DUCK CREEK
SUNSET TO SANDHILL
HENDERSON, NEVADA
Contract No. 131-11-FC-132-001
PWP-CL-2013-XXX

FUNDED BY
CLARK COUNTY REGIONAL FLOOD CONTROL DISTRICT

ATKINS
2270 Corporate Circle Suite 200
Henderson, Nevada 89074
Telephone: 702/263-7275
Fax: 702/263-7200

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Revisions

No.	DESCRIPTION	BY	DATE	APPROVAL

City Of Henderson
Clark County, Nevada

Department Of Public Works

THE CITY OF HENDERSON ®
A Place To Call Home

Mayor
Andy A. Hafen

City Council
Sam Bateman
Debra March
Gerri Schroder
John F. Marz

City Manager
Jacob Snow, P.E.

Director Of Public Works
Robert A. Murnane, P.E.

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90% SUBMITTAL

PROFESSIONAL ENGINEER – STATE OF NEVADA – STEVEN M. BELLAIO – CIVIL – No. 19040

APPROVALS:

ROBERT A. MURNANE, P.E. — DATE
DIRECTOR OF PUBLIC WORKS, COH

GALE WM. FRASER, II, P.E., GENERAL MANAGER/CHIEF ENGINEER — DATE
CLARK COUNTY REGIONAL FLOOD CONTROL DISTRICT

TITLE	APPROVED	DATE
DIRECTOR OF UTILITY SERVICES		
CITY ENGINEER		
TRAFFIC ENGINEER		
SURVEY / RIGHT OF WAY		
NEW DEVELOPMENT		

AGENCY APPROVAL:

AGENCY	NO SERVICE	REVIEWED BY	DATE
SOUTHWEST GAS			
COX COMMUNICATION LV INC			
NV ENERGY–TRANSMISSION			
NV ENERGY–DISTRIBUTION			

NV ENERGY ACKNOWLEDGES THAT WE HAVE REVIEWED YOUR PLANS AND WILL PROVIDE SERVICE TO ALL ELECTRICAL NEEDS ASSOCIATED WITH THIS PROJECT. NV ENERGY RESERVES THE RIGHT TO ADDRESS ANY EXISTING OR FUTURE CONFLICTS ONCE THE FINAL DESIGN IS COMPLETED. THE NEW SERVICE AND THE RESOLUTION OF ANY CONFLICT WILL BE ACCOMPLISHED PURSUANT TO THE NEVADA UTILITY COMMISSION'S RULES AND REGULATIONS.

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THE AFFIXED CENTURY LINK APPROVAL DOES NOT ASSUME OR GUARANTEE LIABILITY FOR KNOWN OR UNKNOWN CONFLICTS WITH EXISTING OR PROPOSED IMPROVEMENTS. RESOLUTION OF ANY CONFLICT WILL BE ACCOMPLISHED PURSUANT TO LOCAL ORDINANCES, NEVADA REVISED STATUTES AND/OR PUBLIC UTILITY COMMISSION RULES AND REGULATIONS.

CITY OF HENDERSON KIVA PERMIT NO. PCOH

DUCK CREEK
SUNSET TO SANDHILL
Contract No. 131-11-FC-132-001
PWP-CL-2013-XXX

DATE: MARCH 2013
DRAWING No.
C1.01
SHEET No. 1

LEGEND AND ABBREVIATIONS

Abbreviations

@	AT
#	NUMBER
A	ANODE
A	AMPERES
AB	ABANDONED
AC	ASPHALTIC CONCRETE
ACP	ASBESTOS CEMENT PIPE
AD	ALGEBRAIC DIFFERENCE
AGG	AGGREGATE
AIP	ABANDON IN PLACE
ALT	ALTERNATE
AP	ANGLE POINT
APP	APPROACH
APPROX	APPROXIMATE
ASTM	AMERICAN SOCIETY FOR TESTING AND MATERIALS
AV/AR	AIR VACUUM AIR RELIEF VALVE
AWG	AMERICAN WIRE GAUGE
BC	BACK OF CURB
BCR	BACK OF CURB RADIUS
BLK	BLOCK
BLVD	BOULEVARD
BM	BENCHMARK
BO	BLOW OFF
BOT	BOTTOM
BRG	BRIDGE
BS	BACK SLOPE
BSW	BACK OF SIDEWALK
BVC	BEGIN VERTICAL CURVE
BVCE	BEGINNING OF VERTICAL CURVE ELEVATION
BVCS	BEGINNING OF VERTICAL CURVE STATION
BW	BOTTOM WIDTH
BWC	BASIC WATER COMPANY
C&G	CURB AND GUTTER
C-C	CENTER TO CENTER
CATV	CABLE TELEVISION
CBC	CITY OF BOULDER CITY
CC	CLARK COUNTY
CCAUSD	CLARK COUNTY AREA UNIFORM STANDARD DRAWING
CCRFCD	CLARK COUNTY REGIONAL FLOOD CONTROL DISTRICT
CCWRD	CLARK COUNTY WATER RECLAMATION DISTRICT
CCW	COUNTER CLOCKWISE
CF	CUBIC FOOT
CIP	CAST IRON PIPE OR CAST IN PLACE
CL	CENTERLINE
CLR	CLEAR
CLV	CITY OF LAS VEGAS
CM	CONSTRUCTION MANAGER OR CITY OF MESQUITE
CMP	CORRUGATED METAL PIPE
CMU	CONCRETE MASONRY UNIT
CNDT	CONDUIT
CNLV	CITY OF NORTH LAS VEGAS
CO	CLEANOUT
COH	CITY OF HENDERSON
COL	COLUMN
COMM	COMMERCIAL
CON'T	CONTINUATION
CONC	CONCRETE
CONST	CONSTRUCT OR CONSTRUCTION
COR	CORNER
CPP	CORRUGATED PLASTIC PIPE
CSAP	CORRUGATED STEEL ARCH PIPE
CSP	CORRUGATED STEEL PIPE
CU	CUBIC
CULV	CULVERT
CW	CLOCKWISE
CY	CUBIC YARD
D'	DEPTH
D'	DISTANCE
DCSWCS	DESIGN AND CONSTRUCTION STANDARDS FOR WASTEWATER COLLECTION SYSTEMS
DET	DETAIL
DEPT	DEPARTMENT
DG	DESIGN GRADE
DI	DROP INLET
DIA	DIAMETER
DIAG	DIAGONAL
DMS	DYNAMIC MESSAGE SIGN
DW	DRIVEWAY
DWG	DRAWING
E	EAST
E/O	EAST OF
EA	EACH
EB	EASTBOUND
EC	END OF CURVE
ECR	END CURB RETURN
EF	EACH FACE
EG	EXISTING GROUND
ELEC	ELECTRICAL
ELEV	ELEVATION
EMBK	EMBANKMENT
EOP	EDGE OF PAVEMENT
EP	EDGE OF PAVEMENT
EQ	EQUAL
ESMT	EASEMENT
EVC	END VERTICAL CURVE
EVCS	END VERTICAL CURVE STATION
EW	EACH WAY
EX	EXISTING
EXP JT	EXPANSION JOINT
FA	FIRE ALARM
FC	FACE OF CURB
FF	FINISHED FLOOR ELEVATION
	FAR FACE
FG	FINISHED GRADE
FH	FIRE HYDRANT
FL	FLOW LINE
FO	FIBER OPTIC
FR	FACE OF RAIL
FT	FOOT OR FEET
G	GAS LINE
G	GRAMS
GALV	GALVANIZED
GB	GRADE BREAK
GL	GRATE LENGTH
GM	GAS METER
GR	GAS PRESSURE REGULATOR
GUT	GUTTER
GV	GATE VALVE
H	HEIGHT
HDPE	HIGH DENSITY POLYETHYLENE PIPE
HDWL	HEADWALL
HE	HORIZONTAL ELLIPTICAL
HGL	HYDRAULIC GRADE LINE
HOR	HORIZONTAL
HP	HIGH POINT
	HIGH PRESSURE
ID	INSIDE DIAMETER
IN	INCH(ES)
INT	INTERSECTION
INV	INVERT
IQAC	INTERAGENCY QUALITY ASSURANCE COMMITTEE
IRR	IRRIGATION
ISL	ISLAND
JB	JUNCTION BOX
JCT	JUNCTION
JT	JOINT
K	VERTICAL CURVE K VALUE
KIPS	THOUSANDS OF POUNDS PER SQUARE INCH
KRG	KERN RIVER GAS COMPANY
KSI	THOUSANDS OF POUNDS PER SQUARE INCH
KV	KILOVOLT
L	LENGTH
LB	POUND(S)
LF	LINEAR FEET
LIE	LOWER INVERT ELEVATION
LIN	LINEAR
LOC	LENGTH OF CURVE
LOL	LAYOUT LINE
LP	LOW POINT
LT	LEFT
LVVWD	LAS VEGAS VALLEY WATER DISTRICT
MAS	MASONRY
MAX	MAXIMUM
MH	MANHOLE
MIN	MINIMUM
MON	MONOLITHIC
MTL	MATERIAL
MUE	MUNICIPAL UTILITY EASEMENT
N	NORTH OR MANNINGS ROUGHNESS COEFFICIENT
N/o	NORTH OF
NAP	NOT A PART
NDOT	NEVADA DEPARTMENT OF TRANSPORTATION
NF	NEAR FACE
NG	NUMBER OF GRATES OR NATURAL GRADE
NIC	NOT IN CONTRACT
No.	NUMBER
NTS	NOT TO SCALE
OC	ON CENTER
OD	OUTSIDE DIAMETER
OG	OPEN GRADE
OH	OVERHEAD
OHP	OVERHEAD POWER
OS	OFFSET
P	POWER
PB	PULL BOX
PBS	PLANTMIX BITUMINOUS SURFACE
PC	POINT OF CURVATURE
PCC	PORTLAND CEMENT CONCRETE OR POINT OF COMPOUND CURVATURE
PCCP	PORTLAND CEMENT CONCRETE PAVEMENT
PE	POLYETHYLENE
PG	PROPOSED GRADE
PGL	PROFILE GRADE LINE
PH	POT HOLE
PI	POINT OF INTERSECTION
PIP	PROTECT IN PLACE
PL	PROPERTY LINE
PLCS	PLACES
PMF	PAVEMENT MARKING FILM
PP	POWER POLE
PRC	POINT OF REVERSE CURVATURE
PROP	PROPOSED
PSI	POUNDS PER SQUARE INCH
PT	POINT
	POINT OF TANGENCY
PUE	PUBLIC UTILITY EASEMENT
PVC	POLYVINYL CHLORIDE
PVI	POINT OF VERTICAL INTERSECTION
PVMT	PAVEMENT
QTY	QUANTITY
(R)	RADIAL
R/W	RIGHT OF WAY
R	RADIUS
RC	REINFORCED CONCRETE
RCA	REINFORCED CONCRETE ARCH
RCB	REINFORCED CONCRETE BOX
RCC	ROLLER COMPACTED CONCRETE
RCP	REINFORCED CONCRETE PIPE
RD	ROAD
REINF	REINFORCED
	REINFORCEMENT
RELOC	RELOCATE
REV	REVISION
ROW	RIGHT OF WAY
RP	RADIUS POINT
RPM	RAISED PAVEMENT MARKER
RR	RAILROAD
RT	RIGHT
S	SOUTH/SLOPE
S/o	SOUTH OF
SCHED	SCHEDULE
SD	STORM DRAIN
SDMH	STORM DRAIN MANHOLE
SF	SQUARE FOOT/SQUARE FEET
SHLD	SHOULDER
SHT	SHEET
SHP	STEEL HIGH PRESSURE PIPE
SL	STREET LIGHT
SMFO	SINGLE MODE FIBER OPTIC
SNWA	SOUTHERN NEVADA WATER AUTHORITY
SPA	SPACING
SQ	SQUARE
SS	SANITARY SEWER/SIDE SLOPE
SST	STAINLESS STEEL
ST	STREET
STA	STATION
STD	STANDARD
STL	STEEL
STLT	STREETLIGHT
STRUCT	STRUCTURAL OR STRUCTURE
SURV	SURVEY
SW	SIDEWALK
SY	SQUARE YARD
T	TELEPHONE LINE
TAN	TANGENT
TB	TOP OF BOX
TBA	TO BE ADJUSTED
TBC	TOP OF BACK OF CURB
TBR	TO BE REMOVED
TC	TOP OF CURB
TEL	TELEPHONE
TEMP	TEMPORARY
THK	THICK
THR	THRUST
THW	TOP OF HEADWALL
TOF	TOP OF FACE
TOW	TOP OF WALL
TP	TOP OF PIPE
TRANS	TRANSITION
TS	TRAFFIC SIGNAL
TSI	TRAFFIC SIGNAL INTERCONNECT
TW	TOP OF WALL
TYP	TYPICAL
UDACS	UNIFORM DESIGN AND CONSTRUCTION STANDARDS FOR WATER DISTRIBUTION SYSTEMS
UG	UNDERGROUND
UGP	UNDERGROUND POWER
UIE	UPPER INVERT ELEVATION
UNO	UNLESS NOTED OTHERWISE
UPRR	UNION PACIFIC RAILROAD
USD	UNIFORM STANDARD DRAWING
UTACS	ULTRA THIN ASPHALT CONCRETE SURFACE
V	VOLT
VAR	VARIABLE
VC	VERTICAL CURVE
VCP	VITRIFIED CLAY PIPE
VERT	VERTICAL
VG	VALLEY GUTTER
VOTR	VIDEO OPTICAL TRANSCEIVER
W	WEST/WATER
W/	WITH
W/o	WEST OF
WB	WEST BOUND
WL	WATER LINE
WM	WATER METER
WN	WEAKENED PLANE JOINT
WO/	WITHOUT
WOUS	WATERS OF THE U.S.
WPJ	WEAKENED PLANE JOINT
WV	WATER VALVE
WW	WING WALL
YD	YARD(S)

Legend

RPPA
BLOWOFF
CAP
CELL TOWER
LOOP DETECTOR
DROP INLET
AREA INLET
DRUM
BENCHMARK
MONUMENT CALCULATED
MONUMENT FOUND
MONUMENT TYPE 1
MONUMENT TYPE 2
MONUMENT TYPE 3
MONUMENT TYPE 2
FDC
FH EXISTING
FH PROPOSED
POST INDICATING VALVE
EXISTING GATE VALVE
GATE VALVE
HC DOMES
MH
REDUCER
UTILITY VAULT
GUY WIRE
TRANSMISSION POLE
UTILITY POLE
TEST STATION
AIR-VACUUM VALVE
WATER METER
NDOT BARRIER A
NDOT BARRIER B
NDOT BARRIER FA
NDOT BARRIER FB
NDOT BARRIER PORTABLE
NDOT CURB 2
NDOT CURB 3
NDOT CURB 4
NDOT CURB 8
NDOT CURB GUTTER 1
NDOT CURB GUTTER 4
NDOT CURB GUTTER 5
NDOT CURB GUTTER 6
NDOT CURB GUTTER 7
NDOT CURB GUTTER 8
NDOT GUARDRAIL 3
NDOT GUARDRAIL 4
NDOT PED RAIL R

FLAGGER
IMPACT
PPCBR
PULLBOX No. 3 1/2
PULLBOX No. 5
PULLBOX TRAFFIC SIGNAL
PULLBOX No. 7
PULLBOX No. 9
PULLBOX P-30
PULLBOX T-300
ANGLE POINT
COORDINATE
PVI
HYDRAULIC GRADE LINE
EXISTING ELEVATION
NEW ELEVATION
ELEVATION (PROPOSED BY OTHERS)
CONDUIT RUN NUMBER
SIGNAL POLE LABEL
EXISTING STREETLIGHT
STREETLIGHT 100w
STREETLIGHT 150w
STREETLIGHT 200w
STREETLIGHT 250w
STREETLIGHT 400w
STREETLIGHT 450w
STREETLIGHT 750w
SERVICE PEDESTAL
EXISTING SERVICE POINT
SIGNPOST AND D3
SIGNPOST EXISTING
SIGNPOST NEW
OPTICOM
RED LIGHT INDICATOR
VIDEO CAMERA
CONTROLLER
SCHOOL FLASHER
PEDESTRIAN INDICATOR
SIGNAL HEAD
SIGNAL HEAD PERMISSIVE
SIGNAL HEAD PROTECTED
ILLUMINATED STREET NAME SIGN
SIGN ON ARM
EXISTING SIGNAL ARM
PROPOSED SIGNAL ARM
DETECTION ZONE, MINIMUM AREA
PROPOSED SIGN
EXISTING SIGN

CENTERLINE
PROPERTY LINE
RIGHT OF WAY
MATCHLINE
PROPOSED STREETLIGHT CONDUIT
EXISTING STREETLIGHT CONDUIT
PROPOSED 4" INTERCONNECT CONDUIT
PROPOSED 3" INTERCONNECT CONDUIT
TRAFFIC SIGNAL CONDUITS
EXISTING CHAIN LINK FENCE
EXISTING BLOCK WALL
RETAINING WALL
EXISTING OVERHEAD POWER
EXISTING UNDERGROUND POWER
EXISTING SANITARY SEWER
EXISTING WATER
EXISTING GAS
EXISTING CABLE T.V.
EXISTING STORM DRAIN
EXISTING TELEPHONE
EXISTING CONCRETE ENCASEMENT
EXISTING STREETLIGHT CONDUIT
TRAFFIC SIGNAL CONDUITS
PROPOSED INTERCONNECT
STUB AND CAP
SAWCUT PAVEMENT
LIMITS OF OPEN GRADE
EDGE OF PAVEMENT
GUARD RAIL
LANE LINE 6"
LANE LINE CAT TRACKS
LANE LINE DROP
LANE LINE STORAGE 8"
LANE LINE TYPE 1
LANE LINE TYPE 2
LANE LINE TYPE 3
LANE LINE TYPE 4
NEW STORM DRAIN W/MANHOLE
NEW STORM DRAIN W/PRECAST TEE
EXISTING SCARP
PROPOSED SCARP
CURB AND GUTTER
EXISTING
PROPOSED
PROPOSED BY OTHERS

DISH ANTENNA
EXISTING GATE
LIGHT POLE
PALM TREE
PEDESTRIAN SIGNAL
BOLLARD
DOUBLE POST SIGN
OVERHEAD SIGN
TREE
STREET SIGN
CULVERT
FLAG
MISC SYMBOL
AERIAL PANEL
CACTUS

CATCH BASIN
OFF ROAD CATCH BASIN
BILLBOARD
TRAFFIC SIGNAL
SIGN BRIDGE
TRANSMISSION POLE
UTILITY POLE

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PROFESSIONAL ENGINEER - STATE OF NEVADA
STEVEN M. BELLINO
CIVIL
No. [illegible]

REV.	REVISIONS DESCRIPTION	BY	DATE	APPROVAL

ATKINS

City of Henderson, Nevada

DUCK CREEK SUNSET TO SANDHILL
LEGEND AND ABBREVIATIONS

JOB NO.: 100028146
FILE NAME: 28146-C1.03
SCALE: HORIZ. NA, VERT. NA
DESIGNED BY: S. BELLINO
DRAWN BY: E. WATSON
CHECKED BY: A. SPATA
DATE: MARCH 5, 2013
DRAWING NO.: C1.03
3 of 40

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17 C2.09 CHANNEL TYPICAL SECTIONS
18 C2.10 CHANNEL TYPICAL SECTIONS
19 C2.11 CHANNEL TYPICAL SECTIONS
20 C2.12 CHANNEL TYPICAL SECTIONS
21 C2.13 GRADING ENLARGEMENT
22 C2.14 GRADING ENLARGEMENT
23 C2.15 GRADING ENLARGEMENT
24 C2.16 GRADING ENLARGEMENT
25 C2.17 DETAILS
26 C2.18 DETAILS
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28 C2.20 DETAILS
29 C2.21 DETAILS
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31 C2.23 DETAILS
32 C2.24 DETAILS
33 C2.25 DETAILS
34 C2.26 LATERAL PROFILES

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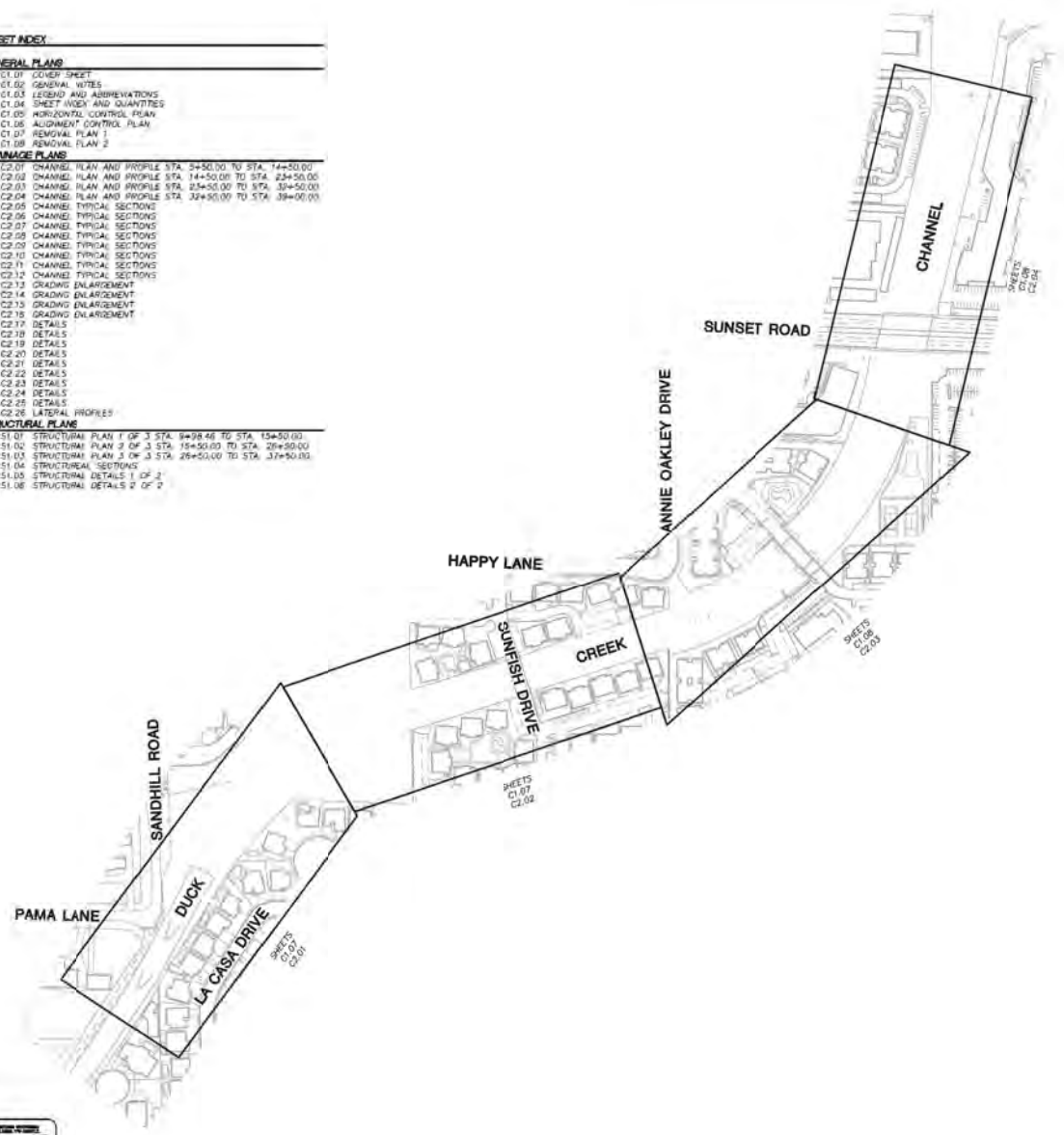
38 S1.04 STRUCTUREAL SECTIONS
39 S1.05 STRUCTURAL DETAILS 1 OF 2
40 S1.06 STRUCTURAL DETAILS 2 OF 2



REMOVAL QUANTITIES

ITEM NO.	DESCRIPTION	C1.07	C1.08	TOTAL	UNIT
202.01	REMOVE EXISTING SIDEWALK	170	170	340	SF
202.02	REMOVE EXISTING CURB AND GUTTER	24	24	48	LF
202.03	REMOVE EXISTING GABION MATTRESSES		4036	4036	SY
202.04	REMOVE EXISTING CONCRETE SLOPE PAVING		988	988	SY
202.05	REMOVE EXISTING CHAIN LINK FENCING	1008		1008	LF
202.06	MISCELLANEOUS CHANNEL REMOVALS	1		1	LS

