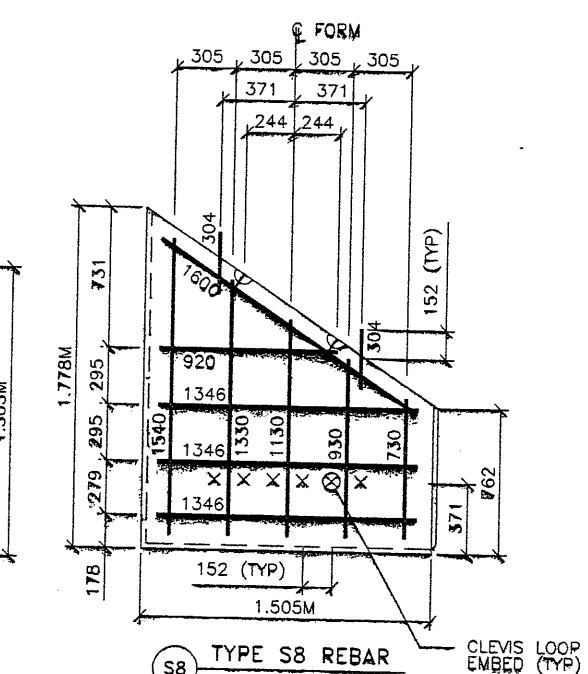
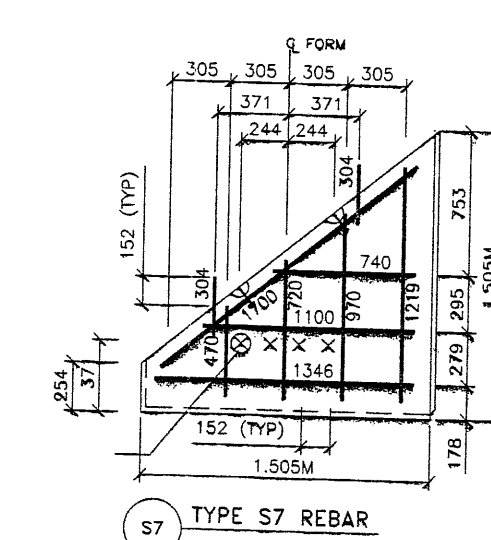
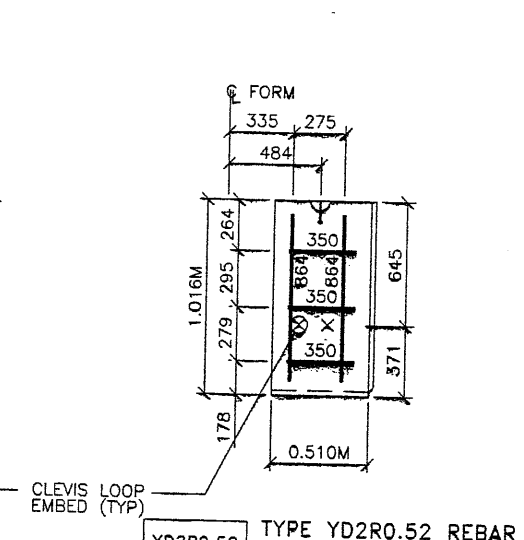
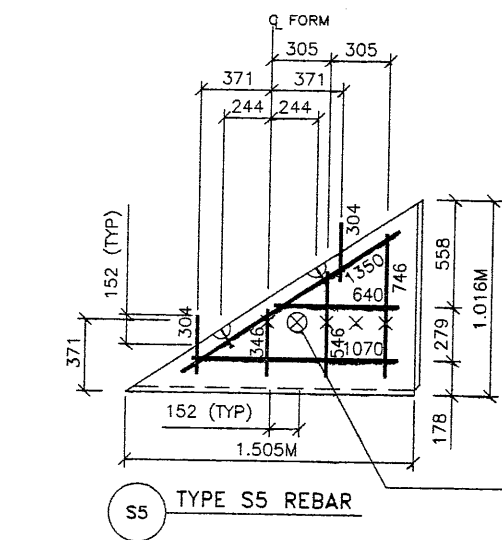
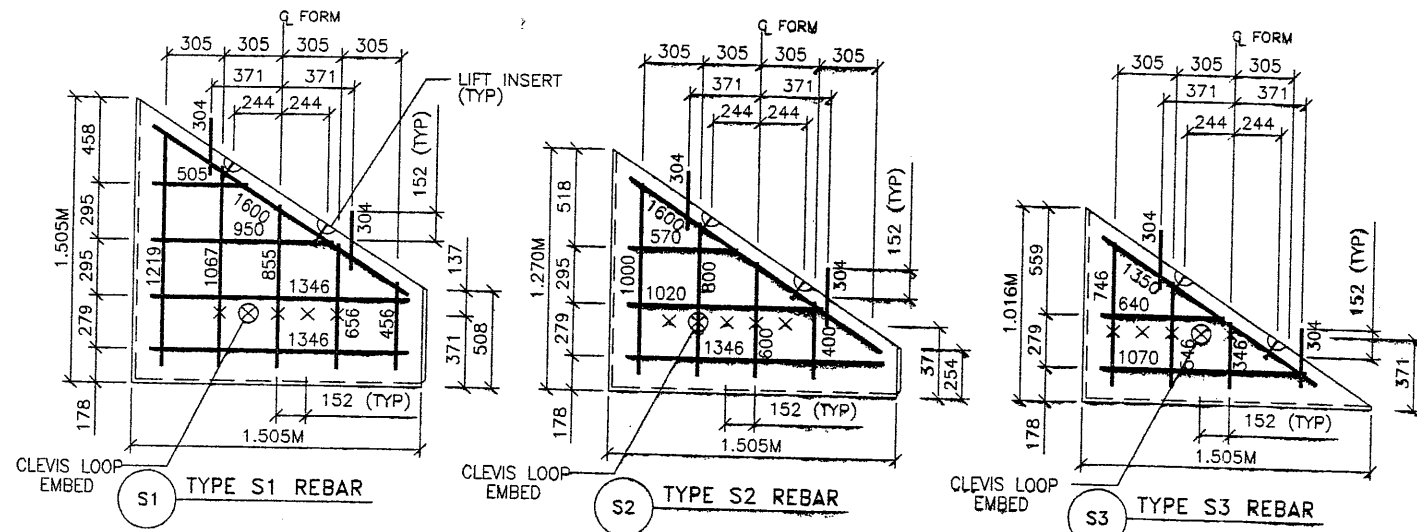
RETAINED EARTH™ WALLS
PRECAST WALL "72-24"
"G" PANEL REINFORCEMENT 1.524M x 1.524M
UTAH I-15 INTERCHANGE
SALT LAKE COUNTY, UTAH
UTAH DEPARTMENT OF TRANSP.

METRIC



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DWG. NO.	1.2R-343-24.11
JOB NO.	239-0007
SHT. NO.	RE-9



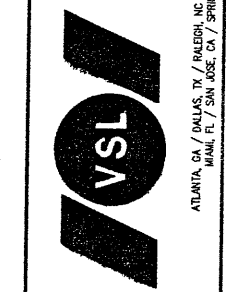
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WASATCH CONSTRUCTORS
SEP 12 1997
RELEASED FOR CONSTRUCTION

APPROVED FOR CONSTRUCTION		
NO.	DATE	DESCRIPTION
1	9/9/97	RELEASED FOR CONSTRUCTION R-343-24

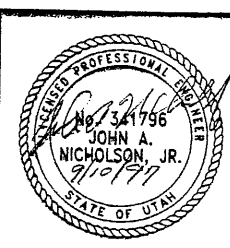
NO.	DATE	REVISION	BY	CHK

VSL CORPORATION
2810 Peachtree Plaza, Suite 200
Atlanta, GA 30328
Telephone: (404) 761-6272
Fax: (404) 761-6869



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RETAINED EARTH™ WALLS
PRECAST WALL "72-24"
SPECIAL PANEL REINFORCEMENT
UTAH I-15 INTERCHANGE
SALT LAKE COUNTY, UTAH
UTAH DEPARTMENT OF TRANSP.

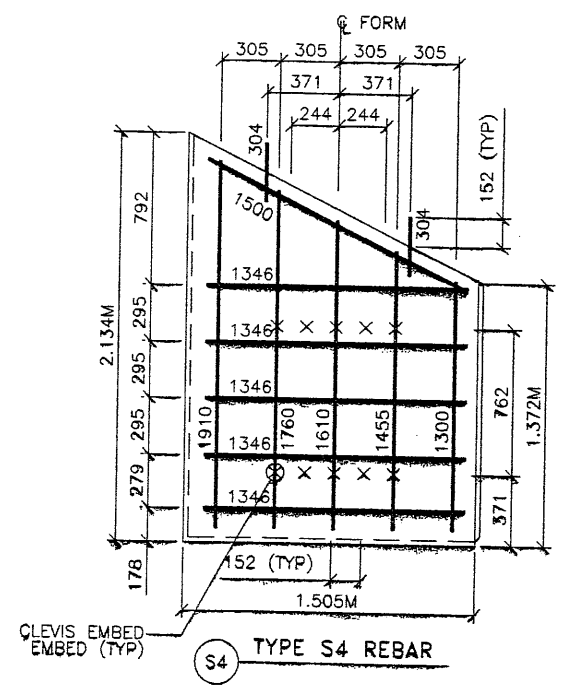
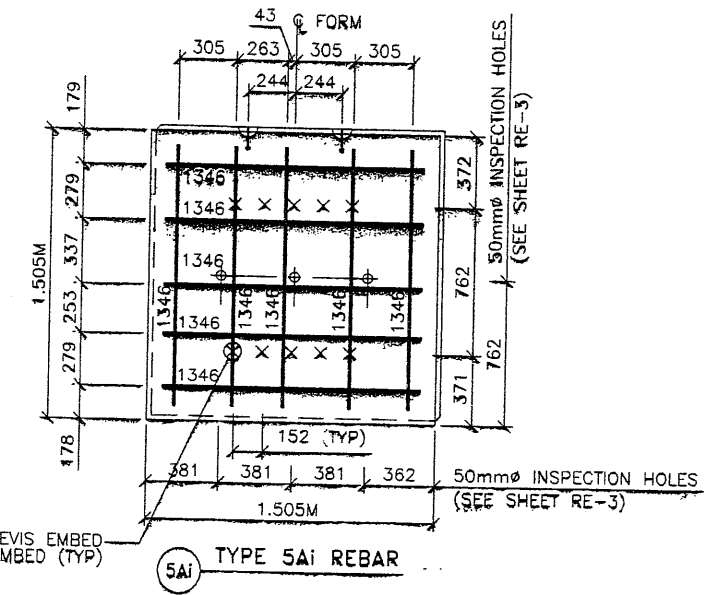
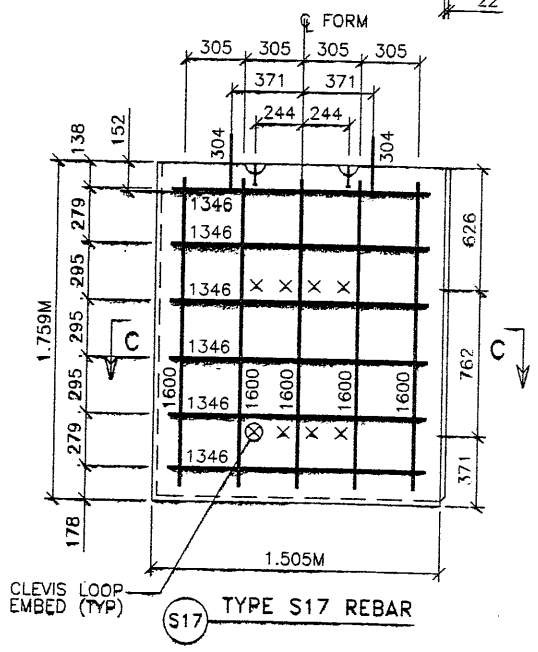
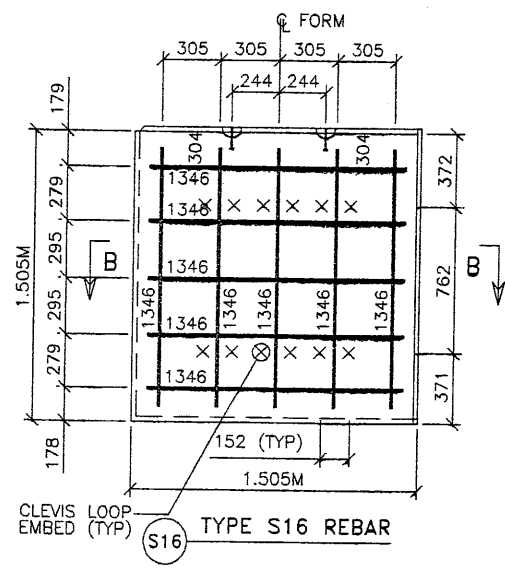
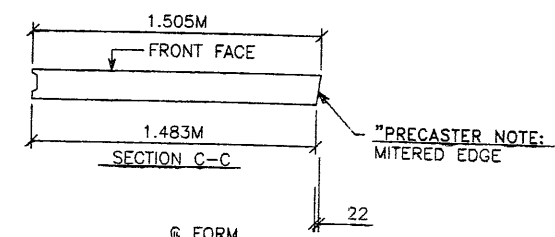
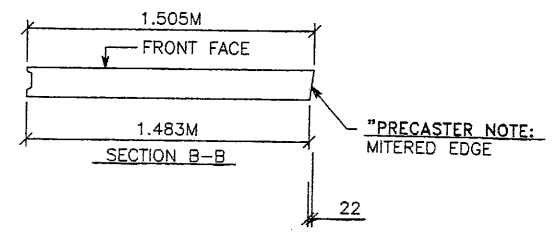
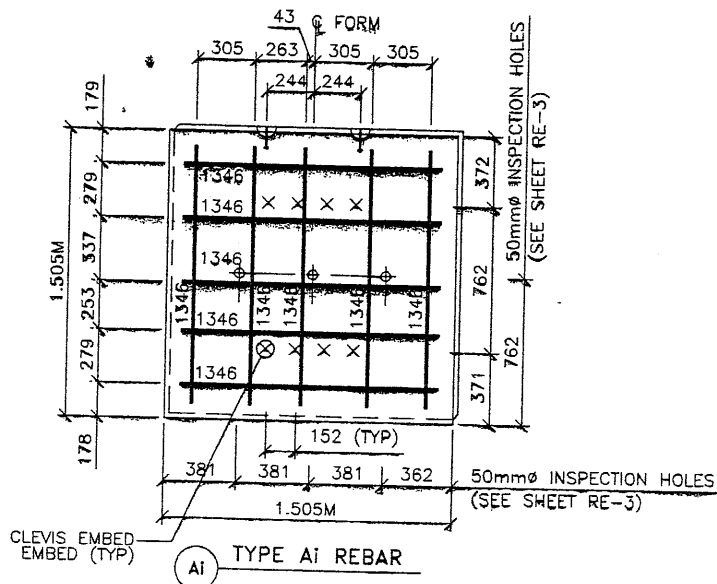
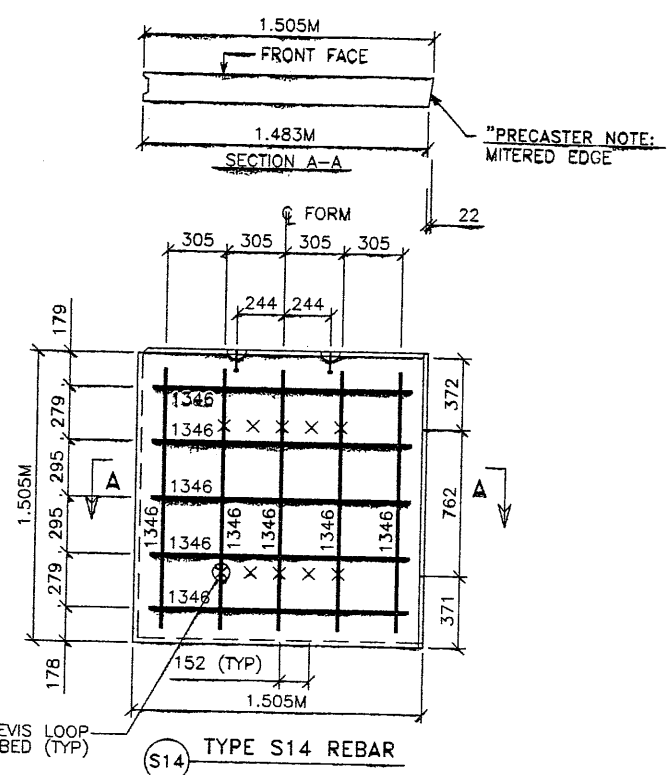
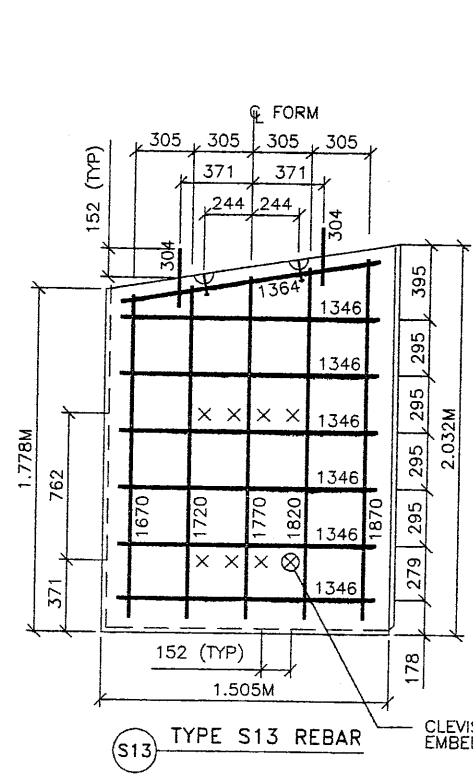


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DWG. NO.
1.2R-343-24.12
JOB NO.
239-0007
SHT. NO.
RE-10

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FINAL PLC 03-97



APPROVED FOR CONSTRUCTION		
NO.	DATE	DESCRIPTION
1	9/9/97	RELEASED FOR CONSTRUCTION R-343-24

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WASATCH CONSTRUCTORS
SEP 12 1997
RELEASED FOR CONSTRUCTION

DES	MM	09-03-97	DDO	MM	09-03-97	NO.	DATE
DRN	MM	09-03-97	DDO	MM	09-03-97	NO.	DATE
CHK	MM	09-03-97	DDO	MM	09-03-97	NO.	DATE

VSL CORPORATION
2840 Plaza Place, Suite 200
Raleigh, NC 27612
Telephone (919) 781-6772
Fax: (919) 781-6885

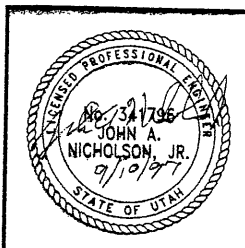
ATLANTA, GA / DALLAS, TX / BALTIMORE, MD (CORPORATE OFFICE)
MIAMI, FL / SAN JOSE, CA / SPRINGFIELD, VA

VSL

RETAINED EARTH™ WALLS
PRECAST WALL "72-24"
SPECIAL PANEL REINFORCEMENT
UTAH I-15 INTERCHANGE
SALT LAKE COUNTY, UTAH
UTAH DEPARTMENT OF TRANSP.

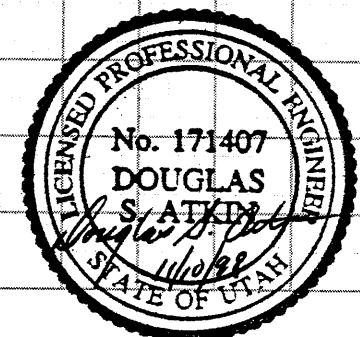
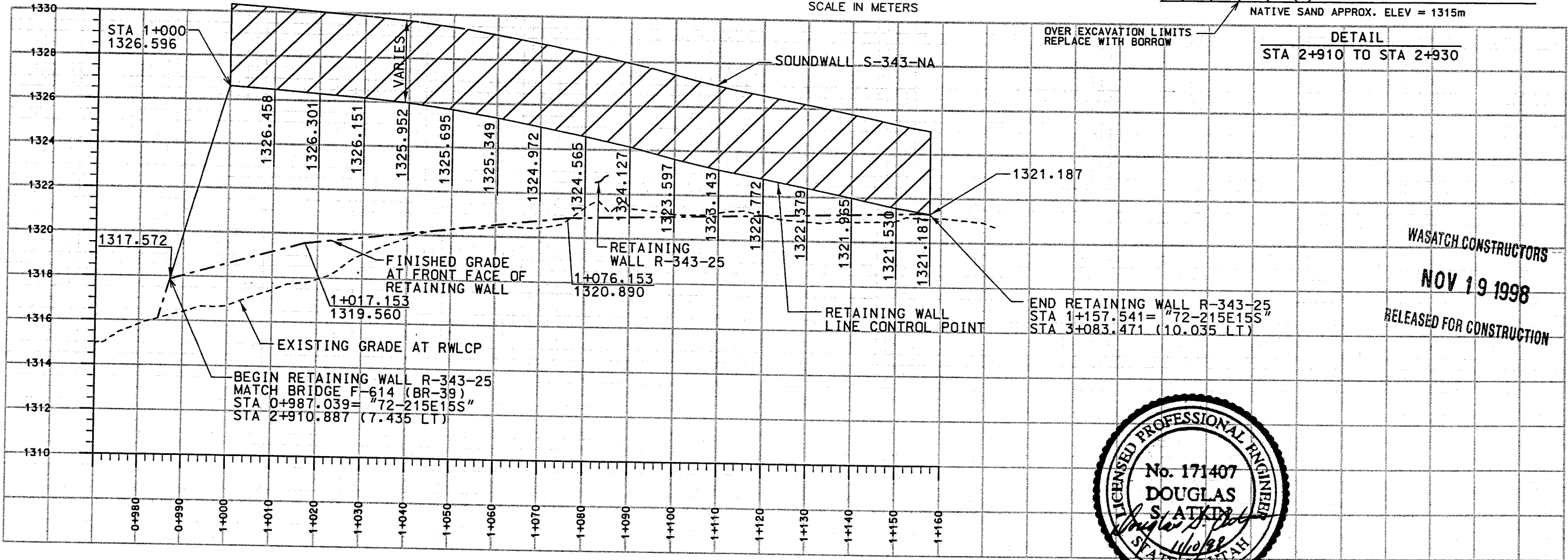
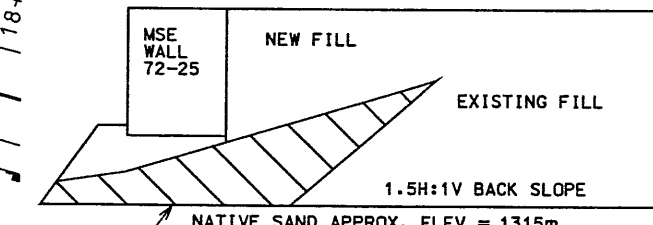
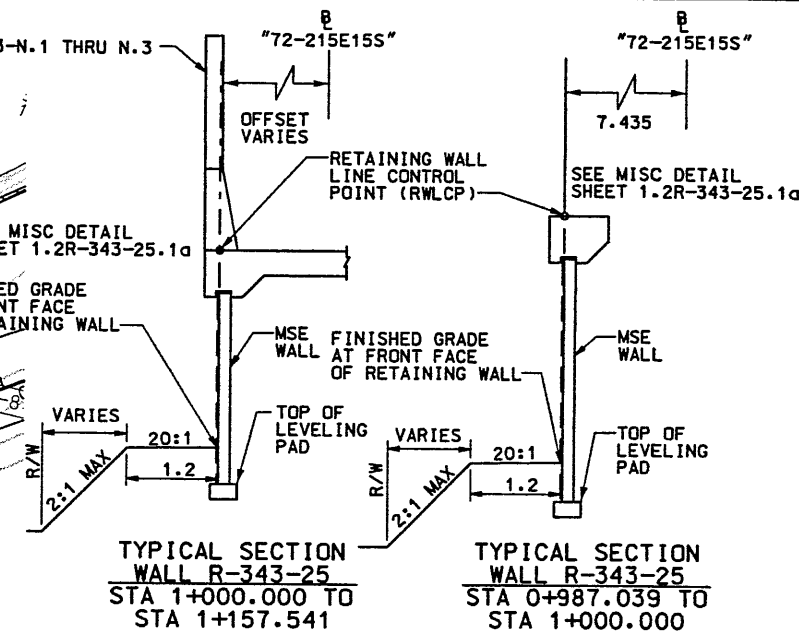
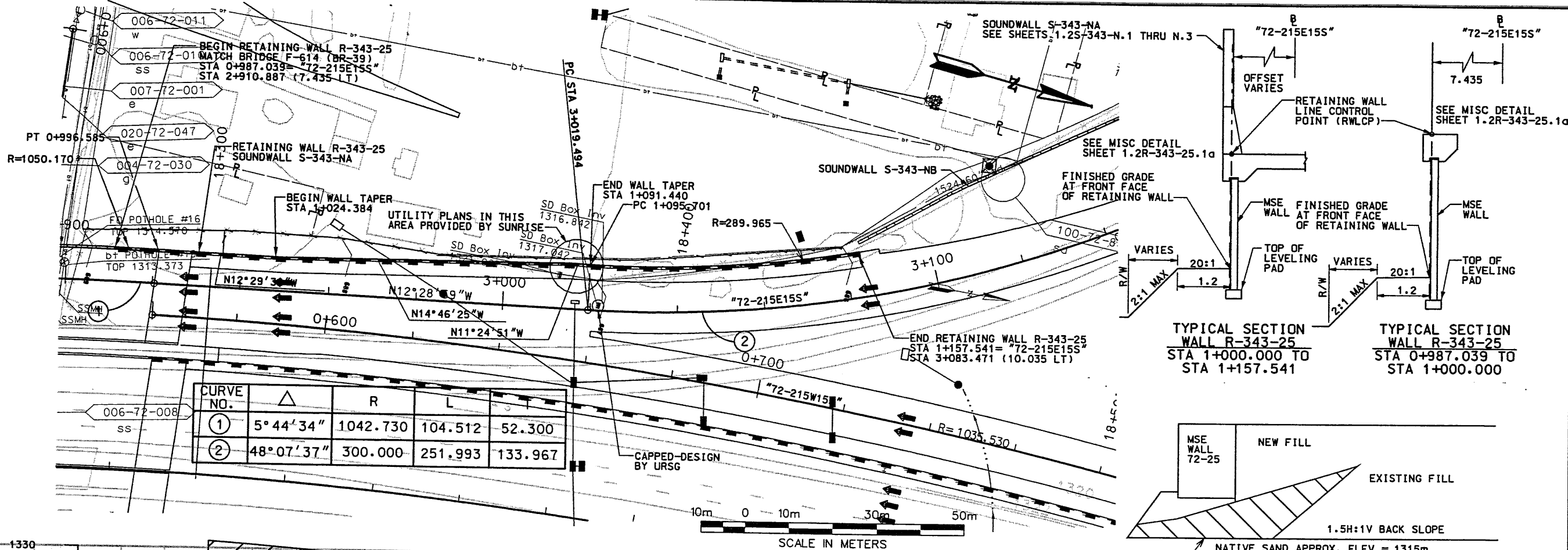
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JOB NO. 239-0007
SHT. NO. RE-11

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Userrname: mackkw
Date: 10-NOV-1998 Time: 16:48

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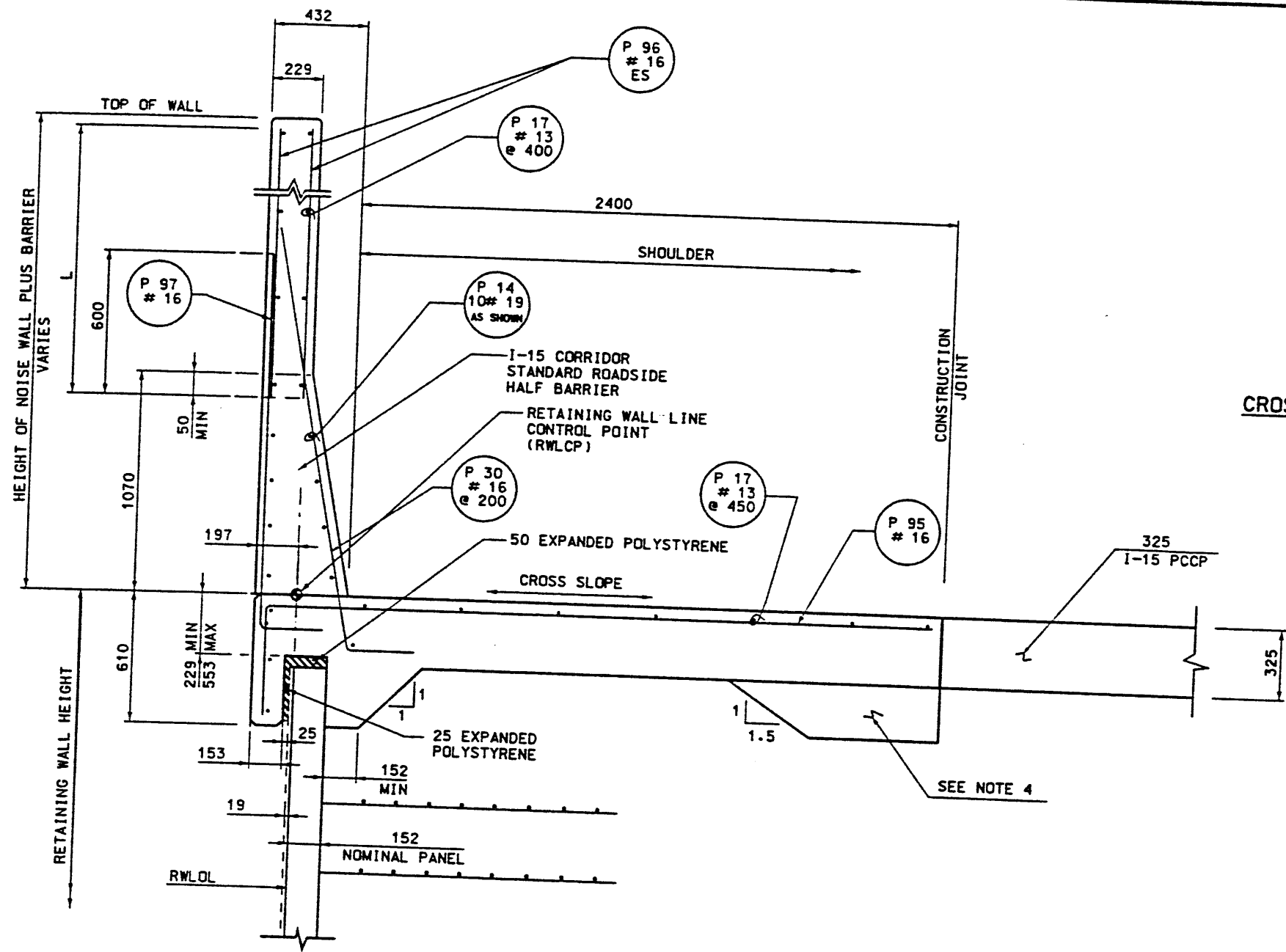


APPROVED FOR CONSTRUCTION		DESCRIPTION	
NO.	DATE	INITIAL RELEASE	RELEASED FOR CONSTRUCTION
1	9-17-97		
2	12-31-97		
3	11-10-98		

UTAH DEPARTMENT OF TRANSPORTATION		SVERDRUP/DE LEUW	
DESIGN	CHK	DATE	QUANT.
1212310			

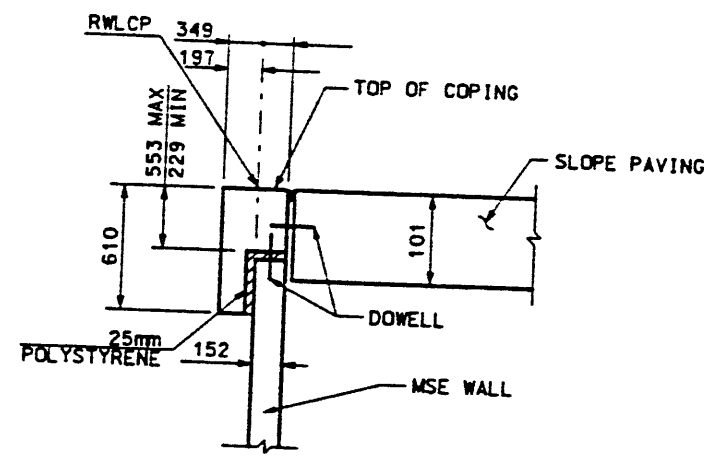
I-15 CORRIDOR RECONSTRUCTION		SALT LAKE COUNTY	
SITUATION/LAYOUT	DWG. NO.	PROJECT NUMBER	REF.
RET WALL R-343-25	1.2R-343-25.1	#SP-15-7(135)296	1 12
SECTION 1.2			

Date: 30-DEC-1997 Time: 10:28 User: noma (s) (tr)



MSE SINGLE STAGE WITH SOUNDWALL AND BARRIER ON MOMENT SLAB
NO SCALE

- NOTES:**
- 50mm MINIMUM COVER OVER REINFORCING.
 - USE 325 PCCP $f'c=27.5$ MPa (4,000 PSI) FOR MOMENT SLAB.
 - TOE OF BARRIER/EDGE OF SHOULDER IS 235mm INSIDE RETAINING WALL LAYOUT LINE (RWLOL).
 - ADD COUNTERWEIGHT FOR NOISE WALL PLUS BARRIER HEIGHT GREATER THAN 4.3m HIGH.

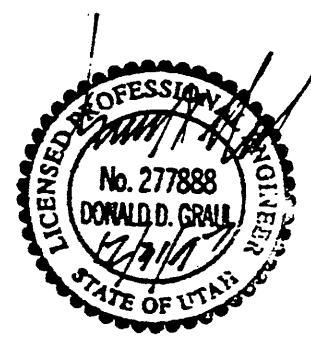


CROSS SECTION C-C WITH ABUTMENT SLOPE (NON SPUI)
SLOPE PAVING / COPING DETAILS
NO SCALE

WASATCH CONSTRUCTORS
JAN 02 1998
RELEASED FOR CONSTRUCTION

NOISE WALL/BARRIER REINFORCING STEEL SCHEDULE		
HEIGHT OF NOISE WALL PLUS BARRIER (m)	BAR SIZE AND SPACING	
5	#16 @ 230	
4	#16 @ 300	
3	#16 @ 300	
MARK	LENGTH	SKETCH
P95	3010	
P96	L	
P97	2200	
P98	4310	

* BASED UPON 1086 MAX FROM BACK OF BARRIER TO OUTSIDE FACE OF COPING.

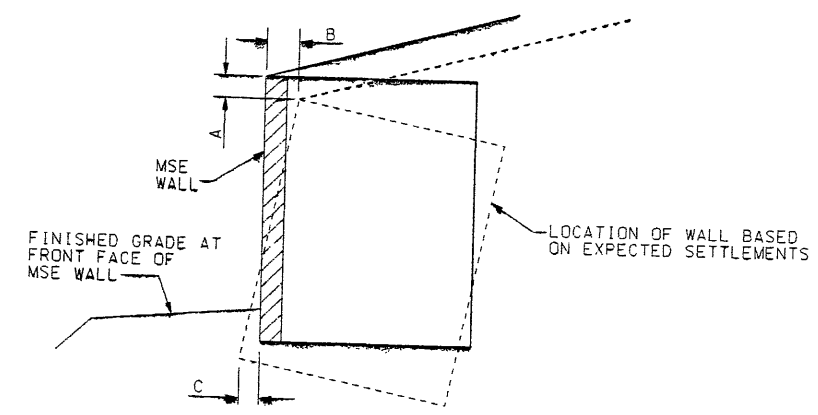


UTAH DEPARTMENT OF TRANSPORTATION		SYVERDRUP/DE LEUW	1212310
APPROVED FOR CONSTRUCTION	DATE	NO.	DESCRIPTION
			RELEASED FOR CONSTRUCTION
1-15 CORRIDOR RECONSTRUCTION		SECTION 1.2	
MISC DETAILS		PROJECT NUMBER #SP-15-7(135)296	
RET. WALL R-343-25		SALT LAKE COUNTY	
DWG. NO. 1.2R-343-25.1a		SHT. 2 of 19	

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 User Name: mills jm



WASATCH CONSTRUCTORS
 SEP 19 1997
 RELEASED FOR CONSTRUCTION



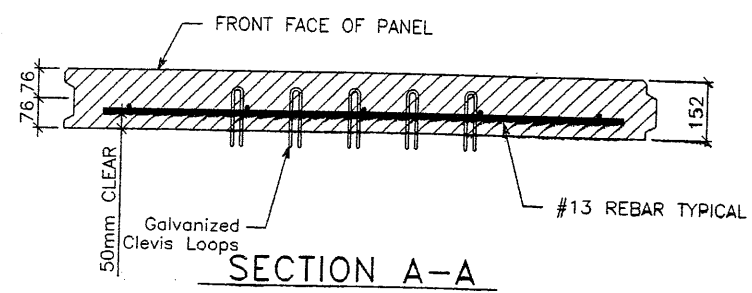
ESTIMATED SETTLEMENT TABLE

STATION LIMITS	REFERENCE STATION	WALL SETTLEMENT mm	TOP OF WALL ROTATION mm	LATERAL DISPLACEMENT AT BOTTOM OF WALL mm
0+987.039 TO 1+157.541	0+987***	40 TO 60	25	**

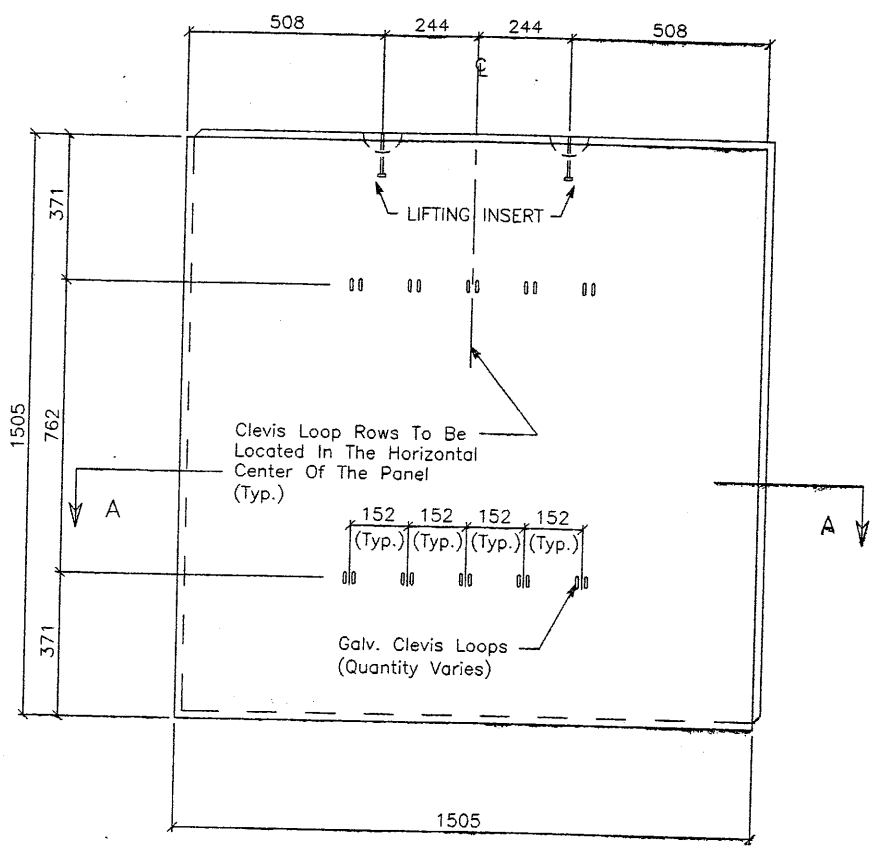
** LATERAL DISPLACEMENT AT BOTTOM OF WALL SHOULD BE LESS THAN ONE HALF OF THE SETTLEMENT AT FRONT FACE OF WALL. TERRACON RECOMMENDS CONSTRUCTING THE WALL TOE AT THE DESIGN LOCATION.
 *** THESE VALUES CALCULATED AT REFERENCED STATION; ROTATIONS AT OTHER STATIONS CAN BE ESTIMATED IN PROPORTION TO WALL HEIGHT.

I-15 CORRIDOR RECONSTRUCTION		UTAH DEPARTMENT OF TRANSPORTATION		APPROVED FOR CONSTRUCTION	
MISC. DETAILS RET WALL R-343-25		URS Greiner		DESCRIPTION	
SECTION 1.2		SVERDRUP/DE LEUW		NO. Δ	
PROJECT NUMBER *SP-15-7(135)296		DESIGN: EMR 8/97		DATE 9-17-97	
SALT LAKE COUNTY		DRAWN: RS 8/97		INITIAL RELEASE <i>CR</i>	
1.2R-343-25.2		CHECK: KMM 8/97		DATE - - -	
SHT. 3 OF 13		SECTION MANAGER		QUANT. 1212403	

E:\PROJECT\239-000\SERIES\72-25\RE-2
 7-10-97
 FINAL PL

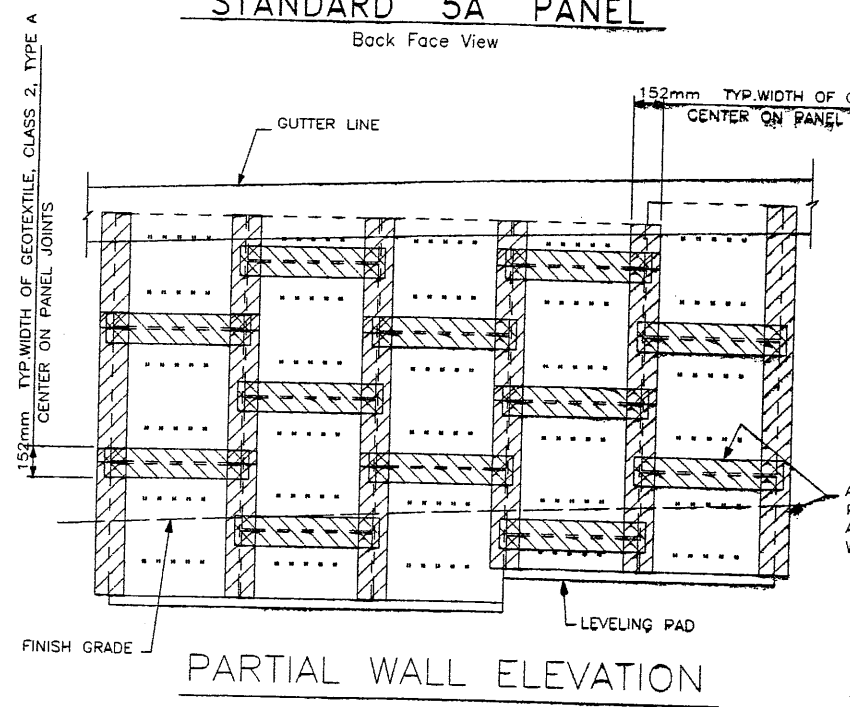


SECTION A-A

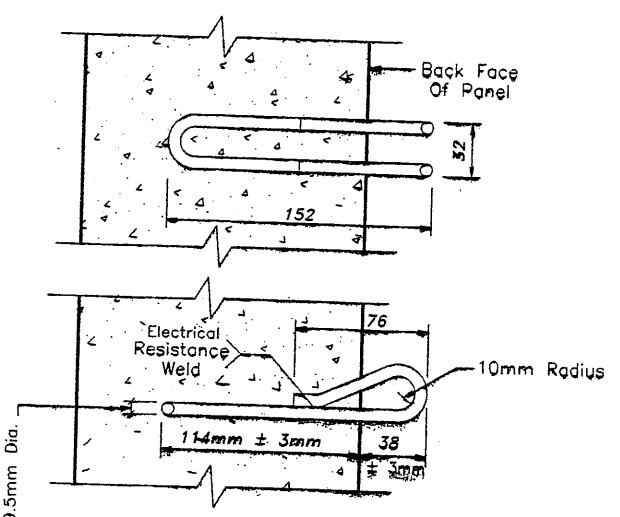


STANDARD "5A" PANEL

Back Face View

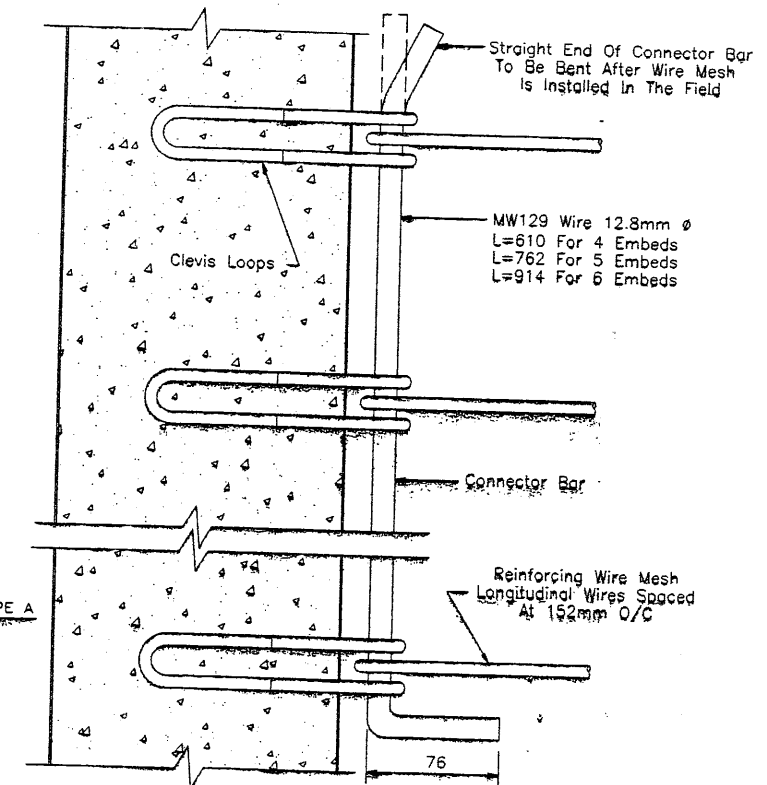


PARTIAL WALL ELEVATION



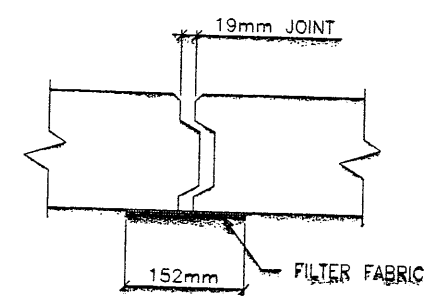
CLEVIS LOOP DETAIL

N.T.S.



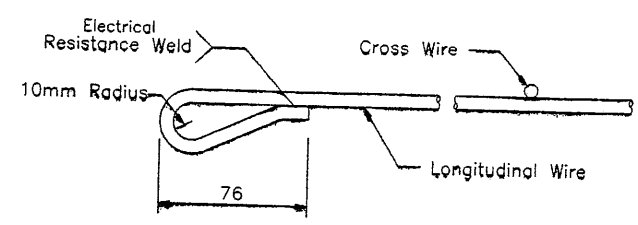
REINFORCING MESH CONNECTION DETAIL

N.T.S.



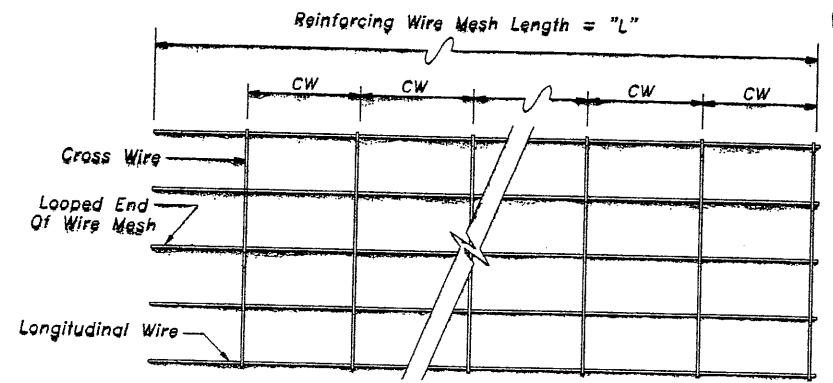
HORIZONTAL JOINT DETAIL

N.T.S.



WIRE MESH LOOP DETAIL

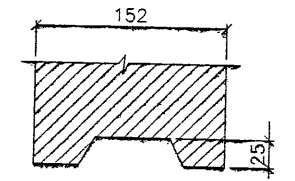
N.T.S.



WIRE MESH DESIGNATION

5W11 + W11 x 1.0 (5W11-12)
 No. Of Longitudinal Wires
 Size Of Longitudinal Wires (LS)
 Size Of Cross Wires (CS)
 Spacing (Et.) Of Cross Wires (CW)
 NOTE: FOR EXAMPLE ABOVE,
 EQUIVALENT WIRE MESH DESIGNATION = 6 X 12-W11XW11-24"X "L"
 (LW) (CW)(LS) (CS)
 SHEET WIDTH
 SHEET LENGTH

NOTE: W11 (71 sq mm) And W20 (129 sq mm) Steel Wire Material And Welding Of Cross Wires And Loops Shall Conform To ASTM A82 And ASTM 185, Fy = 448 MPa. Mesh Shall Be Galvanized To ASTM A-123 To A Minimum Effective Thickness Of 0.086 mm.



PANEL JOINT DETAIL

N.T.S.

19mm x 305mm HDPE PAD (2 PER PANEL)

METRIC

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NO.	DATE	DESCRIPTION
△	9/16/97	RELEASE FOR CONSTRUCTION <i>du</i>

WASATCH CONSTRUCTORS
 SEP 19 1997
 RELEASED FOR CONSTRUCTION

NO.	DATE	REVISION	BY	CHK

VSL CORPORATION
 8840 Plaza Place, Suite 200
 Raleigh, NC 27612
 Telephone: (919) 781-6272
 Fax: (919) 781-0969

ATLANTA, GA / DALLAS, TX / BALTIMORE, MD (CORPORATE OFFICE)
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RETAINED EARTH™ WALLS
 PRECAST WALL "72-25"
 TYPICAL DETAILS

UTAH I-15 INTERCHANGE
 SALT LAKE COUNTY, UTAH
 UTAH DEPARTMENT OF TRANSP.

DWG. NO. 1:2R-343-25.4
 JOB NO. 239-0007
 SHEET NO. RE-2

10-24-97
 JOHN A. NICHOLSON, JR.
 9/16/97
 STATE OF UTAH

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E:\PROJECT\239-0007\72-25\RE-3

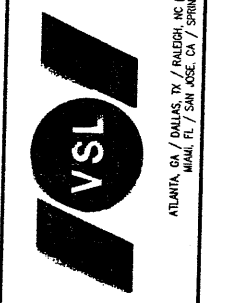
FINAL PL 7-10-97

APPROVED FOR CONSTRUCTION		
NO.	DATE	DESCRIPTION
1	9/16/97	RELEASE FOR CONSTRUCTION

WASATCH CONSTRUCTORS
SEP 19 1997
RELEASED FOR CONSTRUCTION

NO.	DATE	REVISION	BY	CHK

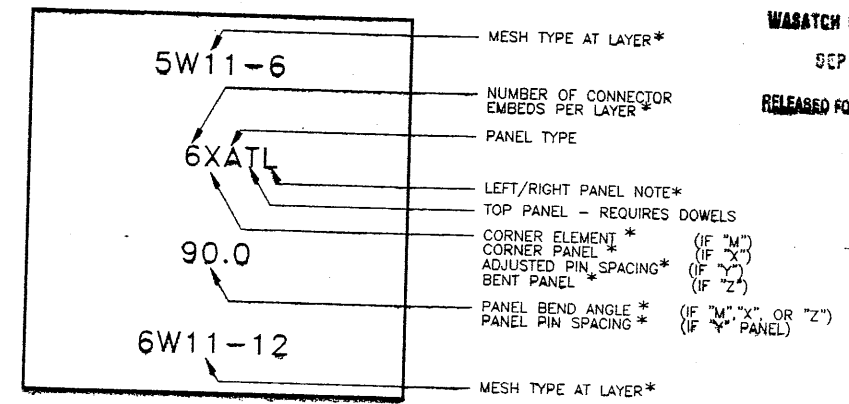
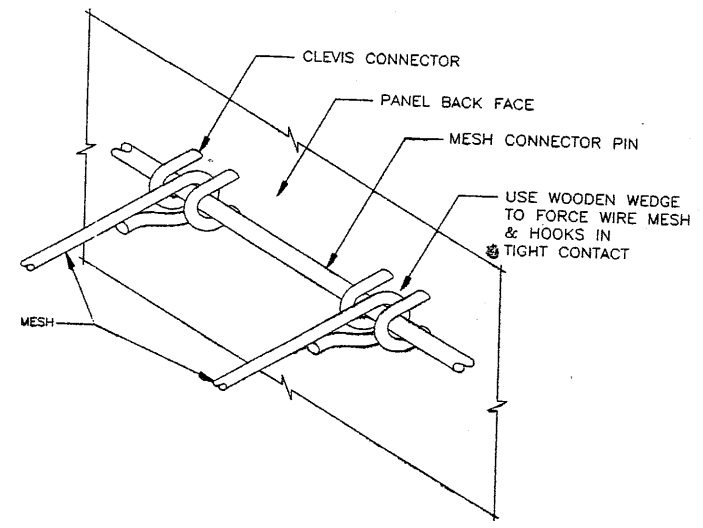
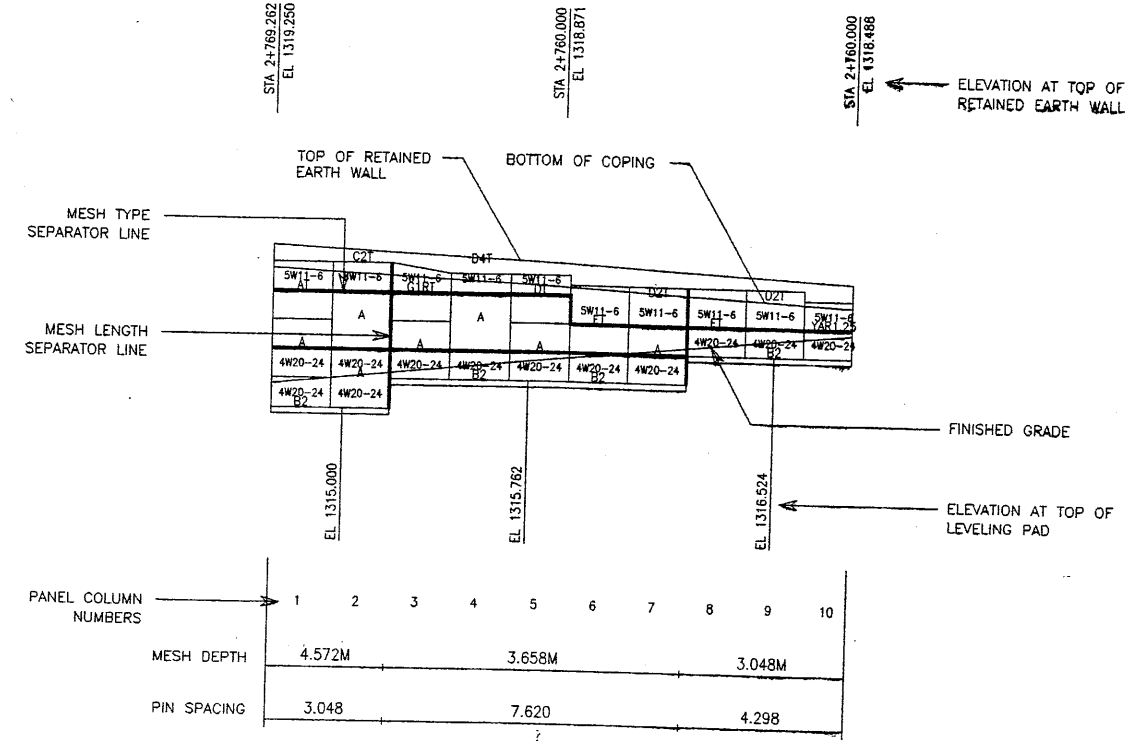
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Raleigh, NC 27612
Telephone: (919) 781-6272
Fax: (919) 781-4969



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RETAINED EARTH™ WALLS
PRECAST WALL "R-343-25"
TYPICAL DETAILS
UTAH I-15 INTERCHANGE
SALT LAKE COUNTY, UTAH
UTAH DEPARTMENT OF TRANSP.

