Appendix B:
Engineering Plans, Details, and Specifications

TOWN OF SNOWFLAKE

SOUTHERN DRAINAGE SOLUTION, REACHES 1, 2 AND 3

CONTROL POINT	STATION	NORTHING	EASTING
1	1018+00	1280035.812	707435.165
2	1029+00	1279544.801	708419.495
3	1033+00	1279157.970	708521.290
4	1043+00	1278820.214	709462.524
5	1052+00	1278455.456	710285.295
6	1056+00	1278201.755	710594.545
7	1063+00	1278202.070	711294.545
8	1070+50	1277452.070	711294.545
9	1093+00	1277507.885	713543.852
10	1098+50	1277592.546	714087.297
11	1105+00	1277829.658	714692.506
12	1108+33.88	1277973.473	714993.826
13	1110+80.18	1278147.079	715168.534
14	1117+49.92	1278154.446	715838.233
15	1163+27.86	127818.981	720416.054
16	1165+98.16	1278374.664	720611.524

MAYOR
KELLY WILLIS

VICE MAYOR
KERRY BALLARD

COUNCIL
CHRIS BRIMHALL
LORRI DAVIS
SHARON TATE
CHARLIE HENDRICKSON
DEAN PORTER

TOWN MANAGER
PAUL WATSON

PUBLIC WORKS DIRECTOR
GARY FENSTERMAKER

PROJECT ENGINEER
ROBERT TOY, P.E.

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5 ..... PLAN & PROFILE STA 1036+00 - STA 1042+00
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8 ..... PLAN & PROFILE STA 1054+00 - STA 1060+00
9 ..... PLAN & PROFILE STA 1060+00 - STA 1063+00
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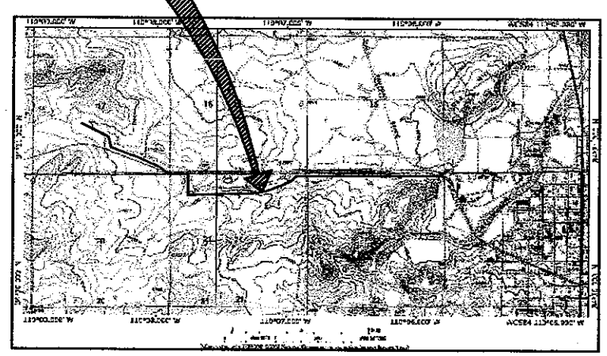
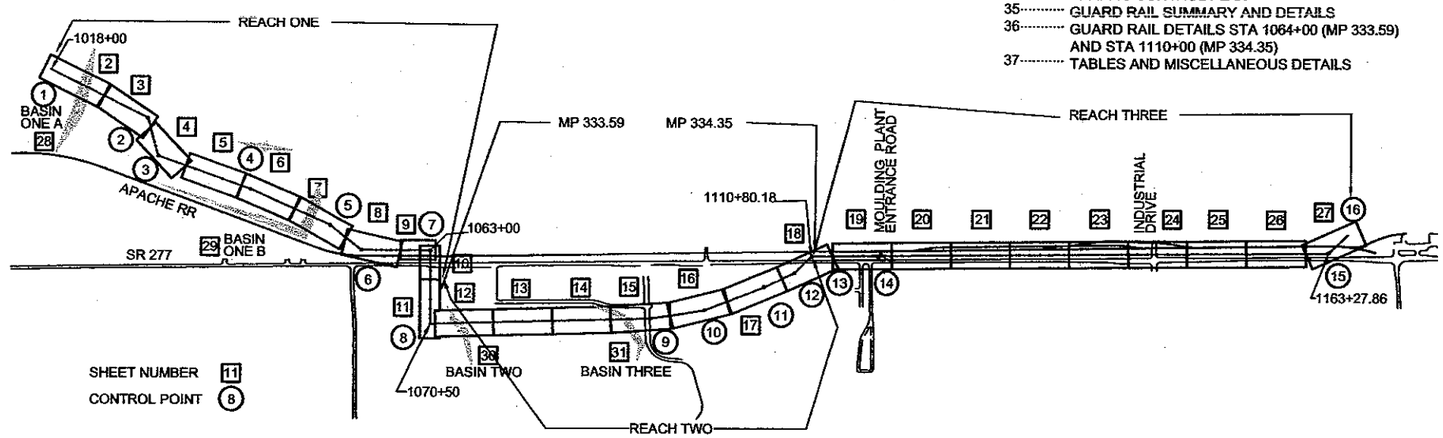
PROJECT



VICINITY MAP
1"=0.5 MILE

POSTED SPEED LIMIT - 45 MPH
DESIGN SPEED LIMIT - 50 MPH
DESIGN ADT - 800 - 2,000



KEY MAP - NO SCALE

NOTE:

PLANS, DETAILS AND SPECIFICATIONS AS PER "MARICOPA ASSOCIATION OF GOVERNMENTS STANDARD SPECIFICATIONS AND DETAILS FOR PUBLIC WORKS CONSTRUCTION" AND DETAILS AS PER "UNIFORM STANDARD DETAILS FOR PUBLIC WORKS CONSTRUCTION" MARICOPA ASSOCIATION OF GOVERNMENTS AND " ARIZONA DEPARTMENT OF TRANSPORTATION HIGHWAY DIVISION STANDARD DRAWINGS AND SPECIFICATIONS ".

LEGEND

Delineated Waters of the United States. No disturbance, storage, fueling, discharge (fill) or staging in this area except where discharge (fill) is specifically shown on the plans.

APPROVALS:

TOWN MANAGER — DATE

PUBLIC WORKS DIRECTOR — DATE

PROJECT ENGINEER — DATE

YOST AND GARDNER ENGINEERS
2619 N. THIRD STREET
PHOENIX, ARIZONA 85004
PHONE: (602) 264-6424
FAX: (602) 277-6716

CONTENTS: COVER SHEET

PROJECT: SOUTHERN DRAINAGE SOLUTION
SNOWFLAKE, ARIZONA

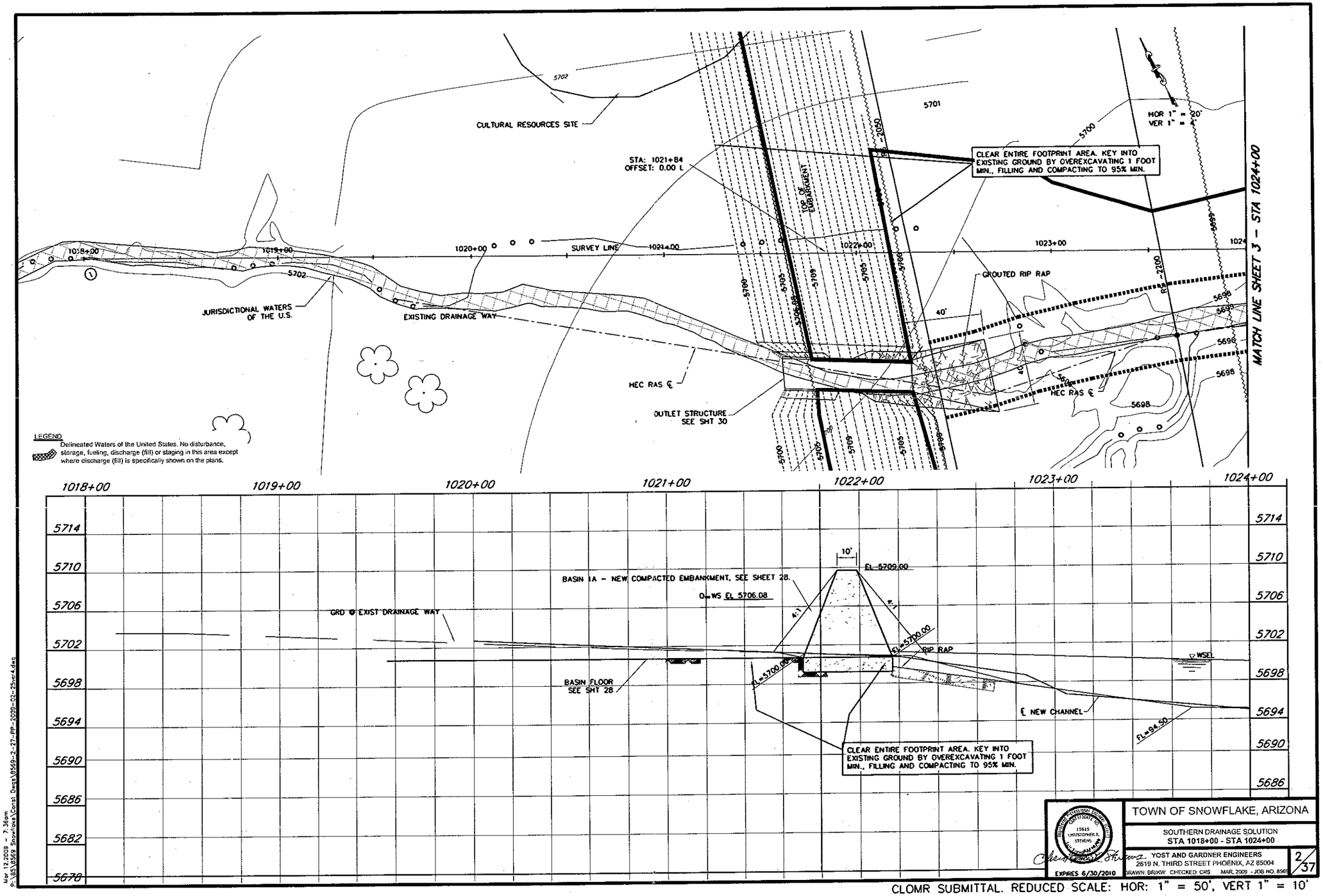
263-1100

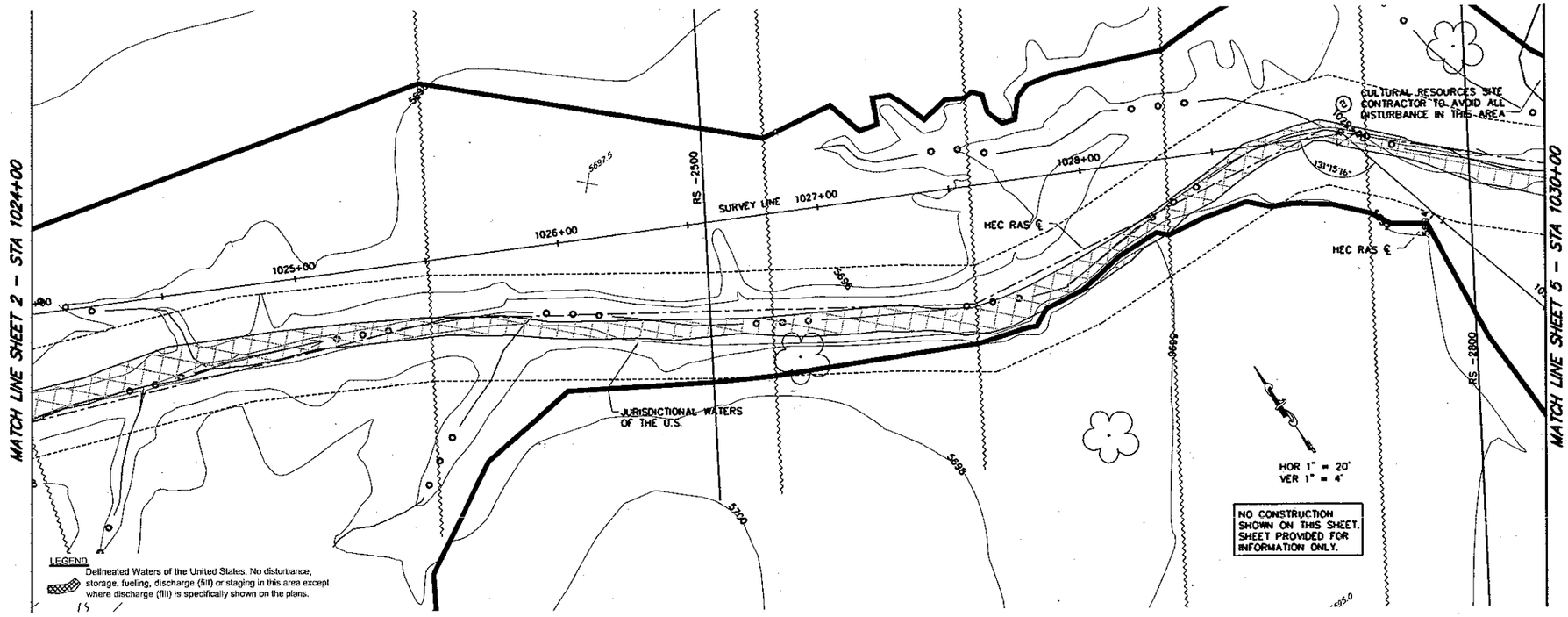
REVISIONS

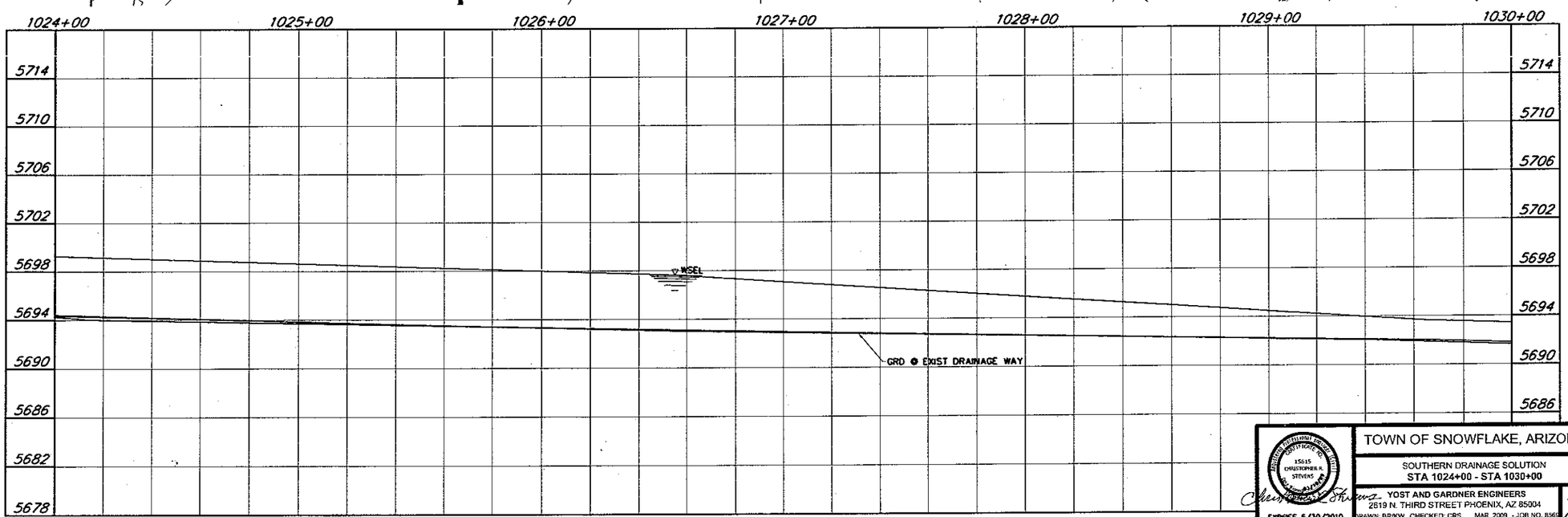
15615 CHRISTOPHER R. STEVERS
Expires 06/30/2010

DRN BY: BR
CHKD BY: JEE
JOB NO.: 8569
DATE: JUN, 2006
SHEET NO.
1 OF 37

CLOMR SUBMITTAL REDUCED SIZE – DO NOT SCALE


CULTURAL RESOURCES SITE
STA: 1021+84
OFFSET: 0.00 L
TOP OF EMBANKMENT
CLEAR ENTIRE FOOTPRINT AREA. KEY INTO EXISTING GROUND BY OVEREXCAVATING 1 FOOT MIN., FILLING AND COMPACTING TO 95% MIN.
HOR 1" = 20'
VER 1" = 4'
MATCH LINE SHEET 3 - STA 1024+00
SURVEY LINE
JURISDICTIONAL WATERS OF THE U.S.
EXISTING DRAINAGE WAY
GROUTED RIP RAP
HEC RAS ℄
OUTLET STRUCTURE SEE SHT 30
LEGEND
Delineated Waters of the United States. No disturbance, storage, fueling, discharge (fill) or staging in this area except where discharge (fill) is specifically shown on the plans.
BASIN 1A - NEW COMPACTED EMBANKMENT, SEE SHEET 28.
OHWS EL 5706.08
EL 5709.00
GRD @ EXIST DRAINAGE WAY
RIP RAP
BASIN FLOOR SEE SHT 28
WSEL
℄ NEW CHANNEL
EL=94.50
CLEAR ENTIRE FOOTPRINT AREA. KEY INTO EXISTING GROUND BY OVEREXCAVATING 1 FOOT MIN., FILLING AND COMPACTING TO 95% MIN.
TOWN OF SNOWFLAKE, ARIZONA
SOUTHERN DRAINAGE SOLUTION
STA 1018+00 - STA 1024+00
YOST AND GARDNER ENGINEERS
2619 N. THIRD STREET PHOENIX, AZ 85004
DRAWN: BRWW CHECKED: CRS MAR. 2009 - JOB NO. 8569
EXPIRES 6/30/2010
2/37
CLOMR SUBMITTAL. REDUCED SCALE: HOR: 1" = 50', VERT 1" = 10'





TOWN OF SNOWFLAKE, ARIZONA

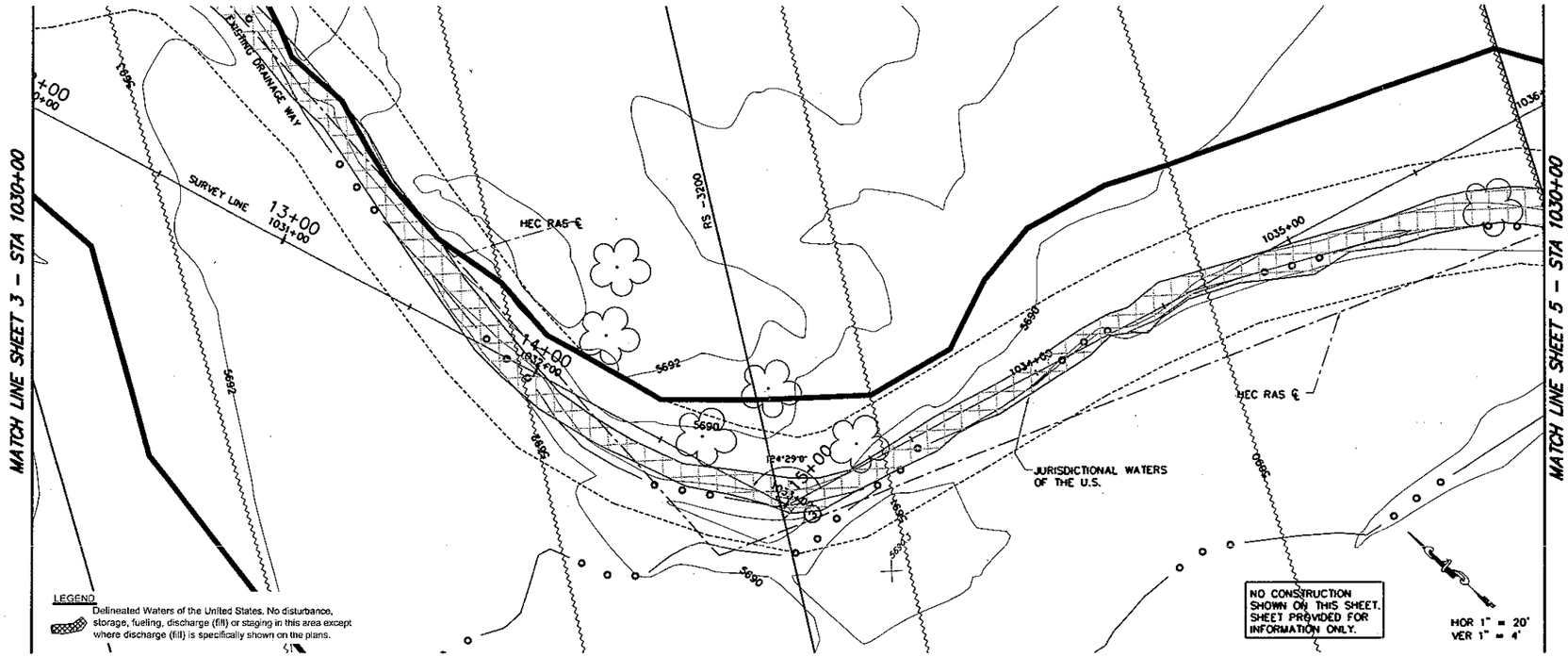
SOUTHERN DRAINAGE SOLUTION
STA 1024+00 - STA 1030+00

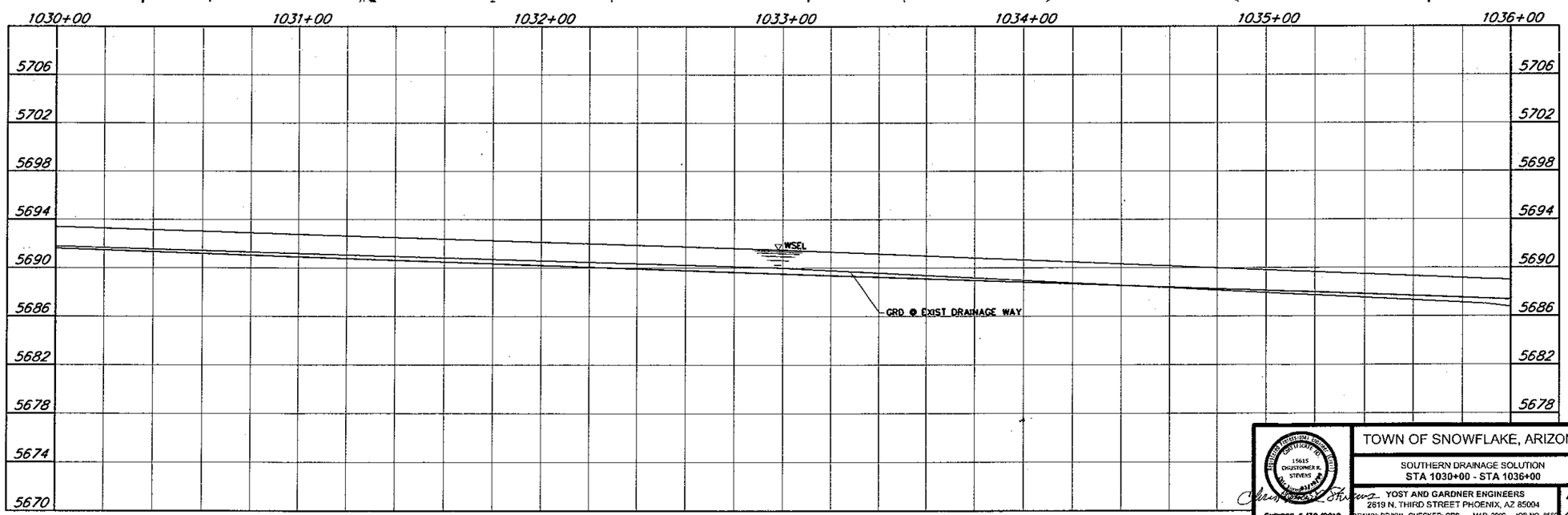
YOST AND GARDNER ENGINEERS
2619 N. THIRD STREET PHOENIX, AZ 85004
DRAWN: BR/KW CHECKED: CRS MAR, 2009 - JOB NO. 8569

EXPIRES 6/30/2010

3/37

CLOMR SUBMITTAL. REDUCED SCALE: HOR: 1" = 50', VERT 1" = 10'