CONSTRUCTION QUANTITIES

ITEM NO.	DESCRIPTION	C2.01	C2.02	C2.03	C2.04	TOTAL	UNIT
203.01	CHANNEL EXCAVATION	6856	5657	5400	2907	21620	CY
203.02	SUBGRADE STABILIZATION WITH CRUSHED ROCK	180	350	350	211	1091	SY
203.03	SUBGRADE STABILIZATION BY OVER-EXCAVATION AND AGGREGATE BACKFILL	130	233	233	141	737	CY
207.01	STRUCTURE BACKFILL	275	1,368	513	82	2238	CY
207.02	GRANULAR BACKFILL	1535	2589	2928	1136	7758	CY
207.03	DRAIN BACKFILL	599	1167	1167	514	3447	CY
302.01	TYPE II AGGREGATE BASE	1058	1575	1576	380	4589	SY
502.01	CHANNEL TRANSITION (STATION 9+98.46 TO STATION 10+48.46)	50				50	LF
502.02	CONCRETE CHANNEL WITH ACCESS RAMP (STATION 10+48.46 TO STA 12+28.44)	180				180	LF
502.03	CONCRETE CHANNEL (STATION 12+28.44 TO STA. 33+37.09)	222	900	900	87	2109	LF
502.04	CHANNEL TRANSITION (STATION 33+37.09 TO STATION 33+57.09)				20	20	LF
502.05	CONCRETE CHANNEL (STATION 33+57.09 TO STATION 35+79.44				223	223	LF
502.06	CORPEN FLOW MONITORING STATION			1		1	LS
502.07	CONCRETE BACKFILL		66	82	140	288	CY
603.01	24-INCH REINFORCED CONCRETE PIPE (CLASS III)			10		10	LF
603.02	36-INCH REINFORCED CONCRETE PIPE (CLASS III)			24		24	LF
603.03	57-INCH REINFORCED CONCRETE PIPE (CLASS III)				15	15	LF
609.01	TYPE II STORM DRAIN MANHOLE			1		1	EA
610.71	WIRE MESH GABIONS				423	423	CY
511.01	(CLASS DA) CONCRETE SLOPE PAVEMENT			129	229	358	SY
613.71	CONSTRUCT "L" TYPE CURB AND GUTTER	24			24	48	LF
613.92	CONSTRUCT CONCRETE SIDEWALK	30			50	100	SF
613.03	CONSTRUCT CONCRETE DRIVEWAY	120			120	240	SF
613.04	CONSTRUCT CONCRETE VALLEY GUTTER		203	158		361	SY
616.71	72-INCH CHAIN LINK FENCE	633	303			936	LF
616.02	POST AND CABLE FENCE	361	672	120		1153	LF
616.03	12-FOOT DOUBLE SWING GATE	1				1	EA
616.04	COLLAPSIBLE BOLLARDS				3	3	EA
637.03	DUST PALLIATIVE W/ PRE-EMERGENT HERBICIDE	0.48	0.36	0.50	0.16	1.50	ACRE

90% SUBMITTAL

PROFESSIONAL ENGINEER-STATE OF NEVADA
STEVEN M. BELLINO
Exp. 12-31-14
CIVIL
No. 9860

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REVISIONS

REV.	DESCRIPTION	BY	DATE	APPROVAL

ATKINS
2295 Corporate Circle Suite 300
Henderson, NV 89074
Telephone: +1(702)382-2253
Fax: +1(702)385-2109

City of Henderson, Nevada

DUCK CREEK SUNSET TO SANDHILL
SHEET INDEX AND QUANTITIES

JOB NO. 100026146
DESIGNED BY: S. BELLINO
DRAWN BY: M. JOHNSON
CHECKED BY: S. BELLINO
DATE: MARCH 5, 2013
JOB NO. 1.00023148
FILE NAME: 23148-C1.04
SCALE: HORIZ: NA VERT: NA
SHEET NO. C1.04
SHEET NO. 4
SHEET NO. 40

\\Projects\100026146\Civil\Sheets\23148-C1.04.dwg Layout: C1.04 Mar 05, 2013 - 2:24pm

LAND MONUMENT POINT TABLE			
POINT NO	NORTHING	EASTING	DESCRIPTION
16	733521.7156	304346.4508	ALCAP–PLS 7004
17	733584.5011	302966.7704	BRCAP–PLS 4541
18	732237.1205	302947.3368	BRCAP–PLS 7008
19	732295.0881	301557.3333	WELL MON–PLS 8007
21	731585.3493	302953.2229	ALCAP–PLS 4046
29	731513.2149	302262.9550	ALCAP–ILLEG.
37	729564.6496	301620.9154	ALCAP–PLS 4046
114	730895.2657	304329.5323	ALCAP–PLS 9103
115	732179.0358	304337.5494	WELLMON–PLS 7740

CURVE TABLE				
CURVE	RADIUS	DELTA	LENGTH	TANGENT
C1	795.00'	5°35'09"	77.51'	38.78'
C2	4005.00'	7°43'07"	539.54'	270.18'
C3	800.00'	39°47'43"	555.65'	289.56'
C4	875.61'	58°59'42"	901.58'	495.35'
C5	1500.00'	2°34'45"	67.53'	33.77'

CALCULATED POINTS TABLE		
POINT NO	NORTHING	EASTING
50	733552.8084	303656.6106
51	732880.4433	303649.5268
52	732208.0781	303642.4431
53	731040.7870	300218.7845
54	730986.8459	301588.9054
55	730933.7388	302959.1976
56	730889.1478	304135.5845
57	730895.4267	304279.4505
58	729716.8187	300273.0447

BASIS OF BEARING:

SOUTH 87°36'45" EAST – BEING THE NORTH LINE OF THE NORTHWEST QUARTER (NW1/4) OF THE NORTHEAST QUARTER (NE1/4) OF SECTION 6, TOWNSHIP 22 SOUTH, RANGE 62 EAST, M.D.M., AS SHOWN ON THE MAP THEREOF IN BOOK 140 OF PLATS, PAGE 057, OFFICIAL RECORDS, CLARK COUNTY, NEVADA.

BENCHMARK

CITY OF HENDERSON BENCHMARK No. 138 (REVISION DATE: 2004)

SQUARE ALUMINUM PLATE IN THE TOP OF CURB AT THE NORTHEAST CORNER OF SUNSET ROAD AND GREEN VALLEY PARKWAY (CLARK COUNTY BM 0C12 3204).

ELEVATION = 593.154m (NAVD'88)
= 1946.04ft (NAVD'88)

HORIZONTAL CONTROL PLANS ARE BASED ON RECORD OF SURVEY, AS RECORDED BY ATKINS FILE 187 PAGE 0004.

LEGEND

(00) POINT NUMBER LABEL FOR FOUND LAND MONUMENTS

△ POINT NUMBER LABEL FOR CALCULATED POINTS

● SET BRASS CAP TYPE III MONUMENT PLS #8995

◉ FOUND POINT AS NOTED

○ CALCULATED POSITION

◆ BENCHMARK CITY OF HENDERSON No. 138

CENTERLINE

AUQUOT LINE

GRAPHIC SCALE

(IN FEET)
1 inch = 200 ft.

90% SUBMITTAL

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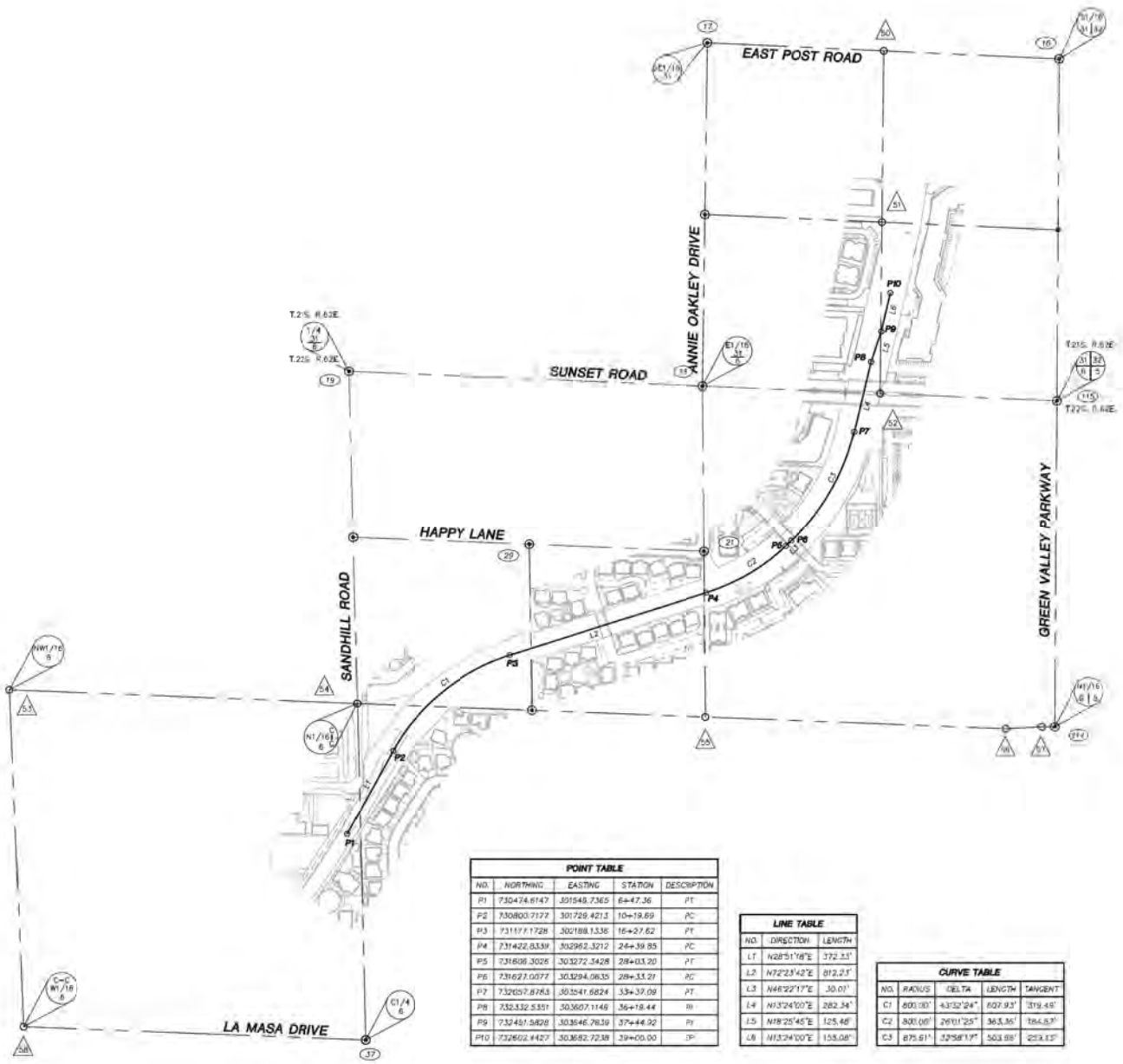
REV.	DESCRIPTION	BY	DATE	APPROVAL
REVISIONS				

ATKINS

City of Henderson, Nevada

DUCK CREEK SUNSET TO SANDHILL
HORIZONTAL CONTROL PLAN

JOB NO.: 100028146
DESIGNED BY: S. BILLING
DRAWN BY: W. JOHNSON
CHECKED BY: A. SPATA
DATE: MARCH 5, 2013
FILE NAME: 28146–C1.05
SCALE: HORIZ: NA VERT: NA
DRAWING NO. 5 / 40
C105



BASIS OF BEARING:

SOUTH 67°36'45" EAST – BEING THE NORTH LINE OF THE NORTHWEST QUARTER (NW1/4) OF THE NORTHEAST QUARTER (NE1/4) OF SECTION 6, TOWNSHIP 22 SOUTH, RANGE 62 EAST, M.D.M., AS SHOWN ON THE MAP THEREOF IN BOOK 140 OF PLATS, PAGE 1907, OFFICIAL RECORDS, CLARK COUNTY, NEVADA.

BENCHMARK

CITY OF HENDERSON BENCHMARK
No. 138 (REVISION DATE: 2004)

SQUARE ALUMINUM PLATE IN THE TOP OF CURB AT THE NORTHEAST CORNER OF SUNSET ROAD AND GREEN VALLEY PARKWAY (CLARK COUNTY BM 6C12 32C4).

ELEVATION = 593.154m (NAVD'88)
= 1946.04ft (NAVD'88)

POINT TABLE

NO.	NORTHING	EASTING	STATION	DESCRIPTION
P1	730474.6147	301548.7365	6+47.36	PT
P2	730800.7177	301729.4213	10+19.69	PC
P3	731177.1728	302188.1336	16+27.62	PT
P4	731422.8339	302952.3212	24+39.85	PC
P5	731606.3026	303272.3428	28+03.20	PT
P6	731627.0377	303294.0835	28+33.21	PC
P7	732057.8783	303541.6824	33+37.09	PT
P8	732332.5351	303607.1146	36+18.44	PI
P9	732451.5828	303646.7839	37+44.92	PI
P10	732602.4427	303682.7238	39+00.00	DP

LINE TABLE

NO.	DIRECTION	LENGTH
L1	N28°51'18"E	372.33'
L2	N72°23'42"E	812.23'
L3	N46°22'17"E	30.01'
L4	N13°24'00"E	282.34'
L5	N18°25'45"E	125.46'
L6	N13°24'00"E	155.08'

CURVE TABLE

NO.	RADIUS	DELTA	LENGTH	TANGENT
C1	800.00'	43°32'24"	607.93'	319.49'
C2	800.00'	26°01'25"	363.36'	184.83'
C3	875.61'	33°58'17"	503.59'	259.15'

REFER TO DRAWING C1.02 FOR FOR PROJECT HORIZONTAL CONTROL

(00) REFER TO DRAWING C5.05 FOR FOUND POINTS

△00 REFER TO DRAWING C1.00 FOR CALCULATED POINTS

GRAPHIC SCALE

(IN FEET)

1 inch = 200 ft

90% SUBMITTAL

STEVEN M. BELLING — Exp. 12-31-14 — CIVIL — No. 15540 — STATE OF NEVADA — PROFESSIONAL ENGINEER

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REVISIONS				
REV.	DESCRIPTION	BY	DATE	APPROVAL

ATKINS

2275 Corporate Circle Suite 300
Henderson, NEVADA 89074
Telephone +1(702)382-2253
Fax +1(702)385-2736

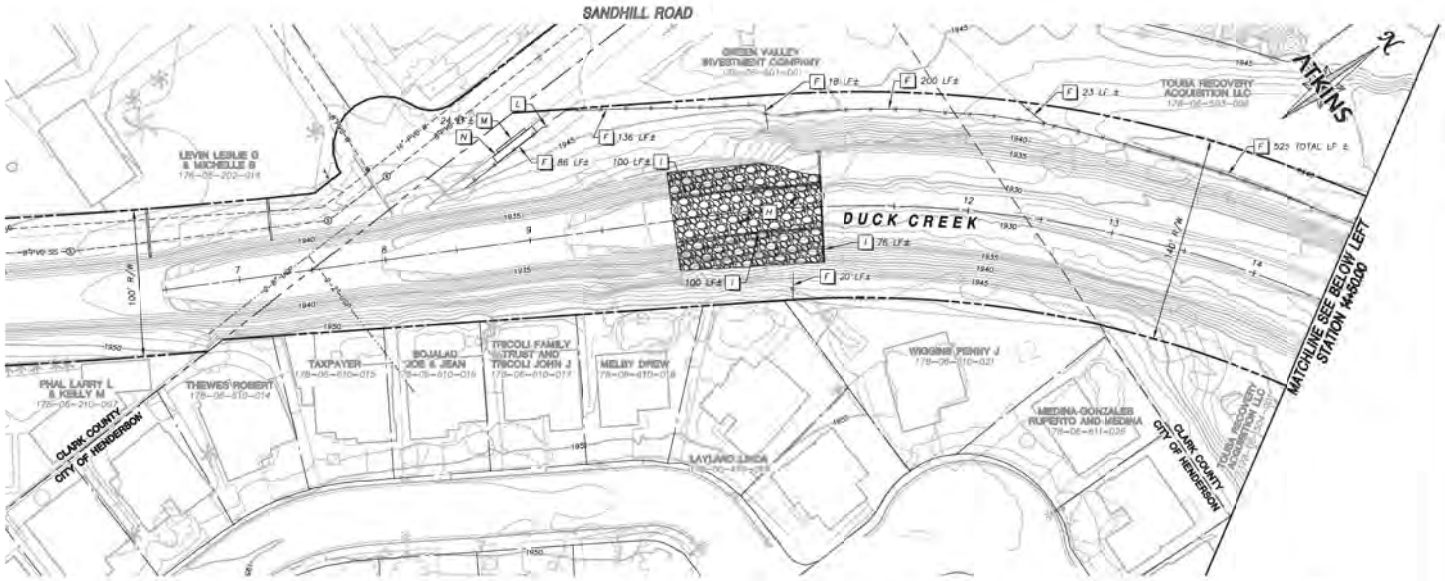
City of Henderson, Nevada

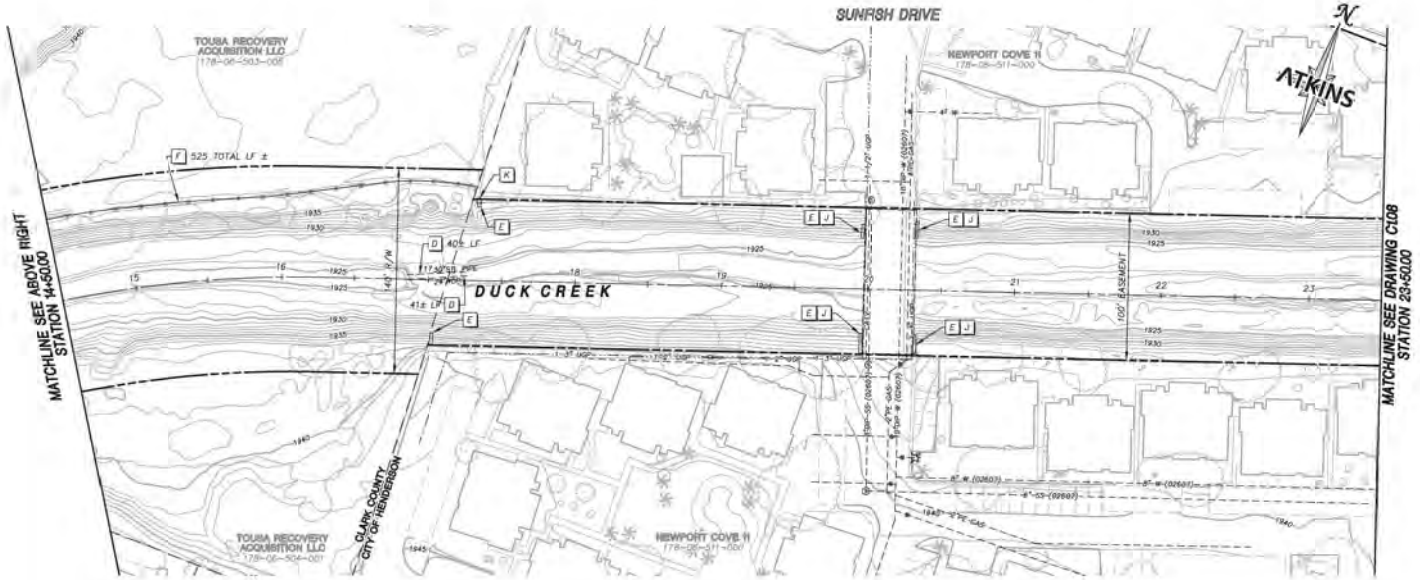
DUCK CREEK SUNSET TO SANDHILL
ALIGNMENT CONTROL PLAN

JOB NO. 100026146
DESIGNED BY: M. DONOHUE
DRAWN BY: M. DONOHUE
CHECKED BY: A. SPATA
DATE: MARCH 5, 2013
SHEET NO. C1.03
SHEET NO. 40

JOB NO. 100026146
FILE NAME: C1.03_DUCK CREEK SUNSET TO SANDHILL ALIGNMENT CONTROL PLAN.dwg
HORIZ.: 1"=200'
VERT.: NA

C:\Projects\100026146_Duck Creek\100026146_Civil\Sheets\C1.03_DUCK CREEK SUNSET TO SANDHILL ALIGNMENT CONTROL PLAN.dwg Layout: C1.03 Mar 05, 2013 - 11:30am





KEY NOTES

- A PROTECT-IN-PLACE
- B EXISTING 1'x1'x12' GABION SLOPE PROTECTION TO BE REMOVED
- C EXISTING CONCRETE SLOPE PAVING TO BE REMOVED
- D EXISTING PIPE TO BE REMOVED
- E EXISTING CONCRETE VALLEY GUTTER TO BE REMOVED
- F EXISTING CHAIN LINK FENCE TO BE REMOVED
- G EXISTING HEADWALL TO BE REMOVED
- H EXISTING RIPRAP PROTECTION TO BE REMOVED
- I EXISTING 4" CONCRETE CUTOFF WALLS TO BE REMOVED
- J EXISTING CMU WALL AND FOUNDATION TO BE REMOVED
- K EXISTING CONCRETE APRON TO BE REMOVED
- L EXISTING GATE TO BE REMOVED
- M EXISTING CURB AND GUTTER TO BE REMOVED
- N EXISTING SIDEWALK TO BE REMOVED

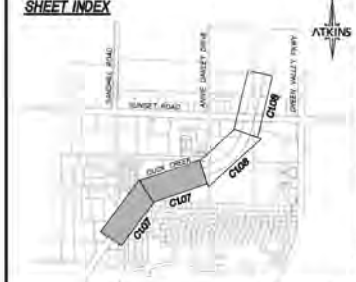
EXISTING UTILITIES ARE LOCATED ON THE PLANS FROM A SEARCH OF AVAILABLE RECORDS. CONTRACTOR TO VERIFY LOCATIONS AND DEPTHS PRIOR TO CONSTRUCTION

GRAPHIC SCALE

(IN FEET)

SCALE: 1 inch = 40 ft.

SHEET INDEX



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STEVEN M. BELLINO
REG. No. 15040
CIVIL

REVISIONS

REV.	DESCRIPTION	BY	DATE	APPROVAL

ATKINS

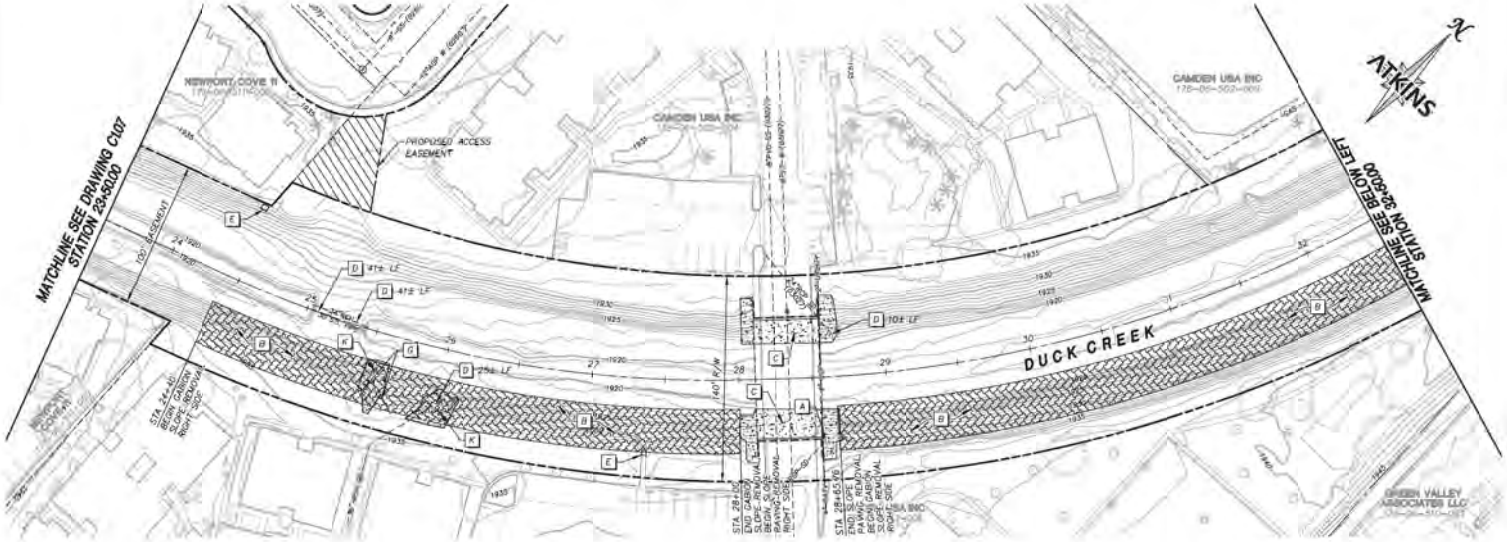
City of Henderson, Nevada

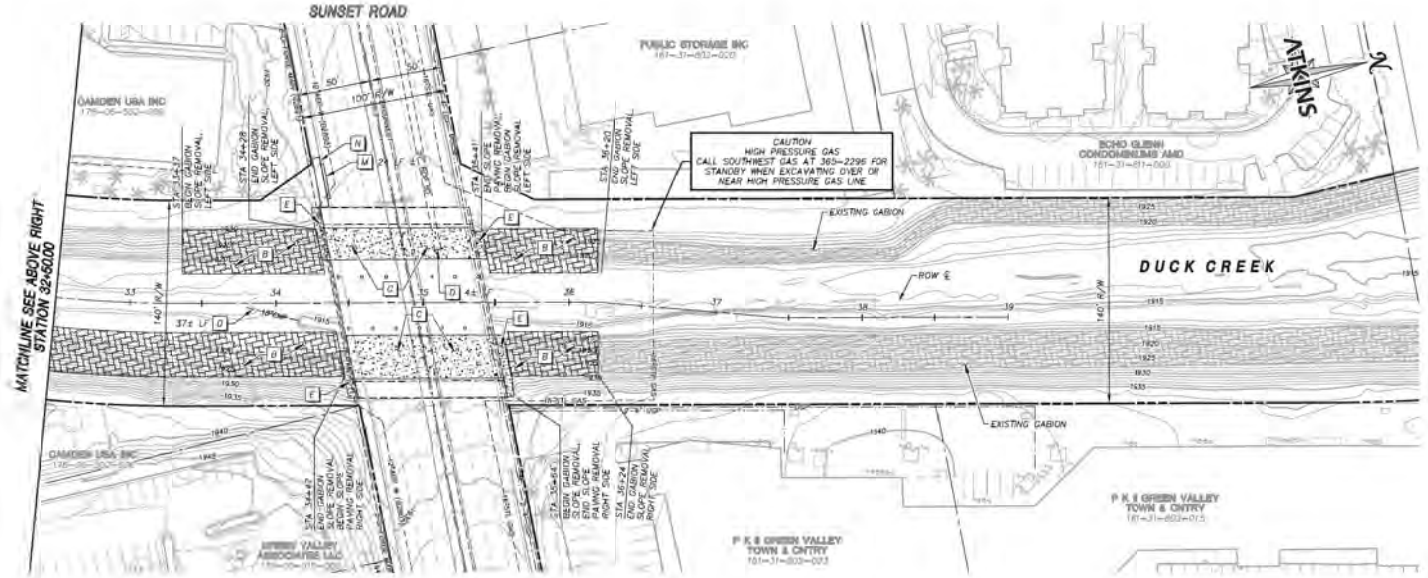
DUCK CREEK SUNSET TO SANDHILL
REMOVAL PLAN 1

JOB NO.: 100028146
FILE NAME: 28146-C1.07
SCALE: HORIZ.:1"=40'
VERT.: NA

DESIGNED BY: S. BELLINO
DRAWN BY: W. JOHNSON
CHECKED BY: A. SPATA
DATE: MARCH 3, 2013

JOB NO. 100028146
DRAWING NO. C107





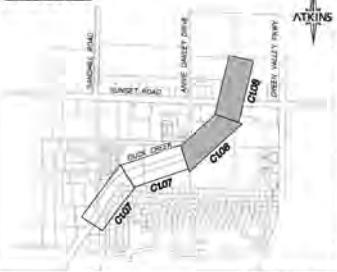
KEY NOTES

- A — PROTECT-IN-PLACE
- B — EXISTING 1'-6"x12' GABION SLOPE PROTECTION TO BE REMOVED
- C — EXISTING CONCRETE SLOPE PAVING TO BE REMOVED
- D — EXISTING PIPE TO BE REMOVED
- E — EXISTING CONCRETE VALLEY GUTTER TO BE REMOVED
- F — EXISTING CHAIN LINK FENCE TO BE REMOVED
- G — EXISTING HEADWALL TO BE REMOVED
- H — EXISTING RIPRAP PROTECTION TO BE REMOVED
- J — EXISTING 4' CONCRETE CUTOFF WALLS TO BE REMOVED
- K — EXISTING CMU WALL AND FOUNDATION TO BE REMOVED
- L — EXISTING CONCRETE APRON TO BE REMOVED
- M — EXISTING GATE TO BE REMOVED
- N — EXISTING CURB AND GUTTER TO BE REMOVED
- P — EXISTING SIDEWALK TO BE REMOVED

EXISTING UTILITIES ARE LOCATED ON THE PLANS FROM A SEARCH OF AVAILABLE RECORDS. CONTRACTOR TO VERIFY LOCATIONS AND DEPTHS PRIOR TO CONSTRUCTION

GRAPHIC SCALE
(IN FEET)
INCH: 1 inch = 40 ft.

