SHEET INDEX		
NO	DWG	SHEET DESCRIPTION
1	G1	COVER SHEET
2	G2	PROJECT DATA SHEET
3	HC1	HORIZONTAL CONTROL PLAN 1
4	HC2	HORIZONTAL CONTROL PLAN 2
5	MG	MASTER GRADING PLAN
6	GD1	GRADING PLAN 1
7	GD2	GRADING PLAN 2
8	GD3	GRADING PLAN 3
9	GD4	GRADING PLAN 4
10	PP1	PLAN & PROFILE 1
11	PP2	PLAN & PROFILE 2
12	PP3	PLAN & PROFILE 3
13	PP4	PLAN & PROFILE 4
14	PP5	V31 STORM DRAIN CONNECTION PLAN AND PROFILE
15	DT1	TYPICAL DETAILS & SECTIONS 1
16	DT2	TYPICAL DETAILS & SECTIONS 2
17	DT3	TYPICAL DETAILS & SECTIONS 3
18	S1	GENERAL STRUCTURAL NOTES AND TYPICAL DETAILS
19	S2	RECTANGULAR CHANNEL STRUCTURAL NOTES AND TYPICAL DETAILS
20	S3	RECTANGULAR CHANNEL SECTIONS
21	S4	CONCRETE ACCESS RAMP

SUMMERLIN

SM

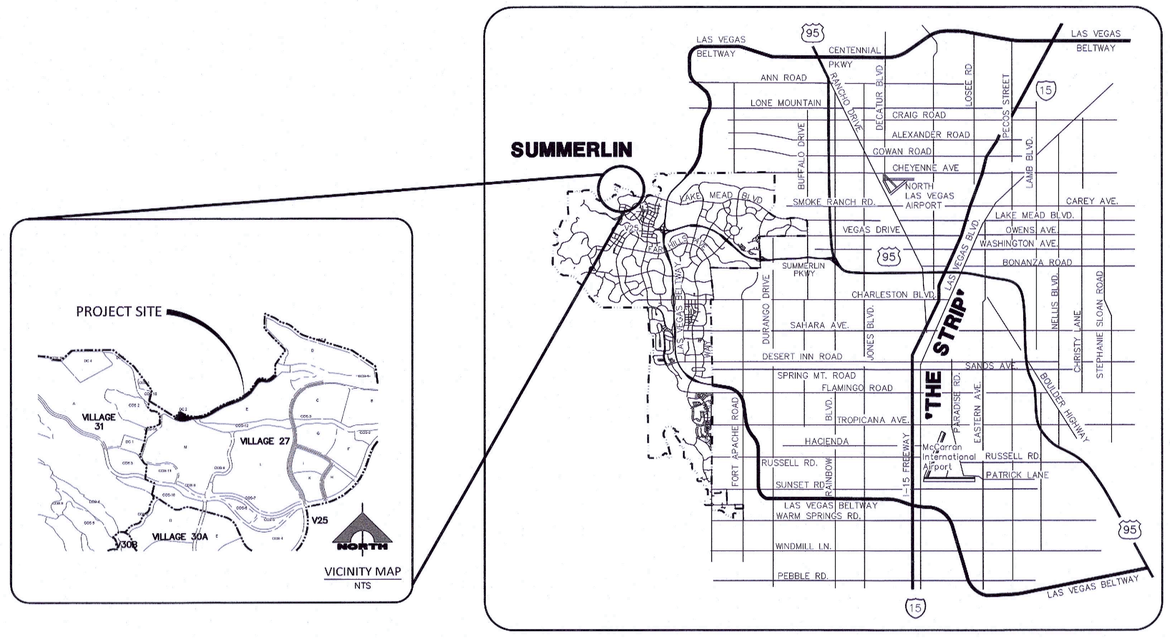
VILLAGE 27

PARCEL M & E BOUNDARY DRAINAGE IMPROVEMENTS

FUTURE SID PROJECT

A.P.N. 137-15-401-003 & 137-21-501-001

2022



OWNER/DEVELOPER

THE HOWARD HUGHES COMPANY, LLC
10845 GRIFFITH PEAK DRIVE, SUITE 160
LAS VEGAS, NEVADA 89135
OFFICE PHONE NO. (702) 791-4300

ENGINEER

GCW ENGINEERS \ SURVEYORS
1555 S. RAINBOW BLVD.
LAS VEGAS, NV 89146
T: 702.804.2000
F: 702.804.2299
gcwengineering.com

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PROFESSIONAL ENGINEER - STATE OF NEVADA
MLADJAN J. GRUJICIC
EXP 6/30/23
CIVIL
No. 17109
10/19/2022

LAS VEGAS FIRE & RESCUE APPROVAL

LAS VEGAS FIRE & RESCUE DATE

THE HOWARD HUGHES COMPANY, LLC

KEVIN T. ORROCK DATE
PRESIDENT, SUMMERLIN

CAUTION TO CONTRACTOR

THE CONTRACTOR SHALL BE RESPONSIBLE TO INVESTIGATE AND VERIFY THE ACTUAL LOCATION AND DEPTH OF ALL EXISTING UNDERGROUND FACILITIES AT LEAST 48 HOURS IN ADVANCE OF THE PERFORMANCE OF ANY WORK.

GEOTECHNICAL NOTE

ALL GRADING SHALL BE IN ACCORDANCE WITH THE SPECIFICATION MANUAL AND THE SOILS REPORT AS PREPARED BY UNIVERSAL ENGINEERING SCIENCES, PROJECT NUMBER G-20-156, DATED SEPTEMBER 1, 2022, WHERE CONFLICTS OCCUR THE MOST RESTRICTIVE SHALL GOVERN.

DRAINAGE CERTIFICATION

I CERTIFY THAT THE GRADING PLANS ARE IN CONFORMANCE WITH THE APPROVED DRAINAGE STUDY PER #DS-05586B ON FILE AT THE CITY OF LAS VEGAS FOR THIS PROJECT.

10/19/2022
MLADJAN J. GRUJICIC, PE NO. 17109 DATE

BASIS OF BEARINGS AND COORDINATES

GRID NORTH AS DEFINED BY THE CENTRAL MERIDIAN OF THE NEVADA COORDINATE REFERENCE SYSTEM (NCRS), LAS VEGAS HIGH ELEVATION ZONE, NORTH AMERICAN DATUM OF 1983; SAID MERIDIAN BEING COINCIDENT WITH 114°58' WEST OF THE GREENWICH MERIDIAN.

LINEAR UNIT: US SURVEY FOOT (FTUS)
DATUM (REFERENCE FRAME): NAD 83 (2011) EPOCH 2010.00
SYSTEM: NEVADA COORDINATE REFERENCE SYSTEM (NCRS)
ZONE: LAS VEGAS HIGH ELEVATION ZONE

PROJECTION: TRANSVERSE MERCATOR
STANDARD PARALLEL (AND LATITUDE OF GRID ORIGIN): 36°15'00"N
LONGITUDE OF CENTRAL MERIDIAN: 114°58'00"W
NORTHING AT GRID ORIGIN: 400,000.00 M (1,312,333.3333 FTUS)
EASTING AT CENTRAL MERIDIAN: 300,000 M (984,250.0000 FTUS)
SCALE FACTOR ON CENTRAL MERIDIAN: 1.000135 (EXACT)

NOTES:
1. ALL DISTANCES AND BEARINGS SHOWN HEREON ARE PROJECTED (GRID) VALUES BASED ON THE PRECEDING PROJECTION DEFINITION. THE PROJECTION WAS DEFINED SUCH THAT PROJECTED (GRID) DISTANCES ARE EQUIVALENT TO "GROUND" DISTANCES IN THE PROJECT AREA.
2. GRID BEARINGS SHOWN HEREON (OR IMPLIED BY GRID COORDINATES) DO NOT EQUAL GEODETIC BEARINGS DUE TO MERIDIAN CONVERGENCE.

BENCHMARK

BM #	DESCRIPTION	NAVD 88 DATUM	NAVD 88 DATUM
CLV BM No. 7LV0934SW6	FIND RIVET AND PLATE IN TOP OF CURB SE CORNER OF DESERT MOON RD. AND SKY VISTA DR. T20S,R59E,S34	3318.31 (FEET)	1,011.422 (METERS)

L#: LXX-XXXXX CLV#: 107VXXXXX

90% REVIEW - NOT FOR CONSTRUCTION

REV	DATE	DESCRIPTION

CITY OF LAS VEGAS GENERAL NOTES

1. ALL CONSTRUCTION AND MATERIALS SHALL BE IN ACCORDANCE WITH THE "UNIFORM STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION OFF-SITE IMPROVEMENTS, CLARK COUNTY AREA NEVADA", LATEST ISSUE; THE "UNIFORM STANDARD DRAWINGS FOR PUBLIC WORKS CONSTRUCTION, CLARK COUNTY AREA NEVADA", LATEST REVISED EDITION; THE "SUMMERLIN IMPROVEMENT STANDARDS" FOR WORK IN THE SUMMERLIN AREA; AND OTHER APPLICABLE APPROVED STANDARDS ISSUED BY THE CONTROLLING AGENCY; THE UNIFORM BUILDING CODE; AND ALL LOCAL CITY CODES AND ORDINANCES APPLICABLE, EXCEPT AS NOTED ON THIS SHEET AS "DEVIATIONS FROM STANDARDS".