TOWN OF SNOWFLAKE, ARIZONA

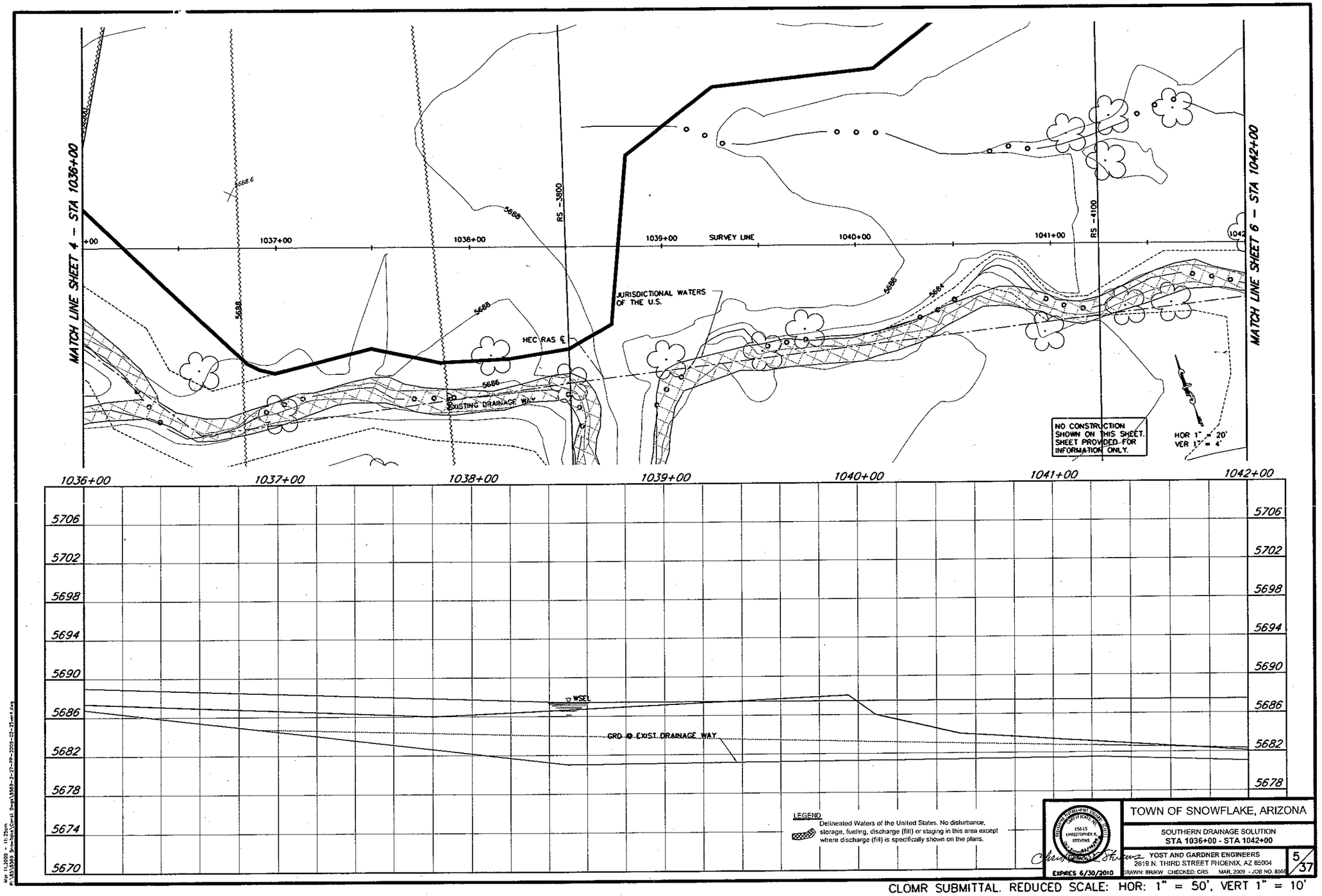
SOUTHERN DRAINAGE SOLUTION
STA 1030+00 - STA 1036+00

YOST AND GARDNER ENGINEERS
2619 N. THIRD STREET PHOENIX, AZ 85004
DRAWN: BR/KW CHECKED: CRS MAR. 2009 - JOB NO. 8569

4/37

15615 CHRISTOPHER R. STEVENS
EXPIRES 6/30/2010

CLOMR SUBMITTAL. REDUCED SCALE: HOR: 1" = 50', VERT 1" = 10'



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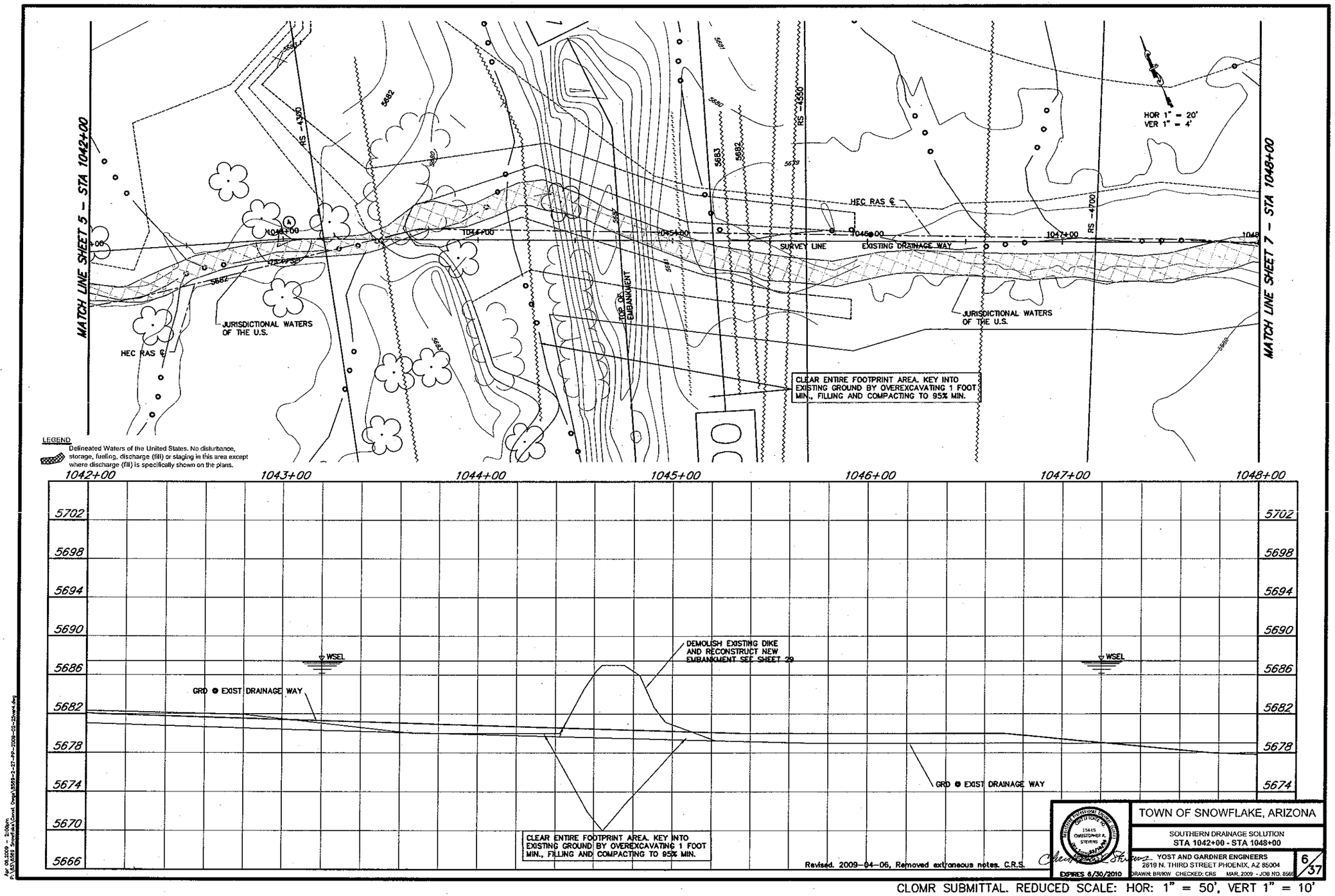

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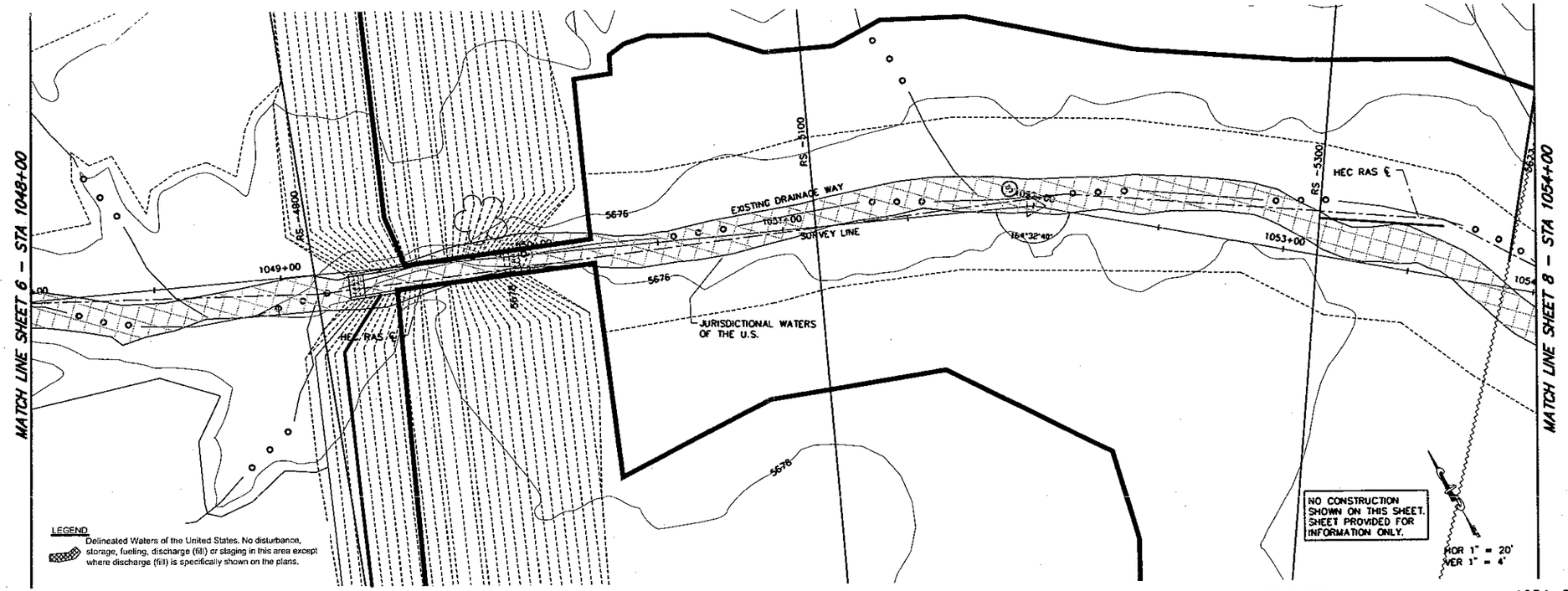

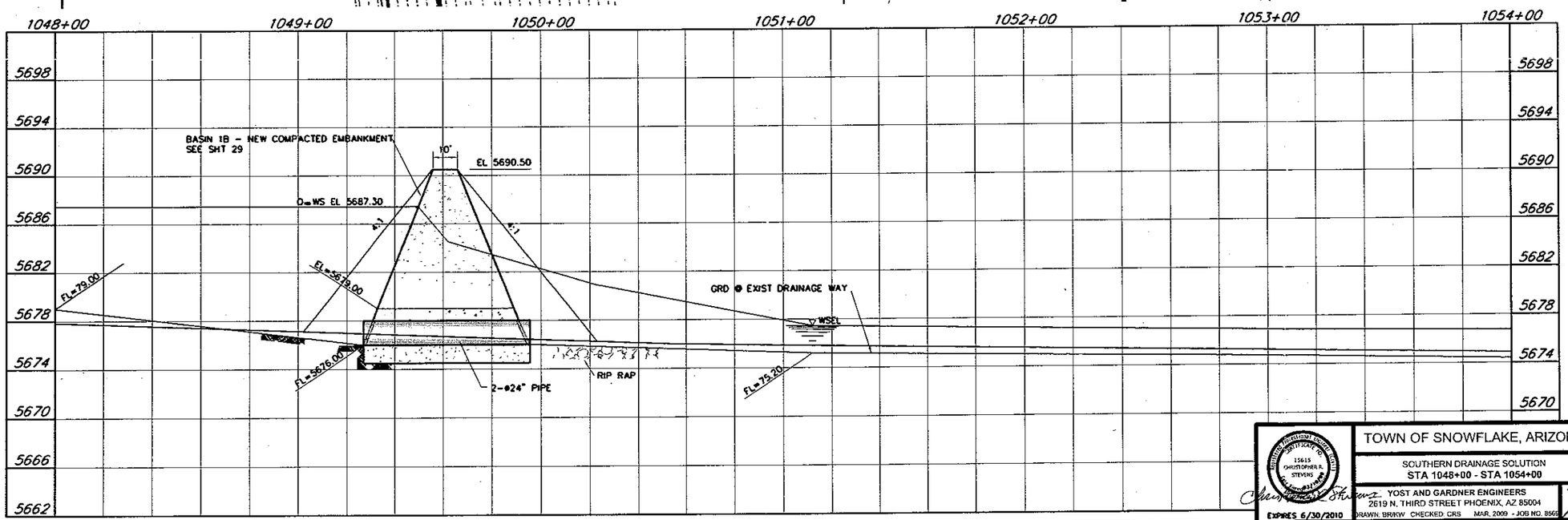

TOWN OF SNOWFLAKE, ARIZONA

SOUTHERN DRAINAGE SOLUTION
STA 1048+00 - STA 1054+00

YOST AND GARDNER ENGINEERS
2619 N. THIRD STREET PHOENIX, AZ 85004
DRAWN: BR/KW CHECKED: CRS MAR. 2009 - JOB NO. 8505

7/37

EXPIRES 6/30/2010

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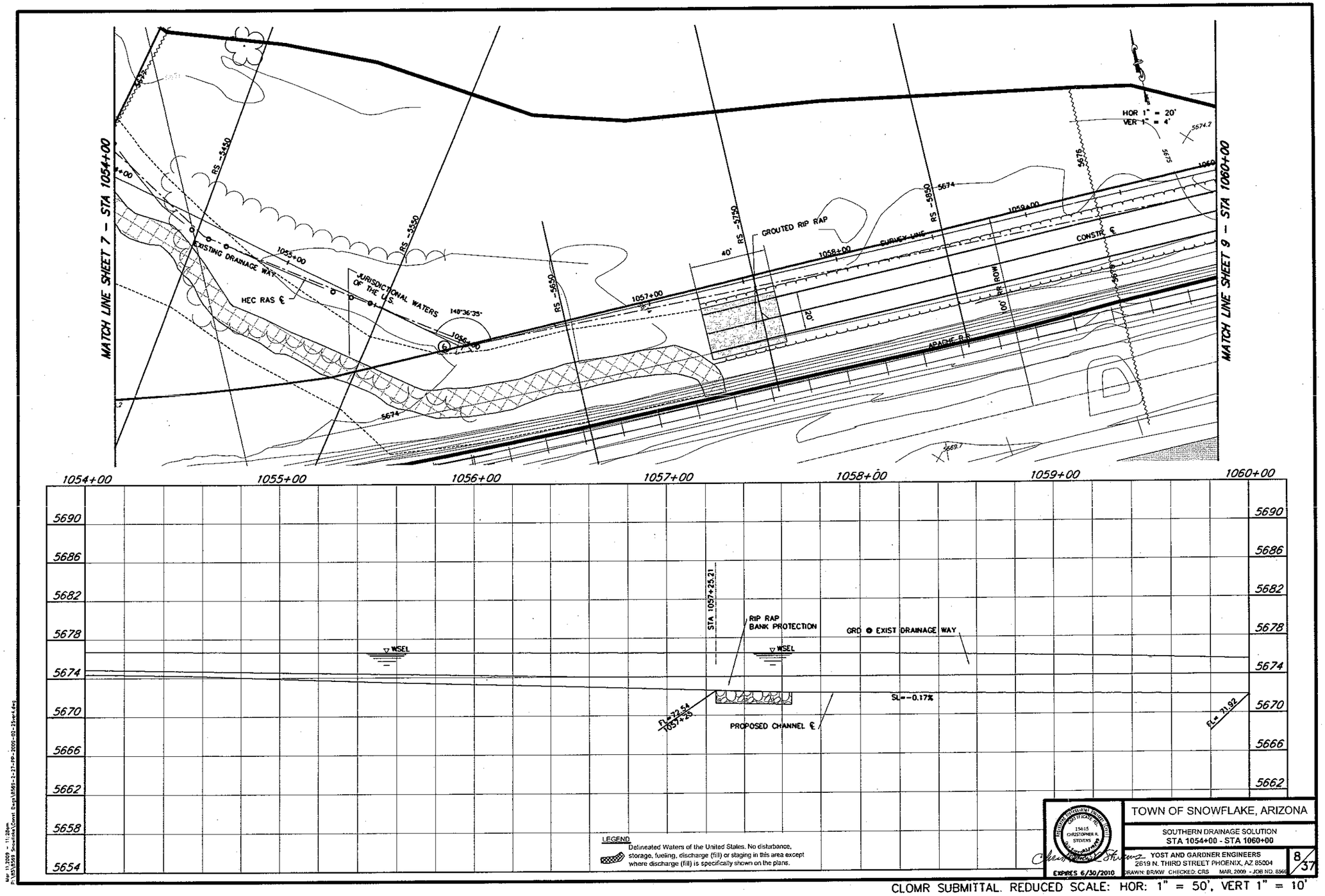

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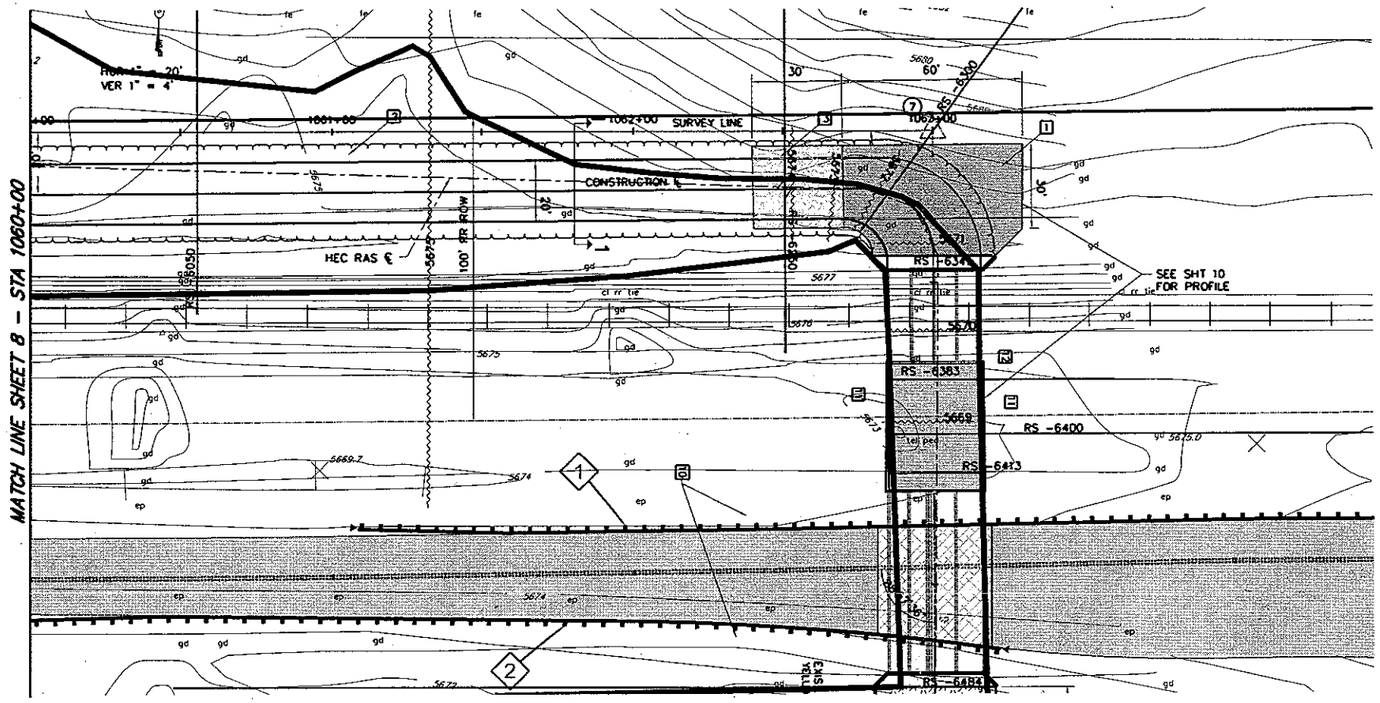
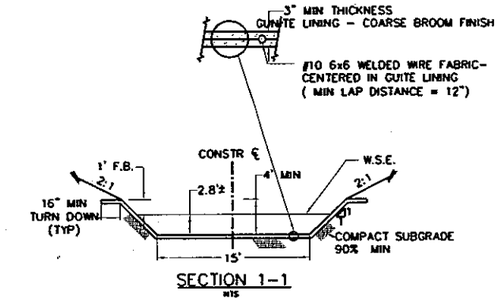


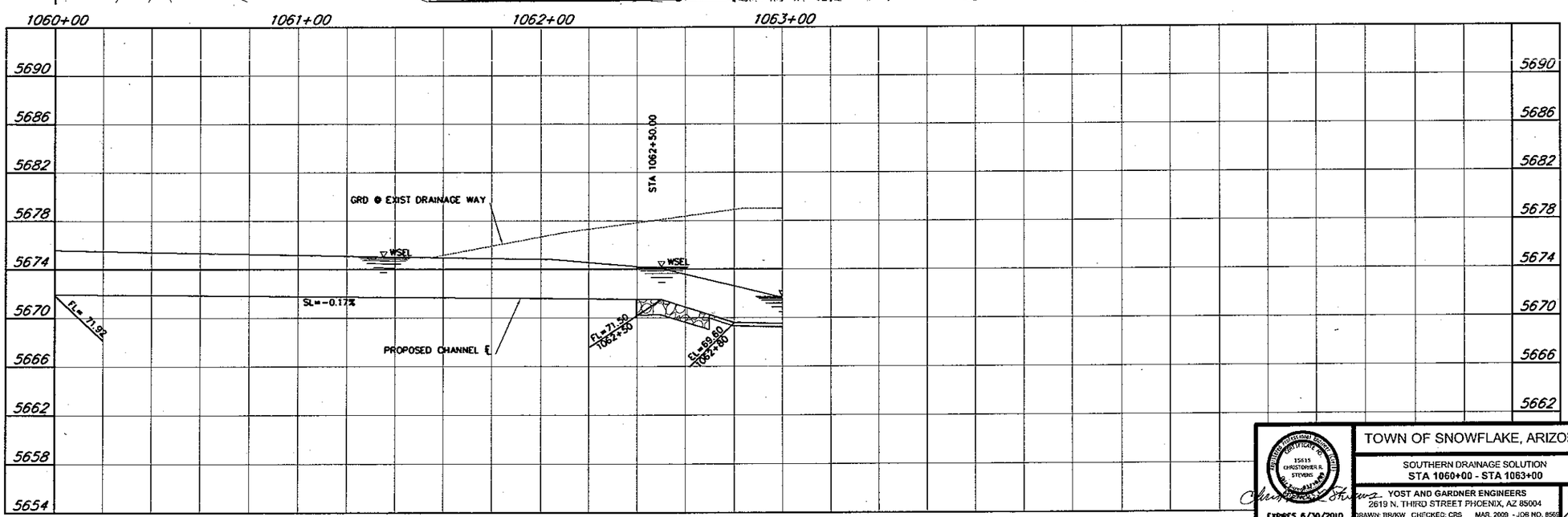
CONSTRUCTION NOTES:

1. GUNITE LINED DRAINAGE CHANNEL – SEE DTL SHT 10
2. EARTHEN CHANNEL – BID ALTERNATE, PROVIDE GUNITE LINED CHANNEL – SEE DTL THIS SHT
3. GROUTED RIP RAP –18" TYP.



