NORTH TRUCKEE DRAIN REALIGNMENT
PHASE 1
IMPROVEMENT PLANS
PUBLIC WORKS PROJECT NO. WA-2014-011
BID NO. 13/14-007

OCTOBER, 2013

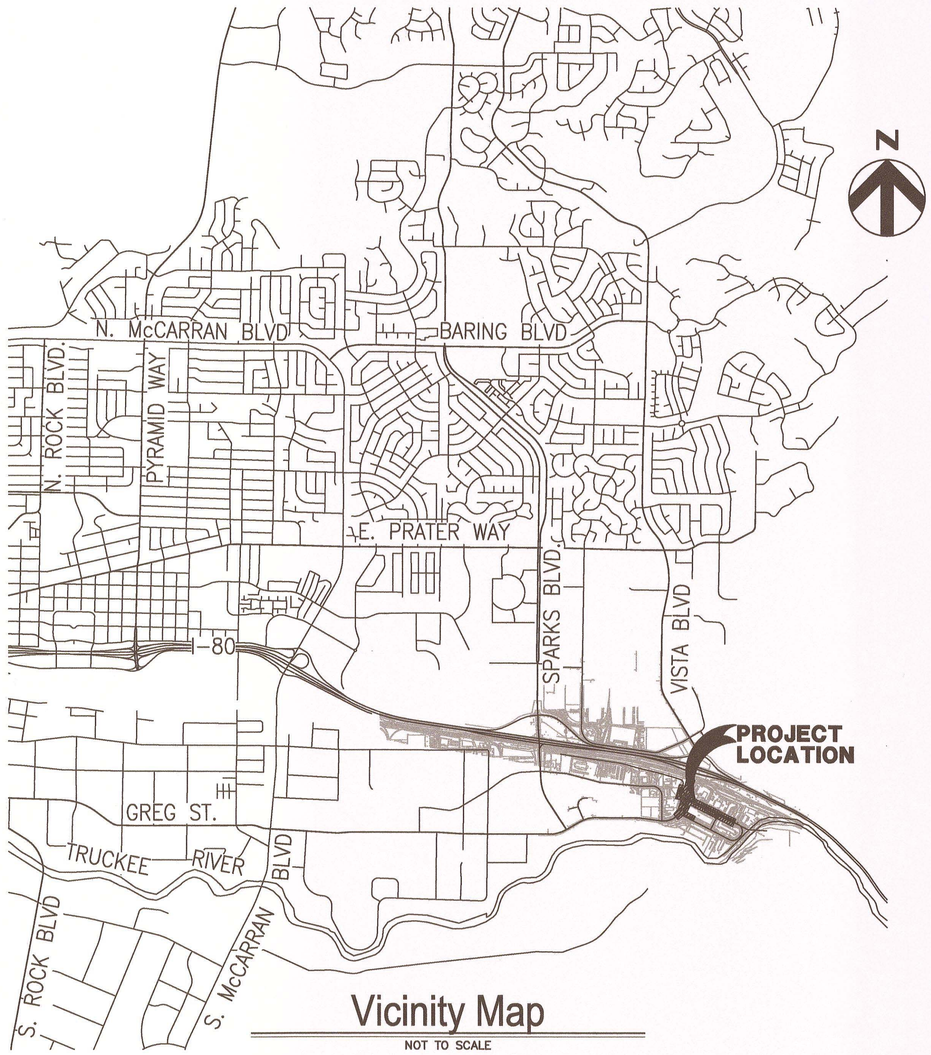
City of Sparks Officials

Geno Martini, Mayor
Julia Ratti, Council Member Ward 1
Ed Lawson, Council Member Ward 2
Ron Smith, Council Member Ward 3
Mike Carrigan, Council Member Ward 4
Ron Schmitt, Council Member Ward 5
Shaun Carey, City Manager

"CITY OF SPARKS COMMUNITY SERVICES DEPARTMENT"

APPROVED BY: _____ DATE: 10-21-13
NEIL C. KRUTZ, P.E.
DEPUTY CITY MANAGER

APPROVED BY: _____ DATE: 10-21-13
ANDREW M. HUMMEL, P.E.
UTILITY MANAGER



Vicinity Map
NOT TO SCALE

Funding Source

CITY OF SPARKS

REV No	DATE	DESCRIPTION	APPROVED

DESIGNED BY: PEO
DRAWN BY: PEO
CHECKED BY: NL
APPROVED BY: NL
SCALE
HORIZ:
VERT:
FIELD BOOK

HDR Engineering, Inc.
9805 Double R Blvd.
Suite 101
Reno, NV 89521
Phone: 775-337-4700

City of Sparks

NORTH TRUCKEE DRAIN REALIGNMENT PHASE 1

COVER SHEET

CITY OF SPARKS, NEVADA, PUBLIC WORKS DEPARTMENT

PROFESSIONAL ENGINEER STATE OF NEVADA NOEL C. LAUGHLIN Exp: 12.31.13 CIVIL No. 10151
10/18/13

SHEET No
G-1

SHT OF

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Index of Sheets

TMWA SHEETS

NV ENERGY SHEETS

ABBREVIATIONS

AC = ASPHALTIC CONCRETE
ACI = AMERICAN CONCRETE INSTITUTE
ACP = ASBESTOS CEMENT PIPE
A/E = ARCHITECT / ENGINEER
ABAN = ABANDON
ANSI = AMERICAN NATIONAL STANDARDS INSTITUTE
APN = ASSESSOR'S PARCEL NUMBER
APRX. = APPROXIMATELY
ASSY = ASSEMBLY

ABBREVIATIONS (Continued)

AVAR = AIR VACUUM AIR RELIEF (VALVE)
AGGR = AGGREGATE
AGG. = AGGREGATE
APPROX = APPROXIMATE
APPD = APPROVED
ASTM = AMERICAN SOCIETY FOR TESTING AND STANDARDS
ASSHTO = AMERICAN ASSOC. OF STATE HIGHWAY & TRANS. OFFICIALS
AWWA = AMERICAN WATER WORKS ASSOCIATION
BC = BACK OF CURB
BCR = BEGIN CURB RETURN
BF = BOTH FACES, BOTTOM FACE
BFC = BACK FACE OF CURB
BFV = BUTTERFLY VALVE
BM = BENCHMARK
BR = BRIDGE
BRW = BOTTOM ROCKERY WALL
BW = BACK OF WALK
BVC = BEGIN VERTICAL CURVE
BW = BACK WALL
CATV = CABLE TELEVISION
C–C = CENTER TO CENTER
C&G = CURB AND GUTTER
C = CHANNEL
CB = CATCH BASIN
CFS = CUBIC FEET PER SECOND
CF or CU.FT. = CUBIC FEET
C.I. = CAST IRON
CL/℄ = CENTERLINE
CLSM = CONTROLLED LOW STRENGTH MATERIAL
CLR. or Cl. = CLEARANCE
CML&C = CONCRETE MORTAR LINED AND COATED
CMP = CORRUGATED METAL PIPE
CMU = CONCRETE MASONRY UNIT
CONC. = CONCRETE
CONST.JT. = CONSTRUCTION JOINT
CO = CLEANOUT
COL = COLUMN
COMP = COMPACT
CONSTR = CONSTRUCTION
COR = CITY OF RENO
CORP. = CORPORATION
CPLG. = COUPLING
CTB = CEMENT TREATED BASE
CTR = CENTER
CU.YD. = CUBIC YARD
CTRS. = CENTERS
D = DEPTH
DI = DROP INLET
D.I. = DUCTILE IRON
DIP = DUCTILE IRON PIPE
DIST = DISTRICT
DEMO = DEMOLISH OR DEMOLITION
DR = DRIVE OR DRAIN
℄ or DIA. = DIAMETER
DOC = DOCUMENT
DOM. = DOMESTIC
EA. = EACH
E.C. = END OF CURVE
EFF = EFFLUENT
EG = EXISTING GRADE/GROUND
E.F. = EACH OF FACE
EGL = ENERGY GRADE LINE
ELEC. = ELECTRICAL
ELEV./ EL = ELEVATION
ELL = ELBOW
ENGR. = ENGINEER
EP = EDGE OF PAVEMENT
ERW = EFFLUENT REUSE WATER
EXIST./ EX = EXISTING
(E) = EXISTING
EQ = EQUAL
ETC = ET CETERA
EVC = END VERTICAL CURVE
EW = EACH WAY
EWEF = EACH WAY EACH FACE
F.F./ FF = FINISH FLOOR
FCA = FLANGE COUPLING ADAPTER
FG = FINISH GRADE
F.L./ FL = FLOW LINE
FDTN = FOUNDATION
FH = FIRE HYDRANT
FLG = FLANGE
FO = FINISHED OPENING
FOC = FACE OF CURB
FTG = FOOTING
FO = FIBER OPTIC CABLE
FS = FINISH SURFACE
FT. = FEET
FTG = FOOTING
F.V. = FLUSH VALVE
FUT = FUTURE
G = GAS
GA = GAUGE
GAL. = GALLON
GALV = GALVANIZED
GB = GRADE BREAK
GIS = GEOGRAPHIC INFORMATION SYSTEM
G.V. = GATE VALVE
GRTG = GRATING
HERCP = HORIZONTAL ELLIPTICAL REINFORCED CONCRETE PIPE
HGL = HYDRAULIC GRADE LINE
HP = HIGH POINT
HPG = HIGH PRESSURE GAS
HW = HIGH WATER
INC. = INCORPORATED
I.D. = INSIDE DIAMETER
INV = INVERT
IE = INVERT ELEVATION
IRR. = IRRIGATION
KO = KNOCKOUT
K = KIPS
L= = LONG/ LENGTH
L / LT = LEFT OF
L.F./ LF = LINEAR FEET
LP = LOW POINT
LBS/LF = POUNDS PER LINEAR FEET
LLC = LIMITED LIABILITY COMPANY
MAX./ (MAX) = MAXIMUM
MC = MANHOLE COVER
MIN. = MINIMUM
MISC = MISCELLANEOUS
M.J. = MECHANICAL JOINT
ML = MAINLINE
(N) = NEW
N = NORTH OR NEUTRAL
NA = NOT APPLICABLE
NC = NORMALLY CLOSED
NDOT = NEVADA DEPARTMENT OF TRANSPORTATION
N.F. = NEAR FACE
NG = NATURAL GRADE
NO = NORMALLY OPEN
NTD = NORTH TRUCKEE DRAIN
NTS/ N.T.S. = NOT TO SCALE
O.C. = ON CENTER
O.E. = OR EQUAL
OHP = OVERHEAD POWER
O.D./ OD = OUTSIDE DIAMETER
OF/CI = OWNER FURNISHED CONTRACTOR INSTALLED
OGL = ORIGINAL GRADE LINE
OVFL = OVERFLOW
OSHA = OCCUPATIONAL SAFETY & HEALTH ADMIN.
PAVE = PAVEMENT
PBS = PLANTMIX BITUMINOUS SURFACE
(P) = PROPOSED
P.C./ PC = POINT OF CURVE
PCC = POINT OF COMPOUND CURVE
P.C.C. = PORTLAND CEMENT CONC.
PE = POLYETHYLENE
PEN = PENETRATE
PERP = PERPENDICULAR
P/L = PROPERTY LINE
PL = PLATE
PO = PUSH–ON
± = PLUS or MINUS
PPCBR = PORTABLE PRECAST BARRIER RAIL
PRELIM = PRELIMINARY
PRC = POINT REVERSE CURVE
PROP = PROPOSED
PRV = PRESSURE REDUCING VALVE
PSF = POUNDS PER SQUARE FOOT
PSI = POUNDS PER SQUARE INCH
PVG = PAVING
PT = POINT OF TANGENT
PVC = POLYVINYL CHLORIDE PIPE
PVI = POINT OF VERTICAL INTERSECTION
Q_{ult}100 = 100 YEAR ULTIMATE CONDITION DESIGN FLOW
QTY = QUANTITY
R / (R) = RADIUS OR RADIAL
R / RT = RIGHT OF
R & D = REMOVE AND DISPOSE
RCB = REINFORCED CONCRETE BOX
RCP = REINFORCED CONCRETE PIPE
RED = REDUCER
REF = REFERENCE
REINF = REINFORCEMENT
RES = RESTRAINED
RGRCP = RUBBER GASKET REINFORCED CONCRETE PIPE
RTC = REGIONAL TRANSPORTATION COMMISSION
RR = RAILROAD
R/W / ROW = RIGHT–OF–WAY
REQ'D = REQUIRED 23
ROS = RECORD OF SURVEY
R–O–W = RIGHT OF WAY
SAN = SQUARE FOOT
SD = STORM DRAIN
SDMH = STORM DRAIN MANHOLE
SDPWC = STANDARD DETAILS FOR PUBLIC WORKS CONSTRUCTION
SDR / DR = STANDARD DIMENSION RATIO
SF = SQUARE FEET
SHT = SHEET
SIM = SIMILAR
SLV = SLEEVE
SPEC = SPECIFICATION
SQ = SQUARE
SQ.FT. = SQUARE FEET
SS = SANITARY SEWER
SSMH = SANITARY SEWER MANHOLE
SSPC = SOCIETY FOR PROTECTIVE COATINGS
SSPWC = STANDARDS SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION
STA = STATION
STD.DWG.NO. = STANDARD DRAWING NUMBER
STL = STEEL
ST = STAINLESS STEEL
SST = STAINLESS STEEL
S/W / SW = SIDEWALK
SPA. = SPACING
STD. = STANDARD
TB = THRUST BLOCK
T&B = TOP AND BOTTOM
TC = TOP OF BACK OF CURB
TECS = TMWA ENGINEERING & CONSTRUCTION SPECS TRANSPORTATION
TELE / TEL = TELEPHONE
TEMP = TEMPORARY
T / THK = THICK
TM = TRACT MAP
TMH = TOP OF MANHOLE
TMWA = TRUCKEE MEADOWS WATER AUTHORITY
THW = THERMO PLASTIC HEAT AND WATER RESISTANT
TOE = TOE OF CHANNEL
TOP = TOP OF CHANNEL
TOC = TOP OF CURB
TOF = TOP OF FOOTING
TP = TELEPHONE POLE
TR = TRANSITE
TRANS = TRANSITION
TRW = TOP ROCKERY WALL
TW = TOP OF WALL
(TYP) / (TYP.) = TYPICAL
UGE = UNDER GROUND ELECTRICAL
UL = UNDERWRITERS LABORATORY
UNO = UNLESS NOTED OTHERWISE
U.O.N. = UNLESS OTHERWISE NOTED
UPRR = UNION PACIFIC RAILROAD
U.S. = UNITED STATES
USGS = UNITED STATES GEOLOGICAL SURVEY
USACE = UNITED STATES ARMY CORP OF ENGINEERS
VA = VALVE
V.C. = VERTICAL CURVE
VCP = VITRIFIED CLAY PIPE
V.G. = VALLEY GUTTER
VC = VERTICAL CURVE
VERT = VERTICAL
W = WATER
W/ = WITH
WWF = WELDED WIRE FABRIC
W.O. = WORK ORDER
WM = WATER METER
XTC = X–TRU COAT PIPE

REV No.	DATE	DESCRIPTION	APPROVED

DESIGNED BY: PEO
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Phone: 775–337–4700

City of Sparks

NORTH TRUCKEE DRAIN REALIGNMENT PHASE 1

INDEX OF SHEETS

CITY OF SPARKS, NEVADA, PUBLIC WORKS DEPARTMENT

STATE OF NEVADA — PROFESSIONAL ENGINEER — NOEL C. LAUGHLIN — Exp. 12.31.13 — CIVIL — No. 10169 — 10-18-13

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GENERAL NOTES

1. ALL CONSTRUCTION AND MATERIALS SHALL CONFORM TO THE CONTRACT DOCUMENTS.
2. IN ACCORDANCE WITH GENERALLY ACCEPTED CONSTRUCTION PRACTICES, THE CONTRACTOR WILL BE SOLELY AND COMPLETELY RESPONSIBLE FOR THE CONDITIONS OF THE JOB SITE INCLUDING SAFETY OF ALL PERSONS AND PROPERTY DURING PERFORMANCE OF THE WORK. THIS REQUIREMENT WILL APPLY CONTINUOUSLY AND SHALL NOT BE LIMITED TO NORMAL WORKING HOURS.
3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE DESIGN AND CONSTRUCTION OF PROPER SHORING OF TRENCHES IN ACCORDANCE WITH OCCUPATIONAL SAFETY LAWS. THE DUTIES OF THE PROJECT COORDINATOR DO NOT INCLUDE REVIEW OF THE ADEQUACY OF THE CONTRACTOR'S SAFETY IN, ON, OR NEAR THE CONSTRUCTION SITE.
4. SHOULD IT APPEAR THAT THE WORK TO BE DONE, OR ANY MATTER RELATIVE THERETO, IS NOT SUFFICIENTLY DETAILED OR EXPLAINED ON THESE PLANS, THE CONTRACTOR SHALL CONTACT THE PROJECT COORDINATOR FOR SUCH FURTHER EXPLANATIONS AS MAY BE NECESSARY.
5. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING AND MAINTAINING THE STORMWATER POLLUTION PREVENTION PLAN (SWPPP). THE CONTRACTOR SHALL MAINTAIN ALL EXISTING DRAINAGE FACILITIES WITHIN THE CONSTRUCTION AREA UNTIL NEW DRAINAGE IMPROVEMENTS ARE IN PLACE AND FUNCTIONAL OR UNTIL COMPLETION OF CONSTRUCTION. THE CONTRACTOR SHALL TAKE ALL NECESSARY AND PROPER PRECAUTIONS TO PROTECT ADJACENT PROPERTIES FROM ANY AND ALL DAMAGE THAT MAY OCCUR FROM STORM WATER RUNOFF AND/OR DEPOSITION OF DEBRIS RESULTING FROM ANY AND ALL WORK IN CONNECTION WITH CONSTRUCTION.
6. THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING ADEQUATE CONVEYANCE OF STORM RUNOFF AND NORMAL BASE FLOWS THROUGH THE SITE DURING CONSTRUCTION. THE SWPPP PRODUCED BY THE CONTRACTOR WILL DESCRIBE HOW OFF SITE FLOWS WILL BE HANDLED DURING CONSTRUCTION.
7. THE CONTRACTOR SHALL TAKE REASONABLE MEASURES TO PROTECT EXISTING IMPROVEMENTS FROM DAMAGE. ALL SUCH IMPROVEMENTS DAMAGED BY THE CONTRACTOR'S OPERATION SHALL BE REPAIRED OR RECONSTRUCTED TO THE OWNER'S SATISFACTION AT THE EXPENSE OF THE CONTRACTOR.
8. IN AREAS WHERE TREES MAY BE IMPACTED OR ARE INTERFERING WITH CURB/GUTTER AND/OR SIDEWALK AND DRIVEWAY APRONS, THE CONTRACTOR SHALL SCHEDULE ALL WORK REQUIRED TO REMOVE TREES AND BUILD IMPROVEMENTS WITH THE CITY OF SPARKS PARKS MAINTENANCE AT 353-2369 WITH AT LEAST A THREE (3) DAY ADVANCE NOTICE. THE CONTRACTOR SHALL EMPLOY AN ISA CERTIFIED ARBORIST TO TRIM TREE ROOTS PER THE INSTRUCTION OF THE CITY OF SPARKS PARKS DEPARTMENT.
9. THE CONTRACTOR SHALL BE RESPONSIBLE FOR IMMEDIATE OFF-SITE DISPOSAL OF ALL BITUMINOUS PAVEMENTS, PORTLAND CEMENT CONCRETE AND REINFORCING STEEL, AND SPOILS.
10. THE LOCATION OF EXISTING UTILITIES SHOWN ON THESE DRAWINGS IS BASED ON THE BEST INFORMATION AVAILABLE TO THE PROJECT COORDINATOR. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO VERIFY THESE LOCATIONS PRIOR TO BEGINNING CONSTRUCTION. SHOULD THE CONTRACTOR FIND ANY DISCREPANCIES BETWEEN THE CONDITION EXISTING IN THE FIELD AND THE INFORMATION SHOWN ON THESE DRAWINGS, THE CONTRACTOR SHALL NOTIFY THE PROJECT COORDINATOR BEFORE PROCEEDING WITH CONSTRUCTION.
11. THE CONTRACTOR SHALL CALL 1-800-227-2600 FOR UTILITY LOCATIONS AT LEAST TWO WORKING DAYS PRIOR TO CONSTRUCTION.
12. THE CONTRACTOR SHALL HAVE THE EXISTING UNDERGROUND UTILITIES LOCATED IN THE CONSTRUCTION AREA. UNDERGROUND UTILITIES DAMAGED BY THE CONTRACTOR DUE TO NEGLIGENCE SHALL BE REPAIRED AT THE CONTRACTOR'S EXPENSE.
13. THE CONTRACTOR SHALL HIRE A CULTURAL RESOURCES MONITOR WHO IS APPROVED BY THE CITY OF SPARKS. THE CULTURAL RESOURCES MONITOR SHALL BE PRESENT DURING CONSTRUCTION TO OBSERVE EXCAVATION ACTIVITIES.
14. THE CONTRACTOR IS RESPONSIBLE FOR COORDINATION WITH BUSINESSES ADJACENT TO LARKIN CIRCLE DURING DISRUPTION OF TRAFFIC CAUSED BY CONSTRUCTION ACTIVITIES WITHIN LARKIN CIRCLE.
15. THE ENERGY GRADE LINE (EGL) AND HYDRAULIC GRADE LINE (HGL) SHOWN ON THE PROFILES FOR THE MAIN RCB REPRESENT THE COMPUTED LEVELS ASSOCIATED WITH A CONCURRENT 117-YEAR STORM EVENT FOR THE TRUCKEE RIVER AND THE NORTH TRUCKEE DRAIN WATERSHEDS. IN THIS SCENARIO, THE TAILWATER FROM THE TRUCKEE RIVER DICTATES THE MOST CONSERVATIVE HYDRAULIC CONDITION FOR THE NTD SYSTEM. THE HGL AND EGL SHOWN FOR THE PARALLEL AND LATERAL STORM DRAIN ARE BASED ON A LOCALIZED 100-YEAR STORM EVENT WITH FULL FLOW AT THE OUTLET.

	117 Year Event
North Truckee Drain at Outfall	1,400 cfs
Truckee River at NTD Outfall	24,870 cfs

16. THE CONTRACTOR IS RESPONSIBLE FOR CONSTRUCTION DEWATERING AND OBTAINING THE PERMITS NECESSARY TO DISCHARGE THE WATER GENERATED BY THE OPERATION.
17. THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING ALL REQUIRED PERMITS AND CLEARANCES FOR STAGING AREAS, BORROW SITES, WASTE DISPOSAL SITES, AND ALL MATERIAL PROCESSING SITES. THE CONTRACTOR SHALL PROVIDE THE REQUIRED PERMITS AND CLEARANCES TO THE PROJECT COORDINATOR AT THE PRECONSTRUCTION MEETING.
18. THE WASTE DISPOSAL SITE(S) SHALL NOT BE LOCATED IN A WETLAND, WITHIN 200 FEET OF SURFACE WATER, OR IN AN AREA THAT ADVERSELY AFFECTS WILDLIFE, RECREATION, AESTHETIC VALUE OF AN AREA, OR ANY THREATENED OR ENDANGERED SPECIES, AS APPROVED BY THE PROJECT COORDINATOR AND THE CITY OF SPARKS.
19. ALL COSTS ASSOCIATED WITH FURNISHING WASTE DISPOSAL SITE(S), DISPOSING OF WASTE, MAINTAINING CONTROL OF ACCESS (FENCE, GATES, AND SIGNS), AND RECLAMATION OF THE WASTE DISPOSAL SITE(S) SHALL BE INCIDENTAL TO THE VARIOUS CONTRACT ITEMS.
20. THE CONTRACTOR SHALL GIVE WRITTEN NOTICE, WITH A COPY TO THE CITY OF SPARKS AND THE NEVADA DIVISION OF ENVIRONMENTAL PROTECTION (NDEP), 30 DAYS PRIOR TO THE START OF WORK. IN ADDITION, THE CONTRACTOR SHALL GIVE WRITTEN NOTICE TO THE PROJECT COORDINATOR 7 DAYS PRIOR TO THE COMMENCEMENT OF THE WORK SO THE PROJECT COORDINATOR MAY NOTIFY NDEP OF THE DAY WORK WILL START.
21. THE CONTRACTOR SHALL GIVE NOTICE TO THE PROJECT COORDINATOR WHEN CONTAMINATED SOIL IS ENCOUNTERED ON THE PROJECT. THE PROJECT COORDINATOR WILL CONTACT THE CITY SO THEY CAN CONTACT THE NDEP TO INSPECT AND MONITOR REMOVAL OF ANY CONTAMINATED SOIL.

BASIS OF BEARING

BASIS OF BEARING FOR THIS SURVEY BEING THE CITY OF SPARKS MODIFIED 83/94 NEVADA STATE COORDINATE PLANE SYSTEM WEST ZONE ALL DISTANCES AND COORDINATES SHOWN ARE GROUND. VALUES TO OBTAIN GRID VALUES DIVIDE THOSE SHOWN BY THE COMBINED FACTOR OF 1.000197939

BENCHMARK

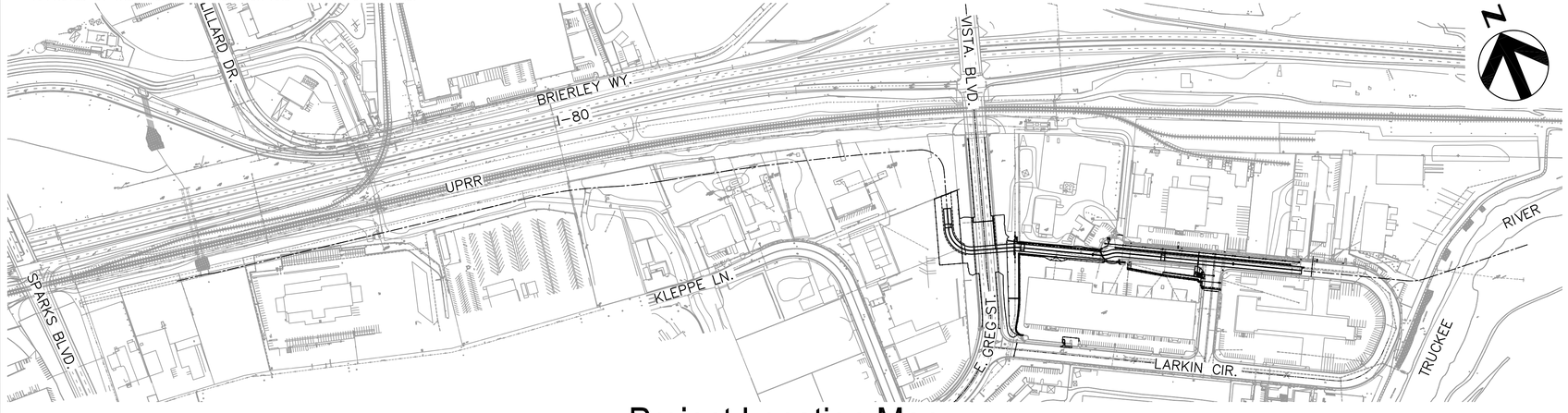
BASIS OF ELEVATIONS BEING THE CITY OF SPARKS NAVD88 VERTICAL CONTROL NETWORK BASED FROM BM#43 = ELEVATION 4395.06 FEET.

PROPOSED FEATURES LEGEND

- TEE WITH GATE VALVE
- CHECK VALVE (SHADED IF EXISTING)
- FIRE HYDRANT ASSEMBLY
- 45° ELBOW, FLANGED
- 90° FLANGED ELBOW
- AIR/VAC
- THRUST BLOCK
- CAP/PLUG
- BACKFLOW PREVENTER
- WATER METER
- SLEEVE COUPLING
- MANHOLE
- CONSTRUCTION EASEMENT
- PERMANENT EASEMENT
- CENTERLINE
- CHANNEL/SLOPE
- MAJOR CONTOUR (1400)
- MINOR CONTOUR
- STORM DRAIN RCP
- STORM DRAIN RCB
- GRADE LINE
- FENCE LINE
- SAWCUT LINE
- CURB AND GUTTER
- ACCESS ROAD
- DAYLIGHT LINE
- EDGE OF PAVEMENT
- PROPERTY/RIGHT-OF-WAY LINE
- VAULT

EXISTING FEATURES LEGEND

- INDEX CONTOUR
- APPROXIMATE INDEX
- INDEX DEPRESSION
- INTERMEDIATE CONTOUR
- APPROXIMATE INTERMEDIATE
- INTERMEDIATE DEPRESSION
- EDGE OF PAVEMENT
- DIRT ROAD
- JEEP/FOOT TRAIL
- CURB LINE
- GUTTER/CONCRETE EDGE
- GUARD-RAIL
- RAILROAD
- FENCE
- RETAINING WALL
- FENCE ON RW
- BLOCK WALL
- MEDIAN WALL
- STONE WALL
- TRENCH/STOPE
- TAILINGS/TOE
- WATER EDGE
- INTERMITTENT DRAINAGE
- DITCH
- MISCELLANEOUS BOUNDARIES
- TREELINE
- BRUSHLINE
- SANITARY SEWER
- STORM DRAIN
- WATER
- IRRIGATION WATER
- UNDERGROUND ELECTRIC
- OVERHEAD UTILITY
- OVERHEAD SIGNAL
- OVERHEAD POWER/TV CABLE
- UNDERGROUND FIBER OPTICS
- GAS
- UNDERGROUND ELECTRIC ABANDONED
- N,E,Z CONTROL POINT
- Z ONLY CONTROL POINT
- SURVEY MONUMENT
- POWER POLES
- POLE ANCHOR
- TRANSMISSION TOWER
- LIGHT POLE
- POST/POLE
- SIGN
- FIRE HYDRANT
- MANHOLE
- SANITARY SEWER MANHOLE
- STORM DRAIN MANHOLE
- TELEPHONE MANHOLE
- VALVE COVER
- VALVE
- TRAFFIC SIGNAL
- R.R./CROSSWALK SIGNAL
- MAIL BOX
- MISC. OBJECT
- METER
- MARSH
- PROSPECT/EXCAVATION
- SHAFT
- UTIL. VAULT/BOX
- METER BOX
- STORM DRAIN CATCH BASIN
- BUILDING
- COVERED AREA
- EX. TREE



Project Location Map

NTS

DISCLAIMER NOTE

UTILITY LOCATIONS SHOWN HEREON ARE APPROXIMATE ONLY. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE THE EXACT HORIZONTAL AND VERTICAL LOCATION OF ALL EXISTING UNDERGROUND AND OVERHEAD UTILITIES PRIOR TO COMMENCING CONSTRUCTION. NO REPRESENTATION IS MADE THAT ALL EXISTING UTILITIES ARE SHOWN HEREON. THE ENGINEER ASSUMES NO RESPONSIBILITY FOR UTILITIES NOT SHOWN OR UTILITIES NOT SHOWN IN THEIR PROPER LOCATION.

Avoid cutting underground utility lines. It's costly.
Call before you Dig.
1-800-227-2600
UNDERGROUND SERVICE ALERT (USA)

SAFETY ALERT
Call before you Overhead
775-834-7590
NV Energy Construction Line
24hrs. Prior Notice Required
OVERHEAD SERVICE ALERT

REV No.	DATE	DESCRIPTION	APPROVED

DESIGNED BY: PEO
DRAWN BY: PEO
CHECKED BY: NL
APPROVED BY: NL
SCALE
HORIZ:
VERT:
FIELD BOOK

HDR Engineering, Inc.
9805 Double R Blvd, Suite 101
Reno, NV 89521
Phone: 775-337-4700

City of Sparks

NORTH TRUCKEE DRAIN REALIGNMENT PHASE 1
GENERAL NOTES, ABBREVIATIONS
LEGEND, BASIS OF BEARING, BENCHMARK
AND PROJECT LOCATION MAP
CITY OF SPARKS, NEVADA, PUBLIC WORKS DEPARTMENT

STATE OF NEVADA — NOEL C. LAUGHLIN — Exp.: 12/31/13 — CIVIL — No. 10169 — PROFESSIONAL ENGINEER — 10/18/13

SHEET No.
G-3
SHT OF

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NORTH TRUCKEE DRAIN – QUANTITIES

ITEM	DESCRIPTION	UNIT	QUANTITY
X	MOBILIZATION/DEMOBILIZATION/INSURANCE/BONDS/STAKING AND SURVEYING	LS	1
X	CLEARING AND GRUBBING	LS	1
X	TRAFFIC CONTROL	LS	1
X	DE-WATERING	LS	1
X	TEMPORARY POLLUTION CONTROL (CONTINGENT ITEM)	LS	1
X	REMOVE PLANTMIX BITUMINOUS SURFACE	SY	10874
X	REMOVE PORTLAND CEMENT CONCRETE (PCC) PAVEMENT	SY	59
X	REMOVE CONCRETE UTILITY PAD (STA 61+10)	EA	1
X	REMOVE PCC CURB AND GUTTER	LF	128
X	REMOVE SMALL DIAMETER STORM DRAIN PIPE (<19")	LF	1094
X	ABANDON IN PLACE 12"–15" CULVERT	LF	44
X	REMOVE SMALL STORM DRAIN STRUCTURE (SDMH OR DI)	EA	5
X	REMOVE AND REPLACE SANITARY SEWER (8")	LF	963
X	REMOVE AND REPLACE WATER LINE (1.25")	LF	70
X	REMOVE AND REPLACE WATER LINE (2")	LF	70
X	REMOVE AND REPLACE WATER LINE (6")	LF	210
X	REMOVE AND REPLACE LIGHT/UTILITY POLE	EA	1
X	REMOVE AND RESET FIRE HYDRANT (STA 60+55)	EA	1
X	REMOVE AND REPLACE CHAIN LINK FENCE	LF	864
X	REMOVE AND RESET SURVEY MONUMENTS	EA	2
X	OVEREXCAVATE UNSUITABLE MATERIAL AND BACKFILL WITH CLASS C (CONTINGENT ITEM)	CY	330
X	OVEREXCAVATE UNSUITABLE MATERIAL AND BACKFILL WITH STRUCTURAL FILL (CONTINGENT ITEM)	CY	330
X	OFFHAUL AND DISPOSAL OF CONTAMINATED SOILS (CONTINGENT ITEM)	CY	33[illegible]
X	GENERAL EXCAVATION AND OFFHAUL	CY	34852
X	BACKFILL MATERIAL – CLASS A OR CLASS C	CY	188
X	BACKFILL MATERIAL – STRUCTURAL FILL	CY	2677
X	BACKFILL MATERIAL – CLASS E	CY	20567
X	CONSTRUCT TYPE A CURB	LF	471
X	CONSTRUCT 24" TYPE 1 PCC CURB AND GUTTER	LF	39
X	CONSTRUCT TYPE 3 PCC CURB AND GUTTER	LF	260
X	CONSTRUCT 6' REINFORCED PCC VALLEY GUTTER	LF	138
X	CONSTRUCT 3' REINFORCED PCC VALLEY GUTTER	LF	5[illegible]2
X	CONSTRUCT PLANTMIX BITUMINOUS PAVEMENT (5" AC ON 8" BASE)	SY	4552
X	CONSTRUCT PLANTMIX BITUMINOUS PAVEMENT (3" AC ON 6" BASE)	SY	7170
X	REINFORCED CONCRETE BOX CULVERT (2–14'X10')	LF	1402
X	REINFORCED CONCRETE BOX CULVERT (2–14'X10') FOR BORE AND JACK / DEEP FILL	EA	206
X	BORE AND JACK (EQUIPMENT AND LABOR)	EA	206
X	INSTALL 8" PVC PIPE	LF	295
X	INSTALL 12" PVC PIPE	LF	168
X	INSTALL 15" PVC PIPE	LF	527
X	INSTALL 48" PRECAST REINFORCED CONCRETE MANHOLE	EA	11
X	INSTALL DROP INLET (TYPE 3–R)	EA	2
X	INSTALL MAINTENANCE ACCESS VAULTS FOR 2–14'X10' RCBs	EA	3
X	SS LIFT STATION (INCLUDING EARTHWORK, EQUIPMENT, CONTROLS, AND ENCLOSURES).	LS	1

NORTH TRUCKEE DRAIN – QUANTITIES

ITEM	DESCRIPTION	UNIT	QUANTITY
X	INSTALL 48" PRECAST REINFORCED CONCRETE MANHOLE	EA	11
X	INSTALL DROP INLET (TYPE 3–R)	EA	[illegible]
X	INSTALL MAINTENANCE ACCESS VAULTS FOR 2–14'X10' RCBs	EA	3
X	SS LIFT STATION (INCLUDING EARTHWORK, EQUIPMENT, CONTROLS, AND ENCLOSURES).	LS	1
X	PLACE 4" DASHED WHITE PAVEMENT MARKINGS (TYPE II PAINT)	[illegible]	1638
X	PLACE 4" SOLID WHITE PAVEMENT MARKINGS (TYPE II PAINT)	LF	3574
X	PLACE 4" DOUBLE SOLID YELLOW PAVEMENT MARKINGS (TYPE II PAINT)	LF	2683
X	PLACE 8" SOLID WHITE PAVEMENT MARKINGS (TYPE II PAINT)	LF	102
X	PLACE RED CURB MARKINGS (TYPE II PAINT)	LF	346
X	PLACE 24" SOLID WHITE STOP BAR STRIPE (PREFORMED THERMOPLASTIC)	LF	90
X	INSTALL FIRE HYDRANT MARKER (BLUE REFLECTOR)	EA	6
X	PLACE 8' HIGH WHITE DIRECTIONAL ARROW (PREFORMED THERMOPLASTIC)	EA	1
X	LANDSCAPING (REPAIR OR REPLACE IN KIND)	LS	1
X	IRRIGATION SYSTEMS (REPAIR OR REPLACE IN KIND)	LS	1

SEE BID ITEM SCHEDULE FOR UPDATED QUANTITIES

REV No | DATE | DESCRIPTION | APPROVED

DESIGNED BY: PEO
DRAWN BY: PEO
CHECKED BY: NL
APPROVED BY: NL
SCALE
HORIZ:
VERT:
FIELD BOOK

HDR Engineering, Inc.
9805 Double R Blvd.
Suite 101
Reno, NV 89521
Phone: 775-337-4700

City of Sparks

NORTH TRUCKEE DRAIN REALIGNMENT PHASE 1

QUANTITIES SHEET

CITY OF SPARKS, NEVADA, PUBLIC WORKS DEPARTMENT

STATE OF NEVADA PROFESSIONAL ENGINEER NOEL C. LAUGHLIN No. 10165 CIVIL Exp: 12-31-15 10-18-13

SHEET No G-4

SHT OF

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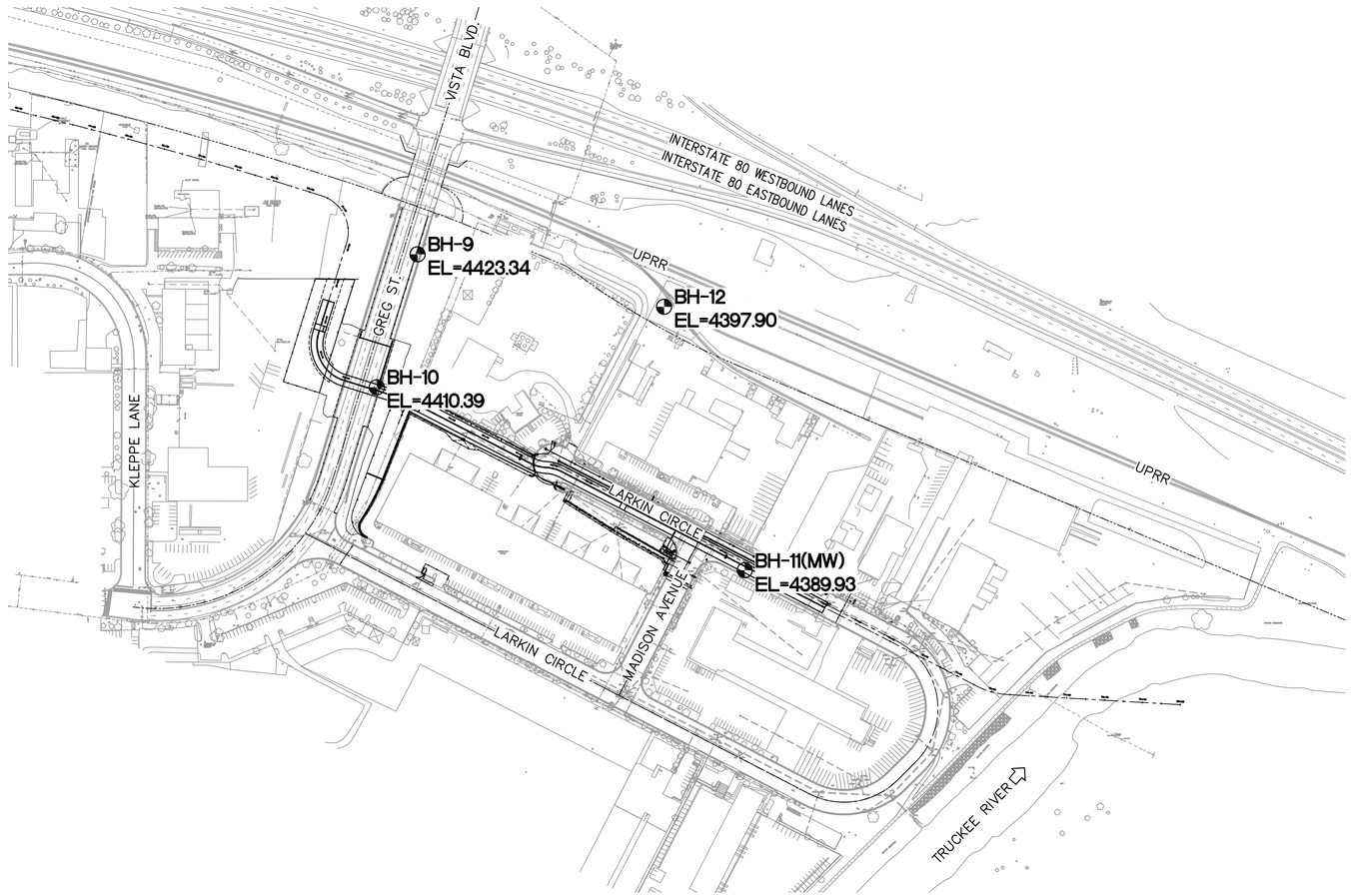
BORING LOCATIONS FROM CURRENT INVESTIGATION

PROPOSED ALIGNMENT

(MW) GROUND WATER MONITORING WELL

NOTE: BASE MAP AND ALIGNMENT PROVIDED BY HDR ENGINEERING.



N

200 0 200 400

SCALE IN FEET

REV No	DATE	DESCRIPTION	APPROVED

DESIGNED BY: PEO
DRAWN BY: PEO
CHECKED BY: NL
APPROVED BY: NL
SCALE
HORIZ: 1"=200'
VERT: N/A
FIELD BOOK

HDR
HDR Engineering, Inc.
9805 Double R Blvd,
Suite 101
Reno, NV 89521
Phone: 775-337-4700

City of Sparks

NORTH TRUCKEE DRAIN REALIGNMENT PHASE 1

BORING LOCATIONS PLAN

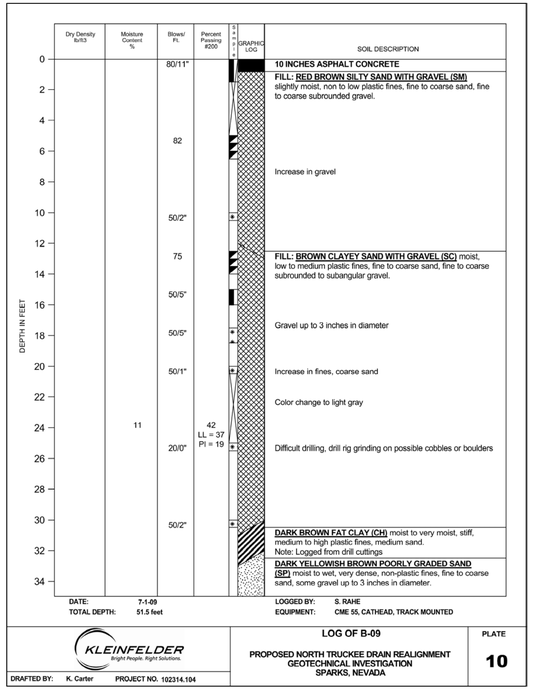
CITY OF SPARKS, NEVADA, PUBLIC WORKS DEPARTMENT

STATE OF NEVADA
NOEL C. LAUGHLIN
Exp 12-31-13
CIVIL
No. 10169
PROFESSIONAL ENGINEER
10-18-13

SHEET No
B-1

SHT OF

C:\pwworking\phx\d0295093\B-1.dwg 10/21/13 12:22pm poxborro



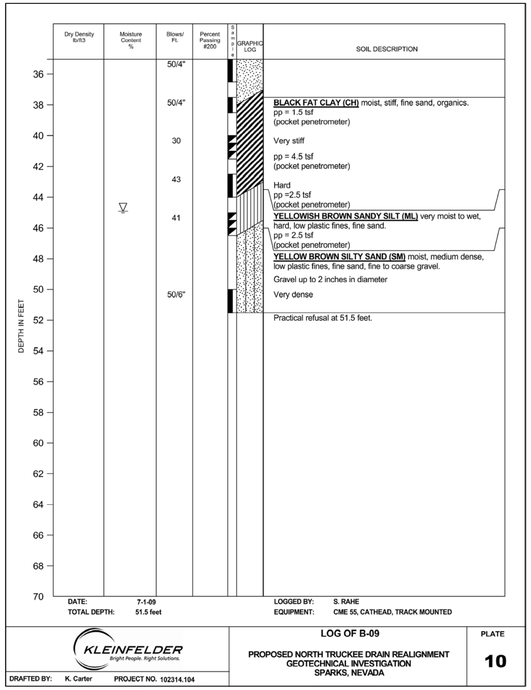
KLEINFELDER Bright People. Right Solutions.

DRAFTED BY: K. Carter PROJECT NO. 102314.104

LOG OF B-09

PROPOSED NORTH TRUCKEE DRAIN REALIGNMENT
GEOTECHNICAL INVESTIGATION
SPARKS, NEVADA

PLATE **10**



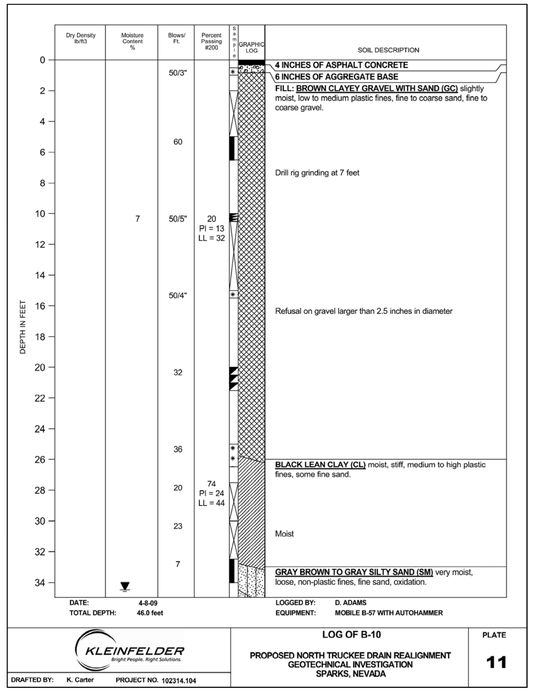
KLEINFELDER Bright People. Right Solutions.

DRAFTED BY: K. Carter PROJECT NO. 102314.104

LOG OF B-09

PROPOSED NORTH TRUCKEE DRAIN REALIGNMENT
GEOTECHNICAL INVESTIGATION
SPARKS, NEVADA

PLATE **10**



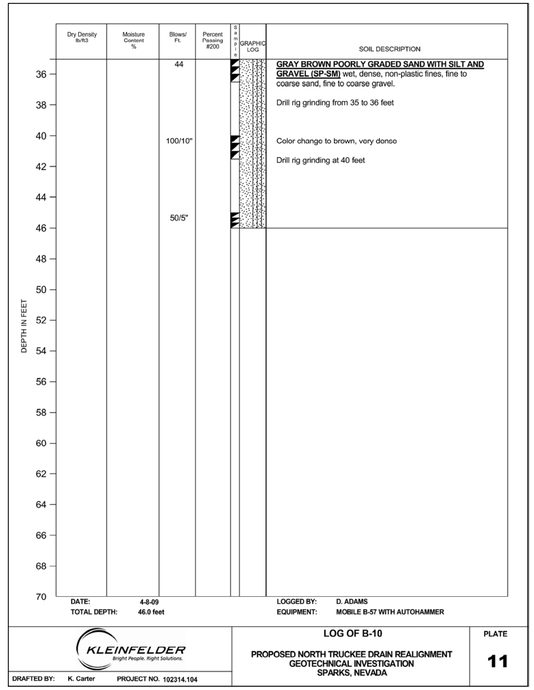
KLEINFELDER Bright People. Right Solutions.

DRAFTED BY: K. Carter PROJECT NO. 102314.104

LOG OF B-10

PROPOSED NORTH TRUCKEE DRAIN REALIGNMENT
GEOTECHNICAL INVESTIGATION
SPARKS, NEVADA

PLATE **11**



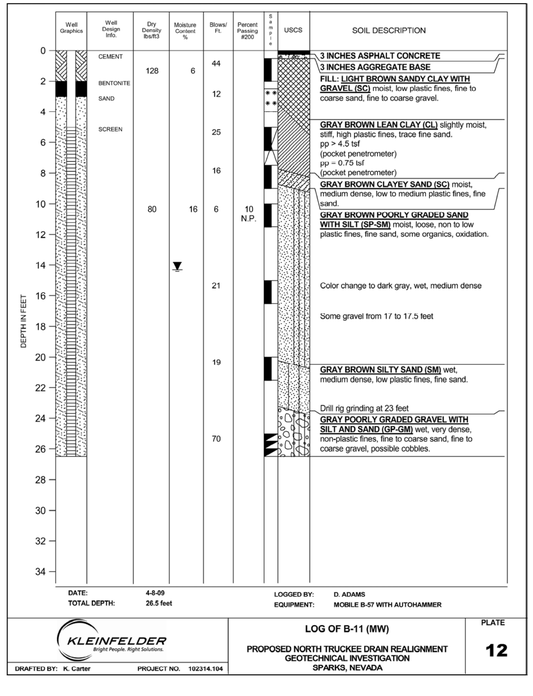
KLEINFELDER Bright People. Right Solutions.

DRAFTED BY: K. Carter PROJECT NO. 102314.104

LOG OF B-10

PROPOSED NORTH TRUCKEE DRAIN REALIGNMENT
GEOTECHNICAL INVESTIGATION
SPARKS, NEVADA

PLATE **11**



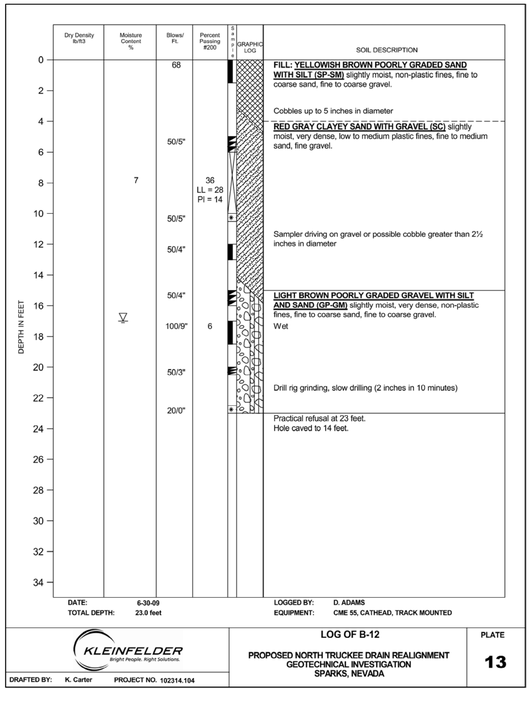
KLEINFELDER Bright People. Right Solutions.

DRAFTED BY: K. Carter PROJECT NO. 102314.104

LOG OF B-11 (MW)

PROPOSED NORTH TRUCKEE DRAIN REALIGNMENT
GEOTECHNICAL INVESTIGATION
SPARKS, NEVADA

PLATE **12**



KLEINFELDER Bright People. Right Solutions.

DRAFTED BY: K. Carter PROJECT NO. 102314.104

LOG OF B-12

PROPOSED NORTH TRUCKEE DRAIN REALIGNMENT
GEOTECHNICAL INVESTIGATION
SPARKS, NEVADA

PLATE **13**

THE UNIFIED SOIL CLASSIFICATION SYSTEM

MAJOR DIVISIONS			GROUP SYMBOLS	TYPICAL NAMES
COARSE GRAINED SOIL More than 50% of material is LARGER than the No. 200 sieve.	GRAVELS More than 50% of coarse part is LARGER than the No. 4 Sieve.	CLEAN GRAVELS Less than 5% finer than No. 200 Sieve.	GW	Well graded gravels, gravel - sand mixtures, little or no fines, Cu>4 & 1<Cc>3
			GP	Poorly graded gravels or gravel - sand mixtures, little or no fines Cu<4 or 1>Cc>3
		GRAVEL More than 12% finer than No. 200 Sieve.	GM	Silty gravels, gravel - sand - silt mixtures
			GC	Clayey gravels, gravel - sand - clay mixtures
	SANDS More than 50% of coarse part is SMALLER than the No. 4 Sieve.	CLEAN SANDS Less than 5% finer than No. 200 Sieve.	SW	Well graded sands, gravelly sands, little or no or no fines, Cu>6 & 1<Cc>3
			SP	Poorly graded sands or gravelly sands, little or no fines Cu<6 or 1>Cc>3
		SAND More than 12% finer than No. 200 Sieve.	SM	Silty sands, sand - silt mixtures
			SC	Clayey sands, sand - clay mixtures
FINE GRAINED SOIL More than 50% of material is SMALLER than the No. 200 sieve.	SILTS AND CLAYS Liquid limit LESS than 50	PI-Below A-Line	ML	Inorganic silts, rock flour, or clayey silts of low plasticity
		PI-Above A-Line	CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays
			OL	Organic silts & organic clays of low plasticity
	SILTS AND CLAYS Liquid limit GREATER than 50	PI-Below A-Line	MH	Inorganic silts, clayey silts, or silts of high plasticity
		PI-Above A-Line	CH	Inorganic clays of high plasticity, fat clays
			OH	Organic clays of medium to high plasticity, organic silts
HIGHLY ORGANIC SOILS			PT	Peat & other highly organic soils

BOUNDARY CLASSIFICATIONS: Soils possessing characteristics of two groups are designated by combinations of group symbols.

PARTICLE SIZE LIMITS

BOULDERS	COBBLES	GRAVEL		SAND			SILT	CLAY
		Coarse	Fine	Coarse	Medium	Fine		
12"	3"	3/4"		#4	#10	#40	#200	0.002 mm

DESCRIPTIVE TERMS USED WITH SOILS

CONSISTENCY & APPARENT DENSITY		
	SILTS & CLAYS	SANDS & GRAVELS
Strongest ↕ Weakest	Hard	Very Dense
	Very Stiff	Dense
	Stiff	Medium Dense
	Medium Stiff	Loose
	Soft	Very Loose
	Very Soft	

MOISTURE CONTENT	
Wettest ↕ Driest	Wet
	Very Moist
	Moist
	Slightly Moist
	Dry
▽ - Water Level Observed During Exploration	
▼ - Water Level Observed After Exploration	

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CAD FILE: L:\2009\Drafting\102314\Task 104\ LAYOUT: USCS

PLOTTED: 04 Nov 2009, 2:27pm, kcarter

ATTACHED IMAGES: XREFS: RENO, NV

KLEINFELDER Bright People. Right Solutions. www.kleinfelder.com

PROJECT NO.	102314.104
DRAWN:	AUGUST 27, 2009
DRAWN BY:	K. WUJCIK
CHECKED BY:	D. ADAMS
FILE NAME:	USCS.dwg

KEY TO SOIL CLASSIFICATION AND TERMS

PROPOSED NORTH TRUCKEE DRAIN REALIGNMENT
GEOTECHNICAL INVESTIGATION
SPARKS, NEVADA

PLATE **17**

SYMBOLS

- Disturbed Bag or Bulk Sample
- Standard Penetration Sample (1.4 inch I.D., 2.0 inch O.D.)
- Modified California (Porter) Sample (2.0 inch I.D., 2.56 inch O.D.)
- California Sample (2.5 inch I.D., 3 inch O.D.)
- No Sample Recovery
- Water Level Observed During Drilling
- Water Level Observed After Drilling

COMMENTS

NOTE: Blow count represents the number of blows required to drive a sampler through the last 12 inches of an 18 inch penetration. A standard 140 pound hammer with a 30.4 inch free fall is used to drive the sampler.

NOTE: The lines separating strata on the logs represent approximate boundaries only. The actual transition may be gradual. No warranty is provided as to the continuity of soil strata between borings.

CAD FILE: L:\2009\Drafting\102314\Task 104\ LAYOUT: KEY

PLOTTED: 04 Nov 2009, 2:28pm, kcarter

ATTACHED IMAGES: XREFS: RENO, NV

KLEINFELDER Bright People. Right Solutions. www.kleinfelder.com

PROJECT NO.	102314.104
DRAWN:	AUGUST 27, 2009
DRAWN BY:	K. WUJCIK
CHECKED BY:	D. ADAMS
FILE NAME:	USCS.dwg

KEY TO BORING LOGS

PROPOSED NORTH TRUCKEE DRAIN REALIGNMENT
GEOTECHNICAL INVESTIGATION
SPARKS, NEVADA

PLATE **18**

REV No	DATE	DESCRIPTION	APPROVED

DESIGNED BY: PEO
DRAWN BY: PEO
CHECKED BY: NL
APPROVED BY: NL
SCALE
HORIZ: 1"=200'
VERT: N/A
FIELD BOOK

HDR Engineering, Inc.
9805 Double R Blvd.
Suite 101
Reno, NV 89521
Phone: 775-337-4700

City of Sparks

NORTH TRUCKEE DRAIN REALIGNMENT PHASE 1

BORING LOGS, KEY TO SOIL CLASSIFICATION AND TERMS, KEY TO BORING LOGS

CITY OF SPARKS, NEVADA, PUBLIC WORKS DEPARTMENT

SHEET No **B-2**

SHT OF

"NTD", "LC" AND "G" LINE TABLE		
LINE	LENGTH	BEARING
L1	248.29'	S17°15'41"W
L2	172.50'	S72°44'26"E
L3	351.89'	S62°40'00"E
L4	1234.66'	S62°40'00"E
L5	1022.47'	N62°40'00"W
L14	739.50'	S17°10'03"W
L15	549.50'	S17°15'33"W

"NTD" AND "G" CURVE TABLE					
CURVE	LENGTH	RADIUS	DELTA	CHORD	CHORD BEARING
C1	157.08'	100.00'	90°00'07"	141.42'	S27°44'23"E
C2	17.58'	100.00'	10°04'26"	17.56'	N67°42'13"W
C3	43.07'	100.00'	24°40'42"	42.74'	S75°00'21"E
C4	43.07'	100.00'	24°40'43"	42.74'	N75°00'21"W
C13	681.82'	486.71'	80°15'53"	627.42'	N57°17'59"E

BIGBY AND ASSOC. CONTROL POINTS TABLE				
PNT. NO.	NORTHING	EASTING	ELEVATION	DESCRIPTION
87	14865227.4300	2311187.1710	4396.99'	5/8 REBAR W B&A CAP
89	14865571.7300	2311526.3510	4396.85'	5/8 REBAR W B&A CAP
93	14867829.2400	2307130.0450	4395.18'	5/8 REBAR W B&A CAP
95	14867787.1600	2307385.5760	4394.49'	5/8 REBAR W B&A CAP
97	14867669.8900	2307859.1420	4395.93'	5/8 REBAR W B&A CAP
108	14865647.8000	2309302.4900	4392.67'	PK NAIL W SHINER
112	14866876.2700	2308779.9500	4395.83'	PK NAIL W SHINER
415	14868283.7200	2306650.4700	4394.40'	5/8 REBAR W B&A CAP
417	14868138.2800	2306556.5100	4395.73'	5/8 REBAR W B&A CAP
418	14868089.2800	2306737.4900	4398.15'	PK NAIL W SHINER
1000	14865601.2400	2311248.4030	4389.51'	5/8 REBAR W B&A CAP
1001	14866039.2700	2310474.7350	4389.94'	5/8 REBAR W B&A CAP
1002	14866243.7500	2309751.0200	4406.69'	5/8 REBAR W B&A CAP
1003	14866817.2600	2309827.6500	4425.36'	5/8 REBAR W B&A CAP
1004	14867121.1500	2308176.9640	4398.71'	5/8 REBAR W B&A CAP
1005	14867347.9000	2307307.4890	4387.55'	5/8 REBAR W B&A CAP
1006	14867548.7600	2307355.4500	4397.63'	5/8 REBAR W B&A CAP
1007	14867556.8700	2306602.6500	4388.62'	5/8 REBAR W B&A CAP
1008	14867453.3300	2306584.8700	4391.67'	5/8 REBAR W B&A CAP
2015	14868155.7600	2307046.0400	4395.06'	BM-43
2038	14865253.5700	2310909.3060	4389.55'	GPS-2046

BACK OF CURB LINE TABLE		
LINE	LENGTH	BEARING
L6	22.83'	N62°27'08"W
L7	37.16'	S27°55'16"W
L11	10.33'	N27°20'00"E
L12	7.00'	S62°40'00"E
L13	7.48'	S62°40'00"E

BACK OF CURB CURVE TABLE					
CURVE	LENGTH	RADIUS	DELTA	CHORD	CHORD BEARING
C5	49.56'	53.50'	53°04'53"	47.81'	S02°56'52"W
C6	20.78'	7.50'	158°46'56"	14.74'	N55°47'54"E
C7	19.06'	8.00'	136°28'47"	14.86'	S09°18'26"W
C8	12.57'	8.00'	90°02'47"	11.32'	S17°25'44"E
C11	11.00'	3.50'	180°00'00"	7.00'	S62°40'00"E
C12	22.88'	15.00'	87°23'24"	20.72'	S73°41'07"W

CENTERLINE VALLEY GUTTER LINE TABLE		
LINE	LENGTH	BEARING
L8	158.43'	S62°40'00"E
L9	182.34'	N21°28'21"E
L10	5.76'	N63°06'05"W

CENTERLINE VALLEY GUTTER CURVE TABLE					
CURVE	LENGTH	RADIUS	DELTA	CHORD	CHORD BEARING
C9	133.38'	631.35'	12°06'15"	133.13'	S27°31'29"W
C10	50.62'	30.00'	96°40'41"	44.83'	S14°45'44"E

CENTERLINE SANITARY SEWER LINE TABLE		
LINE	LENGTH	BEARING
L16	247.51'	S62°40'00"E
L17	156.34'	S62°40'00"E
L18	215.29'	S62°40'00"E
L19	88.34'	S27°20'00"W
L20	4.57'	S17°40'00"E
L21	64.84'	S62°40'00"E

EDGE OF PAVEMENT LINE TABLE		
LINE	LENGTH	BEARING
L22	18.37'	S62°40'00"E
L23	18.81'	S62°40'00"E
L24	403.65'	N62°40'00"W
L25	353.03'	S20°02'11"W
L26	5.31'	S63°06'05"E
L27	22.91'	S27°20'00"W

EDGE OF PAVEMENT CURVE TABLE					
CURVE	LENGTH	RADIUS	DELTA	CHORD	CHORD BEARING
C14	79.81'	55.00'	83°08'17"	72.99'	S21°31'57"E

BENCHMARK AND BASIS OF BEARING

BASIS OF ELEVATIONS BEING THE CITY OF SPARKS NAVD88 VERTICAL CONTROL NETWORK BASED FROM BM#43 = ELEVATION 4395.06 FEET.

BASIS OF BEARING FOR THIS SURVEY BEING THE CITY OF SPARKS MODIFIED 83/94 NEVADA STATE COORDINATE PLANE SYSTEM WEST ZONE ALL DISTANCES AND COORDINATES SHOWN ARE GROUND VALUES TO OBTAIN GRID VALUES DIVIDE THOSE SHOWN BY THE COMBINED FACTOR OF 1.000197939

DISCLAIMER NOTE

UTILITY LOCATIONS SHOWN HEREON ARE APPROXIMATE ONLY. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE THE EXACT HORIZONTAL AND VERTICAL LOCATION OF ALL EXISTING UNDERGROUND AND OVERHEAD UTILITIES PRIOR TO COMMENCING CONSTRUCTION. NO REPRESENTATION IS MADE THAT ALL EXISTING UTILITIES ARE SHOWN HEREON. THE ENGINEER ASSUMES NO RESPONSIBILITY FOR UTILITIES NOT SHOWN OR UTILITIES NOT SHOWN IN THEIR PROPER LOCATION.

REV No	DATE	DESCRIPTION	APPROVED

DESIGNED BY: PEO
DRAWN BY: PEO
CHECKED BY: NL
APPROVED BY: NL
SCALE
HORIZ: 1"=60'
VERT: N/A
FIELD BOOK

HDR Engineering, Inc.
9805 Double R Blvd,
Suite 101
Reno, NV 89521
Phone: 775-337-4700

City of Sparks

NORTH TRUCKEE DRAIN REALIGNMENT PHASE 1

HORIZONTAL CONTROL PLAN

SHEET 1

CITY OF SPARKS, NEVADA, PUBLIC WORKS DEPARTMENT

PROFESSIONAL ENGINEER - STATE OF NEVADA
NOEL C. LAUGHLIN
Exp: 12·31·13
CIVIL
No. 10165
10·18·13

SHEET No
HC-1
SHT OF

BENCHMARK AND BASIS OF BEARING

BASIS OF ELEVATIONS BEING THE CITY OF SPARKS NAVD88 VERTICAL CONTROL NETWORK BASED FROM BM#43 = ELEVATION 4395.06 FEET.

BASIS OF BEARING FOR THIS SURVEY BEING THE CITY OF SPARKS MODIFIED 83/94 NEVADA STATE COORDINATE PLANE SYSTEM WEST ZONE ALL DISTANCES AND COORDINATES SHOWN ARE GROUND VALUES TO OBTAIN GRID VALUES DIVIDE THOSE SHOWN BY THE COMBINED FACTOR OF 1.000197939

NOTE:

SEE SHEET HC-1 FOR CONTROL POINTS TABLE, LINE TABLE AND CURVE TABLE.

N

60 0 60 120

SCALE IN FEET

UNION PACIFIC RAILROAD COMPANY

CP# 1003

NDOT

ANGLE PT = 19+60.65

UNION PACIFIC RAILROAD COMPANY

PARCEL D SLOPE EASEMENT PM 2717

PARCEL A SLOPE EASEMENT PM 2717

EAST GREG STREET

PT = 51+90.47

JEROME & BETH KRUG
APN 34-172-19
PM 2717

N 14866708.5640
E 2309687.0517
"NTD" STA 51+90.47

N 14866556.2231
E 2309639.7157
"NTD" STA 53+50.00

PC = 54+38.76

F&M PROPERTIES
APN 34-172-17
PM 2263

"NTD"

PT = 55+96.85

"G"

N 14866331.5091
E 2309726.7560
"NTD" 56+45.64
"G" 14+78.04

CP# 1002

PT = 12+21.15

F&M PROPERTIES
APN 34-172-08
TM 1901

F&M PROPERTIES
APN 34-172-08
TM 1901

PEAVINE LEASING LLC
APN 34-171-27
PM 2717

PC = 57+68.34

PT = 57+85.93

PC = 61+37.82

PRC = 61+80.89

PT = 62+23.96

N 14866190.3974
E 2309993.5804

N 14866126.4465
E 2310232.6108
"LC" STA 42+16.55

N 14866164.9388
E 2310212.9490

N 14866152.7953
E 2310186.0177

N 14866147.3099
E 2310183.3170

STATE OF NEVADA
APN 34-171-25

PEAVINE DRIVE

N 14866059.5544
E 2310241.7204

GV EGC LLC
APN 34-171-24
PM 2717

GV EGC LLC
APN 34-171-24
PM 2717

PARCEL A SLOPE EASEMENT PM 2717

PARCEL D SLOPE EASEMENT PM 2717

N 14866929.4430
E 2309741.1302

N 14865838.6737
E 2309886.7104

N 14865930.7128
E 2309735.3116

"LC"

S 62°40'00" E
LARKIN CIRCLE

N 14865827.4274
E 2309871.8782

SKK PROPERTIES
APN 34-171-42
ROS 2529

CP# 1001

LARKIN CIRCLE

N 14865926.2200
E 2310619.9894
"LC" STA 37+80.48
"MA" STA 10+00.00

MATCHLINE "NTD" STA 67+50
SEE BELOW LEFT FOR CONTINUATION

N 14865899.6580
E 2310517.2812

N 14865864.1759
E 2310593.3713

"MA"

"NTD"

PHILLIPS LIVING TRUST
APN 34-177-04
TM 4731

MADISON AVE.

S 27°20'00" W

N 14865837.1229
E 2310539.6524

N 14865865.6019
E 2310554.2455

N 14865792.9675
E 2310551.1144
"MA" STA 11+50.00

MATCHLINE "NTD" STA 67+50
SEE ABOVE RIGHT FOR CONTINUATION

SKK PROPERTIES
APN 34-171-42
ROS 2529

SKK PROPERTIES
APN 34-171-43
ROS 2529

RENO/SPARKS INVESTMENT PROP LLC
APN 34-171-41
PM 2071
PM 2285

PHILLIPS REV LIVING TRUST 1998
APN 34-171-33
PM 2285

N 14865781.7975
E 2310954.2133

N 14865783.1191
E 2311019.5321

N 14865656.9637
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N 14865537.8379
E 2311352.1551
"NTD" STA 74+58.62

"LC"

"NTD"

LARKIN CIRCLE

CP# 1000

N 14865745.2060
E 2310950.9597
"NTD" STA 70+07.00

PT = 31+94.08

PHILLIPS LIVING TRUST
APN 34-177-04
TM 4731

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DRAWN BY: PEO
CHECKED BY: NL
APPROVED BY: NL
SCALE
HORIZ: 1"=60'
VERT: N/A
FIELD BOOK

HDR Engineering, Inc.
9805 Double R Blvd.
Suite 101
Reno, NV 89521
Phone: 775-337-4700

City of Sparks

NORTH TRUCKEE DRAIN REALIGNMENT PHASE 1

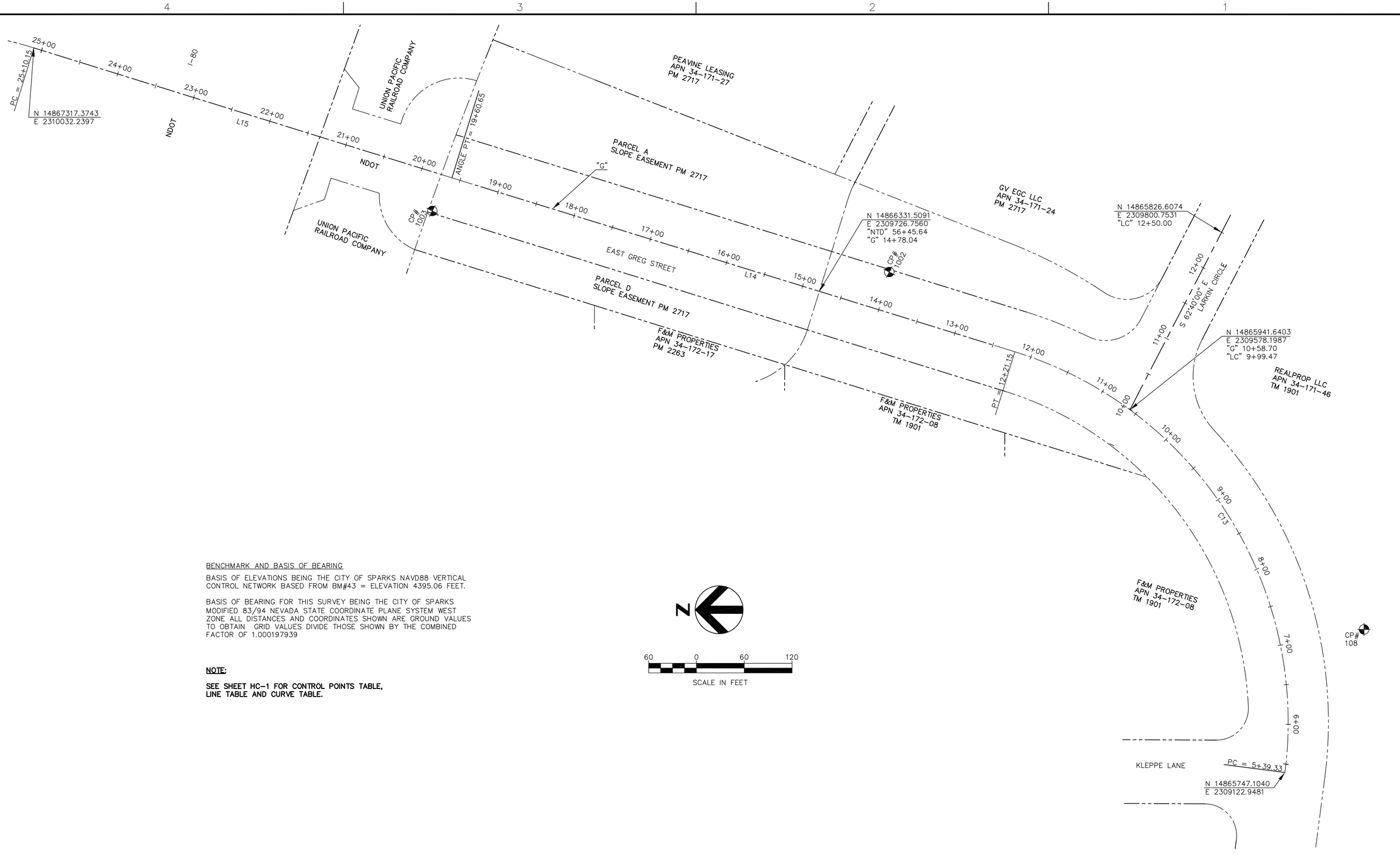
HORIZONTAL CONTROL PLAN
SHEET 2

CITY OF SPARKS, NEVADA, PUBLIC WORKS DEPARTMENT

NOEL C. LAUGHLIN
Exp. 12-31-13
CIVIL
No. 10195
STATE OF NEVADA
PROFESSIONAL ENGINEER
10-18-13

SHEET No
HC-2

SHT OF



BENCHMARK AND BASIS OF BEARING

BASIS OF ELEVATIONS BEING THE CITY OF SPARKS NAVD88 VERTICAL CONTROL NETWORK BASED FROM BM#43 = ELEVATION 4395.06 FEET.

BASIS OF BEARING FOR THIS SURVEY BEING THE CITY OF SPARKS MODIFIED 83/94 NEVADA STATE COORDINATE PLANE SYSTEM WEST ZONE ALL DISTANCES AND COORDINATES SHOWN ARE GROUND VALUES TO OBTAIN GRID VALUES DIVIDE THOSE SHOWN BY THE COMBINED FACTOR OF 1.000197939

NOTE:

SEE SHEET HC-1 FOR CONTROL POINTS TABLE, LINE TABLE AND CURVE TABLE.

N

60 0 60 120

SCALE IN FEET

REV No	DATE	DESCRIPTION	APPROVED

DESIGNED BY: PEO
DRAWN BY: PEO
CHECKED BY: NL
APPROVED BY: NL
SCALE
HORIZ: 1"=60'
VERT: N/A
FIELD BOOK

HDR
HDR Engineering, Inc.
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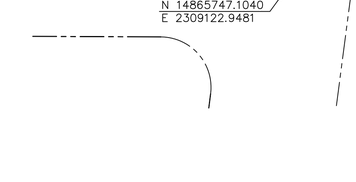
City of Sparks

NORTH TRUCKEE DRAIN REALIGNMENT PHASE 1

HORIZONTAL CONTROL PLAN
SHEET 3

CITY OF SPARKS, NEVADA, PUBLIC WORKS DEPARTMENT



SHEET No
HC-3

SHT OF

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BENCHMARK AND BASIS OF BEARING

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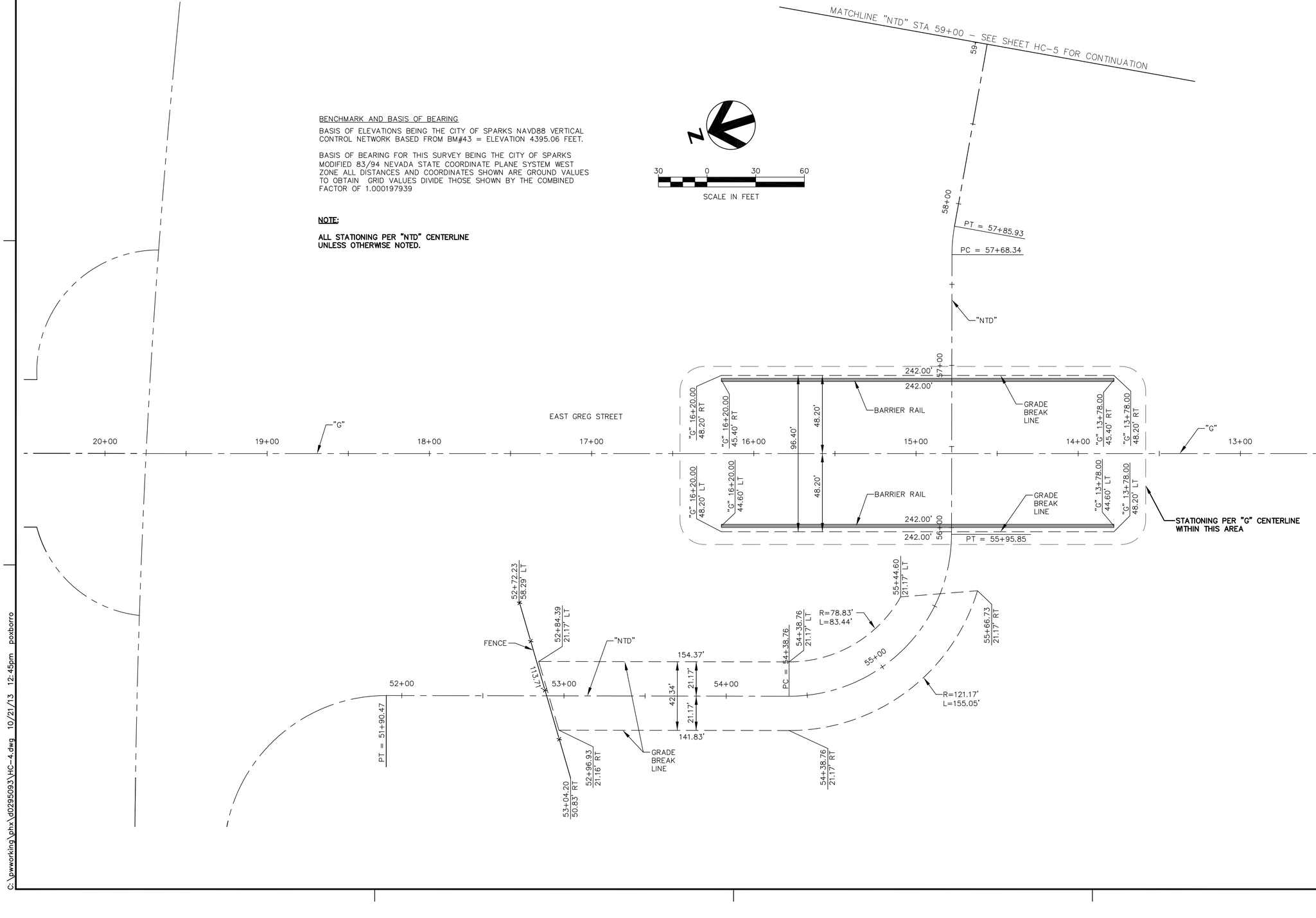
BASIS OF BEARING FOR THIS SURVEY BEING THE CITY OF SPARKS MODIFIED 83/94 NEVADA STATE COORDINATE PLANE SYSTEM WEST ZONE ALL DISTANCES AND COORDINATES SHOWN ARE GROUND VALUES TO OBTAIN GRID VALUES DIVIDE THOSE SHOWN BY THE COMBINED FACTOR OF 1.000197939

NOTE:

ALL STATIONING PER "NTD" CENTERLINE UNLESS OTHERWISE NOTED.



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APPROVED BY: NL
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FIELD BOOK

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9805 Double R Blvd.
Suite 101
Reno, NV 89521
Phone: 775-337-4700

City of Sparks

NORTH TRUCKEE DRAIN REALIGNMENT PHASE 1

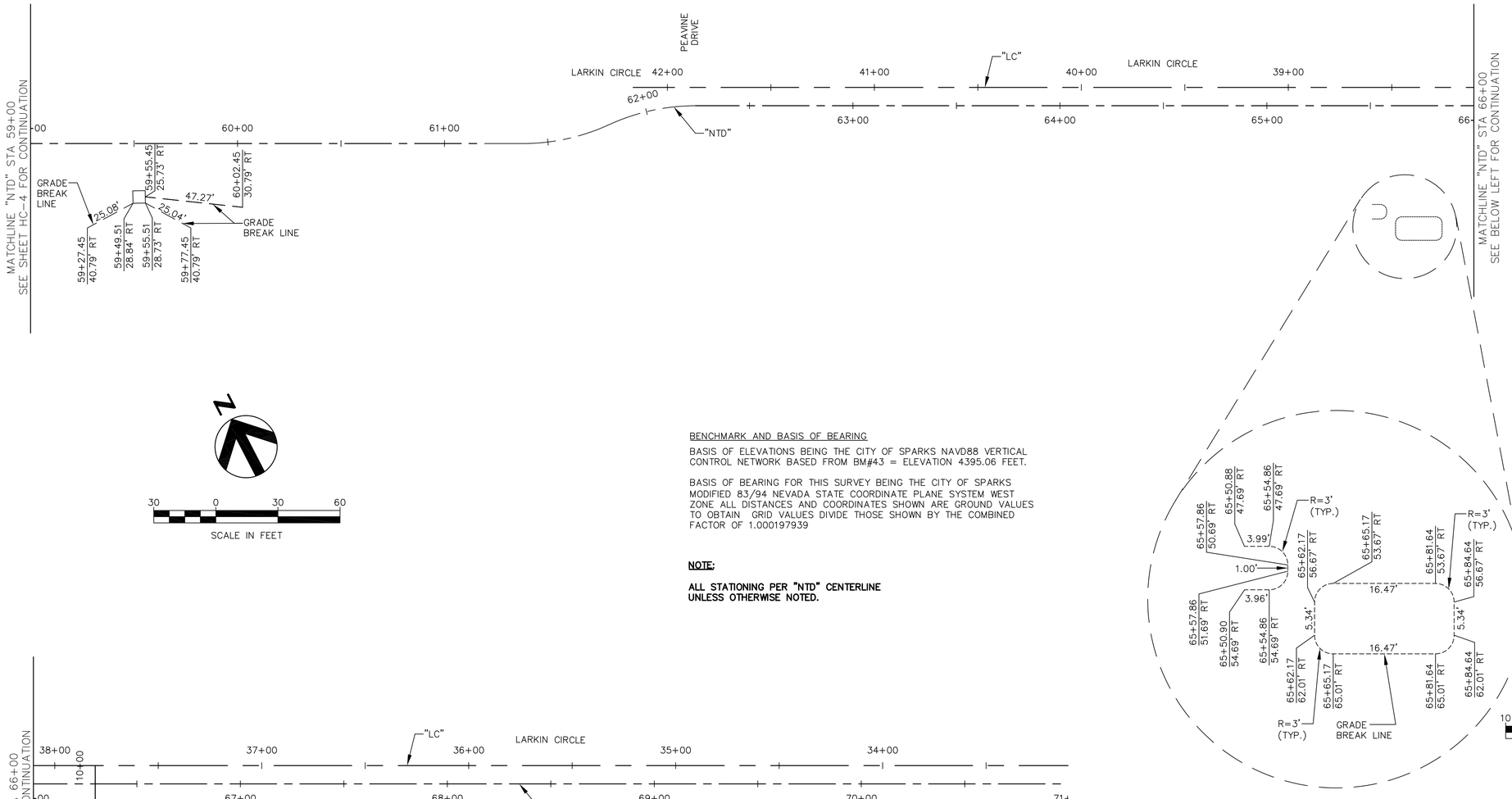
HORIZONTAL CONTROL PLAN
SHEET 4

CITY OF SPARKS, NEVADA, PUBLIC WORKS DEPARTMENT

PROFESSIONAL ENGINEER STATE OF NEVADA NOEL C. LAUGHLIN Exp. 12-31-13 CIVIL No. 10169 10-18-13

SHEET No.
HC-4

SHT OF



BENCHMARK AND BASIS OF BEARING

BASIS OF ELEVATIONS BEING THE CITY OF SPARKS NAVD88 VERTICAL CONTROL NETWORK BASED FROM BM#43 = ELEVATION 4395.06 FEET.

BASIS OF BEARING FOR THIS SURVEY BEING THE CITY OF SPARKS MODIFIED 83/94 NEVADA STATE COORDINATE PLANE SYSTEM WEST ZONE ALL DISTANCES AND COORDINATES SHOWN ARE GROUND VALUES TO OBTAIN GRID VALUES DIVIDE THOSE SHOWN BY THE COMBINED FACTOR OF 1.000197939

NOTE:

ALL STATIONING PER "NTD" CENTERLINE UNLESS OTHERWISE NOTED.

REV No	DATE	DESCRIPTION	APPROVED

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DRAWN BY: PEO
CHECKED BY: NL
APPROVED BY: NL
SCALE
HORIZ: 1"=30'
VERT: N/A
FIELD BOOK

HDR
HDR Engineering, Inc.
9805 Double R Blvd.
Suite 101
Reno, NV 89521
Phone: 775-337-4700

City of Sparks

NORTH TRUCKEE DRAIN REALIGNMENT PHASE 1

HORIZONTAL CONTROL PLAN

SHEET 5

CITY OF SPARKS, NEVADA, PUBLIC WORKS DEPARTMENT

SHEET No.

HC-5

SHT OF

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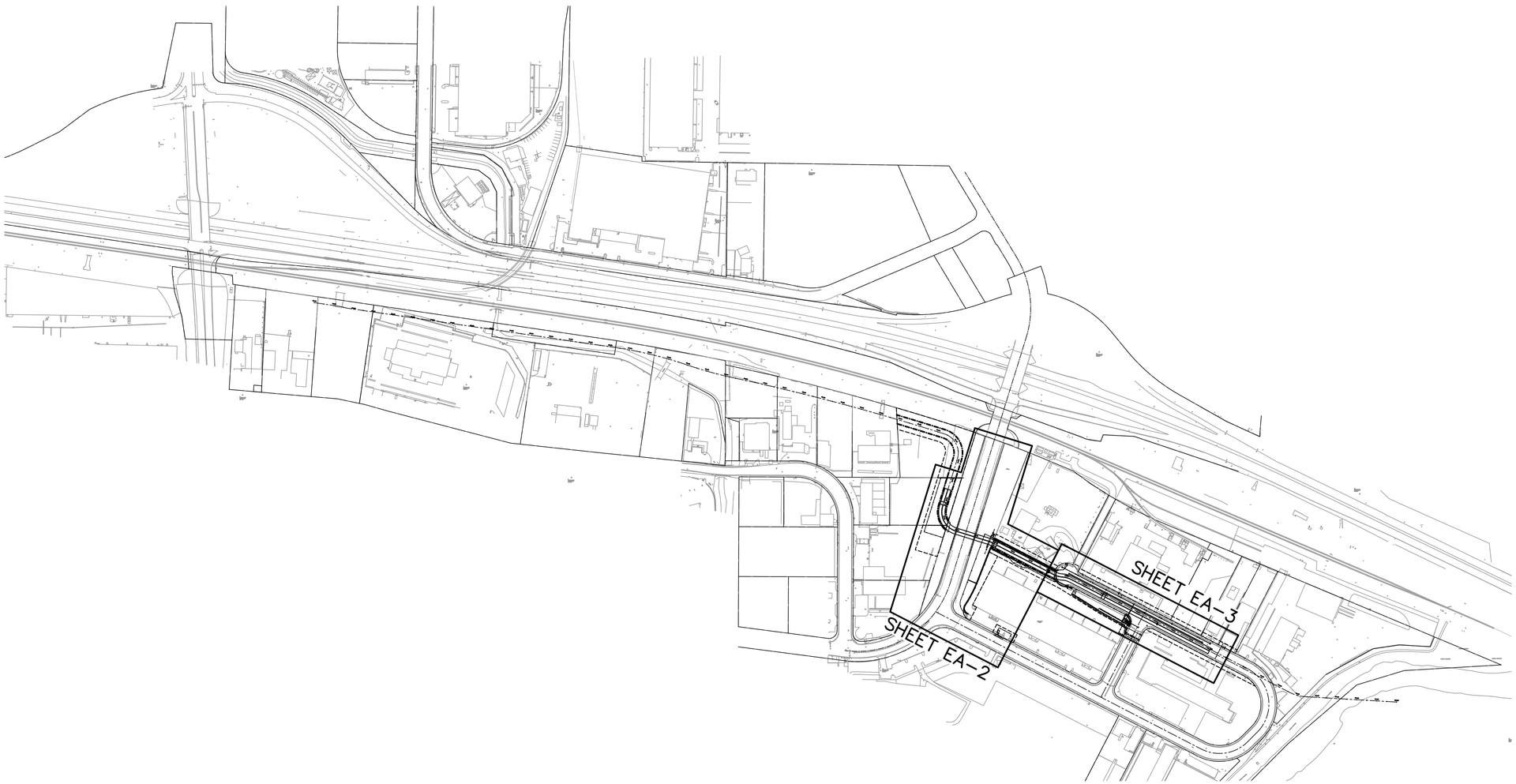

Key Map

NTS

NOTE
EASEMENTS AND DIMENSIONS SHOWN ARE APPROXIMATE.
SEE LEGALS COMPLETED BY BIGBY & ASSOC. FILED BY
CITY OF SPARKS. FOR EXACT DISTANCES AND LOCATIONS.

REV No	DATE	DESCRIPTION	APPROVED

DESIGNED BY: PEO
DRAWN BY: PEO
CHECKED BY: NL
APPROVED BY: NL
SCALE
HORIZ: 1"=40'
VERT: N/A
FIELD BOOK

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City of Sparks

NORTH TRUCKEE DRAIN REALIGNMENT PHASE 1

EASEMENT KEY MAP

CITY OF SPARKS, NEVADA, PUBLIC WORKS DEPARTMENT

NOEL C. LAUGHLIN
Exp 12-31-13
CIVIL
No. 9810
PROFESSIONAL ENGINEER STATE OF NEVADA
10/18/13

SHEET No
EA-1

SHT OF

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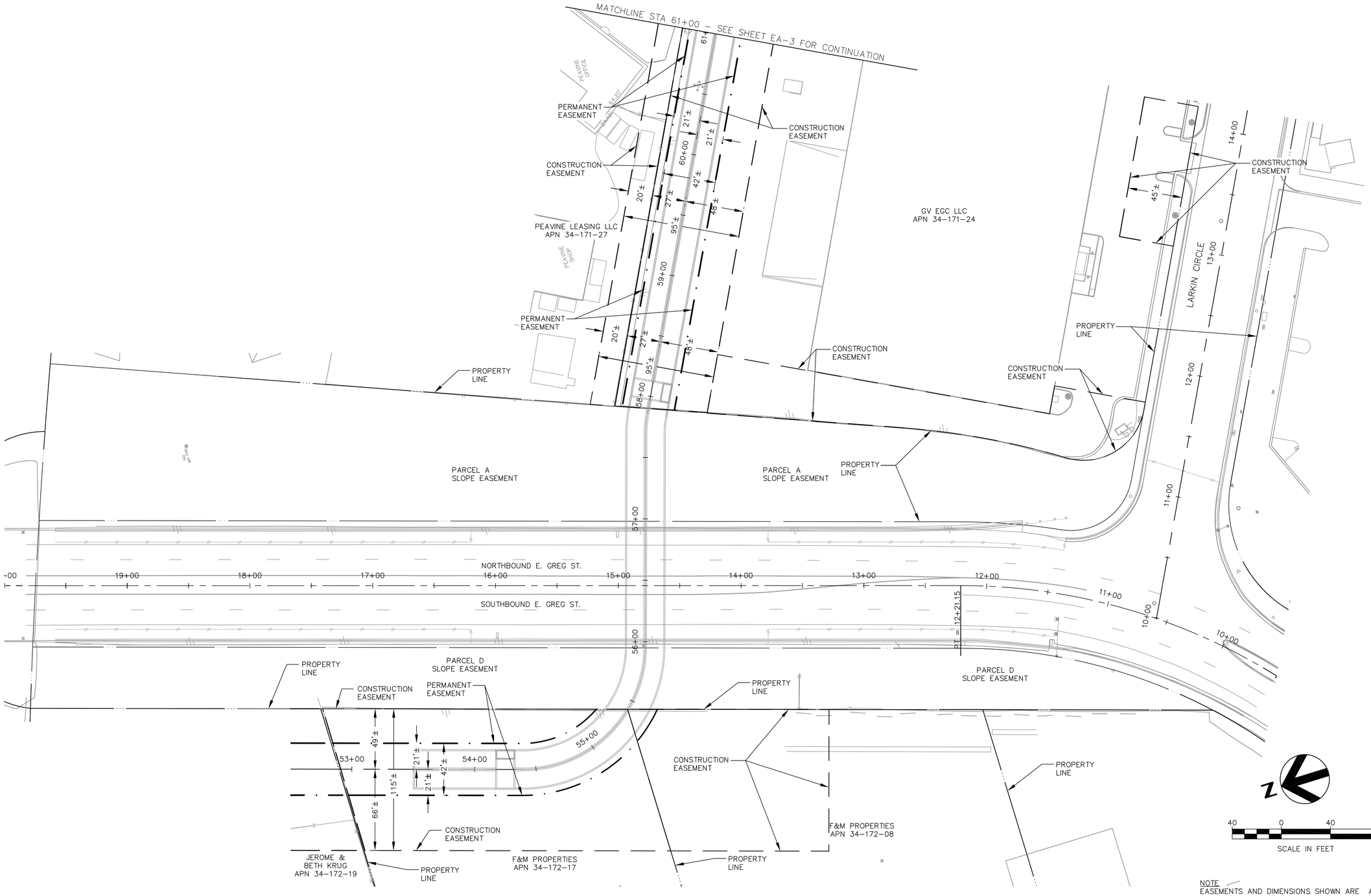

NOTE
EASEMENTS AND DIMENSIONS SHOWN ARE APPROXIMATE. SEE LEGALS COMPLETED BY BIGBY & ASSOC. FILED BY CITY OF SPARKS. FOR EXACT DISTANCES AND LOCATIONS.