2. THE EXISTENCE AND LOCATION OF ANY OVERHEAD OR UNDERGROUND UTILITY LINES, PIPES, OR STRUCTURES SHOWN ON THESE PLANS ARE OBTAINED BY A RESEARCH OF THE AVAILABLE RECORDS. EXISTING UTILITIES AS SHOWN FROM CLV PLANS LIBRARY ARE APPROXIMATE AND FOR RECORD PURPOSES. EXISTING UTILITIES ARE LOCATED ON PLANS ONLY FOR THE CONVENIENCE OF THE CONTRACTOR. EXISTING UTILITY SERVICE LATERALS MAY NOT BE SHOWN ON THE PLANS. THE CONTRACTOR SHALL, AT HIS OWN EXPENSE, LOCATE ALL UNDERGROUND AND OVERHEAD INTERFERENCE'S WHICH MAY AFFECT HIS OPERATION DURING CONSTRUCTION AND SHALL TAKE ALL NECESSARY PRECAUTIONS TO AVOID DAMAGE TO SAME. THE CONTRACTOR SHALL USE EXTREME CAUTION WHEN WORKING NEAR OVERHEAD UTILITIES SO AS TO SAFELY PROTECT ALL PERSONNEL AND EQUIPMENT, AND SHALL BE RESPONSIBLE FOR ALL COST AND LIABILITY IN CONNECTION THEREWITH.

3. THE CONTRACTOR SHALL TAKE ALL PRECAUTIONARY MEASURES NECESSARY TO PROTECT EXISTING UTILITY LINES, STRUCTURES AND STREET IMPROVEMENTS WHICH ARE TO REMAIN IN PLACE, FROM DAMAGE, AND ALL SUCH IMPROVEMENTS OR STRUCTURES DAMAGED BY THE CONTRACTOR'S OPERATIONS SHALL BE REPAIRED OR REPLACED SATISFACTORY TO THE CITY ENGINEER AND OWNING UTILITY COMPANY AT THE EXPENSE OF THE CONTRACTOR.

4. ALL CONSTRUCTION SHALL BE AS SHOWN ON THESE PLANS, ANY REVISIONS SHALL HAVE THE PRIOR WRITTEN APPROVAL OF THE CITY ENGINEER.

5. TYPE V CEMENT SHALL BE USED IN ALL OFF-SITE CONCRETE WORK. CONCRETE TO BE 3000 P.S.I. MINIMUM @ 28 DAYS. MIX DESIGNS TO BE APPROVED BY THE CITY, PRIOR TO THE USE ON THE PROJECT.

6. PERMITS ARE REQUIRED FOR ANY WORK IN THE PUBLIC RIGHT-OF-WAY. THE CONTRACTOR SHALL SECURE ALL PERMITS AND INSPECTIONS REQUIRED FOR THIS CONSTRUCTION.

7. EXPANSION JOINTS REQUIRED, MAXIMUM EVERY 300' IN EXTRUDED-TYPE CURB.

8. AC PAVEMENT TO BE ONE-HALF INCH (½") ABOVE LIP OF ALL GUTTERS AFTER COMPACTION, EXCEPT AT SIDEWALK RAMPS AND CROSS GUTTERS.

9. CURB AND GUTTER FOUND TO BE UNACCEPTABLE TO THE CITY OF LAS VEGAS SHALL BE REMOVED AND REPLACED PER STANDARD DRAWING 216.

10. SIDEWALK RAMPS SHALL BE CONSTRUCTED IN EACH QUADRANT OF AN INTERSECTION PER STANDARD DRAWING 235. EXACT LOCATION OF RAMPS MAY BE ADJUSTED IN THE FIELD BY A CITY INSPECTOR.

11. CONTRACTOR SHALL PROVIDE ALL NECESSARY HORIZONTAL AND VERTICAL TRANSITIONS BETWEEN NEW CONSTRUCTION AND EXISTING SURFACES TO PROVIDE FOR PROPER DRAINAGE AND FOR INGRESS AND EGRESS TO NEW CONSTRUCTION. THE EXTENT OF THE TRANSITIONS TO BE AS SHOWN ON PLANS.

12. ALL GRADING WORK SHALL CONFORM TO THE SOILS REPORT AS PREPARED BY
    UNIVERSAL ENGINEERING SCIENCES, REPORT # G-20-156,
    DATE SEPTEMBER 1, 2022 APPROVED BY THE CITY ENGINEER, AND AS SHOWN ON THESE PLANS.

13. EXACT LOCATION OF ALL SAWCUT LINES MAY BE ADJUSTED OR DETERMINED IN THE FIELD BY A CITY OF LAS VEGAS INSPECTOR IF LOCATION ON PLANS IS NOT CLEARLY SHOWN, OR EXISTING PAVEMENT CONDITION REQUIRES RELOCATIONS.

14. THE CONTRACTOR SHALL TAKE ALL PRECAUTIONS NECESSARY TO PROTECT EXISTING PERMANENT SURVEY MONUMENTS. ANY MONUMENTS DISTURBED SHALL BE REPLACED AND ADJUSTED PER AVAILABLE RECORDS IN ACCORDANCE WITH N.R.S. STATUTE NO. 625.380 & CITY OF LAS VEGAS TITLE 18, APPENDIX D.

15. UTILITY COMPANY METER BOXES, MANHOLE LIDS, VALVE COVERS, ETC., SHALL BE LOCATED OUT OF DRIVEWAYS, DRIVEWAY APRONS, FLOWLINES, AND CROSS GUTTERS UNLESS WRITTEN APPROVAL IS GRANTED BY THE UTILITY COMPANY AND THE CITY ENGINEER.

WALL NOTES:

16. ALL WALLS, NEW OR EXISTING, ARE ONLY SHOWN ON CIVIL PLANS FOR THE PURPOSE OF REVIEWING GRADING RELATIONSHIPS; FLOOD CONTROL AND SIGHT DISTANCE AT INTERSECTIONS. NEW WALLS REQUIRE A SEPARATE PERMIT AND INSPECTION BY THE BUILDING DEPARTMENT.

17. ASPHALT MIX DESIGN MUST BE SUBMITTED AND APPROVED BY THE CITY ENGINEER PRIOR TO THE PLACEMENT OF ASPHALT WITHIN CITY RIGHT OF WAY.

18. CONTRACTOR SHALL ADJUST ALL NEW AND EXISTING INLETS, VALVE BOXES, MANHOLE RIMS, AND SEWER CLEAN OUTS, ETC. TO FINISH GRADE AS APPLICABLE WHETHER OR NOT THEY ARE SHOWN ON THE PLANS.

19. MATERIALS, HANDLING AND PLACEMENT OF PORTLAND CEMENT CONCRETE SHALL BE IN ACCORDANCE WITH APPLICABLE SECTIONS OF NDOT OR THE CLARK COUNTY AREA SPECIFICATIONS (AS APPLICABLE) AND THE PLANS AND DETAILS SHOWN HEREON.

20. WHEN INSTALLING UNDERGROUND FACILITIES THAT REQUIRE UNDERGROUND LOCATING DEVICES SUCH AS MARKER BALLS, LOCATING RIBBON, ETC, THE CONTRACTOR SHALL PROVIDE WRITTEN DOCUMENTATION TO OFFSITE INSPECTION AND TESTING VERTIFYING THAT ALL DEVICES HAVE BEEN PLACED AND VERIFIED TO BE IN GOOD WORKING CONDITION PRIOR TO THE CONSTRUCTION OF ANY ROAD BASE.

21. ~~PRIOR HAUNCHING AND PRIOR TO BACKFILL OPERATIONS WHICH WOULD COVER SANITARY SEWER AND STORM DRAIN FACILITIES, CONTRACTOR IS REQUIRED TO SCHEDULE CITY FIELD TRENCH UTILITY SURVEY INSPECTION FOR DETERMINATION OF FINAL LOCATION COORDINATES. FACILITIES TO BE LOCATED BY CLV SHALL INCLUDE AT A MINIMUM THE HORIZONTAL AND VERTICAL (INVERT) LOCATION OF PUBLIC SEWER MANHOLES, STORM DRAIN MANHOLES AND TRANSITION STRUCTURES, STORM DRAIN LATERALS AT THE CONNECTION TO THE STORM DRAIN MAIN AND AT THE CONNECTION TO A DROP INLET, THE CONNECTION OF SEWER SERVICE LATERALS TO THE SEWER MAIN AND WHERE THE SEWER SERVICE LATERALS EXIT THE PUBLIC RIGHT-OF-WAY, SEWER AND STORM DRAIN MAIN ALIGNMENT, INCLUDING DEFLECTION POINTS.~~

OR

(MAY BE USED ONLY ON PROJECTS ASSOCIATED WITH A TENTATIVE MAP CONTAINING 5 LOTS OR MORE)

- SANITARY SEWER AND STORM DRAIN FINAL LOCATION MAP(S) SHALL BE PROVIDED TO THE CITY AND APPROVED PRIOR TO ACCEPTANCE OF FACILITY VIDEO INSPECTION. THE MAP(S) SHALL INCLUDE HORIZONTAL AND VERTICAL (INVERT) LOCATION OF PUBLIC SEWER MANHOLES, STORM DRAIN MANHOLES AND TRANSITION STRUCTURES, STORM DRAIN LATERALS AT THE CONNECTION TO THE STORM DRAIN MAIN AND AT THE CONNECTION TO A DROP INLET, THE CONNECTION OF SEWER SERVICE LATERALS TO THE SEWER MAIN AND WHERE THE SEWER SERVICE LATERALS EXIT THE PUBLIC RIGHT-OF-WAY, SEWER AND STORM DRAIN MAIN ALIGNMENT, INCLUDING DEFLECTION POINTS. THE LOCATION SHALL BE DESCRIBED BY COORDINATES WHICH SHALL BE BASED ON THE OFFICIAL HORIZONTAL AND VERTICAL CONTROL NETWORKS OF THE CITY OF LAS VEGAS. FINAL LOCATION MAPS MUST BE SEALED AND CERTIFIED BY A NEVADA PROFESSIONAL LAND SURVEYOR TO HAVE POSITIONAL CERTAINTIES OF ± 0.09 METERS (± 0.3 FEET) HORIZONTALLY AND VERTICALLY. A SEPARATE ELECTRONIC COMMA DELIMITED FILE FOR THE SANITARY SEWER AND STORM DRAIN COORDINATES SHALL ALSO ACCOMPANY THE SANITARY SEWER AND STORM DRAIN FINAL LOCATION MAP(S).