SECTION 1–1
NTS

CURVE TABLE				
CURVE	RADIUS	TANGENT	LENGTH	DELTA
C1	30.95	25.70	42.90	79°24'47"



TOWN OF SNOWFLAKE, ARIZONA

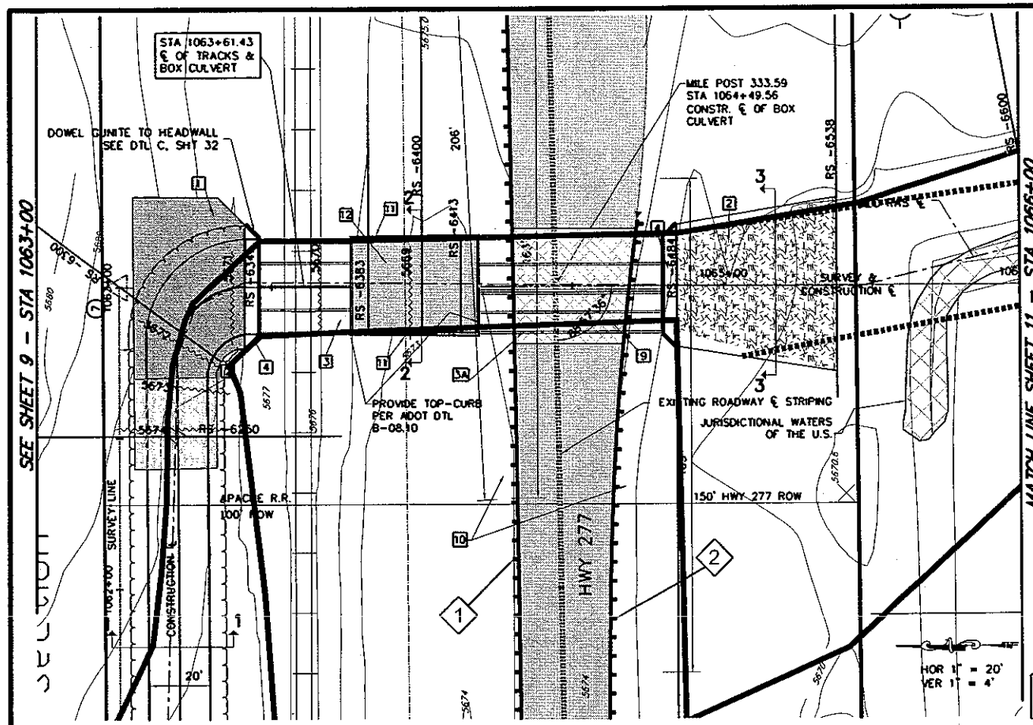
SOUTHERN DRAINAGE SOLUTION
STA 1060+00 - STA 1063+00

YOST AND GARDNER ENGINEERS
2619 N. THIRD STREET PHOENIX, AZ 85004
DRAWN: BR/KW CHECKED: CRS MAR. 2009 - JOB NO. 8569

9/37

EXPIRES 6/30/2010

CLOMR SUBMITTAL. REDUCED SCALE: HOR: 1" = 50', VERT 1" = 10'



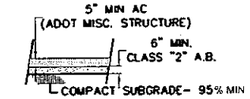
NOTE: SEE DETAILS OF TEMPORARY CONSTRUCTION BYPASS – SHEET 33

CONSTRUCTION NOTES:

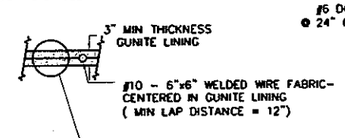
1. GUNITE LINED DRAINAGE CHANNEL – SEE DTL THIS SHEET
2. GROUTED RIP RAP PER MAG DTL 555
3. CONCRETE BOX CULVERT – PER "MANUAL FOR RAILWAY ENGINEERING, CHAPTER 8, AMERICAN RAILWAY ENGINEERING AND MAINTENANCE-OF-WAY ASSOCIATION" – 4-BARREL 7' (WIDTH) x 3' (HEIGHT). SEE DTLS SHEET 33.

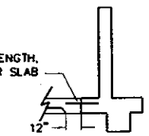
3A. CONCRETE BOX CULVERT – 4-BARREL (2-6'x3' AND 2-8'x3') PER ADOT STD DWG NO B-02.10 – LENGTH AS SHOWN. INLET WING WALLS DELETED – SEE DTLS SHT 32. (BID ALTERNATE NO. ONE – PRECAST BOX CULVERT).

4. INLET, OUTLET LEVEL WINGS PER ADOT STD DWG NO B-08.10. SEE SHT 32.
9. SAWCUT , REMOVE AND REPLACE EXIST A.C. PVMT. SEE DETAIL THIS SHEET.
10. TYPE 'A' GUARDRAIL PER ADOT STD DWG NO C-10.02. 50' ET-PLUS HBA POSTS AT END.
11. CANTILEVER RETAINING WALL PER ADOT STD DWG NO B-18.10. SEE SHT 30.
12. 8" THICK SLAB, ADOT CLASS S CONCRETE. REINFORCE WITH #4 @ 8" EACH WAY. THICKEN EDGE AT RETAINING WALL PER DETAIL A, THIS SHEET AND AT CULVERTS PER DETAIL B. SEE SHT 32.

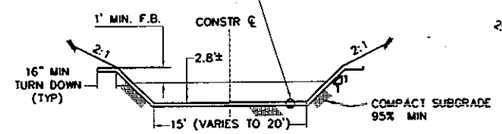


ASPHALT REPLACEMENT
N.T.S.

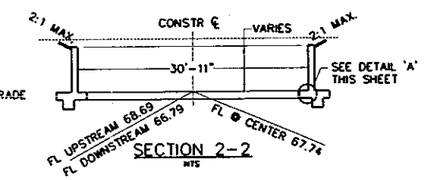




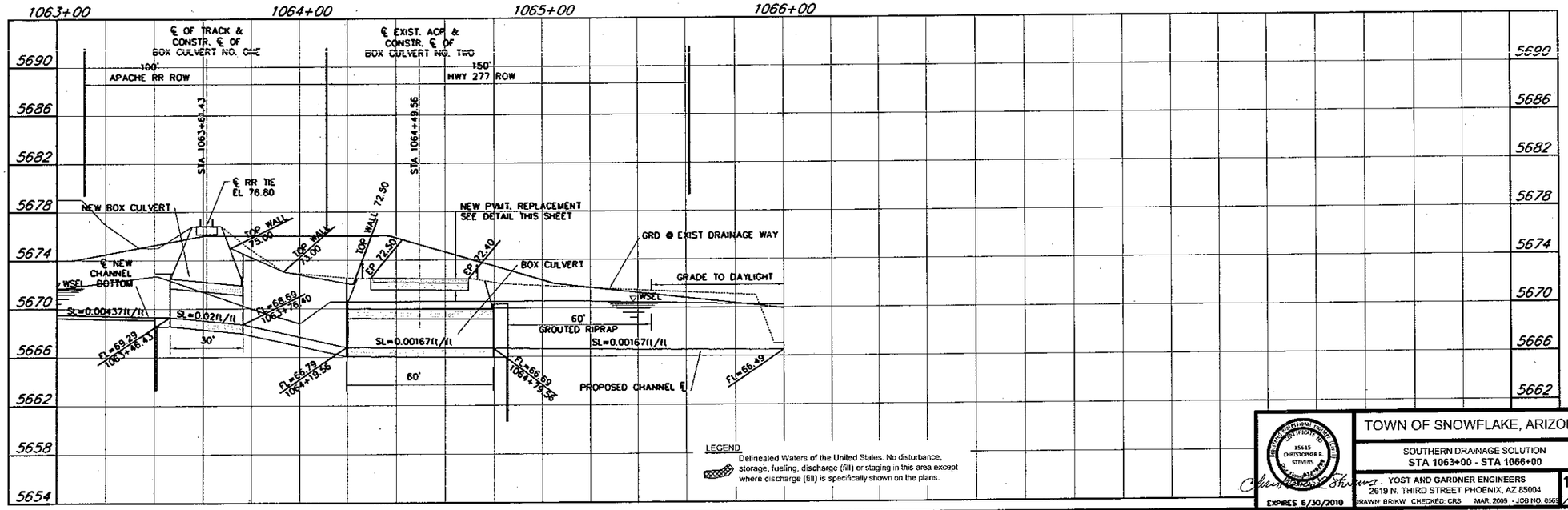
DETAIL A
NTS



SECTION 1-1
NTS



SECTION 2-2
NTS



LEGEND
Delineated Waters of the United States. No disturbance, storage, fueling, discharge (fill) or staging in this area except where discharge (fill) is specifically shown on the plans.

TOWN OF SNOWFLAKE, ARIZONA

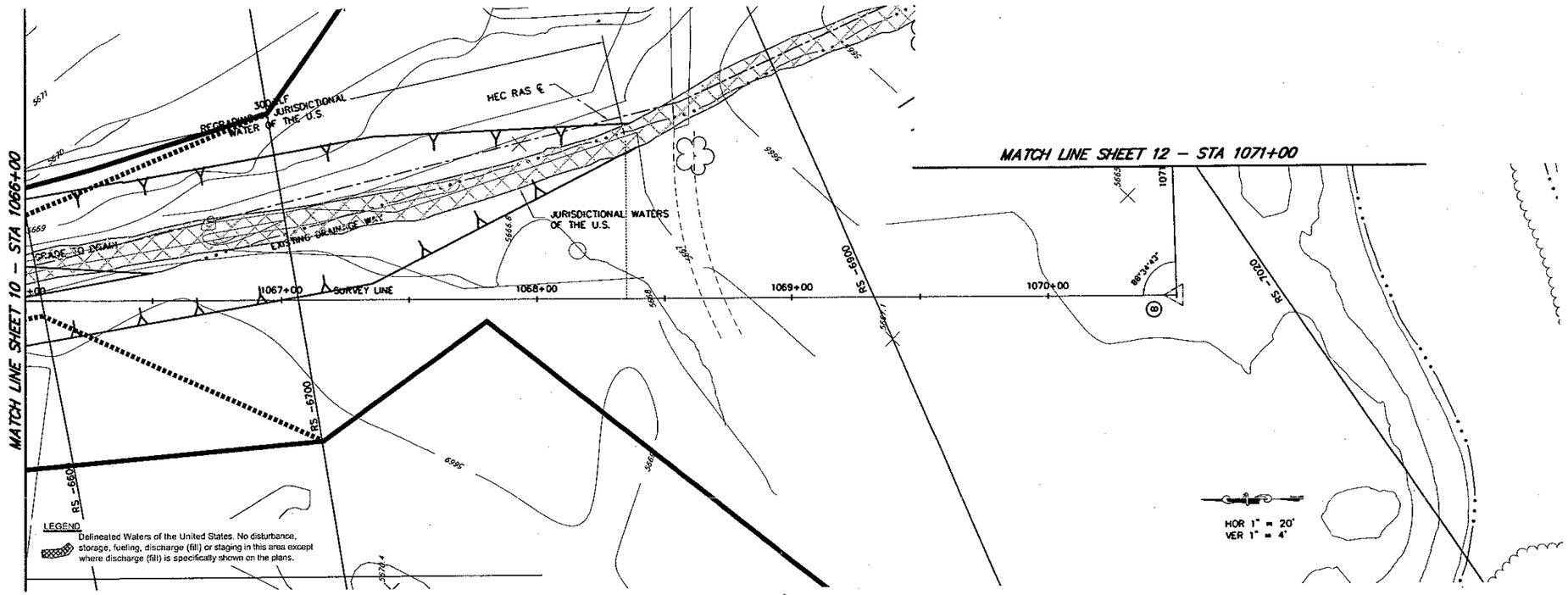
SOUTHERN DRAINAGE SOLUTION
STA 1063+00 - STA 1066+00

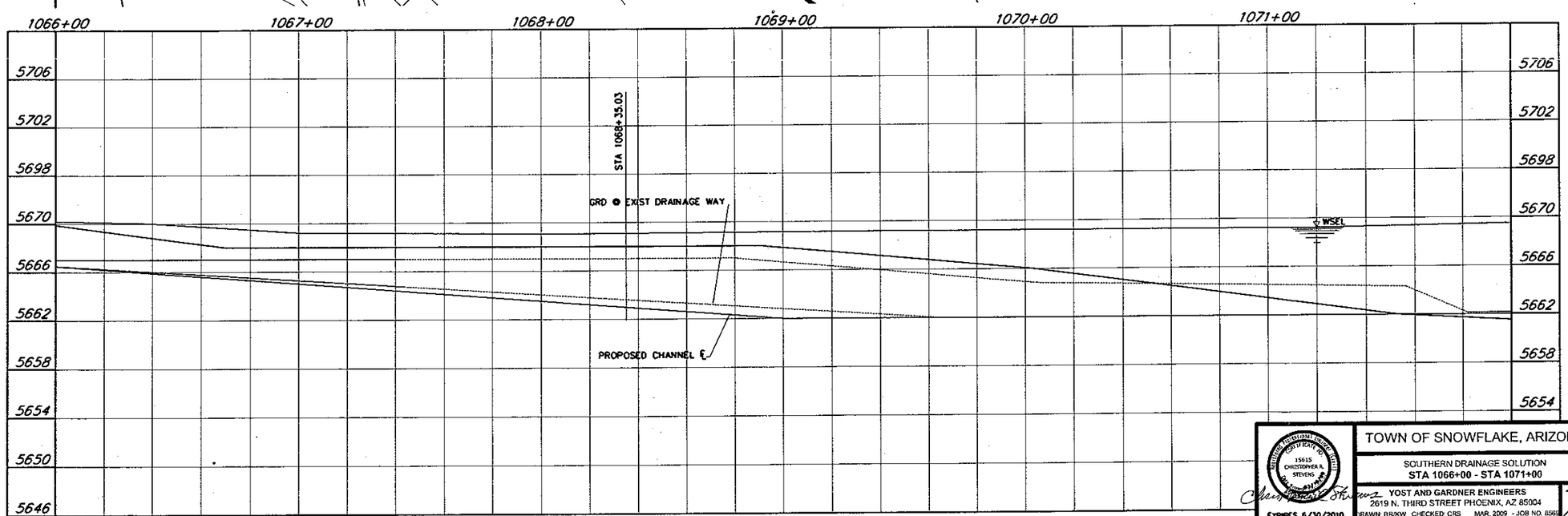
YOST AND GARDNER ENGINEERS
2619 N. THIRD STREET PHOENIX, AZ 85004
DRAWN: BR/KW CHECKED: CRS MAR. 2009 - JOB NO. 8569

10/37

EXPIRES 6/30/2010

CLOMR SUBMITTAL. REDUCED SCALE: HOR: 1" = 50', VERT 1" = 10'





TOWN OF SNOWFLAKE, ARIZONA

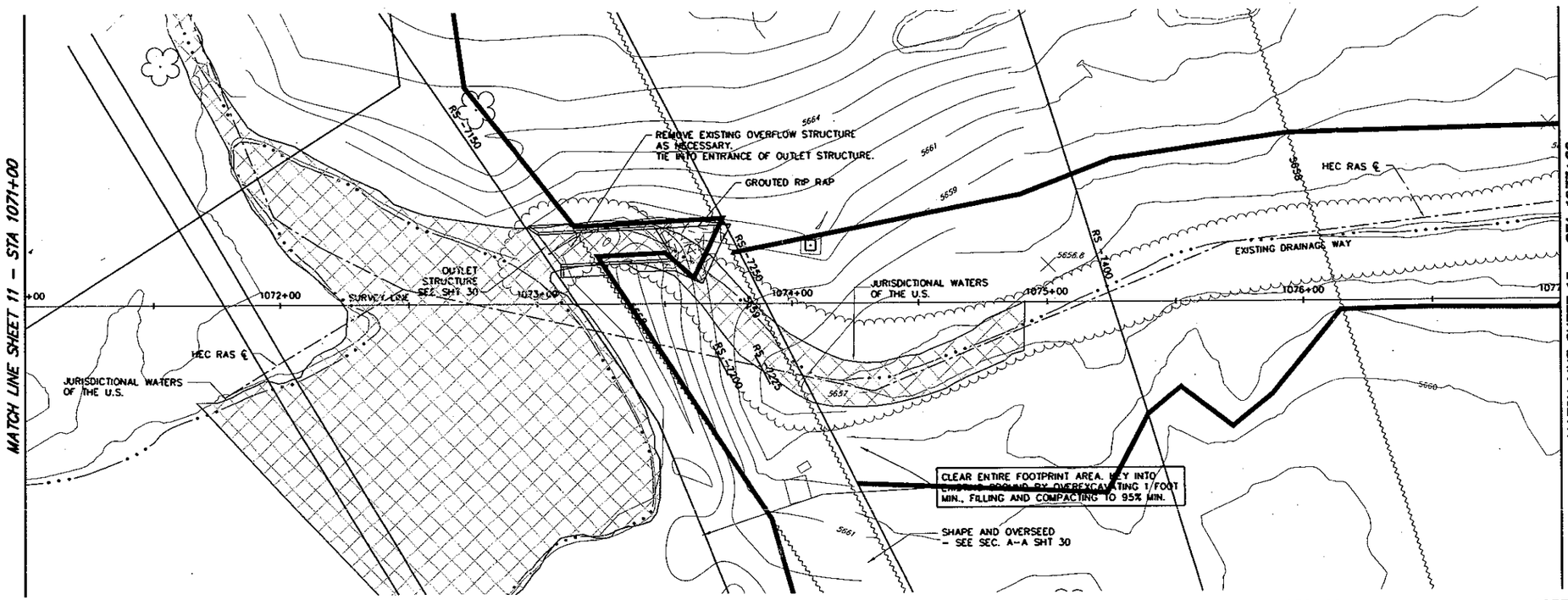
SOUTHERN DRAINAGE SOLUTION
STA 1066+00 - STA 1071+00

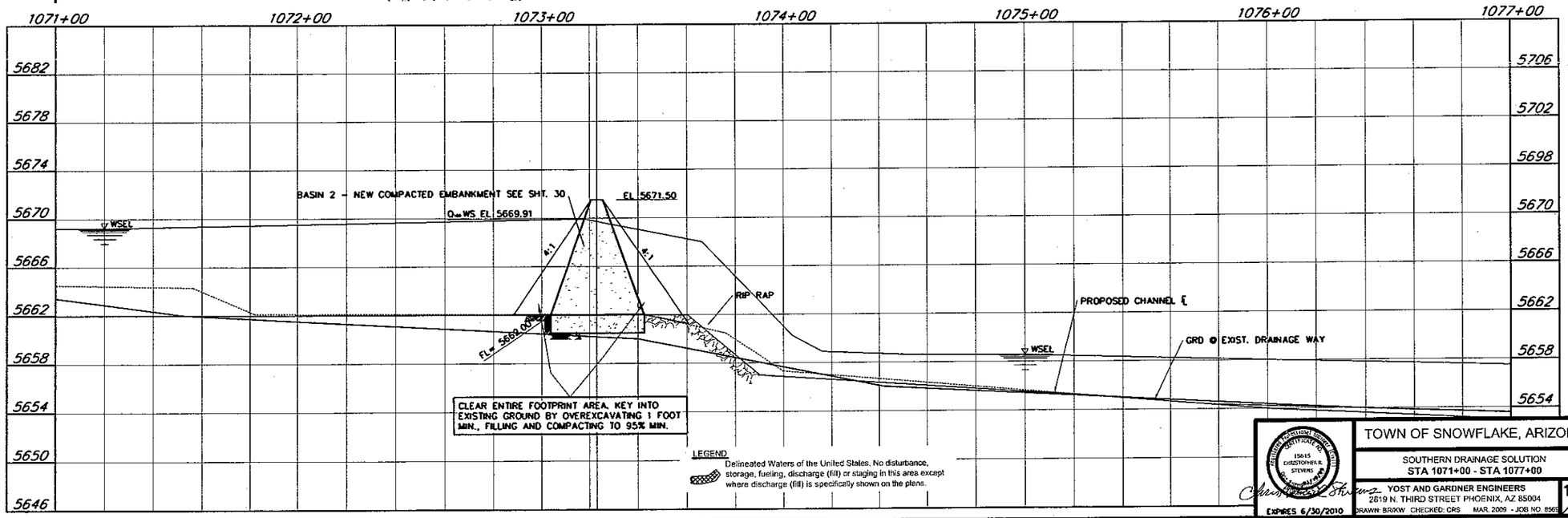
YOST AND GARDNER ENGINEERS
2619 N. THIRD STREET PHOENIX, AZ 85004
DRAWN: BRKW CHECKED: CRS MAR. 2009 - JOB NO. 8569

11/37

15615 CHRISTOPHER R. STEVENS
EXPIRES 6/30/2010

CLOMR SUBMITTAL. REDUCED SCALE: HOR: 1" = 50', VERT 1" = 10'





TOWN OF SNOWFLAKE, ARIZONA

SOUTHERN DRAINAGE SOLUTION
STA 1071+00 - STA 1077+00

YOST AND GARDNER ENGINEERS
2819 N. THIRD STREET PHOENIX, AZ 85004
DRAWN: BR/KW CHECKED: CRS MAR. 2009 - JOB NO. 8565

12/37

EXPIRES 6/30/2010

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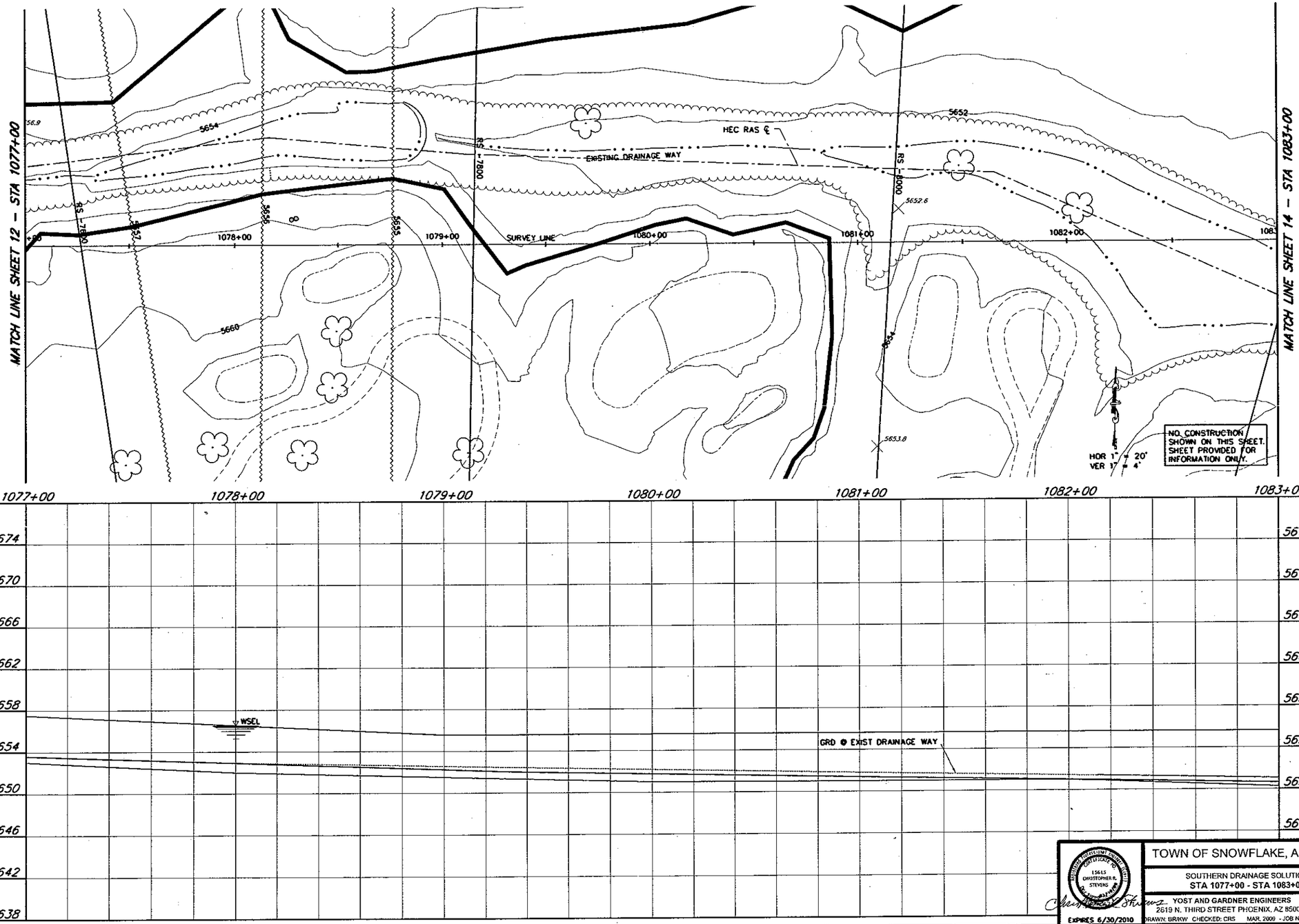