REV No.	DATE	DESCRIPTION	APPROVED

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CHECKED BY: NL
APPROVED BY: NL
SCALE
HORIZ: 1"=40'
VERT: N/A
FIELD BOOK

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9805 Double R Blvd.
Suite 101
Reno, NV 89521
Phone: 775-337-4700

City of Sparks

NORTH TRUCKEE DRAIN REALIGNMENT PHASE 1

EASEMENT PLAN 'NTD' STA 52+50 TO STA 61+00

CITY OF SPARKS, NEVADA, PUBLIC WORKS DEPARTMENT

STATE OF NEVADA PROFESSIONAL ENGINEER
NOEL C. LAUGHLIN
No. 10169
CIVIL
Exp: 12.31.13
10.18.13

SHEET No.
EA-2
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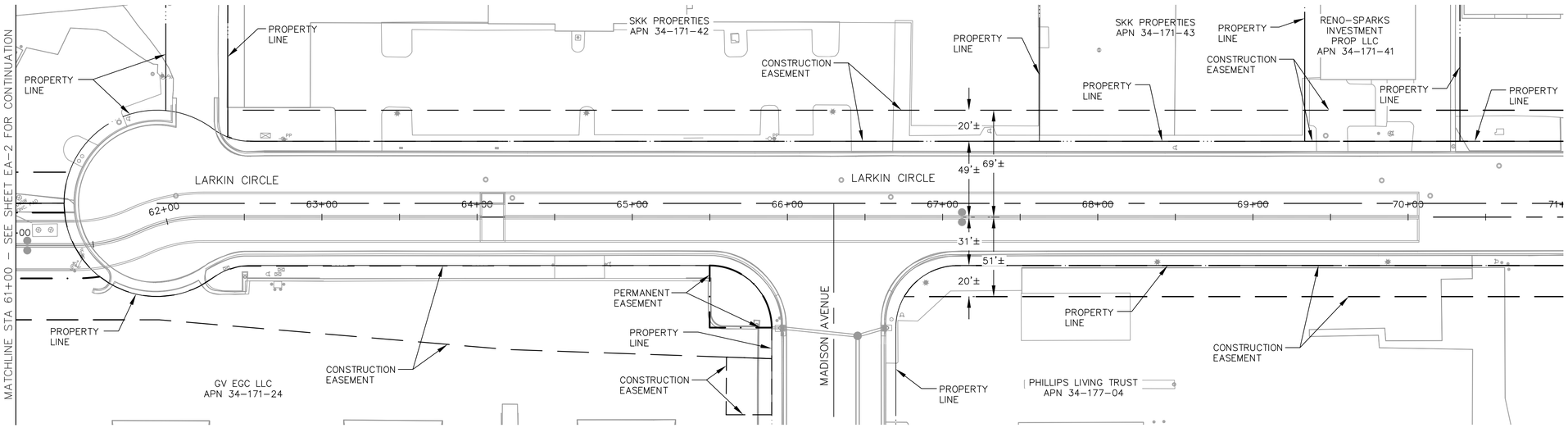

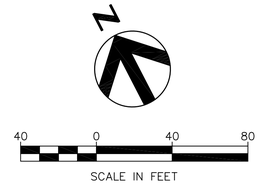

NOTE
EASEMENTS AND DIMENSIONS SHOWN ARE APPROXIMATE. SEE LEGALS COMPLETED BY BIGBY & ASSOC. FILED BY CITY OF SPARKS. FOR EXACT DISTANCES AND LOCATIONS.

REV No	DATE	DESCRIPTION	APPROVED

DESIGNED BY: PEO
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CHECKED BY: NL
APPROVED BY: NL
SCALE
HORIZ: 1"=40'
VERT: N/A
FIELD BOOK

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City of Sparks

NORTH TRUCKEE DRAIN REALIGNMENT PHASE 1

EASEMENT PLAN "NTD" STA 61H00 TO STA 71H00

CITY OF SPARKS, NEVADA, PUBLIC WORKS DEPARTMENT

SHEET No
EA-3

SHT OF

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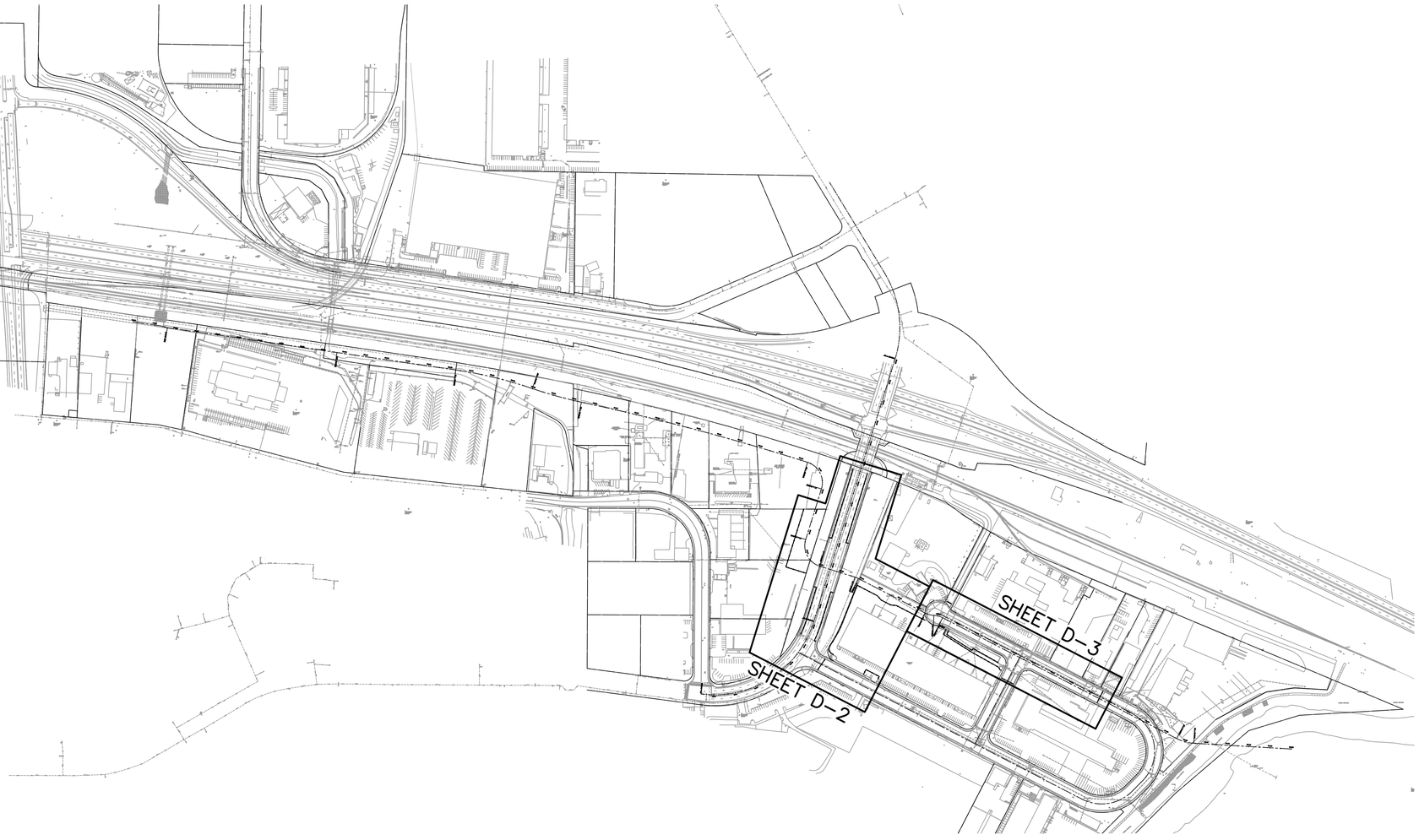

Key Map

NTS

DISCLAIMER NOTE

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Avoid cutting underground utility lines. It's costly.
Call before you Dig.
1-800-227-2600
UNDERGROUND SERVICE ALERT (USA)

SAFETY ALERT
Call before you Overhead
775-834-7590
NV Energy Construction Line
24hrs. Prior Notice Required
OVERHEAD SERVICE ALERT

REV No	DATE	DESCRIPTION	APPROVED

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DRAWN BY: PEO
CHECKED BY: NL
APPROVED BY: NL
SCALE
HORIZ: 1"=40'
VERT: N/A
FIELD BOOK

City of Sparks
HDR Engineering, Inc.
9805 Double R Blvd, Suite 101
Reno, NV 89521
Phone: 775-337-4700

NORTH TRUCKEE DRAIN REALIGNMENT PHASE 1

DEMOLITION KEY MAP

CITY OF SPARKS, NEVADA, PUBLIC WORKS DEPARTMENT

STATE OF NEVADA — No. 9810 — PROFESSIONAL ENGINEER — NOEL C. LAUGHLIN — Exp: 12-31-13 — CIVIL — 10/18/13

SHEET No
D-1

SHT OF

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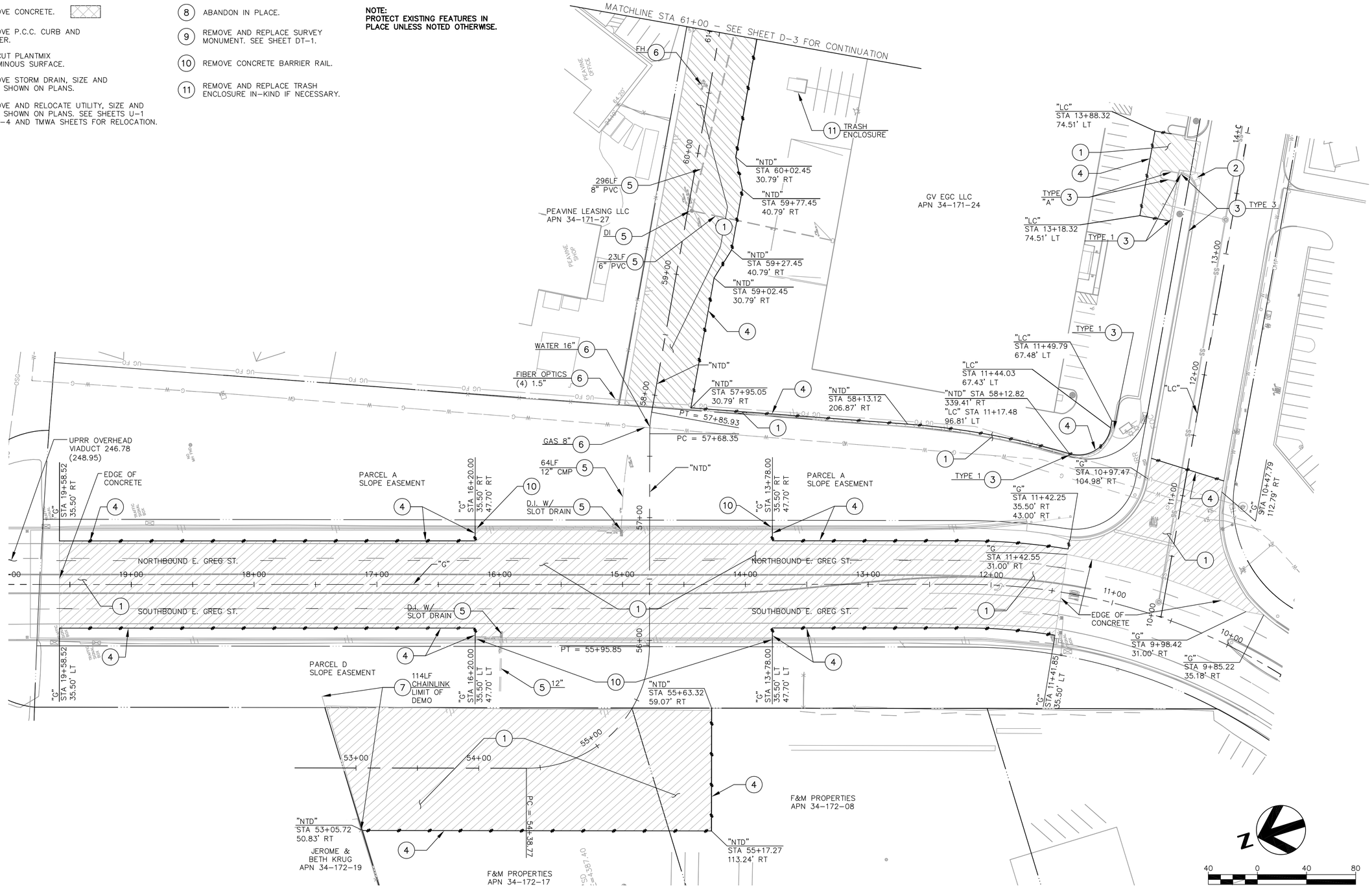
REMOVAL NOTES:

1. REMOVE PLANTMIX BITUMINOUS SURFACE.
2. REMOVE CONCRETE.
3. REMOVE P.C.C. CURB AND GUTTER.
4. SAWCUT PLANTMIX BITUMINOUS SURFACE.
5. REMOVE STORM DRAIN, SIZE AND TYPE SHOWN ON PLANS.
6. REMOVE AND RELOCATE UTILITY, SIZE AND TYPE SHOWN ON PLANS. SEE SHEETS U-1 TO U-4 AND TMWA SHEETS FOR RELOCATION.
7. REMOVE AND REPLACE FENCE AS SHOWN. TYPE SHOWN ON PLANS.
8. ABANDON IN PLACE.
9. REMOVE AND REPLACE SURVEY MONUMENT. SEE SHEET DT-1.
10. REMOVE CONCRETE BARRIER RAIL.
11. REMOVE AND REPLACE TRASH ENCLOSURE IN-KIND IF NECESSARY.

THIS IS A GENERAL LIST. NOT ALL ACTIVITIES ARE USED.

NOTE:
PROTECT EXISTING FEATURES IN PLACE UNLESS NOTED OTHERWISE.



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CHECKED BY: NL
APPROVED BY: NL
SCALE
HORIZ: 1"=40'
VERT: N/A
FIELD BOOK

HDR Engineering, Inc.
9805 Double R Blvd.
Suite 101
Reno, NV 89521
Phone: 775-337-4700

City of Sparks

NORTH TRUCKEE DRAIN REALIGNMENT PHASE 1

DEMOLITION PLAN 'NTD' STA 52+50 TO STA 61+00
'G' STA 9+50 TO STA 20+00

CITY OF SPARKS, NEVADA, PUBLIC WORKS DEPARTMENT

SHEET No.
D-2

SHT OF

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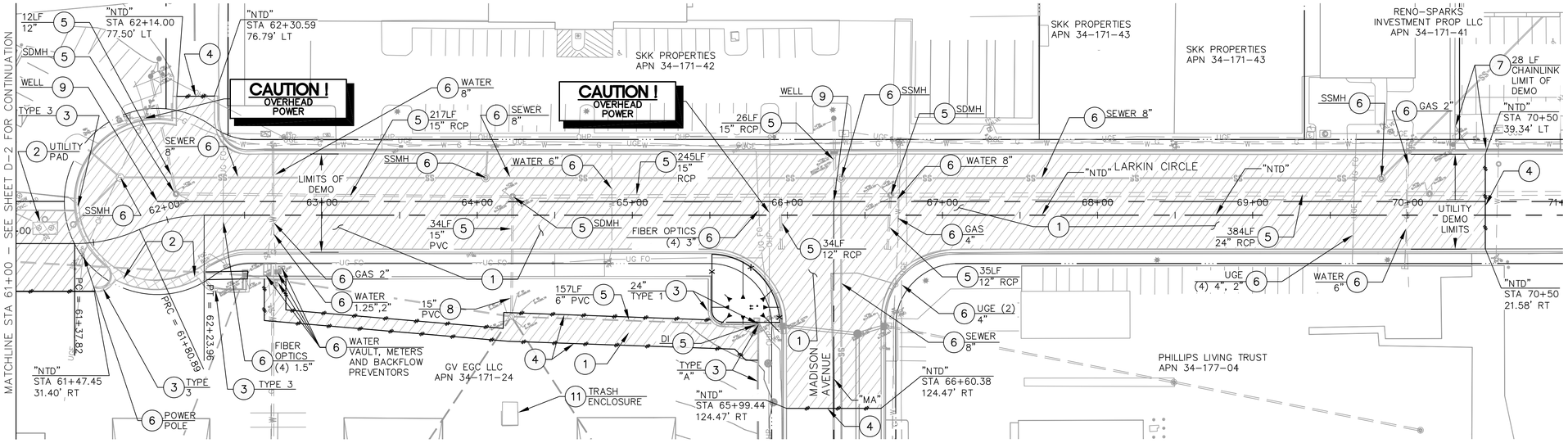

REMOVAL NOTES:

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2. REMOVE CONCRETE.
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7. REMOVE AND REPLACE FENCE AS SHOWN. TYPE SHOWN ON PLANS.
8. ABANDON IN PLACE.
9. REMOVE AND REPLACE SURVEY MONUMENT. SEE SHEET DT-1.
10. REMOVE CONCRETE BARRIER RAIL.
11. REMOVE AND REPLACE TRASH ENCLOSURE IN-KIND IF NECESSARY.

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NOTE:
PROTECT EXISTING FEATURES IN PLACE UNLESS NOTED OTHERWISE.

N

40 0 40 80

SCALE IN FEET

REV No	DATE	DESCRIPTION	APPROVED

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DRAWN BY: PEO
CHECKED BY: NL
APPROVED BY: NL
SCALE
HORIZ: 1"=40'
VERT: N/A
FIELD BOOK

HDR
HDR Engineering, Inc.
9805 Double R Blvd.
Suite 101
Reno, NV 89521
Phone: 775-337-4700

City of Sparks

NORTH TRUCKEE DRAIN REALIGNMENT PHASE 1

DEMOLITION PLAN
'NTD' STA 61+00 TO STA 71+00

CITY OF SPARKS, NEVADA, PUBLIC WORKS DEPARTMENT

PROFESSIONAL ENGINEER STATE OF NEVADA NOEL C. LAUGHLIN Exp: 12.31.13 CIVIL No. 10169
10.18.13

SHEET No.
D-3

SHT OF

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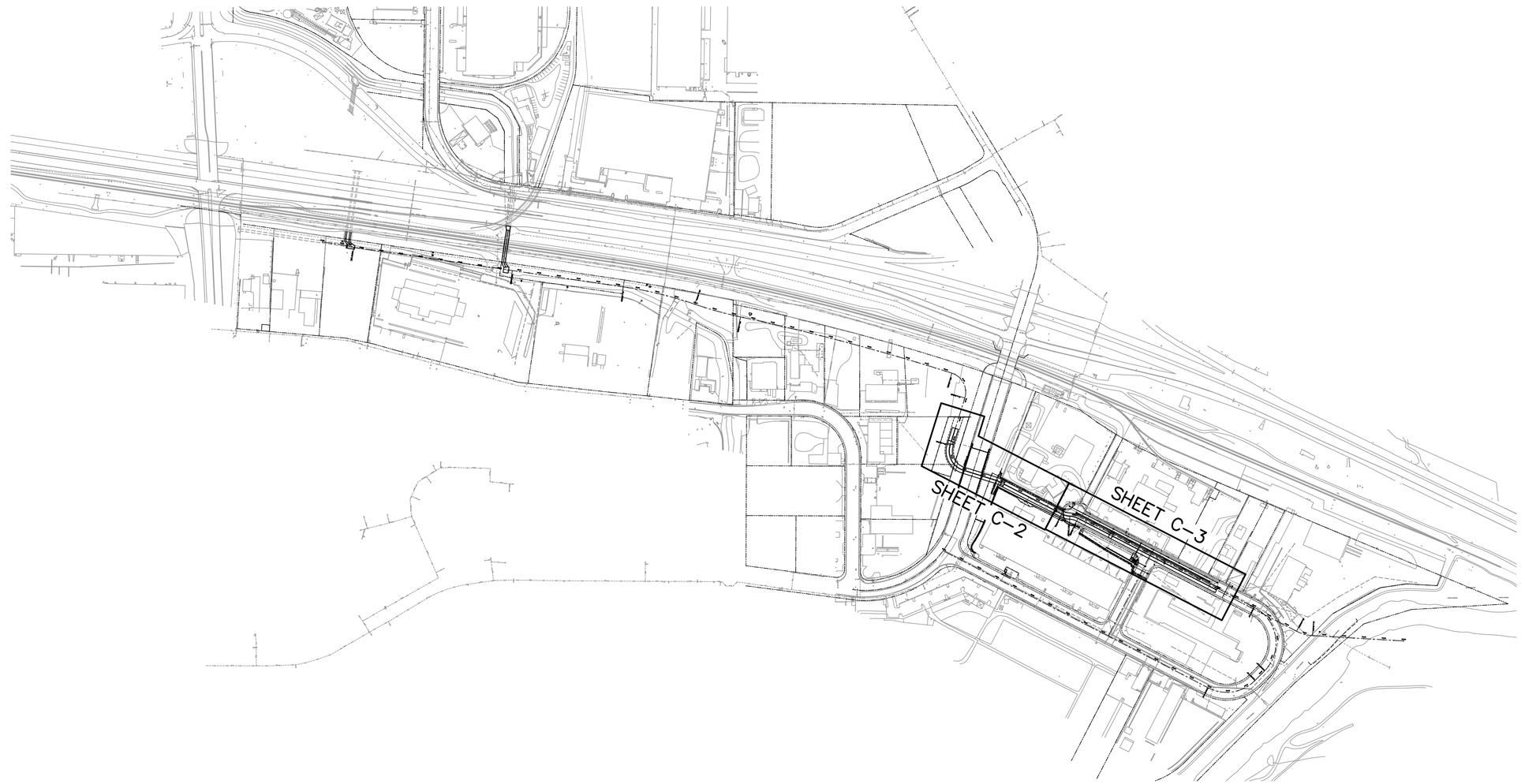

Key Map

NTS

DISCLAIMER NOTE

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UNDERGROUND SERVICE ALERT (USA)

SAFETY ALERT
Call before you Overhead
775-834-7590
NV Energy Construction Line
24hrs. Prior Notice Required
OVERHEAD SERVICE ALERT

REV No	DATE	DESCRIPTION	APPROVED

DESIGNED BY: PEO
DRAWN BY: PEO
CHECKED BY: NL
APPROVED BY: NL
SCALE
HORIZ: N/A
VERT: N/A
FIELD BOOK

HDR
HDR Engineering, Inc.
9805 Double R Blvd,
Suite 101
Reno, NV 89521
Phone: 775-337-4700

City of Sparks

NORTH TRUCKEE DRAIN REALIGNMENT PHASE 1

RCB PLAN AND PROFILE KEY MAP

CITY OF SPARKS, NEVADA, PUBLIC WORKS DEPARTMENT

STATE OF NEVADA
PROFESSIONAL ENGINEER
NOEL C. LAUGHLIN
No. 10181
Exp: 12-31-13
CIVIL
10-18-13

SHEET No.
C-1
SHT OF

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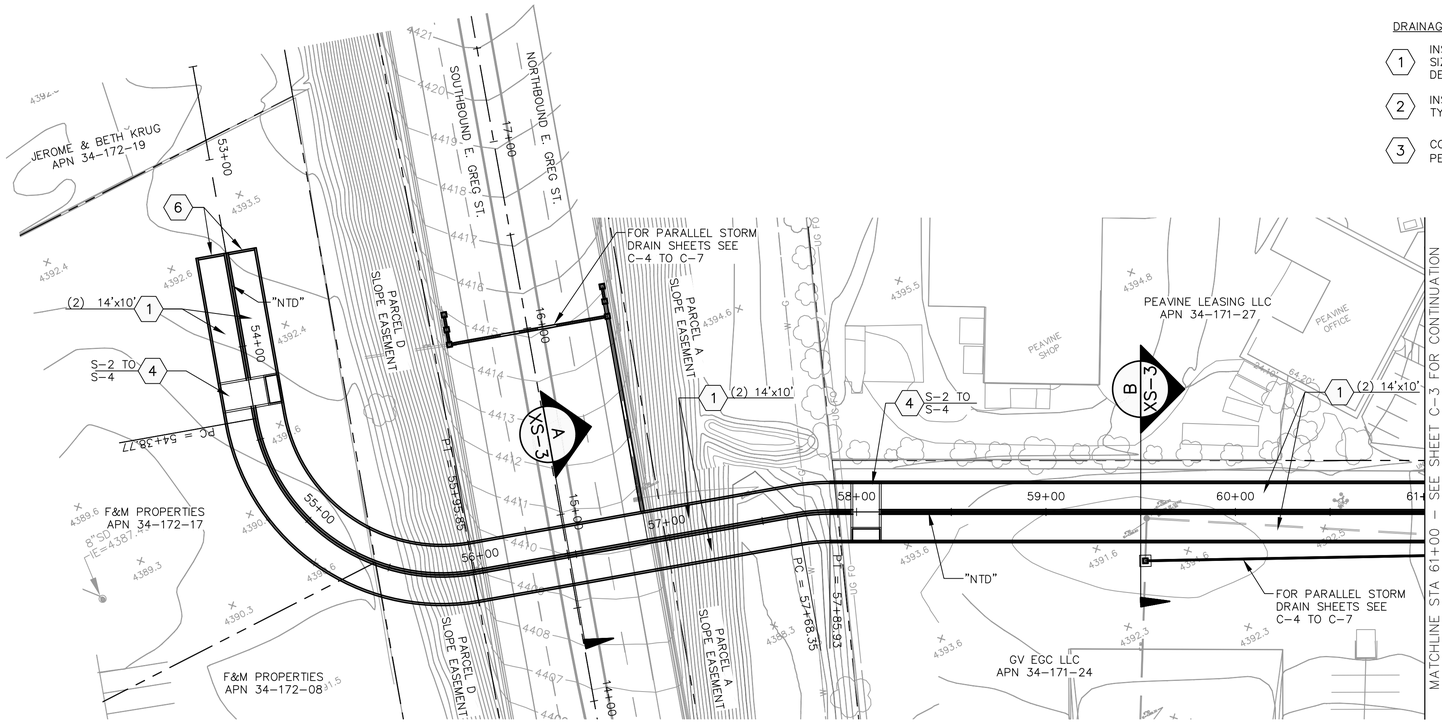


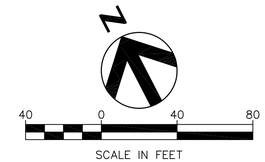
DRAINAGE NOTES :

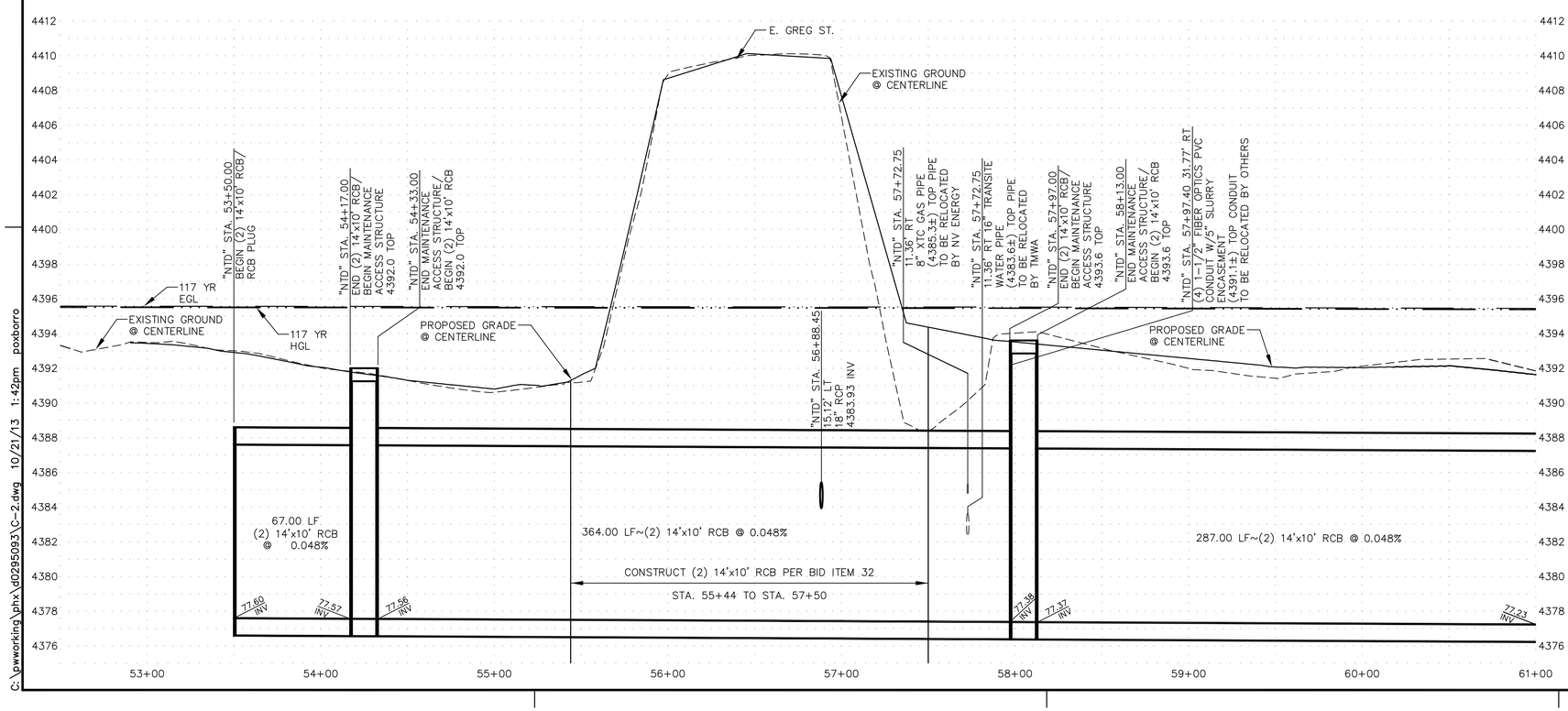
1. INSTALL STORM DRAIN RCB, SIZE AS SHOWN ON PLAN PER DETAILS SHEETS DT-4 AND DT-5
2. INSTALL STORM DRAIN PIPE, SIZE AND TYPE AS SHOWN ON PLAN.
3. CONSTRUCT MANHOLE PER "S" SHEETS AS NOTED.
4. CONSTRUCT MAINTENANCE ACCESS VAULT PER "S" SHEETS AS NOTED.
5. CONSTRUCT DROP INLET, SIZE AND TYPE AS SHOWN ON PLAN.
6. CONSTRUCT RCB PLUG PER "S" SHEETS AS NOTED.

THIS IS A GENERAL LIST. NOT ALL ACTIVITIES ARE USED.

NOTES:

1. **PROTECT EXISTING FEATURES IN PLACE UNLESS NOTED OTHERWISE.**
2. **SEE SHEETS C-4 TO C-7 FOR PARALLEL AND LATERAL STORM DRAINS.**
3. **SEE SHEETS C-8 TO C-15 FOR PROPOSED SURFACE FEATURES, GRADING, AND DRAINAGE.**
4. **SEE SHEETS U-1 TO U-4 AND TMWA SHEETS FOR UTILITY RELOCATIONS.**
5. **HGL AND EGL FOR MAIN STORM DRAIN DEPICTS TRUCKEE RIVER FLOWS ONLY.**





REV No.	DATE	DESCRIPTION	APPROVED

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CHECKED BY: NL
APPROVED BY: NL
SCALE
HORIZ: 1"=40'
VERT: 1"=4'
FIELD BOOK

HDR Engineering, Inc.
9805 Double R Blvd, Suite 101
Reno, NV 89521
Phone: 775-337-4700

City of Sparks

NORTH TRUCKEE DRAIN REALIGNMENT PHASE 1

RCB PLAN AND PROFILE
'NTD' STA 52+50 TO STA 61+00

CITY OF SPARKS, NEVADA, PUBLIC WORKS DEPARTMENT

SHEET No.
C-2

SHT OF

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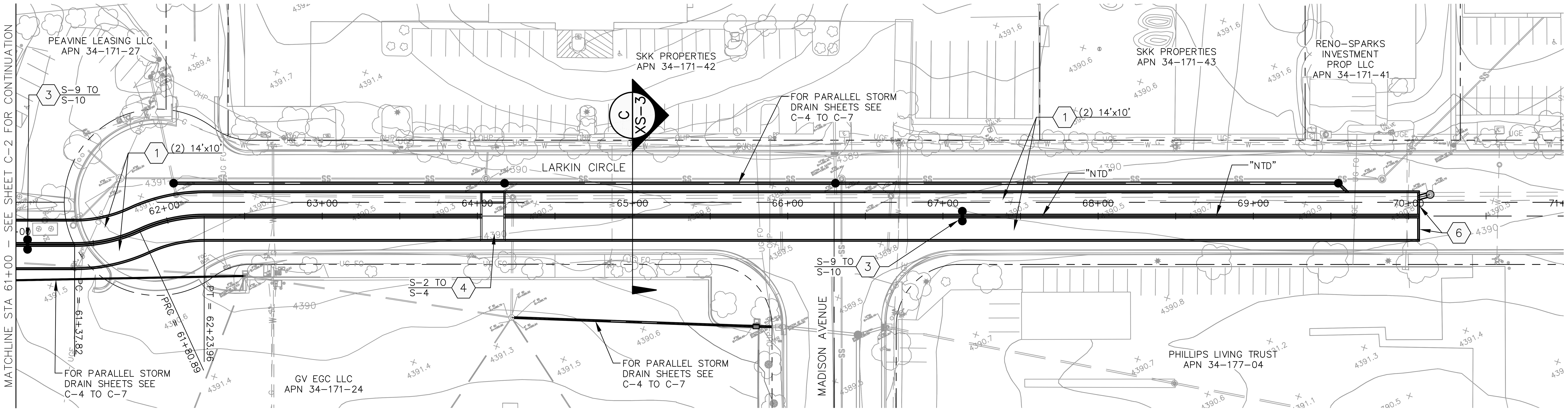

DRAINAGE NOTES :

1 INSTALL STORM DRAIN RCB, SIZE AS SHOWN ON PLAN PER DETAILS SHEETS DT-4 AND DT-5	4 CONSTRUCT MAINTENANCE ACCESS VAULT PER "S" SHEETS AS NOTED.
2 INSTALL STORM DRAIN PIPE, SIZE AND TYPE AS SHOWN ON PLAN.	5 CONSTRUCT DROP INLET, SIZE AND TYPE AS SHOWN ON PLAN.
3 CONSTRUCT MANHOLE PER "S" SHEETS AS NOTED.	6 CONSTRUCT RCB PLUG PER "S" SHEETS AS NOTED.

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5. HGL AND EGL FOR MAIN STORM DRAIN DEPICTS TRUCKEE RIVER FLOWS ONLY.

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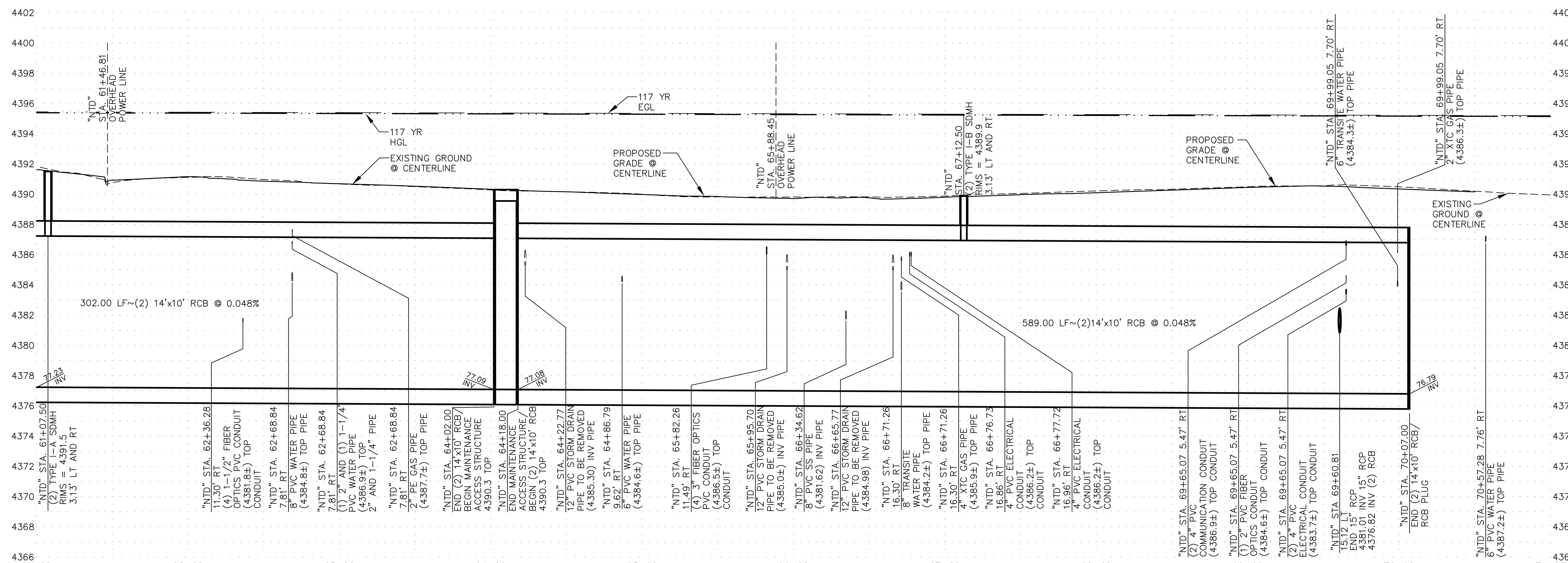
SCALE IN FEET



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REV No	DATE	DESCRIPTION	APPROVED

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DRAWN BY: PEO
CHECKED BY: NL
APPROVED BY: NL
SCALE
HORIZ: 1"=40'
VERT: 1"=4'
FIELD BOOK

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Reno, NV 89521
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City of Sparks

NORTH TRUCKEE DRAIN REALIGNMENT PHASE 1

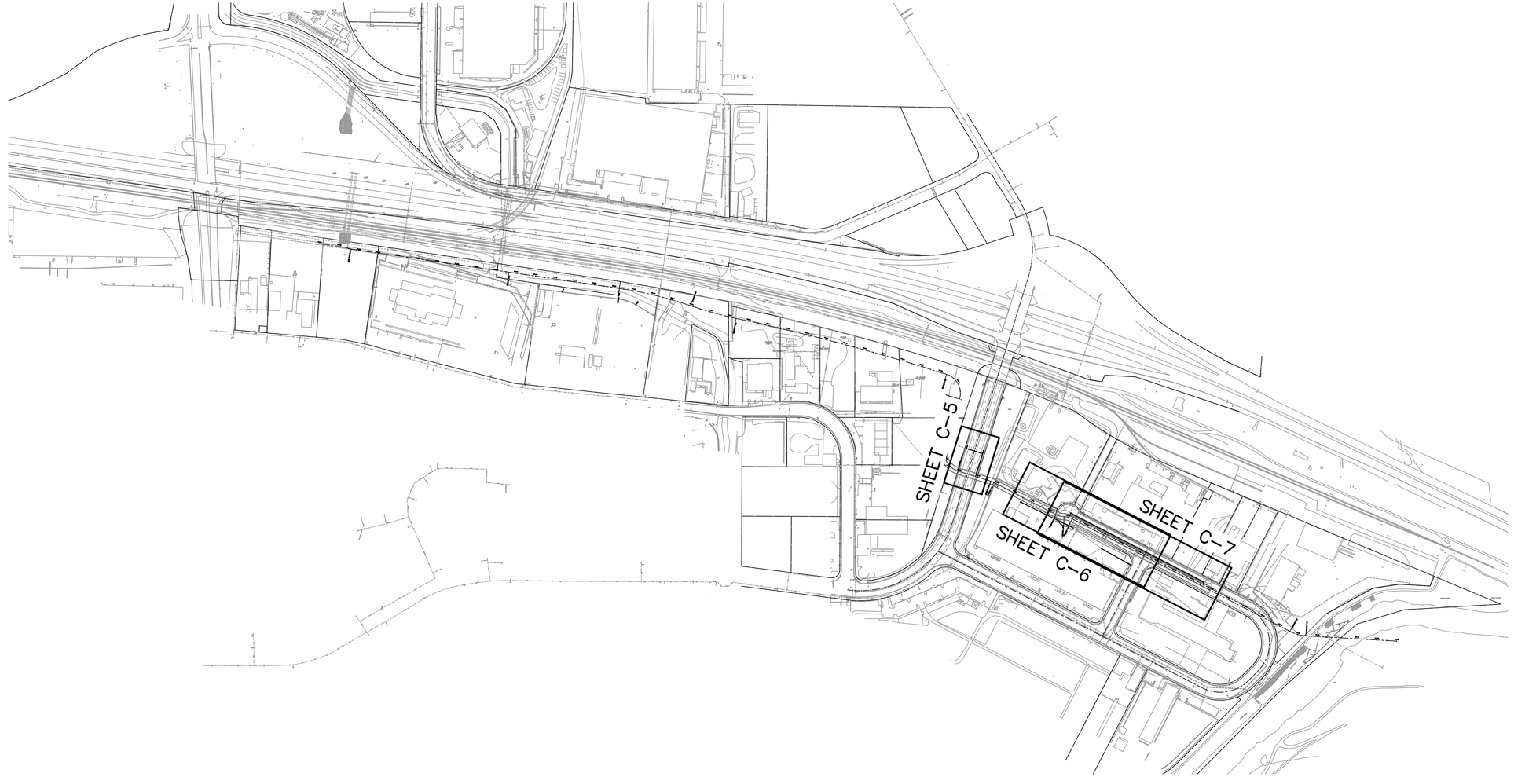
RCB PLAN AND PROFILE
"NTD" STA 61+00 TO STA 71+00

CITY OF SPARKS, NEVADA, PUBLIC WORKS DEPARTMENT

PROFESSIONAL ENGINEER STATE OF NEVADA
NOEL C. LAUGHLIN
Exp. 12-31-13
CIVIL
No. 10153
10-18-13

SHEET No
C-3

SHT OF



Key Map

NTS

DISCLAIMER NOTE

UTILITY LOCATIONS SHOWN HEREON ARE APPROXIMATE ONLY. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE THE EXACT HORIZONTAL AND VERTICAL LOCATION OF ALL EXISTING UNDERGROUND AND OVERHEAD UTILITIES PRIOR TO COMMENCING CONSTRUCTION. NO REPRESENTATION IS MADE THAT ALL EXISTING UTILITIES ARE SHOWN HEREON. THE ENGINEER ASSUMES NO RESPONSIBILITY FOR UTILITIES NOT SHOWN OR UTILITIES NOT SHOWN IN THEIR PROPER LOCATION.

Avoid cutting underground utility lines. It's costly.
Call before you Dig.
1-800-227-2600
UNDERGROUND SERVICE ALERT (USA)

SAFETY ALERT
Call before you Overhead
775-834-7590
NV Energy Construction Line
24hrs. Prior Notice Required
OVERHEAD SERVICE ALERT

REV No	DATE	DESCRIPTION	APPROVED

DESIGNED BY: PEO
DRAWN BY: PEO
CHECKED BY: NL
APPROVED BY: NL
SCALE
HORIZ: 1"=40'
VERT: 1"=4'
FIELD BOOK

HDR
HDR Engineering, Inc.
9805 Double R Blvd,
Suite 101
Reno, NV 89521
Phone: 775-337-4700

City of Sparks

NORTH TRUCKEE DRAIN REALIGNMENT PHASE 1

PARALLEL AND LATERAL STORM DRAIN
KEY MAP

CITY OF SPARKS, NEVADA, PUBLIC WORKS DEPARTMENT

STATE OF NEVADA
PROFESSIONAL ENGINEER
NOEL C. LAUGHLIN
No. 10185
CIVIL
Exp. 12.31.13
10.18.13

SHEET No.
C-4

SHT OF

C:\pwworking\phx\d0295093\C-4.dwg 10/21/13 1:48pm poxborro

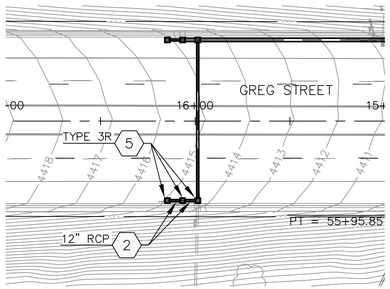
DRAINAGE NOTES :

1. INSTALL STORM DRAIN RCB, SIZE AS SHOWN ON PLAN PER DETAILS SHEETS DT-4 AND DT-5
2. INSTALL STORM DRAIN PIPE, SIZE AND TYPE AS SHOWN ON PLAN.
3. CONSTRUCT MANHOLE, SIZE AND TYPE AS SHOWN ON PLAN.
4. CONSTRUCT MAINTENANCE ACCESS VAULT PER "S" SHEETS AS NOTED.
5. CONSTRUCT DROP INLET, SIZE AND TYPE AS SHOWN ON PLAN.

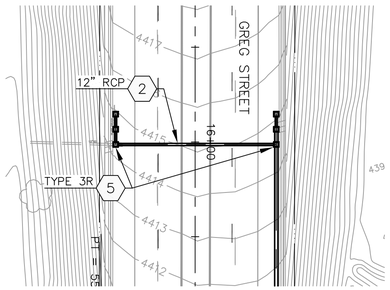
THIS IS A GENERAL LIST. NOT ALL ACTIVITIES ARE USED.

NOTES:

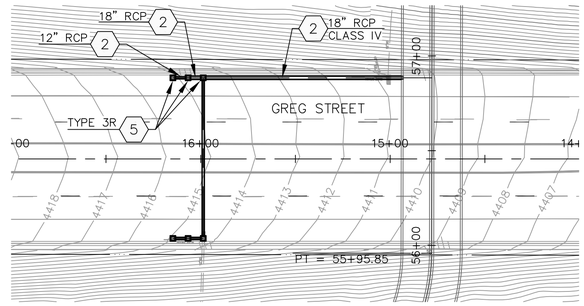
1. MANHOLE INVERT ELEVATIONS SHOWN ARE TO CENTER OF MANHOLE.
2. PARALLEL STORM DRAIN LENGTHS SHOWN ON PROFILES ARE FROM CENTER OF MANHOLE TO CENTER OF MANHOLE. RCB LENGTHS SHOWN ARE FROM OUTSIDE FACE OF STRUCTURE TO OUTSIDE FACE OF STRUCTURE.
3. ALL RCP STORM DRAIN TO BE CLASS III UNLESS OTHERWISE NOTED ON PLANS.
4. SEE SHEETS C-8 TO C-15 FOR PROPOSED SURFACE FEATURES, GRADING, AND DRAINAGE.
5. PROTECT EXISTING FEATURES IN PLACE UNLESS NOTED OTHERWISE.
6. SEE SHEETS C-1 TO C-3 FOR MAINLINE STORM DRAIN.
7. SEE SHEETS U-1 TO U-4 AND TMWA SHEETS FOR UTILITY RELOCATIONS.
8. HGL AND EGL FOR PARALLEL STORM DRAIN DEPICTS LOCAL DRAINAGE ONLY.



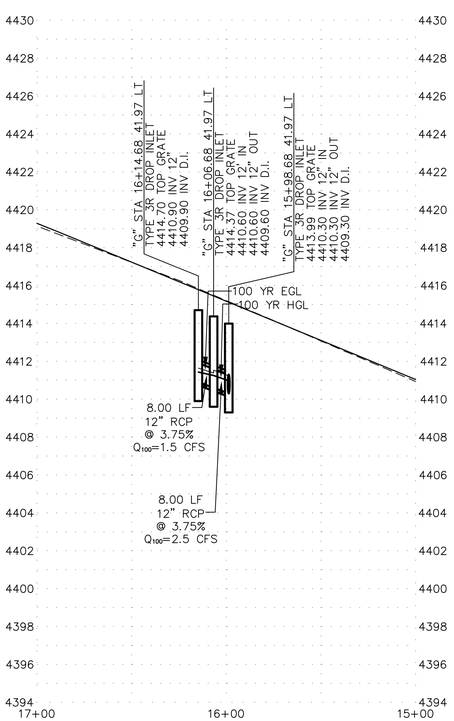
"G" STA: 17+00 TO 15+00
STORM DRAIN LATERAL

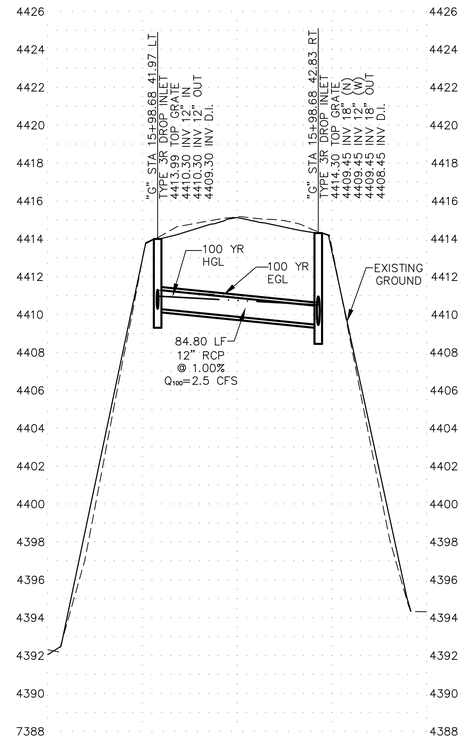


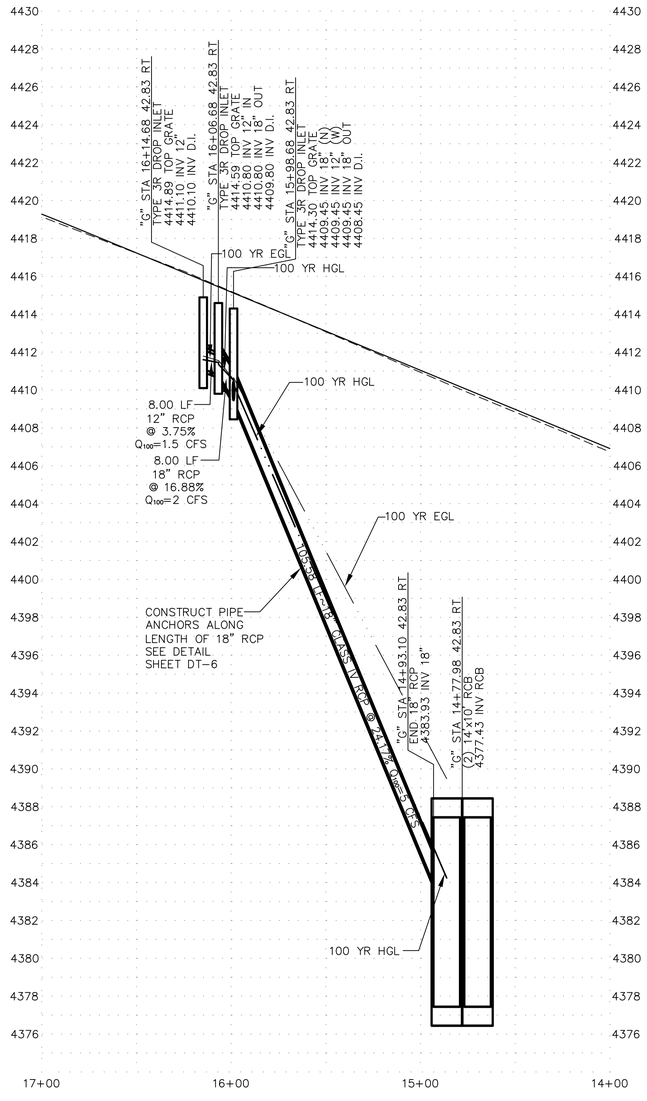
"G" STA: 15+99
STORM DRAIN LATERAL



"G" STA: 17+00 TO 14+00
STORM DRAIN LATERAL







REV No	DATE	DESCRIPTION	APPROVED

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DRAWN BY: PEO
CHECKED BY: NL
APPROVED BY: NL
SCALE
HORIZ: 1"=40'
VERT: 1"=4'
FIELD BOOK

HDR Engineering, Inc.
9805 Double R Blvd,
Suite 101
Reno, NV 89521
Phone: 775-337-4700

City of Sparks

NORTH TRUCKEE DRAIN REALIGNMENT PHASE 1

PARALLEL AND LATERAL STORM DRAIN PLAN AND PROFILE SHEET 1

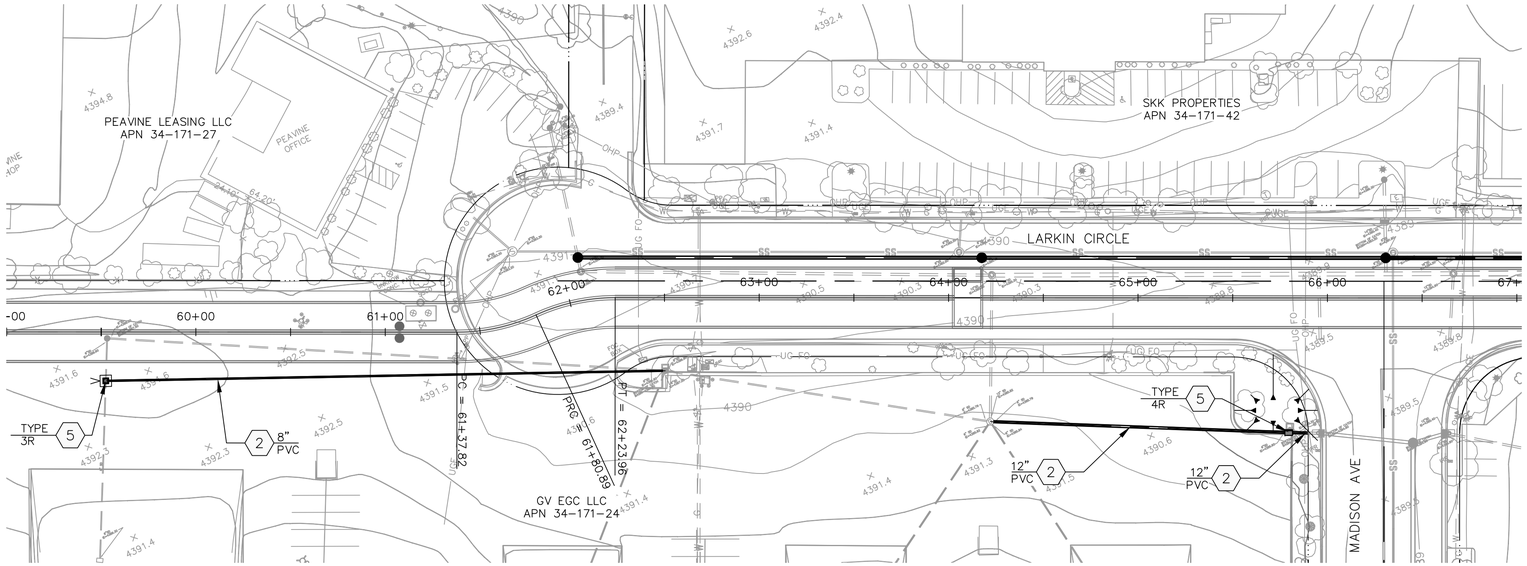
CITY OF SPARKS, NEVADA, PUBLIC WORKS DEPARTMENT

STATE OF NEVADA
NOEL C. LAUGHLIN
Exp: 12-31-13
CIVIL
No. 10169
PROFESSIONAL ENGINEER
10-15-12

SHEET No
C-5

SHT OF

C:\pwworking\phx\d0295093\C-5.dwg 10/21/13 1:50pm poxborro



40 0 40 80
SCALE IN FEET

DRAINAGE NOTES :

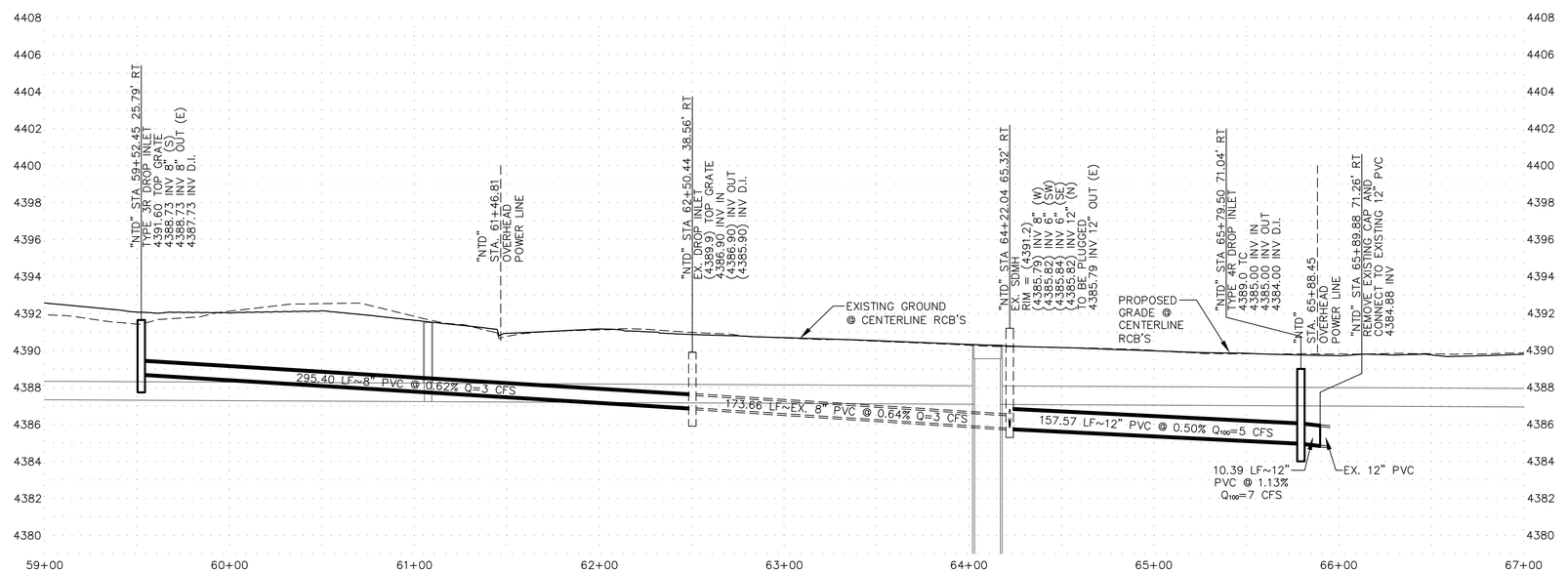
1. INSTALL STORM DRAIN RCB, SIZE AS SHOWN ON PLAN PER DETAILS SHEETS DT-4 AND DT-5
2. INSTALL STORM DRAIN PIPE, SIZE AND TYPE AS SHOWN ON PLAN.
3. CONSTRUCT MANHOLE, SIZE AND TYPE AS SHOWN ON PLAN.
4. CONSTRUCT MAINTENANCE ACCESS VAULT PER "S" SHEETS AS NOTED.
5. CONSTRUCT DROP INLET, SIZE AND TYPE AS SHOWN ON PLAN.

THIS IS A GENERAL LIST. NOT ALL ACTIVITIES ARE USED.

"NTD" STA: 59+00 TO 66+50
STORM DRAIN
SOUTH SIDE OF LARKIN
THROUGH MMK PROPERTIES

NOTES:

1. MANHOLE INVERT ELEVATIONS SHOWN ARE TO CENTER OF MANHOLE.
2. PARALLEL STORM DRAIN LENGTHS SHOWN ON PROFILES ARE FROM CENTER OF MANHOLE TO CENTER OF MANHOLE. RCB LENGTHS SHOWN ARE FROM OUTSIDE FACE OF STRUCTURE TO OUTSIDE FACE OF STRUCTURE.
3. ALL RCP STORM DRAIN TO BE CLASS III UNLESS OTHERWISE NOTED ON PLANS.
4. SEE SHEETS C-8 TO C-15 FOR PROPOSED SURFACE FEATURES, GRADING, AND DRAINAGE.
5. PROTECT EXISTING FEATURES IN PLACE UNLESS NOTED OTHERWISE.
6. SEE SHEETS C-1 TO C-3 FOR MAINLINE STORM DRAIN.
7. SEE SHEETS U-1 TO U-4 AND TMWA SHEETS FOR UTILITY RELOCATIONS.
8. HGL AND EGL FOR PARALLEL STORM DRAIN DEPICTS LOCAL DRAINAGE ONLY.



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REV No	DATE	DESCRIPTION	APPROVED

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DRAWN BY: PEO
CHECKED BY: NL
APPROVED BY: NL
SCALE
HORIZ: 1"=40'
VERT: 1"=4'
FIELD BOOK

HDR Engineering, Inc.
9805 Double R Blvd.
Suite 101
Reno, NV 89521
Phone: 775-337-4700

City of Sparks

NORTH TRUCKEE DRAIN REALIGNMENT PHASE 1

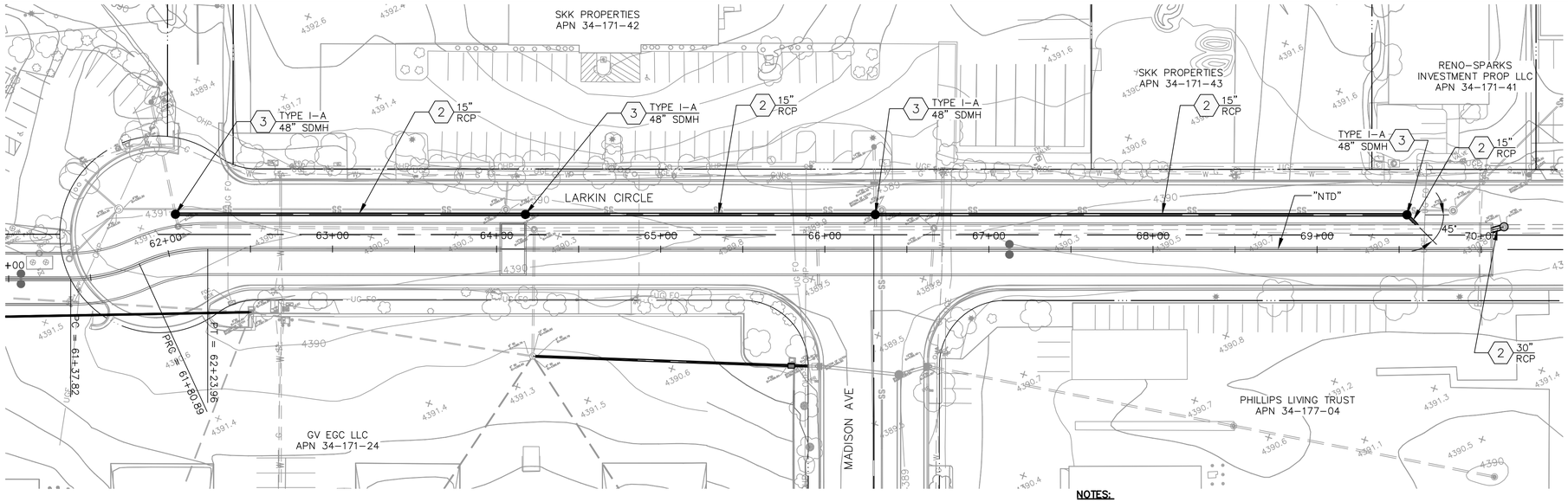
PARALLEL AND LATERAL STORM DRAIN
PLAN AND PROFILE SHEET 2

CITY OF SPARKS, NEVADA, PUBLIC WORKS DEPARTMENT

STATE OF NEVADA
PROFESSIONAL ENGINEER
NOEL C. LAUGHLIN
Exp: 12-31-13
CIVIL
No. 10165
10-15-13

SHEET No
C-6

SHT OF



DRAINAGE NOTES :

1. INSTALL STORM DRAIN RCB, SIZE AS SHOWN ON PLAN PER DETAILS SHEETS DT-4 AND DT-5
2. INSTALL STORM DRAIN PIPE, SIZE AND TYPE AS SHOWN ON PLAN.
3. CONSTRUCT MANHOLE, SIZE AND TYPE AS SHOWN ON PLAN.
4. CONSTRUCT MAINTENANCE ACCESS VAULT PER "S" SHEETS AS NOTED.
5. CONSTRUCT DROP INLET, SIZE AND TYPE AS SHOWN ON PLAN.

THIS IS A GENERAL LIST. NOT ALL ACTIVITIES ARE USED.

"NTD"
62+00 TO 70+50
STORM DRAIN
NORTH SIDE OF LARKIN

NOTES:

1. MANHOLE INVERT ELEVATIONS SHOWN ARE TO CENTER OF MANHOLE.
2. PARALLEL STORM DRAIN LENGTHS SHOWN ON PROFILES ARE FROM CENTER OF MANHOLE TO CENTER OF MANHOLE. RCB LENGTHS SHOWN ARE FROM OUTSIDE FACE OF STRUCTURE TO OUTSIDE FACE OF STRUCTURE.
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4. SEE SHEETS C-8 TO C-15 FOR PROPOSED SURFACE FEATURES, GRADING, AND DRAINAGE.
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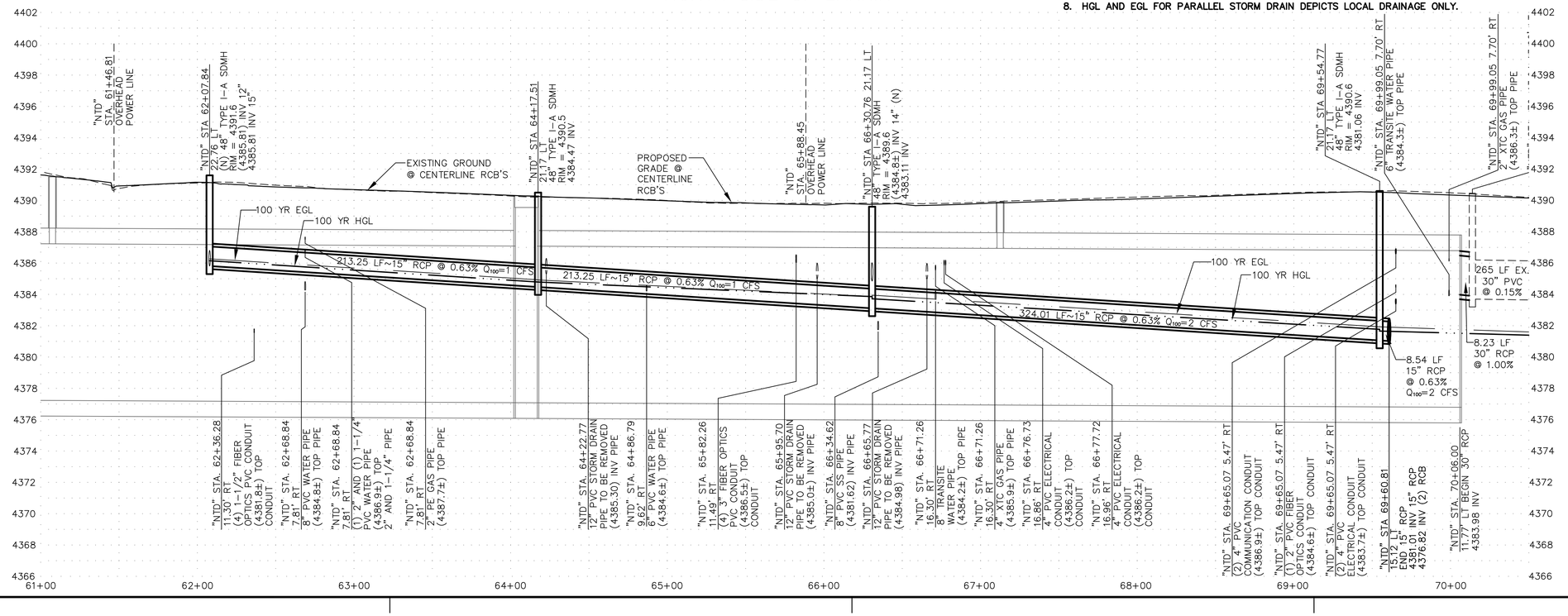

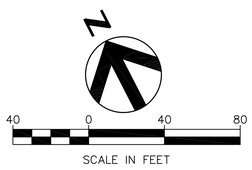

REV No.	DATE	DESCRIPTION	APPROVED

DESIGNED BY: PEO
DRAWN BY: PEO
CHECKED BY: NL
APPROVED BY: NL
SCALE
HORIZ: 1"=40'
VERT: 1"=4'
FIELD BOOK

HDR Engineering, Inc.
9805 Double R Blvd.
Suite 101
Reno, NV 89521
Phone: 775-337-4700

City of Sparks

NORTH TRUCKEE DRAIN REALIGNMENT PHASE 1

PARALLEL AND LATERAL STORM DRAIN
PLAN AND PROFILE SHEET 3

CITY OF SPARKS, NEVADA, PUBLIC WORKS DEPARTMENT

SHEET No.
C-7

SHT OF

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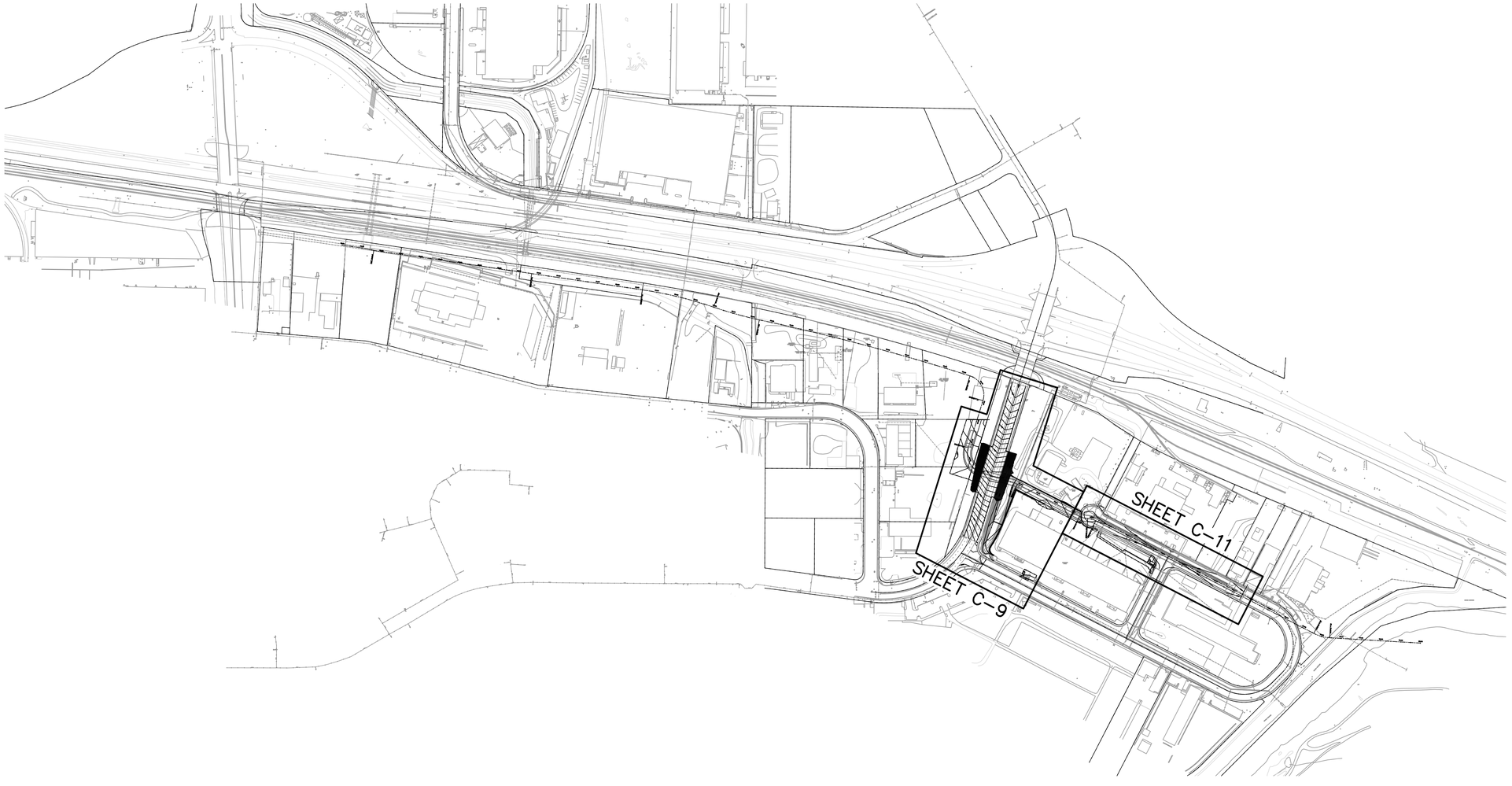

Key Map

NTS

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UNDERGROUND SERVICE ALERT (USA)

SAFETY ALERT
Call before you Overhead
775-834-7590
NV Energy Construction Line
24hrs. Prior Notice Required
OVERHEAD SERVICE ALERT

REV No	DATE	DESCRIPTION	APPROVED

DESIGNED BY: PEO
DRAWN BY: PEO
CHECKED BY: NL
APPROVED BY: NL
SCALE
HORIZ: 1"=40'
VERT: N/A
FIELD BOOK

City of Sparks
HDR Engineering, Inc.
9805 Double R Blvd,
Suite 101
Reno, NV 89521
Phone: 775-337-4700

NORTH TRUCKEE DRAIN REALIGNMENT PHASE 1

GRADING PLAN
KEY MAP

CITY OF SPARKS, NEVADA, PUBLIC WORKS DEPARTMENT

STATE OF NEVADA
NOEL C. LAUGHLIN
Exp: 12-31-13
CIVIL
No. 10178
PROFESSIONAL ENGINEER
10-18-13

SHEET No
C-8

SHT OF

C:\pwworking\phx\d0295093\C-8.dwg 10/21/13 1:59pm poxborro

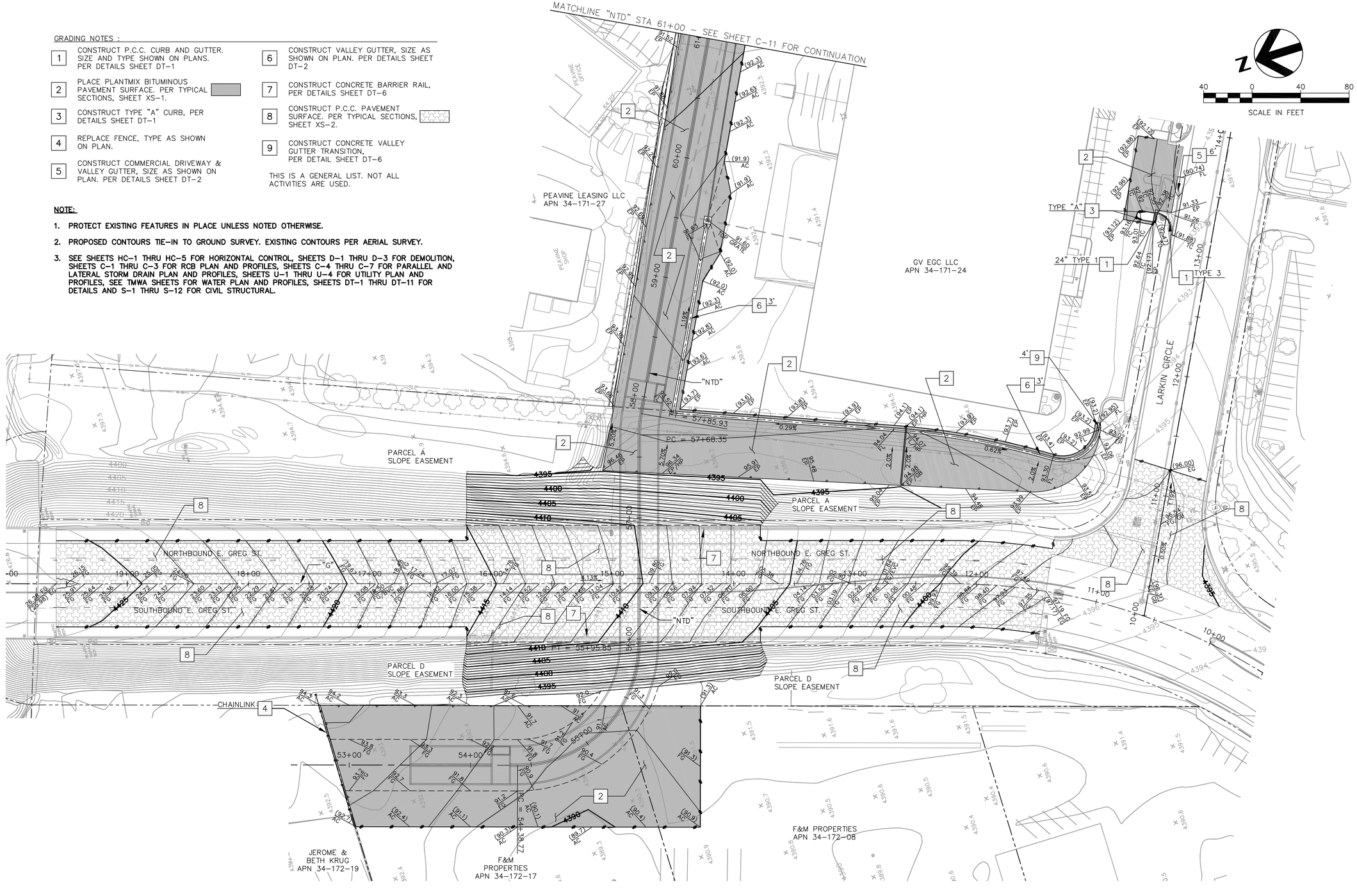
GRADING NOTES :

1. CONSTRUCT P.C.C. CURB AND GUTTER. SIZE AND TYPE SHOWN ON PLANS. PER DETAILS SHEET DT-1
2. PLACE PLANTMIX BITUMINOUS PAVEMENT SURFACE. PER TYPICAL SECTIONS, SHEET XS-1.
3. CONSTRUCT TYPE "A" CURB, PER DETAILS SHEET DT-1
4. REPLACE FENCE, TYPE AS SHOWN ON PLAN.
5. CONSTRUCT COMMERCIAL DRIVEWAY & VALLEY GUTTER, SIZE AS SHOWN ON PLAN. PER DETAILS SHEET DT-2
6. CONSTRUCT VALLEY GUTTER, SIZE AS SHOWN ON PLAN. PER DETAILS SHEET DT-2
7. CONSTRUCT CONCRETE BARRIER RAIL, PER DETAILS SHEET DT-6
8. CONSTRUCT P.C.C. PAVEMENT SURFACE. PER TYPICAL SECTIONS, SHEET XS-2.
9. CONSTRUCT CONCRETE VALLEY GUTTER TRANSITION, PER DETAIL SHEET DT-6

THIS IS A GENERAL LIST. NOT ALL ACTIVITIES ARE USED.

NOTE:

1. **PROTECT EXISTING FEATURES IN PLACE UNLESS NOTED OTHERWISE.**
2. **PROPOSED CONTOURS TIE-IN TO GROUND SURVEY. EXISTING CONTOURS PER AERIAL SURVEY.**
3. **SEE SHEETS HC-1 THRU HC-5 FOR HORIZONTAL CONTROL, SHEETS D-1 THRU D-3 FOR DEMOLITION, SHEETS C-1 THRU C-3 FOR RCB PLAN AND PROFILES, SHEETS C-4 THRU C-7 FOR PARALLEL AND LATERAL STORM DRAIN PLAN AND PROFILES, SHEETS U-1 THRU U-4 FOR UTILITY PLAN AND PROFILES, SEE TMWA SHEETS FOR WATER PLAN AND PROFILES, SHEETS DT-1 THRU DT-11 FOR DETAILS AND S-1 THRU S-12 FOR CIVIL STRUCTURAL.**



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DRAWN BY:	PEO
CHECKED BY:	NL
APPROVED BY:	NL
SCALE	1"=40'
HORIZ:	
VERT:	N/A
FIELD BOOK	

REV No	DATE	DESCRIPTION	APPROVED

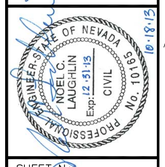
HDR Engineering, Inc.
9805 Double R Blvd.
Suite 101
Reno, NV 89521
Phone: 775-337-4700

City of Sparks

NORTH TRUCKEE DRAIN REALIGNMENT PHASE 1

GRADING PLAN 'NTD' STA 52+50 TO STA 61+00
'G' STA 9+50 TO STA 20+00

CITY OF SPARKS, NEVADA, PUBLIC WORKS DEPARTMENT



SHEET No
C-9

SHT OF

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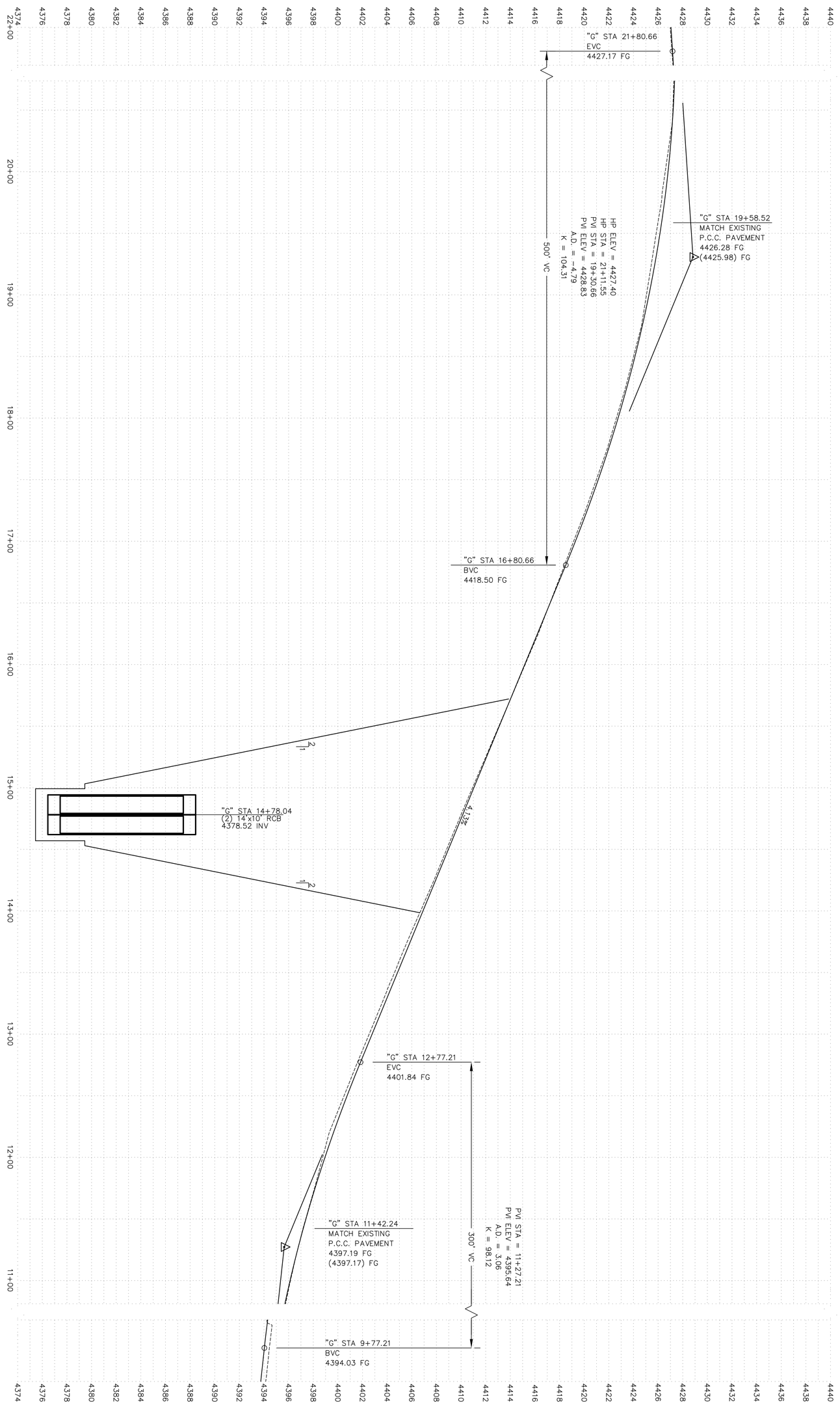
C:\pwworking\phx\d0295093\C-10.dwg 10/21/13 2:23pm kgonzale



SHT C-10 OF SHEET NO.

PROFESSIONAL ENGINEER STATE OF NEVADA
NOEL C. LAUGHLIN
Exp: 12-31-13
CIVIL
No. 10185
10-18-13

NORTH TRUCKEE DRAIN REALIGNMENT PHASE 1

GREG STREET PROFILE
'G' STA 9+50 TO STA 22+00

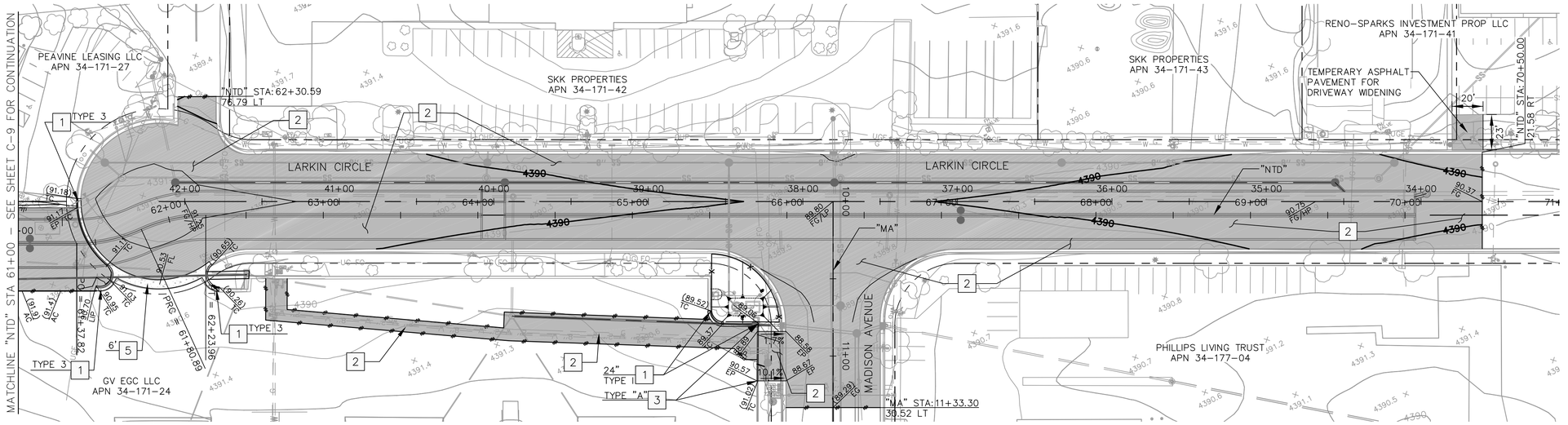
CITY OF SPARKS, NEVADA, PUBLIC WORKS DEPARTMENT

City of Sparks

HDR Engineering, Inc.
9805 Double R Blvd,
Suite 101
Reno, NV 89521
Phone: 775-337-4700

DESIGNED BY:	PEO
DRAWN BY:	PEO
CHECKED BY:	NL
APPROVED BY:	NL
SCALE	
HORIZ:	1"=40'
VERT:	1"=4'
FIELD BOOK	

REV No	DATE	DESCRIPTION	APPROVED



GRADING NOTES :

1. CONSTRUCT P.C.C. CURB AND GUTTER. SIZE AND TYPE SHOWN ON PLANS. PER DETAILS SHEET DT-1
2. PLACE PLANTMIX BITUMINOUS PAVEMENT SURFACE. PER TYPICAL SECTIONS, SHEET XS-1.
3. CONSTRUCT TYPE "A" CURB, PER DETAILS SHEET DT-1
4. REPLACE FENCE, TYPE AS SHOWN ON PLAN.
5. CONSTRUCT COMMERCIAL DRIVEWAY & VALLEY GUTTER, SIZE AS SHOWN ON PLAN. PER DETAILS SHEET DT-2
6. CONSTRUCT VALLEY GUTTER, SIZE AS SHOWN ON PLAN. PER DETAILS SHEET DT-2
7. CONSTRUCT CONCRETE BARRIER RAIL, PER DETAILS SHEET DT-6
8. CONSTRUCT P.C.C. PAVEMENT SURFACE. PER TYPICAL SECTIONS, SHEET XS-2.
9. CONSTRUCT CONCRETE VALLEY GUTTER TRANSITION, PER DETAIL SHEET DT-6

THIS IS A GENERAL LIST. NOT ALL ACTIVITIES ARE USED.

NOTE:

1. PROTECT EXISTING FEATURES IN PLACE UNLESS NOTED OTHERWISE.
2. PROPOSED CONTOURS TIE-IN TO GROUND SURVEY. EXISTING CONTOURS PER AERIAL SURVEY.
3. SEE SHEETS HC-1 THRU HC-5 FOR HORIZONTAL CONTROL, SHEETS D-1 THRU D-3 FOR DEMOLITION, SHEETS C-1 THRU C-3 FOR RCB PLAN AND PROFILES, SHEETS C-4 THRU C-7 FOR PARALLEL AND LATERAL STORM DRAIN PLAN AND PROFILES, SHEETS U-1 THRU U-4 FOR UTILITY PLAN AND PROFILES, SEE TMWA SHEETS FOR WATER PLAN AND PROFILES, SHEETS DT-1 THRU DT-11 FOR DETAILS AND S-1 THRU S-12 FOR CIVIL STRUCTURAL.