22. CCTV VIDEO INSPECTION IS REQUIRED FOR ALL SEWER AND STORM DRAINS. THE CCTV VIDEO INSPECTIONS NEED TO BE PERFORMED PER THE DESIGN AND CONSTRUCTION STANDARDS FOR WASTEWATER COLLECTION SYSTEMS LATEST EDITION.

23. A SEPARATE BORING PERMIT IS REQUIRED FOR ALL BORING ACTIVITIES.

REVISED 06/04/18

LEGEND

- TYPICAL PROPOSED LINEWORK
- TYPICAL EXISTING LINEWORK
- TYPICAL FUTURE LINEWORK
- SECTION LINE
- EASEMENT LINE
- EDGE OF PAVEMENT
- FUTURE RIGHT-OF-WAY LINE
- FUTURE PROPERTY LINE
- FUTURE CENTERLINE
- VILLAGE BOUNDARY LINE
- TYPICAL UTILITY LINE 4" – 12" (SINGLE LINE)
- TYPICAL UTILITY LINE > THAN 12" (DOUBLE LINE)
- TYPICAL SEWER LINE W/MH
- TYPICAL WATER LINE W/GV
- TYPICAL STORM LINE W/MH
- 100 YR HYDRAULIC GRADE LINE
- CONCRETE OR STEEL ENCASEMENT
- TYPICAL STUB & BLOW-OFF
- TYPICAL CURB & GUTTER, SIDEWALK AND RAMP
- POST AND CABLE FENCE
- WROUGHT IRON FENCE
- CHAIN LINK FENCE
- SAWCUT
- SIGHT VISIBILITY ZONE
- DAYLIGHT LINE
- BOUNDARY CHANNEL WALL
- CUT–OFF WALL
- PROPOSED ACCESS DRIVE
- EXISTING ACCESS DRIVE BY OTHERS
- CONCRETE EMBANKMENT BY OTHERS
- CONCRETE CHANNEL FLOOR
- LANDSCAPING AREA
- RETAINING WALL
- FUTURE WALKING TRAIL
- PROPOSED ABANDONMENT
- EXISTING ABANDONMENT
- CUT LINE LIMITS
- FILL LINE LIMITS

- DETAIL BUBBLE W/ REF. (1/C)
- BENCHMARK
- GATE VALVE
- PRESSURE REDUCING VALVE (PRV)
- BACK WATER VALVE (BWV)
- DROP INLET
- FIRE HYDRANT
- WATER METER
- WATER RPPA
- WATER RPDA
- TRAFFIC SIGNAL PULL BOX
- STREET LIGHT CLARK COUNTY
- STREET LIGHT SUMMERLIN STD
- TRAFFIC SIGNAL/FLASHER
- EXISTING TELE POLE
- EXISTING POWER POLE
- EXISTING POLE
- EX. ELEC MARKER
- TRANSFORMER PAD
- SERVICE PEDESTAL
- PULLBOX
- PROPOSED CONTOUR (3005)
- EXISTING CONTOUR (3005)
- PROPOSED SPOT ELEVATION (60.50 TC)
- EXISTING SPOT ELEVATION (60.5) TC
- PROPOSED SLOPE (1.00%)
- SLOPE DIRECTION (TOP SLOPE / TOE SLOPE)
- FINISH FLOOR ELEVATION (FF = 2333.25)

CITY OF LAS VEGAS GRADING NOTES

1. IN THE EVENT THAT ANY UNFORESEEN CONDITIONS NOT COVERED BY THESE NOTES ARE ENCOUNTERED DURING GRADING OPERATIONS, THE OWNER/ENGINEER SHALL BE IMMEDIATELY NOTIFIED FOR DIRECTION.

2. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO PERFORM ALL NECESSARY CUTS AND FILLS WITHIN THE LIMITS OF THIS PROJECT AND THE RELATED OFF-SITE WORK, SO AS TO GENERATE THE DESIRED SUBGRADE, FINISH GRADES AND SLOPES SHOWN.

3. CONTRACTOR SHALL TAKE FULL RESPONSIBILITY FOR ALL EXCAVATION. ADEQUATE SHORING SHALL BE DESIGNED AND PROVIDED BY THE CONTRACTOR TO PREVENT UNDERMINING OF ANY ADJACENT FEATURES OR FACILITIES AND/OR CAVING OF THE EXCAVATION.

4. THE CONTRACTOR IS WARNED THAT AN EARTHWORK BALANCE WAS NOT NECESSARILY THE INTENT OF THIS PROJECT. ANY ADDITIONAL MATERIAL REQUIRED OR LEFTOVER MATERIAL FOLLOWING EARTHWORK OPERATIONS BECOMES THE RESPONSIBILITY OF THE CONTRACTOR.

5. THE GRADING CONTRACTOR IS RESPONSIBLE TO COORDINATE WITH THE OWNER TO PROVIDE FOR THE REQUIREMENTS OF THE PROJECT STORM WATER POLLUTION PREVENTION PLAN (SWPPP) AND ASSOCIATED PERMIT.

6. CONTRACTOR SHALL GRADE TO THE LINES AND ELEVATIONS SHOWN ON THE PLANS WITHIN THE FOLLOWING HORIZONTAL AND VERTICAL TOLERANCES AND DEGREES OF COMPACTION, IN THE AREAS INDICATED:

	HORIZONTAL/VERTICAL	COMPACTION
A. PAVEMENT AREA SUBGRADE	0.1'± +0.0' TO –0.1'	SEE SOILS REPORT
B. ENGINEERED FILL	0.5'± +0.1' TO –0.1'	SEE SOILS REPORT

- REPORT COMPACTION TESTING WILL BE PERFORMED BY THE OWNER OR HIS REPRESENTATIVE.

7. ALL CUT AND FILL SLOPES SHALL BE PROTECTED UNTIL EFFECTIVE EROSION CONTROL HAS BEEN ESTABLISHED.

8. THE USE OF POTABLE WATER WITHOUT A SPECIAL PERMIT FOR BUILDING OR CONSTRUCTION PURPOSES INCLUDING CONSOLIDATION OF BACKFILL OR DUST CONTROL IS PROHIBITED. THE CONTRACTOR SHALL OBTAIN ALL NECESSARY PERMITS FOR CONSTRUCTION WATER.

9. THE CONTRACTOR SHALL MAINTAIN THE STREETS, SIDEWALKS AND ALL OTHER PUBLIC RIGHT-OF-WAY IN A CLEAN, SAFE AND USABLE CONDITION. ALL SPILLS OF SOIL, ROCK OR CONSTRUCTION DEBRIS SHALL BE PROMPTLY REMOVED FROM THE PUBLICLY OWNED PROPERTY DURING CONSTRUCTION AND UPON COMPLETION OF THE PROJECT. ALL ADJACENT PROPERTY, PRIVATE OR PUBLIC SHALL BE MAINTAINED IN A CLEAN, SAFE AND USABLE CONDITION.

10. IN THE EVENT THAT ANY TEMPORARY CONSTRUCTION ITEM IS REQUIRED THAT IS NOT SHOWN ON THESE DRAWINGS, THE OWNER AGREES TO PROVIDE AND INSTALL SUCH ITEM AT HIW OWN EXPENSE AND AT THE DIRECTION OF THE CITY ENGINEER. TEMPORARY CONSTRUCTION INCLUDES DITCHES, BERMS, ROAD SIGNS AND BARRICADES, ETC.