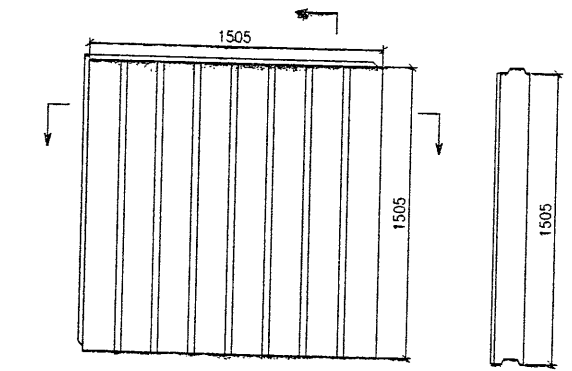
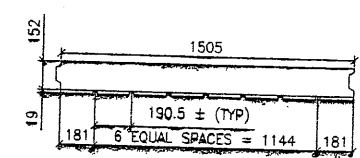
DWG. NO.	1.2R-343-25.5
JOB NO.	239-0007/13
SHT. NO.	RE-3



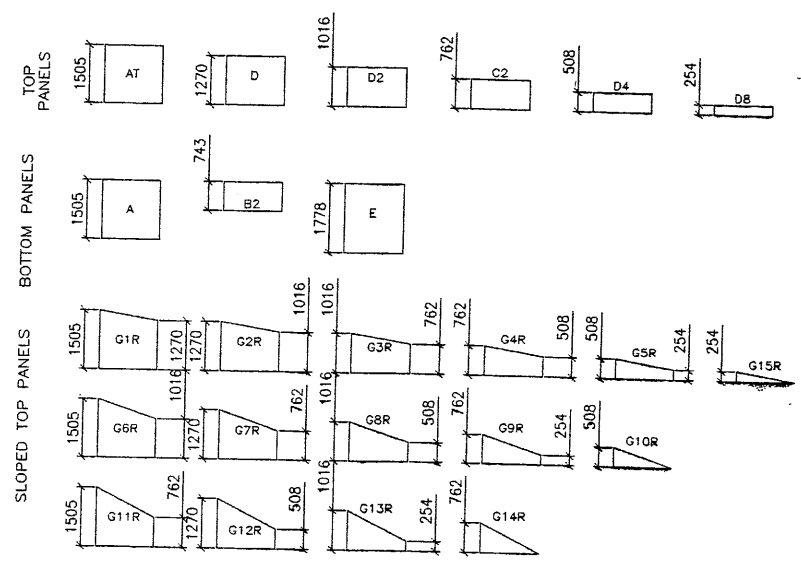
* NO LABEL INDICATES STANDARD TYPE

2 VSL RETAINED EARTH IS PROTECTED UNDER U.S. PATENT 4,725,170.

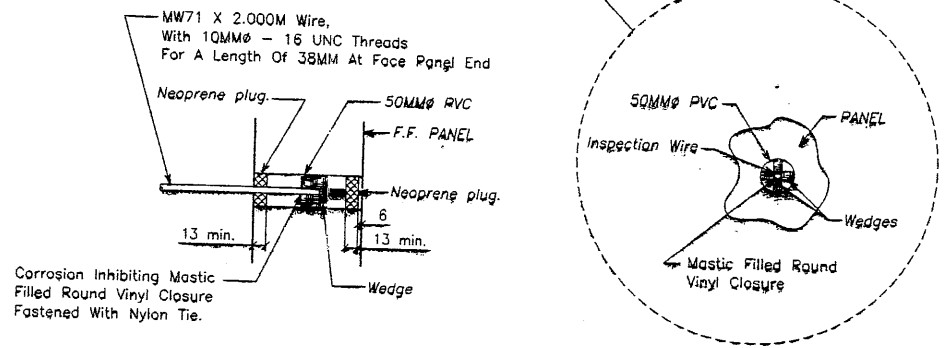
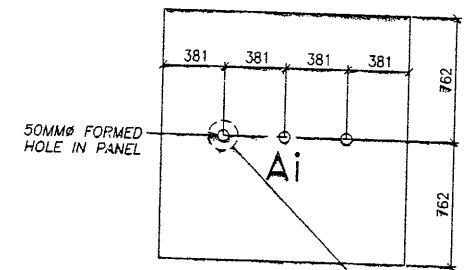
3



6

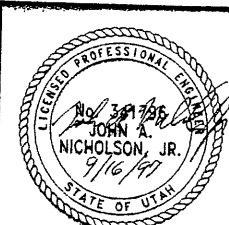


4 ALL DIMENSIONS ARE IN MILLIMETERS



5

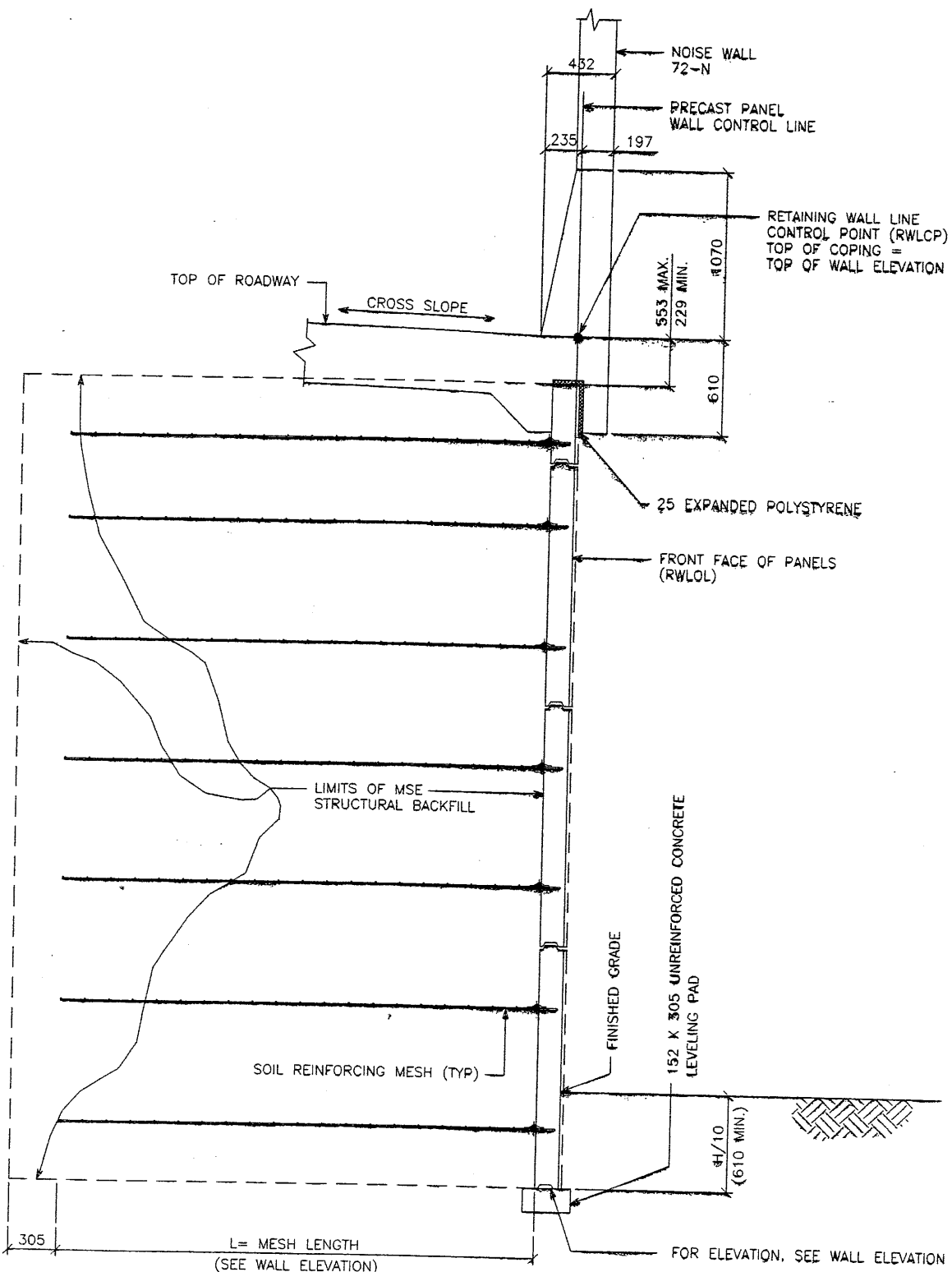
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E:\PROJECT\239-000\SERIES\72-25\RE-4A

3-10-97

FINAL PL



TYPICAL CROSS SECTION
 (MSE SINGLE STAGE WITH MOMENT SLAB)
 SCALE: 1:20 (FULL SIZE)
 SCALE: 1:40 (HALF SIZE)

APPROVED FOR CONSTRUCTION		
NO.	DATE	DESCRIPTION
1	9/16/97	RELEASE FOR CONSTRUCTION <i>OK</i>

WARATCH CONSTRUCTORS
 SEP 19 1997
 RELEASED FOR CONSTRUCTION

DES.	MM	DD	MM	NO.	DATE	BY	CHK
DES.	09-10-97	MM					
DRN.	09-10-97	DDO					
CHK.	09-10-97	MM					

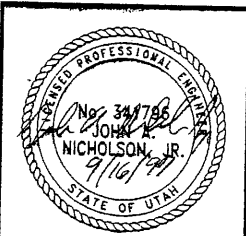
VSL CORPORATION
 2840 Plaza Place, Suite 200
 Raleigh, NC 27612
 Telephone: (919) 781-6272
 Fax: (919) 781-4669

VSL
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RETAINED EARTH™ WALLS
 PRECAST WALL "R-343-25"
 TYPICAL CROSS SECTION
 UTAH I-15 INTERCHANGE
 SALT LAKE COUNTY, UTAH
 UTAH DEPARTMENT OF TRANSPORTATION

METRIC



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DWG. NO.	1.2R-343-25.6
JOB NO.	239-0007 <i>7/13</i>
SHT. NO.	RE-4

FINAL PL 9-10-97

APPROVED FOR CONSTRUCTION		
NO.	DATE	DESCRIPTION
▲	9/16/97	RELEASE FOR CONSTRUCTION
▲	10-22-97	ADDED DETAIL FOR SKEWING MESH @ ABUT. PILE

DES.	DRN.	CHK.	RETAINED EARTH™	NO.	DATE	REVISION	BY	CHK
09-10-97	09-10-97	09-10-97	VSL					

VSL CORPORATION
 2840 Plaza Place, Suite 200
 Raleigh, NC 27612
 Telephone: (919) 781-6272
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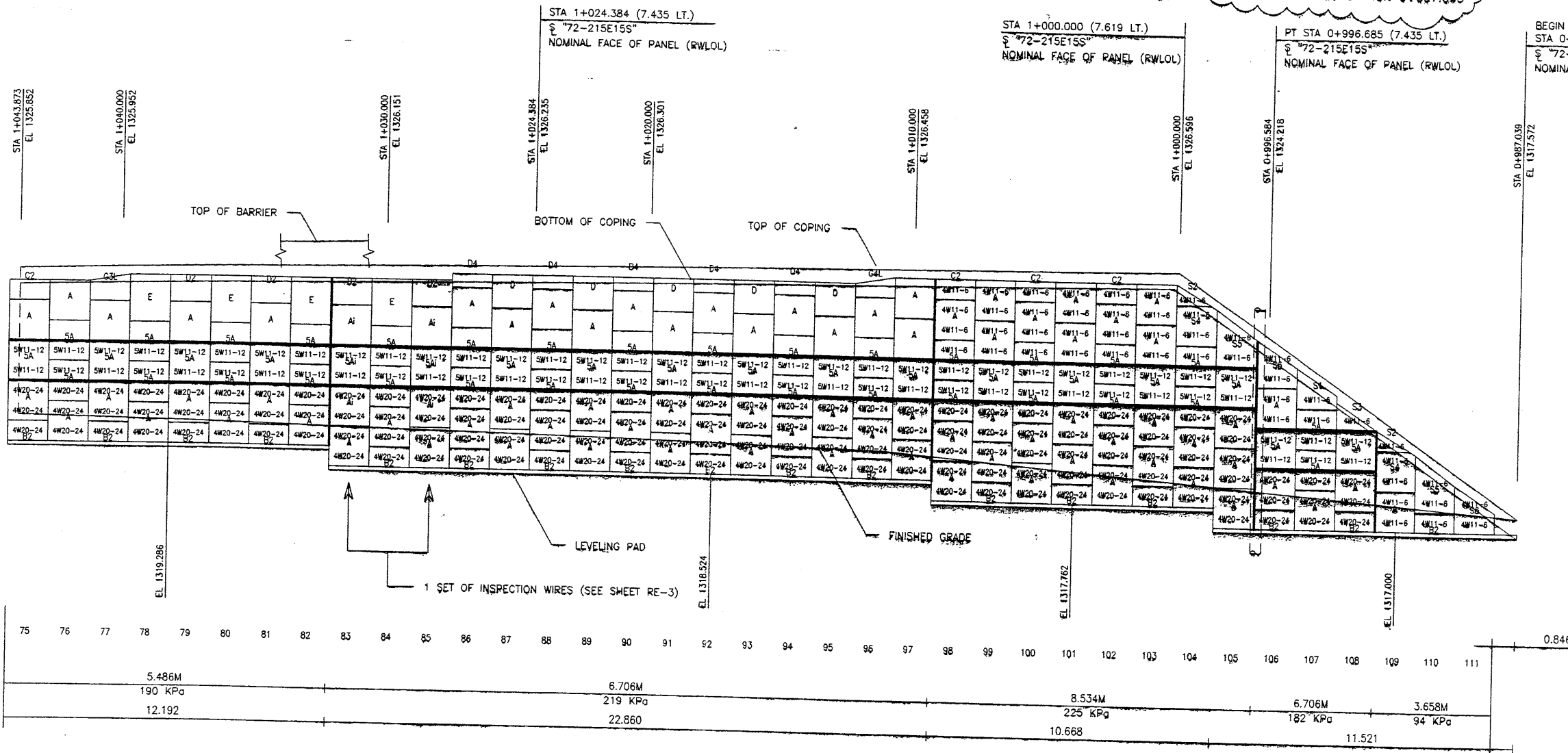
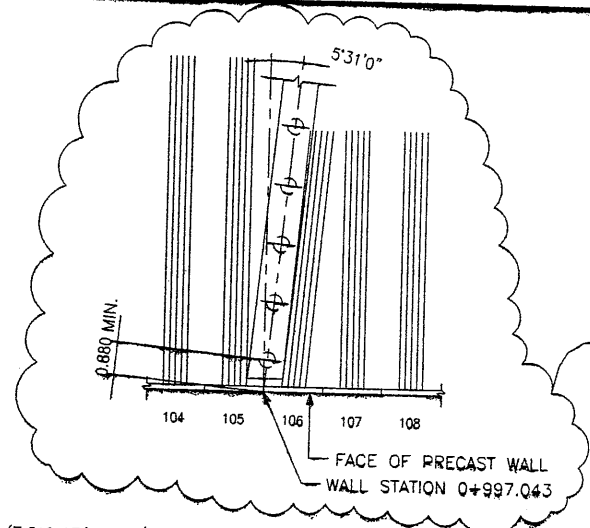
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WASATCH CONSTRUCTORS
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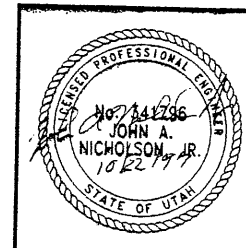
RETAINED EARTH™ WALLS
PRECAST WALL "R-343-25"
I-15 INTERCHANGE
SALT LAKE COUNTY, UTAH
UTAH DEPARTMENT OF TRANSP.

DWG. NO.	1.2R-343-25.9
JOB NO.	239-0007 10/13
SHT. NO.	RE-7



ELEVATION PRECAST WALL R-343-25
 (FRONT FACE SHOWN)
 (TOTAL SURFACE AREA OF PANELS = 747.36 SM)
 SCALE 1:100 (FULL SIZE)
 SCALE 1:200 (HALF SIZE)

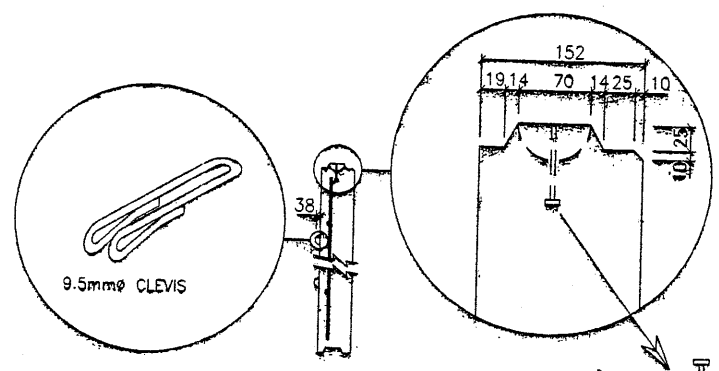
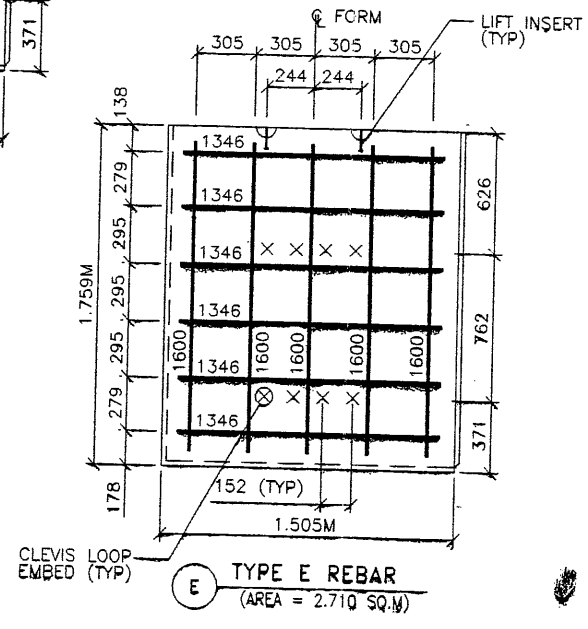
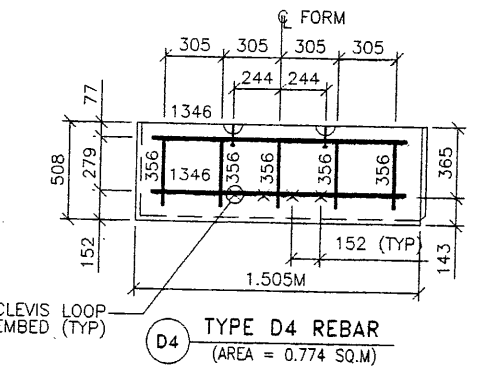
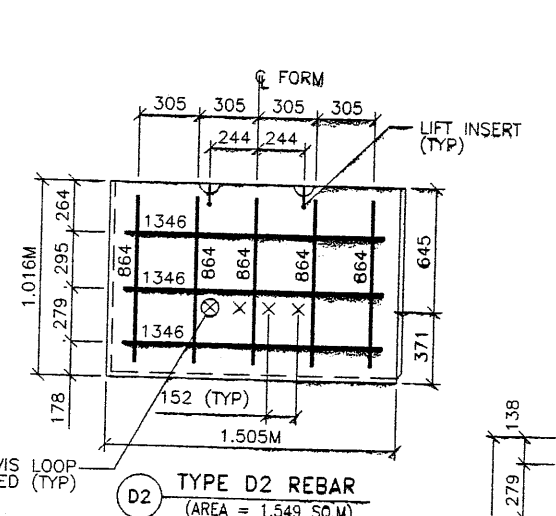
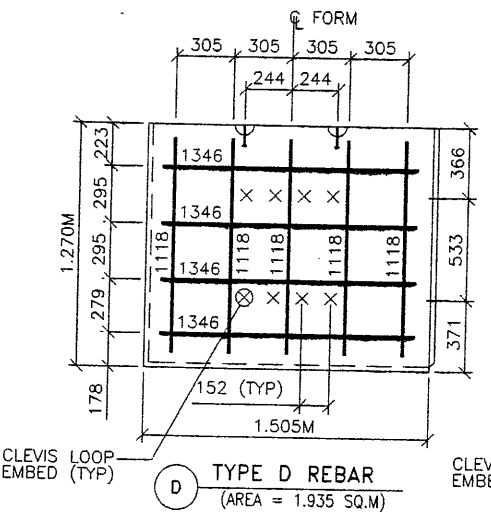
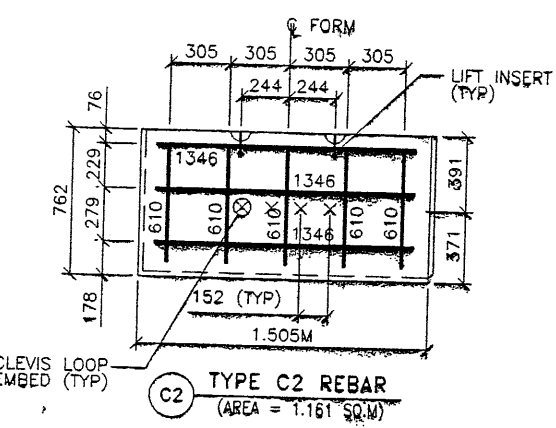
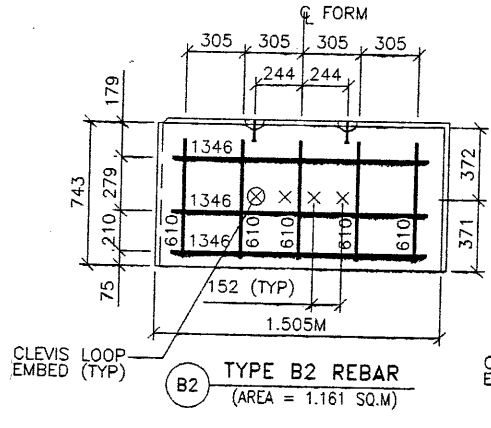
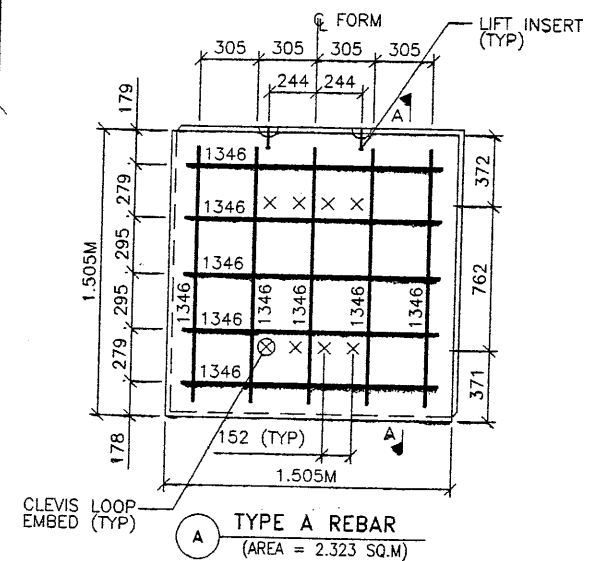
METRIC



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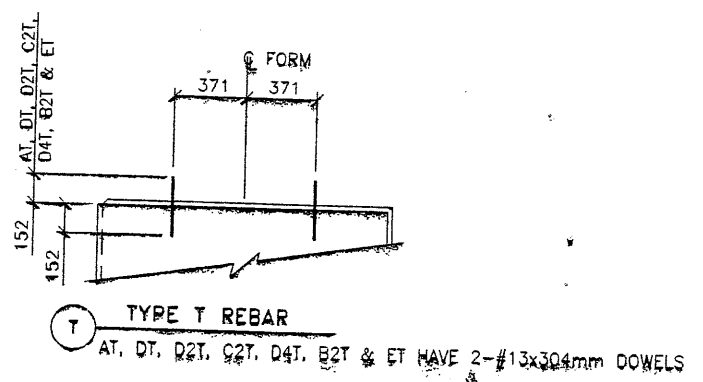
MESH DEPTH	5.486M
MAXIMUM BEARING PRESSURE (SEE NOTE BELOW)	190 KPa
PIN SPACING	12.192

APPROVER NOTE:
 MAXIMUM FINAL UNFACTORED BEARING PRESSURES ARE INDICATED BELOW "MESH DEPTH LINE". REVIEWER TO VERIFY MAXIMUM BEARING CAPACITY OF FOUNDATION.



SECTION A-A

SECTION A-A

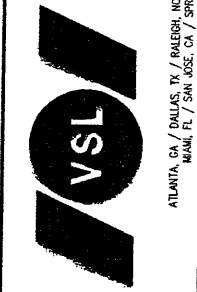


APPROVED FOR CONSTRUCTION		
NO.	DATE	DESCRIPTION
▲	9/16/97	RELEASE FOR CONSTRUCTION

- PANEL REINFORCEMENT NOTES:**
- PANELS ARE SHOWN BACK FACE.
 - HORIZONTAL REINFORCEMENT SHALL HAVE 50 mm MINIMUM COVER TO THE BACK FACE.
 - ALL REINFORCEMENT SHALL HAVE 50 mm MINIMUM COVER TO THE SIDES.
 - ALL REINFORCING BARS ARE #13 METRIC. LABELS ON EACH BAR INDICATE LENGTH. EXAMPLE: 1345 IS A #13 BAR 1345 mm LONG.
 - PANEL REINFORCEMENT BARS SHALL BE DEFORMED BILLET STEEL BARS FOR CONCRETE REINFORCEMENT CONFORMING TO THE SPECIFICATIONS OF ASTM DESIGNATION A615, GRADE 60.
 - ALL REINFORCING STEEL TO BE EPOXY COATED TO 0.5mm THICKNESS. REFER TO SPECIAL PROVISIONS, SECTION 508.
 - CONCRETE PANELS TO HAVE 28 DAY COMPRESSIVE STRENGTH OF 27,500 KPa.
 - EQUIVALENT WELDED WIRE FABRIC MAY BE USED.
 - ALL PANELS TO USE 9.5mm ϕ CLEVIS LOOPS.
 - VSL RETAINED EARTH™ IS PROTECTED UNDER PATENT 4,725,170.

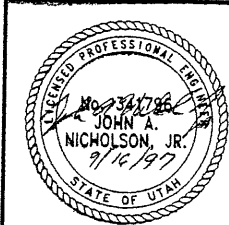
MARATCH CONSTRUCTORS
SEP 19 1997
RELEASED FOR CONSTRUCTION

VSL CORPORATION
2840 Plaza Place, Suite 200
Raleigh, NC 27612
Telephone: (919) 781-6772
Fax: (919) 781-6959



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RETAINED EARTH™ WALLS
PRECAST WALL "R-343-25"
PANEL REINFORCEMENT 1.524M x 1.524M
UTAH I-15 INTERCHANGE
SALT LAKE COUNTY, UTAH
UTAH DEPARTMENT OF TRANSP.



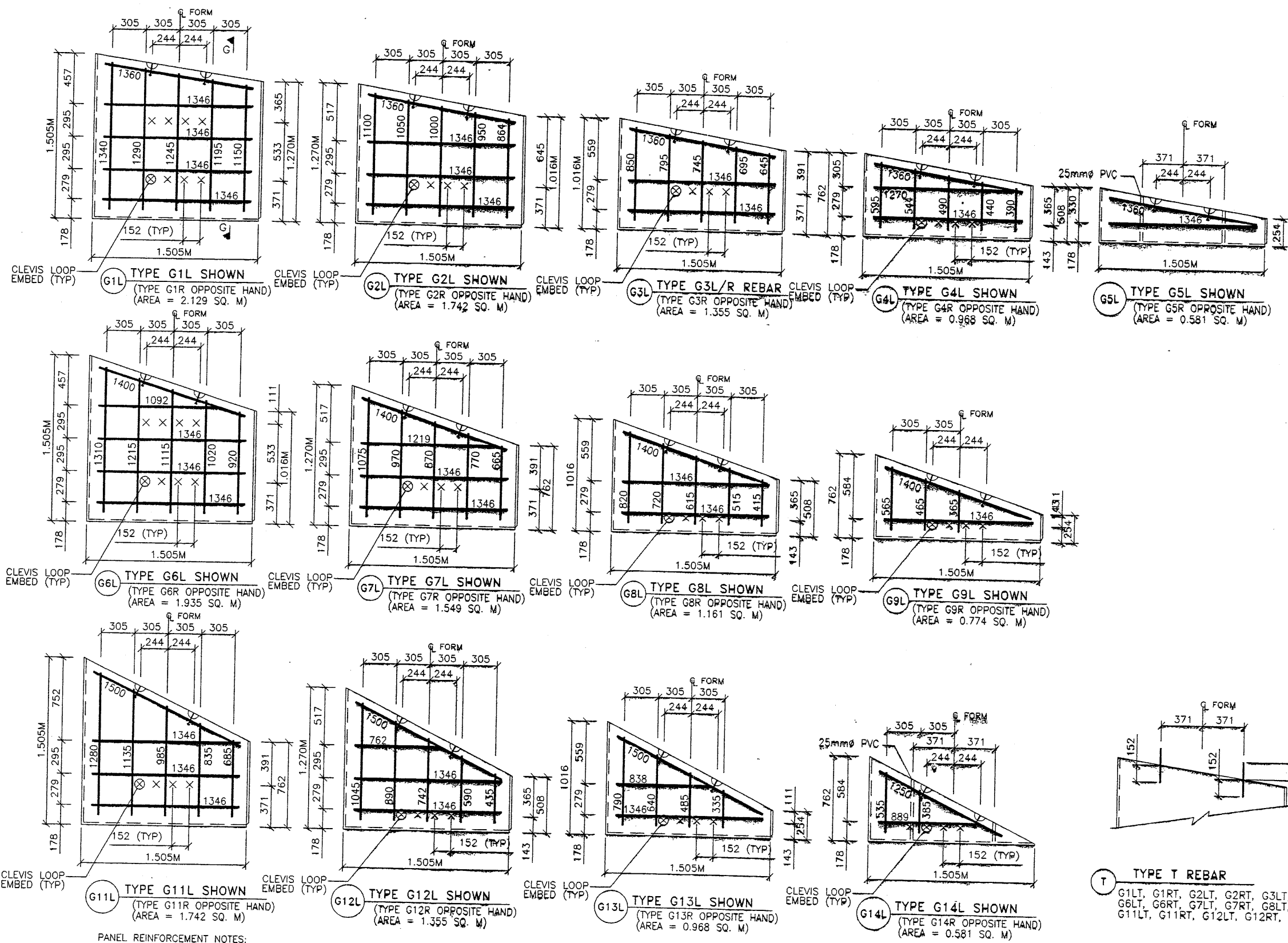
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DWG. NO.	1.2R-343-25.10
JOB NO.	239-0007 11/3
SHT. NO.	RE-8

NO.	DATE	REVISION	BY

H:\RE_EARTH\PROJECT\239-0007\REBAR

FINAL P: 1-10-97



G1L TYPE G1L SHOWN (TYPE G1R OPPOSITE HAND) (AREA = 2.129 SQ. M)
 G2L TYPE G2L SHOWN (TYPE G2R OPPOSITE HAND) (AREA = 1.742 SQ. M)
 G3L TYPE G3L/R REBAR (TYPE G3R OPPOSITE HAND) (AREA = 1.355 SQ. M)
 G4L TYPE G4L SHOWN (TYPE G4R OPPOSITE HAND) (AREA = 0.968 SQ. M)
 G5L TYPE G5L SHOWN (TYPE G5R OPPOSITE HAND) (AREA = 0.581 SQ. M)

G6L TYPE G6L SHOWN (TYPE G6R OPPOSITE HAND) (AREA = 1.935 SQ. M)
 G7L TYPE G7L SHOWN (TYPE G7R OPPOSITE HAND) (AREA = 1.549 SQ. M)
 G8L TYPE G8L SHOWN (TYPE G8R OPPOSITE HAND) (AREA = 1.161 SQ. M)
 G9L TYPE G9L SHOWN (TYPE G9R OPPOSITE HAND) (AREA = 0.774 SQ. M)

G11L TYPE G11L SHOWN (TYPE G11R OPPOSITE HAND) (AREA = 1.742 SQ. M)
 G12L TYPE G12L SHOWN (TYPE G12R OPPOSITE HAND) (AREA = 1.355 SQ. M)
 G13L TYPE G13L SHOWN (TYPE G13R OPPOSITE HAND) (AREA = 0.968 SQ. M)
 G14L TYPE G14L SHOWN (TYPE G14R OPPOSITE HAND) (AREA = 0.581 SQ. M)

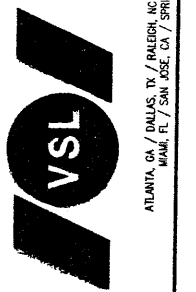
- PANEL REINFORCEMENT NOTES:
- PANELS ARE SHOWN BACK FACE.
 - HORIZONTAL REINFORCEMENT SHALL HAVE 50 mm MINIMUM COVER TO THE BACK FACE.
 - ALL REINFORCEMENT SHALL HAVE 50 mm MINIMUM COVER TO THE SIDES.
 - ALL REINFORCING BARS ARE #13 METRIC. LABELS ON EACH BAR INDICATE LENGTH. EXAMPLE: 1345 IS A #13 BAR 1345 mm LONG. PANEL REINFORCEMENT BARS SHALL BE DEFORMED BILLET STEEL BARS FOR CONCRETE REINFORCEMENT CONFORMING TO THE SPECIFICATIONS OF ASTM DESIGNATION A615, GRADE 60.
 - ALL REINFORCING STEEL TO BE EPOXY COATED TO 0.5mm THICKNESS. REFER TO SPECIAL PROVISIONS, SECTION 508.
 - CONCRETE PANELS TO HAVE 28 DAY COMPRESSIVE STRENGTH OF 27,500 KPa.
 - EQUIVALENT WELDED WIRE FABRIC MAY BE USED.
 - ALL PANELS TO USE 9.5mm Ø CLEVIS LOOPS. VSL RETAINED EARTH™ IS PROTECTED UNDER PATENT 4,725,170.

APPROVED FOR CONSTRUCTION		
NO.	DATE	DESCRIPTION
1	9/16/97	RELEASE FOR CONSTRUCTION <i>SW</i>

WABATCH CONSTRUCTORS
 SEP 19 1997
 RELEASED FOR CONSTRUCTION

NO.	DATE	REVISION	CHK

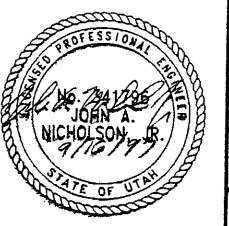
DES: 09-10-97
 DRN: 09-10-97
 CHK: 09-10-97



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RETAINED EARTH™ WALLS
 PRECAST WALL "R-343-25"
 "G" PANEL REINFORCEMENT 1.524M x 1.524M
 UTAH I-15 INTERCHANGE
 SALT LAKE COUNTY, UTAH
 UTAH DEPARTMENT OF TRANSP.

METRIC



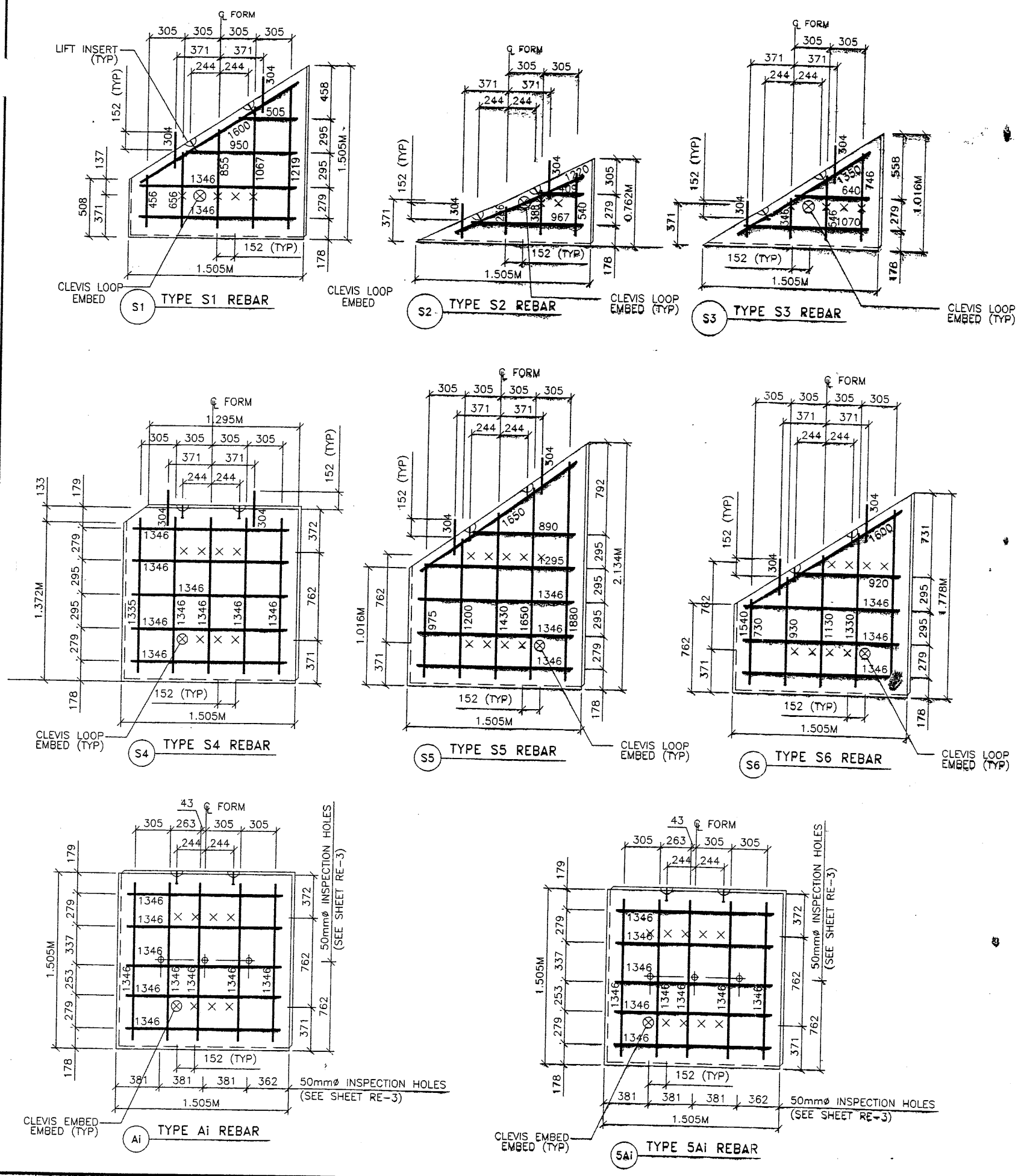
CERTIFIED FOR INTERNAL STABILITY OF RETAINED EARTH™ STRUCTURES ONLY. EXTERNAL STABILITY, INCLUDING BUT NOT LIMITED TO FOUNDATION AND SLOPE STABILITY IS THE RESPONSIBILITY OF THE OWNER. DESIGN IS BASED ON THE ASSUMPTION THAT THE MATERIAL WITHIN THE RETAINED EARTH™ MASS, METHODS OF CONSTRUCTION, AND QUALITY OF PREFABRICATED MATERIALS CONFORM TO THE MANUFACTURER'S SPECIFICATION.

DWG. NO. 1.2R-343-25.11
 JOB NO. 239-0007
 SHT. NO. RE-9

E:\APROJECT\239-0007\SERIES\72-25\SPECIALS

-10-97

FINAL PLC

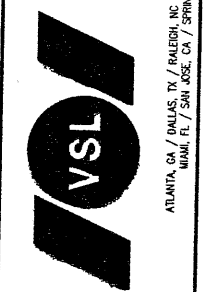


APPROVED FOR CONSTRUCTION		
NO.	DATE	DESCRIPTION
1	9/16/97	RELEASE FOR CONSTRUCTION

- PANEL REINFORCEMENT NOTES:
- PANELS ARE SHOWN BACK FACE.
 - HORIZONTAL REINFORCEMENT SHALL HAVE 50 mm MINIMUM COVER TO THE BACK FACE.
 - ALL REINFORCEMENT SHALL HAVE 50 mm MINIMUM COVER TO THE SIDES.
 - ALL REINFORCING BARS ARE #13 METRIC. LABELS ON EACH BAR INDICATE LENGTH. EXAMPLE: 1345 IS A #13 BAR 1345 mm LONG.
 - PANEL REINFORCEMENT BARS SHALL BE DEFORMED BILLET STEEL BARS FOR CONCRETE REINFORCEMENT CONFORMING TO THE SPECIFICATIONS OF ASTM DESIGNATION A615, GRADE 60.
 - ALL REINFORCING STEEL TO BE EPOXY COATED TO 0.5mm THICKNESS. REFER TO SPECIAL PROVISIONS, SECTION 508.
 - CONCRETE PANELS TO HAVE 28 DAY COMPRESSIVE STRENGTH OF 27,500 KPa.
 - EQUIVALENT WELDED WIRE FABRIC MAY BE USED.
 - ALL PANELS TO USE 9.5mm CLEVIS LOOPS.
 - VSL RETAINED EARTH™ IS PROTECTED UNDER PATENT 4,725,170.

WASATCH CONSTRUCTORS
 SEP 19 1997
 RELEASED FOR CONSTRUCTION

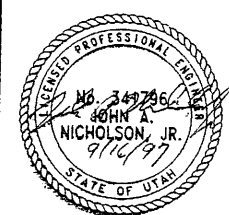
VSL CORPORATION
 2940 Plaza Place, Suite 200
 Raleigh, NC 27612
 Telephone: (919) 781-6272
 Fax: (919) 781-4989



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RETAINED EARTH™ WALLS
 PRECAST WALL "R-343-25"
 SPECIAL PANEL REINFORCEMENT
 UTAH I-15 INTERCHANGE
 SALT LAKE COUNTY, UTAH
 UTAH DEPARTMENT OF TRANSP.

METRIC

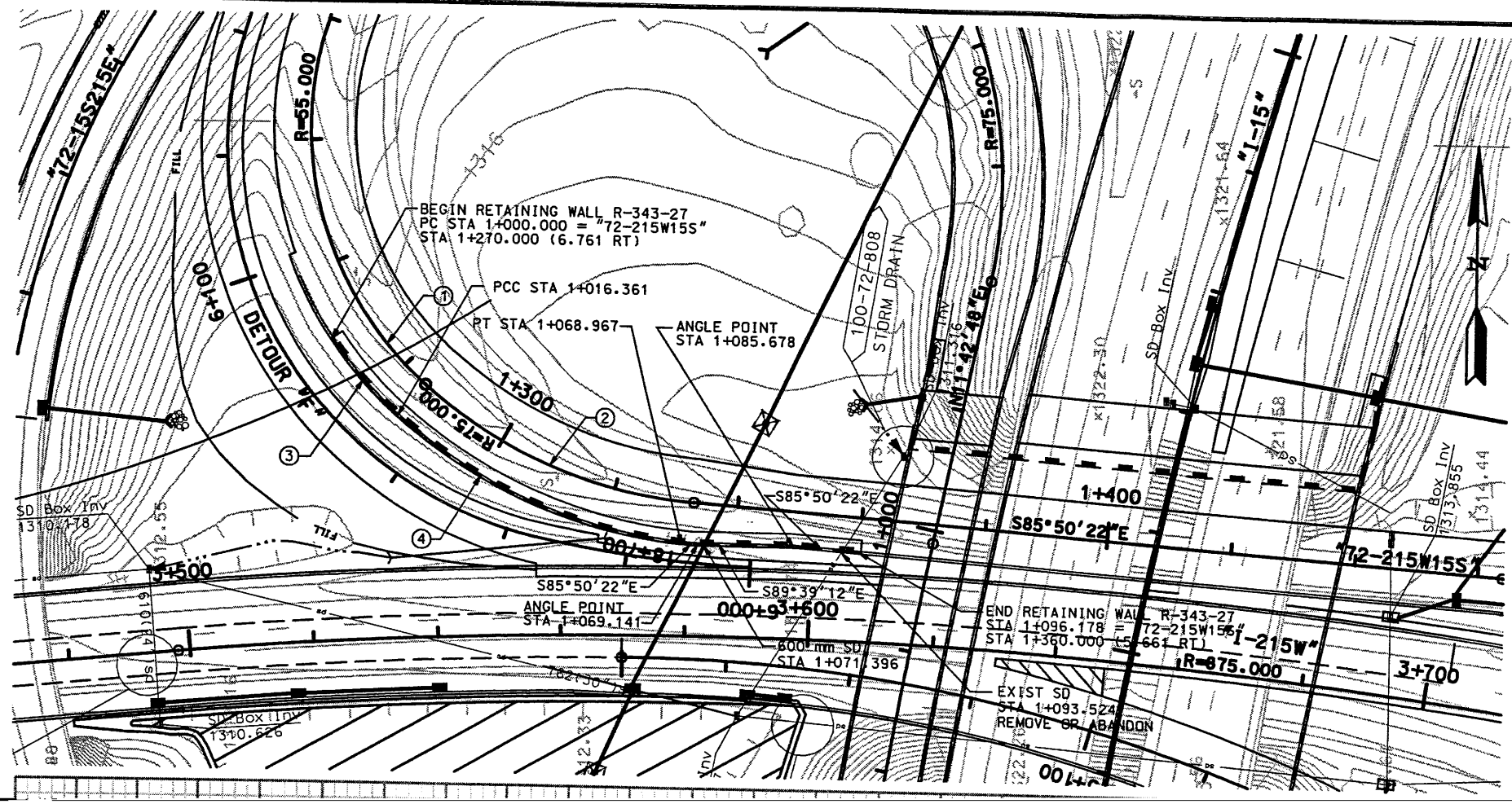


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DWG. NO.	1.2R-343-25.12
JOB NO.	239-0007
SHT. NO.	RE-10

NO.	DATE	DESCRIPTION	NO.	DATE	BY

User: name.coyl@jim Date: 14-OCT-1998 Time: 07:44



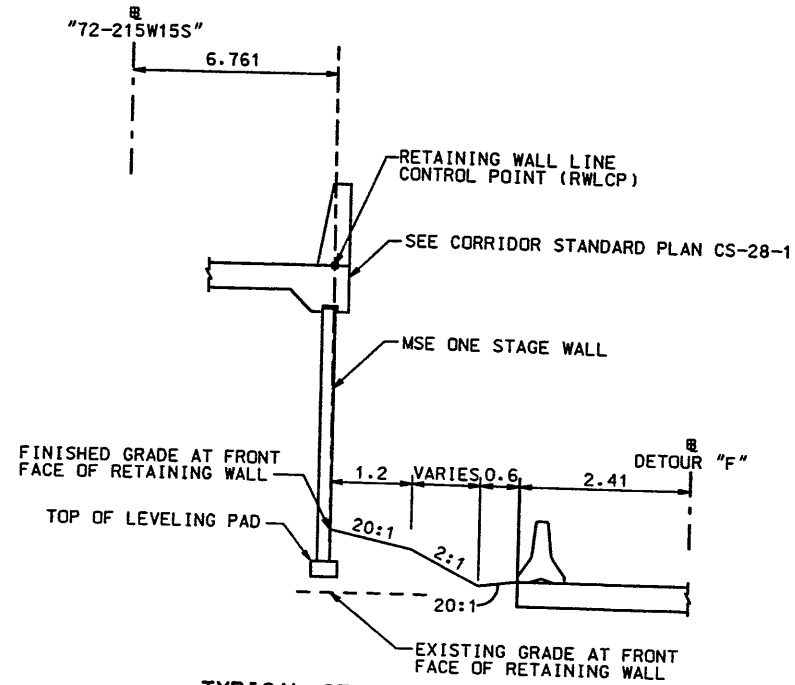
CURVE NO.	Δ	R	L	T
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②	36°51'52"	75.000	48.256	24.996
③	15°10'41"	61.761	16.361	8.229
④	36°51'54"	81.761	52.606	27.250



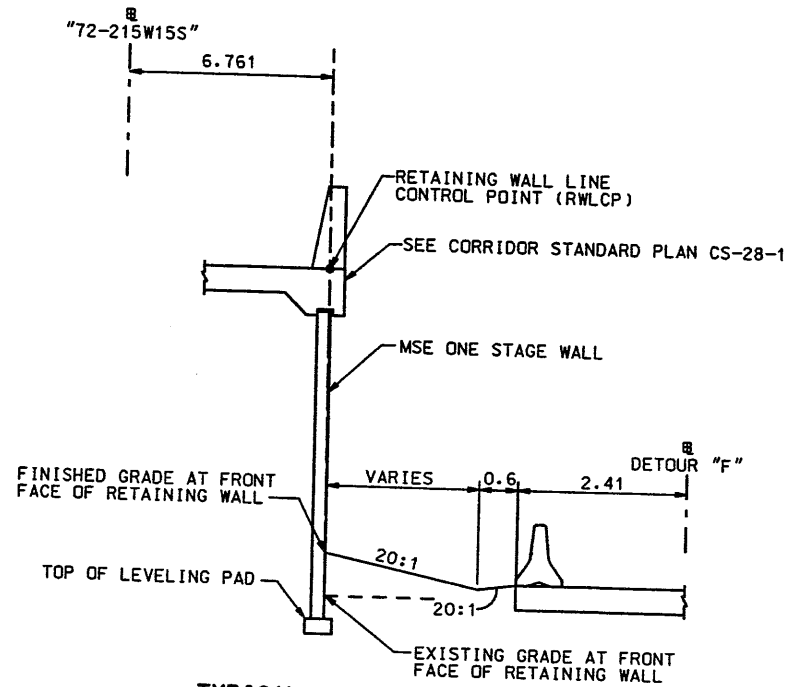
WASATCH CONSTRUCTORS
OCT 19 1998
 RELEASED FOR CONSTRUCTION

SPORTATION		APPROVED FOR CONSTRUCTION	
NO.	DATE	DESCRIPTION	
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CK JBE 7/98			
CK JBE 7/98			
CK			1212424

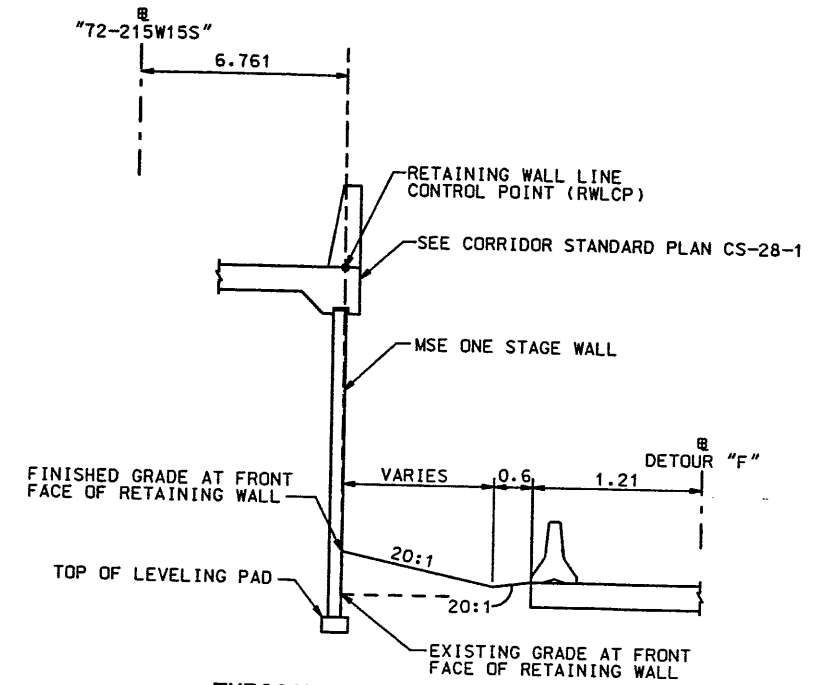
Date: 14-OCT-98 Time: 07:45 User: name: coylejm



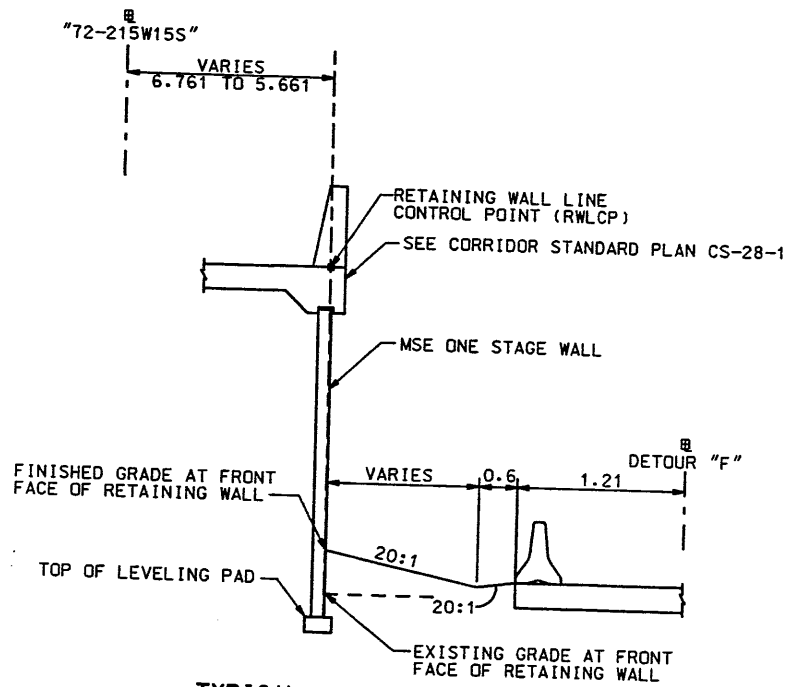
TYPICAL SECTION
RETAINING WALL R-343-27
STA 1+000.000 TO STA 1+045.000



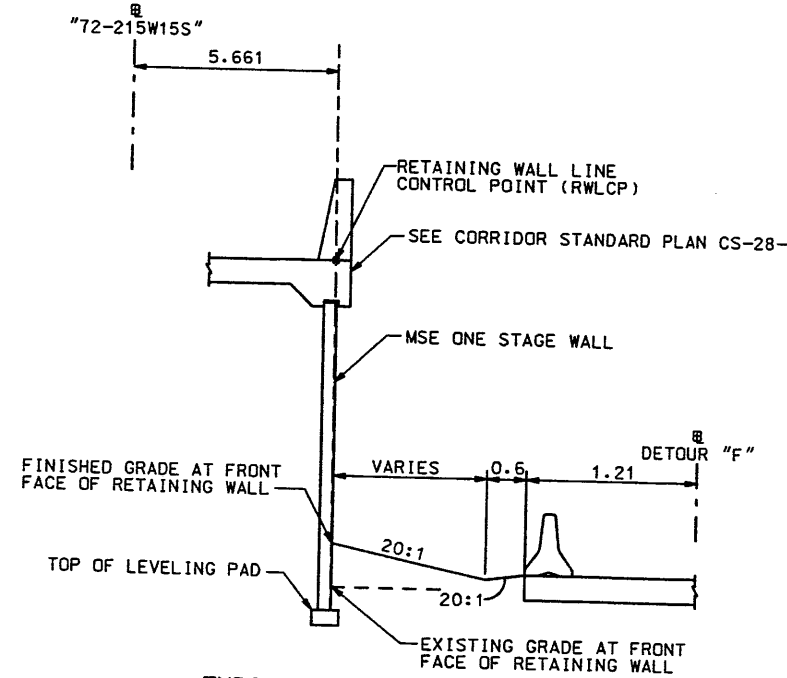
TYPICAL SECTION
RETAINING WALL R-343-27
STA 1+045.000 TO STA 1+054.466



TYPICAL SECTION
RETAINING WALL R-343-27
STA 1+054.466 TO STA 1+069.141

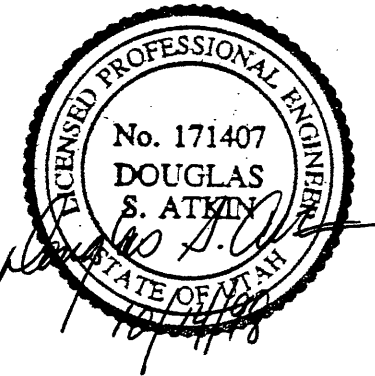


TYPICAL SECTION
RETAINING WALL R-343-27
STA 1+069.141 TO STA 1+085.678



TYPICAL SECTION
RETAINING WALL R-343-27
STA 1+085.678 TO STA 1+096.178

WASATCH CONSTRUCTORS
OCT 19 1998
RELEASED FOR CONSTRUCTION



APPROVED FOR CONSTRUCTION		DESCRIPTION	
NO.	DATE	NO.	DATE
1	10-14-98	1	10-14-98
INITIAL RELEASE		INITIAL RELEASE	
[Signature]		[Signature]	
UTAH DEPARTMENT OF TRANSPORTATION		URS Greiner	
SVERDRUP/DE LEU		1212424	
DESIGN	CHECK	DESIGN	CHECK
KWM	7/98	KWM	7/98
DESIGN	CHECK	DESIGN	CHECK
CJ	7/98	CJ	7/98
DESIGN	CHECK	DESIGN	CHECK
DN	7/98	DN	7/98
DESIGN	CHECK	DESIGN	CHECK
GRUHL	7/98	GRUHL	7/98
DESIGN	CHECK	DESIGN	CHECK
PROJECT	CHECK	PROJECT	CHECK
MANAGER	7/98	MANAGER	7/98
I-15 CORRIDOR RECONSTRUCTION		SECTION 1.2	
DETAILS		#SP-15-7(135)296	
RETAINING WALL R-343-27		COUNTY	
SALT LAKE		DWG. NO.	
1.2R-343-27.2		SHT. 2 OF 8	
REF.			