N

40 0 40 80

SCALE IN FEET

REV No	DATE	DESCRIPTION	APPROVED

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DRAWN BY: PEO
CHECKED BY: NL
APPROVED BY: NL
SCALE
HORIZ: 1"=40'
VERT: N/A
FIELD BOOK

HDR Engineering, Inc.
9805 Double R Blvd.
Suite 101
Reno, NV 89521
Phone: 775-337-4700

City of Sparks

NORTH TRUCKEE DRAIN REALIGNMENT PHASE 1

GRADING PLAN
'NTD' STA 61+00 TO STA 71+00

CITY OF SPARKS, NEVADA, PUBLIC WORKS DEPARTMENT

NOEL C. LAUGHLIN
Exp: 12-31-13
PROFESSIONAL ENGINEER
STATE OF NEVADA
No. 10178
CIVIL
10/18/13

SHEET No
C-11

SHT OF

C:\pwworking\phx\d0295093\C-11.dwg 10/21/13 2:26pm kgonzale

NOTE:

1. SEE SHEET DT-6 FOR CONCRETE PAVEMENT DETAILS.

REV No.	DATE	DESCRIPTION	APPROVED

DESIGNED BY: PEO
DRAWN BY: PEO
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APPROVED BY: PSP/NL
SCALE
HORIZ: 1"=10'
VERT: N/A
FIELD BOOK

HDR Engineering, Inc.
9805 Double R Blvd.
Suite 101
Reno, NV 89521
Phone: 775-337-4700

City of Sparks

NORTH TRUCKEE DRAIN REALIGNMENT PHASE 1

GREG STREET JOINT CONFIGURATION AND GRADING PLAN 'G' STA 9+50 TO STA 12+50

CITY OF SPARKS, NEVADA, PUBLIC WORKS DEPARTMENT

STATE OF NEVADA PROFESSIONAL ENGINEER NOEL C. LAUGHLIN Exp: 12-31-15 CIVIL No. 10181 10-18-13

SHEET No.
C-12

SHT OF

C:\pwworking\phx\d0295093\C-12.dwg 10/21/13 2:28pm kgonzale

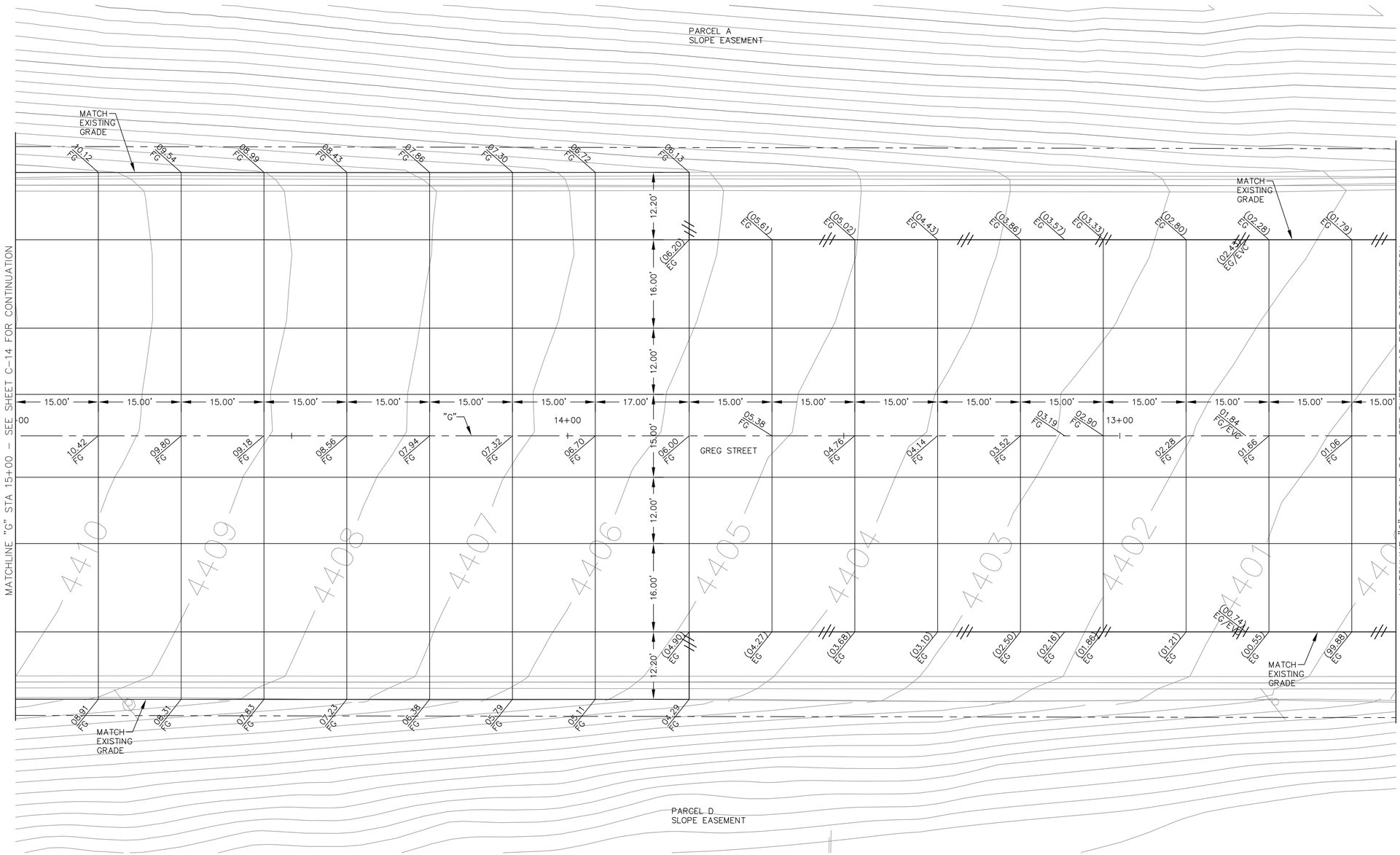
NOTE:

1. SEE SHEET DT-6 FOR CONCRETE PAVEMENT DETAILS.

N

10 0 10 20

SCALE IN FEET



REV No.	DATE	DESCRIPTION	APPROVED

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DRAWN BY: PEO
CHECKED BY: PSP
APPROVED BY: PSP/NL
SCALE
HORIZ: 1"=10'
VERT: N/A
FIELD BOOK

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9805 Double R Blvd.
Suite 101
Reno, NV 89521
Phone: 775-337-4700

City of Sparks

NORTH TRUCKEE DRAIN REALIGNMENT PHASE 1

GREG STREET JOINT CONFIGURATION AND GRADING PLAN "G" STA 12+50 TO STA 15+00

CITY OF SPARKS, NEVADA, PUBLIC WORKS DEPARTMENT

PROFESSIONAL ENGINEER – STATE OF NEVADA
NOEL C. LAUGHLIN
Exp: 12-31-13
CIVIL
No. 10165
10-18-13

SHEET No.
C-13

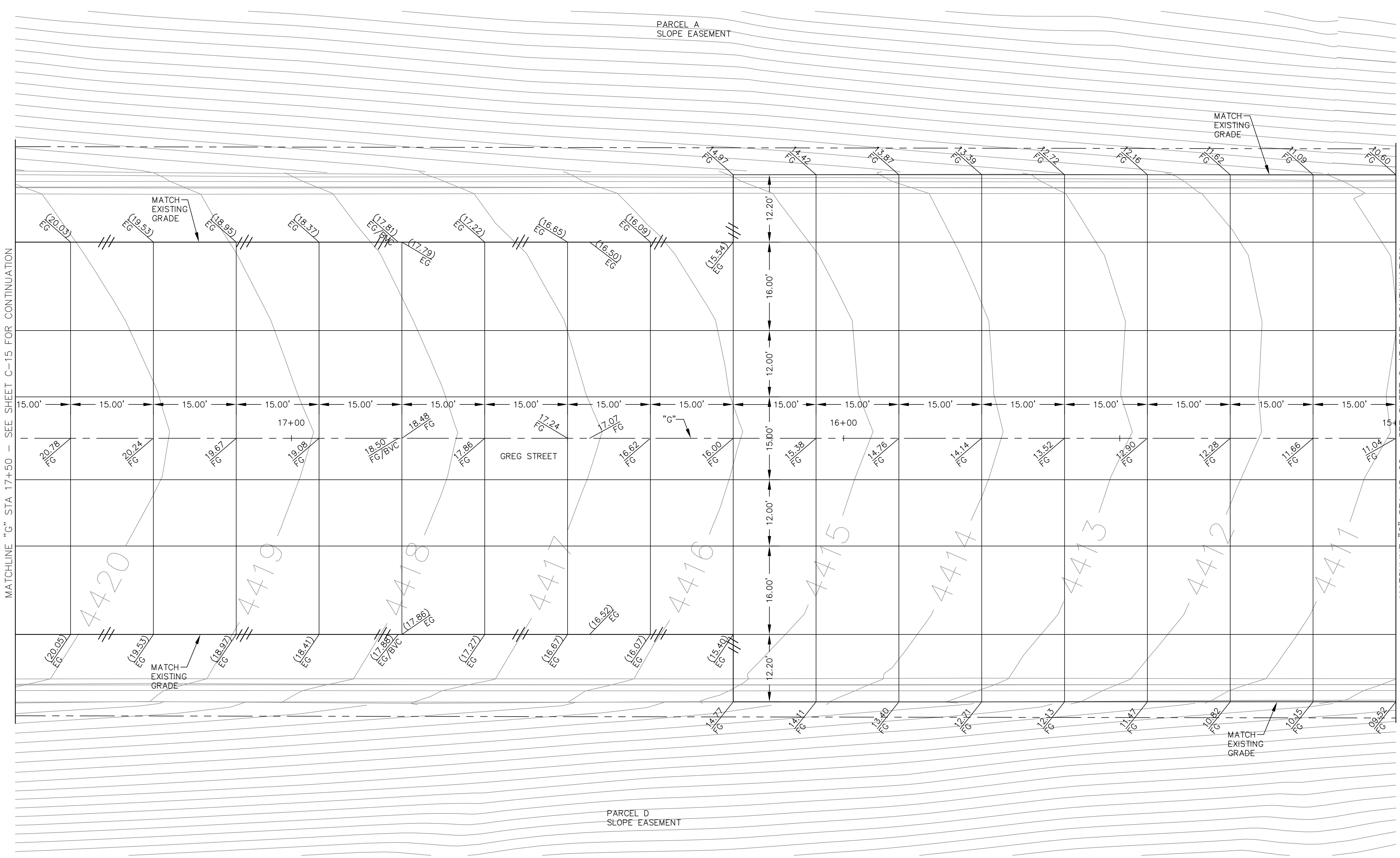
SHT OF

C:\pwworking\phx\d0295093\C-13.dwg 10/21/13 2:29pm kgonzale

NOTE:

1. SEE SHEET DT-6 FOR CONCRETE PAVEMENT DETAILS.

SCALE IN FEET (10 0 10 20)



REV No	DATE	DESCRIPTION	APPROVED

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CHECKED BY: PSP
APPROVED BY: PSP/NL
SCALE
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VERT: N/A
FIELD BOOK

HDR Engineering, Inc.
9805 Double R Blvd.
Suite 101
Reno, NV 89521
Phone: 775-337-4700

City of Sparks

NORTH TRUCKEE DRAIN REALIGNMENT PHASE 1

GREG STREET JOINT CONFIGURATION AND GRADING PLAN "G" STA 15+00 TO STA 17+50

CITY OF SPARKS, NEVADA, PUBLIC WORKS DEPARTMENT

PROFESSIONAL ENGINEER STATE OF NEVADA — NOEL C. LAUGHLIN — Exp. 12-31-15 — CIVIL — No. 10165 — 10-18-13

SHEET No
C-14
SHT OF

C:\pwworking\phx\d0295093\C-14.dwg 10/21/13 2:33pm kgonzole

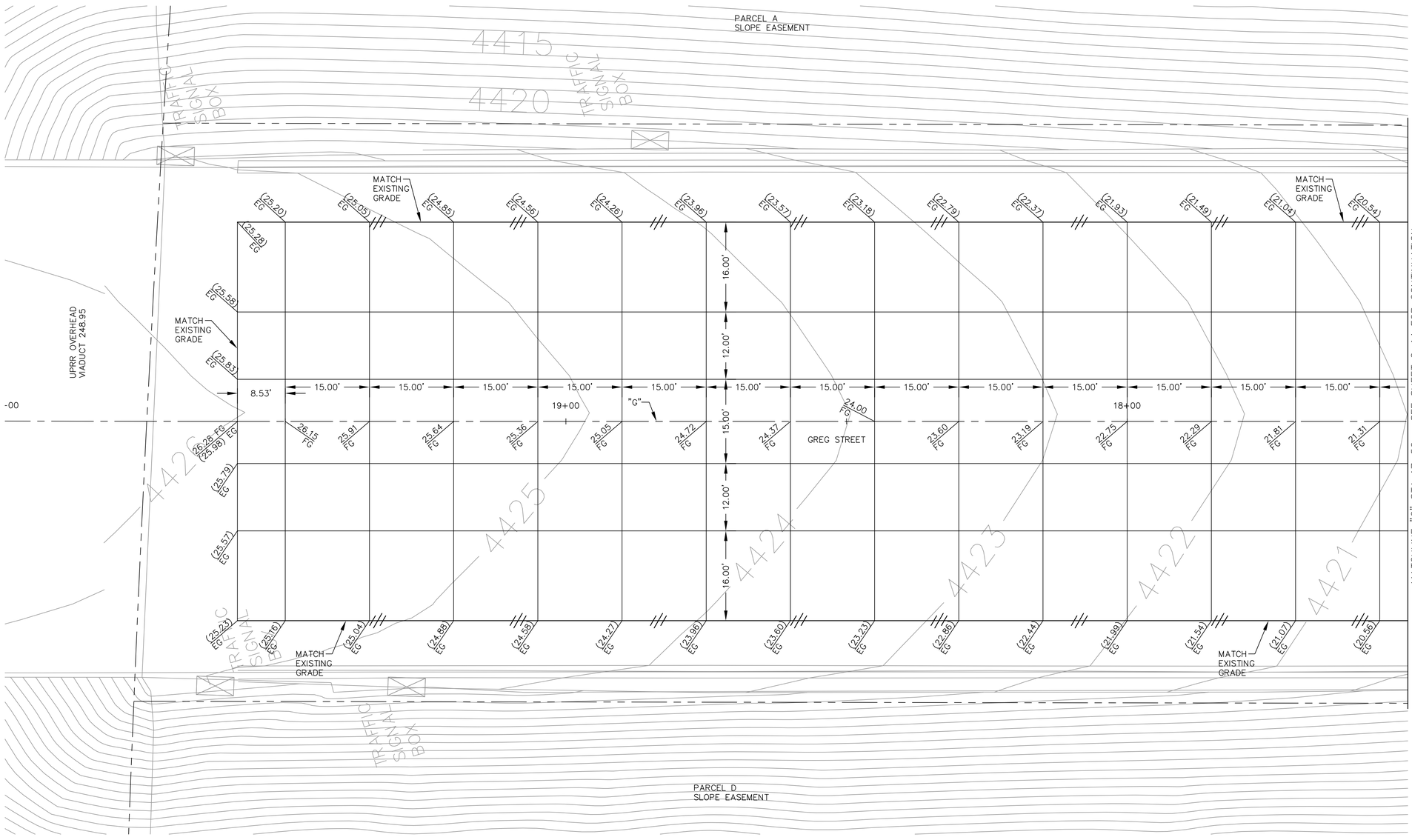
NOTE:

1. SEE SHEET DT-6 FOR CONCRETE PAVEMENT DETAILS.

N

10 0 10 20

SCALE IN FEET



REV No.	DATE	DESCRIPTION	APPROVED

DESIGNED BY: PEO
DRAWN BY: PEO
CHECKED BY: PSP
APPROVED BY: PSP/NL
SCALE
HORIZ: 1"=10'
VERT: N/A
FIELD BOOK

HDR
HDR Engineering, Inc.
9805 Double R Blvd.
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Phone: 775-337-4700

City of Sparks

NORTH TRUCKEE DRAIN REALIGNMENT PHASE 1

GREG STREET JOINT CONFIGURATION
AND GRADING PLAN "G" STA 17+50 TO STA 20+00

CITY OF SPARKS, NEVADA, PUBLIC WORKS DEPARTMENT

PROFESSIONAL ENGINEER STATE OF NEVADA
NOEL C. LAUGHLIN
Exp: 12-31-15
CIVIL
No. 10159
10-18-13

SHEET No.
C-15

SHT OF

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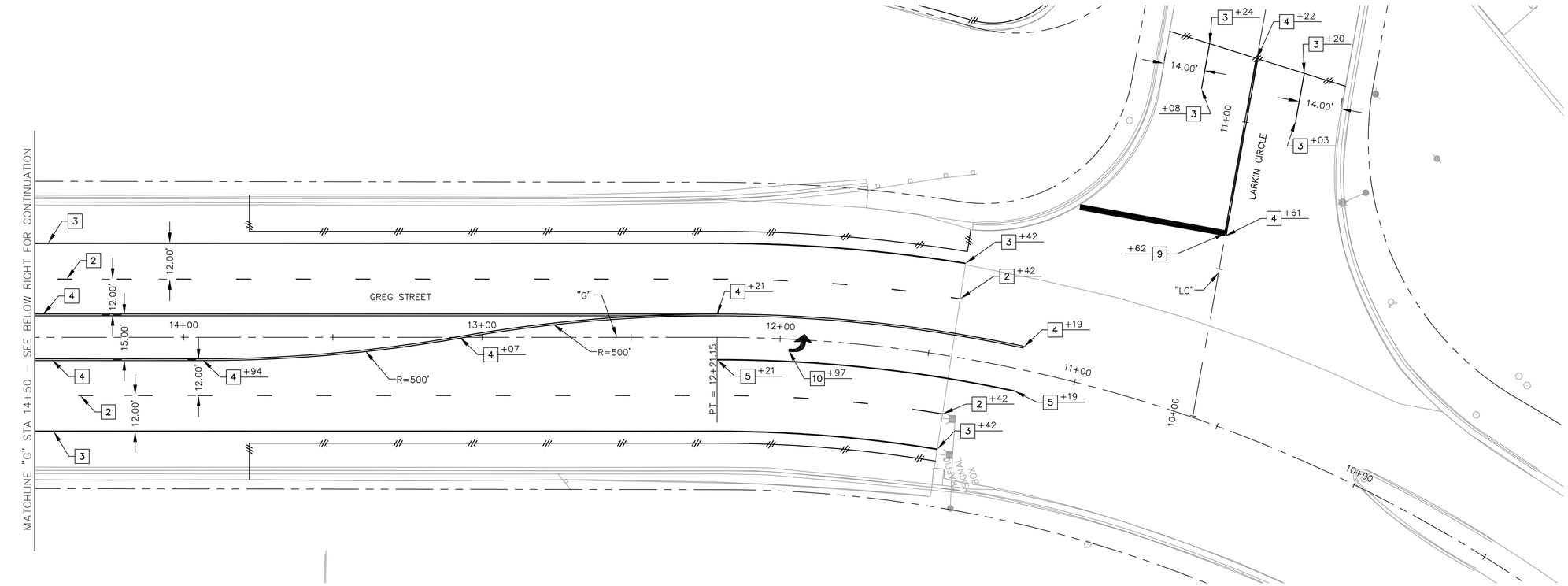

SIGNING AND STRIPING NOTES :

1. PROTECT–IN–PLACE.
2. PLACE 4" DASHED WHITE PAVEMENT MARKINGS (TYPE II PAINT)
3. PLACE 4" SOLID WHITE PAVEMENT MARKINGS (TYPE II PAINT)
4. PLACE 4" DOUBLE SOLID YELLOW PAVEMENT MARKINGS (TYPE II PAINT)
5. PLACE 8" SOLID WHITE PAVEMENT MARKINGS (TYPE II PAINT)
6. PLACE RED CURB/FIRE HYDRANT MARKINGS (TYPE II PAINT)
7. NOT USED
8. INSTALL FIRE HYDRANT MARKER (BLUE REFLECTOR)
9. PLACE 24" SOLID WHITE STOP BAR STRIPE (PREFORMED THERMOPLASTIC)
10. PLACE 8' HIGH WHITE DIRECTIONAL ARROW (PREFORMED THERMOPLASTIC)
11. NOT USED
12. NOT USED
13. NOT USED

THIS IS A GENERAL LIST. NOT ALL ACTIVITIES ARE USED.

PROTECT EXISTING FEATURES IN PLACE UNLESS NOTED OTHERWISE.

N

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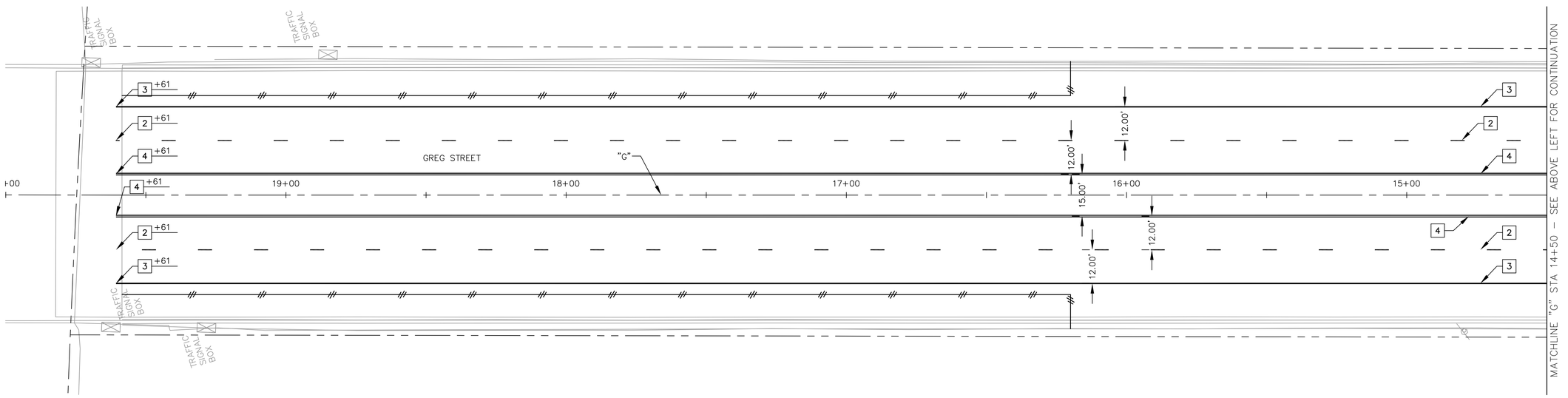

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APPROVED BY: PSP/NL
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City of Sparks

NORTH TRUCKEE DRAIN REALIGNMENT PHASE 1

GREG STREET AND LARKIN CIRCLE SIGNING AND STRIPING PLAN "G" STA 9+50 TO STA 20+00 "LC" STA 10+00 TO STA 11+50

CITY OF SPARKS, NEVADA, PUBLIC WORKS DEPARTMENT

PROFESSIONAL ENGINEER STATE OF NEVADA NOEL C. LAUGHLIN Exp. 12-31-13 CIVIL No. 10151 10-18-13

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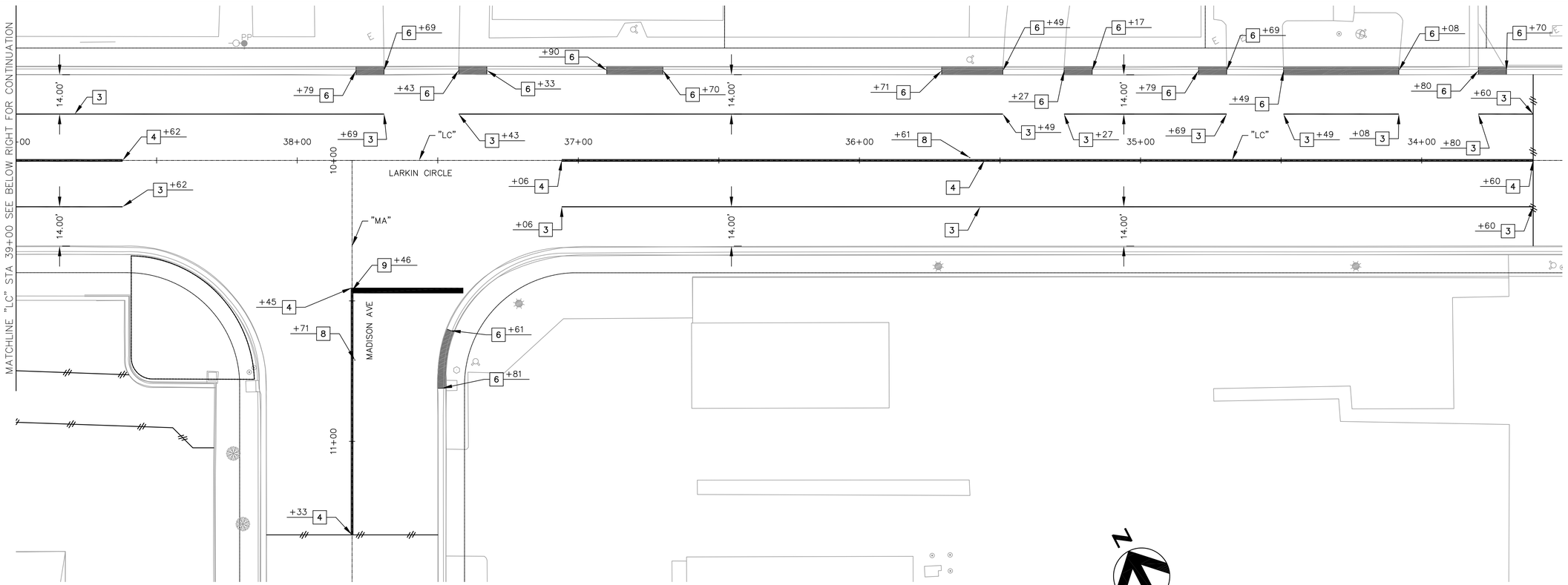

SIGNING AND STRIPING NOTES :

1. PROTECT–IN–PLACE.
2. PLACE 4" DASHED WHITE PAVEMENT MARKINGS (TYPE II PAINT)
3. PLACE 4" SOLID WHITE PAVEMENT MARKINGS (TYPE II PAINT)
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5. PLACE 8" SOLID WHITE PAVEMENT MARKINGS (TYPE II PAINT)
6. PLACE RED CURB/FIRE HYDRANT MARKINGS (TYPE II PAINT)
7. NOT USED
8. INSTALL FIRE HYDRANT MARKER (BLUE REFLECTOR)
9. PLACE 24" SOLID WHITE STOP BAR STRIPE (PREFORMED THERMOPLASTIC)
10. PLACE 8' HIGH WHITE DIRECTIONAL ARROW (PREFORMED THERMOPLASTIC)
11. NOT USED
12. NOT USED
13. NOT USED

THIS IS A GENERAL LIST. NOT ALL ACTIVITIES ARE USED.

PROTECT EXISTING FEATURES IN PLACE UNLESS NOTED OTHERWISE.

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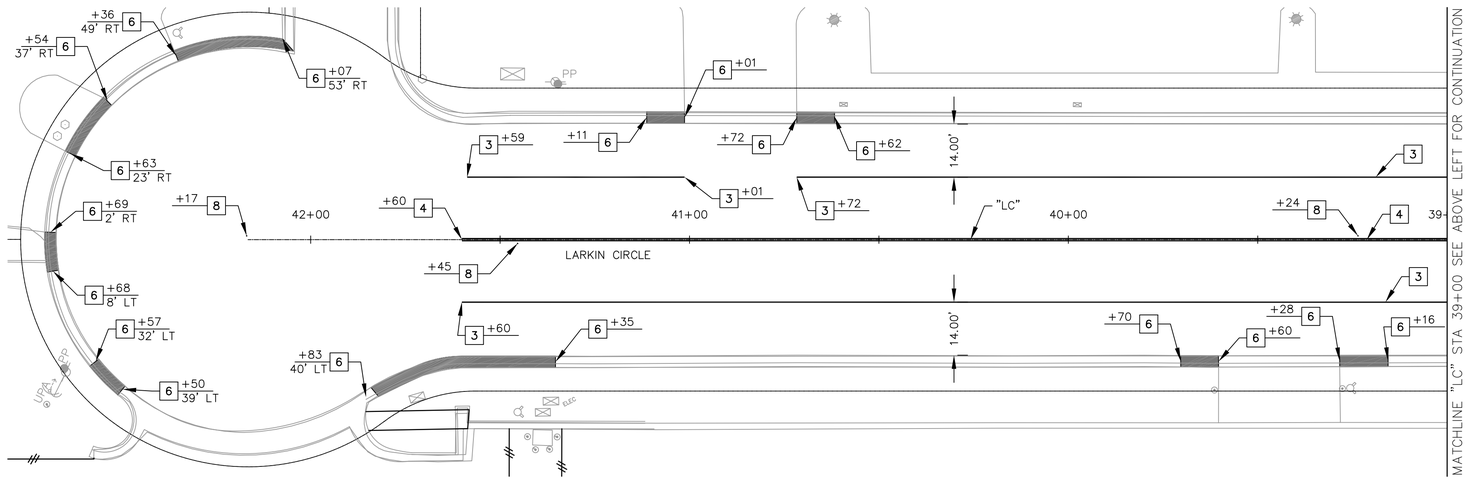

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CHECKED BY: PSP
APPROVED BY: PSP/NL
SCALE
HORIZ: 1"=20'
VERT: N/A
FIELD BOOK

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Phone: 775-337-4700

City of Sparks

NORTH TRUCKEE DRAIN REALIGNMENT PHASE 1

LARKIN CIRCLE AND MADISON AVENUE SIGNING AND STRIPING PLAN "LC" STA 33+50 TO STA 43+00 "MA" STA 10+00 TO STA 11+50

CITY OF SPARKS, NEVADA, PUBLIC WORKS DEPARTMENT

PROFESSIONAL ENGINEER STATE OF NEVADA NOEL C. LAUGHLIN Exp: 12-31-13 CIVIL No. 10161 10-18-13

SHEET No
ST-2

SHT OF

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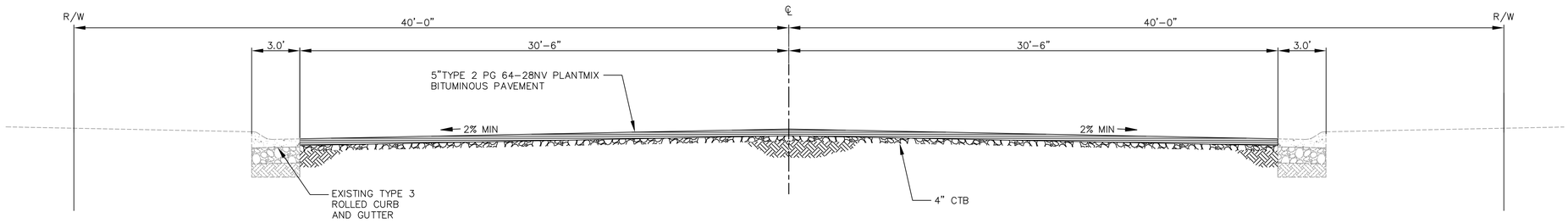
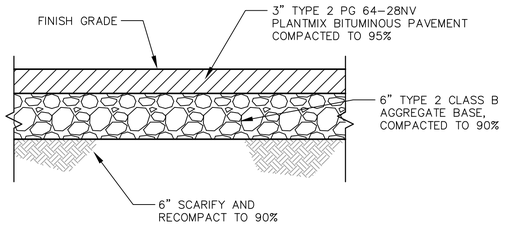


LARKIN CIRCLE – TYPICAL SECTION



PARKING LOTS AND CONSTRUCTION YARDS – TYPICAL SECTION

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REV No	DATE	DESCRIPTION	APPROVED

DESIGNED BY: PEO
DRAWN BY: PEO
CHECKED BY: NL
APPROVED BY: NL
SCALE
HORIZ: 1"=10'
VERT: 1"=10'
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City of Sparks

NORTH TRUCKEE DRAIN REALIGNMENT PHASE 1

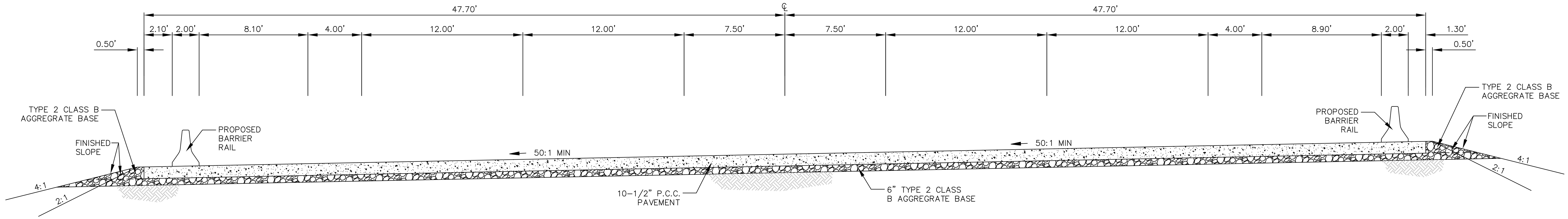
TYPICAL ROAD CROSS SECTIONS

CITY OF SPARKS, NEVADA, PUBLIC WORKS DEPARTMENT

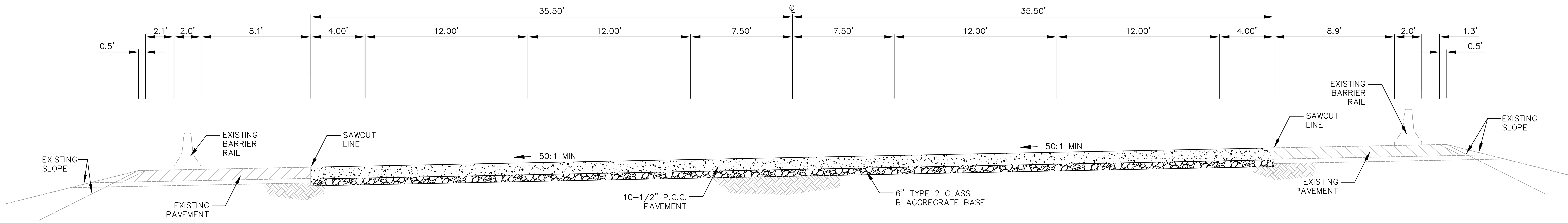
STATE OF NEVADA PROFESSIONAL ENGINEER
NOEL C. LAUGHLIN
No. 10181
CIVIL
Exp: 12-31-13
10-18-13

SHEET No
XS-1

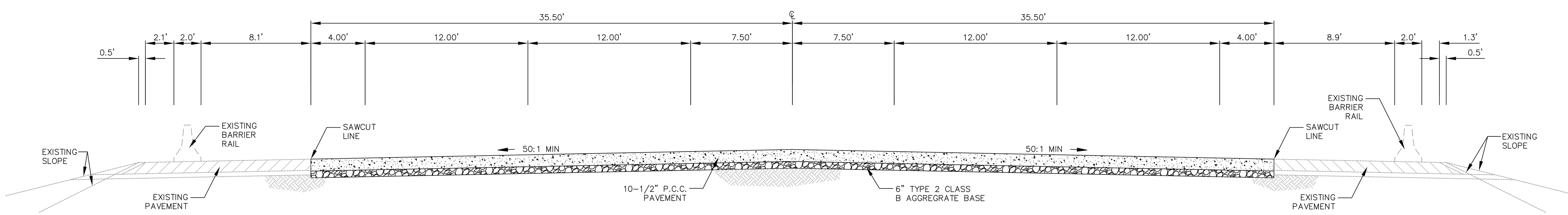
SHT OF



GREG STREET – SUPER ELEVATION SECTION
STA 13+78 TO STA 16+20



GREG STREET – SUPER ELEVATION SECTION
STA 11+42 TO STA 13+78



GREG STREET – TYPICAL SECTION
STA 16+20 TO STA 19+59

REV No	DATE	DESCRIPTION	APPROVED

DESIGNED BY: PEO
DRAWN BY: PEO
CHECKED BY: NL
APPROVED BY: NL
SCALE
HORIZ: 1"=10'
VERT: 1"=10'
FIELD BOOK

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Reno, NV 89521
Phone: 775-337-4700

City of Sparks

NORTH TRUCKEE DRAIN REALIGNMENT PHASE 1

TYPICAL ROAD CROSS SECTIONS

CITY OF SPARKS, NEVADA, PUBLIC WORKS DEPARTMENT

PROFESSIONAL ENGINEER STATE OF NEVADA
NOEL C. LAUGHLIN
Exp. 12-31-13
CIVIL
No. 10169
10-18-13

SHEET No
XS-2

SHT OF

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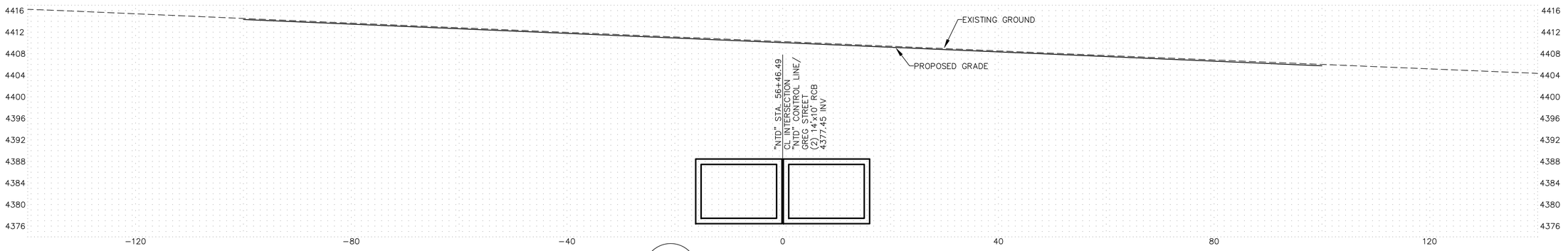

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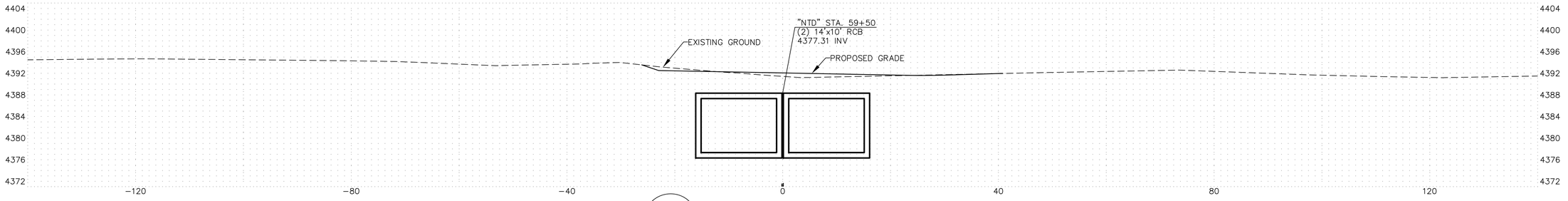
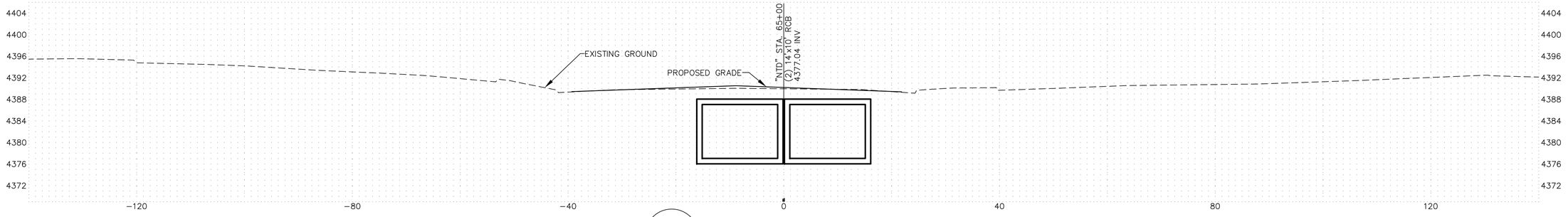


B / C-2 "NTD" STA. 59+50



C / C-3 "NTD" STA. 65+00

REV No	DATE	DESCRIPTION	APPROVED

DESIGNED BY: PEO
DRAWN BY: PEO
CHECKED BY: NL
APPROVED BY: NL
SCALE
HORIZ: 1"=10'
VERT: 1"=10'
FIELD BOOK

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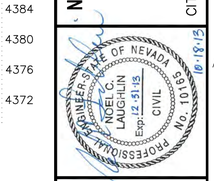
City of Sparks

NORTH TRUCKEE DRAIN REALIGNMENT PHASE 1

'NTD' CROSS SECTIONS

CITY OF SPARKS, NEVADA, PUBLIC WORKS DEPARTMENT



SHEET No
XS-3

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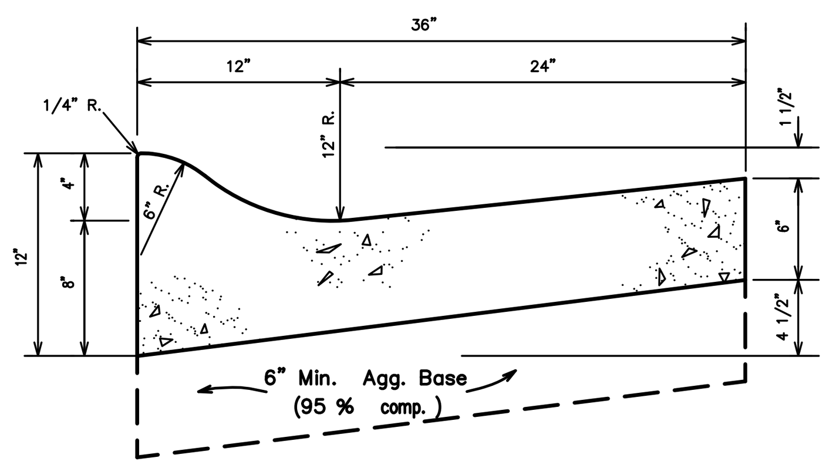
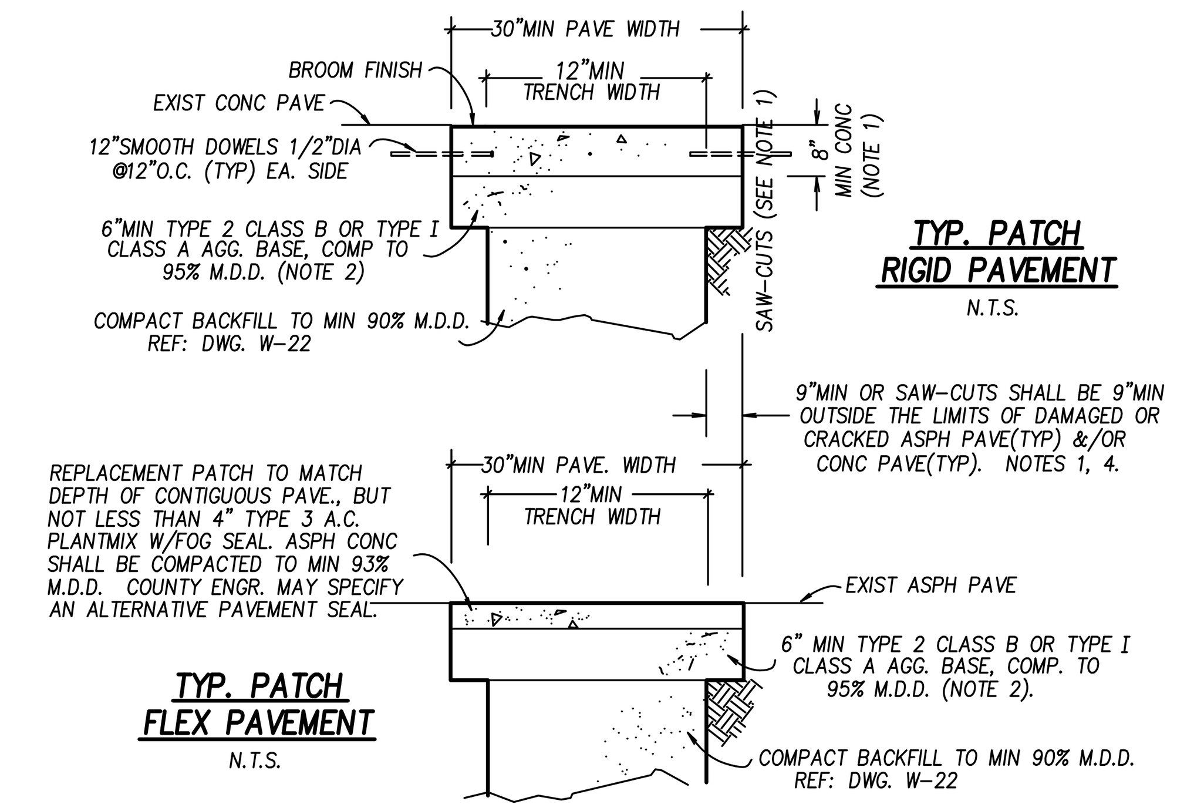


TYPE 3 CURB & GUTTER
(Industrial Area Only)

NOTE:
General notes for all curb and gutter as shown on Dwg. No.I-6.1 will apply.

NO.	REVISION	DATE	STANDARD DETAILS FOR PUBLIC WORKS CONSTRUCTION	SECTION SPARKS
			CITY OF SPARKS TYPE 3 P.C.C. CURB/GUTTER	DRAWING NO. S-3 (312) DATE 7-81 PAGE 3

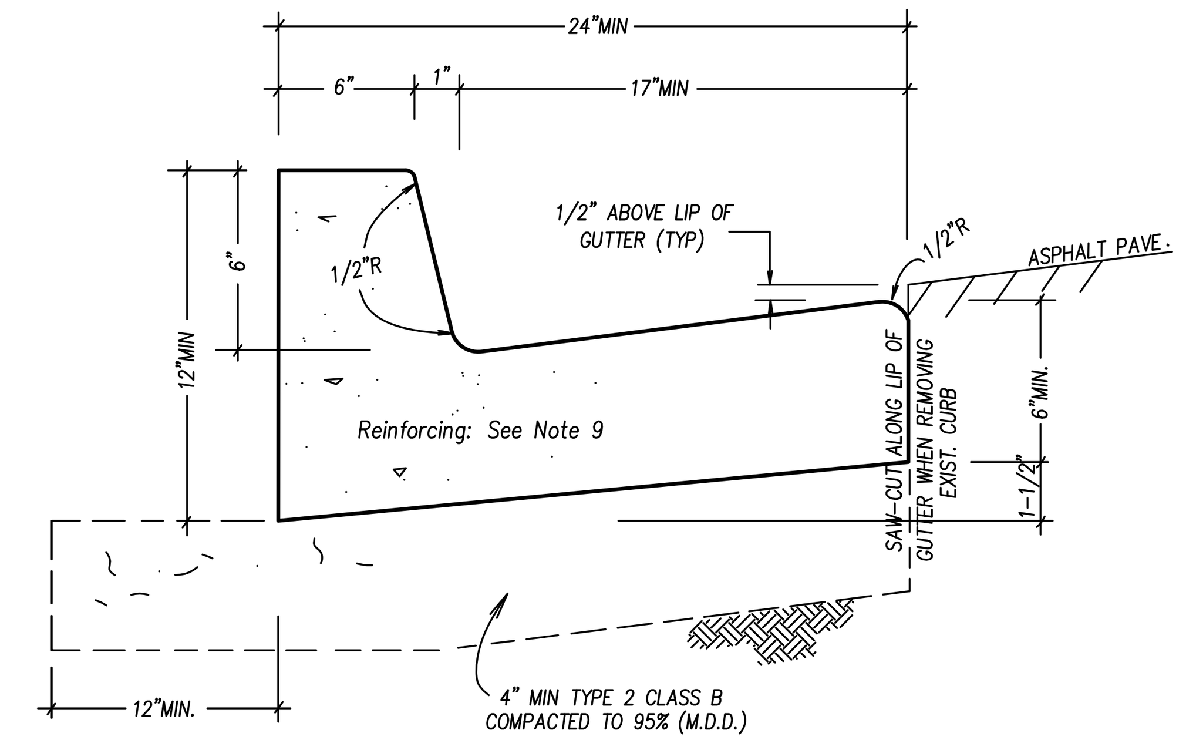


NOTES

1. ALL CONC REMOVAL & REPLACEMENT SHALL BE TO SAW-CUT LINES & SHALL BE DONE BY EXCAVATION CONTRACTOR OR SUBCONTRACTOR. ALL SAW-CUTS SHALL BE VERT & IN STRAIGHT LINES PARALLEL OR PERPENDICULAR TO TRENCH, OR TO SATISFACTION OF THE CO. ENGINEER. CONC SHALL BE MIN 6.25sack 4000psi WITH FIBERMESH W/4.5-7.5% AIR.

   RIGID PAVEMENT: IF SAW-CUT IS WITHIN 36" OF EDGE OR JOINT ON PCC PAVE., REMOVE PCC TO EXIST EDGE & REPLACE ENTIRE SECTION. FLEX PAVEMENT: IF SAW-CUT IS WITHIN 36" OF EDGE ON A.C. PAVE., EDGE OF VALLEY GUTTER, LIP OF CURB & GUTTER, OR A PREVIOUS PATCH, REMOVE EXIST PAVE TO THAT EDGE AND REPLACE THE ENTIRE SECTION.
2. DEPTH OF BASE TO BE 6" MIN., OR MATCH EXIST BASE IF GREATER.
3. UNPAVED STREET SHALL RECEIVE 6" MIN BASE COURSE IN ACCORDANCE W/LATEST EDITION OF THE STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION.
4. ALL ASPH REMOVAL SHALL BE TO SAW-CUT LINES. ALL ASPH CONC SHALL BE TYPE 3 PLANTMIX. ALL SAW-CUTS FOR FLEXIBLE PAVE SHALL BE PERFORMED BY EXCAVATION CONTRACTOR OR SUBCONTRACTOR.
5. ALL CONST SHALL BE IN ACCORDANCE W/LATEST EDITION OF STD. SPECIFICATIONS FOR PUBLIC SORKS CONST.
6. USE OF ROCK WHEEL TRENCHING MACHINES OR SIMILAR EQUIP SHALL NOT BE PERMITTED WITHIN PAVED AREAS OR WITHIN 1 FT OF EDGE OF PAVING.
7. CONC SLURRY W/MIN OF 1 SACK OF CEMENT PER CU.YD. OF SLURRY OR OTHER APPROVED MIX DESIGN MAY BE USED FOR BASE COURSE, BEDDING OR BACKFILL IF APPROVED BY CO. ENGINEER & UTILITY COMPANIES.
8. PERMANENT RESURFACING SHALL NOT BE PLACED ON TRENCHES BACKFILLED W/CONC SLURRY FOR A MIN OF 7 DAYS AFTER PLACEMENT OF THE CONC SLURRY OR SIMILAR MATERIAL.
9. ALL TRENCHES SHALL BE PATCHED W/COLD PATCH WITHIN 24 HRS AFTER BACKFILLING IS COMPLETED, OR COVERED W/STEEL PLATES & BARRICADED TO SATISFACTION OF THE COUNTY ENGINEER.

NO.	REVISED	DATE	STANDARD DETAILS FOR PUBLIC WORKS CONSTRUCTION	SECTION: WASHOE
1	Widen dim's	8/03vp	PERMANENT PAVEMENT PATCH	DRAWING NO: W-2.2
2	notes	12/05sw		DATE: 4/94 vp PAGE: 9

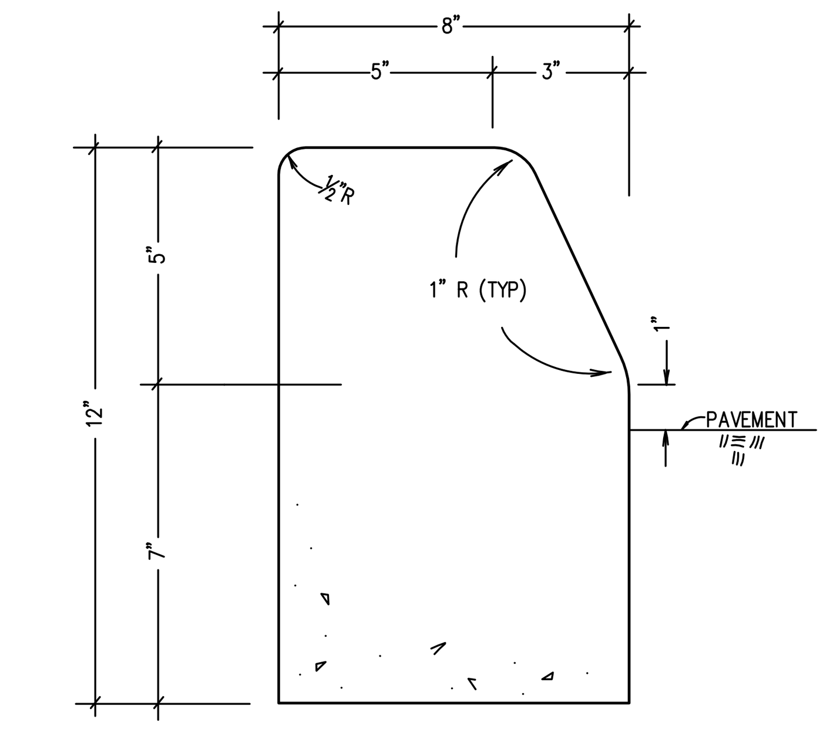


SECTION

NOTES

1. PORTLAND CEMENT CONC. (P.C.C.) SHALL HAVE THE FOLLOWING CHARACTERISTICS; 4000psi MIN. COMPRESSIVE STRENGTH @ 28 DAYS W/MIN. OF 6.25 SACKS OF CEMENT PER CU.YD. OF CONC.: AIR ENTRAINMENT SHALL BE 4.5 – 7.5% SLUMP SHALL RANGE FROM 1" MIN. TO 4" MAX. ALL MATERIALS SHALL CONFORM TO SSPWC SEC.202
2. CURB & GUTTER SHALL HAVE WEAKENED PLANE JOINTS ON 10' CENTERS (MAX).
3. AGGREGATE BASE SHALL BE TYPE 2 CLASS B AGGREGATE BASE COMPACTED TO A MIN. 95% MAXIMUM DRY DENSITY.
4. EVAPORATION REDUCERS (SUCH AS CONFILM) SHALL BE APPLIED IMMEDIATELY AFTER INITIAL FINISHING.
5. CURING AGENTS SHALL BE APPLIED PER SECTION 202.11.02 IMMEDIATELY AFTER FINAL FINISHING.
6. CURB REMOVAL SHALL BE DONE TO NEAT SAW-CUT LINES.
7. ONE SET OF TEST CYLINDERS (SET OF 4 MIN.) SHALL BE TAKEN FOR EACH 50 YDS. OF CONC. PLACED INCLUDING SLUMP, AIR, AIR TEMPERATURE, AND CONC. TEMPERATURE OR A MIN. OF 1 SET OF 4 CYLINDERS FOR EACH DAY'S POUR.
8. NO EQUIPMENT SHALL BE PERMITTED ADJACENT TO OR ACROSS THE CURB UNTIL THE FOURTH DAY FOLLOWING PLACEMENT OF THE CONC. OR UNTIL THE CONCRETE HAS REACHED A MIN. COMPRESSIVE STRENGTH OF 3000psi.
9. REINFORCING SHALL CONSIST OF COLLATED, FIBRILLATED, POLYPROPYLENE FIBERS AS MANUFACTURED BY FIBERMESH OR APPROVED EQUAL. USE 1-1/2LBS. PER CU.YD. ON CONCRETE.

NO.	REVISED	DATE	STANDARD DETAILS FOR PUBLIC WORKS CONSTRUCTION	SECTION: WASHOE
1	REDRAW	11/92vp	TYPE I P.C.C. CURB & GUTTER	DRAWING NO: W-16.1
2	NOTE 2,9	1/94vp		DATE: 11/92vp PAGE: 29

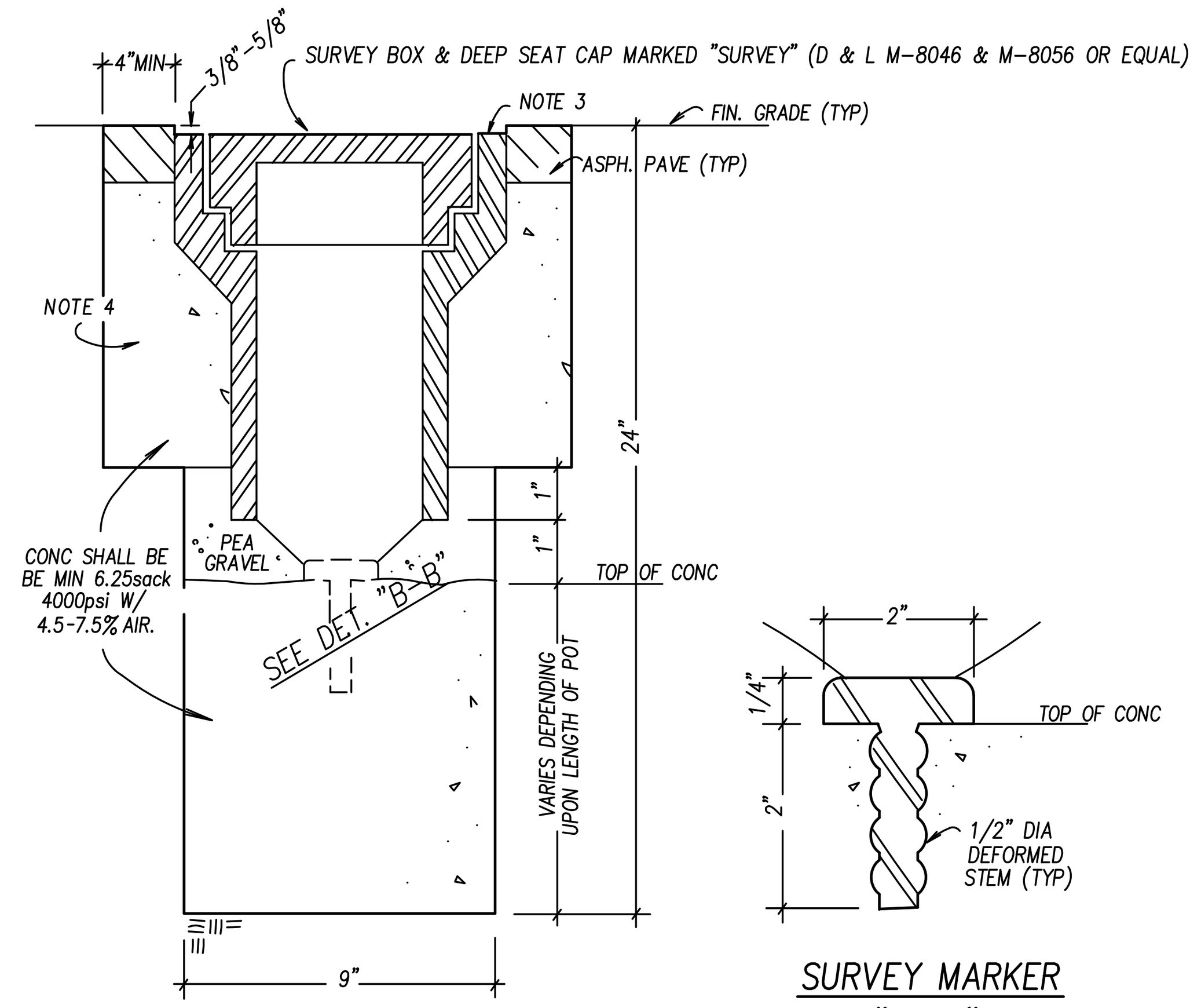


TYPE "A" CURB

NOTES:

1. SEE NOTES FOR TYPE I CURB & GUTTER.
2. ALL CONC FOR TYPE I OR TYPE "A" CURB SHALL BE REINFORCED W/ COLLATED, FIBRILLATED POLYPROPYLENE FIBERS AS MANUFACTURED BY FIBERMESH OR APPROVED EQUAL. REINFORC'G SHALL BE 1½ LBS OF FIBERMESH PER CU. YD. OF CONCRETE.

TYPE "A" CURB



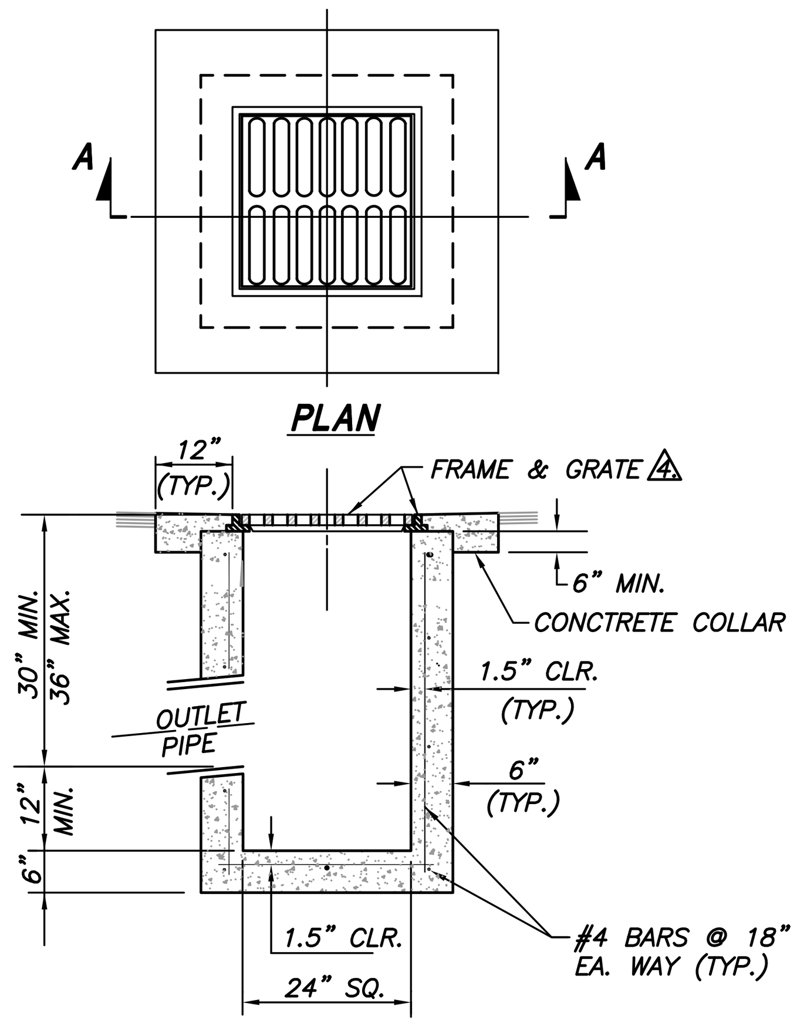
CLASS A

SURVEY MARKER
"B-B"

NOTES

1. ALL SURVEY MARKERS SHALL BE CENTER PUNCHED AFTER PLACEMENT.
2. 2" DIA ALUM. OR BRASS CAP W/PLS # PERMANENTLY ATTACHED PRIOR TO PLACEMENT.
3. MONUMENT POT SHALL BE SET 3/8"-5/8" BELOW FINISHED ROADWAY SURFACE.
4. CONC COLLAR SHALL BE LEFT 2" BELOW FINISHED ASPH SURFACE. TOP OF CONC SHALL RECEIVE A ROUGH BROOM FINISH. PLACE 2" OF TYPE 3 ASPH AROUND MONUMENT POT. APPLY SS-1 TACK COAT TO TOP OF CONC BEFORE PLACING ASPH PAVING, & SEAL ASPH SURFACE W/SS-1 TACK COAT & SAND. CHIP SEAL, SAND SEAL, SLURRY SEAL OR FOG SEAL PAVED SURFACE AS REQ'D BY PLANS OR SPECS.
5. CONC SHALL BE FLUSH W/TOP OF SURVEY POT WHEN NOT LOCATED IN ASPH PAVING.

NO.	REVISION	DATE	STANDARD DETAILS FOR PUBLIC WORKS CONSTRUCTION	SECTION WASHOE
1	REDRAW	1/93vp	MONUMENTS	DRAWING NO. W-18
2	Notes, dim's	7/93vp		DATE 1/93vp PAGE 34
3	F.G/COLLAR	3/94vp		
4	NOTE 3,4	1/95vp		



SECTION A-A

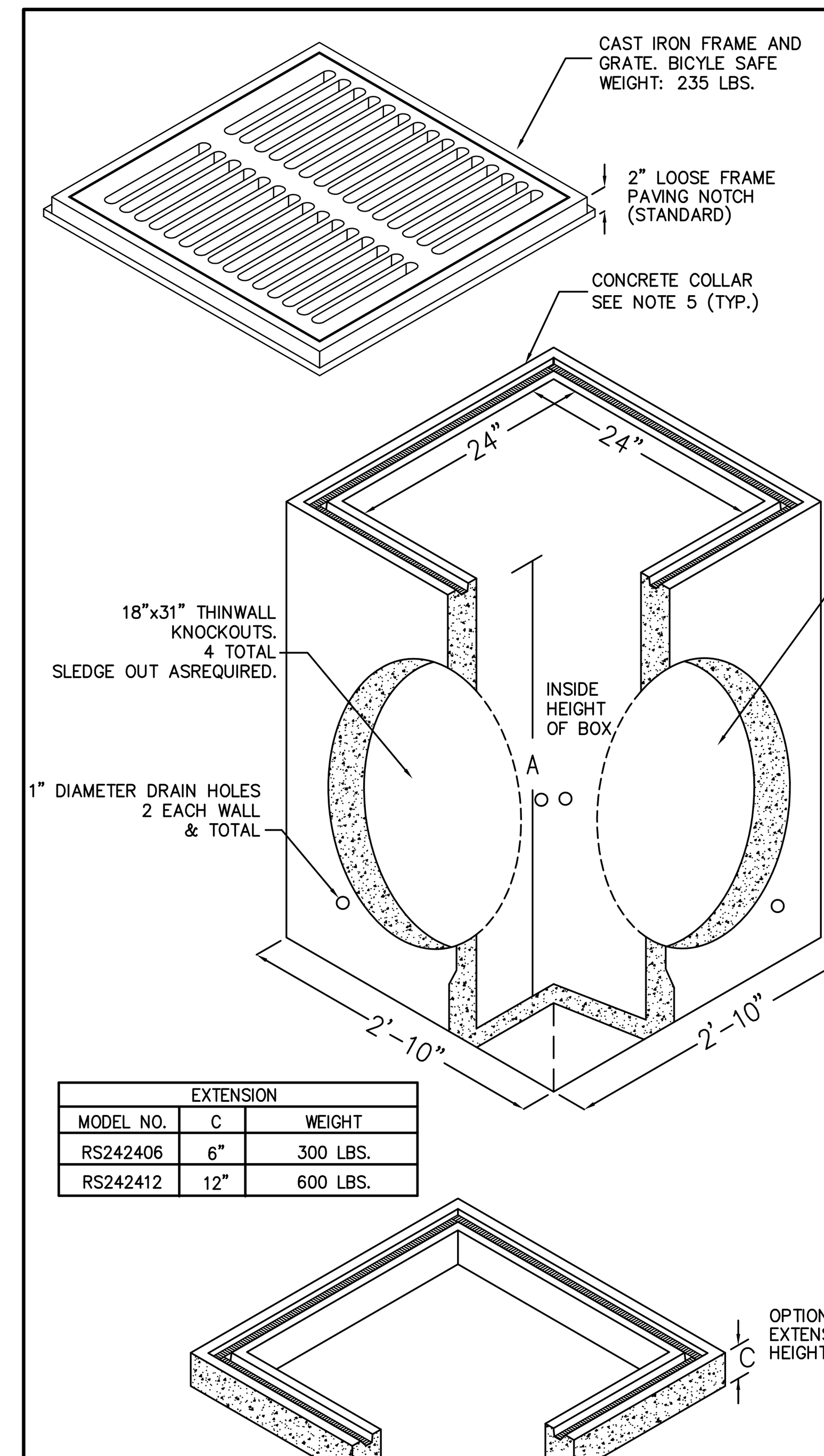
NOTES:

1. PORTLAND CEMENT CONCRETE (P.C.C.) SHALL HAVE THE FOLLOWING CHARACTERISTICS: 4000 PSI MIN. COMPRESSIVE STRENGTH @ 28 DAYS, (FOR COLLAR ONLY, ALL UNEXPOSED CONCRETE MAY BE 3000 PSI) MIN. 6 SACKS OF CEMENT PER CUBIC YARD WITH A MAX. WATER/CEMENT RATIO OF 0.45, AIR ENTRAINMENT 6% ±1.5%, SLUMP AT 1 TO 4 INCHES. ALL MATERIALS SHALL CONFORM TO SSPWC SECTION 202.
2. REINFORCING STEEL SHALL BE GRADE 40 AND HAVE 1.5" CLEAR COVER.
3. CONCRETE STRUCTURE MAY BE A PRE-CAST CONCRETE UNIT. BASE OF PRE-CAST CONCRETE UNIT SHALL BE PLACED ON 6" COMPACTED DRAIN ROCK.

⚠4 FRAME & GRATE SHALL BE D&L I-9226 OR APPROVED EQUAL.

5. CATCH BASIN SHALL BE TRAFFIC-RATED AND USED ONLY AT LOW POINTS IN ALLEYS OR PARKING AREAS.
6. INSTALL GREASE TRAP PER STANDARD DETAIL DRAWING NO. R-213 (311).

NO.	REVISION	DATE	STANDARD DETAILS FOR PUBLIC WORKS CONSTRUCTION	SECTION
APPROVED BY: S.V.		08/00	CATCH BASIN TYPE 3-R	DRAWING NO. R-205 (311) DATE 08/00 PAGE 204

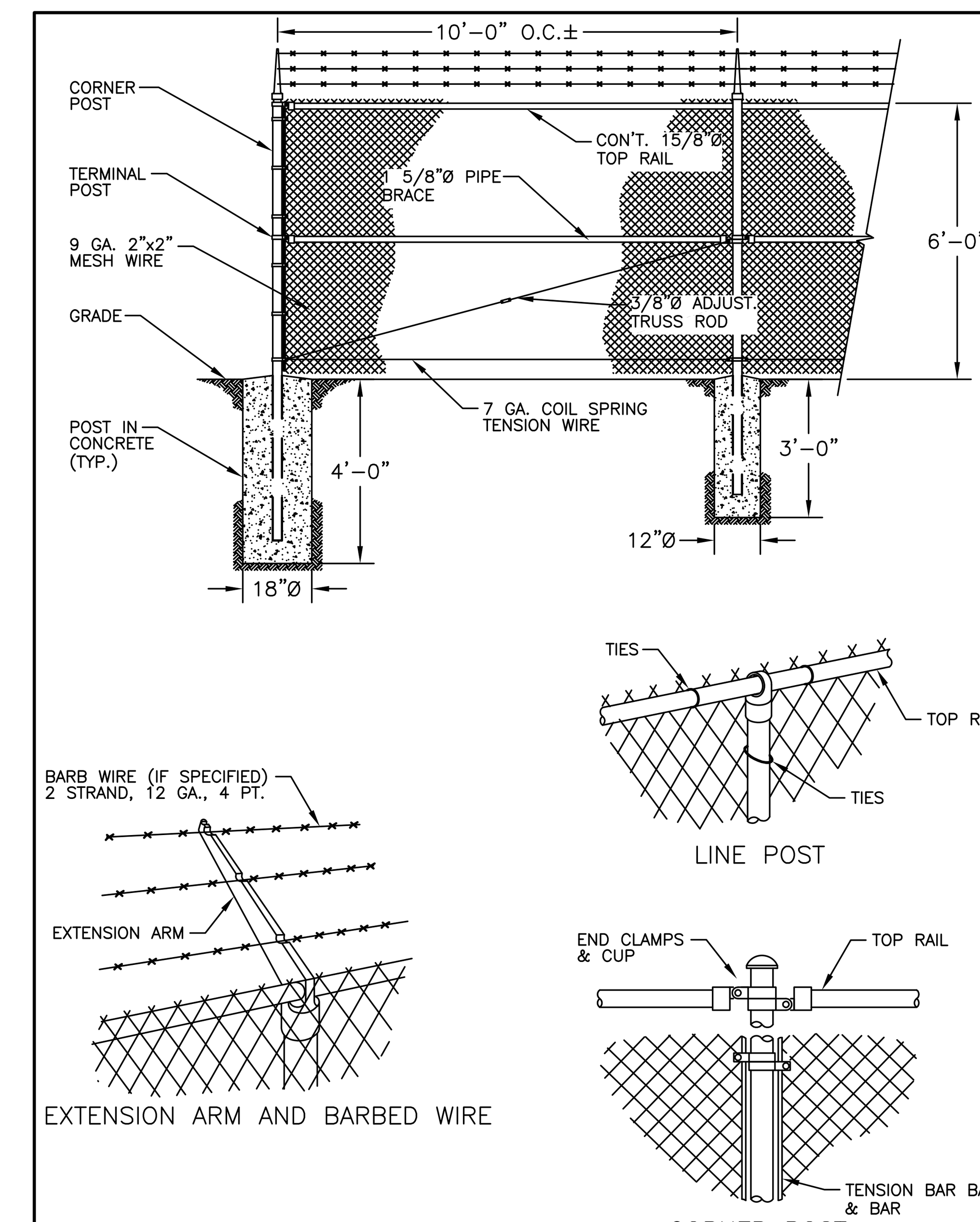


DROP INLET			
MODEL NO.	A	B	BOX WEIGHT
D1242436-3R	36"	42"	1900 LBS.
D1242448-3R	48"	54"	2500 LBS.

NOTES
1. Conc. for cast in place catch basin & 4x4' conc. pad shall be 6.25 sack 4000 psi w/4.5-7.5% entrained air.
2. Reinforcing shall be fibermesh.
3. Conc. structure may be a pre cast conc. unit upon approval of the Co. Engineer.
4. Frame and grate shall be bicylcle safe.
5. 8" thick conc. collar 12" wide shall be constructed as shown. 6" of Type 2 agg. base shall be placed & compacted beneath conc. collar.
6. Outlet pipe shall me min. 12" diameter RCP or PVC.
7. In areas of fine grained or expansive soils, class "C" backfill depth below the bottom of the box shall be 24 inches.
8. Catch basin outlet pipe shall be bedded in class "C" backfill.

EXTENSION		
MODEL NO.	C	WEIGHT
RS242406	6"	300 LBS.
RS242412	12"	600 LBS.

NO.	REVISED	DATE	STANDARD DETAILS FOR PUBLIC WORKS CONSTRUCTION	SECTIONS 2
1			TYPE 3-R CATCH BASIN	DRAWING NO. 2-24
2				DATE 06-07 PAGE 37
3				



NO.	REVISION	DATE		SECTION
			TYPICAL CHAIN LINK FENCE DETAILS	DRAWING NO.
				DATE PAGE

REV No	DATE	DESCRIPTION	APPROVED

DESIGNED BY: N/A
DRAWN BY: N/A
CHECKED BY: NL
APPROVED BY: NL
SCALE
HORIZ: N.T.S.
VERT: N/A
FIELD BOOK

HDR Engineering, Inc.
9805 Double R Blvd, Suite 101
Reno, NV 89521
Phone: 775-337-4700

City of Sparks

NORTH TRUCKEE DRAIN REALIGNMENT PHASE 1

STANDARD DETAILS

CITY OF SPARKS, NEVADA, PUBLIC WORKS DEPARTMENT

STATE OF NEVADA
NOEL C. LAUGHLIN
Exp: 12-31-13
CIVIL
No. 10185
PROFESSIONAL ENGINEER
10-18-13

SHEET No

DT-1

SHT OF

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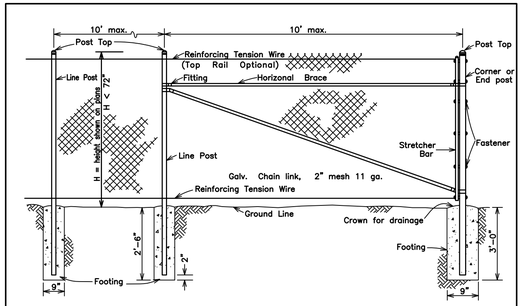
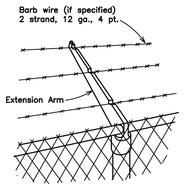


NOTES:

1. Fencing shall be chain link and shall consist of galvanized chain link fabric on steel posts.
   (a) All posts tops shall be fitted with suitable finials.
   (b) Braces shall be spaced approximately 12" below top of terminal posts and shall extend from end, gate, or corner posts to first adjacent line post.
   (c) All fittings shall be hot-dipped galvanized malleable, cast iron, or pressed steel.
   (d) Top and bottom selvages of the fence shall have a twisted and barbed finish.
2. Barbed wire, Extension Arms, and Top Horizontal Rails shall be installed only when shown on the plans and/or called for in the special provisions.



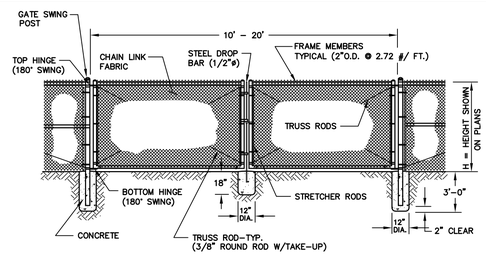
EXTENSION ARM AND BARBED WIRE

TABLE I
For Chain Link Fence 72" and Less

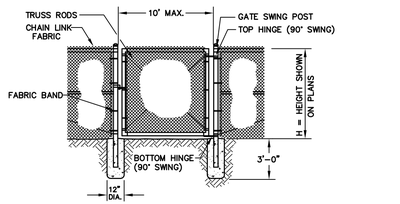
Location	Min. Size	Min. Weight (#/ft.)
End, corner & pull	2.351 O.D.	3.10
Line	1.869 O.D.	2.27
Braces	1.630 O.D.	2.27
Top Rail	1.630 O.D.	2.27

SECTION

NO.	REVISION	DATE	STANDARD DETAILS FOR PUBLIC WORKS CONSTRUCTION	SECTION
1	LINE SIZE	3-83		I
2	SPELLING	10-16-86	CHAIN LINK FENCE (72" High or Less)	DRAWING NO. I.24.I (325)
				DATE 7-81 PAGE 34



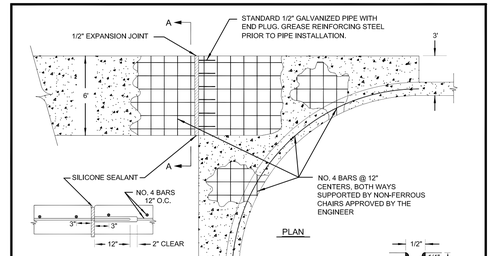
DOUBLE SWING GATE

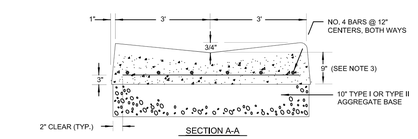


SINGLE GATE

GATE SWING POST DIA. GATE SIZE	PIPE DIA.
6' AND LESS	3"O.D. – 5.79 LBS./FT.
6' – 10'	4"O.D. – 9.10 LBS./FT.

NO.	REVISION	DATE		SECTION
			CHAIN LINK GATES	DRAWING NO.
				DATE PAGE



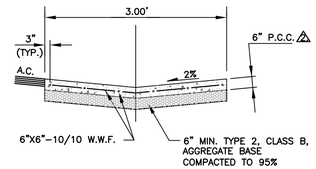


SECTION A-A

NOTES:

1. FINISHED ASPHALT CONCRETE SURFACE TO BE FLUSH WITH CROSS GUTTER LIP.
2. CONSTRUCTION OF CROSS GUTTER IS NOT ALLOWED ACROSS MAJOR COLLECTOR OR ARTERIAL STREETS.
3. ADJACENT SPANDREL SHALL BE 9" THICK P.C.C.

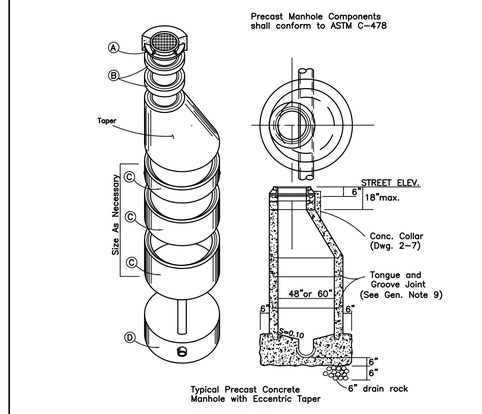
SPECIFICATION REFERENCE	
	COMMERCIAL DRIVEWAY & VALLEY GUTTER (HEAVY DUTY)
	DATE DWG. NO. PAGE NO.



NOTES:

1. THIS GUTTER DESIGN IS NOT FOR USE ON CITY STREETS, FOR PRIVATE USE ONLY.
2. ⚠ FIBER-REINFORCED PORTLAND CEMENT CONCRETE (P.C.C.) SHALL HAVE THE FOLLOWING CHARACTERISTICS: 4000 PSI MIN. COMPRESSIVE STRENGTH @ 28 DAYS, MIN. 6 SACKS OF CEMENT PER CUBIC YARD WITH A MAX. WATER/CEMENT RATIO OF 0.45, AIR ENTRAINMENT 6% ±1.5%, SLUMP AT 1 TO 4 INCHES. ALL MATERIALS SHALL CONFORM TO SSPWC SECTION 202. POLYPROPYLENE FIBERS SHALL BE ADDED TO THE P.C.C. PER THE MANUFACTURER'S RECOMMENDATIONS.
3. LONGITUDINAL VALLEY GUTTER SHALL HAVE EXPANSION JOINTS EVERY 30 FEET AND WEAKENED PLANE JOINTS EVERY 10 FEET.
4. FOR INDUSTRIAL AREAS, AN ENGINEERED DESIGN IS REQUIRED.
5. AGGREGATE BASE SHALL BE ENGINEERED TYPE 2, CLASS B, COMPACTED TO A MINIMUM OF 95%.

NO.	REVISION	DATE	STANDARD DETAILS FOR PUBLIC WORKS CONSTRUCTION	SECTION
			LONGITUDINAL P.C.C. VALLEY GUTTER	DRAWING NO. R-108 (312)
APPROVED BY	I S.V.	08/00		DATE 08/00 PAGE 126



Typical Precast Concrete Manhole with Eccentric Taper

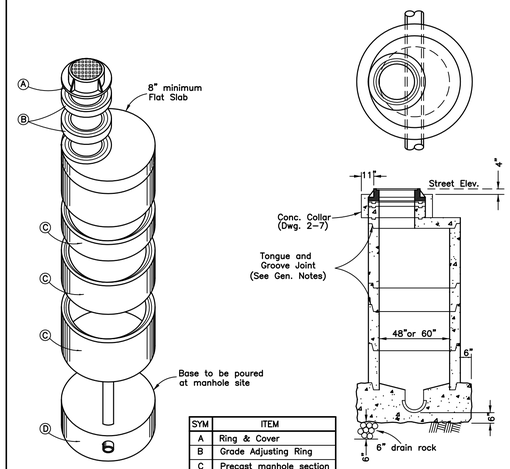
EXPLODED VIEW

SYM	ITEM
A	Ring & Cover
B	Grade Adjusting Ring
C	Precast manhole section
D	Base

NOTES:

1. Manhole section lengths arranged to fit depth.
2. Precast base may be used if approved by Governing Agency.
3. Lander Co. Only—Manholes constructed in non-paved area shall have min. wall thickness of 5" on cone and barrel sections.

NO.	REVISION	DATE	STANDARD DETAILS FOR PUBLIC WORKS CONSTRUCTION	SECTION
1	NOTE 3	3-83		2
2	ITEM C,D	8-85	MANHOLE TYPE I-A	DRAWING NO. 2-2.3 (306)
3	Collar,dr.rock	5-95vp		DATE 7-81 PAGE 5

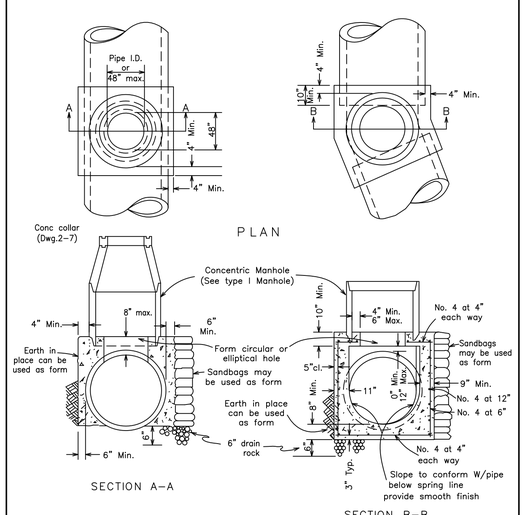


SYM	ITEM
A	Ring & Cover
B	Grade Adjusting Ring
C	Precast manhole section
D	Base

NOTES:

1. Manhole section lengths arranged to fit depth.
2. Precast base may be used if approved by Governing Agency.
3. Lander Co. Only—Manholes constructed in non-paved area shall have min. wall thickness of 5" on cone and barrel sections.

NO.	REVISION	DATE	STANDARD DETAILS FOR PUBLIC WORKS CONSTRUCTION	SECTION
1	NOTE 3	3-83		2
2	ITEM C,D	8-85	MANHOLE TYPE I-B	DRAWING NO. 2-3.3 (306)
3	Collar,dr.rock	5-95vp		DATE 7-81 PAGE 6



NO.	REVISION	DATE	STANDARD DETAILS FOR PUBLIC WORKS CONSTRUCTION	SECTION
1	Drain rock	5-95vp		2
			MANHOLE TYPE IV	DRAWING NO. 2-6 (306)
				DATE 7-81 PAGE 9

MANHOLE GENERAL NOTES

1. *Manhole materials and construction shall conform to the requirements of Section 204 "Manholes and Catch Basins" of the Standard Specifications.*
2. *Portland Cement Concrete (PCC) shall have the following characteristics: 3000psi min. compressive strength @ 28 days, min. 6 sacks of cement per cu. yd. Slump @ 1-4 inches. All materials shall conform to SSPWC Sec. 202. 3000psi conc shall be permitted on manhole bases only.*
3. *Reinforcing steel shall be as shown, wired tightly at all intersections & embedded at least one inch clear unless otherwise noted.*
4. *All manholes shall include hinged EJIW (East Jordan Iron Works) or Pamrex 24" maximum frame & cover assembly, or equal, with identification of storm drain or sewer clearly displayed on the cover.*
5. *Excavation and backfill shall be as specified for "Trench Excavation & Backfill" in Sec.305.00 of the Standard Specifications.*
6. *Excavation shall be as nearly vertical as possible, (sheet & shore if soil conditions require), in existing street sections, alley sections & confined areas such as limited easements, or adjacent to structures. Natural angle or repose will be allowed in all other areas.*
7. *Precast manhole sections, other than grade rings, shall be joined with flexible plastic gasket material such as "Ram-Nek" or equal as per manufacturer's recommendations.*
8. *Manhole Design for pipe larger than 60" shall be submitted to the governing agency for approval.*

NO.	REVISION	DATE		SECTION
			MANHOLE GENERAL NOTES	DRAWING NO.
				DATE PAGE

REV No	DATE	DESCRIPTION	APPROVED

DESIGNED BY: N/A
DRAWN BY: N/A
CHECKED BY: NL
APPROVED BY: NL
SCALE HORIZ: N.T.S.
VERT: N/A
FIELD BOOK

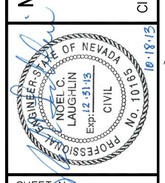
HDR
HDR Engineering, Inc.
9805 Double R Blvd.
Suite 101
Reno, NV 89521
Phone: 775-337-4700

City of Sparks

NORTH TRUCKEE DRAIN REALIGNMENT PHASE 1

STANDARD DETAILS

CITY OF SPARKS, NEVADA, PUBLIC WORKS DEPARTMENT



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MANHOLE GENERAL NOTES

9. Manhole design for depths exceeding 18 feet shall be submitted to the governing agency for approval.

10. Type and size of manhole to be constructed in a particular location shall be determined by the pipe size, alignment & grade as follows:

TYPE I
48" size
a. All cases for pipe 18" and smaller.
b. 24" and smaller pipe on tangent line and grade.
60" size
a. 27" through 36" pipe on tangent line and grade.
b. 21" through 27" pipe at angle points and changes in grade or pipe size.

TYPE I–A
Used in place of Type I as authorized by the governing agency.

TYPE I–B
Used in place of Type I only as authorized by the agency when cover above conduit is limited.

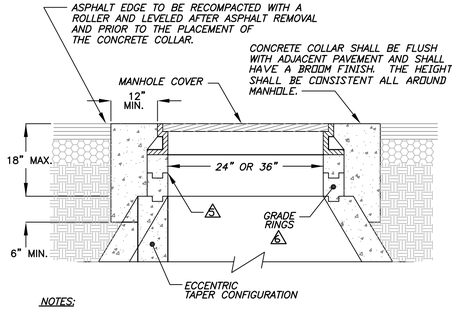
TYPE II
48" size
30" through 60" pipe on tangent line with a change in grade or pipe size.

TYPE III
Used in place of Type I when 2' or more drop is desired in sewer main.

TYPE IV
Tangent
60" size
a. 39" through 60" pipe on tangent line and grade with no change in pipe size.
b. In Washoe Co. 36" dia. manhole cover required for all type IV manholes.
Angle Point
60" size
30" through 60" pipe at angle point in line.

11. Manhole min. wall thickness shall be 5" when steps are required. Within City of Reno min. wall thickness shall be in accordance with ASTM C-478.

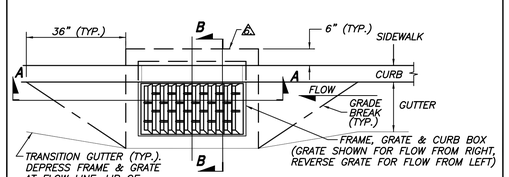
NO.	REVISION	DATE		SECTION
			MANHOLE GENERAL NOTES	DRAWING NO.
				DATE / PAGE



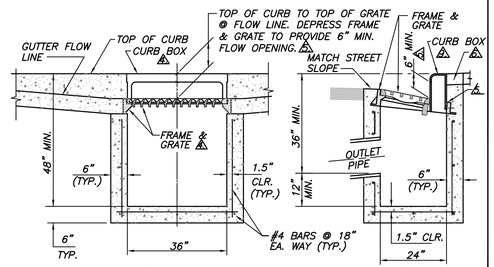
NOTES:

1. CONCRETE COLLAR TO BE PORTLAND CEMENT CONCTRETE (P.C.C.) WITH THE FOLLOWING CHARACTERISTICS: 4000 PSI MIN. COMPRESSIVE STRENGTH AT 28 DAYS, MIN. 6 SACKS OF CEMENT PER CUBIC YARD WITH A MAX. WATER/CEMENT RATIO OF 0.45, AIR ENTRAINMENT 6% ±1.5% AND SLUMP AT 1 TO 4 INCHES. ALL MATERIAL SHALL CONFORM TO SSPWC SECTION 202.
2. CIRCUMSTANCES MAY REQUIRE THE NEED FOR SPECIAL TYPES OF TOP OF MANHOLE CONFIGURATIONS SUCH AS FLAT TOP, ABOVE GROUND, ETC. AS DIRECTED BY THE CITY OF RENO. DETAILED PLANS OF ANY SPECIAL TOP OF MANHOLE CONFIGURATIONS AND ASSOCIATED COLLARS MUST BE APPROVED BY THE ENGINEER.
3. IN UNPAVED AREAS, IT SHALL BE NECESSARY TO SET THE MANHOLE RIM APPROXIMATELY 6 INCHES ABOVE THE SURROUNDING AREA. INSTALL A 6 INCH THICK RING OF CONCRETE, TAPERED AT A 3:1 SLOPE, FROM THE TOP, OUTSIDE EDGE OF THE COLLAR TO THE EXISTING GROUND SURFACE.
4. MANHOLE LIDS SHALL NOT BE LOCATED IN GUTTER PANS, UNLESS OTHERWISE APPROVED BY THE CITY ENGINEER.
5. ALL GRADE RING JOINTS ARE TO BE GROUTED WITH NON-SHRINK GROUT HAVING THE FOLLOWING CHARACTERISTICS: 3000 PSI MIN. COMPRESSIVE STRENTH AT 28 DAYS, MIN. 6 SACKS OF CEMENT PER CUBIC YARD AND SLUMP AT 1 TO 4 INCHES. ALL MATERIAL SHALL CONFORM TO SSPWC SECTION 202.
6. ALL GRADE RINGS SHALL BE PORTLAND CEMENT CONCRETE. PVC GRADE RINGS ARE NOT ALLOWED.

NO.	REVISION	DATE	STANDARD DETAILS FOR PUBLIC WORKS CONSTRUCTION	SECTION
1	NOTES 5 & 6	01/04	MANHOLE COLLAR	DRAWING NO. R-218 (306)
APPROVED BY:	G.D.	01/04		DATE 08/00 / PAGE 223



PLAN



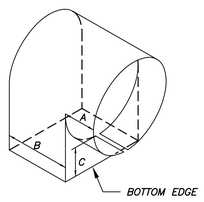
SECTION A-A SECTION B-B

NO.	REVISION	DATE	STANDARD DETAILS FOR PUBLIC WORKS CONSTRUCTION	SECTION
			CATCH BASIN TYPE 4-R	DRAWING NO. R-206A (311)
APPROVED BY:	G.D.	01/04		DATE 01/04 / PAGE 205

NOTES:

1. PORTLAND CEMENT CONCRETE (P.C.C.) SHALL HAVE THE FOLLOWING CHARACTERISTICS: 4000 PSI MIN. COMPRESSIVE STRENGTH @ 28 DAYS, (CURB AND GUTTER TRANSITION ONLY, ALL UNEXPOSED CONCRETE MAY BE 3000 PSI) MIN. 6 SACKS OF CEMENT PER CUBIC YARD WITH A MAX. WATER/CEMENT RATIO OF 0.45, AIR ENTRAINMENT 6% ±1.5%, SLUMP AT 1 TO 4 INCHES. ALL MATERIALS SHALL CONFORM TO SSPWC SECTION 202.
2. REINFORCING STEEL SHALL BE GRADE 40 AND HAVE 1.5" MINIMUM CLEAR COVER.
3. CONCRETE STRUCTURE MAY BE A PRE-CAST CONCRETE UNIT UPON APPROVAL OF THE CITY ENGINEER. BASE OF PRE-CAST CONCRETE UNIT SHALL BE PLACED ON 6" COMPACTED DRAIN ROCK.
4. FRAME SHALL BE NEENAH R-3294, R-3295 OR R-3067 SINGLE CURB UNIT WITH A TYPE L "VANE GRATE" AND CURB BOX, SOUTH BAY FOUNDRY VANE GRATE SBF 1947 OR APPROVED EQUAL, INSTALLED WITH PROPER FLOW DIRECTION.
5. TILT FRAME & GRATE AS REQUIRED TO ATTAIN 6" MIN. FLOW OPENING & INSTALL DURABLE SHIMS BETWEEN THE CURB BOX & FRAME AS REQUIRED TO MATCH CURB BOX TO TOP OF CURB AND FACE OF CURB (SEE SECTION B-B).
6. IF NO SIDEWALK IS PRESENT, POUR 6" CONCRETE CURB STRUCTURE BEHIND GRATE AND TIE BEAM INTO BOX.
7. INSTALL GREASE TRAP PER STANDARD DETAIL DRAWING NO. R-213 (311).
8. DUAL CATCH BASINS ARE TO BE WET SET IN 6" OF CONCRETE IN LIEU OF DRAIN ROCK AND TIED TOGETHER WITH A MINIMUM OF 3 ONE INCH STAINLESS STEEL STRAPS. CONNECTION PIPE MUST BE GROUTED IN PLACE AND ALSO MECHANICALLY RESTRAINED.
9. EACH CATCH BASIN SHALL BE CAST WITH A FISH IMAGE AND THE WORDS "NO DUMPING! DRAINS TO WATERWAYS" IN THE TOP OF THE CURB BOX.
10. FRAMES AND GRATES SHALL BE MATCHED TO ACHIEVE A CLOSE TOLERANCE FIT, WITH MINIMAL GAPS, AS APPROVED BY THE CITY ENGINEER.

NO.	REVISION	DATE	STANDARD DETAILS FOR PUBLIC WORKS CONSTRUCTION	SECTION
			NOTES - CATCH BASIN TYPE 4-R	DRAWING NO. R-206B (311)
APPROVED BY:	G.D.	01/04		DATE 01/04 / PAGE 206



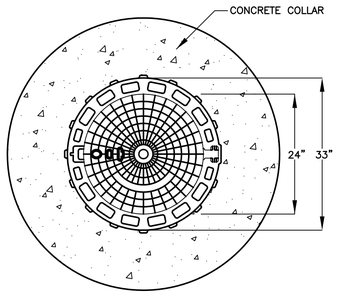
DIMENSIONS

SIZE	A	B	C
4"	3"	3"	3"
6"	4"	5"	4"
8"	4"	6.5"	4"
10"	4"	8"	4"
12"	5"	10"	4"
15"	6"	10.5"	6.5"

NOTES:

1. ALL CATCH BASINS SHALL BE PROVIDED WITH A "SUR-TRAP" GREASE TRAP OR APPROVED EQUAL.
2. INSTALL GREASE TRAP WITH THE BOTTOM EDGE PARALLEL TO THE WATER SURFACE AND THE RECTANGULAR OPENING FACING DOWNWARD AND THE CIRCULAR END PLACED INSIDE THE OUTLET PIPE.

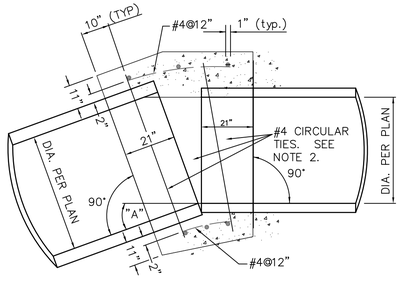
NO.	REVISION	DATE	STANDARD DETAILS FOR PUBLIC WORKS CONSTRUCTION	SECTION
			"SUR-TRAP" GREASE TRAP	DRAWING NO. R-213 (311)
APPROVED BY:	S.V.	08/00		DATE 08/00 / PAGE 218



NOTES:

1. HINGED MANHOLE COVER SHALL BE EAST JORDAN IRON WORKS, ERGO ACCESS ASSEMBLY 24-INCH MODEL OR APPROVED EQUAL.
2. COVER TO BE HINGED AND INCORPORATE A 90 DEGREE BLOCKING SYSTEM TO PREVENT ACCIDENTAL CLOSURE.
3. FRAME AND COVER SHALL BE ELASTOMER GASKETED.
4. ALL COMPONENTS SHALL BE BLACK COATED.

HINGED MANHOLE DETAIL



PLAN

NOTES:

1. WHERE THE SLOPE OF THE UPSTREAM PIPE IS GREATER THAN THE SLOPE OF THE DOWNSTREAM PIPE, JOIN SOFFITS. WHERE THE SLOPE OF THE UPSTREAM PIPE IS LESS THAN THE SLOPE OF THE DOWNSTREAM PIPE, JOIN INVERTS.
2. WHERE THE SPACE BETWEEN THE PIPE EXTREMITIES EXCEEDS 2 1/2 INCHES, THE NUMBER OF CIRCULAR TIES SHALL BE INCREASED TO MAINTAIN A MAXIMUM SPACING OF 6 INCHES CENTER TO CENTER. CIRCULAR TIES SHALL HAVE A DIAMETER 5 INCHES GREATER THAN THE OUTSIDE DIAMETER OF THE LARGER PIPE.

CIRCULAR TIES:

PIPE DIAMETER	SPACE BETWEEN PIPE EXTREMITIES	NO. OF CIRCULAR TIES
21" or less	2 1/2"	3
24" to 30"	2 1/2" or less	3
33" to 57"	2 1/2" or less	4
60" to 66"	2 1/2" or less	5

PIPE COLLAR DETAIL

N.T.S.

REV No	DATE	DESCRIPTION	APPROVED

DESIGNED BY: N/A
DRAWN BY: N/A
CHECKED BY: NL
APPROVED BY: NL
SCALE
HORIZ: N.T.S.
VERT: N/A
FIELD BOOK

HDR Engineering, Inc.
9805 Double R Blvd.
Suite 101
Reno, NV 89521
Phone: 775-337-4700

City of Sparks

NORTH TRUCKEE DRAIN REALIGNMENT PHASE 1

STANDARD DETAILS

CITY OF SPARKS, NEVADA, PUBLIC WORKS DEPARTMENT

PROFESSIONAL ENGINEER STATE OF NEVADA NOEL C. LAUGHLIN Exp: 12-31-13 CIVIL No. 10189 10/18/13

SHEET No.