REVISED 4/15/10

ABBREVIATIONS

A	AIR	DI/D.I.	DROP INLET
AC	ASPHALT CONCRETE, ACRE	DIA, ø	DIAMETER
ACP	ASBESTOS CEMENT PIPE	DIP	DUCTILE IRON PIPE
ADD'L	ADDITIONAL	DIST	DISTANCE
AP	ANGLE POINT	DR	DRIVE
APN	ASSESSOR'S PARCEL NUMBER	DS	DOWNSPOUT
APPROX	APPROXIMATELY	DTL	DETAIL
AASHTO	AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS	DRV, DW	DRIVEWAY
		DWG	DRAWING
ASTM	AMERICAN SOCIETY FOR TESTING AND MATERIALS	E	EAST
AVE	AVENUE	ECR	END CURB RETURN
AVAR	AIR VALVE, AIR RELEASE ASSEMBLY	EG	EXISTING GROUND
AWWA	AMERICAN WATER WORKS ASSOCIATION	ELEC, ELE	ELECTRICAL
		ELEV	ELEVATION
BC	BACK OF CURB	EP, EOP	EDGE OF PAVEMENT
BCR	BEGIN CURB RETURN	ESMT	EASEMENT
BLM	BUREAU OF LAND MANAGEMENT	EVC	END VERTICAL CURVE
BLVD	BOULEVARD	EVP	END VERTICAL POINT
BM	BENCHMARK	EX, EXIST	EXISTING
BO	BLOW-OFF	EXP	EXPANSION JOINT
BVCE	BEGIN VERTICAL CURVE ELEVATION	FC	FACE OF CURB
		FF, FFE	FINISH FLOOR ELEVATION
BVCS	BEGIN VERTICAL CURVE STATION	FG	FINISH GRADE
BVP	BEGIN VERTICAL POINT	FH	FIRE HYDRANT
BW	BACK OF SIDEWALK	FL	FLOW LINE
C, CL	CENTERLINE	FO	FIBER OPTIC
C&G	CURB & GUTTER	FRP	FIBERGLASS REINFORCED PLASTIC
CATV	UNDERGROUND CABLE TV	FS	FINISH SURFACE
CCBM	CLARK COUNTY BENCH MARK	FT	FOOT/FEET
CCPW	CLARK COUNTY PUBLIC WORKS	FTG	FOOTING
CCTV	CLOSED–CIRCUIT TELEVISION	FUT	FUTURE
CCWRD	CLARK COUNTY WATER RECLAMATION DISTRICT	G	GAS
		GA	GAGE, GUY ANCHOR
CE	COMMON ELEMENT	GB	GRADE BREAK
CFS	CUBIC FEET PER SECOND	GND	GROUND
CIP	CAPITAL IMPROVEMENTS PROJECT, CORRUGATED IRON PIPE	GRD	GRADE, GROUND
		H, HGT	HEIGHT
CIPM	CURED–IN–PLACE MANHOLE	HDWL	HEADWALL
CIPP	CURED–IN–PLACE PIPE	HGL	HYDRAULIC GRADE LINE
CIR	CIRCLE	HORIZ	HORIZONTAL
CLR	CLEAR or CLEARANCE	HP	HIGH POINT, HIGH PRESSURE
CLSM	CONTROLLED LOW STRENGTH MATERIAL	HPS	HIGH PRESSURE SODIUM
		IBC	INTERNATIONAL BUILDING CODE
CLV	CITY OF LAS VEGAS	INV	INVERT
CMP	CORRUGATED METAL PIPE	INT	INTERIM
CMU	CONCRETE MASONRY UNIT	JT	JOINT
CNLV	CITY OF NORTH LAS VEGAS	L	LENGTH
CO	CLEANOUT	LT	LEFT
CONC	CONCRETE	LF	LINEAR FEET
COND	CONDUIT	LIP	LIP OF GUTTER
CONST	CONSTRUCT OR CONSTRUCTION	LN	LANE
COORD	COORDINATE	LP	LOW POINT, LIGHT POLE
COR	CORNER	LS, LSCP	LANDSCAPE
CPEP	CORRUGATED POLYETHELYNE PIPE	LVVWD	LAS VEGAS VALLEY WATER DISTRICT
CPR	COPPER	MAX	MAXIMUM
CT	COURT	MH	MANHOLE
CY	CUBIC YARD(S)	MIN	MINIMUM
Δ	DELTA	MLTMCP	MORTAR LINED TAPE & MORTAR COATED PIPE
DBL	DOUBLE	MOD	MODIFY/MODIFIED
DCSWCS	DESIGN AND CONSTRUCTION STANDARDS FOR WASTEWATER COLLECTION SYSTEM (LATEST ED.)	MON	MONUMENT
		MPH	MILES PER HOUR
		N	NORTH
DE	DRAINAGE EASEMENT	N.A.P.	NOT–A–PART
DEFL	DEFLECTION	NDOT	NEVADA DEPARTMENT OF TRANSPORTATION
DG	DESIGN GRADE	N.I.C.	NOT IN CONTRACT
		No.	NUMBER

NOSHA	STATE OF NEVADA OCCUPATIONAL SAFETY AND HEALTH ADMIN.	SHLDR	SHOULDER
		SHT	SHEET
NPC	NEVADA POWER COMPANY	SIS	SUMMERLIN IMPROVEMENT STDS.
NTS	NOT TO SCALE	SL	STREET LIGHT
NVE	NV ENERGY	SP	SERVICE POINT
OB	OVERBUILD	SQ	SQUARE
OC	ON CENTER	SR	SEWER RECLAIM MAIN
OHC	OVERHEAD COX COMMUNICATION	SS, SSWR	SANITARY SEWER
OHP	OVERHEAD POWER LINE	SSMH	SANITARY SEWER MANHOLE
P, PWR	POWER LINE	STA	STATION
PAC	PUBLIC ACCESS EASEMENT	ST	STREET
PB	PULL BOX	STD	STANDARD
PBS	PLANTMIX BITUMINOUS SURFACE	STL	STEEL
PDE	PUBLIC DRAINAGE EASEMENT	STRUCT	STRUCTURE
PLT	PLATE	SVZ	SIGHT VISIBILITY ZONE
PC	POINT OF CURVE, PRESSURE CLASS	SWG	SOUTHWEST GAS
PCC	POINT OF COMPOUND CURVE or PORTLAND CEMENT CONCRETE	T	TELEPHONE or TOP
		TAN	TANGENT
PE	PROJECT ENGINEER or POLYETHYLENE	TB	TOP OF BERM
		TC	TOP OF CURB
PED	PEDESTRIAN	TCE	TEMPORARY CONSTRUCTION ESMT
PGL	PROFILE GRADE LINE	TEL, TELE	TELEPHONE
PH	POTHOLE	TEMP	TEMPORARY
PI	POINT OF INTERSECTION	TF	TOP OF FOOTING
PIV	POST INDICATOR VALVE	TG	TOP OF GRATE
PL, P/L	PROPERTY LINE	TMH	TOP OF MANHOLE
PLCP	POLYURETHANE LINED AND COATED STEEL PIPE	TOP	TOP OF PIPE
		TP	TELEPHONE POLE
PMF	PAVEMENT MARKING FILM	TRANS	TRANSITION
POB	POINT OF BEGINNING	TW, TRW	TOP OF RETAINING WALL
POC	POINT ON CURVE, POINT OF CONN.	TS	TEST STATION
POT	POINT ON TANGENT	TSW	TOP OF SCREEN WALL
PP	POWER POLE	TS&V	TAPPING SLEEVE & VALVE
PROP	PROPOSED	TYP	TYPICAL
PRC	POINT OF REVERSE CURVE	UDACS	UNIFORM DESIGN AND CONSTRUCTION STANDARDS FOR WATER DISTRIBUTION SYSTEMS (LATEST ED.)
PRVC	POINT OF REVERSE VERTICAL CURVE		
PSI	POUNDS PER SQUARE INCH		
PT	POINT OF TANGENCY	UG	UNDERGROUND
PUB	PUBLIC	ULT	ULTIMATE
PUE	PUBLIC UTILITY EASEMENT	USDCCA, USD	UNIFORM STD. DRAWINGS FOR PUBLIC WORKS' CONSTRUCTION OFF–SITE IMPROVEMENTS CLARK COUNTY AREA, NEVADA (LATEST EDITION)
PVC	POLYVINYL CHLORIDE		
PVI	POINT OF VERTICAL INTERSECTION		
PVMT	PAVEMENT		
PVTDE	PRIVATE DRAINAGE EASEMENT		
PZ	PRESSURE ZONE	UT	UNDERGROUND TELEPHONE
R, RAD	RADIAL, RADIUS	VAR	VARIABLE/VARIES
RT	RIGHT	VC	VERTICAL CURVE
RCB	REINFORCED CONCRETE BOX	VCP	VITRIFIED CLAY PIPE
RCP	REINFORCED CONCRETE PIPE	VERT	VERTICAL
RD	ROAD	VG	VALLEY GUTTER
RDWY	ROADWAY	VOL	VOLUME
REC	RECTANGULAR	W	WATER or WEST
REF	REFERENCE	W/	WITH
REINF	REINFORCED	WMH	WATER MANHOLE
REQD	REQUIRED	WS	WATER SUPPLY
RIM	TOP OF RIM ELEVATION	WT	WEIGHT
RND	ROUND	WTR	WATER
R/W, ROW	RIGHT OF WAY	XING	CROSSING
RP	RADIUS POINT	YD	YARD, YARD DRAIN
RPM	RAISED PAVEMENT MARKERS	Z	PRESSURE ZONE
RSGV	RESILIENT SEAT GATE VALVE		
S	SEWER, SOUTH		
SCH	SCHEDULE		
SDWK, SW	SIDEWALK		
SD	STORM DRAIN		
SDMH	STORM DRAIN MANHOLE		
SECT	SECTION		
SF	SQUARE FOOT/FEET		

DEVIATION FROM STANDARDS

- NONE

FILL NOTE

ALL IMPORTED MATERIAL SHOULD BE APPROVED BY THE GEOTECHNICAL FIRM PROVIDING TESTING DURING CONSTRUCTION, PRIOR TO IMPORTING. STRUCTURAL FILL SHOULD BE OBSERVED AND TESTED AS NECESSARY TO DETERMINE COMPLIANCE WITH THE COMPACTION REQUIREMENTS PRESENTED IN THE APPROVED GEOTECHNICAL REPORT.