H:\RE_EARTH\PROJECT\239-0007\1998\65-46\RE-1
 09-17-98
 FINAL

BEGIN PRECAST WALL R-343-27
 PRECAST WALL PC STA. 1+000.000=
 "72-215W15S" STA. 1+270.000
 ● 6.761 RT

CURVE DATA
 R= 61.761
 Δ= 15°10'41"
 L= 16.361
 T= 8.229

PRECAST WALL PCC STA. 1+016.361

FRONT FACE PRECAST WALL R-343-27

CURVE DATA
 R= 81.761
 Δ= 36°51'54"
 L= 52.606
 T= 27.250

PRECAST WALL PT STA. 1+068.967

S 85°50'22" E

ANGLE POINT

PRECAST WALL STA. 1+069.141

S 89°39'12" E

①72-215W15S

1+350

S 85°50'22" E

PRECAST WALL STA. 1+085.678

600mm SD
PRECAST WALL STA. 1+071.396

END PRECAST WALL R-343-27
 PRECAST WALL STA. 1+096.1780=
 "72-215W15S" STA. 1+360.000
 ● 5.661 RT

EXIST SD
 PRECAST WALL STA. 1+093.524
 REMOVE OR ABANDON

PLAN VIEW WALL "R-343-27"

SCALE: 1=400 (FULL SIZE)
 SCALE: 1=800 (HALF SIZE)

RETAINED EARTH INDEX	
RE-1	PLAN PRECAST FACE WALL R-343-27, NOTES & DESIGN CRITERIA
RE-2	TYPICAL CROSS SECTIONS
RE-3	TYPICAL CROSS SECTIONS
RE-4	ELEVATION PRECAST WALL "R-343-27"
RE-5	ELEVATION PRECAST WALL "R-343-27"
RE-6	SPECIAL PANEL DETAILS

APPROVED FOR CONSTRUCTION		
NO.	DATE	DESCRIPTION
△	10-02-98	RELEASE FOR CONSTRUCTION

DES.	CHK.	NO.	DATE	REVISION	BY	CHK
JL	JL					
JL	JL					
JL	JL					

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WASATCH CONSTRUCTORS
 OCT 19 1998
 RELEASED FOR CONSTRUCTION

- GENERAL NOTES**
- ALL WALLS ARE SHOWN FRONT FACE. NOTE STATIONING.
 - PANEL TYPE IS DESIGNATED ON EACH PANEL. CONNECTOR LABELS INDICATE NUMBER OF CONNECTORS PER ROW.
EXAMPLE: 5B2-10 IS A "B2-10" PANEL WITH FIVE (5) CONNECTORS PER ROW.
IF NO CONNECTORS ARE SHOWN, FOUR (4) CONNECTOR PANELS SHALL BE USED:
 - SOIL REINFORCING MESH TYPE IS DESIGNATED ON EACH PANEL. MESH LABELS INDICATE WIRE SIZE AND SPACING. LONGITUDINAL WIRE AND CROSSBAR SIZES ARE THE SAME UNLESS NOTED OTHERWISE:
EXAMPLE: 4W11-6 MESH HAS FOUR (4) W11 LONGITUDINAL WIRES WITH W11 CROSSBARS AT 6" CENTERS.
EXAMPLE: 4W15-6 MESH HAS FOUR (4) W15 LONGITUDINAL WIRES WITH W15 CROSSBARS AT 6" CENTERS.
EXAMPLE: 5W15-6 MESH HAS FIVE (5) W15 LONGITUDINAL WIRES WITH W15 CROSSBARS AT 6" CENTERS.
 - SEE RETAINED EARTH INSTALLATION MANUAL FOR PROPER WALL ERECTION PROCEDURES AND GUIDELINES.
 - CONSTRUCTION PROCEDURES SHALL PREVENT BACKFILL SATURATION AND PONDING.
 - HEAVY EQUIPMENT SHALL NOT BE USED WITHIN ONE METER OF THE BACK OF THE RETAINED EARTH PANELS. HAND COMPACTORS SHALL BE USED IN THIS AREA.
 - CARE SHALL BE TAKEN TO PREVENT DAMAGE TO GALVANIZING. DAMAGED GALVANIZING SHALL BE COATED WITH ZINC RICH PAINT.
 - BEARING PADS AND FILTER FABRIC ARE NOT REQUIRED BETWEEN THE LEVELING PAD AND THE FIRST ROW OF PANELS. TEMPORARY WEDGES MAY BE USED TO PROVIDE PROPER ALIGNMENT.
 - VSL RETAINED EARTH IS PROTECTED UNDER U.S. PATENT 4,725,170.
 - ALL PANELS SHALL HAVE AN ARCHITECTURAL FINISH, SEE VSL STANDARD SHEET STD-7 FOR DETAILS.
 - GEOTECHNICAL ENGINEER TO FIELD VERIFY FOUNDATION CONDITIONS AND EXTENT OF STRUCTURAL FILL.

DESIGN PARAMETERS	
ANGLE OF INTERNAL FRICTION (SELECT) = 34°	
ANGLE OF INTERNAL FRICTION (BASE) = 24° 13' 40"	
ANGLE OF INTERNAL FRICTION (RANDOM) = 34°	
UNIT WEIGHT BACKFILL = 135 PCF. (21.2 KN/M ³)	
TRAFFIC SURCHARGE = 250 PSF (12 KPa)	
SEISMIC ACCELERATION COEFF. = 0.11g (TYP)	
DESIGN CRITERIA	
SAFETY FACTOR (OVERTURNING) = 2.0	
SAFETY FACTOR (SLIDING) = 1.5	
SAFETY FACTOR (PULLOUT) = 1.5	
DESIGN LIFE = 75 YEARS	

METRIC

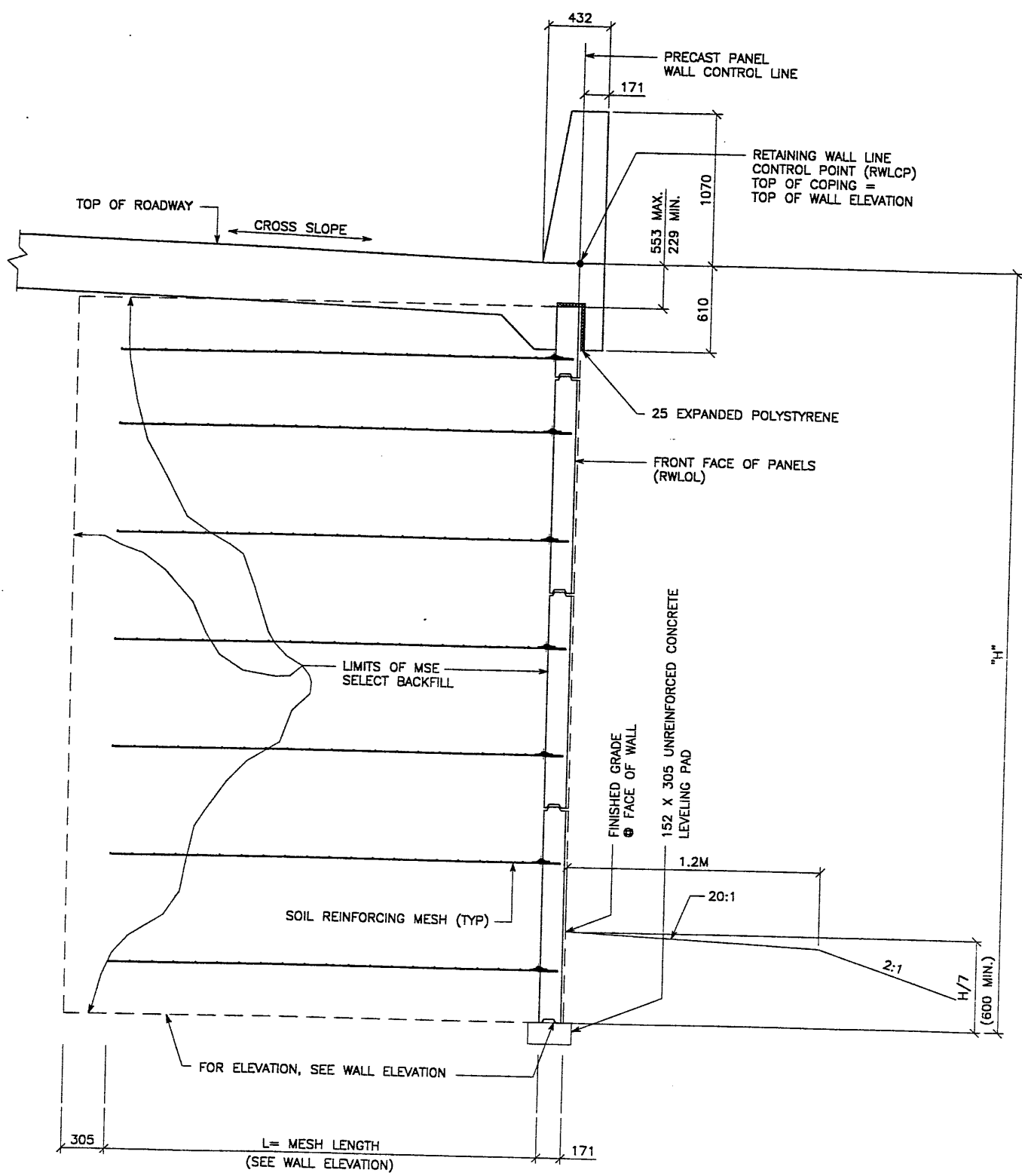
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LICENSED PROFESSIONAL ENGINEER
 No. 341796
 JOHN A. NICHOLSON JR.
 10/13/98
 STATE OF UTAH

RETAINED EARTH™ WALLS
 PLAN VIEW PRECAST WALL "R-343-27"
 UTAH 1-15 RECONSTRUCTION
 SALT LAKE COUNTY, UTAH
 UTAH DEPARTMENT OF TRANSP.

DWG. NO.
 1.2R-343-27.3
 JOB NO.
 239-0007 3/8
 SH. NO.
 RE-1

10-02-98
 FINAL
 H:\RE_EARTH\PROJECT\239-0007\1998\72-27\RE-2
 CE (X-UTAH.DWG)



TYPICAL CROSS SECTION - STA 1+000.000 TO STA 1+045.000
 (SEE DWG. NO. 1.2R-343-27.2 FOR ADDITIONAL INFORMATION)
 SCALE: 1:20 (FULL SIZE)
 SCALE: 1:40 (HALF SIZE)

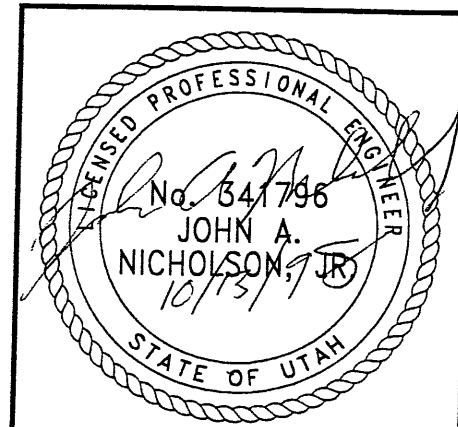
APPROVED FOR CONSTRUCTION		
NO.	DATE	DESCRIPTION
△	10-07-98	RELEASE FOR CONSTRUCTION

NO.	DATE	REVISION	CHK

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WASATCH CONSTRUCTORS
OCT 19 1998
 RELEASED FOR CONSTRUCTION



RETAINED EARTH WALLS
 PRECAST WALL "R-343-27"
 TYPICAL CROSS SECTION

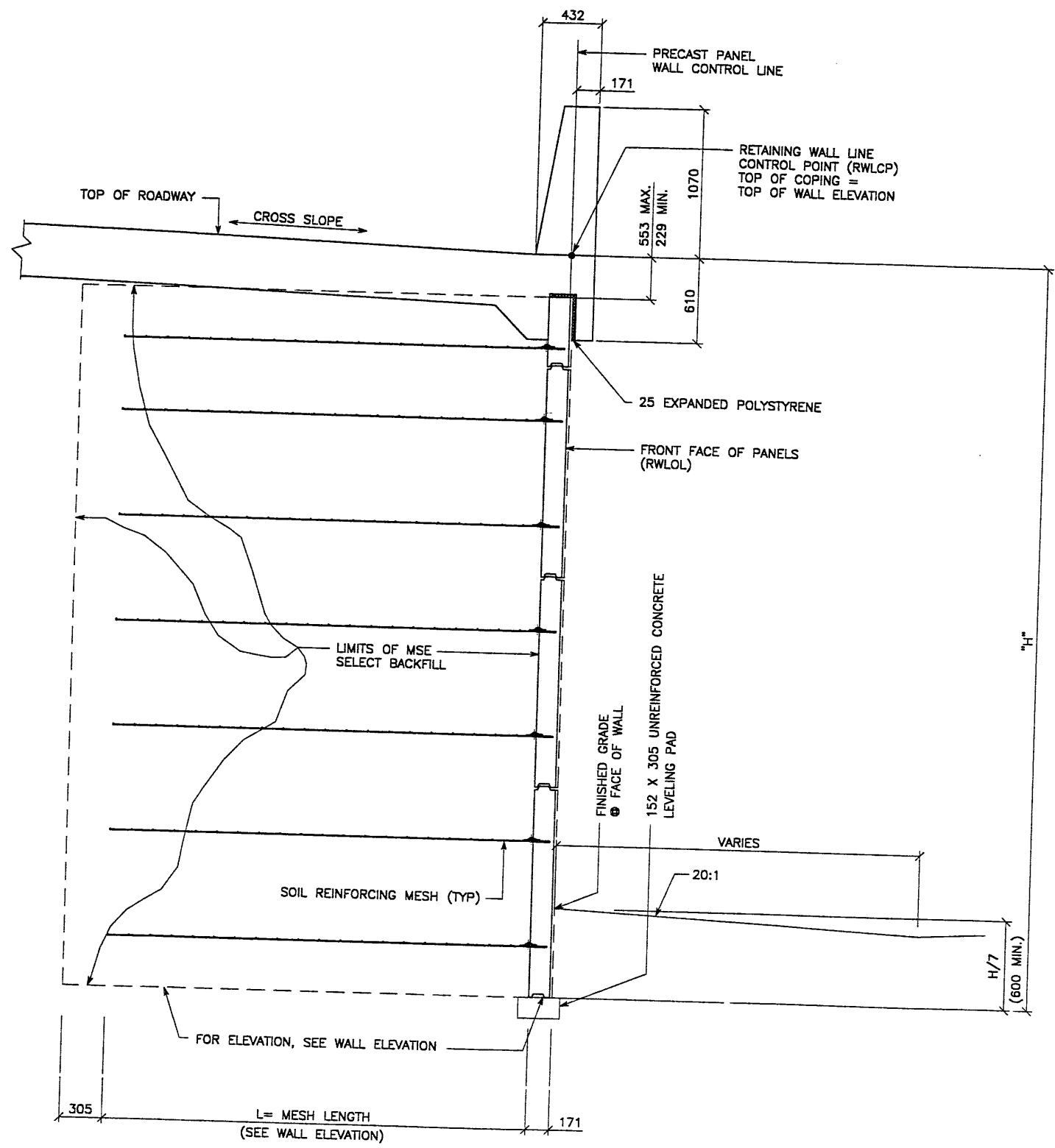
UTAH 1-15 RECONSTRUCTION
 SALT LAKE COUNTY, UTAH
 UTAH DEPARTMENT OF TRANSP.

DWG. NO.
 1.2R-343-27.4
 JOB NO:
 239-0007
 SHEET NO.
 RE-2

METRIC

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H:\RE_EARTH\PROJECT\239-0007\1998\72F\72-27\RE-2
 FINAL 10-02-98



TYPICAL CROSS SECTION - STA 1+045.000 TO STA 1+096.178
 (SEE DWG. NO. 1.2R-343-27.2 FOR ADDITIONAL INFORMATION)
 SCALE: 1:20 (FULL SIZE)
 SCALE: 1:40 (HALF SIZE)

METRIC

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APPROVED FOR CONSTRUCTION		
NO.	DATE	DESCRIPTION
△	10-07-98	RELEASE FOR CONSTRUCTION

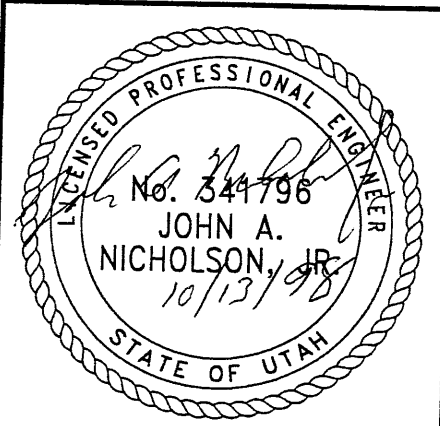
DES.	DRN.	CHK.	DATE	NO.	DATE	REVISION	BY	CHK.
JL	JHU	JL	09-17-98					
JL	JHU	JL	09-17-98					
JL	JHU	JL	09-17-98					

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 Fax: (919) 781-6889



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WASATCH CONSTRUCTORS
 OCT 19 1998
 RELEASED FOR CONSTRUCTION



RETAINED EARTH™ WALLS
 PRECAST WALL "R-343-27"
 TYPICAL CROSS SECTION
 UTAH 1-15 RECONSTRUCTION
 SALT LAKE COUNTY, UTAH
 UTAH DEPARTMENT OF TRANSP.


DWG. NO.	1.2R-343-27.5
JOB NO.	239-0007
SH. NO.	RE-3

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 10-07-98
 FINAL

APPROVED FOR CONSTRUCTION		
NO.	DATE	DESCRIPTION
△	10-07-98	RELEASE FOR CONSTRUCTION

DES.	DRN.	CHK.	NO.	DATE	REVISION	BY	CHK.
JL	JL	JL					
08-17-98	08-17-98	09-17-98					

VSL CORPORATION
 2840 Plaza Place, Suite 200
 Raleigh, NC 27612
 Telephone: (919) 781-8272
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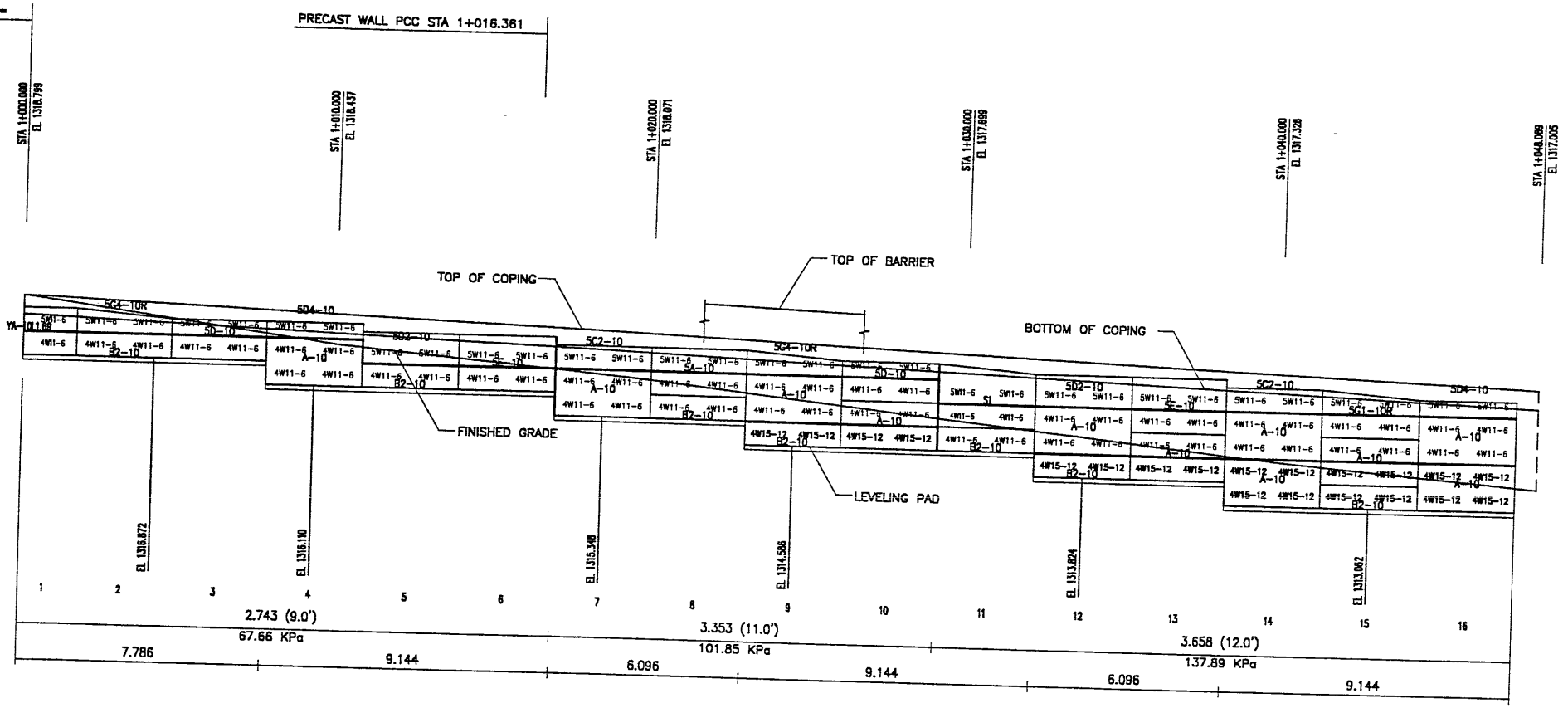
RETAINED EARTH™ WALLS
 PRECAST WALL "R-343-27"
 UTAH 1-15 RECONSTRUCTION
 SALT LAKE COUNTY, UTAH
 UTAH DEPARTMENT OF TRANSP.

DWG. NO.
1.2R-343-27.6

JOB NO.
239-0007 6/8

SHT. NO.
RE-4

BEGIN WALL R-343-27
 PRECAST WALL STA 1+000.000 =
 "72-215W15S" STA 1+270.000
 ● 6.761 RT
 NOMINAL PANEL FACE (RWLQL)



MESH DEPTH
 MAXIMUM BEARING PRESSURE
 (SEE NOTE BELOW)
 PIN SPACING

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
7.786	7.786	7.786	7.786	9.144	9.144	6.096	6.096	6.096	9.144	9.144	6.096	6.096	137.89 KPa	137.89 KPa	9.144

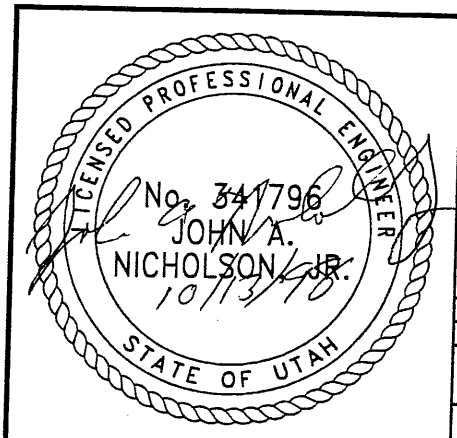
ELEVATION PRECAST WALL R-343-27
 (FRONT FACE SHOWN)
 (TOTAL SURFACE AREA OF PANELS = 253.15 SM)

SCALE 1:100 (FULL SIZE)
 SCALE 1:200 (HALF SIZE)

METRIC

NOTE:
 THE INDICATED MAXIMUM BEARING PRESSURE AT FINAL STAGE FOR STATIC LOAD CONDITION.

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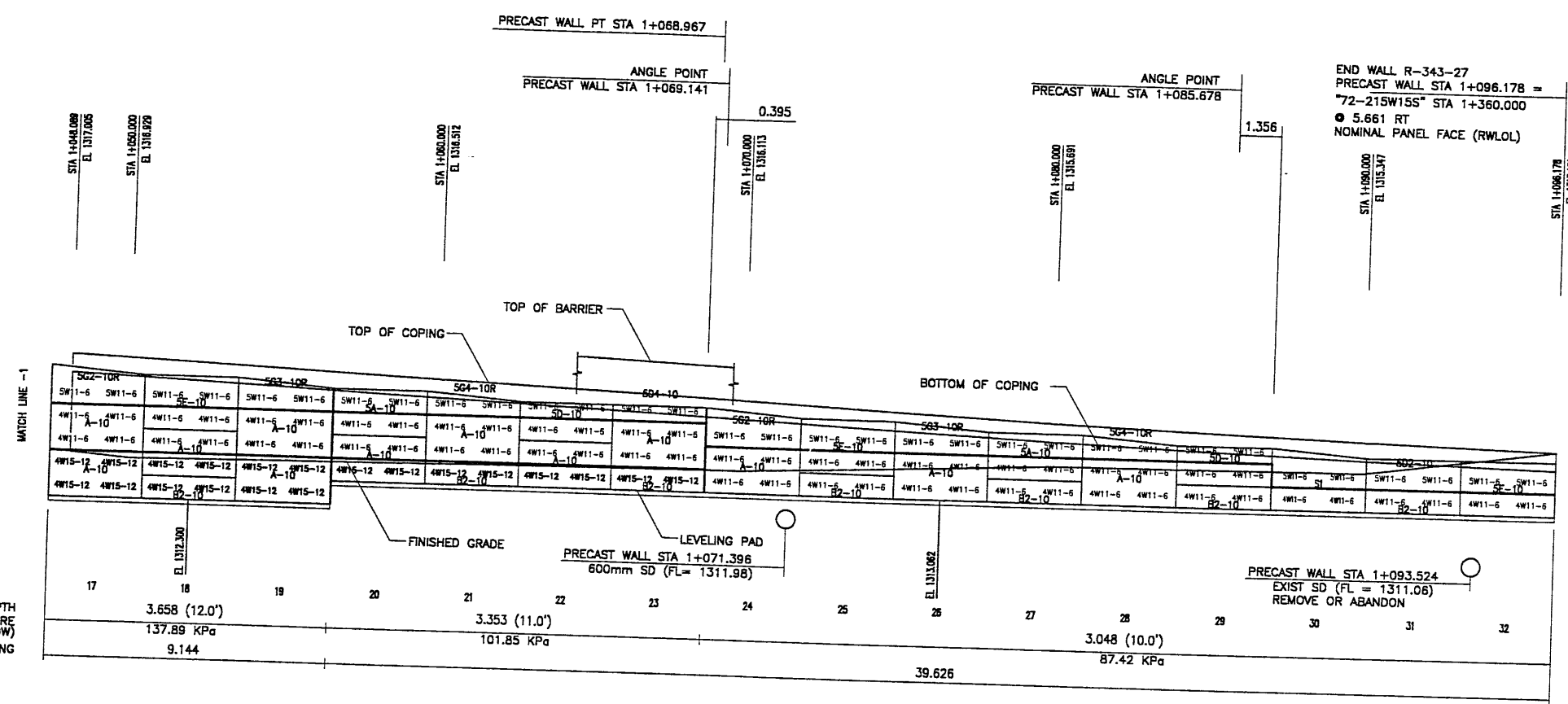
ACE (X-UTAH.DWG)

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APPROVED FOR CONSTRUCTION		
NO.	DATE	DESCRIPTION
▲	10-07-98	RELEASE FOR CONSTRUCTION

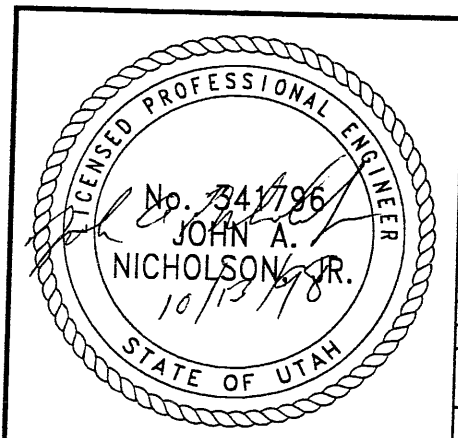


MESH DEPTH
MAXIMUM BEARING PRESSURE
(SEE NOTE BELOW)
PIN SPACING

ELEVATION PRECAST WALL R-343-27
(FRONT FACE SHOWN)
(TOTAL SURFACE AREA OF PANELS = 253.15 SM)
SCALE 1:100 (FULL SIZE)
SCALE 1:200 (HALF SIZE)

METRIC

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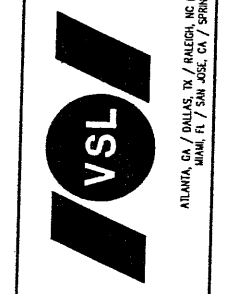


WASATCH CONSTRUCTORS
OCT 19 1998
RELEASED FOR CONSTRUCTION

RETAINED EARTH™ WALLS
PRECAST WALL "R-343-27"
UTAH I-15 RECONSTRUCTION
SALT LAKE COUNTY, UTAH
UTAH DEPARTMENT OF TRANSP.

DWG. NO. 1.2R-343-27.7
JOB NO. 239-0007
SHT. NO. RE-5

VSL CORPORATION
2840 River Place, Suite 200
Raleigh, NC 27612
Telephone: (919) 781-6272
Fax: (919) 781-6869

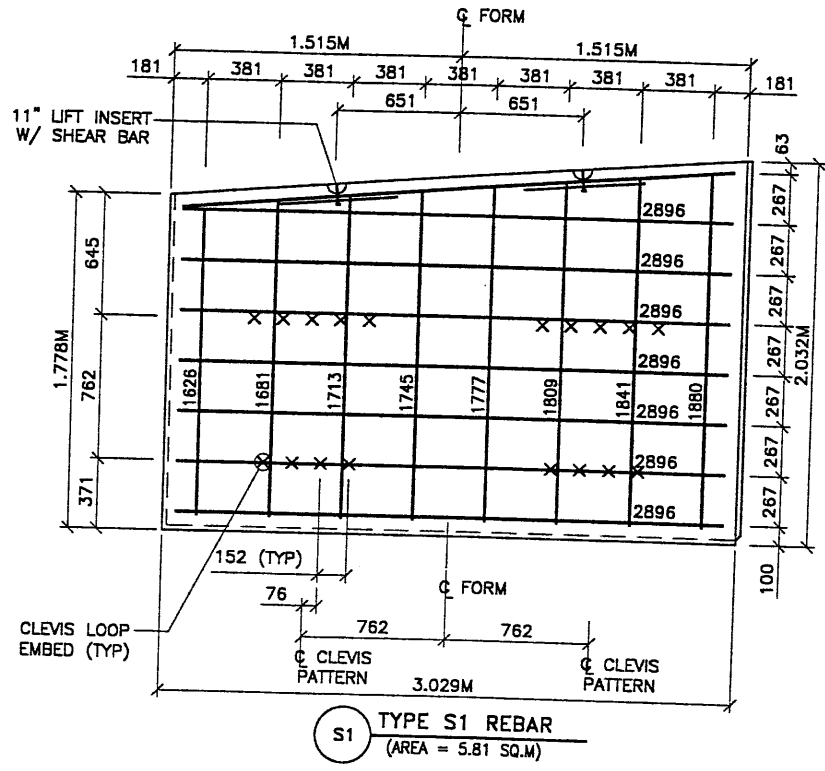


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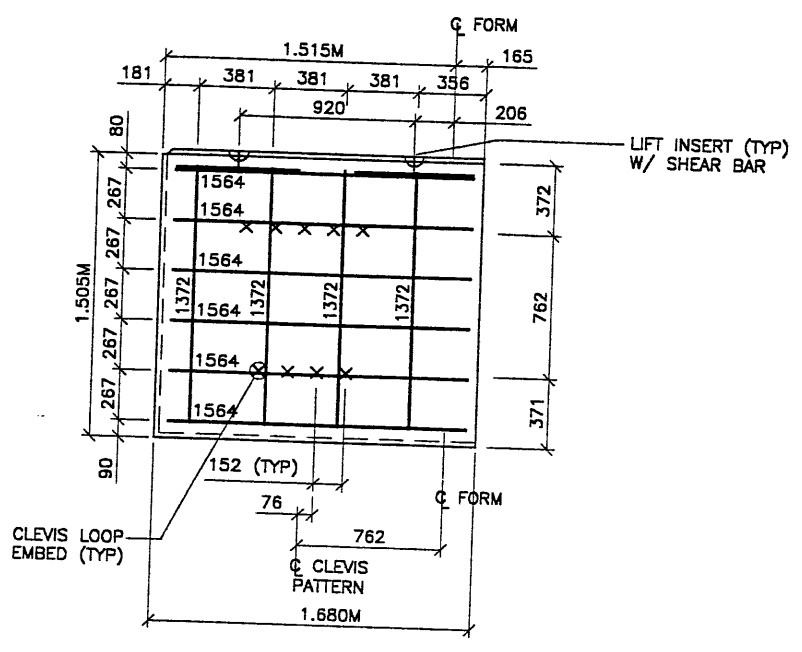
NO.	DATE	DESCRIPTION	NO.	DATE	REVISION	CHK

ADAMIA, CA / OMAHA, IA / RENO, NV (CORPORATE OFFICE)
MIAMI, FL / SAN JOSE, CA / SPRINGFIELD, VA

J:\239-0007\1998\72\SPICIALS.DWG
 T 10-07-98
 FINAL



S1 TYPE S1 REBAR
 (AREA = 5.81 SQ.M)



TYPE YA-10L1.69 REBAR
 (AREA = 2.58 SQ.M)

APPROVED FOR CONSTRUCTION			
NO.	DATE	DESCRIPTION	BY
1	10-02-98	RELEASE FOR CONSTRUCTION	

- PANEL REINFORCEMENT NOTES:**
- PANELS ARE SHOWN BACK FACE.
 - HORIZONTAL REINFORCEMENT SHALL HAVE 50 mm MINIMUM COVER TO THE BACK FACE.
 - ALL REINFORCEMENT SHALL HAVE 50 mm MINIMUM COVER TO THE SIDES.
 - ALL REINFORCING BARS ARE #13 METRIC. LABELS ON EACH BAR INDICATE LENGTH. EXAMPLE: 1345 IS A #13 BAR 1345 mm LONG.
 - PANEL REINFORCEMENT BARS SHALL BE DEFORMED BILLET STEEL BARS FOR CONCRETE REINFORCEMENT CONFORMING TO THE SPECIFICATIONS OF ASTM DESIGNATION A615, GRADE 60.
 - ALL REINFORCING STEEL TO BE GALVANIZED IN ACCORDANCE WITH ASTM 767 CLASS I.
 - CONCRETE PANELS TO HAVE 28 DAY COMPRESSIVE STRENGTH OF 20,700 KPa.
 - EQUIVALENT WELDED WIRE FABRIC MAY BE USED.
 - ALL PANELS TO USE 9.5mmØ CLEVIS LOOPS.
 - VSL RETAINED EARTH™ IS PROTECTED UNDER PATENT 4,725,170.
 - LIFT INSERTS ARE 6 3/4" LONG IN ALL PANELS LESS THAN 1.524M TALL. PANELS TALLER THAN 1.524M SHALL HAVE 11" LONG LIFT ANCHORS.

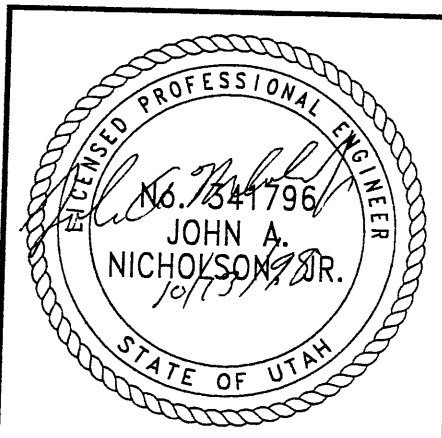
VSL CORPORATION
 2810 Pineda Place, Suite 200
 Raleigh, NC 27612
 Telephone: (919) 781-0272
 Fac: (919) 781-4669



ATLANTA, GA / DALLAS, TX / FALMOUTH, NC (CORPORATE OFFICE)
 MIAMI, FL / SAN JOSE, CA / SPRINGFIELD, VA

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WASATCH CONSTRUCTORS
OCT 19 1998
RELEASED FOR CONSTRUCTION

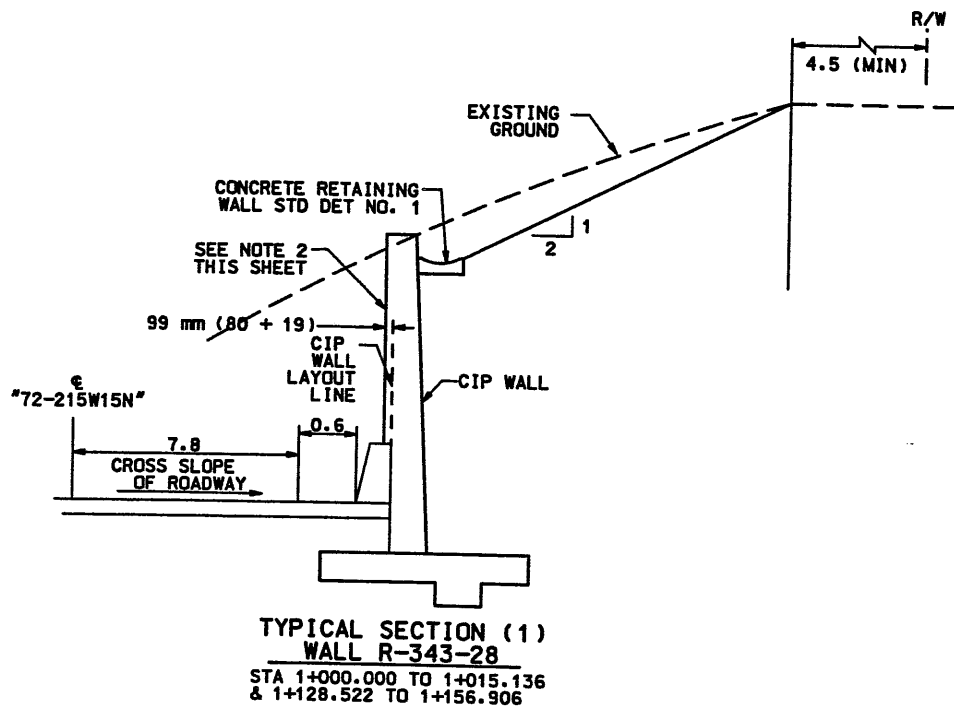


METRIC

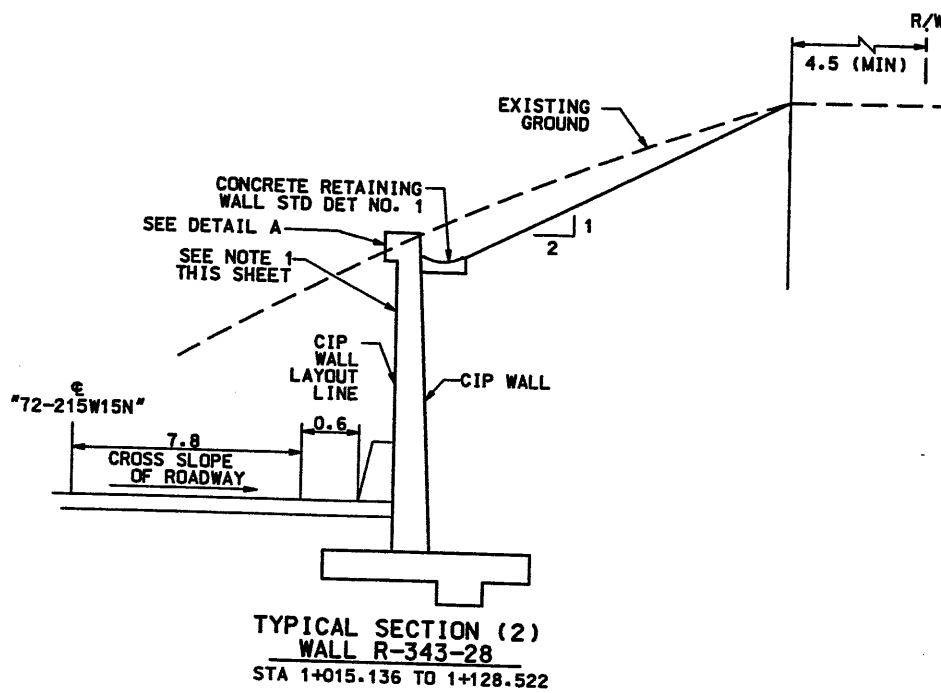
CERTIFIED FOR INTERNAL STABILITY OF RETAINED EARTH™ STRUCTURES ONLY. EXTERNAL STABILITY, INCLUDING BUT NOT LIMITED TO FOUNDATION AND SLOPE STABILITY, IS THE RESPONSIBILITY OF THE OWNER. DESIGN IS BASED ON THE ASSUMPTION THAT THE MATERIAL WITHIN THE RETAINED EARTH™ MASS, METHODS OF CONSTRUCTION, AND QUALITY OF PREFABRICATED MATERIALS CONFORM TO THE MANUFACTURER'S SPECIFICATION.

RETAINED EARTH™ WALLS PRECAST WALL "R-353-27" SPECIAL PANEL DETAILS	UTAH I-15 RECONSTRUCTION SALT LAKE COUNTY, UTAH UTAH DEPARTMENT OF TRANSP.
DWG. NO. 3.2-R-353-27.8	JOB NO.: 239-0007
SHT. NO. RE-6	DATE: 10/18/98

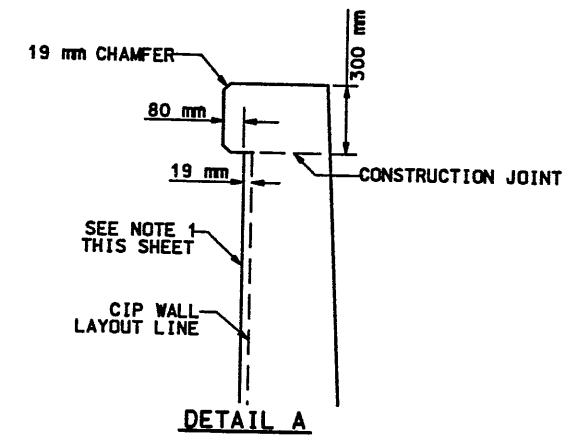
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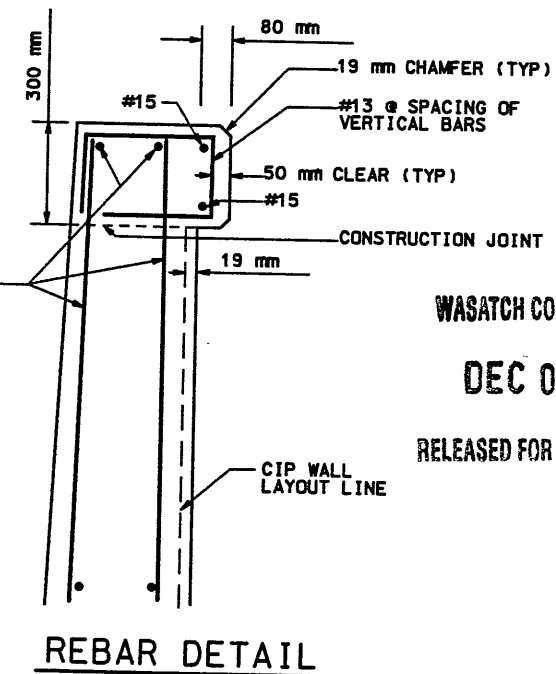
TYPICAL SECTION (1)
WALL R-343-28
 STA 1+000.000 TO 1+015.136
 & 1+128.522 TO 1+156.906



TYPICAL SECTION (2)
WALL R-343-28
 STA 1+015.136 TO 1+128.522

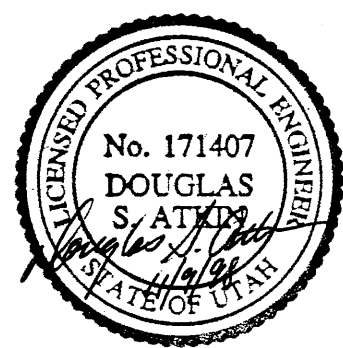


DETAIL A



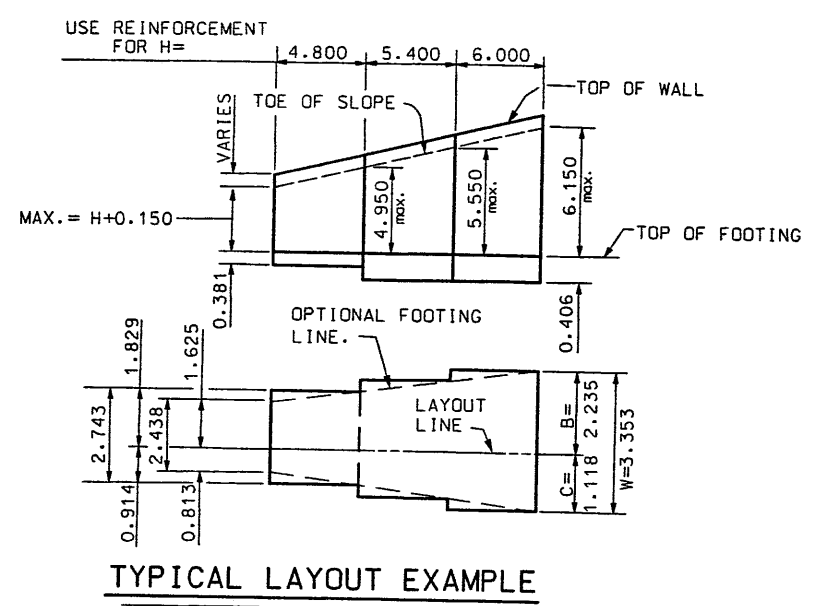
REBAR DETAIL

- NOTE:**
- (1) CORRIDOR STANDARD PLAN RETAINING WALL AESTHETICS DWG CS-6 TEXTURE TYPE A - SEE DETAIL A
 - (2) 80 mm COPING WIDTH WILL EXTEND DOWN TO BARRIER



UTAH DEPARTMENT OF TRANSPORTATION URS Greiner SVERDRUP/DE LEUW		APPROVED FOR CONSTRUCTION DESCRIPTION NO. DATE A 11-09-98	
I-15 CORRIDOR RECONSTRUCTION MISC DETAILS RET WALL R-343-28 SECTION 1.2	DESIGN: JIM ESKRIMON PROJECT DESIGN ENGINEER DRAWN: DMK DATE: 9/97	CHECK: JMM DATE: 9/97	CHECK: JMM DATE: 9/97
PROJECT NUMBER #SP-15-7(135)296		QUANT. CHECK	
SALT LAKE COUNTY DWG. NO. 1.2R-343-28.1A		APPROVAL RECORD: APPROVED: [Signature] DATE: [Blank]	
SHT. 2A of 4A		WASATCH CONSTRUCTORS DEC 0 2 1998 RELEASED FOR CONSTRUCTION	

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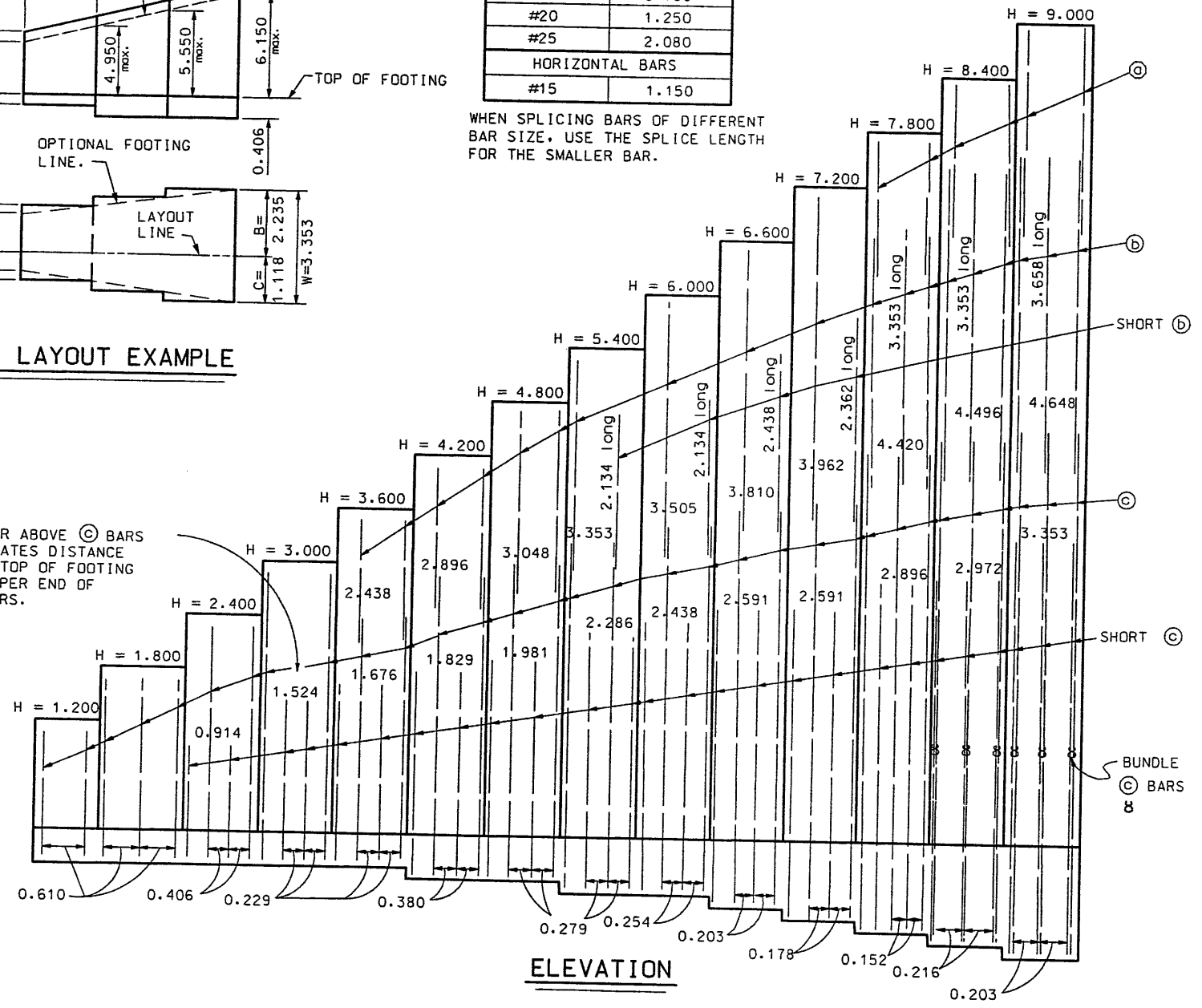


REINFORCING STEEL SPLICES	
BAR SIZE	SPLICE LENGTH
VERTICAL BARS	
#15	0.790
#20	1.250
#25	2.080
HORIZONTAL BARS	
#15	1.150

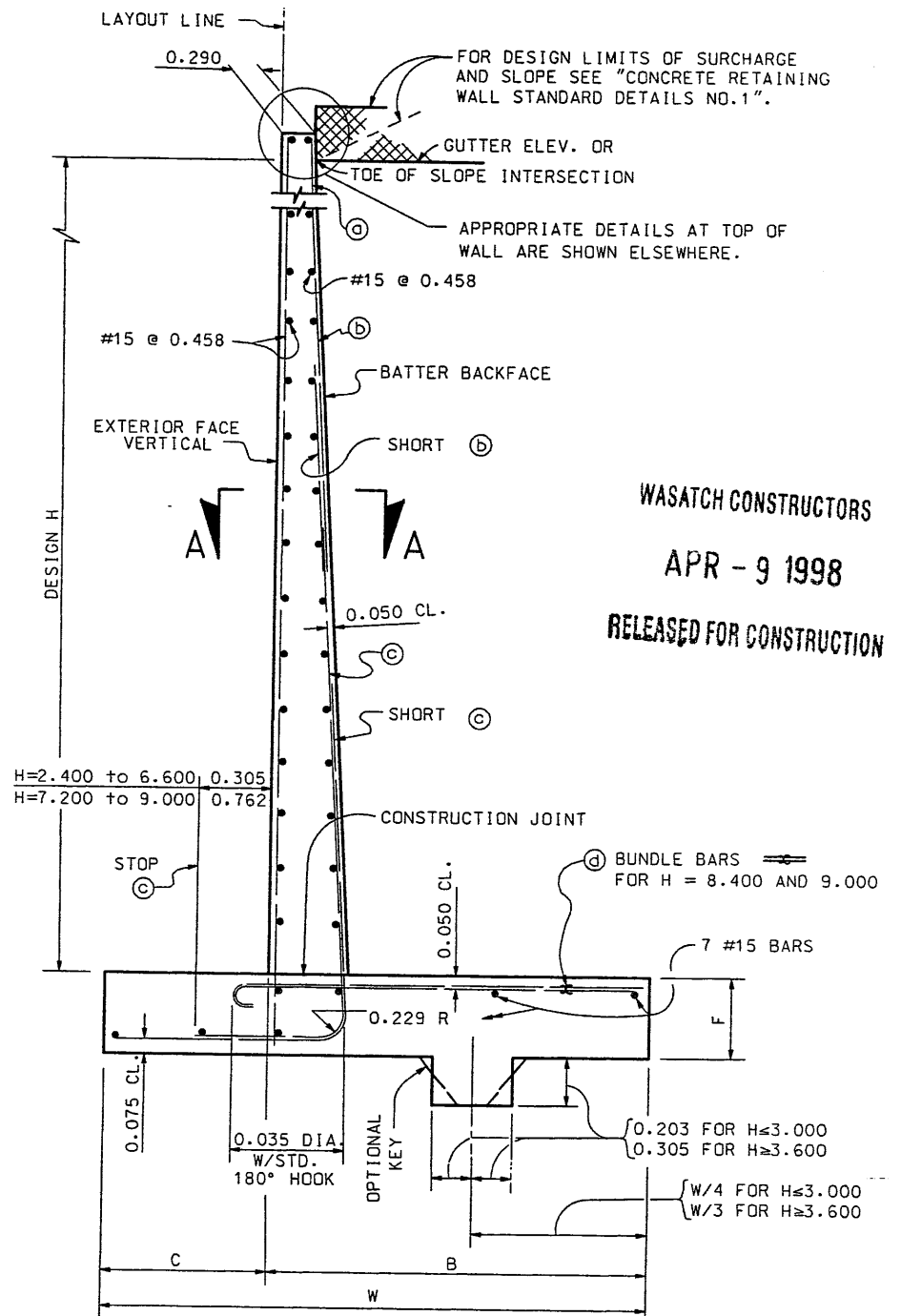
NOTE:
BAR CUT-OFFS MAY BE VARIED
IN INCREMENTS OF 0.150 m.

WHEN SPLICING BARS OF DIFFERENT
BAR SIZE, USE THE SPLICE LENGTH
FOR THE SMALLER BAR.

NUMBER ABOVE © BARS
INDICATES DISTANCE
FROM TOP OF FOOTING
TO UPPER END OF
© BARS.

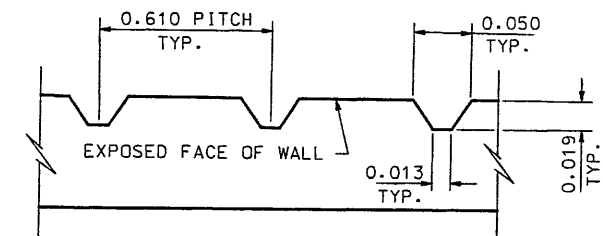


ELEVATION



SPREAD FOOTING SECTION

- NOTES:
1. ALL DIMENSIONS SHOWN ARE IN METERS.
 2. FOR DETAILS NOT SHOWN AND DRAINAGE NOTES SEE "CONCRETE RETAINING WALL STANDARD DETAILS NO. 1."
 3. QUANTITIES APPLY TO DESIGN H PORTION AND EXCLUDE THE ADDED PORTION ABOVE "GUTTER ELEVATION."



SECTION A-A

TABLE OF REINFORCING STEEL DIMENSIONS AND DATA														
DESIGN H	1.200	1.800	2.400	3.000	3.600	4.200	4.800	5.400	6.000	6.600	7.200	7.800	8.400	9.000
W	0.965	1.270	1.575	1.880	2.184	2.438	2.743	3.048	3.353	3.657	4.038	4.344	4.648	5.105
C	0.305	0.406	0.508	0.610	0.711	0.813	0.914	1.016	1.118	1.219	1.346	1.448	1.549	1.651
B	0.660	0.864	1.067	1.270	1.473	1.625	1.829	2.032	2.235	2.438	2.692	2.896	3.099	3.454
F SPREAD FTG.	0.356	0.356	0.356	0.356	0.356	0.381	0.381	0.406	0.406	0.457	0.508	0.584	0.660	0.711
BATTER	1:24	1:24	1:24	1:24	1:24	1:24	1:24	1:24	1:24	1:24	1:19	1:16	1:16	1:14
© BARS														
© BARS														
© BARS	#15@.610	#15@.610	#15@.406	#15@.229	#20@.229	#30@.380	#30@.279	#35@.279	#35@.254	#35@.203	#35@.178	#35@.152	#35@.216 8	#35@.203 8
© BARS	#15@.610	#15@.610	#15@.406	#15@.229	#15@.229	#25@.380	#25@.279	#35@.279	#35@.254	#35@.203	#35@.178	#35@.152	#30@.216 8	#30@.203 8
.610 LEVEL SURCHARGE TOE PRESSURE kPa	76.6	91.0	105.3	110.1	134.1	158.0	167.6	191.5	205.9	220.3	234.6	253.8	272.9	296.9
2:1 UNLIMITED SCOPE TOE PRESSURE kPa	52.7	71.8	95.8	119.7	129.3	158.0	172.4	201.1	225.0	263.3	282.5	311.2	340.0	359.1
SPREAD FOOTING STEEL kg/m	25	30	42	55	76	119	156	219	278	366	451	606	668	754
CONC. m³/m	0.8	1.2	1.5	1.9	2.4	2.8	3.2	3.7	4.2	4.8	5.9	7.2	8.2	9.7

UTAH DEPARTMENT OF TRANSPORTATION
 SALT LAKE COUNTY, UTAH
 STRUCTURES DIVISION

CONCRETE RETAINING WALL
 STANDARD DETAILS NO. 2

PROJECT NUMBER *SP-15-7(135)296

SALT LAKE COUNTY
 1.2R-343-28.2
 DRG. NO.