DT-3

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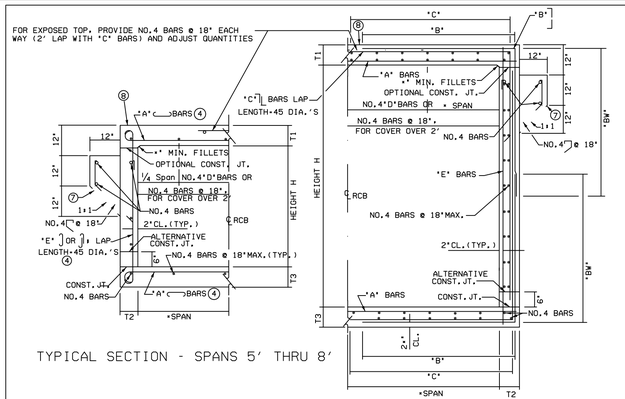

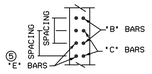

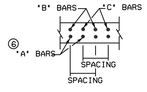

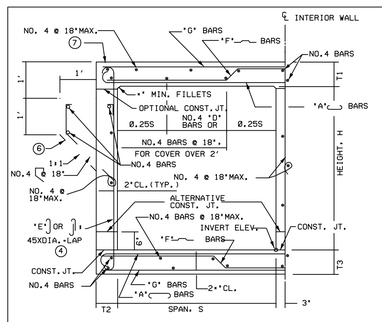

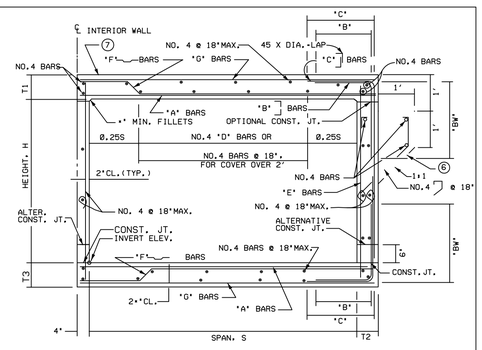

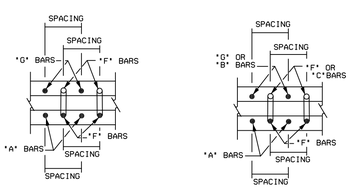

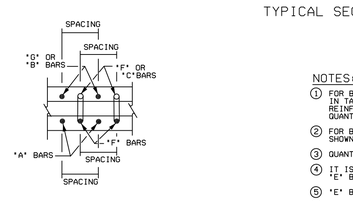

TYPICAL SECTION - SPANS 5' THRU 8'

TYPICAL SECTION - SPANS 10' THRU 14'

WALL SECTION
SPANS 10' THRU 14'

ROOF SECTION
SPANS 10' THRU 14'
INVERT SIMILAR

NOTES:

① FOR BOXES WITH SPAN OR HEIGHT LESS THAN ANY OF THOSE SHOWN IN TABLE, USE NEXT GREATER SIZE BOX CONCRETE DIMENSIONS AND REINFORCEMENT. ADJUST BAR LENGTHS AND RECALCULATE CONCRETE AND REINFORCEMENT QUANTITIES.

② FOR BOXES WITH SPAN OR HEIGHT OR COVER GREATER THAN THOSE SHOWN IN TABLES, A SPECIAL DESIGN IS REQUIRED.

③ QUANTITIES ARE APPROXIMATE AND FOR DESIGN PURPOSES ONLY.

④ IT IS PERMISSIBLE TO ELIMINATE THE 180° HOOKS ON EVERY OTHER BAR.

⑤ "E" BARS ARE AT HALF SPACING.

⑥ "A" BARS ARE AT HALF SPACING.

⑦ PROVIDE PAVING NOTCH WHEN TOP IS EXPOSED AND WHERE P.C.C. PAVEMENT OR APPROACH SLAB IS USED. ADJUST THE QUANTITIES.

⑧ WHEN TOP IS EXPOSED, THE TOP SLAB CONCRETE SHALL BE "EA", F'C=4500 PSI, OR "A", F'C=4000 PSI, AS DETERMINED BY THE ENGINEER. IF "EA" CONCRETE IS TO BE USED, THE TOP SLAB REINFORCING STEEL SHALL HAVE AN EPOXY COATING.

SHEET 1 OF 2

NEVADA DEPARTMENT OF TRANSPORTATION

SINGLE
RCB CULVERTS

Signed Original On File | B-20.1.2 (502,505)
CHIEF BRIDGE ENGINEER | ADOPTED 11/70 | REVISION 1/09

SPAN FT.	5						6								7										8											
HEIGHT FT.	3		4		5		3		4		5		6		3		4		5		6		7		3		4		5		6		7		8	
MAXIMUM EARTH COVER FT.	10	20	10	20	10	20	10	20	10	20	10	20	10	20	10	20	10	20	10	20	10	20	10	20	10	20	10	20	10	20	10	20	10	20	10	20
CONC. ROOF T1 IN.	7*	7*	7*	7*	7*	7*	8	8	8	8	8	8	8	8	8	9	8	9	8	9	8*	9	8*	9	8*	9*	8*	9*	8*	9*	8*	10	8*	10	8*	10
CONC. WALLS T2 IN.	6	6	6	7	6*	7*	6	6	6	7	6*	7*	7	8*	6	6	6	7	6*	7*	7	8*	8	9*	6	7	6	7	6*	7*	7	8*	8	9*	8*	10*
CONC. INVERT T3 IN.	6*	7	6*	7	6*	7	7	8	7	8	7	8	7	8	8	9	8	9	8	9	8	9	8	9	8	9*	8	9*	8	10	8	10	8	10	8	10
REINF. SPACING IN.	8*	5*	8*	5*	8*	5*	7*	5	7*	5	7*	5	7*	4*	6*	5	6*	4*	6*	5*	6*	5*	6*	5*	6	5	6	5	6	5	6	4*	6	5	6	4*
REINF. "A" BAR NO.	7	6	7	6	7	6	7	6	7	6	7	6	7	6	7	6	7	6	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7
REINF. "E" BAR NO.	4	4	5	5	6	6	4	4	5	5	6	6	7	6	4	4	5	5	6	6	6	7	7	7	5	5	5	5	5	6	6	6	6	7	7	7
QUAN. CONCRETE CF/LF	10.0	10.2	11.0	12.0	12.5	13.7	11.7	12.3	12.7	14.2	14.2	15.9	15.9	18.3	13.7	14.9	14.6	16.8	16.1	18.5	18.1	21.0	20.7	23.8	15.4	18.0	16.4	19.0	17.9	21.1	19.5	24.1	22.1	26.9	24.1	30.1
QUAN. REINFORCEMENT LBS/LF	58	68	67	81	82	105	70	81	82	96	97	120	124	148	94	94	105	118	121	147	130	177	160	192	115	139	123	151	131	171	137	198	160	215	192	252

SPAN FT.	10																12																	
HEIGHT FT.	3		4		5		6		7		8		9		10		4		5		6		7		8		9		10		11		12	
MAXIMUM EARTH COVER FT.	10	20	10	20	10	20	10	20	10	20	10	20	10	20	10	20	10	20	10	20	10	20	10	20	10	20	10	20	10	20	10	20	10	20
CONC. ROOF T1 IN.	8	10*	8	10*	8	10*	8	10*	8	10*	8	10*	8	10*	8*	11	8*	12	8*	12	8*	12	8*	12	8*	12	8*	12	8*	12	9*	12	9*	12
CONC. WALLS T2 IN.	8	8	8	8	8	8	8	9	8	9	8	10	8*	11*	9*	12*	8	10	8	10	8	10	8*	10*	8*	10*	8*	11*	9	12*	10*	13*	11*	15
CONC. INVERT T3 IN.	8	11	8	11	8	11	8	11	8	11	8	11	8	11	8*	11	8*	12*	8*	12*	8*	12*	9	12*	9	12*	9	12*	9	12*	9*	13	10	13
REINFORCEMENT SPACING IN.	13	12	13	12	13	12	12	12	11	11	10	11	11	10	11	10	9	10	9	10	9	10	9	10	9	10	8	10	8	10	10	9	9	8
"A" ⑥ BAR NO.	6	7	6	7	6	7	6	7	6	7	6	7	6	6	6	6	6	7	6	7	6	7	6	7	6	7	6	7	6	7	6	6	6	6
"B" BAR NO.	6	7	6	7	6	7	6	7	6	7	6	7	6	6	7	7	6	7	6	7	6	7	6	7	6	7	6	7	6	7	7	7	6	7
"B" DIMENSION "B" FT.-IN.	2-10	2-11	2-10	2-11	2-11	2-11	2-11	3	2-11	3-9	2-11	3-9	2-11	3-9	2-11	3-9	3-1	3-2	3-1	3-2	3-1	3-2	3-9	3-9	3-9	3-9	3-7	3-9	3-7	4-4	3-7	4-4	4-4	4-4
"B" DIMENSION "BW" FT.-IN.	2-10	3	2-10	3	4-10	5	4-10	5	4-10	5	4-10	5	4-10	5	4-7	4-7	4	4	4	4	6	5-10	6-2	6-7	6-2	6-7	4-11	4-11	4-11	4-11	4-11	4-11	4-4	4-4
"C" BAR NO.	6	7	6	7	6	7	6	7	6	7	6	7	7	7	7	7	6	7	6	7	6	7	6	7	6	7	6	7	6	7	7	7	7	7
"C" DIMENSION "C" FT.-IN.	3-4	3-4	3-4	3-4	3-4	3-4	7-4	4-8	7-7	4-8	8-2	4-8	7-7	4-8	7-7	4-8	4-4	4-4	4-4	4-4	4-4	3-7	8-1	5-7	8-1	5-7	8-1	5-7	8-1	5-7	8-1	5-7	8-1	5-7
"E" ⑤ BAR NO.	4	4	4	4	4	4	4	4	4	4	4	4	4	4	5	5	4	4	4	4	4	4	4	4	4	4	4	4	4	4	5	5	5	5
QUAN CONCRETE CF/LF	19.1	24.3	20.4	25.6	21.6	26.8	23.0	29.5	24.3	31.0	25.6	34.1	27.8	37.7	32.1	42.3	24.2	34.6	25.5	36.2	26.8	37.7	29.3	40.1	30.3	41.9	32.2	45.4	34.5	49.8	40.7	54.2	45.4	59.9
QUAN REINFORCEMENT LBS/LF	161	230	169	237	191	267	233	285	260	325	300	339	314	327	360	373	271	331	278	339	295	362	353	409	365	420	402	413	415	424	440	471	468	534

SPAN FT.	14															
HEIGHT FT.	7		8		9		10		11		12		13		14	
MAXIMUM EARTH COVER FT.	10	20	10	20	10	20	10	20	10	20	10	20	10	20	10	20
CONC. ROOF T1 IN.	9*	14	9*	14	9*	14	9*	14	10	14	10	14	10*	14	11	14
CONC. WALLS T2 IN.	9*	11	9*	11*	9*	11*	10	12*	10*	14	11*	15	12*	16*	13*	17*
CONC. INVERT T3 IN.	10	14*	10	14*	10	14*	10	14*	10*	14*	10*	15	11	15	11*	15
REINFORCEMENT SPACING IN.	10	9	10	9	10	8	10	8	10	8	8	10	10	10	10	9
"A" ⑥ BAR NO.	7	7	7	7	7	7	7	7	7	7	6	7	6	7	6	7
"B" BAR NO.	6	7	7	7	7	7	7	7	7	7	6	8	7	8	7	8
"B" DIMENSION "B" FT.-IN.	2-9	4-2	3-4	4-4	3-4	4-6	3-4	4-6	3-6	4-6	3-6	4-6	3-6	4-6	4-9	6
"B" DIMENSION "BW" FT.-IN.	6-5	7	7	8-4	7	8-4	6	6	6	6	6	6	5	6	4-6	6
"C" BAR NO.	7	7	7	7	7	7	7	7	7	7	7	8	8	8	8	8
"C" DIMENSION "C" FT.-IN.	4	4-2	6-9	6-9	5-10	5-10	6	6-4	8-11	6-4	8-11	6-4	8-11	6-4	8-11	6-4
"E" ⑤ BAR NO.	4	4	4	4	4	4	4	4	4	4	4	5	6	6	6	6
QUAN CONCRETE CF/LF	36.2	51.0	37.8	53.1	39.5	54.9	41.9	58.7	45.9	64.1	49.9	69.5	55.6	75.8	61.6	81.3
QUAN REINFORCEMENT LBS/LF	374	471	449	522	446	587	449	580	492	596	537	605	564	634	604	759

"D" BARS, FOR EARTH COVERS OF 2' AND LESS TO BE PLACED IN TOP SLAB ONLY

SPAN	5'	6'	7'	8'	10'	12'	14'
NUMBER OF BARS	6	7	8	9	10	12	16

SHEET 2 OF 2

NEVADA DEPARTMENT OF TRANSPORTATION

SINGLE
RCB CULVERTS

Signed Original On File | B-20.1.2.1 (502,505)
CHIEF BRIDGE ENGINEER | ADOPTED 11/70 | REVISION 1/09

TYPICAL SECTION - SPANS 5' THRU 8'

TYPICAL SECTION - SPANS 10' THRU 14'

ROOF SECTION
SPANS 5' THRU 8'
INVERT SIMILAR

ROOF SECTION
SPANS 10' THRU 14'
INVERT SIMILAR

EXTERIOR
WALL SECTION
SPANS 5' THRU 8'

EXTERIOR
WALL SECTION
SPANS 10' THRU 14'

NOTES:

① FOR BOXES WITH SPAN OR HEIGHT LESS THAN ANY OF THOSE SHOWN IN TABLE, USE NEXT GREATER SIZE BOX CONCRETE DIMENSIONS AND REINFORCEMENT, MAKE NECESSARY CHANGES IN BAR LENGTHS AND QUANTITIES.

② FOR BOXES WITH SPAN OR HEIGHT OR COVER GREATER THAN THOSE SHOWN IN TABLES, A SPECIAL DESIGN IS REQUIRED.

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④ IT IS PERMISSIBLE TO ELIMINATE THE 180° HOOKS ON EVERY OTHER "E" BAR.

⑤ "E" BARS ARE AT HALF SPACING.

⑥ PROVIDE PAVING NOTCH WHEN TOP IS EXPOSED AND WHERE P.C.C. PAVEMENT OR APPROACH SLAB IS USED. ADJUST THE QUANTITIES.

⑦ WHEN TOP IS EXPOSED, THE TOP SLAB CONCRETE SHALL BE "EA", F'C=4500 PSI, OR "A", F'C=4000 PSI, AS DETERMINED BY THE ENGINEER. IF "EA" CONCRETE IS TO BE USED, THE TOP SLAB REINFORCING STEEL SHALL HAVE AN EPOXY COATING.

NOTE: THIS PLAN SHEET MAY BE USED FOR MULTIPLE CELL CULVERTS BY MAKING NECESSARY ADJUSTMENTS.

SHEET 1 OF 2

NEVADA DEPARTMENT OF TRANSPORTATION

DOUBLE
RCB CULVERTS

Signed Original On File | B-20.1.3 (502)
CHIEF BRIDGE ENGINEER | ADOPTED 11/70 | REVISION 1/09

SPAN FT.	5						6							
HEIGHT FT.	3		4		5		3		4		5		6	
MAXIMUM EARTH COVER FT.	10	20	10	20	10	20	10	20	10	20	10	20	10	20
CONC ROOF T1 IN.	7	7*	7	7*	7	7*	7	9	7	9	7	9	7	9
CONC EXTERIOR WALL T2 IN.	6	6	6	7	6*	7*	6	6	6	7	6*	8	7	8*
CONC INVERT T3 IN.	7	8	7	8	7	8	7	9	7	9	7	9	7	9
REINF SPACING IN.	11*	14	11*	14	11*	15	11*	12	11*	12	11*	12	11*	12
REINF "G" BAR NO.	4	7	4	7	4	7	6	7	6	7	6	7	6	7
REINF "F" BAR NO.	5	5	5	5	5	5	5	5	5	5	5	5	5	5
REINF "A" BAR NO.	6	4	6	4	6	4	7	4	7	4	7	4	7	4
REINF "E" ⑤ BAR NO.	4	5	5	6	5	7	4	5	4	6	5	6	6	7
QUAN CONCRETE CF/LF	17.8	19.3	19.3	21.6	21.3	23.8	20.1	24.6	21.6	27.0	23.6	29.7	25.8	32.2
QUAN REINFORCEMENT LBS/LF	122	121	134	137	145	162	186	162	192	179	206	190	227	212

"D" BARS, FOR EARTH COVERS OF 2' AND LESS TO BE PLACED IN TOP SLAB ONLY

SPAN	5'	6'	7'	8'	10'	12'	14'
* /CELL	5	6	8	10	11	13	15

SPAN FT.	7										8											
HEIGHT FT.	3		4		5		6		7		3		4		5		6		7		8	
MAXIMUM EARTH COVER FT.	10	20	10	20	10	20	10	20	10	20	10	20	10	20	10	20	10	20	10	20	10	20
CONC ROOF T1 IN.	7*	10	7*	10	7*	10	7*	10	8	10	8	11	8	11	8	11	8	11	8	11	8	11
CONC EXTERIOR WALL T2 IN.	6	6	6	7	6*	7*	7	9	8	9*	6	7*	6	7*	6*	8	7	9	8	10	8*	11
CONC INVERT T3 IN.	7*	10*	7*	10*	7*	10*	7*	10*	7*	10*	8	11*	8	11*	8	11*	8	11*	8	11*	8	11*
REINF SPACING IN.	11	10*	11	10*	11	10*	11	10*	11	10*	9	10	9	10	9	10	9	10	9	10	9	10
REINF "G" BAR NO.	6	7	6	7	6	7	6	7	6	7	7	7	7	7	7	7	7	7	7	7	7	7
REINF "F" BAR NO.	6	5	6	5	6	5	6	5	6	5	5	5	5	5	5	5	5	5	5	5	5	5
REINF "A" BAR NO.	6	4	6	4	6	4	6	4	6	4	6	4	6	4	6	4	6	4	6	4	6	4
REINF "E" ⑤ BAR NO.	4	5	5	5	5	6	6	7	6	7	4	5	4	5	5	6	6	6	6	7	6	7
QUAN CONCRETE CF/LF	23.7	30.8	25.2	33.3	27.2	35.5	29.4	39.1	32.4	41.8	27.8	38.5	29.2	40.1	31.2	42.4	33.4	45.5	36.4	48.9	39.0	52.6
QUAN REINFORCEMENT LBS/LF	207	197	220	208	227	228	252	262	260	276	270	224	283	237	302	266	340	279	350	312	360	326

SPAN FT.	10															
HEIGHT FT.	3		4		5		6		7		8		9		10	
MAXIMUM EARTH COVER FT.	10	20	10	20	10	20	10	20	10	20	10	20	10	20	10	20
CONC ROOF T1 IN.	9	12 1/2	9	12 1/2	9	12 1/2	9	12 1/2	9	12 1/2	9	12 1/2	9 1/2	12 1/2	9 1/2	12 1/2
CONC EXTERIOR WALLS T2 IN.	8	8	8	8	8	8	8	8 1/2	8	9 1/2	8	10 1/2	8 1/2	11 1/2	9 1/2	12 1/2
CONC INVERT T3 IN.	9	12 1/2	9	12 1/2	9	12 1/2	9	12 1/2	9	12 1/2	9	12 1/2	9	12 1/2	9	12 1/2
REINFORCEMENT SPACING IN.	11	7 1/2	11	7 1/2	11	7 1/2	10 1/2	7 1/2	10	8	10	8	10 1/2	8	10 1/2	8 1/2
"g" BAR NO.	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7
"f" BAR NO.	7	5	7	5	7	5	6	5	6	5	6	5	6	5	6	5
"a" BAR NO.	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
"b" BAR NO.	5	5	5	5	5	5	4	5	5	5	6	5	6	6	6	6
"b" DIMENSION "B" FT.-IN.	1-9	2-7	1-9	2-7	1-9	2-7	2	2-9	2-3	2-9	2-7	3-1	2-7	3-1	2-7	3-1
"b" DIMENSION "Bw" FT.-IN.	3-6	3-10	3-6	3-10	4	4-11	4	4-11	4	4-11	4	4-11	4	4-11	4	4-11
"c" BAR NO.	5	5	5	5	5	5	6	6	6	6	6	6	7	6	7	6
"c" DIMENSION "C" FT.-IN.	3	2-9	3-0	2-9	3-1	2-9	3-9	3-3	4-6	4-3	5-6	4-6	6	4-9	6	4-9
"e" ⑤ BAR NO.	4	4	4	4	4	4	4	4	4	4	4	4	4	4	5	5
QUAN CONCRETE CF/LF	39.0	51.8	41.0	53.8	42.7	55.6	44.7	58.2	46.7	61.8	48.7	65.6	52.5	70.0	56.3	74.5
QUAN REINFORCEMENT LBS/LF	339	415	349	428	370	454	381	494	418	494	460	510	486	550	518	568

SPAN FT.	12																	
HEIGHT FT.	4		5		6		7		8		9		10		11		12	
MAXIMUM EARTH COVER FT.	10	20	10	20	10	20	10	20	10	20	10	20	10	20	10	20	10	20
CONC ROOF T1 IN.	10	14 1/2	10	14 1/2	10	14 1/2	10	14 1/2	10	14 1/2	10	14 1/2	10	14 1/2	10	14 1/2	10	14 1/2
CONC EXTERIOR WALLS T2 IN.	8	8 1/2	8	8 1/2	8	8 1/2	8	9	8 1/2	10 1/2	9	11 1/2	9 1/2	12 1/2	10	14	11	15
CONC INVERT T3 IN.	10	15	10	15	10	15	10	15	10	15	10	15	10	15	10	15	10	15
REINFORCEMENT SPACING IN.	9	8	9	8	9	8	9	8	8	7 1/2	8	7 1/2	8 1/2	7 1/2	8 1/2	8	8 1/2	8
"g" BAR NO.	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7
"f" BAR NO.	7	7	7	7	7	7	7	7	6	6	6	6	6	6	6	6	6	6
"a" BAR NO.	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
"b" BAR NO.	5	5	5	5	5	5	5	6	5	6	6	6	6	6	5	6	6	6
"b" DIMENSION "B" FT.- IN.	2-7	3-1	2-7	3-1	2-7	3-1	3	3-2	3-6	3-2	3-6	3-4	3-9	3-4	3-9	3-4	3-9	3-4
"b" DIMENSION "Bw" FT.- IN.	4-1	3-2	4-1	3-2	4-1	3-2	4-1	3-4	4-1	3-4	4-1	3-7	3-9	3-7	3-9	3-7	3-7	3-7
"c" BAR NO.	6	6	6	6	6	6	6	6	6	6	6	6	6	6	7	7	7	7
"c" DIMENSION "C" FT.- IN.	3-10	3-7	3-10	3-7	3-10	3-7	4-6	4-4	5-7	5	6-6	5-2	7-2	5-4	7-5	5-7	7-5	5-7
"e" ⑤ BAR NO.	4	4	4	4	4	4	4	4	4	4	4	4	4	4	5	5	5	5
QUAN CONCRETE CF/LF	51.3	72.4	53.3	73.4	55.0	76.3	57.0	79.1	59.8	83.8	62.7	88.1	65.9	92.7	69.1	98.8	73.7	104
QUAN REINFORCEMENT LBS/LF	505	567	514	577	543	604	563	646	600	663	614	688	627	691	701	749	733	764

SPAN FT.	14															
HEIGHT FT.	7		8		9		10		11		12		13		14	
MAXIMUM EARTH COVER FT.	10	20	10	20	10	20	10	20	10	20	10	20	10	20	10	20
CONC ROOF T1 IN.	11 1/2	16 1/2	11 1/2	16 1/2	11 1/2	16 1/2	11 1/2	16 1/2	11 1/2	16 1/2	11 1/2	16 1/2	11 1/2	16 1/2	11 1/2	16 1/2
CONC EXTERIOR WALLS T2 IN.	8 1/2	9 1/2	8 1/2	10 1/2	9	11 1/2	9 1/2	12 1/2	10 1/2	14	11 1/2	15	12 1/2	16 1/2	13	17 1/2
CONC INVERT T3 IN.	11 1/2	17	11 1/2	17	11 1/2	17	11 1/2	17	11 1/2	17	11 1/2	17	11 1/2	17	11 1/2	17
REINFORCEMENT SPACING IN.	8 1/2	8	8 1/2	8	8 1/2	8	8 1/2	8	8 1/2	8	8 1/2	8	9	8	9	8
"g" BAR NO.	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
"f" BAR NO.	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
"a" BAR NO.	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
"b" BAR NO.	5	6	6	6	5	6	6	6	6	6	6	7	7	7	7	7
"b" DIMENSION "B" FT.- IN.	2-7	2-7	3-3	3-3	4	4	4	4	4-7	4-4	4-7	4-4	4-7	4-4	4-7	4-4
"b" DIMENSION "Bw" FT.- IN.	5	3-9	5	4-6	5	5	5	5	4-9	5-6	4-9	5-6	4-6	5-6	4-4	5-6
"c" BAR NO.	6	6	6	7	7	7	7	7	7	7	7	7	7	7	8	8
"c" DIMENSION "C" FT.- IN.	4-3	3-11	5-6	4-6	7	5	7-9	5-9	8-6	6-3	9	6-9	9-3	6-9	9-3	6-9
"e" ⑤ BAR NO.	4	4	4	4	4	4	4	4	4	4	5	5	5	5	6	6
QUAN CONCRETE CF/LF	71.8	99.7	73.9	104	76.9	108	80.0	113	84.2	119	88.8	124	94.1	131	98.1	137
QUAN REINFORCEMENT LBS/LF	662	710	715	783	756	820	807	846	833	873	881	958	884	978	1002	1110

SHEET 2 OF 2

NEVADA DEPARTMENT OF TRANSPORTATION

DOUBLE
RCB CULVERTS

Signed Original On File | B-20.1.3.1 (502)
CHIEF BRIDGE ENGINEER | ADOPTED 11/70 | REVISION 1/09

REV No | DATE | DESCRIPTION | APPROVED

DESIGNED BY: N/A
DRAWN BY: N/A
CHECKED BY: NL
APPROVED BY: NL
SCALE
HORIZ: N.T.S.
VERT: N/A
FIELD BOOK

HDR Engineering, Inc.
9805 Double R Blvd,
Suite 101
Reno, NV 89521
Phone: 775-337-4700

City of Sparks

NORTH TRUCKEE DRAIN REALIGNMENT PHASE 1

STANDARD DETAILS

CITY OF SPARKS, NEVADA, PUBLIC WORKS DEPARTMENT

NOEL C. LAUGHLIN
CIVIL
No. 10165
Exp: 12-31-13
10-18-13

SHEET No
DT-4
SHT OF

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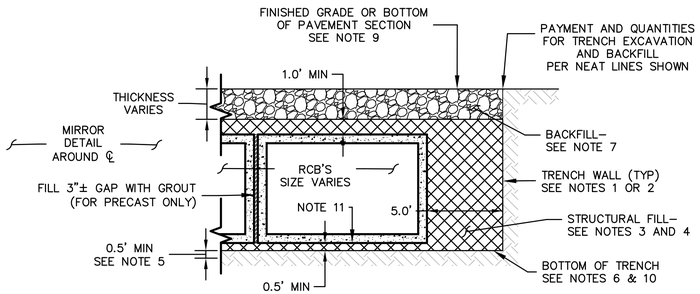
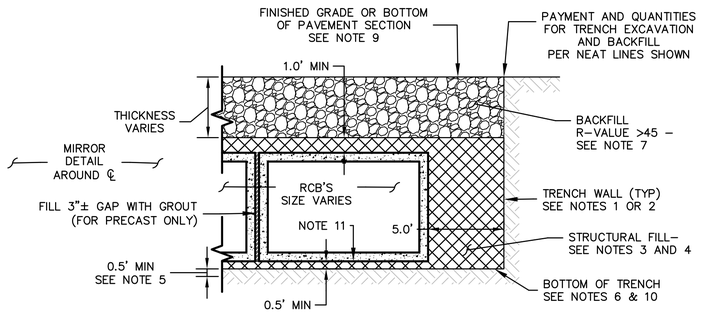


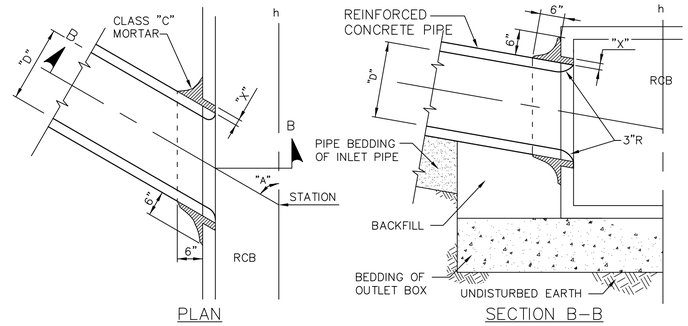
REGULAR RCB INSTALLATION
"NTD" STA 53+50 TO STA 55+50
"NTD" STA 57+50 TO STA 70+07



GREG ST RCB INSTALLATION
"NTD" STA 55+50 TO 57+50

RCB INSTALLATION SECTIONS

N.T.S.

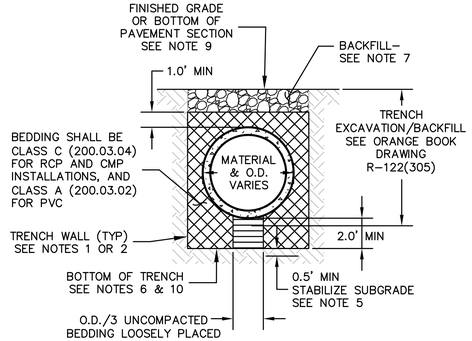


NOTES:

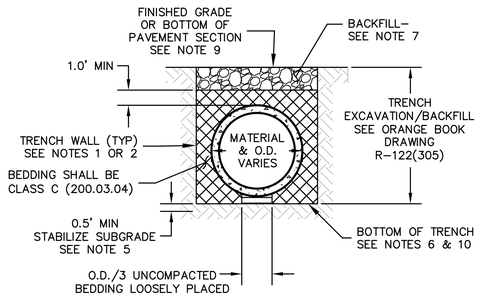
1. ANGLE "A" SHALL BE BETWEEN 45° AND 90°.
2. DIMENSION "D" SHALL BE EQUAL TO OR LESS THAN 1/2 THE INSIDE DIMENSION OF THE MAINLINE BOX.
3. DIMENSION "X" SHALL BE 1" MINIMUM AND 3" MAXIMUM.
4. BURN OR CHIP END OF INLET PIPE FLUSH WITH INNER SURFACE OF MAINLINE. ROUND EDGES OF MAINLINE AND INLET PIPE.

PRE-CAST BOX PENETRATION DETAIL

N.T.S.



SHALLOW / POOR SOIL PVC & RCP INSTALLATION
"NTD" STA 62+07.84 TO STA 66+30.76
"NTD" STA 59+52.45 TO STA 62+50.44
"NTD" STA 64+22.04 TO STA 65+79.50
"NTD" STA 70+06.00 TO STA 70+13.94



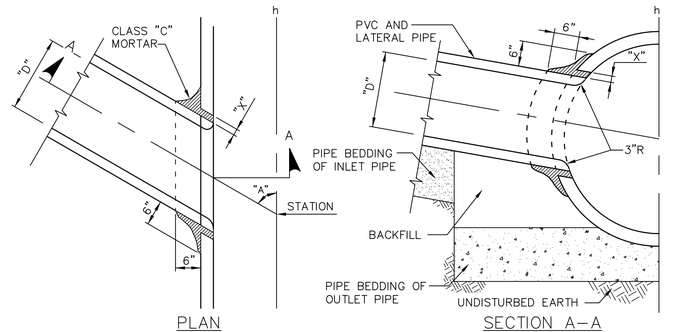
DEEP RCP INSTALLATION
"G" STA 16+00 (ALL IMPROVEMENTS)
"NTD" STA 66+30.76 TO STA 69+60.81

PVC & RCP INSTALLATION SECTIONS

N.T.S.

NOTES:

1. TRENCH WALL FOR CLAYEY SOILS SHALL COMPLY WITH OSHA SOIL TYPE B REQUIREMENTS OR APPROVED VERTICAL SHORING METHOD.
2. TRENCH WALL FOR GRANULAR SOILS SHALL COMPLY WITH OSHA SOIL TYPE C REQUIREMENTS OR APPROVED VERTICAL SHORING METHOD.
3. MAXIMUM DENSITY, IN–PLACE DENSITY, AND PLACEMENT OF BACKFILL SHALL BE PER STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION (ORANGE BOOK) AND CONDITIONED WITHIN 2% OF OPTIMUM MOISTURE. EXCAVATED MATERIAL MAY BE USED AS BACKFILL (EITHER DIRECTLY OR BLENDED) IF ALL SPECIFICATION CRITERIA ARE MET.
4. STRUCTURAL FILL PER 200.01.09, COMPACT TO 90% MAX DRY DENSITY ASTM D1557.
5. SCARIFY NATIVE MATERIAL, MOISTURE CONDITION TO WITHIN 2% OF OPTIMUM FOR GRANULAR SOILS AND AT OR ABOVE OPTIMUM FOR CLAYEY MATERIAL. COMPACT TO 90% PER ASTM D1557.
6. IF EXISTING SUBGRADE IS COARSE GRANULAR (LESS THAN 70% PASSING 3/4–INCH SIEVE), PROOF ROLL WITH 5 PASSES (MIN) OF 10–TON ROLLER.
7. CLASS E BACKFILL PER 200.03.06, COMPACT TO 90% MAX DRY DENSITY ASTM D1557.
8. NOT USED
9. SEE GRADING PLAN SHEETS AND TYPICAL ROAD CROSS SECTIONS SHEETS.
10. WATER SHALL NOT BE ALLOWED TO POND IN BOTTOM OF TRENCH. PRIOR TO PLACEMENT OF STRUCTURAL FILL, BOTTOM OF TRENCH SHALL BE FIRM, UNYIELDING, AND SHALL NOT PUMP OR DEFLECT UNDER LOADS. ADDITIONAL OVEREXCAVATION AND SUBGRADE STABILIZATION EFFORTS MAY BE REQUIRED TO ACHIEVE A FIRM AND UNYIELDING SURFACE.



NOTES:

1. ANGLE "A" SHALL BE BETWEEN 45° AND 90°.
2. DIMENSION "D" SHALL BE EQUAL TO OR LESS THAN 1/2 THE INSIDE DIAMETER OF THE MAINLINE PIPE.
3. DIMENSION "X" SHALL BE 1" MINIMUM AND 3" MAXIMUM.
4. BURN OR CHIP END OF INLET PIPE FLUSH WITH INNER SURFACE OF MAINLINE PIPE. ROUND EDGES OF MAINLINE AND INLET PIPES.

PIPE PENETRATION DETAIL

N.T.S.

REV No	DATE	DESCRIPTION	APPROVED

DESIGNED BY: N/A
DRAWN BY: N/A
CHECKED BY: NL
APPROVED BY: NL
SCALE
HORIZ: N.T.S.
VERT: N/A
FIELD BOOK

HDR Engineering, Inc.
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Phone: 775-337-4700

City of Sparks

NORTH TRUCKEE DRAIN REALIGNMENT PHASE 1

STANDARD DETAILS

CITY OF SPARKS, NEVADA, PUBLIC WORKS DEPARTMENT

STATE OF NEVADA — PROFESSIONAL ENGINEER — NOEL C. LAUGHLIN — No. 10161 — Exp: 12-31-13 — CIVIL — 10-18-13

SHEET No
DT-5

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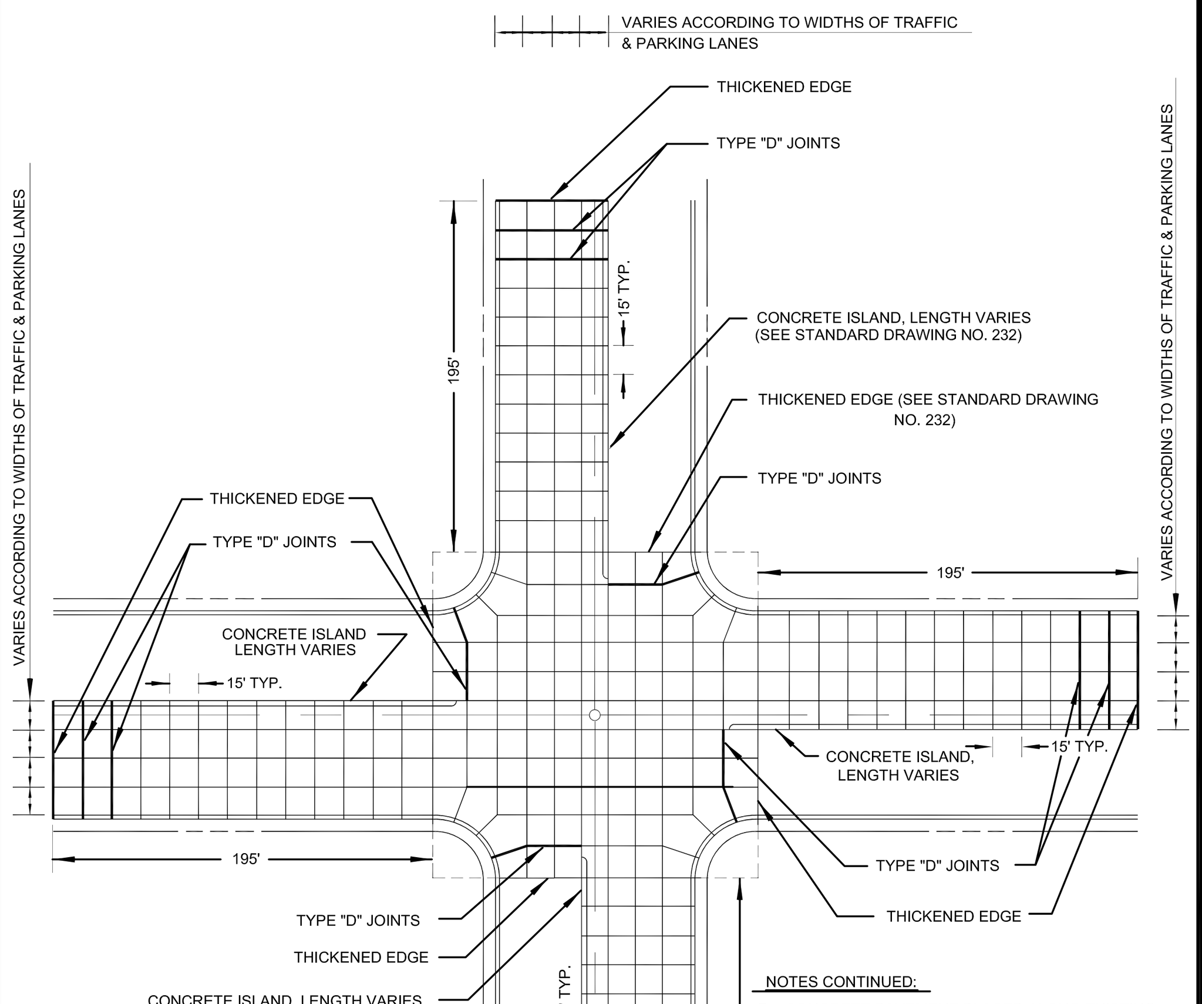


NOTES:

1. CONCRETE SHALL BE PLACED MONOLITHICALLY FOR EACH FOUR QUADRANTS OF THE INTERSECTION.
2. LONGITUDINAL AND TRANSVERSE WEAKENED PLANE JOINTS SHALL BE TYPE "C".
3. LONGITUDINAL AND TRANSVERSE CONSTRUCTION JOINTS SHALL BE TYPE "B".
4. FOR JOINT DETAILS SEE STANDARD DRAWING NO. 233.
5. ALL MANHOLES AND WATER VALVES SHALL BE BOXED OUT. SEE DETAIL ON STANDARD DRAWING NO. 232.
6. LONGITUDINAL AND TRANSVERSE JOINTS SHALL BE TIED INTO THE CORNERS OF ALL BOXOUTS. THIS WILL REQUIRE THE ENGINEER TO SHOW ALL UTILITY BOXOUTS ON THE PLANS, AND THE JOINT LAYOUT PATTERNS THAT TIE INTO THEM. WHENEVER POSSIBLE, INTERSECTION OF JOINTS SHALL BE AT 90 ; BUT NOT LESS THAN 60 OR GREATER THAN 140 .

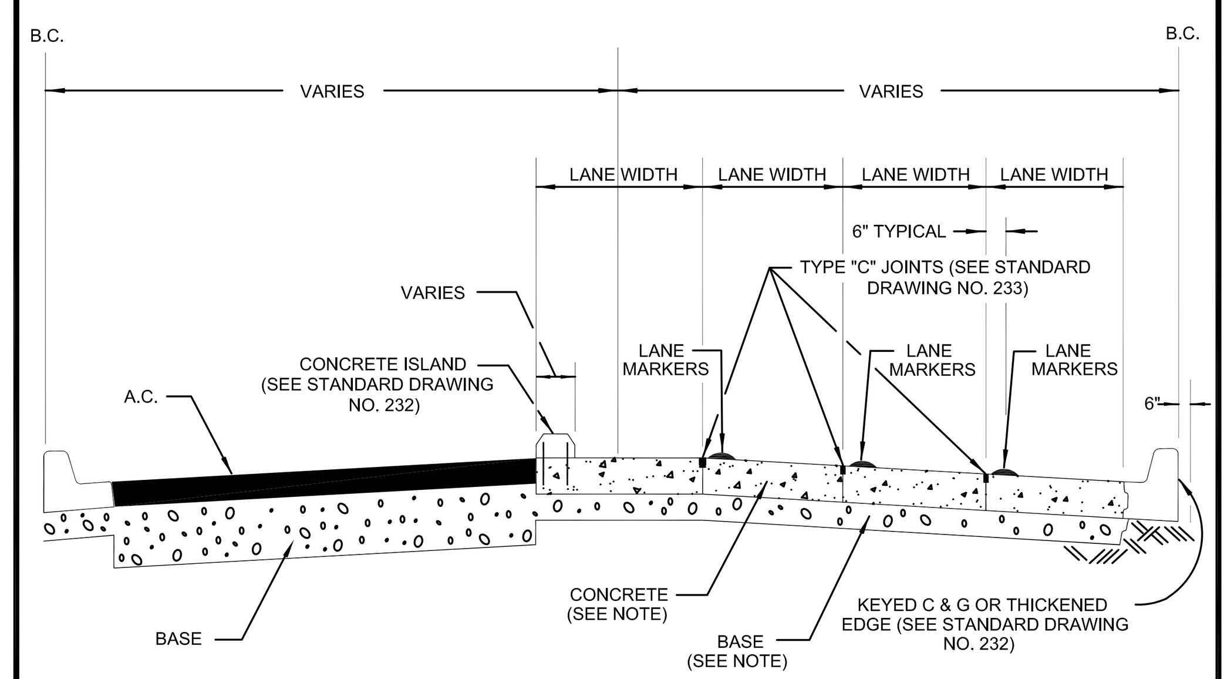
NOTES CONTINUED:

7. CONCRETE PAVEMENT PLACED ALONG EXISTING CURB AND GUTTER SHALL HAVE A THICKENED EDGE. SEE STANDARD DRAWING NO. 232.
8. CONCRETE PAVEMENT PLACED ALONG PROPOSED CURB AND GUTTER SHALL BE CONSTRUCTED WITH TYPE "B" JOINT. SEE DETAIL ON STANDARD DRAWING NO. 232.
9. LOCATION OF JOINTS FOR PROPOSED CURB & GUTTER SHALL COINCIDE WITH JOINTS IN CONCRETE PAVEMENT.
10. LANE MARKERS SHALL NOT BE PLACED ON TOP OF ANY JOINT.

SPECIFICATION REFERENCE

CONCRETE PAVEMENT INTERSECTION TYPICAL LAYOUT

DATE | DWG. NO. | PAGE NO.



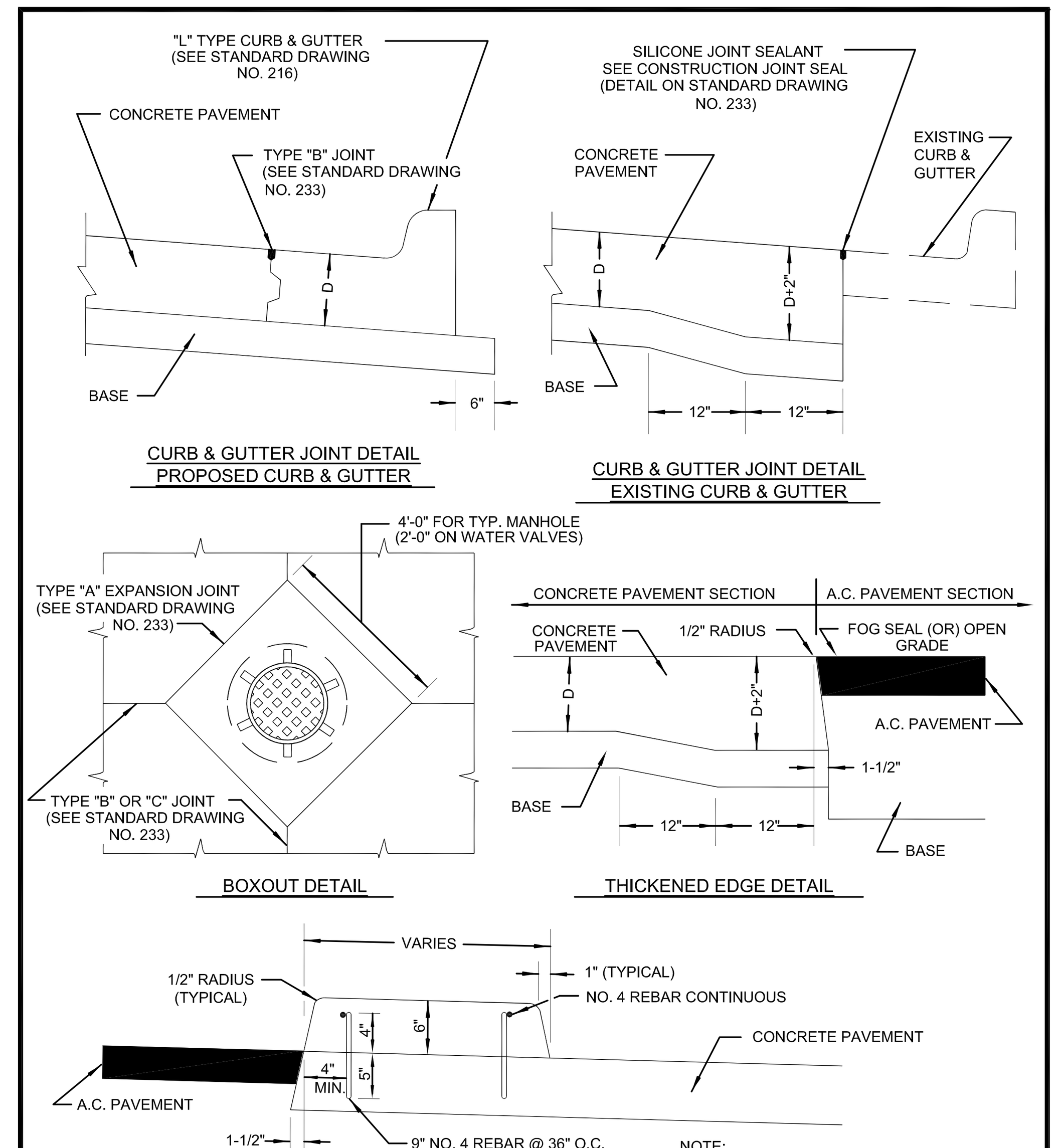
NOTE:

CONCRETE AND BASE THICKNESS TO BE DETERMINED BY ENGINEERING ANALYSIS BASED ON TRAFFIC CONDITIONS, SUBGRADE STRENGTH, QUALITY OF BASE, AND FLEXURAL STRENGTH OF CONCRETE.

SPECIFICATION REFERENCE

CONCRETE PAVEMENT TYPICAL ROADWAY SECTION

DATE | DWG. NO. | PAGE NO.

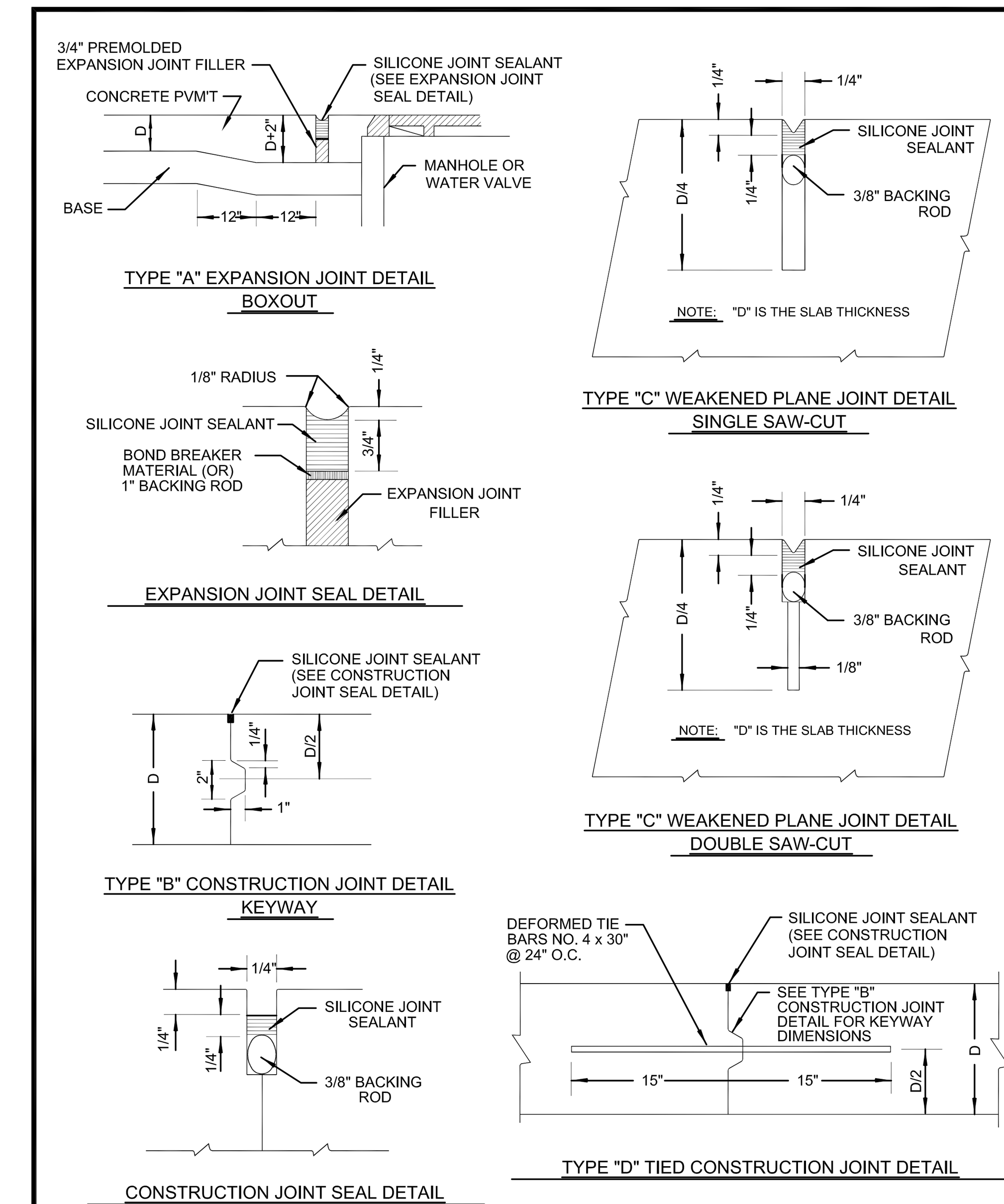


NOTE:
TRANSVERSE WEAKENED PLANE JOINTS TO MATCH JOINTS IN CONCRETE PAVEMENT (SEE DETAIL STANDARD DRAWING NO. 234)

SPECIFICATION REFERENCE

CONCRETE PAVEMENT CONSTRUCTION DETAILS

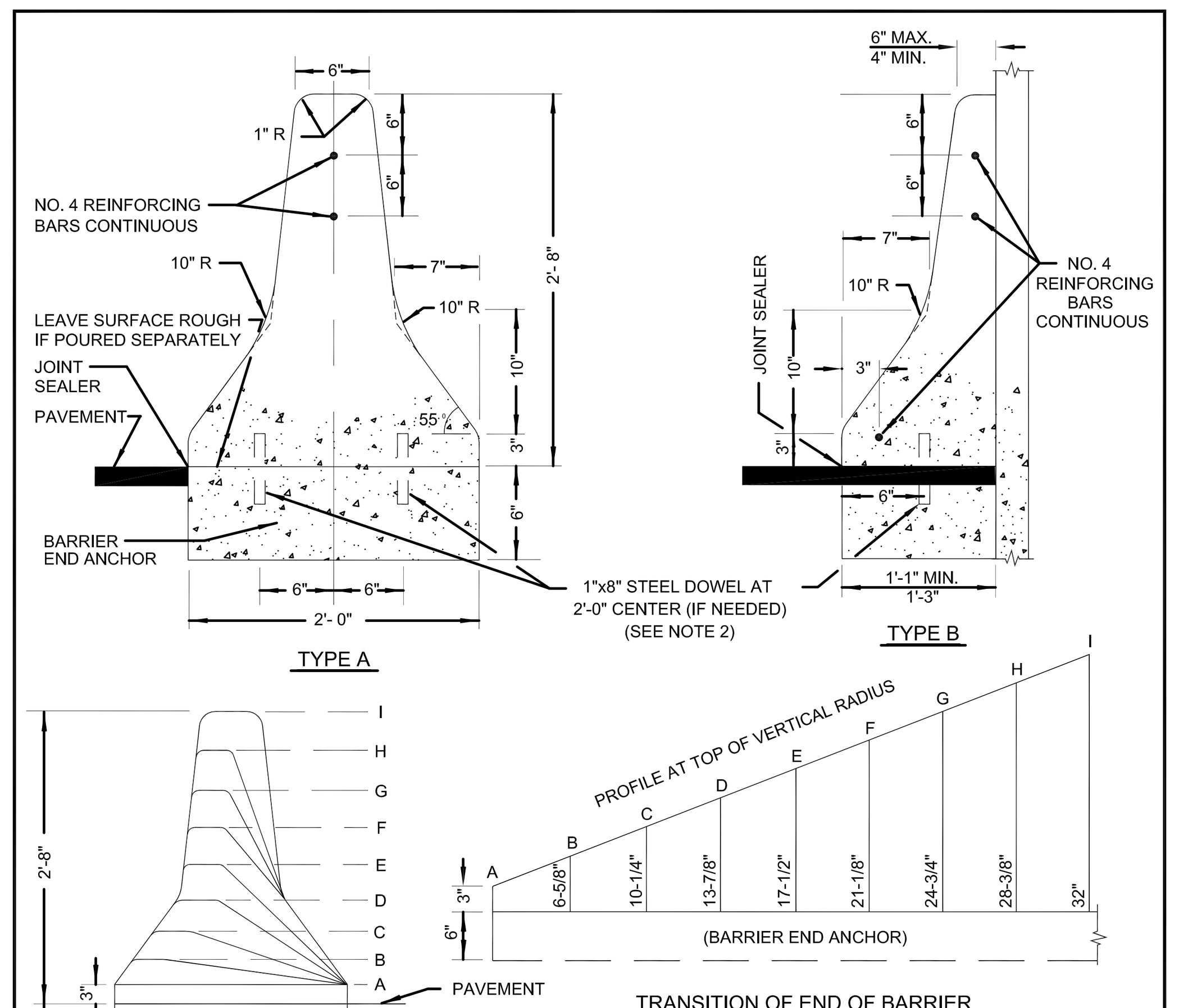
DATE | DWG. NO. | PAGE NO.



SPECIFICATION REFERENCE

CONCRETE PAVEMENT JOINT DETAILS

DATE | DWG. NO. | PAGE NO.



TRANSITION OF END OF BARRIER
TO BE USED ONLY IF END IS FLARED

TRANSITION DETAIL

CONCRETE BARRIER RAIL
FLARE RATES

OPERATING SPEED	FLARE RATE
60	17:1 MAX
50	14:1
40	11:1

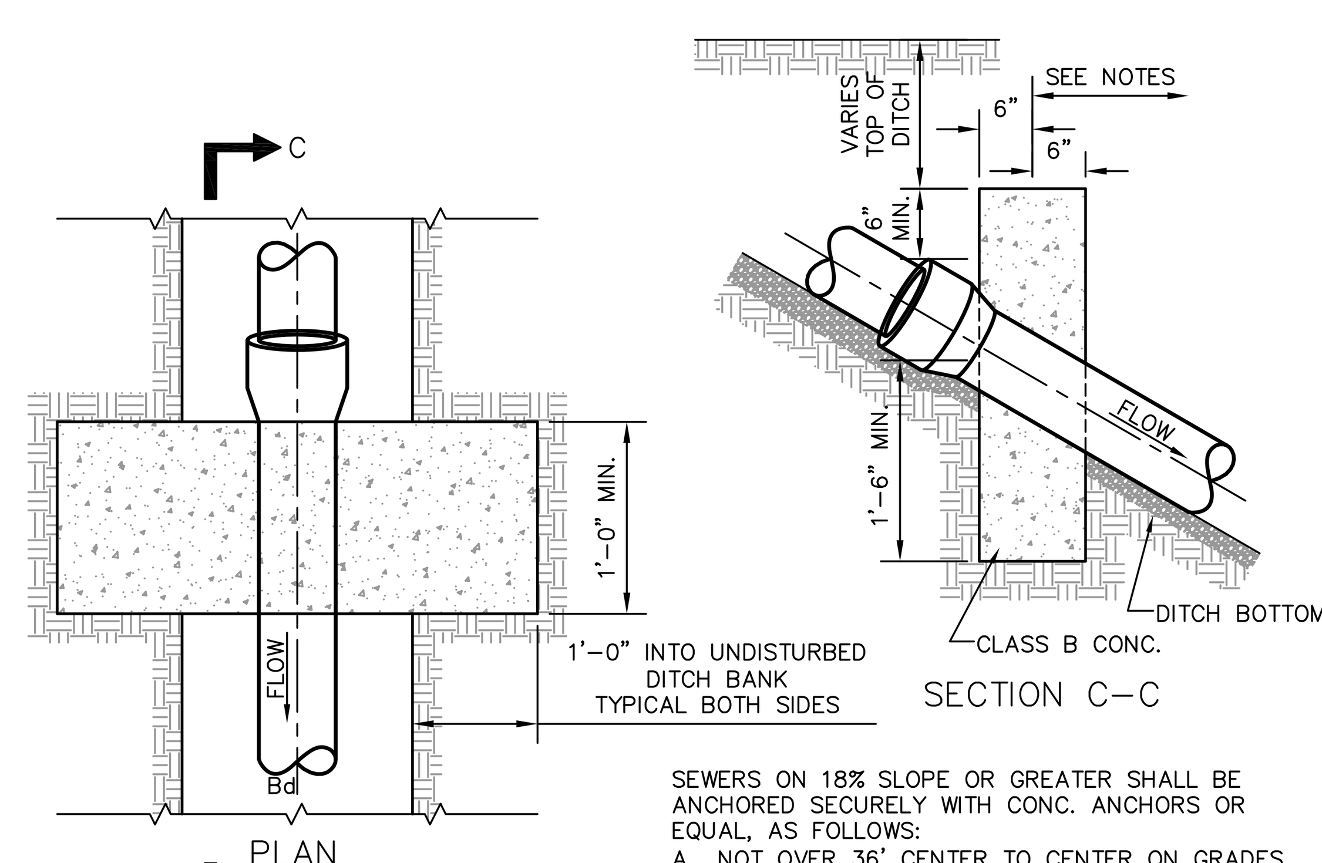
NOTES:

1. TRANSVERSE JOINTS WITH 1" PREMOLDED EXPANSION JOINT FILLER OR 1" OPEN TRANSVERSE JOINTS SHALL BE PLACED AT STRUCTURES. JOINTS IN BARRIER RAIL OVER A STRUCTURE SHALL BE AT THE SAME LOCATION AND OF THE SAME DIMENSION AS THOSE IN THE STRUCTURE.
2. BITUMINOUS PAVING REQUIRED: PAVING SHALL BUTT AGAINST THE BARRIER RAIL END ANCHOR SECTION AND SHALL EXTEND FULL WIDTH UNDER THE NORMAL BARRIER RAIL SECTION PLUS 6" MINIMUM 6-INCH DEEP BARRIER. END ANCHORS SHALL BE CONSTRUCTED IN THE FIRST AND LAST 10 LINEAR FEET OF THE FULL HEIGHT BARRIER RAIL RUN. IF TRANSITIONS ARE USED, THE ANCHOR SHALL BE EXTENDED UNDER THE TRANSITION.

SPECIFICATION REFERENCE

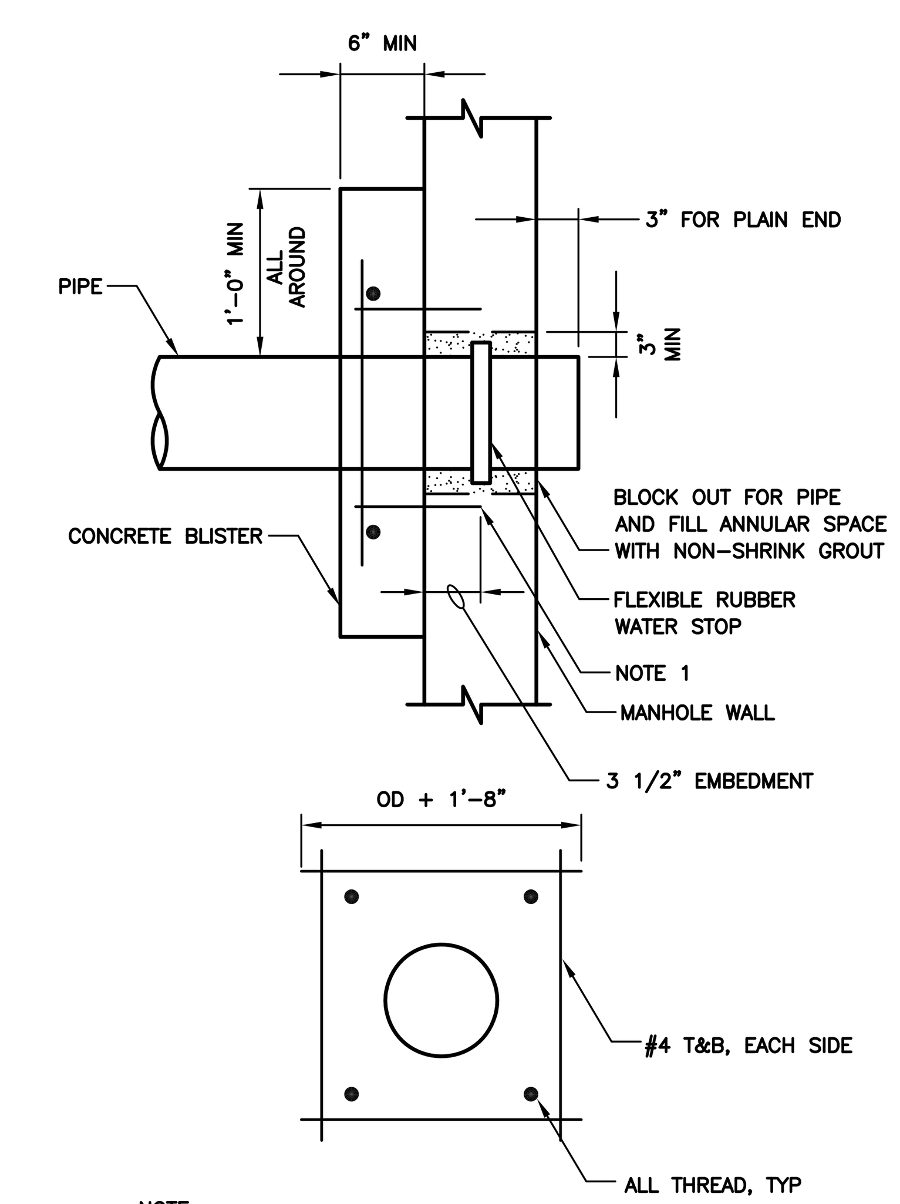
CONCRETE BARRIER RAIL

DATE | DWG. NO. | PAGE NO.



SEWERS ON 18% SLOPE OR GREATER SHALL BE ANCHORED SECURELY WITH CONC. ANCHORS OR EQUAL, AS FOLLOWS:
A. NOT OVER 36' CENTER TO CENTER ON GRADES 18% & UP TO 25%.
B. NOT OVER 24' CENTER TO CENTER ON GRADES 25% & UP TO 35%.
C. NOT OVER 16' CENTER TO CENTER ON GRADES 35% & OVER.

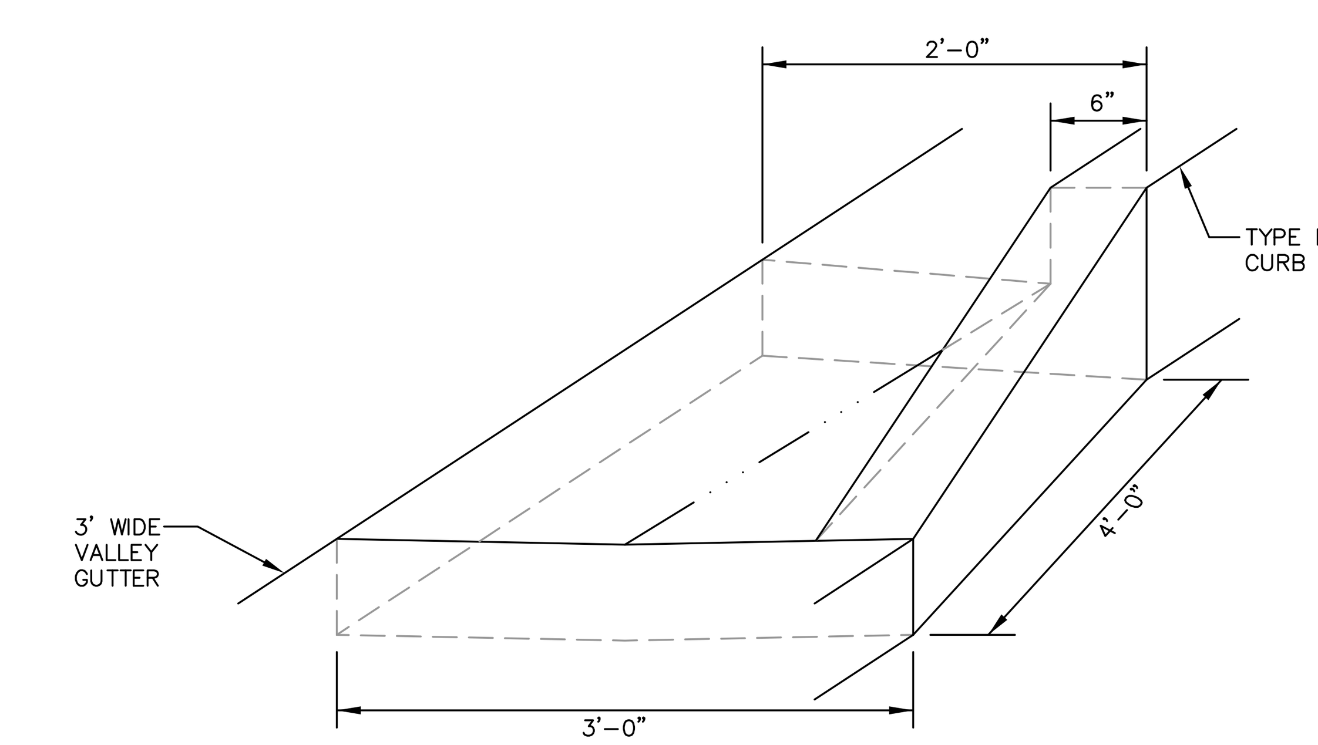
CONCRETE PIPE ANCHOR BLOCK DETAIL
N.T.S.



NOTE:

1. FOUR 5/8" ALL THREAD W/ TWO NUTS AND WASHERS AT END. DRILL AND EPOXY IN MH WALL

CONCRETE BLISTER
NTS



VALLEY GUTTER TO CURB TRANSITION DETAIL
N.T.S.

NORTH TRUCKEE DRAIN REALIGNMENT PHASE 1

STANDARD DETAILS

CITY OF SPARKS, NEVADA, PUBLIC WORKS DEPARTMENT

City of Sparks

HDR Engineering, Inc.
9805 Double R Blvd,
Suite 101
Reno, NV 89521
Phone: 775-337-4700

DESIGNED BY: N/A
DRAWN BY: N/A
CHECKED BY: NL
APPROVED BY: NL
SCALE
HORIZ: N.T.S.
VERT: N/A
FIELD BOOK

REV No | DATE | DESCRIPTION | APPROVED

PROFESSIONAL ENGINEER - STATE OF NEVADA
NOEL C. LAUGHLIN
Exp: 12·31·13
CIVIL
No. 10165
10·18·13

SHEET No
DT-6

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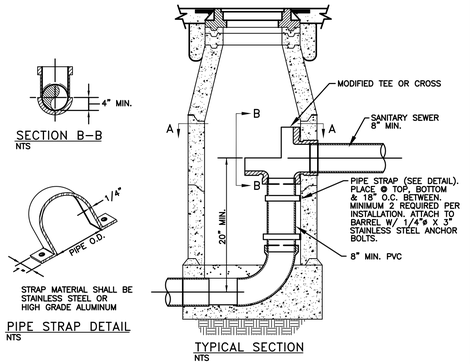
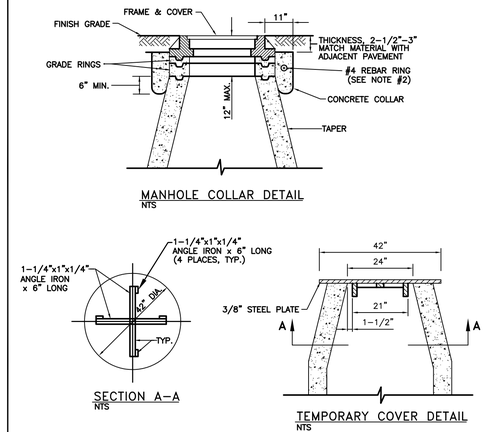


GENERAL NOTES

1. USE OF A DROP MANHOLE REQUIRES APPROVAL FROM CARSON CITY UTILITIES.
2. REFERENCE STANDARD DRAWING C-6.6 "MANHOLE TYPE 1" FOR ADDITIONAL NOTES, DIMENSIONS AND DETAILS.

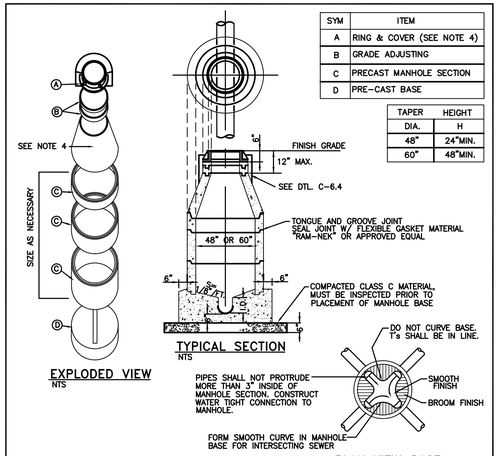
NO.	REVISION	DATE	STANDARD DETAIL FOR PUBLIC WORKS CONSTRUCTION	SECTION CARSON CITY
			SPECIAL DROP MANHOLE	DRAWING NO. C-6.0
				DATE 7/2001 PAGE 12



GENERAL NOTES

1. EXISTING PAVEMENT TO BE MATCHED SHALL BE NEATLY CUT.
2. CONCRETE SHALL MEET THE REQUIREMENTS OF SECTION 202.12 OF THE STANDARD SPECIFICATIONS. REBAR SHALL ONLY BE INSTALLED WHEN THE MANHOLE IS LOCATED OUTSIDE PAVED AREAS.
3. IN ALL AREAS, COVERS SHALL BE SET FLUSH WITH FINISH GRADE UNLESS OTHERWISE NOTED.
4. THE CONCRETE COLLAR SHALL BE LEFT 2–1/2" – 3" BELOW FINISHED ASPHALT SURFACE. APPLY AN APPROVED TACK COAT AND FILL VOID BETWEEN ADJACENT PAVEMENT AND FRAME WITH TYPE 3 A.C. PAVING. CHIP OR FOG SEAL PAVED SURFACE. EXCEPTION: WHEN STRUCTURE NOT LOCATED IN ASPHALT PAVEMENT OR IN AN UNPAVED AREA, EXTEND CONCRETE TO FINISH GRADE.

NO.	REVISION	DATE	STANDARD DETAIL FOR PUBLIC WORKS CONSTRUCTION	SECTION CARSON CITY
			MANHOLE COLLAR AND TEMPORARY COVER DETAIL	DRAWING NO. C-6.4
				DATE 7/2001 PAGE 16



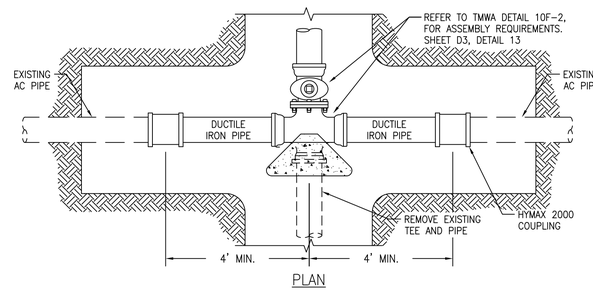
SYM	ITEM
A	RING & COVER (SEE NOTE 4)
B	GRADE ADJUSTING
C	PRECAST MANHOLE SECTION
D	PRE-CAST BASE

TAPER	HEIGHT
DIA.	H
48"	24"MIN.
60"	48"MIN.

GENERAL NOTES:

1. MANHOLE SECTION LENGTHS ARRANGED TO FIT DEPTH. ALL SHIMS TO BE REMOVED AND VOIDS GROUTED.
2. POURED BASE MAY BE USED IF APPROVED BY THE UTILITY DEPARTMENT PRIOR TO CONSTRUCTION.
3. PRECAST MANHOLE COMPONENTS SHALL CONFORM TO ASTM C-478 MANHOLES TO BE SEALED WATER TIGHT.
4. NO "THRU" HOLES, CLOSED PICK HOLES ONLY. SBF 1900 CPH OR APPROVED EQUAL. NO LADDER RUNGS OR STEPS. CONCENTRIC CONES ONLY UNLESS APPROVED BY UTILITY DEPARTMENT.
5. MANHOLE MATERIALS AND CONSTRUCTION SHALL CONFORM TO REQUIREMENTS OF SECTION 204 "MANHOLES AND CATCH BASINS" OF THE "STANDARD SPECIFICATIONS"
6. COAT OUTSIDE OF MANHOLE WITH FLEXIBLE RUBBERIZED COATING IN HIGH GROUNDWATER AREAS.
7. BASE CONFIGURATION TO BE INSTALLED AS SHOWN ON THE APPROVED PLANS. NO PLUGGING OR MODIFYING ALLOWED.
8. MANHOLES LOCATED OUTSIDE PAVED AREAS SHALL REQUIRE ALL WEATHER ACCESS ROADWAY CONSISTING OF 6" TYPE II BASE.

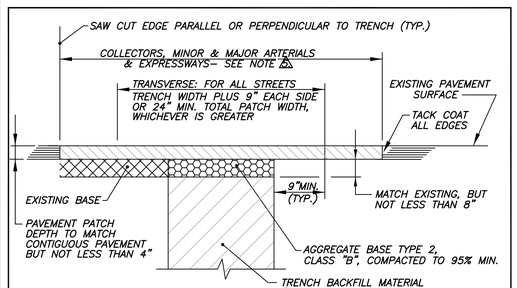
NO.	REVISION	DATE	STANDARD DETAIL FOR PUBLIC WORKS CONSTRUCTION	SECTION CARSON CITY
			MANHOLE TYPE 1	DRAWING NO. C-6.6
				DATE 7/2001 PAGE 18



NOTES:

1. PROVIDE RESTRAINED PIPE, FITTINGS AND VALVE IN ACCORDANCE WITH TMWA ENGINEERING AND CONSTRUCTION STANDARDS.
2. REFER TO PLAN SHEETS FOR PIPE SIZES.

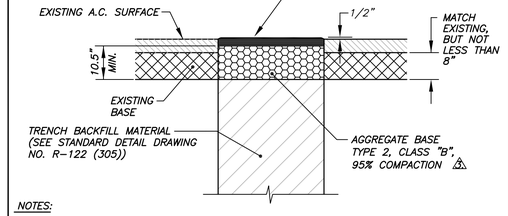
EXISTING 6" AC/DIP FH PIPE CONNECTION



NOTES:

1. A PERMIT MUST BE OBTAINED FROM THE CITY ENGINEER PRIOR TO CUTTING ANY PUBLIC RIGHT–OF–WAY. 24 HOURS PRIOR TO TRENCH EXCAVATION, THE PERMITTEE MUST NOTIFY THE CITY EXCAVATION PERMIT INSPECTOR OR APPLICABLE ENGINEER OF RECORD.
2. ALL PERMANENT PATCH WORK SHALL BE THE RESPONSIBILITY OF THE CITY OF RENO, UNLESS OTHERWISE AUTHORIZED BY THE CITY.
3. IF SAW CUT IS WITHIN 2 FEET OF AN EXISTING PAVEMENT EDGE OR EXISTING PAVEMENT PATCH, REMOVE EXISTING PAVEMENT TO THAT EDGE AND REPLACE ENTIRE SECTION.
4. ALL A.C. REPLACEMENT REQUIREMENTS ARE MINIMUM WIDTHS ONLY. THE CITY ENGINEER MAY REQUIRE WIDER PATCH SECTIONS OR OTHERWISE ALTER THESE REQUIREMENTS.
5. ⚠ LONGITUDINAL TRENCH PATCH WIDTH: FOR COLLECTORS, MINOR AND MAJOR ARTERIALS AND EXPRESSWAYS: IF SAW CUT EDGES FOR LONGITUDINAL OR TRANSVERSE EXCAVATIONS FALL WITHIN A TRAVEL LANE, SAW CUT SHALL BE EXTENDED TO, AND REMOVAL MADE TO EDGE OF THE TRAVEL LANE, OR THE FULL DEPTH PATCH SHALL BE MADE PER THE SPECIFICATIONS FOR TRANSVERSE PATCHES AND THE ENTIRE TRAVEL LANE ROTOMILLED TO A DEPTH OF TWO INCHES AND OVERLAYED WITH TWO INCHES OF BITUMINOUS PLANTMIX AS DIRECTED BY THE ENGINEER.
6. EDGE OF 4" ROCK WHEEL TRENCHES FOR CONDUIT SHALL BE LOCATED A MINIMUM OF 9" FROM GUTTER LIP AND SHALL BE PATCHED AS PER THE ABOVE DETAIL.
7. AGGREGATE BASE AND BITUMINOUS PAVEMENT SHALL BE IN ACCORDANCE WITH STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION, LATEST REVISION.
8. CONTRACTOR SHALL BE RESPONSIBLE FOR REPLACEMENT OF LOOP DETECTORS, ADJUSTMENT OF UTILITIES AND SURVEY MONUMENTS TO GRADE AND INSTALLATION OF TEMPORARY PAVEMENT MARKERS.
9. FOR P.C.C. CURB REPLACEMENT, SAW CUT EXISTING PAVEMENT 18 INCHES MIN. FROM GUTTER LIP LINE, REMOVE AND REPLACE PAVEMENT TO SAW CUT EDGES. CONCRETE MAY BE POURED NEAT AGAINST EXISTING EDGE OF ASPHALT IF APPROVED BY CITY ENGINEER.

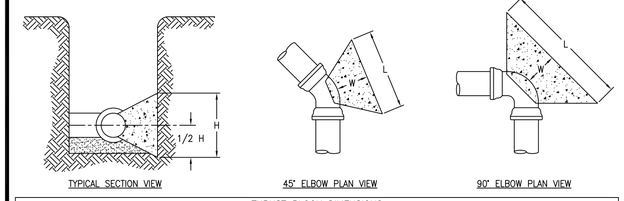
NO.	REVISION	DATE	STANDARD DETAILS FOR PUBLIC WORKS CONSTRUCTION	SECTION RENO
			PERMANENT BITUMINOUS PAVEMENT PATCH	DRAWING NO. R-120 (305,320)
APPROVED BY	S.V.	08/00		DATE 08/00 PAGE 145



NOTES:

1. PRIOR TO EXCAVATION, THE OUTLINE OF THE TRENCH SHALL BE VERTICALLY CUT FULL DEPTH THROUGH THE EXISTING ASPHALT SURFACE WITH A SAW, OR AN ASPHALT SPADE OR EQUIPMENT APPROVED BY THE CITY ENGINEER.
2. CARE SHALL BE EXERCISED TO PREVENT SLOUGHING AND OVERBREAK. IF THE TRENCH SLOUGHS, THE SURFACE SHALL BE WIDENED TO ELIMINATE THE UNDERMINED SECTION OF ASPHALT.
3. ⚠ TYPE 2, CLASS "B", AGGREGATE BASE SHALL BE COMPACTED TO A THICKNESS OF AT LEAST 10 1/2" OR A DEPTH OF 8" BELOW THE BOTTOM OF THE EXISTING PAVEMENT, WHICHEVER IS GREATER.
4. A TEMPORARY PATCH OF COLD MIX ASPHALT CONCRETE SHALL BE PLACED AND COMPACTED. THE COMPACTED PATCH SHALL BE APPROXIMATELY 1/8" TO 1/4" ABOVE THE LEVEL OF THE ADJACENT PAVEMENT. IF NOT PATCHED WITHIN 24 HOURS AFTER BACKFILLING, THE CITY MAY PATCH AND BACK–CHARGE THE PERMITTEE FOR ALL COSTS.
5. COMPACTION OF BACKFILL, BASE AND A.C. TEMPORARY PATCH SHALL BE PERFORMED WITH APPROVED MECHANICAL TAMPERS. EQUIPMENT WHEEL ROLLING IS NOT PERMITTED.
6. ENTIRE AREA SHALL BE CLEANED OF ALL DIRT, DUST, DEBRIS, ETC. BEFORE LEAVING SITE. ANY SITE LEFT UNCLEANED WILL BE CLEANED BY THE CITY AND ALL COSTS BACK–CHARGED TO THE PERMITTEE.
7. A PERMIT MUST BE OBTAINED FROM THE CITY ENGINEER PRIOR TO CUTTING ANY PUBLIC RIGHT–OF–WAY. 24 HOURS PRIOR TO TRENCH EXCAVATION, THE PERMITTEE MUST NOTIFY THE CITY EXCAVATION PERMIT INSPECTOR OR APPLICABLE ENGINEER OF RECORD.
8. ALL EXCAVATIONS SHALL BE COMPLETE OR BACKFILLED AT THE END OF THE DAY OR COVERED WITH PLATING AS APPROVED BY THE EXCAVATION PERMIT INSPECTOR OR APPLICABLE ENGINEER OF RECORD.
9. TEMPORARY PATCH WORK AND PATCH MAINTENACE SHALL BE THE RESPONSIBILITY OF THE PERMITTEE.

NO.	REVISION	DATE	STANDARD DETAILS FOR PUBLIC WORKS CONSTRUCTION	SECTION RENO
			TEMPORARY A.C. TRENCH PATCH	DRAWING NO. R-121 (305,320)
APPROVED BY	S.V.	08/00		DATE 08/00 PAGE 146



THRUST BLOCK DIMENSIONS

TEE, TAP, OR DEAD END				11.25° ELBOW			22.5° ELBOW			45° ELBOW			90° ELBOW		
BRANCH SIZE (INCHES)	L (FEET)	H (FEET)	W MIN. (FEET)	ELBOW SIZE (INCHES)	L (FEET)	H (FEET)	W MIN. (FEET)	L (FEET)	H (FEET)	W MIN. (FEET)	L (FEET)	H (FEET)	W MIN. (FEET)	L (FEET)	H (FEET)	W MIN. (FEET)
4	1.5	1	1	4	1	1	1	1	1	1	1.5	1	1	2	1	1
6	2	2	1	6	1	1	1	1.5	1	1	2	1.5	1	2.5	2	1
8	3	2	1	8	1.5	1	1	1.5	1.5	1	2.5	2	1	4	2	1
10	3.5	2.5	1	10	2	1	1	2	2	1	3	2.5	1	5	2.5	1
12	4.5	3	1	12	2	1.5	1	2.5	2	1	4	2.5	1	6	3	1

THRUST BLOCK DESIGN CRITERIA:

THRUST BLOCK SIZES HAVE BEEN CALCULATED USING THE METHOD AND EQUATIONS PUBLISHED IN *THRUST RESTRAINT DESIGN FOR DUCTILE IRON PIPE, SIXTH EDITION 2006* BY THE DUCTILE IRON PIPE RESEARCH ASSOCIATION (DIPRA) UTILIZING THE FOLLOWING DESIGN PARAMETERS: DESIGN PRESSURE = 150 PSI (SEE NOTE #4 BELOW), SOIL BEARING CAPACITY = 2,000 PSF (SEE NOTE #4 BELOW), SAFETY FACTOR = 1.5, AND NOMINAL PIPE DIAMETER

THRUST BLOCK NOTES:

1. CONCRETE FOR THRUST BLOCKS SHALL HAVE A MINIMUM 28–DAY COMPRESSIVE STRENGTH OF 3,000 PSI. REFERENCE SECTION 1.1.13 OF THE TRUCKEE MEADOWS WATER AUTHORITY ENGINEERING & CONSTRUCTION STANDARDS FOR ADDITIONAL REQUIREMENTS. BAG CONCRETE MIX IS NOT ACCEPTABLE.
2. ALL FITTINGS SHALL BE WRAPPED WITH POLYETHYLENE WRAP PER AWWA C105. MASTIC (BRUSH–ON) SHALL BE APPLIED TO ALL BOLTS, ETC.
3. THRUST BLOCKS SHALL BE POURED AGAINST UNDISTURBED SOIL. IN CASES WHERE THIS IS NOT PRACTICAL, BACKFILL AREA BEHIND WHERE THRUST BLOCK WILL BE POURED WITH TYPE 2, CLASS B AGGREGATE BASE (PER SECTION 200.01.03 OF THE STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION – ORANGE BOOK) COMPACTED TO 95% MAXIMUM DRY DENSITY AT OPTIMUM MOISTURE CONTENT AS DETERMINED BY PROCEDURES SET FORTH IN ASTM D 1557, CUT–BACK COMPACTED AGGREGATE BASE TO EXPOSE A FIRM SURFACE, THEN POUR THRUST BLOCK.
4. FOR SOIL BEARING CAPACITY LESS THAN 2,000 PSF AND/OR DESIGN PRESSURE IN EXCESS OF 150 PSI, INCREASE THRUST BLOCK BEARING AREAS ACCORDINGLY. REVISED THRUST BLOCK SCHEDULE FOR SPECIFIC CONDITIONS SHALL BE SUBMITTED BY THE DESIGN ENGINEER.

TRUCKEE MEADOWS WATER AUTHORITY	DATE	APPENDIX 10L THRUST BLOCKS TEES, TAPPING SLEEVES, DEAD ENDS 11.25, 22.5, 45 AND 90 DEGREE ELBOWS 4" TO 12"	DRAWING NUMBER
	7/2011		10L-2
	REV		

REV No	DATE	DESCRIPTION	APPROVED

DESIGNED BY: N/A
DRAWN BY: N/A
CHECKED BY: NL
APPROVED BY: NL
SCALE
HORIZ: N.T.S.
VERT: N/A
FIELD BOOK

HDR Engineering, Inc.
9805 Double R Blvd.
Suite 101
Reno, NV 89521
Phone: 775-337-4700

City of Sparks

NORTH TRUCKEE DRAIN REALIGNMENT PHASE 1

STANDARD DETAILS

CITY OF SPARKS, NEVADA, PUBLIC WORKS DEPARTMENT

STATE OF NEVADA — NOEL C. LAUGHLIN — Exp.: 12.31.13 — CIVIL — No. 10181 — PROFESSIONAL ENGINEER — 10-18-13

SHEET No.
DT-7
SHT OF

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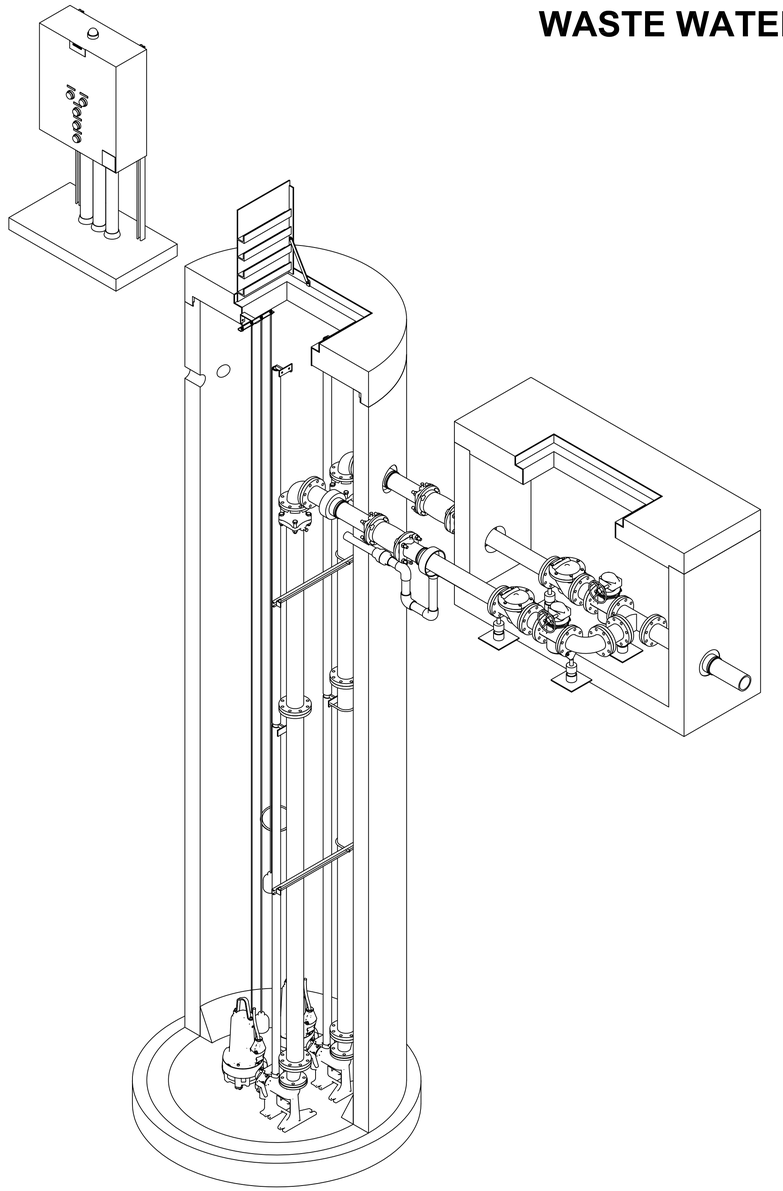
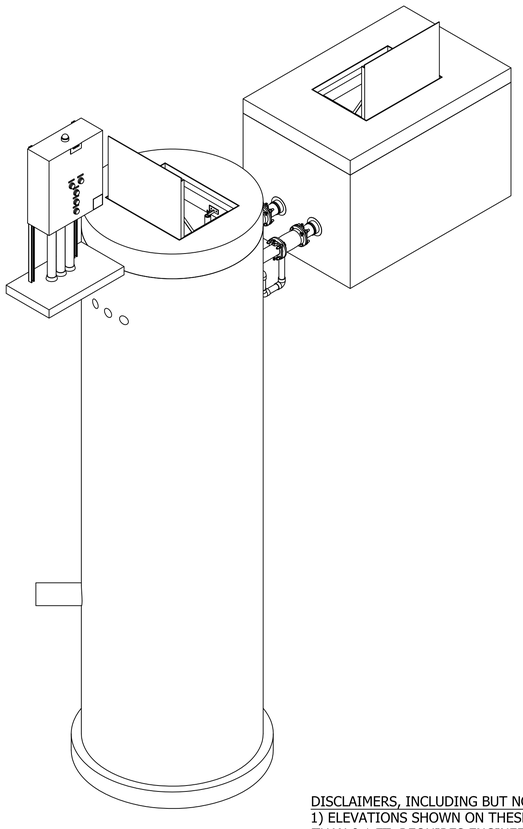
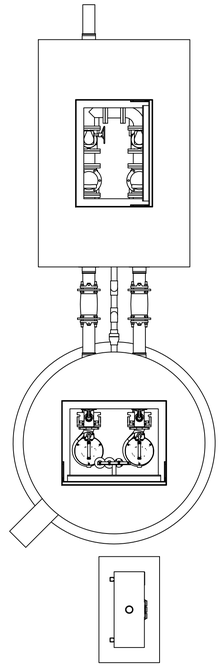
NORTH TRUCKEE DRAIN REALIGNMENT
WASTE WATER DUPLEX LIFT STATION







PUMP CARACTERISTICS	
DISCRIPTION	VALUE
DESIGN FLOW	194 gpm
TOTAL DYNAMIC HEAD	21.1 ft
MANUFACTURER	ABS
HORSE POWER	2.68
FLA	9.29A
MAX PUMP SPEED	1150
POWER SUPPLY	3PHASE 208V
NUMBER OF PUMPS	2
FREQUENCY	60 HZ

DISCLAIMERS, INCLUDING BUT NOT LIMITED TO:

1) ELEVATIONS SHOWN ON THESE DRAWINGS WERE PROVIDED BY OTHERS. ANY CHANGE GREATER THAN 0.1 FT. REQUIRES ENGINEER APPROVAL.
2) JENSEN PRECAST ASSUMES NO RISK FOR DISCREPANCIES BETWEEN THIS DRAWING AND THE ACTUAL ELEVATIONS/DIMENSIONS IN THE FIELD.
3) THE SPECIFIED PUMPS ARE DESIGNED TO OPERATE AT THE DESIGN POINT SHOWN, BUT THE SYSTEM CHARACTERISTICS HAVE NOT BEEN VERIFIED BY JENSEN PRECAST.
4.) OWNER MUST CONFIRM THE SUITABILITY OF THIS DESIGN PRIOR TO PRODUCTION.
5.) CONTRACTOR MUST PROVIDE ALL INCIDENTAL MATERIAL AND LABOR FOR A COMPLETE OPERATIONAL SYSTEM.
6.) ALL DUCTILE IRON PIPE TO BE CEMENT LINED AND SHOP PRIME COATED. ALL BURIED PIPE MUST BE POLYETHYLENE ENCASED. ALL GASKETS TO BE FULL FACE ⅛" THICK NEOPRENE RUBBER. NUTS AND BOLTS IN WET WELL TO BE STAINLESS STEEL.