SHEET INDEX



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CIVIL
No. 9040

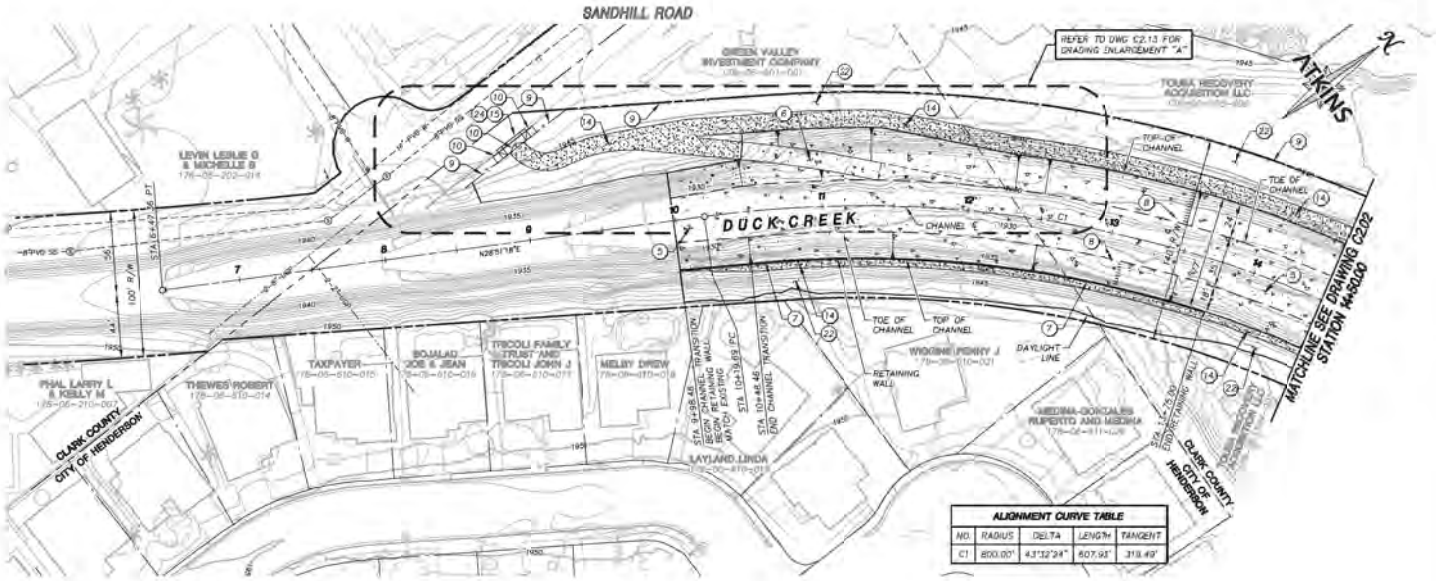
REVISIONS			
REV.	DESCRIPTION	BY	DATE	APPROVAL

ATKINS
2275 Corporate Circle Suite 300
Henderson, NEVADA 89074
Telephone: +1(702)835-2999
Fax: +1(702)835-2998

City of Henderson, Nevada

DUCK CREEK SUNSET TO SANDHILL
REMOVAL PLAN 2

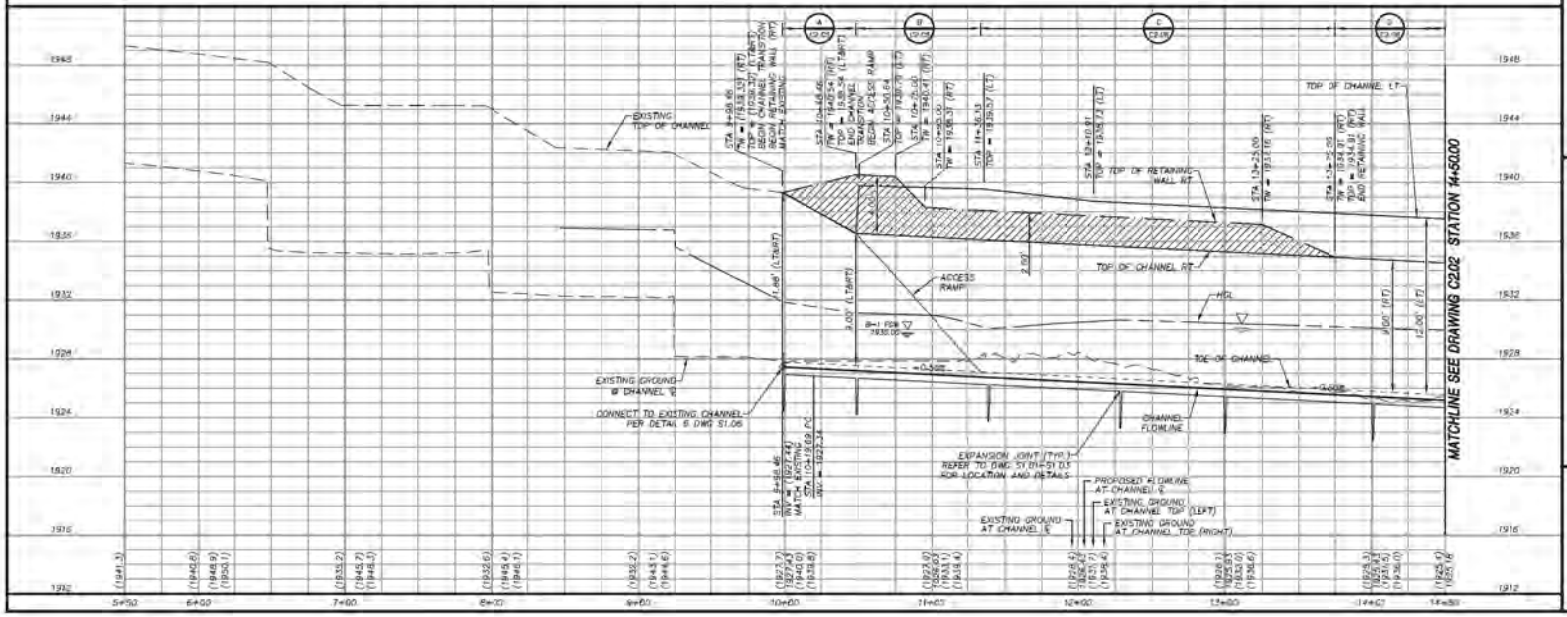
JOB NO. 100026146
DESIGNED BY: J. LOMBARDO
DRAWN BY: M. DONOHOE
CHECKED BY: A. ZAZA
DATE: MARCH 5, 2013
JOB NO.: N:\100231.48
FILE NAME: C108.dgn
SCALE: 1"=40'
VERT.: NA
SHEET NO. C108



ALIGNMENT CURVE TABLE				
NO.	RADIUS	DELTA	LENGTH	TANGENT
C1	800.00'	43°32'24"	607.93'	319.49'

KEY NOTES

1. INSTALL 24" RCP SD PER TRENCH DETAIL 2 DRAWING C2.21
2. INSTALL 36" RCP SD PER TRENCH DETAIL 2 DRAWING C2.21
3. INSTALL 57" RCP SD PER TRENCH DETAIL 2 DRAWING C2.21
4. CONSTRUCT TYPE B MANHOLE PER USD #408
5. CONSTRUCT CONCRETE CHANNEL PER DRAWINGS C2.05–C2.12
6. CONSTRUCT CONCRETE ACCESS RAMP PER DRAWING C2.05
7. INSTALL POST AND CABLE FENCE PER DETAIL 1 DRAWING C2.30
8. INSTALL ACCESS LADDER PER 5 DRAWING C2.23
9. INSTALL 72" CHAIN LINK FENCE PER USD #232
10. INSTALL 12' DOUBLE SWING GATE PER USD #251
11. CONNECT RCP SD TO CONCRETE CHANNEL PER DETAIL 4 DRAWING S1.06
12. CONSTRUCT CONCRETE COLLAR PER DETAIL 3 DRAWING C2.21
13. CONSTRUCT CONCRETE SLOPE PAVING PER NDOT STD DRAWING B-28.1.1 AND PER DETAIL 1 DRAWING C2.24
14. CONSTRUCT 6" TYPE II AGGREGATE BASE ACCESS ROAD/MAINWAY PER DRAWINGS C2.05–C2.12
15. CONSTRUCT 16' COMMERCIAL AND INDUSTRIAL DRIVEWAY (OPTION A) PER USD #224
16. CONSTRUCT CHANNEL GAUGE PER DETAIL 1 DRAWING C2.17
17. CONSTRUCT GABIONS PER DETAIL 1 DRAWING C2.25
18. INSTALL COLLAPSIBLE BOLLARDS PER DETAIL 4 DRAWING C2.21
19. CONSTRUCT CONCRETE VALLEY GUTTER PER DETAIL 2 DRAWING C2.25
20. CONSTRUCT U-SHAPE GUTTER PER DETAIL 3 DRAWING C2.25
21. PROTECT-IN-PLACE EXISTING BRIDGE COLUMNS, REFER TO DETAIL C DRAWING S1.03 FOR CONCRETE CHANNEL AT EXISTING COLUMNS
22. APPLY PRE-EMERGENT HERBICIDE AND DUST PALLIATIVE
23. CONSTRUCT CONCRETE SIDEWALK PER USD #241
24. CONSTRUCT 5" TYPE CURB AND GUTTER PER USD #216



EXISTING UTILITIES ARE LOCATED ON THE PLANS FROM A SEARCH OF AVAILABLE RECORDS. CONTRACTOR TO VERIFY LOCATIONS AND DEPTHS PRIOR TO CONSTRUCTION

GRAPHIC SCALE
(IN FEET)
1 INCH = 40 FT. 1 INCH = 4 FT.

SHEET INDEX

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PROFESSIONAL ENGINEER-STATE OF NEVADA
STEVEN M. BELLINO
EXP. 12-31-14
CIVIL
No. 9940

REVISIONS			
REV.	DESCRIPTION	BY	DATE	APPROVAL

ATKINS
2370 Corporate Circle Suite 400
Henderson, NV 89074
Telephone: +1(702)453-6300
Fax: +1(702)453-6395

City of Henderson, Nevada

DUCK CREEK SUNSET TO SANDHILL
CHANNEL PLAN AND PROFILE
STA. 6+50.00 TO STA. 14+50.00

JOB NO.	100026146
DESIGNED BY:	
DRAWN BY:	A. GRAZA
CHECKED BY:	S. BELLINO
DATE:	MARCH 5, 2013
SHEET NO.	C2.01
SHEETS	40

JOB NO: 100026146
FILE NAME: C2.01-C2.01
SCALE: HORIZ.1"=40' VERT.: 1"=4'

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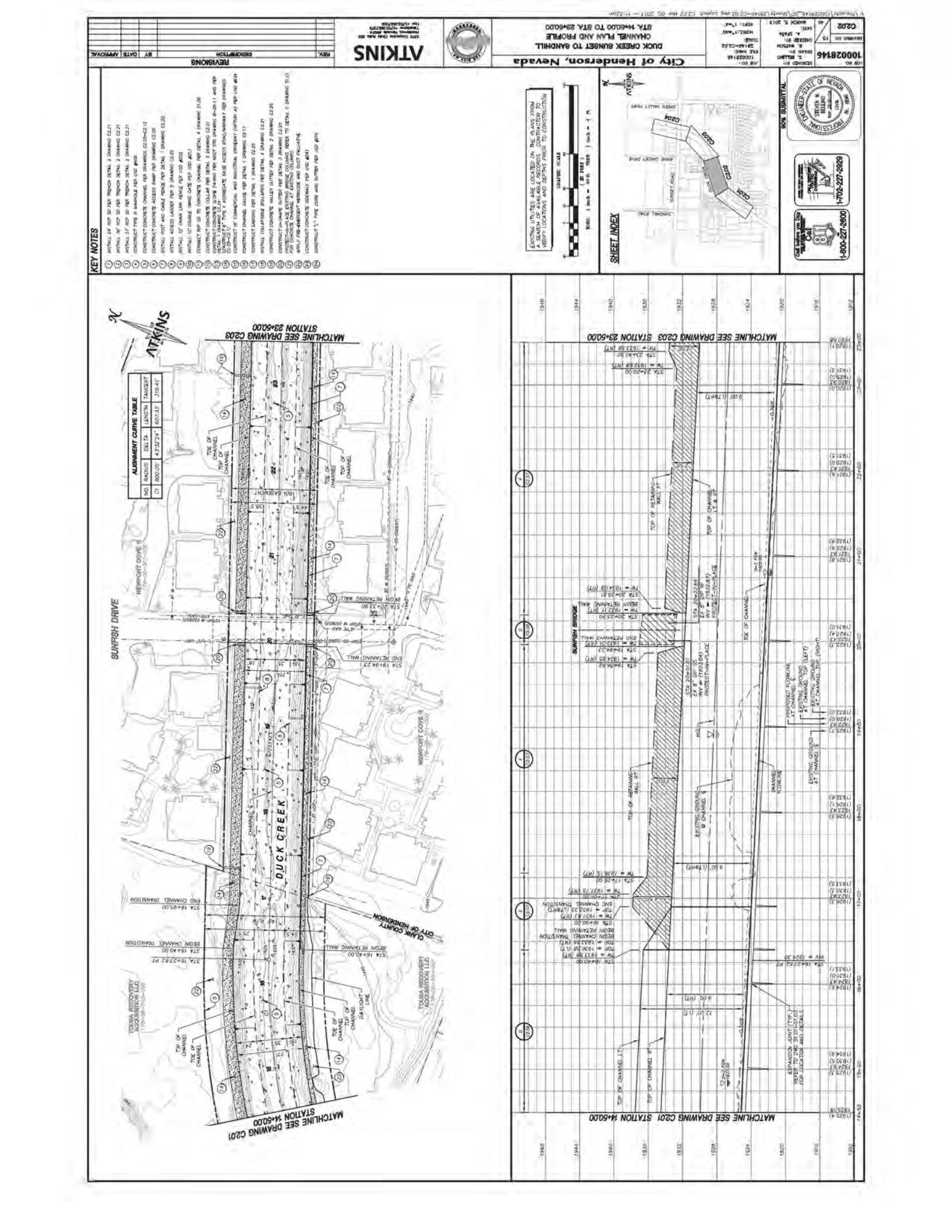
City of Henderson, Nevada
DUCK CREEK SUNSET TO SUNRISE
CHANNEL PLAN AND PROFILE
STA. 14+60.00 TO STA. 23+60.00
ATKINS
REVISIONS
NO. DESCRIPTION BY DATE APPROVAL
KEY NOTES
1 INSTALL 24" RCP SD PER TRENCH DETAIL 2 DRAWING C2.21
2 INSTALL 36" RCP SD PER TRENCH DETAIL 2 DRAWING C2.21
3 INSTALL 57" RCP SD PER TRENCH DETAIL 2 DRAWING C2.21
4 CONSTRUCT TYPE B MANHOLE PER USD #418
5 CONSTRUCT CONCRETE CHANNEL PER DRAWINGS C2.05-C2.12
6 CONSTRUCT CONCRETE ACCESS RAMP PER DRAWING C2.05
7 INSTALL ROLL AND CABLE FENCE PER DETAIL 1 DRAWING C2.30
8 INSTALL ACCESS LADDER PER 3 DRAWING C2.20
9 INSTALL 12' CHAIN LINK FENCE PER USD #252
10 INSTALL 12' DOUBLE SWING GATE PER USD #251
11 CONNECT RCP SD TO CONCRETE CHANNEL PER DETAIL 4 DRAWING S1.06
12 CONSTRUCT CONCRETE COLLAR PER DETAIL 3 DRAWING C2.21
13 CONSTRUCT CONCRETE SLOPE PAVING PER NDOT STD DRAWING SP-201.1 AND PER DETAIL 1 DRAWING C2.20
14 CONSTRUCT 6" TYPE V AGGREGATE BASE ACCESS ROAD/MAINTENANCE PER DRAWINGS
15 CONSTRUCT 16' COMMERCIAL AND INDUSTRIAL DRIVEWAY (OPTION A) PER USD #224
16 CONSTRUCT CHANNEL GAUGE PER DETAIL 1 DRAWING C2.17
17 CONSTRUCT DARDING PER DETAIL 1 DRAWING C2.25
18 INSTALL COLLAPSIBLE BOLLARDS PER DETAIL 8 DRAWING C2.27
19 CONSTRUCT CONCRETE VALLEY GUTTER PER DETAIL 2 DRAWING C2.25
20 CONSTRUCT U-CHAPE GUTTER PER DETAIL 3 DRAWING C2.20
21 CONSTRUCT CONCRETE SIDEWALK PER USD #231 AND REFER TO DETAIL 5 DRAWING S1.01
22 APPLY PRE-EMERGENT HERBICIDE AND DUST PALLIATIVE
23 CONSTRUCT CONCRETE SIDEWALK PER USD #241
24 CONSTRUCT 5" TYPE CURB AND GUTTER PER USD #216
EXISTING UTILITIES ARE LOCATED ON THE PLANS FROM AVAILABLE RECORDS. CONTRACTOR SHALL FIELD VERIFY LOCATIONS AND DEPTHS PRIOR TO CONSTRUCTION
GRAPHIC SCALE
SCALE: 1 inch = 40 ft. TOOLS: 1 inch = 4 ft.
SHEET INDEX
SUNRISE
SUNSET
GREEN VALLEY PKWY
ANNE OAKLEY DRIVE
SUNSET ROAD
TANGNEL ROAD
C2.04
C2.03
C2.02
C2.01
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PROFESSIONAL ENGINEER
No. 9849
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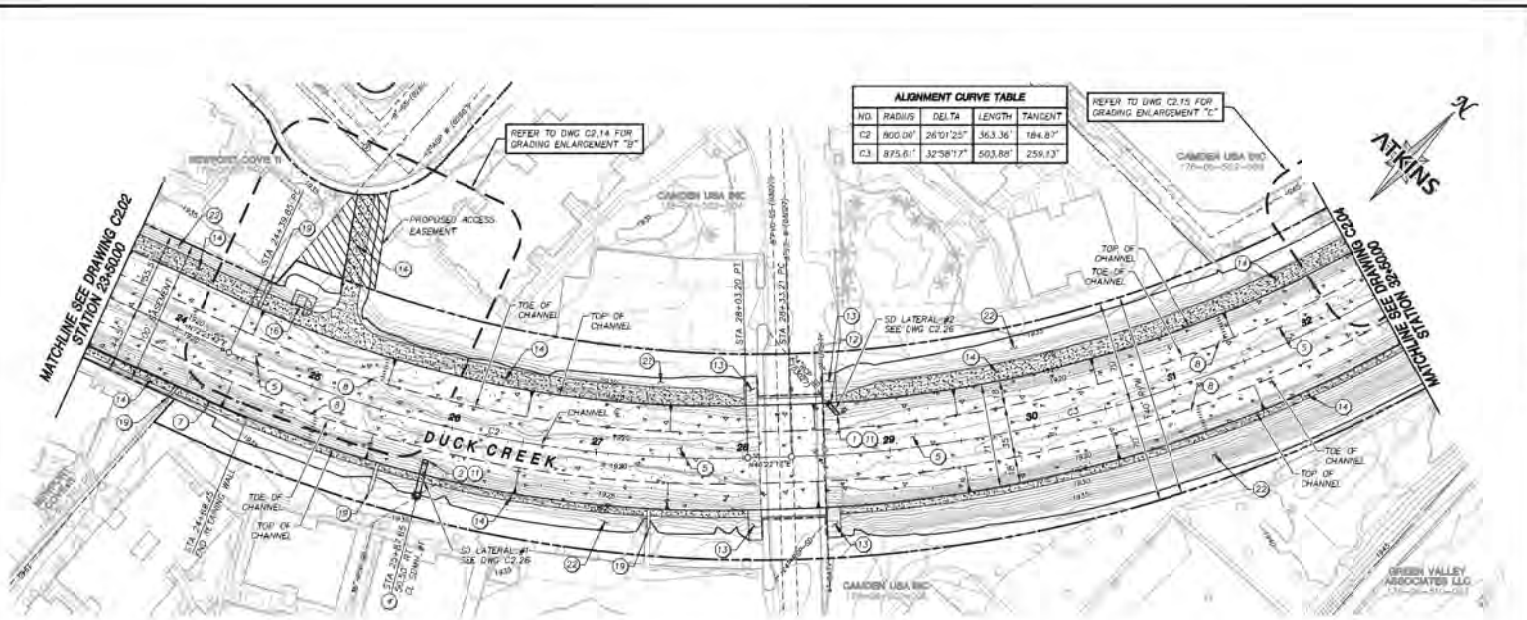
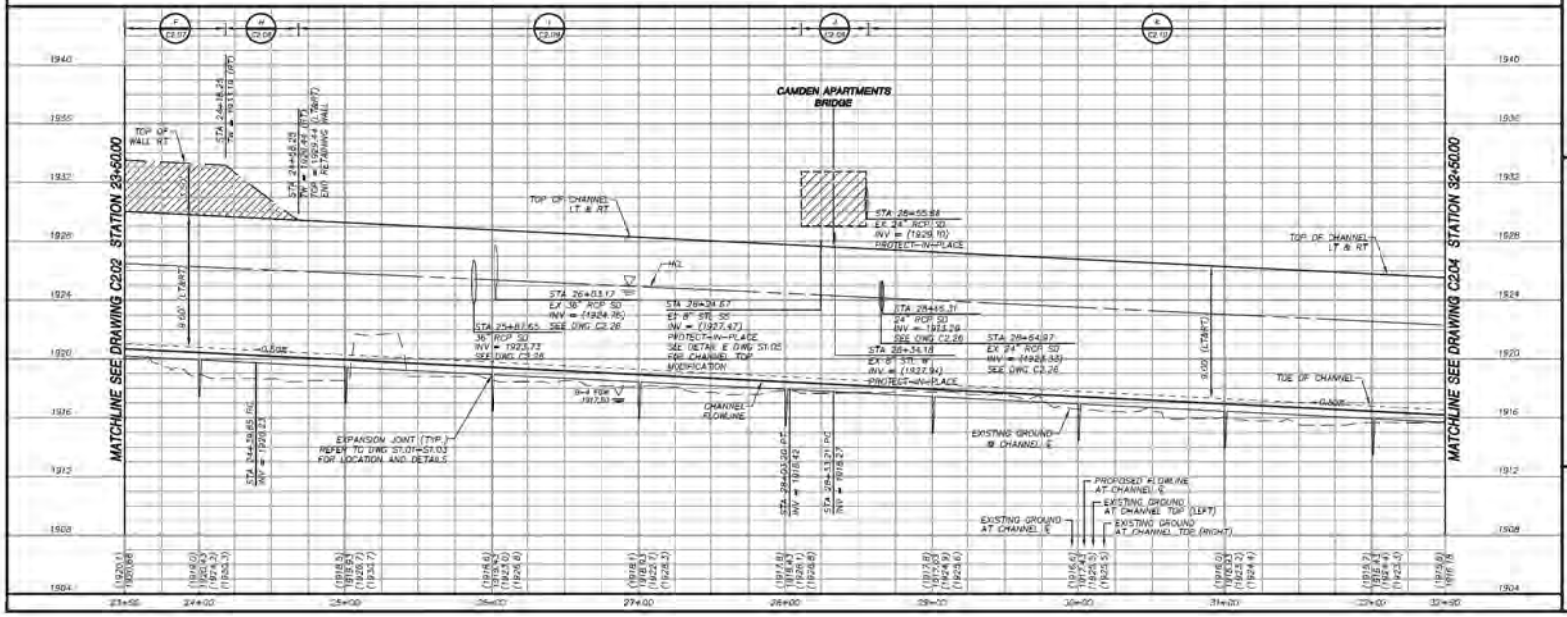
1-702-227-2600
DESIGNED BY R. MATTSON
DRAWN BY E. ZAVALA
CHECKED BY S. MATTSON
DATE MARCH 5, 2013
SCALE AS NOTED
BRANCH NO. 10
SHEET NO. C2.02
JOB NO. 1000281146
JOB NO. 1000281146
FILE NAME 2M1AR-C2.02
SCALE HORIZ. 1"=40' VERT. 1"=4'
ALIGNMENT CURVE TABLE
NO. RADIUS DELTA LENGTH TANGENT
C1 800.00 43°32'24" 607.83' 318.46'
MATCHLINE SEE DRAWING C2.03 STATION 23+60.00
MATCHLINE SEE DRAWING C2.01 STATION 14+60.00
SUNRISH BRIDGE
SUNRISH DRIVE
DUCK CREEK
CLARK COUNTY
CITY OF HENDERSON
NEWPORT COVE II
NEWPORT COVE I
TOURA REDEVERT
TOP OF CHANNEL
TOE OF CHANNEL
TOP OF RETAINING WALL
EXISTING GROUND @ CHANNEL ℄
PROPOSED ℄ CHANNEL
EXPANSION JOINT (TYP.) REFER TO DWG. S1.01-S1.03 FOR LOCATION AND DETAILS