SHEET 3 of 4

WASATCH CONSTRUCTORS
 APR - 9 1998
 RELEASED FOR CONSTRUCTION

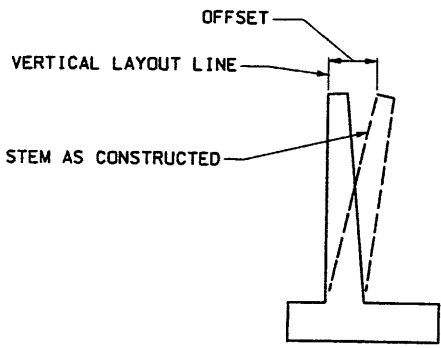
4/7/98
 3/22/95

REVISIONS
 NO. DATE BY

REMARKS

User name: huffdabn Date: 31-MAR-1998 Time: 12:01

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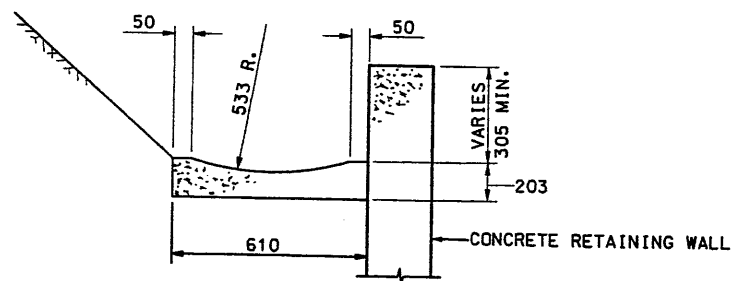


**TABLE OF OFFSETS
(IN METERS)**

H	OFF.	H	OFF.
1.200	0.006	4.800	0.032
1.800	0.010	5.400	0.038
2.400	0.013	6.000	0.044
3.000	0.016	6.600	0.050
3.600	0.019	7.200	0.057
4.200	0.025	7.800 TO 11.000	0.064

APPROXIMATE WALL OFFSET VALUES

VALUES FOR OFFSETTING FORMS TO BE DETERMINED BY THE ENGINEER



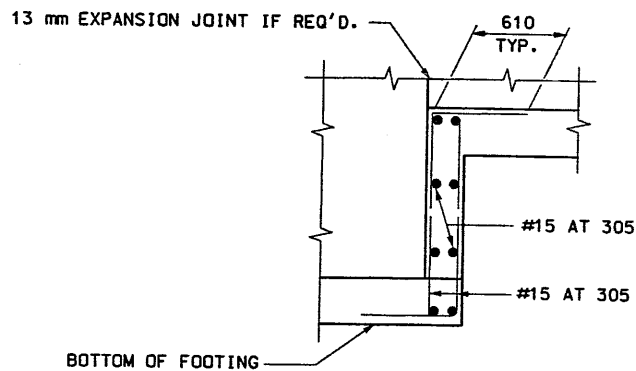
TYPICAL GUTTER DETAIL

GENERAL NOTES

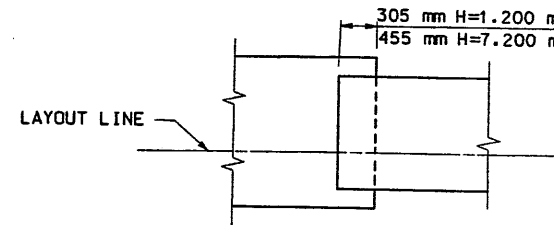
1. USE EPOXY-COATED REINFORCING STEEL CONFORMING TO AASHTO M 31M GRADE 400.
2. DESIGN H MAY BE EXCEEDED BY 150 mm BEFORE GOING TO THE NEXT SIZE.
3. ALL DIMENSIONS SHOWN ARE IN METERS UNLESS SPECIFIED OTHERWISE.

DESIGN DATA

CAST-IN-PLACE CONCRETE: $f_c = 10 \text{ MPa}$; $f_a(\text{REINF.}) = 160 \text{ MPa}$; $n=8$.
 EARTH: UNIT DENSITY = 1920 kg/m^3
 IN CASE OF SLOPING GROUND CONDITIONS ABOVE THE TOP OF THE WALL. EARTH PRESSURE SHALL BE DETERMINED FROM THE RANKINE EQUATIONS FOR LATERAL EARTH PRESSURE WITH $\phi = 33^\circ 42'$.
 610 mm SURCHARGE: EQUIVALENT FLUID PRESSURE = 5.6 kN/m^3 MAX. FOR DETERMINATION OF THE PRESSURE.



ELEVATION

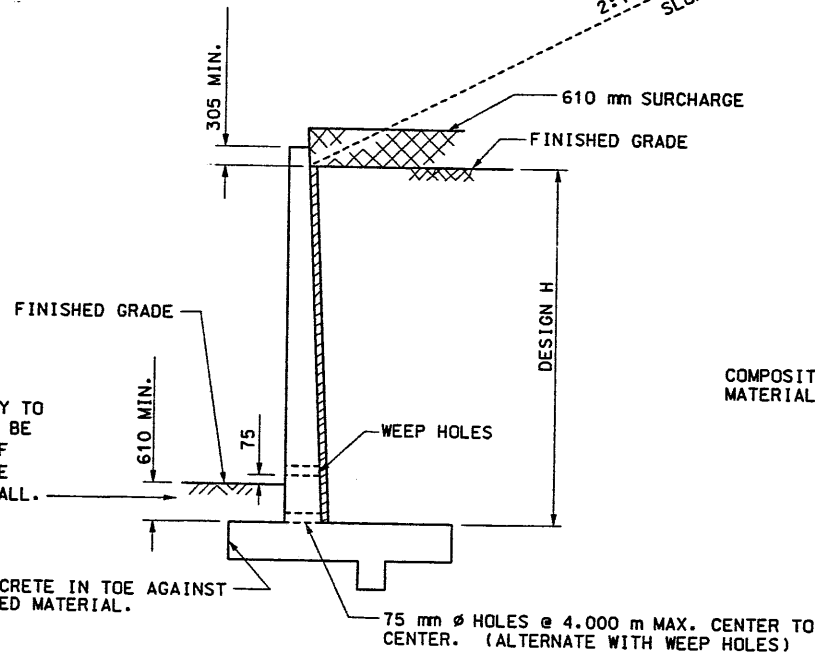


PLAN

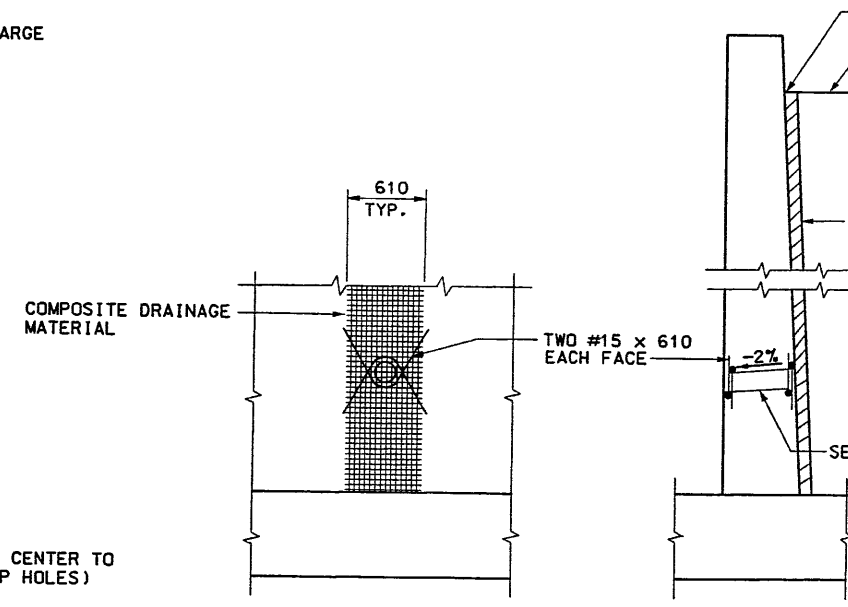
FOOTING STEP DETAILS

BACKFILL SUFFICIENTLY TO PREVENT PONDING. TO BE DONE AFTER REMOVAL OF WALL FORMS AND BEFORE BACKFILLING BEHIND WALL.

PLACE CONCRETE IN TOE AGAINST UNDISTURBED MATERIAL.



DESIGN AND DRAINAGE



PARTIAL ELEVATION

SECTION

@ BACK FACE OF WALL

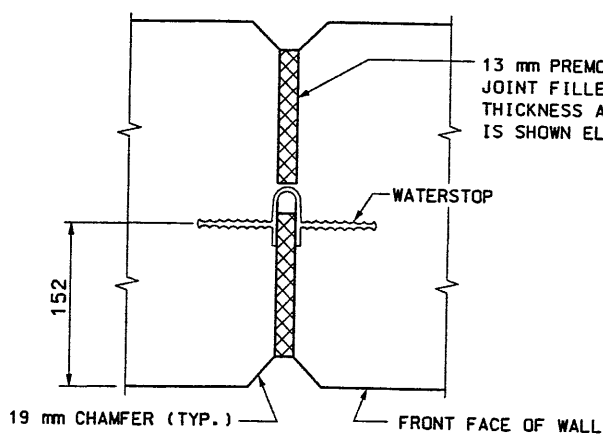
WEEP HOLE DETAIL

WATER STOP NOTES

1. WATERSTOP TO HAVE FIVE OR MORE PAIRS OF RAISED RIBS TO PROVIDE 65 mm^2 MIN. RIB CROSS-SECTIONAL AREA ON EACH HALF OF THE WATERSTOP. HEIGHT OF RIBS TO BE 2 mm MIN.
2. HOLES WILL BE PERMITTED IN THE OUTER 13 mm OF THE WEB FOR WIRE, RINGS, ETC. TIE WEB TO #10 REINFORCING BARS @ 305 mm MAX. INTERVALS TO SUPPORT THE WATERSTOP IN PROPER POSITION DURING CONCRETE PLACEMENT. ALTERNATIVE DETAIL MAY BE SUBMITTED TO THE ENGINEER FOR APPROVAL.

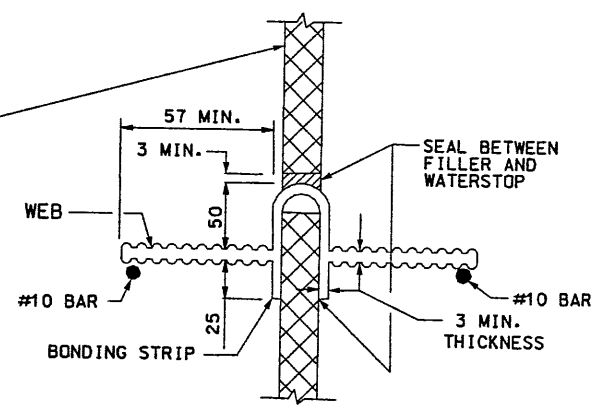
NOTES:

- A. 100 mm ϕ DRAINS @ 4.000 m MAX. CENTER TO CENTER.
- B. COMPOSITE DRAINAGE MATERIAL REQUIRED FROM BOTTOM OF WALL TO TOP OF FINISHED GRADE.



WALL EXPANSION JOINT (PLAN VIEW)

PLACE JOINTS AT 30.500 m MAX. SPACING



WATERSTOP DETAIL

DESIGN	CHECK	DATE	BY
DRAWN	CHECK	DATE	BY
QUANT.	CHECK	DATE	BY
GROUP LEADER			
DATE			
CHIEF STRUCTURAL ENGR.			
DATE			
APPROVAL			
RECORD			
APPROVED			
DATE			
REVISIONS			
NO.			
DATE			
BY			
REMARKS			
3/22/95			

UTAH DEPARTMENT OF TRANSPORTATION
SALT LAKE CITY, UTAH
STRUCTURES DIVISION

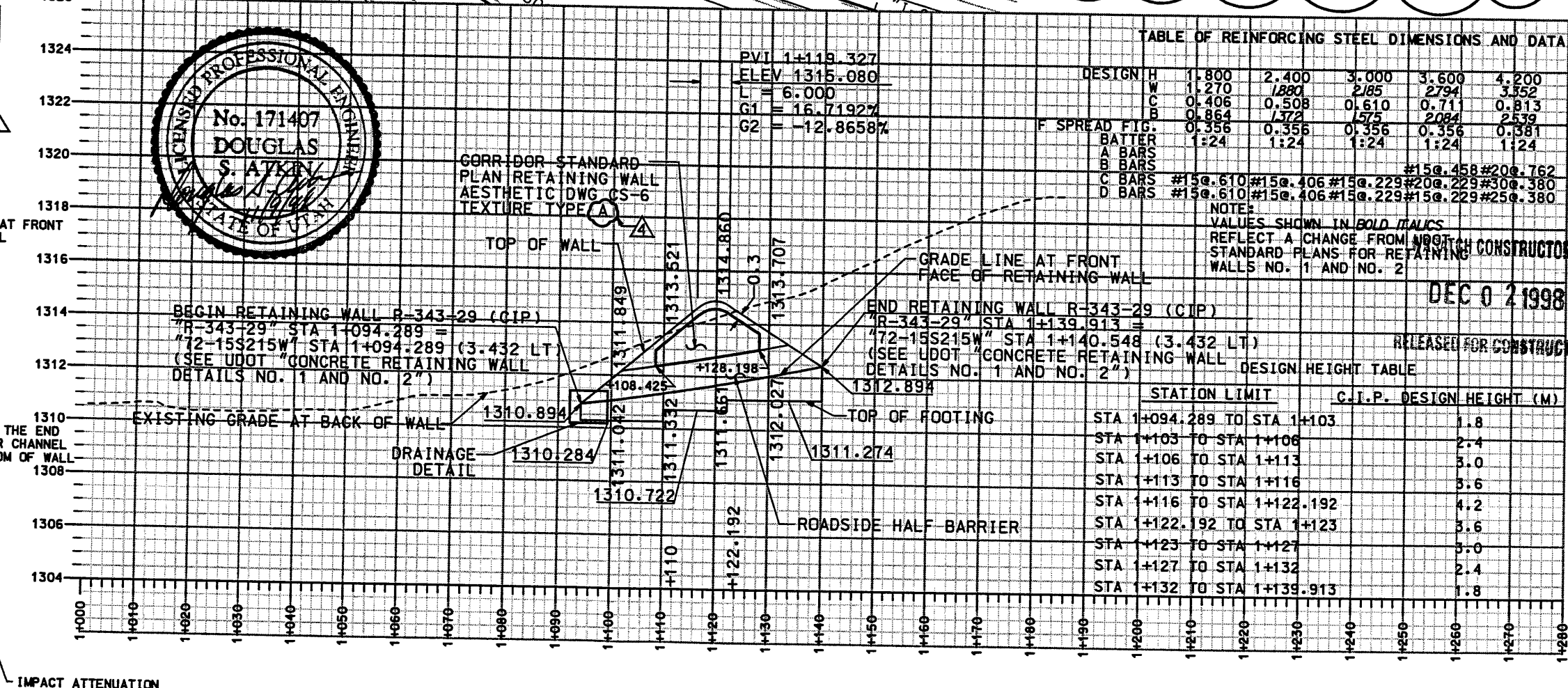
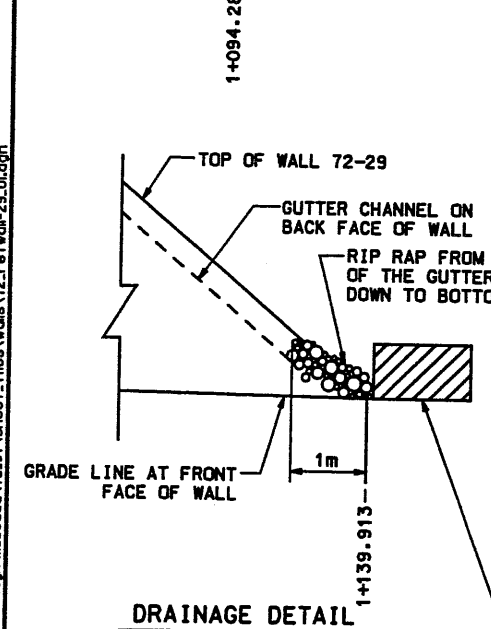
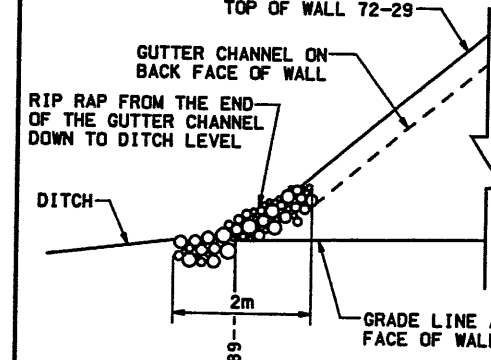
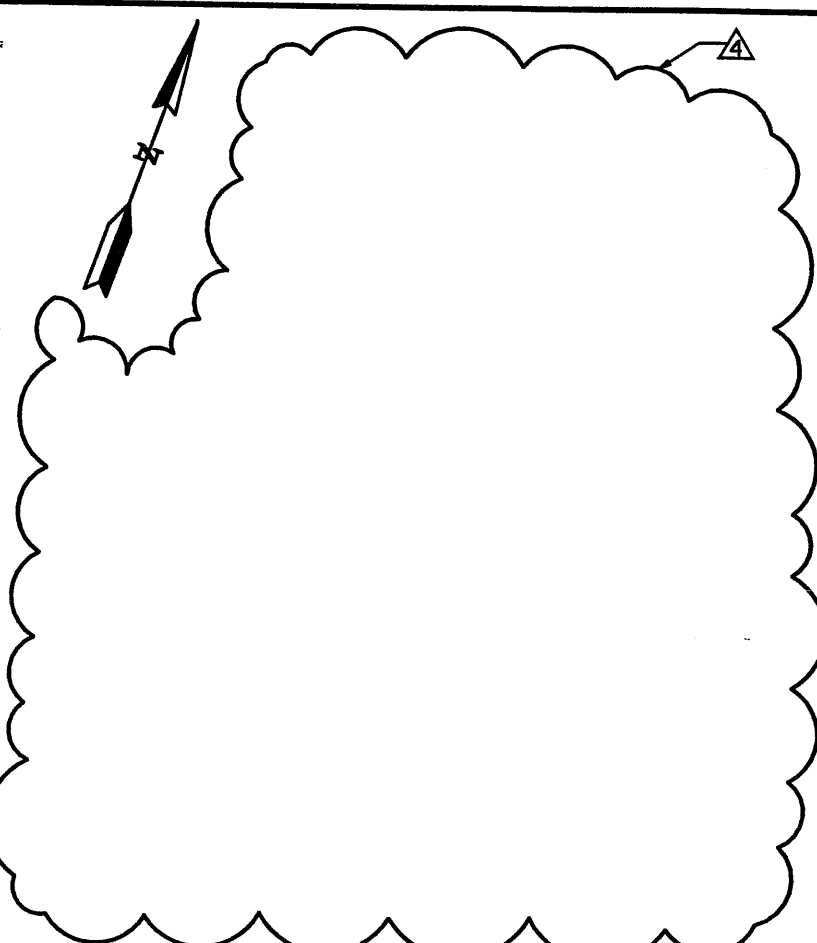
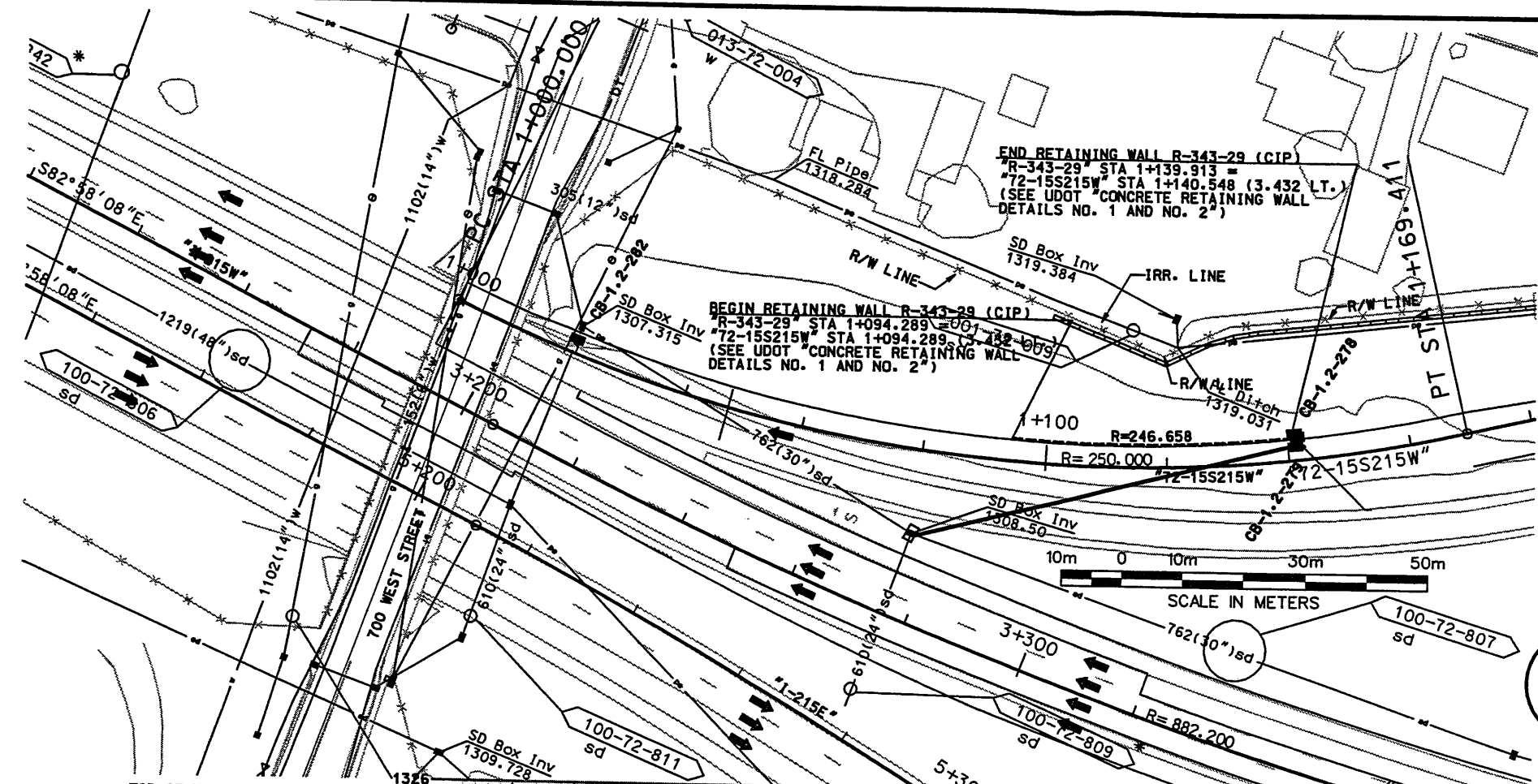
CONCRETE RETAINING WALL
STANDARD DETAILS NO. 1
PROJECT NUMBER *SP-15-7(135)296

SALT LAKE COUNTY
1.2R-343-28.3
DRG. NO.

SHT. 4 of 4

Users: coytejm

File: c:\p1\15_cadd\12-29\sheet_files\wall_29_01.dgn



APPROVED FOR CONSTRUCTION

UTAH DEPARTMENT OF TRANSPORTATION

URS Greiner
SVERDRUP/DE LEUW

I-15 CORRIDOR RECONSTRUCTION
SITUATION/LAYOUT
RETAINING WALL R-343-29
SECTION 1.2

PROJECT NUMBER #SP-15-711351296

SALT LAKE COUNTY
DWG. NO. 1.2R-343-29.1

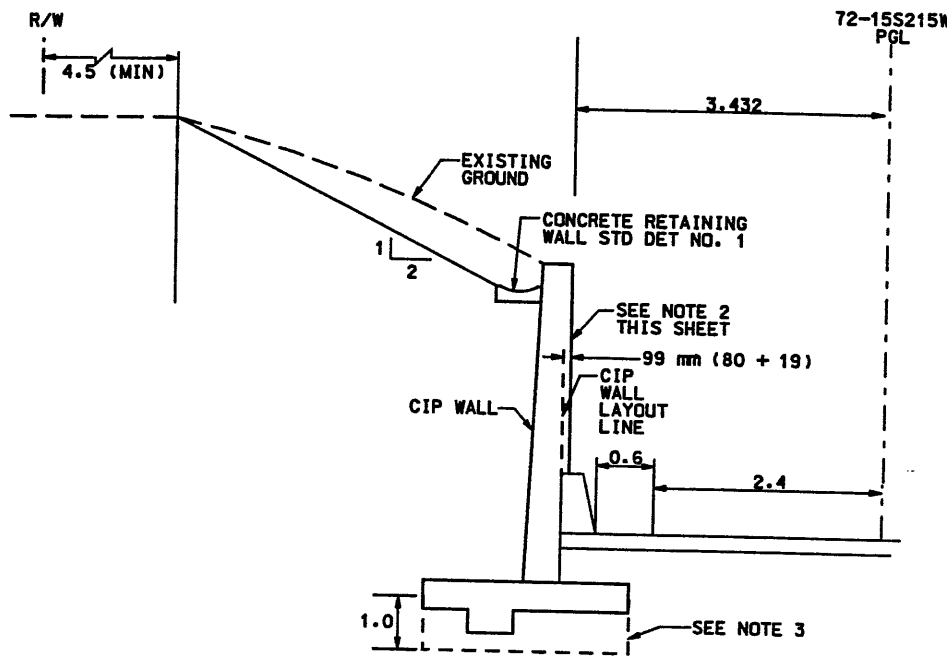
SHT. 1 OF 4

NO.	DATE	DESCRIPTION
1	8-28-97	INITIAL RELEASE
2	10-8-97	TOTAL REVISION
3	4-17-98	ASTHETIC REVISION
4	11-09-98	NOC 0230 CORP'G

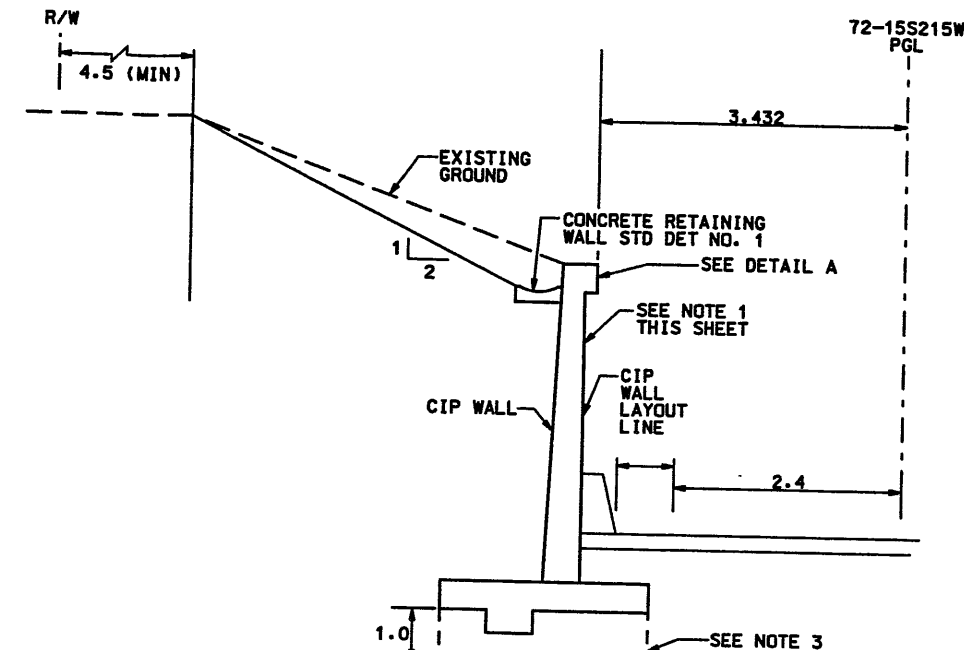
DESIGNER: [Signature] CHECK: RC
DRAWN: CJ CHECK: PRV
QUANT.: / CHECK: /

APPROVAL RECORD:
 APPROVED: [Signature] DATE: [Date]
 PROJECT DESIGN ENGINEER: [Signature]
 RICK CHAPMAN PROJECT MANAGER

RELEASED FOR CONSTRUCTION
DEC 02 1998

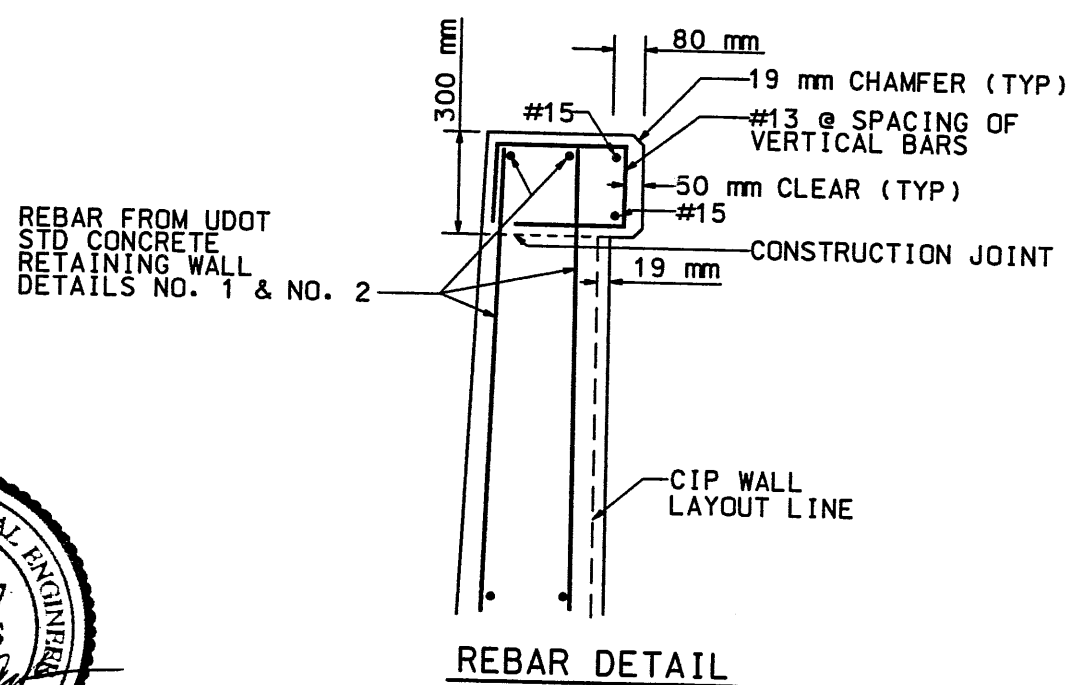


TYPICAL SECTION (1)
WALL R-343-29
STA 1+094.289 TO 1+108.425
STA 1+128.198 TO 1+139.913

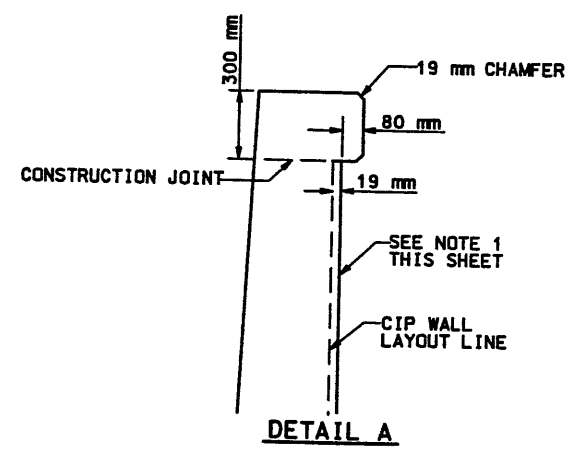


TYPICAL SECTION (2)
WALL R-343-29
STA 1+108.425 TO 1+128.198

- NOTE:
- (1) CORRIDOR STANDARD PLAN RETAINING WALL AESTHETICS DWG CS-6 TEXTURE TYPE A - SEE DETAIL A
 - (2) 80 mm COPING WIDTH WILL EXTEND DOWN TO BARRIER
 - (3) FOR DESIGN HEIGHT WALL LOCATIONS OF 3.5 AND 4.2 METERS, OVEREXCAVATE 1 METER BELOW FOOTING AND REPLACE WITH BORROW WITH AN INTERNAL FRICTION ANGLE OF AT LEAST 34°

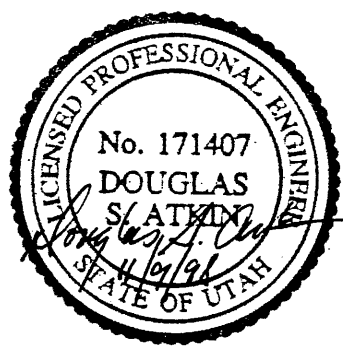


REBAR DETAIL



DETAIL A

WASATCH CONSTRUCTORS
DEC 02 1998
RELEASED FOR CONSTRUCTION



APPROVED FOR CONSTRUCTION		DESCRIPTION	
NO.	DATE	NO.	DATE
1	11-09-98	0230	COPING
UTAH DEPARTMENT OF TRANSPORTATION			
URS Greiner SVERDRUP/DE LEUW			
DESIGN	PRV	DATE	CHECK
JIM EMBALUM		9/97	JIM
PROJECT DESIGN ENGINEER			
DRAWN	DATE	CHECK	DATE
BOB BRADY	9/97	JIM	9/97
SECTION MANAGER			
QUANT.			
I-15 CORRIDOR RECONSTRUCTION			
MISC DETAILS RET WALL R-343-29			
SECTION 1.2			
PROJECT NUMBER #SP-15-7(135)296			
SALT LAKE COUNTY			
DWG. NO. 1.2R-343-29.1A			
SHT.	OF		4

Date: 24-FEB-1998 Time: 11:44 Username: tottrf

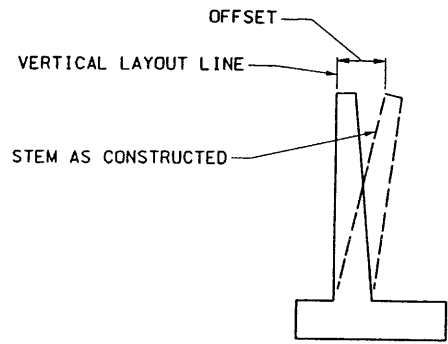
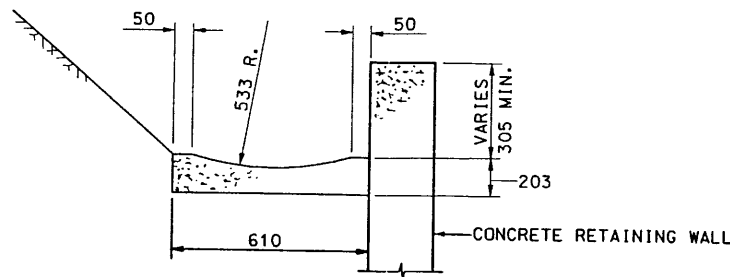


TABLE OF OFFSETS
(IN METERS)

H	OFF.	H	OFF.
1.200	0.006	4.800	0.032
1.800	0.010	5.400	0.038
2.400	0.013	6.000	0.044
3.000	0.016	6.600	0.050
3.600	0.019	7.200	0.057
4.200	0.025	7.800 TO 11.000	0.064

APPROXIMATE WALL OFFSET VALUES

VALUES FOR OFFSETTING FORMS TO BE DETERMINED BY THE ENGINEER



TYPICAL GUTTER DETAIL

GENERAL NOTES

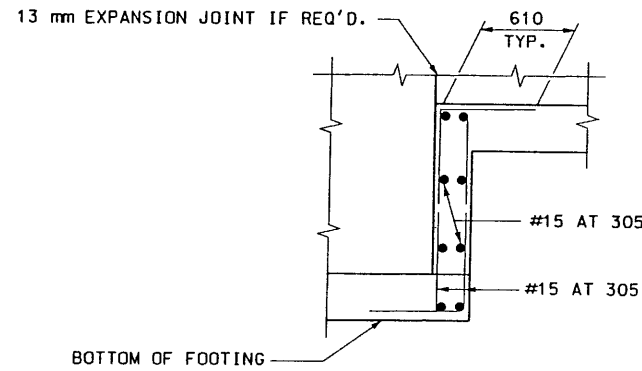
1. USE EPOXY-COATED REINFORCING STEEL CONFORMING TO AASHTO M 31M GRADE 400.
2. DESIGN H MAY BE EXCEEDED BY 150 mm BEFORE GOING TO THE NEXT SIZE.
3. ALL DIMENSIONS SHOWN ARE IN METERS UNLESS SPECIFIED OTHERWISE.

DESIGN DATA

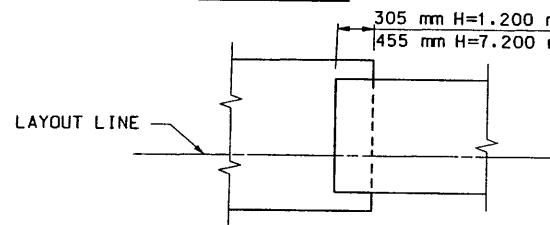
CAST-IN-PLACE CONCRETE: $f_c = 10 \text{ MPa}$; $f_o(\text{REINF.}) = 160 \text{ MPa}$; $n=8$.
EARTH: UNIT DENSITY = 1920 kg/m^3

IN CASE OF SLOPING GROUND CONDITIONS ABOVE THE TOP OF THE WALL. EARTH PRESSURE SHALL BE DETERMINED FROM THE RANKINE EQUATIONS FOR LATERAL EARTH PRESSURE WITH $\phi = 33^\circ 42'$.

610 mm SURCHARGE: EQUIVALENT FLUID PRESSURE = 5.6 kN/m^3 MAX. FOR DETERMINATION OF THE PRESSURE.



ELEVATION

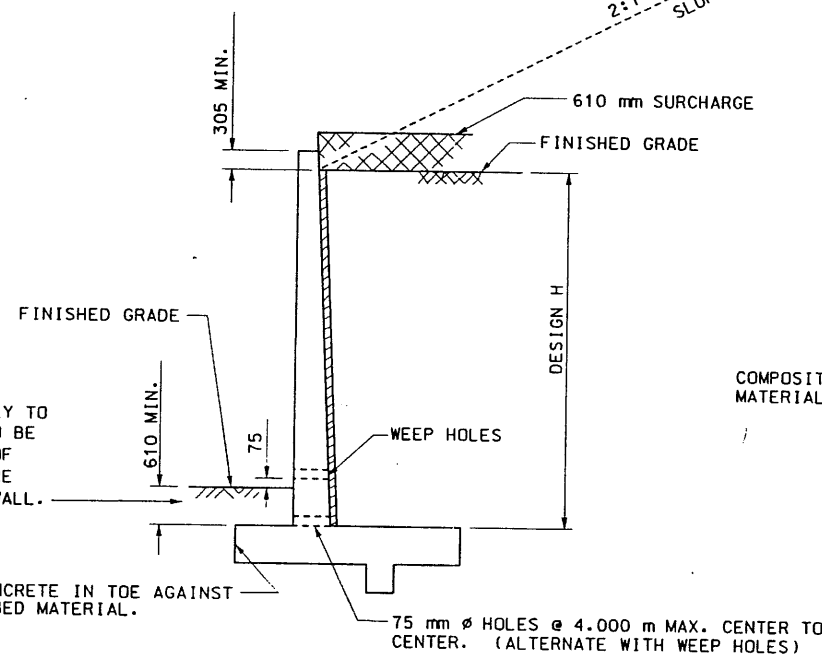


PLAN

FOOTING STEP DETAILS

BACKFILL SUFFICIENTLY TO PREVENT PONDING. TO BE DONE AFTER REMOVAL OF WALL FORMS AND BEFORE BACKFILLING BEHIND WALL.

PLACE CONCRETE IN TOE AGAINST UNDISTURBED MATERIAL.



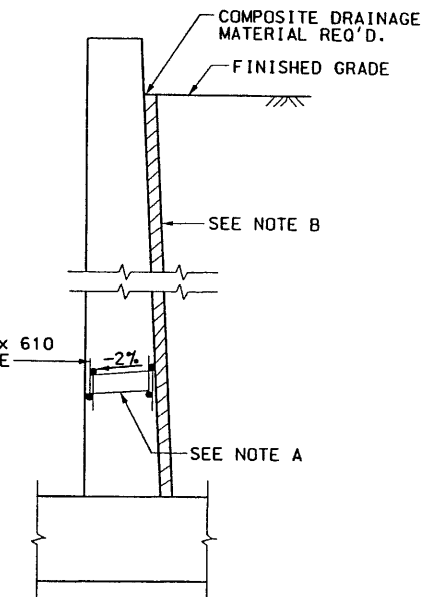
DESIGN AND DRAINAGE

COMPOSITE DRAINAGE MATERIAL

TWO #15 x 610 EACH FACE

PARTIAL ELEVATION

@ BACK FACE OF WALL



SECTION

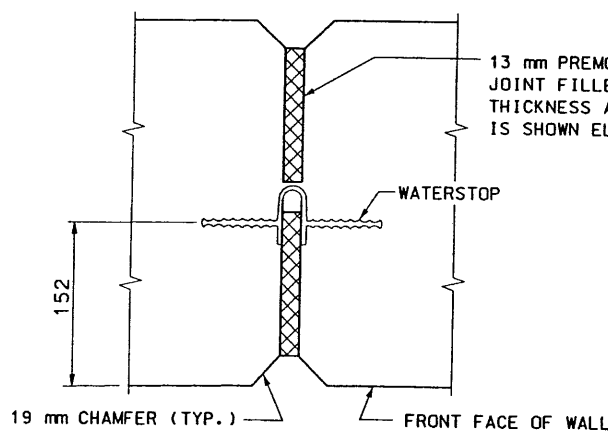
WEEP HOLE DETAIL

WATER STOP NOTES

1. WATERSTOP TO HAVE FIVE OR MORE PAIRS OF RAISED RIBS TO PROVIDE 65 mm^2 MIN. RIB CROSS-SECTIONAL AREA ON EACH HALF OF THE WATERSTOP. HEIGHT OF RIBS TO BE 2 mm MIN.
2. HOLES WILL BE PERMITTED IN THE OUTER 13 mm OF THE WEB FOR WIRE, RINGS, ETC. TIE WEB TO #10 REINFORCING BARS @ 305 mm MAX. INTERVALS TO SUPPORT THE WATERSTOP IN PROPER POSITION DURING CONCRETE PLACEMENT. ALTERNATIVE DETAIL MAY BE SUBMITTED TO THE ENGINEER FOR APPROVAL.

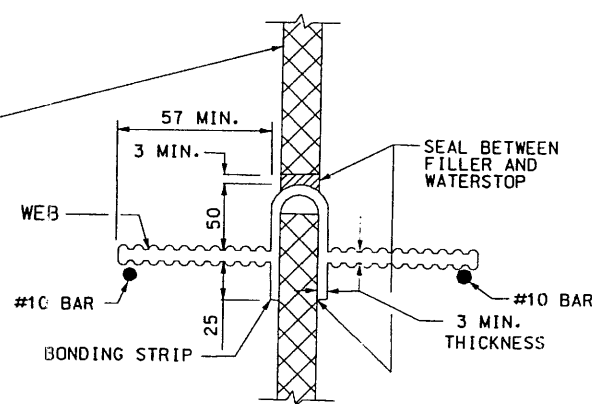
NOTES:

- A. 100 mm ϕ DRAINS @ 4.000 m MAX. CENTER TO CENTER.
- B. COMPOSITE DRAINAGE MATERIAL REQUIRED FROM BOTTOM OF WALL TO TOP OF FINISHED GRADE.



WALL EXPANSION JOINT (PLAN VIEW)

PLACE JOINTS AT 30.500 m MAX. SPACING



WATERSTOP DETAIL

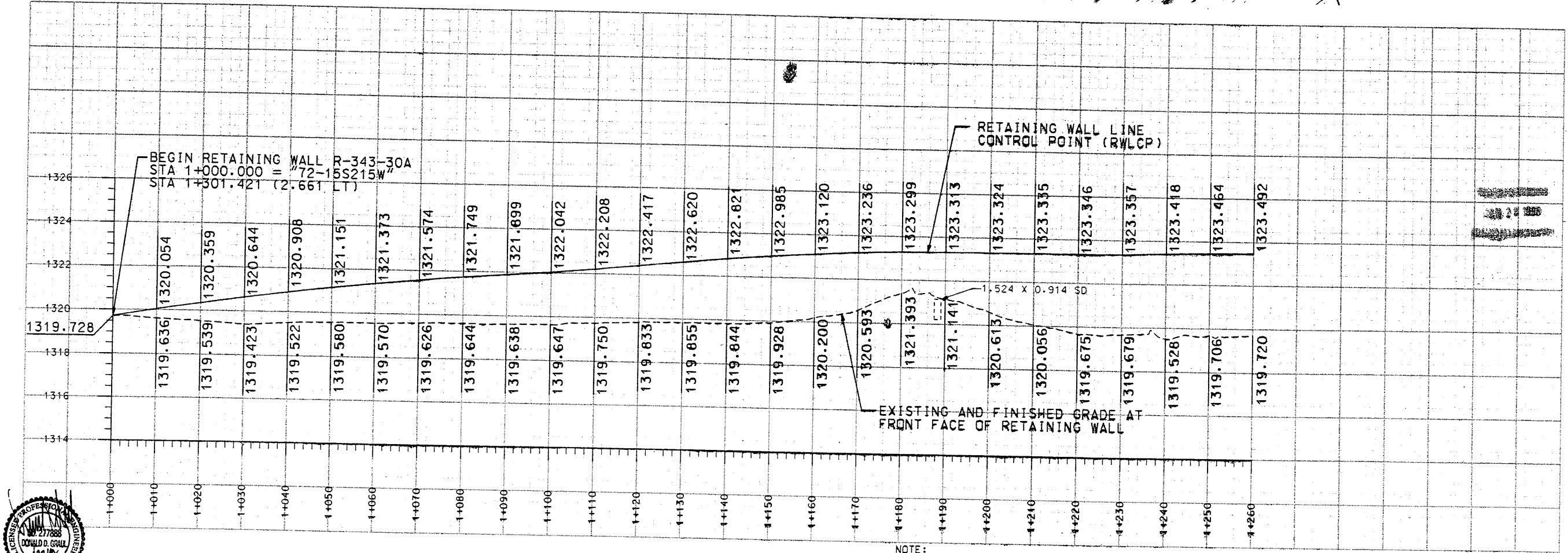
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DESIGN	DRAWN	QUANT.
DATE	DATE	DATE
PERSONAL RECORD	GROUP LEADER	CHIEF STRUCTURAL ENGR.
APPROVED	DATE	DATE
CONCRETE RETAINING WALL STANDARD DETAILS NO. 1		PROJECT NUMBER *SP-15-7(135)296
SALT LAKE COUNTY		1.2R-343-29.3 DRG. NO.
SHT. 4 OF 4		REVISIONS NO. DATE BY REMARKS 3/22/95

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 First Reference File Levels: (1-6, 8-25, 27-57, 59-64)
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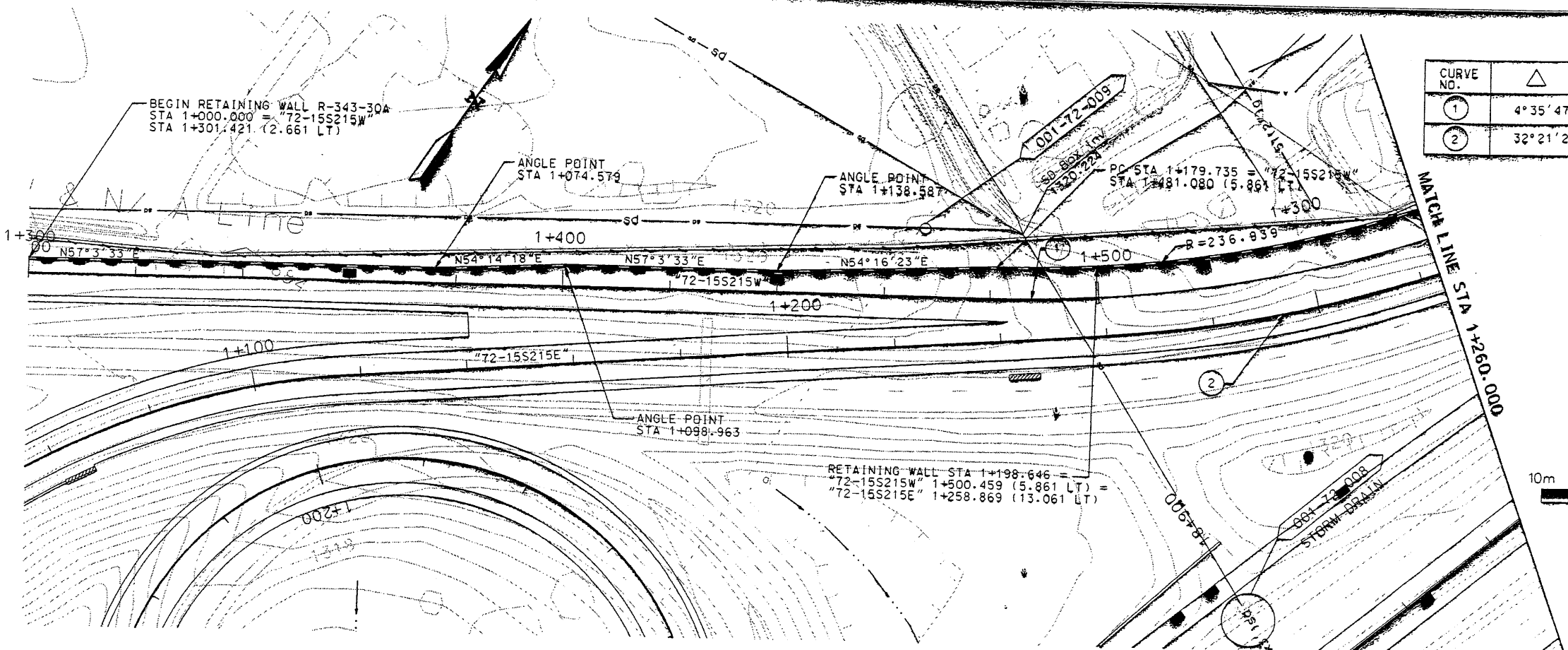
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Date: 22-JAN-1998 Time: 16:03
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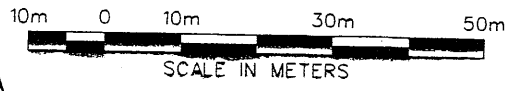


ELEVATION VIEW FROM BACK OF WALL

NOTE:
 THE FOUNDATION BEARING MATERIALS SHOULD BE OBSERVED BY THE
 GEOTECHNICAL ENGINEER DURING SITE PREPARATION. ANY
 UNDESIRABLE MATERIALS WILL NEED TO BE REMOVED AND REPLACED
 WITH BORROW IN ORDER TO ACHIEVE ACCEPTABLE CONDITIONS
 AT THE BASE OF THE WALL



CURVE NO.	△	R	L	T
①	4°35'47"	242.800	19.478	9.744
②	32°21'27"	250.000	141.186	72.531



UTAH DEPARTMENT OF TRANSPORTATION
 URS Greiner
 SVERDRUP/DE LEUW

I-15 CORRIDOR RECONSTRUCTION
 SITUATION/LAYOUT
 RET WALL R-343-30A
 SECTION 1.2
 PROJECT NUMBER *SP-15-7(135)296

SALT LAKE COUNTY
 DWG. NO. 1.2R-343-30A&B.1

APPROVED FOR CONSTRUCTION

NO.	DATE	DESCRIPTION
1	1-20-98	INITIAL RELEASE

DESIGN: RICK CHAPMAN
 PROJECT DESIGN ENGINEER: URS Greiner
 DRAWN: DON GRULL
 PROJECT MANAGER: URS Greiner

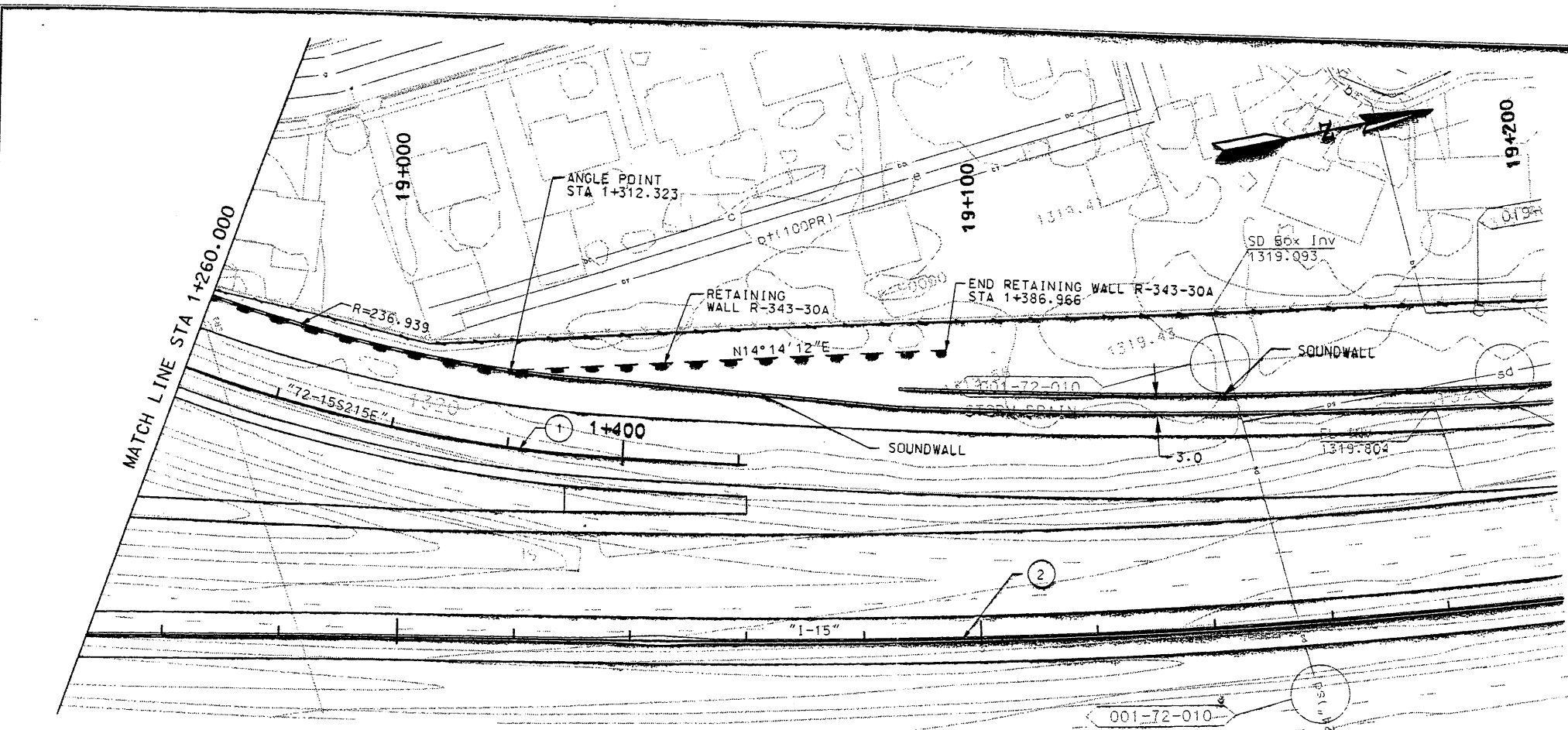
APPROVAL RECORD:
 10/97: [Signature] RICK CHAPMAN
 10/97: [Signature] PROJECT DESIGN ENGINEER
 10/97: [Signature] DON GRULL
 10/97: [Signature] PROJECT MANAGER

QUANT.: 1212425

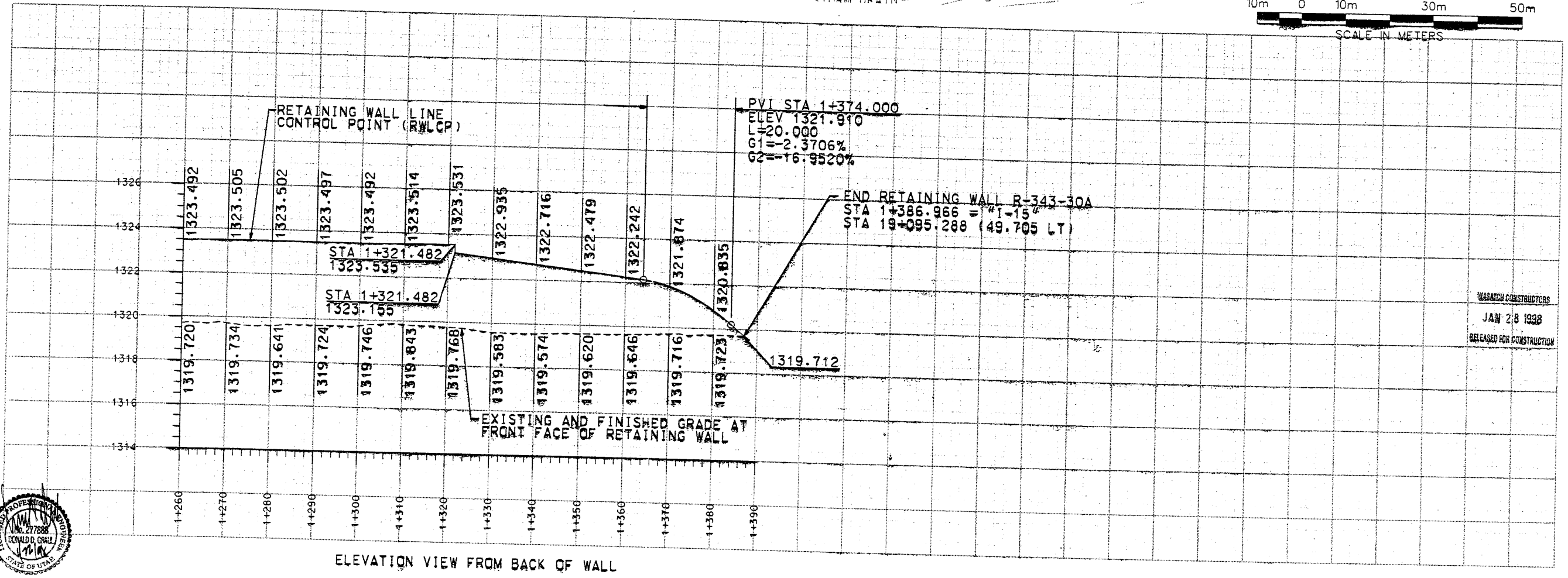
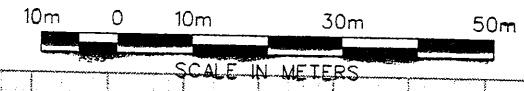
SHT. 1 OF 18

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 User: jamisocw
 Date: 22-JAN-98 Time: 16:01