SITE CLEARING NOTES

1. STRIP AND REMOVE EXISTING VEGETATION, DEBRIS, UNCONTROLLED FILL, ALL LOOSE OR DISTURBED NATURAL SOILS, AND OTHER DELETERIOUS MATERIALS FROM PROPOSED GRADING AREAS. EXCAVATION SHOULD EXTEND AT LEAST 5 FEET BEYOND THE AREAS TO BE IMPROVED IN PLAN VIEW. UNCONTROLLED FILL IS DEFINED AS ANY EXISTING FILL THAT WAS NOT PROPERLY PLACED, OBSERVED AND TESTED.

2. ALL EXPOSED SURFACES SHOULD BE FREE OF MOUNDS AND DEPRESSIONS WHICH COULD PREVENT UNIFORM COMPACTION.

FLOOD ZONE NOTE

SITE LOCATED ON THE FEDERAL EMERGENCY AGENCY (FEMA) FLOOD INSURANCE RATE MAP (FIRM) CONTAINING COMMUNITY PARCEL NUMBERS 32003C2125E & 32003C2150E, DATED SEPTEMBER 27, 2002. THE FIRM MAP SHOWS THAT THE PROJECT IS LOCATED WITHIN A ZONE "X" DEFINED AS BEING OUTSIDE THE 500–YEAR FLOODPLAIN & NOT LOCATED WITHIN A FEMA DESIGNATED SPECIAL FLOOD ZONE HAZARD AREA (SFHA).

DRAINAGE IMPROVEMENT QUANTITIES

QUANTITIES ARE ESTIMATES ONLY. CONTRACTOR IS TO VERIFY DURING BIDDING PROCESS.

PARCEL M & E BOUNDARY CHANNEL (PUBLIC)

EXCAVATION	23,837	CY
EMBANKMENT	8,641	CY
NET (CUT)	15,196	CY
POST & CABLE RAILING	5,784	LF
CUT–OFF WALL	2,916	LF
RETAINING WALL	659	LF
CLEAR & GRUB	6	AC
TORTOISE FEES	6	AC
CONCRETE CHANNEL	3,050	LF
ACCESS DRIVE IMPROVEMENTS	85,374	SF
CONCRETE ACCESS RAMP	2	EA
SUBGRADE PREPARATION	8,050	SY
TYPE II AGGREGATE	1,376	CY
VALLEY GUTTER	1,008	SF

STORM DRAIN QUANTITIES (PUBLIC)

36" RCP	931	LF
48" TYPE II MANHOLE	4	EA
TEMPORARY PLUG & CAP	1	EA

QUANTITIES ARE ESTIMATES ONLY. CONTRACTOR IS TO VERIFY DURING BIDDING PROCESS.

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Call 811
OR
1-800-642-2444

FAST
Call before you UnderGround
1-702-432-5300
FREEWAY AND ARTERIAL SYSTEM OF TRANSPORTATION

AVOID HITTING OVERHEAD POWER LINES. IT'S COSTLY
CALL BEFORE YOU DO OVERHEAD
1-702-227-2929

NEVADA PROFESSIONAL ENGINEER – STATE OF NEVADA – NICHOLAS GRUJICIC – No. 17107 – Exp. 06/30/2023 – CIVIL

REV	DATE	DESCRIPTION	DATE	AGEN APP	DATE	GCW APP	DATE
							10/19/2022

90% REVIEW - NOT FOR CONSTRUCTION

PROJECT NO. 62052-3085
DESIGN: AS
DRAWN: NP
CHECK: JG
PLOT DATE: 10-19-22
PLOT TIME: 09:09:28

GCW ENGINEERS \ SURVEYORS
1555 S. RAINBOW BLVD.
LAS VEGAS, NV 89146
T: 702.804.2000
F: 702.804.2299
gcwengineering.com