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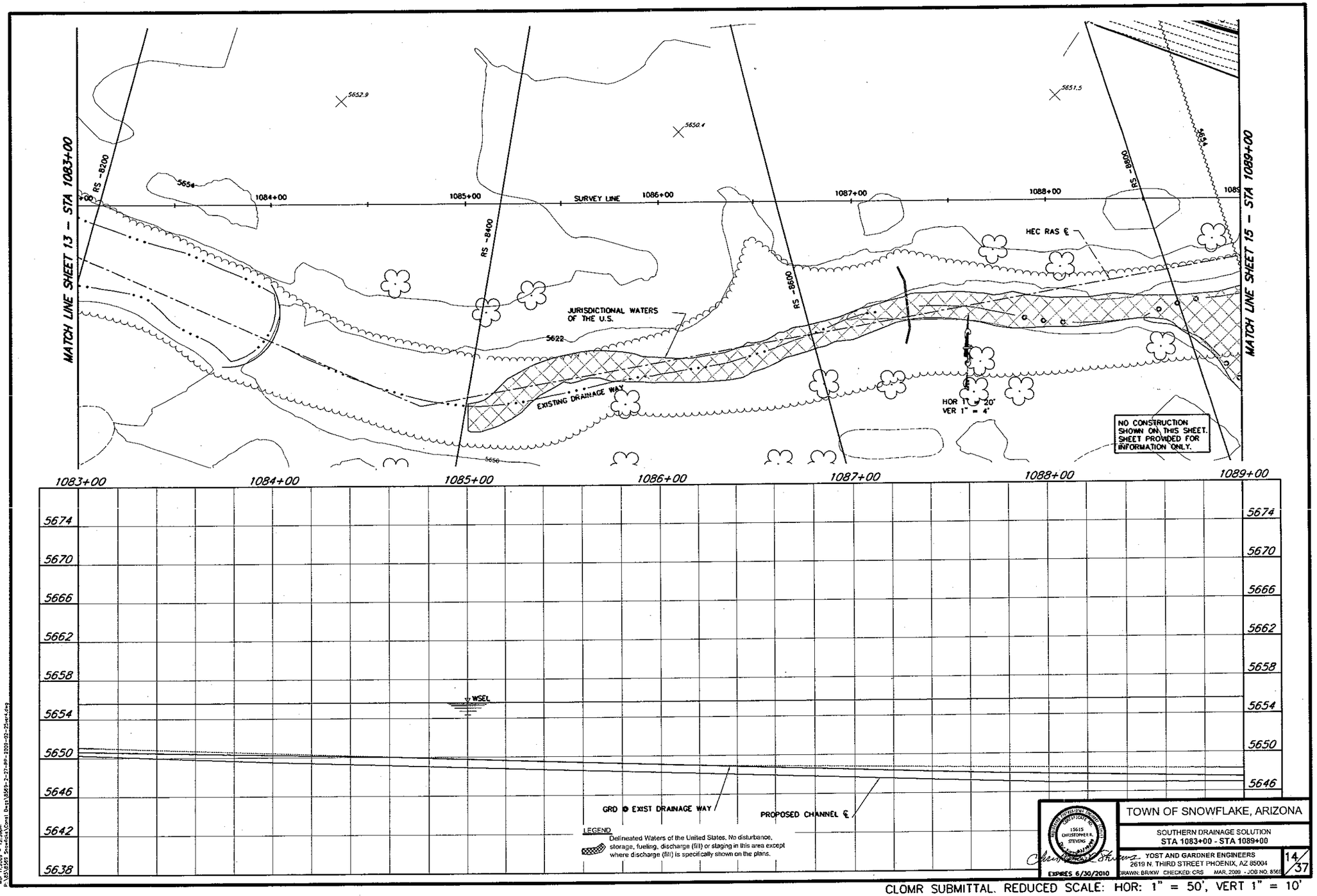

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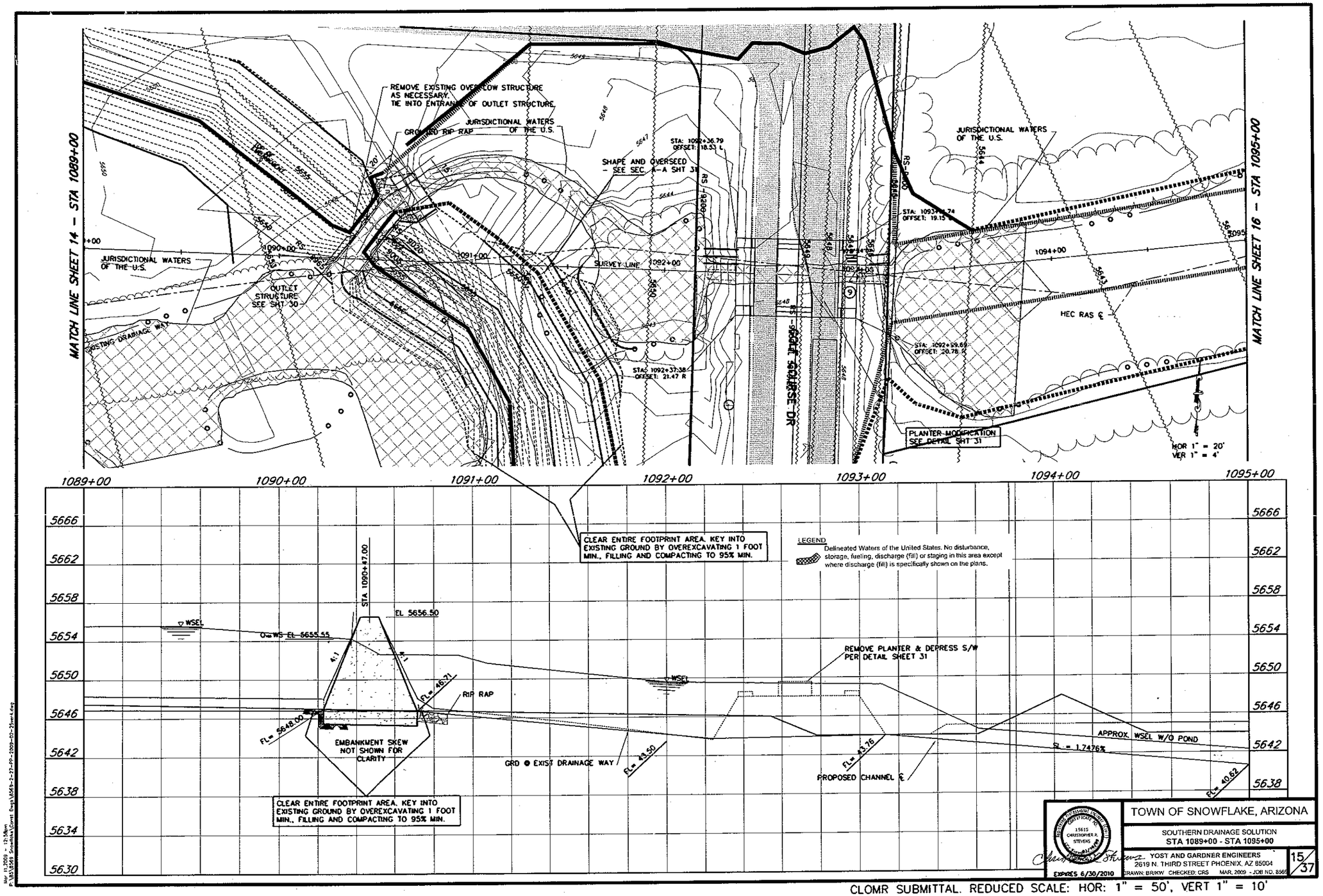

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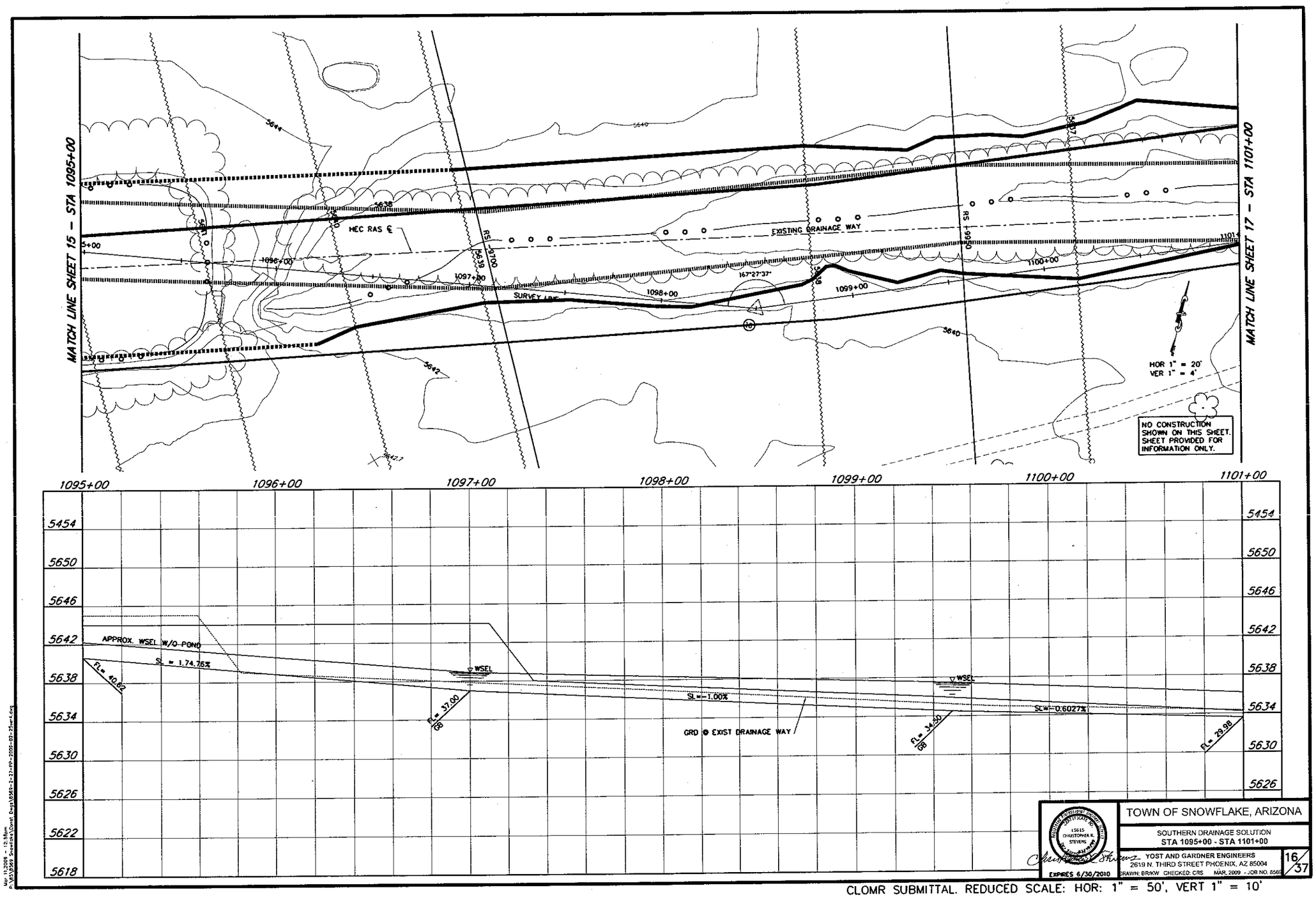


TOWN OF SNOWFLAKE, ARIZONA

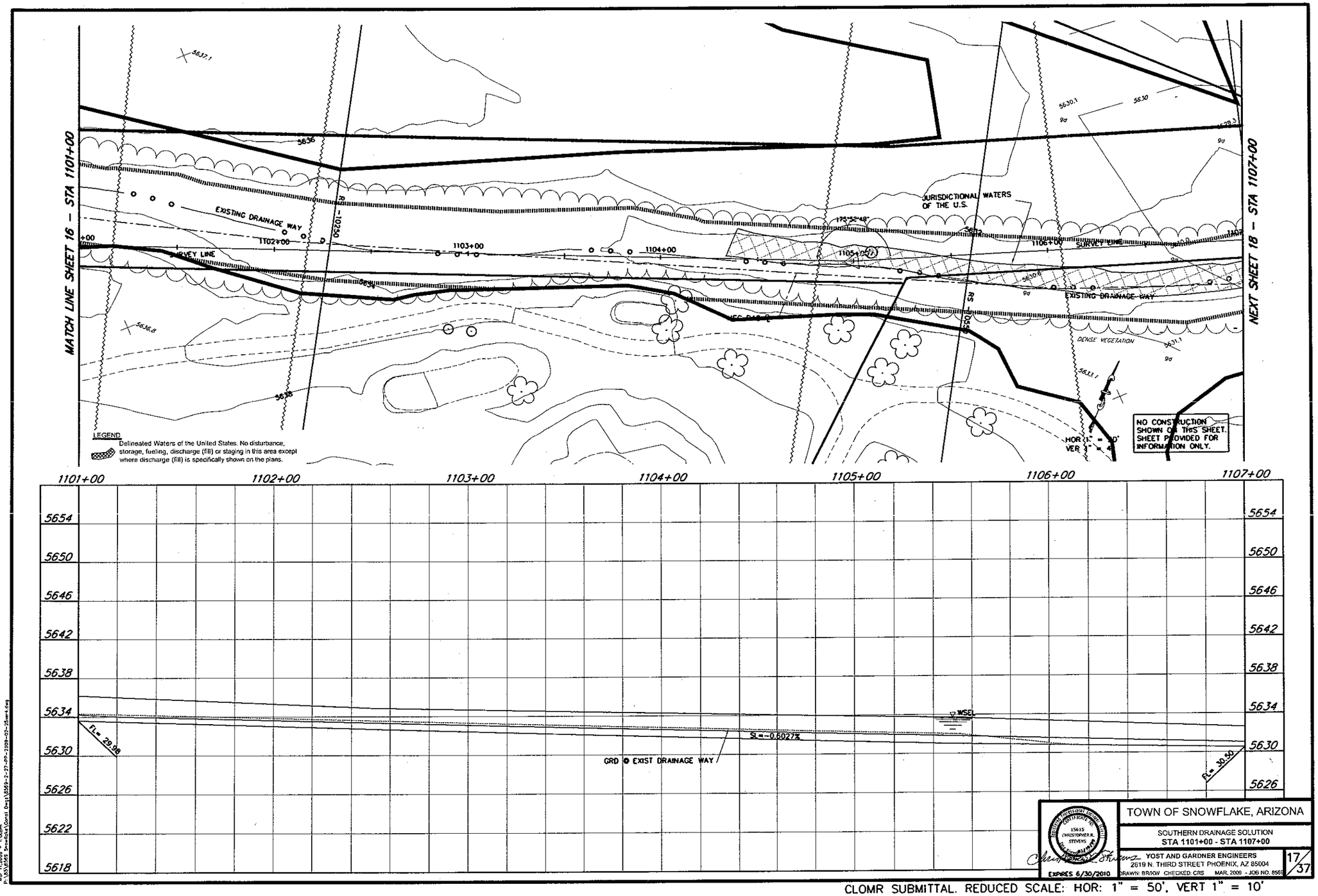
SOUTHERN DRAINAGE SOLUTION
STA 1095+00 - STA 1101+00

YOST AND GARDNER ENGINEERS
2619 N. THIRD STREET PHOENIX, AZ 85004
DRAWN: BR/KW CHECKED: CRS MAR. 2009 - JOB NO. 8569

EXPIRES 6/30/2010

16/37

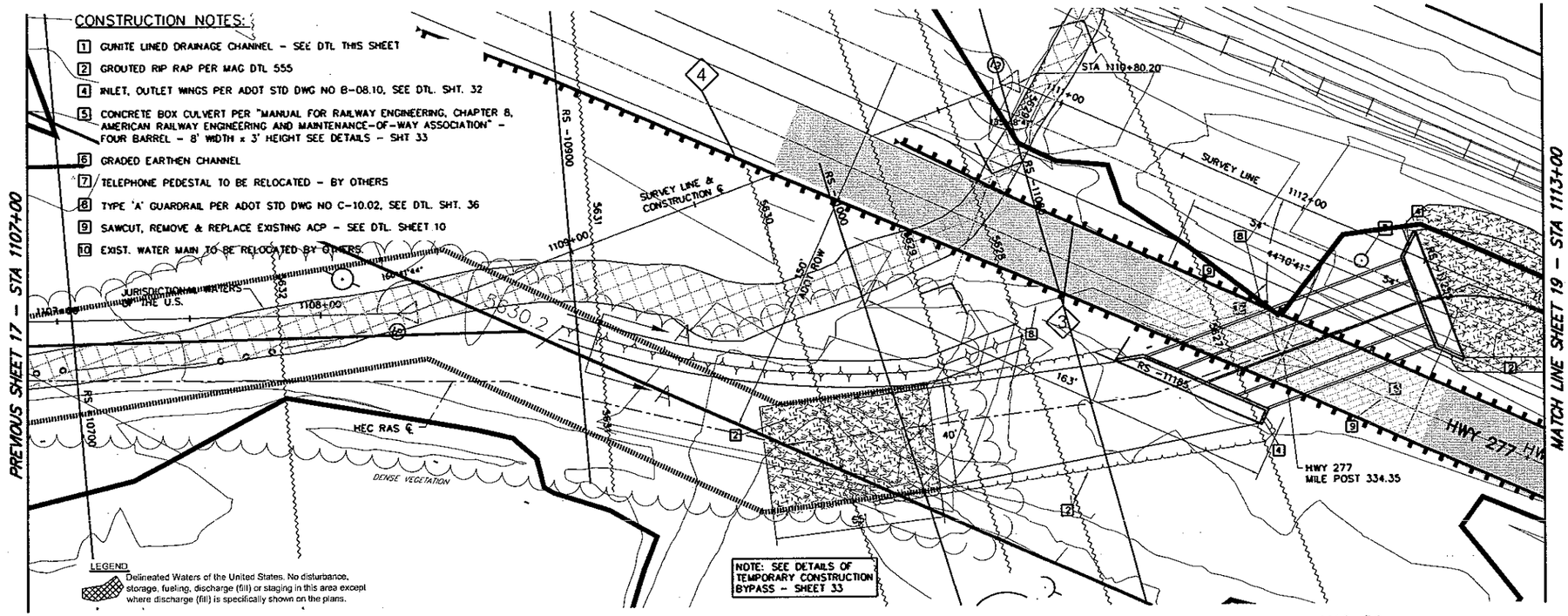
CLOMR SUBMITTAL. REDUCED SCALE: HOR: 1" = 50', VERT 1" = 10'

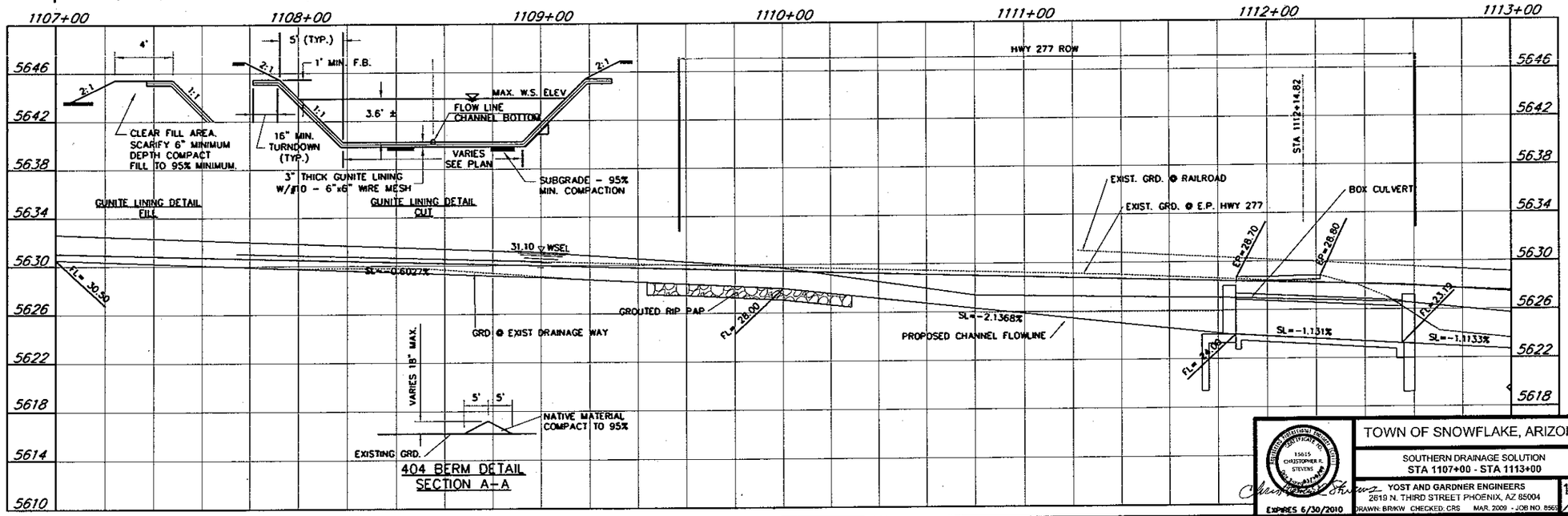


CLOMR SUBMITTAL. REDUCED SCALE: HOR: 1" = 50', VERT 1" = 10'

CONSTRUCTION NOTES:

1. GUNITE LINED DRAINAGE CHANNEL - SEE DTL THIS SHEET
2. GROUTED RIP RAP PER MAG DTL 555
4. INLET, OUTLET WINGS PER ADOT STD DWG NO B-08.10, SEE DTL. SHT. 32
5. CONCRETE BOX CULVERT PER "MANUAL FOR RAILWAY ENGINEERING, CHAPTER 8, AMERICAN RAILWAY ENGINEERING AND MAINTENANCE-OF-WAY ASSOCIATION" - FOUR BARREL - 8' WIDTH x 3' HEIGHT SEE DETAILS - SHT 33
6. GRADED EARTHEN CHANNEL
7. TELEPHONE PEDESTAL TO BE RELOCATED - BY OTHERS
8. TYPE 'A' GUARDRAIL PER ADOT STD DWG NO C-10.02, SEE DTL. SHT. 36
9. SAWCUT, REMOVE & REPLACE EXISTING ACP - SEE DTL. SHEET 10
10. EXIST. WATER MAIN TO BE RELOCATED BY OTHERS





TOWN OF SNOWFLAKE, ARIZONA

SOUTHERN DRAINAGE SOLUTION
STA 1107+00 - STA 1113+00

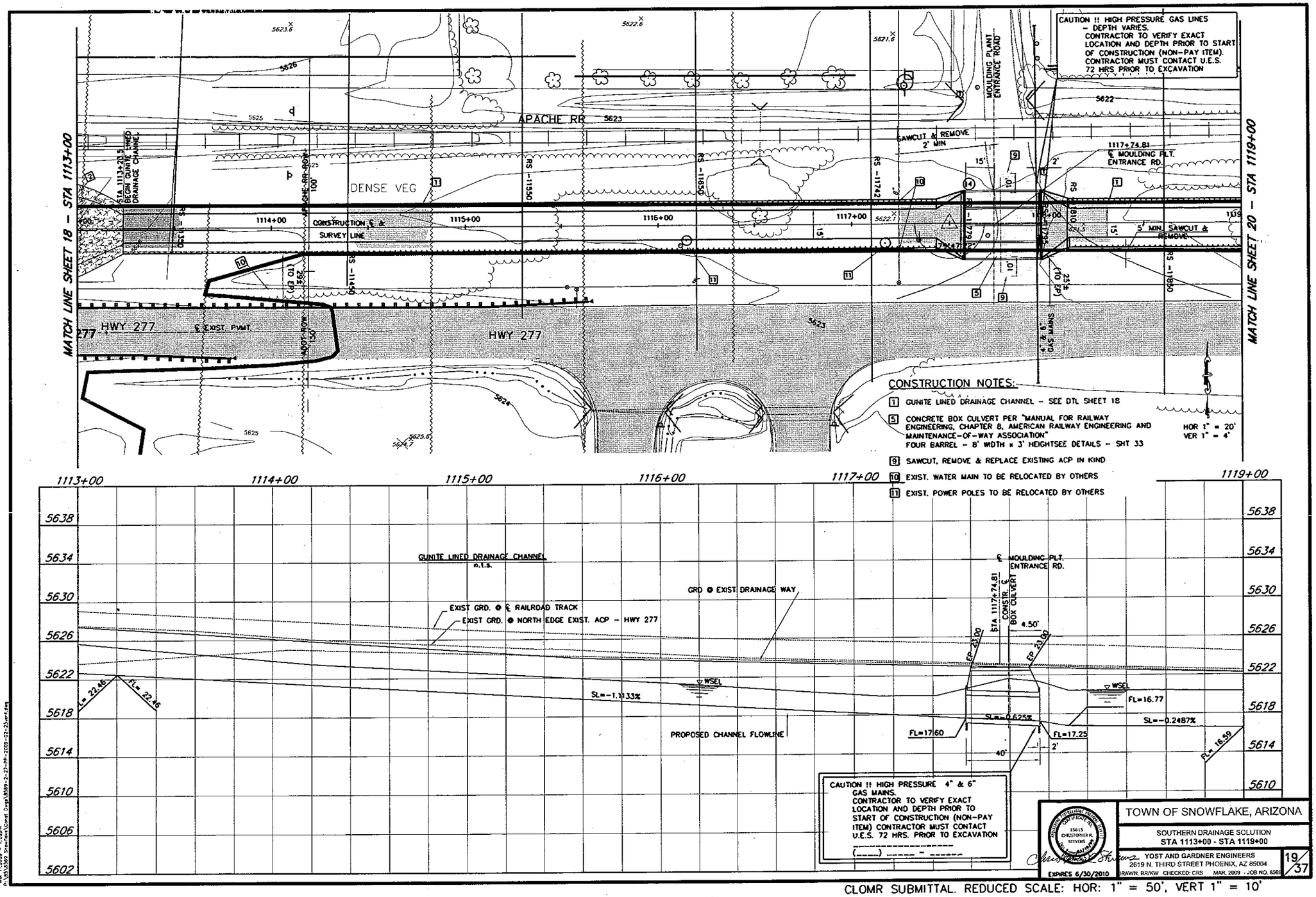
YOST AND GARDNER ENGINEERS
2619 N. THIRD STREET PHOENIX, AZ 85004
DRAWN: BRKW CHECKED: CRS MAR. 2009 - JOB NO. 8565

EXPIRES 6/30/2010

18/37

CLOMR SUBMITTAL. REDUCED SCALE: HOR: 1" = 50', VERT 1" = 10'