REV No.	DATE	DESCRIPTION	APPROVED

DESIGNED BY: N/A
DRAWN BY: N/A
CHECKED BY: NL
APPROVED BY: NL
SCALE
HORIZ: N.T.S.
VERT: N/A
FIELD BOOK

HDR
HDR Engineering, Inc.
9805 Double R Blvd,
Suite 101
Reno, NV 89521
Phone: 775-337-4700

City of Sparks

NORTH TRUCKEE DRAIN REALIGNMENT PHASE 1

LIFT STATION DETAILS

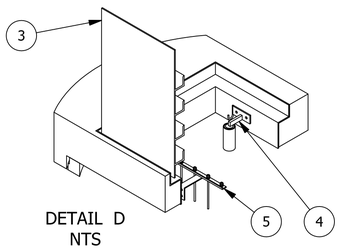
CITY OF SPARKS, NEVADA, PUBLIC WORKS DEPARTMENT

STATE OF NEVADA — PROFESSIONAL ENGINEER — No. 10181 — NOEL C. LAUGHLIN — Exp: 12-31-13 — CIVIL — 10-18-13

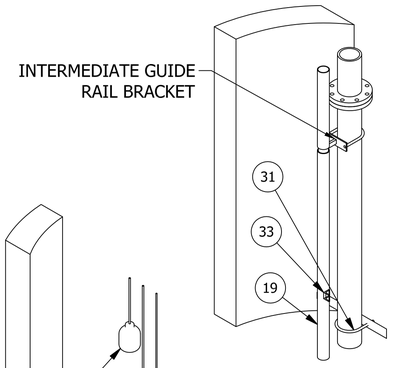
SHEET No.
DT-8

SHT OF

PARTS LIST		
ITEM	QTY	DESCRIPTION
1	1	PRECAST CONCRETE FLAT TOP
2	1	PRECAST 60" DIA. MANHOLE W/ POLYURETHANE LINER
3	1	ALUMINUM SINGLE DOOR HATCH WITH A CLEAR OPENING OF 35" x 27"
4	4	304SS UPPER GUIDE RAIL BRACKET
5	1	SS FLOAT BRACKET W/ CORD GRIPS
6	1	PRESSURE TRANSDUCER
7	2	INTERNALLY WEIGHTED NON-MECURY MECHANICAL FLOAT
8	2	3X4 FLG DIP ECCENTRIC REDUCER
9	2	4" DIP FLG x FLG 120" SPOOL
10	3	4" DIP FLG 90 BEND
11	2	4" DIP RFCA W/ SS HRDWR
12	2	4" DIP MJ SLEEVE (LONG) W/ RESTRAINTS, SS HARDWARE
13	2	4" DIP FLG x PE 30" SPOOL
14	1	4" DIP FLG x PE 36" SPOOL
15	2	4" DIP FLG x FLG 6" SPOOL
16	2	4" FLG ECCENTRIC PLUG VALVE
17	2	4" SWING-FLEX CHECK VALVE, FLG X FLG
18	1	2" PVC SWING CHECK VALVE
19	2	2" 304SS SCH 40 GUIDE RAIL 10'-2"
20	2	2" 304SS SCH 40 GUIDE RAIL 10'-0"
21	1	4" DIP FLG TEE
22	1	4" DIP FLG x FLG 7" SPOOL
23	2	4" DIP FLG x PE 68" SPOOL
24	1	PRECAST VAULT FLAT TOP, 72" W X 96" L
25	2	4" DIP FLG x PE 42" SPOOL
26	1	PRECAST VAULT BASE, 72" X 96" X 48"
27	1	72" X 96" DOUBLE DOOR ACCESS HATCH
28	5	FLEXIBLE RESILIENT PIPE CONNECTOR MEETING ASTM C-923 FOR 8" CORE HOLE, 4" DIP
29	6	2" SCH40 PVC PIPING
30	4	2" SCH40 PVC 90 DEGREE ELBOW
31	6	304 SS U BOLT FOR 4" DIP
32	2	UNISTRUT NUT RAIL 43"
33	4	ANGLE
34	1	CUSTOM CONTROL PANEL
35	1	8" DIP PE x PE 24" SPOOL
36	2	NON-CLOG SUBMERSIBLE PUMP
37	4	ADJUSTABLE PIPE STAND, FLG STYLE, FOR 4" DIP
38	-	NON-SHRINK GROUT, SLOPE TO PUMP
39	1	4" DIP BLIND FLANGE
40	1	4" ECCENTRIC PLUG VALVE, MJ x MJ
41	-	LEVEL TRANSDUCER STILLING WELL - 3" SCHEDULE 80 PVC. ANCHOR TO SST UNI-STRUT AT 5' O.C. EXTENDED TO 6" OF WELL FLOOR



DETAIL D
NTS



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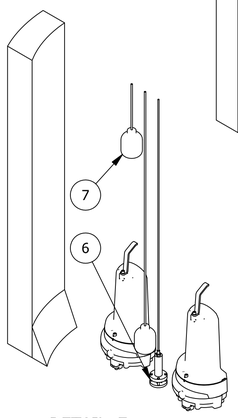

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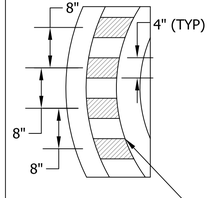
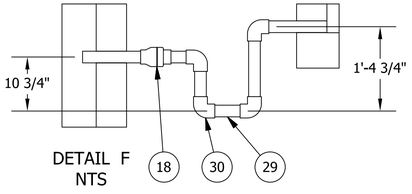


DETAIL A
SCALE 1 / 25

ELECTRICAL CORE HOLE



DETAIL F
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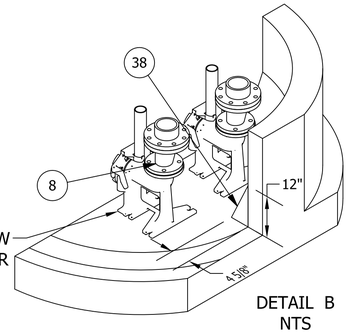
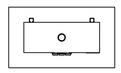
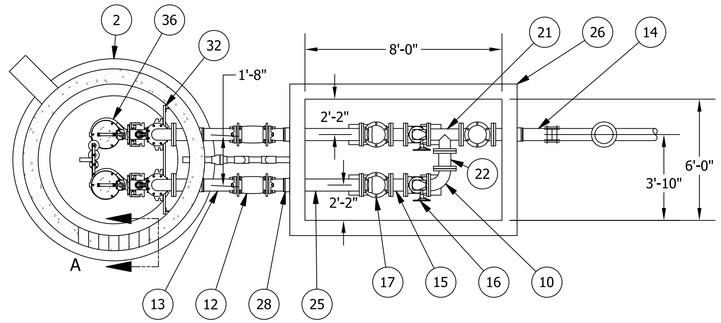
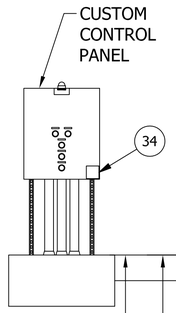


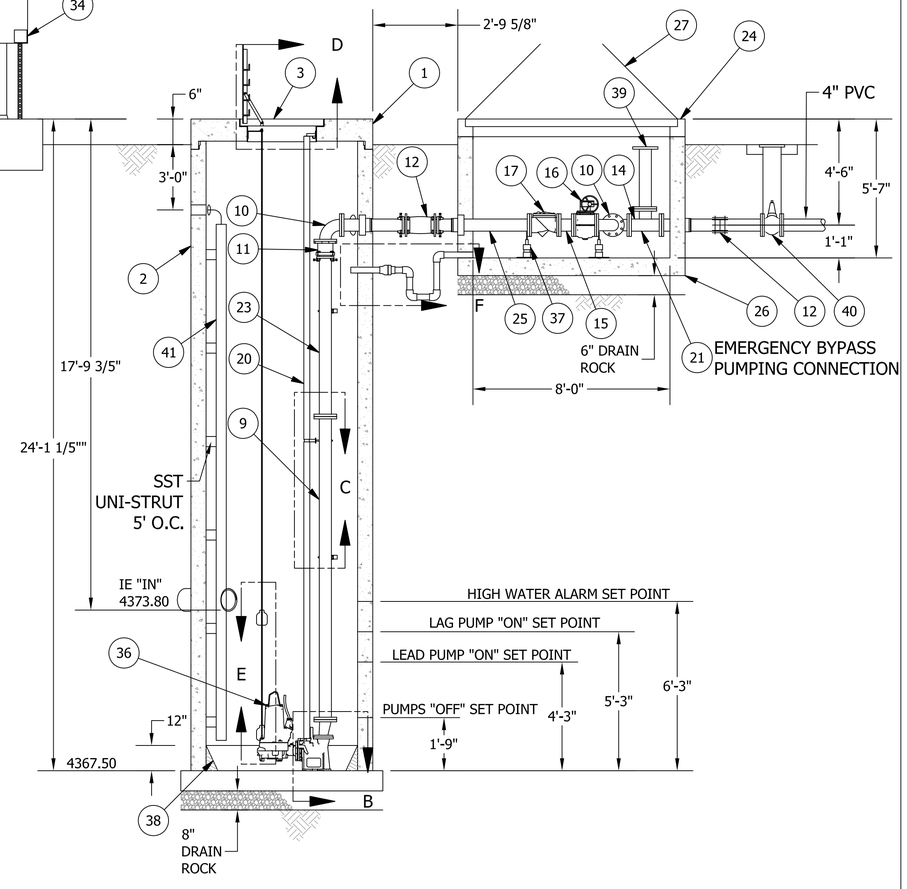
ANCHOR PUMPS BASE ELBOW TO CONCRETE WETWELL PER MANUFACTURER'S RECOMMENDATIONS

DETAIL B
NTS









REV No.	DATE	DESCRIPTION	APPROVED

DESIGNED BY: N/A
DRAWN BY: N/A
CHECKED BY: NL
APPROVED BY: NL
SCALE
HORIZ: N.T.S.
VERT: N/A
FIELD BOOK

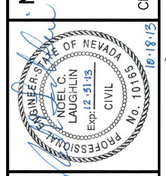
HDR Engineering, Inc.
9805 Double R Blvd, Suite 101
Reno, NV 89521
Phone: 775-337-4700

City of Sparks

NORTH TRUCKEE DRAIN REALIGNMENT PHASE 1

LIFT STATION DETAILS

CITY OF SPARKS, NEVADA, PUBLIC WORKS DEPARTMENT



SHEET No.
DT-9
SHT OF

CONTROL PANEL SPECIFICATIONS

PANEL OPERATION:

- 2 PUMPS, LIQUID LEVEL SENSOR, 2 BACKUP FLOATS, ON DEMAND ALTERNATING DUPLEX SYSTEM

COMPONENTS INCLUDE:

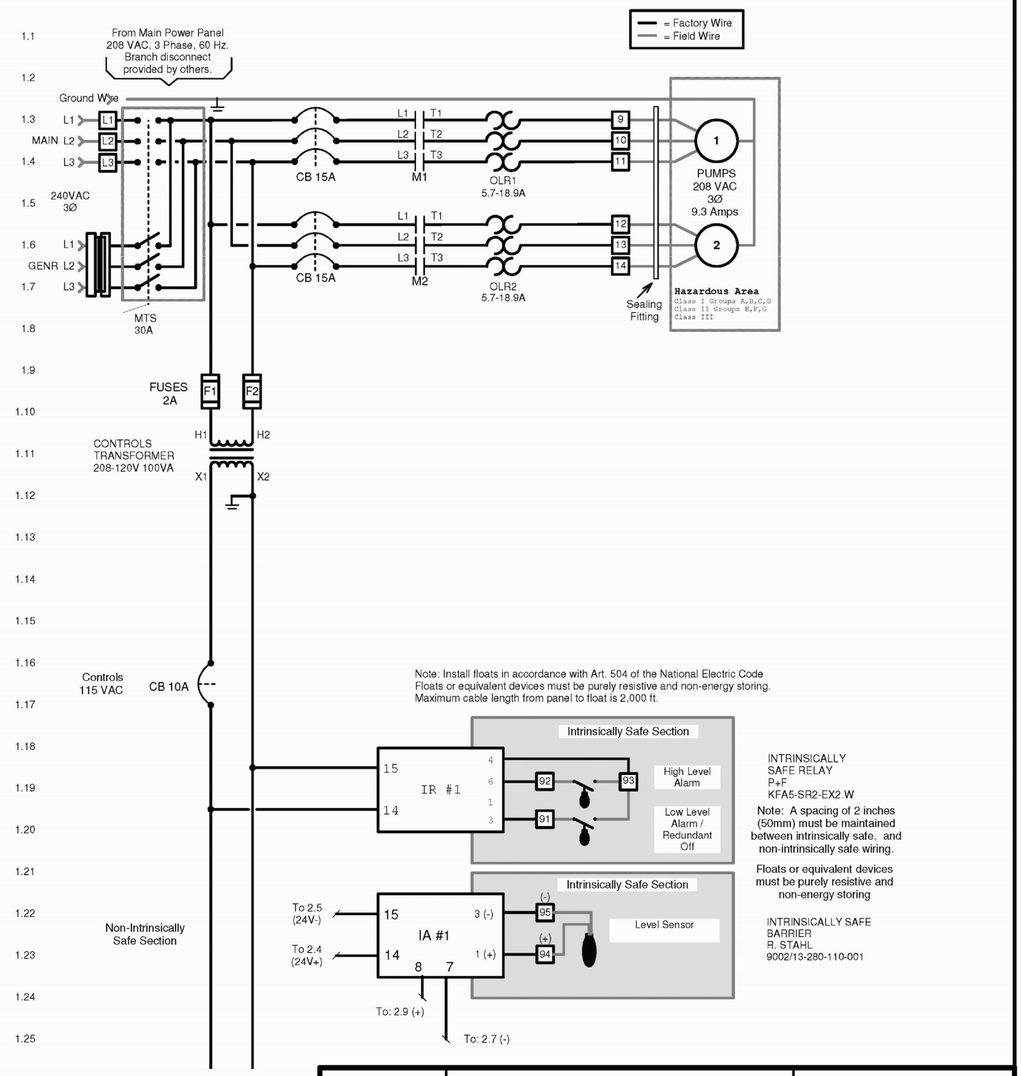
- NEMA4 STEEL ENCLOSURE
- DEAD FRONT USER INTERFACE
- ENGRAVED LABELS
- (TR) TRANSFORMER (FUSED) **208-120V, 100VA**
- (MTS) MANUAL TRANSFER SWITCH W/RECEPTACLE (MAIN - GENERATOR)
- 10A CONTROLS CIRCUIT BREAKER
- 15A PUMPS CIRCUIT BREAKERS
- MOTOR CONTACTORS FOR **208VAC 3Ø PUMPS (2.68 HP, 9.29 FLA)**
- OVERLOAD RELAYS RATED AT **5.7A TO 18.9A**
- LOGO PROGRAMMABLE LOGIC CONTROLLER
  - **SYSTEM DATA SCREENS:**
    - ELAPSED TIME METER FOR EACH PUMP (LOGS DATA IN AUTO MODE)
    - EVENT COUNTER FOR EACH PUMP (LOGS DATA IN AUTO MODE)
    - LAG COUNTERS (PUMPS ON CYCLES EVENT COUNTER IN LAG MODE)
    - HIGH LEVEL COUNTER (FLOAT EVENT COUNTER AFTER ALARM DELAY)
    - POWER FAULT COUNTER
    - OPERATING HOURS (POH)
  - **SOFT TOUCH KEYS:**
    - TIMER PARAMETERS
    - ALTERNATOR AND LEAD PUMP SELECTOR
- 24VDC POWER SUPPLY
- NUMBERED TERMINAL BLOCKS
- HAND-OFF-AUTO SWITCH FOR EACH PUMP
- CONTROL RELAYS
- LEVEL ALARM LIGHT (RED LENS)
  FLASHING LIGHT = LOW LEVEL CONDITION, STEADY LIGHT = HIGH LEVEL CONDITION
- (SF) SEAL FAIL SENSOR WITH ALARM LIGHT (AMBER LENS)
- (HS) HEAT SENSOR CONTACTS (MOTOR INTERRUPT)
- (RA) REMOTE ALARM (DRY CONTACT)
- AUDIBLE ALARM WITH PUSH TO SILENCE SWITCH **(95DB @ 2 FEET)**
- LISTED: CUL, UL508A, AND UL698 (A)

INTRINSICALLY SAFE RELAYS, INPUTS: LOW LEVEL SENSOR (TRANSDUCER), BACKUP FLOATS.

BACKUP FLOAT FUNCTIONS:

- **HIGH LEVEL ALARM**
- **REDUNDANT OFF, LOW LEVEL ALARM**

Panel Wiring Diagram
Model MVP-DAX208 IR RO LLS SF HS



PROJECT:
NORTH TRUCKEE DRAIN REALIGNMENT
CONTROL PANEL DETAIL

DATE:	DRAWN BY:	SHEET NO:
6-17-13	JRD	3 of 4

JENSEN ENGINEERED SYSTEMS
825 STENERI WAY, SPARKS, NV 89431
JensenEngineeredSystems.com
(855) 468-5600

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DESIGNED BY: N/A
DRAWN BY: N/A
CHECKED BY: NL
APPROVED BY: NL
SCALE
HORIZ: N.T.S.
VERT: N/A
FIELD BOOK

REV No.	DATE	DESCRIPTION	APPROVED

HDR Engineering, Inc.
9805 Double R Blvd.
Suite 101
Reno, NV 89521
Phone: 775-337-4700

City of Sparks

NORTH TRUCKEE DRAIN REALIGNMENT PHASE 1

LIFT STATION DETAILS

CITY OF SPARKS, NEVADA, PUBLIC WORKS DEPARTMENT

STATE OF NEVADA — PROFESSIONAL ENGINEER — NOEL C. LAUGHLIN — Exp: 12-31-13 — CIVIL — No. 10169 — 10-15-13

SHEET No
DT-10

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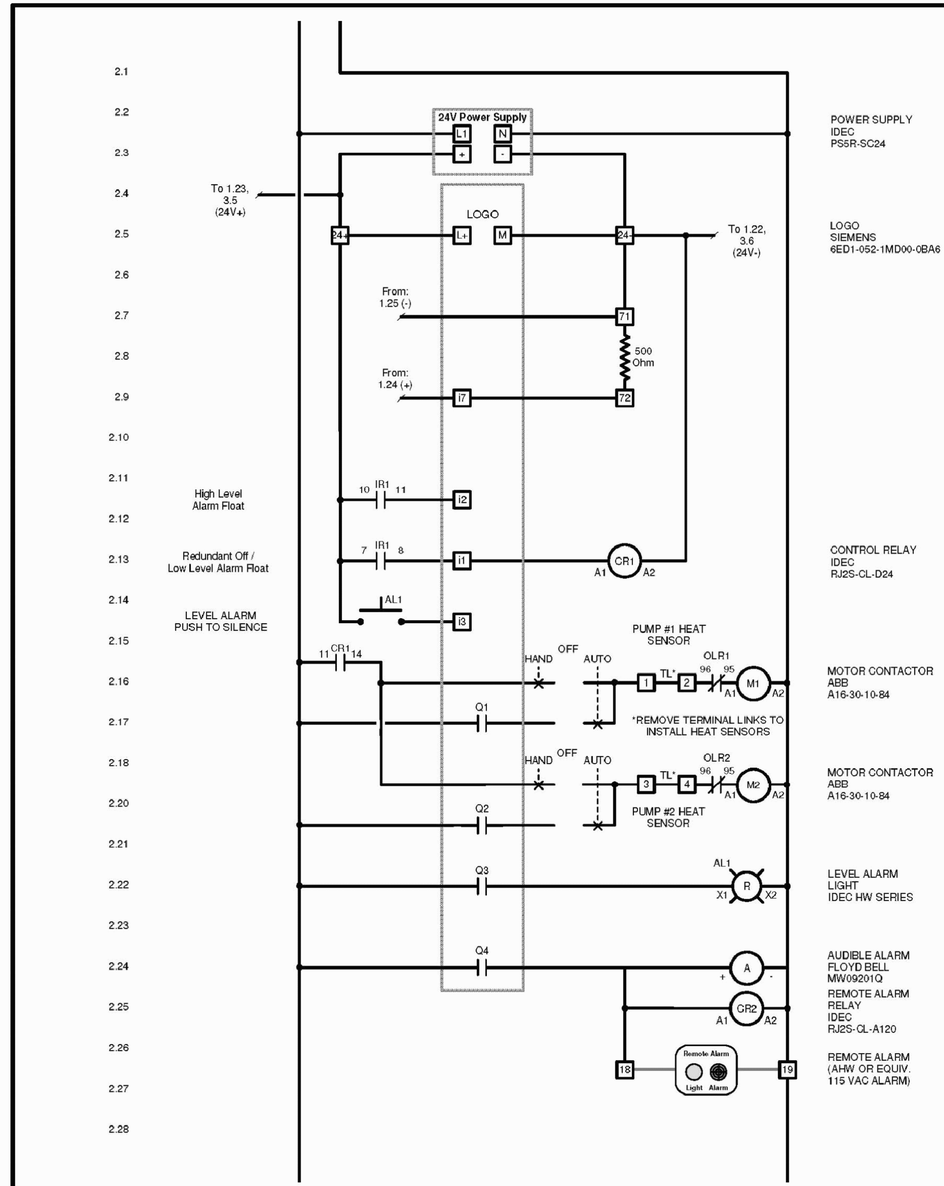

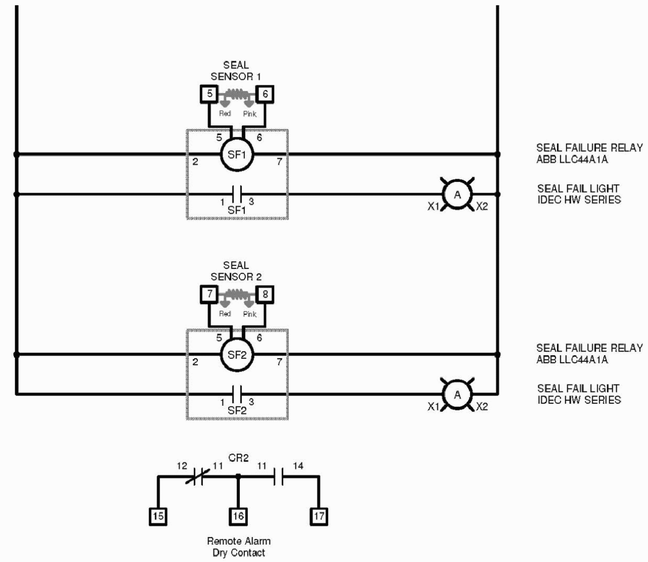

PROJECT:
NORTH TRUCKEE DRAIN REALIGNMENT
CONTROL PANEL DETAIL

DATE: 6-17-13 | DRAWN BY: JRD | SHEET NO: 4 of 4

JENSEN PRECAST ENGINEERED SYSTEMS
825 STENERI WAY, SPARKS, NV 89431
JensenEngineeredSystems.com
(855) 468-5600

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REV No	DATE	DESCRIPTION	APPROVED

DESIGNED BY: N/A
DRAWN BY: N/A
CHECKED BY: NL
APPROVED BY: NL
SCALE
HORIZ: N.T.S.
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FIELD BOOK

HDR Engineering, Inc.
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Reno, NV 89521
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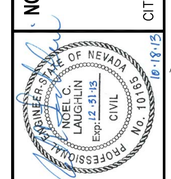
City of Sparks

NORTH TRUCKEE DRAIN REALIGNMENT PHASE 1

LIFT STATION DETAILS

CITY OF SPARKS, NEVADA, PUBLIC WORKS DEPARTMENT



SHEET No.
DT-11

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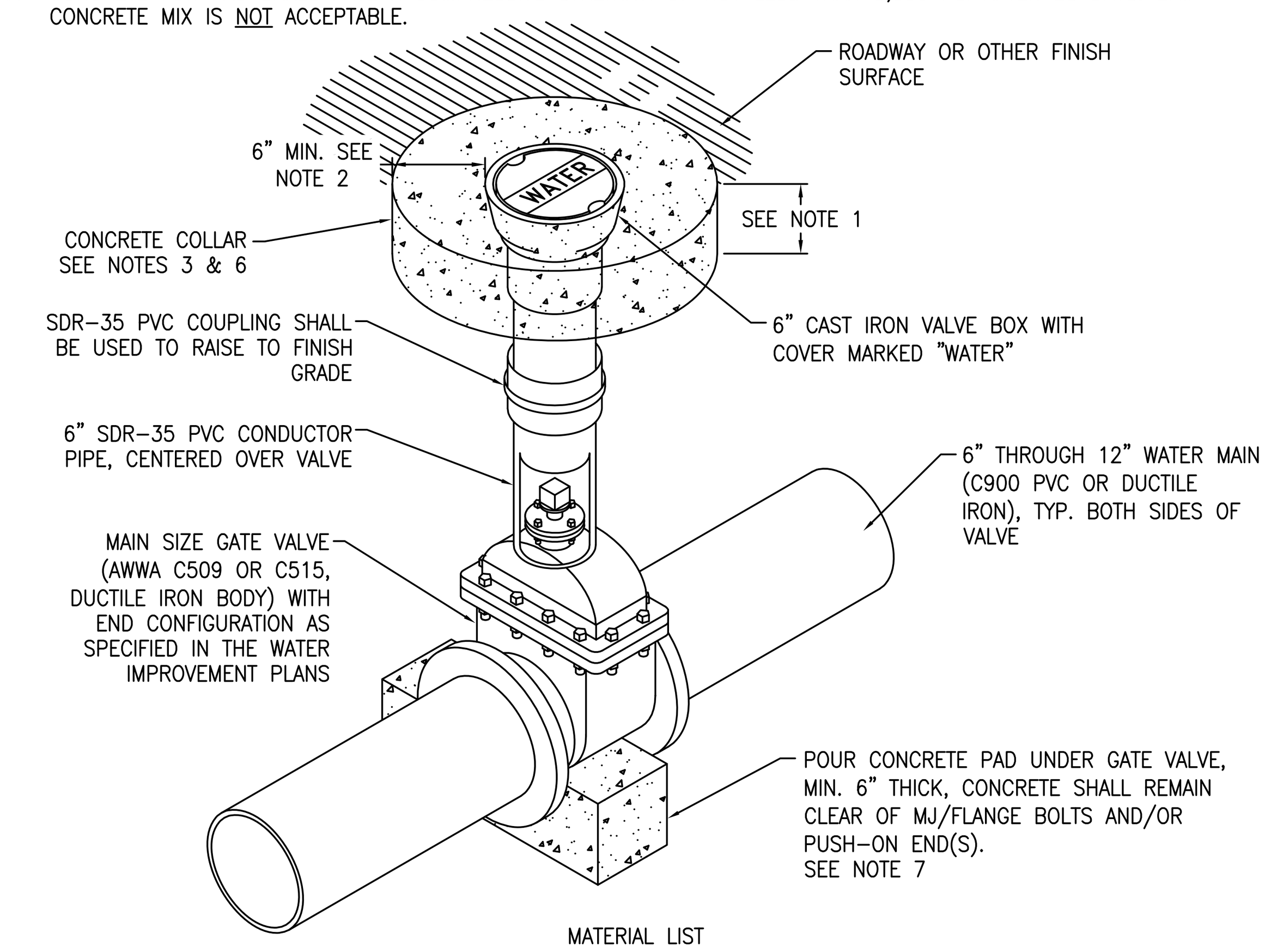
NOTES:
1. CONCRETE COLLAR SHALL BE MINIMUM 6–INCHES THICK OR MATCH PAVEMENT THICKNESS, WHICHEVER IS GREATER, UNLESS OTHERWISE SPECIFIED BY THE JURISDICTIONAL AGENCY RESPONSIBLE FOR THE ROADWAY.
2. FOR MULTIPLE VALVE/RISER BOXES IN CLOSE PROXIMITY, A MONOLITHIC CONCRETE COLLAR MAY BE POURED.
3. CONTRACTOR AND/OR DESIGN ENGINEER SHALL CONSULT WITH THE JURISDICTIONAL AGENCY RESPONSIBLE FOR THE ROADWAY FOR REQUIREMENTS THAT MAY VARY FROM THIS STANDARD PRIOR TO CONSTRUCTION.
4. ALL BOLTS AND EXPOSED METAL SHALL BE COATED WITH BRUSHED–ON MASTIC.
5. GATE VALVE, DUCTILE IRON PIPE, AND OTHER METAL PARTS SHALL BE ENCASED WITH POLYETHYLENE WRAP PER AWWA C105.
6. UNLESS OTHERWISE SPECIFIED BY THE JURISDICTIONAL AGENCY RESPONSIBLE FOR THE ROADWAY, PORTLAND CEMENT CONCRETE (P.C.C.) FOR CONCRETE COLLAR SHALL HAVE THE FOLLOWING CHARACTERISTICS: 4,000 PSI MINIMUM COMPRESSIVE STRENGTH AT 28 DAYS, MINIMUM 6 SACKS OF CEMENT PER CUBIC YARD WITH A MAXIMUM WATER/CEMENT RATIO OF 0.45, AIR ENTRAINMENT 6% ±1.5%, SLUMP AT 1 TO 4 INCHES. BAG CONCRETE MIX IS NOT ACCEPTABLE.
7. CONCRETE FOR PAD SHALL HAVE A COMPRESSIVE STRENGTH OF NOT LESS THAN 3,000 PSI AFTER 28 DAYS. BAG CONCRETE MIX IS NOT ACCEPTABLE.

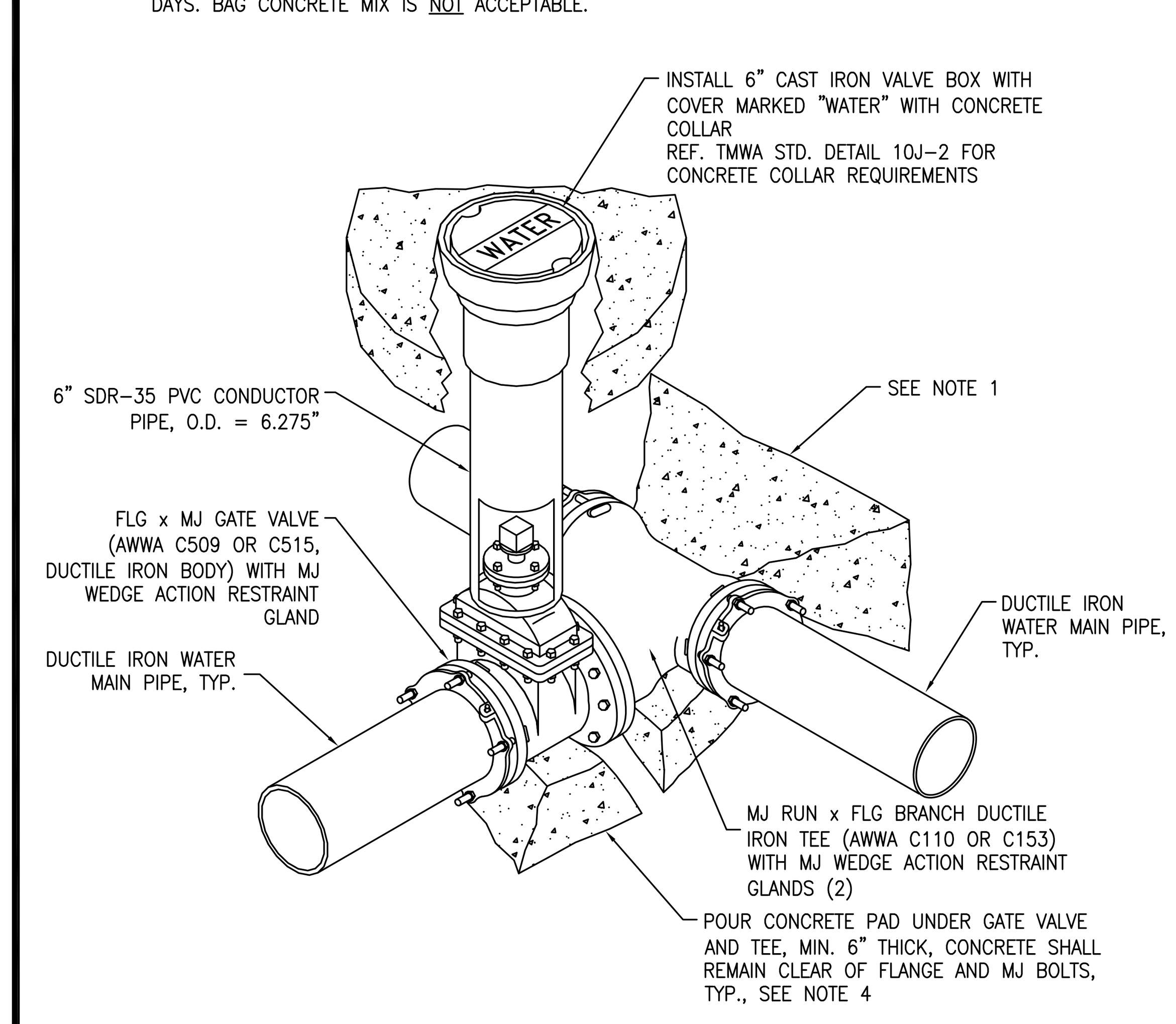


MATERIAL LIST

QTY	DESCRIPTION
1	MAIN SIZE GATE VALVE (AWWA C509 OR C515, DUCTILE IRON BODY) WITH END CONFIGURATION AS SPECIFIED IN THE WATER IMPROVEMENT PLANS
1	MASTIC (1 GALLON CAN – BRUSH ON)
1	6" Ø SDR–35 PVC CONDUCTOR PIPE SECTION
1	6" Ø CAST IRON VALVE BOX WITH COVER MARKED "WATER"
1	FULL FACE GASKET
1	CONCRETE BULK – PAD AND COLLAR

TRUCKEE MEADOWS WATER AUTHORITY	DATE	APPENDIX 10J DISTRIBUTION VLAVE INSTALLATION	DRAWING NUMBER
	1/2002	IN-LINE GATE VALVE WITH CONCRETE COLLAR	10J-2
	REV		
	7/2011		

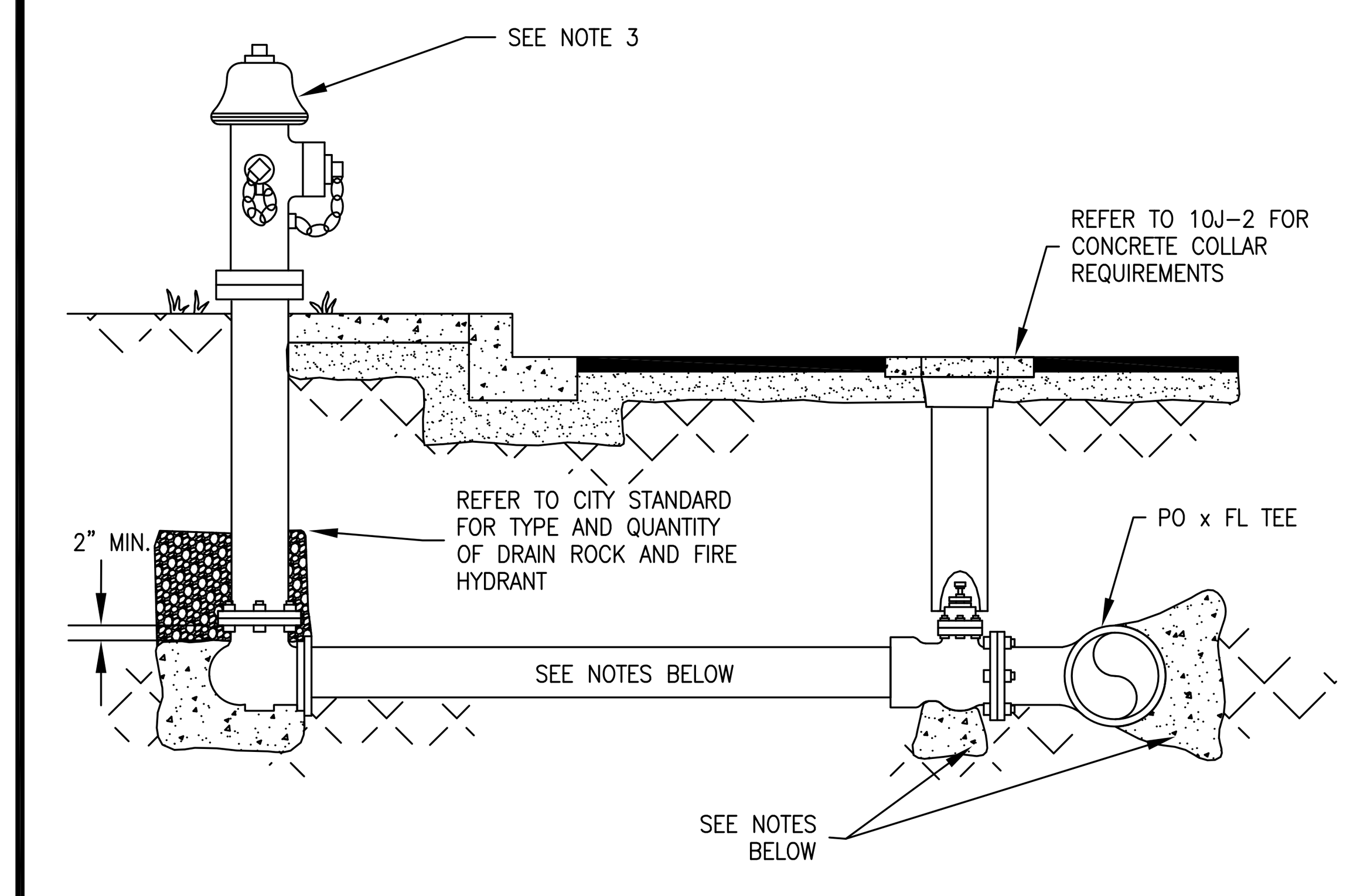
NOTES:
1. REFERENCE TMWA STANDARD DETAIL 10L–2 FOR THRUST BLOCK SIZING AND REQUIREMENTS.
2. ALL BOLTS AND EXPOSED METAL SHALL BE COATED WITH BRUSHED–ON MASTIC.
3. TEE, VALVES, FITTINGS, DUCTILE IRON PIPE AND OTHER METAL PARTS SHALL BE ENCASED WITH POLYETHYLENE WRAP PER AWWA C105.
4. CONCRETE FOR PADS SHALL HAVE A COMPRESSIVE STRENGTH OF NOT LESS THAN 3,000 PSI AFTER 28 DAYS. BAG CONCRETE MIX IS NOT ACCEPTABLE.



MATERIAL LIST

QTY.	DESCRIPTION
1	MJ RUN x FLG BRANCH DUCTILE IRON TEE (AWWA C110 OR C153)
1	FLG x MJ GATE VALVE WITH DUCTILE IRON BODY (AWWA C509 OR C515)
3	MJ WEDGE ACTION RESTRAINT GLAND
1	6" CAST IRON VALVE BOX WITH COVER MARKED "WATER"
1	6" SDR–35 PVC CONDUCTOR PIPE SECTION, O.D. = 6.275"
–	CONCRETE BULK – THRUST BLOCKS, PADS, COLLARS

TRUCKEE MEADOWS WATER AUTHORITY	DATE	APPENDIX 10B DISTRIBUTION BRANCH INSTALLATIONS	DRAWING NUMBER
	7/2011	MECHANICAL JOINT x FLANGED TEES FLG x MJ GATE VALVE - RESTRAINED -	10B-4
	REV		

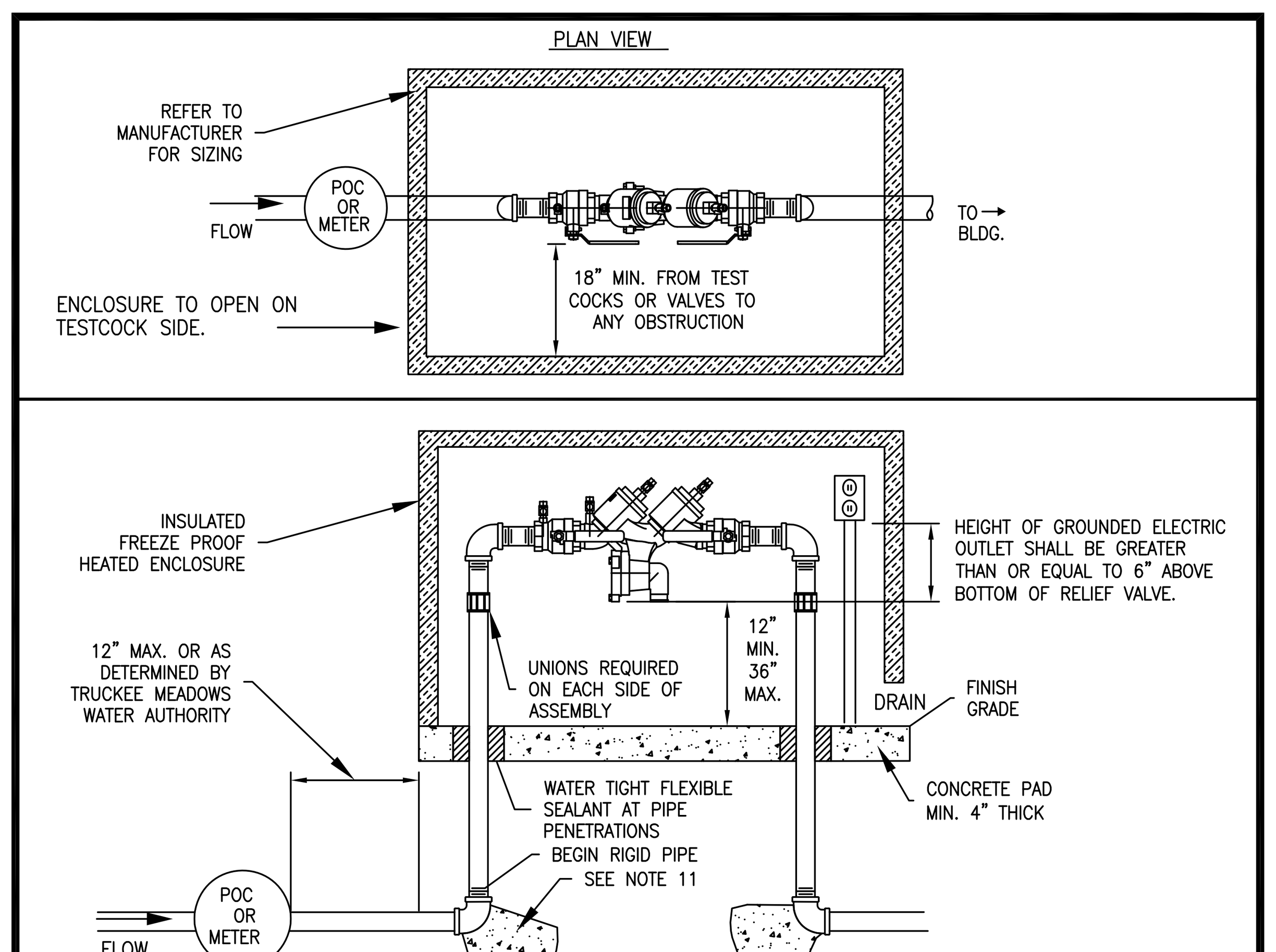


NOTES:
1. 6" DUCTILE IRON OR PVC PIPE (CLASS 235 MIN.) LENGTH TO BE DETERMINED BY ENGINEER. REFER TO JURISDICTIONAL AGENCY'S ADOPTED FIRE CODE FOR MATERIAL TYPE. POLYETHYLENE WRAP TO BE USED ON ALL DUCTILE IRON PIPE AND FITTINGS PER AWWA C105.
2. KEEP A MINIMUM OF 2" CLEARANCE BETWEEN FLANGES/BOLTS AND CONCRETE.
3. LOCATION OF FIRE HYDRANT TO BE DETERMINED BY APPROPRIATE GOVERNMENTAL FIRE AGENCY. FIRE HYDRANT AND BARREL EXTENSION TO BE SUPPLIED BY OTHERS.
4. FOR FIRE HYDRANT LATERALS THAT TERMINATE WITHIN 150' OF WATER MAIN.
5. REFER TO JURISDICTIONAL AGENCY'S ADOPTED FIRE CODE FOR PIPE MATERIAL AND TYPE OF FIRE HYDRANT.
6. ALL EXPOSED METAL MUST BE COATED AND WRAPPED.
7. REFER TO CITY STANDARDS OR APPENDIX 10L FOR THRUST BLOCK REQUIREMENTS. USE THE MOST CONSERVATIVE.

MATERIAL LIST

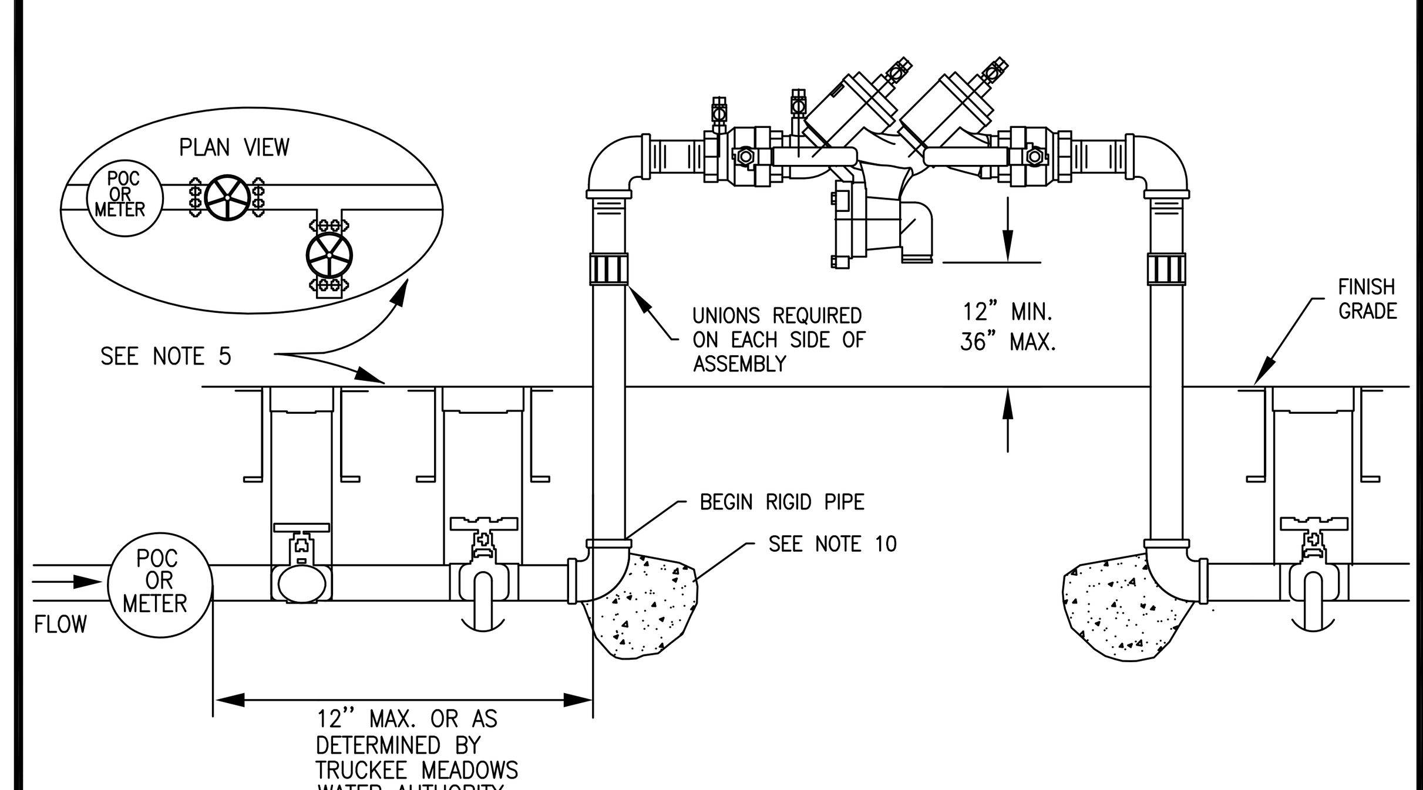
QTY	DESCRIPTION
1	6" FL X PO RESILIENT WEDGE GATE VALVE WITH 2" OPERATING NUT.
1	6" Ø VALVE BOX, RISER AND COVER MARKED "WATER"
1	DUCTILE IRON TEE, PO X FL SIZE BASED ON MAIN SIZE.

TRUCKEE MEADOWS WATER AUTHORITY	DATE	APPENDIX 10F FIRE PROTECTION INSTALLATIONS	DRAWING NUMBER
	7/2001	6" FIRE HYDRANT SERVICE OFF NEW MAINS FOR LATERALS LESS THAN 150'	10F-2
	REV		
	7/2011		



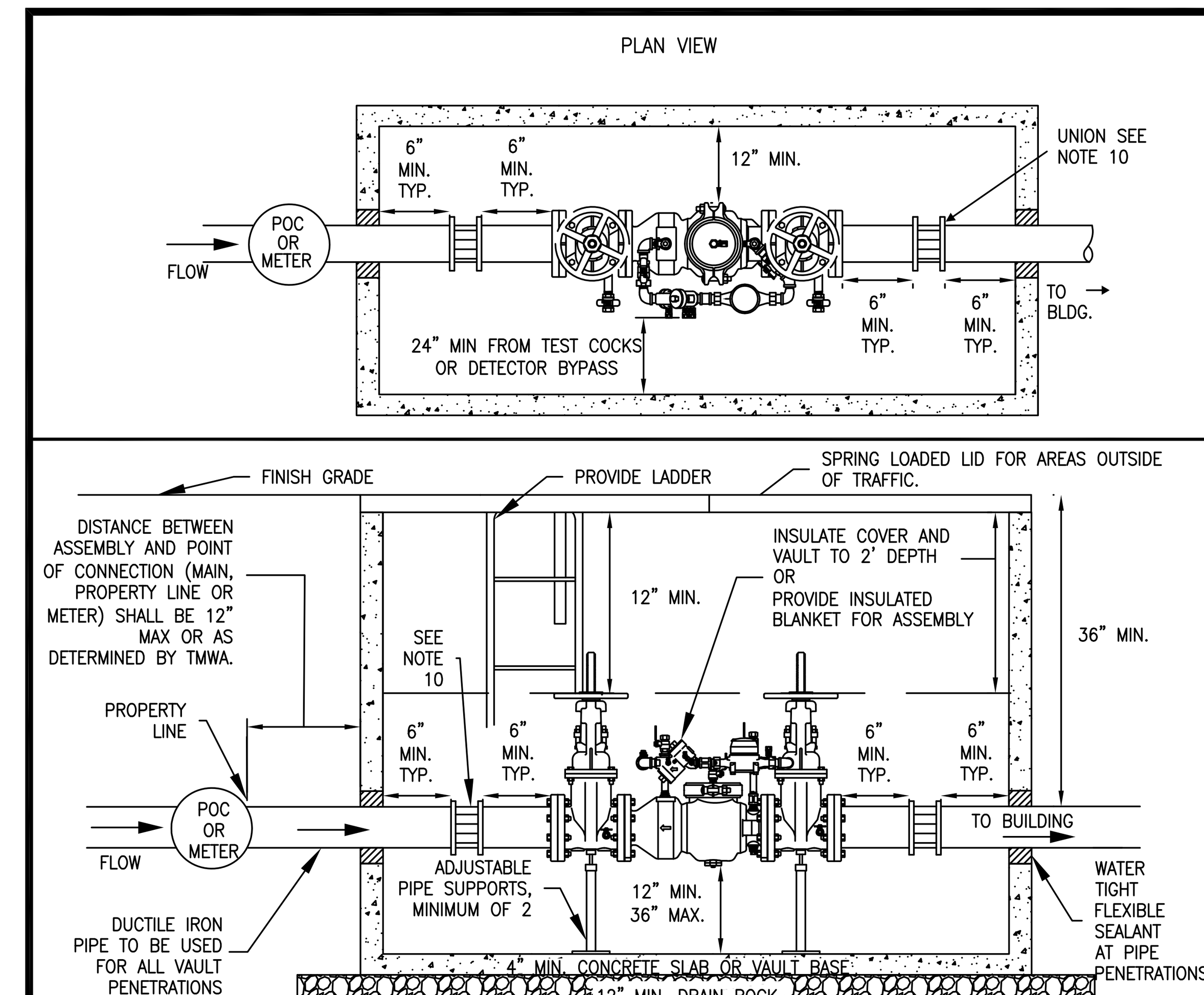
NOTES:
1. ASSEMBLY SHALL BE A USC APPROVED DEVICE.
2. THE RP SHALL BE INSTALLED ABOVE GRADE.
3. GROUNDED ELECTRIC SUPPLY SHALL BE A MINIMUM OF 6" ABOVE BOTTOM OF RELIEF VALVE AND STUBBED TO THE OUTSIDE.
4. NO STOP AND WASTE VALVES.
5. FREEZE PROOF INSULATED BOX AND 1 SOURCE OF HEAT ARE REQUIRED. 2 SOURCES OF HEAT ARE STRONGLY RECOMMENDED.
6. INSULATED BOX SHALL SWING CLEAR OF ASSEMBLY TO PROVIDE CLEARANCES SHOWN OR INSULATED BOX SHALL BE SIZED TO PROVIDE CLEARANCES SHOWN.
7. SPRING LOADED LID REQUIRED ON LARGE BOXES.
8. THERMAL EXPANSION PROTECTION IS REQUIRED IN ANY DOMESTIC WATER SUPPLY SYSTEM THAT IS DOWNSTREAM FROM A BACKFLOW PREVENTION DEVICE. REFERENCE: UNIFORM PLUMBING CODE SECTION 608.3 & NAC 445A.67235.
9. INSPECTION BY TMWA BACKFLOW PREVENTION GROUP PERSONNEL REQUIRED BEFORE METER IS SET OR SERVICE IS ACTIVATED.
10. IF INITIAL TEST DONE BY TMWA FIELD PERSONNEL FAILS, RETESTING OF BACKFLOW ASSEMBLY IS REQUIRED WITHIN 7 DAYS AFTER METER IS SET OR SERVICE ACTIVATION. COPY OF TEST RESULTS TO BE FORWARDED TO TMWA BACKFLOW PREVENTION GROUP BY A CERTIFIED ASSEMBLY TESTER WITHING THAT SAME TIMEFRAME.
11. MINIMUM DIMENSIONS FOR THE THRUST BLOCK BEARING AREA FOR PIPE 2" AND SMALLER SHALL BE 8" X 8" AND 12" IN DEPTH. ALL OTHER SIZES TO BE DETERMINED BY ENGINEER.

TRUCKEE MEADOWS WATER AUTHORITY	DATE	APPENDIX 10A BACKFLOW PREVENTION ASSEMBLIES	DRAWING NUMBER
	7/2001	REDUCED PRESSURE PRINCIPLE ASSEMBLY FOR DOMESTIC USE EXTERNAL - HORIZONTAL	10A-2
	REV		
	8/2011		



NOTES:
1. ASSEMBLY SHALL BE A USC APPROVED DEVICE.
2. THE RP SHALL BE INSTALLED ABOVE GRADE.
3. EITHER VALVE BOXES OR PIPE RISERS MAY BE USED FOR THE 2 BELOW GRADE SHUT OFF VALVES.
4. MANUAL SHUT OFF VALVE: INLINE BRASS GLOBE OR CURB VALVE SIZED SAME AS MAINLINE.
5. DRAIN CONFIGURATION: INLINE 'T' TO BRASS SHUT OFF VALVE WITH RUBBER SEAT & ½" 90° EL WITH FEMALE THREADS. ADD ½" RED FREEZE KING DRAIN.
6. NO STOP AND WASTE VALVES.
7. DRAINS SHALL HAVE CLEAN GRAVEL BELOW PER LOCAL BUILDING CODES.
8. INSPECTION BY TMWA BACKFLOW PREVENTION GROUP PERSONNEL REQUIRED BEFORE METER IS SET OR SERVICE IS ACTIVATED.
9. IF INITIAL TEST DONE BY TMWA FIELD PERSONNEL FAILS, RETESTING OF BACKFLOW ASSEMBLY IS REQUIRED WITHIN 7 DAYS AFTER METER IS SET OR SERVICE ACTIVATION. COPY OF TEST RESULTS TO BE FORWARDED TO TMWA BACKFLOW PREVENTION GROUP BY A CERTIFIED ASSEMBLY TESTER WITHIN THAT SAME TIMEFRAME.
10. MINIMUM DIMENSIONS FOR THE THRUST BLOCK BEARING AREA FOR PIPE 2" AND SMALLER SHALL BE 8" X 8" AND 12" IN DEPTH. ALL OTHER SIZES TO BE DETERMINED BY ENGINEER.
11. FOR YEAR–ROUND USE REFER TO 10A–2.

TRUCKEE MEADOWS WATER AUTHORITY	DATE	APPENDIX 10A BACKFLOW PREVENTION ASSEMBLIES	DRAWING NUMBER
	7/2001	REDUCED PRESSURE PRINCIPLE ASSEMBLY FOR IRRIGATION AND CONSTRUCTION WATER USE - HORIZONTAL	10A-3
	REV		
	7/2011		



NOTES:
1. ASSEMBLY SHALL BE A USC APPROVED DEVICE.
2. FREEZE PROOF INSULATED VAULT REQUIRED.
3. BELOW GROUND VAULT SHALL BE SIZED TO PROVIDE CLEARANCES SHOWN IN PLAN VIEW.
4. BELOW GROUND VAULT SHALL REMAIN DRY THROUGHOUT THE YEAR, CONTRACTOR SHALL ENSURE THERE IS PROPER DRAINAGE AROUND THE VAULT
5. SPRING LOADED LID REQUIRED ON LARGE VAULTS WITH ASSEMBLIES LARGER THAN 2 INCHES. MANHOLE ACCESS IS REQUIRED IN AREAS SUBJECT TO VEHICULAR TRAFFIC.
6. NO STOP AND WASTE VALVES.
7. CALL LOCAL BUILDING AND/OR FIRE DEPARTMENTS FOR DEPTH AND TYPE OF PIPE TO BE USED.
8. INSPECTION BY TMWA BACKFLOW PREVENTION GROUP PERSONNEL REQUIRED BEFORE METER IS SET OR SERVICE IS ACTIVATED.
9. TESTING OF THE ASSEMBLY REQUIRED WITHIN 7 DAYS AFTER METER IS SET OR SERVICE ACTIVATION. COPY OF TEST RESULTS TO BE FORWARDED TO TMWA BACKFLOW PREVENTION GROUP PERSONNEL BY A CERTIFIED ASSEMBLY TESTER WITHIN THAT SAME TIMEFRAME.
10. UNIONS TO BE INSTALLED WITH ALL ASSEMBLIES ON BOTH SIDES OF ASSEMBLY.
11. VALVES ON DETECTOR BYPASS SHALL REMAIN OPEN AT ALL TIMES.

TRUCKEE MEADOWS WATER AUTHORITY	DATE	APPENDIX 10A BACKFLOW PREVENTION ASSEMBLIES	DRAWING NUMBER
	7/2001	FIRE - CLASS 1, 2 & 3 DOUBLE CHECK VALVE DETECTOR ASSEMBLY EXTERNAL - HORIZONTAL BELOW GRADE	10A-5
	REV		
	9/2011		

REV No	DATE	DESCRIPTION	APPROVED

DESIGNED BY: N/A
DRAWN BY: N/A
CHECKED BY: NL
APPROVED BY: NL
SCALE
HORIZ: N.T.S.
VERT: N/A
FIELD BOOK

HDR Engineering, Inc.
9805 Double R Blvd.
Suite 101
Reno, NV 89521
Phone: 775-337-4700

City of Sparks

NORTH TRUCKEE DRAIN REALIGNMENT PHASE 1

STANDARD DETAILS

CITY OF SPARKS, NEVADA, PUBLIC WORKS DEPARTMENT

PROFESSIONAL ENGINEER, STATE OF NEVADA, NOEL C. LAUGHLIN, Exp. 12-31-15, CIVIL, No. 10153, 10-18-13

SHEET No
DT-12
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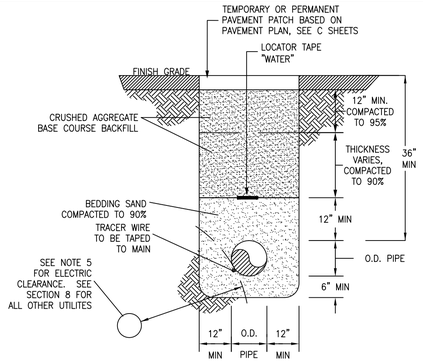


NOTES:
1. ALL TRENCHES MUST CONFORM TO APPLICABLE TMWA, CITY, STATE, COUNTY, AND OSHA SPECIFICATIONS AND REQUIREMENTS. IN THE CASE OF CONFLICT, THE MORE RIGID SPECIFICATION OR STANDARD SHALL APPLY.
2. BEDDING SAND SHALL BE COMPACTED TO 90% MAXIMUM DENSITY PER SECTION 5.05.03 AND SHALL BE A MINIMUM OF 12" ABOVE AND 6" BELOW THE MAIN. PER SECTION 5 OF TMWA STANDARDS.
3. CRUSHED AGGREGATE BASE COURSE BACKFILL SHALL BE PLACED IN 12" MAXIMUM LOOSE LIFTS. THE TOP 12" SHALL BE COMPACTED TO 95% MAXIMUM DENSITY. THE AREA ABOVE THE BEDDING SAND & BELOW 12" FROM FINISH GRADE SHALL BE COMPACTED TO 90% MAXIMUM DENSITY. PER SECTION 5 OF TMWA STANDARDS.
4. NON-METALLIC BLUE WARNING TAPE SHALL BE PLACED IN ALL TRENCHES AT LEAST 12" ABOVE THE WATER MAIN. METALLIC WARNING TAPE MUST BE UTILIZED WITH WATER FACILITIES WHEN THERE IS NO OTHER DETECTABLE MEANS AVAILABLE.
5. ELECTRIC UTILITIES MUST BE LOCATED BELOW WATER & MAINTAIN 2' MINIMUM RADIAL CLEARANCE FROM TMWA WATER FACILITIES. IF 2' RADIAL CLEARANCE CAN NOT BE MET ELECTRIC CONDUIT MUST BE CONCRETE ENCASED AT LEAST 18" EACH SIDE OF WATER CROSSING. FIBER OPTIC AND/OR COMMUNICATION CONDUITS SHALL NOT BE PLACED IN THE SAME TRENCH AS WATER. COORDINATE LOCATIONS WITH NV ENERGY.
6. ALL CHANGES MUST BE APPROVED BY THE TMWA INSPECTOR AND/OR THE TMWA ENGINEER.
7. SEPARATION FOR PIPES IN A JOINT TRENCH SHALL BE A MINIMUM OF 12".

TRUCKEE MEADOWS WATER AUTHORITY	DATE	APPENDIX 10L MISCELLANEOUS WATER DETAILS	DRAWING NUMBER
	7/2011	TRENCH DETAIL WATER ONLY	10L-6
	REV		

NOTES:
1. COUPLINGS SHALL BE HYMAX 2000 SERIES COUPLINGS AS MANUFACTURED BY TOTAL PIPING SOLUTIONS, INC. OR TMWA APPROVED EQUIVALENT.
2. SNAP MACHINED END OFF TRANSITE (AC) PIPE TO EXPOSE ROUGH BARREL. INSTALL COUPLING ON ROUGH BARREL SECTION OF TRANSITE PIPE.
3. FIELD MEASURE ACTUAL PIPE O.D. PRIOR TO ORDERING COUPLING. FOR OTHER TYPES OF PIPE NOT LISTED IN THE CHARTS BELOW AND/OR PIPE O.D.'S WHICH MAY DIFFER FROM THOSE LISTED BELOW, CONSULT MANUFACTURER'S SIZING CHART.

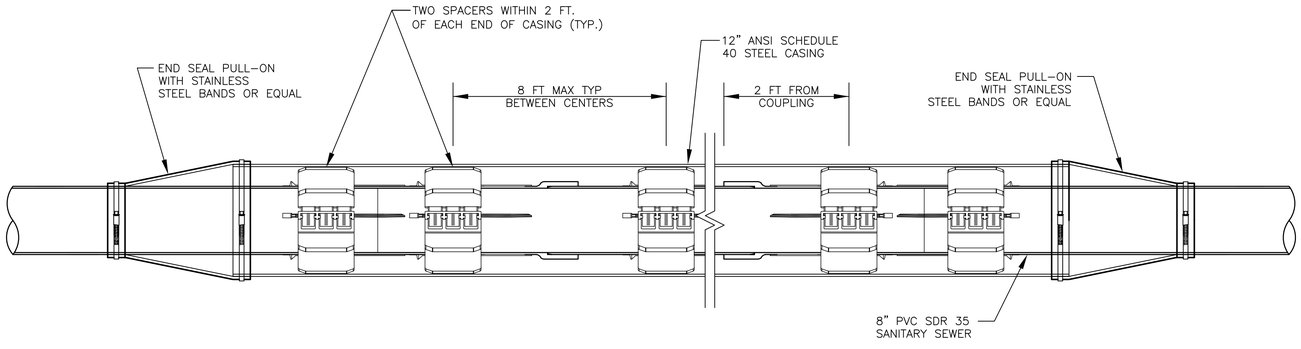
TYPE OF PIPE	6" C900 PVC (C900) 6" DUCTILE IRON (DI)		6" TRANSITE (AC) ROUGH BARREL CLASS 100/150/200	
6" C900 PVC (C900) 6" DUCTILE IRON (DI)	HYMAX COUPLING PART NO. 2000-0768-260	LOW RANGE (C900, DI) 6.42 – 7.05 LOW RANGE (C900, DI) 6.42 – 7.05	HYMAX COUPLING PART NO. 2000-0768-260	HIGH RANGE (AC) 7.01 – 7.68 LOW RANGE (C900, DI) 6.42 – 7.05
6" TRANSITE (AC) ROUGH BARREL CLASS 100/150/200	HYMAX COUPLING PART NO. 2000-0768-260	LOW RANGE (C900, DI) 6.42 – 7.05 HIGH RANGE (AC) 7.01 – 7.68	HYMAX COUPLING PART NO. 2000-0768-260	HIGH RANGE (AC) 7.01 – 7.68 HIGH RANGE (AC) 7.01 – 7.68

TYPE OF PIPE	8" C900 PVC (C900) 8" DUCTILE IRON (DI)		8" TRANSITE (AC) ROUGH BARREL CLASS 100/150/200	
8" C900 PVC (C900) 8" DUCTILE IRON (DI)	HYMAX COUPLING PART NO. 2000-0984-260	LOW RANGE (C900, DI) 8.54 – 9.17 LOW RANGE (C900, DI) 8.54 – 9.17	HYMAX COUPLING PART NO. 2000-0984-260	HIGH RANGE (AC) 9.13 – 9.84 LOW RANGE (C900, DI) 8.54 – 9.17
8" TRANSITE (AC) ROUGH BARREL CLASS 100/150/200	HYMAX COUPLING PART NO. 2000-0984-260	LOW RANGE (C900, DI) 8.54 – 9.17 HIGH RANGE (AC) 9.13 – 9.84	HYMAX COUPLING PART NO. 2000-0984-260	HIGH RANGE (AC) 9.13 – 9.84 HIGH RANGE (AC) 9.13 – 9.84

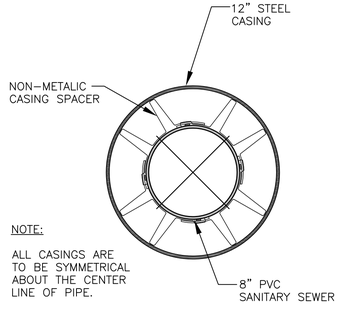
TYPE OF PIPE	10" C900 PVC (C900) 10" DUCTILE IRON (DI)		10" TRANSITE (AC) ROUGH BARREL CLASS 100/150		10" TRANSITE (AC 200) ROUGH BARREL – CLASS 200	
10" C900 PVC (C900) 10" DUCTILE IRON (DI)	HYMAX COUPLING PART NO. 2000-1226-260	LOW RANGE (C900, DI) 10.96 – 11.63 LOW RANGE (C900, DI) 10.96 – 11.63	HYMAX COUPLING PART NO. 2000-1226-260	LOW RANGE (AC) 10.96 – 11.63 LOW RANGE (C900, DI) 10.96 – 11.63	HYMAX COUPLING PART NO. 2000-1226-260	HIGH RANGE (AC 200) 11.59 – 12.26 LOW RANGE (C900, DI) 10.96 – 11.63
10" TRANSITE (AC) ROUGH BARREL CLASS 100/150	HYMAX COUPLING PART NO. 2000-1226-260	LOW RANGE (C900, DI) 10.96 – 11.63 LOW RANGE (AC) 10.96 – 11.63	HYMAX COUPLING PART NO. 2000-1226-260	LOW RANGE (AC) 10.96 – 11.63 LOW RANGE (AC) 10.96 – 11.63	HYMAX COUPLING PART NO. 2000-1226-260	HIGH RANGE (AC 200) 11.59 – 12.26 LOW RANGE (AC) 10.96 – 11.63
10" TRANSITE (AC 200) ROUGH BARREL CLASS 200	HYMAX COUPLING PART NO. 2000-1226-260	LOW RANGE (C900, DI) 10.96 – 11.63 HIGH RANGE (AC 200) 11.59 – 12.26	HYMAX COUPLING PART NO. 2000-1226-260	LOW RANGE (AC) 10.96 – 11.63 HIGH RANGE (AC 200) 11.59 – 12.26	HYMAX COUPLING PART NO. 2000-1226-260	HIGH RANGE (AC 200) 11.59 – 12.26 HIGH RANGE (AC 200) 11.59 – 12.26

TYPE OF PIPE	12" C900 PVC (C900) 12" DUCTILE IRON (DI)		12" TRANSITE (AC) ROUGH BARREL CLASS 100/150/200	
12" C900 PVC (C900) 12" DUCTILE IRON (DI)	HYMAX COUPLING PART NO. 2000-1441-260	LOW RANGE (C900, DI) 13.15 – 13.78 LOW RANGE (C900, DI) 13.15 – 13.78	HYMAX COUPLING PART NO. 2000-1441-260	HIGH RANGE (AC) 13.74 – 14.41 LOW RANGE (C900, DI) 13.15 – 13.78
12" TRANSITE (AC) ROUGH BARREL CLASS 100/150/200	HYMAX COUPLING PART NO. 2000-1441-260	LOW RANGE (C900, DI) 13.15 – 13.78 HIGH RANGE (AC) 13.74 – 14.41	HYMAX COUPLING PART NO. 2000-1441-260	HIGH RANGE (AC) 13.74 – 14.41 HIGH RANGE (AC) 13.74 – 14.41

TRUCKEE MEADOWS WATER AUTHORITY	DATE	APPENDIX 10C DISTRIBUTION TRANSITION FITTINGS	DRAWING NUMBER
	7/2011	HYMAX 2000 SERIES COUPLING CHART TRANSITE, C900 PVC, DUCTILE IRON PIPE FOR MAIN SIZES 6" TO 12"	10C-2
	REV		



TYPICAL CASING PLAN



NOTE:
ALL CASINGS ARE TO BE SYMMETRICAL ABOUT THE CENTER LINE OF PIPE.

TYPICAL CASING SECTION

NOTES:
1. STEEL PIPE CASING SHALL BE FABRICATED FROM A MINIMUM OF 1/4" THICK STEEL PLATES, CONFORMING TO THE REQUIREMENTS OF ASTM A283, GRADE B, C, OR D. ALL JOINTS SHALL BE WELDED. INTERIOR JOINTS SHALL BE GROUNDED TO A SMOOTH FINISH. ALL WELDING SHALL BE PERFORMED IN ACCORDANCE WITH AWWA C201, "AWWA STANDARD FOR FABRICATED ELECTRICALLY WELDED STEEL WATER PIPE." COATINGS FOR STEEL CASING ARE NOT REQUIRED.
2. PIPE CASING SHALL BE LAID TRUE TO LINE AND GRADE WITH NO BENDS OR CHANGES IN GRADE FOR THE FULL LENGTH OF THE CASING.
3. THE PIPE SHALL BE SUPPORTED AT EACH END OF EACH JOINT WITH SPACERS. AFTER INSTALLATION OF THE PIPE, THE CASING SHALL BE SEALED AT BOTH ENDS WITH CASING END SEALS.

SANITARY SEWER PIPE CASING DETAIL
N.T.S.

REV No	DATE	DESCRIPTION	APPROVED

DESIGNED BY: N/A
DRAWN BY: N/A
CHECKED BY: NL
APPROVED BY: NL
SCALE: HORIZ: N.T.S.
VERT: N/A
FIELD BOOK

HDR Engineering, Inc.
9805 Double R Blvd.
Suite 101
Reno, NV 89521
Phone: 775-337-4700

City of Sparks

NORTH TRUCKEE DRAIN REALIGNMENT PHASE 1

STANDARD DETAILS

CITY OF SPARKS, NEVADA, PUBLIC WORKS DEPARTMENT

PROFESSIONAL ENGINEER STATE OF NEVADA No. 10151 NOEL C. LAUGHLIN Exp: 12.31.13 CIVIL
10-18-13

SHEET No.
DT-13

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GENERAL NOTES

1. DESIGN SPECIFICATIONS:
AASHTO "STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES, 17th EDITION 2002" WITH INTERIMS TO DATE. LOAD FACTOR DESIGN METHOD WAS USED.

USACE ENGINEER MANUALS:
EM 1110-2-2100 STABILITY ANALYSIS OF CONCRETE STRUCTURES
EM 1110-2-2104 STRENGTH DESIGN FOR REINFORCED-CONCRETE HYDRAULIC STRUCTURES
EM 1110-2-2502 RETAINING AND FLOOD WALLS
EM 1110-2-2902 CONDUITS, CULVERTS AND PIPES
EM 1110-2-6053 ENGINEERING AND DESIGN-EARTHQUAKE DESIGN AND EVALUATION OF CONCRETE HYDRAULIC STRUCTURES
EM-1110-2-307 FLOTATION STABILITY CRITERIA FOR CONCRETE HYDRAULIC STRUCTURES

2. CONSTRUCTION SPECIFICATIONS:
STATE OF NEVADA DEPARTMENT OF TRANSPORTATION "STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, 2001," EXCEPT AS NOTED BELOW AND IN THE SPECIAL PROVISIONS.

3. DESIGN LOADS:
IN ACCORDANCE WITH DESIGN SPECIFICATIONS AND AS FOLLOWS:

LIVE LOAD: AASHTO HS20-44 OR ALTERNATE MILITARY LOADING. IMPACT FOR TOP SLAB IS 30% FOR UP TO 3'-0" COVER. NO IMPACT FOR OVER 3'-0" COVER. A TWO FOOT LIVE LOAD SURCHARGE IS ADDED TO THE LATERAL LOAD FOR RCB WALLS WITH LESS THAN 2'-0" COVER ON TOP SLAB.

EARTH LOAD: THE FOLLOWING TABLES CONTAIN THE EQUIVALENT FLUID PRESSURES USED, BASED ON THE GEOTECHNICAL REPORT REFERENCED BELOW. THE PRESSURE VALUE USED ON INDIVIDUAL STRUCTURES WAS BASED ON EACH STRUCTURE'S DESIGN CONDITIONS.

LATERAL EARTH PRESSURES WITH HYDROSTATIC PRESSURES	
EARTH PRESSURE	EQUIVALENT FLUID PRESSURE
ACTIVE	80
AT-REST	90
PASSIVE	250

LATERAL EARTH PRESSURES WITHOUT HYDROSTATIC PRESSURES	
EARTH PRESSURE	EQUIVALENT FLUID PRESSURE
ACTIVE	35
AT-REST	55
PASSIVE	390

HYDRAULIC PRESSURE LOADS: BUOYANCY PRESSURE ON BURIED CULVERTS BASED ON GROUND WATER LEVEL 6'-0" ABOVE FLOWLINE AND UNIT WEIGHT OF WATER (62.4 PCF). INTERNAL WATER PRESSURE ON MAIN CULVERTS BASED ON 9'-0" MAXIMUM HYDRAULIC GRADE LINE ABOVE TOP SLABS.

LOAD FACTORS: LOAD FACTORS FOR LOAD COMBINATIONS BASED ON TABLE 3.22.1A IN THE AASHTO DESIGN SPECIFICATIONS.

4. CONCRETE:
ALL CONCRETE SHALL BE CLASS AA MODIFIED, WITH AN ULTIMATE CONCRETE COMPRESSIVE STRENGTH OF f'c = 4000 psi AT 28 DAYS UNLESS OTHERWISE NOTED. THE CONCRETE FOR CAST-IN-PLACE REINFORCED CONCRETE BOXES SHALL BE f'c = 3250 psi AT 28 DAYS.

5. REINFORCING STEEL:
ALL REINFORCING STEEL TO BE DEFORMED BARS, ASTM A615 GRADE 60 OR ASTM A706 GRADE 60, AND FREE FROM RUST, SCALE, OIL, FROST AND OTHER DELETERIOUS SUBSTANCES.

DIMENSIONS RELATING TO BAR SPACING ARE CENTER TO CENTER. BENDING DIMENSIONS ARE FROM OUT TO OUT OF THE BARS. THE ENGINEER MUST APPROVE ANY ADJUSTMENTS TO REINFORCING STEEL LENGTHS OR SPACING.

BAR MARK DESIGNATIONS: WHERE BAR MARKS ARE USED, THE BAR SIZES THREE (3) TO NINE (9) ARE INDICATED BY THE FIRST NUMBER OF THE MARK, BAR SIZES TEN (10) AND LARGER ARE INDICATED BY THE FIRST TWO NUMBERS. FOR THE BENT BARS AN ARBITRARY LETTER IS USED AT THE BEGINNING OF THE BAR MARK. AFTER THE BAR SIZE THE FOLLOWING NUMBERS INDICATE THE BAR LENGTH, WITH THE FIRST TWO NUMBERS REPRESENTING FEET AND THE LAST ONE OR TWO NUMBERS REPRESENTING INCHES. BARS ENDING WITH THE LETTER E SHALL BE EPOXY COATED. BAR ENDING IN THE LETTER D SHALL BE DOWELED AND SET IN EPOXY.

STANDARD BAR LAPS		
BAR NO. SIZE	UNCOATED	EPOXY COATED
4	20"	23"
5	26"	30"
6	31"	36"
7	39"	45"
8	51"	59"
9	59"	67"
10	75"	85"
11	91"	102"

6. FOUNDATIONS:
REFER TO "GEOTECHNICAL INVESTIGATION REPORT PROPOSED NORTH TRUCKEE DRAIN REALIGNMENT, SPARKS, NEVADA", PREPARED BY KLEINFELDER WEST, INC. DATED NOVEMBER 11, 2009.

THE RCB CULVERT AND OTHER DRAINAGE STRUCTURES WHERE DESIGNED FOR AN ALLOWABLE SOIL BEARING PRESSURE OF 1500 PSF. FOR STRUCTURES FOUNDED ON STRUCTURAL BEDDING DOWN TO OUTWASH DEPOSITS AN ALLOWABLE SOIL BEARING PRESSURE OF 3000 PSF WAS USED. THESE ALLOWABLE PRESSURES ARE NET VALUES, WITH THE DEAD LOAD WEIGHT OF THE FOUNDATION AND BACKFILL BELOW THE LOWEST GRADE ADJACENT TO THE STRUCTURE NEGLECTED.

7. REINFORCED CONCRETE BOX DESIGNS:
THE CONTRACTOR SHALL HAVE THE OPTION OF FURNISHING PRECAST REINFORCED CONCRETE BOX CULVERTS OR CONSTRUCTING CAST-IN-PLACE REINFORCED CONCRETE BOX CULVERTS. DETAILS ON SHEET DT-4 ARE PROVIDED FOR THE STANDARD BOX CULVERTS WHERE THE CAST-IN-PLACE METHOD IS EITHER OPTIONAL OR MANDATORY. PRECAST BOX CULVERTS SHALL BE DESIGNED AND CONSTRUCTED ACCORDING TO THE REQUIREMENTS OF THE SPECIAL PROVISIONS.

8. REINFORCED CONCRETE BOX CONNECTIONS TO CAST-IN-PLACE STRUCTURES:
EXTEND THE LONGITUDINAL RCB REINFORCEMENT, OR ADD #4 BARS AT 12" SPACINGS, CENTERED IN ALL WALLS AND SLABS, CAST 18" MIN. INTO RCB, A MINIMUM OF 10" INTO THE CAST-IN-PLACE SECTION.

REV No.	DATE	DESCRIPTION	APPROVED

DESIGNED BY: GAA
DRAWN BY: CLG
CHECKED BY:
APPROVED BY:
SCALE
HORIZ:
VERT:
FIELD BOOK

HDR Engineering, Inc.
9805 Double R Blvd,
Suite 101
Reno, NV 89521
Phone: 775-337-4700

City of Sparks

NORTH TRUCKEE DRAIN REALIGNMENT PHASE 1

STRUCTURE GENERAL NOTES

CITY OF SPARKS, NEVADA, PUBLIC WORKS DEPARTMENT

STATE OF NEVADA
GARY A. ANDERSON
Exp: 12/31/2014
CIVIL
No. 5922
PROFESSIONAL ENGINEER
10/21/13

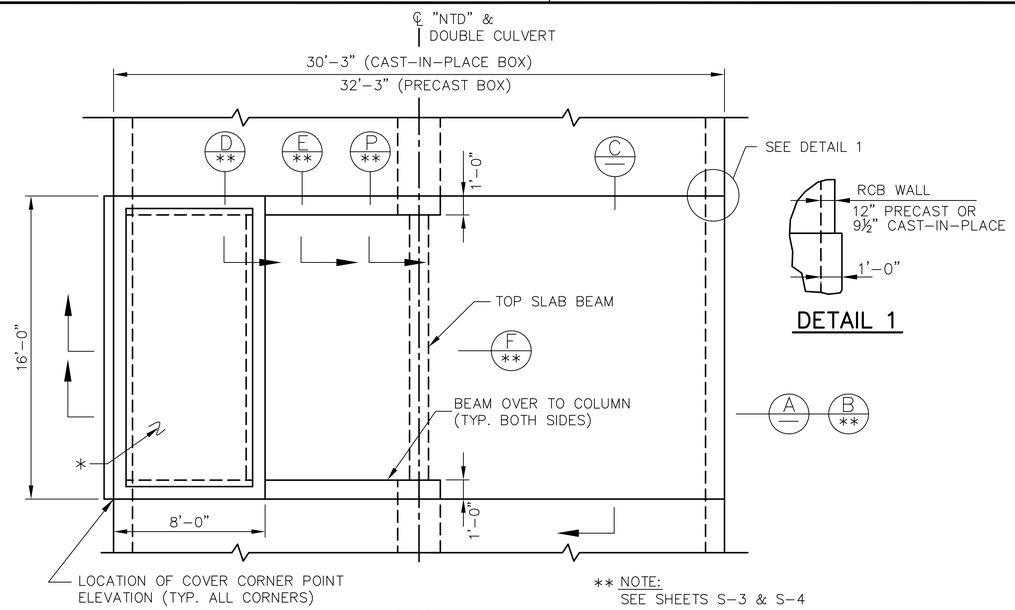
SHEET No
S-1

SHT OF

Avoid cutting underground utility lines. It's costly.
Call before you Dig.
1-800-227-2600
UNDERGROUND SERVICE ALERT (USA)

SAFETY ALERT
Call before you Overhead
775-834-7590
NV Energy Construction Line
24hrs. Prior Notice Required
OVERHEAD SERVICE ALERT

C:\pwworking\phx\d0295093\S-1.dwg 10/21/13 12:11pm kgonzale

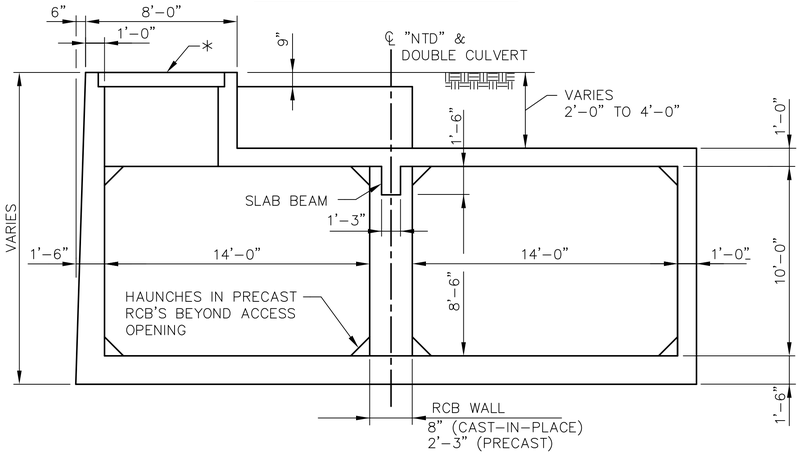


DETAIL 1

** NOTE:
SEE SHEETS S-3 & S-4

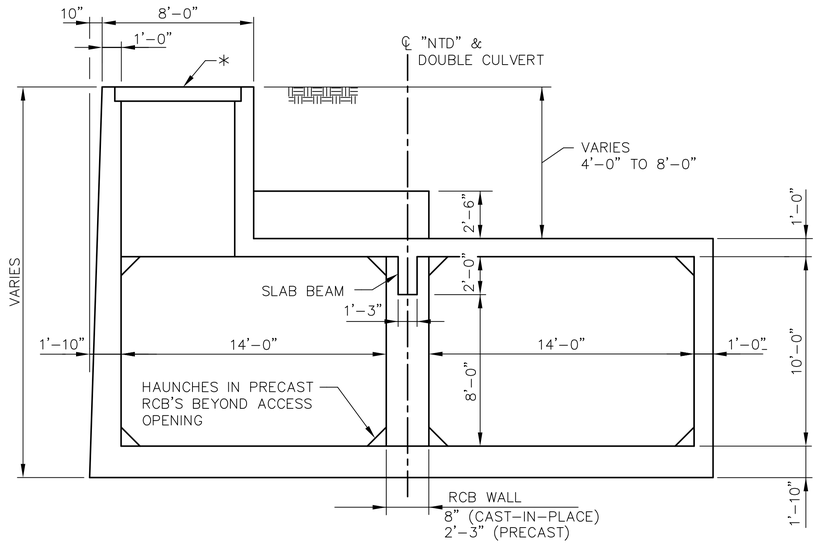
PLAN

ACCESS VAULT FOR 2-14'x10' RCB



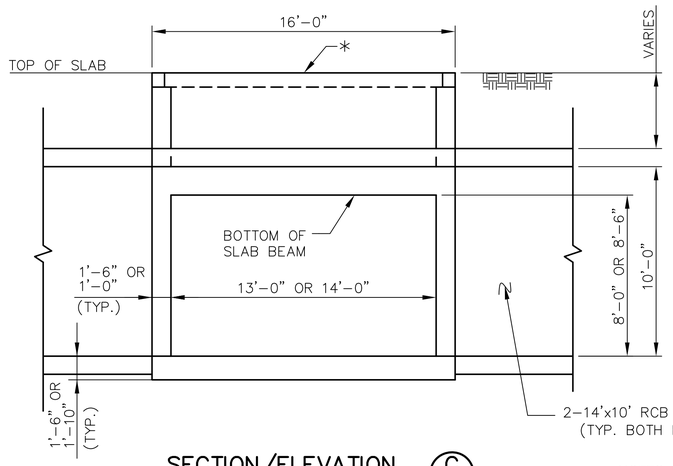
SECTION/ELEVATION (A)

FOR VAULTS W/ 2'-0" TO 4'-0" COVER



SECTION/ELEVATION (A)

FOR VAULTS W/ 4'-0" TO 8'-0" COVER



SECTION/ELEVATION (C)

NOTES:

1. DIMENSIONS VARY BASED ON TYPE OF RCB AND DEPTH OF COVER. SEE DETAILS ON SHEET S-3 AND S-4.
2. * REMOVABLE CONCRETE SLAB, SHEET S-8.