F:\PROJECTS\62052-3085\CIVIL\PRODUCTION\62052-3085COV_CIVIL.DWG
NICHOLAS PORTUGAL

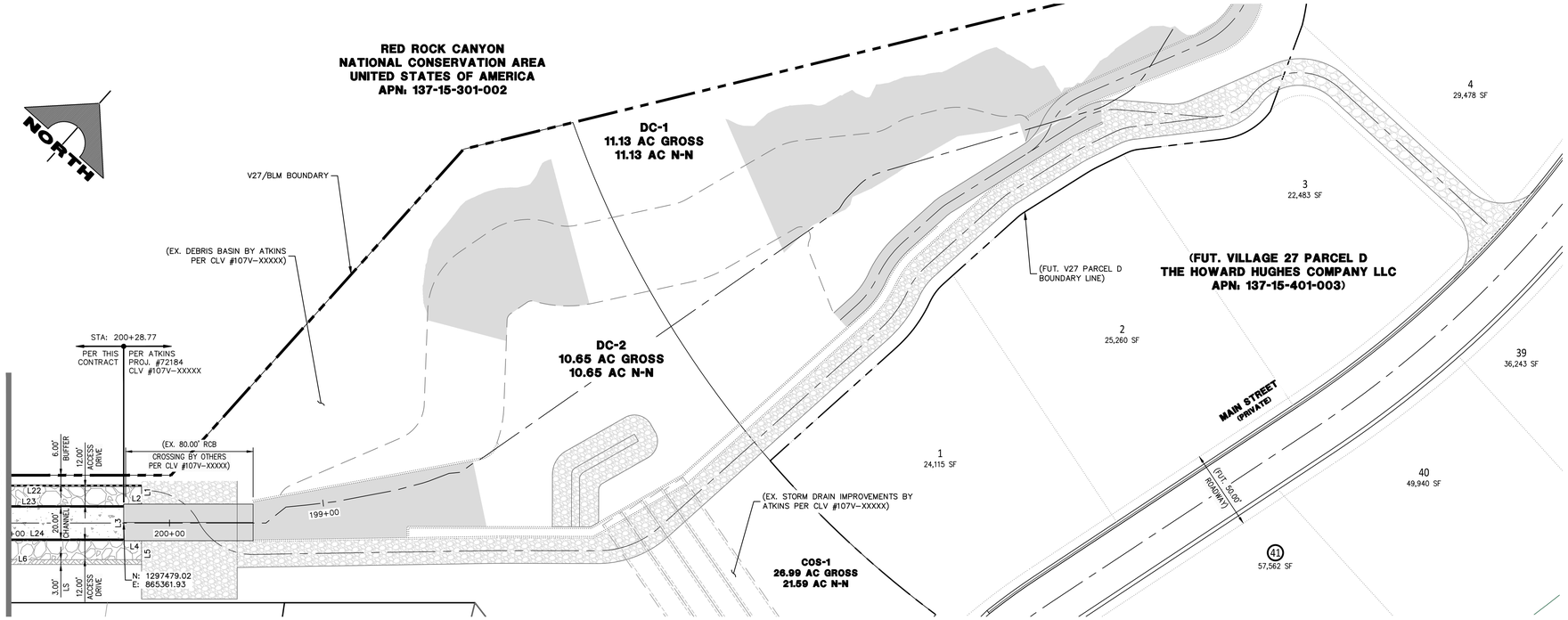
THE HOWARD HUGHES COMPANY, LLC

VILLAGE 27 PARCEL M & E BOUNDARY DRAINAGE IMPROVEMENTS

PROJECT DATA SHEET

DRAWING
G2
2 OF 21 SHTS

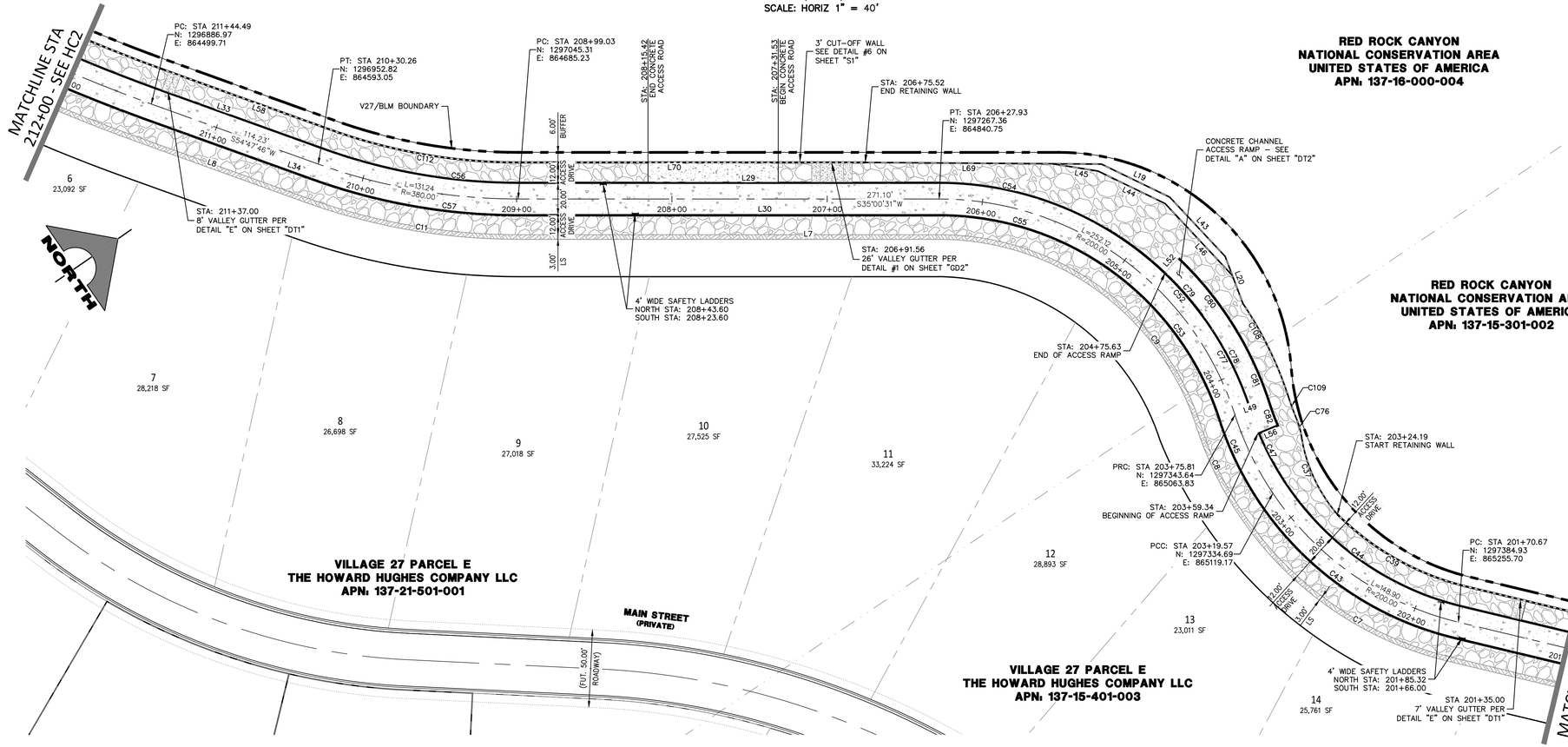
L#: LXX–XXXXX | CLV#: 107VXXXXX

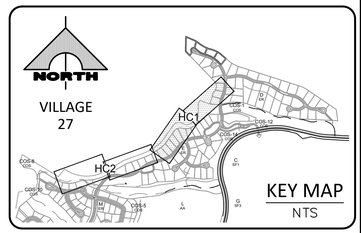


PARCEL M & E BOUNDARY CHANNEL

(PUBLIC)

SCALE: HORIZ 1" = 40'





40' 0' 20' 40' 80'

SCALE: 1" = 40'

LINE TABLE		
LINE	BEARING	LENGTH
L1	N41°31'48"W	12.10'
L2	N48°28'12"E	11.20'
L3	N41°31'48"W	22.90'
L4	S48°28'12"W	11.20'
L5	N41°31'48"W	15.00'
L6	N48°28'12"E	153.11'
L7	N35°00'31"E	270.93'
L8	N54°47'46"E	114.23'
L19	S60°50'34"W	49.00'
L20	N75°39'40"W	32.52'
L22	S48°28'12"W	153.11'
L23	N48°28'12"E	141.91'
L24	N48°28'12"E	141.91'
L29	N35°00'31"E	271.10'
L30	N35°00'31"E	271.10'
L33	N54°47'46"E	114.23'
L34	N54°47'46"E	114.23'
L43	S81°54'31"W	52.35'
L44	N60°50'34"E	48.02'
L45	N44°07'52"E	29.93'
L46	N81°54'31"E	62.67'
L49	N15°57'43"E	1.00'
L52	S11°18'43"E	12.00'
L56	N12°22'42"E	13.00'
L69	S35°24'35"W	152.14'
L70	S35°00'31"W	223.51'

CURVE TABLE				
CURVE	RADIUS	LENGTH	DELTA	TANGENT
C7	226.00'	115.98'	29°24'12"	59.30
C8	226.00'	115.71'	29°20'08"	59.15
C9	174.00'	219.62'	72°19'06"	127.16
C11	406.00'	140.22'	19°47'15"	70.81
C37	99.32'	55.56'	32°03'02"	28.53
C39	176.00'	96.47'	31°24'18"	49.48
C43	210.00'	156.34'	42°39'20"	81.99
C44	190.00'	141.45'	42°39'20"	74.18
C45	210.00'	59.05'	16°06'40"	29.72
C47	190.00'	37.78'	11°23'38"	18.95
C52	210.00'	147.32'	40°11'42"	76.84
C53	190.00'	137.52'	41°28'11"	71.93
C54	210.00'	112.74'	30°45'30"	57.76
C55	190.00'	102.00'	30°45'30"	52.26
C56	370.00'	127.78'	19°47'15"	64.53
C57	390.00'	134.69'	19°47'15"	68.02
C76	50.66'	12.38'	14°00'01"	6.22
C77	210.00'	147.32'	40°11'42"	76.84
C78	211.00'	63.86'	17°20'30"	32.18
C79	211.00'	36.76'	9°58'51"	18.42
C80	223.00'	74.96'	19°15'37"	37.84
C81	223.00'	36.33'	9°20'04"	18.21
C82	177.00'	14.54'	4°42'26"	7.27
C108	236.69'	67.56'	16°21'16"	34.01
C109	163.34'	14.22'	4°59'14"	7.11
C112	356.00'	122.95'	19°47'15"	62.09

BASIS OF BEARINGS AND COORDINATES

GRID NORTH AS DEFINED BY THE CENTRAL MERIDIAN OF THE NEVADA COORDINATE REFERENCE SYSTEM (NCRS), LAS VEGAS HIGH ELEVATION ZONE, NORTH AMERICAN DATUM OF 1983; SAID MERIDIAN BEING COINCIDENT WITH 114°58' WEST OF THE GREENWICH MERIDIAN.

LINEAR UNIT: US SURVEY FOOT (FTUS)
DATUM (REFERENCE FRAME): NAD 83 (2011) EPOCH 2010.00
SYSTEM: NEVADA COORDINATE REFERENCE SYSTEM (NCRS)
ZONE:LAS VEGAS HIGH ELEVATION ZONE

PROJECTION: TRANSVERSE MERCATOR
STANDARD PARALLEL (AND LATITUDE OF GRID ORIGIN): 36°15'00"N
LONGITUDE OF CENTRAL MERIDIAN: 114°58'00"W
NORTHING AT GRID ORIGIN: 400,000.00 M (1,312,333.3333 FTUS)
EASTING AT CENTRAL MERIDIAN: 300,000 M (984,250.0000 FTUS)
SCALE FACTOR ON CENTRAL MERIDIAN: 1.000135 (EXACT)

NOTES:
1. ALL DISTANCES AND BEARINGS SHOWN HEREON ARE PROJECTED (GRID) VALUES BASED ON THE PRECEDING PROJECTION DEFINITION. THE PROJECTION WAS DEFINED SUCH THAT PROJECTED (GRID) DISTANCES ARE EQUIVALENT TO "GROUND" DISTANCES IN THE PROJECT AREA.
2. GRID BEARINGS SHOWN HEREON (OR IMPLIED BY GRID COORDINATES) DO NOT EQUAL GEODETIC BEARINGS DUE TO MERIDIAN CONVERGENCE.

BENCHMARK

BM #	DESCRIPTION	NAVD 88 DATUM	NAVD 88 DATUM
CLV BM No. 7LV0934SW6	FIND RIVET AND PLATE IN TOP OF CURB SE CORNER OF DESERT MOON RD. AND SKY VISTA DR. T20S,R59E,S34	3318.31 (FEET)	1,011.422 (METERS)

Call before you Dig
Avoid cutting underground utility lines. It's costly.
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FAST Call before you UnderGround
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FREEWAY AND ARTERIAL SYSTEM OF TRANSPORTATION

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L#: LXX-XXXXX CLV#: 107VXXXXX

PROFESSIONAL ENGINEER - STATE OF NEVADA
NICHOLAS PORTUGAL GRUJICIC
Exp. 06/30/2023
CIVIL
No. 17107

REV	DESCRIPTION	DATE	AGEN APP	DATE	GCW APP	DATE
	90% REVIEW - NOT FOR CONSTRUCTION	10/19/2022				

PROJECT NO. 62052-3085
DESIGN: AS
DRAWN: NP
CHECK: JG
PLOT DATE: 10-19-22
PLOT TIME: 09:09:47

GCW ENGINEERS \ SURVEYORS
1555 S. RAINBOW BLVD.
LAS VEGAS, NV 89146
T: 702.804.2000
F: 702.804.2299
gcwengineering.com

F:\PROJECTS\62052-3085\LDWG\PRODUCTION\62052-3085CO2_HC.DWG
NICHOLAS PORTUGAL

THE HOWARD HUGHES COMPANY, LLC
VILLAGE 27 PARCEL M & E BOUNDARY DRAINAGE IMPROVEMENTS
HORIZONTAL CONTROL PLAN 1

DRAWING
HC1
3 OF 21 SHTS

RED ROCK CANYON
NATIONAL CONSERVATION AREA
UNITED STATES OF AMERICA
APN: 137-16-000-004

MATCHLINE STA 222+00
- SEE BELOW

4' WIDE SAFETY LADDERS
NORTH STA: 220+56.43
SOUTH STA: 220+36.43

STA: 219+68.38
9' VALLEY GUTTER PER
DETAIL "E" ON SHEET "DT1"

PT: STA 218+26.87
N: 1296615.27
E: 863876.23

STA: 217+39.21
8' VALLEY GUTTER PER
DETAIL "E" ON SHEET "DT1"

PC: STA 217+46.36
N: 1296648.98
E: 863949.24

V27/BLM BOUNDARY

STA: 215+82.23
9' VALLEY GUTTER PER
DETAIL "E" ON SHEET "DT1"

3' CUT OFF WALL
SEE DETAIL #6 ON
SHEET "S1"