KEY NOTES

1. INSTALL 24" RCP SD PER TRENCH DETAIL 2 DRAWING C2.21
2. INSTALL 36" RCP SD PER TRENCH DETAIL 2 DRAWING C2.21
3. INSTALL 57" RCP SD PER TRENCH DETAIL 2 DRAWING C2.21
4. CONSTRUCT TYPE B MANHOLE PER USD #408
5. CONSTRUCT CONCRETE CHANNEL PER DRAWINGS C2.05–C2.12
6. CONSTRUCT CONCRETE ACCESS RAMP PER DRAWING C2.05
7. INSTALL POST AND CABLE FENCE PER DETAIL 1 DRAWING C3.30
8. INSTALL ACCESS LADDER PER 5 DRAWING C2.23
9. INSTALL 72" CHAIN LINK FENCE PER USD #232
10. INSTALL 12' DOUBLE SWING GATE PER USD #251
11. CONNECT RCP SD TO CONCRETE CHANNEL PER DETAIL 4 DRAWING S1.06
12. CONSTRUCT CONCRETE COLLAR PER DETAIL 3 DRAWING C2.21
13. CONSTRUCT CONCRETE SLOPE PAVING PER NDOT STD DRAWING B-28.1.1 AND PER DETAIL 1 DRAWING C2.24
14. CONSTRUCT 6" TYPE II AGGREGATE BASE ACCESS ROAD/MAINWAY PER DRAWINGS C2.05–C2.12
15. CONSTRUCT 16' COMMERCIAL AND INDUSTRIAL DRIVEWAY (OPTION A) PER USD #224
16. CONSTRUCT CHANNEL GAUGE PER DETAIL 1 DRAWING C2.17
17. CONSTRUCT GABIONS PER DETAIL 1 DRAWING C2.25
18. INSTALL COLLAPSIBLE BOLLARDS PER DETAIL 4 DRAWING C2.21
19. CONSTRUCT CONCRETE VALLEY GUTTER PER DETAIL 2 DRAWING C2.25
20. CONSTRUCT U-SHAPE GUTTER PER DETAIL 3 DRAWING C2.25
21. PROTECT-IN-PLACE EXISTING BRIDGE COLUMNS, REFER TO DETAIL C DRAWING S1.03 FOR CONCRETE CHANNEL AT EXISTING COLUMNS
22. APPLY PRE-EMERGENT HERBICIDE AND DUST PALLIATIVE
23. CONSTRUCT CONCRETE SIDEWALK PER USD #241
24. CONSTRUCT 5" TYPE CURB AND GUTTER PER USD #216

EXISTING UTILITIES ARE LOCATED ON THE PLANS FROM A SEARCH OF AVAILABLE RECORDS. CONTRACTOR TO VERIFY LOCATIONS AND DEPTHS PRIOR TO CONSTRUCTION

GRAPHIC SCALE
(IN FEET)
1 INCH = 60 FT. 1 INCH = 5 FT.

SHEET INDEX

Call before you Dig 811 Call 1-800-227-2600

1-702-227-2929

90% SUBMITTAL

PROFESSIONAL ENGINEER-STATE OF NEVADA
STEVEN M. BELLING
EXP. 12-31-14
CIVIL
No. 9040

REV.	DESCRIPTION	BY	DATE	APPROVAL

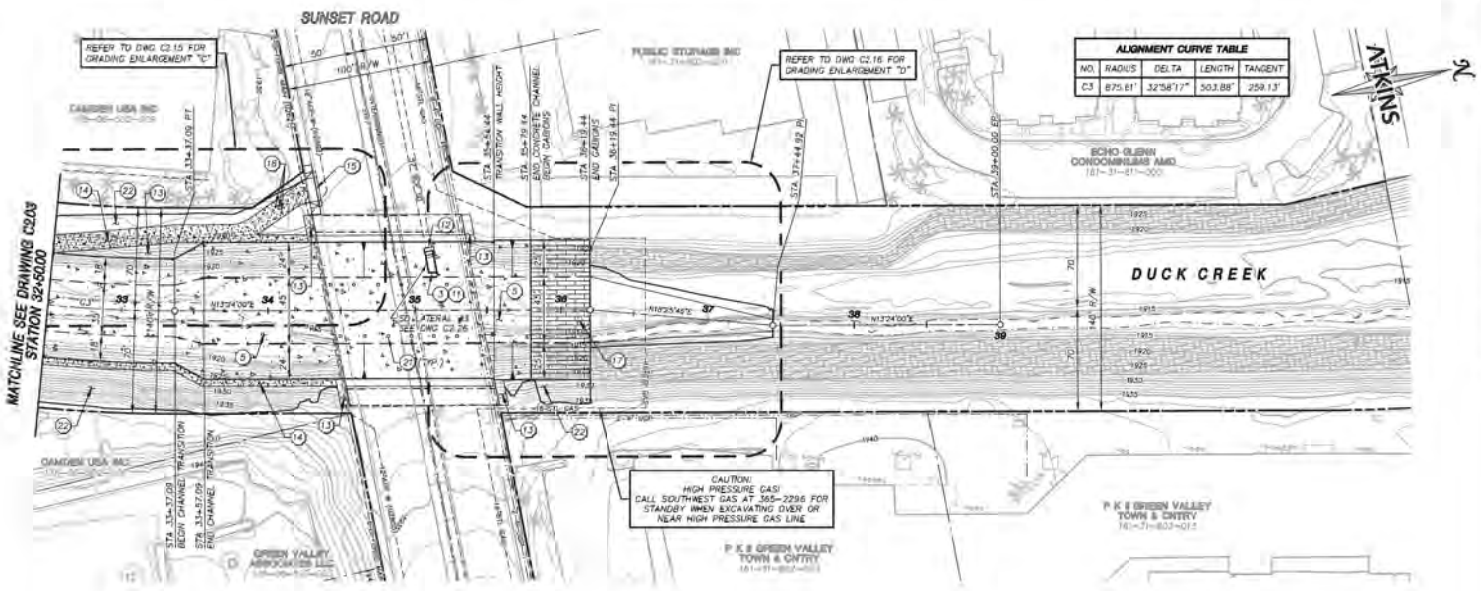
ATKINS
2270 Corporate Circle Suite 400
Henderson, NEVADA 89074
Telephone: +1(702)382-2200
Fax: +1(702)382-2209

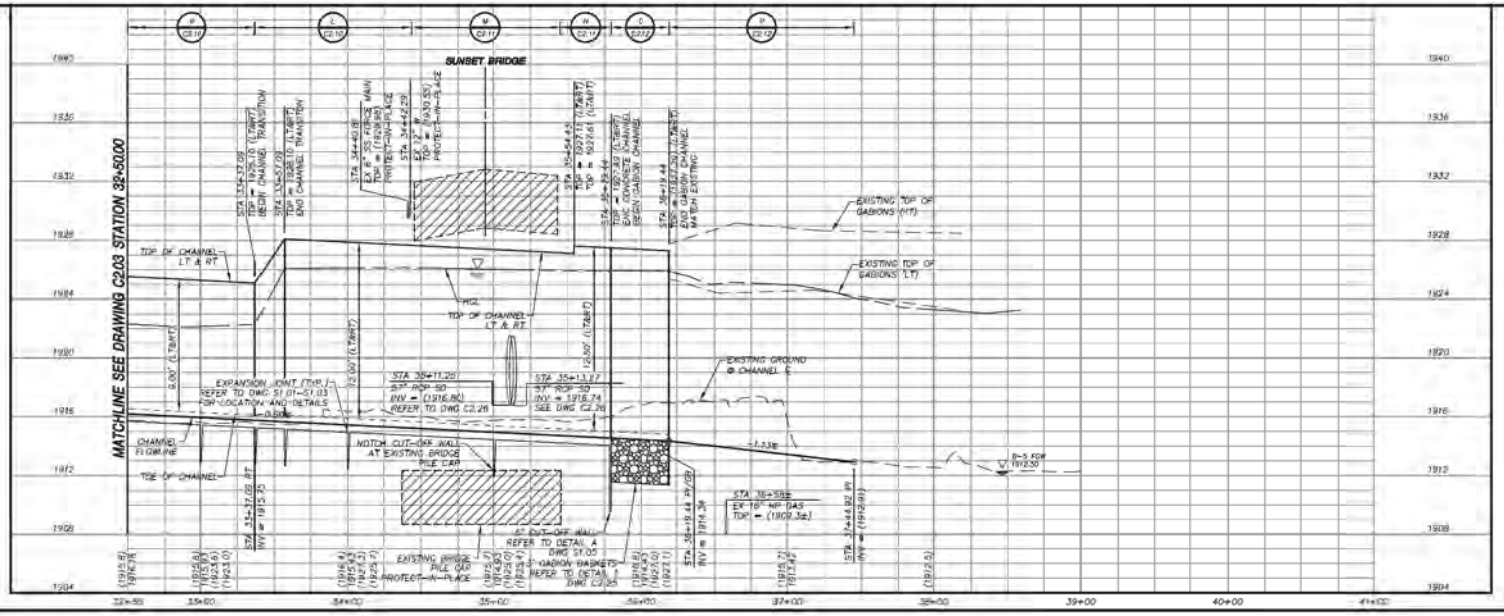
City of Henderson, Nevada

DUCK CREEK SUNSET TO SANDHILL
CHANNEL PLAN AND PROFILE
STA. 23+50.00 TO STA. 32+50.00

JOB NO.	100026146
DESIGNED BY:	S. BATSON
DRAWN BY:	S. BATSON
CHECKED BY:	A. ZAZA
DATE:	MARCH 5, 2013
SHEET NO.	C2.05
JOB NO.	100026146
FILE NAME:	SHEET-C2.03
SCALE:	HORIZ.1"=60' VERT.: 1"=6'

* V:\Projects\100026146\Civil\Sheets\100026146-C2.03.dwg Layout: C2.05 Mar 05, 2013 - 11:32am





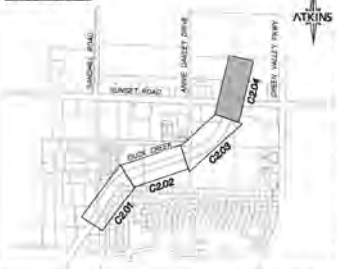
KEY NOTES

1. INSTALL 24" RCP SD PER TRENCH DETAIL 2 DRAWING C2.21
2. INSTALL 36" RCP SD PER TRENCH DETAIL 2 DRAWING C2.21
3. INSTALL 57" RCP SD PER TRENCH DETAIL 2 DRAWING C2.21
4. CONSTRUCT TYPE B MANHOLE PER USD #408
5. CONSTRUCT CONCRETE CHANNEL PER DRAWINGS C2.05-C2.12
6. CONSTRUCT CONCRETE ACCESS RAMP PER DRAWING C2.05
7. INSTALL POST AND CABLE FENCE PER DETAIL 1 DRAWING C2.20
8. INSTALL ACCESS LADDER PER 5 DRAWING C2.23
9. INSTALL 72" CHAIN LINK FENCE PER USD #232
10. INSTALL 12' DOUBLE SWING GATE PER USD #251
11. CONNECT RCP SD TO CONCRETE CHANNEL PER DETAIL 4 DRAWING S1.06
12. CONSTRUCT CONCRETE COLLAR PER DETAIL 3 DRAWING C2.21
13. CONSTRUCT CONCRETE SLOPE PAVING PER NDOT STD DRAWING B-28.1.1 AND PER DETAIL 1 DRAWING C2.24
14. CONSTRUCT 6" TYPE II AGGREGATE BASE ACCESS ROAD/MAINWAY PER DRAWINGS C2.05-C2.12
15. CONSTRUCT 16' COMMERCIAL AND INDUSTRIAL DRIVEWAY (OPTION A) PER USD #224
16. CONSTRUCT CHANNEL GAUGE PER DETAIL 1 DRAWING C2.17
17. CONSTRUCT GABIONS PER DETAIL 1 DRAWING C2.25
18. INSTALL COLLAPSIBLE BOLLARDS PER DETAIL 4 DRAWING C2.21
19. CONSTRUCT CONCRETE VALLEY GUTTER PER DETAIL 2 DRAWING C2.25
20. CONSTRUCT U-SHAPE GUTTER PER DETAIL 3 DRAWING C2.25
21. PROTECT-IN-PLACE EXISTING BRIDGE COLUMNS, REFER TO DETAIL C DRAWING S1.03 FOR CONCRETE CHANNEL AT EXISTING COLUMNS
22. APPLY PRE-EMERGENT HERBICIDE AND DUST PALLIATIVE
23. CONSTRUCT CONCRETE SIDEWALK PER USD #241
24. CONSTRUCT 5" TYPE CURB AND GUTTER PER USD #216

EXISTING UTILITIES ARE LOCATED ON THE PLANS FROM A SEARCH OF AVAILABLE RECORDS. CONTRACTOR TO VERIFY LOCATIONS AND DEPTHS PRIOR TO CONSTRUCTION

GRAPHIC SCALE
(IN FEET)
SCALE: 1 inch = 40 ft. TRUE: 1 inch = 1 ft.

SHEET INDEX



Call before you Dig 811 1-800-227-2600

1-702-227-2929

90% SUBMITTAL

PROFESSIONAL ENGINEER-STATE OF NEVADA STEVEN M. BELLINO Exp. 12-31-14 CIVIL No. 9940

REV.	DESCRIPTION	BY	DATE	APPROVAL
	REVISIONS			

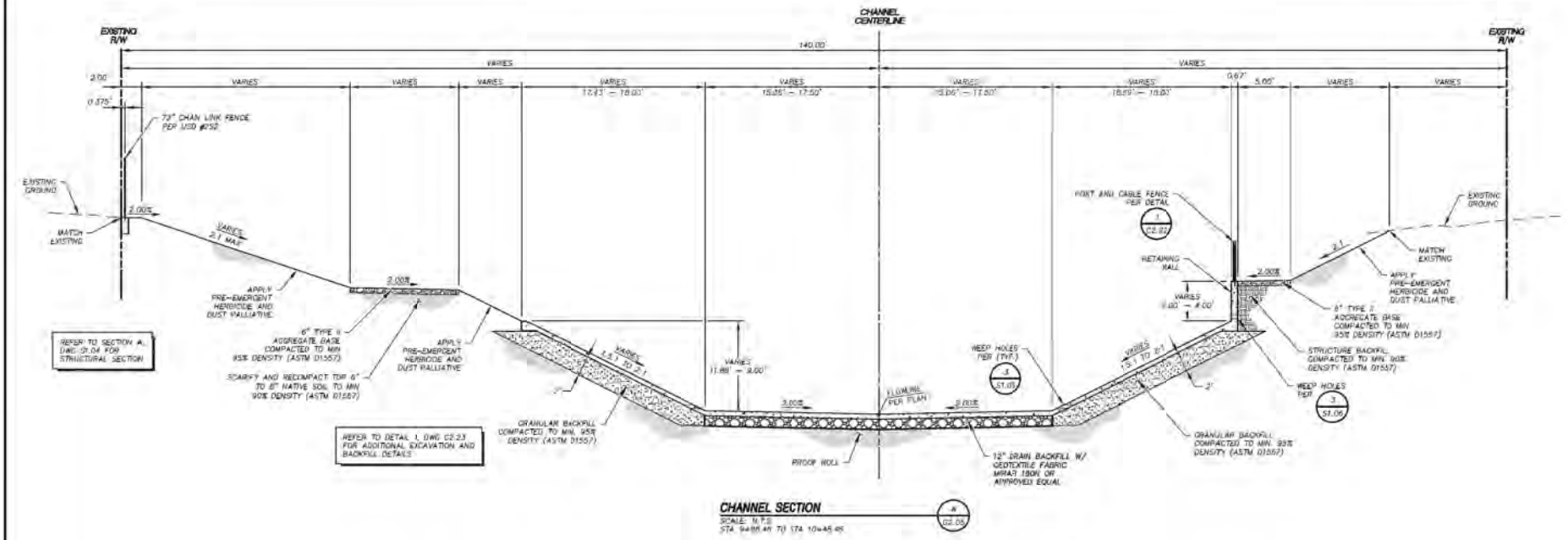
ATKINS
2270 Corporate Circle Suite 400
Henderson, NV 89074
Telephone: 702.932.3200
Fax: 702.932.3208

City of Henderson, Nevada

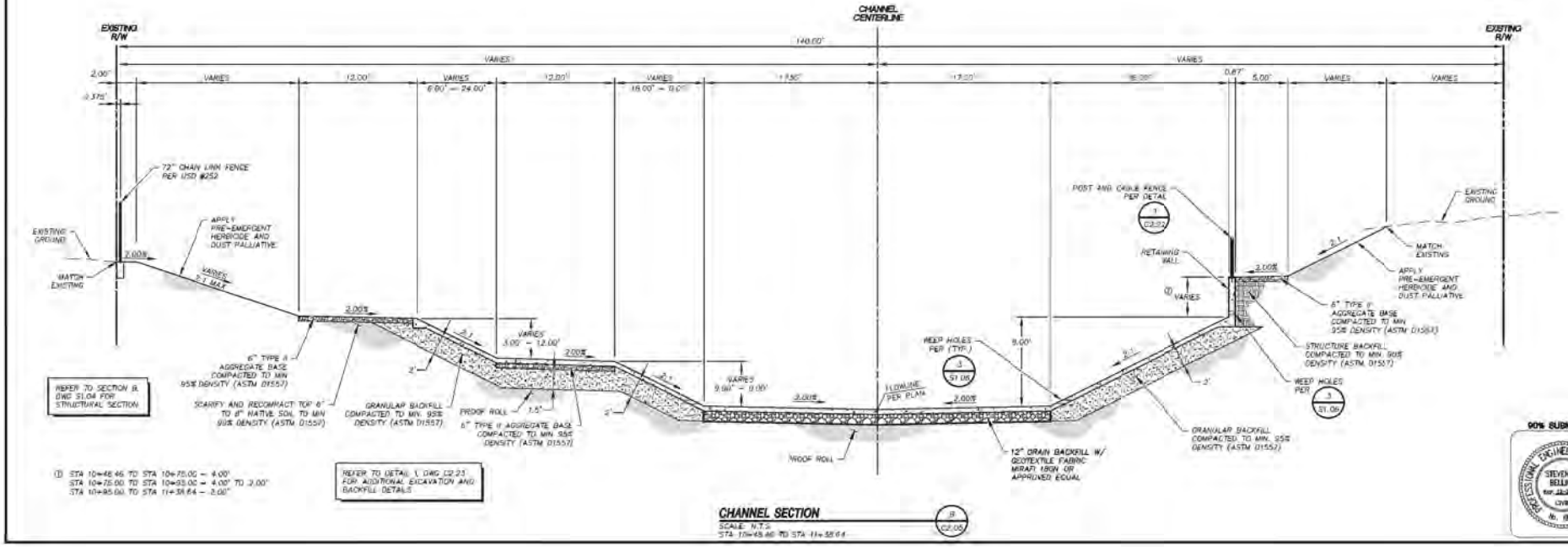
DUCK CREEK SUNSET TO SANDHILL
CHANNEL PLAN AND PROFILE
STA. 32+50.00 TO STA. 39+00.00

JOB NO.	100026146
DESIGNED BY	S. BOSSERT
DRAWN BY	A. PATSON
CHECKED BY	S. BELLINO
DATE	MARCH 5, 2013
JOB NO.	100023148
FILE NAME	32+50-C2.04 39+00.dgn
HORIZ.	1"=40'
VERT.	1"=4'
DRAWING NO.	C2.04
SHEET NO.	12
OF	40

X:\Projects\100026146_Duck Creek\Civil\C2.04 dwg Layout: C2.04 Mar 05, 2013 - 1:15pm



CHANNEL SECTION (A / C2.05)
SCALE: N.T.S.
STA 9+88.44 TO STA 10+45.46



① STA 10+48.46 TO STA 10+75.00 = 6.00'
STA 10+75.00 TO STA 10+95.00 = 4.00' TO 3.00'
STA 10+95.00 TO STA 11+38.64 = 3.00'

CHANNEL SECTION (B / C2.05)
SCALE: N.T.S.
STA 10+48.46 TO STA 11+38.64

90% SUBMITTAL

STEVEN M. BELLINO — Exp. 12-31-14 — CIVIL — No. 19140 — PROFESSIONAL ENGINEER — STATE OF NEVADA

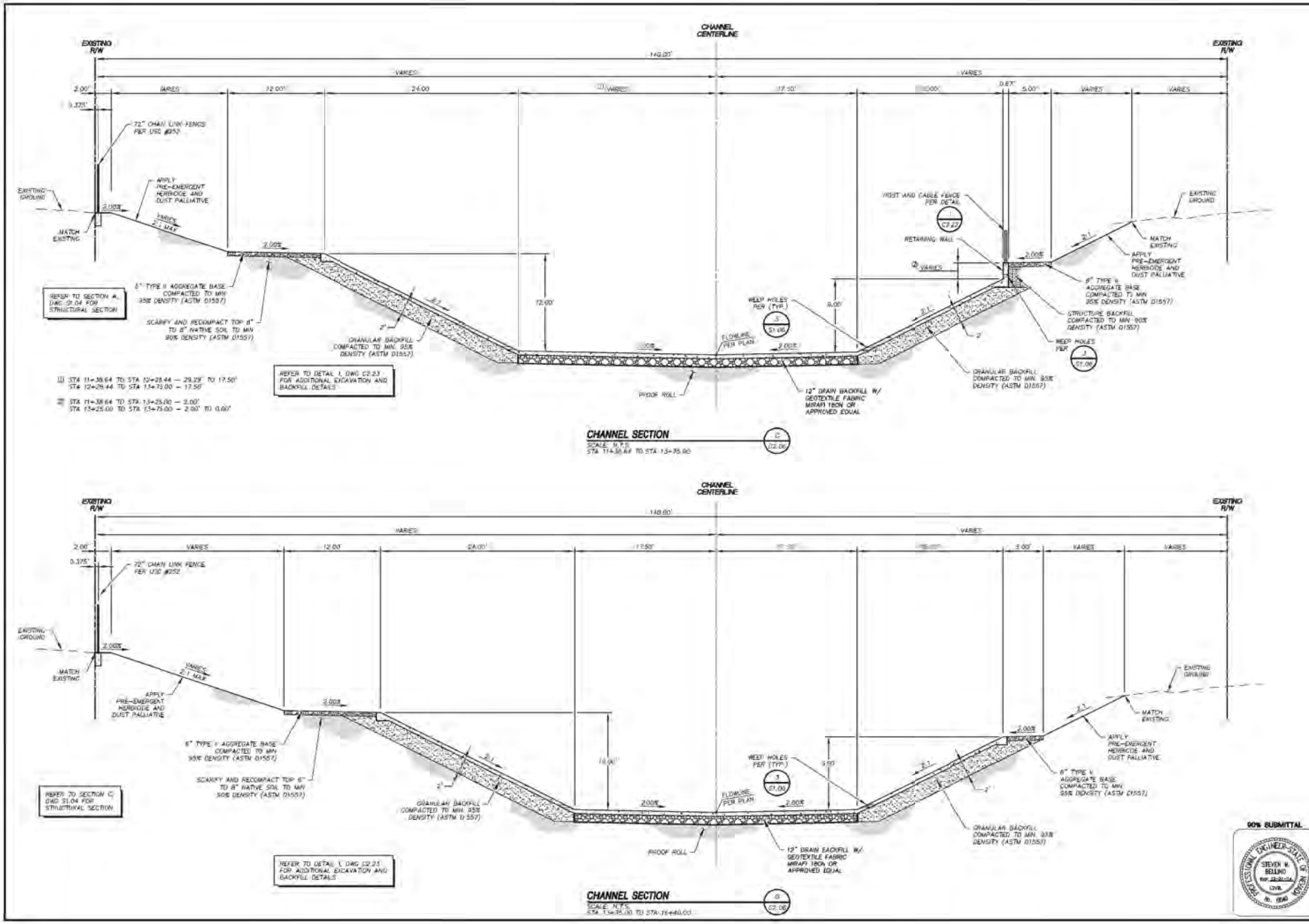
REVISIONS			
REV.	DESCRIPTION	BY	DATE / APPROVAL

