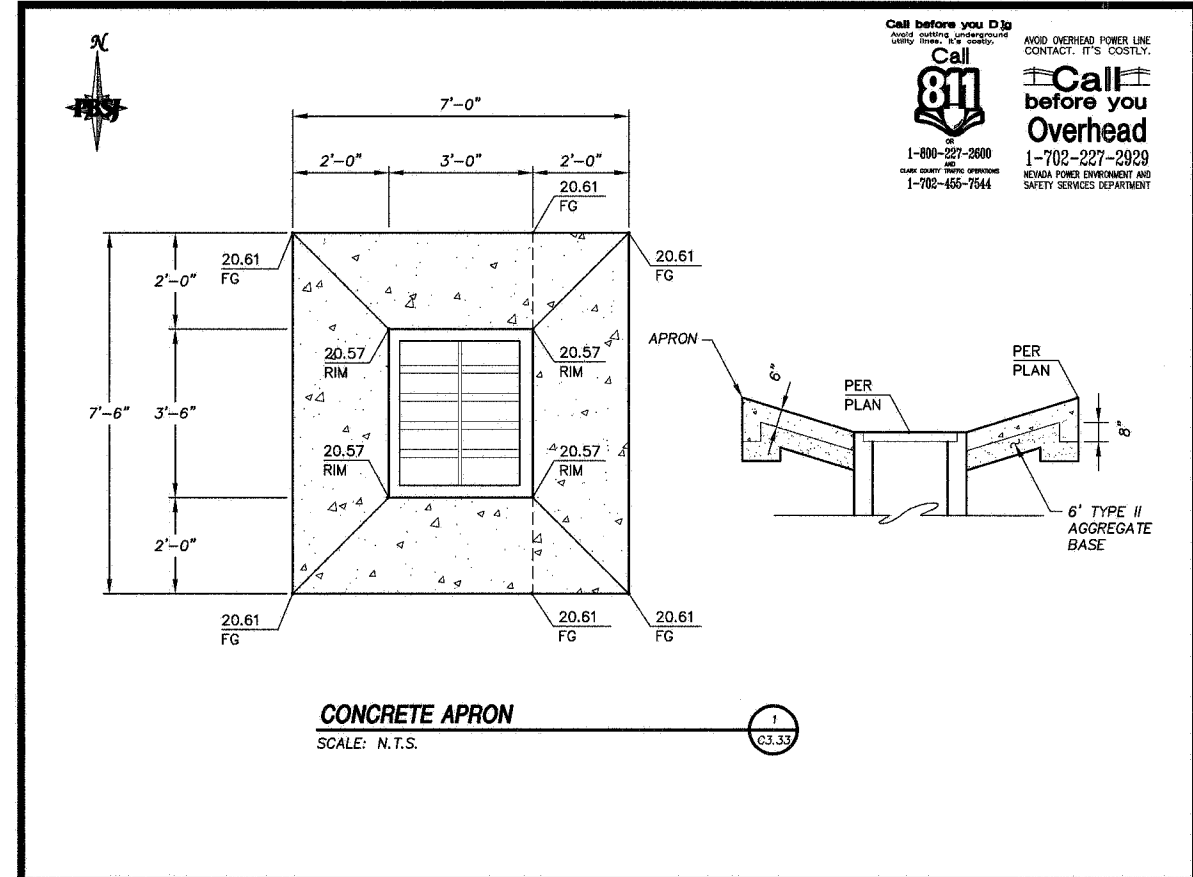
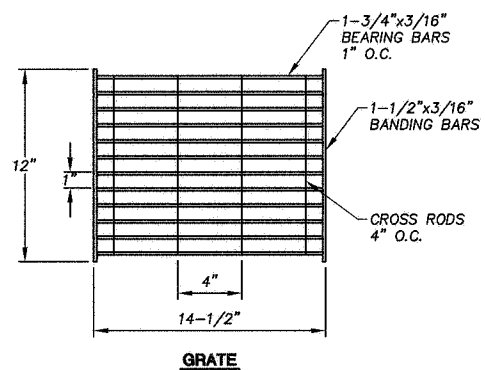