Mar 11,2009 - 1:00pm
P:\8565\8565 Snowflake\Const Dwgs\8565-2-27-09-2009-02-23-v4.dwg



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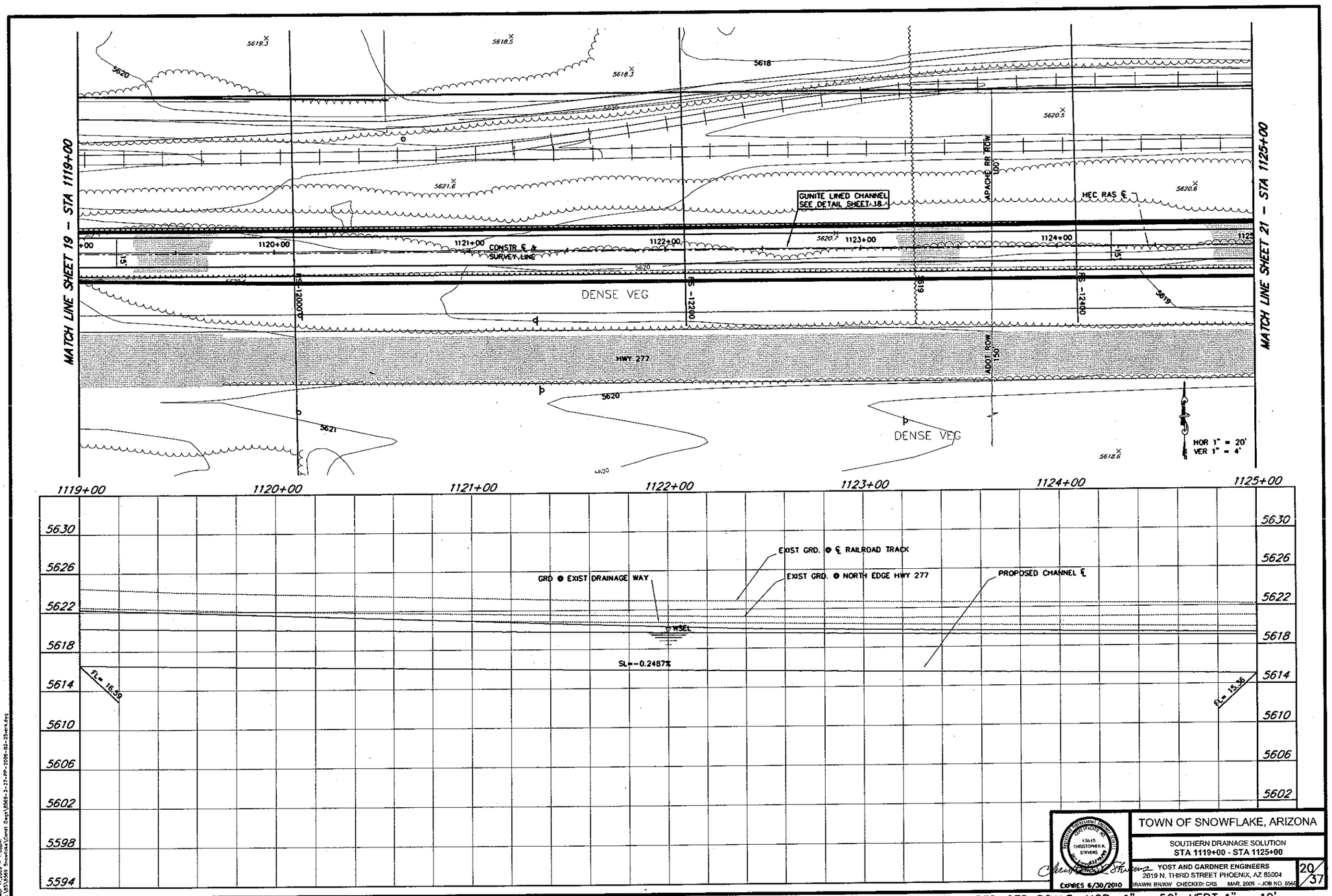

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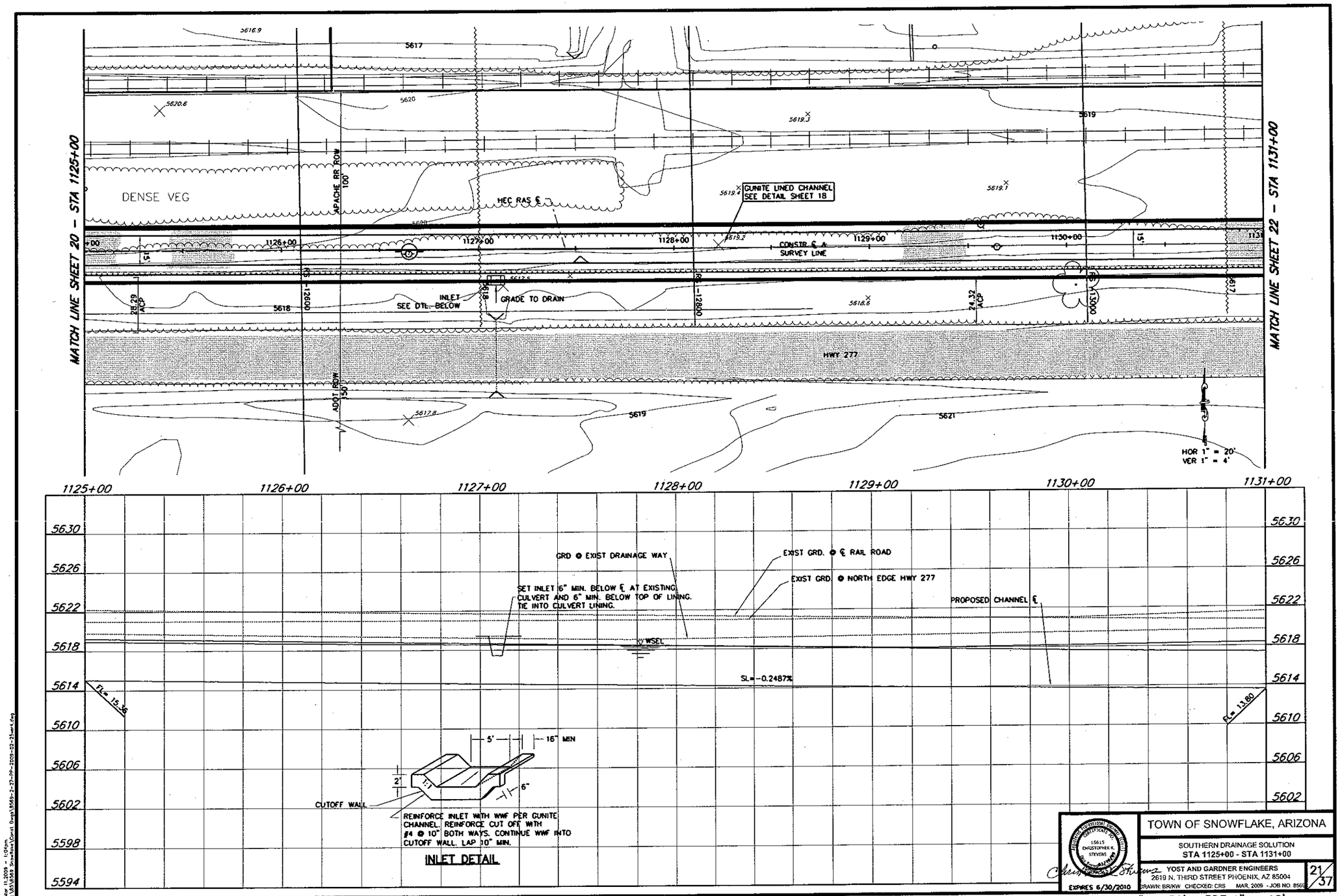

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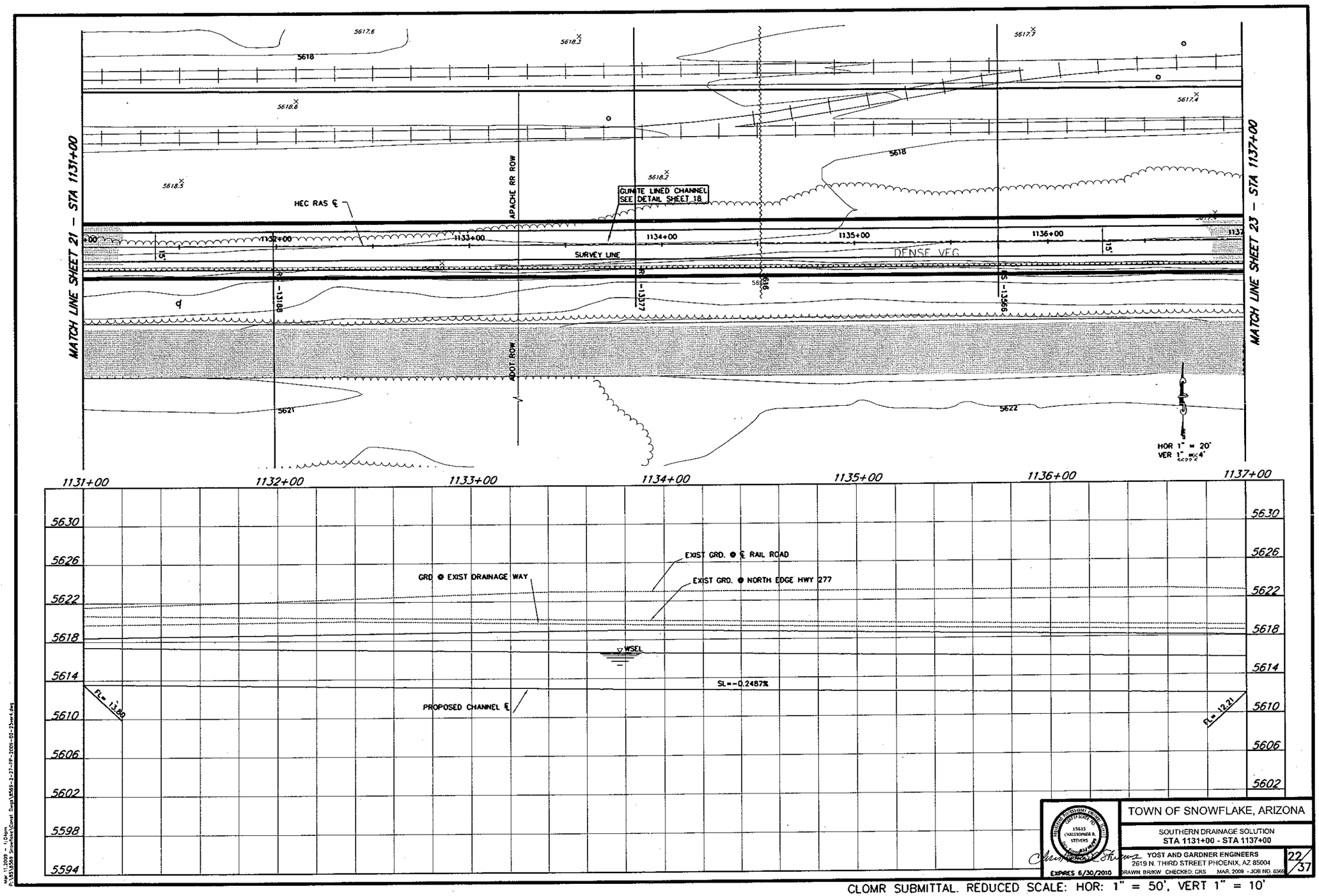


TOWN OF SNOWFLAKE, ARIZONA

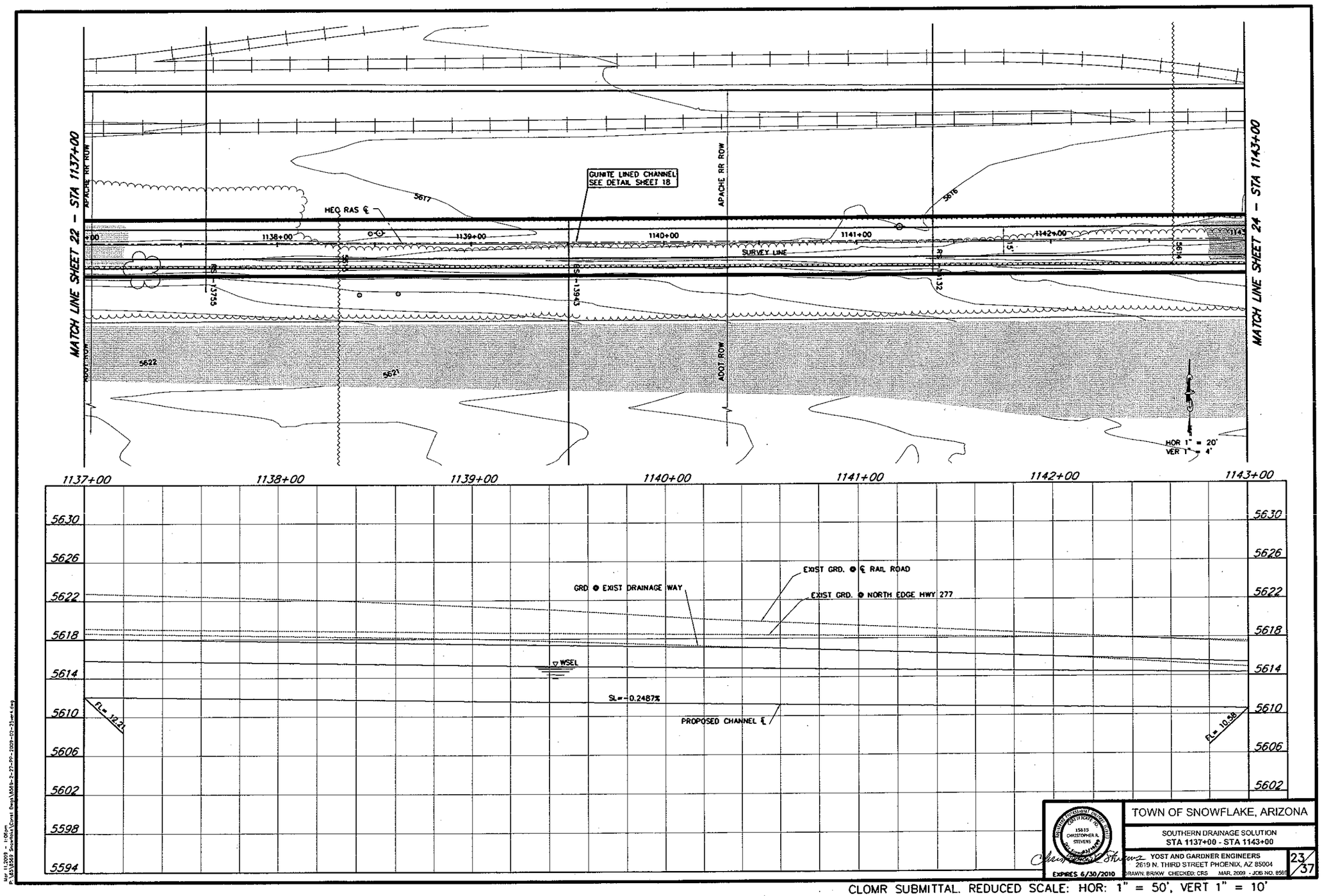
SOUTHERN DRAINAGE SOLUTION
STA 1131+00 - STA 1137+00

YOST AND GARDNER ENGINEERS
2619 N. THIRD STREET PHOENIX, AZ 85004
DRAWN BR/KW CHECKED: CRS MAR. 2009 - JOB NO. 8569

22/37

EXPIRES 6/30/2010

CLOMR SUBMITTAL. REDUCED SCALE: HOR: 1" = 50', VERT 1" = 10'



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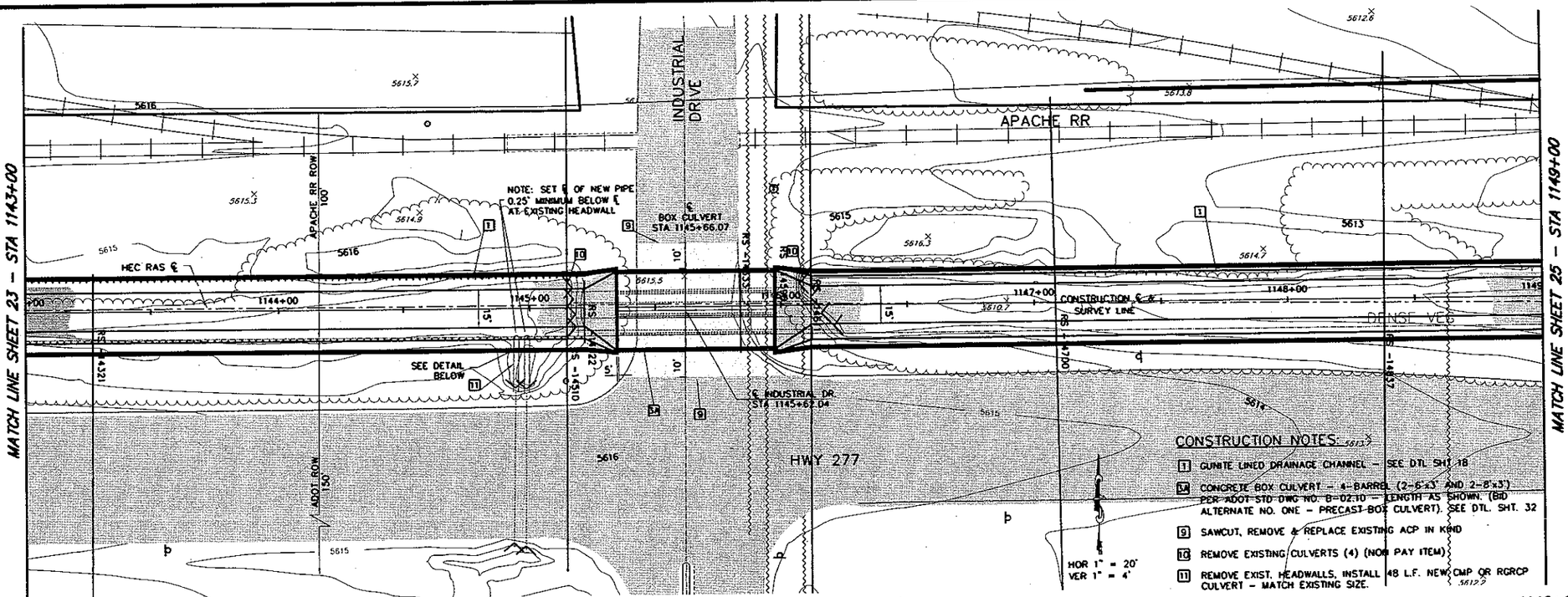
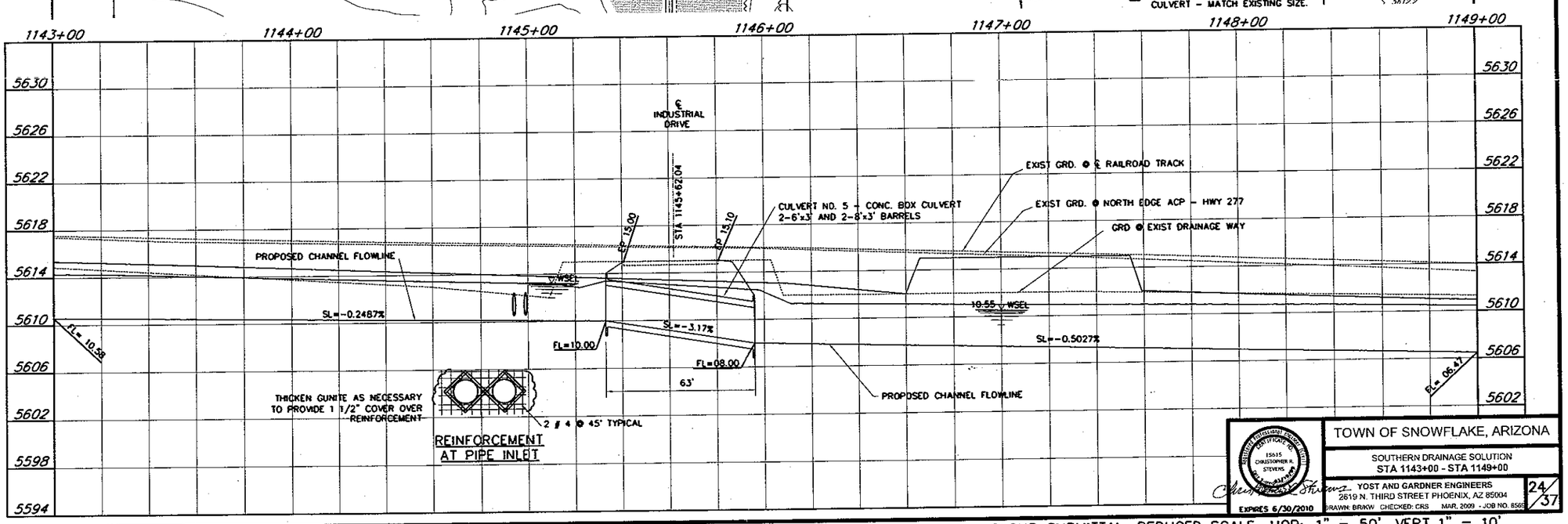
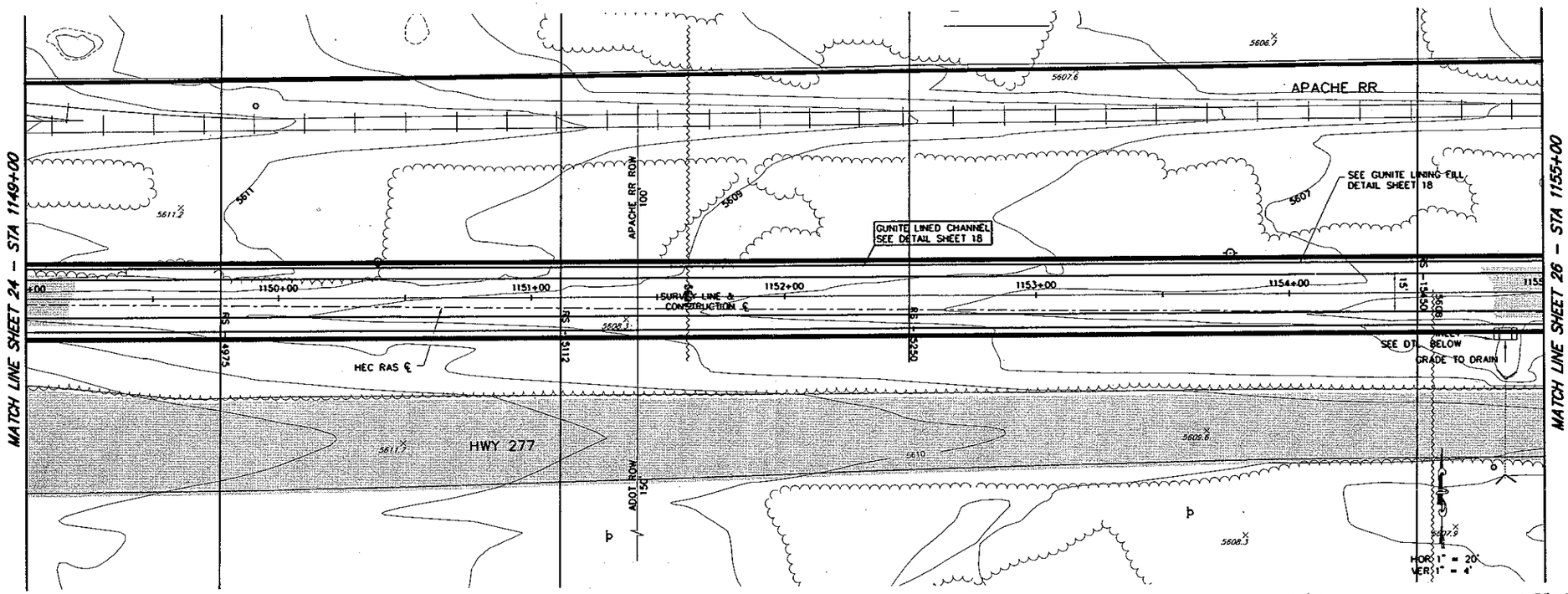
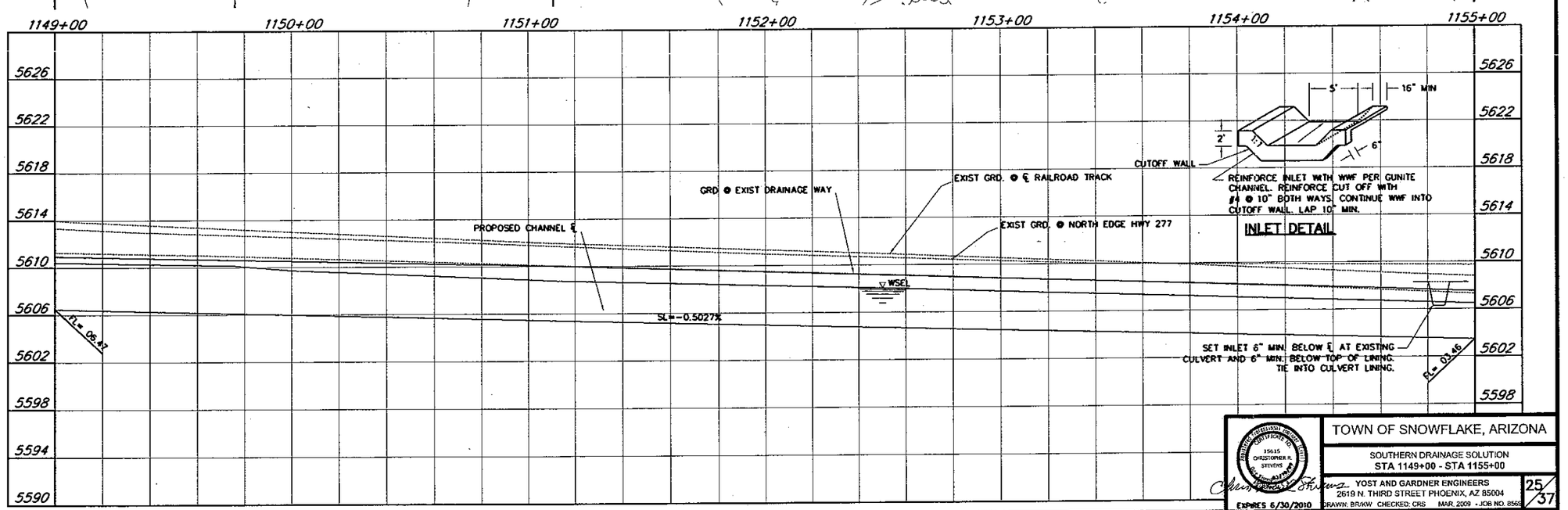