CURVE NO.	△	R	L	T
①	32°21'27"	250.000	141.186	72.531
②	13°7'13"	1165.000	266.778	133.975



ELEVATION VIEW FROM BACK OF WALL



APPROVED FOR CONSTRUCTION

UTAH DEPARTMENT OF TRANSPORTATION
 URS Greiner
 SVERORUP/DE LEUW

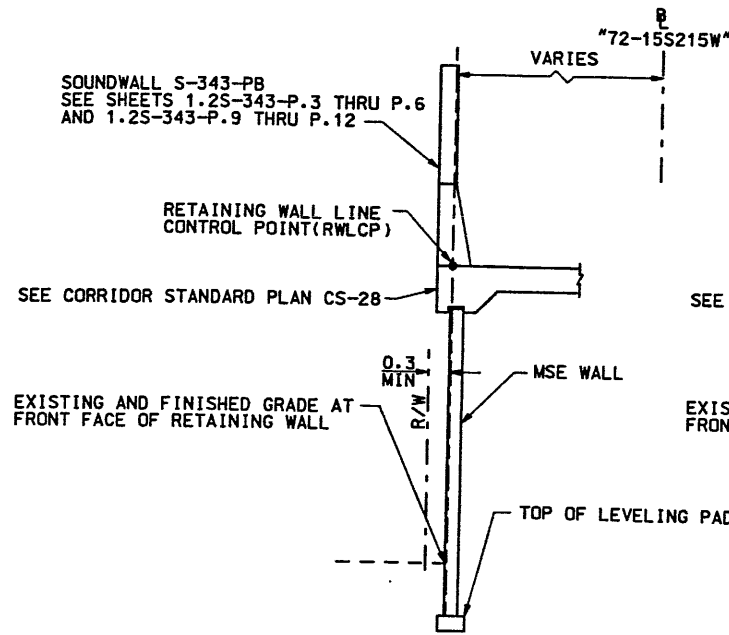
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DRAWN	RY	10/97	CHECK	JUE	10/97
APPROVED	DATE	10/97	PROJECT MANAGER	DATE	12/24/95

1-15 CORRIDOR RECONSTRUCTION
 SITUATION/LAYOUT
 RET WALL R-343-30A
 SECTION 1.2
 PROJECT NUMBER #SP-15-7(135)296

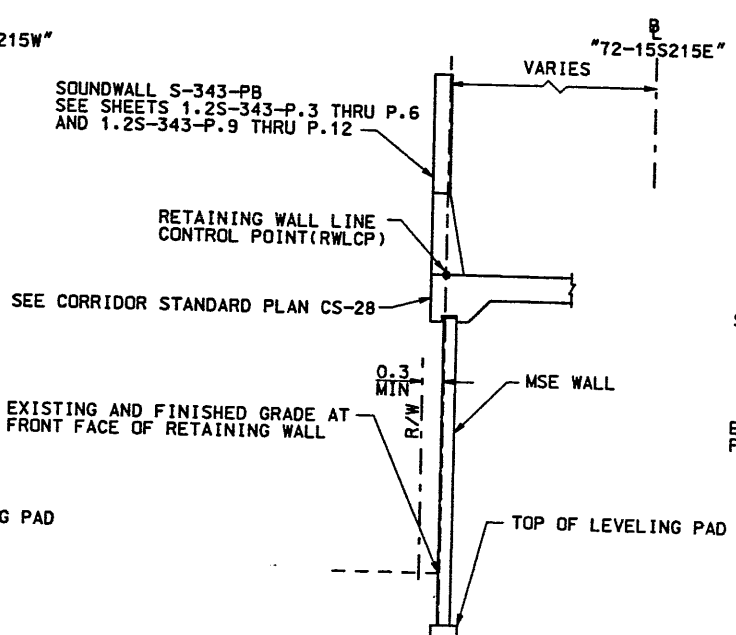
SALT LAKE COUNTY
 DWG. NO. 1.2R-343-30A&B.2
 SHT. 2 OF 18

Username: mockkv Date: 10-10-1998 Time: 15:52

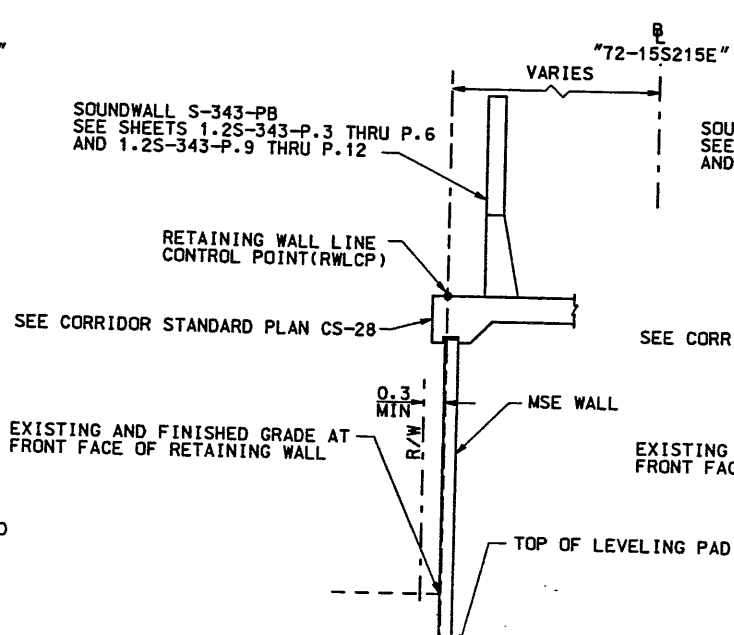
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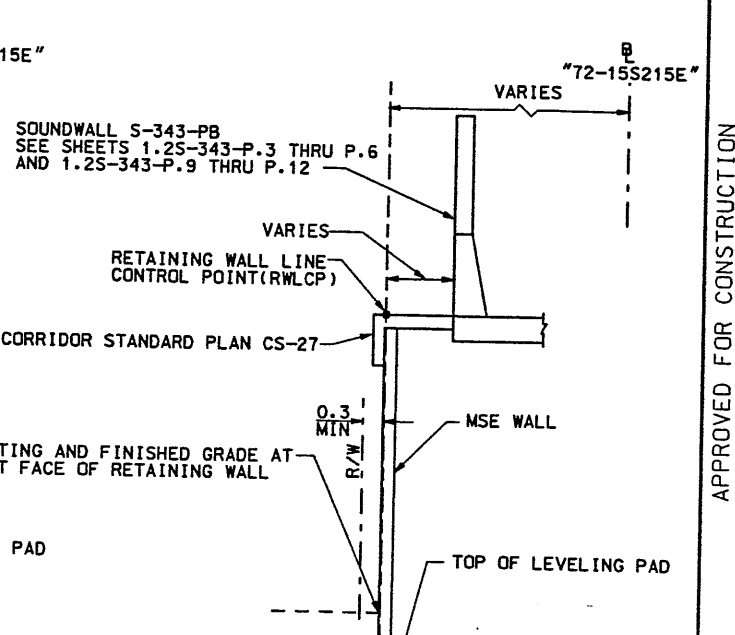
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RETAINING WALL R-343-30A
STA 1+000.000 TO STA 1+198.646



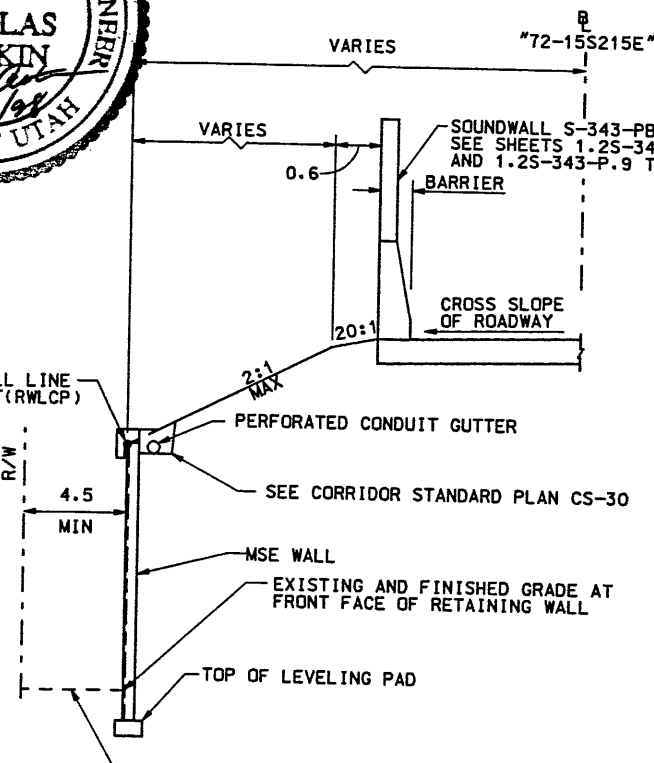
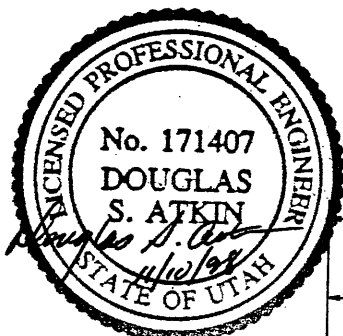
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RETAINING WALL R-343-30A
STA 1+198.646 TO STA 1+312.323



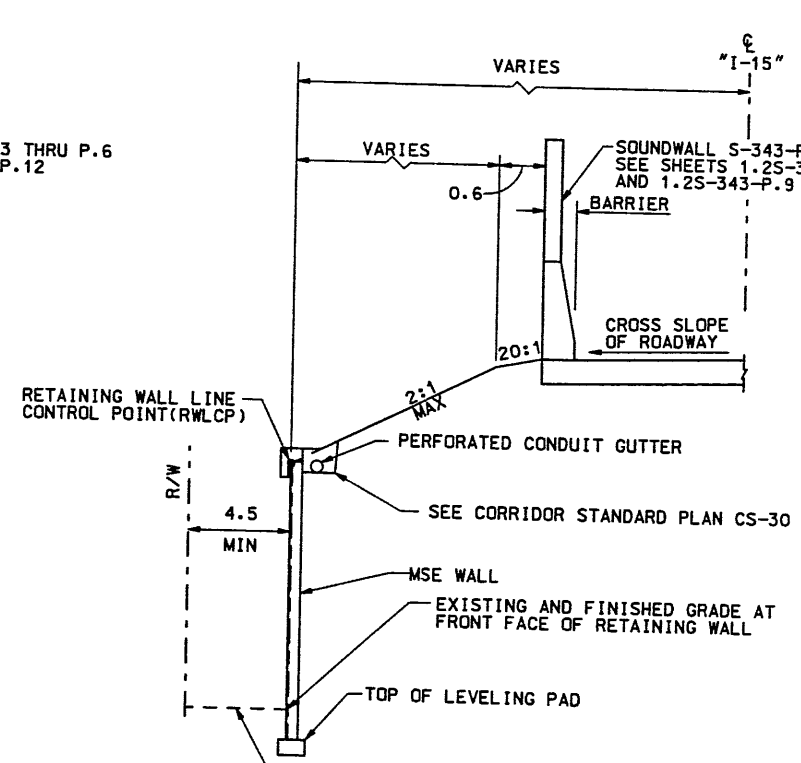
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RETAINING WALL R-343-30A
STA 1+312.323 TO STA 1+314.110



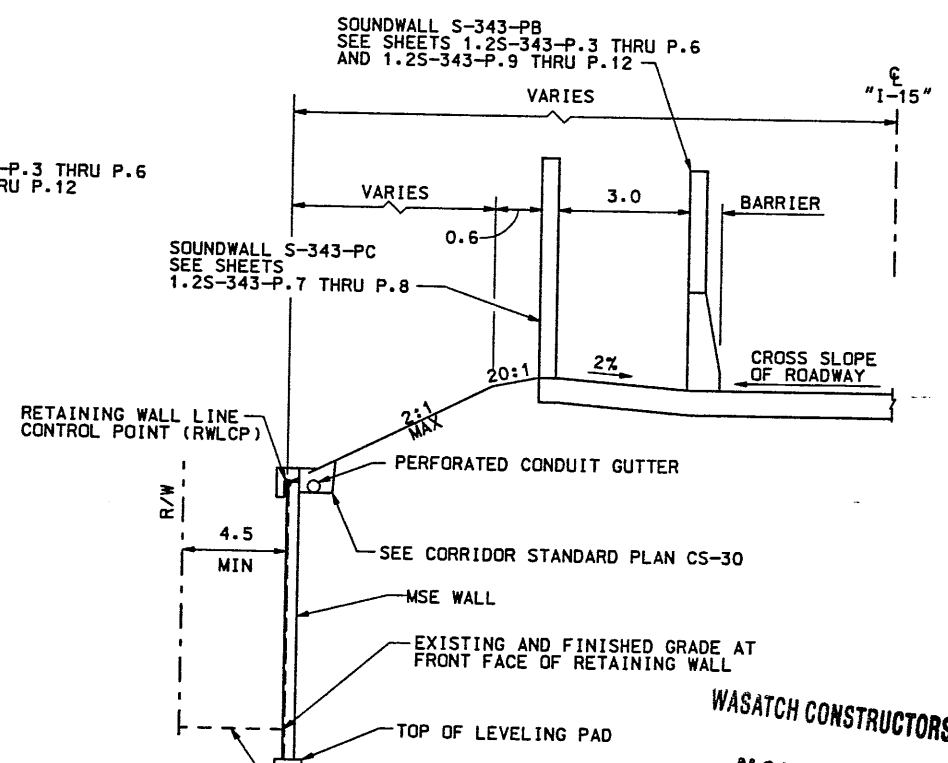
TYPICAL SECTION
RETAINING WALL R-343-30A
STA 1+314.110 TO STA 1+321.482



TYPICAL SECTION
RETAINING WALL R-343-30A
STA 1+321.482 TO STA 1+352.193



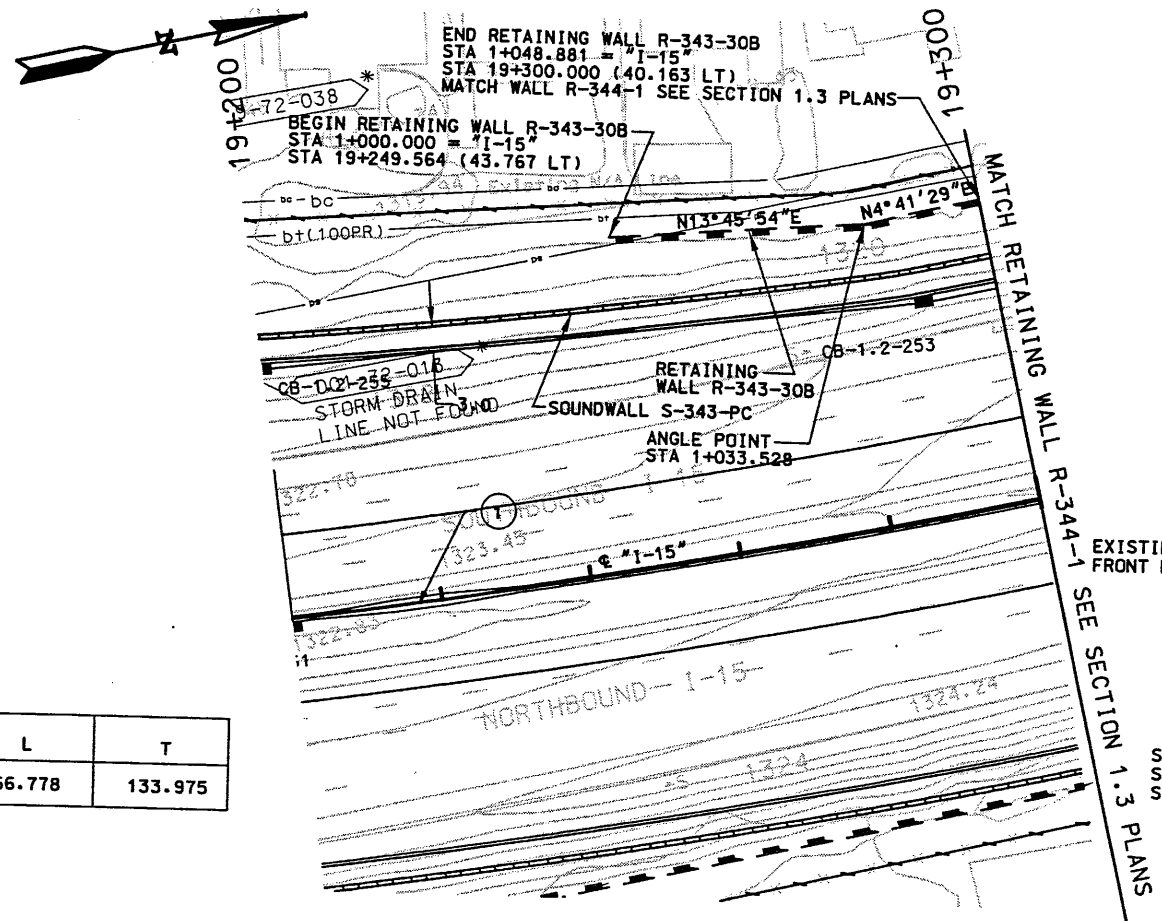
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RETAINING WALL R-343-30A
STA 1+352.193 TO STA 1+379.200



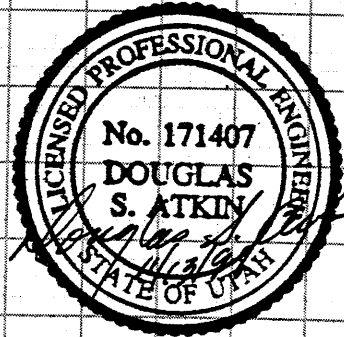
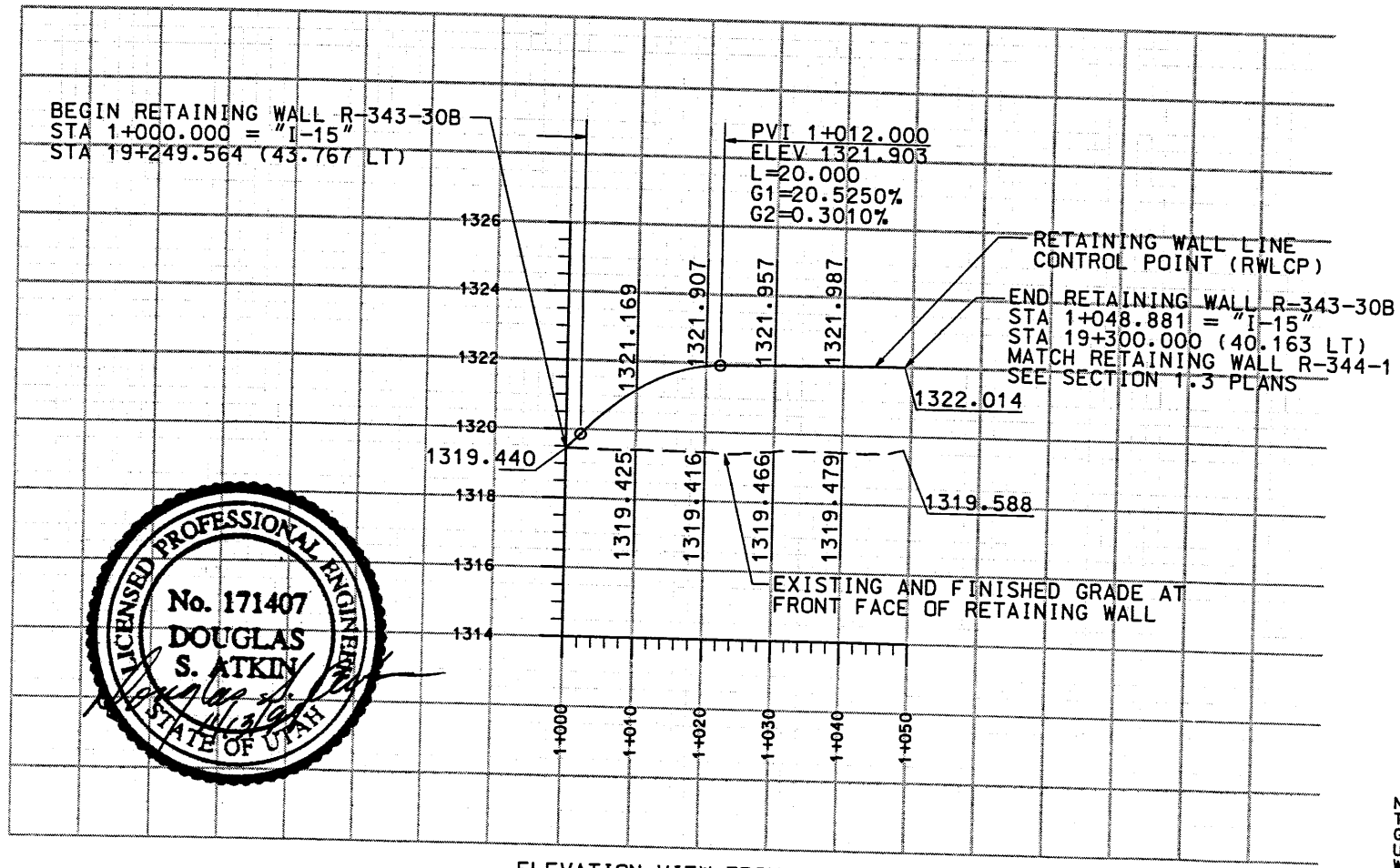
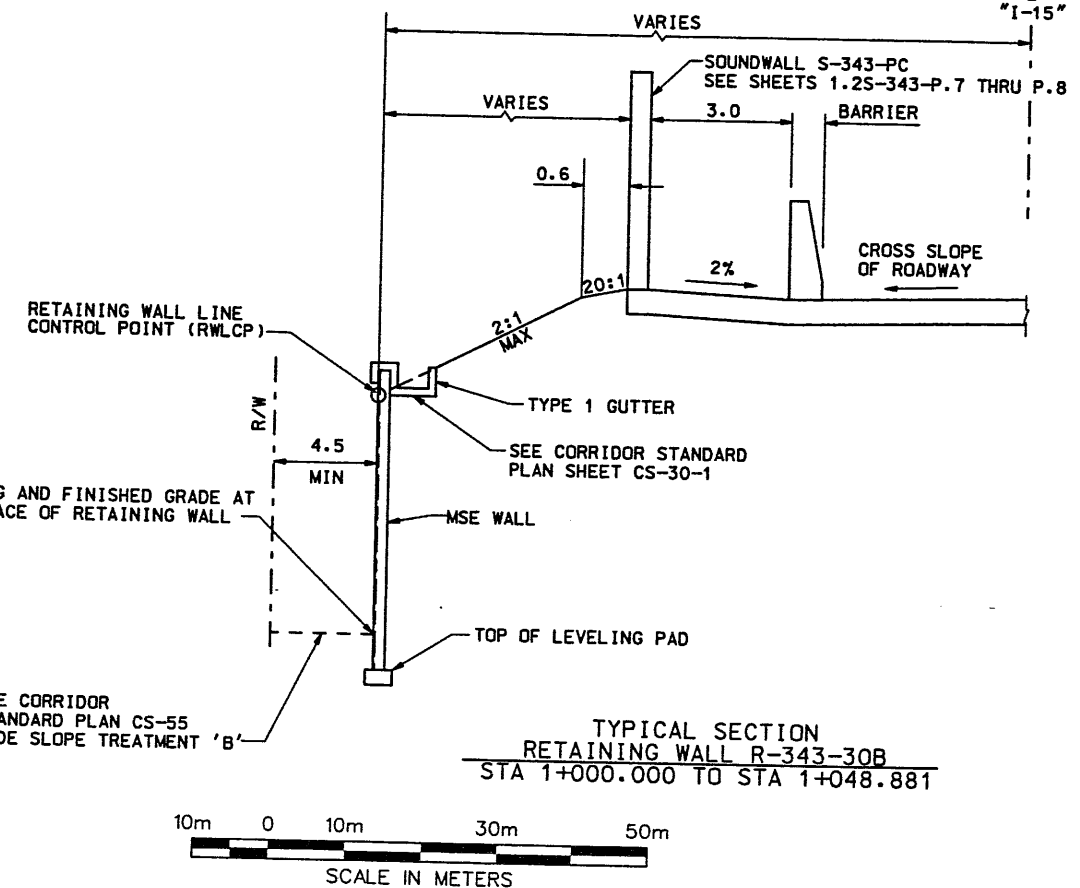
TYPICAL SECTION
RETAINING WALL R-343-30A
STA 1+379.200 TO STA 1+386.966

APPROVED FOR CONSTRUCTION		DESCRIPTION	
NO.	DATE	INITIAL RELEASE	REFERENCED SOUNDWALL
1	1-20-98		
2	11-10-98		
UTAH DEPARTMENT OF TRANSPORTATION		1212425	
URS Greiner		CHECK	
SVERDRUP/DE LEUW		CHECK	
DESIGN	CHK	DATE	10/97
DRAWN	CHK	DATE	10/97
PROJECT DESIGN ENGINEER	CHK	DATE	10/97
PROJECT MANAGER	CHK	DATE	10/97
APPROVAL	DATE	APPROVED	DATE
RECON.	10/97	1-15	10/97
RECON.	10/97	1-15	10/97
RECON.	10/97	1-15	10/97
1-15 CORRIDOR RECONSTRUCTION		PROJECT NUMBER	
DETAIL SHEET		#SP-15-7(135)296	
RET WALL R-343-30A			
SECTION 1.2			
COUNTY		SALT LAKE	
DWG. NO.		1.2R-343-30A&B.3c	
SHT.		42 OF 18	
REF.			

WASATCH CONSTRUCTORS
 NOV 19 1998
 RELEASED FOR CONSTRUCTION



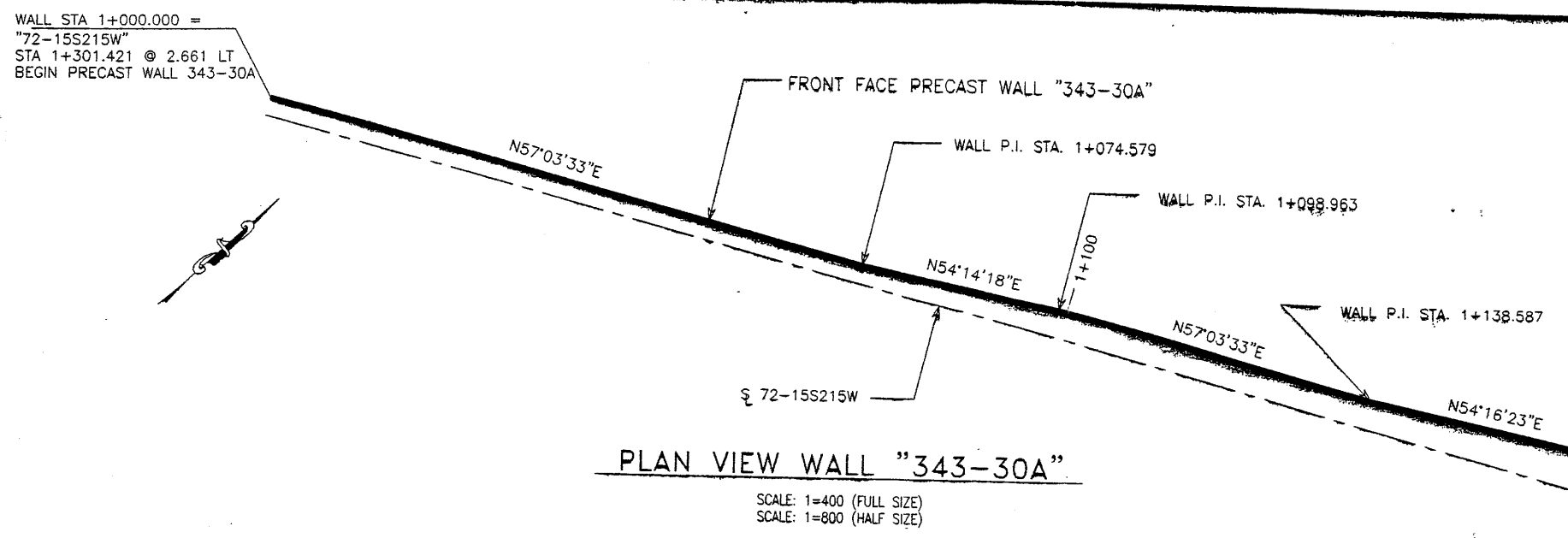
CURVE NO.	△	R	L	T
1	13° 7' 13"	1165.000	266.778	133.975



NOTE:
 THE FOUNDATION BEARING MATERIALS SHOULD BE OBSERVED BY THE GEOTECHNICAL ENGINEER DURING SITE PREPARATION. ANY UNDESIRABLE MATERIALS WILL NEED TO BE REMOVED AND REPLACED WITH BORROW IN ORDER TO ACHIEVE ACCEPTABLE CONDITIONS AT THE BASE OF THE WALL.

WASATCH CONSTRUCTORS
 NOV 24 1998
 RELEASED FOR CONSTRUCTION

APPROVED FOR CONSTRUCTION		DESCRIPTION	
NO.	DATE	INITIAL RELEASE	REFERENCED SOUNDWALL
1	1-22-98	JBE	
2	11-13-98	NOG-0234	
UTAH DEPARTMENT OF TRANSPORTATION			
URS Greiner			
SVERDRUP/DE LEUW			
DESIGN	CHK	DATE	QUANT.
DESIGN	CHK	10/97	1214000
DRAW	CHK	10/97	
PROJECT MANAGER	DATE	DATE	
PROJECT MANAGER	DATE	DATE	
I-15 CORRIDOR RECONSTRUCTION			
SITUATION/LAYOUT			
RET WALL R-343-30B			
SECTION 1.2			
PROJECT NUMBER			
#SP-15-7(135)296			
SALT LAKE COUNTY			
DWG. NO.			
1.2R-343-30A&B.4			
SHT. 54 OF 18			
REF.			

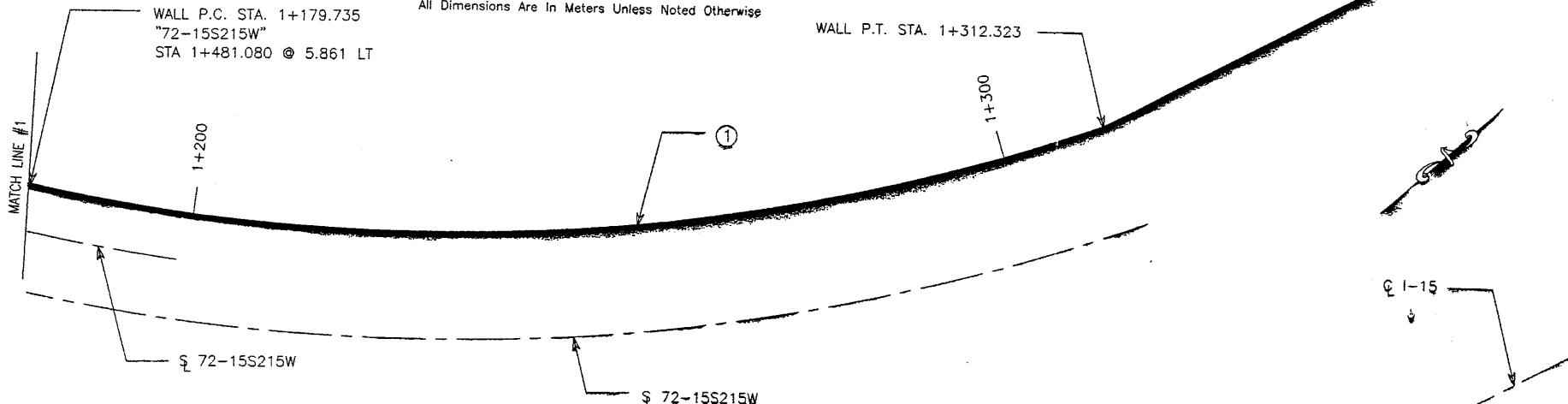


PLAN VIEW WALL "343-30A"

SCALE: 1=400 (FULL SIZE)
SCALE: 1=800 (HALF SIZE)

CURVE DATA				
No.	RADIUS	LENGTH	TANGENT	Δ
①	236.939	132.588	68.080	32°03'43"

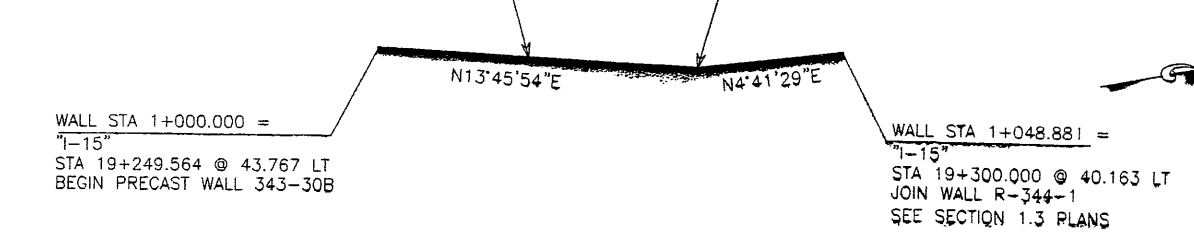
All Dimensions Are In Meters Unless Noted Otherwise



PLAN VIEW WALL "343-30A"

SCALE: 1=400 (FULL SIZE)
SCALE: 1=800 (HALF SIZE)

FRONT FACE PRECAST WALL "343-30B"



PLAN VIEW WALL "343-30B"

SCALE: 1=400 (FULL SIZE)
SCALE: 1=800 (HALF SIZE)

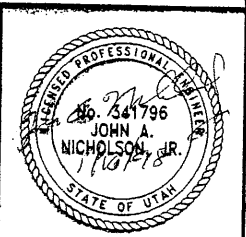
RETAINED EARTH INDEX	
RE-1	PLAN WALLS 343-30A, 343-30B, NOTES & DESIGN CRITERIA
RE-2	TYPICAL DETAILS
RE-3	TYPICAL DETAILS
RE-4	TYPICAL CROSS SECTIONS
RE-5	TYPICAL CROSS SECTIONS
RE-6	TYPICAL CROSS SECTIONS
RE-7	ELEVATION PRECAST WALL "343-30A"
RE-8	ELEVATION PRECAST WALL "343-30A"
RE-9	ELEVATION PRECAST WALL "343-30A"
RE-10	ELEVATION PRECAST WALL "343-30A"
RE-11	ELEVATION PRECAST WALL "343-30B"
RE-12	SPECIAL PANEL DETAILS
RE-13	SPECIAL PANEL DETAILS

APPROVED FOR CONSTRUCTION		
NO.	DATE	DESCRIPTION
△	1/8/98	RELEASE FOR CONSTRUCTION

- GENERAL NOTES
- ALL WALLS ARE SHOWN FRONT FACE. NOTE STATIONING.
 - PANEL TYPE IS DESIGNATED ON EACH PANEL. CONNECTOR LABELS INDICATE NUMBER OF CONNECTORS PER SOIL REINFORCING MESH LOCATION.
EXAMPLE: 5B2-10 IS A "B2-10" PANEL WITH FIVE (5) CONNECTORS PER SOIL REINFORCING MESH LOCATION.
IF NO CONNECTORS ARE SHOWN, FOUR (4) CONNECTOR PANELS SHALL BE USED:
 - SOIL REINFORCING MESH TYPE IS DESIGNATED ON EACH PANEL. MESH LABELS INDICATE WIRE SIZE AND SPACING. LONGITUDINAL WIRE AND CROSSBAR SIZES ARE THE SAME UNLESS NOTED OTHERWISE:
EXAMPLE: 4W11-6 MESH HAS FOUR (4) W11 LONGITUDINAL WIRES WITH W11 CROSSBARS AT 6" CENTERS.
EXAMPLE: 4W20-12 MESH HAS FOUR (4) W20 LONGITUDINAL WIRES WITH W20 CROSSBARS AT 12" CENTERS.
EXAMPLE: 5W11-6 MESH HAS FIVE (5) W11 LONGITUDINAL WIRES WITH W11 CROSSBARS AT 6" CENTERS.
EXAMPLE: 5W11-12 MESH HAS FIVE (5) W11 LONGITUDINAL WIRES WITH W11 CROSSBARS AT 12" CENTERS.
EXAMPLE: 6W11-12 MESH HAS SIX (6) W11 LONGITUDINAL WIRES WITH W11 CROSSBARS AT 12" CENTERS.
 - SEE RETAINED EARTH INSTALLATION MANUAL FOR PROPER WALL ERECTION PROCEDURES AND GUIDELINES.
 - CONSTRUCTION PROCEDURES SHALL PREVENT BACKFILL SATURATION AND PONDING.
 - HEAVY EQUIPMENT SHALL NOT BE USED WITHIN ONE METER OF THE BACK OF THE RETAINED EARTH PANELS. HAND COMPACTORS SHALL BE USED IN THIS AREA.
 - CARE SHALL BE TAKEN TO PREVENT DAMAGE TO GALVANIZING. DAMAGED GALVANIZING SHALL BE COATED WITH ZINC RICH PAINT.
 - BEARING PADS AND FILTER FABRIC ARE NOT REQUIRED BETWEEN THE LEVELING PAD AND THE FIRST ROW OF PANELS. TEMPORARY WEDGES MAY BE USED TO PROVIDE PROPER ALIGNMENT.
 - VSL RETAINED EARTH IS PROTECTED UNDER U.S. PATENT 4,725,170.
 - ALL PANELS SHALL HAVE AN ARCHITECTURAL FINISH, SEE SHEET RE-3 FOR DETAIL.

DESIGN PARAMETERS	
ANGLE OF INTERNAL FRICTION (SELECT) = 34°	
ANGLE OF INTERNAL FRICTION (BASE) = 30°	
ANGLE OF INTERNAL FRICTION (RANDOM) = 34°	
UNIT WEIGHT BACKFILL = 135 PCF.	
TRAFFIC SURCHARGE = 250 PSF	
SEISMIC ACCELERATION COEFF. = 0.12g (TYP)	
SEISMIC ACCELERATION COEFF. = 0.32g (AT BRIDGE ABUTMENTS)	
DESIGN CRITERIA	
SAFETY FACTOR (OVERTURNING) = 2.0	
SAFETY FACTOR (SLIDING) = 1.5	
SAFETY FACTOR (PULLOUT) = 1.5	
DESIGN LIFE = 75 YEARS	

METRIC



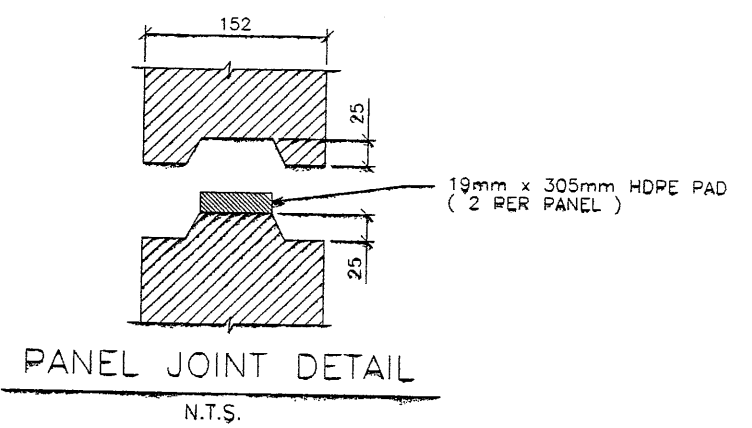
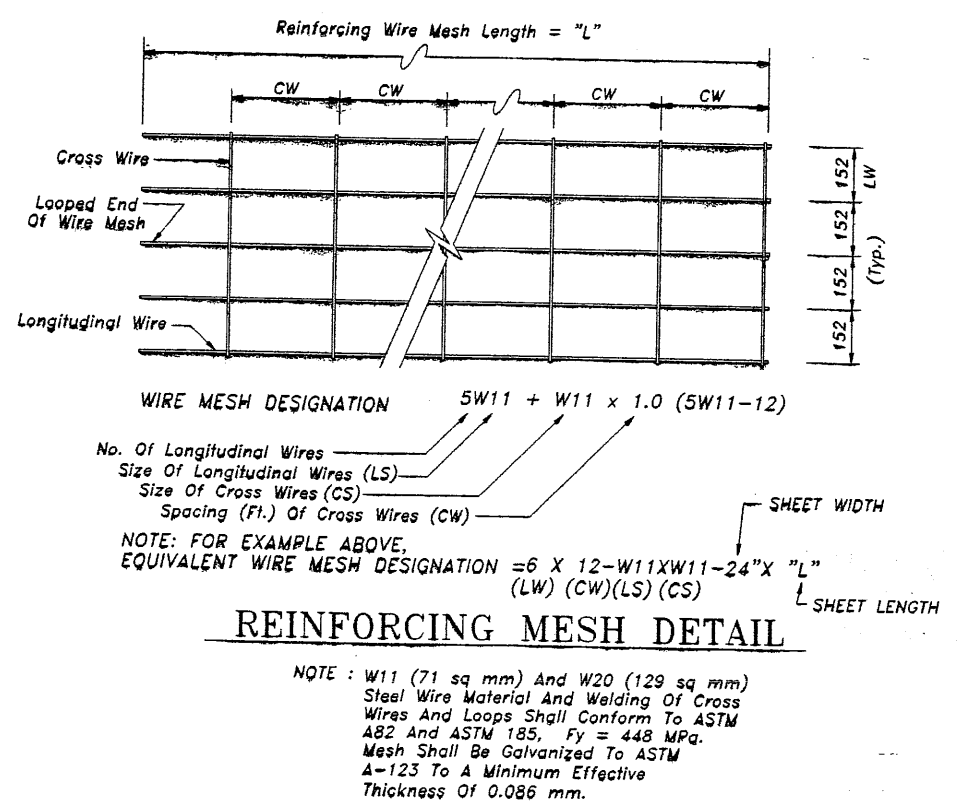
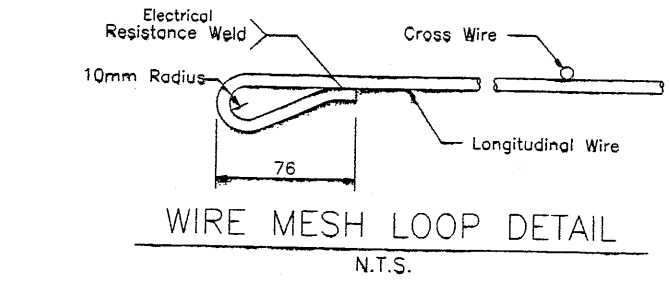
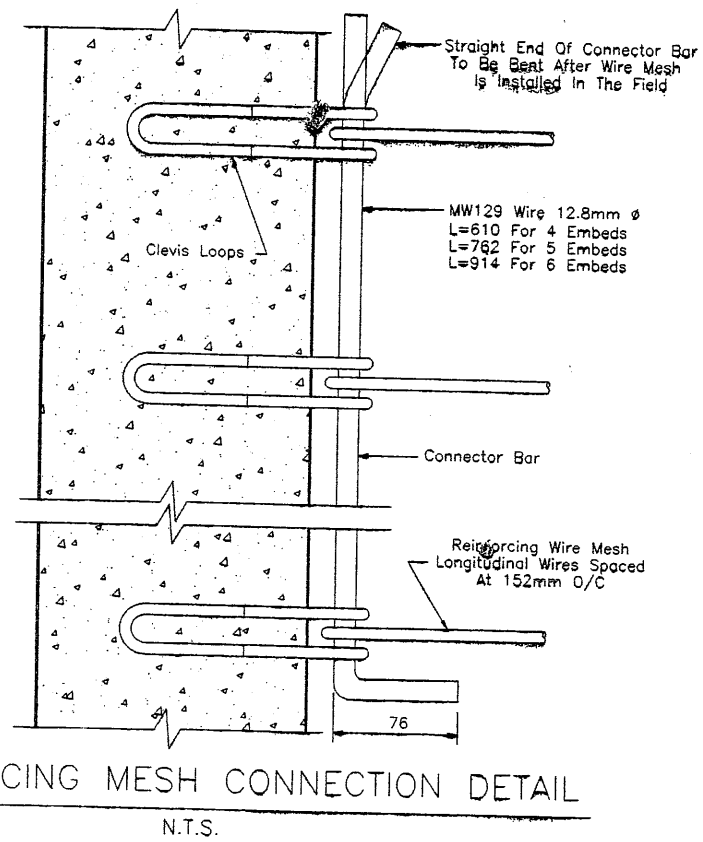
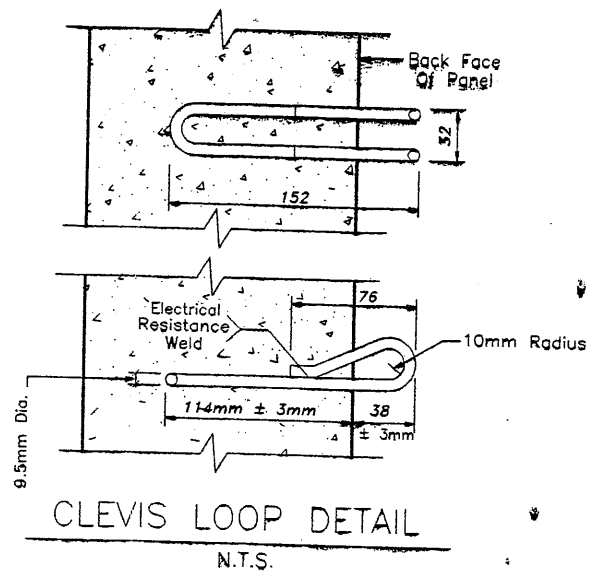
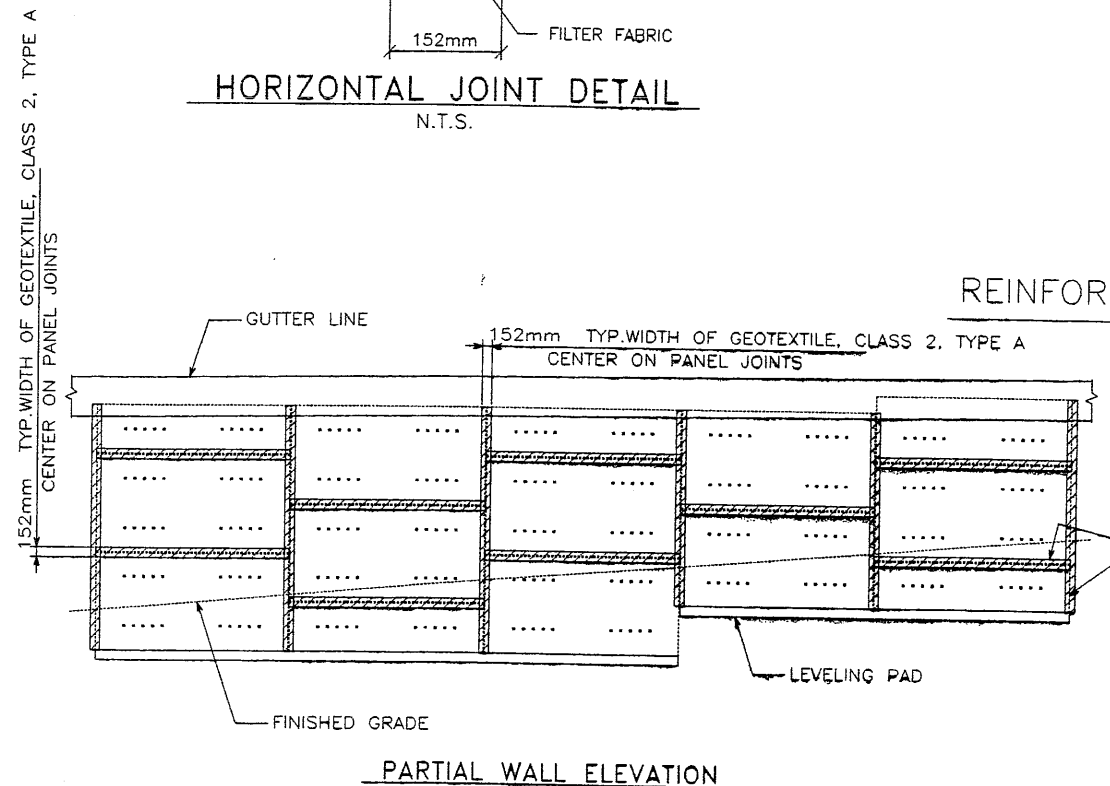
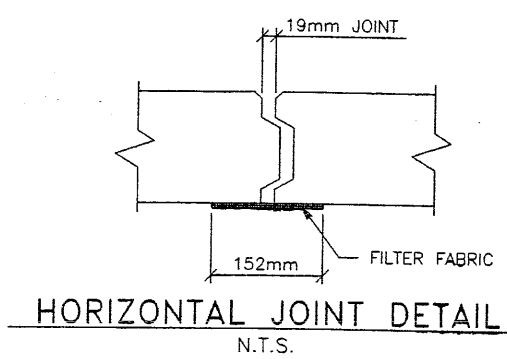
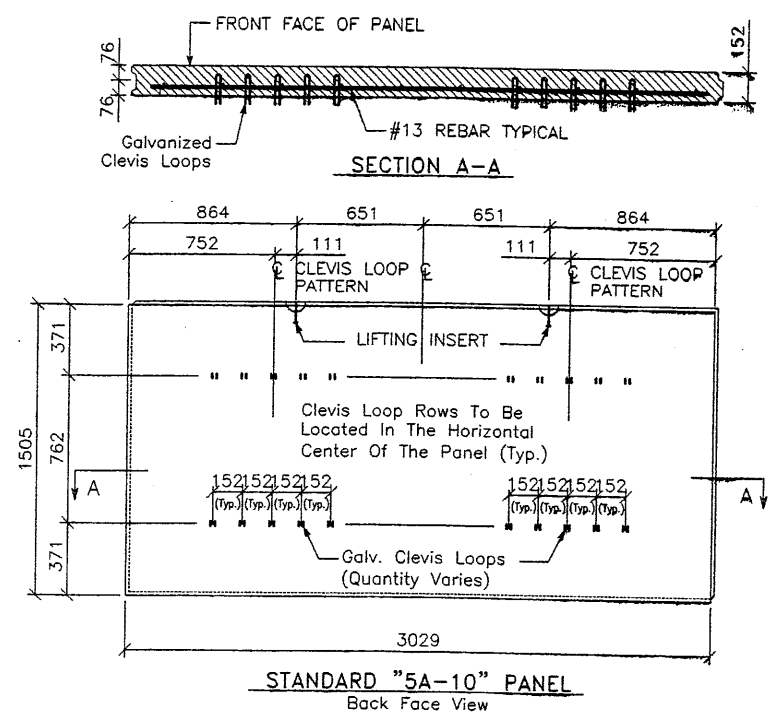
CERTIFIED FOR INTERNAL STABILITY OF RETAINED EARTH™ STRUCTURES ONLY. EXTERNAL STABILITY, INCLUDING BUT NOT LIMITED TO FOUNDATION AND SLOPE STABILITY, IS THE RESPONSIBILITY OF THE OWNER. DESIGN IS BASED ON THE ASSUMPTION THAT THE MATERIAL WITHIN THE RETAINED EARTH™ MASS, METHODS OF CONSTRUCTION, AND QUALITY OF PREFABRICATED MATERIALS CONFORM TO THE MANUFACTURER'S SPECIFICATION.

VSL CORPORATION
8840 Plaza Place, Suite 200
Rockville, MD 20850
Telephone: (919) 781-6272
Fax: (919) 781-4689

ATLANTA, GA / DALLAS, TX / BALDWIN, NC (CORPORATE OFFICE)
MIAMI, FL / SAN JOSE, CA / SPRINGFIELD, VA

RETAINED EARTH™ WALLS
PLAN WALLS "343-30A" & "343-30B"
UTAH I-15 INTERCHANGE
SALT LAKE COUNTY, UTAH
UTAH DEPARTMENT OF TRANSP.

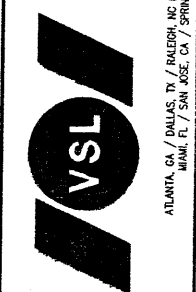
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JOB NO:
239-0007/1/18
RE-1



APPROVED FOR CONSTRUCTION		
NO.	DATE	DESCRIPTION
1	1/8/98	RELEASE FOR CONSTRUCTION

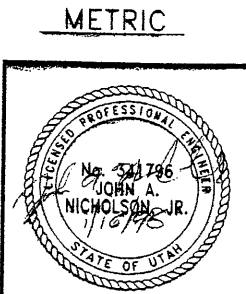
NO.	DATE	REVISION	BY

VSL CORPORATION
2840 Plaza Place, Suite 200
Raleigh, NC 27617
Telephone: (919) 781-6772
Fax: (919) 781-4989



UTAH 1-15 INTERCHANGE
SALT LAKE COUNTY, UTAH
UTAH DEPARTMENT OF TRANSP.

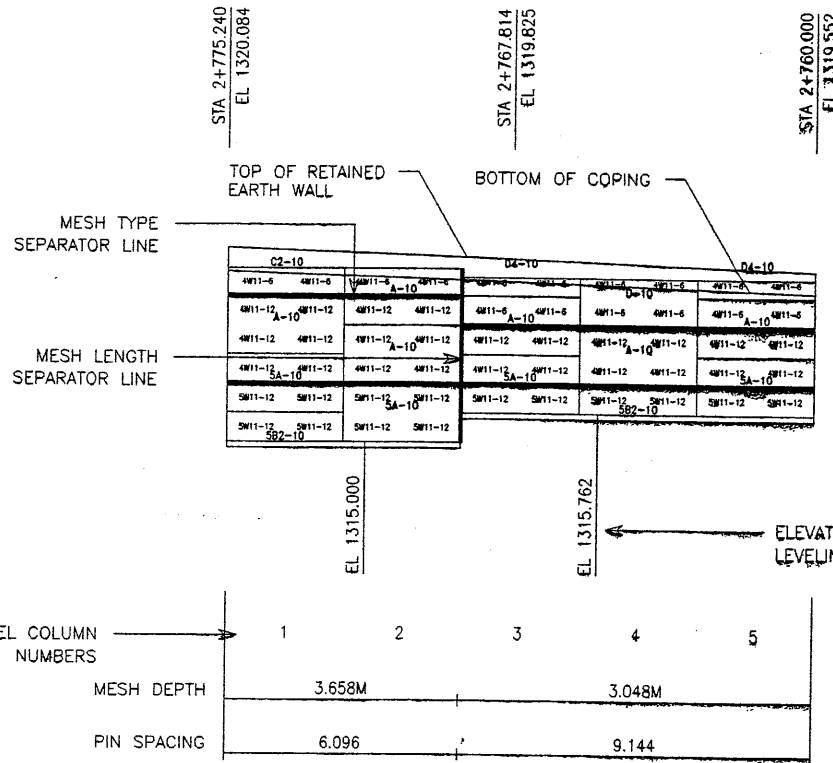
WASATCH CONSTRUCTORS
JAN 28 1998
RELEASED FOR CONSTRUCTION



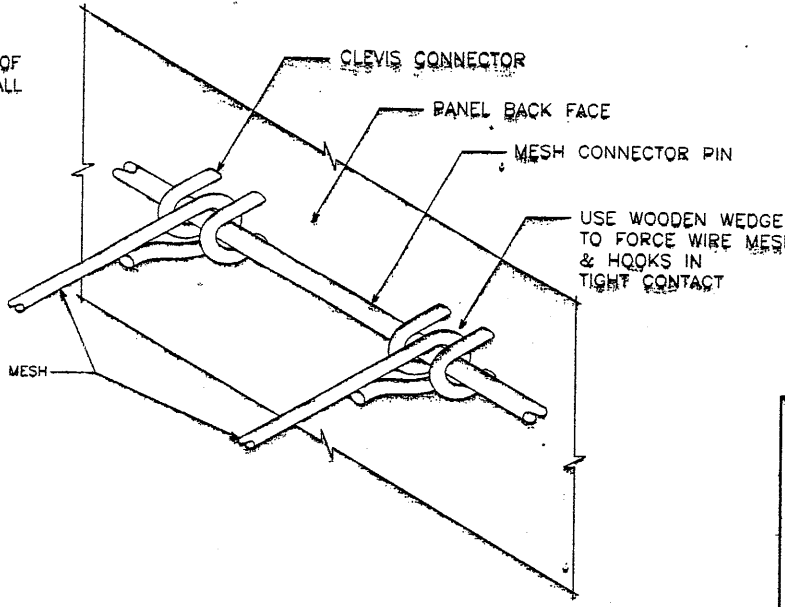
CERTIFIED FOR INTERNAL STABILITY OF RETAINED EARTH™ STRUCTURES ONLY. EXTERNAL STABILITY, INCLUDING BUT NOT LIMITED TO FOUNDATION AND SLOPE STABILITY, IS THE RESPONSIBILITY OF THE OWNER. DESIGN IS BASED ON THE ASSUMPTION THAT THE MATERIAL WITHIN THE RETAINED EARTH™ MASS, METHODS OF CONSTRUCTION, AND QUALITY OF PREFABRICATED MATERIALS CONFORM TO THE MANUFACTURER'S SPECIFICATION.