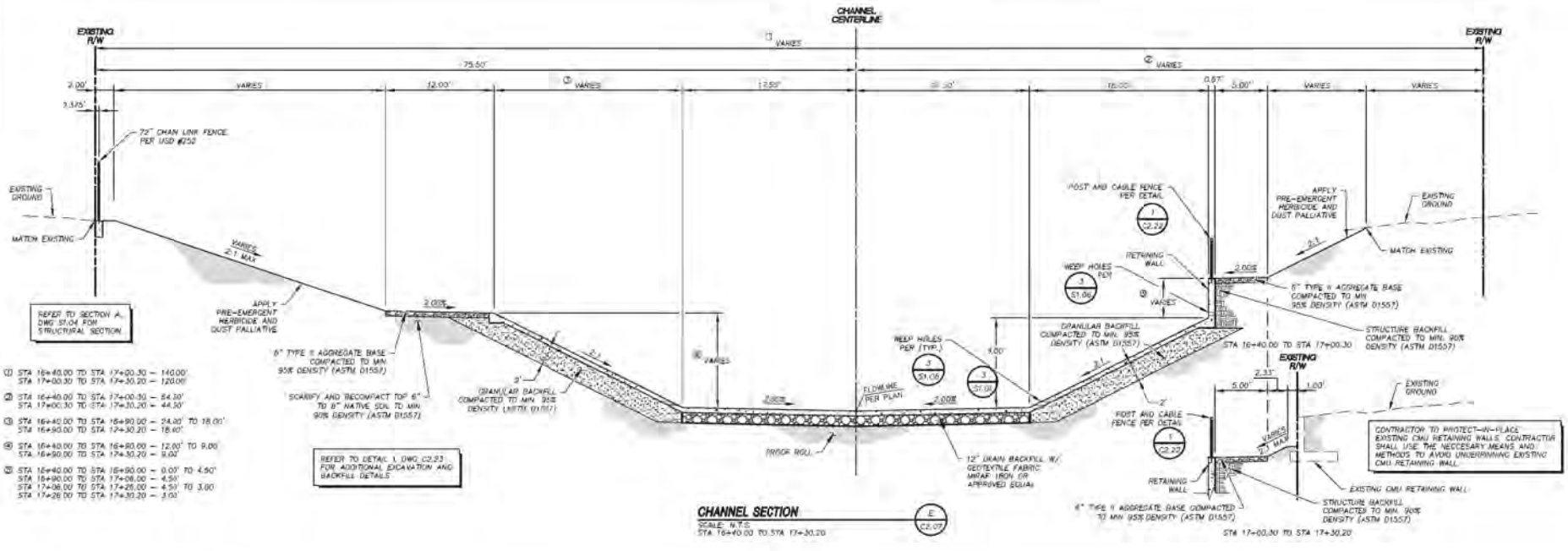
ATKINS
2275 Corporate Circle Suite 300
Henderson, NV 89074
Telephone: +1(702)835-7000
Fax: +1(702)835-7099

City of Henderson, Nevada
DUCK CREEK SUNSET TO SANDHILL
CHANNEL
TYPICAL SECTIONS

JOB NO. 100026146
DESIGNED BY: S. WATSON
DRAWN BY: A. SPATA
CHECKED BY: S. BELLINO
DATE: MARCH 5, 2013
JOB NO.: 3.0023140
FILE NAME: 3014040-C2.05
SCALE: AS SHOWN
HORIZ. NONE
VERT. NONE
SHEET NO. 17
SHEETS 40
DRAWING NO. C2.05

\\Phx-atkfs1\100026146_Civil\Drawings\3014040-C2.05.dwg Layout: C2.05 Mar 05, 2013 - 11:32am


CHANNEL CENTERLINE
EXISTING R/W
140.00'
VARIES
2.00'
0.375'
12.00'
24.00'
17.50'
5.00'
72" CHAIN LINK FENCE PER USD #252
EXISTING GROUND
MATCH EXISTING
APPLY PRE-EMERGENT HERBICIDE AND DUST PALLIATIVE
VARIES 2:1 MAX
2.00%
6" TYPE II AGGREGATE BASE COMPACTED TO MIN 95% DENSITY (ASTM D1557)
SCARIFY AND RECOMPACT TOP 6" TO 8" NATIVE SOIL TO MIN 90% DENSITY (ASTM D1557)
GRANULAR BACKFILL COMPACTED TO MIN. 95% DENSITY (ASTM D1557)
REFER TO SECTION A, DWG S1.04 FOR STRUCTURAL SECTION
REFER TO DETAIL 1, DWG C2.23 FOR ADDITIONAL EXCAVATION AND BACKFILL DETAILS
12.00'
9.00'
WEEP HOLES PER (TYP.) 3 S1.06
FLOWLINE PER PLAN
PROOF ROLL
12" DRAIN BACKFILL W/ GEOTEXTILE FABRIC MIRAFI 180N OR APPROVED EQUAL
POST AND CABLE FENCE PER DETAIL 1 C2.22
RETAINING WALL
STRUCTURE BACKFILL COMPACTED TO MIN 90% DENSITY (ASTM D1557)
WEEP HOLES PER 3 S1.06
GRANULAR BACKFILL COMPACTED TO MIN. 95% DENSITY (ASTM D1557)
1 STA 11+38.64 TO STA 12+28.44 — 29.29' TO 17.50'
STA 12+28.44 TO STA 13+75.00 — 17.50'
2 STA 11+38.64 TO STA 13+25.00 — 2.00'
STA 13+25.00 TO STA 13+75.00 — 2.00' TO 0.00'
CHANNEL SECTION C C2.06
SCALE: N.T.S.
STA 11+38.64 TO STA 13+75.00
CHANNEL CENTERLINE
EXISTING R/W
140.00'
VARIES
2.00'
0.375'
12.00'
24.00'
17.50'
5.00'
72" CHAIN LINK FENCE PER USD #252
EXISTING GROUND
MATCH EXISTING
APPLY PRE-EMERGENT HERBICIDE AND DUST PALLIATIVE
VARIES 2:1 MAX
2.00%
6" TYPE II AGGREGATE BASE COMPACTED TO MIN 95% DENSITY (ASTM D1557)
SCARIFY AND RECOMPACT TOP 6" TO 8" NATIVE SOIL TO MIN 90% DENSITY (ASTM D1557)
GRANULAR BACKFILL COMPACTED TO MIN. 95% DENSITY (ASTM D1557)
REFER TO SECTION C, DWG S1.04 FOR STRUCTURAL SECTION
REFER TO DETAIL 1, DWG C2.23 FOR ADDITIONAL EXCAVATION AND BACKFILL DETAILS
10.00'
WEEP HOLES PER (TYP.) 3 S1.06
FLOWLINE PER PLAN
PROOF ROLL
12" DRAIN BACKFILL W/ GEOTEXTILE FABRIC MIRAFI 180N OR APPROVED EQUAL
GRANULAR BACKFILL COMPACTED TO MIN. 95% DENSITY (ASTM D1557)
6" TYPE II AGGREGATE BASE COMPACTED TO MIN 95% DENSITY (ASTM D1557)
APPLY PRE-EMERGENT HERBICIDE AND DUST PALLIATIVE
MATCH EXISTING
EXISTING GROUND
CHANNEL SECTION D C2.06
SCALE: N.T.S.
STA 13+75.00 TO STA 15+40.00
90% SUBMITTAL
PROFESSIONAL ENGINEER - STATE OF NEVADA
STEVEN M. BELLINO
CIVIL
No. 10040
REVISIONS
REV. DESCRIPTION BY DATE APPROVAL
ATKINS
City of Henderson, Nevada
DUCK CREEK SUNSET TO SANDHILL
CHANNEL
TYPICAL SECTIONS
JOB NO. 100028146
DESIGNED BY: S. BELLINO
DRAWN BY: R. WATSON
CHECKED BY: A. SPATA
DATE: MARCH 5, 2013
JOB NO.: 100028146
FILE NAME: 28146-C2.06
SCALE: HORIZ. NONE
VERT. NONE
DRAWING NO. C2.06
14 40



90% SUBMITTAL

PROFESSIONAL ENGINEER - STATE OF NEVADA
STEVEN M. BELLING
Exp. 12-31-13
CIVIL
No. 9540

REVISIONS			
REV.	DESCRIPTION	BY	DATE / APPROVAL

ATKINS
2295 Corporate Circle Suite 300
Henderson, NV 89074
Telephone: 702.789.6700
Fax: 702.789.6799

City of Henderson, Nevada

DUCK CREEK SUNSET TO SANDHILL
CHANNEL
TYPICAL SECTIONS

JOB NO.	100026146
DESIGNED BY:	A. SPATA
DRAWN BY:	A. SPATA
CHECKED BY:	S. BELLING
QA/QC BY:	T. PATSON
APPROVED BY:	S. BELLING
DATE:	MARCH 5, 2013
SHEET NO.	15
SHEET TOTAL	40
DRAWING NO.	C2.07
HB NO.	1.000231.48
FILE NAME	231140-C2.07
SCALE:	HORIZ: NONE VERT: NONE

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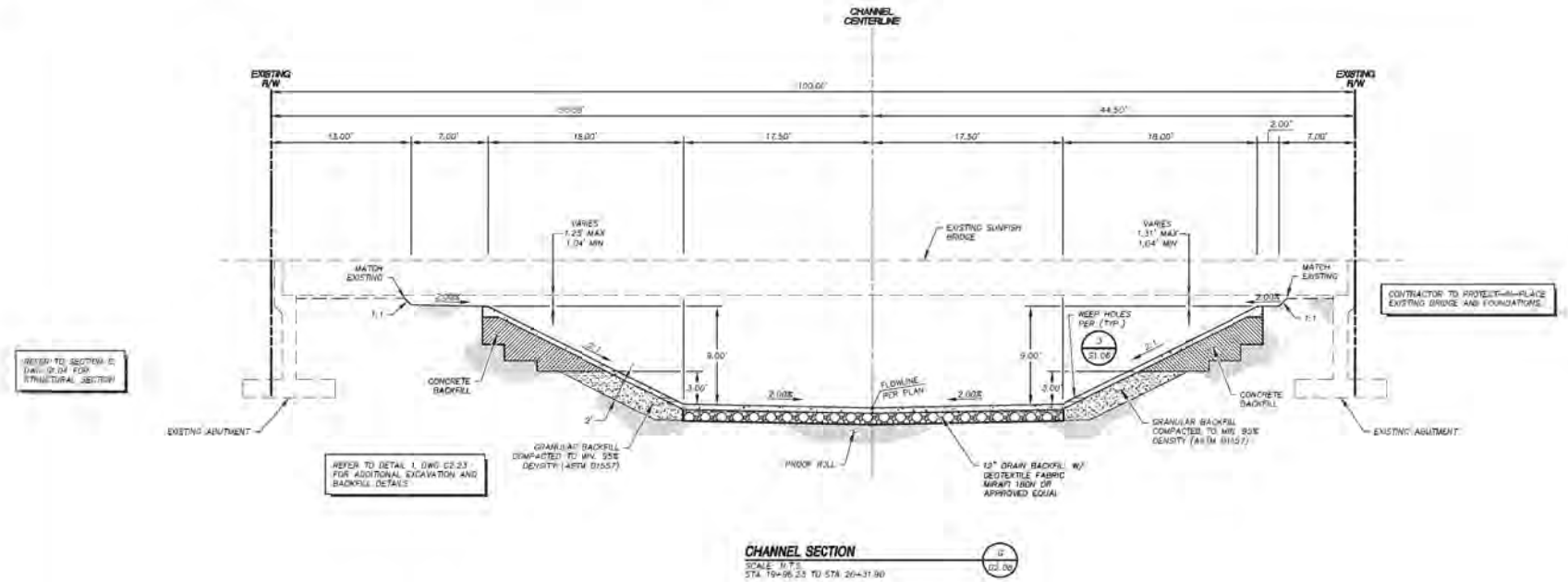
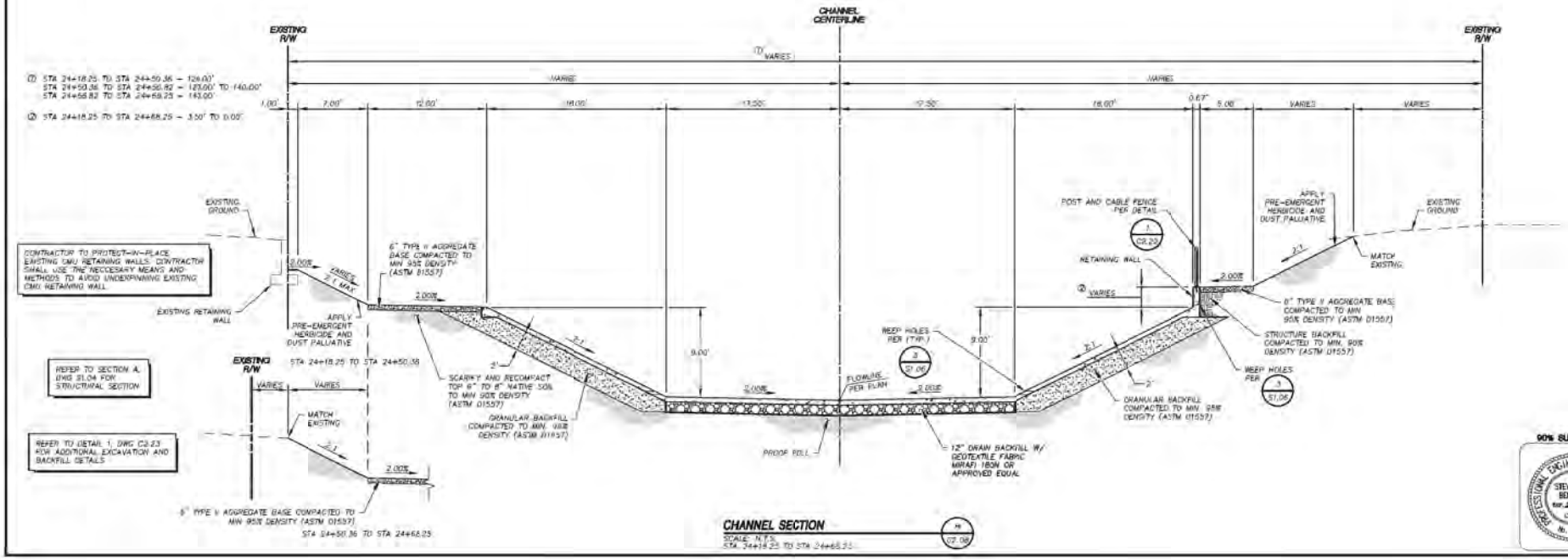


CHANNEL SECTION — 11 / C2.06
SCALE: N.T.S.
STA 19+96.25 TO STA 26+31.90



CHANNEL SECTION — 11 / C2.06
SCALE: N.T.S.
STA 24+18.25 TO STA 24+68.25

90% SUBMITTAL

STEVEN M. BELLINO — PROFESSIONAL ENGINEER — STATE OF NEVADA — No. 19140 — CIVIL

REVISIONS			
REV.	DESCRIPTION	BY	DATE

ATKINS
2275 Corporate Circle Suite 300
Henderson, NV 89074
Telephone: +1(702)835-7979
Fax: +1(702)835-7999

City of Henderson, Nevada

DUCK CREEK SUNSET TO SANDHILL
CHANNEL
TYPICAL SECTIONS

JOB NO. 100026146
DESIGNED BY: S. BELLINO
DRAWN BY: A. PATRON
CHECKED BY: A. ZAZA
DATE: MARCH 5, 2013
JOB NO.: 3.00223.48
FILE NAME: C2106-C2.06 SHEET.dgn
MODEL NAME:
VERT.: NONE
SHEET NO. C2.06
REVISED NO. 15
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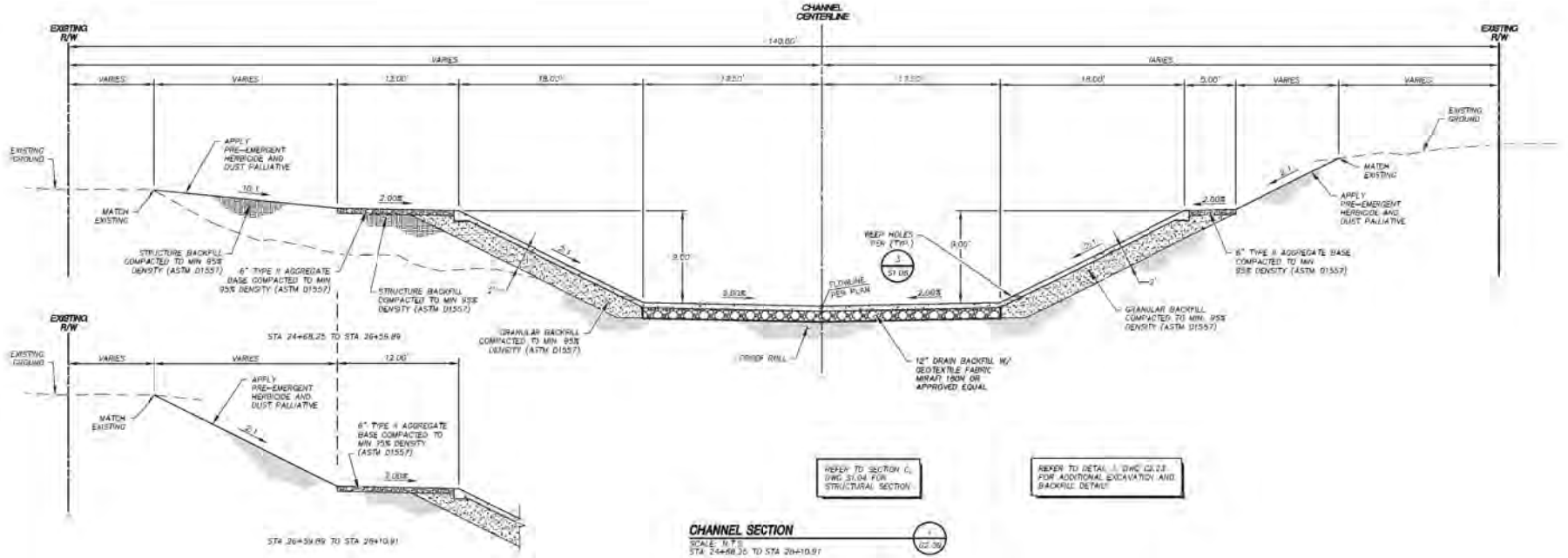
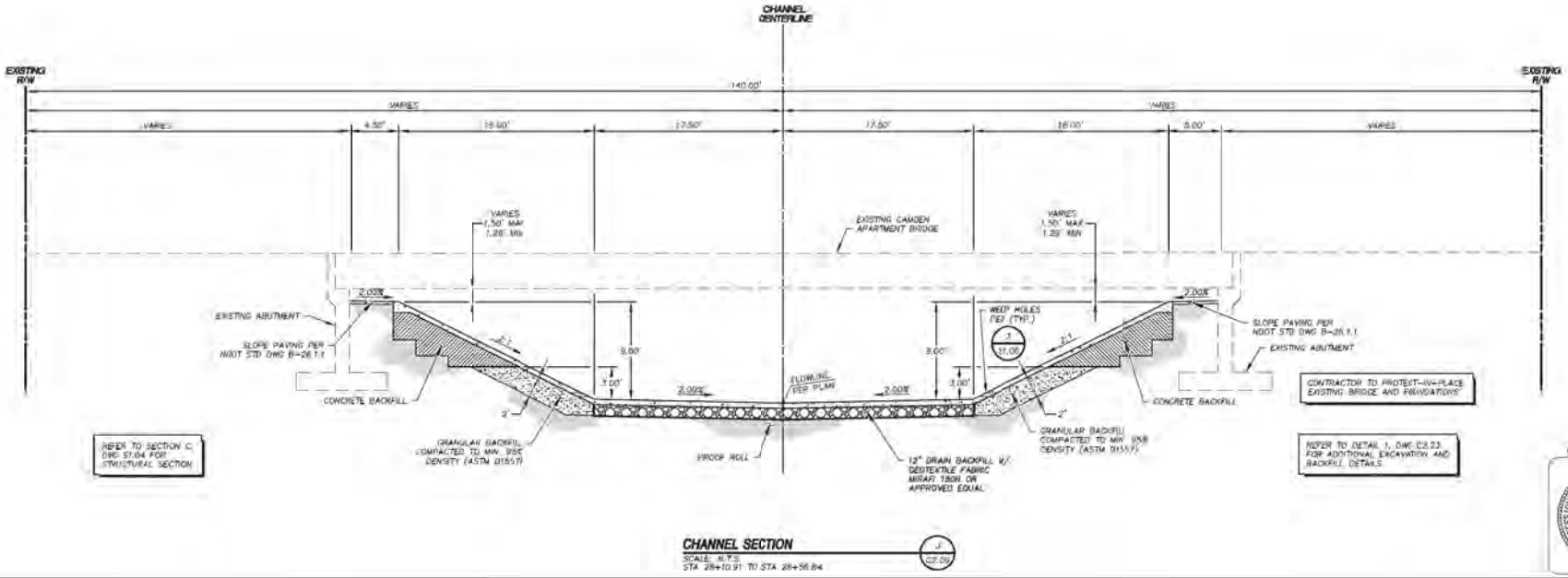


CHANNEL SECTION (1 / C2.08)
SCALE: N.T.S.
STA 24+68.25 TO STA 28+10.91



CHANNEL SECTION (2 / C2.08)
SCALE: N.T.S.
STA 28+10.91 TO STA 28+56.84

90% SUBMITTAL

PROFESSIONAL ENGINEER - STATE OF NEVADA
STEVEN M. BELLING
No. 19340
CIVIL

REVISIONS			
REV.	DESCRIPTION	BY	DATE

APPROVAL

ATKINS
2275 Corporate Circle Suite 300
Henderson, NV 89074
Telephone: +1(702)835-7000
Fax: +1(702)835-7099

City of Henderson, Nevada
DUCK CREEK SUNSET TO SANDHILL
CHANNEL
TYPICAL SECTIONS

JOB NO. 100028146
DESIGNED BY: S. BELLING
DRAWN BY: S. WATSON
CHECKED BY: T. FIELDS
DATE: MARCH 5, 2013
JOB NO.: 100028146
FILE NAME: S2146-C2.08
SCALE: HORIZ: NONE VERT: NONE
SHEET NO. 17
SHEET TOTAL 40
DRAWING NO. C2.09

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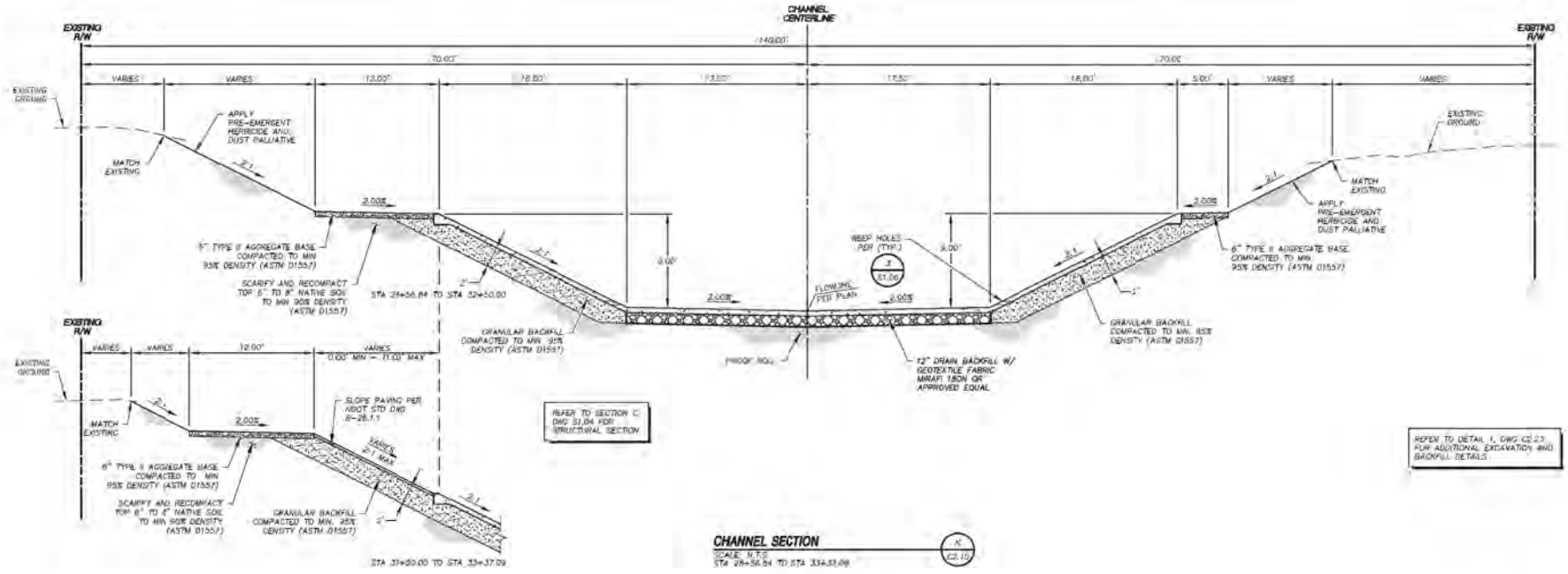
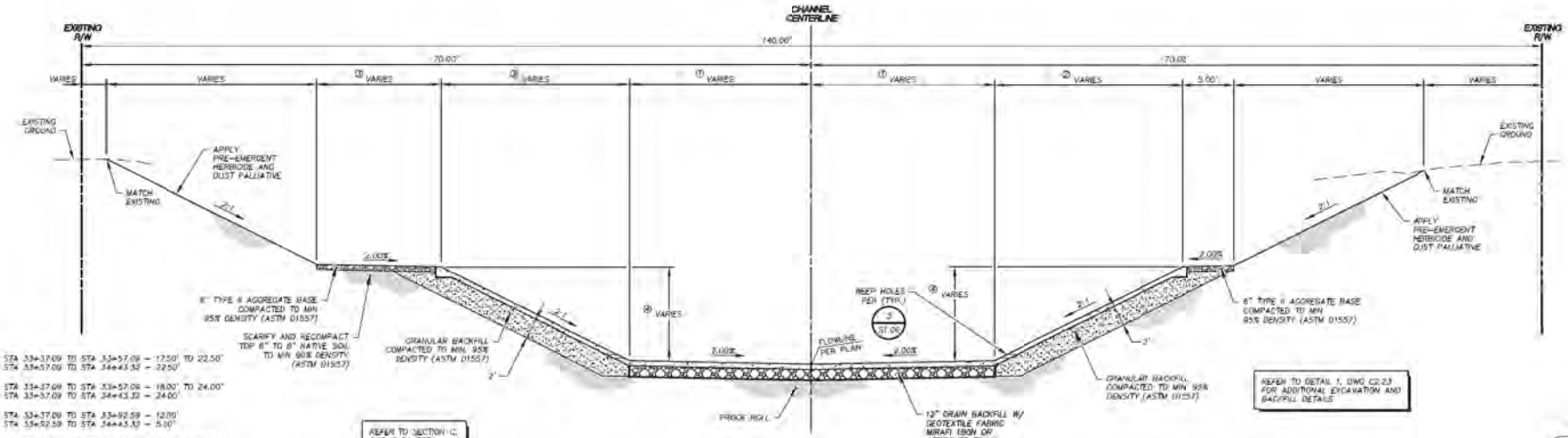