CLOMR SUBMITTAL. REDUCED SCALE: HOR: 1" = 50', VERT 1" = 10'





TOWN OF SNOWFLAKE, ARIZONA

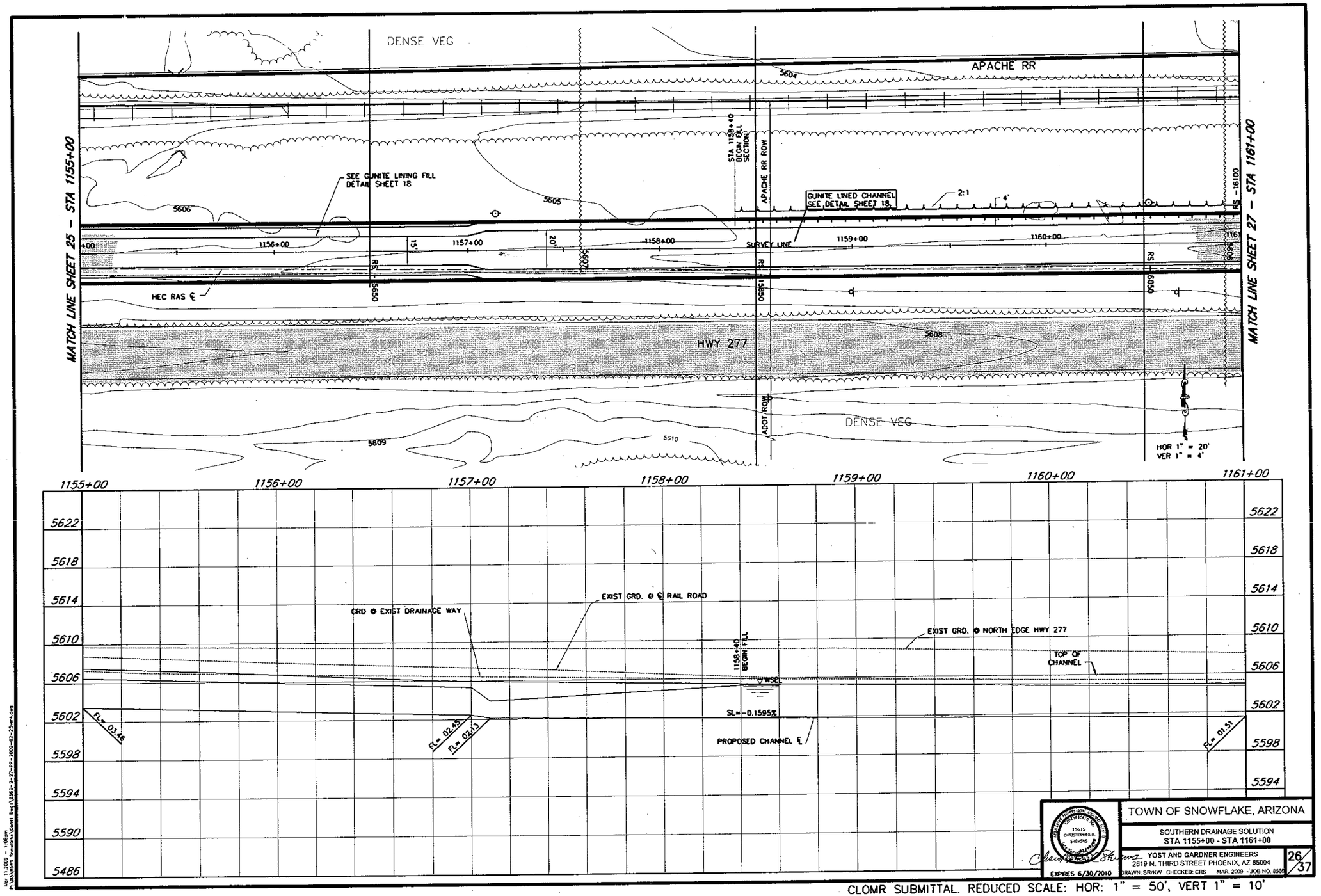
SOUTHERN DRAINAGE SOLUTION
STA 1149+00 - STA 1155+00

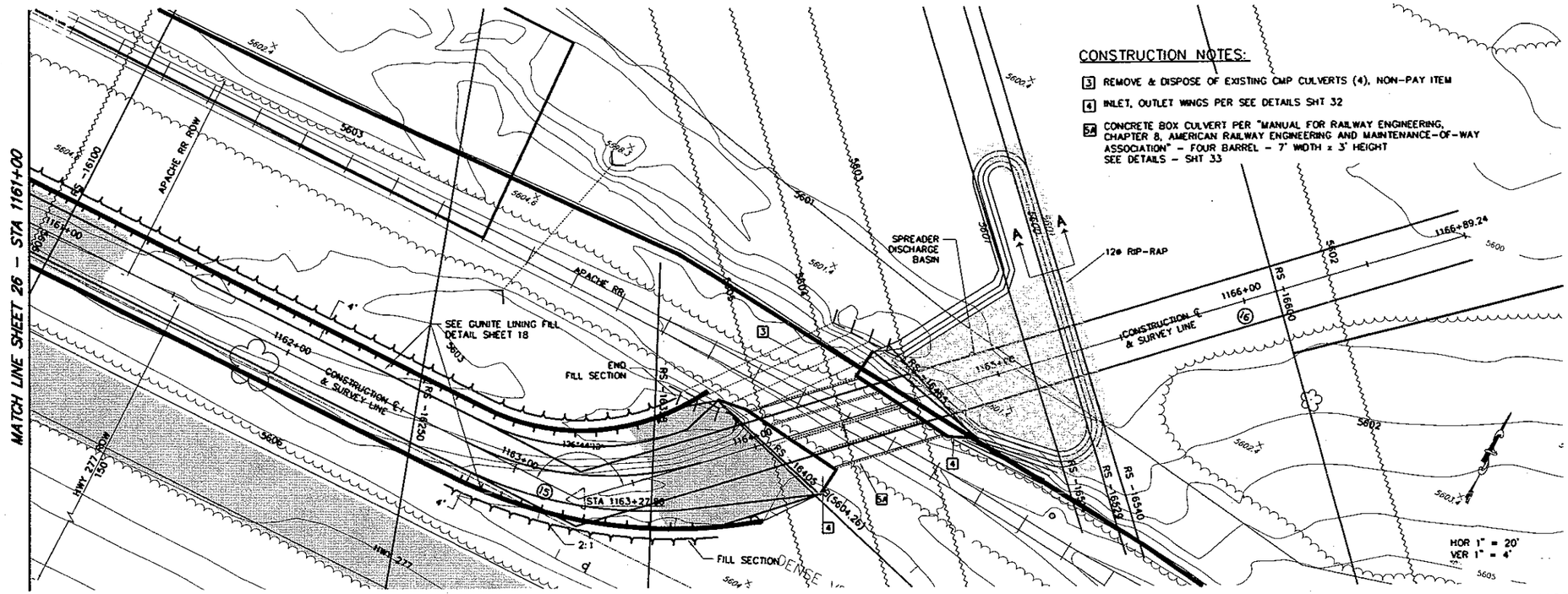
YOST AND GARDNER ENGINEERS
2619 N. THIRD STREET PHOENIX, AZ 85004
DRAWN: BR/KW CHECKED: CRS MAR. 2009 - JOB NO. 8569

25/37

EXPIRES 6/30/2010

CLOMR SUBMITTAL. REDUCED SCALE: HOR: 1" = 50', VERT 1" = 10'


DENSE VEG
APACHE RR
5604
STA 1158+40 BEGIN FILL SECTION
APACHE RR ROW
SEE GUNITE LINING FILL DETAIL SHEET 18
5606
5605
GUNITE LINED CHANNEL SEE DETAIL SHEET 18
2:1
4'
MATCH LINE SHEET 25 - STA 1155+00
MATCH LINE SHEET 27 - STA 1161+00
1156+00
1157+00
1158+00
1159+00
1160+00
15'
20'
SURVEY LINE
HEC RAS ℄
HWY 277
5608
ADOT ROW
DENSE VEG
5609
5610
HOR 1" = 20'
VER 1" = 4'
1155+00
1156+00
1157+00
1158+00
1159+00
1160+00
1161+00
5622
5618
5614
5610
5606
5602
5598
5594
5590
5486
GRD @ EXIST DRAINAGE WAY
EXIST GRD. @ ℄ RAIL ROAD
EXIST GRD. @ NORTH EDGE HWY 277
1158+40 BEGIN FILL
TOP OF CHANNEL
WSEL
SL=-0.1595%
PROPOSED CHANNEL ℄
FL= 03.46
FL= 02.45
FL= 02.13
FL= 01.51
TOWN OF SNOWFLAKE, ARIZONA
SOUTHERN DRAINAGE SOLUTION
STA 1155+00 - STA 1161+00
YOST AND GARDNER ENGINEERS
2619 N. THIRD STREET PHOENIX, AZ 85004
DRAWN: BR/KW CHECKED: CRS MAR. 2009 - JOB NO. 8569
EXPIRES 6/30/2010
26/37
CLOMR SUBMITTAL. REDUCED SCALE: HOR: 1" = 50', VERT 1" = 10'

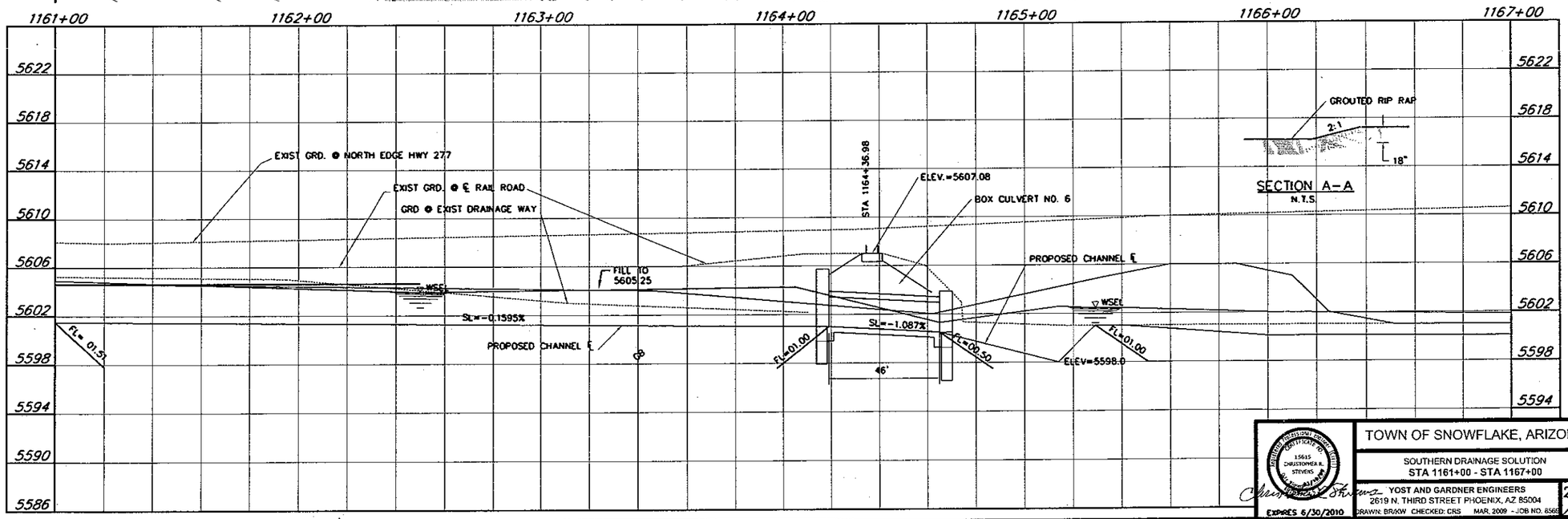


CONSTRUCTION NOTES:

3 REMOVE & DISPOSE OF EXISTING CMP CULVERTS (4), NON-PAY ITEM

4 INLET, OUTLET WINGS PER SEE DETAILS SHT 32

5A CONCRETE BOX CULVERT PER "MANUAL FOR RAILWAY ENGINEERING, CHAPTER 8, AMERICAN RAILWAY ENGINEERING AND MAINTENANCE-OF-WAY ASSOCIATION" - FOUR BARREL - 7' WIDTH x 3' HEIGHT SEE DETAILS - SHT 33



TOWN OF SNOWFLAKE, ARIZONA

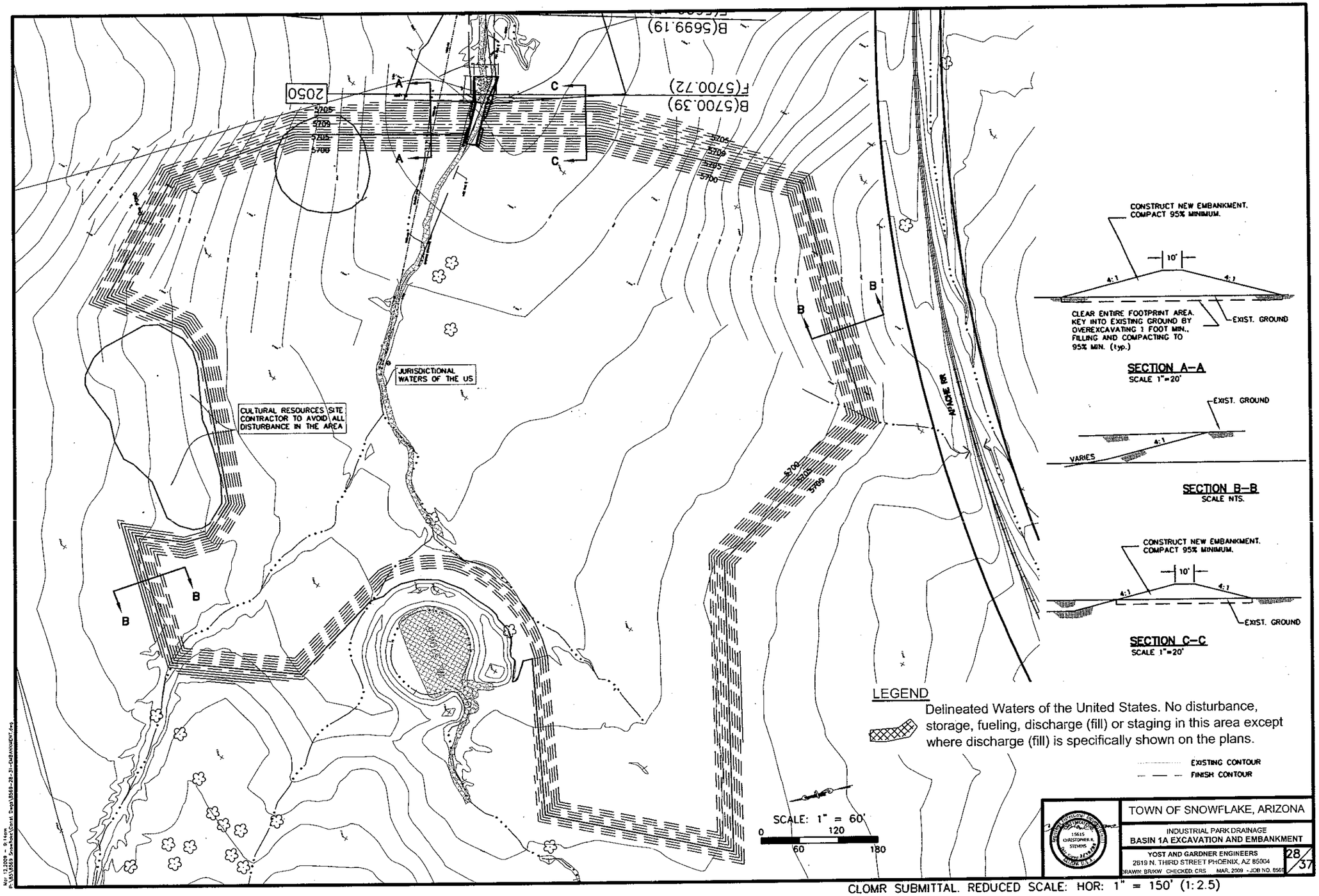
SOUTHERN DRAINAGE SOLUTION
STA 1161+00 - STA 1167+00

YOST AND GARDNER ENGINEERS
2619 N. THIRD STREET PHOENIX, AZ 85004
DRAWN: BRAKW CHECKED: CRS MAR. 2009 - JOB NO. 8569

27/37

EXPIRES 6/30/2010

CLOMR SUBMITTAL. REDUCED SCALE: HOR: 1" = 50', VERT 1" = 10'



CLOMR SUBMITTAL. REDUCED SCALE: HOR: 1" = 150' (1:2.5)

LEGEND

Delineated Waters of the United States. No disturbance, storage, fueling, discharge (fill) or staging in this area except where discharge (fill) is specifically shown on the plans.

JURISDICTIONAL WATERS OF THE US

B(5688.95) F(5688.96)

B(5686.38) F(5686.38)

B(5686.40) F(5686.40)

B(5683.74) F(5683.74)

B(5678.34) F(5679.05)

RS -3500

RS -3800

RS -4100

RS -4550

A

B

CONSTRUCT NEW EMBANKMENT. COMPACT 95% MINIMUM.

SECTION A–A
SCALE 1"=20'

EXIST. GROUND

CLEAR ENTIRE FOOTPRINT AREA. KEY INTO EXISTING GROUND BY OVEREXCAVATING 1 FOOT MIN., FILLING AND COMPACTING TO 95% MIN.

SECTION B–B
SCALE 1"=20'

EXIST. GROUND

SCALE: 1" = 50'

0 50 100 150

LEGEND
EXISTING CONTOUR
FINISH CONTOUR

Revised. 2009-04-06, Corrected call out for Sec A-A (Northern embankment) C.R.S.

Apr 06,2009 - 1:50pm
P:\53\5569 Snowflake\Const Dwgs\5569-28-31-EMBANKMENT.dwg

LS619 CHRISTOPHER R. STEVENS ARIZONA U.S.A.
Expires 2010-06-30

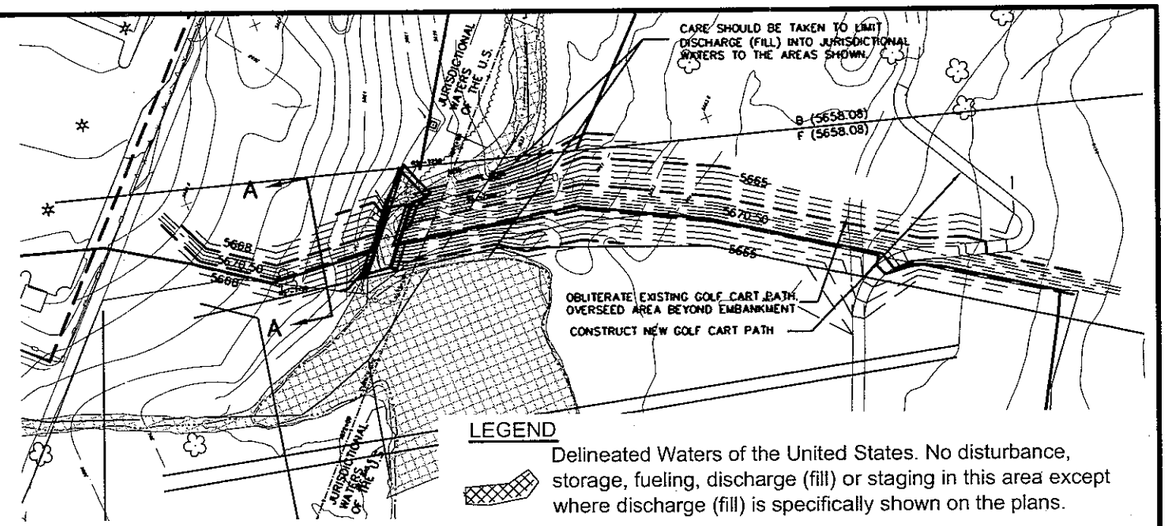
TOWN OF SNOWFLAKE, ARIZONA

INDUSTRIAL PARK DRAINAGE
BASIN 1B EMBANKMENT

YOST AND GARDNER ENGINEERS
2619 N. THIRD STREET PHOENIX, AZ 85004
DRAWN: BR/KW CHECKED: CRS MAR. 2009 - JOB NO. 5569

29/37

CLOMR SUBMITTAL. REDUCED SCALE: HOR: 1" = 120' (1:2.4)



LEGEND

Delineated Waters of the United States. No disturbance, storage, fueling, discharge (fill) or staging in this area except where discharge (fill) is specifically shown on the plans.

SCALE: 1" = 40'

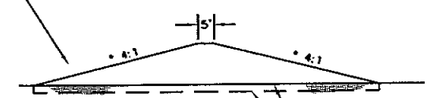
0 80 40 120

LEGEND

EXISTING CONTOUR

FINISH CONTOUR

CONSTRUCT NEW EMBANKMENT. COMPACT 95% MINIMUM. CONTRACTOR TO SHAPE EMBANKMENT SLOPES TO PROVIDE VISUAL INTEREST IN GOLF COURSE AREA. SLOPES MAY BE FLATTER THAN SHOWN, BUT MAY NOT DISCHARGE IN 404 WATERS BEYOND THE EXTENT SHOWN. CONTRACTOR SHALL OVERSEED DISTURBED AREAS WITHIN THE GOLF COURSE.



CLEAR AND GRUB ENTIRE FOOTPRINT AREA. KEY INTO EXISTING GROUND BY OVEREXCAVATING 1 FOOT MIN., FILLING AND COMPACTING TO 95% MIN.