SCALE:	1:2R-343-30.6
JOB NO:	239-0007 7/18
RE-2	

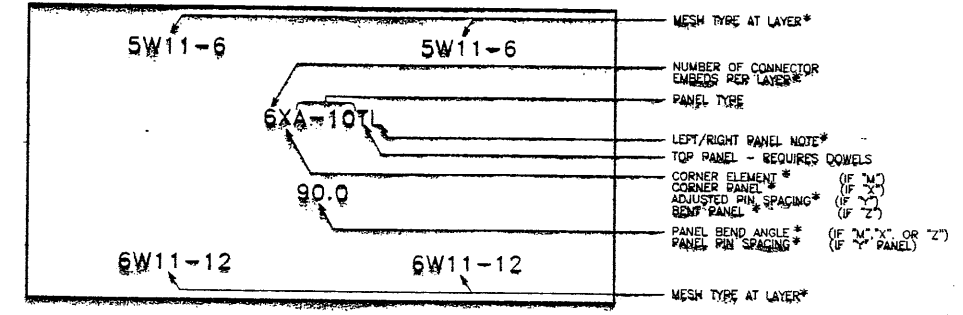
APPROVED FOR CONSTRUCTION		
NO.	DATE	DESCRIPTION
1	1/8/98	RELEASE FOR CONSTRUCTION



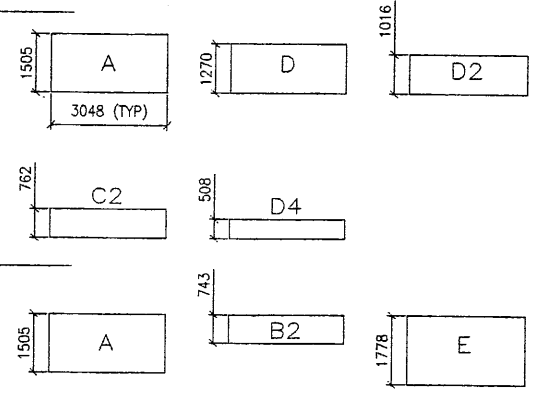
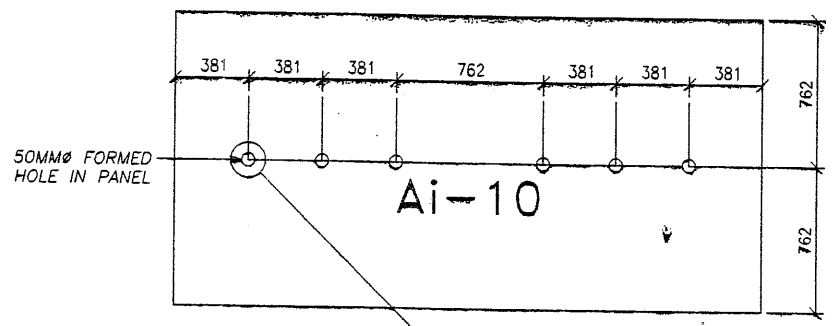
1 WALL ELEVATION KEY
(FRONT FACE SHOWN)



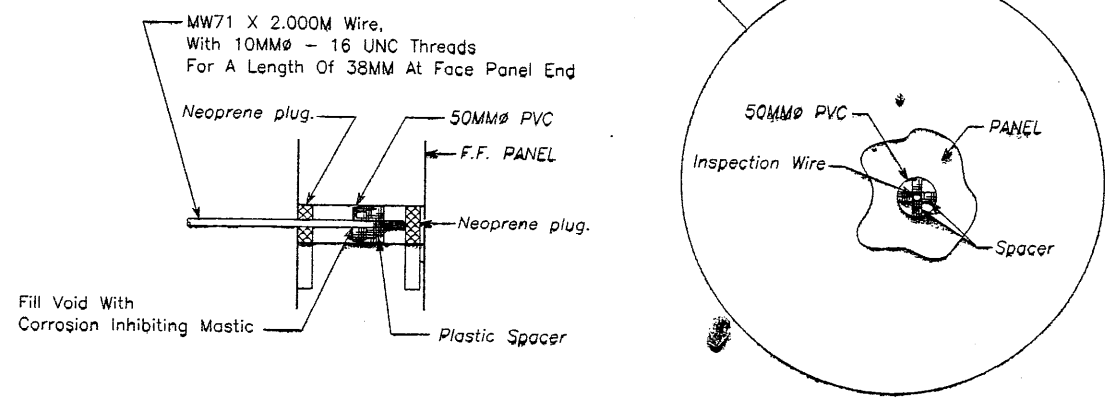
2 MESH CLEVIS CONNECTOR
VSL RETAINED EARTH IS PROTECTED UNDER U.S. PATENT 4,725,120



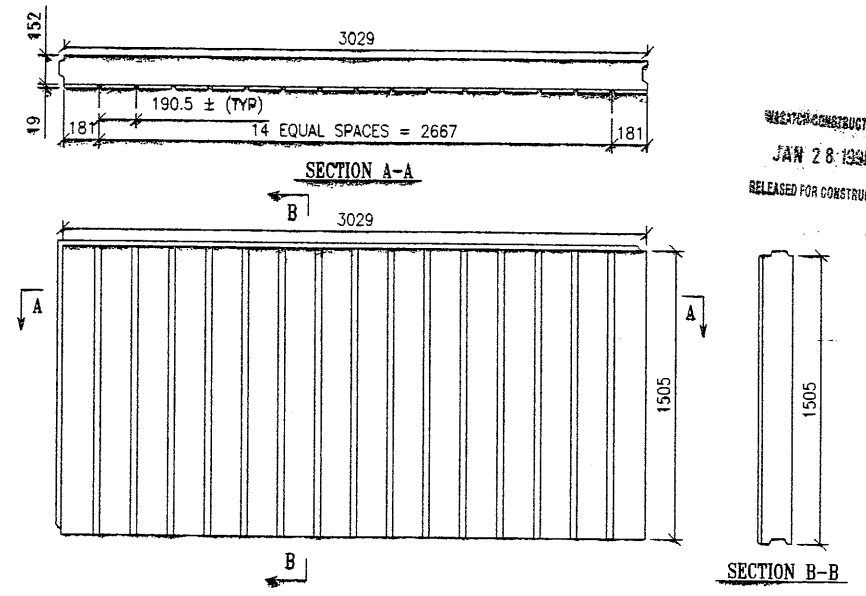
3 PANEL LABELS



4 PANEL TYPES
ALL DIMENSIONS ARE IN MILLIMETERS

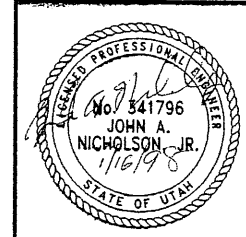


5 INSPECTION WIRE DETAIL
(PANEL FRONT FACE SHOWN)



6 ARCHITECTURAL PANEL FINISH
(PANEL FRONT FACE SHOWN)

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MIAMI FL / SAN JOSE CA / SPRINGFIELD VA

VSL CORPORATION
2840 Plaza Place, Suite 200
Raleigh, NC 27612
Telephone: (919) 781-6272
Fax: (919) 781-4969

WEATHER-CONSTRUCTORS
JAN 28 1998
RELEASED FOR CONSTRUCTION

RETAINED EARTH™ WALLS
PRECAST WALLS "343-30A" & "343-30B"
TYPICAL DETAILS
UTAH I-15 INTERCHANGE
SALT LAKE COUNTY, UTAH
UTAH DEPARTMENT OF TRANSP.

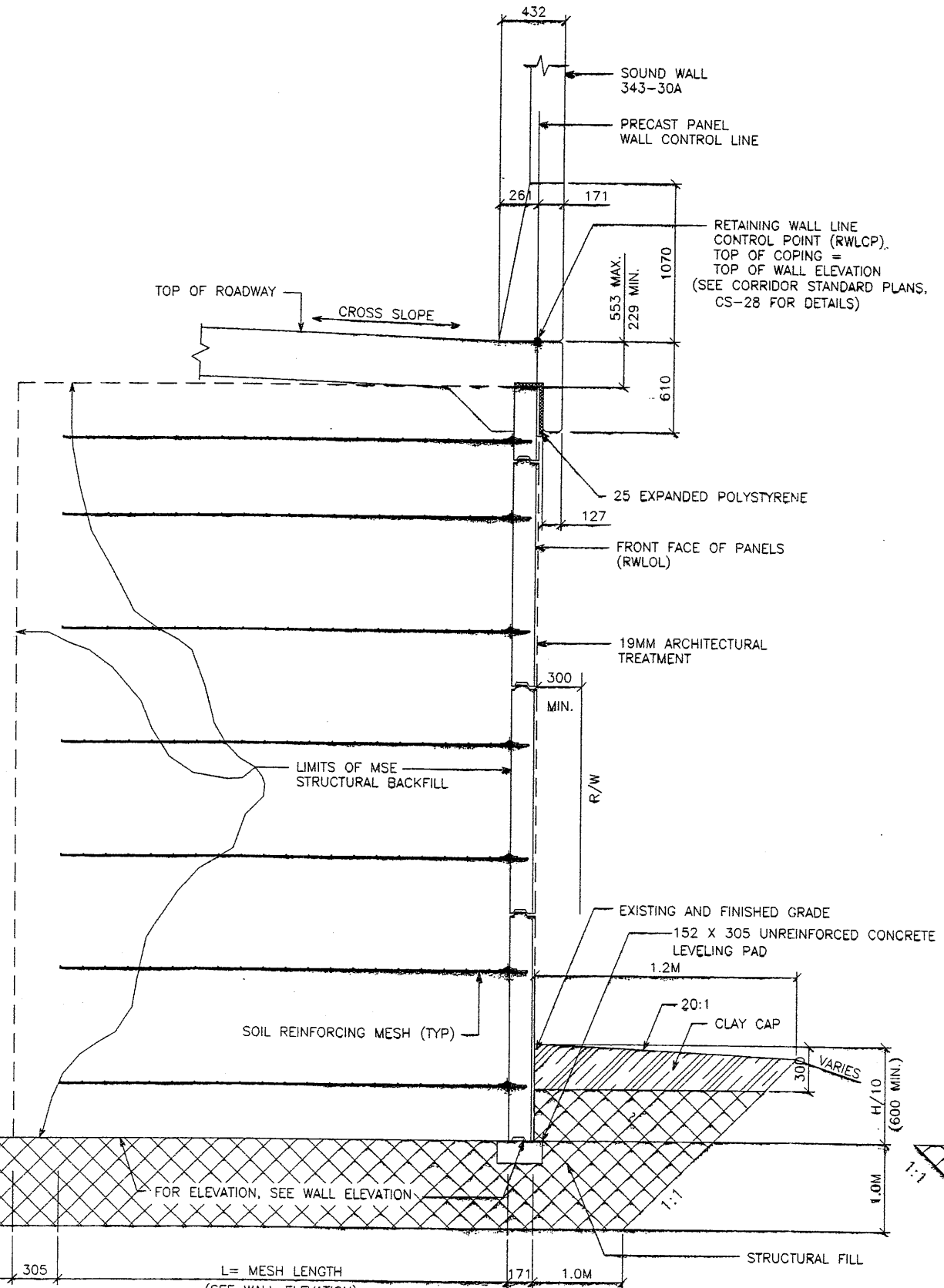
SCALE: 1.2R-343-30.7
JOB NO: 239-0007/18
RE-3

H:\RE_EARTH\PROJECT\239-000\1998\72SERIES\72-30\SUBMTL1\RE-4.DWG

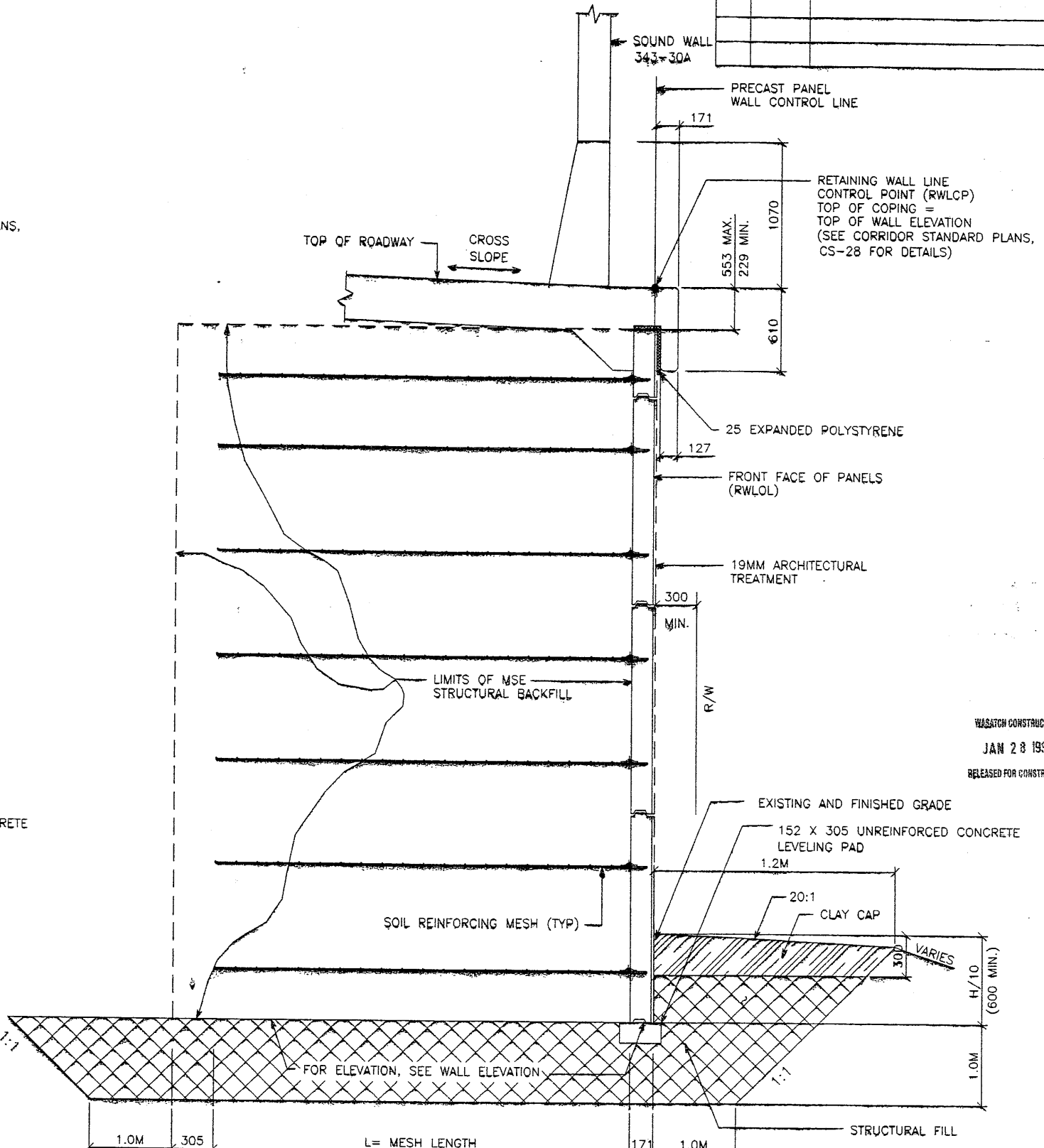
-98

FINAL PLOT

APPROVED FOR CONSTRUCTION		
NO.	DATE	DESCRIPTION
△	1/8/98	RELEASE FOR CONSTRUCTION <i>OK</i>

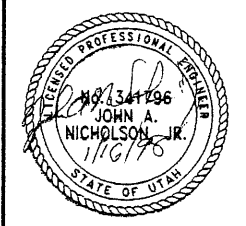


TYPICAL CROSS SECTION - RETAINING WALL 343-30A
 STA. 1+000.000 TO STA. 1+312.323
 SCALE: 1:20 (FULL SIZE)
 SCALE: 1:40 (HALF SIZE)



TYPICAL CROSS SECTION - RETAINING WALL 343-30A
 STA. 1+312.323 TO STA. 1+321.482
 SCALE: 1:20 (FULL SIZE)
 SCALE: 1:40 (HALF SIZE)

METRIC
 CERTIFIED FOR INTERNAL STABILITY OF RETAINED EARTH™ STRUCTURES ONLY. EXTERNAL STABILITY, INCLUDING BUT NOT LIMITED TO FOUNDATION AND SLOPE STABILITY, IS THE RESPONSIBILITY OF THE OWNER. DESIGN IS BASED ON THE ASSUMPTION THAT THE MATERIAL WITHIN THE RETAINED EARTH™ MASS, METHODS OF CONSTRUCTION, AND QUALITY OF PREFABRICATED MATERIALS CONFORM TO THE MANUFACTURER'S SPECIFICATION.



DES.	MM.	1-8-98	DES.	MM.	1-8-98
DRN.	RSW	1-8-98	DRN.	RSW	1-8-98
CHK.	MM	1-8-98	CHK.	MM	1-8-98

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WASATCH CONSTRUCTORS
 JAN 28 1998
 RELEASED FOR CONSTRUCTION

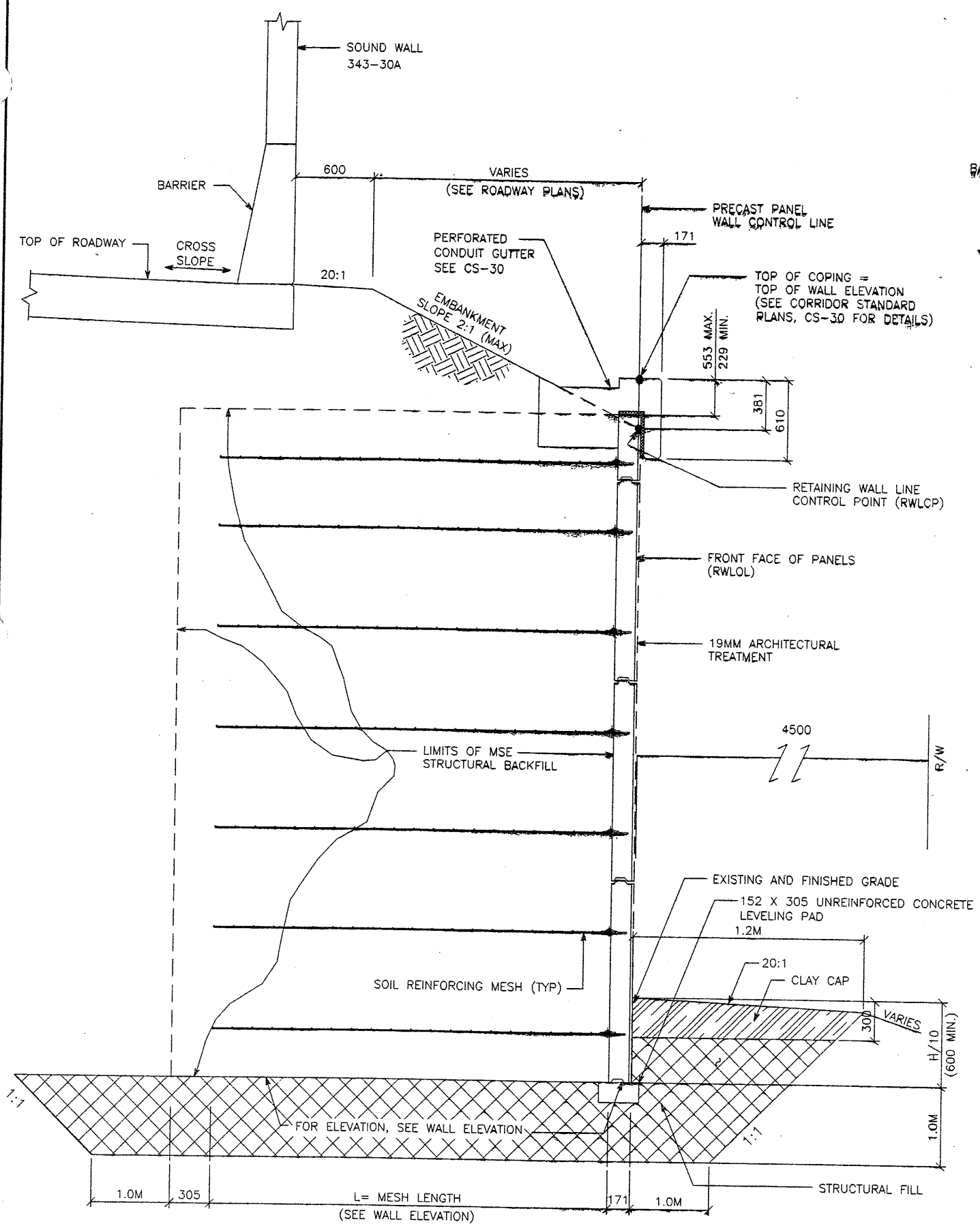
RETAINED EARTH™ WALLS
 PRECAST WALL "343-30A"
 TYPICAL CROSS SECTIONS

UTAH I-15 INTERCHANGE
 SALT LAKE COUNTY, UTAH
 UTAH DEPARTMENT OF TRANSP.

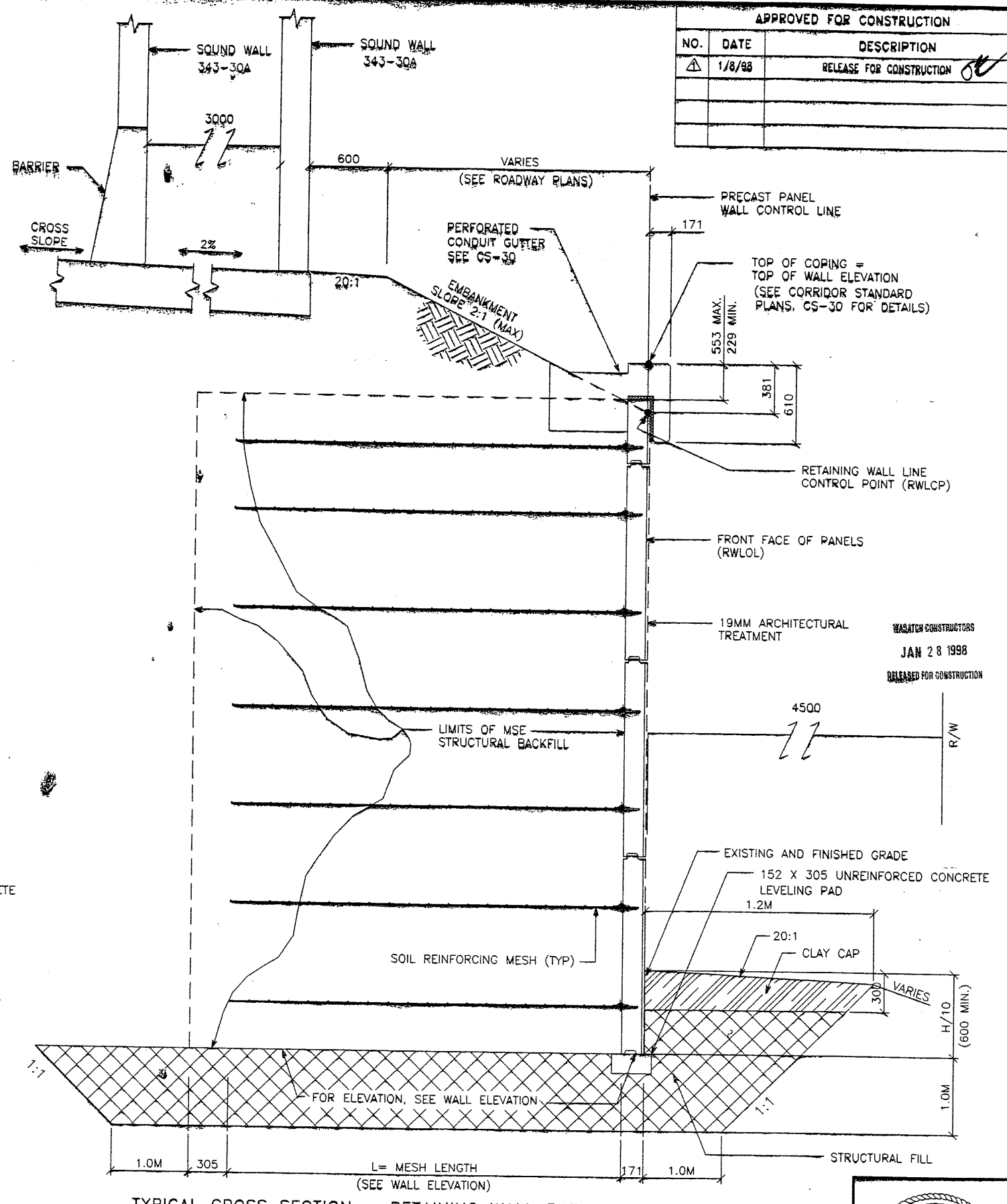
SCALE: 1:2R-343-30.8
 JOB NO: 239-0007/1/18
 RE-4

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FINAL PLOT 1-98

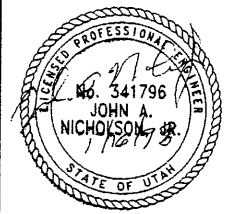


TYPICAL CROSS SECTION - RETAINING WALL 343-30A
STA. 1+321.482 TO STA. 1+379.200
 SCALE: 1:20 (FULL SIZE)
 SCALE: 1:40 (HALF SIZE)



TYPICAL CROSS SECTION - RETAINING WALL 343-30A
STA. 1+379.200 TO STA. 1+386.966
 SCALE: 1:20 (FULL SIZE)
 SCALE: 1:40 (HALF SIZE)

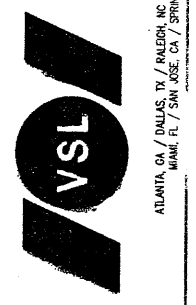
CERTIFIED FOR INTERNAL STABILITY OF RETAINED EARTH™ STRUCTURES ONLY. EXTERNAL STABILITY, INCLUDING BUT NOT LIMITED TO FOUNDATION AND SLOPE STABILITY, IS THE RESPONSIBILITY OF THE OWNER. DESIGN IS BASED ON THE ASSUMPTION THAT THE MATERIAL WITHIN THE RETAINED EARTH™ MASS, METHODS OF CONSTRUCTION, AND QUALITY OF PREFABRICATED MATERIALS CONFORM TO THE MANUFACTURER'S SPECIFICATION.



APPROVED FOR CONSTRUCTION		
NO.	DATE	DESCRIPTION
Δ	1/8/98	RELEASE FOR CONSTRUCTION

DES.	MM	DRN.	MM	CHK.	MM	NO.	DATE	BY	CHK
	1-8-98		1-8-98		1-8-98				

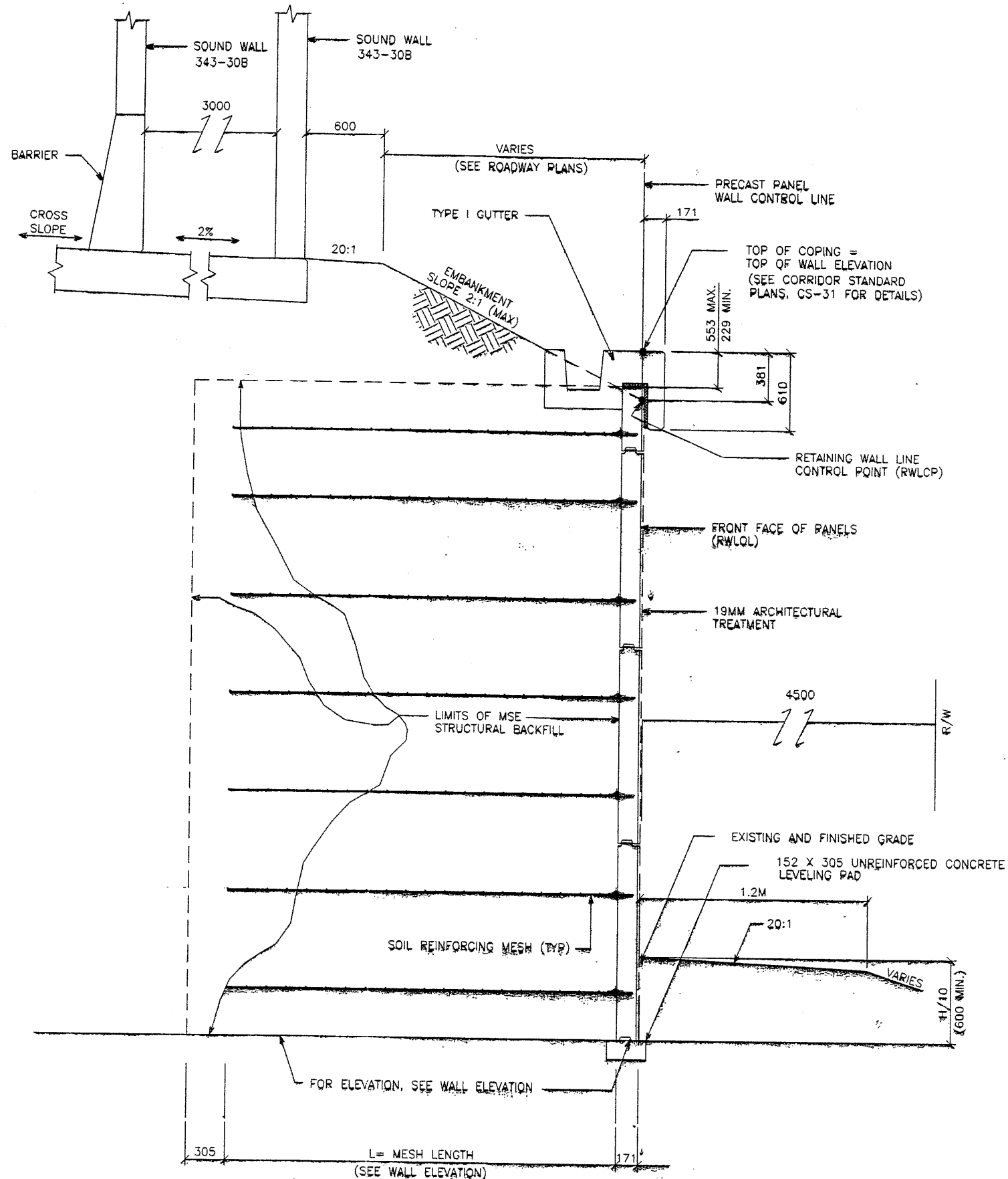
VSL CORPORATION
 2840 Plaza Place, Suite 200
 Raleigh, NC 27612
 Telephone: (919) 781-6772
 Fax: (919) 781-6989



WATCH CONSTRUCTORS
 JAN 28 1998
 RELEASED FOR CONSTRUCTION

RETAINED EARTH™ WALLS
 PRECAST WALL "343-30A"
 TYPICAL CROSS SECTIONS
 UTAH I-15 INTERCHANGE
 SALT LAKE COUNTY, UTAH
 UTAH DEPARTMENT OF TRANSP.

SCALE: 1:20-343-30.9
 JOB NO: 239-0007 10/18
 RE-5



TYPICAL CROSS SECTION - RETAINING WALL 343-30B
 STA. 1+000.000 TO STA. 1+048.881

SCALE: 1:20 (FULL SIZE)
 SCALE: 1:40 (HALF SIZE)

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APPROVED FOR CONSTRUCTION		
NO.	DATE	DESCRIPTION
△	1/8/98	RELEASE FOR CONSTRUCTION

DES.	MM	DRN.	RSW	CHK.	RETAINED EARTH™	NO.	DATE	REVISION	BY
	1-8-98				VSL				CHK

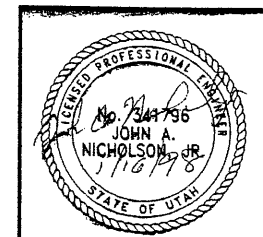
VSL CORPORATION
 2840 Plaza Place, Suite 200
 Raleigh, NC 27612 781-6272
 Telephone: (919) 781-6272
 Fax: (919) 781-6889

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WASATCH CONSTRUCTORS
 JAN 28 1998
 RELEASED FOR CONSTRUCTION

METRIC



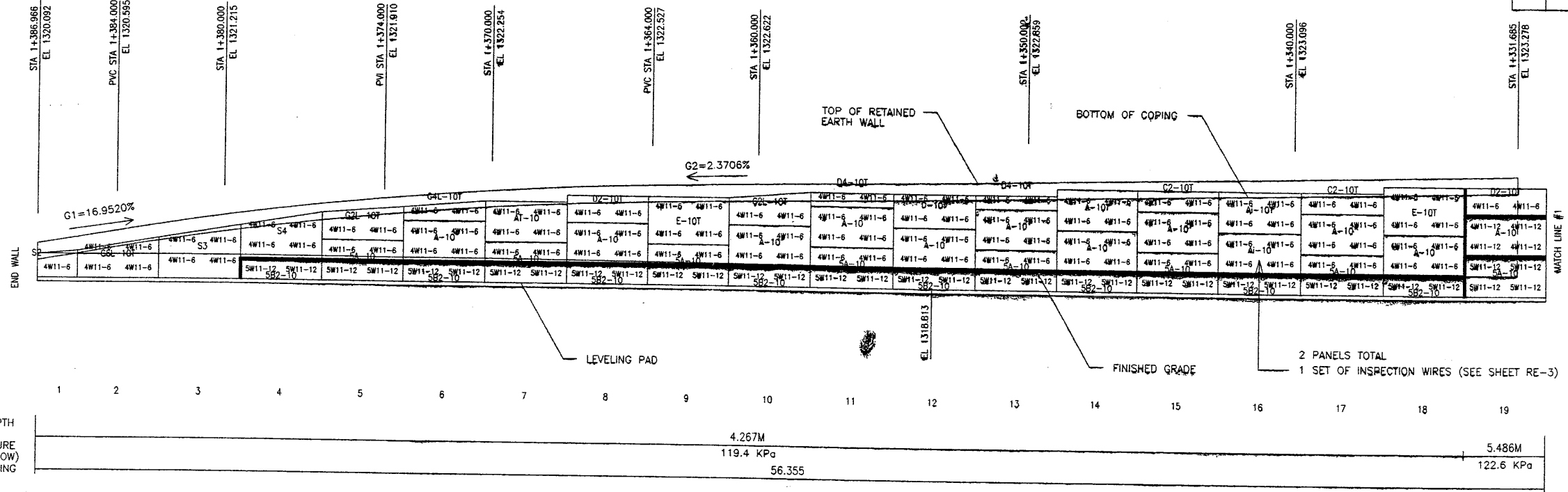
RETAINED EARTH™ WALLS
 PRECAST WALL 343-30B
 TYPICAL CROSS SECTIONS

UTAH 1-15 INTERCHANGE
 SALT LAKE COUNTY, UTAH
 UTAH DEPARTMENT OF TRANSP.

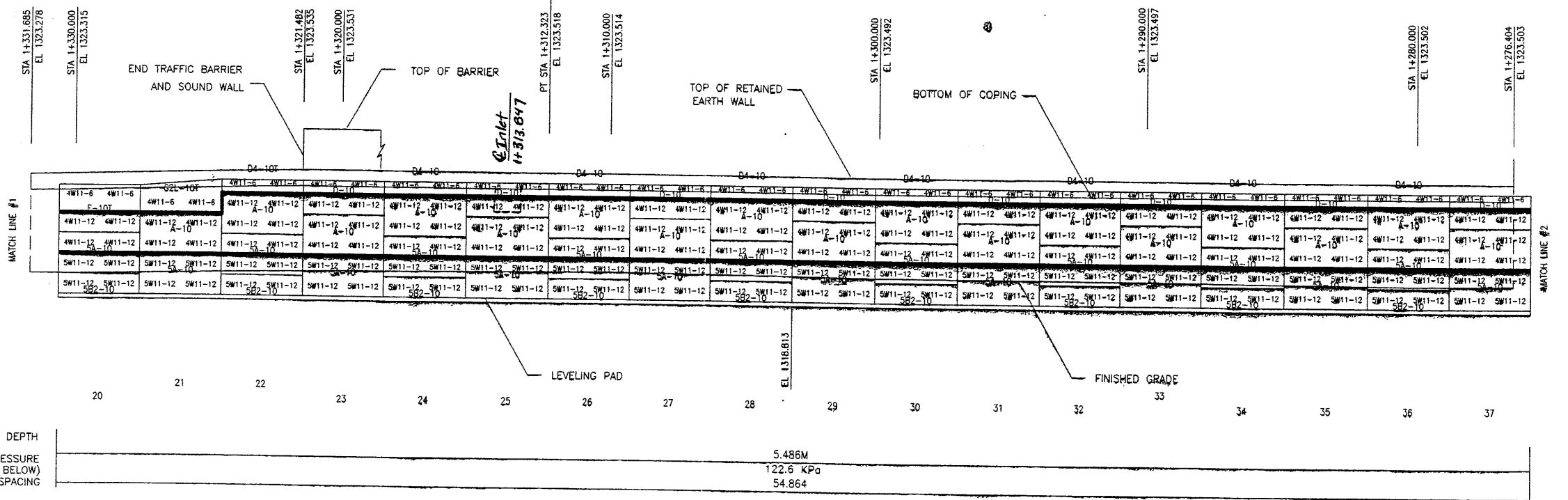
SCALE:
 1:20-343-30.10
 JOB NO:
 239-0007/118
 RE-6

WALL STA 1+386.966
 "1-15" STA 19+095.288
 (49.795 LT)
 FRONT FACE OF WALL

APPROVED FOR CONSTRUCTION		
NO.	DATE	DESCRIPTION
1	1/8/98	RELEASE FOR CONSTRUCTION



ELEVATION PRECAST WALL 343-30A



ELEVATION PRECAST WALL 343-30A

(FRONT FACE SHOWN) SCALE 1:100 (FULL SIZE)
 (TOTAL SURFACE AREA OF PANELS = 1241.03 SM) SCALE 1:200 (HALF SIZE)

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RETAINED EARTH™ WALLS
 PRECAST WALL "343-30A"
 I-15 INTERCHANGE
 SALT LAKE COUNTY, UTAH
 UTAH DEPARTMENT OF TRANSP.

SCALE: 1:2R-343-30.11
 JOB NO: 239-0007/18
 RE-7

DES. 1-8-98
 DRN. 1-8-98
 CHK. 1-8-98

VSL CORPORATION
 8840 Pardo Drive, Suite 200
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 Fax: (972) 761-4869


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 MIAMI, FL / SAN JOSE, CA / SPRINGFIELD, VA

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NO.	DATE	DESCRIPTION
1	1/8/98	RELEASE FOR CONSTRUCTION

NO.	DATE	REVISION	CHK

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 Telephone: (919) 781-8272
 Fax: (919) 781-4969

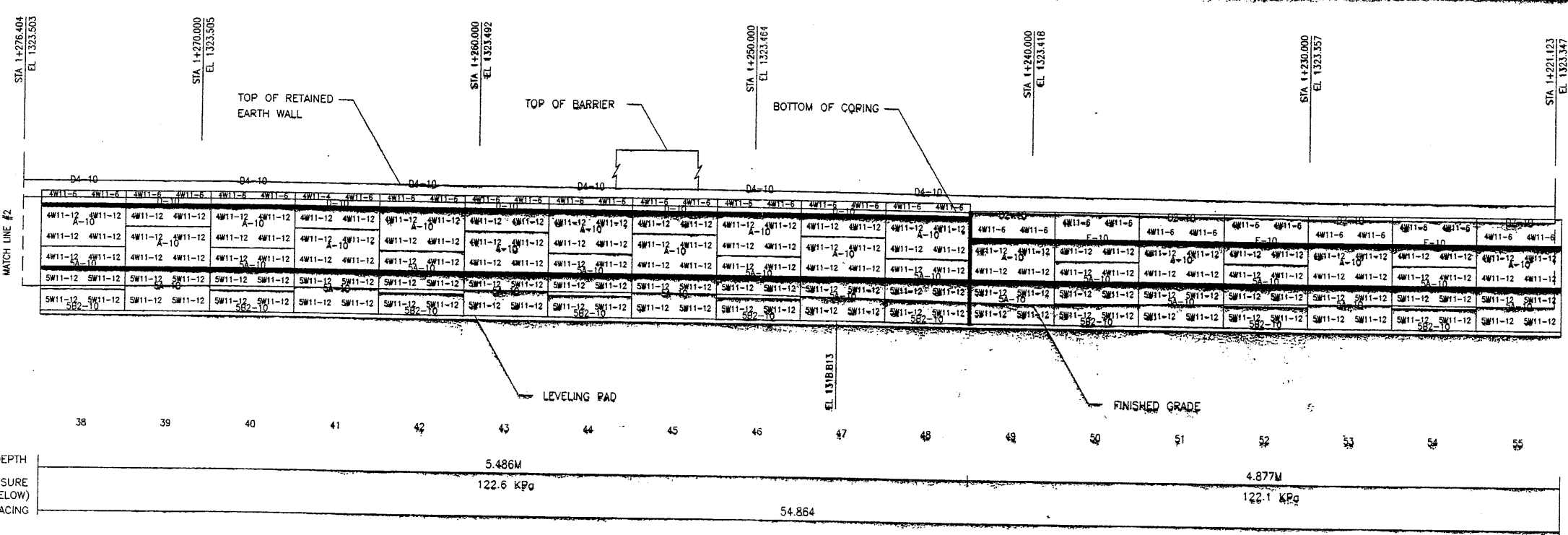
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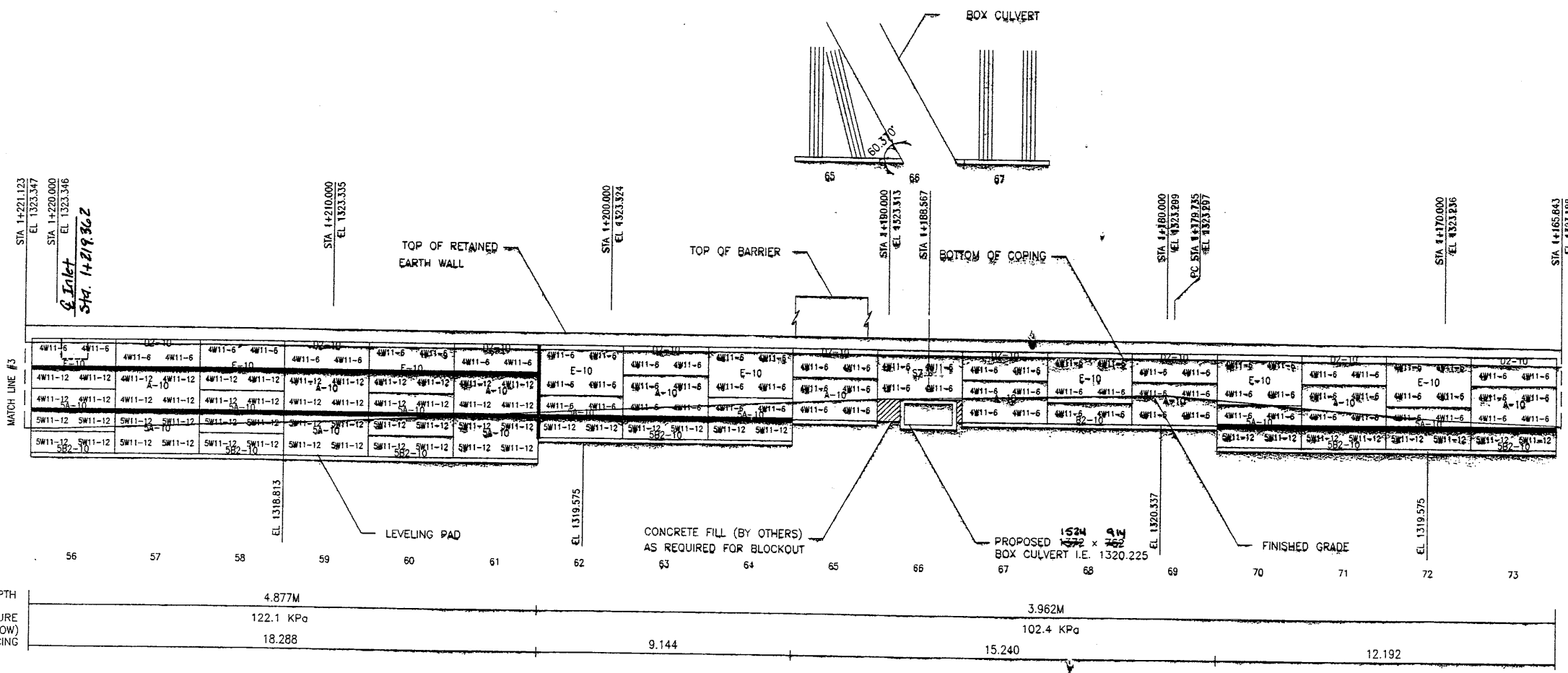
RETAINED EARTH™ WALLS
 PRECAST WALL "343-30A"
 I-15 INTERCHANGE
 SALT LAKE COUNTY, UTAH
 UTAH DEPARTMENT OF TRANSP.

SCALE: 1:2R-343-30.12
 JOB NO: 239-0007
 RE-8



MESH DEPTH	5.486M	4.877M
MAXIMUM BEARING PRESSURE (SEE NOTE BELOW)	122.6 kPa	122.1 kPa
PIN SPACING	54.864	

ELEVATION PRECAST WALL 343-30A



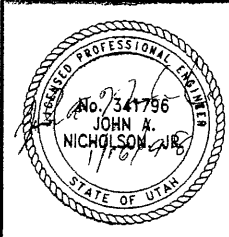
MESH DEPTH	4.877M	3.962M	12.192
MAXIMUM BEARING PRESSURE (SEE NOTE BELOW)	122.1 KPa	102.4 KPa	
PIN SPACING	18.288	9.144	15.240

ELEVATION PRECAST WALL 343-30A

(FRONT FACE SHOWN)
 (TOTAL SURFACE AREA OF PANELS = 1241.03 SM)
 SCALE 1:100 (FULL SIZE)
 SCALE 1:200 (HALF SIZE)

APPROVER NOTE:
 MAXIMUM UNFACTORED BEARING PRESSURES ARE INDICATED BELOW "MESH DEPTH LINE". REVIEWER TO VERIFY MAXIMUM BEARING CAPACITY OF FOUNDATION.

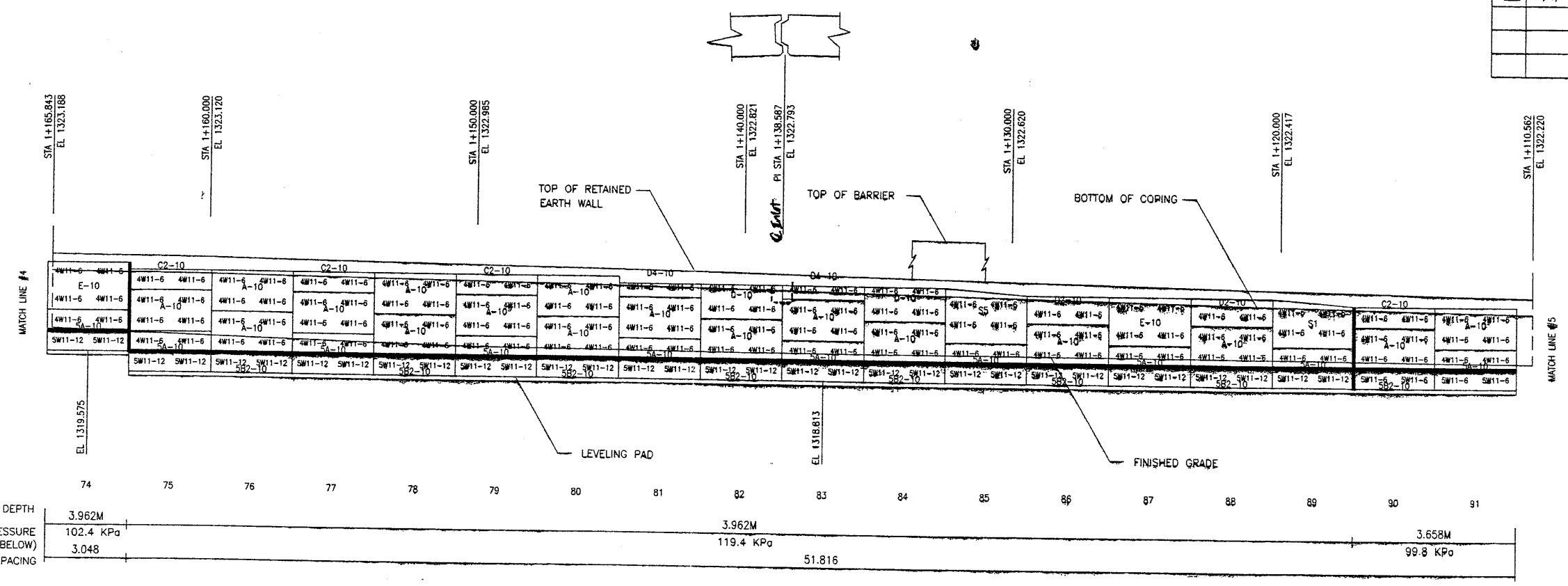
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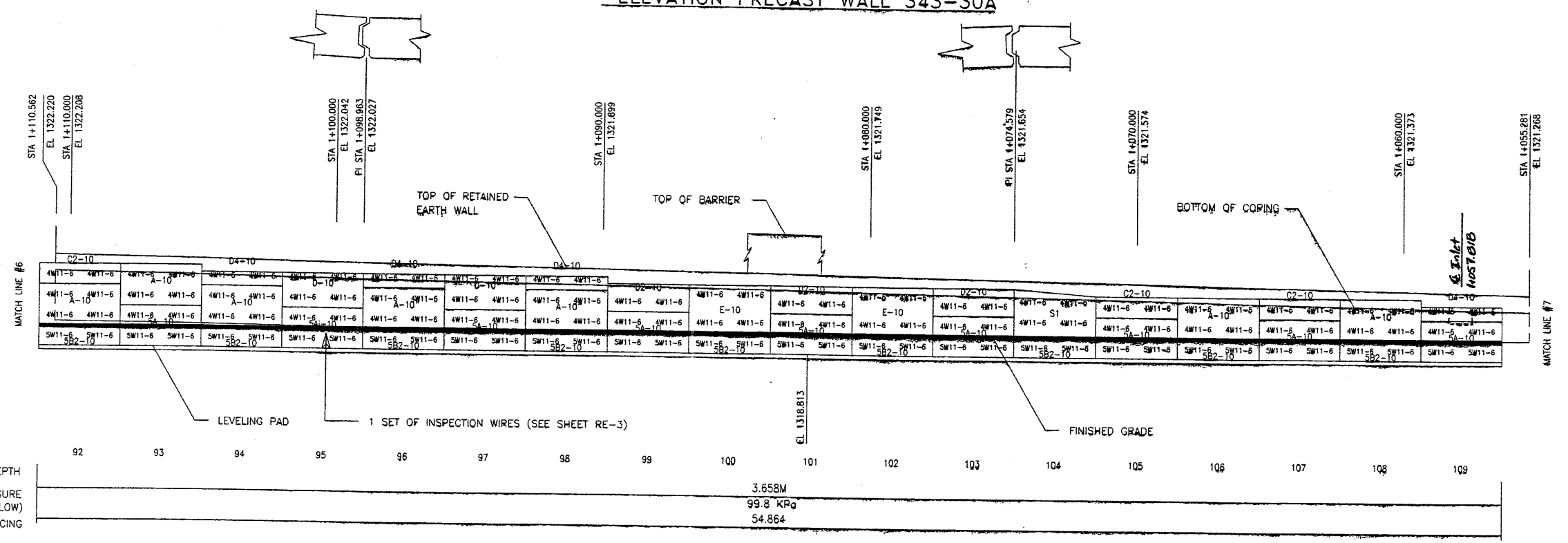
WASATCH CONSTRUCTORS
 JAN 28 1998
 RELEASED FOR CONSTRUCTION

METRIC

APPROVED FOR CONSTRUCTION		
NO.	DATE	DESCRIPTION
1	1/8/98	RELEASE FOR CONSTRUCTION <i>ol</i>



ELEVATION PRECAST WALL 343-30A

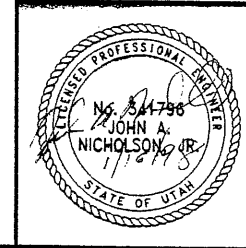


ELEVATION PRECAST WALL 343-30A

(FRONT FACE SHOWN)
 (TOTAL SURFACE AREA OF PANELS = 1241.03 SM)
 SCALE 1:100 (FULL SIZE)
 SCALE 1:200 (HALF SIZE)

APPROVER NOTE:
 MAXIMUM UNFACTORED BEARING PRESSURES
 ARE INDICATED BELOW "MESH DEPTH LINE"
 REVIEWER TO VERIFY MAXIMUM BEARING
 CAPACITY OF FOUNDATION.

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 STABILITY, IS THE RESPONSIBILITY OF THE OWNER. DESIGN IS BASED ON THE
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 OF CONSTRUCTION, AND QUALITY OF PREFABRICATED MATERIALS CONFORM TO
 THE MANUFACTURER'S SPECIFICATION.



WABATCH CONSTRUCTORS
 JAN 28 1998
 RELEASED FOR CONSTRUCTION

METRIC

NO.	DATE	DESCRIPTION	BY	CHK

DES.	MM	RETAINED EARTH™
1-8-98	RSW	
1-8-98	MM	
1-8-98		

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 Raleigh, NC 27612
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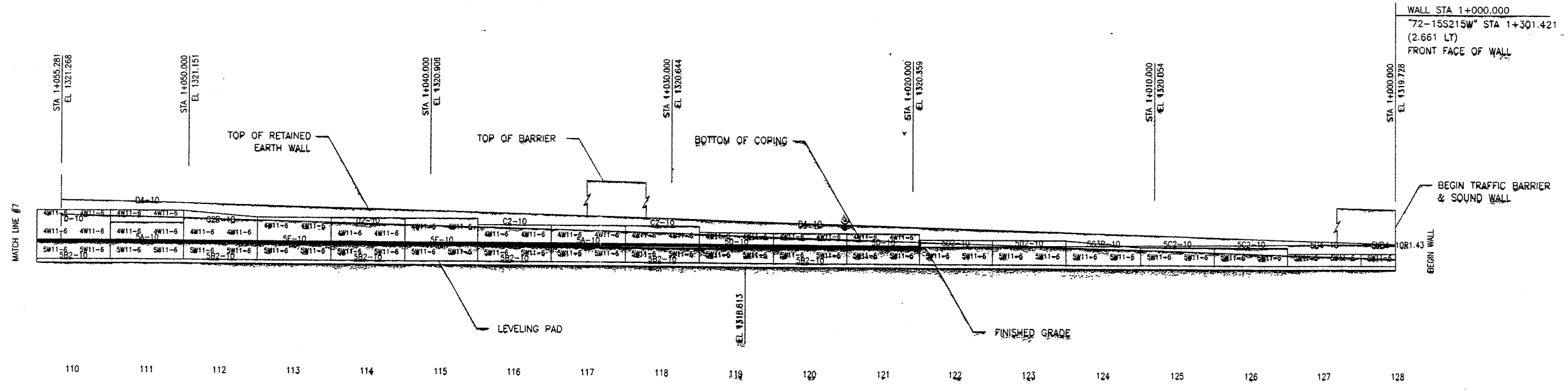
ATLANTA, GA / DALLAS, TX / RALEIGH, NC (CORPORATE OFFICE)
 MIAMI, FL / SAN JOSE, CA / SPRINGFIELD, VA

RETAINED EARTH™ WALLS
 PRECAST WALL "343-30A"
 I-15 INTERCHANGE
 SALT LAKE COUNTY, UTAH
 UTAH DEPARTMENT OF TRANSP.

SCALE:
 1.2R-343-30.13
 JOB NO:
 239-0007
 14/18
 RE-9

APPROVED FOR CONSTRUCTION		
NO.	DATE	DESCRIPTION
△	1/8/98	RELEASE FOR CONSTRUCTION <i>SW</i>

NO.	DATE	REVISION

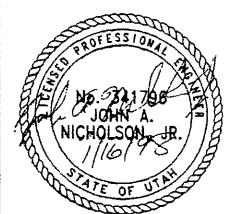


MESH DEPTH	3.658M
MAXIMUM BEARING PRESSURE (SEE NOTE BELOW)	99.8 KPa
PIN SPACING	56.294

ELEVATION PRECAST WALL 343-30A
 (FRONT FACE SHOWN) SCALE 1:100 (FULL SIZE)
 (TOTAL SURFACE AREA OF PANELS = 1241.03 SM) SCALE 1:200 (HALF SIZE)

APPROVER NOTE:
 MAXIMUM UNFACTORED BEARING PRESSURES
 ARE INDICATED BELOW "MESH DEPTH LINE"
 REVIEWER TO VERIFY MAXIMUM BEARING
 CAPACITY OF FOUNDATION.

RELEASED FOR CONSTRUCTION
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 METRIC



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RETAINED EARTH™ WALLS
 PRECAST WALL "343-30A"
 1-15 INTERCHANGE
 SALT LAKE COUNTY, UTAH
 UTAH DEPARTMENT OF TRANSP.