MATCHLINE STA 212+00 - SEE HC1

6.00' BUFFER
24.00' ACCESS DRIVE
20.00'
3.00' LS

L=80.51
R=470.00
406.24'
S60°18'22"W
326.39'
S70°07'14"W
L=275.48
R=1030.00

PT: STA 214+19.97
N: 1296759.97
E: 864256.18

4' WIDE SAFETY LADDERS
NORTH STA: 214+54.55
SOUTH STA: 214+34.55

VILLAGE 27 PARCEL E
THE HOWARD HUGHES COMPANY LLC
APN: 137-21-501-001

1 33,067 SF
2 35,576 SF
3 23,883 SF
4 24,834 SF
5 23,802 SF
6 23,092 SF

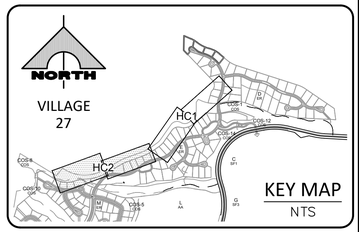
(EXIT: 50.00' ROADWAY)

MAIN STREET
(PRIVATE)

(EXIT: 50.00' ROADWAY)

PARCEL M & E BOUNDARY CHANNEL

(PUBLIC)
SCALE: HORIZ 1" = 40'



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



BASIS OF BEARINGS AND COORDINATES

GRID NORTH AS DEFINED BY THE CENTRAL MERIDIAN OF THE NEVADA COORDINATE REFERENCE SYSTEM (NCRS), LAS VEGAS HIGH ELEVATION ZONE, NORTH AMERICAN DATUM OF 1983; SAID MERIDIAN BEING COINCIDENT WITH 114°58' WEST OF THE GREENWICH MERIDIAN.

LINEAR UNIT: US SURVEY FOOT (FTUS)
DATUM (REFERENCE FRAME): NAD 83 (2011) EPOCH 2010.00
SYSTEM: NEVADA COORDINATE REFERENCE SYSTEM (NCRS)
ZONE:LAS VEGAS HIGH ELEVATION ZONE

PROJECTION: TRANSVERSE MERCATOR
STANDARD PARALLEL (AND LATITUDE OF GRID ORIGIN): 36°15'00"N
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NORTHING AT GRID ORIGIN: 400,000.00 M (1,312,333.3333 FTUS)
EASTING AT CENTRAL MERIDIAN: 300,000 M (984,250.0000 FTUS)
SCALE FACTOR ON CENTRAL MERIDIAN: 1.000135 (EXACT)

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BENCHMARK

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1-702-227-2929

RED ROCK CANYON
NATIONAL CONSERVATION AREA
UNITED STATES OF AMERICA
APN: 137-16-000-004

DC-2
10.65 AC GROSS
10.65 AC N-N

(EXIT: 30.00' PUBLIC UTILITY & DRAINAGE EASEMENT)

24.00' ACCESS ROAD
16.00' TO BLM

CHANNEL
STA: 230+24.00
FUTURE DEVELOPMENT
PER THIS CONTRACT

N: 1296325.97
E: 862700.73

L=51.11
R=726.44

20' MIN. CONCRETE ACCESS RAMP

STA 228+91.95
72.57' RT

V27/BLM BOUNDARY

3' CUT OFF WALL
SEE DETAIL #6 ON
SHEET "S1"

STA 227+99.05
41.00' RT

GROUTED RIP-RAP
SEE DETAIL #4 ON SHEET "DT3"

L=46.74
R=201.11
PC: STA 228+85.83
N: 1296289.20
E: 862889.70

PT: STA 227+12.26
N: 1296308.50
E: 863062.19

4' WIDE SAFETY LADDERS
NORTH STA: 226+66.86
SOUTH STA: 226+47.48

STA: 225+77.96
8' VALLEY GUTTER PER
DETAIL "E" ON SHEET "DT1"

STA: 223+56.00
9' VALLEY GUTTER PER
DETAIL "E" ON SHEET "DT1"

PC: STA 222+33.11
N: 1296414.03
E: 863523.34

MATCHLINE STA 222+00
- SEE ABOVE

V31 STORM DRAIN CONNECTION
ACCESS ROAD

PCC: STA 229+32.57
N: 1296289.54
E: 862843.06

STA 229+34.24
10.00' RT

PRC: STA 226+51.26
N: 1296311.73
E: 863123.04

12.00' ACCESS DRIVE
20.00'
3.00' LS
6.00' BUFFER

L=38.32
R=490.00
173.57'
S83°36'49"W
L=418.15
R=780.00
L=610.00
R=396.91

65 26,565 SF
64 27,909 SF
63 26,168 SF
62 40,916 SF

VILLAGE 27 PARCEL M
THE HOWARD HUGHES COMPANY LLC
APN: 137-21-501-001

COS-8
11.30 AC GROSS
10.99 AC N-N

VILLAGE 27 PARCEL E
THE HOWARD HUGHES COMPANY LLC
APN: 137-21-501-001

STREET "A"
(PRIVATE)

(EXIT: 50.00' ROADWAY)

LINE TABLE		
LINE	BEARING	LENGTH
L9	N70°07'14"E	326.45'
L10	N60°18'22"E	406.24'
L11	S89°34'47"E	16.92'
L12	N83°36'47"E	172.34'
L13	S11°31'38"W	11.99'
L15	S70°06'37"W	326.23'
L35	S70°07'14"W	326.39'
L36	S70°07'14"W	326.39'
L37	S60°18'22"W	406.24'
L38	S60°18'22"W	406.24'
L39	N77°06'43"W	95.95'
L40	S83°36'47"W	173.76'
L61	S12°53'17"W	27.23'
L62	S76°57'28"E	45.51'
L64	S16°01'20"W	35.00'
L71	N77°06'43"W	84.15'
L72	N80°22'54"W	2.64'
L73	N74°22'01"W	16.78'

LINE TABLE		
LINE	BEARING	LENGTH
L74	N77°32'04"W	16.75'
L75	N86°59'00"W	16.63'
L76	N83°42'17"W	4.13'
L77	N78°08'26"W	15.19'
L78	N80°36'51"W	2.23'
L79	N84°06'48"W	12.99'
L80	S88°22'18"W	5.23'
L81	N79°26'55"W	2.57'
L82	N72°44'56"W	10.17'
L83	N75°16'25"W	12.80'
L84	N74°06'16"W	6.15'
L85	N71°40'28"W	4.55'
L86	N64°39'24"W	1.89'
L88	N62°32'14"W	6.08'
L89	S13°16'40"W	65.58'
L90	N63°03'01"E	24.83'
L91	S9°25'27"E	44.22'
L92	S77°06'43"E	1.86'

CURVE TABLE				
CURVE	RADIUS	LENGTH	DELTA	TANGENT
C13	1056.00'	282.38'	15°19'16"	142.04
C15	444.00'	76.05'	9°48'52"	38.12
C17	806.00'	415.17'	29°30'47"	212.30
C19	374.36'	58.90'	9°00'52"	29.51
C21	227.11'	52.85'	13°20'00"	26.55
C22	515.89'	37.59'	4°10'30"	18.80
C23	486.28'	84.78'	9°59'20"	42.50
C58	1020.00'	272.81'	15°19'28"	137.22
C59	1040.00'	278.16'	15°19'28"	139.91
C62	460.00'	78.80'	9°48'52"	39.49
C63	480.00'	82.22'	9°48'52"	41.21
C66	770.00'	412.79'	30°42'56"	211.48
C67	790.00'	423.50'	30°42'55"	216.97
C68	772.28'	115.91'	8°35'57"	58.06
C70	388.94'	59.53'	8°46'13"	29.83
C71	211.11'	49.11'	13°19'41"	24.67
C72	546.48'	72.41'	7°35'29"	36.26
C87	1006.00'	269.07'	15°19'28"	135.34
C96	713.02'	54.96'	4°25'00"	27.50
C97	747.08'	56.62'	4°20'32"	28.32
C98	748.47'	57.71'	4°25'03"	28.87
C99	758.51'	36.10'	2°43'36"	18.05
C106	756.18'	555.60'	42°05'52"	291.01
C114	763.09'	79.33'	5°57'24"	39.70
C115	479.00'	32.27'	3°51'37"	16.14

L#: LXX–XXXXX | CLV#: 107VXXXXX

PROJECT NO. 62052-3085
DESIGN: AS | DRAWN: NP | CHECK: JG
PLOT DATE: 10-19-22
PLOT TIME: 09:09:53

REV	DATE	DESCRIPTION	AGEN APP	DATE	GCW APP	DATE

ENGINEER - STATE OF NEVADA - PROFESSIONAL - No. 17107 - NICHOLAS GRUJICIC - Exp. 06/30/2023 - CIVIL
DATE: 10/19/2022

90% REVIEW - NOT FOR CONSTRUCTION

GCW ENGINEERS \ SURVEYORS
1555 S. RAINBOW BLVD.
LAS VEGAS, NV 89146
T: 702.804.2000
F: 702.804.2299
gcwengineering.com

F:\PROJECTS\62052-3085\DWG\PRODUCTION\62052-3085CO2_HC2.DWG
NICHOLAS PORTUGAL

THE HOWARD HUGHES COMPANY ,LLC
VILLAGE 27 PARCEL M & E BOUNDARY DRAINAGE IMPROVEMENTS
HORIZONTAL CONTROL PLAN 2

DRAWING
HC2
4 OF 21 SHTS

FLOOD ZONE NOTE

SITE LOCATED ON THE FEDERAL EMERGENCY AGENCY (FEMA) FLOOD INSURANCE RATE MAP (FIRM) CONTAINING THE COMMUNITY PARCEL NUMBER 32003C2150E DATED SEPTEMBER 27, 2002. THE FIRM MAP SHOWS THAT THE PROJECT IS LOCATED WITHIN A ZONE "X", DEFINED AS BEING OUTSIDE THE 500-YEAR FLOODPLAIN AND NOT LOCATED WITHIN A FEMA-DESIGNATED SPECIAL FLOOD ZONE HAZARD AREA (SFHA).