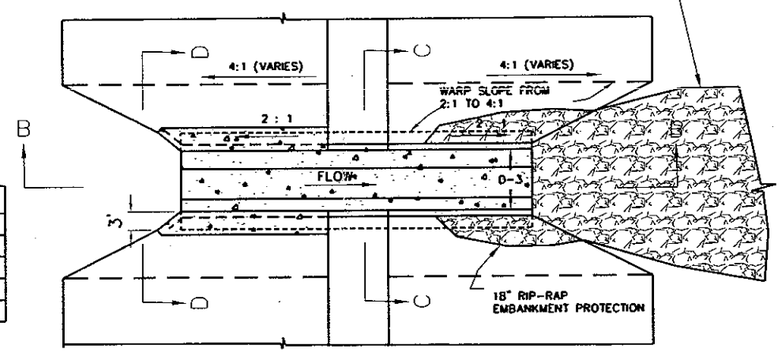
EXIST. GROUND

* VARIES - 2.25:1 MAX IN EXISTING POND AREAS

SECTION A-A

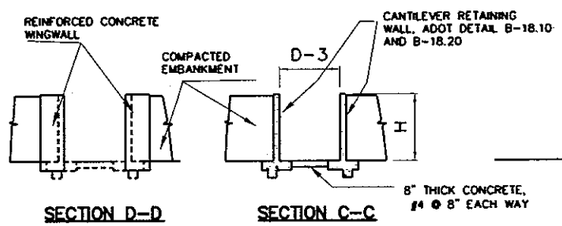
SCALE 1"=20'

18" RIP-RAP OUTLET PROTECTION. SEE INDIVIDUAL EMBANKMENT SHEETS FOR EXACT SIZE ANY LOCATION



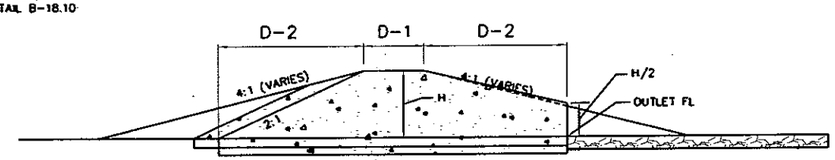
PLAN VIEW

EMBANKMENT DIMENSIONS					
BASIN	SHEET	"D-1"	"D-2"	"D-3"	"H"
1A	2	11'	28'	15'-6"	10'-6"
1B	6	13'-6"	24'	10'	10'-9"
2	12	5'-6"'	20'	12'	9'-0"
3	15	5'-6"	18'	9'-6"	9'0"



SECTION D-D

SECTION C-C



SECTION B-B

REINFORCED CONCRETE OUTLET STRUCTURE

SCALE 1"=10'

TOWN OF SNOWFLAKE, ARIZONA

INDUSTRIAL PARK DRAINAGE

BASIN 2 EMBANKMENT AND OUTLET DETAILS

YOST AND GARDNER ENGINEERS

2619 N. THIRD STREET PHOENIX, AZ 85004

DRAWN: BR/KW CHECKED: CRS MAR. 2009 - JOB NO. 8569

30/37

CLOMR SUBMITTAL. REDUCED SCALE: HOR: 1" = 100' (1:2.5)

Mar 12,2009 - 9:13am
P:\8569 Snowflake\Const Dwg\8569-28-31-EMBANKMENT.dwg

PLANTER MODIFICATION
SEE DETAIL THIS SHEET

OBLITERATE EXISTING GOLF CART PATH.
OVERSEED AREA BEYOND EMBANKMENT

CONSTRUCT NEW GOLF CART PATH

JURISDICTIONAL WATERS OF THE U.S.

CARE SHOULD BE TAKEN TO LIMIT DISCHARGE (FILL) INTO JURISDICTIONAL WATERS TO THE AEAS SHOWN.

B (5655.59)
F (5655.59)

ASPH

LEGEND

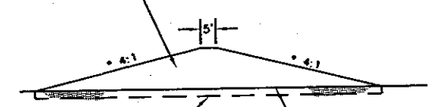
EXISTING CONTOUR

FINISH CONTOUR

SCALE: 1" = 40'

0 40 80 120

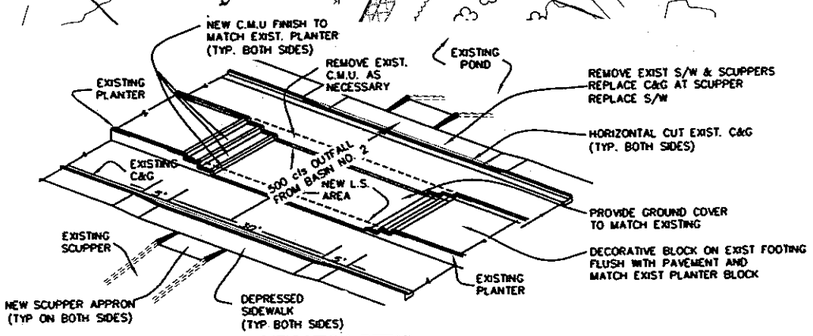
CONSTRUCT NEW EMBANKMENT. COMPACT 95% MINIMUM. CONTRACTOR TO SHAPE EMBANKMENT SLOPES TO PROVIDE VISUAL INTERST IN GOLF COURSE AREA. SLOPES MAY BE FLATTER THAN SHOWN, BUT MAY NOT DISCHARGE IN 404 EWATERS BEYOND THE EXTENT SHOWN. CONTRACTOR SHALL OVERSSED DISTURBED AREAS WITH IN THE GOLF COURSE.



CLEAR ENTIRE FOOTPRINT AREA. KEY INTO EXISTING GROUND BY OVEREXCAVATING 1 FOOT MIN., FILLING AND COMPACTING TO 95% MIN.

EXIST. GROUND
* VARIES - 3:1 IN EXISTING POND AREAS

SECTION A-A
SCALE 1"=20'



PLANTER MODIFICATION DETAIL
NTS

LEGEND

Delineated Waters of the United States. No disturbance, storage, fueling, discharge (fill) or staging in this area except where discharge (fill) is specifically shown on the plans.

TOWN OF SNOWFLAKE, ARIZONA

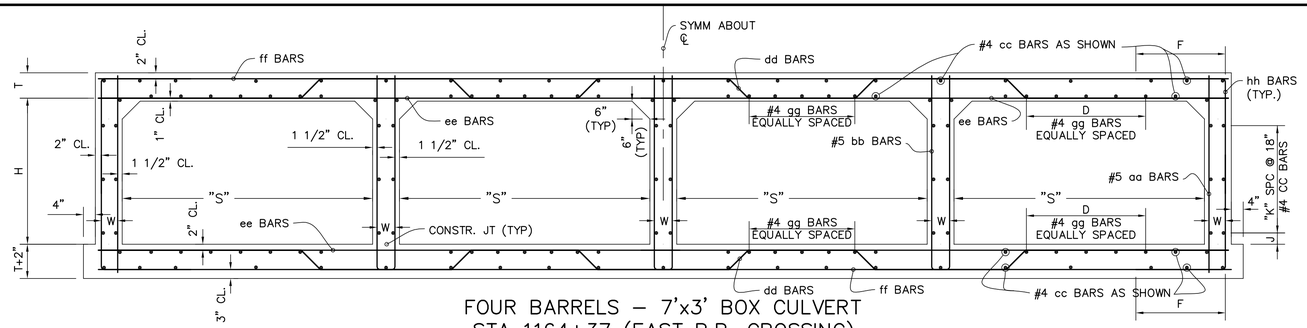
INDUSTRIAL PARK DRAINAGE
BASIN 3 EMBANKMENT

YOST AND GARDNER ENGINEERS
2619 N. THIRD STREET PHOENIX, AZ 85004
DRAWN: BRKW CHECKED: CRS MAR. 2009 - JOB NO. 8565

31/37

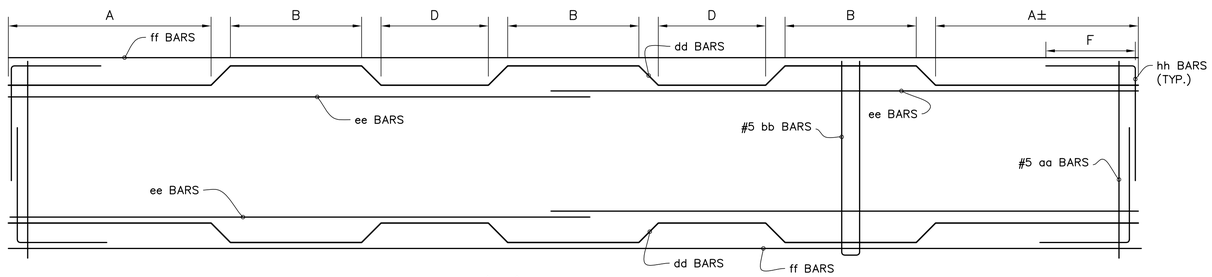
CLOMR SUBMITTAL. REDUCED SCALE: HOR: 1" = 100' (1:2.5)

| TABLE I 0'-10' FILL | | |

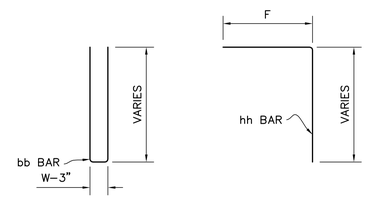


FOUR BARRELS – 7'x3' BOX CULVERT
STA 1164+37 (EAST R.R. CROSSING)
STA 1112+15 (WEST R.R. CROSSING)
SCALE: 1/2" = 1'

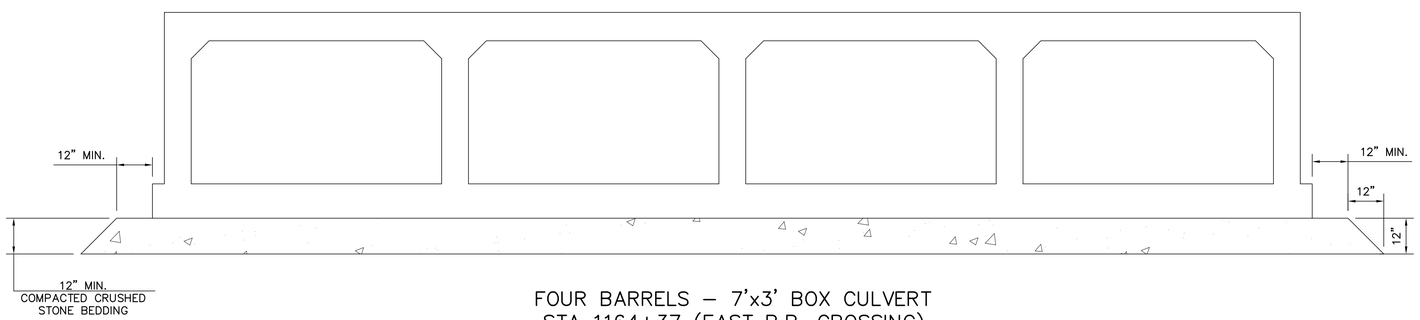
NOTE:
Reinforcing shown is for placement location only.
Use the appropiate table to determine the reinforcing requirement.



7'x3' BOX CULVERT
REINFORCING BAR PLACING DIAGRAM



HEIGHT "H"	"J" DIM.	"K" SPACES
3'	9"	1



FOUR BARRELS – 7'x3' BOX CULVERT
STA 1164+37 (EAST R.R. CROSSING)
STA 1112+15 (WEST R.R. CROSSING)
SCALE: 1/2" = 1'

FIGURE 8–16–7. BACKFILLING – OPEN CUT CONSTRUCTION

DESIGN CRITERIA
DESIGN BASED ON LATEST EDITION OF "MANUAL FOR RAILWAY ENGINEERING , CHAPTER 8 AMERICAN RAILWAY ENGINEERING AND MAINTENANCE–OF–WAY ASSOCIATION"

1. MINIMUM COMPRESSIVE STRENGTH OF CONCRETE SHALL BE 4,300 PSI AT 28 DAYS.
2. LIVE LOAD SHALL BE COOPER E80 (EM 360) LOADING.

TABLE 1
0' – 10' FILL

				aa		bb		cc	dd							ee			ff			gg	hh			
SPAN "S"	HEIGHT "H"	TOP SLAB "T"	WALL "W"	SPACING	LENGTH	SPACING	LENGTH	NUMBER	BAR SIZE	SPACING	LENGTH	A	B	C	D	BAR SIZE	SPACING	LENGTH	BAR SIZE	SPACING	LENGTH	NUMBER	BAR SIZE	SPACING	LENGTH	F
7'	3'	12"	10"	12"	5'–10"	12"	9' 10"	68	5	12"	28' 0"	5' 0"	3' 0"	8"	4' 0"	5	12"	14' 6"	5	12"	27' 0"	56	5	8"	6' 0"	3' 0"

Registered Professional Engineer (Civil) CERTIFICATE NO. 15615 CHRISTOPHER R. STEVENS Date Signed 7/19/06 ARIZONA U.S.A.

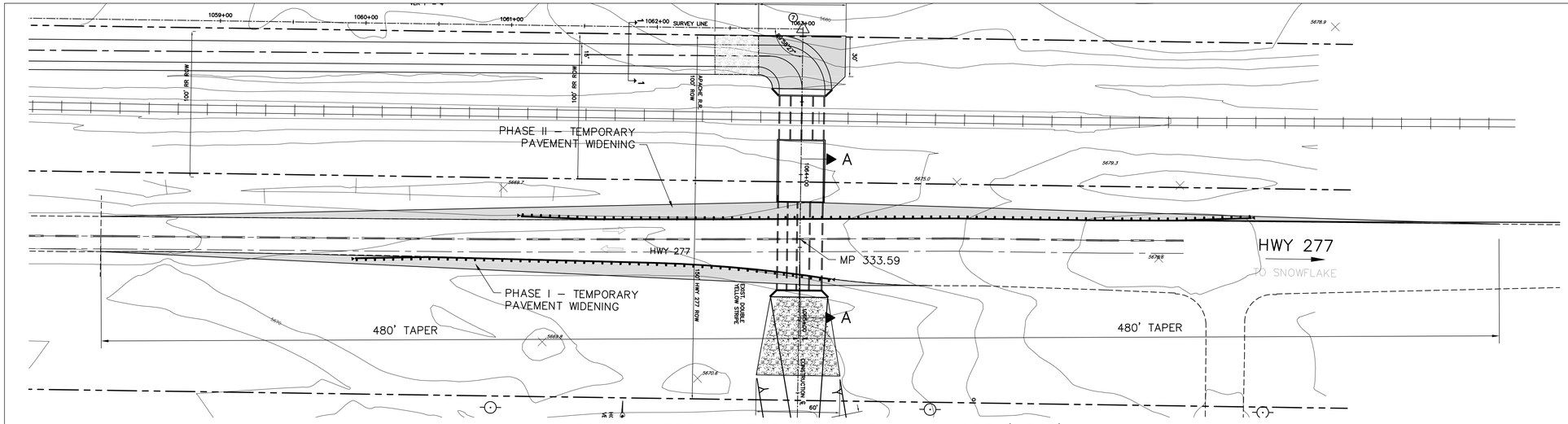
TOWN OF SNOWFLAKE, ARIZONA

SOUTHERN DRAINAGE SOLUTION
RAILROAD CROSSING BOX CULVERT DETAILS

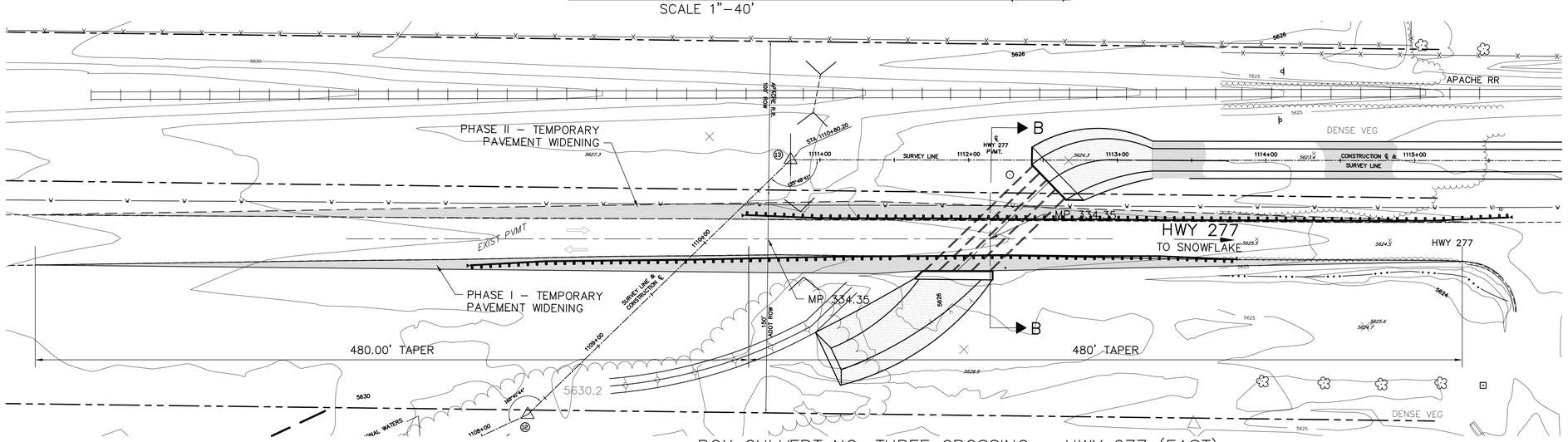
YOST AND GARDNER ENGINEERS
2619 N. THIRD STREET PHOENIX, AZ 85004
DRAWN: BR CHECKED: CRS JUN, 2006 - JOB NO. 8569

33/37

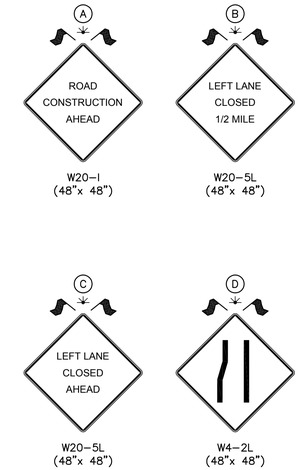
Apr 14,2009 – 4:58pm
P:\85\8569 Snowflake\Const Dwgs\8569-33-BOX CULVERT.dwg

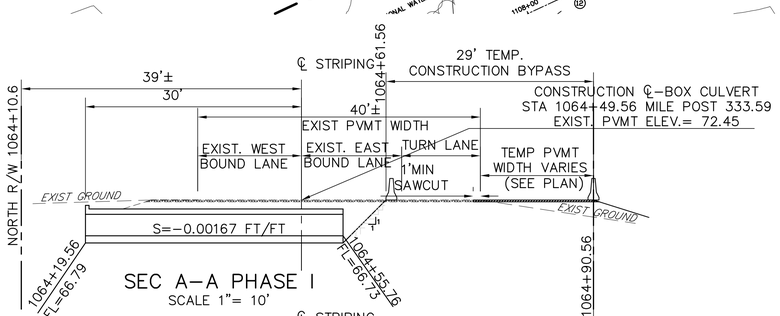


BOX CULVERT NO. TWO CROSSING – HWY 277 (WEST)
SCALE 1"–40'

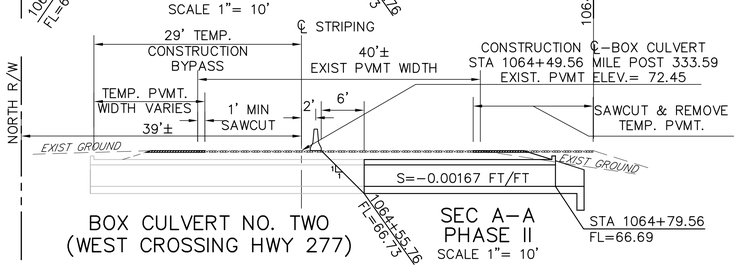


BOX CULVERT NO. THREE CROSSING – HWY 277 (EAST)
SCALE 1"–40'



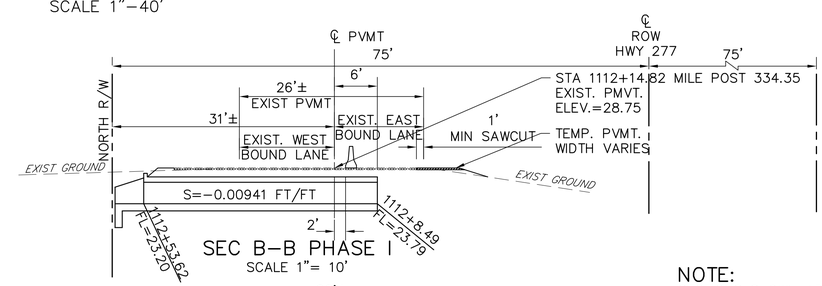


SEC A–A PHASE I
SCALE 1"= 10'

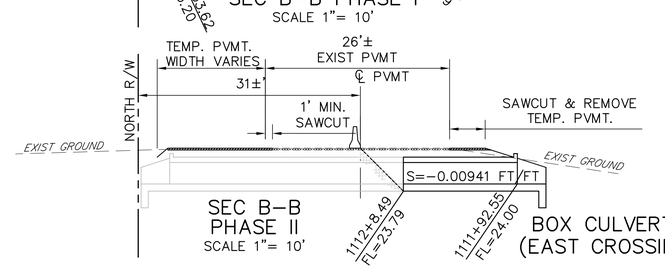


BOX CULVERT NO. TWO (WEST CROSSING HWY 277)

SEC A–A PHASE II
SCALE 1"= 10'



SEC B–B PHASE I
SCALE 1"= 10'



SEC B–B PHASE II
SCALE 1"= 10'

BOX CULVERT NO. THREE (EAST CROSSING–HWY 277)

NOTE:
SECTIONS SHOWN ARE PERPENDICULAR TO ℄ HWY 277. (BOX CULVERTS ARE SHOWN SKEWED–STATIONING ON BOX CULVERT IS ALONG CONSTRUCTION ℄ OF BOXES).

NOTES:
PHASE I – INSTALLATION OF NEW BOX CULVERT ACROSS WEST BOUND LANE AT BOTH CULVERT CROSSINGS OF HWY 227.

PHASE II – INSTALLATION OF NEW BOX CULVERT ACROSS EAST BOUND LANE AT BOTH CULVERT CROSSINGS OF HWY 227.

Registered Professional Engineer (Civil) CERTIFICATE NO. 15615 CHRISTOPHER R. STEVENS Date Signed 8/03/06 ARIZONA U.S.A.

TOWN OF SNOWFLAKE, ARIZONA

SOUTHERN DRAINAGE SOLUTION
TRAFFIC CONTROL PLAN

YOST AND GARDNER ENGINEERS
2619 N. THIRD STREET PHOENIX, AZ 85004
DRAWN: BR/KW CHECKED: CRS JUL, 2006 - JOB NO. 8569

34/37

Apr 14,2009 – 4:30pm
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SEE SHEET 36

UPPER PLAN

STA 1064+44.21, 190.84' West 1 A X 375.0 6

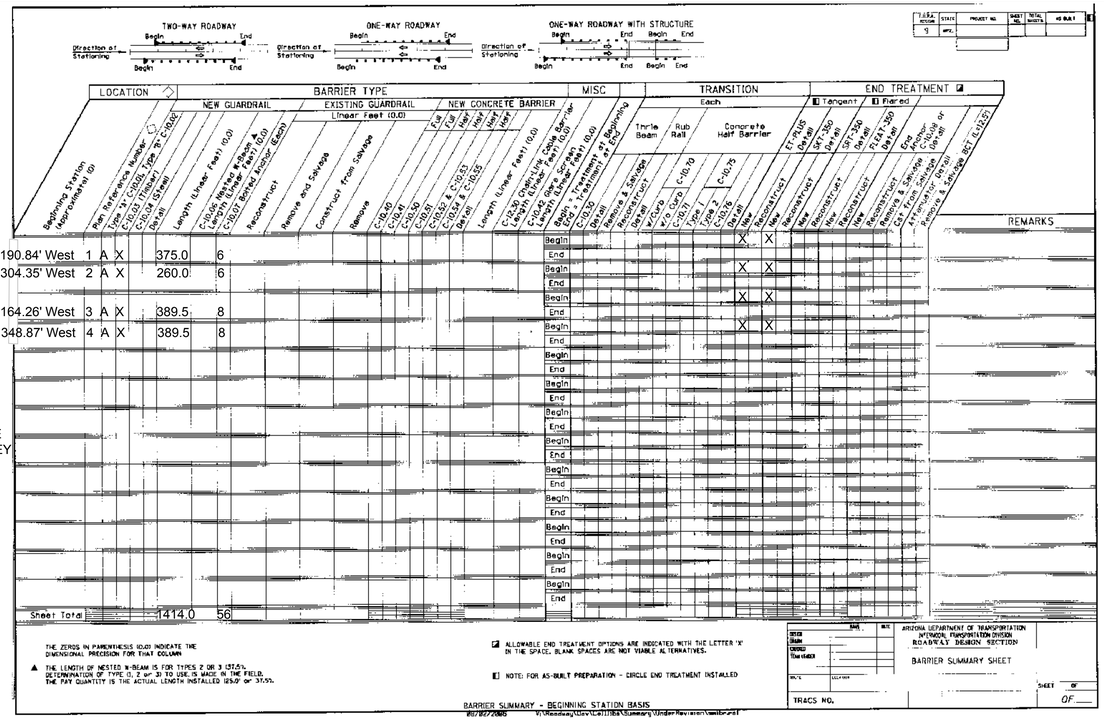
STA 1064+44.21, 304.35' West 2 A X 260.0 6

LOWER PLAN

STA 1112+14.97, 164.26' West 3 A X 389.5 8

STA 1112+14.97, 348.87' West 4 A X 389.5 8

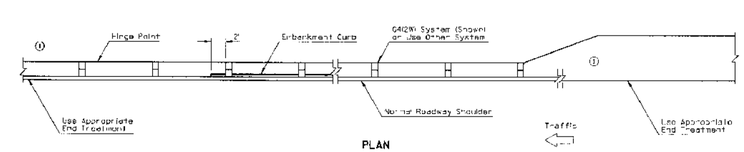
NOTE:
STATIONING IS FROM DRAINAGE CHANNEL SURVEY LINE



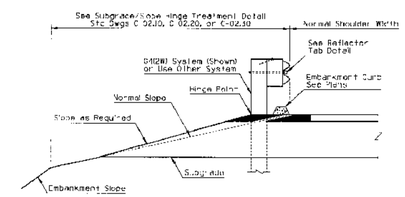
GENERAL NOTES

1. All embankment curb shall be protected by guardrail.
2. Guardrail shall extend beyond the limits of embankment curb.
3. (2) See Std Dwg C-10.00 for measurement limits.
4. (2) See Std Specs 703, 905 and 1012-3 for reflector tab and snow marker materials, reflective sheeting, and spacing requirements.