SCALE:	1:2R-343-30.14
JOB NO:	239-0007 15/18
REVISION:	RE-10

APPROVED FOR CONSTRUCTION		
NO.	DATE	DESCRIPTION
△	1/8/98	RELEASE FOR CONSTRUCTION

DES.	MM	DRN.	CHK.	RETAINED EARTH™	NO.	DATE	BY	CHK.
	1-8-98							

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 Raleigh, NC 27612
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 Fax: (919) 761-4869

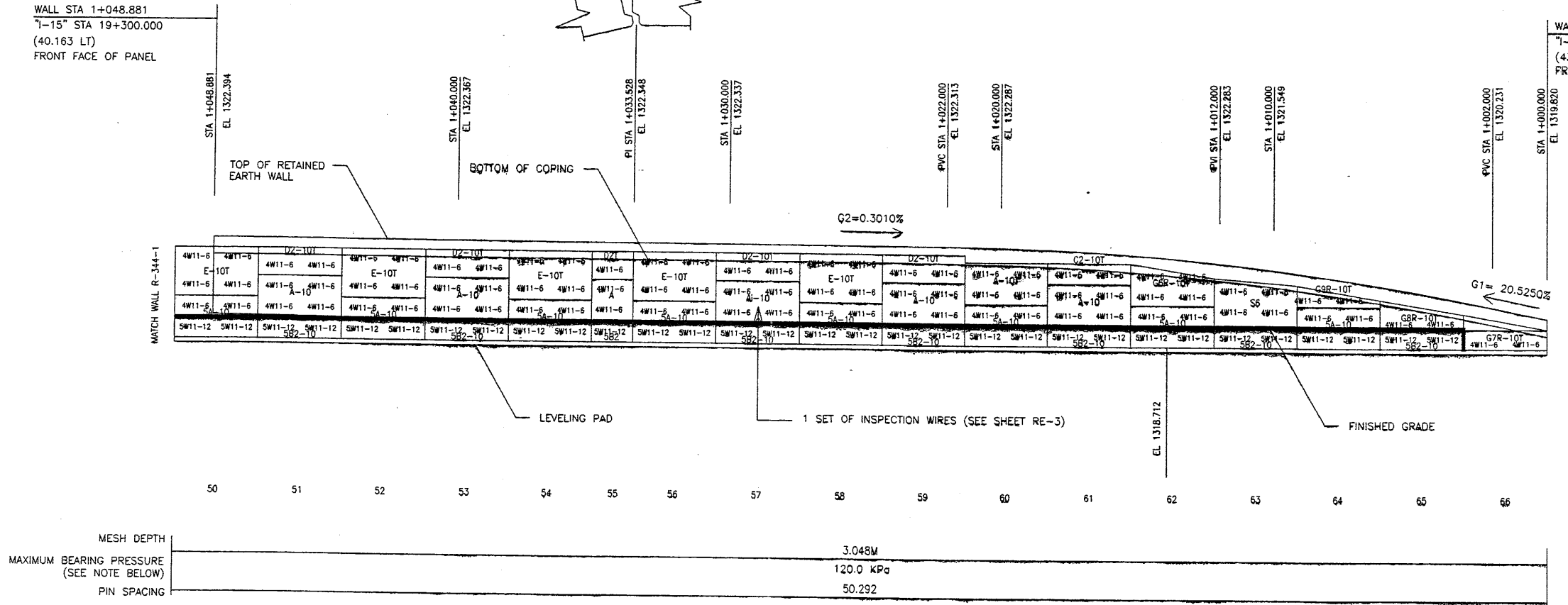


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RETAINED EARTH™ WALLS
PRECAST WALL "343-30B"
 1-15 INTERCHANGE
 SALT LAKE COUNTY, UTAH
 UTAH DEPARTMENT OF TRANSP.

SCALE:
 1:2R-343-30.15
 JOB NO:
 239-0007
 1/8/98
RE-11

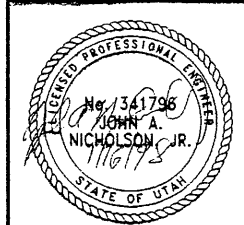


ELEVATION PRECAST WALL 343-30B
 (FRONT FACE SHOWN)
 (TOTAL SURFACE AREA OF PANELS = 144.00 SM)
 SCALE 1:100 (FULL SIZE)
 SCALE 1:200 (HALF SIZE)

APPROVER NOTE:
 MAXIMUM UNFACTORED BEARING PRESSURES ARE INDICATED BELOW "MESH DEPTH LINE" REVIEWER TO VERIFY MAXIMUM BEARING CAPACITY OF FOUNDATION.

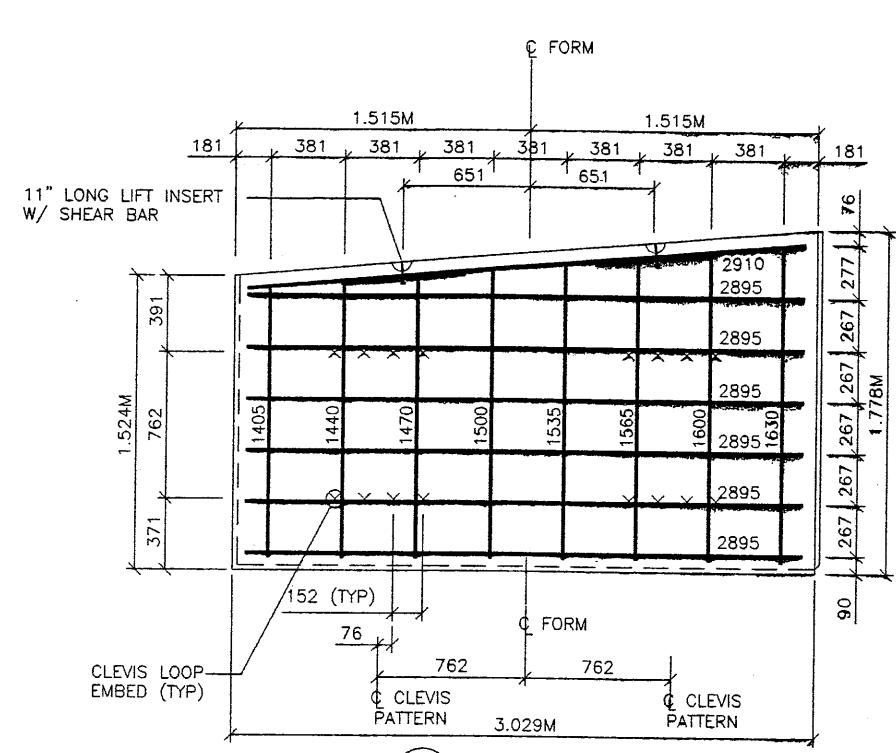
WAGATCH CONSTRUCTORS
 JAN 28 1998
 RELEASED FOR CONSTRUCTION

METRIC

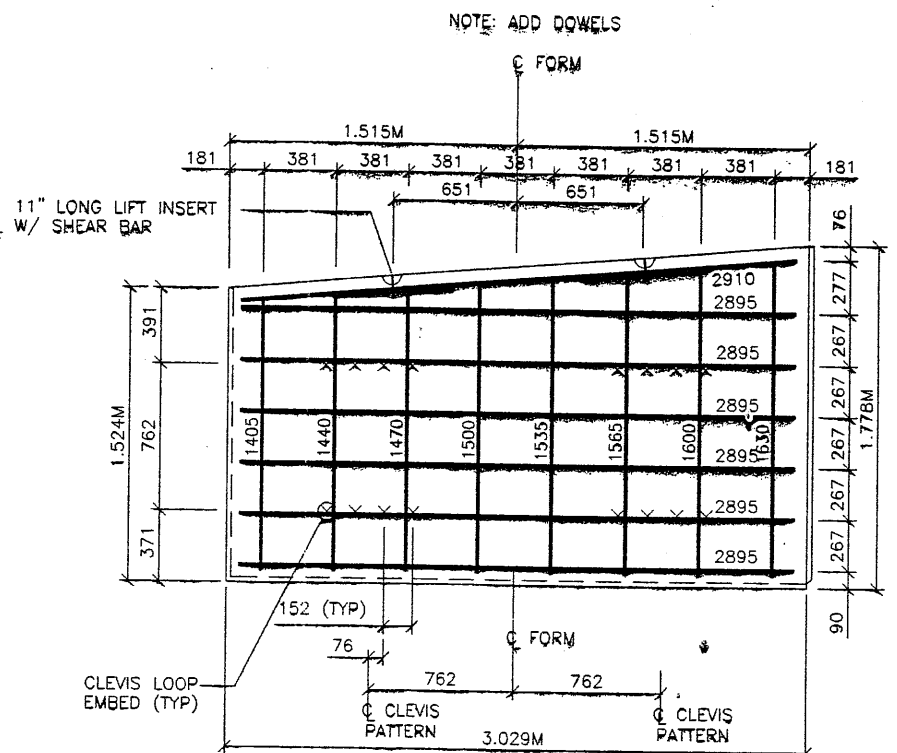


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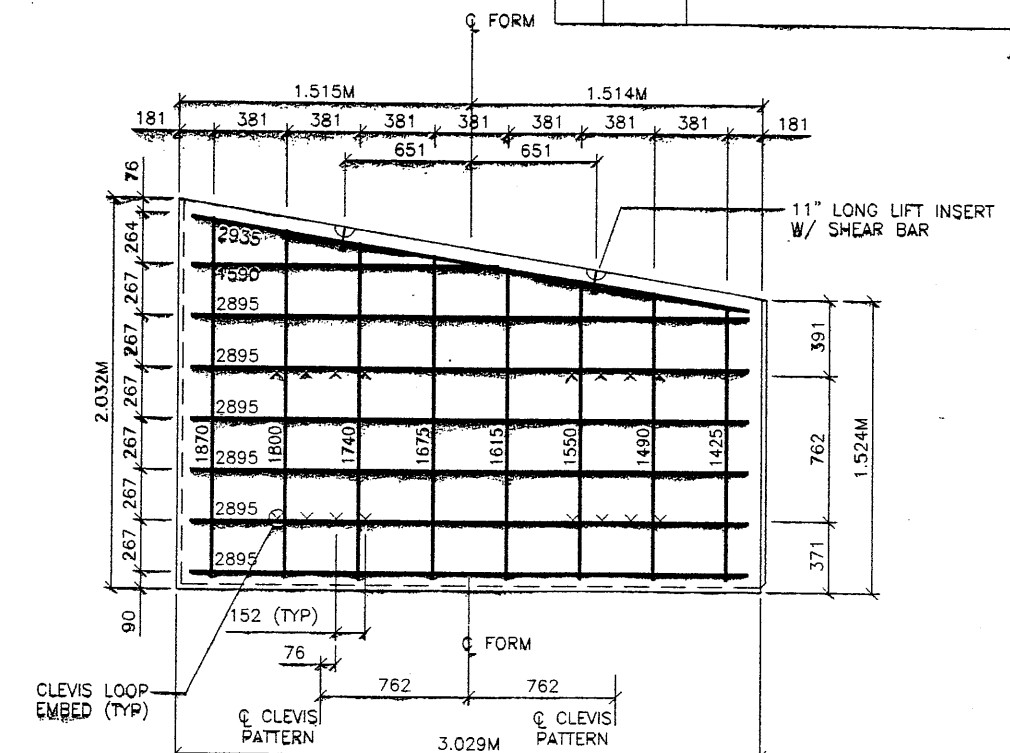
APPROVED FOR CONSTRUCTION		
NO.	DATE	DESCRIPTION
1	1/8/98	RELEASE FOR CONSTRUCTION



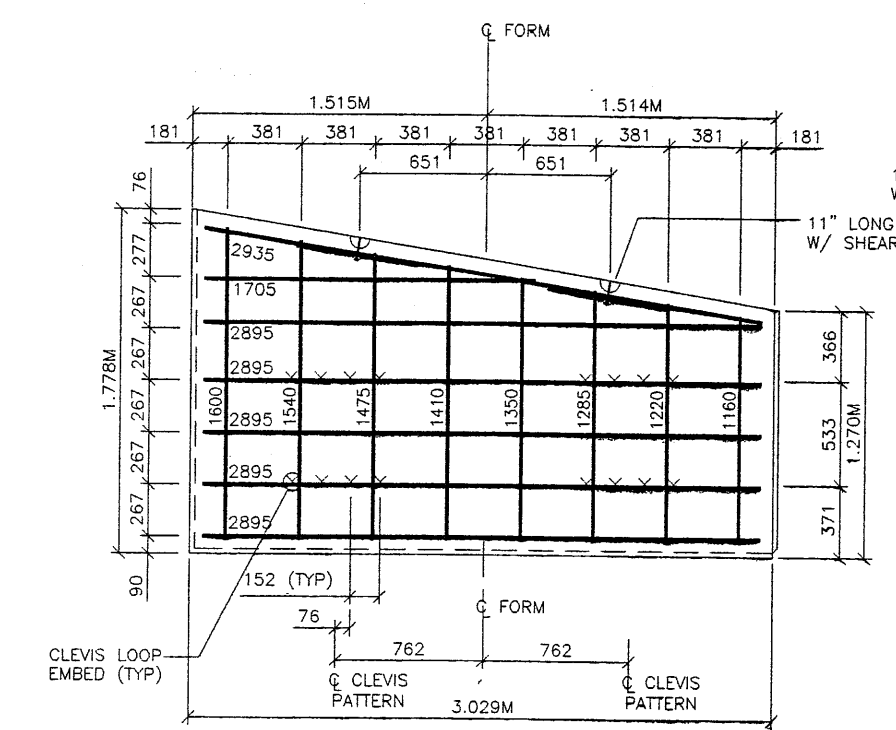
S1 TYPE S1 REBAR
(AREA = 5.032 SQ.M)



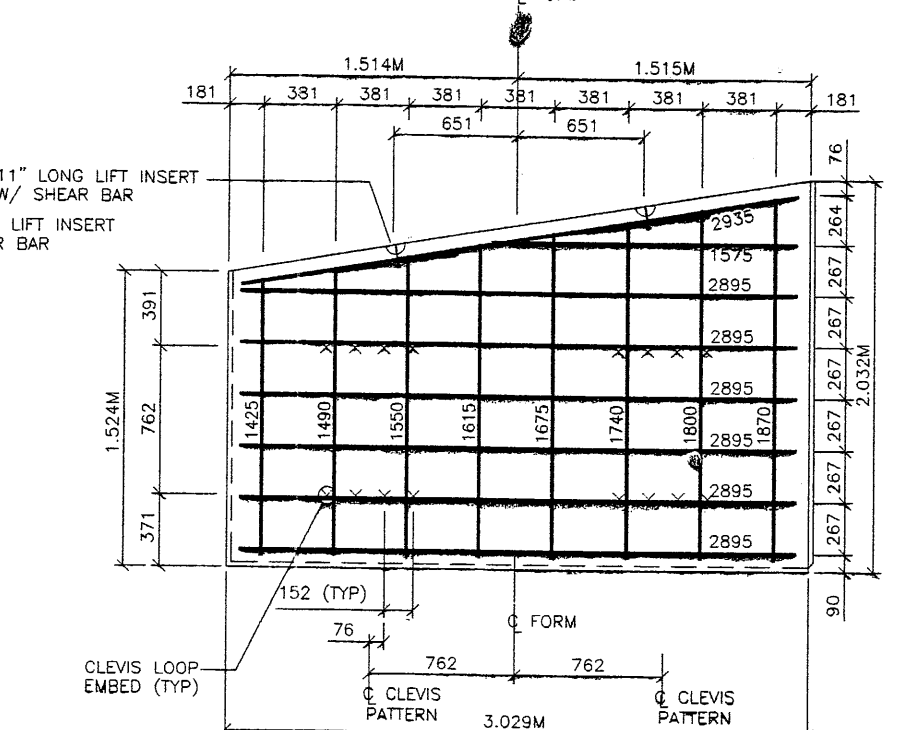
S6 TYPE S6 REBAR
(AREA = 5.032 SQ.M)



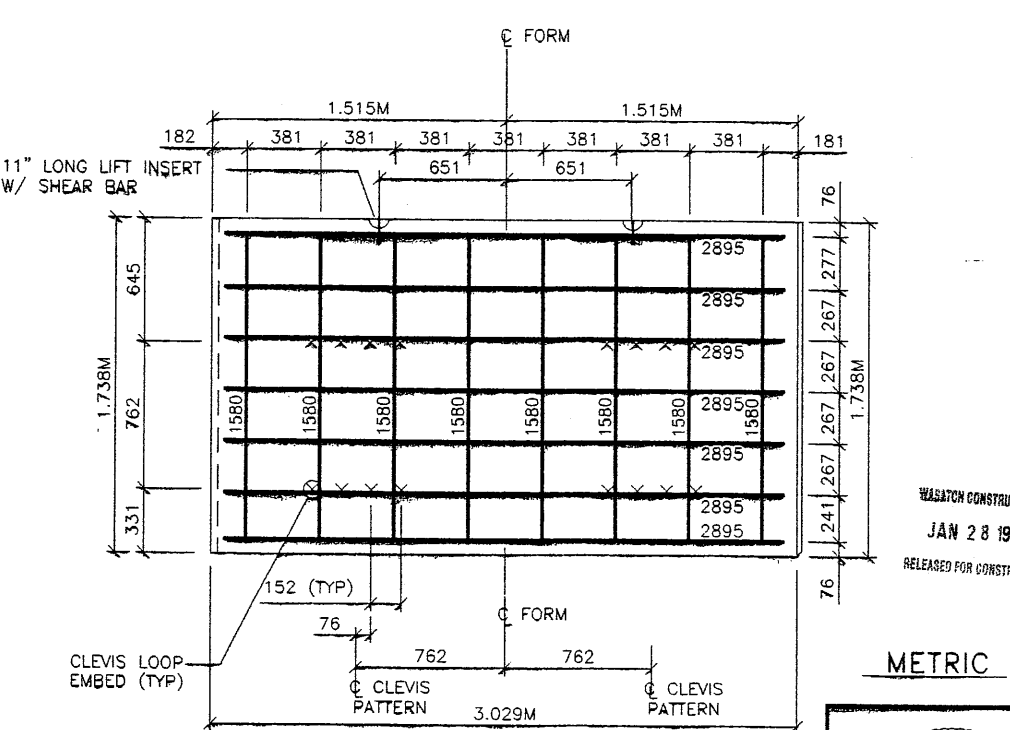
S3 TYPE S3 REBAR
(AREA = 5.419 SQ.M)



S4 TYPE S4 REBAR
(AREA = 4.645 SQ.M)

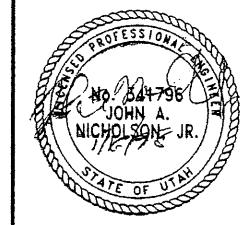


S5 TYPE S5 REBAR
(AREA = 5.419 SQ.M)



S7 TYPE S7 REBAR
(AREA = 5.264 SQ.M)

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WASATCH CONSTRUCTORS
JAN 28 1998
RELEASED FOR CONSTRUCTION

METRIC

REVISION		NO.	DATE	BY	CHK

DES:	1-8-98	MM
DRN:	1-8-98	RSW
CHK:	1-8-98	MM

RETAINED EARTH™

VSL CORPORATION
2840 Plaza Place, Suite 200
Raleigh, NC 27617 761-6772
Telephone: (919) 761-4893
Fax: (919) 761-4893

ATLANTA, GA / DALLAS, TX / PALM BEACH, FL / SAN JOSE, CA / SPRINGFIELD, VA

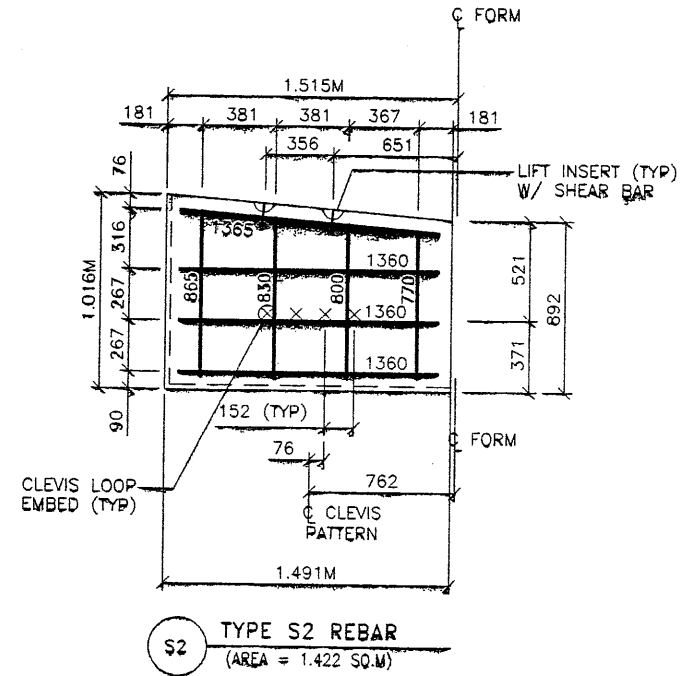
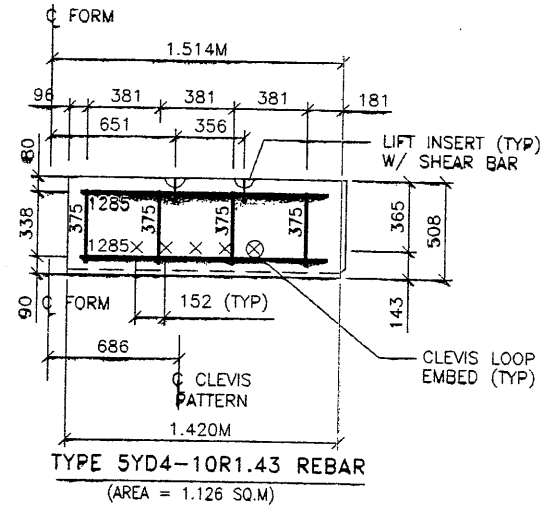
VSL

RETAINED EARTH™ WALLS
SPECIAL PANEL DETAILS
UTAH I-15 INTERCHANGE
SALT LAKE COUNTY, UTAH
UTAH DEPARTMENT OF TRANSP.

SCALE:
1.2R-343-30.16

JOB NO:
239-0007 17/18

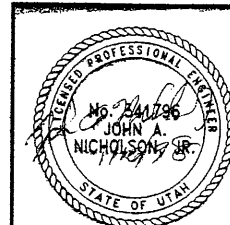
RE-12



APPROVED FOR CONSTRUCTION		
NO.	DATE	DESCRIPTION
△	1/8/98	RELEASE FOR CONSTRUCTION <i>de</i>

SEALING CONTRACTORS
JAN 28 1998
RELEASED FOR CONSTRUCTION

METRIC



CERTIFIED FOR INTERNAL STABILITY OF RETAINED EARTH™ STRUCTURES ONLY. EXTERNAL STABILITY, INCLUDING BUT NOT LIMITED TO FOUNDATION AND SLOPE STABILITY, IS THE RESPONSIBILITY OF THE OWNER. DESIGN IS BASED ON THE ASSUMPTION THAT THE MATERIAL WITHIN THE RETAINED EARTH™ MASS, METHODS OF CONSTRUCTION, AND QUALITY OF PREFABRICATED MATERIALS CONFORM TO THE MANUFACTURER'S SPECIFICATION.

RETAINED EARTH™ WALLS
STANDARD DRAWING
"G" PANEL REINFORCEMENT 1.524M x 3.048M
UTAH I-15 INTERCHANGE
SALT LAKE COUNTY, UTAH
UTAH DEPARTMENT OF TRANSP.

SCALE:
1.2R-343-30.17
JOB NO:
239-0007 18/18
RE-13

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VSL CORPORATION
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Fax: (919) 781-4609

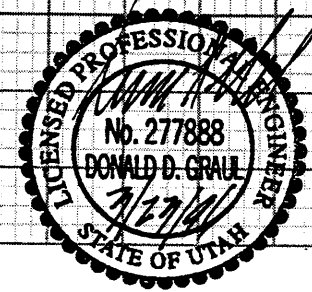
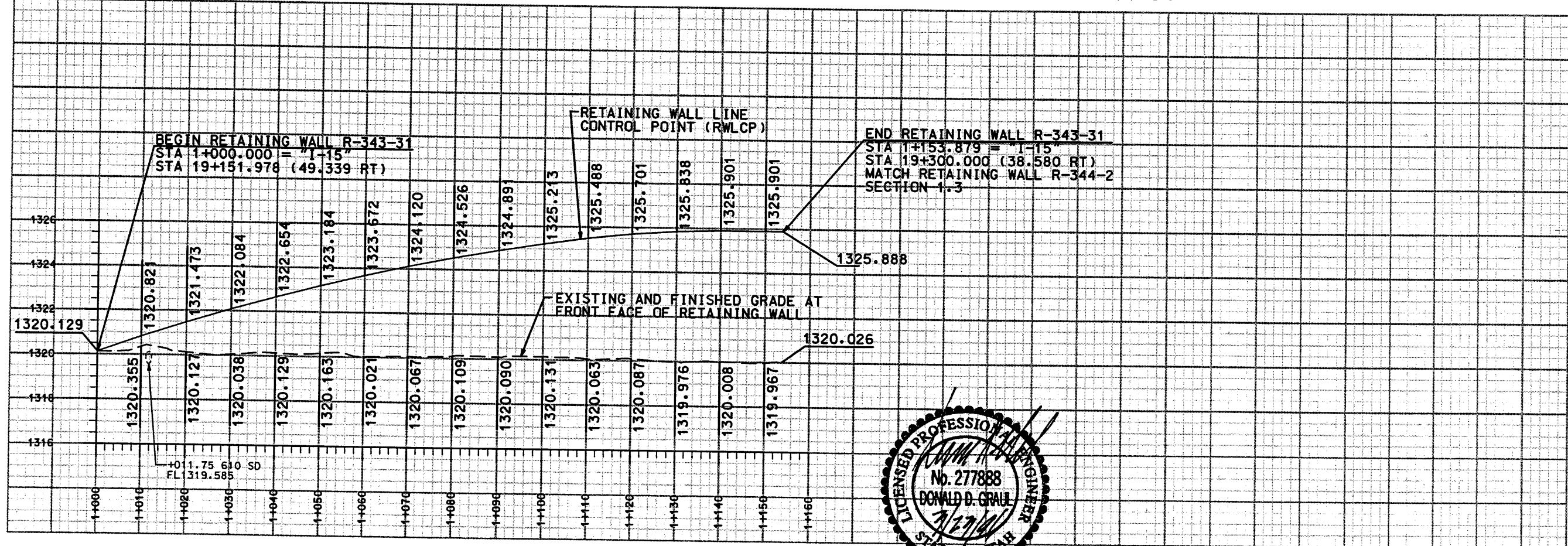
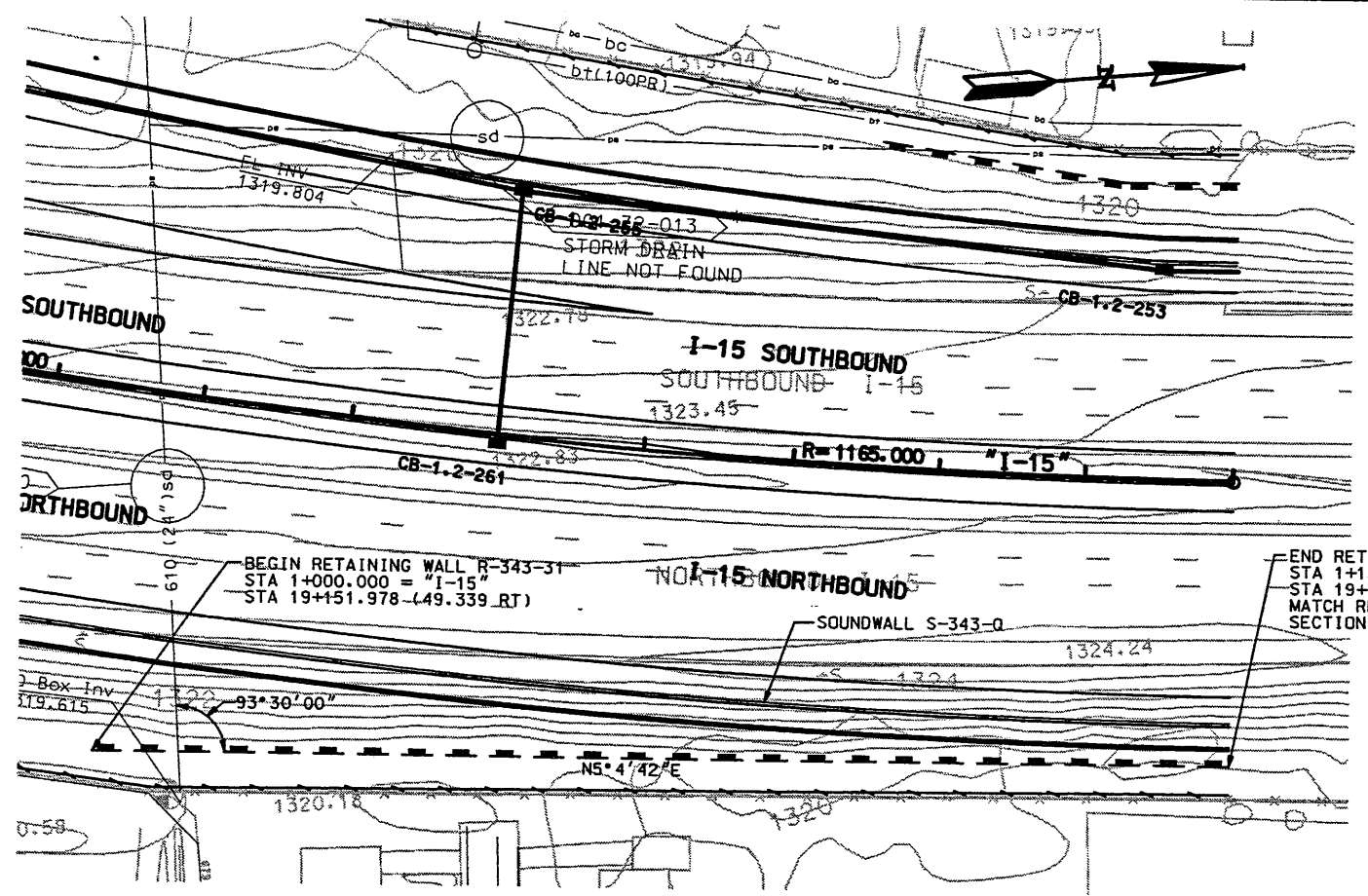
ATLANTA, GA / DALLAS, TX / RALEIGH, NC (CORPORATE OFFICE)
MIAMI, FL / SAN JOSE, CA / SPRINGFIELD, VA

DES.	DRN.	CHK.	MM	RSW	MM	NO.	DATE	REVISION	BY
1-8-98	1-8-98	1-8-98							

NO.	DATE	DESCRIPTION	BY

Users: ramesh.mocckky

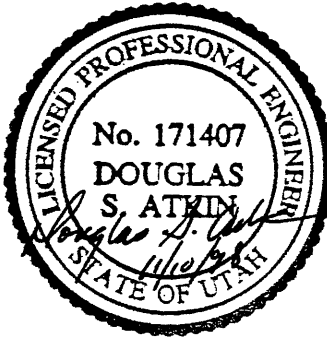
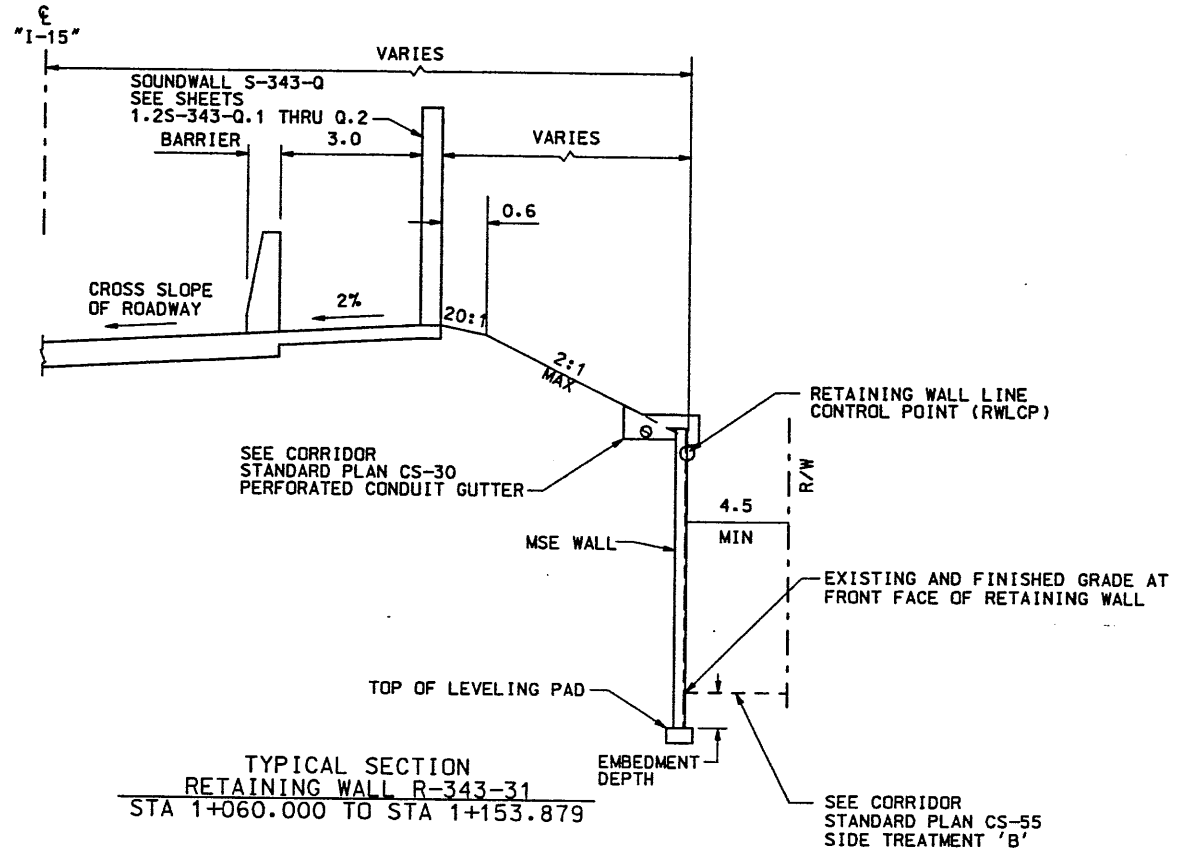
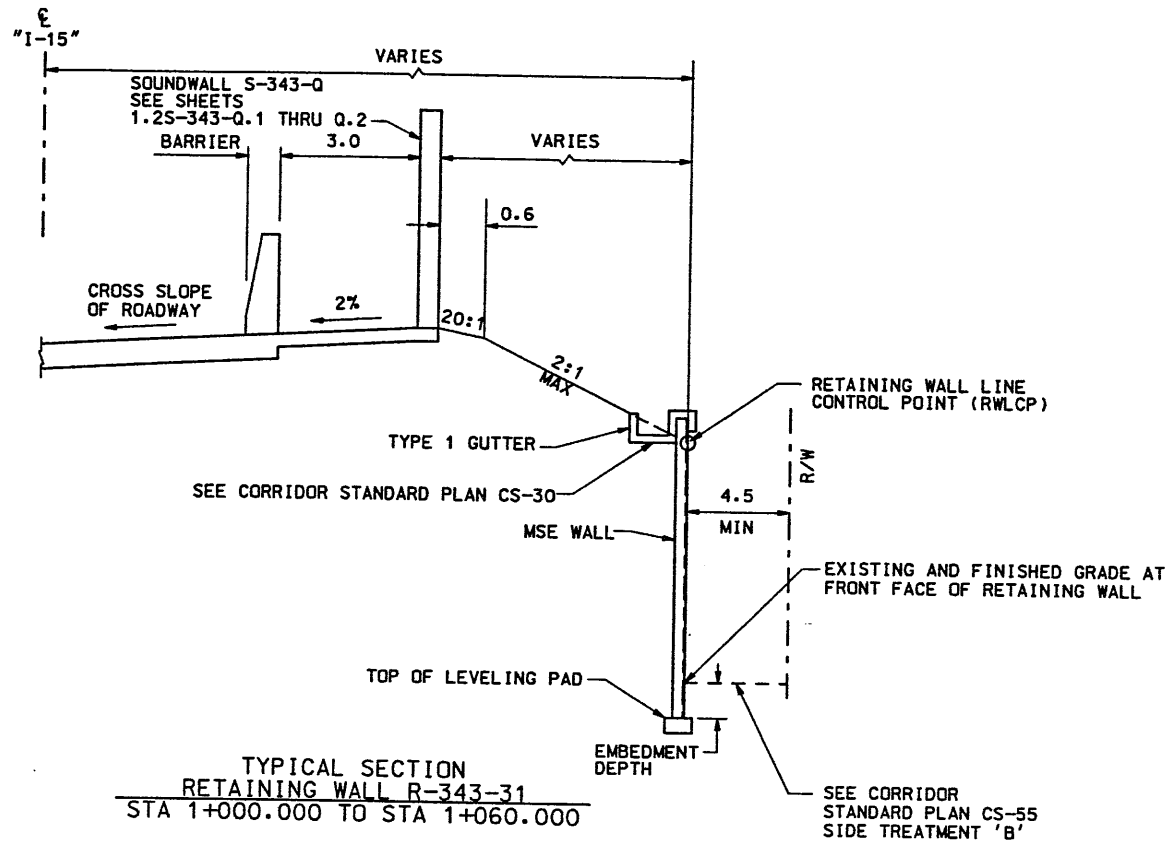
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NOTE:
THE FOUNDATION BEARING MATERIALS SHOULD BE OBSERVED BY THE GEOTECHNICAL ENGINEER DURING SITE PREPARATION. ANY UNDESIRABLE MATERIALS WILL NEED TO BE REMOVED AND REPLACED WITH BORROW IN ORDER TO ACHIEVE ACCEPTABLE CONDITIONS AT THE BASE OF THE WALL

WASATCH CONSTRUCTORS
MAR 27 1998
RELEASED FOR CONSTRUCTION

APPROVED FOR CONSTRUCTION		DESCRIPTION	
NO.	DATE	INITIAL	RELEASE
Δ	3-23-98		
UTAH DEPARTMENT OF TRANSPORTATION		1213404	
URS Greiner		DESIGN PRY 1/98	
SVERDRUP/DE LEUW		DRAWN PRY 1/98	
PROJECT DESIGN ENGINEER		CHECK PRY 1/98	
DATE 1/98		PROJECT MANAGER	
APPROVAL RECORD		DATE 1/98	
1/98 RICK CHAPMAN		PROJECT MANAGER	
DATE 1/98		DATE 1/98	
APPROVED 1/98 DON GRALL		DATE 1/98	
PROJECT NUMBER		QUANT.	
#SP-15-(135)296		/	
I-15 CORRIDOR RECONSTRUCTION		SALT LAKE COUNTY	
SITUATION/LAYOUT		DWG. NO.	
RETAINING WALL R-343-31		1.2R-343-31.1	
SECTION 1.2		SHT. 1 OF 7	
REF.			



WASATCH CONSTRUCTORS
 NOV 19 1998
 RELEASED FOR CONSTRUCTION

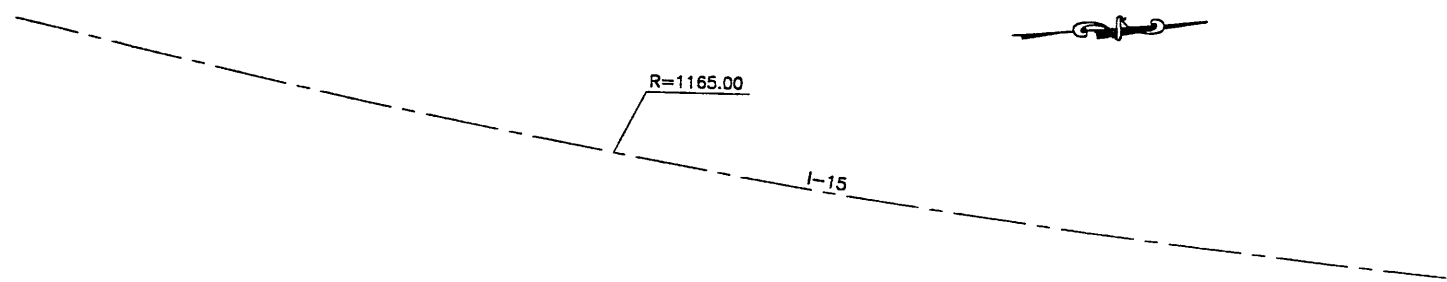
I-15 CORRIDOR RECONSTRUCTION		UTAH DEPARTMENT OF TRANSPORTATION		APPROVED FOR CONSTRUCTION	
TYPICAL SECTIONS RETAINING WALL R-343-31		URS Greiner SVDRUP/DE LEUW		DESCRIPTION	
SECTION 1.2		DESIGN PRV 1/98		DATE 3-23-98 INITIAL RELEASE	
PROJECT NUMBER #SP-15-7(135)296		DRAWN PRV 1/98		DATE 11-10-98 REFERENCED SOUNDWALL	
SALT LAKE COUNTY		QUANT. /		PROJECT NUMBER 1213404	
1.2R-343-31.1a		DATE 1/98		PROJECT MANAGER	
SHT 2 OF 7		DATE 1/98		PROJECT MANAGER	
REF.		DATE 1/98		PROJECT MANAGER	

FACE (X-UTAH) (DWG)

H:\RE_EARTH\PROJECT\239-0007\1998\725\72-31\RE-1

FINAL PLOT 02-25-98

APPROVED FOR CONSTRUCTION		
NO.	DATE	DESCRIPTION
△	03-16-98	RELEASE FOR CONSTRUCTION



PRECAST WALL STA 1+000.000 =
I-15 STA 19+151.978
⊙ 49.339 RT
BEGIN PRECAST WALL R-343-31

FACE OF PRECAST WALL 343-31

N 5° 4' 42\"/>

PRECAST WALL STA 1+153.879 =
I-15 STA 19+300.000
⊙ 38.580 RT
BEGIN PRECAST WALL R-343-31

WASATCH CONSTRUCTORS
MAR 27 1998
RELEASED FOR CONSTRUCTION

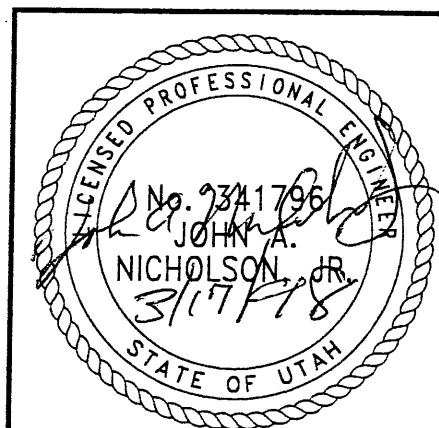
- GENERAL NOTES**
- ALL WALLS ARE SHOWN FRONT FACE. NOTE STATIONING.
 - PANEL TYPE IS DESIGNATED ON EACH PANEL. CONNECTOR LABELS INDICATE NUMBER OF CONNECTORS PER ROW.
EXAMPLE: 5B2-10 IS A "B2-10" PANEL WITH FIVE (5) CONNECTORS PER ROW.
IF NO CONNECTORS ARE SHOWN, FOUR (4) CONNECTOR PANELS SHALL BE USED:
 - SOIL REINFORCING MESH TYPE IS DESIGNATED ON EACH PANEL. MESH LABELS INDICATE WIRE SIZE AND SPACING. LONGITUDINAL WIRE AND CROSSBAR SIZES ARE THE SAME UNLESS NOTED OTHERWISE:
EXAMPLE: 4W11-6 MESH HAS FOUR (4) W11 LONGITUDINAL WIRES WITH W11 CROSSBARS AT 6" CENTERS.
EXAMPLE: 5W11-12 MESH HAS FIVE (5) W11 LONGITUDINAL WIRES WITH W11 CROSSBARS AT 12" CENTERS.
EXAMPLE: 6W11-12 MESH HAS SIX (6) W11 LONGITUDINAL WIRES WITH W11 CROSSBARS AT 12" CENTERS.
EXAMPLE: 4W20-12 MESH HAS FOUR (4) W20 LONGITUDINAL WIRES WITH W20 CROSSBARS AT 12" CENTERS.
 - SEE RETAINED EARTH INSTALLATION MANUAL FOR PROPER WALL ERECTION PROCEDURES AND GUIDELINES.
 - CONSTRUCTION PROCEDURES SHALL PREVENT BACKFILL SATURATION AND PONDING.
 - HEAVY EQUIPMENT SHALL NOT BE USED WITHIN ONE METER OF THE BACK OF THE RETAINED EARTH PANELS. HAND COMPACTORS SHALL BE USED IN THIS AREA.
 - CARE SHALL BE TAKEN TO PREVENT DAMAGE TO GALVANIZING. DAMAGED GALVANIZING SHALL BE COATED WITH ZINC RICH PAINT.
 - BEARING PADS AND FILTER FABRIC ARE NOT REQUIRED BETWEEN THE LEVELING PAD AND THE FIRST ROW OF PANELS. TEMPORARY WEDGES MAY BE USED TO PROVIDE PROPER ALIGNMENT.
 - VSL RETAINED EARTH IS PROTECTED UNDER U.S. PATENT 4,725,170.
 - ALL PANELS SHALL HAVE AN ARCHITECTURAL FINISH, SEE VSL STANDARD SHEET STD-7 FOR DETAILS.

DESIGN PARAMETERS
ANGLE OF INTERNAL FRICTION (SELECT) = 34°
ANGLE OF INTERNAL FRICTION (BASE) = 30°
ANGLE OF INTERNAL FRICTION (RANDOM) = 34°
UNIT WEIGHT BACKFILL = 135 PCF. (21.2 KN/M ³)
TRAFFIC SURCHARGE = 250 PSF (12 KPa)
SEISMIC ACCELERATION COFF. = 0.12g (TYP)
SEISMIC ACCELERATION COFF. = 0.32g (AT BRIDGE ABUTMENTS)
DESIGN CRITERIA
SAFETY FACTOR (OVERTURNING) = 2.0
SAFETY FACTOR (SLIDING) = 1.5
SAFETY FACTOR (PULLOUT) = 1.5
DESIGN LIFE = 75 YEARS

PLAN VIEW WALL "R-343-31"

SCALE: 1=250 (FULL SIZE)
SCALE: 1=500 (HALF SIZE)

RETAINED EARTH INDEX
RE-1 PLAN PRECAST FACE WALL R-343-31, NOTES & DESIGN CRITERIA
RE-2 TYPICAL CROSS SECTION
RE-3 ELEVATION PRECAST WALL "R-343-31"
RE-4 ELEVATION PRECAST WALL "R-343-31"
RE-5 SPECIAL PANEL DETAILS



METRIC

CERTIFIED FOR INTERNAL STABILITY OF RETAINED EARTH™ STRUCTURES ONLY. EXTERNAL STABILITY, INCLUDING BUT NOT LIMITED TO FOUNDATION AND SLOPE STABILITY, IS THE RESPONSIBILITY OF THE OWNER. DESIGN IS BASED ON THE ASSUMPTION THAT THE MATERIAL WITHIN THE RETAINED EARTH™ MASS, METHODS OF CONSTRUCTION, AND QUALITY OF PREFABRICATED MATERIALS CONFORM TO THE MANUFACTURER'S SPECIFICATION.

NO.	DATE	REVISION	BY

DES. 02-23-98	MM
DRN. 02-23-98	LOP
CHK. 02-23-98	MM

RETAINED EARTH™
VSL

VSL CORPORATION
2610 Plaza Place, Suite 200
Raleigh, NC 27612
Telephone: (919) 881-5272
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ATLANTA, GA / DALLAS, TX / RALEIGH, NC (CORPORATE OFFICE)
MIAMI, FL / SAN JOSE, CA / SPRINGFIELD, VA

RETAINED EARTH™ WALLS
PLAN VIEW PRECAST WALL "R-343-31"
UTAH I-15 RECONSTRUCTION
SALT LAKE COUNTY, UTAH
UTAH DEPARTMENT OF TRANSP.

DWG. NO.
1.2R-343-31.2

JOB NO.
239-0007/3/7

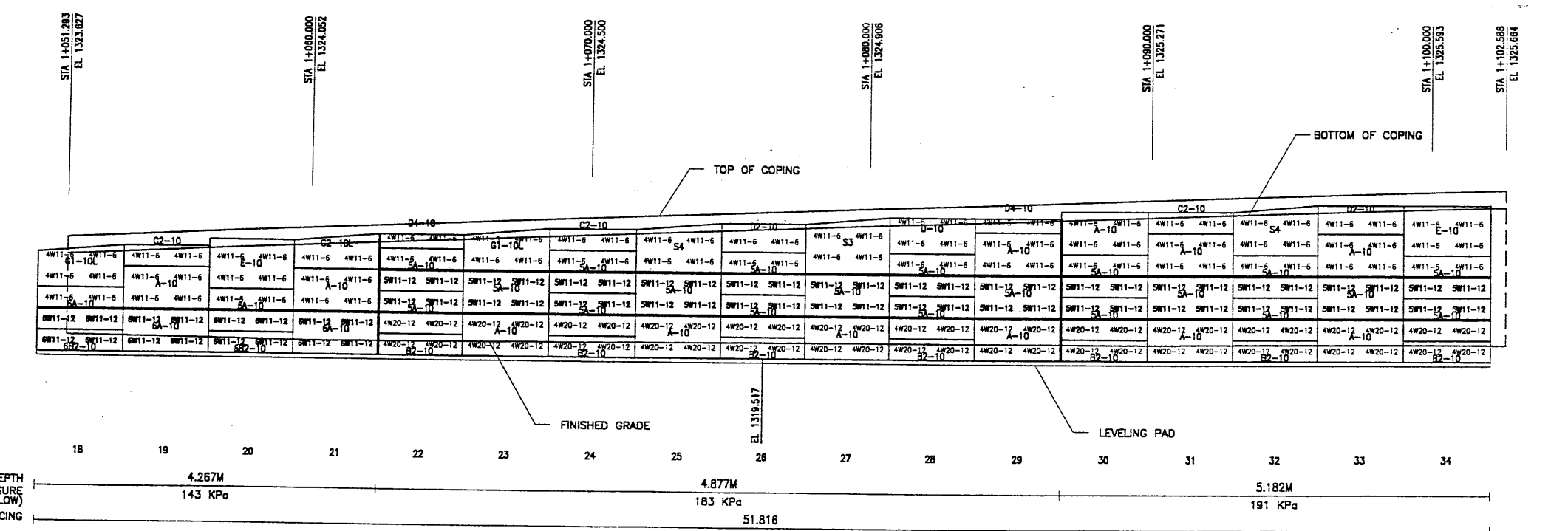
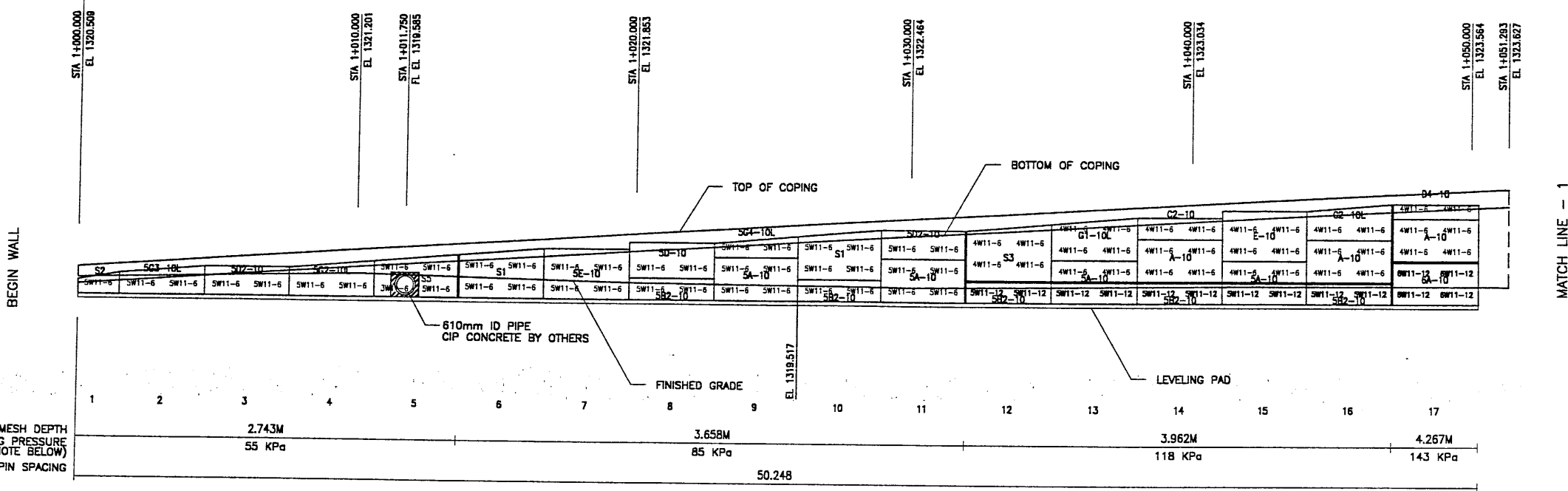
SHT. NO.
RE-1

H:\RE_EARTH\PROJECT\239-0007\1998\2SERIES\71-2-31
 FINAL PI 02-19-98

BEGIN WALL R-343-31
 WALL STA 1+000.000 =
 I-15 STA 19+151.978
 @ 49.339 RT
 NOMINAL PANEL FACE (RWLOL)

APPROVED FOR CONSTRUCTION

NO.	DATE	DESCRIPTION
1	03-16-98	RELEASE FOR CONSTRUCTION



ELEVATION PRECAST WALL R-343-31
 (FRONT FACE SHOWN)
 (TOTAL SURFACE AREA OF PANELS = 678.41 SM)
 SCALE 1:100 (FULL SIZE)
 SCALE 1:200 (HALF SIZE)

APPROVER NOTE:
 MAXIMUM FINAL UNFACTORED BEARING PRESSURES
 ARE INDICATED BELOW "MESH DEPTH LINE"
 REVIEWER TO VERIFY MAXIMUM BEARING
 CAPACITY OF FOUNDATION.

METRIC

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MATCH LINE - 2

MATCH LINE - 1

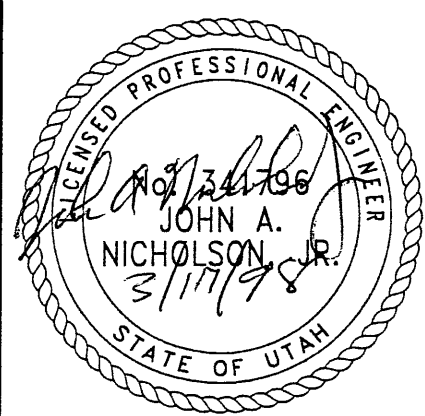


VSL CORPORATION
 7840 Plaza Place, Suite 200
 Raleigh, NC 27612
 Telephone: (919) 781-6272
 Fax: (919) 781-6559

DES.	DRN.	CHK.	RETAINED EARTH™
02-24-98	02-24-98	02-24-98	MM

NO.	DATE	DESCRIPTION	REVISION	DATE	BY
1	03-16-98	RELEASE FOR CONSTRUCTION			CHK

WASATCH CONSTRUCTORS
MAR 27 1998
RELEASED FOR CONSTRUCTION



RETAINED EARTH™ WALLS
 PRECAST WALL "R-343-31"
 UTAH I-15 RECONSTRUCTION
 SALT LAKE COUNTY, UTAH
 UTAH DEPARTMENT OF TRANSP.

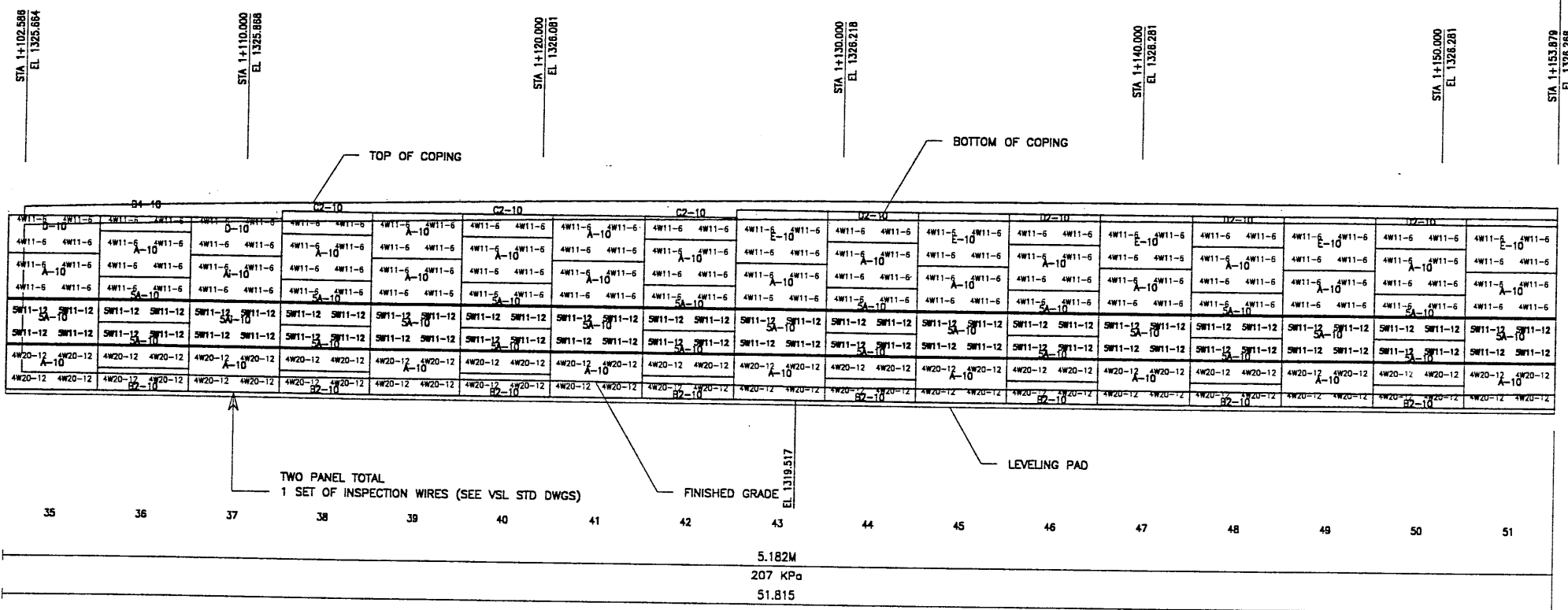
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JOB NO.	239-0007
SHT. NO.	RE-3

XP REFERENCE (X-UTAH.DWG)

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APPROVED FOR CONSTRUCTION		
NO.	DATE	DESCRIPTION
1	03-16-98	RELEASE FOR CONSTRUCTION

END WALL R-343-31
 WALL STA 1+153.879 =
 I-15 STA 19+300.000
 ● 38.580 RT
 NOMINAL PANEL FACE (RWLOL)

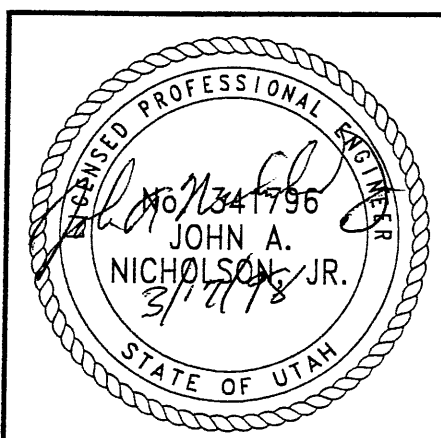


ELEVATION PRECAST WALL R-343-31
 (FRONT FACE SHOWN) SCALE 1:100 (FULL SIZE)
 (TOTAL SURFACE AREA OF PANELS = 678.41 SM) SCALE 1:200 (HALF SIZE)

APPROVER NOTE:
 MAXIMUM FINAL UNFACTORED BEARING PRESSURES
 ARE INDICATED BELOW "MESH DEPTH LINE"
 REVIEWER TO VERIFY MAXIMUM BEARING
 CAPACITY OF FOUNDATION.