CHANNEL SECTION (K / C2.10)
SCALE: N.T.S.
STA 28+56.84 TO STA 33+33.09



① STA 33+37.09 TO STA 33+57.09 = 17.50' TO 22.50'
STA 33+57.09 TO STA 34+43.32 = 22.50'

② STA 33+37.09 TO STA 33+57.09 = 18.00' TO 24.00'
STA 33+57.09 TO STA 34+43.32 = 24.00'

③ STA 33+37.09 TO STA 33+92.59 = 12.00'
STA 33+92.59 TO STA 34+43.32 = 5.00'

④ STA 33+37.09 TO STA 33+57.09 = 9.00' TO 12.00'
STA 33+57.09 TO STA 34+43.32 = 12.00'

CHANNEL SECTION (L / C2.10)
SCALE: N.T.S.
STA 33+33.09 TO STA 34+43.32

90% SUBMITTAL

STEVEN M. BELLING — Exp. 12-31-14 — CIVIL — No. 19340 — PROFESSIONAL ENGINEER — STATE OF NEVADA

REVISIONS			
REV.	DESCRIPTION	BY	DATE

APPROVAL

ATKINS
2275 Corporate Circle Suite 300
Henderson, NEVADA 89074
Telephone: +1(702)835-2929
Fax: +1(702)835-2799

City of Henderson, Nevada
DUCK CREEK SUNSET TO SANDHILL
CHANNEL
TYPICAL SECTIONS

JOB NO. 100028146
DESIGNED BY: S. BARBO
DRAWN BY: S. BARBO
CHECKED BY: A. SPATA
DATE: MARCH 5, 2013
JOB NO.: 100028146
FILE NAME: C2110.dgn
SCALE: HORIZ: NONE VERT: NONE
DRAWING NO. C2.10
SHEET NO. 40

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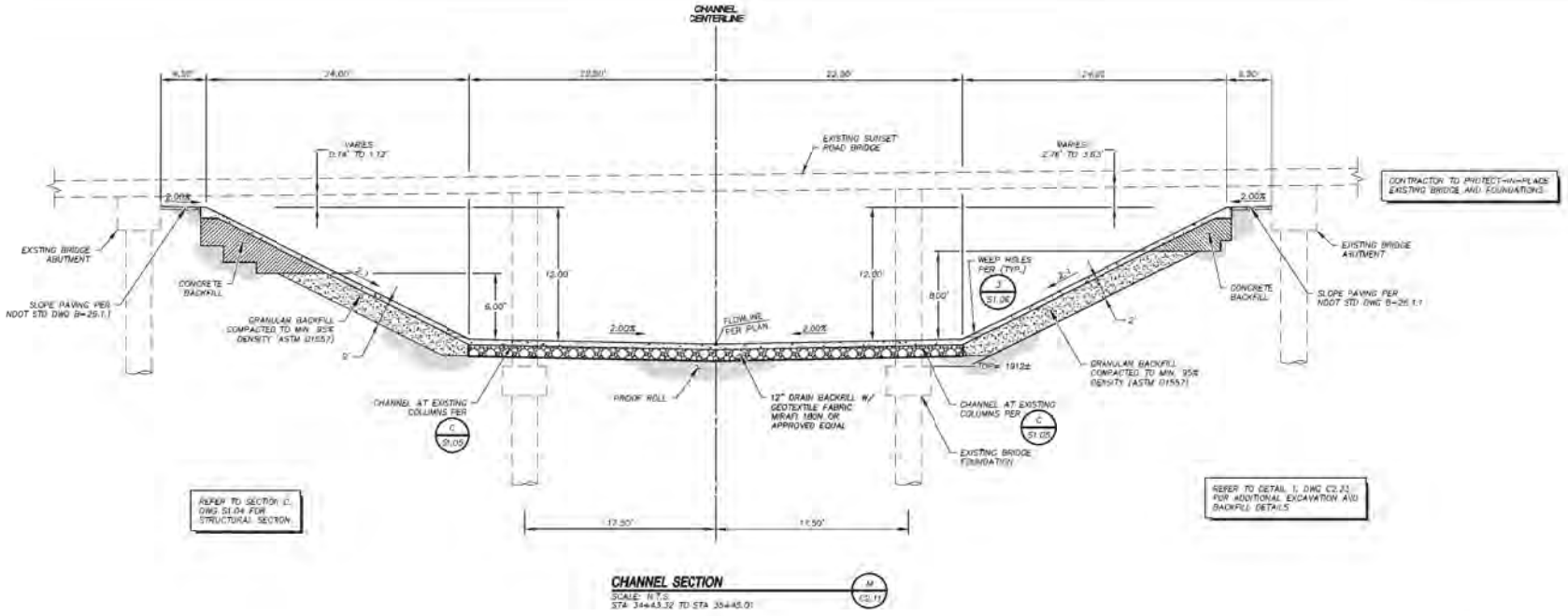

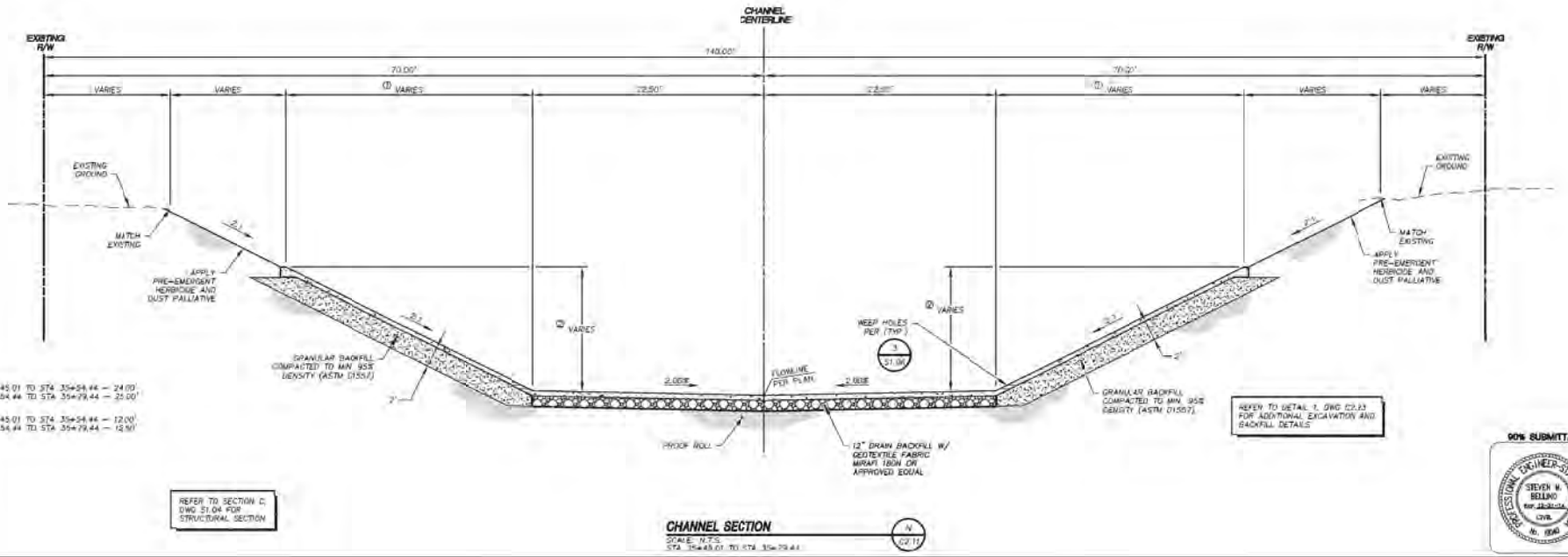

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STEVEN M. BELLINO — Exp. 12-31-14 — CIVIL — No. 19340 — PROFESSIONAL ENGINEER — STATE OF NEVADA

REVISIONS

REV.	DESCRIPTION	BY	DATE	APPROVAL

ATKINS
2275 Corporate Circle Suite 300
Henderson, NV 89074
Telephone: +1(702)835-2999
Fax: +1(702)835-2998

City of Henderson, Nevada

DUCK CREEK SUNSET TO SANDHILL
CHANNEL
TYPICAL SECTIONS

JOB NO.	DESIGNED BY:	JOB NO.:	SCALE:
100026146	S. BELLINO	100023146	HORIZ: NONE
	DRAWN BY: S. WATSON	FILE NAME: C211.dgn	VERT: NONE
	CHECKED BY: A. ZAZA		
	DATE: MARCH 5, 2013		

DRAWING NO. C2.11 | 19 | 40

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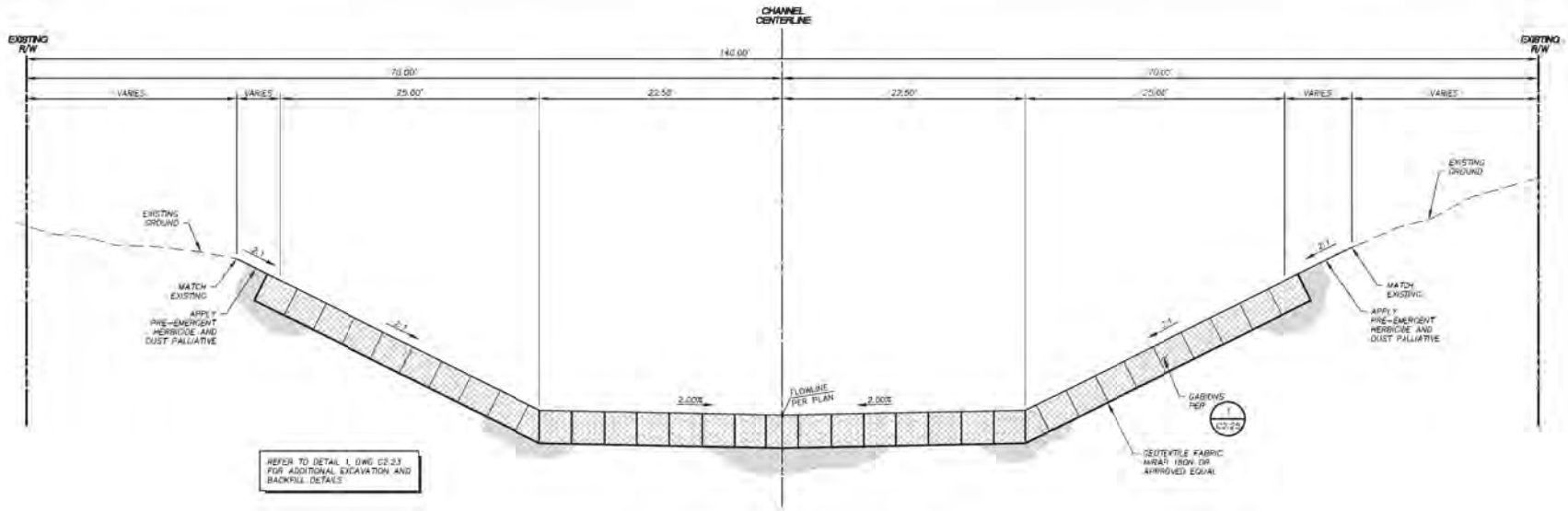
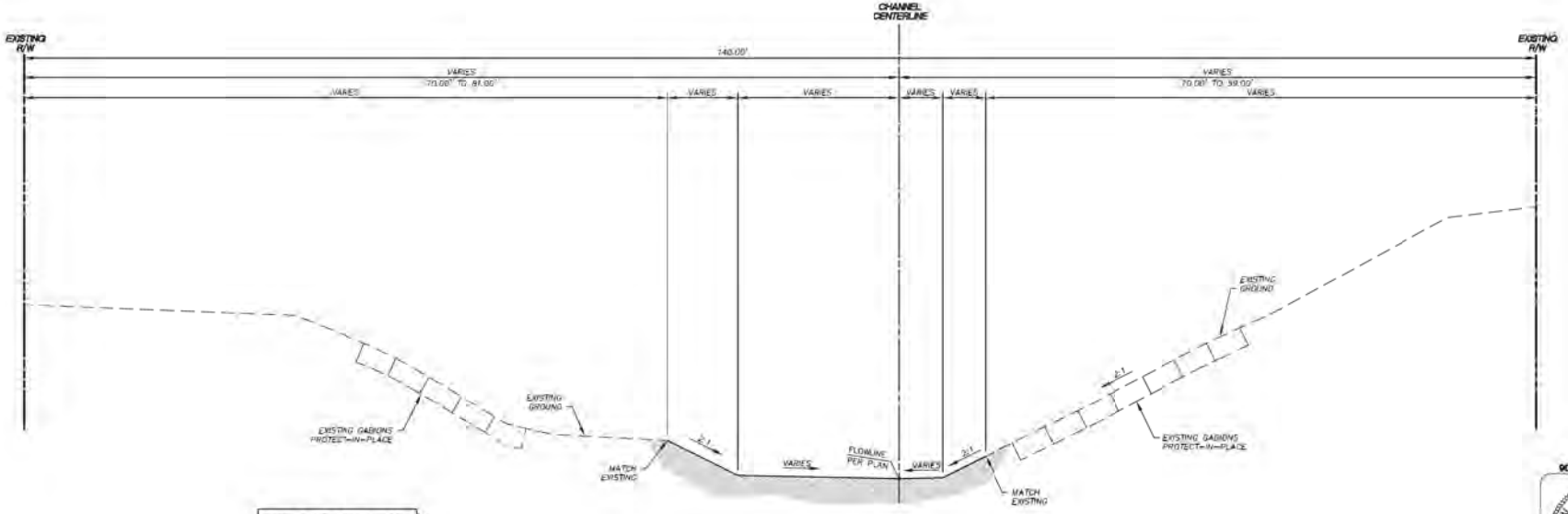


CHANNEL SECTION D C2.12
SCALE: N.T.S.
STA 35+79.44 TO STA 36+19.44



CHANNEL SECTION P C2.12
SCALE: N.T.S.
STA 36+19.44 TO STA 37+44.52

90% SUBMITTAL

PROFESSIONAL ENGINEER - STATE OF NEVADA
STEVEN W. BELLINO
REV. 12-31-13
CIVIL
No. 10040

REVISIONS

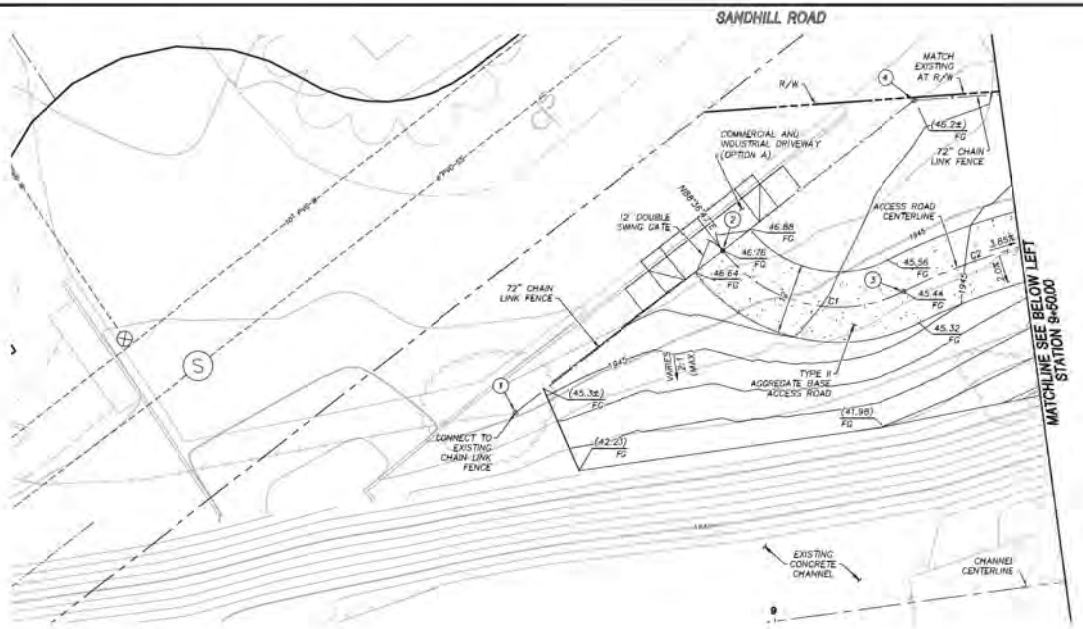
REV.	DESCRIPTION	BY	DATE	APPROVAL

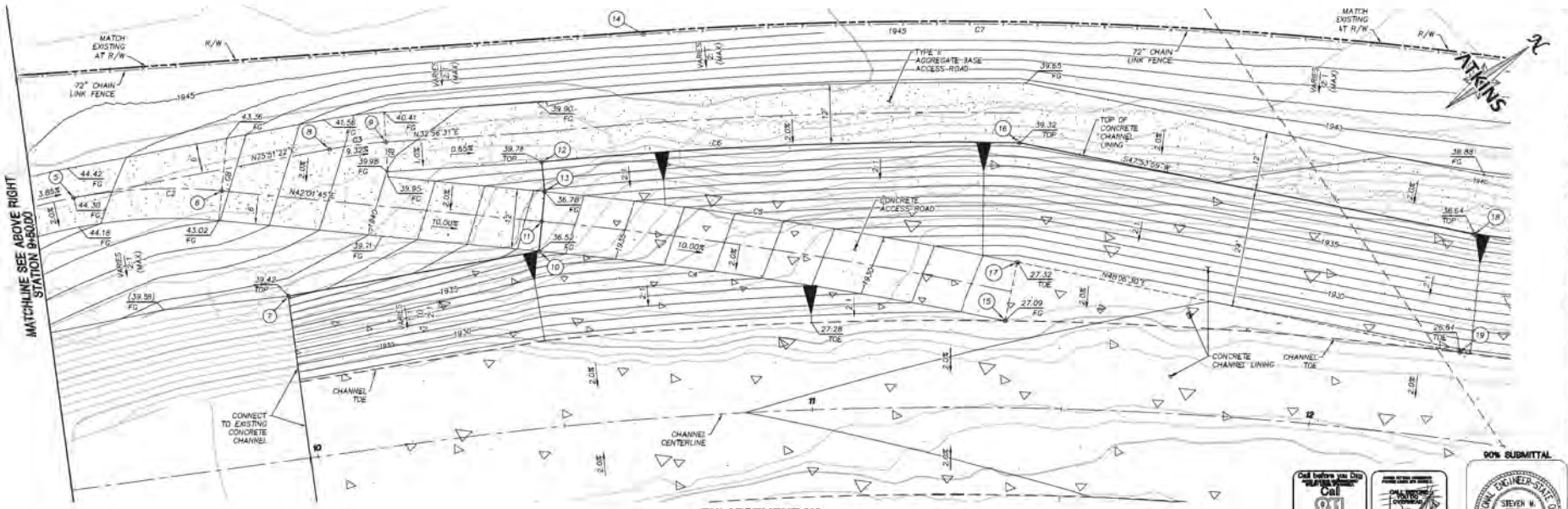
ATKINS

City of Henderson, Nevada
DUCK CREEK SUNSET TO SANDHILL
CHANNEL
TYPICAL SECTIONS

JOB NO.: 100028146
DESIGNED BY: S. BELLINO
DRAWN BY: R. WATSON
CHECKED BY: A. SPATA
DATE: MARCH 5, 2013
JOB NO.: 100028146
FILE NAME: 28146-C2.12
SCALE: HORIZ. NONE
VERT. NONE

DRAWING NO. C2.12
DRAWING NO. 20 / 40





ENLARGEMENT "A"

POINT TABLE					
POINT NO.	NORTHING	EASTING	STATION	OFFSET	DESCRIPTION
1	730681.5477	301516.8026	8+60.96	41.13' LT	FENCE BP
2	730726.2824	301515.7196	8+99.62	63.66' LT	BP
3	730746.9837	301539.7435	9+29.35	52.67' LT	PRC
4	730767.7837	301614.7149	9+35.48	84.57' LT	FENCE AP
5	730775.0159	301648.2815	8+58.26	58.22' LT	BP
6	730799.7561	301585.4329	9+87.98	55.58' LT	PT
7	730797.9507	301590.4349	9+98.46	32.82' LT	TOP
8	730822.1159	301571.8083	10+10.53	60.96' LT	PC
9	730832.2397	301577.3114	10+21.97	60.86' LT	PT
10	730843.9031	301713.3014	10+86.46	35.50' LT	TOP
11	730847.9202	301708.8446	10+89.56	41.39' LT	PC
12	730855.0417	301599.7358	10+50.64	53.29' LT	TOP
13	730851.9372	301704.3872	10+50.64	47.28' LT	TOE
14	730886.7032	301790.7663	10+71.39	77.18' LT	FENCE PC
15	730910.8823	301780.4414	11+36.64	17.50' LT	GB
16	730934.4851	301753.3956	11+40.80	53.29' LT	TOP
17	730919.8182	301772.4287	11+40.80	29.29' LT	GB/TOE
18	730897.1447	301922.7970	12+28.64	41.50' LT	TOP
19	730980.5314	301840.1373	12+28.64	17.50' LT	TOE

*STATIONING IS CHANNEL CENTERLINE

CENTERLINE CURVE TABLE				
NO.	RADIUS	DELTA	LENGTH	TANGENT
C1	55.00'	78°53'44"	34.55'	22.51'
C2	106.00'	32°08'42"	59.47'	30.54'
C3	94.00'	7°05'08"	11.63'	5.82'

CURVE TABLE				
NO.	RADIUS	DELTA	LENGTH	TANGENT
C4	894.28'	5°04'44"	94.88'	47.49'
C5	905.28'	5°04'44"	96.15'	48.12'
C6	853.28'	6°27'24"	96.16'	48.13'
C7	869.50'	39°47'43"	603.92'	314.71'

EXISTING UTILITIES ARE LOCATED ON THE PLANS FROM A SEARCH OF AVAILABLE RECORDS. CONTRACTOR TO VERIFY LOCATIONS AND DEPTHS PRIOR TO CONSTRUCTION

GRAPHIC SCALE

(IN FEET)

1 INCH = 10 FT

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1-702-227-2929

90% SUBMITTAL

PROFESSIONAL ENGINEER-STATE OF NEVADA
STEVEN M. BELLINO
No. 9560
CIVIL

REVISIONS

REV.	DESCRIPTION	BY	DATE	APPROVAL

ATKINS
2370 Corporate Circle Suite 300
Henderson, NV 89074
Telephone +1(702)362-2393
Fax +1(702)362-2399

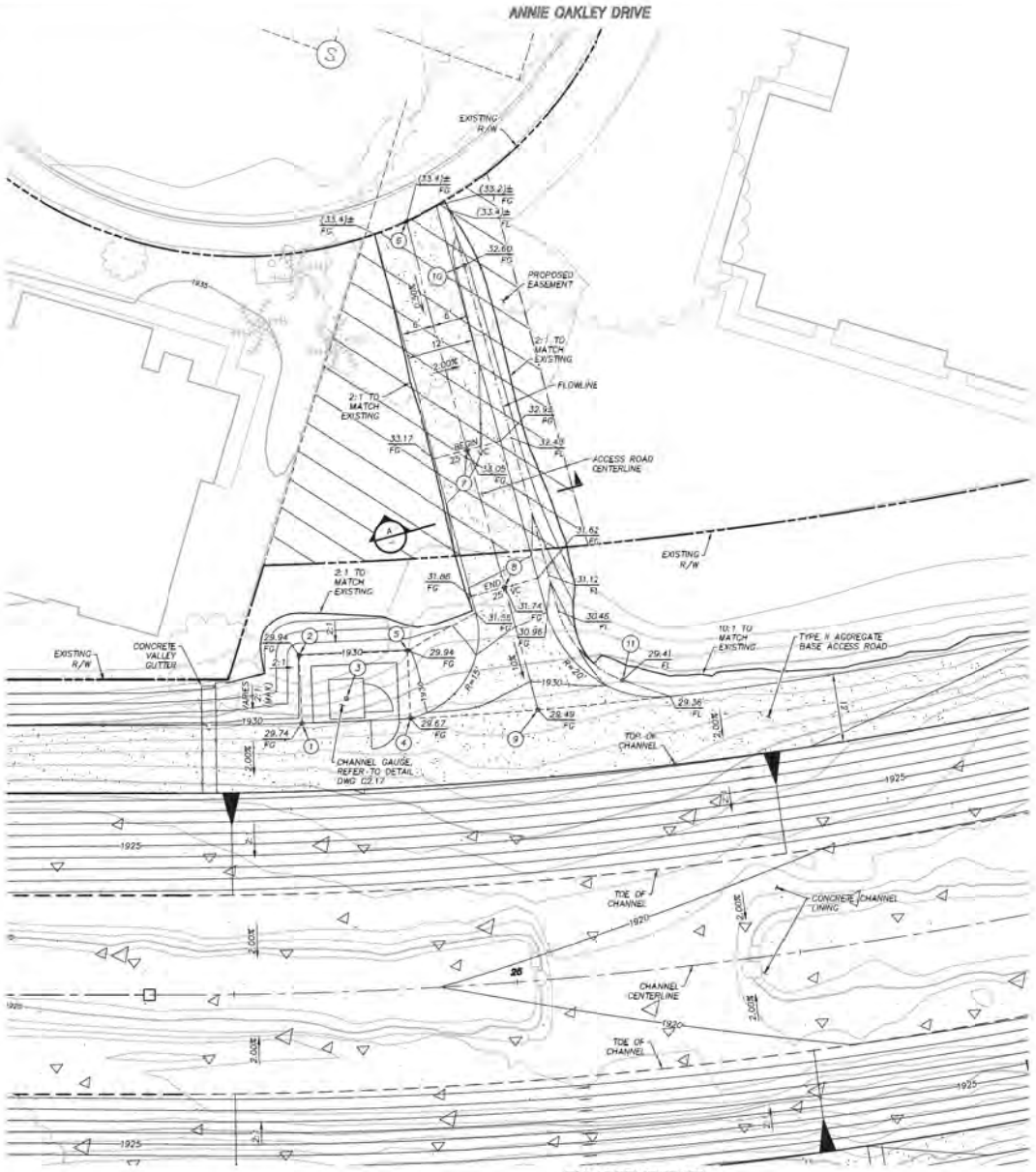
City of Henderson, Nevada

DUCK CREEK SUNSET TO SANDHILL
GRADING ENLARGEMENT

JOB NO. 100028146
DESIGNED BY: M. JOHNSON
DRAWN BY: M. JOHNSON
CHECKED BY: A. SPATA
DATE: MARCH 5, 2013
SHEET NO. 21
SHEETS 40
DRAWING NO. C2.13