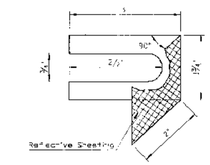
▲ Top of Rail = 28"
See General Note 1
Std Dwg C-10.03



PLAN



TYPE A SECTION



REFLECTOR TAB DETAIL

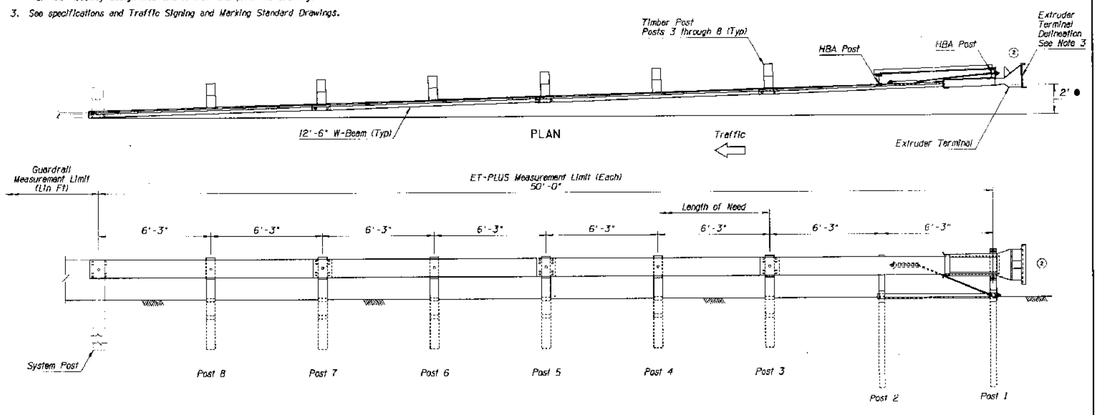
APPROVED FOR DESIGN	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS	REV. 7/05
APPROVED FOR DISTRIBUTION	GUARDRAIL INSTALLATION TYPE A AND REFLECTOR TAB	GRAPHIC NO. C-10.01

GENERAL NOTES

1. This detail is for roadway layout only.
2. The ET-PLUS shall be installed in accordance with the manufacturer's specifications and current approved drawings including all details, hardware, hardware quantities, and other information.

   The current manufacturer's approved drawing is number SS-358, 06/30/06. (1) Visit the Roadway Design web site to view and print the drawing.
3. See specifications and Traffic Signing and Marking Standard Drawings.

● Taper rate may be decreased to 50:1 and offset distance decreased to 1' when shown on the construction plans



PLAN

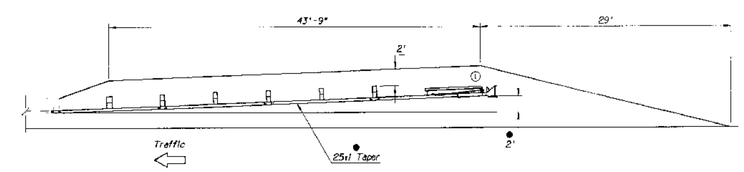
ELEVATION

DETAIL
Sheet 1 of 2
LAYOUT FOR ET-PLUS
HBA POSTS
(AC PAVEMENT)

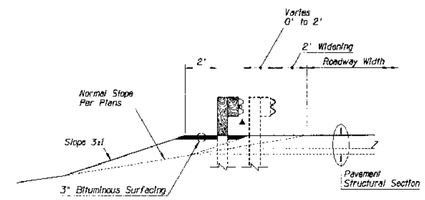
Kenneth R. Cooper — ARIZONA DEPARTMENT OF TRANSPORTATION INTERMODAL TRANSPORTATION DIVISION ROADWAY GROUP PLANS DETAIL
J. C. Cooper
TRACS NO. SHEET OF OF

● Taper rate may be decreased to 50:1 and offset distance decreased to 1' when shown on the construction plans

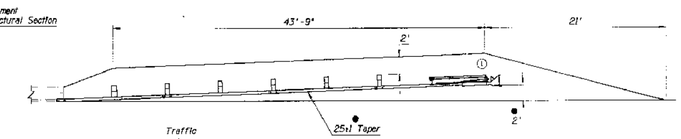
▲ Top of Rail = 28"
See General Note 1
Std Dwg C-10.03



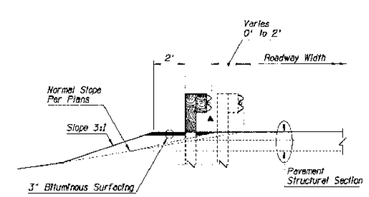
TYPE B GUARDRAIL INSTALLATION
(FACE OF RAIL OFFSET 2' FROM NORMAL EDGE OF PAVEMENT)



TYPE B SECTION



TYPE A GUARDRAIL INSTALLATION
(FACE OF RAIL AT EDGE OF PAVEMENT)



TYPE A SECTION

DETAIL
Sheet 2 of 2
LAYOUT FOR ET-PLUS
HBA POSTS
(AC PAVEMENT)

Kenneth R. Cooper — ARIZONA DEPARTMENT OF TRANSPORTATION INTERMODAL TRANSPORTATION DIVISION ROADWAY GROUP PLANS DETAIL
J. C. Cooper
TRACS NO. SHEET OF OF

Registered Professional Engineer (Civil) CERTIFICATE NO. 15615 CHRISTOPHER R. STEVENS Date Signed 9/13/06 ARIZONA U.S.A.

TOWN OF SNOWFLAKE, ARIZONA

SOUTHERN DRAINAGE SOLUTION
GUARDRAIL SUMMARY AND DETAILS

YOST AND GARDNER ENGINEERS
2619 N. THIRD STREET PHOENIX, AZ 85004
DRAWN: BR CHECKED: CRS JUL, 2006 - JOB NO. 8569

35/37

Apr 14,2009 – 5:04pm
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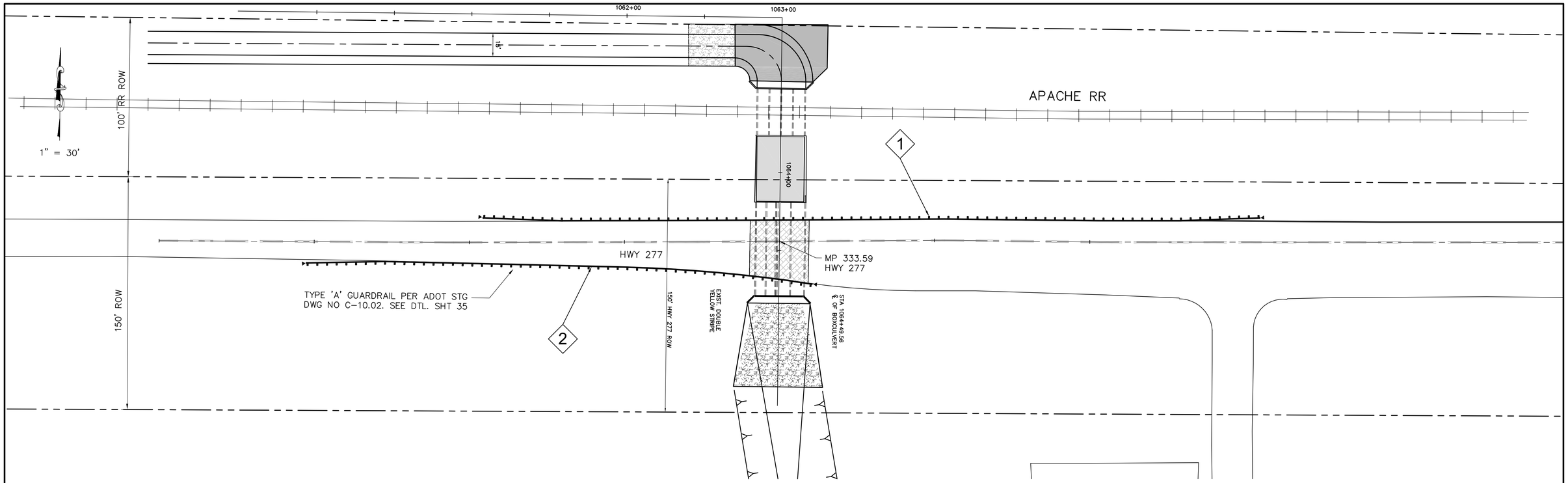
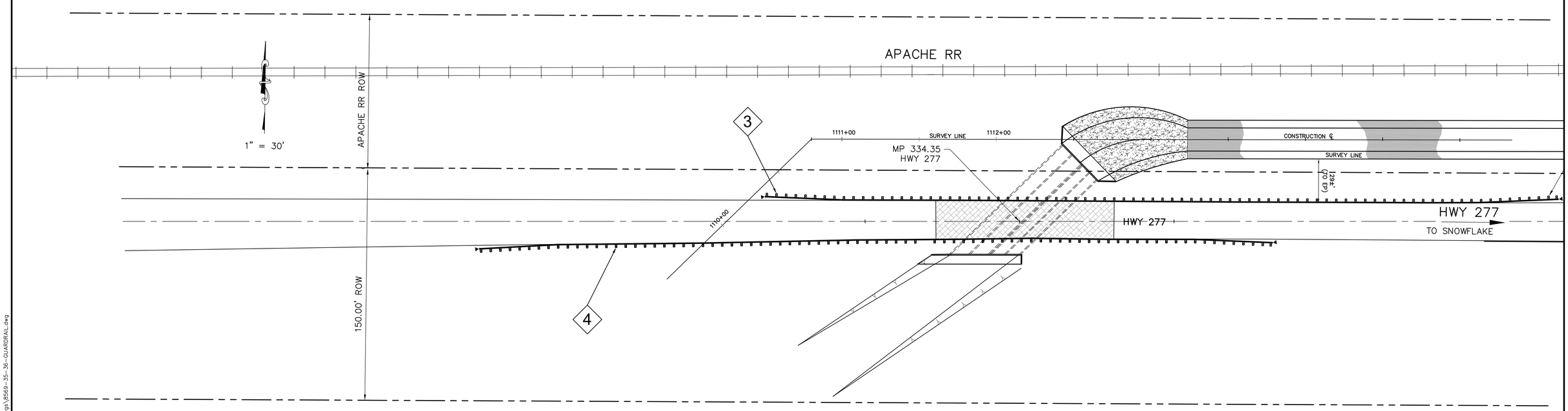


GUARDRAIL DETAIL STA 1064+00 (MP 333.59)



GUARDRAIL DETAIL STA 1110+00 (MP 334.35)

Registered Professional Engineer (Civil)
CERTIFICATE NO.
15615
CHRISTOPHER R.
STEVENS
Date Signed 8/03/06
ARIZONA U.S.A.

TOWN OF SNOWFLAKE, ARIZONA

SOUTHERN DRAINAGE SOLUTION

GUARDRAIL DETAILS STA 1064 AND 1110

YOST AND GARDNER ENGINEERS
2619 N. THIRD STREET PHOENIX, AZ 85004
DRAWN: BR CHECKED: CRS JUL, 2006 - JOB NO. 8569

36/37

Apr 14,2009 - 5:04pm
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APPROXIMATE TRAFFIC CONTROL QUANTITIES – TABLE 1

ADOT ITEM NO.	ELEMENT OF WORK	UNIT	PHASE 1	PHASE 2			TOTAL
	ESTIMATED DURATION		30 DAYS*	30 DAYS*			60 DAYS
7015010	TEMPORARY CONCRETE BARRIER (INSTALLATION AND REMOVAL)	LF					
7015020	TEMPORARY IMPACT ATTENUATORS (INSTALLATION AND REMOVAL)	EACH					
7015042	TEMPORARY PAINTED MARKING (STRIPE)	EACH					
7015091	SPECIALTY SIGNS (WITH FLUORESCENT ORANGE SHEETING)	LF					
7016020	TEMPORARY CONCRETE BARRIER (IN USE)	EACH					
7016021	TEMPORARY IMPACT ATTENUATORS (IN USE)	LF					
7016032	PORTABLE SIGN STANDS (RIGID)	SQ FT					
7016033	PORTABLE SIGN STANDS (SPRING TYPE)	LF–DAY					
7016035	WARNING LIGHTS (TYPE A)	EACH–DAY					
7016037	WARNING LIGHTS (TYPE C)	EACH–DAY					
7016039	EMBEDDED SIGN POST	EACH–DAY					
7016050	TRUCK MOUNTED ATTENUATOR	EACH–DAY					
7016052	TEMPORARY SIGN (LESS THAN 10 SF)	EACH–DAY					
7016061	TEMPORARY SIGN (10 SF OR MORE)	EACH–DAY					
7016061	FLASHING ARROW PANEL	EACH–DAY					
7016067	CHANGEABLE MESSAGE BOARD (CONTRACTOR FURNISHED)	EACH–DAY					
(INFO ONLY)	LAW ENFORCEMENT (DPS OFFICERS)	HOURS	80	80			160

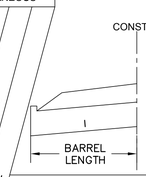
* DURATION MAY BE SHORTENED IF "PRECAST ALTERNATE" IS UTILIZED.

TRAFFIC CONTROL NOTES:

1. THE TRAFFIC CONTROL PLANS REPRESENT A SUGGESTED METHOD FOR TRAFFIC CONTROL DURING CONSTRUCTION. THE CONTRACTOR MAY PREPARE ANOTHER TRAFFIC CONTROL PLAN IN ACCORDANCE WITH SECTION 701 OF THE STANDARD SPECIFICATIONS. ALL TRAFFIC CONTROL PLANS ARE SUBJECT TO APPROVAL OF A.D.O.T. BEFORE BEGINNING CONSTRUCTION. TRAFFIC CONTROL PLANS ARE TO BE PREPARED IN ACCORDANCE WITH THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD) PART VI, 2003 EDITION AND THE A.D.O.T. TRAFFIC CONTROL DESIGN GUIDELINES, 2003.
2. ADJUSTMENTS TO THE DETAILS OF THESE TRAFFIC CONTROL PLANS AND REQUIREMENTS MAY BE NECESSARY DUE TO CONSTRUCTION ACTIVITIES, AS DIRECTED BY A.D.O.T
3. ALL EXISTING SIGNS IN CONFLICT WITH THE CONSTRUCTION SIGNS SHALL BE REMOVED, RELOCATED OR COVERED IN PLACE, AS DIRECTED BY A.D.O.T. THE CONTRACTOR SHALL STORE AND REINSTALL ITEMS WHICH HAVE BEEN REMOVED OR RELOCATED IN A MANNER APPROVED BY A.D.O.T.
4. THE RETRO–REFLECTIVE SHEETING ON ALL CONSTRUCTION SIGNS SHALL MEET THE CRITERIA ESTABLISHED IN SECTION 1007 OF THE A.D.O.T. STANDARD SPECIFICATIONS 2000 EDITION.
5. ALL CONSTRUCTION SIGNS SHALL HAVE BLACK LETTERS ON AN ORANGE BACKGROUND, EXCEPT AS OTHERWISE NOTED.
6. FOR SIGNS INSTALLED ON EMBEDDED POSTS, SIGN MOUNTING HEIGHT IS A MINIMUM OF 7 FEET AS MEASURED FROM THE BOTTOM OF THE SIGN TO THE NEAR EDGE OF THE PAVEMENT. FOR SIGNS INSTALLED ON SPRING OR RIGID STANDS, SIGN MOUNTING HEIGHT IS A MINIMUM OF 1 FOOT ABOVE THE PAVEMENT.
7. FOR SIGNS INSTALLED ON EMBEDDED POSTS, THE NEAREST EDGE OR CORNER OF A SIGN SHOULD BE 12 FEET FROM THE NEAREST EDGE OF PAVEMENT.
8. EMBEDDED POSTS MAY BE USED IN PLACE OF SPRING OR RIGID SIGN STANDS, AS LONG AS THEY ARE NOT PLACED THROUGH NEW PAVEMENT.
9. TWO FLAGS SHALL BE MOUNTED ON TOP OF ALL CONSTRICTION SIGNS EXCEPT THE "END ROAD WORK THANK YOU" SIGN. TYPE "A" FLASHING WARNING LIGHTS SHALL BE REQUIRED ON ALL NIGHTTIME CONSTRUCTION SIGNS EXCEPT THE "END ROAD WORK THANK YOU" SIGN.
10. CONSTRUCTION SIGNS SHALL NOT BE DISPLAYED TO TRAFFIC MORE THAN 30 MINUTES PRIOR TO THE ACTUAL START OF CONSTRUCTION. THESE SIGNS MAY BE INSTALLED SOONER BUT THEY MUST BE COVERED OR TURNED AWAY FROM TRAFFIC. THE COST FOR COVERING OR TURNING THEM SHALL BE CONSIDERED PART OF THE SIGN INSTALLATION COST. NO FURTHER COMPENSATION WILL BE MADE. THESE SIGNS SHALL BE REMOVED WITHIN 24 HOURS AFTER COMPLETION OF THE CONSTRUCTION ACTIVITIES.
11. WHEN TRAFFIC CONTROL DEVICES ARE NOT IN USE, THEY SHALL BE MOVED AT LEAST 30 FEET FROM THE ROADWAY. ALL TRAFFIC CONTROL SIGNS NOT IN USE SHALL BE COVERED OR TURNED AWAY FROM TRAFFIC.
12. DRUMS, TYPE 2 BARRICADES AND VERTICAL PANELS SHALL BE PLACED 40 FEET ON CENTER IN TAPERS AND 80 FEET ON CENTER IN TANGENTS, EXCEPT AS OTHERWISE NOTED ON THE PLANS.
13. A TYPE "C" STEADY BURNING YELLOW LIGHT SHALL BE MOUNTED ON EVERY DRUM, BARRICADE, OR VERTICAL PANEL IN TAPER OR TANGENT AREAS FOR CHANNELIZATION DURING NIGHTTIME ACTIVITIES.
14. DURING NIGHTTIME ACTIVITIES, THE CONTRACTOR SHALL NOT UTILIZE CONES FOR CHANNELIZATION DEVICES UNLESS OTHERWISE DIRECTED BY THE ENGINEER.
15. THE CONTRACTOR SHALL UTILIZE A FLASHING ARROW PANEL IN THE SEQUENTIAL CHEVRON MODE FOR EACH CLOSURE OF A THROUGH LANE. THE CONTRACTOR SHALL NOT UTILIZE A FLASHING ARROW PANEL IN CONNECTION WITH ANY SHIFTING TAPER.
16. THE CONTRACTOR SHALL POSITION CHANGEABLE MESSAGE BOARDS IN ADVANCE OF EACH ROAD CLOSURE OR AS DIRECTED BY THE ENGINEER.
17. AN ADEQUATE NUMBER OF TYPE 3 BARRICADES SHALL BE PLACED ACROSS EACH ROADWAY TO BE CLOSED. A 60 INCH BY 36 INCH "ROAD CLOSED" SIGN SHALL BE ATTACHED TO ONE OF THE TYPE 3 BARRICADES CLOSING THE ROADWAY. A TYPE "A" FLASHING WARNING LIGHT SHALL BE MOUNTED ON EACH END OF EACH TYPE 3 BARRICADE DURING NIGHTTIME ACTIVITIES.
18. THE CONTRACTOR SHALL CLEAN THE ROADWAY SURFACE TO THE SATISFACTION OF THE ENGINEER BY SWEEPING AND AIR–JET BLOWING, IMMEDIATELY PRIOR TO THE PLACEMENT OF ALL TEMPORARY PAVEMENT MARKINGS. THE ROADWAY SURFACE SHALL BE DRY.
19. SPEED LIMIT SIGNING IS SUBJECT TO REVIEW AND CHANGE BY A.D.O.T. AS DICTATED BY FIELD CONDITIONS.
20. SIGNING FOR DOUBLE FINES IN WORK ZONES, WHEN ALLOWED BY THE ENGINEER, SHALL GENERALLY CONFORM TO FIGURE SA–12 OF THE A.D.O.T. TRAFFIC CONTROL DESIGN GUIDELINES, 2003. SUCH SIGNING SHALL ONLY BE IN PLACE WHEN WORKERS ARE PRESENT IN ACCORDANCE WITH THE GUIDELINES FOR SIGNING FOR DOUBLE FINES IN WORK ZONES. THE COST FOR COVERING OR MOVING THE SIGNS BEFORE AND AFTER WORK PERIODS IS CONSIDERED INCIDENTAL TO THE CONTRACT.
21. ALL DRAWINGS ARE SCHEMATIC ONLY AND NOT TO SCALE.
22. EXISTING SIGNS NOT INDICATED ON THE PLAN SHEETS, THAT DO NOT NEED TO BE REMOVED OR RELOCATED, SHALL REMAIN. IF CONSTRUCTION ACTIVITIES REQUIRE THE REMOVAL OF SIGNS, THE SIGNS SHALL BE REINSTALLED AS NEAR AS POSSIBLE TO THE EXISTING LOCATION, AS DIRECTED BY A.D.O.T. THE REMOVAL/REINSTALLATION OF SIGNS FOR ANY CONSTRUCTION ACTIVITY SHALL BE INCLUDED IN THE COST OF THAT ACTIVITY. NO FURTHER COMPENSATION SHALL BE MADE.
23. THE CONTRACTOR SHALL PRESERVE ALL ROADWAY SIGNS, SIGN SUPPORTS, OBJECT MARKERS, AND MILEPOST MARKERS. THE CONTRACTOR SHALL REPLACE ANY SIGNS, SIGN SUPPORTS, AND MARKERS DAMAGED AS A RESULT OF THE CONSTRUCTION AT THE CONTRACTOR'S EXPENSE.
24. THE APPROPRIATE LOCAL GOVERNMENT AGENCIES MUST BE NOTIFIED IN ADVANCE CONCERNING DETOUR ROUTES, PER THE SPECIAL PROVISIONS. ANY PERMITS REQUIRED BY THESE AGENCIES MUST BE OBTAINED PRIOR TO START OF WORK WITHIN THEIR JURISDICTIONS.
25. THE CONTRACTOR SHALL NOTIFY TRAFFIC OPERATIONS CENTER (602) 257–1563, 48 HOURS IN ADVANCE OF ANY FREEWAY LANE RESTRICTIONS OR CLOSURES.

TABLE 3 - REINFORCED BOX CULVERT SUMMARY SHEET- CROSSING HWY 277 (BOX NO 2 - WEST CROSSING) AND (BOX NO 3 - EAST CROSSING)

DESCRIPTION													END TREATMENT									LENGTH OF BARREL & BARREL EXTENSIONS		APPROX. QUANTITIES				
														WINGS		APRONS		MISCELLANEOUS						LBS	EA	CUBIC YARDS		
STATION	PLAN SHEET NUMBER	STRUCTURE NUMBER	NEW	NUMBER OF BARRELS	BARREL SPAN	BARREL HEIGHT	CULVERT LENGTH	SKEW (DEGREE)	B–01.10 MISCELLANEOUS DETAILS	B–01.11 EXTENSION DETAILS	STANDARD OR DETAIL	LOCATION	INLET WINGS	OUTLET WINGS	STANDARD OR DETAIL	APRON	STANDARD OR DETAIL	SCOUR /BANK PROTECTION	STANDARD OR DETAIL	ENERGY DISSIPATERS	DETAIL	LINEAR FEET LEFT OF ℄	LINEAR FEET RIGHT OF ℄	REINFORCING STEEL	PLACE DOWELS	CLASS S CONCRETE f'c = 3,000 psi	STRUCTURE EXCAVATION	STRUCTURE BACKFILL (L.C.M.S.)	REMARKS
1164+00	35	2	X	4	6,8	3	60	0	X			LEFT		X	B-04.10	X	B-06.10	X	DETAIL A			30		12,828		89			
(MP 333.59)												RIGHT	X		B-04.30			X	DETAIL B				30	12,828		89			
1110+00	36	3	X	4	6,8	3	85	44° LT	X			LEFT		X	B-04.10	X	B-06.10	X	DETAIL C			30		14,592		96			
(MP 335.45)												RIGHT	X		B-04.30			X	DETAIL D				52	25,293		149			



Registered Professional Engineer (Civil)
CERTIFICATE NO. 15615
CHRISTOPHER R. STEVENS
Date Signed 8/31/06
ARIZONA U.S.A.

TOWN OF SNOWFLAKE, ARIZONA

SOUTHERN DRAINAGE SOLUTION
TABLES AND MISCELLANEOUS DETAILS

YOST AND GARDNER ENGINEERS
2619 N. THIRD STREET PHOENIX, AZ 85004
DRAWN: BR CHECKED: CRS APR, 2006 - JOB NO. 8569

37/37

Apr 14,2009 – 5:07pm
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