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WASATCH CONSTRUCTORS
 MAR 27 1998
 RELEASED FOR CONSTRUCTION

RETAINED EARTH™ WALLS
 PRECAST WALL "R-343-31"
 UTAH I-15 RECONSTRUCTION
 SALT LAKE COUNTY, UTAH
 UTAH DEPARTMENT OF TRANSP.

DWG. NO.	1.2R-343-31.5
JOB NO.	239-0007/7
SHT. NO.	RE-4

VSL CORPORATION
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 Raleigh, NC 27617
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 Fax: (919) 781-4659

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NO.	DATE	DESCRIPTION	BY	CHK

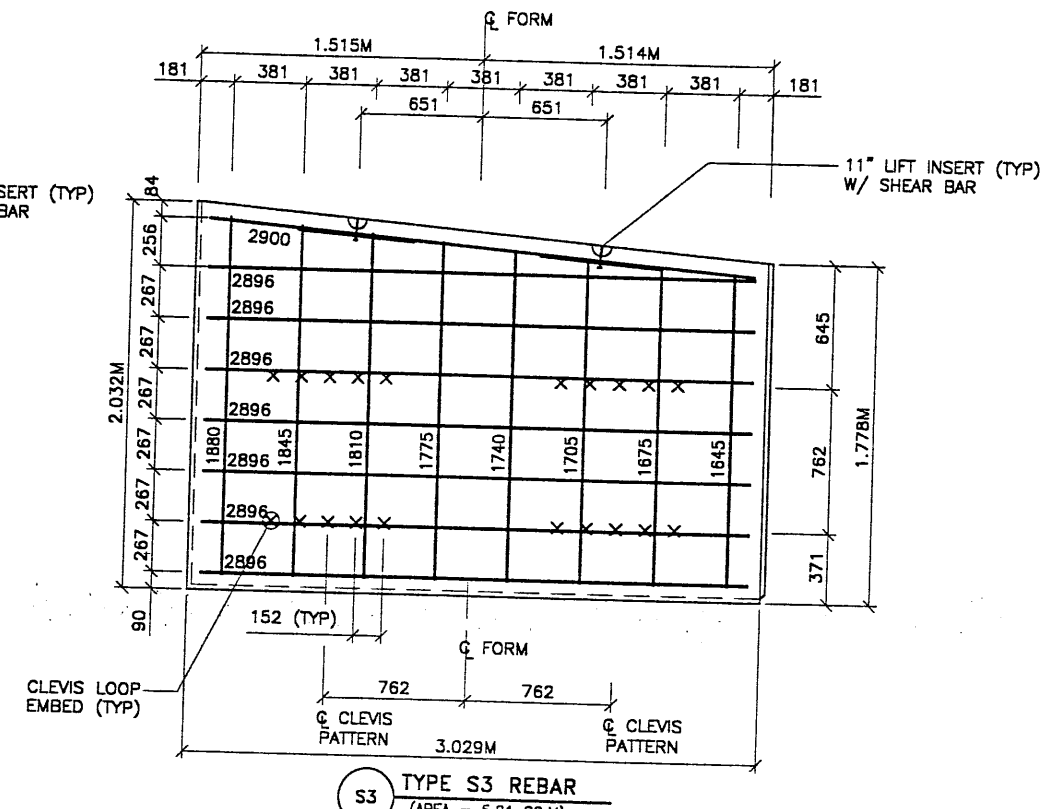
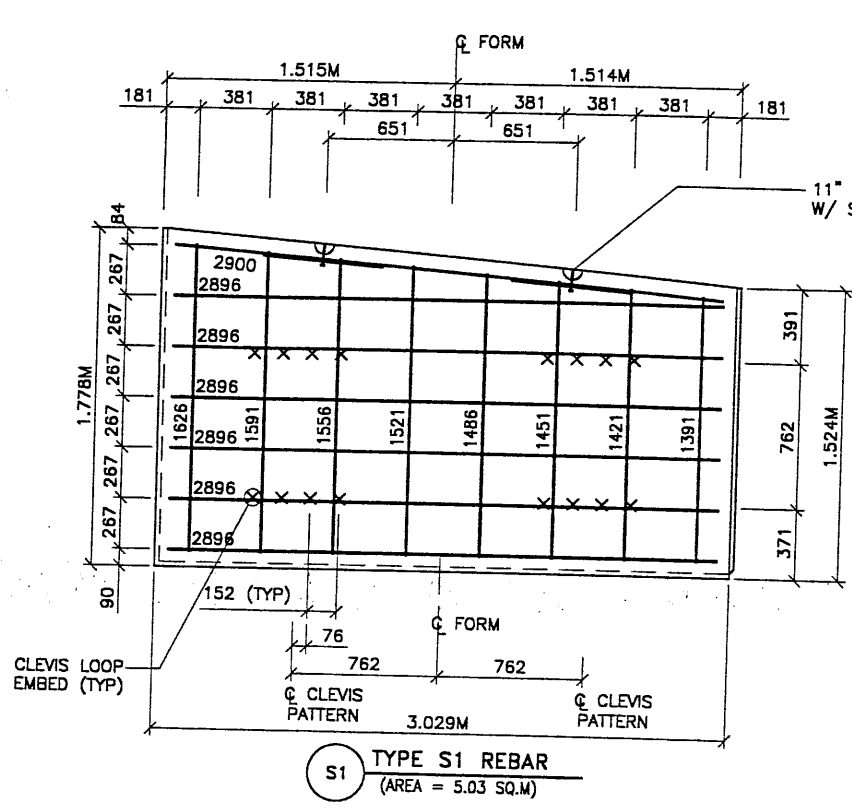
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DRN. NO.	02-24-98	LOP
CHK. NO.	02-24-98	MM

RETAINED EARTH™

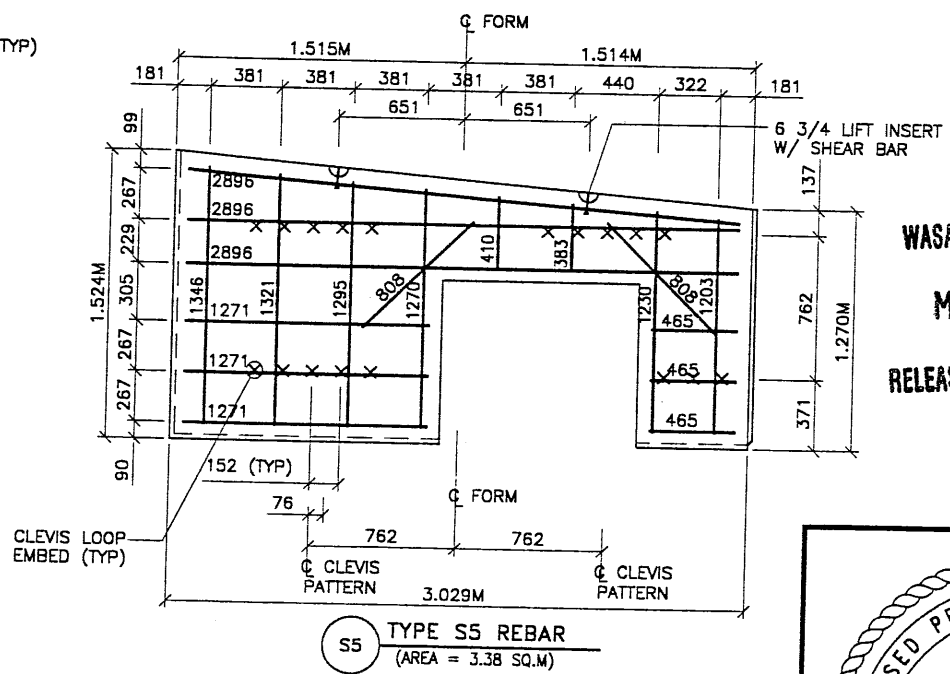
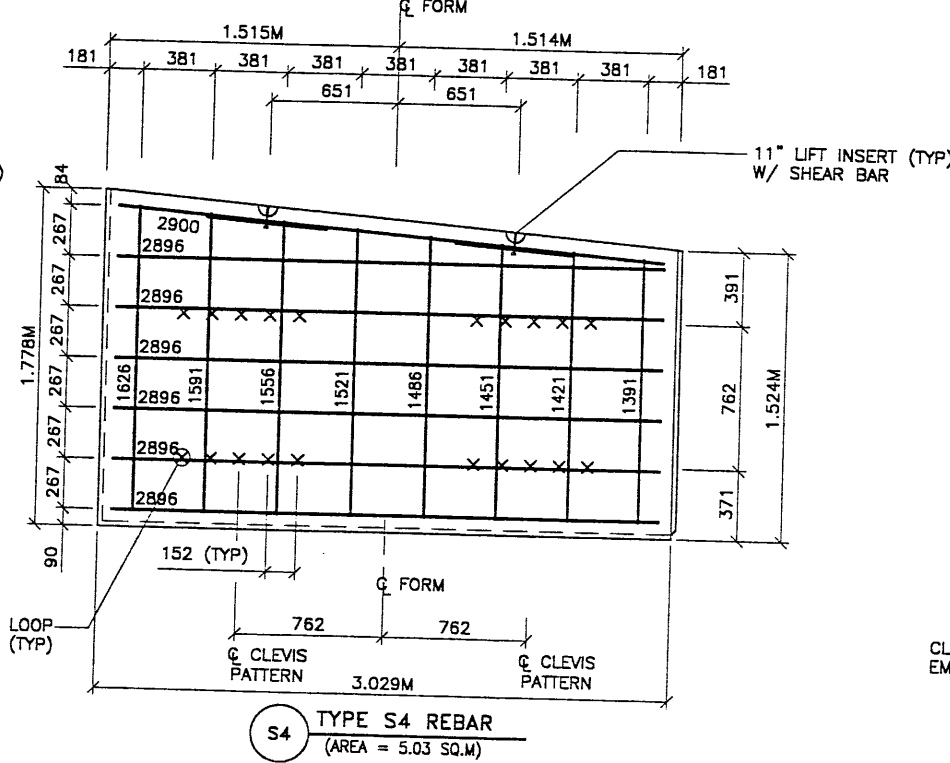
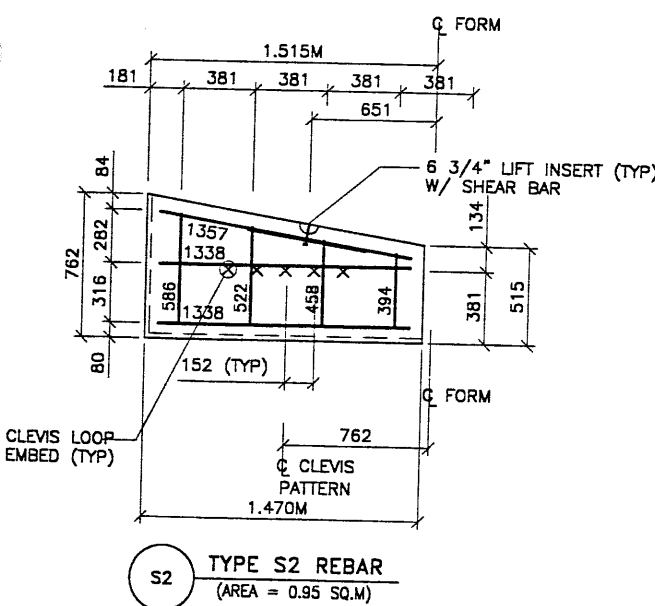
FINAL PLOT 02-23-98 H:\RE_EARTH\PROJECT\239-0007\1998\72S-72-31\SPECIALS

DATE (X-UTAH:DWG)

APPROVED FOR CONSTRUCTION		
NO.	DATE	DESCRIPTION
△	03-16-98	RELEASE FOR CONSTRUCTION

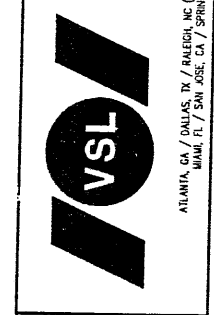


- PANEL REINFORCEMENT NOTES:
1. PANELS ARE SHOWN BACK FACE.
 2. HORIZONTAL REINFORCEMENT SHALL HAVE 50 mm MINIMUM COVER TO THE BACK FACE.
 3. ALL REINFORCEMENT SHALL HAVE 50 mm MINIMUM COVER TO THE SIDES.
 4. ALL REINFORCING BARS ARE #13 METRIC. LABELS ON EACH BAR INDICATE LENGTH. EXAMPLE: 1345 IS A #13 BAR 1345 mm LONG.
 5. PANEL REINFORCEMENT BARS SHALL BE DEFORMED BILLET STEEL BARS FOR CONCRETE REINFORCEMENT CONFORMING TO THE SPECIFICATIONS OF ASTM DESIGNATION A615, GRADE 60.
 6. ALL REINFORCEMENT STEEL TO BE GALVANIZED IN ACCORDANCE WITH ASTM 767 CLASS I.
 7. CONCRETE PANELS TO HAVE 28 DAY COMPRESSIVE STRENGTH OF 27,500 KPa.
 8. EQUIVALENT WELDED WIRE FABRIC MAY BE USED.
 9. ALL PANELS TO USE 9.5mmØ CLEVIS LOOPS.
 10. VSL RETAINED EARTH™ IS PROTECTED UNDER PATENT 4,725,170.
 11. LIFT INSERTS ARE 6 3/4" LONG IN ALL PANELS LESS THAN 1.524M TALL. PANELS TALLER THAN 1.524M SHALL HAVE 11" LONG LIFT ANCHORS.

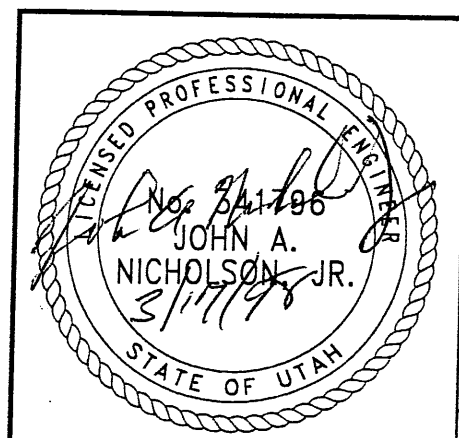


DES.	DRN.	CHK.	NO.	DATE
02-23-98	02-23-98	02-23-98		

VSL CORPORATION
 2840 Plano Place, Suite 200
 Raleigh, NC 27612
 Telephone: (919) 781-8272
 Fax: (919) 781-4889



WASATCH CONSTRUCTORS
 MAR 27 1998
 RELEASED FOR CONSTRUCTION



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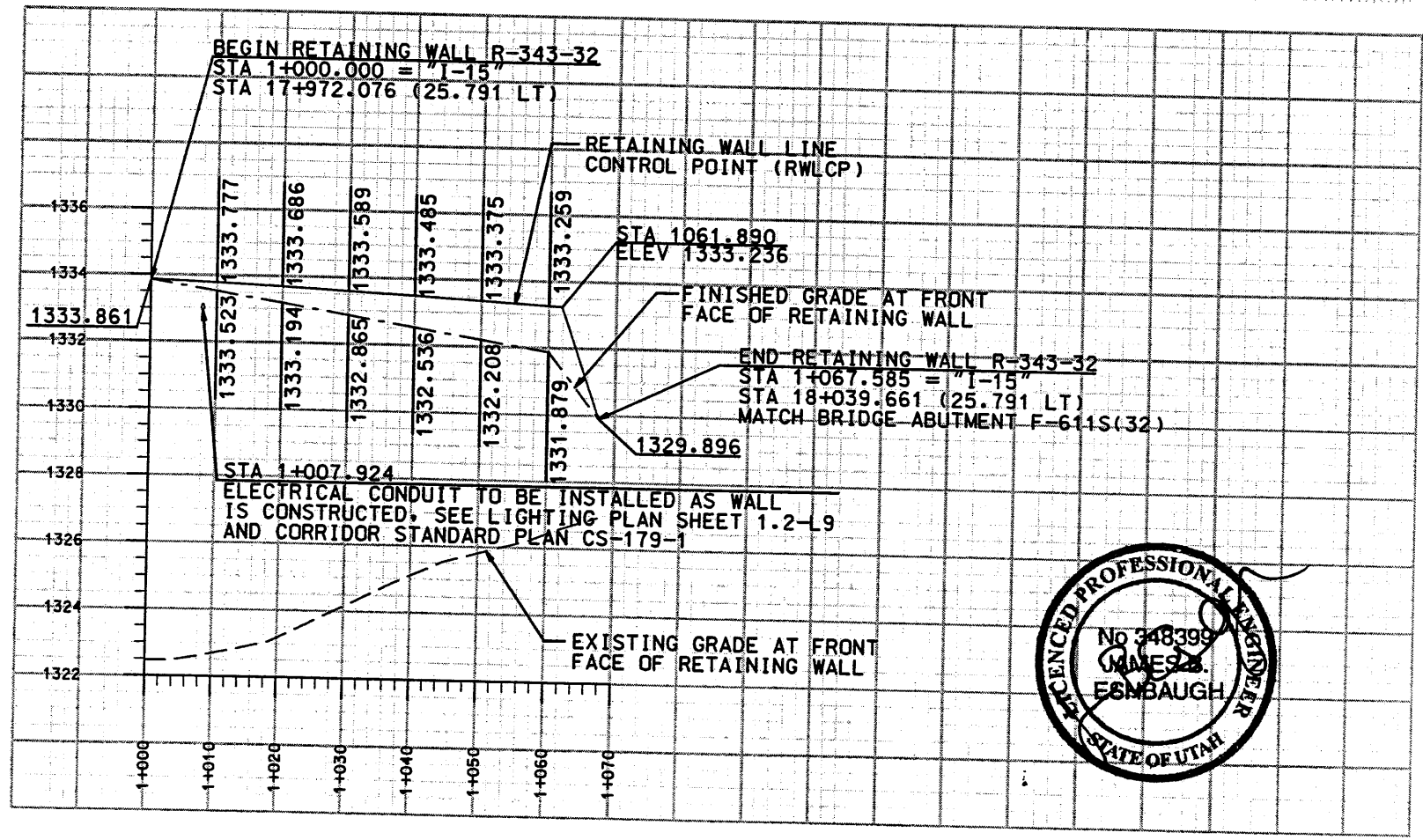
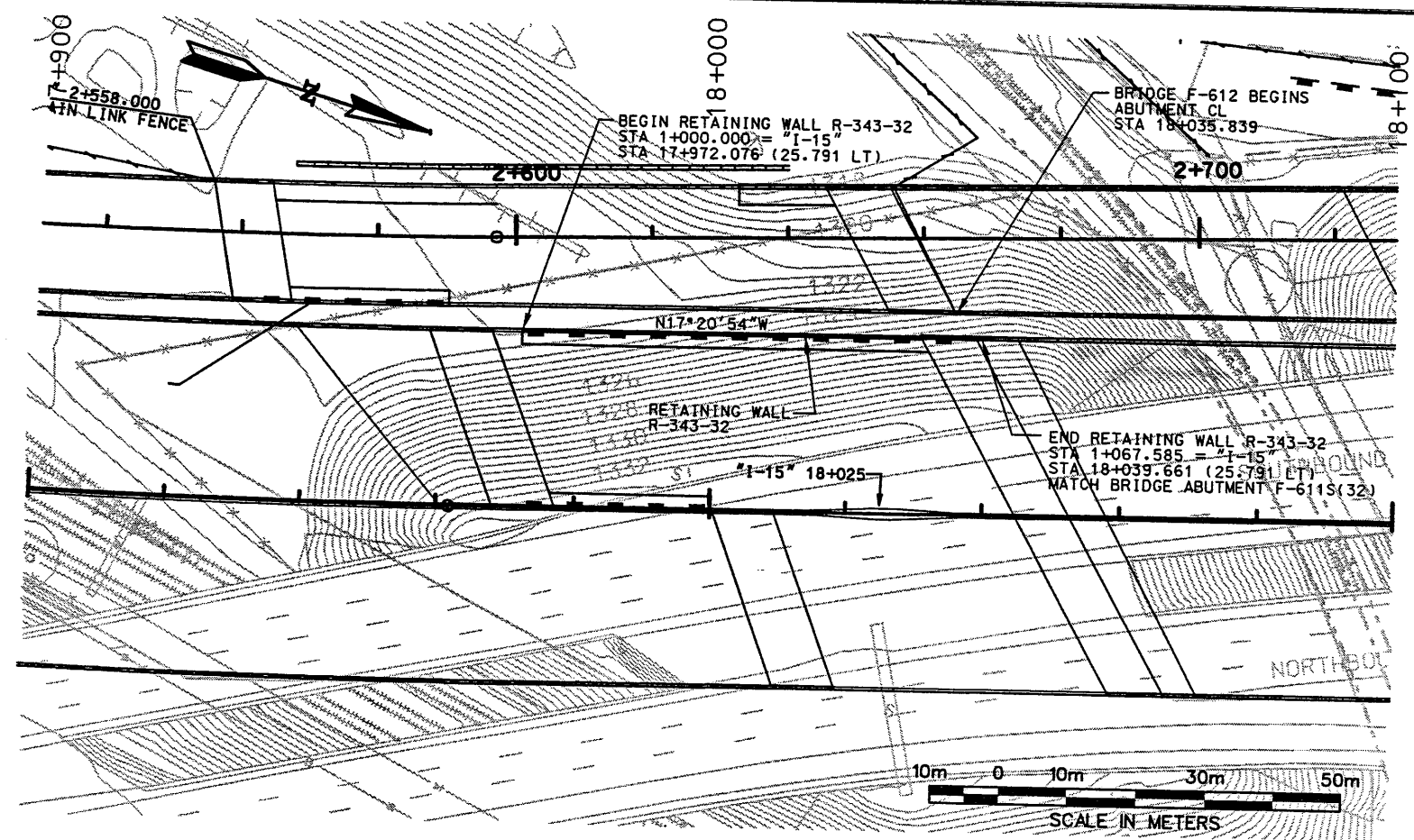
METRIC

RETAINED EARTH™ WALLS
 PRECAST WALL "R-343-31"
 SPECIAL PANEL DETAILS
 UTAH I-15 RECONSTRUCTION
 SALT LAKE COUNTY, UTAH
 UTAH DEPARTMENT OF TRANSP.

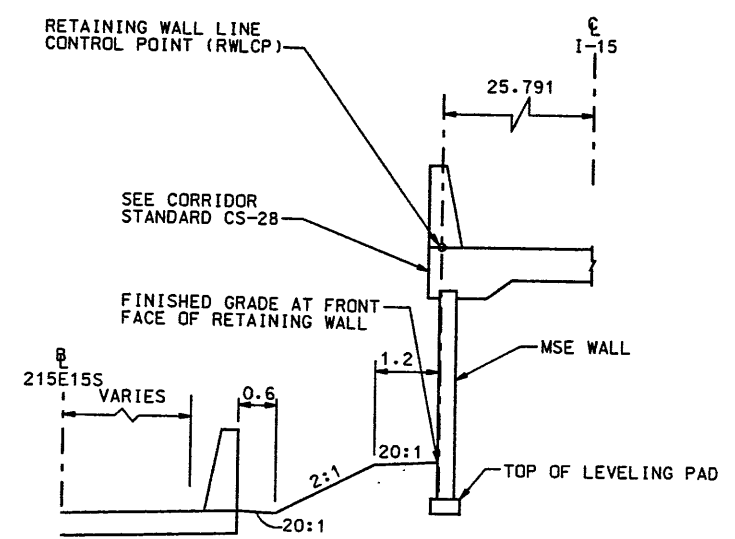
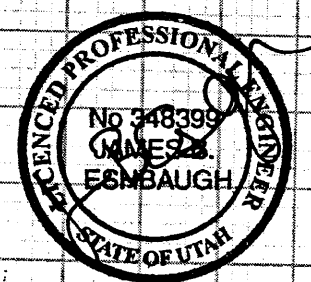
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JOB NO.	239-0007/7
SHT. NO.	RE-5

Uerrname: STOTTRJ

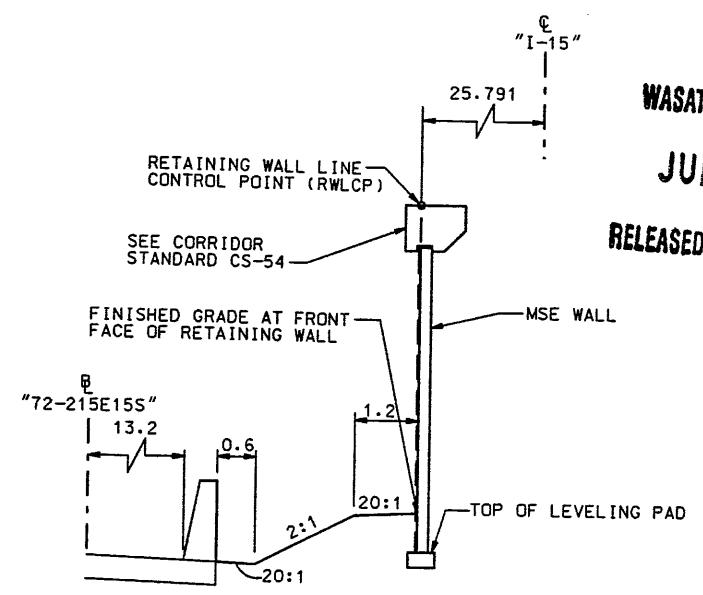
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ELEVATION VIEW FROM BACK OF RETAINING WALL



TYPICAL SECTION
WALL R-343-32
STA 1+000.000 TO STA 1+061.890

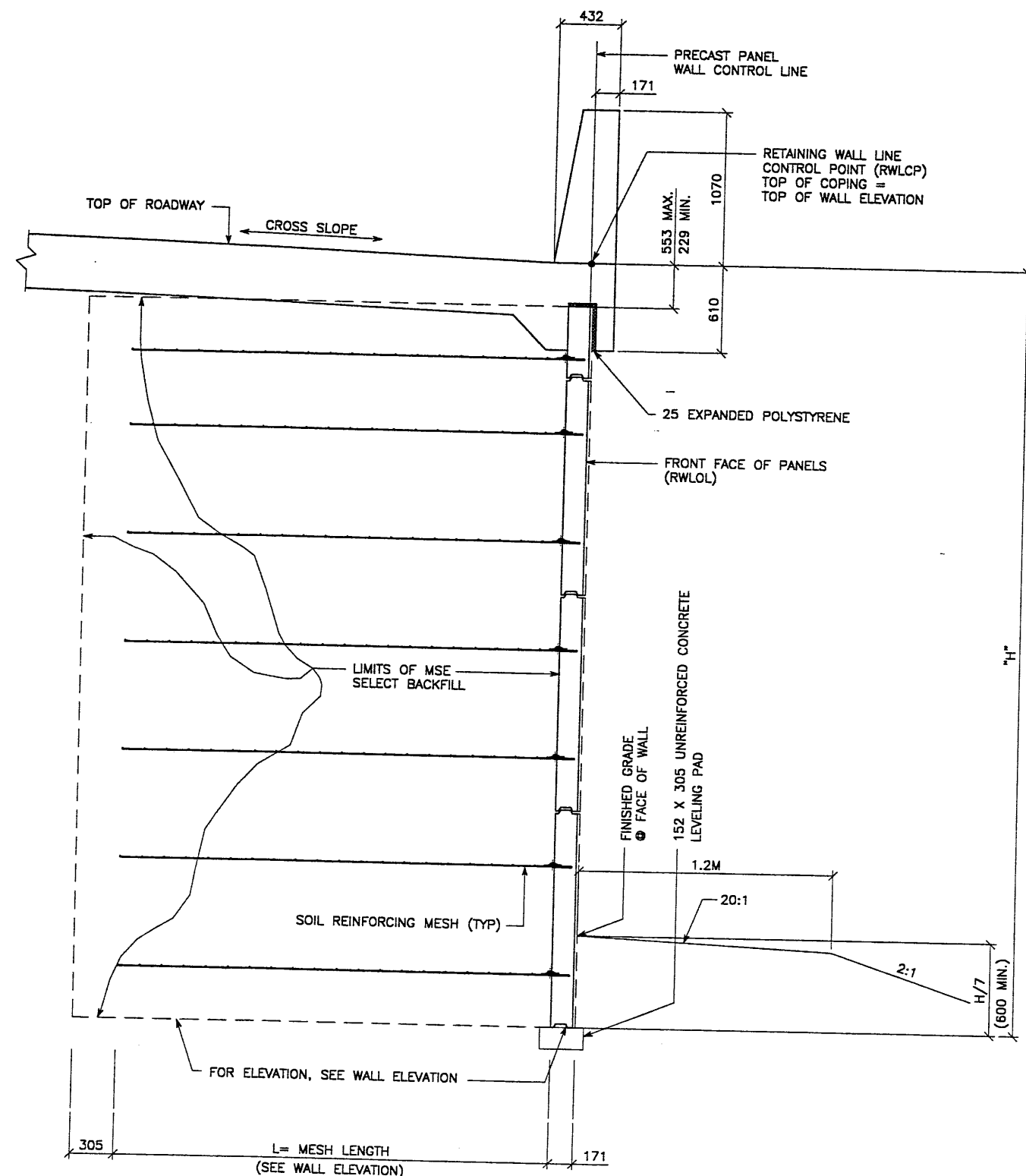


TYPICAL SECTION
WALL R-343-32
STA 1+061.890 TO STA 1+067.585

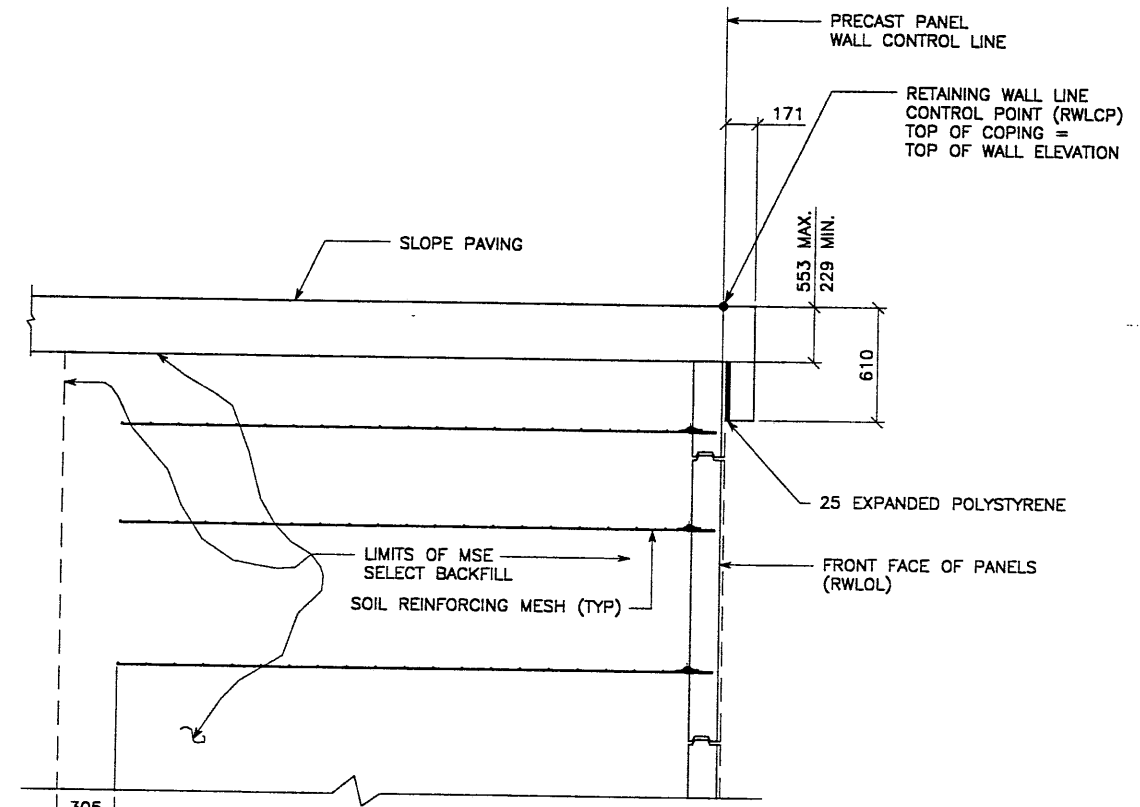
WASATCH CONSTRUCTORS
JUN 16 1998
RELEASED FOR CONSTRUCTION

APPROVED FOR CONSTRUCTION		DESCRIPTION	
NO.	DATE	NO.	DATE
1	6-09-98		
UTAH DEPARTMENT OF TRANSPORTATION		1212401	
SITUATION/LAYOUT		DESIGN PRV 11/97	
RETAINING WALL R-343-32		CHECK JBE 11/97	
SECTION 1.2		DRAWN PRV 11/97	
PROJECT NUMBER #SP-15-7(135)296		CHECK JBE 11/97	
SALT LAKE COUNTY		PROJECT MANAGER	
DWG. NO. 1.2R-343-32.1		DATE	
SHT. 1 OF 1		DATE	
REF.		DATE	

NOTE:
THE FOUNDATION BEARING MATERIALS SHOULD BE OBSERVED BY THE GEOTECHNICAL ENGINEER DURING SITE PREPARATION. ANY UNDESIRABLE MATERIALS WILL NEED TO BE REMOVED AND REPLACED WITH BORROW IN ORDER TO ACHIEVE ACCEPTABLE CONDITIONS AT THE BASE OF THE WALL.



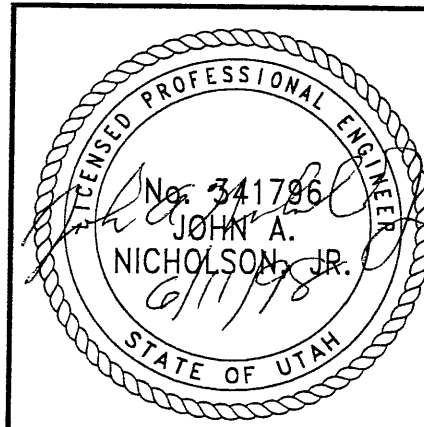
TYPICAL CROSS SECTION - STA 1+000.000 TO STA 1+065.616
 (SEE DWG. NO. 1.2R-343-32.1 FOR ADDITIONAL INFORMATION)
 SCALE: 1:20 (FULL SIZE)
 SCALE: 1:40 (HALF SIZE)



TYPICAL CROSS SECTION - STA 1+065.616 TO 1+067.585
 (SEE DWG. NO. 1.2R-343-32.1 FOR ADDITIONAL INFORMATION)
 SCALE: 1:20 (FULL SIZE)
 SCALE: 1:40 (HALF SIZE)

METRIC

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APPROVED FOR CONSTRUCTION		
NO.	DATE	DESCRIPTION
△	06-05-98	RELEASE FOR CONSTRUCTION

DES.	DRN.	CHK.	RETAINED EARTH™	NO.	DATE	REVISION	BY
JL	RSW	JL	RETAINED EARTH™				CHK
05-20-98	05-20-98	05-20-98					

VSL CORPORATION
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 Raleigh, NC 27612
 Telephone: (919) 781-8272
 Fax: (919) 781-4869

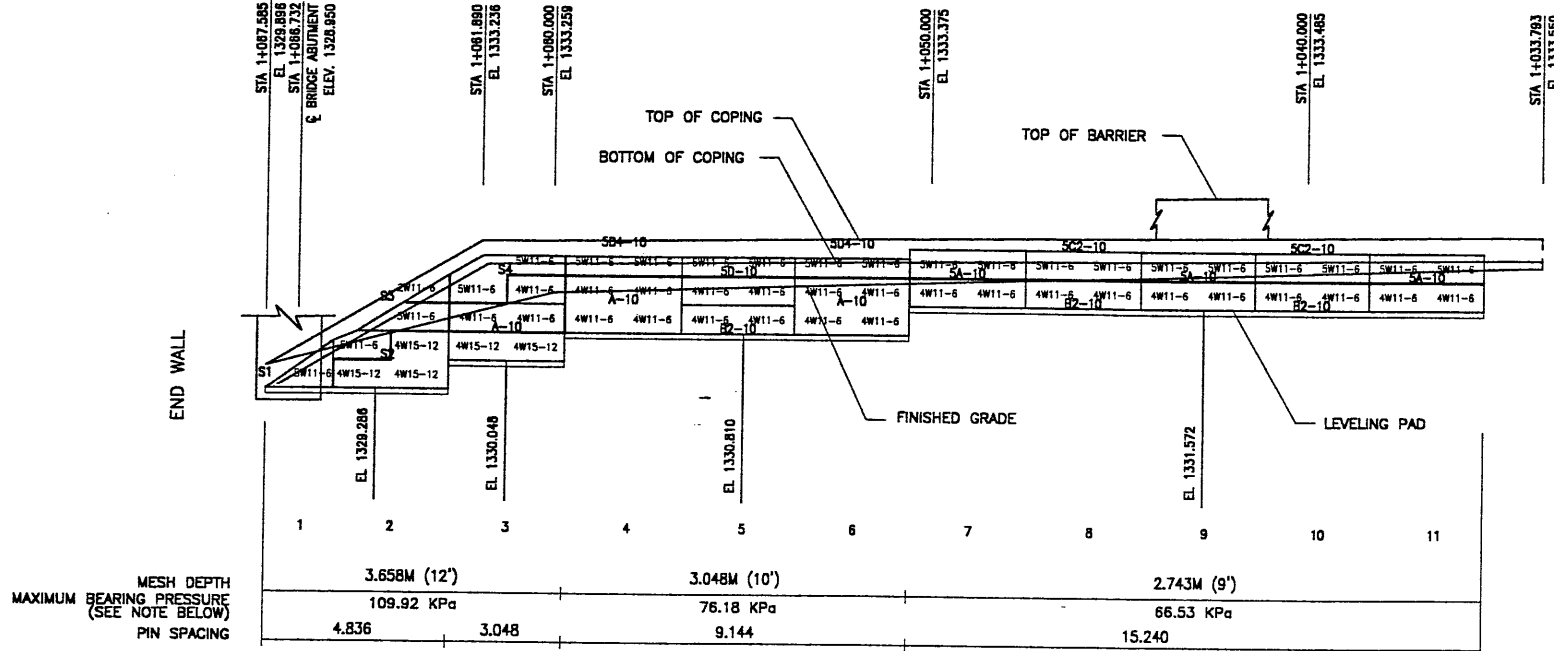
ALABAMA, CA / DALLAS, TX / RALEIGH, NC (CORPORATE OFFICE)
 MIAMI, FL / SAN JOSE, CA / SPRINGFIELD, VA

VSL Corporation (VSL) does a strict proprietary design and construction of retaining walls and structures. Information for such information is not to be used for any other project without the written consent of VSL. VSL is not responsible for any errors or omissions in this drawing.

WASATCH CONSTRUCTORS
JUN 16 1998
RELEASED FOR CONSTRUCTION

RETAINED EARTH™ WALLS PRECAST WALL "R-343-32" TYPICAL CROSS SECTION	UTAH I-15 RECONSTRUCTION SALT LAKE COUNTY, UTAH UTAH DEPARTMENT OF TRANSP.
DWG. NO. 1.2R-343-32.3	JOB NO. 239-0007/3/5
SHT. NO. RE-2	

END WALL R-343-32
 WALL STA 1+067.585 =
 I-15 STA 18+039.661
 @ 25.791 LT
 NOMINAL PANEL FACE (RWL/L)

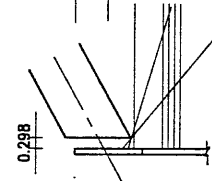


MESH DEPTH	MAXIMUM BEARING PRESSURE (SEE NOTE BELOW)	PIN SPACING
3.658M (12')	109.92 KPa	4.836
3.048M (10')	76.18 KPa	3.048
2.743M (9')	66.53 KPa	15.240

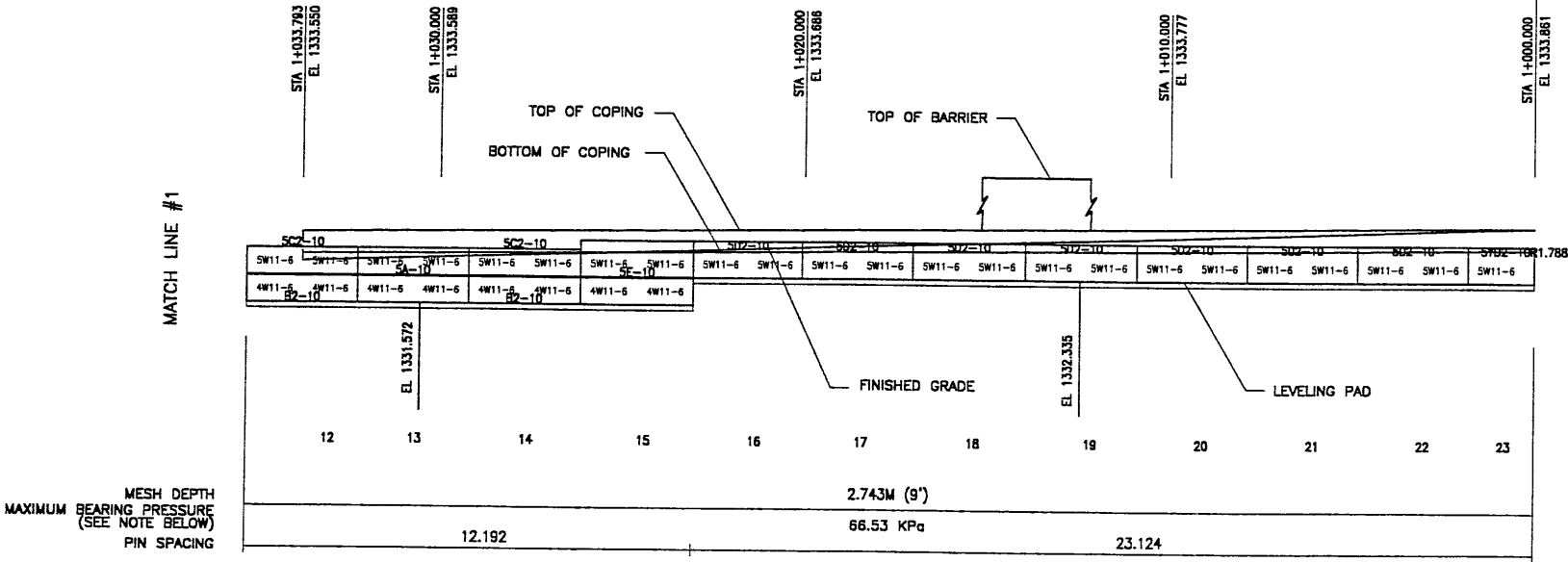
MATCH LINE #1

END WALL R-343-32
 WALL STA 1+067.585 =
 I-15 STA 18+039.661

BRIDGE ABUTMENT
 WALL STA 1+066.732 =
 I-15 STA 18+038.808



BEGIN WALL R-343-32
 WALL STA 1+000.000 =
 I-15 STA 17+972.076
 @ 25.791 LT
 NOMINAL PANEL FACE (RWL/L)



MESH DEPTH	MAXIMUM BEARING PRESSURE (SEE NOTE BELOW)	PIN SPACING
2.743M (9')	66.53 KPa	12.192
2.743M (9')	66.53 KPa	23.124

BEGIN WALL

ELEVATION PRECAST WALL R-343-32

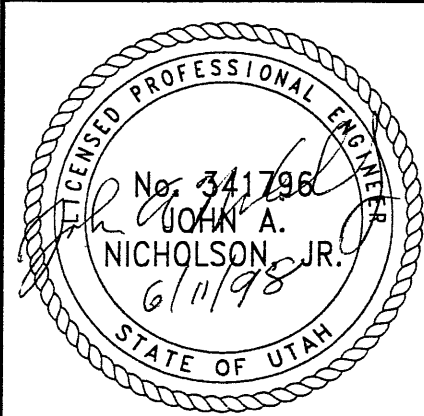
(FRONT FACE SHOWN)
 (TOTAL SURFACE AREA OF PANELS = 100.55 SM)

SCALE 1:100 (FULL SIZE)
 SCALE 1:200 (HALF SIZE)

METRIC

APPROVER NOTE:
 MAXIMUM FINAL UNFACTORED BEARING PRESSURES
 ARE INDICATED BELOW "MESH DEPTH LINE"
 REVIEWER TO VERIFY MAXIMUM BEARING
 CAPACITY OF FOUNDATION.

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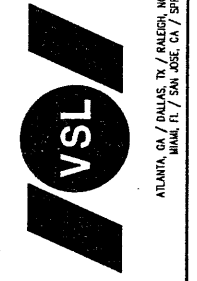


WASATCH CONSTRUCTORS
 JUN 16 1998
 RELEASED FOR CONSTRUCTION

APPROVED FOR CONSTRUCTION		
NO.	DATE	DESCRIPTION
1	6-05-98	RELEASE FOR CONSTRUCTION

DES.	DRN.	CHK.	RETAINED EARTH™	NO.	DATE	REVISION	BY	CHK
JL	RSW	JL						

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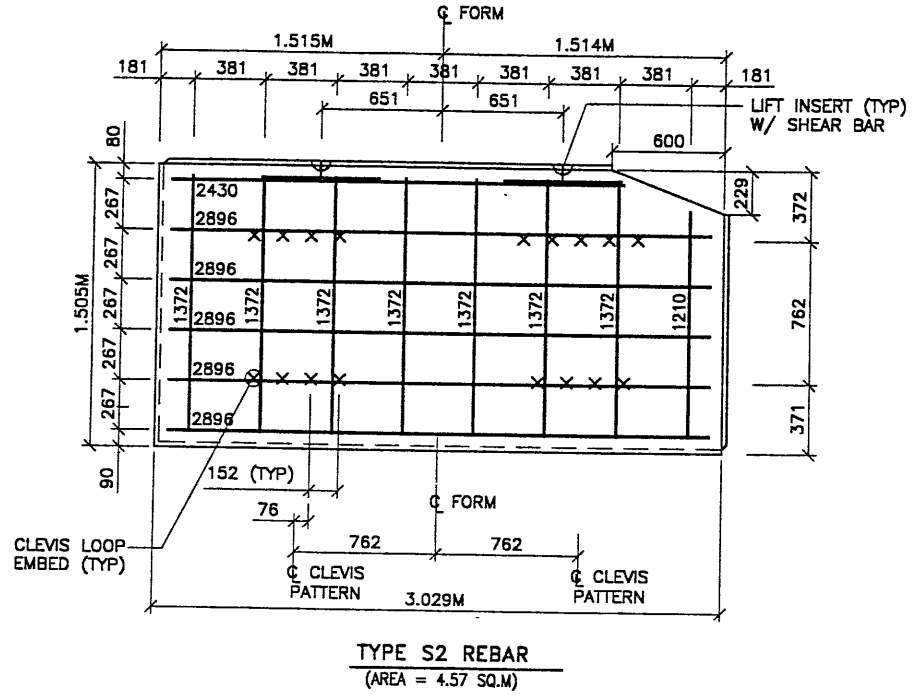
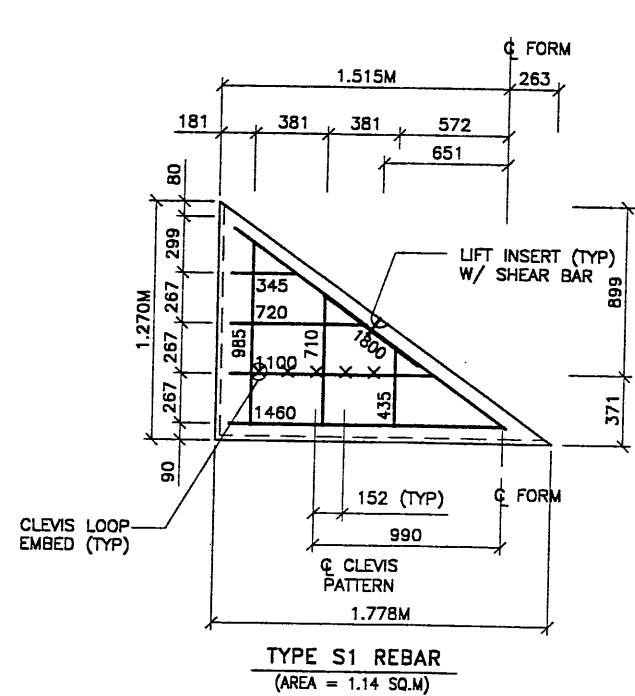
VSL Corporation (VSL) owns a U.S. proprietary right in its design, specification and construction methods for retaining walls. These methods are the result of extensive research and development. VSL warrants that its design, specification and construction methods are the best available for the type of retaining wall shown on this drawing. VSL does not warrant or accept any liability for any other use or misuse of its design, specification and construction methods. VSL DISCLAIMS ANY LIABILITY THEREFOR.

RETAINED EARTH™ WALLS
 PRECAST WALL "R-343-32"
 UTAH I-15 RECONSTRUCTION
 SALT LAKE COUNTY, UTAH
 UTAH DEPARTMENT OF TRANSP.

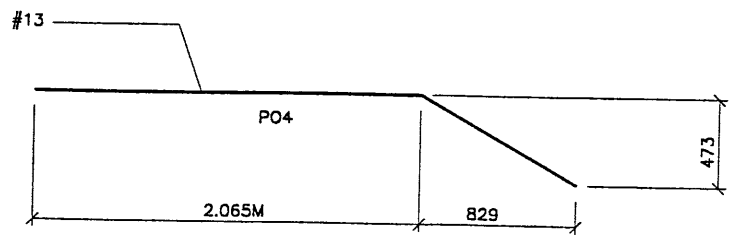
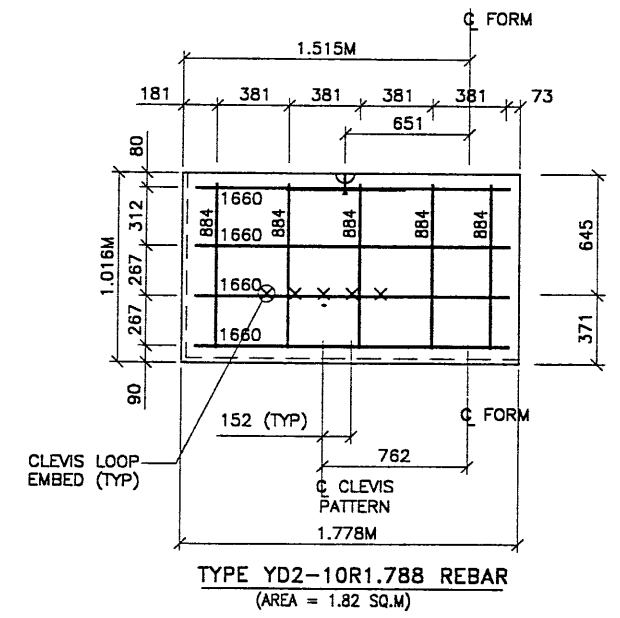
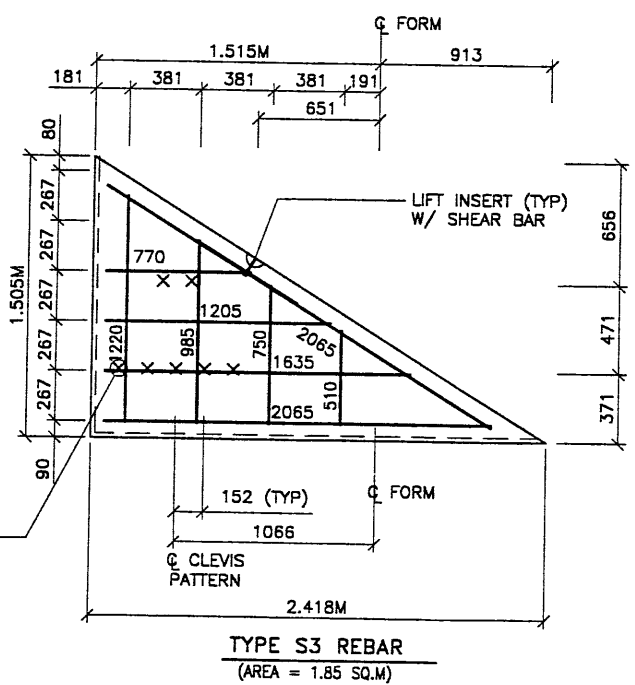
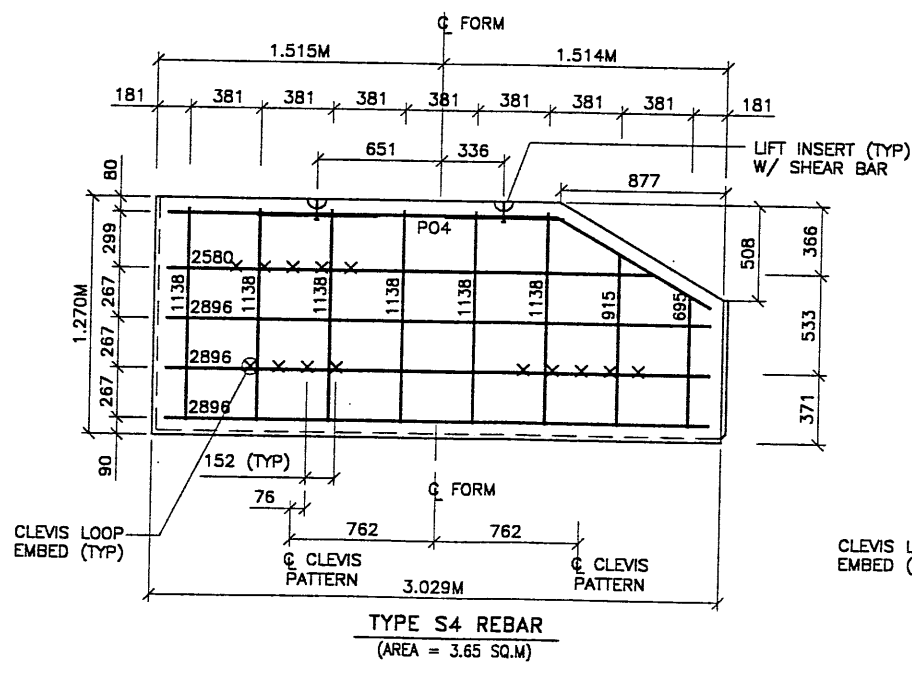
DWG. NO.	1.3R-343-32.4
JOB NO.	239-0007 4/5
SHT. NO.	RE-3

APPROVED FOR CONSTRUCTION		
NO.	DATE	DESCRIPTION
△	06-05-98	RELEASE FOR CONSTRUCTION

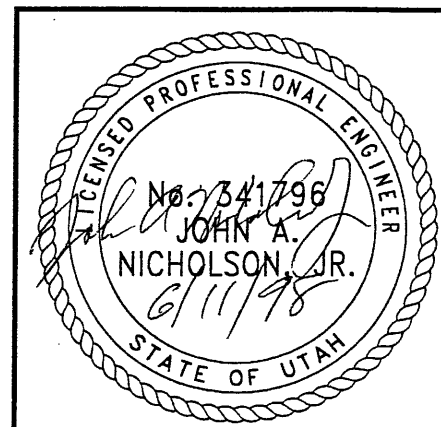
NO.	DATE	REVISION	CHK



- PANEL REINFORCEMENT NOTES:**
1. PANELS ARE SHOWN BACK FACE.
 2. HORIZONTAL REINFORCEMENT SHALL HAVE 50 mm MINIMUM COVER TO THE BACK FACE.
 3. ALL REINFORCEMENT SHALL HAVE 50 mm MINIMUM COVER TO THE SIDES.
 4. ALL REINFORCING BARS ARE #13 METRIC. LABELS ON EACH BAR INDICATE LENGTH. EXAMPLE: 1345 IS A #13 BAR 1345 mm LONG.
 5. PANEL REINFORCEMENT BARS SHALL BE DEFORMED BILLET STEEL BARS FOR CONCRETE REINFORCEMENT CONFORMING TO THE SPECIFICATIONS OF ASTM DESIGNATION A615, GRADE 60.
 6. ALL REINFORCING STEEL TO BE GALVANIZED IN ACCORDANCE WITH ASTM 767 CLASS I.
 7. CONCRETE PANELS TO HAVE 28 DAY COMPRESSIVE STRENGTH OF 27,500 KPa.
 8. EQUIVALENT WELDED WIRE FABRIC MAY BE USED.
 9. ALL PANELS TO USE 9.5mmØ CLEVIS LOOPS.
 10. VSL RETAINED EARTH™ IS PROTECTED UNDER PATENT 4,725,170.
 11. LIFT INSERTS ARE 6 3/4" LONG IN ALL PANELS LESS THAN 1.524M TALL. PANELS TALLER THAN 1.524M SHALL HAVE 11" LONG LIFT ANCHORS.



WASATCH CONSTRUCTORS
JUN 16 1998
RELEASED FOR CONSTRUCTION



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METRIC

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VSL
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RETAINED EARTH™ WALLS
PRECAST WALL "R-343-32"
SPECIAL PANEL DETAILS

UTAH I-15 RECONSTRUCTION
SALT LAKE COUNTY, UTAH
UTAH DEPARTMENT OF TRANSP.

DWG. NO.	1.2R-343-32.5
JOB NO.	239-0007/5/5
SHT. NO.	RE-4