JOB NO: 100028146
FILE NAME: C2.13 Mar 05, 2013 - 1:09pm
SCALE: HORZ.:1"=10' VERT.: NA

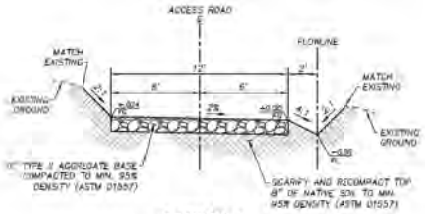
N:\Projects\100028146_City of Henderson\Design\Civil\C2.13 Duck Creek Grading Enlargement C2.13 Mar 05, 2013 - 1:09pm



ENLARGEMENT "B"

POINT TABLE					
POINT NO.	NORTHING	EASTING	STATION	OFFSET	DESCRIPTION
1	731476.1270	302968.9904	24+63.42	47.50' LT	DB
2	731486.3820	302984.8937	24+63.26	59.46' LT	DB
3	731481.6034	302975.1483	24+71.92	51.54' LT	CHANNEL GUAGE
4	731481.7544	302986.7988	24+83.63	47.63' LT	DB
5	731492.6856	302982.7457	24+83.79	59.46' LT	DB
6	731564.9457	302959.6944	24+88.57	135.02' LT	BP
7	731529.9381	302982.1897	24+98.08	94.21' LT	BEGIN V.C.
8	731508.9060	302995.7045	25+03.28	69.65' LT	END V.C.
9	731489.9601	303007.8788	25+07.66	47.50' LT	EP
10	731560.7150	302971.9223	25+00.32	126.60' LT	FL
11	731499.4638	303020.6125	25+24.13	51.26' LT	FL

*STATIONING IS CHANNEL CENTERLINE



SECTION A

EXISTING UTILITIES ARE LOCATED ON THE PLANS FROM A SEARCH OF AVAILABLE RECORDS. CONTRACTOR TO VERIFY LOCATIONS AND DEPTHS PRIOR TO CONSTRUCTION

GRAPHIC SCALE

(IN FEET)
HORZ. 1 inch = 10 ft.

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STEVEN M. BELLINO
REG. 10-18-2014
CIVIL
No. 10040

REVISIONS

REV.	DESCRIPTION	BY	DATE	APPROVAL

ATKINS

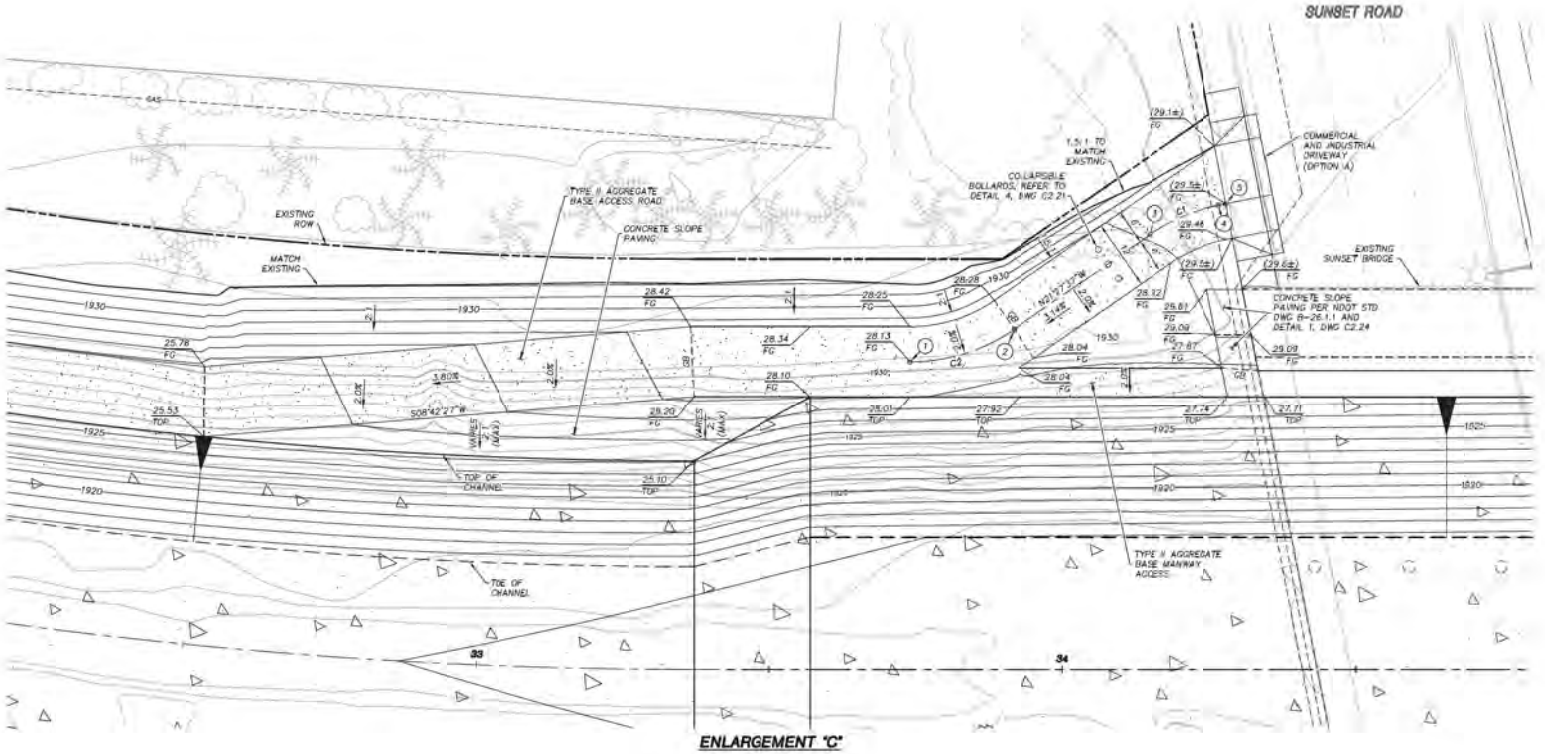
City of Henderson, Nevada

DUCK CREEK SUNSET TO SANDHILL
GRADING ENLARGEMENT

JOB NO.: 100028146
FILE NAME: 28146-C2.14
SCALE: HORZ.:1"=10'
VERT.: NA

DESIGNED BY: S. BELLINO
DRAWN BY: W. JOHNSON
CHECKED BY: A. SPATA
DATE: MARCH 5, 2013

JOB NO. 100028146
DRAWING NO. C2.14



ENLARGEMENT "C"

POINT TABLE

POINT NO.	NORTHING	EASTING	STATION	OFFSET	DESCRIPTION
1	7,32105.5681	303499.1693	33+74.02	52.50' LT	PC
2	7,32124.4818	303497.8640	33+91.74	58.06' LT	PT
3	7,32150.7202	303487.5534	34+14.86	74.17' LT	PC
4	7,32163.2306	303485.4286	34+26.60	79.15' LT	PT
5	7,32164.5926	303485.4802	34+27.88	79.40' LT	PT

*STATIONING IS CHANNEL CENTERLINE

CURVE TABLE

NO.	RADIUS	DELTA	LENGTH	TANGENT
C1	31.00'	23°43'57"	12.84'	6.51'
C2	31.00'	54°51'37"	15.86'	9.73'

EXISTING UTILITIES ARE LOCATED ON THE PLANS FROM A SEARCH OF AVAILABLE RECORDS. CONTRACTOR TO VERIFY LOCATIONS AND DEPTHS PRIOR TO CONSTRUCTION

GRAPHIC SCALE

(IN FEET)

SCALE: 1 inch = 10 ft.

90% SUBMITTAL

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STEVEN M. BELLINO No. 19840 PROFESSIONAL ENGINEER STATE OF NEVADA CIVIL

REVISIONS

REV.	DESCRIPTION	BY	DATE	APPROVAL

ATKINS

2270 Corporate Circle Suite 500 Henderson, NV 89074 Telephone +1(702)835-2929 Fax +1(702)835-2938

City of Henderson, Nevada

DUCK CREEK SUNSET TO SANDHILL

GRADING ENLARGEMENT

JOB NO. 100026146

DESIGNED BY: M. BELLINO
DRAWN BY: M. JOHNSON
CHECKED BY: A. SPATA
DATE: MARCH 5, 2013

JOB NO: 100026146
FILE NAME: C2.16_ENLARGEMENT.dwg
SCALE: 1"=10'
VERT.: NA

SHEET NO. 25
TOTAL SHEETS 40

DRAWING NO. C2.16

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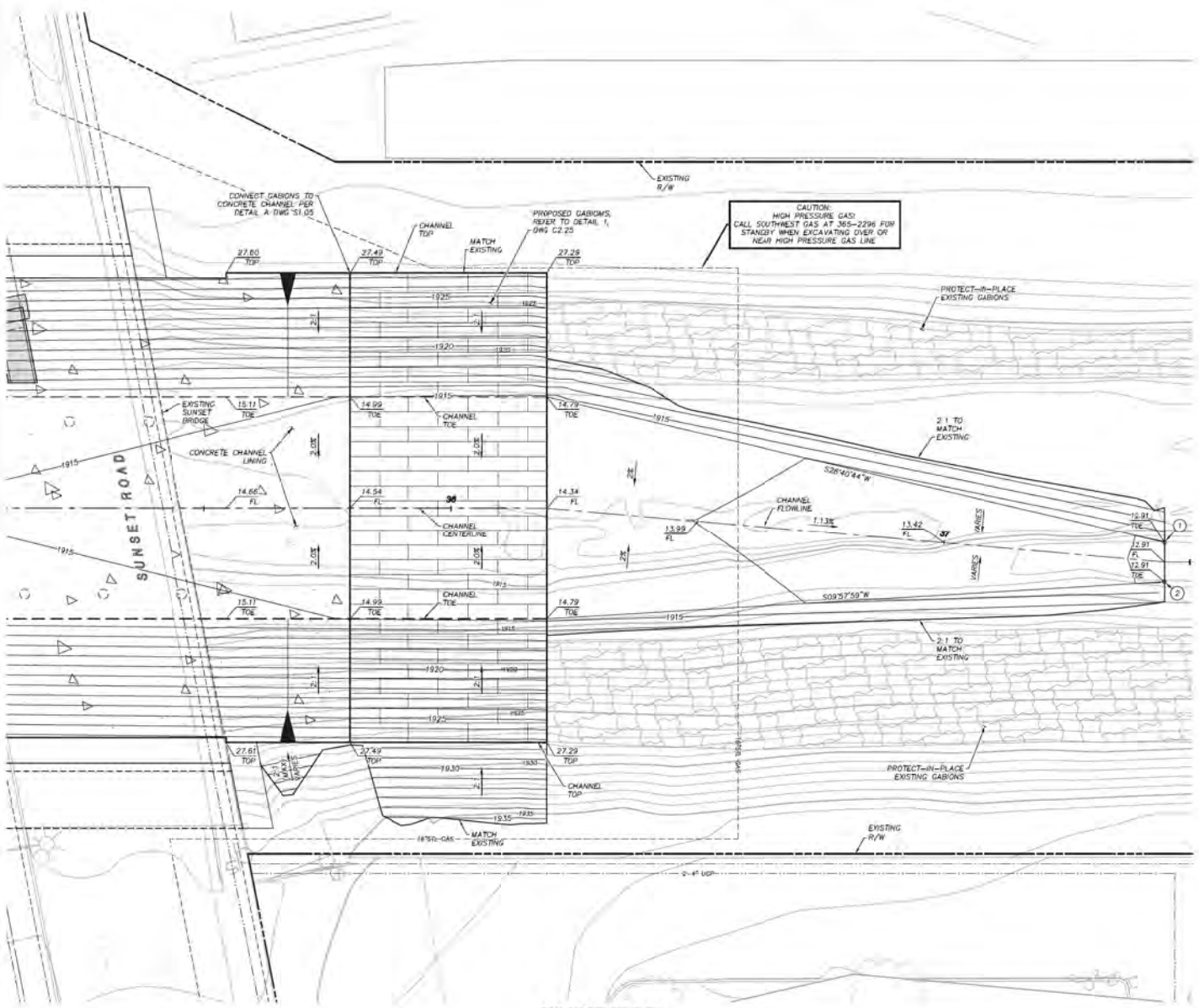

ENLARGEMENT "D"

POINT TABLE					
POINT NO.	NORTHING	EASTING	STATION	OFFSET	DESCRIPTION
1	732452.3098	301842.8928	37+44.57	4.00' LT	TOE
2	732450.6556	301650.6750	37+44.92	4.00' RT	TOE

*STATIONING IS CHANNEL CENTERLINE

EXISTING UTILITIES ARE LOCATED ON THE PLANS FROM A SEARCH OF AVAILABLE RECORDS. CONTRACTOR TO VERIFY LOCATIONS AND DEPTHS PRIOR TO CONSTRUCTION

GRAPHIC SCALE

(IN FEET)

HORZ. 1 inch = 10 ft.

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PROFESSIONAL ENGINEER - STATE OF NEVADA
STEVEN M. BELLINO
CIVIL
No. 15040

REVISIONS

REV.	DESCRIPTION	BY	DATE	APPROVAL

ATKINS

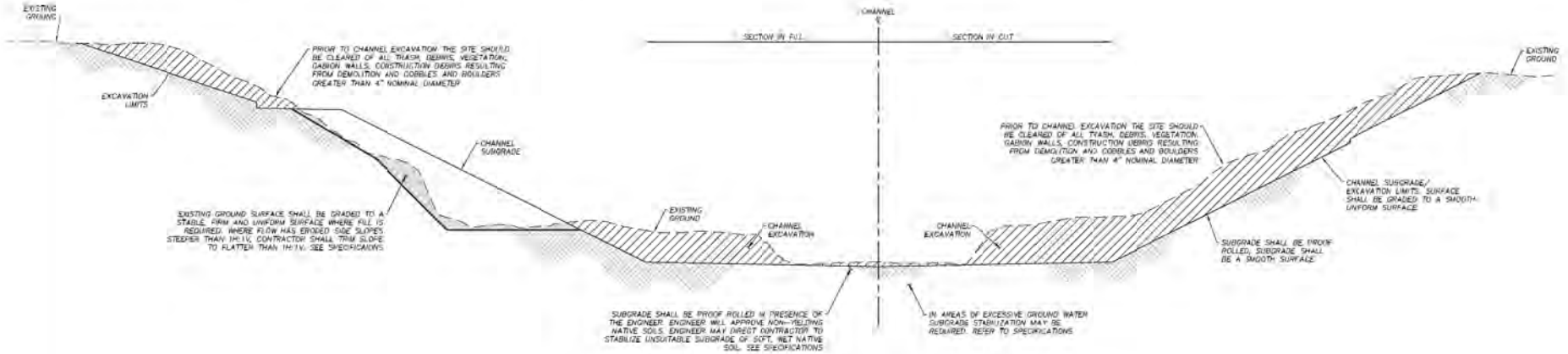
City of Henderson, Nevada

DUCK CREEK SUNSET TO SANDHILL
GRADING ENLARGEMENT

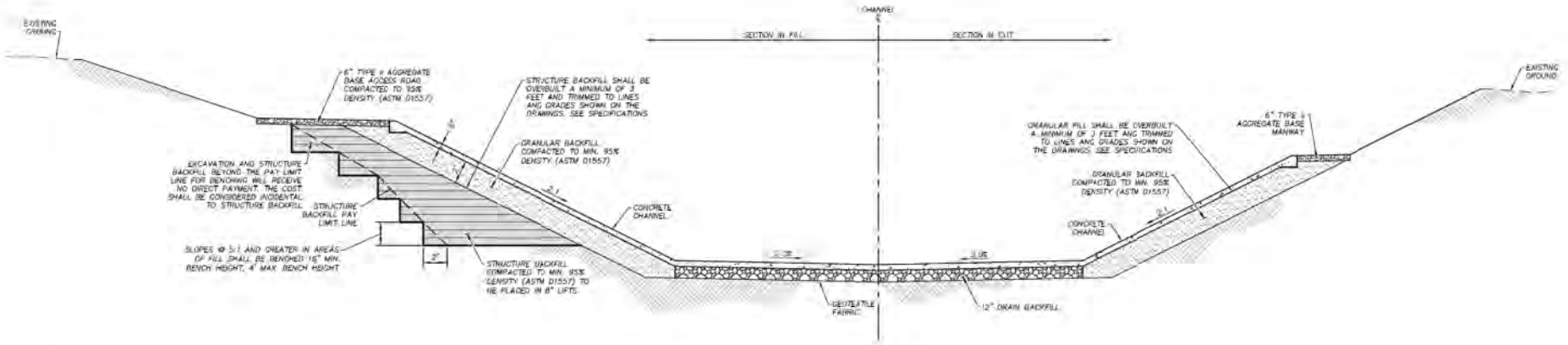
JOB NO.: 100028146
FILE NAME: 28146-C2.16
SCALE: HORZ.:1"=10'
VERT.: NA

DESIGNED BY: S. BELLINO
DRAWN BY: W. JOHNSON
CHECKED BY: A. SPATA
DATE: MARCH 5, 2013

JOB NO. 100028146
DRAWING NO. C2.16



CHANNEL EXCAVATION/SITE PREPARATION



CHANNEL BACKFILL

CHANNEL EXCAVATION/BACKFILL 1 / C2.23

N.T.S.

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PROFESSIONAL ENGINEER - STATE OF NEVADA
STEVEN M. BELLINO
REG. NO. 10040
CIVIL

REVISIONS

REV.	DESCRIPTION	BY	DATE	APPROVAL

ATKINS

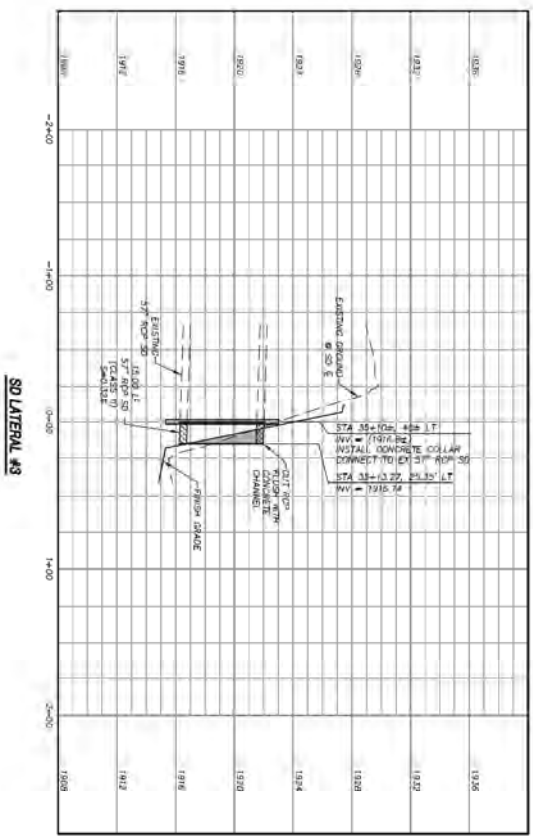
City of Henderson, Nevada

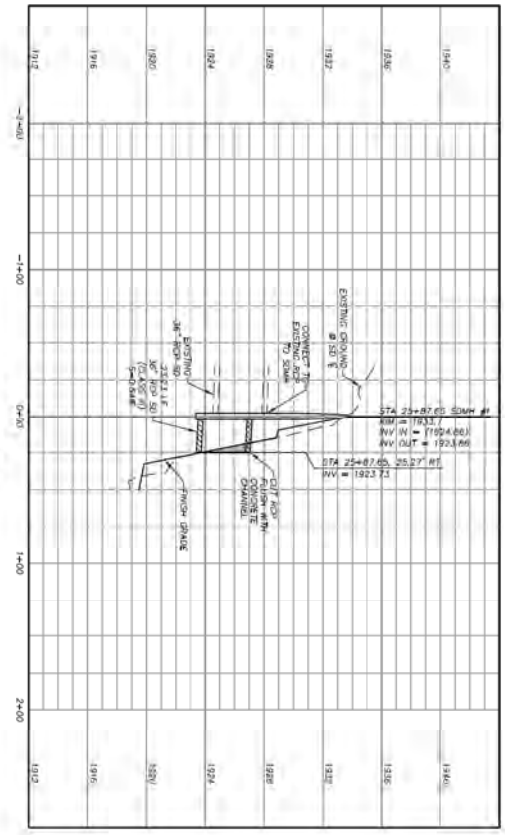
DUCK CREEK SUNSET TO SANDHILL

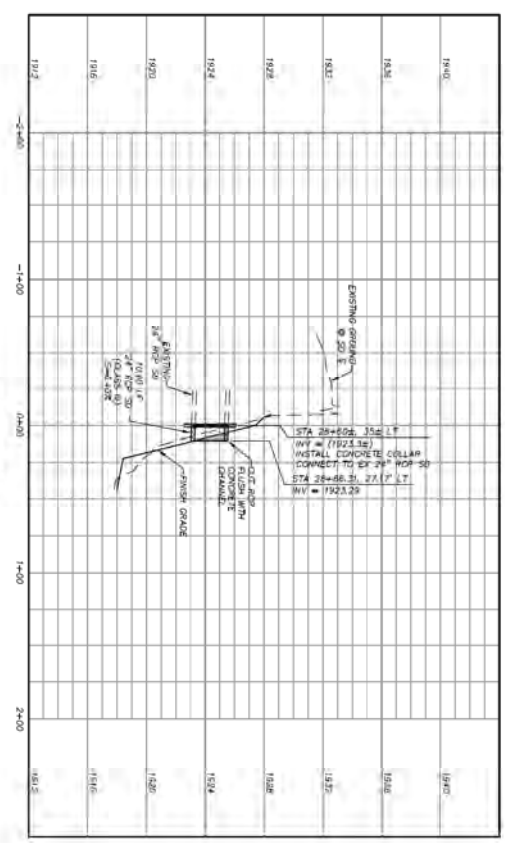
DETAILS

JOB NO. 100028146
DESIGNED BY: S. BELLINO
DRAWN BY: R. WATSON
CHECKED BY: A. SPATA
DATE: MARCH 5, 2013
JOB NO.: 100028146
FILE NAME: 28146-C2.23
SCALE: HORIZ. NONE
VERT. NONE

DRAWING NO. C2.23
31 / 40





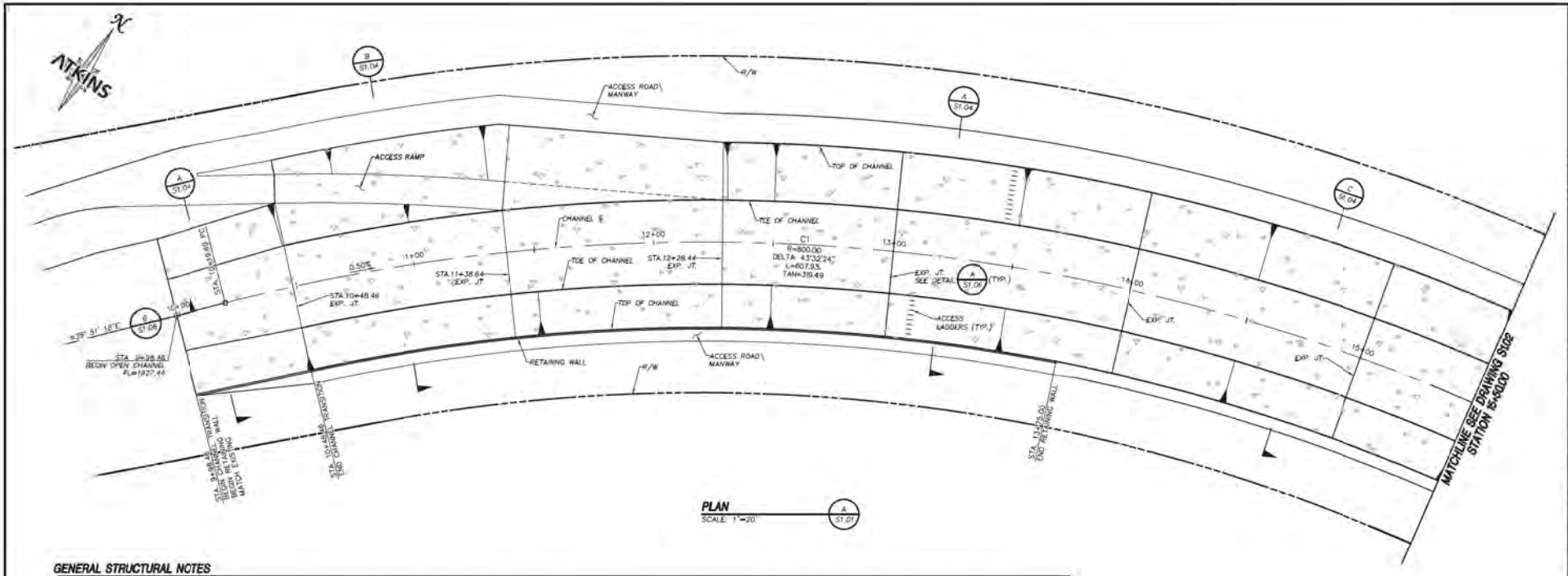


PROFESSIONAL ENGINEER STATE OF NEVADA STEVEN W. BELLINO

90% SUBMITTAL

JOB NO.	DESIGNED BY:	JOB NO.:	City of Henderson, Nevada	ATKINS	REVISIONS
100028146	S. BELLINO	100028146	DUCK CREEK SUNSET TO SANDHILL		REV. / DESCRIPTION / BY / DATE / APPROVAL
DRAWING NO. 34	DRAWN BY: R. WATSON	FILE NAME: 28146-C2.26	LATERAL PROFILES		
C2.26 / 40	CHECKED BY: A. SPATA	SCALE: HORIZ: 1"=40' VERT: 1"=4'			
	DATE: MARCH 5, 2013				

\Projects\100028146_00\Sheets\28146-C2.26.dwg Layout: C2.26 Mar 05, 2013 - 11:19am



GENERAL STRUCTURAL NOTES

GENERAL

STRUCTURES HAVE BEEN DESIGNED FOR OPERATIONAL LOADS ON THE COMPLETED STRUCTURES. DURING CONSTRUCTION, THE STRUCTURES SHALL BE PROTECTED BY BRACING AND BALANCING WHEREVER EXCESSIVE CONSTRUCTION LOADS MAY OCCUR.