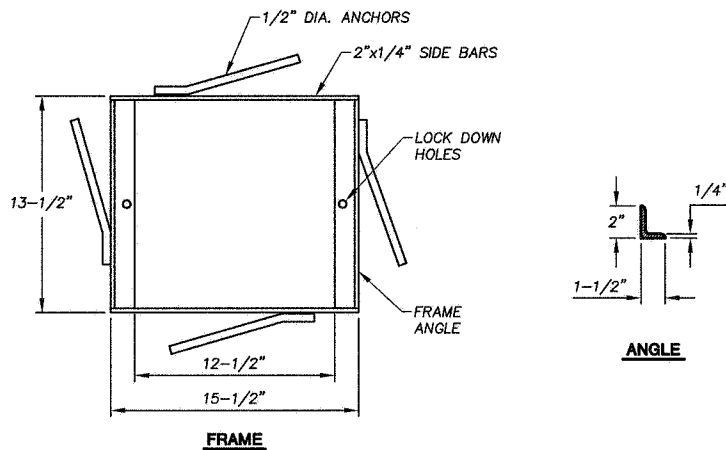


CONCRETE APRON

SCALE: N.T.S.



GRATE

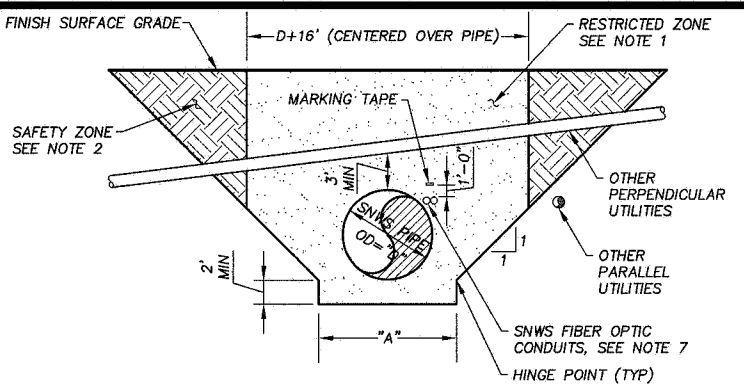


FRAME

12"x12" GALVANIZED GRATE & FRAME DETAIL

SCALE: N.T.S.

Call before you Dig
Avoid Overhead Power Line
Contact. It's Costly.
Call before you Overhead
1-800-227-2800
1-702-227-2929
NEVADA POWER ENVIRONMENT AND
SAFETY SERVICES DEPARTMENT



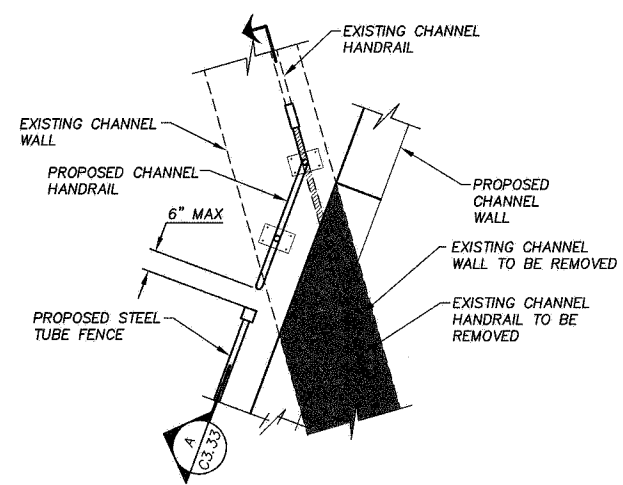
TYPICAL CROSS SECTION DETAIL

NOTES:

1. RESTRICTED ZONE: ALL EFFORTS SHALL BE MADE TO AVOID PARALLEL UTILITIES AND APPURTENANT STRUCTURES IN THE RESTRICTED ZONE. UTILITIES MAY CROSS PERPENDICULARLY THROUGH BOTH THE SAFETY AND RESTRICTED ZONES PROVIDED THAT THE VERTICAL CLEARANCES OF 3' ABOVE AND 2' BELOW THE SNWA FACILITIES ARE MAINTAINED. DESIGNS THAT DO NOT MEET THE MINIMUM CLEARANCE SHALL BE COORDINATED AND APPROVED BY SNWA.
2. SAFETY ZONE: ALL REASONABLE EFFORTS SHALL BE MADE TO LOCATE PARALLEL UTILITIES AND APPURTENANT STRUCTURES LOCATED WITHIN THIS ZONE SHALL BE DESIGNED TO MINIMIZE IMPACT ON THE MAINTENANCE ACCESS OF SNWS FACILITIES. THE BOUNDARIES OF THE SAFETY ZONE ARE ESTABLISHED BY A 1:1 SLOPE EXTENDING FROM THE HINGE POINTS OF DIMENSION "A" TO THE FINISH SURFACE GRADE ON EACH SIDE OF SNWA PIPELINE. THE DESIGN OF UTILITIES IN THE SAFE ZONE SHALL BE COORDINATED AND APPROVED BY SNWA.
3. DIMENSION "D" IS EQUAL TO THE OUTSIDE DIAMETER OF THE SNWA PIPE. DIMENSION "A" IS EQUAL TO "D" PLUS 4'.
4. THE SNWS PIPELINE MAY EMPLOY A CATHODIC PROTECTION SYSTEM THAT WILL MITIGATE ADVERSE IMPACTS FROM CATHODIC PROTECTION SYSTEM ON EXISTING FACILITIES. ALL OTHER UTILITIES IN THE VICINITY OF THE SNWS FACILITIES WILL BE RESPONSIBLE TO COORDINATE WITH SNWS FOR THE PROTECTION OF THEIR NEW FACILITIES FROM STRAY ELECTRICAL CURRENTS.
5. HORIZONTAL AND VERTICAL SEPARATION OF SANITARY SEWERS AND STORM DRAINS FROM POTABLE FACILITIES MUST COMPLY WITH THE "DESIGN AND CONSTRUCTION STANDARDS FOR WASTEWATER COLLECTION SYSTEM" FOR SOUTHERN NEVADA.
6. ALL POWER LINES (INCLUDING STREETLIGHT AND TRAFFIC SIGNAL CONDUIT(S)) CROSSING SNWS PIPELINE SHALL BE ENCASED IN RED CONCRETE (3000 PSI MINIMUM) FOR A MINIMUM OF TEN (10) FEET PAST THE OUTSIDE DIAMETER OF THE SNWS PIPELINE IN BOTH DIRECTIONS.
7. SNWS FIBER OPTIC CONDUIT PARALLELS SNWS PIPELINE WITHIN THE SAME TRENCH AS THE PIPELINE.

UTILITY SEPARATION GUIDELINE

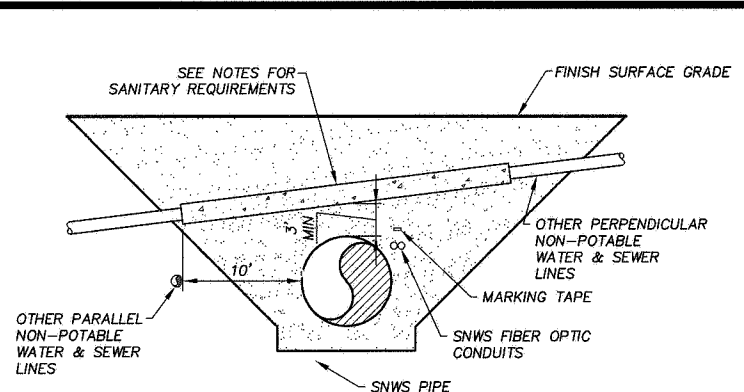
SCALE: N.T.S.



CHANNEL HANDRAIL MODIFICATIONS

SCALE: N.T.S.

Southern Nevada Water Authority
SNWA APPROVAL IS VALID FOR (1) YEAR FROM THE SIGNATURE
DATE: 5/12/09
DATE: 5/12/09
PIPE SAFETY ZONE IS NOT COMPLETE. PLANS MUST BE RESUBMITTED
TO SNWA FOR APPROVAL.



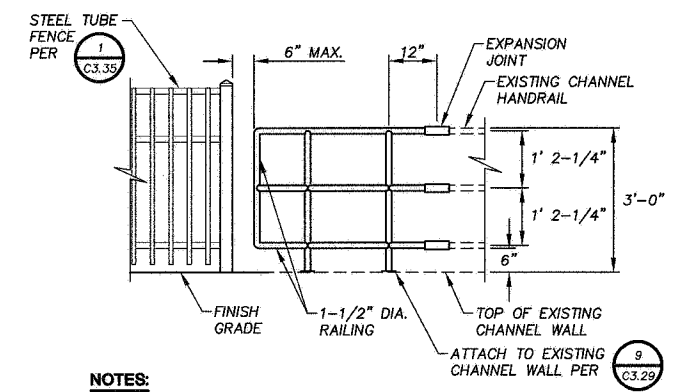
NON-POTABLE WATER AND SEWER GUIDELINES

NOTES:

1. ALL NON-POTABLE WATER OR SEWER LINE CROSSINGS AT ANY DISTANCE ABOVE THE SNWS PIPELINE AND LESS THAN TWO (2) FEET BELOW THE WATER MAIN WILL BE CONSTRUCTED USING ONE OF THE FOLLOWING OPTIONS FOR A MINIMUM OF TEN (10) FEET PAST THE OUTSIDE DIAMETER ON EACH SIDE OF THE CROSSING AND AT ANY DISTANCE ABOVE THE WATER MAIN AND LESS THAN TWO (2) FEET BELOW IT.
A. THE LINE WILL BE INSTALLED IN A STEEL SLEEVE WITH A MINIMUM THICKNESS OF 1/4".
B. THE LINE WILL BE CONSTRUCTED OF WATER QUALITY MATERIALS MEETING AWWA STANDARDS.
C. THE LINE WILL BE TOTALLY ENCASED WITH A MINIMUM OF 4 INCHES OF CLSM (3000 PSI ±) ENCASUREMENT. THIS OPTION WILL NOT BE PERMITTED FOR ASBESTOS CEMENT PIPE.
D. STORM SEWERS 24" IN DIAMETER OR GREATER MAY BE INSTALLED WITH WATER TIGHT JOINTS USING EITHER JOINT SEALANTS OR GASKETS.
2. ALL PARALLELING NON-POTABLE WATER AND SEWER LINES AND APPURTENANT STRUCTURES MUST BE LOCATED 10' AWAY FROM THE OUTSIDE DIAMETER OF THE SNWA'S LINE.
3. ALL NON-POTABLE WATER AND SEWER UTILITIES CROSSING SNWS LINES MUST MAINTAIN A MINIMUM 3' SEPARATION WHEN INSTALLED OVER SNWS LINES AND A MINIMUM OF 2' SEPARATION WHEN INSTALLED BELOW SNWS PIPELINES. DESIGNS THAT DO NOT MEET THE MINIMUM CLEARANCE SHALL BE COORDINATED AND APPROVED BY SNWA.

NON-POTABLE WATER AND SEWER GUIDELINES

SCALE: N.T.S.



NOTES:

1. ALL PARTS SHALL BE ALUMINUM SCHEDULE 40 OR GALVANIZED STEEL. CONTRACTOR TO VERIFY EXISTING CHANNEL HANDRAIL MATERIAL PRIOR CONSTRUCTION AND MATCH EXISTING.
2. HANDRAIL SHALL BE PAINTED TO MATCH THE EXISTING CHANNEL HANDRAIL.
3. COST OF THE CHANNEL HANDRAIL TO BE CONSIDERED INCIDENTAL TO THE CONSTRUCTION OF THE CHANNEL TRANSITION (STA 160+83 TO STA 161+83). NO DIRECT PAYMENT.

SECTION

SCALE: N.T.S.

CONTRACTOR SHALL FIELD LOCATE AND PROTECT ALL SNWA/SNWS APPURTENANCES INCLUDING, BUT NOT LIMITED TO A/VAR, ACCESS MANWAYS AND CATHODIC PROTECTION SYSTEMS. ALL ABOVE GROUND STRUCTURES AND AT GRADE STRUCTURES MUST BE ADJUSTED TO NEW GRADE AT CONTRACTORS EXPENSE. CATHODIC PROTECTION TEST STATIONS, RECTIFIERS, AND A/VAR'S MUST BE RELOCATED TO THE SIDEWALK PER SNWA STANDARDS, AND AT THE CONTRACTORS EXPENSE. CONTRACTOR TO NOTIFY SOUTHERN NEVADA WATER AUTHORITY, DEVELOPMENT PLAN REVIEW, AT (702) 862-3444 AT LEAST 48 HOURS PRIOR TO CONSTRUCTION ACTIVITY.

PBSJ
2270 Corporate Circle Drive
Suite 100
Henderson, Nevada 89074
Telephone: 702/263-7275
Fax: 702/263-7200

DEPARTMENT OF PUBLIC WORKS
ENGINEERING DESIGN SECTION
CITY ENGINEER: CHERI EDELMAN, P.E.
CITY PROJECT ENGINEER: MICHAEL STURDIVANT, P.E.
PROJECT MANAGER: ANGELO SPATA, P.E.
DESIGN BY: SIBS
CHECK BY: AAS
DATE: MAY 2009
DRAWN BY: AV
TITLE: OAKLEY/MEADOWS STORM DRAIN
PHASE 1
CHARLESTON BOULEVARD TO ALTA DRIVE
SHEET: 70 of 139
DRAWING# 327V284
ANGELLO A. SPATA
EXP. 06-30-10
CIVIL
No. 15753
STATE OF NEVADA
Professional Engineer Seal