QUANTITIES TYPICAL FOR EACH STRUCTURE	
REINFORCING STEEL (EPOXY COATED) (LBS)	170
STRUCTURAL STEEL (LBS.)	770

DOUBLE 14'x10' RCB ACCESS VAULT COVER ELEVATIONS						
STRUCTURE LOCATION (CENTER OF VAULT)	INV. ELEVATION		COVER CORNER POINT ELEVATIONS			
	IN	OUT	NW	NE	SE	SW
"NTD" STA. 54+25.00	4377.57	4377.56	4392.00	4392.00	4392.00	4392.00
"NTD" STA. 58+05.00	4377.38	4377.37	4393.60	4393.60	4393.60	4393.60
"NTD" STA. 64+10.00	4377.09	4377.08	4390.40	4390.30	4389.80	4389.90

REV No.	DATE	DESCRIPTION	APPROVED

DESIGNED BY: GAA
DRAWN BY: CLG
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APPROVED BY:
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VERT:
FIELD BOOK

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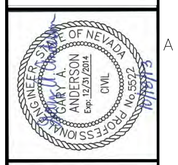
9805 Double R Blvd.
Suite 101
Reno, NV 89521
Phone: 775-337-4700

City of Sparks

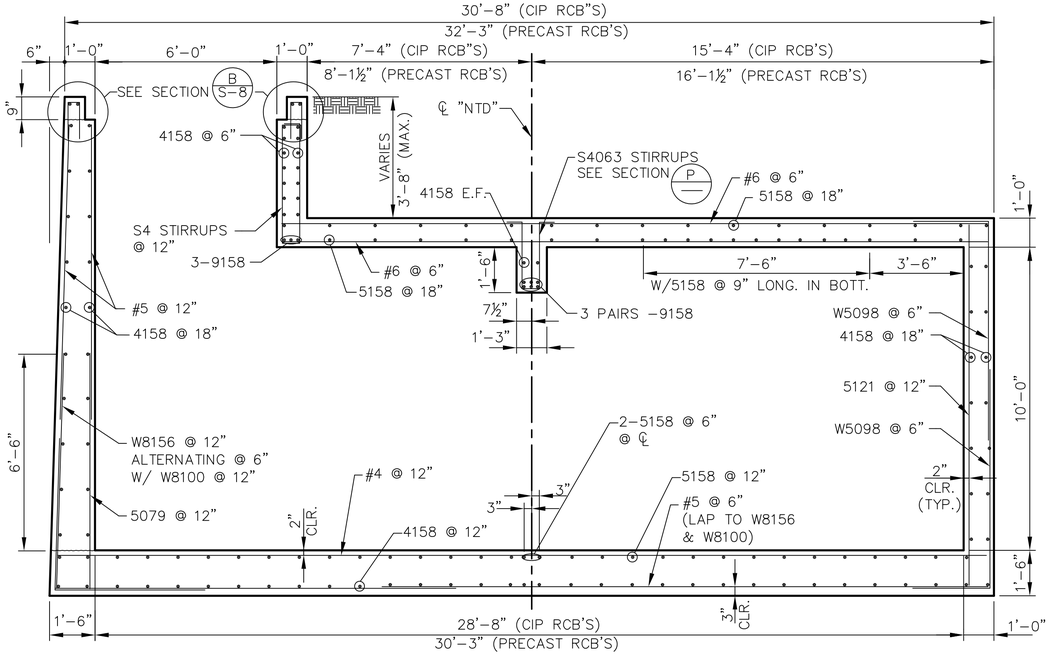
NORTH TRUCKEE DRAIN REALIGNMENT PHASE 1

ACCESS VAULT DETAILS FOR DOUBLE 14'x10' RCB

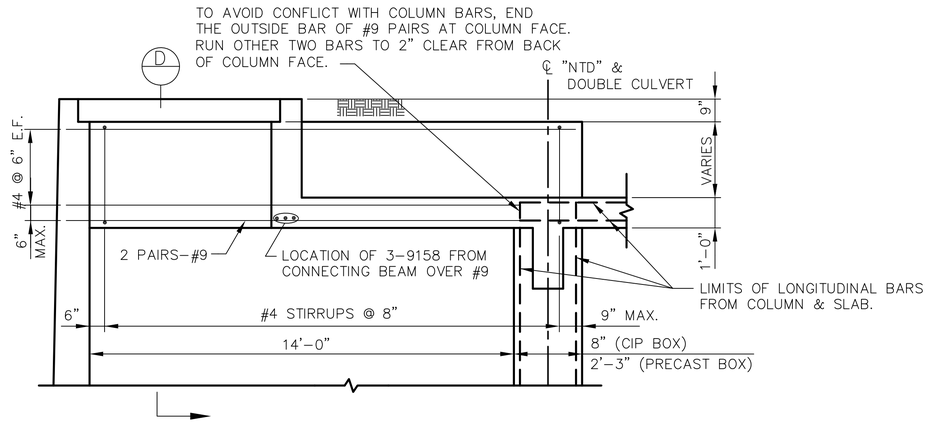
CITY OF SPARKS, NEVADA, PUBLIC WORKS DEPARTMENT



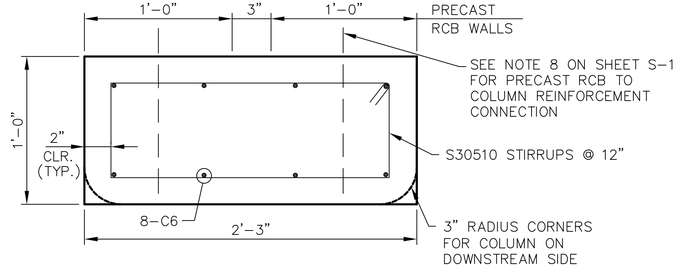
SHEET No
S-2
SHT OF



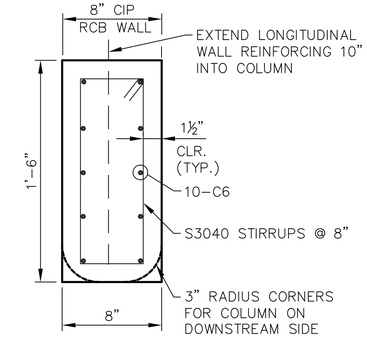
SECTION B



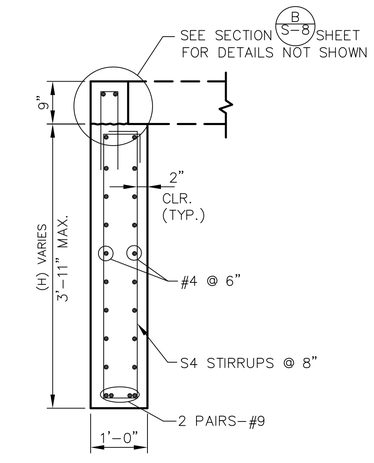
SECTION
END BEAM REINFORCING DETAIL F



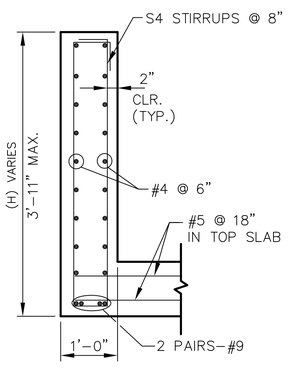
COLUMN SECTIONS
W/ PRECAST RCB'S G



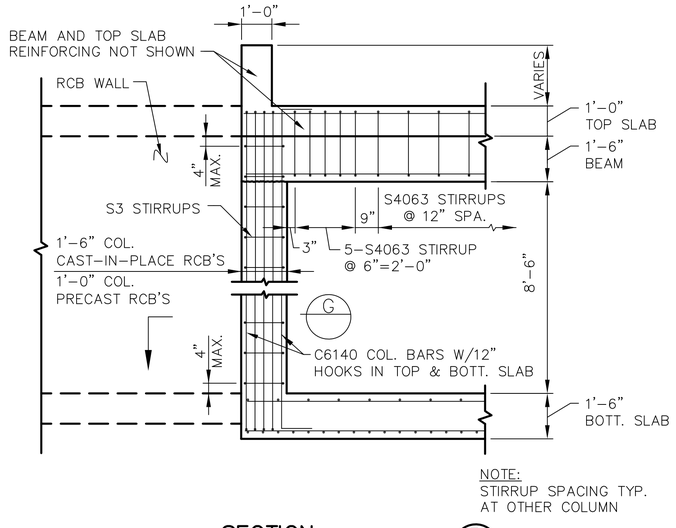
COLUMN SECTIONS
W/ CAST-IN-PLACE RCB'S G



SECTION
FOR H < 5'-0" D



SECTION
W/ SECTION D FOR H < 5'-0" E



SECTION
SLAB BEAM SUPPORT DETAILS P

FOR VAULTS AT "NTD" STA. 54+25.00 AND STA. 64+10.00

REV No.	DATE	DESCRIPTION	APPROVED

DESIGNED BY: GAA
DRAWN BY: CLG
CHECKED BY:
APPROVED BY:
SCALE
HORIZ:
VERT:
FIELD BOOK

HDR
HDR Engineering, Inc.
9805 Double R Blvd.
Suite 101
Reno, NV 89521
Phone: 775-337-4700

City of Sparks

NORTH TRUCKEE DRAIN REALIGNMENT PHASE 1

ACCESS VAULT DETAILS
FOR DOUBLE 14'X10' RCB

CITY OF SPARKS, NEVADA, PUBLIC WORKS DEPARTMENT

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Call before you Dig.
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SAFETY ALERT
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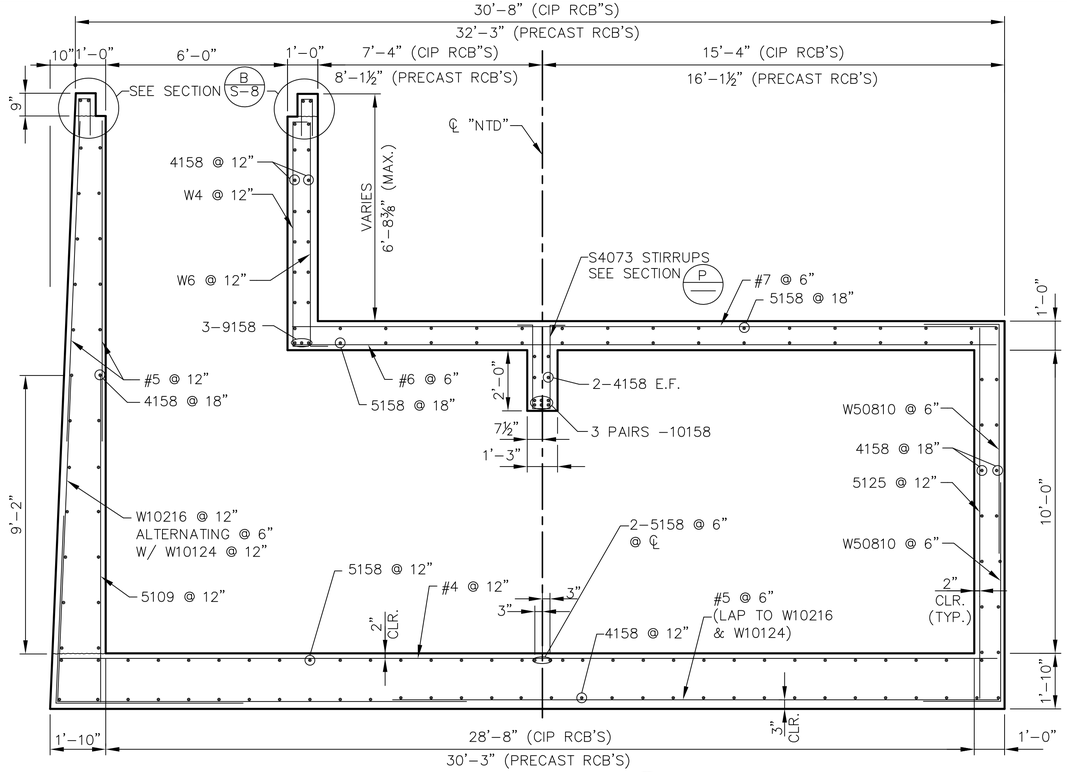
NV Energy Construction Line
24hrs. Prior Notice Required
OVERHEAD SERVICE ALERT

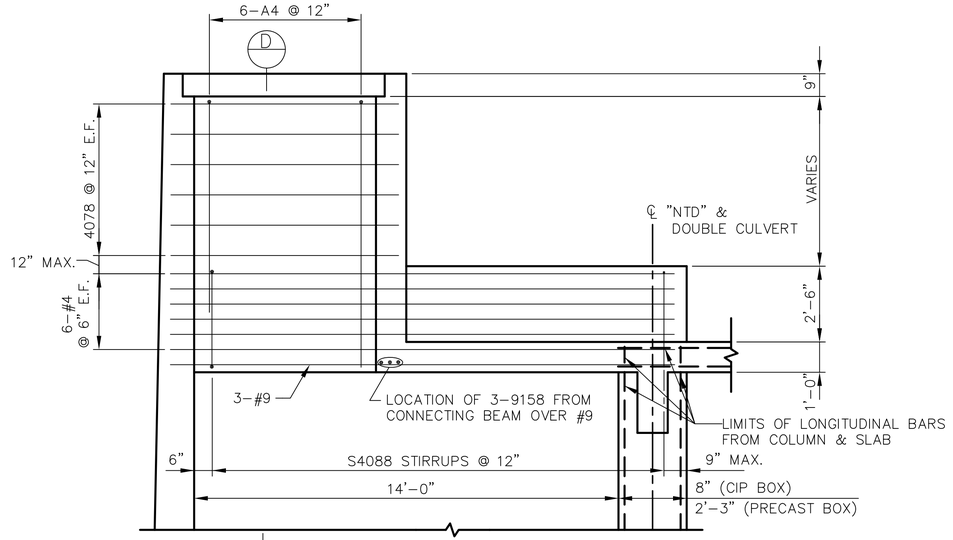
STATE OF NEVADA
PROFESSIONAL ENGINEER
CRAIG A. ANDERSON
Exp. 12/31/2014
No. 9522
CIVIL

SHEET No
S-3
SHT OF

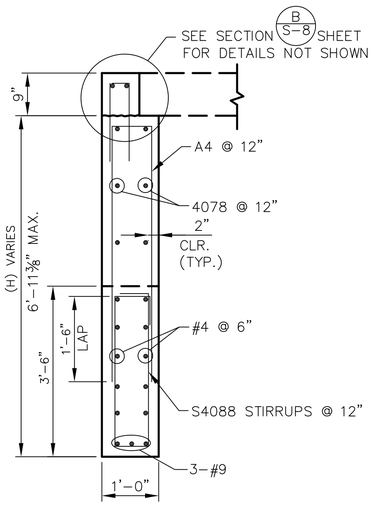
C:\pwworking\phx\d0295093\S-3.dwg 10/21/13 12:13pm kgonzale



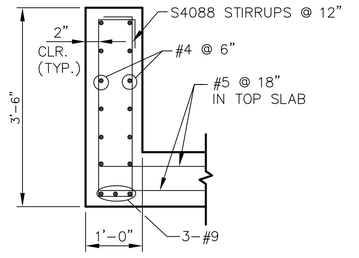
SECTION B



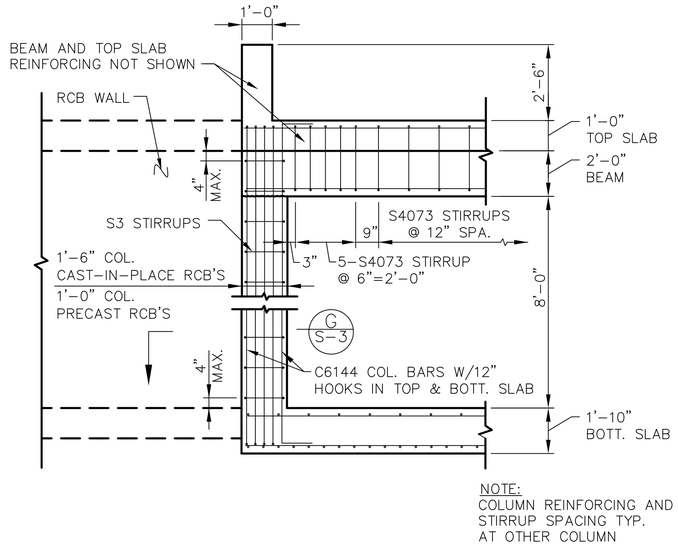
SECTION
END BEAM REINFORCING DETAIL F



SECTION
FOR H ≥ 5'-0" D



SECTION
W/ SECTION D FOR H > 5'-0" E



SECTION
SLAB BEAM & SUPPORT DETAILS P

FOR VAULTS AT "NTD" STA. 58+05.00

REV No.	DATE	DESCRIPTION	APPROVED

DESIGNED BY: GAA
DRAWN BY: CLG
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HORIZ:
VERT:
FIELD BOOK

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City of Sparks

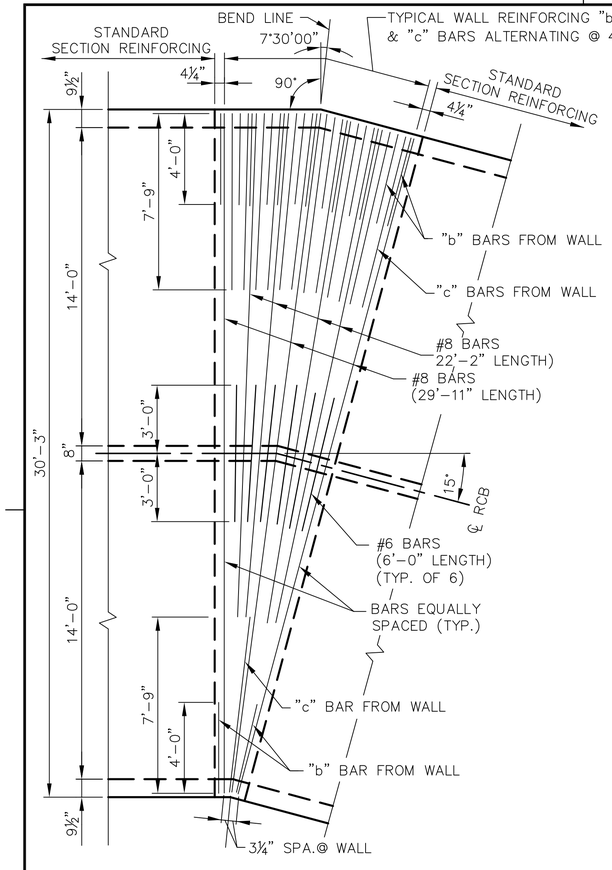
NORTH TRUCKEE DRAIN REALIGNMENT PHASE 1

ACCESS VAULT DETAILS
FOR DOUBLE 14'x10' RCB

CITY OF SPARKS, NEVADA, PUBLIC WORKS DEPARTMENT

STATE OF NEVADA
REGISTERED PROFESSIONAL ENGINEER
MARY A. ANDERSON
Exp. 12/31/2014
CIVIL
No. 9572

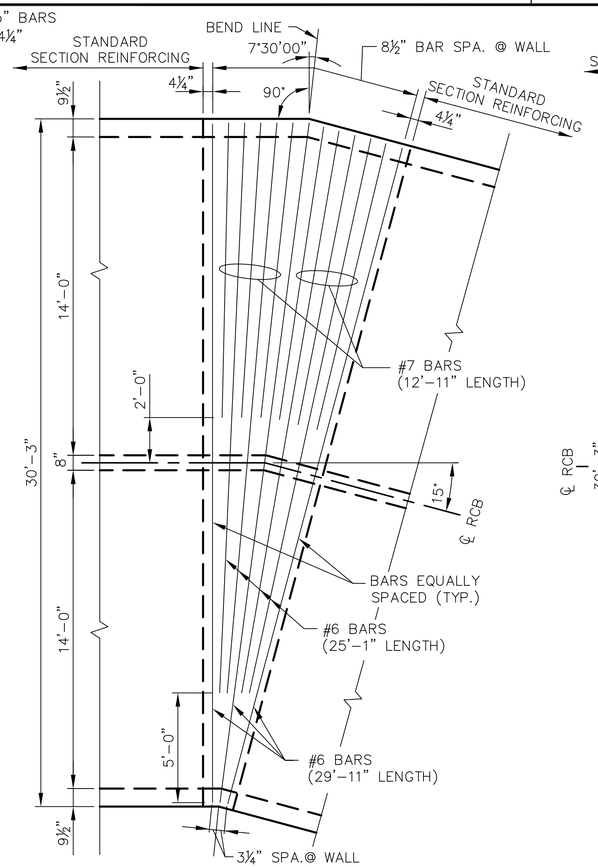
SHEET No
S-4
SHT OF



TRANSVERSE REINFORCING LAYOUT

DOUBLE 14'x10' RCB @ 15° BENDS (CAST-IN-PLACE)

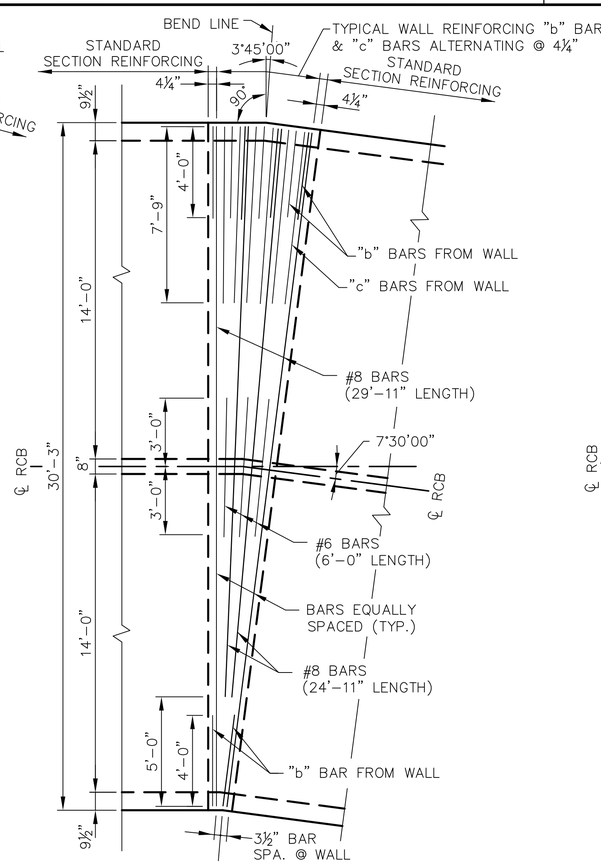
TOP OF TOP SLAB & BOTTOM OF BOTTOM SLAB



TRANSVERSE REINFORCING LAYOUT

DOUBLE 14'x10' RCB @ 15° BENDS (CAST-IN-PLACE)

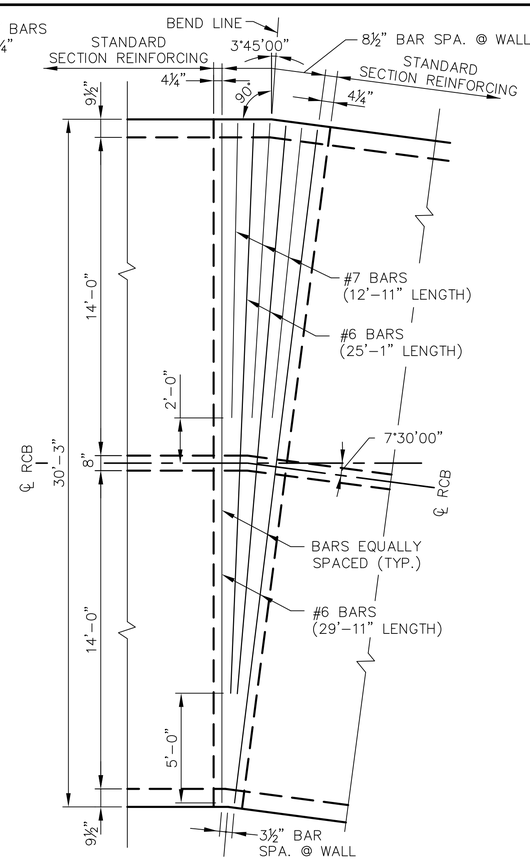
BOTTOM OF TOP SLAB & TOP OF BOTTOM SLAB



TRANSVERSE REINFORCING LAYOUT

DOUBLE 14'x10' RCB @ 7°30'00" BEND (CAST-IN-PLACE)

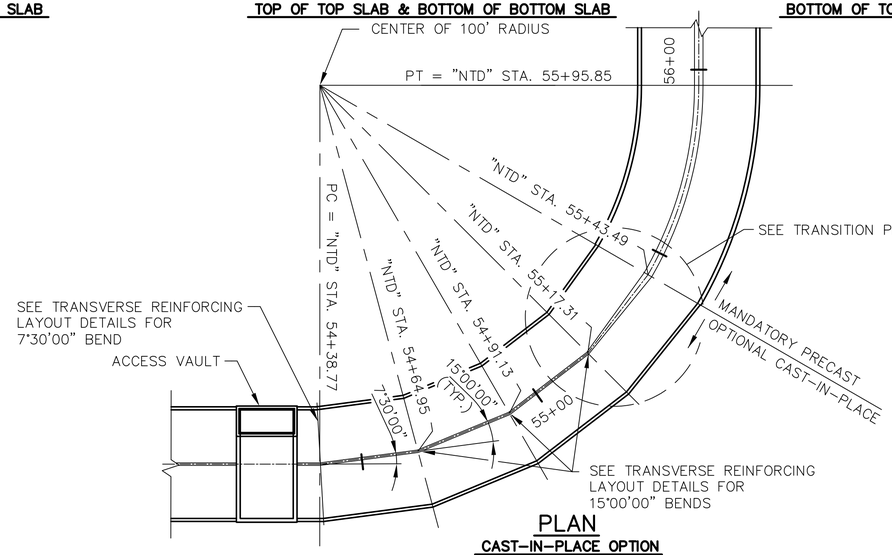
TOP OF TOP SLAB & BOTTOM OF BOTTOM SLAB



TRANSVERSE REINFORCING LAYOUT

DOUBLE 14'x10' RCB @ 7°30'00" BEND (CAST-IN-PLACE)

BOTTOM OF TOP SLAB & TOP OF BOTTOM SLAB



PLAN

CAST-IN-PLACE OPTION

DOUBLE 14'x10' RCB BEND AT 100' RADIUS

"NTD" STA. 54+38.77 PC TO "NTD" STA. 55+43.49 POC

NOTES:

1. FIELD BEND LONGITUDINAL #4 BARS IN SLABS AND WALLS AT BEND LINE.
2. SEE SHEET S-7 FOR RCB SECTION AT BENDS.

REV No	DATE	DESCRIPTION	APPROVED

DESIGNED BY:
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APPROVED BY:
SCALE
HORIZ:
VERT:
FIELD BOOK

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City of Sparks

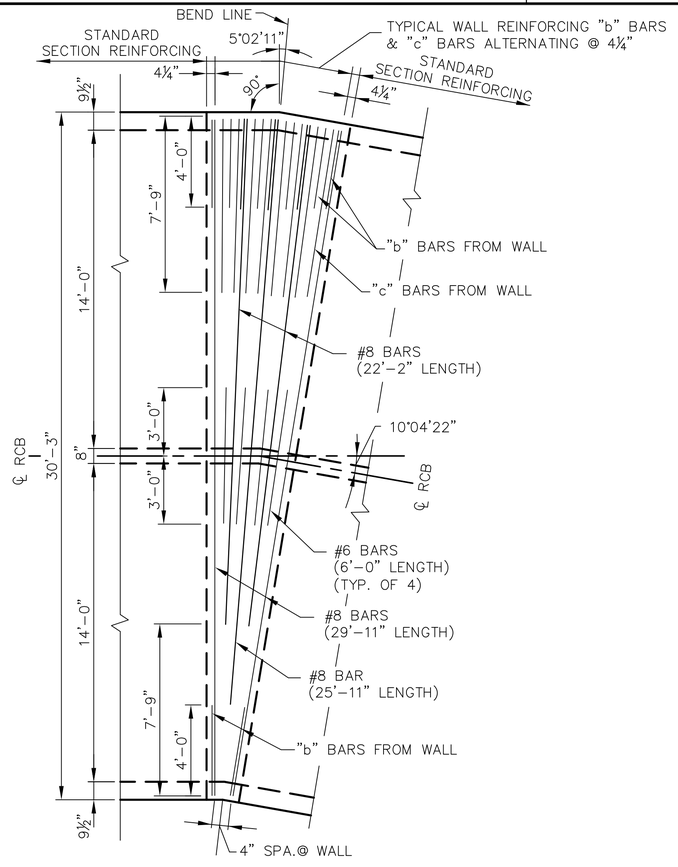
NORTH TRUCKEE DRAIN REALIGNMENT PHASE 1

BEND DETAILS
FOR DOUBLE 14'x10' RCB (CAST-IN-PLACE)

CITY OF SPARKS, NEVADA, PUBLIC WORKS DEPARTMENT

SHEET No
S-5

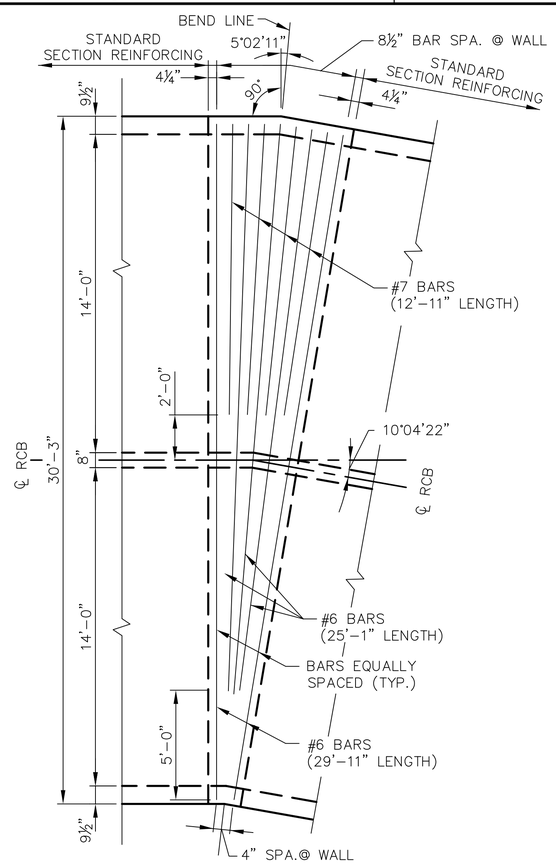
SHT OF



TRANSVERSE REINFORCING LAYOUT

DOUBLE 14'x10' RCB @ 10°04'22" BENDS (CAST-IN-PLACE)

TOP OF TOP SLAB & BOTTOM OF BOTTOM SLAB



TRANSVERSE REINFORCING LAYOUT

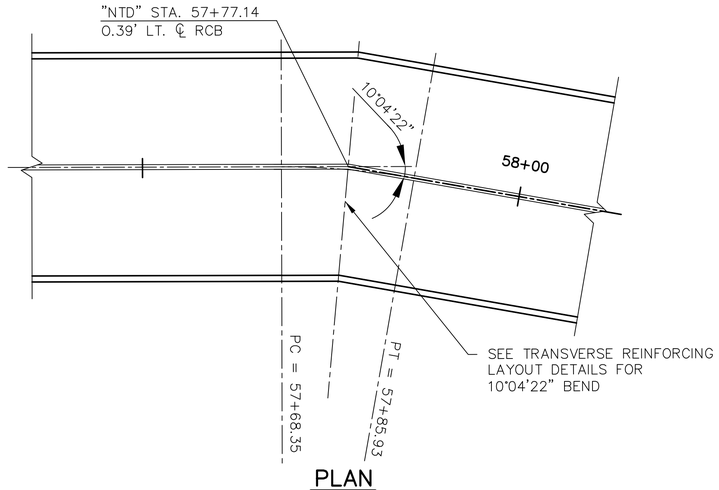
DOUBLE 14'x10' RCB @ 10°04'22" BENDS (CAST-IN-PLACE)

BOTTOM OF TOP SLAB & TOP OF BOTTOM SLAB

TRANSITION PLAN

DOUBLE 14'x10' RCB

CAST-IN-PLACE RCB'S (OPTIONAL) TO PRECAST RCB'S

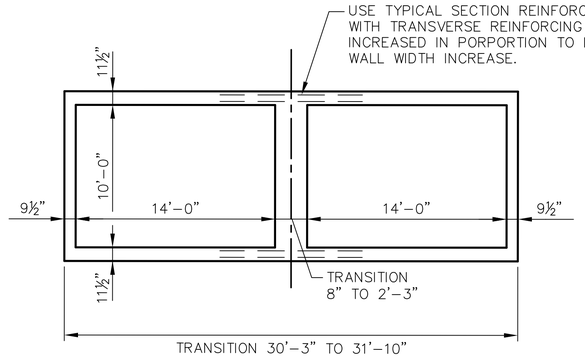


PLAN

CAST-IN-PLACE OPTION

DOUBLE 14'x10' RCB BEND AT 100' RADIUS

"NTD" STA. 57+68.35 PC TO "NTD" STA. 57+85.93 PT



TRANSITION SECTION (X)

DOUBLE 14'X10' CAST-IN-PLACE RCB

"NTD" STA. 55+17.31 TO "NTD" STA. 55+43.49

NOTE:

1. FIELD BEND ALL LONGITUDINAL #4 BARS IN SLABS AND WALLS AT BEND LINE.
2. SEE SHEET S-7 FOR RCB SECTION AT BENDS.

Avoid cutting underground utility lines. It's costly.
Call before you Dig.
1-800-227-2600
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SAFETY ALERT
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NV Energy Construction Line
24hrs. Prior Notice Required
OVERHEAD SERVICE ALERT

REV No.	DATE	DESCRIPTION	APPROVED

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City of Sparks

NORTH TRUCKEE DRAIN REALIGNMENT PHASE 1

BEND DETAILS

FOR DOUBLE 14'x10' RCB (CAST-IN-PLACE)

CITY OF SPARKS, NEVADA, PUBLIC WORKS DEPARTMENT

SHEET No

S-6

SHT OF

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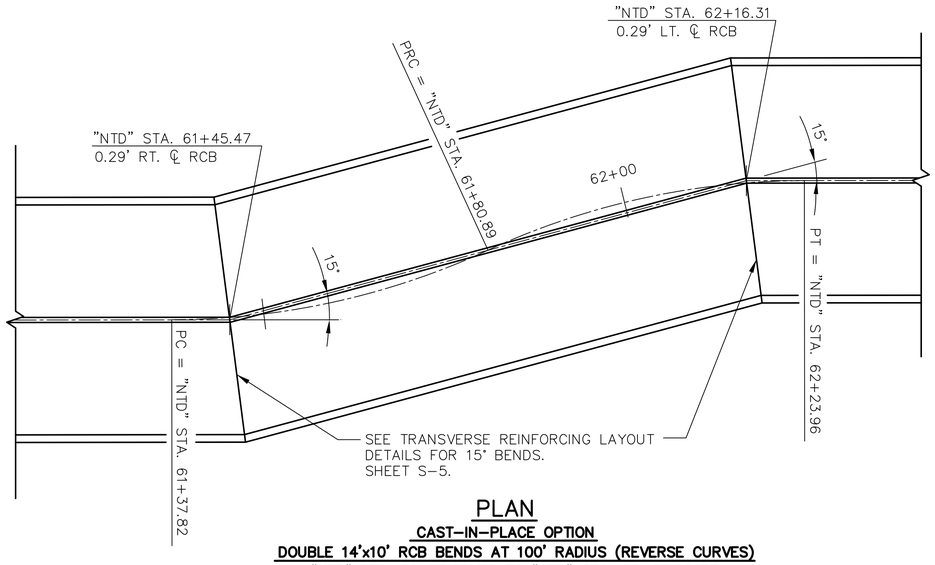
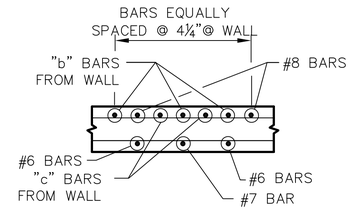


PLAN

CAST-IN-PLACE OPTION

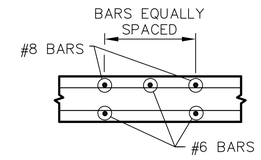
DOUBLE 14'x10' RCB BENDS AT 100' RADIUS (REVERSE CURVES)

"NTD" STA. 61+37.82 PC TO "NTD" STA. 62+23.96 PT



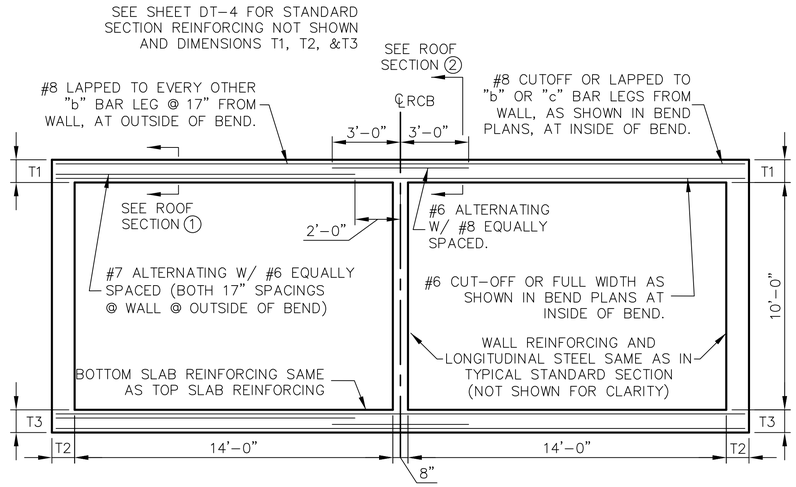
ROOF SECTION (1)

INVERT SIMILAR



ROOF SECTION (2)

INVERT SIMILAR



SECTION AT BENDS

DOUBLE 14'x10' RCB

REV No.	DATE	DESCRIPTION	APPROVED

DESIGNED BY:
DRAWN BY:
CHECKED BY:
APPROVED BY:
SCALE
HORIZ:
VERT:
FIELD BOOK

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City of Sparks

NORTH TRUCKEE DRAIN REALIGNMENT PHASE 1

BEND DETAILS

FOR DOUBLE 14'x10' RCB (CAST-IN-PLACE)

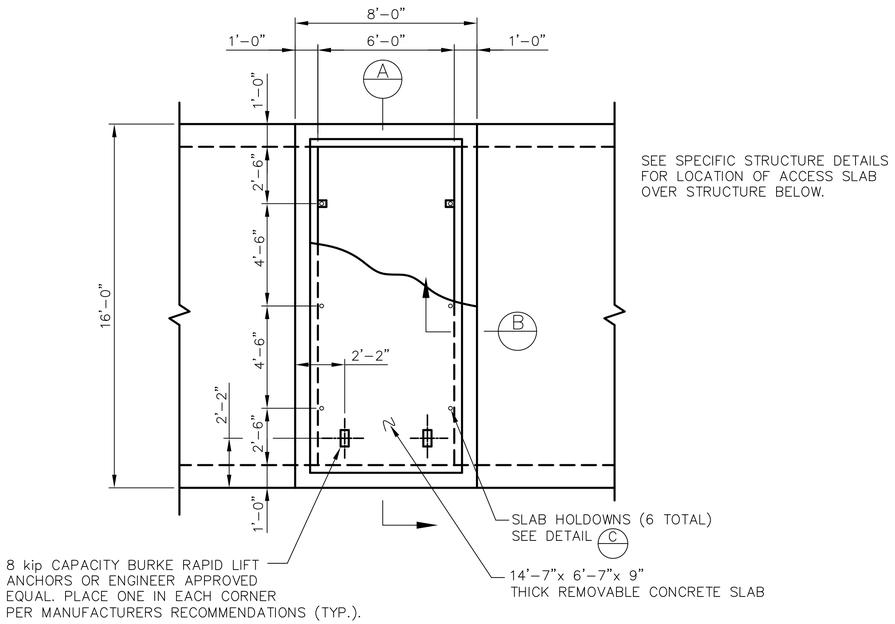
CITY OF SPARKS, NEVADA, PUBLIC WORKS DEPARTMENT

SHEET No

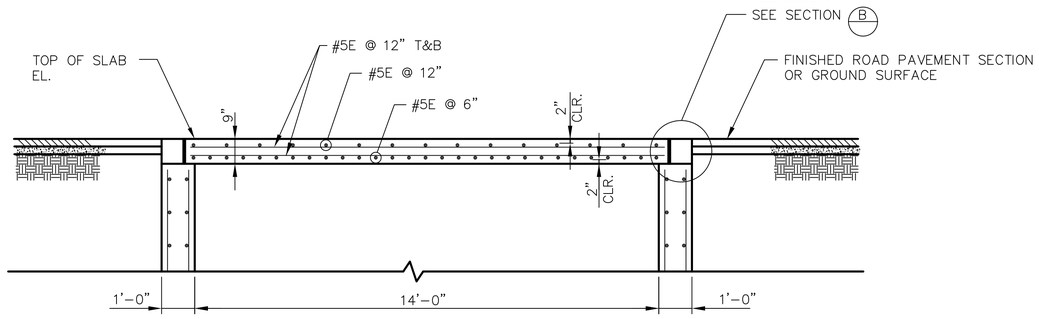
S-7

SHT OF

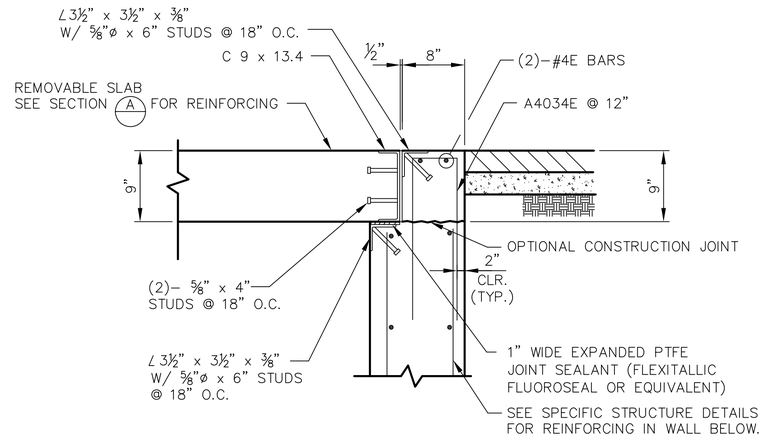
C:\pwworking\phx\d0295093\S-7.dwg 10/21/13 12:20pm kgonzale



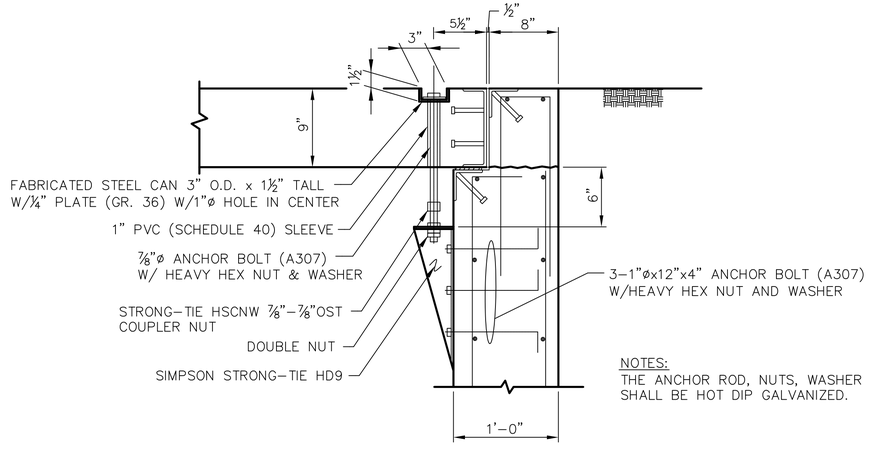
PLAN–TYPICAL 8'–0"x16'–0" ACCESS RISER



SECTION A



SECTION B



NOTES:
THE ANCHOR ROD, NUTS, WASHER & COUPLER NUT SHALL BE HOT DIP GALVANIZED.

HOLDOWN DETAIL C

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Call before you Dig.
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SAFETY ALERT
Call before you Overhead
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NV Energy Construction Line
24hrs. Prior Notice Required
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CHECKED BY: CLG
APPROVED BY:
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HORIZ:
VERT:
FIELD BOOK

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City of Sparks

NORTH TRUCKEE DRAIN REALIGNMENT PHASE 1

REMOVABLE CONCRETE SLAB DETAILS FOR MAINTENANCE ACCESS

CITY OF SPARKS, NEVADA, PUBLIC WORKS DEPARTMENT

STATE OF NEVADA
ERIC A. ANDERSON
Exp. 12/31/2014
CIVIL
No. 9522
PROFESSIONAL ENGINEER
10/21/13

SHEET No
S-8
SHT OF

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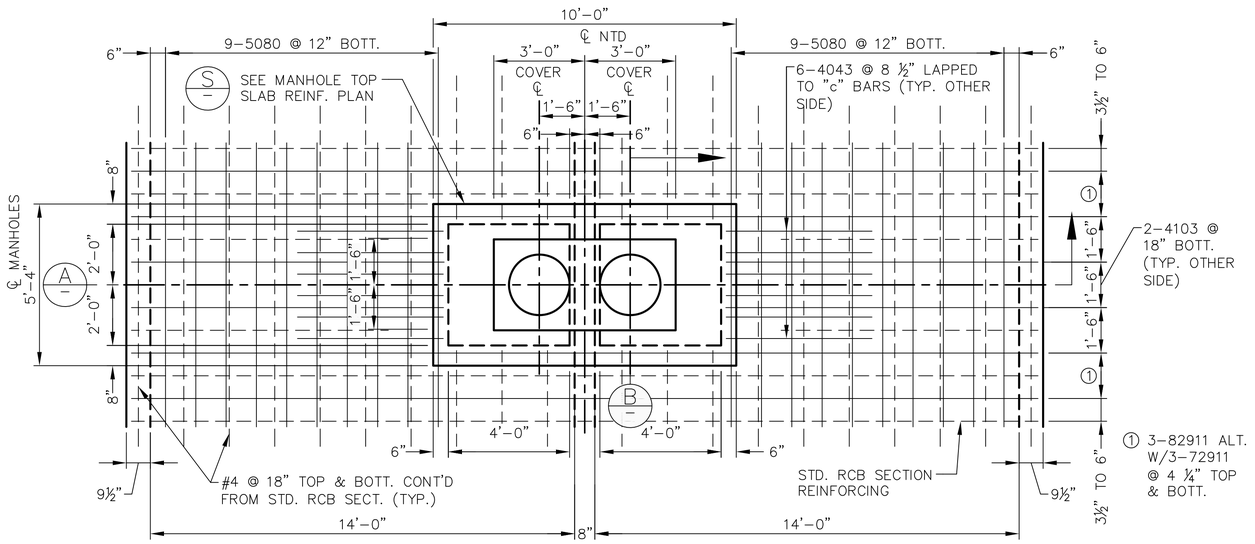
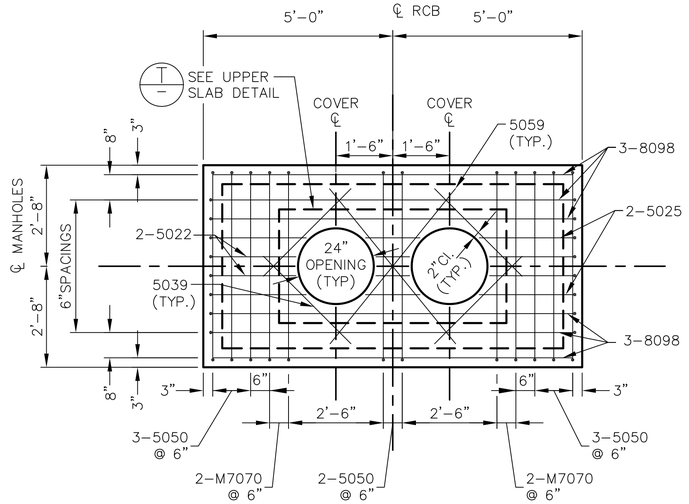
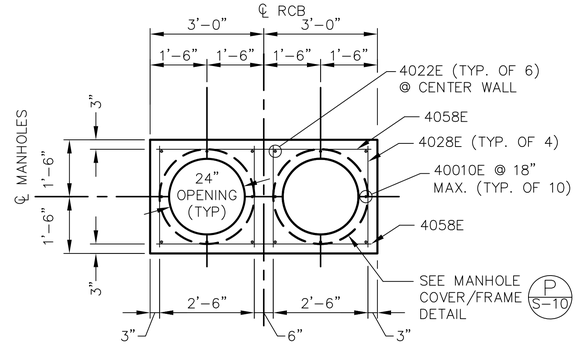


RCB TOP SLAB REINFORCING PLAN AT MANHOLE RISER

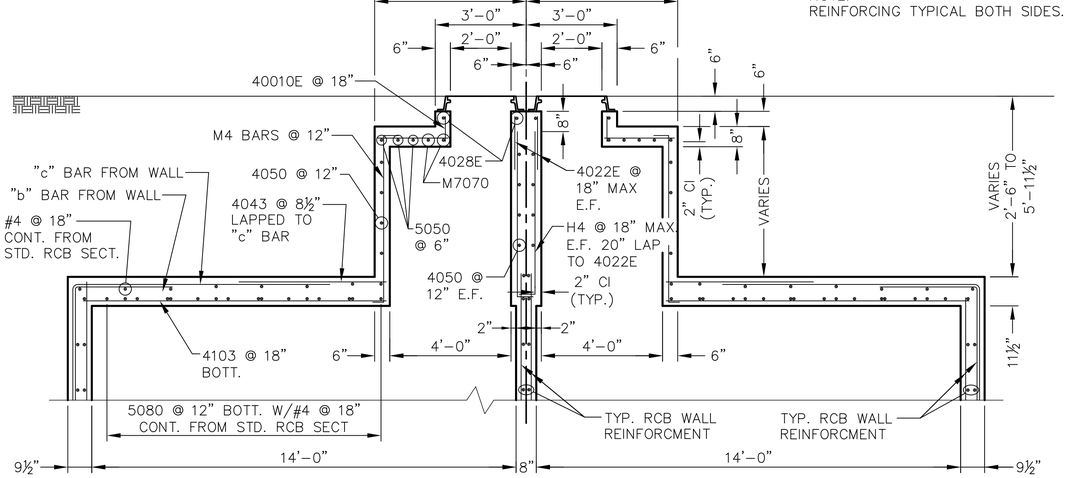


MANHOLE TOP SLAB REINFORCING PLAN (S)

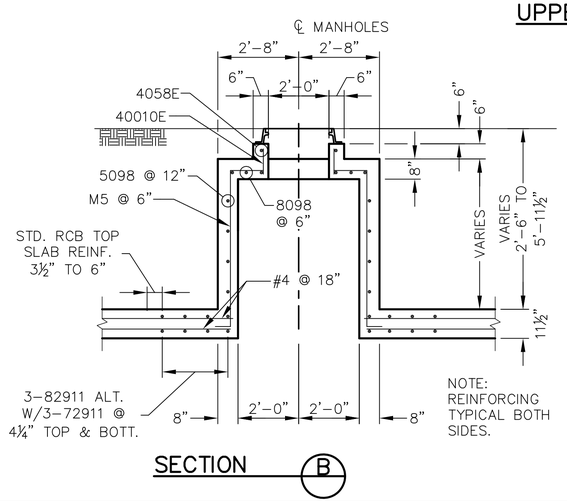


UPPER SLAB DETAIL (T)

NOTE:
REINFORCING TYPICAL BOTH SIDES.



SECTION (A)



SECTION (B)

REV No.	DATE	DESCRIPTION	APPROVED

DESIGNED BY: GAA
DRAWN BY: KDG
CHECKED BY:
APPROVED BY:
SCALE
HORIZ:
VERT:
FIELD BOOK

HDR Engineering, Inc.
9805 Double R Blvd, Suite 101
Reno, NV 89521
Phone: 775-337-4700

City of Sparks

NORTH TRUCKEE DRAIN REALIGNMENT PHASE 1

CAST-IN-PLACE MANHOLE RISER DETAILS
FOR CAST-IN-PLACE DOUBLE 14'X10' RCB

CITY OF SPARKS, NEVADA, PUBLIC WORKS DEPARTMENT

STATE OF NEVADA — PROFESSIONAL ENGINEER — No. 5522 — GARY A. ANDERSON — Exp. 12/31/2014 — CIVIL

SHEET No
S-9

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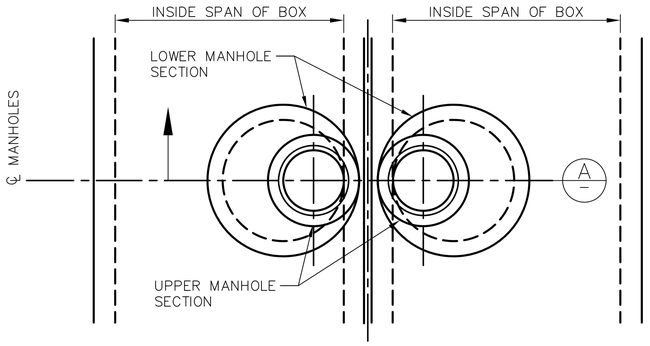
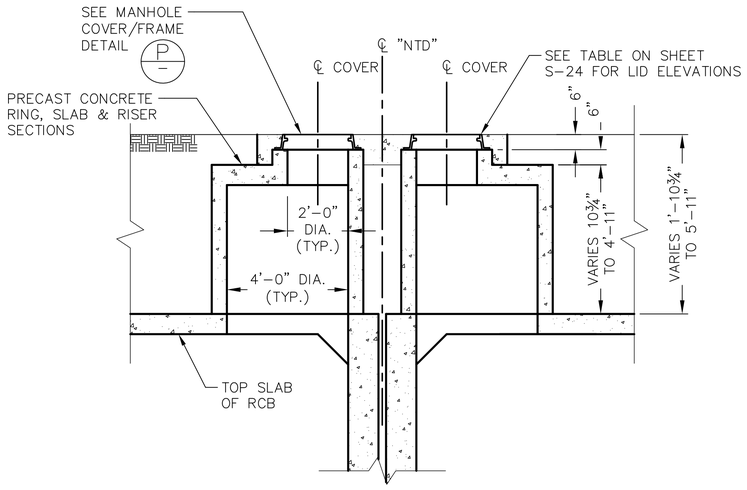


MANHOLE ON PRECAST RCB'S PLAN

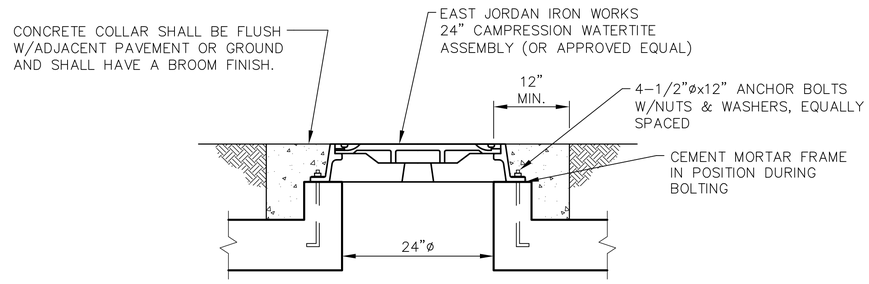


SECTION A

PRECAST CONCRETE MANHOLE GENERAL NOTES

1. PRECAST CONCRETE MANHOLE SECTIONS ARE TO BE DESIGNED ACCORDING TO THE DESIGN SPECIFICATIONS AND DESIGN LOADS GIVEN ON SHEET S-1.
2. THE COMPLETE MANHOLE SHALL BE WATERTIGHT AND RESIST UPLIFT FOR THE INTERNAL WATER PRESSURE OF THE STORM DRAIN BASED ON 9' MAXIMUM HYDRAULIC GRADE LINE ABOVE THE RCB TOP SLABS.
3. THE CONTRACTOR SHALL SUBMIT TWO SETS OF THE STRUCTURAL DESIGN ANALYSIS AND SHOP DRAWINGS FOR THE PRECAST MANHOLE AND THE SUPPORTING PRECAST RCB UNIT BELOW THE MANHOLE FOR REVIEW AND APPROVAL, STAMPED BY A PROFESSIONAL ENGINEER REGISTERED IN NEVADA.

PRECAST MANHOLE RISER DETAILS FOR PRECAST RCB'S



MANHOLE COVER/FRAME DETAIL P

CAST-IN-PLACE CONCRETE MANHOLE GENERAL NOTES

1. THE CONCRETE MANHOLE DESIGN WAS ACCORDING TO THE DESIGN SPECIFICATIONS, DESIGN LOADS, AND WITH MATERIALS SHOWN ON SHEET S-1, AND AS NOTED BELOW.
2. CONCRETE SHALL BE CLASS AA MODIFIED, WITH AN ULTIMATE CONCRETE COMPRESSIVE STRENGTH OF F'c = 3250 PSI AT 28 DAYS.
3. THE COMPLETED MANHOLE SHALL BE WATERTIGHT.

MANHOLE ELEVATIONS TABLE			
STRUCTURE LOCATION	MANHOLE LID ELEVATIONS	TOP OF RCB ELEVATIONS	
		w/PRECAST RCB	w/CIP RCB
"NTD" STA. 61+07.50	4391.50	4388.23	4388.19
"NTD" STA. 67+12.50	4389.90	4387.94	N.A.

CAST-IN-PLACE MANHOLE RISER DETAILS FOR CAST-IN-PLACE RCB'S

REV No.	DATE	DESCRIPTION	APPROVED

DESIGNED BY: GAA
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VERT:
FIELD BOOK

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9805 Double R Blvd.
Suite 101
Reno, NV 89521
Phone: 775-337-4700

City of Sparks

NORTH TRUCKEE DRAIN REALIGNMENT PHASE 1

MANHOLE RISER DETAILS

CITY OF SPARKS, NEVADA, PUBLIC WORKS DEPARTMENT

Avoid cutting underground utility lines. It's costly.
Call before you Dig.
1-800-227-2600
UNDERGROUND SERVICE ALERT (USA)

SAFETY ALERT
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775-834-7590
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24hrs. Prior Notice Required
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STATE OF NEVADA — PROFESSIONAL ENGINEER — GARY A. ANDERSON — CIVIL — Exp. 12/31/2014 — No. 5522

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S-10
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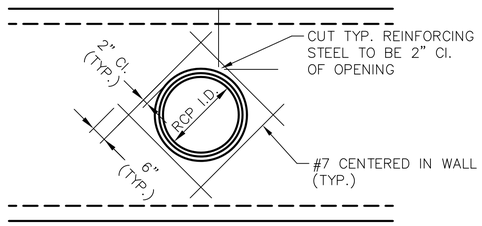
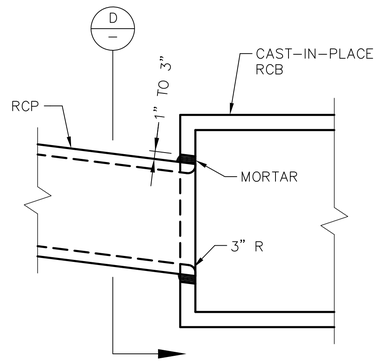


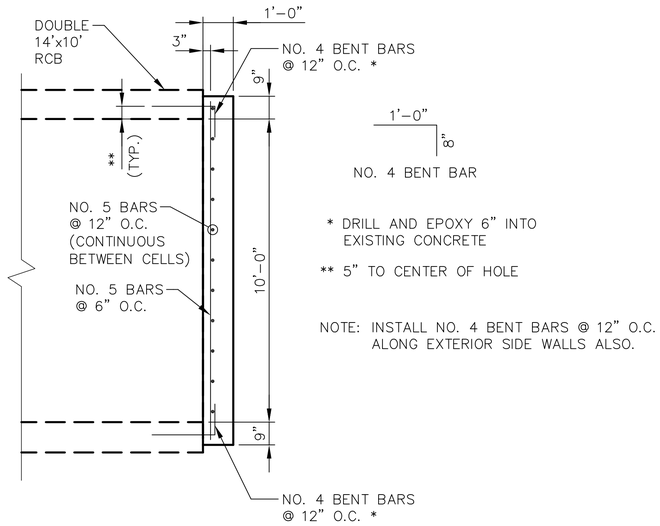
SECTION D



TYPICAL CAST-IN-PLACE
RCB PENETRATION DETAIL

NOTES:

1. FORM OPENING IN RCB TO THE LIMITS SHOWN AROUND THE RCP, AND TO THE PLAN ELEVATIONS AND SLOPES.
2. CUT OR CHIP END OF RCP FLUSH WITH INSIDE FACE OF RCB, AND WITH ROUNDED EDGES.



* DRILL AND EPOXY 6" INTO EXISTING CONCRETE

** 5" TO CENTER OF HOLE

NOTE: INSTALL NO. 4 BENT BARS @ 12" O.C. ALONG EXTERIOR SIDE WALLS ALSO.

DOUBLE 14'x10' RCB PLUG DETAIL A
"NTD" 53+50 AND 70+07

REV No	DATE	DESCRIPTION	APPROVED

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9805 Double R Blvd, Suite 101
Reno, NV 89521
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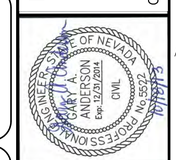
City of Sparks

NORTH TRUCKEE DRAIN REALIGNMENT PHASE 1

RCP CONNECTIONS TO MAIN RCB STORM DRAIN AND DOUBLE 14'x10' RCB PLUG DETAILS

CITY OF SPARKS, NEVADA, PUBLIC WORKS DEPARTMENT



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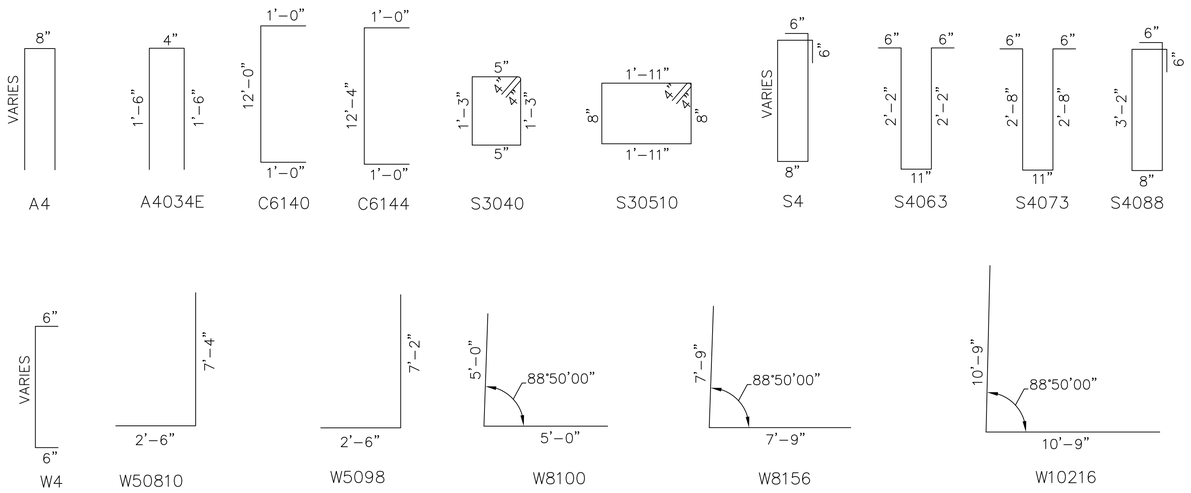
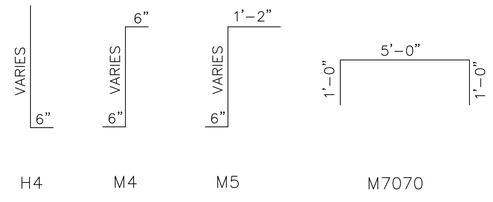


ACCESS VAULT (DOUBLE 14'x10' RCB)



MANHOLE RISERS

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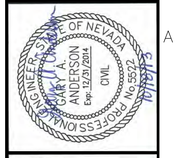
NORTH TRUCKEE DRAIN REALIGNMENT PHASE 1

BAR BEND DIAGRAMS

CITY OF SPARKS, NEVADA, PUBLIC WORKS DEPARTMENT



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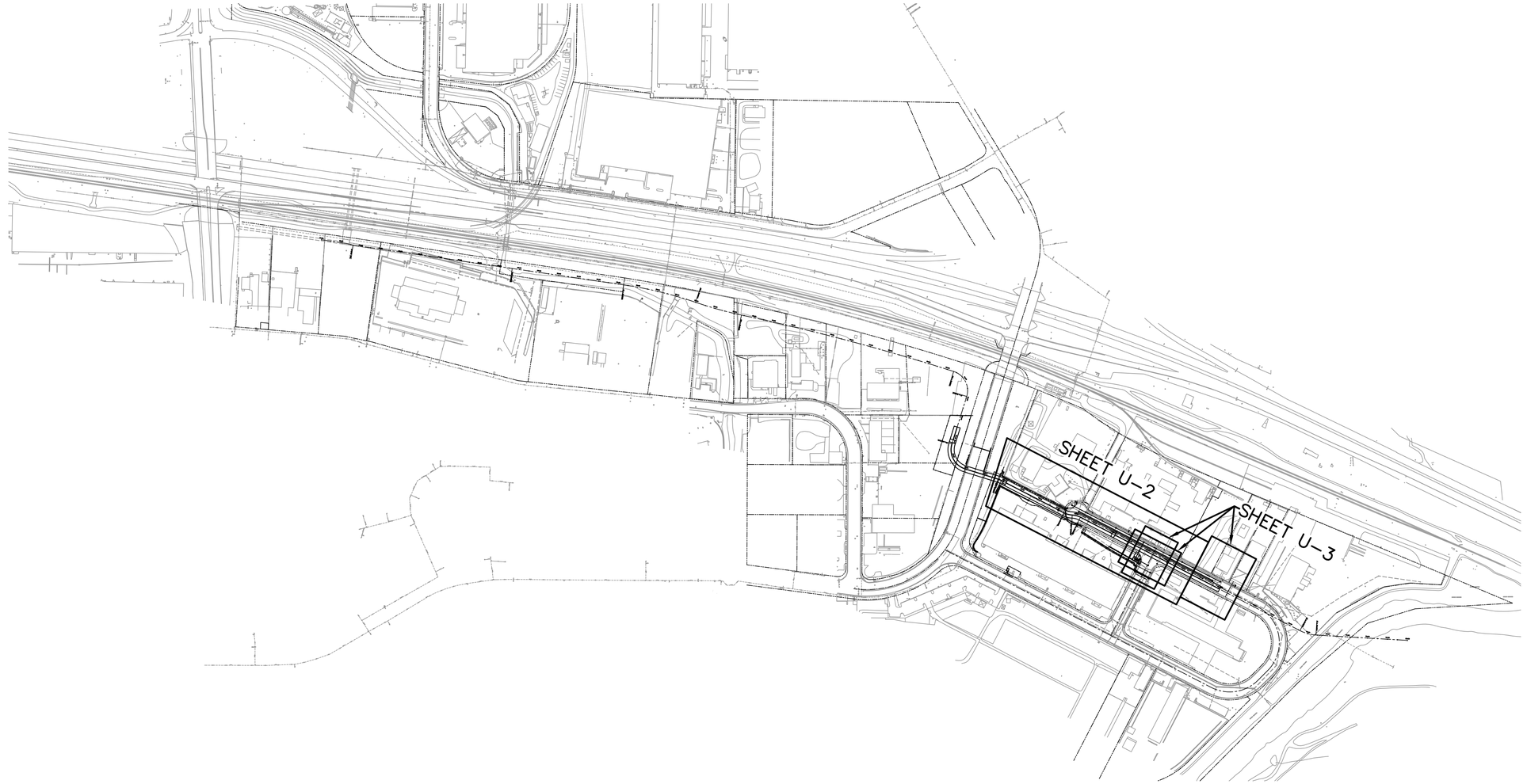

Key Map

NTS

DISCLAIMER NOTE

UTILITY LOCATIONS SHOWN HEREON ARE APPROXIMATE ONLY. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE THE EXACT HORIZONTAL AND VERTICAL LOCATION OF ALL EXISTING UNDERGROUND AND OVERHEAD UTILITIES PRIOR TO COMMENCING CONSTRUCTION. NO REPRESENTATION IS MADE THAT ALL EXISTING UTILITIES ARE SHOWN HEREON. THE ENGINEER ASSUMES NO RESPONSIBILITY FOR UTILITIES NOT SHOWN OR UTILITIES NOT SHOWN IN THEIR PROPER LOCATION.

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REV No	DATE	DESCRIPTION	APPROVED

DESIGNED BY: PEO
DRAWN BY: PEO
CHECKED BY: NL
APPROVED BY: NL
SCALE
HORIZ: N/A
VERT: N/A
FIELD BOOK

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9805 Double R Blvd,
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Reno, NV 89521
Phone: 775-337-4700

City of Sparks

NORTH TRUCKEE DRAIN REALIGNMENT PHASE 1

UTILITY PLAN AND PROFILE KEY MAP

CITY OF SPARKS, NEVADA, PUBLIC WORKS DEPARTMENT

STATE OF NEVADA
PROFESSIONAL ENGINEER
NOEL C. LAUGHLIN
No. 10181
Exp: 12-31-13
CIVIL
10-18-13

SHEET No.
U-1
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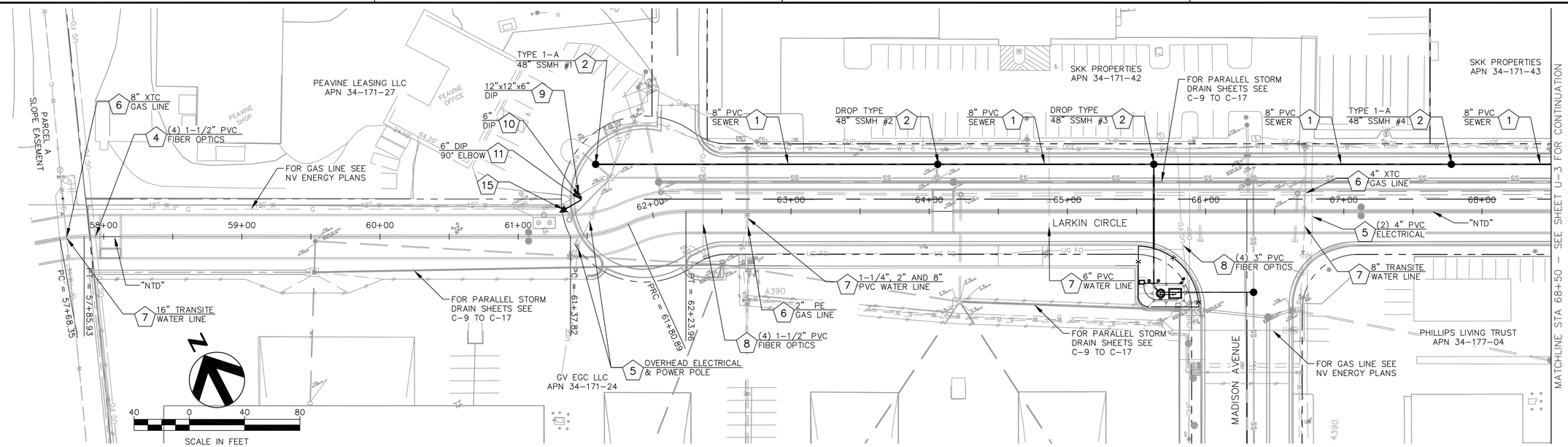


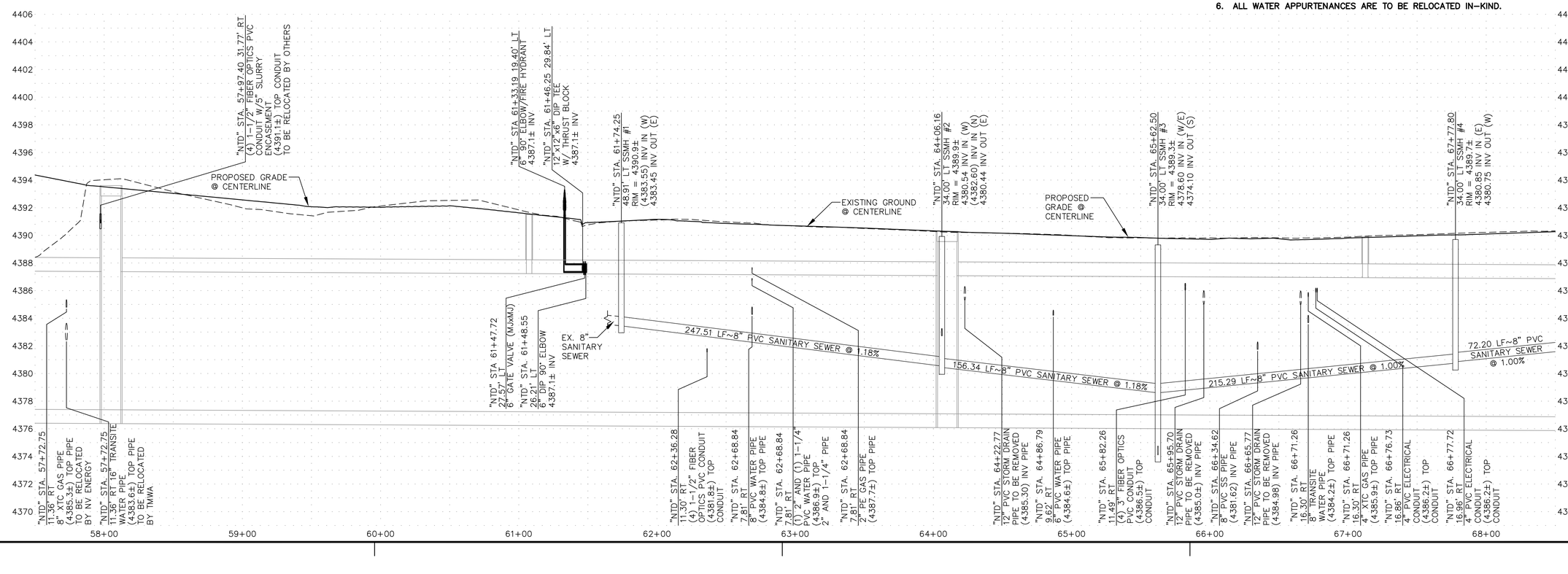
UTILITY NOTES :

1. INSTALL SANITARY SEWER PIPE, SIZE AND TYPE AS SHOWN ON PLAN PER DETAILS SHEET DT-5.
2. CONSTRUCT MANHOLE, SIZE AND TYPE AS SHOWN ON PLAN PER DETAILS SHEETS DT-2, DT-3 AND DT-7.
3. CONSTRUCT SANITARY SEWER LIFT STATION PER DETAILS SHEETS DT-8 TO DT-11.
4. PROTECT AND MAINTAIN EXISTING UTILITY, SIZE AND TYPE AS SHOWN ON PLAN.
5. ELECTRICAL LINE TO BE RELOCATED BY NV ENERGY, SIZE AND TYPE AS SHOWN ON PLAN.
6. GAS LINE TO BE RELOCATED BY NV ENERGY, SIZE AND TYPE AS SHOWN ON PLAN.
7. WATER LINE TO BE RELOCATED BY TMWA, SIZE AND TYPE AS SHOWN ON PLAN.
8. FIBER OPTICS LINE TO BE RELOCATED BY OTHERS, SIZE AND TYPE AS SHOWN ON PLAN.
9. INSTALL TEE W/ THRUST BLOCK, SIZE AND TYPE AS SHOWN ON PLAN PER DETAILS SHEET DT-7 AND DT-12.
10. INSTALL GATE VALVE, SIZE AND TYPE AS SHOWN ON PLAN PER DETAILS SHEET DT-12.
11. INSTALL FITTING W/THRUST BLOCK, SIZE AND TYPE AS SHOWN ON PLAN PER DETAILS SHEET DT-7.
12. INSTALL WATER LINE, SIZE AND TYPE AS SHOWN ON PLAN PER DETAILS SHEET DT-13.
13. INSTALL BACKFLOW PREVENTOR ASSEMBLY, SIZE AND TYPE SHOWN ON PLANS PER DETAILS SHEET DT-12.
14. INSTALL STEEL PIPE CASING, SIZE AND TYPE SHOWN ON PLANS PER DETAILS SHEET DT-13.
15. INSTALL FIRE HYDRANT ASSEMBLY, PER DETAILS SHEET DT-12.

THIS IS A GENERAL LIST. NOT ALL ACTIVITIES ARE USED.

NOTES:

1. **PROTECT EXISTING FEATURES IN PLACE UNLESS NOTED OTHERWISE.**
2. **SEE SHEETS C-1 TO C-3 FOR MAINLINE STORM DRAIN.**
3. **SEE SHEETS C-4 TO C-7 FOR PARALLEL AND LATERAL STORM DRAINS.**
4. **SEE SHEETS C-8 TO C-15 FOR PROPOSED SURFACE FEATURES, GRADING, AND DRAINAGE.**
5. **SEE TMWA SHEETS FOR WATER LINE RELOCATIONS.**
6. **ALL WATER APPURTENANCES ARE TO BE RELOCATED IN-KIND.**



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DRAWN BY: PEO
CHECKED BY: NL
APPROVED BY: NL
SCALE
HORIZ: 1"=40'
VERT: 1"=4'
FIELD BOOK

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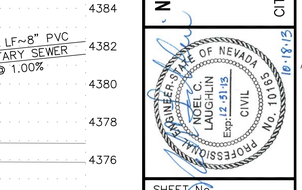
Phone: 775-337-4700

City of Sparks

NORTH TRUCKEE DRAIN REALIGNMENT PHASE 1

UTILITY PLAN AND PROFILE
'NTD' STA 57+50 TO STA 68+50

CITY OF SPARKS, NEVADA, PUBLIC WORKS DEPARTMENT



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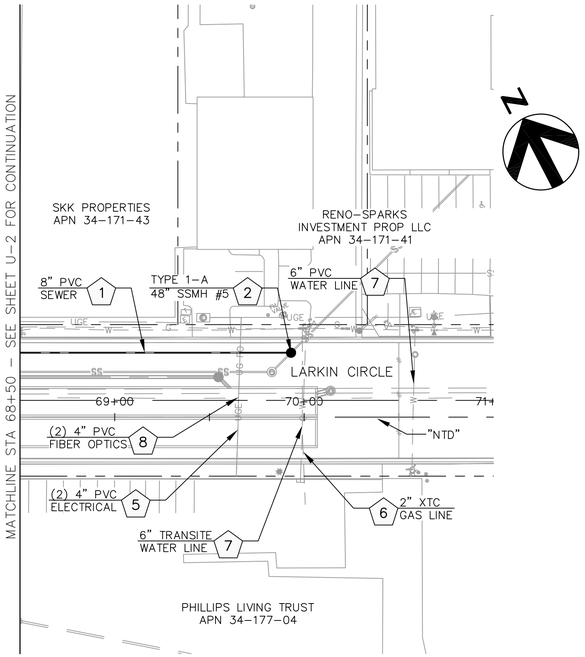

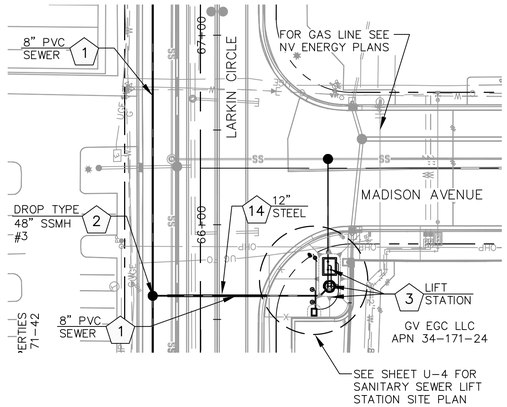

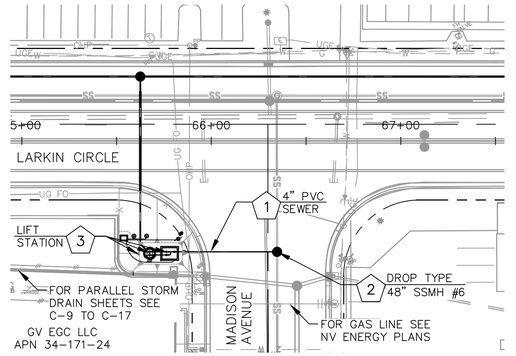

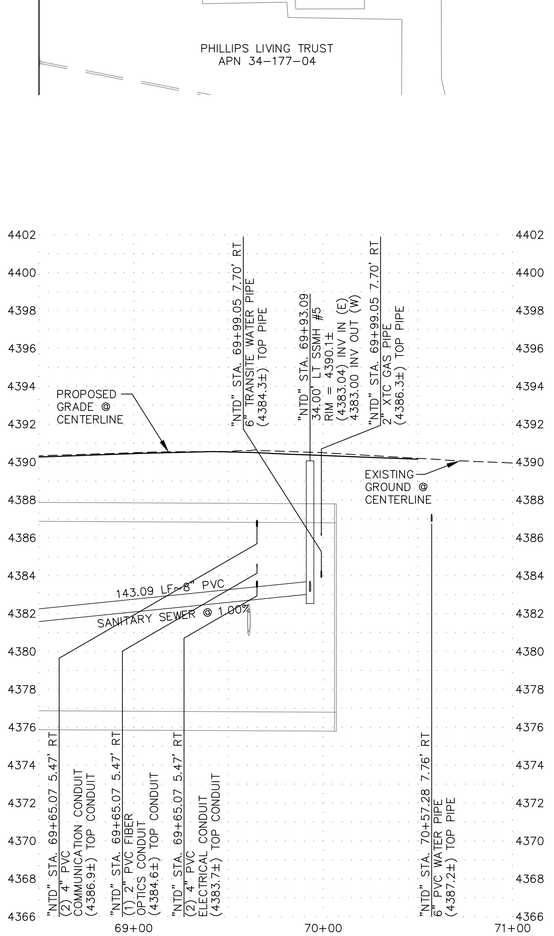

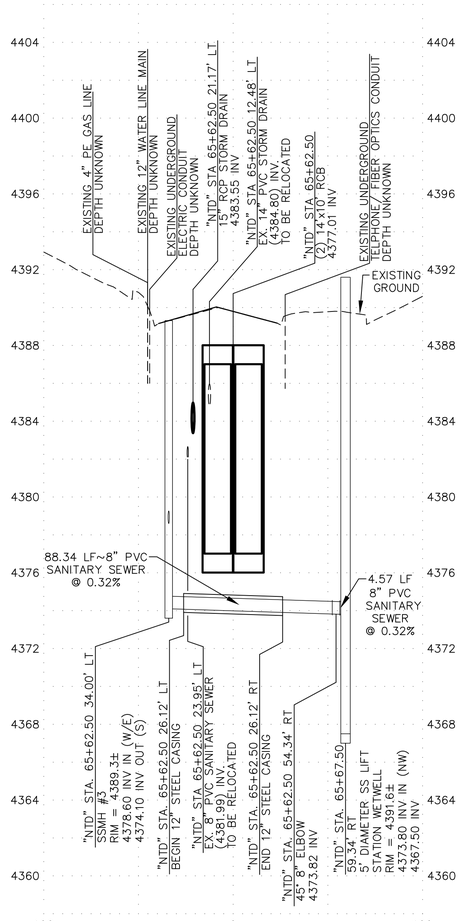

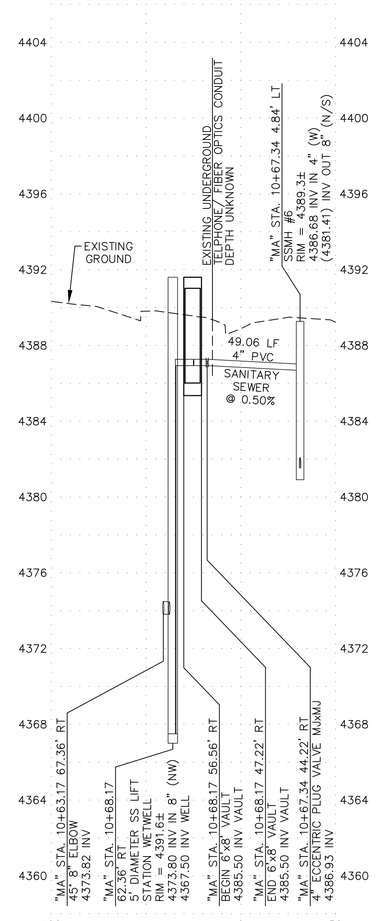

UTILITY NOTES :

1. INSTALL SANITARY SEWER PIPE, SIZE AND TYPE AS SHOWN ON PLAN PER DETAILS SHEET DT-5.
2. CONSTRUCT MANHOLE, SIZE AND TYPE AS SHOWN ON PLAN PER DETAILS SHEETS DT-2, DT-3 AND DT-7.
3. CONSTRUCT SANITARY SEWER LIFT STATION PER DETAILS SHEETS DT-8 TO DT-11.
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5. ELECTRICAL LINE TO BE RELOCATED BY NV ENERGY, SIZE AND TYPE AS SHOWN ON PLAN.
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7. WATER LINE TO BE RELOCATED BY TMWA, SIZE AND TYPE AS SHOWN ON PLAN.
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11. INSTALL FITTING W/THRUST BLOCK, SIZE AND TYPE AS SHOWN ON PLAN PER DETAILS SHEET DT-7.
12. INSTALL WATER LINE, SIZE AND TYPE AS SHOWN ON PLAN PER DETAILS SHEET DT-13.
13. INSTALL BACKFLOW PREVENTOR ASSEMBLY, SIZE AND TYPE SHOWN ON PLANS PER DETAILS SHEET DT-12.
14. INSTALL 12" STEEL PIPE CASING PER DETAILS SHEET DT-13.
15. INSTALL FIRE HYDRANT ASSEMBLY, PER DETAILS SHEET DT-12.

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NOTES:

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40 0 40 80
SCALE IN FEET

REV No	DATE	DESCRIPTION	APPROVED

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DRAWN BY: PEO
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APPROVED BY: NL
SCALE
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City of Sparks

NORTH TRUCKEE DRAIN REALIGNMENT PHASE 1

UTILITY PLAN AND PROFILE 'NTD' STA 68+50 TO STA 71+00

CITY OF SPARKS, NEVADA, PUBLIC WORKS DEPARTMENT

STATE OF NEVADA — NOEL C. LAUGHLIN — No. 10181 — CIVIL — Exp. 12-31-13 — PROFESSIONAL ENGINEER — 10-18-13

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U-3
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UTILITY NOTES :

1. INSTALL SANITARY SEWER PIPE, SIZE AND TYPE AS SHOWN ON PLAN PER DETAILS SHEET DT-5.
2. CONSTRUCT MANHOLE, SIZE AND TYPE AS SHOWN ON PLAN PER DETAILS SHEETS DT-2, DT-3 AND DT-7.
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12. INSTALL WATER LINE, SIZE AND TYPE AS SHOWN ON PLAN PER DETAILS SHEET DT-13.
13. INSTALL BACKFLOW PREVENTOR ASSEMBLY, SIZE AND TYPE SHOWN ON PLANS PER DETAILS SHEET DT-12.
14. INSTALL 12" STEEL PIPE CASING PER DETAILS SHEET DT-13.
15. INSTALL FIRE HYDRANT ASSEMBLY, PER DETAILS SHEET DT-12.

THIS IS A GENERAL LIST. NOT ALL ACTIVITIES ARE USED.

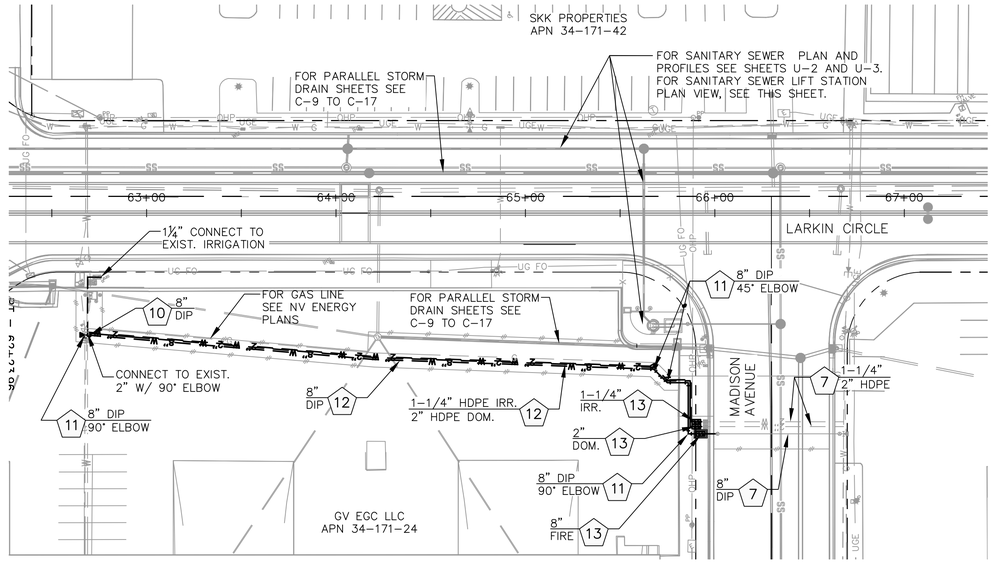
NOTES:

1. **PROTECT EXISTING FEATURES IN PLACE UNLESS NOTED OTHERWISE.**
2. **SEE SHEETS C-1 TO C-3 FOR MAINLINE STORM DRAIN.**
3. **SEE SHEETS C-4 TO C-7 FOR PARALLEL AND LATERAL STORM DRAINS.**
4. **SEE SHEETS C-8 TO C-15 FOR PROPOSED SURFACE FEATURES, GRADING, AND DRAINAGE.**
5. **SEE TMWA SHEETS FOR WATER LINE RELOCATIONS.**
6. **ALL WATER APPURTENANCES ARE TO BE RELOCATED IN-KIND.**

N

40 0 40 80

SCALE IN FEET



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10 0 10 20

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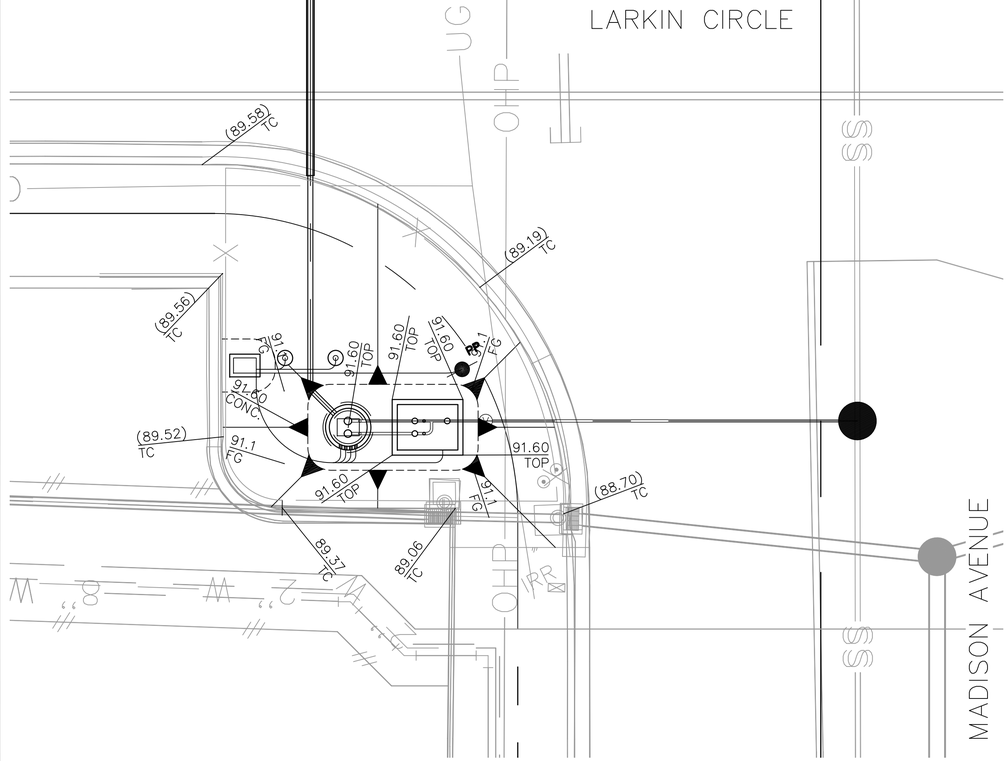
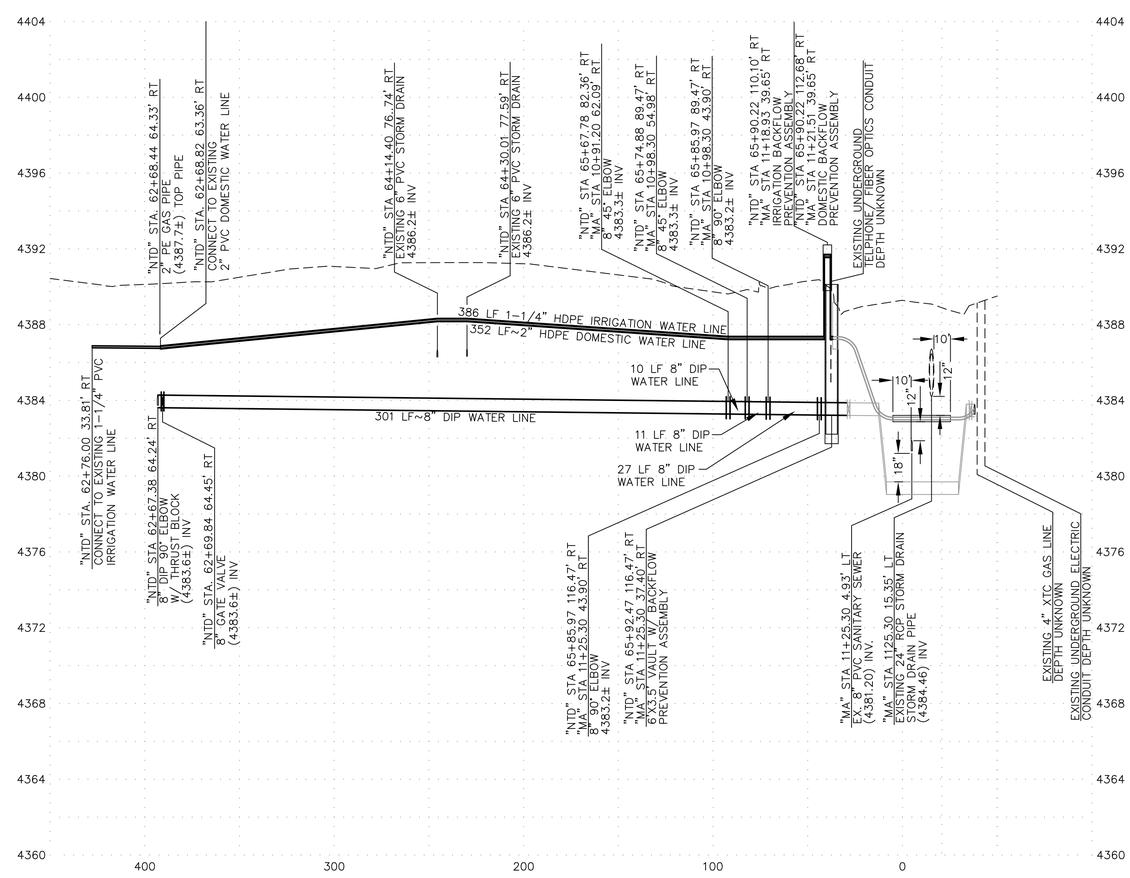




REV No	DATE	DESCRIPTION	APPROVED

DESIGNED BY: PEO
DRAWN BY: PEO
CHECKED BY: NL
APPROVED BY: NL
SCALE
HORIZ: 1"=40'
VERT: 1"=4'
FIELD BOOK

HDR Engineering, Inc.
9805 Double R Blvd, Suite 101
Reno, NV 89521
Phone: 775-337-4700

City of Sparks

NORTH TRUCKEE DRAIN REALIGNMENT PHASE 1

UTILITY PLAN AND PROFILE

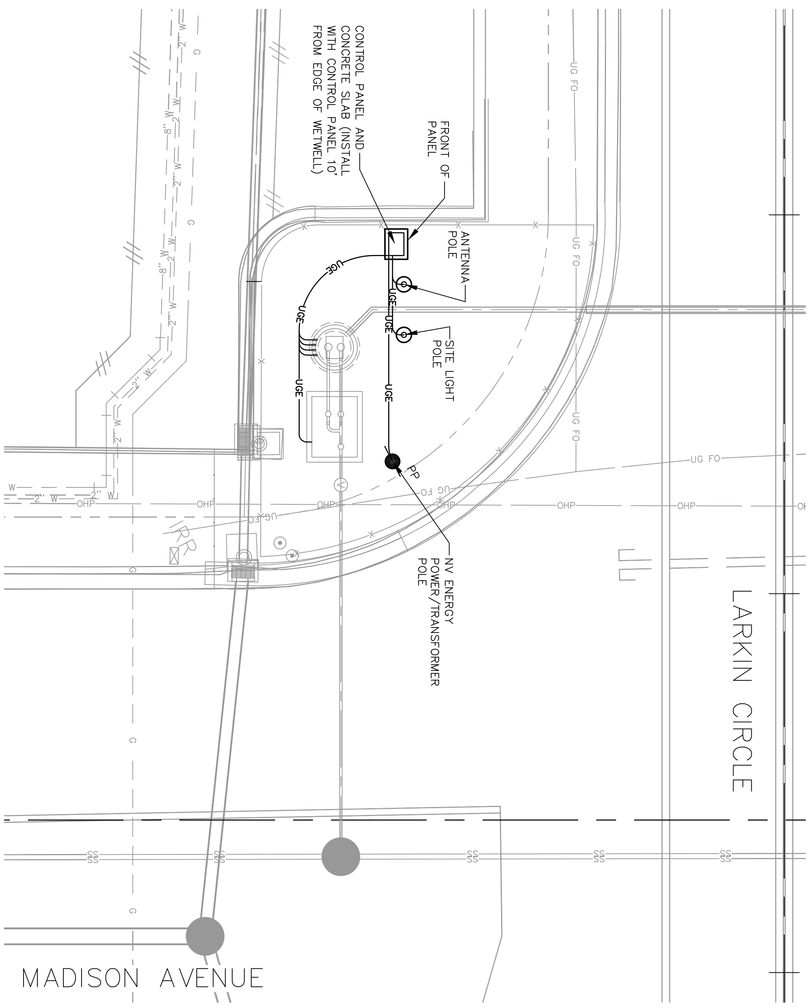
CITY OF SPARKS, NEVADA, PUBLIC WORKS DEPARTMENT

STATE OF NEVADA — PROFESSIONAL ENGINEER — NOEL C. LAUGHLIN — Exp. 12-31-13 — CIVIL — No. 10158 — 10-18-13

SHEET No.
U-4

SHT OF

C:\pwworking\phx\d0295093\U-4.dwg 10/21/13 1:50pm kgonzale



SHT OF SHEET No **E-1**

PROFESSIONAL ENGINEER - STATE OF NEVADA
DANIEL J. GOTT
EXP. 6-30-14
ELECTRICAL
No. 019101
10/18/13

NORTH TRUCKEE DRAIN REALIGNMENT PHASE 1

ELECTRICAL SITE PLAN

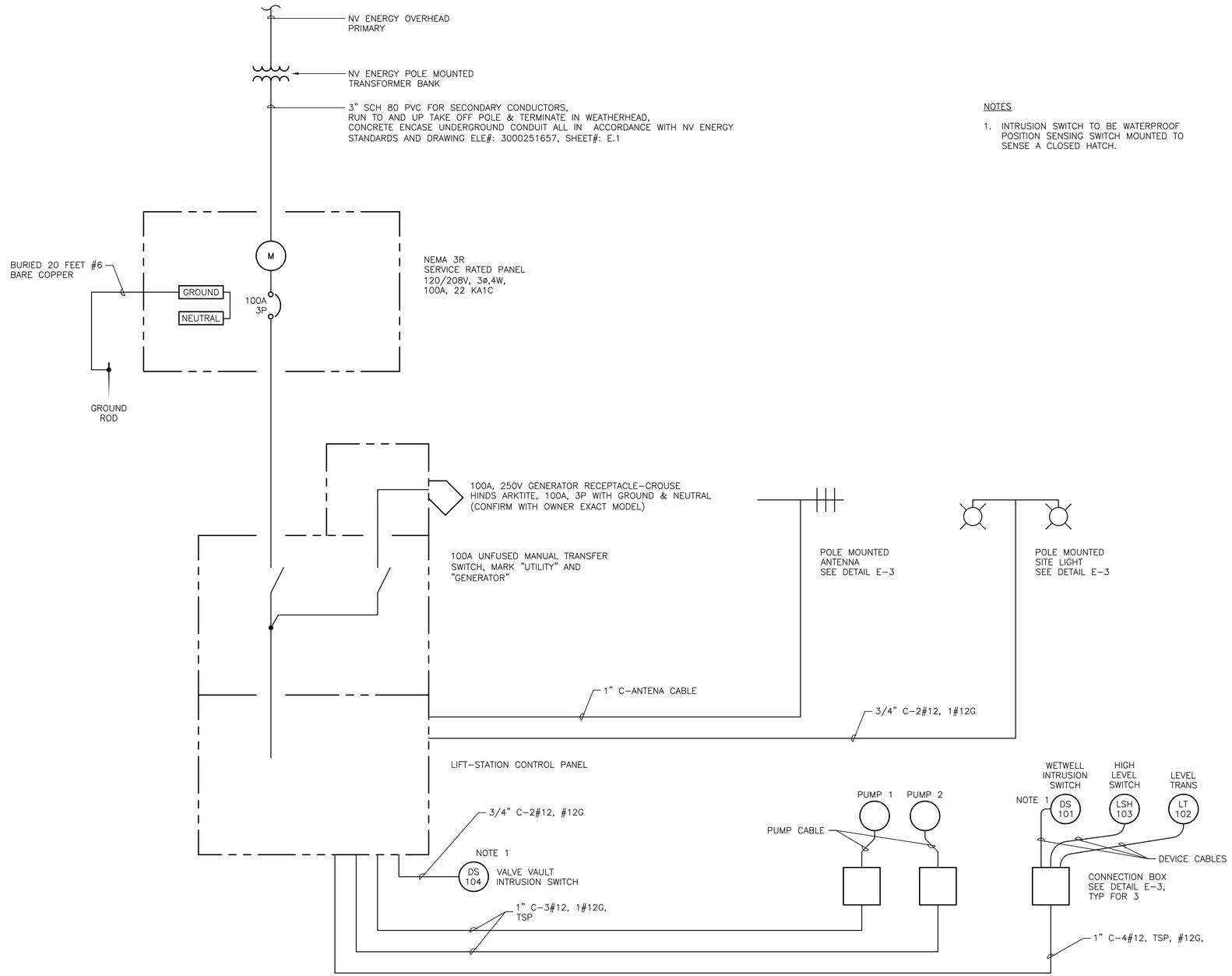
CITY OF SPARKS, NEVADA, PUBLIC WORKS DEPARTMENT

City of Sparks

HDR Engineering, Inc.
9805 Double R Blvd, Suite 101
Reno, NV 89521
Phone: 775-337-4700

DESIGNED BY:	WFE
DRAWN BY:	PEO
CHECKED BY:	WFE
APPROVED BY:	DJG
SCALE	
HORIZ:	1"=40'
VERT:	1"=4'
FIELD BOOK	

REV No	DATE	DESCRIPTION	APPROVED



WIRING SINGLE LINE DIAGRAM

NTS

NOTES

1. INTRUSION SWITCH TO BE WATERPROOF POSITION SENSING SWITCH MOUNTED TO SENSE A CLOSED HATCH.

REV No	DATE	DESCRIPTION	APPROVED

DESIGNED BY: WFE
DRAWN BY: KDG
CHECKED BY: WFE
APPROVED BY: DJG
SCALE
HORIZ: N.T.S.
VERT: N/A
FIELD BOOK

HDR Engineering, Inc.
9805 Double R Blvd, Suite 101
Reno, NV 89521
Phone: 775-337-4700

City of Sparks

NORTH TRUCKEE DRAIN REALIGNMENT PHASE 1

WIRING SINGLE LINE DIAGRAM

CITY OF SPARKS, NEVADA, PUBLIC WORKS DEPARTMENT

STATE OF NEVADA – PROFESSIONAL ENGINEER – DANIEL J. GOTT – No. 01910 – ELECTRICAL – 10/18/13

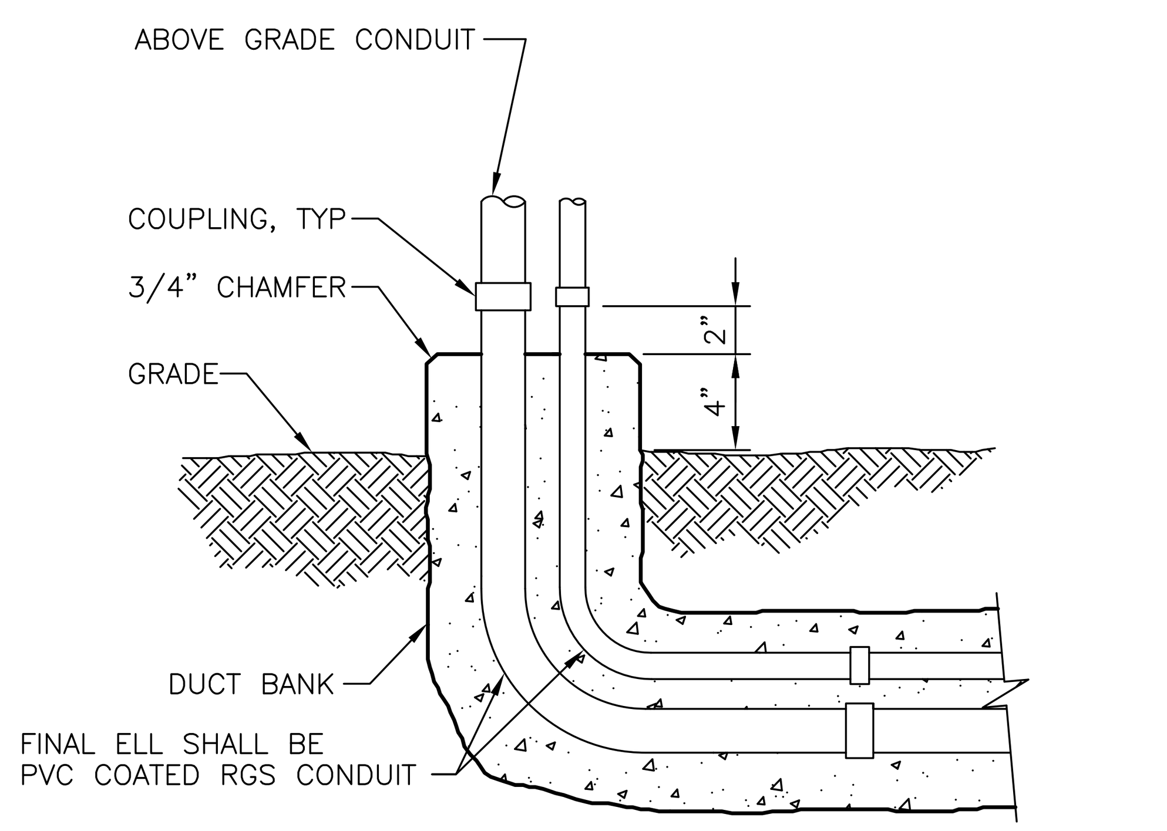
SHEET No
E-2

SHT OF

Avoid cutting underground utility lines. It's costly.
Call before you Dig.
1-800-227-2600
UNDERGROUND SERVICE ALERT (USA)

SAFETY ALERT
Call before you Overhead
775-834-7590
NV Energy Construction Line
24hrs. Prior Notice Required
OVERHEAD SERVICE ALERT

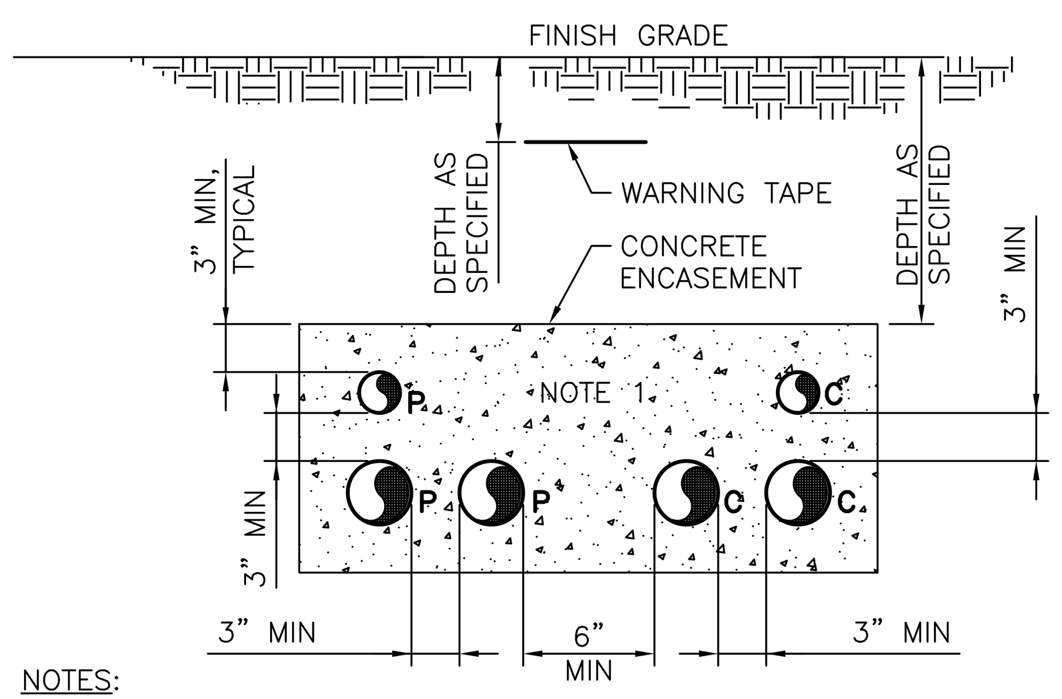
C:\pwworking\phx\d0295093\E-2.dwg 10/21/13 1:03pm kgonzale



NOTE:
1. SEE DUCT BANK SECTION DETAIL FOR ADDITIONAL REQUIREMENTS.