UNLESS OTHERWISE SHOWN ON ALL STRUCTURAL DRAWINGS, THE FINISH GRADE AROUND STRUCTURES IS SHOWN THUS: INDICATING EITHER GROUND SURFACE, TOP OF CONCRETE SLAB OR AC PAVEMENT. FOR DETAILS OF FINISH SURFACES SEE CIVIL AND ARCHITECTURAL DRAWINGS.

FOR PROJECT CONTROL POINTS REFER TO PLAN SHEET C1.06

STRUCTURAL

DESIGN IN ACCORDANCE WITH IBC 2009 AND CCRFCD "HYDROLOGIC CRITERIA AND DESIGN MANUAL".

LOCATION OF ALL CONSTRUCTION JOINTS SHALL BE AS SHOWN ON THE DRAWINGS OR APPROVED BY THE ENGINEER.

LOADING:
LIVE LOAD= 100 PSF

CONCRETE

UNLESS OTHERWISE NOTED OR SPECIFIED, ALL STRUCTURAL CONCRETE SHALL DEVELOP A MINIMUM COMPRESSIVE STRENGTH OF 4500 PSI (WATER CEMENT RATIO OF 0.45) IN 28 DAYS. CEMENT SHALL BE TYPE V FOR ALL CONCRETE.

FILLET FORMS AT ALL EXPOSED CORNERS USING TRIANGULAR MOLDING WITH 2 EQUAL SIDES OF 3/4" IN SIZE.

REINFORCEMENT STEEL SHALL BE DEFORMED BARS CONFORMING IN QUALITY TO THE REQUIREMENTS OF ASTM A-615 "SPECIFICATIONS FOR DEFORMED BILLET-STEEL BARS FOR CONCRETE REINFORCEMENT" GRADE 60.

ALL DETAILING, FABRICATION AND PLACING OF REINFORCING BARS UNLESS OTHERWISE INDICATED, SHALL BE IN ACCORDANCE WITH ACI-315, "MANUAL OF STANDARD PRACTICE FOR DETAILING REINFORCED CONCRETE STRUCTURES" LATEST EDITION.

TOLERANCES IN PLACING REINFORCEMENT SHALL BE:

± 3/8 INCH FOR MEMBERS WITH D ≤ 8 INCHES

± 1/8 INCH FOR MEMBERS WITH D > 8 INCHES

CONCRETE CONT.

ALL KEYWAYS IN CONSTRUCTION JOINTS, WHERE SHOWN, SHALL BE ROUGH AND THOROUGHLY CLEANED FOR BOND.

DOWELS, WATERSTOPS AND OTHER INSTALLED MATERIALS AND ACCESSORIES SHALL BE HELD SECURELY IN POSITION WHILE CONCRETE IS BEING PLACED.

UNLESS OTHERWISE INDICATED, ASIDE FROM NORMAL ACCESSORIES USED TO HOLD REINFORCING BARS FIRMLY IN POSITION, THE FOLLOWING SHALL BE ADDED:

A) IN SLABS, #5 RISER BARS AT 36 INCHES O.C. MAXIMUM TO SUPPORT TOP REINFORCING BARS.

B) IN WALLS WITH 2 CURTAINS, #3 U OR Z SHAPE SPACERS AT 6 FEET O.C. EACH WAY.

METAL CLIPS OR SUPPORTS SHALL NOT BE PLACED IN CONTACT WITH THE FORMS OR THE SUBGRADE. CONCRETE BLOCKS (OR DOBIES) SUPPORTING BARS ON SUBGRADE SHALL BE IN SUFFICIENT NUMBERS TO SUPPORT THE BARS WITHOUT SETTLEMENT, BUT IN NO CASE SHALL SUCH SUPPORT BE CONTINUOUS.

DOWELS SHALL BE WIRED OR OTHERWISE HELD IN POSITION. THEY SHALL NOT BE PLACED AFTER CONCRETE HAS BEEN POURED.

UNLESS OTHERWISE INDICATED ON THE DRAWINGS, LAPS OF REINFORCEMENT SHALL BE IN ACCORDANCE WITH THE LATEST VERSION OF ACI-318.

REINFORCING BARS AND ACCESSORIES SHALL NOT BE IN CONTACT WITH METAL PARTS EMBEDDED IN CONCRETE. A MINIMUM OF 3 INCHES CLEARANCE SHALL BE PROVIDED AT ALL TIMES.

UNLESS OTHERWISE SHOWN ON THE DRAWINGS, CONCRETE COVER FOR REINFORCING BARS SHALL BE AS FOLLOWS:

FOR CONCRETE PLACED AGAINST EARTH _____ 3"

FOR SURFACES IN CONTACT WITH WATER OR WEATHER AND FORMED SURFACES IN CONTACT WITH EARTH _____ 2"

FOR CONCRETE NOT EXPOSED TO WEATHER OR IN CONTACT WITH WATER OR EARTH _____ 1-1/2"

UNLESS OTHERWISE NOTED, WALLS AND SLABS SHOWN WITH A SINGLE LAYER OF REINFORCEMENT SHALL HAVE THAT REINFORCEMENT CENTERED.

EXCAVATION AND BACKFILL

PREPARATION OF FOUNDATION MATERIAL LOCATED BELOW THE BOTTOM OF WALL FOOTINGS AND BACKFILL SHALL BE PERFORMED PER SPECIFICATIONS.

PREPARATION OF FOUNDATION MATERIAL SHALL BE PERFORMED IN ACCORDANCE WITH THE RECOMMENDATION CONTAINED IN THE SOILS REPORT. SOILS REPORT BY: "GEOTECHNICAL EXPLORATION REPORT DUCK CREEK WASH IMPROVEMENTS: SANDHILL ROAD TO SUNSET ROAD, HENDERSON, NEVADA" DATED: FEBRUARY 27TH 2013, BY: KLEINFELDER PROJECT No. 127341.

SOIL PARAMETERS USED FOR DESIGN:
(A) ALLOWABLE NET SOIL BEARING PRESSURE: 140 PSF
(B) ACTIVE PRESSURE: 40 PCF (LEVEL BACKFILL)
(C) DYNAMIC PRESSURE: 8.8 PCF
(D) COEFFICIENT OF FRICTION: 0.40
(E) SOIL WEIGHT: 125 PCF

THE FOOTINGS SHALL BE CAST AGAINST NATIVE MATERIAL FOR THE FULL DEPTH OF THE FOOTING OR FOOTING SHALL BE COMPLETELY BACKFILLED AND COMPACTED PER SPECIFICATIONS PRIOR TO PLACING ANY BACKFILL BEHIND THE WALL.

CONTRACTOR SHALL EXERCISE CARE DURING BACKFILL OPERATIONS TO ASSURE THAT WALLS ARE NOT DAMAGED. REFER TO EARTH WORK SPECIFICATIONS FOR BACKFILL PLACEMENT PROCEDURES AND LIMITATIONS ON EQUIPMENT WEIGHT.

TRENCH EXCAVATION AND SHORING SHALL CONFORM TO OSHA REGULATIONS 29 CFR PART 1926, SUBPART C.

MISCELLANEOUS

JOINT MATERIALS SHALL BE FURNISHED AND INSTALLED IN ACCORDANCE WITH CONCRETE SPECIFICATIONS.

SPECIAL INSPECTION IS REQUIRED FOR THE WORK. REFER TO IBC 2009 SECTION 1704.

DOWELS SHALL BE EPOXY TYPE. THE FOLLOWING PRODUCTS SATISFY THE REQUIREMENTS FOR THIS PROJECT: HIT RE 500 BY HILTI INCORPORATED.

THE INSTALLATION OF EPOXY DOWELS SHALL FOLLOW THE RECOMMENDATIONS OF THE SELECTED MANUFACTURER.

SHEET INDEX

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PROFESSIONAL ENGINEER-STATE OF NEVADA — NAME A. CHANG — CIVIL — No. 16025

REVISIONS			
REV.	DESCRIPTION	BY	DATE / APPROVAL

ATKINS
2291 Corporate Circle, Suite 300
Henderson, NV 89074
Telephone: +1(702)932-3213
Fax: +1(702)932-3299

City of Henderson, Nevada

DUCK CREEK SUNSET TO SANDHILL
STRUCTURAL PLAN 1 OF 8
STA. 9+98.46 TO STA. 16+50.00

JOB NO.	100028146
DESIGNED BY:	P. PERIPEL
DRAWN BY:	D. EVANS
CHECKED BY:	A. CHANG
DATE:	MARCH 5, 2013
JOB NO.	100028146
FILE NAME:	28146-S101
SCALE:	HORIZ. AS SHOWN VERT. AS SHOWN
ERR/REV. NO.	35
SHEET NO.	S101
OF	40

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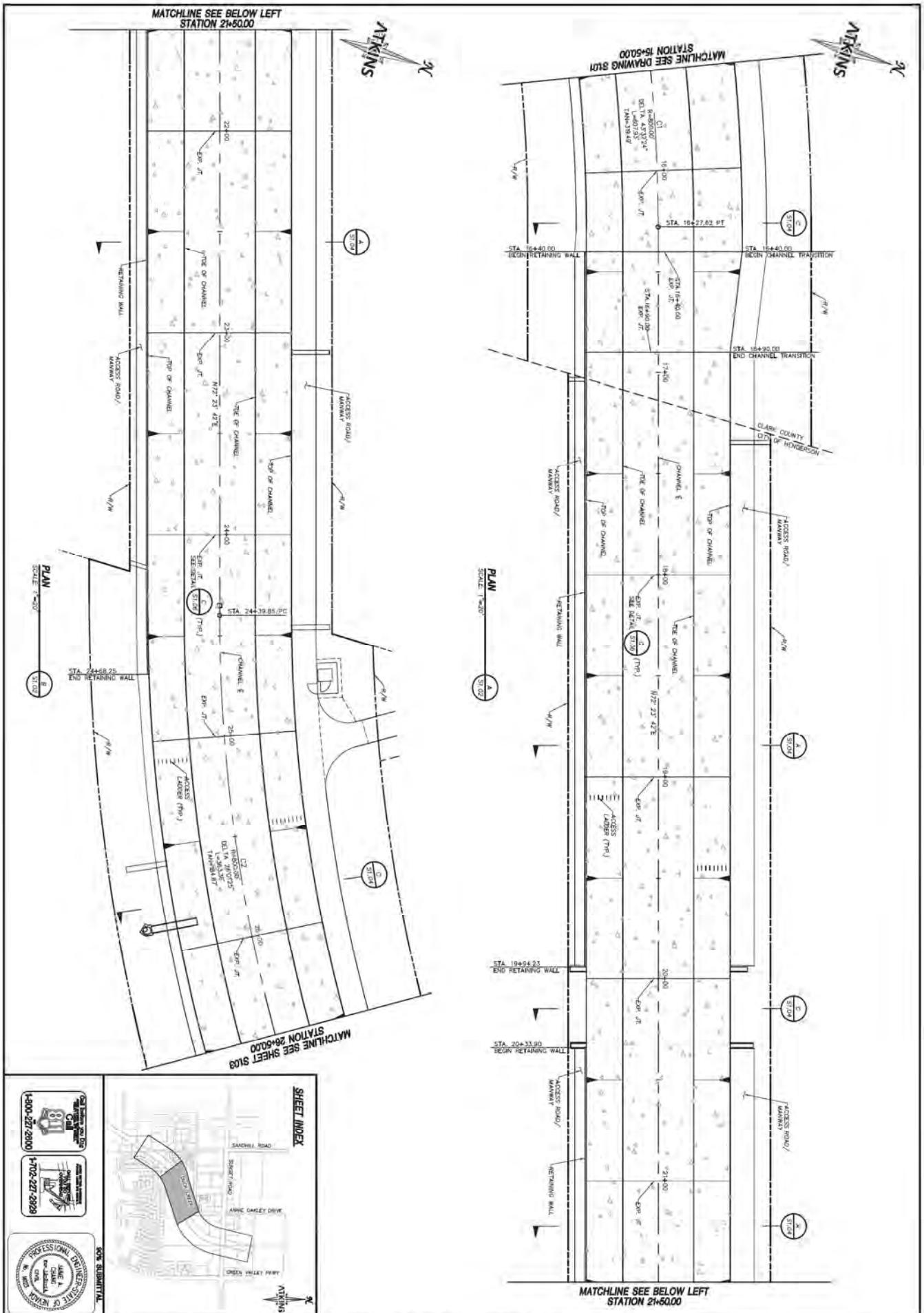


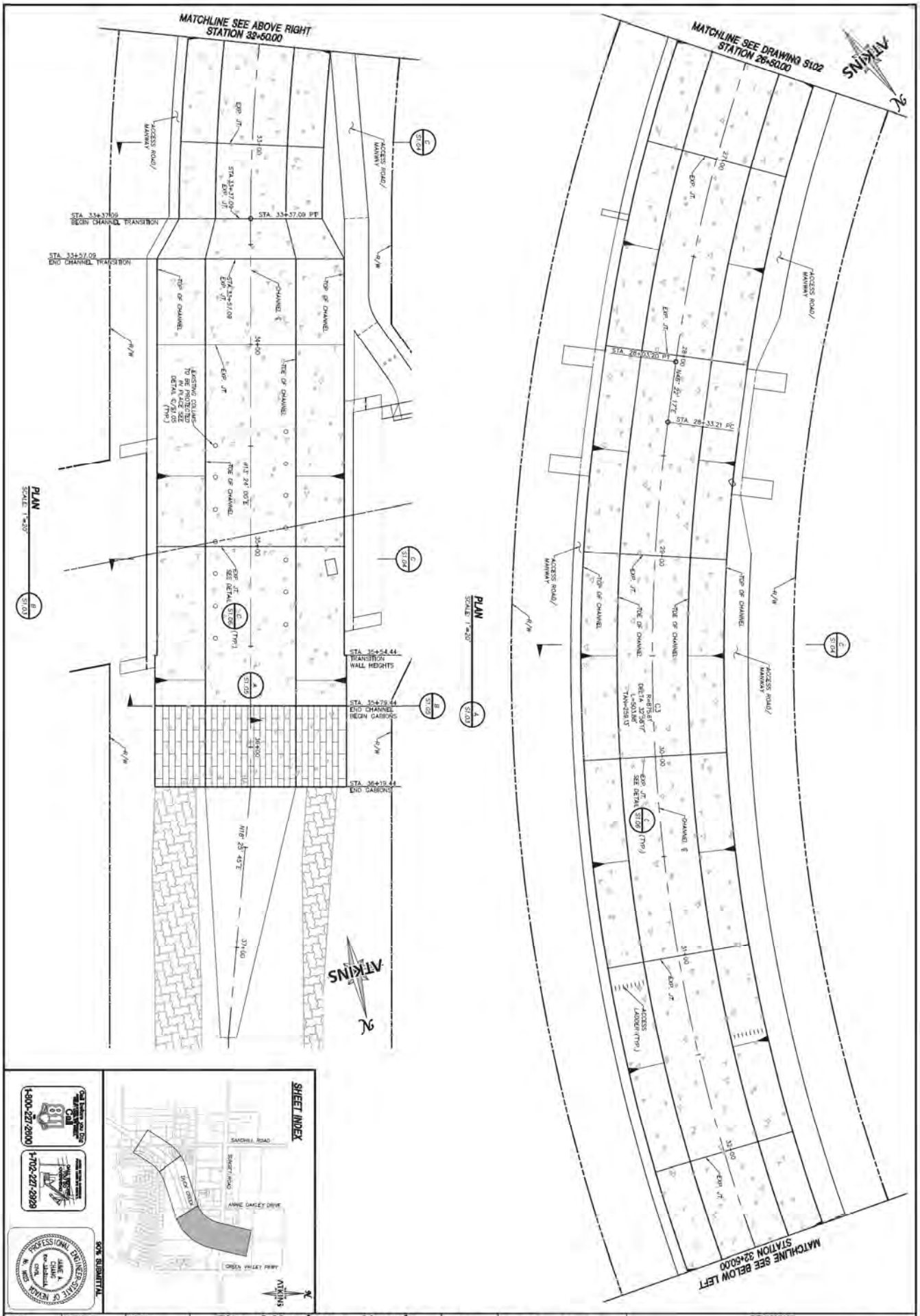
JOB NO. 100028146	DESIGNED BY: P. PENAFIEL DRAWN BY: D. EVANS CHECKED BY: J. CHANG DATE: MARCH 5, 2015	JOB NO.: 100028146 FILE NAME: 28146-S1.02 SCALE: HORIZ.AS SHOWN VERT.: AS SHOWN	**City of Henderson, Nevada** DUCK CREEK SUNSET TO SANDHILL STRUCTURAL PLAN 2 OF 3 STA. 16+50.00 TO STA. 28+50.00

DRAWING NO. S1.02 | 38 / 40

ATKINS

REVISIONS				
REV.	DESCRIPTION	BY	DATE	APPROVAL

P:\Projects\100028146_DC\Sheets\28146-S1.02.dwg Layout: S1.02 Mar 05, 2015 - 8:42am



SHEET INDEX

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1-702-227-2929

PROFESSIONAL ENGINEER
STATE OF NEVADA
JAMIE A. CHANG
No. 16131
CIVIL

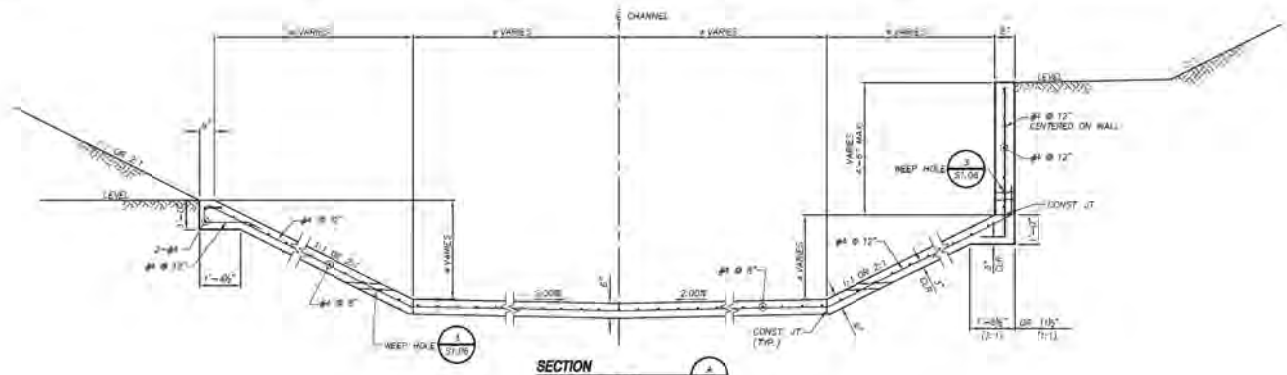
90% SUBMITTAL

JOB NO.: 100028146	DESIGNED BY: P. PENAFIEL	JOB NO.: 100028146	City of Henderson, Nevada
DRAWING NO.: S103 / 37 / 40	DRAWN BY: D. EVANS	FILE NAME: 28146-S1.03	DUCK CREEK SUNSET TO SANDHILL
	CHECKED BY: J. CHANG	SCALE: HORIZ.AS SHOWN VERT.: AS SHOWN	STRUCTURAL PLAN 6 OF 8
	DATE: MARCH 5, 2015		STA. 29+50.00 TO STA. 37+50.00

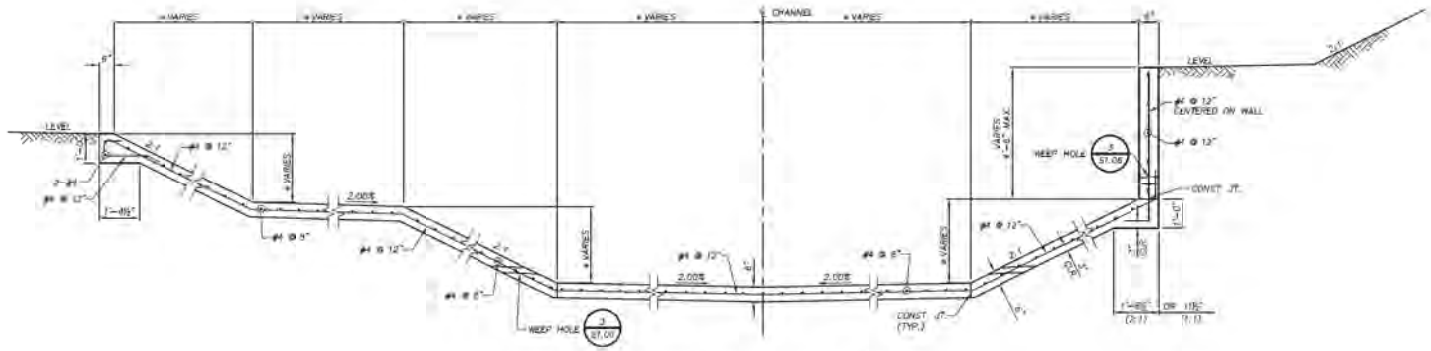
ATKINS
2270 Corporate Circle Suite 304
Henderson, Nevada 89074
Telephone: +1(702)362-3719
Fax: +1(702)362-7700

REVISIONS				
REV.	DESCRIPTION	BY	DATE	APPROVAL

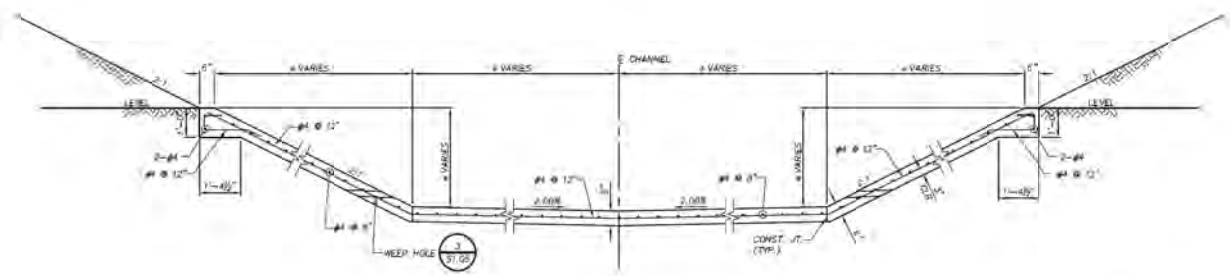
\\Projects\100028146_DC\Sheets\28146-S1.03.dwg Layout: S1.03 Mar 05, 2015 - 8:43am



SECTION A S1.04
SCALE: 1/2" = 1'-0"



SECTION B S1.04
SCALE: 1/2" = 1'-0"



SECTION C S1.04
SCALE: 1/2" = 1'-0"

NOTE:
*SEE CIVIL DRAWINGS FOR DIMENSIONS AND STATIONING.

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PROFESSIONAL ENGINEER - STATE OF NEVADA
JAIME A. CHANG
CIVIL
No. 16023

REVISIONS

REV.	DESCRIPTION	BY	DATE	APPROVAL

ATKINS

City of Henderson, Nevada

DUCK CREEK SUNSET TO SANDHILL
STRUCTUREAL SECTIONS

JOB NO.: 100028146
FILE NAME: 28146-S1.04
SCALE: HORIZ. AS SHOWN VERT. AS SHOWN

DESIGNED BY: P. FERNFREL
DRAWN BY: D. EVANS
CHECKED BY: J. CHANG
DATE: MARCH 5, 2013

JOB NO. 100028146
DRAWING NO. S1.04
38 / 40

I:\Projects\100028146_DC\Sheets\28146-S1.04.dwg Layout: S1.04 Mar 05, 2013 - 8:43am