CONDUIT TRANSITION TO ABOVE GRADE (EXTERIOR)

NTS

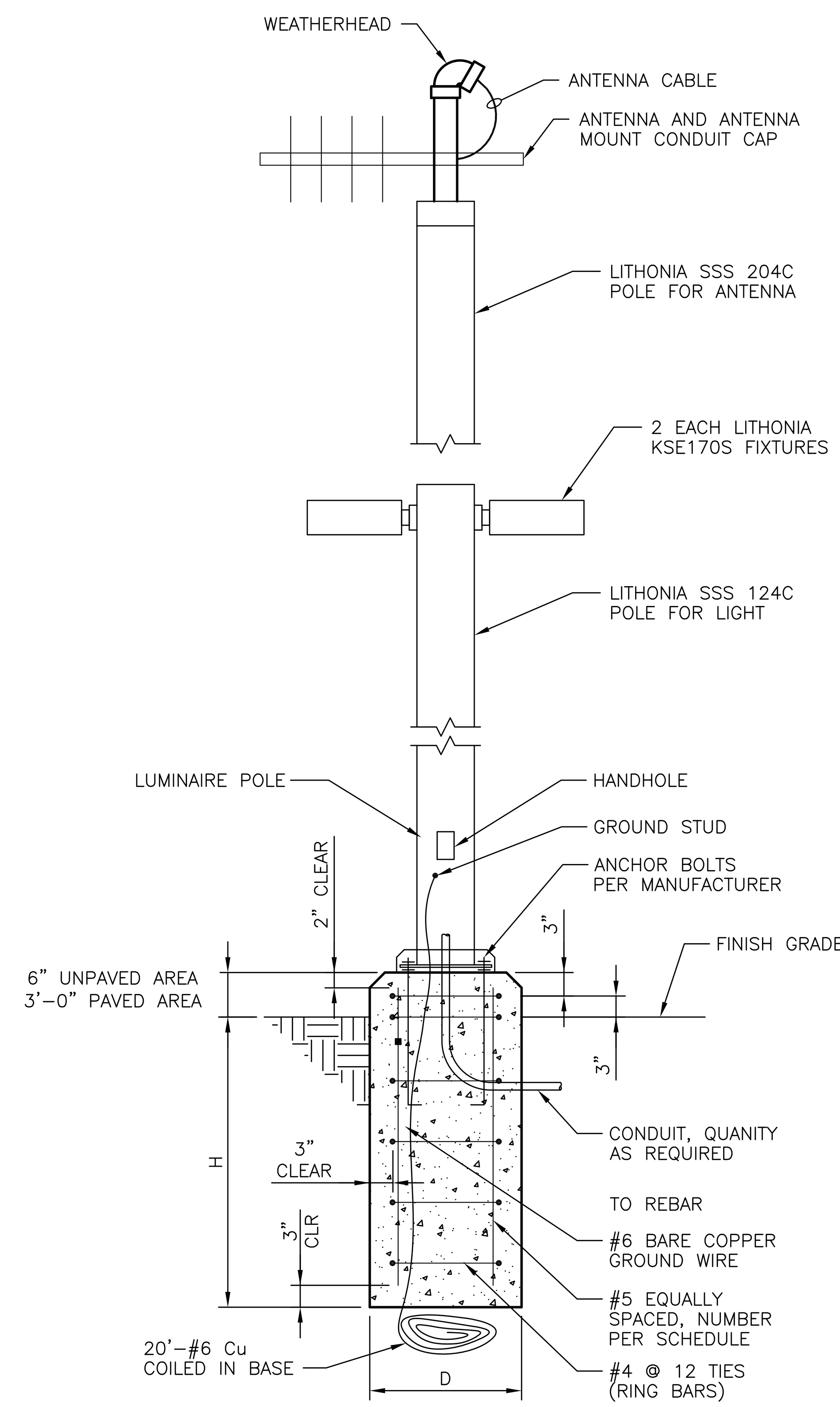


NOTES:

1. NUMBER OF CONDUITS AS REQUIRED FOR THE APPLICATION.
2. P SUBSCRIPT ELECTRICAL POWER OR CONTROL CONDUIT.
3. C SUBSCRIPT COMMUNICATION (TELEPHONE, DATA, INSTRUMENTATION) CONDUIT.

CONCRETE ENCASED DUCT BANK SECTION

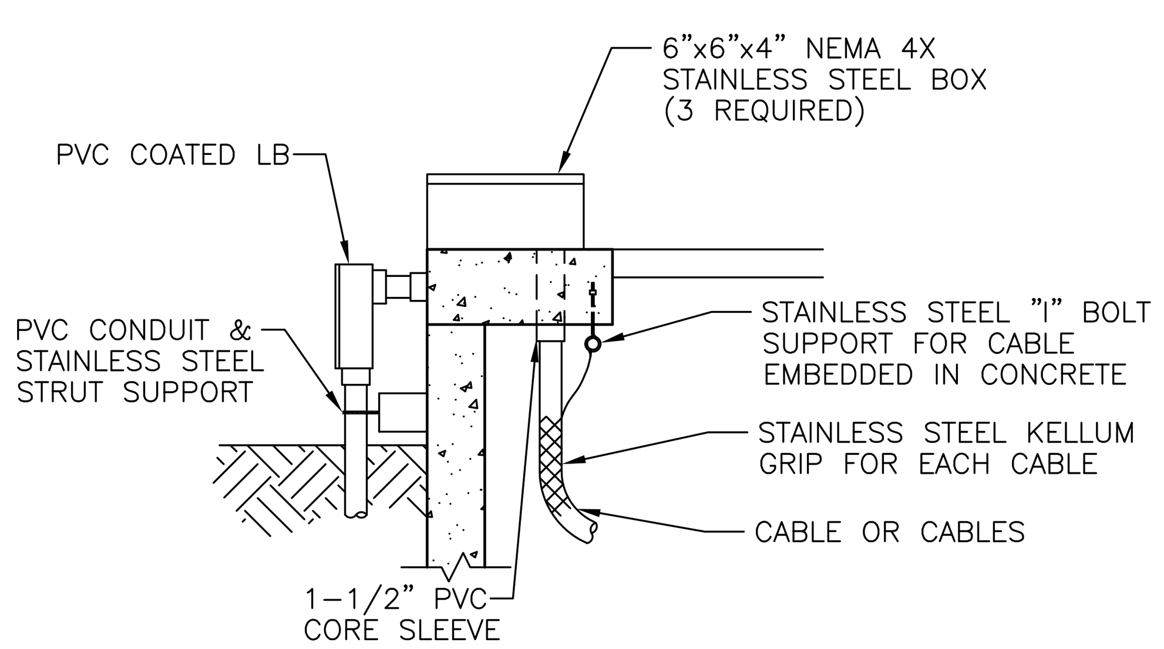
NTS



DIMENSION SCHEDULE			
POLE HEIGHT	MINIMUM D	MINIMUM H	VERTICAL REBAR EACH
UP TO 10'	2'-0"	4'-6"	6
11' TO 20'	2'-0"	6'-6"	6
21' TO 30'	2'-0"	8'-6"	6

POLE FOUNDATION

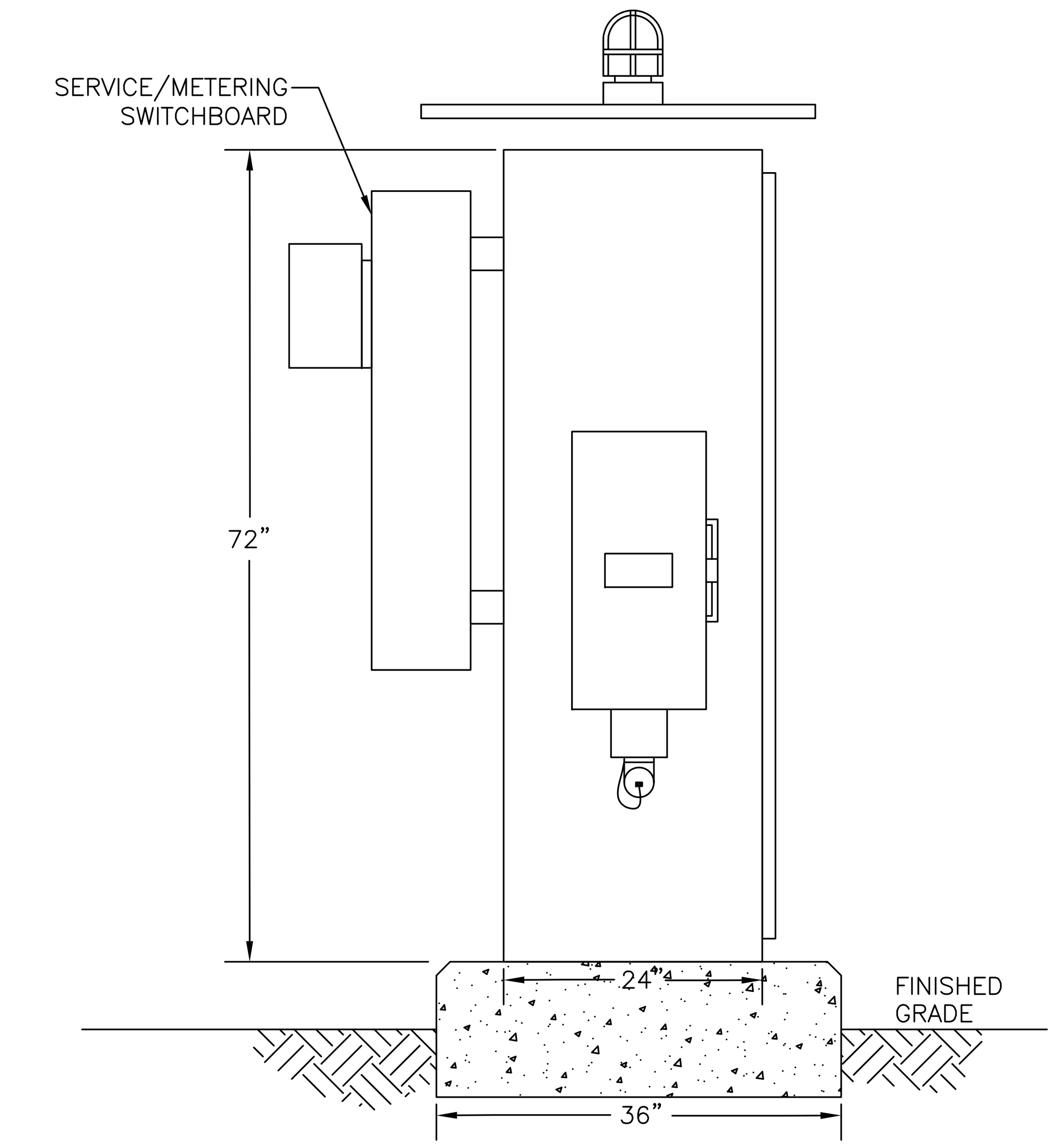
NTS



INSTALL BOXES ON SOUTH SIDE OF WETWELL.

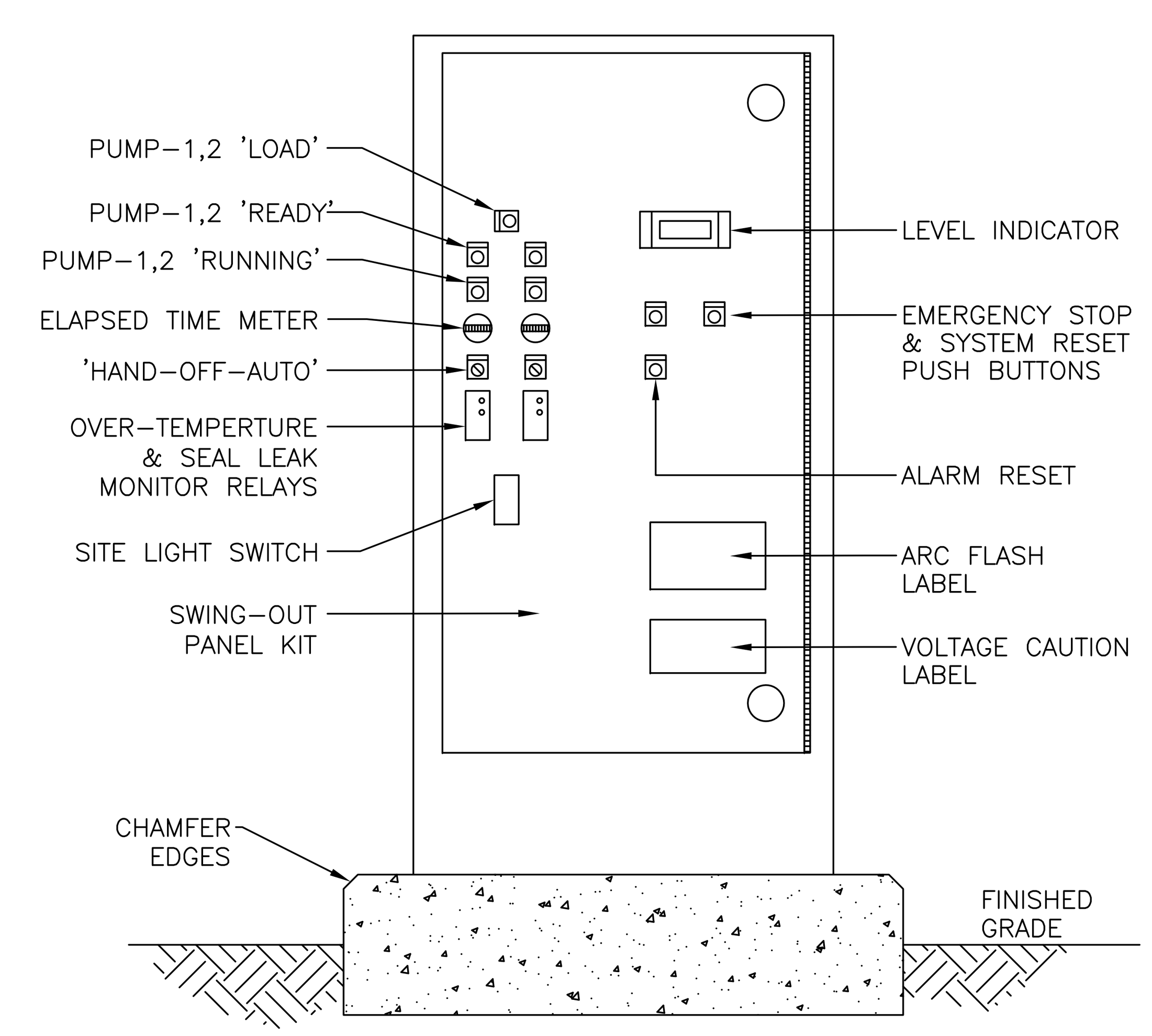
CABLE MOUNTING CONNECTION BOX DETAIL AT WETWELL

NTS



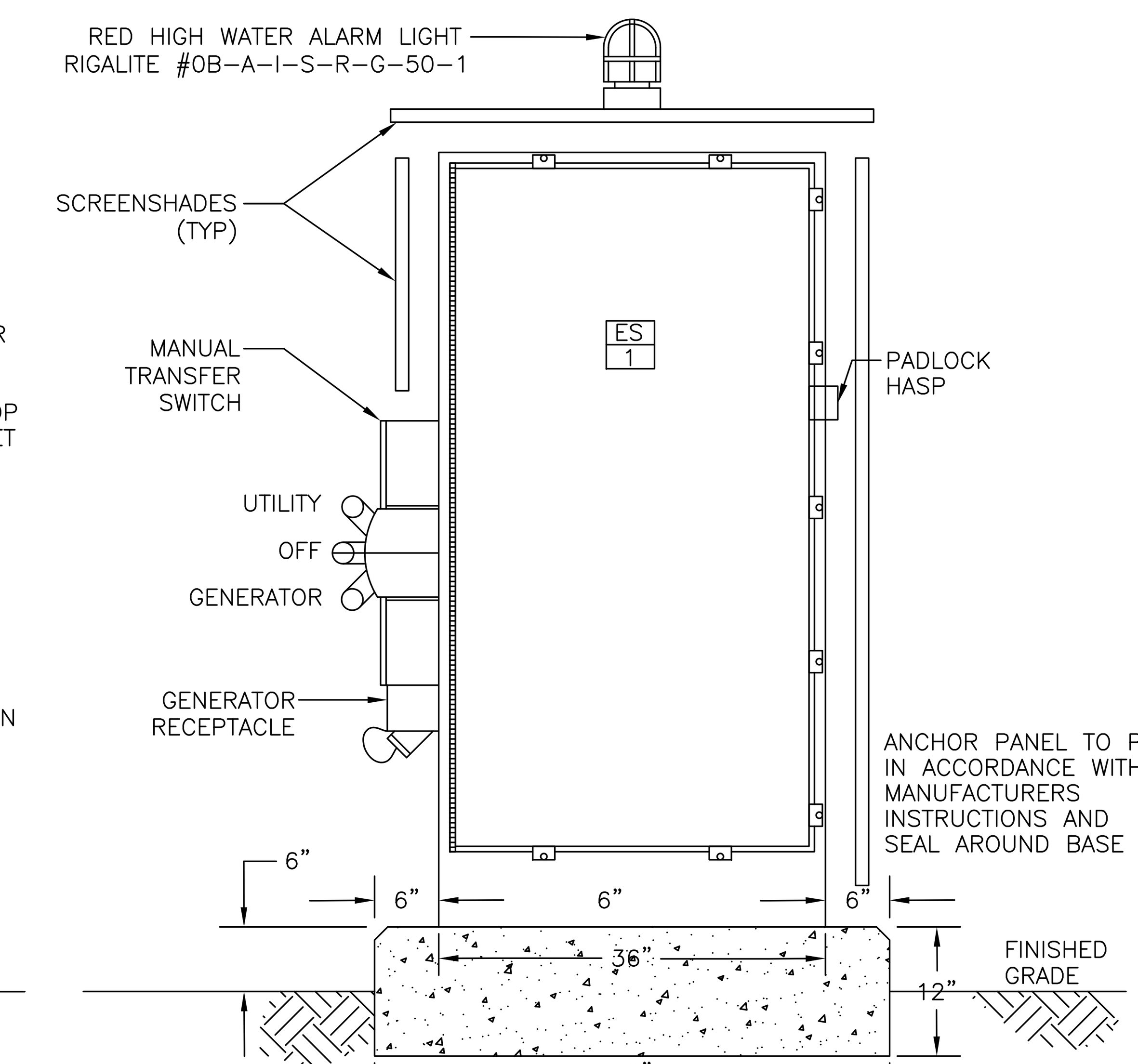
SIDE ELEVATION

NTS



SUB PANEL ELEVATION

NTS



FRONT ELEVATION

NTS

REV No	DATE	DESCRIPTION	APPROVED

DESIGNED BY: WFE
DRAWN BY: PEO
CHECKED BY: WFE
APPROVED BY: DJG
SCALE
HORIZ: N.T.S.
VERT: N/A
FIELD BOOK

HDR Engineering, Inc.
9805 Double R Blvd.
Suite 101
Reno, NV 89521
Phone: 775-337-4700

City of Sparks

NORTH TRUCKEE DRAIN REALIGNMENT PHASE 1

ELECTRICAL DETAILS

CITY OF SPARKS, NEVADA, PUBLIC WORKS DEPARTMENT

DANIEL J. ... ELECTRICAL No. 01910 STATE OF NEVADA PROFESSIONAL ENGINEER

SHEET No
E-3

SHT OF

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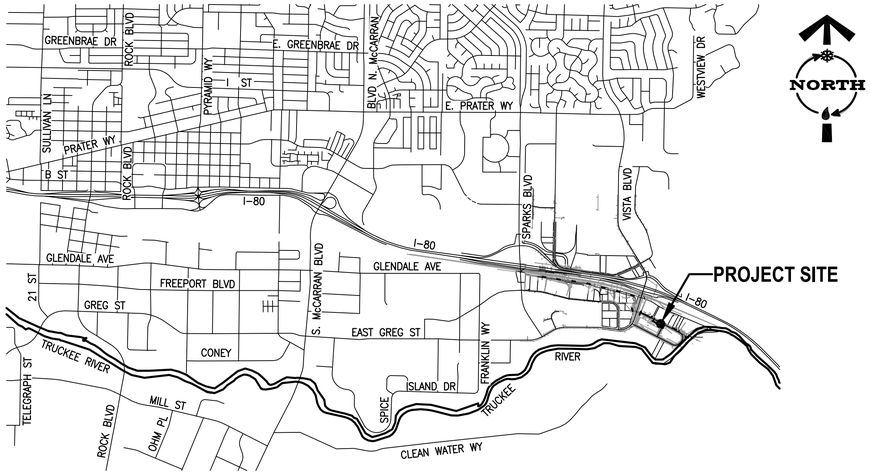
IMPROVEMENT PLANS
FOR
NORTH TRUCKEE DRAIN REALIGNMENT PHASE 1
TMWA WATER MAIN REPLACEMENTS

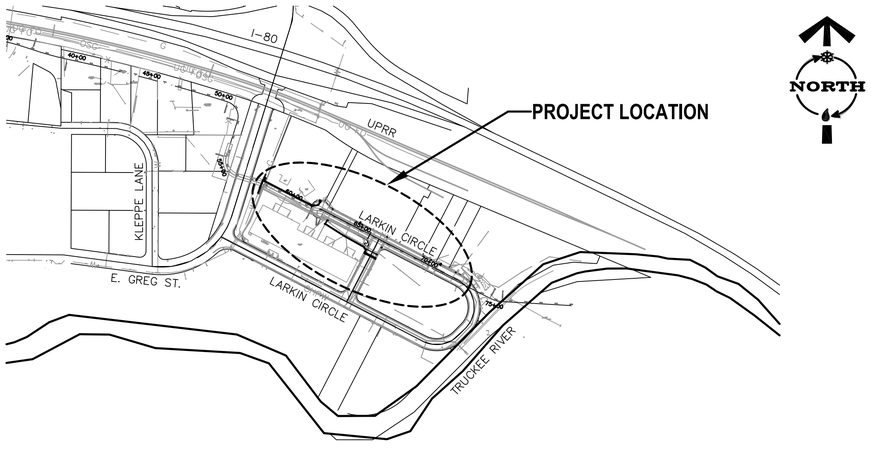
RENO **WASHOE** **NEVADA**

TMWA PROJECT NO.:

INDEX OF SHEETS



VICINITY MAP
N.T.S.



LOCATION MAP
N.T.S.

TRUCKEE MEADOWS WATER AUTHORITY
1355 CAPITAL BLVD. / PO BOX 30013
RENO, NEVADA 89520-3013
PH 775-834-8000 / FX 775-834-8003

TRUCKEE MEADOWS WATER AUTHORITY

MARK FOREE
GENERAL MANAGER

HDR Engineering, Inc.
9805 Double R. Blvd., Suite 101
Reno, NV 89521
Phone: (775) 337-4700
Fax: (775) 337-4774

CONSTRUCTION MANAGEMENT ADMINISTRATOR

STEVE VOLK
1355 CAPITAL BLVD.
RENO, NV 89502-3013
PHONE: 775-834-8024

Know what's **below.** **Call** before you dig.

PROFESSIONAL ENGINEER-STATE OF NEVADA
NOEL C. LAUGHLIN
Exp: 12-31-13
CIVIL
No. 10165
10-18-13

C0
SHEET 1 OF 11

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PROPOSED FEATURES LEGEND

- TEE WITH GATE VALVE
- CHECK VALVE (SHADED IF EXISTING)
- FIRE HYDRANT ASSEMBLY
- 45° ELBOW, FLANGED
- 90° FLANGED ELBOW
- AIR/VAC
- THRUST BLOCK
- CAP/PLUG
- BACKFLOW PREVENTER
- WATER METER
- SLEEVE COUPLING
- MANHOLE
- CONSTRUCTION EASEMENT
- PERMANENT EASEMENT
- CENTERLINE
- CHANNEL/SLOPE
- MAJOR CONTOUR
- MINOR CONTOUR
- STORM DRAIN RCP
- STORM DRAIN RCB
- GRADE LINE
- FENCE LINE
- SAWCUT LINE
- CURB AND GUTTER
- ACCESS ROAD
- DAYLIGHT LINE
- EDGE OF PAVEMENT
- PROPERTY/RIGHT-OF-WAY LINE
- VAULT

EXISTING FEATURES LEGEND

- INDEX CONTOUR
- APPROXIMATE INDEX
- INDEX DEPRESSION
- INTERMEDIATE CONTOUR
- APPROXIMATE INTERMEDIATE
- INTERMEDIATE DEPRESSION
- EDGE OF PAVEMENT
- DIRT ROAD
- JEEP/FOOT TRAIL
- CURB LINE
- GUTTER/CONCRETE EDGE
- GUARD-RAIL
- RAILROAD
- FENCE
- RETAINING WALL
- FENCE ON RW
- BLOCK WALL
- MEDIAN WALL
- STONE WALL
- TRENCH/STOPE
- TAILINGS/TOE
- WATER EDGE
- INTERMITTENT DRAINAGE
- DITCH
- MISCELLANEOUS BOUNDARIES
- TREELINE
- BRUSHLINE
- SANITARY SEWER
- STORM DRAIN
- WATER
- IRRIGATION WATER
- UNDERGROUND ELECTRIC
- OVERHEAD UTILITY
- OVERHEAD SIGNAL
- OVERHEAD POWER/TV CABLE
- UNDERGROUND FIBER OPTICS
- GAS
- UNDERGROUND ELECTRIC ABANDONED

- N,E,Z CONTROL POINT
- Z ONLY CONTROL POINT
- SURVEY MONUMENT
- POWER POLES
- POLE ANCHOR
- TRANSMISSION TOWER
- LIGHT POLE
- POST/POLE
- SIGN
- FIRE HYDRANT
- MANHOLE
- SANITARY SEWER MANHOLE
- STORM DRAIN MANHOLE
- TELEPHONE MANHOLE
- VALVE COVER
- VALVE
- TRAFFIC SIGNAL
- R.R./CROSSWALK SIGNAL
- MAIL BOX
- MISC. OBJECT
- METER
- MARSH
- PROSPECT/EXCAVATION
- SHAFT
- UTIL. VAULT/BOX
- METER BOX
- STORM DRAIN CATCH BASIN
- BUILDING
- COVERED AREA
- EX. TREE

ABBREVIATIONS

AC = ASPHALTIC CONCRETE
ACI = AMERICAN CONCRETE INSTITUTE
ACP = ASBESTOS CEMENT PIPE
A/E = ARCHITECT / ENGINEER
ABAN = ABANDON
ANSI = AMERICAN NATIONAL STANDARDS INSTITUTE
APN = ASSESSOR'S PARCEL NUMBER
APRX. = APPROXIMATELY
ASSY = ASSEMBLY
AVAR = AIR VACUUM AIR RELIEF (VALVE)
AGGR = AGGREGATE
AGG. = AGGREGATE
APPROX = APPROXIMATE
APPD = APPROVED
ASTM = AMERICAN SOCIETY FOR TESTING AND STANDARDS
ASSHTO = AMERICAN ASSOC. OF STATE HIGHWAY & TRANS. OFFICIALS
AWWA = AMERICAN WATER WORKS ASSOCIATION
BC = BACK OF CURB
BCR = BEGIN CURB RETURN
BF = BOTH FACES, BOTTOM FACE
BFC = BACK FACE OF CURB
BFV = BUTTERFLY VALVE
BM = BENCHMARK
BR = BRIDGE
BRW = BOTTOM ROCKERY WALL
BW = BACK OF WALK
BVC = BEGIN VERTICAL CURVE
BW = BACK WALL
CATV = CABLE TELEVISION
C-C = CENTER TO CENTER
C&G = CURB AND GUTTER
C = CHANNEL
CB = CATCH BASIN
CFS = CUBIC FEET PER SECOND
CF or CU.FT. = CUBIC FEET
C.I. = CAST IRON
$CL/\mathbb{C}_{\mathbb{L}}$ = CENTERLINE
CLSM = CONTROLLED LOW STRENGTH MATERIAL
CLR. or Cl. = CLEARANCE
CML&C = CONCRETE MORTAR LINED AND COATED
CMP = CORRUGATED METAL PIPE
CMU = CONCRETE MASONRY UNIT
CONC. = CONCRETE
CONST.JT. = CONSTRUCTION JOINT
CO = CLEANOUT
COL = COLUMN
COMP = COMPACT
CONSTR = CONSTRUCTION
COR = CITY OF RENO
CORP. = CORPORATION
CPLG. = COUPLING
CTB = CEMENT TREATED BASE
CTR = CENTER
CU.YD. = CUBIC YARD
CTRS. = CENTERS
D = DEPTH
DI = DROP INLET
D.I. = DUCTILE IRON
DIP = DUCTILE IRON PIPE
DIST = DISTRICT
DEMO = DEMOLISH OR DEMOLITION
DR = DRIVE OR DRAIN
ø or DIA. = DIAMETER
DOC = DOCUMENT
DOM. = DOMESTIC
EA. = EACH
E.C. = END OF CURVE
EFF = EFFLUENT
EG = EXISTING GRADE/GROUND
E.F. = EACH OF FACE
EGL = ENERGY GRADE LINE
ELEC. = ELECTRICAL
ELEV./ EL = ELEVATION
ELL = ELBOW
ENGR. = ENGINEER
EP = EDGE OF PAVEMENT
ERW = EFFLUENT REUSE WATER
EXIST./ EX = EXISTING
(E) = EXISTING
EQ = EQUAL
ETC = ET CETERA
EVC = END VERTICAL CURVE
EW = EACH WAY
EWEF = EACH WAY EACH FACE
F.F./ FF = FINISH FLOOR
FCA = FLANGE COUPLING ADAPTER
FG = FINISH GRADE
F.L./ FL = FLOW LINE
FDTN = FOUNDATION
FH = FIRE HYDRANT
FLG = FLANGE
FO = FINISHED OPENING
FOC = FACE OF CURB
FTG = FOOTING
FO = FIBER OPTIC CABLE
FS = FINISH SURFACE
FT. = FEET
FTG = FOOTING
F.V. = FLUSH VALVE
FUT = FUTURE
G = GAS
GA = GAUGE
GAL. = GALLON
GALV = GALVANIZED
GB = GRADE BREAK
GIS = GEOGRAPHIC INFORMATION SYSTEM
G.V. = GATE VALVE
GRTG = GRATING
HERCP = HORIZONTAL ELLIPTICAL REINFORCED CONCRETE PIPE
HGL = HYDRAULIC GRADE LINE
HP = HIGH POINT
HPG = HIGH PRESSURE GAS
HW = HIGH WATER
INC. = INCORPORATED
I.D. = INSIDE DIAMETER
INV = INVERT
IE = INVERT ELEVATION
IRR. = IRRIGATION
KO = KNOCKOUT
K = KIPS
L= = LONG/ LENGTH
L / LT = LEFT OF
L.F./ LF = LINEAR FEET
LP = LOW POINT
LBS/LF = POUNDS PER LINEAR FEET
LLC = LIMITED LIABILITY COMPANY
MAX./ (MAX) = MAXIMUM
MC = MANHOLE COVER
MIN. = MINIMUM
MISC = MISCELLANEOUS
M.J. = MECHANICAL JOINT
ML = MAINLINE
(N) = NEW
N = NORTH OR NEUTRAL
NA = NOT APPLICABLE
NC = NORMALLY CLOSED
NDOT = NEVADA DEPARTMENT OF TRANSPORTATION
N.F. = NEAR FACE
NG = NATURAL GRADE
NO = NORMALLY OPEN
NTD = NORTH TRUCKEE DRAIN
NTS/ N.T.S. = NOT TO SCALE
O.C. = ON CENTER
O.E. = OR EQUAL
OHP = OVERHEAD POWER
O.D./ OD = OUTSIDE DIAMETER
OF/CI = OWNER FURNISHED CONTRACTOR INSTALLED
OGL = ORIGINAL GRADE LINE
OVFL = OVERFLOW
OSHA = OCCUPATIONAL SAFETY & HEALTH ADMIN.
PAVE = PAVEMENT
PBS = PLANTMIX BITUMINOUS SURFACE
(P) = PROPOSED
P.C./ PC = POINT OF CURVE
PCC = POINT OF COMPOUND CURVE
P.C.C. = PORTLAND CEMENT CONC.
PE = POLYETHYLENE
PEN = PENETRATE
PERP = PERPENDICULAR
P/L = PROPERTY LINE
PL = PLATE
PO = PUSH-ON
± = PLUS or MINUS
PPCBR = PORTABLE PRECAST BARRIER RAIL
PRELIM = PRELIMINARY
PRC = POINT REVERSE CURVE
PROP = PROPOSED
PRV = PRESSURE REDUCING VALVE
PSF = POUNDS PER SQUARE FOOT
PSI = POUNDS PER SQUARE INCH
PVG = PAVING
PT = POINT OF TANGENT
PVC = POLYVINYL CHLORIDE PIPE
PVI = POINT OF VERTICAL INTERSECTION
$Q_{ult}100$ = 100 YEAR ULTIMATE CONDITION DESIGN FLOW
QTY = QUANTITY
R / (R) = RADIUS OR RADIAL
R / RT = RIGHT OF
R & D = REMOVE AND DISPOSE
RCB = REINFORCED CONCRETE BOX
RCP = REINFORCED CONCRETE PIPE
RED = REDUCER
REF = REFERENCE
REINF = REINFORCEMENT
RES = RESTRAINED
RGRCP = RUBBER GASKET REINFORCED CONCRETE PIPE
RTC = REGIONAL TRANSPORTATION COMMISSION
RR = RAILROAD
R/W / ROW = RIGHT-OF-WAY
REQ'D = REQUIRED 23
ROS = RECORD OF SURVEY
R-O-W = RIGHT OF WAY
SAN = SQUARE FOOT
SD = STORM DRAIN
SDMH = STORM DRAIN MANHOLE
SDPWC = STANDARD DETAILS FOR PUBLIC WORKS CONSTRUCTION
SDR / DR = STANDARD DIMENSION RATIO
SF = SQUARE FEET
SHT = SHEET
SIM = SIMILAR
SLV = SLEEVE
SPEC = SPECIFICATION
SQ = SQUARE
SQ.FT. = SQUARE FEET
SS = SANITARY SEWER
SSMH = SANITARY SEWER MANHOLE
SSPC = SOCIETY FOR PROTECTIVE COATINGS
SSPWC = STANDARDS SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION
STA = STATION
STD.DWG.NO. = STANDARD DRAWING NUMBER
STL = STEEL
ST = STAINLESS STEEL
SST = STAINLESS STEEL
S/W / SW = SIDEWALK
SPA. = SPACING
STD. = STANDARD
TB = THRUST BLOCK
T&B = TOP AND BOTTOM
TC = TOP OF BACK OF CURB
TECS = TMWA ENGINEERING & CONSTRUCTION SPECS TRANSPORTATION
TELE / TEL = TELEPHONE
TEMP = TEMPORARY
T / THK = THICK
TM = TRACT MAP
TMH = TOP OF MANHOLE
TMWA = TRUCKEE MEADOWS WATER AUTHORITY
THW = THERMO PLASTIC HEAT AND WATER RESISTANT
TOE = TOE OF CHANNEL
TOP = TOP OF CHANNEL
TOC = TOP OF CURB
TOF = TOP OF FOOTING
TP = TELEPHONE POLE
TR = TRANSITE
TRANS = TRANSITION
TRW = TOP ROCKERY WALL
TW = TOP OF WALL
(TYP) / (TYP.) = TYPICAL
UGE = UNDER GROUND ELECTRICAL
UL = UNDERWRITERS LABORATORY
UNO = UNLESS NOTED OTHERWISE
U.O.N. = UNLESS OTHERWISE NOTED
UPRR = UNION PACIFIC RAILROAD
U.S. = UNITED STATES
USGS = UNITED STATES GEOLOGICAL SURVEY
USACE = UNITED STATES ARMY CORP OF ENGINEERS
VA = VALVE
V.C. = VERTICAL CURVE
VCP = VITRIFIED CLAY PIPE
V.G. = VALLEY GUTTER
VC = VERTICAL CURVE
VERT = VERTICAL
W = WATER
W/ = WITH
WWF = WELDED WIRE FABRIC
W.O. = WORK ORDER
WM = WATER METER
XTC = X-TRU COAT PIPE

DISCLAIMER NOTE

UTILITY LOCATIONS SHOWN HEREON ARE APPROXIMATE ONLY. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE THE EXACT HORIZONTAL AND VERTICAL LOCATION OF ALL EXISTING UNDERGROUND AND OVERHEAD UTILITIES PRIOR TO COMMENCING CONSTRUCTION. NO REPRESENTATION IS MADE THAT ALL EXISTING UTILITIES ARE SHOWN HEREON. THE ENGINEER ASSUMES NO RESPONSIBILITY FOR UTILITIES NOT SHOWN OR UTILITIES NOT SHOWN IN THEIR PROPER LOCATION.

2 working days Call before you Dig. 1-800-227-2600

PROFESSIONAL ENGINEER - STATE OF NEVADA
NOEL C. LAUGHLIN
Exp: 12-31-13
CIVIL
No. 10165
10-18-13

WORK ORDER NO. _____
DESIGNED JKB
DRAWN KDG
DATE 10/18/13
CHECKED _____
SUBMITTED 10/21/13
RECOMMENDED _____
APPROVED _____

TRUCKEE MEADOWS WATER AUTHORITY
1355 CAPITAL BLVD. / PO BOX 30013
RENO, NV 89520-3013
PH: 775-834-8000 / FX: 775-834-8003

NORTH TRUCKEE DRAIN REALIGNMENT PHASE 1
CITY OF SPARKS, WASHOE COUNTY, NEVADA
GENERAL NOTES, MATERIAL SPECIFICATIONS, ABBREVIATIONS & LEGEND

SHEET NUMBER
C1
2 OF 11

C:\pwworking\phx\d0329883\TMWA_C1.dwg Oct 21, 2013 - 2:01pm

GENERAL COMMENTS:

CONTRACTOR TO CALL PROJECT COORDINATOR STEVE VOLK AT (775) 834-8024 48-HOURS PRIOR TO START OF CONSTRUCTION TO SCHEDULE ON-SITE INSPECTION. (INCLUDE WORK ORDER NUMBER _____)

MAINTAIN POTABLE WATER AND SS/SD/NON-POTABLE HORIZONTAL AND VERTICAL CLEARANCES AS SPECIFIED IN NEVADA ADMINISTRATIVE CODE (NAC) SECTION 445A AND TMWA ENGINEERING & CONSTRUCTION STANDARDS SECTION 8.

AT ALL CROSSINGS, UNDERGROUND ELECTRIC FACILITIES SHALL BE LOCATED BELOW WATER MAINS AND/OR WATER SERVICES WITH A MINIMUM OF 2-FEET VERTICAL CLEARANCE.

ALL WORK SHALL BE ACCOMPLISHED IN STRICT ACCORDANCE WITH THE SPECIFICATIONS SET FORTH IN THE TMWA ENGINEERING & CONSTRUCTION STANDARDS. THE CONTRACTOR SHALL SECURE COPIES OF THE AFOREMENTIONED CONSTRUCTION SPECIFICATIONS ON HIS/HER OWN BEHALF. THE ENGINEERING & CONSTRUCTION STANDARDS MAY BE DOWNLOADED FROM: www.tmwa.com/standards

SYMBOLS ARE NOT TO SCALE AND DO NOT NECESSARILY REPRESENT ACTUAL LOCATIONS OF FACILITIES.

THIS MAP ILLUSTRATES DATA COLLECTED FROM VARIOUS SOURCES AND MAY NOT REPRESENT A SURVEY OF THE PREMISES. NO RESPONSIBILITY IS ASSUMED AS TO THE SUFFICIENCY OR ACCURACY OF THE DATA DISPLAYED HEREON.

CAUTION: CONTRACTOR IS RESPONSIBLE FOR LOCATING AND COORDINATING WORK AROUND ALL EXISTING UTILITIES. PRIOR TO EXCAVATION, CHECK TO ENSURE ADDITIONAL DEPTH IS NOT REQUIRED TO ACCOMMODATE INSTALLATION OF GAS FACILITIES.

SOILS RETENTION MAY BE REQUIRED AROUND WATER METER BOXES, FIRE HYDRANTS, AND OTHER FACILITIES IF SLOPES EXCEED 15%.

WATER METERS SHALL BE LOCATED WITHIN A PUBLIC UTILITY EASEMENT (PUE).

TOP OF WATER METER ENCLOSURE SHALL BE SET 0.2 FEET ABOVE HIGHEST FINISHED GRADE SURROUNDING ENCLOSURE WITHIN LANDSCAPED AREAS. FOR INSTALLATIONS IN CONCRETE OR OTHER PAVED AREAS, SET TOP OF LID FLUSH WITH SURROUNDING SURFACE.

APPLICANT TO ADVISE PLUMBING CONTRACTOR OF HIS/HER RESPONSIBILITY TO VERIFY WATER PRESSURE DURING STATIC CONDITIONS AT ALL SERVICE LOCATIONS. THE PLUMBING CONTRACTOR IS REQUIRED TO CONFORM TO THE MOST CURRENT EDITION OF THE UNIFORM PLUMBING CODE WHICH HAS BEEN ADOPTED BY THE GOVERNMENTAL ENTITY HAVING JURISDICTION OVER THE PROJECT. SPECIAL ATTENTION SHOULD BE GIVEN TO THE SECTION OF THE CODE CONCERNING STATIC WATER PRESSURE IN EXCESS OF 80 PSI.

UNUSED SERVICE LATERALS SHALL BE RETIRED BACK TO TMWA'S WATER MAIN.

BACKFLOW PREVENTION:

BACKFLOW PREVENTION IS REQUIRED BY NEVADA ADMINISTRATIVE CODE (NAC) SECTION 445A.67185.

1. DOMESTIC AND IRRIGATION BACKFLOW PREVENTION ASSEMBLIES SHALL BE INSTALLED IMMEDIATELY DOWNSTREAM OF THE METER.
2. FOR FIRE SERVICE BACKFLOW ASSEMBLY(IES): CONTACT BACKFLOW PREVENTION GROUP FOR TYPE AND REQUIRED LOCATION.

BACKFLOW PREVENTION GROUP WILL APPROVE WATER METER SET AND PERMANENT WATER SERVICE AFTER:

1. THE ASSEMBLY IS INSTALLED PER TMWA INSTALLATION STANDARDS AND INSPECTED BY THE BACKFLOW PREVENTION GROUP.
2. OPEN TRENCH, DITCH, AND/OR SLURRY INSPECTIONS COMPLETED BY THE BACKFLOW PREVENTION GROUP.
3. FINAL INSTALLATION AND FREEZE PROTECTION INSPECTED BY THE BACKFLOW PREVENTION GROUP.
4. CALL (775) 834-8288 FOR INSPECTIONS OR QUESTIONS.

THE CONTRACTOR IS RESPONSIBLE TO CONTACT TMWA BACKFLOW PREVENTION GROUP FOR CURRENT BACKFLOW INSTALLATION STANDARDS.

COMPLETE SHUT-DOWN OF EXISTING ISOLATION VALVES:

TMWA DOES NOT IMPLY OR GUARANTEE THE FULL AND COMPLETE SHUT-DOWN OF EXISTING ISOLATION VALVES. CONTRACTOR SHALL BE RESPONSIBLE FOR MITIGATING ANY WATER THAT MAY LEAK THROUGH AN EXISTING CLOSED ISOLATION VALVE DURING WATER MAIN, WATER SERVICE, AND/OR FIRE HYDRANT/SERVICE RECONNECTIONS; CUT AND CAPPING OF EXISTING WATER MAINS; ETC., WITH NO DIRECT PAYMENT TO THE CONTRACTOR.

GENERAL CONSTRUCTION REQUIREMENTS:

AT LEAST TWO WORKING DAYS PRIOR TO BEGINNING CONSTRUCTION ON ANY TMWA RELATED FACILITIES, CONTRACTOR SHALL CONTACT TMWA SO THAT A FIELD REPRESENTATIVE MAY BE DISPATCHED TO OVERSEE INSTALLATION OF FACILITIES THAT TMWA WILL TAKE POSSESSION OF. REFER TO TMWA ENGINEERING AND CONSTRUCTION STANDARDS SECTION 2.05 FOR AUTHORITY AND RESPONSIBILITY OF TMWA INSPECTOR.

DISCLAIMER NOTE

UTILITY LOCATIONS SHOWN HEREON ARE APPROXIMATE ONLY. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE THE EXACT HORIZONTAL AND VERTICAL LOCATION OF ALL EXISTING UNDERGROUND AND OVERHEAD UTILITIES PRIOR TO COMMENCING CONSTRUCTION. NO REPRESENTATION IS MADE THAT ALL EXISTING UTILITIES ARE SHOWN HEREON. THE ENGINEER ASSUMES NO RESPONSIBILITY FOR UTILITIES NOT SHOWN OR UTILITIES NOT SHOWN IN THEIR PROPER LOCATION.

2 working days Call before you Dig. 1-800-227-2600

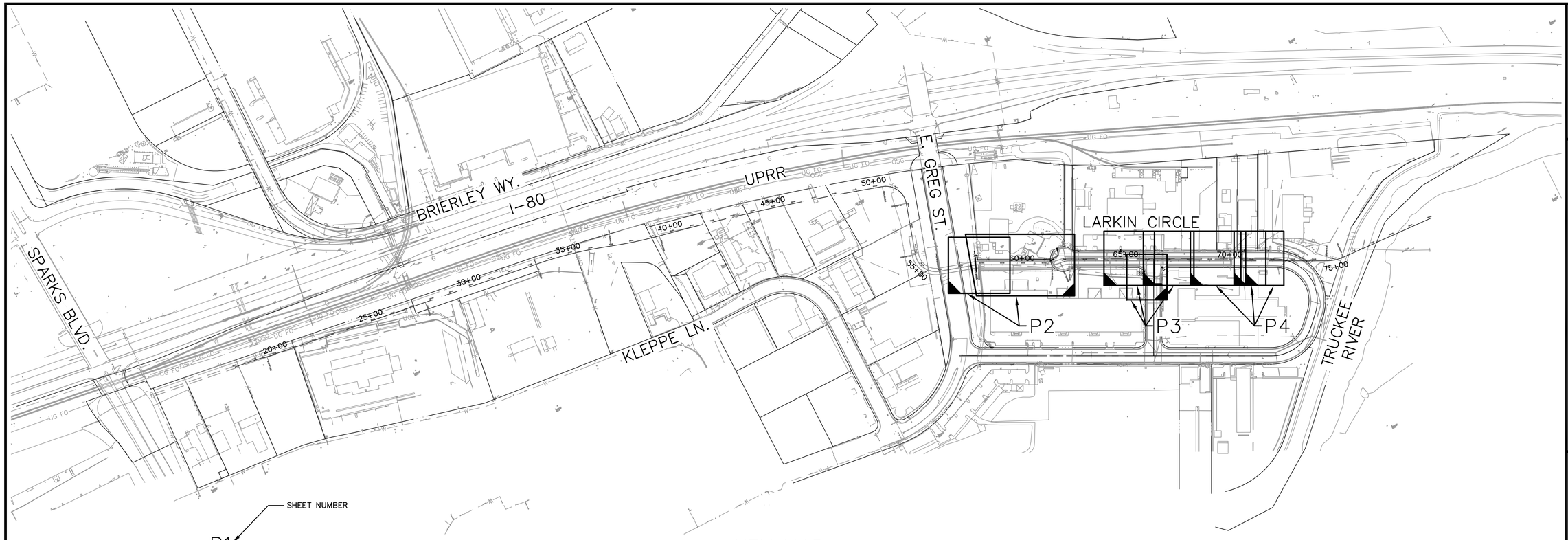
PROFESSIONAL ENGINEER - STATE OF NEVADA
NOEL C. LAUGHLIN
Exp: 12-31-13
CIVIL
No. 10165
10-18-13

WORK ORDER NO. _____
DESIGNED JKB
DRAWN KDG
DATE 10/18/13
CHECKED _____
SUBMITTED 10/21/13
RECOMMENDED _____
APPROVED _____

TRUCKEE MEADOWS WATER AUTHORITY
1355 CAPITAL BLVD. / PO BOX 30013
RENO, NEVADA 89520-3013
PH 775-834-8000 / FX 775-834-8003

NORTH TRUCKEE DRAIN REALIGNMENT PHASE 1
CITY OF SPARKS, WASHOE COUNTY, NEVADA
GENERAL NOTES, MATERIAL SPECIFICATIONS, ABBREVIATIONS & LEGEND

SHEET NUMBER
C2
3 OF 11



KEY MAP
NTS

SHEET NUMBER
P1

PLAN WINDOW ON PLAN AND PROFILE SHEETS

INDICATES LOWER RIGHT CORNER OF PLAN WINDOW

CONSTRUCTION SEQUENCING AND UTILITY RELOCATIONS

UTILITY CONFLICT	NTD STATION (APPROX)	UTILITY TYPE	UTILITY SIZE	SHEET	POTHOLE NUMBER	NOTES
1	57+73	W	16" TMWA	P-2	PH-5	REMOVE AND RELOCATE. WATER SERVICE MAY BE SHUT OFF FOR ONE TWO WEEK PERIOD TO ALLOW STAGED CONSTRUCTION. COORDINATE WITH TMWA. INSTALL, TEST, AND DISINFECT RELOCATED PIPELINE PRIOR TO FINAL CONNECTIONS. ALSO SEE SHEET P2.
2	60+57	W	PVT FH	P-2		CAP W DURING CONSTRUCTION AND REPLACE 6" WATER LINE AND RELOCATE FIRE HYDRANT AFTER RCB CONSTRUCTION. SEE NOTE 4.
3	62+69	W	PVT FIRE 8" SERVICE	P-3	PH-22	RELOCATE AND COMMISSION NEW 12" PRIOR TO RCB CONSTRUCTION, STA: 62+44 TO 62+94. MAINTAIN WATER LINE SERVICE EXCEPT FOR ONE TEMPORARY SHUTDOWN. SERVICE IS PRIVATE. COORDINATE WITH OWNER. INSTALL, TEST, AND DISINFECT RELOCATED PIPELINE PRIOR TO FINAL CONNECTIONS.
4	62+69	W	TMWA 1.25", 2"	P-3	PH-8	RELOCATE 1.25" AND 2" W TO MADISON AVE. AFTER RCB CONSTRUCTION: PROVIDE TEMPORARY W BYPASS PIPING AS NEEDED FOR UNINTERRUPTED POTABLE W SERVICE.
5	64+87	W	COS FH 6"	P-3	PH-9	REMOVE 6" WATER LINE AND RELOCATE FIRE HYDRANT AFTER RCB CONSTRUCTION, STA: 64+62 TO 65+12. COORDINATE WITH TMWA TO MAINTAIN WATER SERVICE IN NORTH MAIN LINE EXCEPT FOR ONE SHUT DOWN.
6	66+71	W	TMWA 12"	P-3	PH-12	RELOCATE AND COMMISSION WATER LINE PRIOR TO RCB CONSTRUCTION, STA: 66+46 TO 66+96. MAINTAIN WATER LINE SERVICE EXCEPT FOR ONE SHUTDOWN. SERVICE IS PUBLIC. COORDINATE WITH TMWA. INSTALL, TEST, AND DISINFECT RELOCATED PIPELINE PRIOR TO FINAL CONNECTIONS.
7	69+99	W	PVT X-ING 8"	P-4	PH-16	RELOCATE AND COMMISSION WATER LINE PRIOR TO RCB CONSTRUCTION, STA: 69+74 TO 70+24. MAINTAIN WATER LINE SERVICE EXCEPT FOR ONE TEMPORARY SHUTDOWN. SERVICE IS PRIVATE. COORDINATE WITH OWNER. INSTALL, TEST, AND DISINFECT SECTION REPLACEMENT PRIOR TO FINAL CONNECTIONS.
8	70+57	W	COS FH 6"	P-4	PH-17	REMOVE 6" WATER LINE AND RELOCATE FIRE HYDRANT AFTER RCB CONSTRUCTION, STA: 70+32 TO 70+82. COORDINATE WITH TMWA TO MAINTAIN WATER SERVICE IN NORTH MAIN LINE EXCEPT FOR ONE SHUT DOWN.
9	71+78	W	PVT 8" X-ING	P-4	PH-18	RELOCATE AND COMMISSION WATER LINE PRIOR TO RCB CONSTRUCTION, STA: 71+53 TO 72+03. MAINTAIN WATER LINE SERVICE EXCEPT FOR ONE SHUTDOWN. SERVICE IS RETIRED. COORDINATE WITH TMWA. INSTALL, TEST, AND DISINFECT SECTION REPLACEMENT PRIOR TO FINAL CONNECTIONS.

NOTES:

1. ADDITIONAL INFORMATION ON EXISTING UTILITIES AND POTHOLE INFORMATION CAN BE FOUND IN THE PLAN AND PROFILES (SHEETS P2, P3 AND P4).
2. FOR REMOVAL OF UTILITIES FOLLOW SPECIAL REQUIREMENTS IN DEMOLITION SPECIFICATIONS.
3. IF CONFLICTS WITH TMWA STANDARDS AND THESE PLANS OCCUR, THE MORE STRINGENT STANDARD SHALL APPLY.
4. ALL CAPS SHALL BE RESTRAINED WITH THRUST BLOCK BEARING AREAS LOCATED A MINIMUM OF 10 FEET FROM EDGE OF ANY EXCAVATION CUT LIMITS.

POTHOLE NUMBER	NORTHING	EASTING
PH04/PH05	14866283.0125	2309844.2628
PH06	14866089.0594	2310261.1016
PH07/PH08	14866077.1454	2310291.5677
PH09	14865975.5270	2310484.4156
PH10	14865930.0294	2310568.3645
PH11/PH12	14865884.8869	2310645.2186
PH13	14865881.6016	2310650.2392
PH14	14865759.6007	2310911.1975
PH15/PH16	14865742.0194	2310940.3625
PH17	14865715.2255	2310992.0632
PH18	14865659.1933	2311099.0817
PH21	14866254.9522	2309855.7750
PH22	14866077.6046	2310290.6793

PROFESSIONAL ENGINEER - STATE OF NEVADA
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Call before you Dig.
1-800-227-2600

NORTH

SCALE: 1"=250'
250 0 125 250 500

FOR TMWA USE ONLY
NEW BUSINESS WATER

WO#		Map #	
New Main			
Date Installed:		Depth:	
Pressure Test Date:			
PSI	Hours Tested:		
Inspector:			
Contractor:			
Feet Laid	Size	Type	Main/Svc
Retired/ Abandoned/Removed			
Feet Ret.	Size	Type	Main/Svc
# of Meter boxes Inst./Size:			
# of Setters Inst./Size:			

TRUCKEE MEADOWS WATER AUTHORITY
1355 CAPITAL BLVD. / PO BOX 30013
RENO, NEVADA 89520-3013
PH 775-834-8000 / FX 775-834-8003

WORK ORDER NO.
DESIGNED
DRAWN
DATE
CHECKED
SUBMITTED
RECOMMENDED
APPROVED

NORTH TRUCKEE DRAIN REALIGNMENT PHASE 1
CITY OF SPARKS, WASHOE COUNTY, NEVADA
KEY MAP

SHEET NUMBER
P1
4 OF 11

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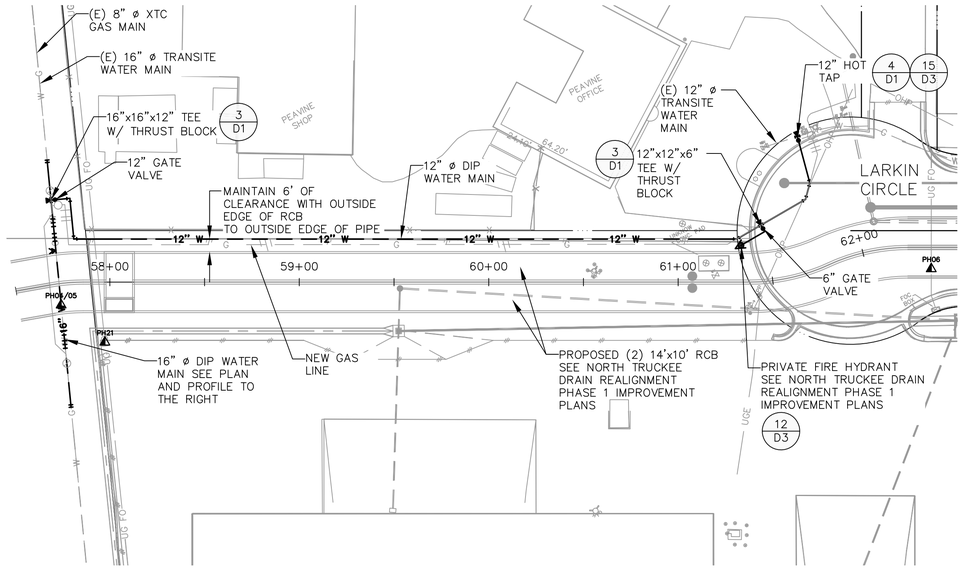
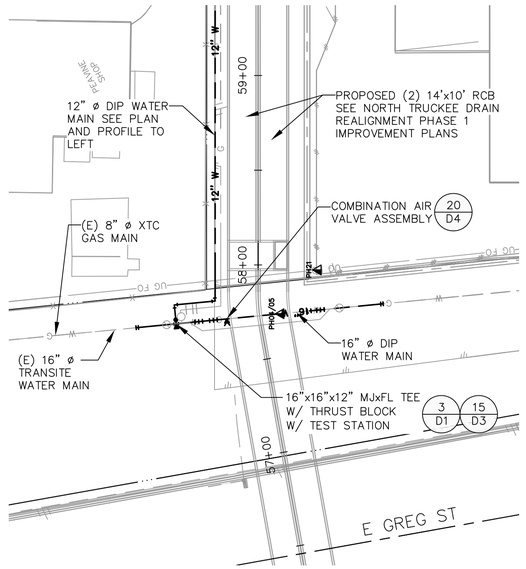


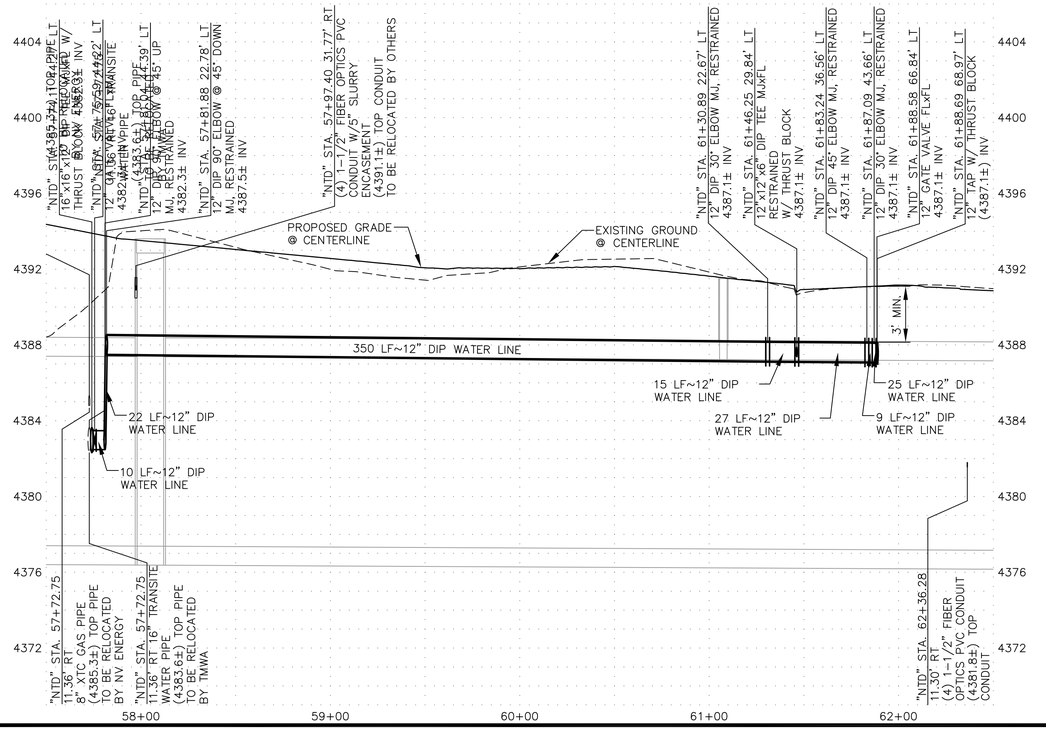


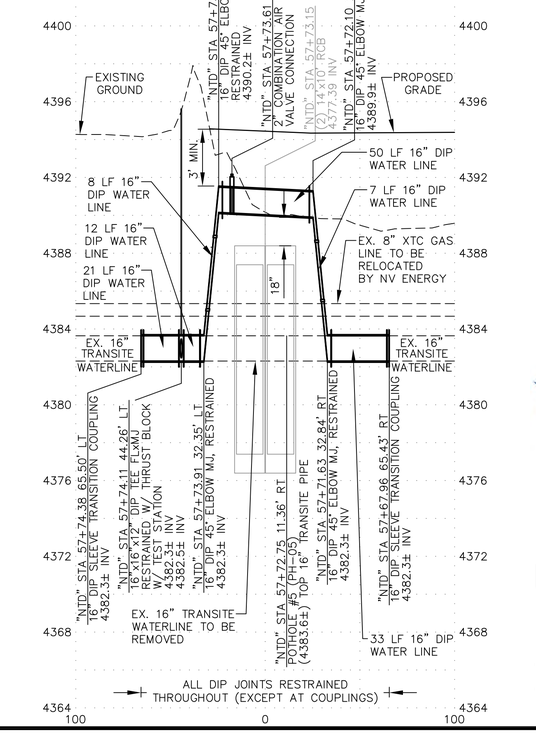
VALVE ISOLATION NOTE:
IN ORDER TO ISOLATE THIS SECTION OF 16"ø MAIN, MAINLINE VALVES AT VISTA BLVD./I-80 NORTH OFFRAMP AND E. GREG ST./LARKIN CIR.

IN ORDER TO ISOLATE THIS SECTION OF 12"ø AND 8"ø MAIN, MAINLINE VALVES AT NORTH AND SOUTH LARKIN CIR./MADISON AVE.

MUST BE CLOSED AS WELL AS ALL LATERAL MAINS IN BETWEEN THE TWO IN-LINE VALVES. THE TMWA INSPECTOR AND CONTRACTOR TO COORDINATE ALL VALVE CLOSINGS AND SERVICE DISRUPTIONS. THIS MAY REQUIRE WEEKEND OR NIGHT WORK.

INSTALL 2" TEMP FLUSH AT GREG – LARKIN STREET. CONTRACTOR TO WORK W/ TMWA TO DETERMINE FINAL LOCATION.





HORIZ. SCALE: 1"=40'
40 0 20 40 80
VERT. SCALE: 1"=4'
4 0 2 4 8

2 working days Call before you Dig. 1-800-227-2600

FOR TMWA USE ONLY NEW BUSINESS WATER			
WO#		Map #	
New Main			
Date Installed:		Depth:	
Pressure Test Date:			
PSI		Hours Tested:	
Inspector:			
Contractor:			
Feet Laid	Size	Type	Main/Svc
Retired/ Abandoned/Removed			
Feet Ret.	Size	Type	Main/Svc
# of Meter boxes Inst./Size:			
# of Setters Inst./Size:			

WORK ORDER NO.
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NORTH TRUCKEE DRAIN REALIGNMENT PHASE 1
CITY OF SPARKS, WASHOE COUNTY, NEVADA
PLAN AND PROFILE

SHEET NUMBER
P2
5 OF 11

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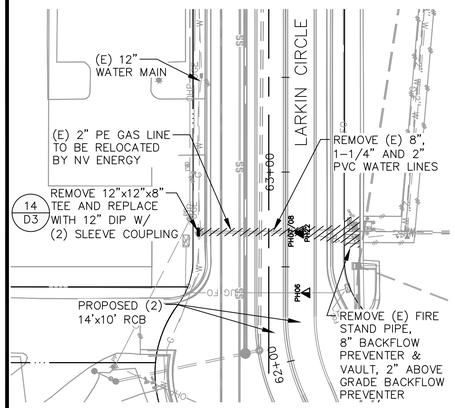

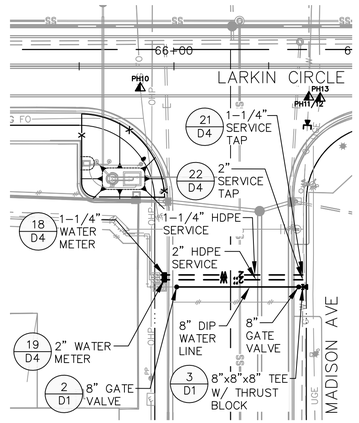

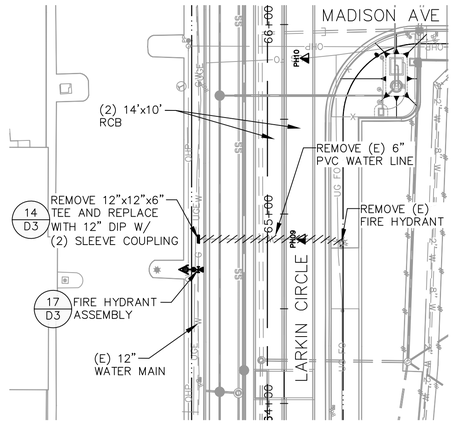

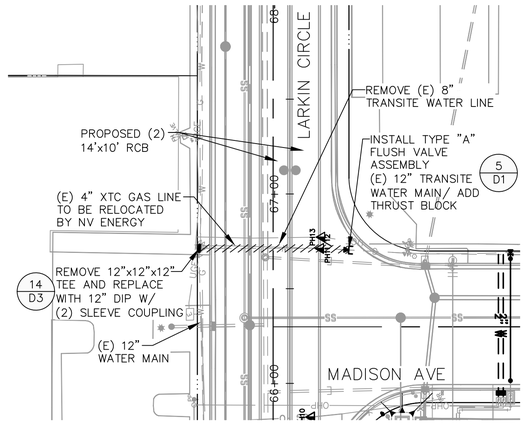

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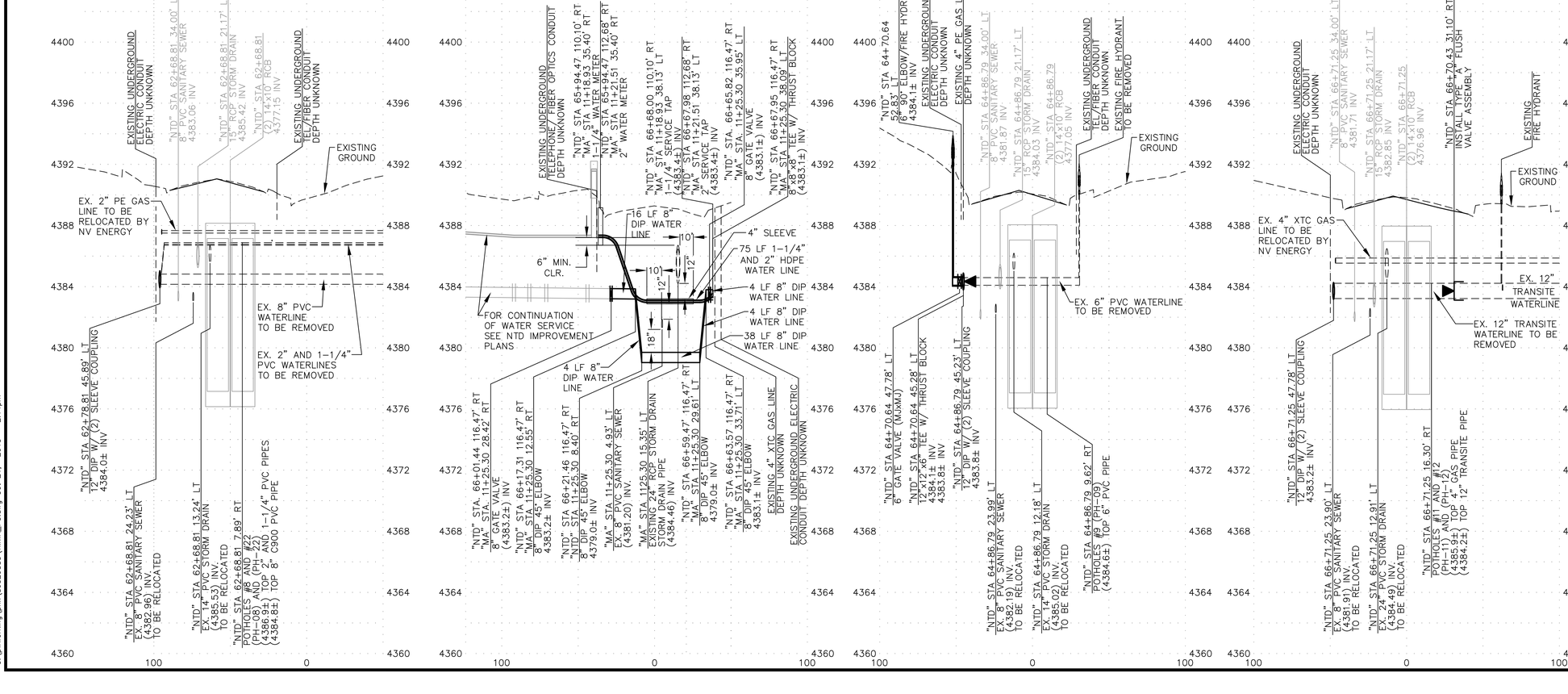
2 working days Call before you Dig. 1-800-227-2600



HORIZ. SCALE: 1"=40'
40 0 20 40 80
VERT. SCALE: 1"=4'
4 0 2 4 8

FOR TMWA USE ONLY NEW BUSINESS WATER			
WO#		Map #	
New Main			
Date Installed:		Depth:	
Pressure Test Date:			
PSI	Hours Tested:		
Inspector:			
Contractor:			
Feet Laid	Size	Type	Main/Svc
Retired/ Abandoned/Removed			
Feet Ret.	Size	Type	Main/Svc
# of Meter boxes Inst./Size:			
# of Setters Inst./Size:			

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SUBMITTED
RECOMMENDED
APPROVED

TRUCKEE MEADOWS WATER AUTHORITY
1355 CAPITAL BLVD. / PO BOX 30013
RENO, NV 89520-3013
PH: 775-834-8000 / FX: 775-834-8003

NORTH TRUCKEE DRAIN REALIGNMENT PHASE 1
CITY OF SPARKS, WASHOE COUNTY, NEVADA
PLAN AND PROFILE

SHEET NUMBER
P3
6 OF 11

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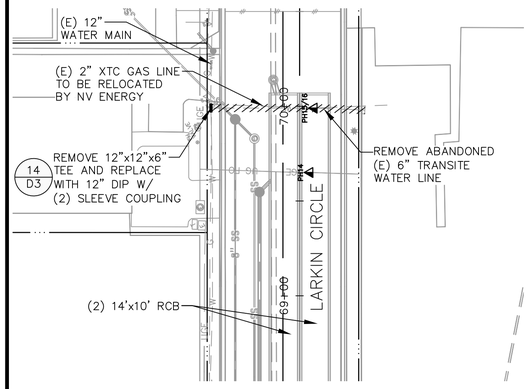

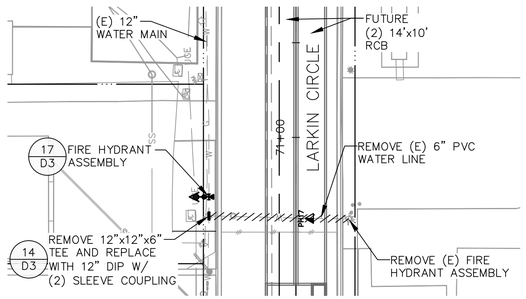

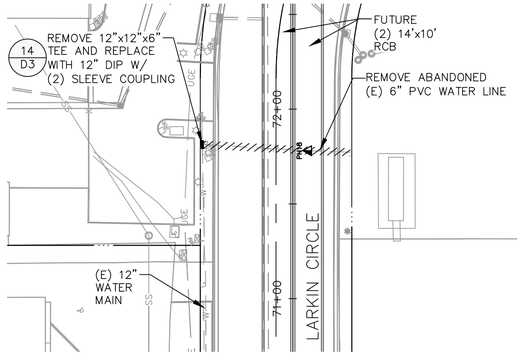

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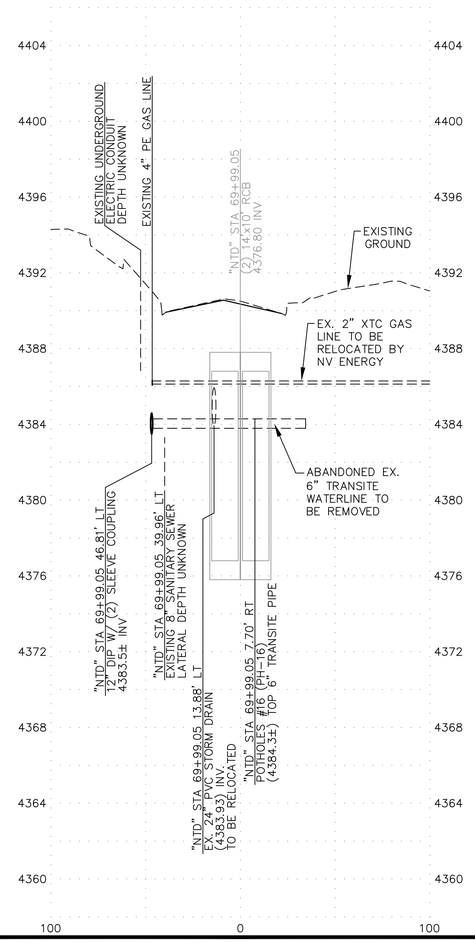

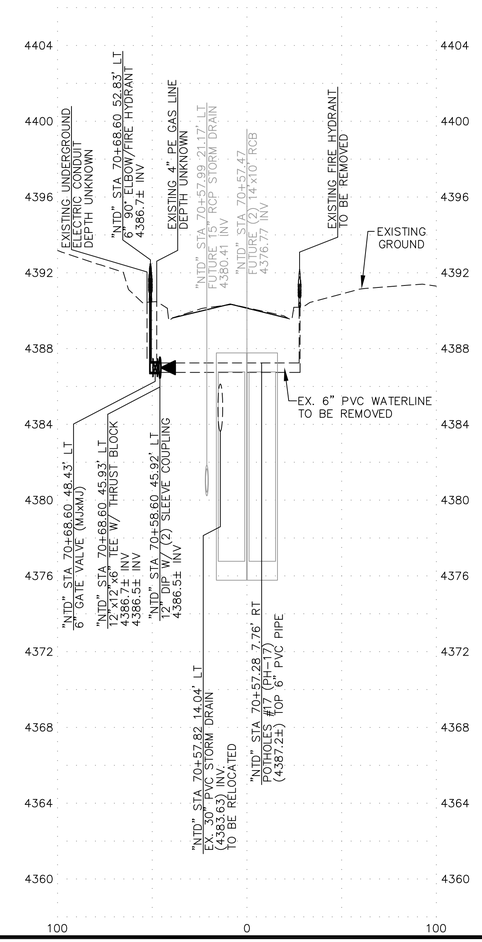

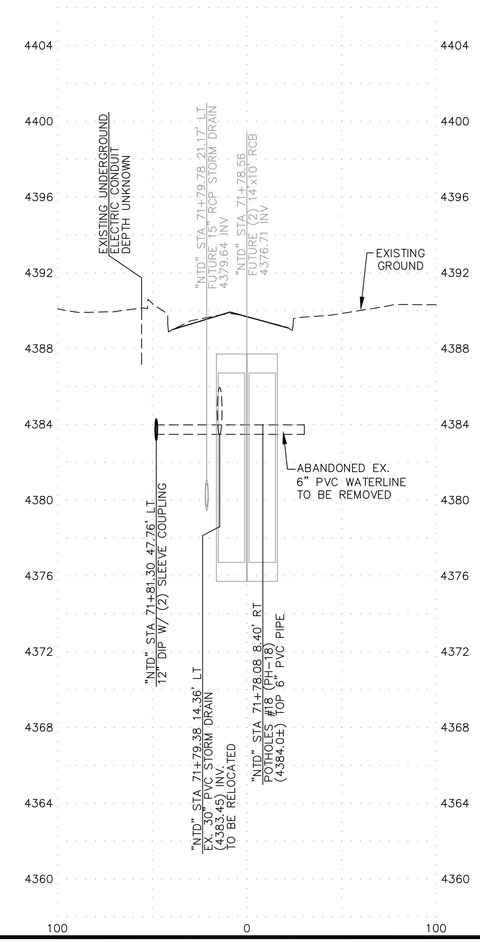

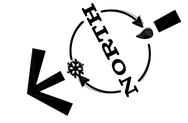

HORIZ. SCALE: 1"=40'
40 0 20 40 80

VERT. SCALE: 1"=4'
4 0 2 4 8

2 working days Call before you Dig. 1-800-227-2600

FOR TMWA USE ONLY NEW BUSINESS WATER			
WO#		Map #	
New Main			
Date Installed:		Depth:	
Pressure Test Date:			
PSI		Hours Tested:	
Inspector:			
Contractor:			
Feet Laid	Size	Type	Main/Svc
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Feet Ret.	Size	Type	Main/Svc
# of Meter boxes Inst./Size:			
# of Setters Inst./Size:			

WORK ORDER NO.
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TRUCKEE MEADOWS WATER AUTHORITY
1355 CAPITAL BLVD. / P.O. BOX 30013
RENO, NEVADA 89520-3013
PH: 775-834-8000 / FX: 775-834-8003

NORTH TRUCKEE DRAIN REALIGNMENT PHASE 1
CITY OF SPARKS, WASHOE COUNTY, NEVADA
PLAN AND PROFILE

SHEET NUMBER
P4
7 OF 11

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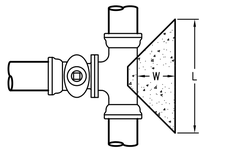
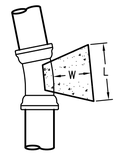
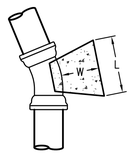


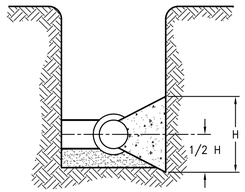
TEE / TAPPING SLEEVE PLAN VIEW



11.25° ELBOW PLAN VIEW

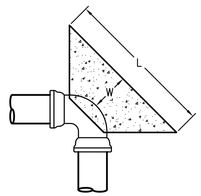


22.5° ELBOW PLAN VIEW



TYPICAL SECTION VIEW

45° ELBOW PLAN VIEW



90° ELBOW PLAN VIEW

THRUST BLOCK DIMENSIONS																
TEE, TAP, OR DEAD END					11.25° ELBOW			22.5° ELBOW			45° ELBOW			90° ELBOW		
BRANCH SIZE (INCHES)	L (FEET)	H (FEET)	W MIN. (FEET)	ELBOW SIZE (INCHES)	L (FEET)	H (FEET)	W MIN. (FEET)	L (FEET)	H (FEET)	W MIN. (FEET)	L (FEET)	H (FEET)	W MIN. (FEET)	L (FEET)	H (FEET)	W MIN. (FEET)
4	1.5	1	1	4	1	1	1	1	1	1	1.5	1	1	2	1	1
6	2	2	1	6	1	1	1	1.5	1	1	2	1.5	1	2.5	2	1
8	3	2	1	8	1.5	1	1	1.5	1.5	1	2.5	2	1	4	2	1
10	3.5	2.5	1	10	2	1	1	2	2	1	3	2.5	1	5	2.5	1
12	4.5	3	1	12	2	1.5	1	2.5	2	1	4	2.5	1	6	3	1

THRUST BLOCK DESIGN CRITERIA:

THRUST BLOCK SIZES HAVE BEEN CALCULATED USING THE METHOD AND EQUATIONS PUBLISHED IN *THRUST RESTRAINT DESIGN FOR DUCTILE IRON PIPE, SIXTH EDITION 2006* BY THE DUCTILE IRON PIPE RESEARCH ASSOCIATION (DIPRA) UTILIZING THE FOLLOWING DESIGN PARAMETERS: DESIGN PRESSURE = 150 PSI (SEE NOTE #4 BELOW), SOIL BEARING CAPACITY = 2,000 PSF (SEE NOTE #4 BELOW), SAFETY FACTOR = 1.5, AND NOMINAL PIPE DIAMETER

THRUST BLOCK NOTES:

1. CONCRETE FOR THRUST BLOCKS SHALL HAVE A MINIMUM 28-DAY COMPRESSIVE STRENGTH OF 3,000 PSI. REFERENCE SECTION 1.1.13 OF THE TRUCKEE MEADOWS WATER AUTHORITY ENGINEERING & CONSTRUCTION STANDARDS FOR ADDITIONAL REQUIREMENTS. BAG CONCRETE MIX IS NOT ACCEPTABLE.
2. ALL FITTINGS SHALL BE WRAPPED WITH POLYETHYLENE WRAP PER AWWA C105. MASTIC (BRUSH-ON) SHALL BE APPLIED TO ALL BOLTS, ETC.
3. THRUST BLOCKS SHALL BE POURED AGAINST UNDISTURBED SOIL. IN CASES WHERE THIS IS NOT PRACTICAL, BACKFILL AREA BEHIND WHERE THRUST BLOCK WILL BE POURED WITH TYPE 2, CLASS B AGGREGATE BASE (PER SECTION 200.01.03 OF THE STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION – ORANGE BOOK) COMPACTED TO 95% MAXIMUM DRY DENSITY AT OPTIMUM MOISTURE CONTENT AS DETERMINED BY PROCEDURES SET FORTH IN ASTM D 1557, CUT-BACK COMPACTED AGGREGATE BASE TO EXPOSE A FIRM SURFACE, THEN POUR THRUST BLOCK.
4. FOR SOIL BEARING CAPACITY LESS THAN 2,000 PSF AND/OR DESIGN PRESSURE IN EXCESS OF 150 PSI, INCREASE THRUST BLOCK BEARING AREAS ACCORDINGLY. REVISED THRUST BLOCK SCHEDULE FOR SPECIFIC CONDITIONS SHALL BE SUBMITTED BY THE DESIGN ENGINEER.

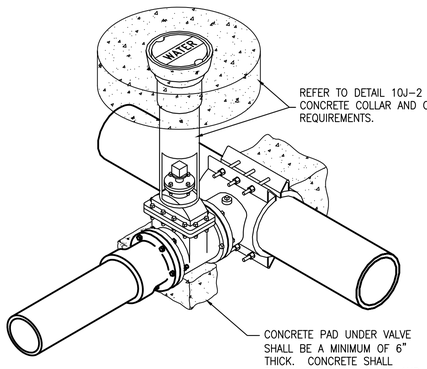
THRUST BLOCKS - TMWA DRAWING 10L-2

1 / –

N.T.S.

MATERIAL LIST

QTY	DESCRIPTION
1	FL x FL RESILIENT WEDGE GATE VALVE WITH 2" OPERATING NUT (SIZE TO MATCH TAP DIAMETER)
1	TAPPING SLEEVE (STAINLESS STEEL FLANGE)
1	FL x PO ADAPTER
1	6" ø SDR-35 PVC CONDUIT PIPE SECTION
1	6" ø CAST IRON VALVE BOX WITH COVER MARKED "WATER"
1	FULL FACE GASKET
1	CONCRETE BULK
1	MASTIC (1 GALLON CAN – BRUSH ON)



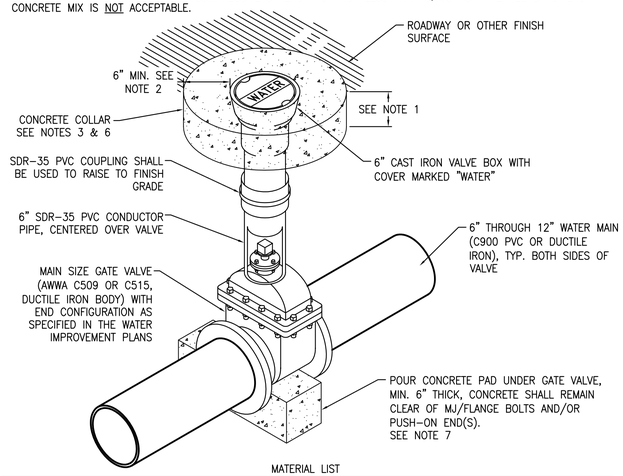
NOTES:
1. REQUIRES ONE (1) TAPPING SLEEVE. REFER TO 10D-2.
2. WHEN TAPPING STEEL OR OD STEEL BACKING PLATE MUST BE DESIGNED BY ENGINEER. WHEN TAPPING OD STEEL SIZE ON SIZE, REDUCE TAP ONE SIZE THEN BELL UP AFTER TAP.
3. REFER TO DETAIL 10L-2 FOR THRUST BLOCK SIZING. BAG CONCRETE IS NOT ACCEPTABLE FOR PAD OR THRUST BLOCK. CONCRETE SHALL HAVE A MINIMUM 28 DAY COMPRESSIVE STRENGTH OF 3,000 PSI.
4. ALL EXPOSED METAL MUST BE COATED WITH BRUSH ON MASTIC.
5. REMOVE TEST PLUG AND HYDROSTATICALLY PRESSURE TEST TAPPING SLEEVE NOT TO EXCEED MANUFACTURER'S PRESSURE RATING, APPLY PIPE COMPOUND, AND REINSERT PLUG.
6. VALVE SHALL BE BLIND FLANGED AND PRESSURE TESTED AT TIME OF TAPPING SLEEVE PRESSURE TEST.
7. TAP SHALL BE A MINIMUM OF 24" FROM THE CUT OR SPIGOT END OF THE PIPE OR THE PIPE TO BELL TRANSISTION.

STANDARD TAP 4" TO 12" TMWA DRAWING 10D-3

4 / –

N.T.S.

NOTES:
1. CONCRETE COLLAR SHALL BE MINIMUM 6-INCHES THICK OR MATCH PAVEMENT THICKNESS, WHICHEVER IS GREATER, UNLESS OTHERWISE SPECIFIED BY THE JURISDICTIONAL AGENCY RESPONSIBLE FOR THE ROADWAY.
2. FOR MULTIPLE VALVE/RISER BOXES IN CLOSE PROXIMITY, A MONOLITHIC CONCRETE COLLAR MAY BE POURED.
3. CONTRACTOR AND/OR DESIGN ENGINEER SHALL CONSULT WITH THE JURISDICTIONAL AGENCY RESPONSIBLE FOR THE ROADWAY FOR REQUIREMENTS THAT MAY VARY FROM THIS STANDARD PRIOR TO CONSTRUCTION.
4. ALL BOLTS AND EXPOSED METAL SHALL BE COATED WITH BRUSHED-ON MASTIC.
5. GATE VALVE, DUCTILE IRON PIPE, AND OTHER METAL PARTS SHALL BE ENCASED WITH POLYETHYLENE WRAP PER AWWA C105.
6. UNLESS OTHERWISE SPECIFIED BY THE JURISDICTIONAL AGENCY RESPONSIBLE FOR THE ROADWAY, PORTLAND CEMENT CONCRETE (P.C.C.) FOR CONCRETE COLLAR SHALL HAVE THE FOLLOWING CHARACTERISTICS: 4,000 PSI MINIMUM COMPRESSIVE STRENGTH AT 28 DAYS, MINIMUM 6 SACKS OF CEMENT PER CUBIC YARD WITH A MAXIMUM WATER/CEMENT RATIO OF 0.45, AIR ENTRAINMENT 6% ±1.5%, SLUMP AT 1 TO 4 INCHES. BAG CONCRETE MIX IS NOT ACCEPTABLE.
7. CONCRETE FOR PAD SHALL HAVE A COMPRESSIVE STRENGTH OF NOT LESS THAN 3,000 PSI AFTER 28 DAYS. BAG CONCRETE MIX IS NOT ACCEPTABLE.



MATERIAL LIST

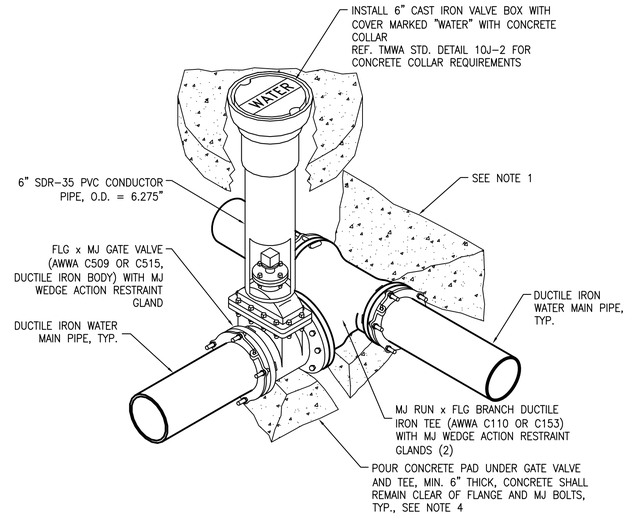
QTY	DESCRIPTION
1	MAIN SIZE GATE VALVE (AWWA C509 OR C515, DUCTILE IRON BODY) WITH END CONFIGURATION AS SPECIFIED IN THE WATER IMPROVEMENT PLANS
1	MASTIC (1 GALLON CAN – BRUSH ON)
1	6" ø SDR-35 PVC CONDUCTOR PIPE SECTION
1	6" ø CAST IRON VALVE BOX WITH COVER MARKED "WATER"
1	FULL FACE GASKET
1	CONCRETE BULK – PAD AND COLLAR

IN-LINE GATE VALVE TMWA DRAWING 10J-2

2 / –

N.T.S.

NOTES:
1. REFERENCE TMWA STANDARD DETAIL 10L-2 FOR THRUST BLOCK SIZING AND REQUIREMENTS.
2. ALL BOLTS AND EXPOSED METAL SHALL BE COATED WITH BRUSHED-ON MASTIC.
3. TEE, VALVES, FITTINGS, DUCTILE IRON PIPE AND OTHER METAL PARTS SHALL BE ENCASED WITH POLYETHYLENE WRAP PER AWWA C105.
4. CONCRETE FOR PADS SHALL HAVE A COMPRESSIVE STRENGTH OF NOT LESS THAN 3,000 PSI AFTER 28 DAYS. BAG CONCRETE MIX IS NOT ACCEPTABLE.



MATERIAL LIST

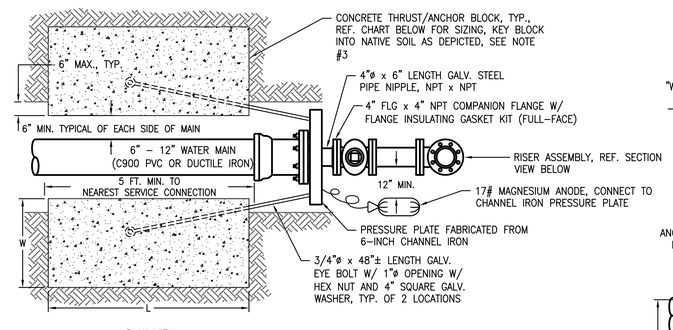
QTY.	DESCRIPTION
1	MJ RUN x FLG BRANCH DUCTILE IRON TEE (AWWA C110 OR C153)
1	FLG x MJ GATE VALVE WITH DUCTILE IRON BODY (AWWA C509 OR C515)
3	MJ WEDGE ACTION RESTRAINT GLAND
1	6" CAST IRON VALVE BOX WITH COVER MARKED "WATER"
1	6" SDR-35 PVC CONDUCTOR PIPE SECTION, O.D. = 6.275"
–	CONCRETE BULK – THRUST BLOCKS, PADS, COLLARS

DISTRIBUTION BRANCH INSTALLATIONS - TMWA DRAWING 10B-4

3 / –

N.T.S.

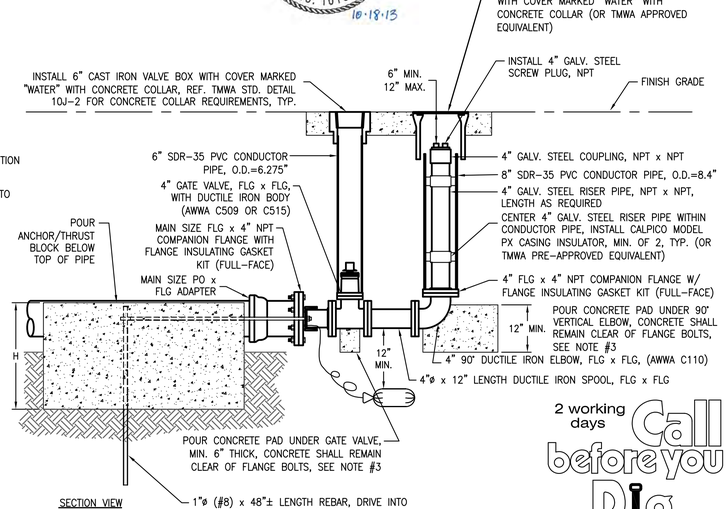
NOTES:
1. ALL BOLTS, EXPOSED METAL, AND STEEL PIPING SHALL BE COATED WITH BRUSHED-ON MASTIC.
2. VALVE, FITTINGS, DUCTILE IRON PIPE, AND OTHER METAL PARTS SHALL BE ENCASED WITH POLYETHYLENE WRAP PER AWWA C105.
3. CONCRETE FOR PADS AND THRUST/ANCHOR BLOCKS SHALL HAVE A COMPRESSIVE STRENGTH OF NOT LESS THAN 3,000 PSI AFTER 28 DAYS. BAG CONCRETE MIX IS NOT ACCEPTABLE.



PLAN VIEW

MAIN SIZE	THRUST/ANCHOR BLOCK SIZING		
	LENGTH (L)	WIDTH (W)	HEIGHT (H)
6"	2 FEET	2 FEET	1 FOOT
8"	3 FEET	2 FEET	1-1/2 FEET
10"	3 FEET	2-1/2 FEET	2 FEET
12"	3 FEET	3 FEET	2-1/2 FEET

REF. TMWA STD. DETAIL 10L-2 FOR THRUST/ANCHOR BLOCK SIZING DESIGN CRITERIA



TYPE "A" FLUSH ASSEMBLY FOR MAIN SIZES 6" TO 12" TMWA DRAWING 10E-2

5 / –

N.T.S.

PROFESSIONAL ENGINEER STATE OF NEVADA
NOEL C. LAUGHLIN
Exp: 12-31-13
CIVIL
No. 10155
10-18-13

2 working days Call before you Dig. 1-800-227-2600

WORK ORDER NO. ____
DESIGNED JKB
DRAWN KDG
DATE 10/18/13
CHECKED ____
SUBMITTED 10/21/13
RECOMMENDED ____
APPROVED ____

TRUCKEE MEADOWS WATER AUTHORITY
1355 CAPITAL BLVD. / PO BOX 30013
RENO, NEVADA 89520-3013
PH: 775-834-8000 / FX: 775-834-8003

NORTH TRUCKEE DRAIN REALIGNMENT PHASE 1
CITY OF SPARKS, WASHOE COUNTY, NEVADA
CONSTRUCTION DETAILS 1

SHEET NUMBER
D1
8 OF 11

C:\pwworking\phx\d0329883\TMWA_D1.dwg Oct 21, 2013 - 2:02pm

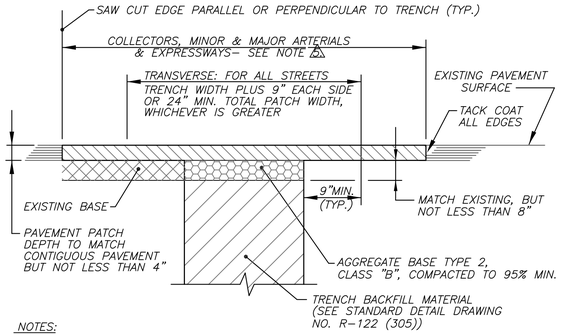
TAP SIZE – FLANGED BRANCH							
MAIN SIZE	VENDOR	MAIN TYPE	4"	6"	8"	10"	12"
4"	SM ROM	DI/CI PVC	663-04800400-200 SST-4.90 x 4" FL				
6"	SM ROM	DI/CI PVC	663-06630400-000 SST-7.00 x 4" FL	663*06630600-200 SST-7.00 x 6" FL			
	SM ROM	TR	663-(OD)400-000 SST-(OD) x 4" FL	663-(OD)0600-200 SST-(OD) x 6" FL			
8"	SM ROM	DI/CI PVC	663-09050400-000 SST-9.06 x 4" FL	663-09050600-000 SST-9.06 x 6" FL	663-09050800-200 SST-9.06 x 8" FL		
	SM ROM	TR	663-(OD)0400-000 SST-(OD) x 4" FL	663-(OD)0600-000 SST-(OD) x 6" FL	663-(OD)0800-200 SST-(OD) x 8" FL		
	SM ROM	SCH 40 STEEL	663-08630400-000 SST-8.63 x 4" FL	663-08630600-000 SST-8.63 x 6" FL	663-08630800-200 SST-8.63 x 8" FL		
10"	SM ROM	DI/CI PVC	663-11100400-000 SST-11.45 x 4" FL	663-11100600-000 SST-11.45 x 6" FL	663-11100800-000 SST-11.45 x 8" FL	663-11101000-200 SST-11.45 x 10" FL	
	SM ROM	TR	663-(OD)0400-000 SST-(OD) x 4" FL	663-(OD)0600-000 SST-(OD) x 6" FL	663-(OD)0800-000 SST-(OD) x 8" FL	66.-(OD)1000-200 SST-(OD) x 10" FL	
	SM ROM	SCH 40 STEEL	663-10750400-000 SST-11.13 x 4" FL	663-10750600-000 SST-11.13 x 6" FL	663-10750800-000 SST-11.13 x 8" FL	663-10751000-200 SST-11.13 x 10" FL	
12"	SM ROM	DI/CI PVC	663-10750400-000 SST-13.30 x 4" FL	663-13200600-000 SST-13.30 x 6" FL	663-13200800-000 SST-13.30 x 8" FL	663-13201000-000 SST-13.30 x 10" FL	663-13201200-200 SST-13.30 x 12" FL
	SM ROM	TR	663-(OD)0400-000 SST-(OD) x 4" FL	663-(OD)0600-000 SST-(OD) x 6" FL	663-(OD)0800-00004 SST-(OD) x 8" FL	663-(OD)1000-000 SST-(OD) x 10" FL	663-(OD)1200-200 SST-(OD) x 12" FL
	SM ROM	SCH 40 STEEL	663-12750400-000 SST-12.85 x 4" FL	663-12750600-000 SST-12.85 x 6" FL	663-12750800-000 SST-12.85 x 8" FL	663-12751000-000 SST-12.85 x 10" FL	663-12751200-200 SST-12.85 x 12" FL

NOTES:
1. MAXIMUM TEST PRESSURE IS 300 PSI FOR LISTED MANUFACTURERS.
2. FLANGES (FL) SHALL BE STAINLESS STEEL ASTM A 240, TYPE 304.
3. VENDOR (MANUFACTURER): SM = SMITH–BLAIR, ROM = ROMAC INDUSTRIES
4. (OD) = PIPE OUTSIDE DIAMETER. CHECK WITH MANUFACTURER FOR CATALOG NUMBER FOR OTHER SIZES.
5. FOR TAPS ON TRANSITE MAINS OD MUST BE FIELD MEASURED PRIOR TO ORDERING PARTS.

DISTRIBUTION TAP INSTALLATION WATER TAPPING SLEEVES TMWA DRAWING 10D-2

6

N.T.S.

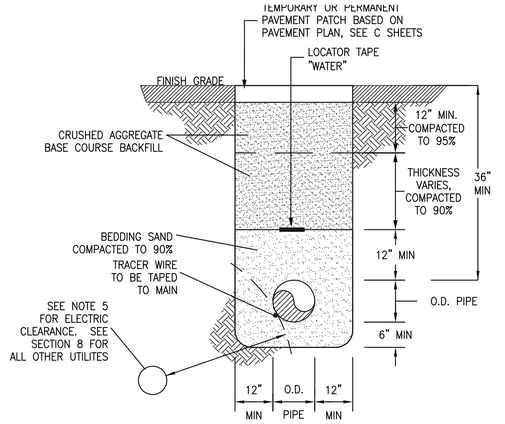


NOTES:
1. A PERMIT MUST BE OBTAINED FROM THE CITY ENGINEER PRIOR TO CUTTING ANY PUBLIC RIGHT–OF–WAY. 24 HOURS PRIOR TO TRENCH EXCAVATION, THE PERMITTEE MUST NOTIFY THE CITY EXCAVATION PERMIT INSPECTOR OR APPLICABLE ENGINEER OF RECORD.
2. ALL PERMANENT PATCH WORK SHALL BE THE RESPONSIBILITY OF THE CITY OF RENO, UNLESS OTHERWISE AUTHORIZED BY THE CITY.
3. IF SAW CUT IS WITHIN 2 FEET OF AN EXISTING PAVEMENT EDGE OR EXISTING PAVEMENT PATCH, REMOVE EXISTING PAVEMENT TO THAT EDGE AND REPLACE ENTIRE SECTION.
4. ALL A.C. REPLACEMENT REQUIREMENTS ARE MINIMUM WIDTHS ONLY. THE CITY ENGINEER MAY REQUIRE WIDER PATCH SECTIONS OR OTHERWISE ALTER THESE REQUIREMENTS.
2. LONGITUDINAL TRENCH PATCH WIDTH: FOR COLLECTORS, MINOR AND MAJOR ARTERIALS AND EXPRESSWAYS: IF SAW CUT EDGES FOR LONGITUDINAL OR TRANSVERSE EXCAVATIONS FALL WITHIN A TRAVEL LANE, SAW CUT SHALL BE EXTENDED TO, AND REMOVAL MADE TO EDGE OF THE TRAVEL LANE, OR THE FULL DEPTH PATCH SHALL BE MADE PER THE SPECIFICATIONS FOR TRANSVERSE PATCHES AND THE ENTIRE TRAVEL LANE ROTOMILLED TO A DEPTH OF TWO INCHES AND OVERLAYED WITH TWO INCHES OF BITUMINOUS PLANTMIX AS DIRECTED BY THE ENGINEER.
6. EDGE OF 4" ROCK WHEEL TRENCHES FOR CONDUIT SHALL BE LOCATED A MINIMUM OF 9" FROM GUTTER LIP AND SHALL BE PATCHED AS PER THE ABOVE DETAIL.
7. AGGREGATE BASE AND BITUMINOUS PAVEMENT SHALL BE IN ACCORDANCE WITH STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION, LATEST REVISION.
8. CONTRACTOR SHALL BE RESPONSIBLE FOR REPLACEMENT OF LOOP DETECTORS, ADJUSTMENT OF UTILITIES AND SURVEY MONUMENTS TO GRADE AND INSTALLATION OF TEMPORARY PAVEMENT MARKERS.
9. FOR P.C.C. CURB REPLACEMENT, SAW CUT EXISTING PAVEMENT 18 INCHES MIN. FROM GUTTER LIP LINE, REMOVE AND REPLACE PAVEMENT TO SAW CUT EDGES. CONCRETE MAY BE POURED NEAT AGAINST EXISTING EDGE OF ASPHALT IF APPROVED BY CITY ENGINEER.

PERMANENT BITUMINOUS PAVEMENT PATCH DETAIL

7

N.T.S.



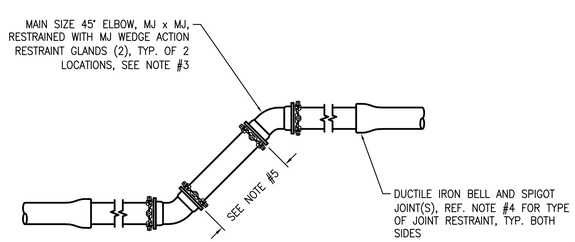
NOTES:
1. ALL TRENCHES MUST CONFORM TO APPLICABLE TMWA, CITY, STATE, COUNTY, AND OSHA SPECIFICATIONS AND REQUIREMENTS. IN THE CASE OF CONFLICT, THE MORE RIGID SPECIFICATION OR STANDARD SHALL APPLY.
2. BEDDING SAND SHALL BE COMPACTED TO 90% MAXIMUM DENSITY PER SECTION 5.05.03 AND SHALL BE A MINIMUM OF 12" ABOVE AND 6" BELOW THE MAIN. PER SECTION 5 OF TMWA STANDARDS.
3. CRUSHED AGGREGATE BASE COURSE BACKFILL SHALL BE PLACED IN 12" MAXIMUM LOOSE LIFTS. THE TOP 12" SHALL BE COMPACTED TO 95% MAXIMUM DENSITY. THE AREA ABOVE THE BEDDING SAND & BELOW 12" FROM FINISH GRADE SHALL BE COMPACTED TO 90% MAXIMUM DENSITY. PER SECTION 5 OF TMWA STANDARDS.
4. NON–METALLIC BLUE WARNING TAPE SHALL BE PLACED IN ALL TRENCHES AT LEAST 12" ABOVE THE WATER MAIN. METALLIC WARNING TAPE MUST BE UTILIZED WITH WATER FACILITIES WHEN THERE IS NO OTHER DETECTABLE MEANS AVAILABLE.
5. ELECTRIC UTILITIES MUST BE LOCATED BELOW WATER & MAINTAIN 2' MINIMUM RADIAL CLEARANCE FROM TMWA WATER FACILITIES. IF 2' RADIAL CLEARANCE CAN NOT BE MET ELECTRIC CONDUIT MUST BE CONCRETE ENCASED AT LEAST 18" EACH SIDE OF WATER CROSSING. FIBER OPTIC AND/OR COMMUNICATION CONDUITS SHALL NOT BE PLACED IN THE SAME TRENCH AS WATER. COORDINATE LOCATIONS WITH NV ENERGY.
6. ALL CHANGES MUST BE APPROVED BY THE TMWA INSPECTOR AND/OR THE TMWA ENGINEER.
7. SEPARATION FOR PIPES IN A JOINT TRENCH SHALL BE A MINIMUM OF 12".

TRENCH DETAIL - WATER ONLY - TMWA DRAWING 10L-6

8

N.T.S.

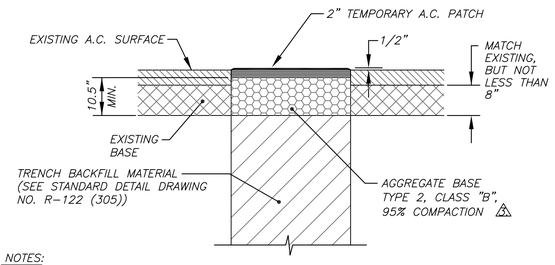
NOTES:
1. REFERENCE TMWA ENGINEERING & CONSTRUCTION STANDARDS SECTIONS 7, 8, AND/OR 8A FOR UTILITY SEPARATION REQUIREMENTS.
2. ALL RESTRAINED JOINT PIPING SHALL BE DUCTILE IRON PIPE (RJ–DIP).
3. RESTRAINED JOINT FITTINGS SHALL BE MECHANICAL JOINT (MJ) DUCTILE IRON RESTRAINED WITH MECHANICAL JOINT WEDGE ACTION RESTRAINT GLANDS.
4. BELL AND SPIGOT PUSH–ON JOINTS SHALL BE RESTRAINED USING RUBBER GASKETS WITH STAINLESS STEEL LOCKING SEGMENTS VULCANIZED INTO THE RUBBER GASKET.
5. PIPING BETWEEN ELBOWS MUST ALSO BE RESTRAINED.
6. ALL BOLTS AND EXPOSED METAL SHALL BE COATED WITH BRUSHED–ON MASTIC.
7. FITTINGS, DUCTILE IRON PIPE, AND OTHER METAL PARTS SHALL BE ENCASED WITH POLYETHYLENE WRAP PER AWWA C105.



RESTRAINED JOINT SINGLE OFFSET FOR MAINS 6" TO 12" - TMWA DRAWING 10I-4

9

N.T.S.



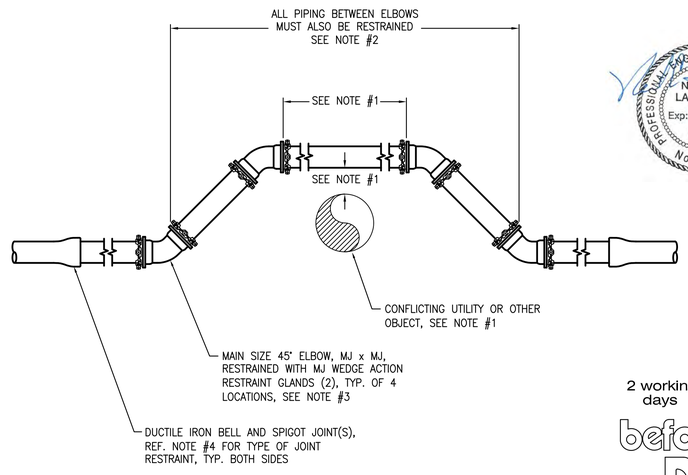
NOTES:
1. PRIOR TO EXCAVATION, THE OUTLINE OF THE TRENCH SHALL BE VERTICALLY CUT FULL DEPTH THROUGH THE EXISTING ASPHALT SURFACE WITH A SAW, OR AN ASPHALT SPADE OR EQUIPMENT APPROVED BY THE CITY ENGINEER.
2. CARE SHALL BE EXERCISED TO PREVENT SLOUGHING AND OVERBREAK. IF THE TRENCH SLOUGHS, THE SURFACE SHALL BE WIDENED TO ELIMINATE THE UNDERMINED SECTION OF ASPHALT.
1. TYPE 2, CLASS "B", AGGREGATE BASE SHALL BE COMPACTED TO A THICKNESS OF AT LEAST 10 1/2" OR A DEPTH OF 8" BELOW THE BOTTOM OF THE EXISTING PAVEMENT, WHICHEVER IS GREATER.
4. A TEMPORARY PATCH OF COLD MIX ASPHALT CONCRETE SHALL BE PLACED AND COMPACTED. THE COMPACTED PATCH SHALL BE APPROXIMATELY 1/8" TO 1/4" ABOVE THE LEVEL OF THE ADJACENT PAVEMENT. IF NOT PATCHED WITHIN 24 HOURS AFTER BACKFILLING, THE CITY MAY PATCH AND BACK–CHARGE THE PERMITTEE FOR ALL COSTS.
5. COMPACTION OF BACKFILL, BASE AND A.C. TEMPORARY PATCH SHALL BE PERFORMED WITH APPROVED MECHANICAL TAMPERS. EQUIPMENT WHEEL ROLLING IS NOT PERMITTED.
6. ENTIRE AREA SHALL BE CLEANED OF ALL DIRT, DUST, DEBRIS, ETC. BEFORE LEAVING SITE. ANY SITE LEFT UNCLEANED WILL BE CLEANED BY THE CITY AND ALL COSTS BACK–CHARGED TO THE PERMITTEE.
7. A PERMIT MUST BE OBTAINED FROM THE CITY ENGINEER PRIOR TO CUTTING ANY PUBLIC RIGHT–OF–WAY. 24 HOURS PRIOR TO TRENCH EXCAVATION, THE PERMITTEE MUST NOTIFY THE CITY EXCAVATION PERMIT INSPECTOR OR APPLICABLE ENGINEER OF RECORD.
8. ALL EXCAVATIONS SHALL BE COMPLETE OR BACKFILLED AT THE END OF THE DAY OR COVERED WITH PLATING AS APPROVED BY THE EXCAVATION PERMIT INSPECTOR OR APPLICABLE ENGINEER OF RECORD.
9. TEMPORARY PATCH WORK AND PATCH MAINTENACE SHALL BE THE RESPONSIBILITY OF THE PERMITTEE.

TEMPORARY A.C. PATCH DETAIL

10

N.T.S.

NOTES:
1. REFERENCE TMWA ENGINEERING & CONSTRUCTION STANDARDS SECTIONS 7, 8, AND/OR 8A FOR UTILITY SEPARATION REQUIREMENTS.
2. ALL RESTRAINED JOINT PIPING SHALL BE DUCTILE IRON PIPE (RJ–DIP).
3. RESTRAINED JOINT FITTINGS SHALL BE MECHANICAL JOINT (MJ) DUCTILE IRON RESTRAINED WITH MECHANICAL JOINT WEDGE ACTION RESTRAINT GLANDS.
4. BELL AND SPIGOT PUSH–ON JOINTS SHALL BE RESTRAINED USING RUBBER GASKETS WITH STAINLESS STEEL LOCKING SEGMENTS VULCANIZED INTO THE RUBBER GASKET.
5. ALL BOLTS AND EXPOSED METAL SHALL BE COATED WITH BRUSHED–ON MASTIC.
6. FITTINGS, DUCTILE IRON PIPE, AND OTHER METAL PARTS SHALL BE ENCASED WITH POLYETHYLENE WRAP PER AWWA C105.



RESTRAINED JOINT VERTICAL OFFSET OVER UTILITY/OBJECT - TMWA DRAWING 10I-3

11

N.T.S.

PROFESSIONAL ENGINEER – STATE OF NEVADA
NOEL C. LAUGHLIN
Exp: 12-31-13
CIVIL
No. 10165
10-18-13

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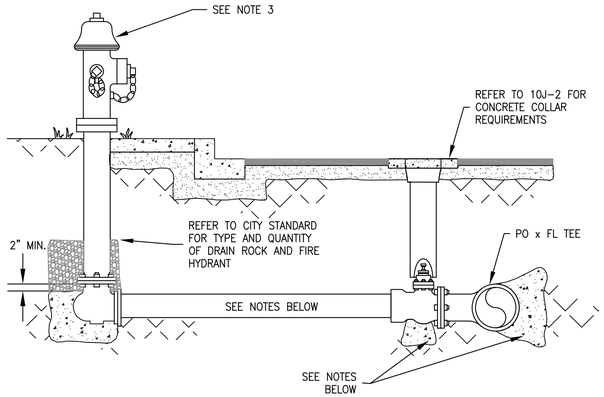
WORK ORDER NO. ____
DESIGNED JKB
DRAWN KDG
DATE 10/18/13
CHECKED ____
SUBMITTED 10/21/13
RECOMMENDED ____
APPROVED ____

TRUCKEE MEADOWS WATER AUTHORITY
1355 CAPITAL BLVD. / PO BOX 30013
RENO, NEVADA 89520-3013
PH: 775-834-8000 / FX: 775-834-8003

NORTH TRUCKEE DRAIN REALIGNMENT PHASE 1
CITY OF SPARKS, WASHOE COUNTY, NEVADA
CONSTRUCTION DETAILS 2

SHEET NUMBER
D2
9 OF 11

C:\pwworking\phx\d0329883\TMWA_D2.dwg Oct 21, 2013 - 2:03pm



NOTES:
1. 6" DUCTILE IRON OR PVC PIPE (CLASS 235 MIN.) LENGTH TO BE DETERMINED BY ENGINEER. REFER TO JURISDICTIONAL AGENCY'S ADOPTED FIRE CODE FOR MATERIAL TYPE. POLYETHYLENE WRAP TO BE USED ON ALL DUCTILE IRON PIPE AND FITTINGS PER AWWA C105.
2. KEEP A MINIMUM OF 2" CLEARANCE BETWEEN FLANGES/BOLTS AND CONCRETE.
3. LOCATION OF FIRE HYDRANT TO BE DETERMINED BY APPROPRIATE GOVERNMENTAL FIRE AGENCY. FIRE HYDRANT AND BARREL EXTENSION TO BE SUPPLIED BY OTHERS.
4. FOR FIRE HYDRANT LATERALS THAT TERMINATE WITHIN 150' OF WATER MAIN.
5. REFER TO JURISDICTIONAL AGENCY'S ADOPTED FIRE CODE FOR PIPE MATERIAL AND TYPE OF FIRE HYDRANT.
6. ALL EXPOSED METAL MUST BE COATED AND WRAPPED.
7. REFER TO CITY STANDARDS OR APPENDIX 10L FOR THRUST BLOCK REQUIREMENTS. USE THE MOST CONSERVATIVE.

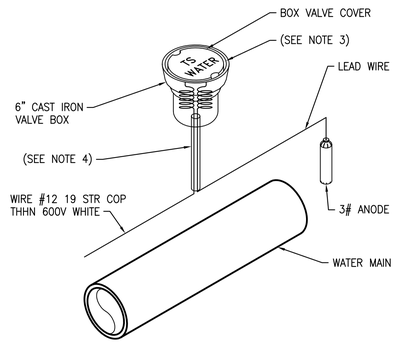
MATERIAL LIST

QTY	DESCRIPTION
1	6" FL X PO RESILIENT WEDGE GATE VALVE WITH 2" OPERATING NUT.
1	6" ø VALVE BOX, RISER AND COVER MARKED "WATER"
1	DUCTILE IRON TEE, PO X FL SIZE BASED ON MAIN SIZE.

6" FIRE HYDRANT SERVICE OFF NEW MAINS FOR LATERALS LESS THAN 150' TMWA DRAWING 10F-2

12

N.T.S.



NOTES:
1. TRACER STATIONS (TS) WILL BE A MAXIMUM OF 500 FT. APART
2. A 3# ANODE WILL BE ATTACHED ON THE TRACER WIRE.
3. STEEL VALVE BOX LIS TO BE MARKED BY WELDING "TS" FOR TEST STATION. TEST LEAD WIRE TO BE LONG ENOUGH TO EXTEND ONE FOOT ABOVE GROUND LEVEL AND SHALL TERMINATE IN VALVE BOX.
4. USE 3/4" PVC OR PE AS A LEAD WIRE CONDUCTOR PIPE PLACED APPROXIMATELY 6" ABOVE CARRIER PIPE AND INTO TEST STATION BOX.

TEST STATION DETAIL

15

N.T.S.

NOTES:
1. COUPLINGS SHALL BE HYMAX 2000 SERIES COUPLINGS AS MANUFACTURED BY TOTAL PIPING SOLUTIONS, INC. OR TMWA APPROVED EQUIVALENT.
2. SNAP MACHINED END OFF TRANSITE (AC) PIPE TO EXPOSE ROUGH BARREL. INSTALL COUPLING ON ROUGH BARREL SECTION OF TRANSITE PIPE.
3. FIELD MEASURE ACTUAL PIPE O.D. PRIOR TO ORDERING COUPLING. FOR OTHER TYPES OF PIPE NOT LISTED IN THE CHARTS BELOW AND/OR PIPE O.D.'S WHICH MAY DIFFER FROM THOSE LISTED BELOW, CONSULT MANUFACTURER'S SIZING CHART.

TYPE OF PIPE	6" C900 PVC (C900) 6" DUCTILE IRON (DI)		6" TRANSITE (AC) ROUGH BARREL CLASS 100/150/200	
6" C900 PVC (C900) 6" DUCTILE IRON (DI)	HYMAX COUPLING PART NO. 2000-0768-260	LOW RANGE (C900, DI) 6.42 – 7.05 LOW RANGE (C900, DI) 6.42 – 7.05	HYMAX COUPLING PART NO. 2000-0768-260	HIGH RANGE (AC) 7.01 – 7.68 LOW RANGE (C900, DI) 6.42 – 7.05
6" TRANSITE (AC) ROUGH BARREL CLASS 100/150/200	HYMAX COUPLING PART NO. 2000-0768-260	LOW RANGE (C900, DI) 6.42 – 7.05 HIGH RANGE (AC) 7.01 – 7.68	HYMAX COUPLING PART NO. 2000-0768-260	HIGH RANGE (AC) 7.01 – 7.68 HIGH RANGE (AC) 7.01 – 7.68

TYPE OF PIPE	8" C900 PVC (C900) 8" DUCTILE IRON (DI)		8" TRANSITE (AC) ROUGH BARREL CLASS 100/150/200	
8" C900 PVC (C900) 8" DUCTILE IRON (DI)	HYMAX COUPLING PART NO. 2000-0984-260	LOW RANGE (C900, DI) 8.54 – 9.17 LOW RANGE (C900, DI) 8.54 – 9.17	HYMAX COUPLING PART NO. 2000-0984-260	HIGH RANGE (AC) 9.13 – 9.84 LOW RANGE (C900, DI) 8.54 – 9.17
8" TRANSITE (AC) ROUGH BARREL CLASS 100/150/200	HYMAX COUPLING PART NO. 2000-0984-260	LOW RANGE (C900, DI) 8.54 – 9.17 HIGH RANGE (AC) 9.13 – 9.84	HYMAX COUPLING PART NO. 2000-0984-260	HIGH RANGE (AC) 9.13 – 9.84 HIGH RANGE (AC) 9.13 – 9.84

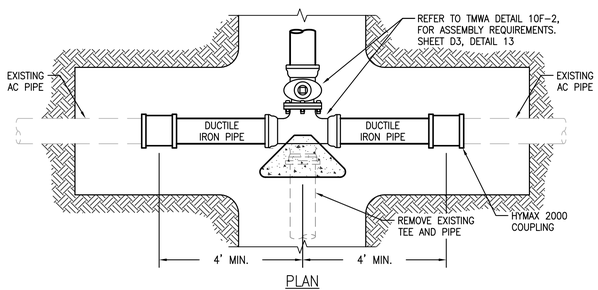
TYPE OF PIPE	10" C900 PVC (C900) 10" DUCTILE IRON (DI)		10" TRANSITE (AC) ROUGH BARREL CLASS 100/150		10" TRANSITE (AC 200) ROUGH BARREL – CLASS 200	
10" C900 PVC (C900) 10" DUCTILE IRON (DI)	HYMAX COUPLING PART NO. 2000-1226-260	LOW RANGE (C900, DI) 10.96 – 11.63 LOW RANGE (C900, DI) 10.96 – 11.63	HYMAX COUPLING PART NO. 2000-1226-260	LOW RANGE (AC) 10.96 – 11.63 LOW RANGE (C900, DI) 10.96 – 11.63	HYMAX COUPLING PART NO. 2000-1226-260	HIGH RANGE (AC 200) 11.59 – 12.26 LOW RANGE (C900, DI) 10.96 – 11.63
10" TRANSITE (AC) ROUGH BARREL CLASS 100/150	HYMAX COUPLING PART NO. 2000-1226-260	LOW RANGE (C900, DI) 10.96 – 11.63 LOW RANGE (AC) 10.96 – 11.63	HYMAX COUPLING PART NO. 2000-1226-260	LOW RANGE (AC) 10.96 – 11.63 LOW RANGE (AC) 10.96 – 11.63	HYMAX COUPLING PART NO. 2000-1226-260	HIGH RANGE (AC 200) 11.59 – 12.26 LOW RANGE (AC) 10.96 – 11.63
10" TRANSITE (AC 200) ROUGH BARREL CLASS 200	HYMAX COUPLING PART NO. 2000-1226-260	LOW RANGE (C900, DI) 10.96 – 11.63 HIGH RANGE (AC 200) 11.59 – 12.26	HYMAX COUPLING PART NO. 2000-1226-260	LOW RANGE (AC) 10.96 – 11.63 HIGH RANGE (AC 200) 11.59 – 12.26	HYMAX COUPLING PART NO. 2000-1226-260	HIGH RANGE (AC 200) 11.59 – 12.26 HIGH RANGE (AC 200) 11.59 – 12.26

TYPE OF PIPE	12" C900 PVC (C900) 12" DUCTILE IRON (DI)		12" TRANSITE (AC) ROUGH BARREL CLASS 100/150/200	
12" C900 PVC (C900) 12" DUCTILE IRON (DI)	HYMAX COUPLING PART NO. 2000-1441-260	LOW RANGE (C900, DI) 13.15 – 13.78 LOW RANGE (C900, DI) 13.15 – 13.78	HYMAX COUPLING PART NO. 2000-1441-260	HIGH RANGE (AC) 13.74 – 14.41 LOW RANGE (C900, DI) 13.15 – 13.78
12" TRANSITE (AC) ROUGH BARREL CLASS 100/150/200	HYMAX COUPLING PART NO. 2000-1441-260	LOW RANGE (C900, DI) 13.15 – 13.78 HIGH RANGE (AC) 13.74 – 14.41	HYMAX COUPLING PART NO. 2000-1441-260	HIGH RANGE (AC) 13.74 – 14.41 HIGH RANGE (AC) 13.74 – 14.41

HYMAX 2000 SERIES COUPLING CHART TRANSITE, C900 PVC, DUCTILE IRON PIPE FOR MAIN SIZES 6" TO 12" - TMWA DRAWING 10C-2

13

N.T.S.



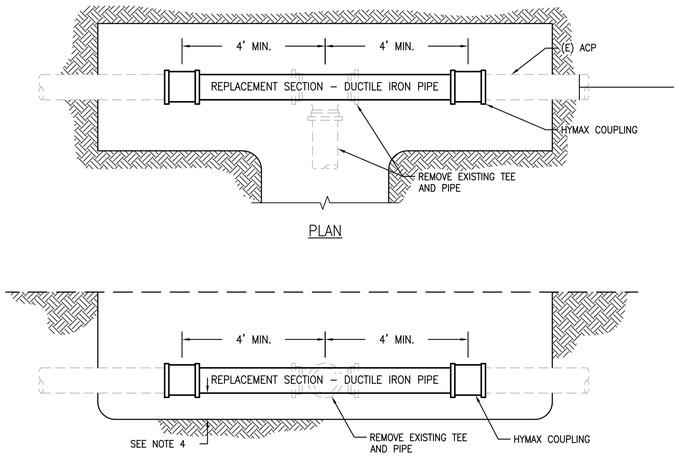
PLAN

NOTES:
1. PROVIDE RESTRAINED PIPE, FITTINGS AND VALVE IN ACCORDANCE WITH TMWA ENGINEERING AND CONSTRUCTION STANDARDS.
2. REFER TO PLAN SHEETS FOR PIPE SIZES.

EXISTING AC PIPE TO DIP SECTION REPLACEMENT

16

N.T.S.

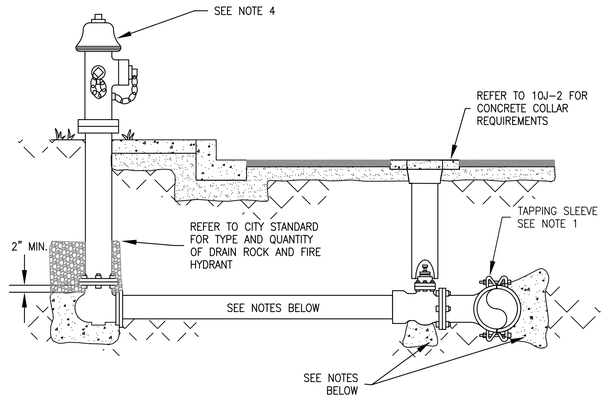


1. COUPLINGS SHALL BE HYMAX 2000 SERIES, FUSION EPOXY COATING.
2. BACKFILL AND COMPACTION REQUIREMENTS SHALL COMPLY WITH, TRENCH BEDDING, BACKFILL & EXCAVATION SPECIFICATIONS.
3. REPLACEMENT SECTION OF PIPE SHALL BE DUCTILE IRON.
4. REFER TO TMWA CONSTRUCTION AND DESIGN STANDARDS FOR MINIMUM CLEARANCE REQUIREMENTS.

EXISTING AC PIPE TO DIP SECTION REPLACEMENT

14

N.T.S.



NOTES:
1. REFER TO APPENDIX 10D FOR TAPPING SLEEVE DETAILS.
2. 6" DUCTILE IRON OR PVC PIPE (CLASS 235 MIN.) LENGTH TO BE DETERMINED BY ENGINEER. REFER TO JURISDICTIONAL AGENCY FOR MATERIAL. POLYEHYLENE WRAP TO BE USED ON ALL DUCTILE IRON PIPE AND FITTINGS PER AWWA C105.
3. KEEP A MINIMUM OF 2" CLEARANCE BETWEEN FLANGES/BOLTS AND CONCRETE.
4. LOCATION OF FIRE HYDRANT TO BE DETERMINED BY APPROPRIATE GOVERNMENTAL FIRE AGENCY. FIRE HYDRANT AND BARREL EXTENSION TO BE SUPPLIED BY OTHERS.
5. FOR FIRE HYDRANT LATERALS THAT TERMINATE WITHIN 150' OF WATER MAIN.
6. REFER TO JURISDICTIONAL AGENCY'S ADOPTED FIRE CODE FOR PIPE MATERIAL AND TYPE OF FIRE HYDRANT.
7. ALL EXPOSED METAL MUST BE COATED AND WRAPPED.
8. REFER TO CITY STANDARDS OR APPENDIX 10L FOR THRUST BLOCK REQUIREMENTS. USE THE MOST CONSERVATIVE.
9. PRESSURE TEST TAPPING SLEEVE AND VALVE TO MANUFACTURER'S RECOMMENDATION.

MATERIAL LIST

QTY	DESCRIPTION
1	6" FL X FL RESILIENT WEDGE GATE VALVE WITH 2" OPERATING NUT.
1	6" ø VALVE BOX, RISER AND COVER MARKED "WATER"
1	6" FL X PO ADAPTER

6" FIRE HYDRANT SERVICE OFF EXISTING MAIN FOR LATERALS LESS THAN 150' TMWA DRAWING 10F-9

17

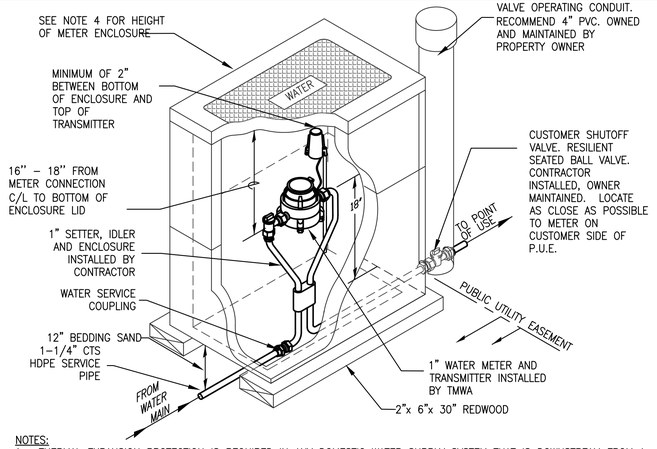
N.T.S.

WORK ORDER NO. ____
DESIGNED JKB
DRAWN KDG
DATE 10/18/13
CHECKED ____
SUBMITTED 10/21/13
RECOMMENDED ____
APPROVED ____

TRUCKEE MEADOWS WATER AUTHORITY
1355 CAPITAL BLVD. / PO BOX 30013
RENO, NEVADA 89520-3013
PH: 775-834-8000 / FX: 775-834-8003

NORTH TRUCKEE DRAIN REALIGNMENT PHASE 1
CITY OF SPARKS, WASHOE COUNTY, NEVADA
CONSTRUCTION DETAILS 3

SHEET NUMBER
D3
10 OF 11



NOTES:
1. THERMAL EXPANSION PROTECTION IS REQUIRED IN ANY DOMESTIC WATER SUPPLY SYSTEM THAT IS DOWNSTREAM FROM A BACKFLOW PREVENTION DEVICE. REFERENCE: UNIFORM PLUMBING CODE.
2. METER AND TRANSMITTER SUPPLIED AND INSTALLED BY TMWA.
3. FOR DRIVEWAY OR TRAFFIC AREAS USE 13x24 ENCLOSURE APPROVED FOR TRAFFIC RATED H/20 LOADING. SEE DETAIL 10K–17.
4. TOP OF METER ENCLOSURE SHALL BE SET 0.2 FEET ABOVE HIGHEST FINISHED GRADE SURROUNDING ENCLOSURE WITHIN LANDSCAPED AREAS, AND SHALL BE SET FLUSH WITH SURROUNDING FINISH GRADE IN TRAFFIC AREAS.
5. ENCLOSURE TO BE BACKFILLED WITH WATER PIPE BEDDING SAND ONLY, SEE SECTION 5, TRENCH BEDDING & BACKFILL.
6. BLANKET TO BE INSTALLED ABOVE METER AND BELOW TRANSMITTER.

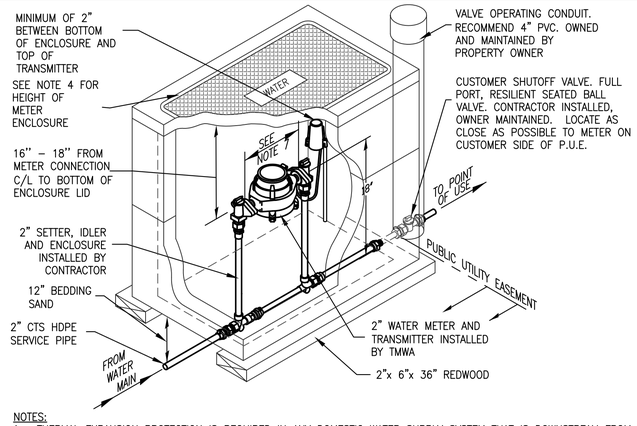
MATERIAL LIST

ITEM ID	QTY.	DESCRIPTION
MS–1.00	1.0	SETTER WATER METER, NEW 1" MIP ENDS
WSC–1.25x1.00–CTSxFIP	1.0	COUPLING SERVICE 1–1/4" CTS COMPRESSION X 1" FIP
SSL–1.25	1.0	LINER RIGID STAINLESS STEEL FOR 1–1/4" CTS HDPE TUBING
GSKT–1.00	2.0	GASKET–1" FOR WATER METER
WM–DISC–1.00	1.0	1" WATER METER – SUPPLIED AND INSTALLED BY TMWA
ENCL–13x24–NT	1.0	ENCLOSURE NON–TRAFFIC 13 X 24 WATER METERS, SEE NOTE 3
ENCL–13x24–LID–NT	1.0	COVER NON–TRAFFIC 13 X 24, SEE NOTE 3
ENCL–13x24–EXT–NT	1.0	EXTENSION BOX NON–TRAFFIC 13 X 24, SEE NOTE 3
INSL–BLKT–4x4	1.0	BLANKET INSULATION 4' X 4' FOR WATER METERS
RDWD–BRD–2x6x30	2.0	BOARD – REDWOOD 2" X 6" X 30"
IDLR–1.00	1.0	IDLER WATER METER 1" SETTER
ERT	1.0	REMOTE TRANSMITTER – SUPPLIED AND INSTALLED BY TMWA

WATER METER - 1-1/4" SINGLE SERVICE FOR 1" SETTER, METER AND TRANSMITTER (IRRIGATION) - TMWA DRAWING 10K-8

18

N.T.S.



NOTES:
1. THERMAL EXPANSION PROTECTION IS REQUIRED IN ANY DOMESTIC WATER SUPPLY SYSTEM THAT IS DOWNSTREAM FROM A BACKFLOW PREVENTION DEVICE. REFERENCE: UNIFORM PLUMBING CODE.
2. METER AND TRANSMITTER SUPPLIED AND INSTALLED BY TMWA.
3. FOR DRIVEWAY OR TRAFFIC AREAS USE 17x30 ENCLOSURE APPROVED FOR TRAFFIC RATED H/20 LOADING. SEE DETAIL 10K–18.
4. TOP OF METER ENCLOSURE SHALL BE SET 0.2 FEET ABOVE HIGHEST FINISHED GRADE SURROUNDING ENCLOSURE WITHIN LANDSCAPED AREAS, AND SHALL BE SET FLUSH WITH SURROUNDING FINISH GRADE IN TRAFFIC AREAS.
5. ENCLOSURE TO BE BACKFILLED WITH WATER PIPE BEDDING SAND ONLY, SEE SECTION 5, TRENCH BEDDING & BACKFILL.
6. BLANKET TO BE INSTALLED ABOVE METER AND BELOW TRANSMITTER.
7. DISTANCE BETWEEN FLANGES SHALL BE 17.25".

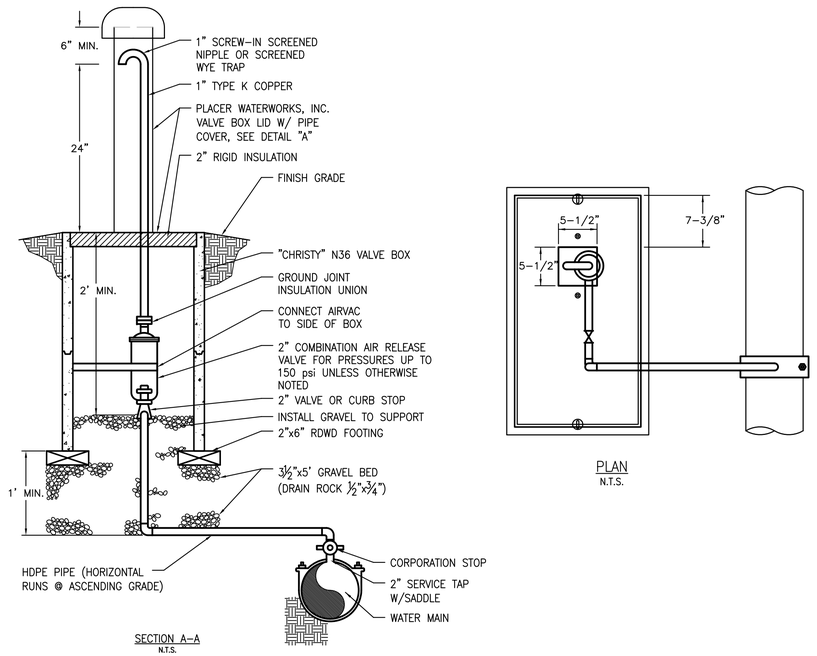
MATERIAL LIST

ITEM ID	QTY.	DESCRIPTION
MS–2.00	1.0	SETTER WATER METER, NEW 2" FIP ENDS
WSC–2.00x2.00–CTSxMIP	1.0	COUPLING SERVICE 2" CTS COMPRESSION X 2" MIP
SSL–2.00	1.0	LINER RIGID STAINLESS STEEL FOR 2" CTS HDPE TUBING
GSKT–2.00	2.0	GASKET–2" FOR WATER METER
WM–DISC–2.00	1.0	2" WATER METER – SUPPLIED AND INSTALLED BY TMWA
ENCL–17x30–NT	1.0	ENCLOSURE NON–TRAFFIC 17 X 30 WATER METERS, SEE NOTE 3
ENCL–17x30–LID–NT	1.0	COVER NON–TRAFFIC 17 X 30, NON CONCRETE FIBRELYTE LID, SEE NOTE 3
ENCL–17x30–EXT–NT	1.0	EXTENSION BOX NON–TRAFFIC 17 X 30, SEE NOTE 3
INSL–BLKT–4x4	1.0	BLANKET INSULATION 4' X 4' FOR WATER METERS
RDWD–BRD–2X6X36	2.0	BOARD – REDWOOD 2" X 6" X 36"
IDLR–2.00	1.0	IDLER WATER METER 2" SETTER
BOLTS	4.0	BOLT COPPER #651 SILICONE BRONZE 5/8" X 2–1/2" WITH 2 FLAT WASHERS & NUTS
ERT	1.0	REMOTE TRANSMITTER – SUPPLIED AND INSTALLED BY TMWA

WATER METER - 2" SINGLE SERVICE FOR 2" SETTER, METER AND TRANSMITTER (DOMESTIC) - TMWA DRAWING 10K-10

19

N.T.S.



SECTION A–A
N.T.S.

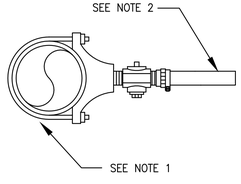
PLAN
N.T.S.

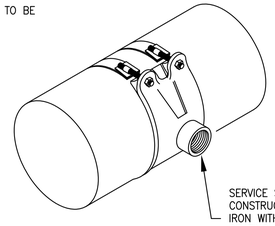
VACUUM AND AIR VALVE DETAIL

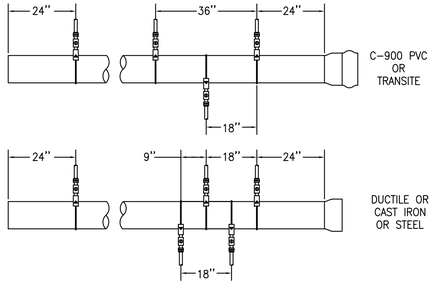
N.T.S.

20

NOTES:
1. SERVICE CLAMP SIZE IS DEPENDENT UPON THE SIZE AND TYPE OF MAIN.
2. 1–1/4" SDR–9 CTS HDPE TUBING, LENGTH TO BE DETERMINED BY ENGINEER.







MATERIAL LIST

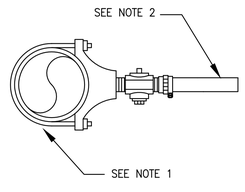
QTY.	DESCRIPTION
1.0	STOP CORP 1–1/4" IP THREAD INLET, COMPRESSION OUTLET
1.0	LINER RIGID STAINLESS STEEL FOR 1–1/4" SDR–9 CTS HDPE TUBING

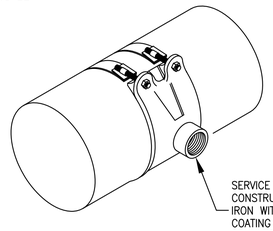
SERVICE TAP INSTALLATION 1-1/4" SERVICE TAP - TMWA DRAWING 10H-3

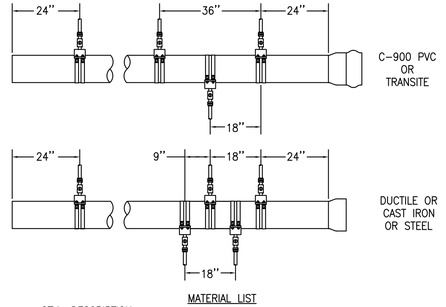
21

N.T.S.

NOTES:
1. SERVICE CLAMP SIZE IS DEPENDENT UPON THE SIZE AND TYPE OF MAIN.
2. 2" SDR–9 CTS HDPE TUBING, LENGTH TO BE DETERMINED BY ENGINEER.







MATERIAL LIST

QTY.	DESCRIPTION
1.0	STOP CORP 2" IP THREAD INLET, COMPRESSION OUTLET
1.0	LINER RIGID STAINLESS STEEL FOR 2" SDR–9 CTS HDPE TUBING

SERVICE TAP INSTALLATION 2" SERVICE TAP - TMWA DRAWING 10H-5

22

N.T.S.

PROFESSIONAL ENGINEER-STATE OF NEVADA
NOEL C. LAUGHLIN
Exp: 12-31-13
CIVIL
No. 10165
10-18-13

2 working days Call before you Dig.
1-800-227-2600

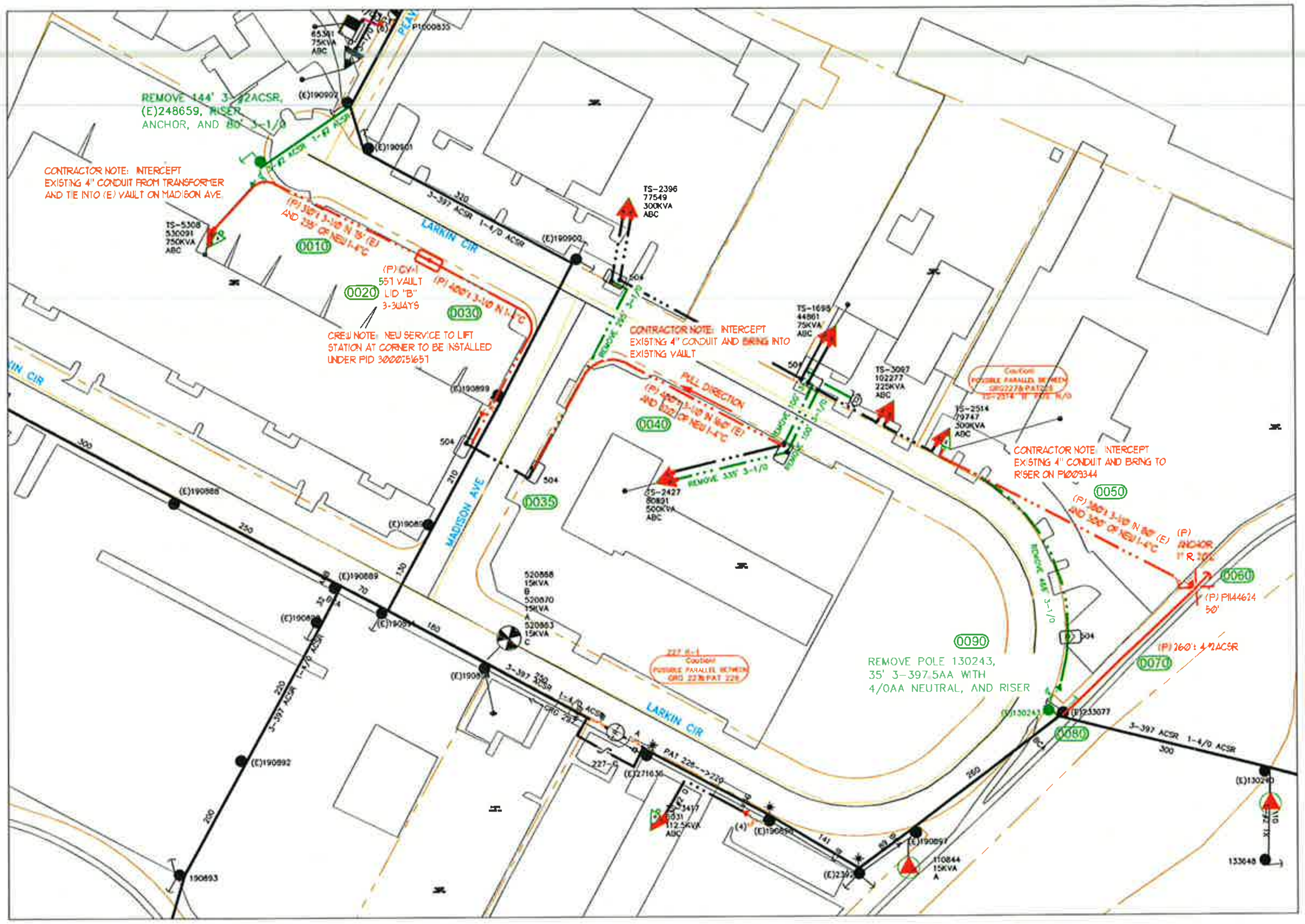
C:\pwworking\phk\d0329683\TMWA_D4.dwg Oct 21, 2013 – 2:12pm

WORK ORDER NO. ____
DESIGNED JKB
DRAWN KDG
DATE 10/18/13
CHECKED ____
SUBMITTED 10/21/13
RECOMMENDED ____
APPROVED ____

TRUCKEE MEADOWS WATER AUTHORITY
1355 CAPITAL BLVD. / PO BOX 30013
RENO, NEVADA 89502–3013
PH 775–834–8000 / FX 775–834–8003

NORTH TRUCKEE DRAIN REALIGNMENT PHASE 1
CITY OF SPARKS, WASHOE COUNTY, NEVADA
CONSTRUCTION DETAILS 4

SHEET NUMBER
D4
11 OF 11



GENERAL COMMENTS:

CALL RENO ELECTRIC UNDERGROUND (888-999-1556) 48 HOURS PRIOR TO START OF CONSTRUCTION FOR TRENCH INSPECTION BEFORE COVERING TRENCH. (INCLUDE WORK ORDER NUMBER, ALONG WITH NAME AND PHONE NUMBER OF PROJECT FOREMAN, IN VOICE MESSAGE)

VAULTS, TRANSFORMERS AND SECONDARY BOXES WILL HAVE MINIMUM 3' FLAT AND CLEAR ON ALL FOUR SIDES, 10' CLEAR IN FRONT OF TRANSFORMERS.

EQUIPMENT BARRIER POSTS MAY BE REQUIRED PER NVE. STD. FE-0009U.

RETAINING WALLS MAY BE REQUIRED FOR ANY SLOPES GREATER THAN 15% PER NVE. STD. TE-0040-U.

ALL SECONDARY BOXES AND PRIMARY VAULTS SHALL BE TO FINISH GRADE.

ALL MATERIAL SHALL BE ON THE JOB SITE PRIOR TO THE START OF ANY WORK BY NVE.

REFER TO NVE. STDS. C1000M FOR FURTHER CLARIFICATION OF DETAILS.

COMPACTION TESTS REQUIRED PER NVE. STD. SUB01X.

NO TREE SHALL BE PLANTED UNDER OR ADJACENT TO ENERGIZED POWER LINES WHICH, AT MATURITY, SHALL GROW WITHIN 10 FEET OF THE ENERGIZED CONDUCTORS. NOR SHALL ANY PERMANENT STRUCTURE, FENCE, SHRUB OR TREE BE PLANTED CLOSER THAN 10 FEET IN FRONT AND 3 FEET FROM ALL OTHER SIDES OF A PAD MOUNTED TRANSFORMER.

NOTE: DEVELOPER IS RESPONSIBLE FOR ADHERENCE TO NV ENERGY GAS AND ELECTRIC STANDARDS. CONSTRUCTION STANDARDS CAN BE FOUND ON-LINE AT THE FOLLOWING WEB SITE: http://www.nvenergy.com/business/newconstruction.

THIS MAP ILLUSTRATES DATA COLLECTED FROM VARIOUS SOURCES AND MAY NOT REPRESENT A SURVEY OF THE PREMISES. NO RESPONSIBILITY IS ASSUMED AS TO THE SUFFICIENCY OR ACCURACY OF THE DATA DISPLAYED HEREON.

ALL WORK SHALL BE ACCOMPLISHED IN STRICT ACCORDANCE WITH THE SPECIFICATIONS SET FORTH IN THE ELECTRIC DISTRIBUTION GUIDE, VOL. II AS CURRENTLY ADOPTED BY NVE. THE CONTRACTOR SHALL SECURE COPIES OF THE AFOREMENTIONED CONSTRUCTION SPECIFICATIONS ON HIS OR HER OWN BEHALF.

USE CAUTION! PRIOR TO EXCAVATION, CHECK TO ENSURE ADDITIONAL DEPTH IS NOT REQUIRED TO ACCOMMODATE GAS AND/OR WATER FACILITIES.

SYMBOLS ARE NOT TO SCALE AND DO NOT NECESSARILY REPRESENT ACTUAL LOCATIONS OF FACILITIES.

NV ENERGY TO FURNISH AND / OR INSTALL:

- APPROX. 1570 CKT. FT. 25 KV 3Φ U/G PRIMARY C/O 3-1/0 CABLE IN 315' OF (E) AND 1255' OF NEW 1-4"C (CONDUIT BY CUSTOMER).
- APPROX. 260 CKT. FT. 3Φ O/H PRIMARY C/O 3-#2ACSR W/ 1-#2ACSR NEUTRAL
- 1 - 50' BUTT TREATED WOOD POLE.
- 1 - ANCHOR C/O 1"R, 20'L AND 1 - 1/2" E.H.S. DOWN GUY.
- PRIMARY RISER MATERIAL TO CONSIST OF STAND OFF BRACKET(S) AND LAG SCREWS ONLY. (ALL RISER CONDUIT SUPPLIED BY CONTRACTOR)

APPLICANT TO FURNISH AND / OR INSTALL:

1 - 551 CABLE VAULT 49"x79"x61" I.D. WITH LID "B" PER NVE. STD. VB-0071U

* PROPOSED APPROX. 1255 FT. 4" PVC CONDUIT.

APPLICANT IS RESPONSIBLE FOR MANDRILING CONDUIT AND INSTALLING A PULL LINE THAT MEETS OR EXCEEDS THE FOLLOWING REQUIREMENTS:

- THE PULL LINE WILL BE OF A FLAT DESIGN
- SHALL HAVE A MINIMUM BREAKING STRENGTH OF 400 LBS.
- WILL HAVE SEQUENTIAL FOOTAGE MARKINGS
- EXAMPLES OF PULL LINES THAT MEET THESE REQUIREMENTS (NVE. STK.#55-1305)
- NEPTCO "MULE TAPE" (WP400P)
- CONDUX INTERNATIONAL (08096203)
- SEE NVE VOLUME II, SECTION 4-CD0001U

NOTE: ALL CONDUIT INSTALLATIONS BENEATH FOUNDATION AND SLABS TO BE RIGID STEEL OR CONCRETE ENCASED PER NVE STDS. CD-0003U.

ALL TRENCHING AND BACKFILL PER APPLICABLE NVE. STDS. TE-0001, TE-0003, TE-0004 AND TE-0020.

ALL STAKING REQUIREMENTS PER NVE. STD. GI-0001UGAU AND GI-0007U.

ALL STREET CUT PERMITS AND PAVEMENT CUTTING AND REPLACEMENT AS REQUIRED.

RETAINING WALL REQUIREMENTS PER NVE. STD. TE0040U.

PRIMARY RISER:
RISER MATERIAL C/O 4" GALVANIZED STEEL SWEEP, 10' OF 4" GALVANIZED STEEL CONDUIT ALONG WITH COUPLING ADAPTER AND 30' OF SCHEDULE 40 CONDUIT. STAND-OFF BRACKETS AND LAG SCREWS BY NVE. (NVE TO INSTALL 30' OF SCHEDULE 40 CONDUIT ONLY.)

BEFORE INSTALLATION OF THE UTILITY FACILITIES AND IF NO PUBLIC UTILITY EASEMENTS EXIST, THE OWNER OF RECORD SHALL SIGN APPROPRIATE EASEMENT DOCUMENTS.

NV ENERGY TO REMOVE:

1386' 3-1/0 CABLE
144' 4-#2 ACSR CONDUCTOR
35' 3-397.5AA WITH 4/0AA NEUTRAL
POLES #248659 AND #130243
2 PRIMARY RISERS
2 ANCHORS

DRAWING	DESIGNED BY	DATE
BASE	JLM	8-23-13
ELECTRIC	JLM	8-23-13
GAS		
STREETLIGHT		

REVIEWED BY:

Utility Designer	Engineer	Design Facilitator	Cathodic Protection

NO.	REVISION DESCRIPTIONS	DATE	DI
1			
2			
3			
4			
5			
6			
7			

CALL BEFORE YOU DO OVERHEAD
CALL 1-702-227-2929

Call 811
Call before you Dig

NVEnergy
P.O. Box 10100
R77CSE
Reno, NV. 89520-0024

NV ENERGY CONTACT INFORMATION:

COORDINATOR: TONI POWELL
OFFICE: # 775-834-7585
CELL: # 775-813-3985
FAX: # 775-834-7808
EMAIL: TPOWELL@NVENERGY.COM
DESIGNER: TONI POWELL
INSPECTION HOTLINE#: 888/999-1556

CUSTOMER CONTACT INFORMATION:

CUSTOMER: CITY OF SPARKS
ATTENTION: ANDY HUMMEL
PHONE: # 775-353-2375
FAX: # 775-353-1635
EMAIL: AHUMMEL@CITYOFSPARKS.US

CUST REP: #
PHONE: #
EMAIL:

TOWNSHIP-RANGE-SECTION	APN#
1920-11 1920-12	3417124 3417704 3417116 3417133 3417141 3417142

SOURCE INFORMATION:
227-U/G-2
25KV NORM OUT OF
GREG ST SUB

VICINITY MAP (NTS)

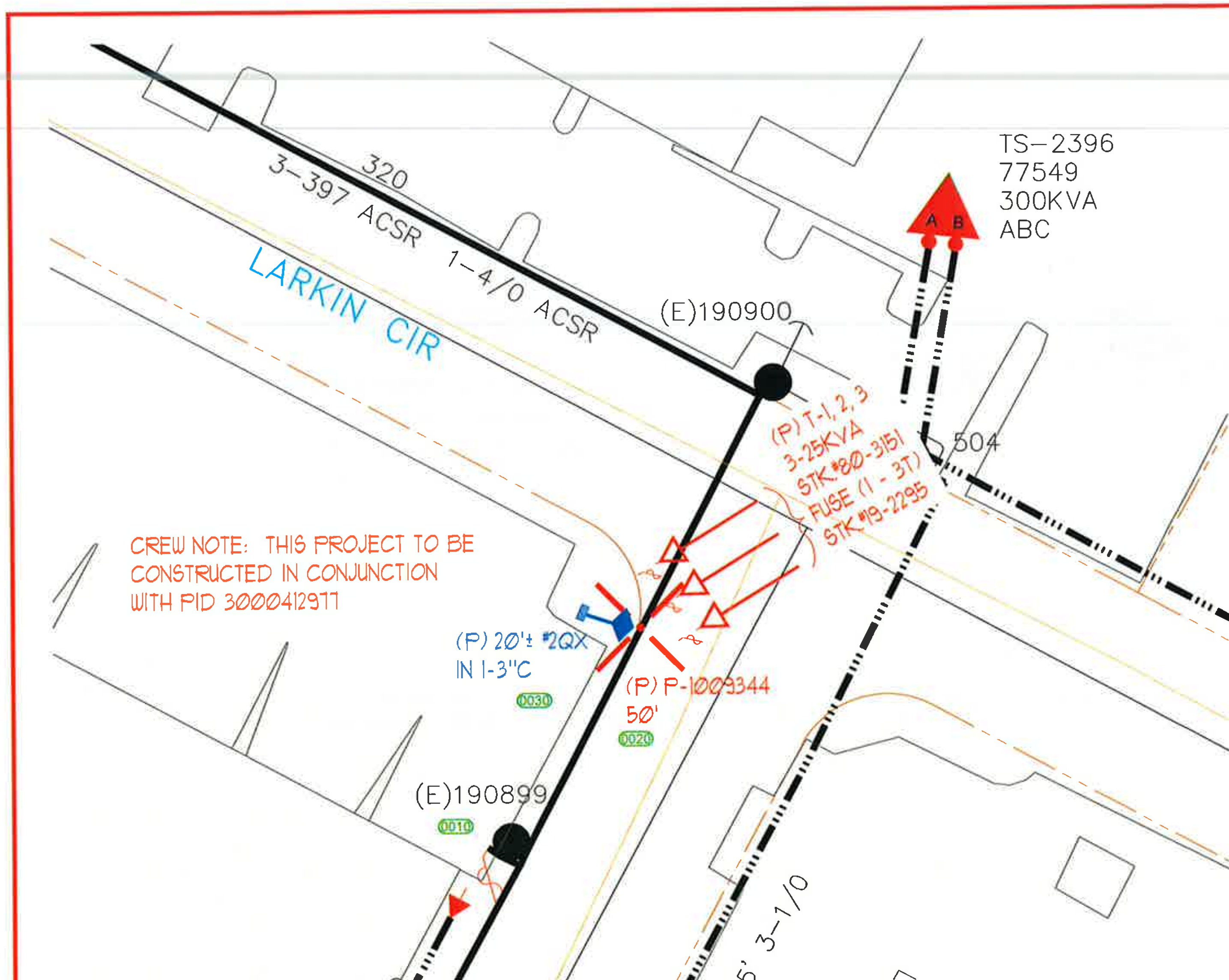
NORTH TRUCKEE DRAIN
-COM-
CITY OF SPARKS

EXHIBIT "A" APPLICANT INSTALLED CONDUIT
ELECTRIC DESIGN

SCALE: 1:100

SHEET#: E.1

AUD#:
STL#:
GAS#:
ELE#: 300041297



NV ENERGY TO FURNISH AND / OR INSTALL:

APPROX. 20 CKT. FT. U/G SERVICE CABLE TO 1 - 100 AMP PANEL C/O 1- #2QX IN 1 - 3"C (CONDUIT BY CUSTOMER).

1 - 3-1Ø 25 KVA O/H TRANSFORMERS, 14.4/24.9GDYKV, 120/240V, STK# 80-3151 BANKED FOR 120/208V SERVICE.

1 - 50' BUTT TREATED WOOD POLE.

SECONDARY OR SERVICE RISER MATERIAL TO CONSIST OF STAND OFF BRACKET(S) AND SCREW LAGS ONLY (CONDUIT BY CONTRACTOR).

APPLICANT TO FURNISH AND / OR INSTALL:

* PROPOSED APPROX. 20 FT. 3" PVC SERVICE CONDUIT.

APPLICANT IS RESPONSIBLE FOR MANDRILING CONDUIT AND INSTALLING A PULL LINE THAT MEETS OR EXCEEDS THE FOLLOWING REQUIREMENTS:

- THE PULL LINE WILL BE OF A FLAT DESIGN
- SHALL HAVE A MINIMUM BREAKING STRENGTH OF 400 LBS.
- WILL HAVE SEQUENTIAL FOOTAGE MARKINGS
- EXAMPLES OF PULL LINES THAT MEET THESE REQUIREMENTS (NVE. STK#55-7305)
- NEPTCO "MULE TAPE" (WP400P)
- CONDUX INTERNATIONAL (08096203)
- SEE NVE VOLUME II, SECTION 4-CD0001U

ALL SERVICE CONDUIT TO BE 3" MINIMUM.
ALL CONDUIT TO BE A MINIMUM DB120 PVC GRAY BELOW GROUND.
(ABOVE GROUND RISER CONDUIT TO INCLUDE: SCH 80 SWEEP, 10' OF SCH 80, 2 - 10' SECTIONS OF SCH 40 AND WEATHER HEAD.)

NOTE: ALL CONDUIT INSTALLATIONS BENEATH FOUNDATION AND SLABS TO BE RIGID STEEL OR CONCRETE ENCASED PER NVE STDS. CD-0003U.

ALL TRENCHING AND BACKFILL PER APPLICABLE NVE. STDS. TE-0001, TE-0003, TE-0004 AND TE-0020.

ALL STAKING REQUIREMENTS PER NVE. STD. GI-0001U/GAU AND GI-0002U.

ALL STREET CUT PERMITS AND PAVEMENT CUTTING AND REPLACEMENT AS REQUIRED.

RETAINING WALL REQUIREMENTS PER NVE. STD. TE0040U.

BEFORE INSTALLATION OF THE UTILITY FACILITIES AND IF NO PUBLIC UTILITY EASEMENTS EXIST, THE OWNER OF RECORD SHALL SIGN APPROPRIATE EASEMENT DOCUMENTS.

GENERAL COMMENTS:

CALL RENO ELECTRIC UNDERGROUND (888-999-1556) 48 HOURS PRIOR TO START OF CONSTRUCTION FOR TRENCH INSPECTION BEFORE COVERING TRENCH. (INCLUDE WORK ORDER NUMBER, ALONG WITH NAME AND PHONE NUMBER OF PROJECT FOREMAN, IN VOICE MESSAGE)

EQUIPMENT BARRIER POSTS MAY BE REQUIRED PER NVE. STD. PE-0009U.

RETAINING WALLS MAY BE REQUIRED FOR ANY SLOPES GREATER THAN 15% PER NVE. STD. TE-0040-U.

ALL MATERIAL SHALL BE ON THE JOB SITE PRIOR TO THE START OF ANY WORK BY NVE.

REFER TO NVE. STDS. C1000M FOR FURTHER CLARIFICATION OF DETAILS.

COMPACTION TESTS REQUIRED PER NVE. STD. SUB01X.

NO TREE SHALL BE PLANTED UNDER OR ADJACENT TO ENERGIZED POWER LINES WHICH, AT MATURITY, SHALL GROW WITHIN 10 FEET OF THE ENERGIZED CONDUCTORS. NOR SHALL ANY PERMANENT STRUCTURE, FENCE, SHRUB OR TREE BE PLANTED CLOSER THAN 10 FEET IN FRONT AND 3 FEET FROM ALL OTHER SIDES OF A PAD MOUNTED TRANSFORMER.

NOTE: DEVELOPER IS RESPONSIBLE FOR ADHERENCE TO NV ENERGY GAS AND ELECTRIC STANDARDS. CONSTRUCTION STANDARDS CAN BE FOUND ON-LINE AT THE FOLLOWING WEB SITE: http://www.nvenergy.com/business/newconstruction.

THIS MAP ILLUSTRATES DATA COLLECTED FROM VARIOUS SOURCES AND MAY NOT REPRESENT A SURVEY OF THE PREMISES. NO RESPONSIBILITY IS ASSUMED AS TO THE SUFFICIENCY OR ACCURACY OF THE DATA DISPLAYED HEREON.

ALL WORK SHALL BE ACCOMPLISHED IN STRICT ACCORDANCE WITH THE SPECIFICATIONS SET FORTH IN THE ELECTRIC DISTRIBUTION GUIDE, VOL. II AS CURRENTLY ADOPTED BY NVE. THE CONTRACTOR SHALL SECURE COPIES OF THE AFOREMENTIONED CONSTRUCTION SPECIFICATIONS ON HIS OR HER OWN BEHALF.

USE CAUTION! PRIOR TO EXCAVATION, CHECK TO ENSURE ADDITIONAL DEPTH IS NOT REQUIRED TO ACCOMMODATE GAS AND/OR WATER FACILITIES.

SYMBOLS ARE NOT TO SCALE AND DO NOT NECESSARILY REPRESENT ACTUAL LOCATIONS OF FACILITIES.

DRAWING	DESIGNED BY	DATE
BASE	JLM	8-23-13
ELECTRIC	TLP	10/7/13
GAS		
STREETLIGHT		

REVIEWED BY:

Utility Designer	Engineer	Design Facilitator	Cathodic Protection

NO.	REVISION DESCRIPTIONS	DATE	DI
1			
2			
3			
4			
5			
6			
7			

NVEnergy
P.O. Box 10100
R77CSE
Reno, NV. 89520-0024

NV ENERGY CONTACT INFORMATION:

COORDINATOR: TONI POWELL
OFFICE: # 775-834-7585
CELL: # 775-813-3985
FAX: # 775-834-7808
EMAIL: TPOWELL@NVENERGY.COM
DESIGNER: TONI POWELL
INSPECTION HOTLINE#: 888/999-1556

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PHONE: # 775-353-2375
FAX: # 775-353-1635
EMAIL: AHUMMEL@CITYOFSPARKS.US

CUST REP: #
PHONE: #
EMAIL:

TOWNSHIP-RANGE-SECTION	APN#
1920-11 1920-12	3417124 3417704 3417116 3417133 3417141 3417142

SOURCE INFORMATION:
227-U/G-2
25KV NORM OUT OF
GREG ST SUB

VICINITY MAP (NTS)

NORTH TRUCKEE DRAIN
- COM -
LIFT STATION SERVICE
CITY OF SPARKS

EXHIBIT "A" APPLICANT INSTALLED CONDUIT
ELECTRIC DESIGN

SCALE: 1:30

SHEET#: E.1

AUD#:
STL#:
GAS#:
ELE#: 3000251657

NORTH TRUCKEE DRAIN
GAS RELOCATIONS
GREG STREET & LARKIN CIRCLE

INDEX OF DRAWINGS

SHEET NO.	DRAWING TITLE
1	COVER SHEET
2	PLAN VIEW, PROFILE, MATERIAL LIST

NVEnergy™

GENERAL NOTES

1. WORK SHALL COMPLY WITH THE CONSTRUCTION REQUIREMENTS SET FORTH IN NV ENERGY'S GAS DISTRIBUTION CONSTRUCTION STANDARDS VOLUME 15, UNLESS OTHERWISE SPECIFIED ON THE CONSTRUCTION DRAWINGS. THE CONTRACTOR SHALL COMPLY WITH ALL PERTINENT TRANSPORTATION AND PIPELINE REGULATIONS DEFINED IN THE UNITED STATES DEPARTMENT OF TRANSPORTATION, CFR TITLE 49 – PARTS 191 & 192.

2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL EXCAVATION AND STREET CUT PERMITS FROM THE CITY OF SPARKS. PERMANENT PAVEMENT PATCHING NOT INDICATED ON THE DRAWINGS SHALL BE TO THE SPECIFICATIONS SET FORTH BY THE APPLICABLE GOVERNING AGENCY. WORK HOURS ARE IN ACCORDANCE WITH THE CITY OF SPARKS PERMITS. THE CONTRACTOR SHALL ALSO OBTAIN PERMITS FOR TRAFFIC, STAGING, STOCK PILING, DUST CONTROL, ETC.

3. UNDER NO CIRCUMSTANCES SHALL TRAFFIC CONTROL BE ESTABLISHED WITHIN NEVADA DEPARTMENT OF TRANSPORTATION (NDOT) RIGHT OF WAY WITHOUT AN APPROVED OCCUPANCY PERMIT. COPIES OF THIS PERMIT SHALL BE MAINTAINED AT THE JOB SITE, AND NDOT SHALL BE PROVIDED 48-HOUR NOTIFICATION PRIOR TO COMMENCING ANY WORK WITHIN THEIR RIGHT OF WAY.

4. THE LOCATIONS OF EXISTING UTILITIES SHOWN ON THE CONSTRUCTION DRAWING ARE APPROXIMATE ONLY. THE CONTRACTOR SHALL IDENTIFY THE LOCATION AND DEPTH OF ALL UNDERGROUND UTILITIES PRIOR TO CONSTRUCTION ACTIVITIES. ANY DAMAGE AND ASSOCIATED REPAIR EXPENSES TO UNDERGROUND OR OVERHEAD UTILITIES SHALL BE BORNE BY THE CONTRACTOR.

5. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE SECURITY, PROTECTION, AND REPLACEMENT COST OF ALL CONSTRUCTION MATERIALS AND EQUIPMENT AFTER TAKING POSSESSION FROM THE OWNER.

6. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ACHIEVING THE MINIMUM COMPACTION STANDARDS INDICATED ON THE DRAWINGS, TO BE VERIFIED BY A CONTRACTOR-FURNISHED TEST INSPECTOR. ALL OPEN SECTIONS OF TRENCH SHALL BE ATTENDED TO DURING THE COURSE OF THE WORK DAY IN ORDER TO PROHIBIT ACCESS BY UNAUTHORIZED PERSONNEL. ALL TRENCHES SHALL BE SEALED FROM ACCESS AT THE END OF EACH WORK DAY.

7. THE CONTRACTOR IS RESPONSIBLE FOR PROTECTING ALL EXISTING LANDSCAPING AND IMPROVEMENTS EFFECTED BY PROJECT CONSTRUCTION. ANY DAMAGE OR ALTERATIONS TO EXISTING ITEMS SHALL BE REPLACED IN KIND AT THE CONTRACTOR'S EXPENSE.

8. ALL WELDING SHALL CONFORM TO THE APPROPRIATE WELDING PROCEDURE. ALL FIELD WELDS ARE SUBJECT TO BE X-RAYED BY OWNER-FURNISHED NDE TECH AND DOCUMENTED TO ENSURE STRUCTURAL INTEGRITY. ONLY PERSONNEL WHO HAVE SUCCESSFULLY PASSED NV ENERGY'S WELD CERTIFICATION TESTING SHALL BE UTILIZED TO PERFORM ANY/ALL WELDING. WELDER SHALL PROVIDE PROOF OF CERTIFICATION FOR ALL WELDERS PRIOR TO THE START OF WORK. WELDERS SHALL BE TESTED FOR, AND FIELD WELD PIPE, PER ESTABLISHED NV ENERGY WELD PROCEDURES.

9. ALL INSTALLED GAS MAIN SHALL BE SUCCESSFULLY PRESSURE TESTED IN ACCORDANCE WITH NV ENERGY'S GAS DISTRIBUTION CONSTRUCTION STANDARDS VOLUME 15.

10. ANY DISCREPANCIES BETWEEN THE INFORMATION SHOWN ON THE DRAWINGS AND ACTUAL FIELD CONDITIONS SHALL BE BROUGHT TO THE OWNER'S IMMEDIATE ATTENTION. THE CONTRACTOR SHALL NOT BE REIMBURSED FOR ANY EXPENSES INCURRED DUE TO ERRORS OR OMISSIONS ON THE PLANS WITHOUT PRIOR APPROVAL FROM THE OWNER.

11. CONTRACTOR TO PROVIDE SAWCUTTING, TRENCHING, BACKFILL, AND FINAL RESTORATION TO EXCAVATE PITS AND HOLES NECESSARY TO TIE IN NEW MAINS AND SERVICES WITH EXISTING MAINS AND SERVICES.

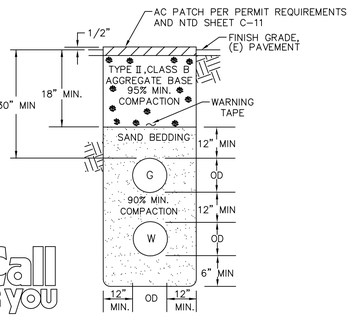
12. ANGULAR DEFLECTIONS WILL BE ACCOMPLISHED BY USING MANUFACTURED ELBOWS AND MITERS OF SUCH ELBOWS.

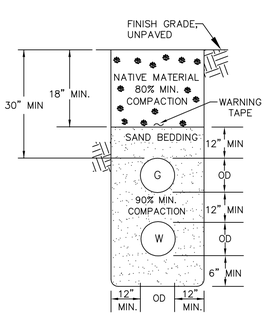
13. HOT TAPS, TIE INS, AND CONNECTIONS TO EXISTING NATURAL GAS FACILITIES WILL BE THE RESPONSIBILITY OF NV ENERGY. CONTRACTOR TO INSTALL 2" AND 4" PE PIPING, WITH NV ENERGY COMPLETING THE PIPING WORK ON THE 8" STEEL GAS MAIN.

14. THE CONTRACTOR SHALL ENSURE THE VERTICAL AND HORIZONTAL ALIGNMENT OF PROPOSED GAS FACILITIES WILL MAINTAIN ADEQUATE CLEARANCE FROM THE PROPOSED INFRASTRUCTURE.

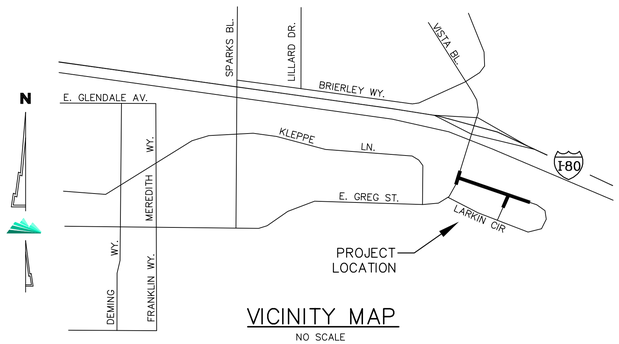
15. CONTRACTORS PERFORMING WORK ON NVENERGY'S GAS FACILITIES SHALL COORDINATE ALL CONSTRUCTION ACTIVITIES THROUGH GAS INSPECTION SERVICES AT 834-7356 AT LEAST 2-WORKING DAYS IN ADVANCE OF WORK SO THAT ONSITE INSPECTION CAN BE ARRANGED.

16. THIS NOTICE IS INTENDED TO INFORM EXCAVATORS, CONTRACTORS, OR ANY OTHER PERSON THAT MAY COME IN CONTACT WITH BLACK WRAP PIPE COATING THAT IT MAY CONTAIN ASBESTOS FIBERS. ANY TASK, OPERATION, JOB, PROCEDURE OR TECHNIQUE THAT MAY DISTURB THE MATERIAL IN A WAY THAT RESULTS IN THE RELEASE OF ASBESTOS FIBERS INTO THE AIR IS SUBJECT TO REGULATIONS AND GUIDANCE OF THE OCUPATIONAL SAFETY AND HEALTH ADMINISTRATION'S (OSHA) INCLUDING; 29 CFR 1926.1101 (2010) AND 29 CFR 1910.1001 (2010).





TRENCH DETAILS
NO SCALE



VICINITY MAP
NO SCALE

LINESTOP
VALVE
TRANSITION FITTING
CUSTOMER METER
DRESSER COUPLING
17# ANODE
REDUCER
ELECTROFUSION COUPLING
CAP
TS TEST STATION
537 SERVICE ADDRESS
(E) EXISTING
(P) PROPOSED
A/R ANODELESS RISER
0040 STATION
1 MATERIAL ITEM

LEGEND

2 working days
Call before you Dig.
USA North
811/800-227-2600

NO	REVISION	DATE	DRAWN
1	ORIGINAL ISSUE	10/7/2013	MB
2			
3			
4			
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6			
7			
8			
9			
10			

REVIEWED		
Engineer	BRECKE 10/7/2013	
Designer		
Cathodic Protection	RICHARDS 10/7/2013	
Approved	BACHAND 10/7/2013	

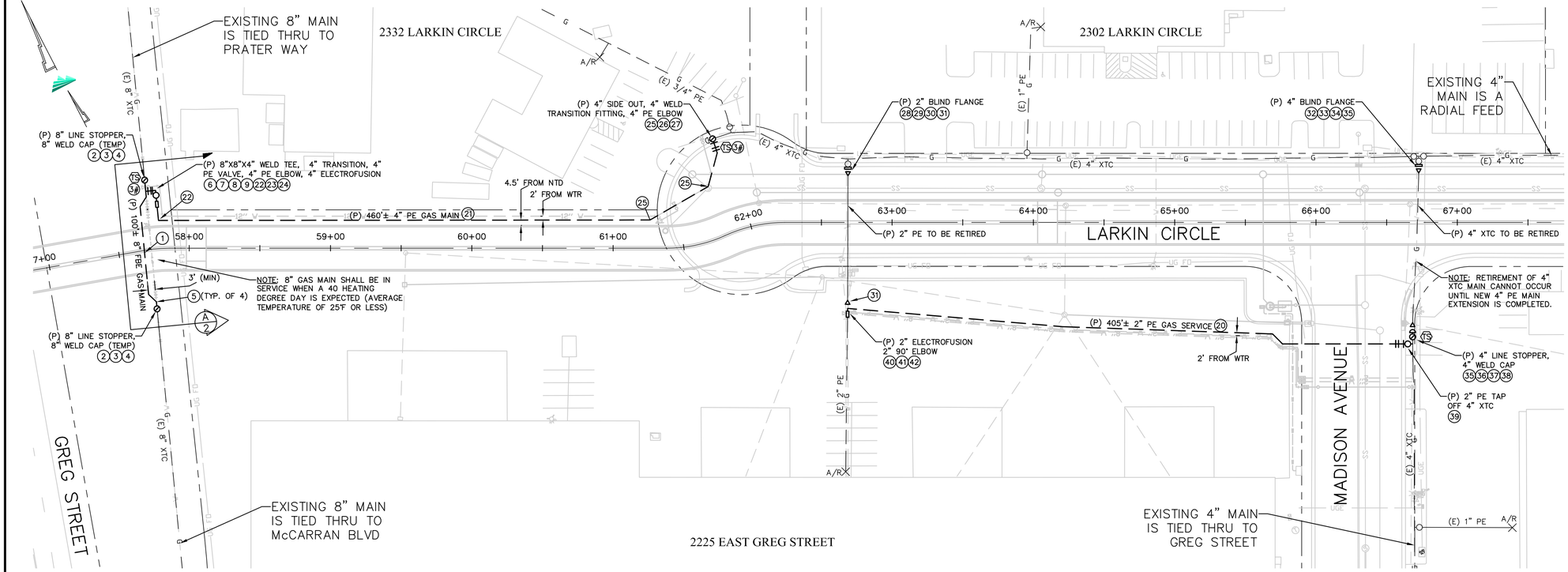
Gas Engineering Services
Project Contact: Matt Brecke
Office: (775) 834-7041
Cell:
Email: mbrecke@nvenergy.com

NVEnergy
P. O. Box 10100
6100 Neil Road
Reno, NV 89520-0024

NORTH TRUCKEE DRAIN
GAS RELOCATIONS
GREG STREET & LARKIN CIRCLE

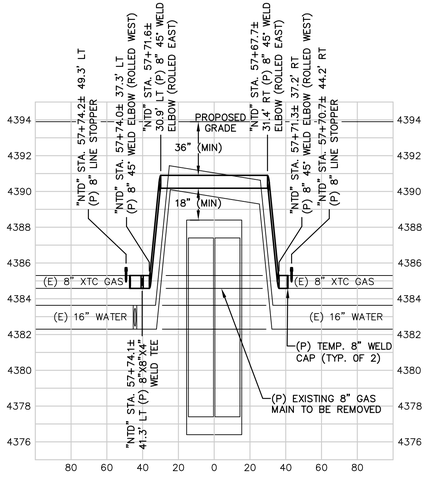
1920-11

PID NUMBER
GREG STREET 8"
3000267183
LARKIN CIRCLE
3000236040



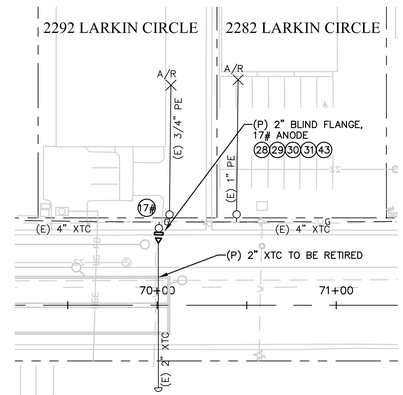
PLAN VIEW

SCALE 1"=40'



OFFSET PROFILE A/2

HORIZ. SCALE 1"=40'
VERT. SCALE 1"=4'



2255 LARKIN CIRCLE

PLAN VIEW

SCALE 1"=40'

FOR NV ENERGY USE ONLY

WO#	Map#
Work Location:	
Installation Company:	
Test Method: ☐ Chart ☐ Gauge	
Test Medium:	
Test Duration:	
Test Pressure (psig):	
Tested By (employee):	
Test Date:	
Highlight components tested on drawing:	

Main Connection Information

Connected To:	☐ Main ☐ Valve
Material:	☐ PE ☐ Steel
Diameter:	_____ in
Depth:	_____ ft
Coating:	☐ Black ☐ XTC ☐ FBE
CP Read:	_____ mV

New Main

Feet Laid	Size	Type	Main/Svc

Retired/Abandoned/Removed

Feet Laid	Size	Type	Main/Svc

GREG ST MATERIAL LIST – 3000267183

NO.	QTY.	DESCRIPTION	STOCK NO.
1	100'	PIPE STEEL 8", FBE OR XTC, API5L GRADE B/X42, .188 WALL	GPIPE–BAJ
2	2	8" LINE STOPPER, HALF FITTING	DLS04G
3	4	STOP: 8" SEALING ELEMENT (.188" WALL)	452060
4	4	CAP, PIPE: 8", BW, STD, BLACK STL	DCI07G
5	4	ELBOW, PIPE: 8", WELD, 45 DEG, STL, STD RADIUS	450938
6	1	8"X8"X4" WELD TEE, STD, CS, BW	N/S
7	1	4" STEEL X 4" PE TRANSITION FITTING	DTF02G
8	1	VALVE, BALL: 4", BUTT FUSION STUB END, POLYETHYLENE 3408 BODY	DVI02G
9	1	CAP, PIPE: 4" IPS, BUTT FUSION, POLYETHYLENE 3408, GR P34	DCI03G

LARKIN CIR MATERIAL LIST – 3000236040

NO.	QTY.	DESCRIPTION	STOCK NO.
* 20	405'	PIPE, STD: 2" IPS, 500' LG, PLAIN ENDS, POLYETHYLENE 3408, GR P34	GPIPE–ABF
* 21	460'	PIPE, STD: 4" IPS, 40' LG, PLAIN ENDS, POLYETHYLENE 3408, GR P34	GPIPE–AAH
* 22	2	ELBOW, PIPE: 4" IPS, BUTT FUSION, 90 DEG, POLYETHYLENE 3408	450925
23	1	COUPLING, PIPE: 4" IPS, ELECTROFUSION	450644
* 24	1	CAP, PIPE: 4" IPS, BUTT FUSION, POLYETHYLENE 3408, GR P34	DCI03G
* 25	3	ELBOW, PIPE: 4" IPS, BUTT FUSION, 45 DEG, POLYETHYLENE 3408	450923
26	1	4" LINE STOPPER, SIDE OUT FITTING	DLS07G
27	1	4" STEEL X 4" PE TRANSITION FITTING	DTF02G
28	2	2" BLIND FLANGE, RF, CLASS 150	450950
29	2	2" GASKET, RF, CLASS 150	470040
30	8	5/8" X 3" STUDS A193 B7 WITH 2 HEAVY NUTS A194 2H	470360
31	3	PIPE PLUG, 1–3/4" TO 2–1/2" WOOD	470178
32	1	4" BLIND FLANGE, RF, CLASS 150	450960
33	1	4" GASKET, RF, CLASS 150	470050
34	8	5/8" X 3–1/2" STUDS A193 B7 WITH 2 HEAVY NUTS A194 2H	470370
35	2	PIPE PLUG, 3–1/2" TO 4–1/2" WOOD	470179
36	1	4" LINE STOPPER, HALF FITTING	DLS03G
37	1	STOP: 4" SEALING ELEMENT (.237" WALL)	452043
38	1	CAP, PIPE: 4", BW, STD, BLACK STL	450185
39	1	2" TAP OFF 4" STEEL	DTI05G
* 40	1	ELBOW, PIPE: 2" IPS, BUTT FUSION, 90 DEG, POLYETHYLENE 3408	450913
* 41	1	CAP, PIPE: 2" IPS, BUTT FUSION, POLYETHYLENE 3408, GR P34	DCI01G
42	1	COUPLING, PIPE: 2" IPS, ELECTROFUSION	450642
43	1	17# ANODE	470030

* MATERIAL SUPPLIED BY NVENERGY & INSTALLED BY CONTRACTOR

2 working days Call before you Dig. USA North 811/800-227-2600

NO.	REVISION	DATE	DRAWN
1	ORIGINAL ISSUE	10/7/2013	MB
2			
3			
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10			

REVIEWED

Designer	Engineer	
Cathodic Protection RICHARDS 10/7/2013	BRCOKE 10/7/2013	
	Approved BACHAND 10/7/2013	

Gas Engineering Services
Project Contact: Matt Brecke
Office: (775) 834-7041
Cell:
Email: mbrecke@nvenergy.com

NVEnergy
P. O. Box 10100
6100 Neil Road
Reno, NV 89520-0024

NORTH TRUCKEE DRAIN GAS RELOCATIONS
GREG STREET & LARKIN CIRCLE

1920–11

PID NUMBER
GREG STREET 8" 3000267183
LARKIN CIRCLE 3000236040

Sheet 2 of 2