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STRUCTURAL FILL SHOULD BE OBSERVED AND TESTED AS NECESSARY TO DETERMINE COMPLIANCE WITH THE COMPACTION REQUIREMENTS PRESENTED IN THE APPROVED GEOTECHNICAL REPORT.

SITE CLEARING NOTES

1. STRIP AND REMOVE EXISTING VEGETATION, DEBRIS, UNCONTROLLED FILL, ALL LOOSE OR DISTURBED NATURAL SOILS, AND OTHER DELETERIOUS MATERIALS FROM PROPOSED GRADING AREAS. EXCAVATION SHOULD EXTEND AT LEAST 5 FEET BEYOND THE AREAS TO BE IMPROVED IN PLAN VIEW. UNCONTROLLED FILL IS DEFINED AS ANY EXISTING FILL THAT WAS NOT PROPERLY PLACED, OBSERVED AND TESTED.
2. ALL EXPOSED SURFACES SHOULD BE FREE OF MOUNDS AND DEPRESSIONS WHICH COULD PREVENT UNIFORM COMPACTION.

BASIS OF BEARINGS AND COORDINATES

GRID NORTH AS DEFINED BY THE CENTRAL MERIDIAN OF THE NEVADA COORDINATE REFERENCE SYSTEM (NCRS), LAS VEGAS HIGH ELEVATION ZONE, NORTH AMERICAN DATUM OF 1983; SAID MERIDIAN BEING COINCIDENT WITH 114°58' WEST OF THE GREENWICH MERIDIAN.

LINEAR UNIT: US SURVEY FOOT (FTUS)
DATUM (REFERENCE FRAME): NAD 83 (2011) EPOCH 2010.00
SYSTEM: NEVADA COORDINATE REFERENCE SYSTEM (NCRS)
ZONE: LAS VEGAS HIGH ELEVATION ZONE

PROJECTION: TRANSVERSE MERCATOR
STANDARD PARALLEL (AND LATITUDE OF GRID ORIGIN): 36°15'00"N
LONGITUDE OF CENTRAL MERIDIAN: 114°58'00"W
NORTHING AT GRID ORIGIN: 400,000.00 M (1,312,333.3333 FTUS)
EASTING AT CENTRAL MERIDIAN: 300,000 M (984,250.0000 FTUS)
SCALE FACTOR ON CENTRAL MERIDIAN: 1.000135 (EXACT)

NOTES:
1. ALL DISTANCES AND BEARINGS SHOWN HEREON ARE PROJECTED (GRID) VALUES BASED ON THE PRECEDING PROJECTION DEFINITION. THE PROJECTION WAS DEFINED SUCH THAT PROJECTED (GRID) DISTANCES ARE EQUIVALENT TO "GROUND" DISTANCES IN THE PROJECT AREA.
2. GRID BEARINGS SHOWN HEREON (OR IMPLIED BY GRID COORDINATES) DO NOT EQUAL GEODETIC BEARINGS DUE TO MERIDIAN CONVERGENCE.

TOTAL DISTURBED AREA

SQUARE FOOTAGE: 252,777.14
ACREAGE: 5.80

BENCHMARK

BM #	DESCRIPTION	NAVD 88 DATUM	NAVD 88 DATUM
CLV BM No. 7LV0934SW6	FIND RIVET AND PLATE IN TOP OF CURB SE CORNER OF DESERT MOON RD. AND SKY VISTA DR. T20S,R59E,S34	3318.31 (FEET)	1,011.422 (METERS)

DATUM NOTE

THIS SET OF DRAWINGS IS BASED UPON NAVD 88, PREVIOUS DRAWINGS MAY BE BASED ON OTHER DATUM. CARE SHOULD BE OBSERVED WHEN UTILIZING THIS SET OF DRAWINGS.

GEOTECHNICAL NOTE

ALL GRADING SHALL BE IN ACCORDANCE WITH THE SPECIFICATION MANUAL AND THE SOILS REPORT AS PREPARED BY UNIVERSAL ENGINEERING SCIENCES, PROJECT NUMBER G-20-156, DATED SEPTEMBER 1, 2022, WHERE CONFLICTS OCCUR THE MOST RESTRICTIVE SHALL GOVERN.

DRAINAGE CERTIFICATION

I CERTIFY THAT THE GRADING PLANS ARE IN CONFORMANCE WITH THE APPROVED DRAINAGE STUDY PER #DS-05586B ON FILE AT THE CITY OF LAS VEGAS FOR THIS PROJECT.

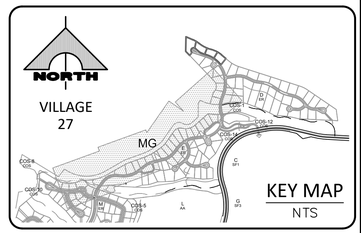
10/18/2022

MLADJAN J. GRUJICIC, PE NO. 17109 — DATE

NORTH

150' 0' 75' 150' 300'

SCALE: 1" = 150'



RED ROCK CANYON NATIONAL CONSERVATION AREA UNITED STATES OF AMERICA APN: 137-16-000-004

V27/BLM BOUNDARY

36" RCP STORM DRAIN

GD4

GD3

GD2

GD1

DC-2
10.65 AC GROSS
10.65 AC N-N

(FUT. VILLAGE 27 PARCEL D
THE HOWARD HUGHES COMPANY LLC
APN: 137-15-401-003)

RED ROCK CANYON NATIONAL CONSERVATION AREA UNITED STATES OF AMERICA APN: 137-15-301-002

(EX. DEBRIS BASIN BY OTHERS PER CLV #LXX-XXXXX)

(EX. 80-FT WIDE RCB CROSSING BY OTHERS)

MAIN STREET (PRIVATE)

COS-1
26.99 AC GROSS
21.59 AC N-N

COS-8
11.30 AC GROSS
10.99 AC N-N

COS-5
4.39 AC GROSS
4.39 AC N-N

VILLAGE 27 PARCEL M
THE HOWARD HUGHES COMPANY LLC
APN: 137-21-501-001

VILLAGE 27 PARCEL E
THE HOWARD HUGHES COMPANY LLC
APN: 137-21-501-001

(FUT. VILLAGE 27 PARCEL L
THE HOWARD HUGHES COMPANY LLC
APN: 137-21-501-001)

(FUT. VILLAGE 27 PARCEL C
THE HOWARD HUGHES COMPANY LLC
APN: 137-21-501-001)

PARK DRIFT TRAIL (PUBLIC)

Call before you Dig
Avoid cutting underground utility lines. It's costly.
Call 811 or 1-800-642-2444

FAST
Call before you UnderGround
1-702-432-5300
FREEWAY AND ARTERIAL SYSTEM OF TRANSPORTATION

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

L#: LXX-XXXXX | CLV#: 107VXXXXX

90% REVIEW - NOT FOR CONSTRUCTION

PROFESSIONAL ENGINEER - STATE OF NEVADA - MLADJAN J. GRUJICIC - No. 17109 - Exp. 06/30/2023 - CIVIL

REV	DESCRIPTION	DATE	AGEN APP	DATE	GCW APP	DATE
						10/19/2022

PROJECT NO. 62052-3085

DESIGN: AS
DRAWN: NP
CHECK: JG
PLOT DATE: 10-19-22
PLOT TIME: 09:10:44

GCW ENGINEERS \ SURVEYORS
1555 S. RAINBOW BLVD.
LAS VEGAS, NV 89146
T: 702.804.2000
F: 702.804.2299
gcwengineering.com

F:\PROJECTS\6200\62052-3085\DWG\PRODUCTION\62052-3085033_GD.DWG NICHOLAS PORTUGAL

THE HOWARD HUGHES COMPANY, LLC

VILLAGE 27 PARCEL M & E BOUNDARY DRAINAGE IMPROVEMENTS

MASTER GRADING PLAN

DRAWING
MG
5 OF 21 SHTS

RED ROCK CANYON NATIONAL CONSERVATION AREA UNITED STATES OF AMERICA APN: 137-16-000-004

RED ROCK CANYON NATIONAL CONSERVATION AREA UNITED STATES OF AMERICA APN: 137-15-301-002

(EX. V27 DEBRIS BASIN BY ATKINS PER CLV #107V-XXXXX)

V27/BLM BOUNDARY

(FUT. VILLAGE 27 PARCEL D THE HOWARD HUGHES COMPANY LLC APN: 137-15-401-003)

(FUT. V27 PARCEL D BOUNDARY LINE)

STA: 200+28.77
PER THIS CONTRACT
PER ATKINS PROJ. #72184 CLV #107V-XXXXX

STA 201+35.00
7' WIDE VALLEY GUTTER (3 G)

3' CUT OFF WALL (1 G)

(4 G)

80.00' CONTROLLED RIGHT-OF-WAY

6.00' BUFFER

12.00' ACCESS DRIVE

20.00' ACCESS/CHANNEL DRIVE

3.00' LS

(6 G)

(EX. 80.00' RCB CROSSING BY OTHERS PER CLV #107V-XXXXX)

(EX. 20' X 6' RCB BY OTHERS)

MATCHLINE STA 201+50 - SEE DWG GD2

201+00

200+00

199+00

8.80%

PROPOSED DAYLIGHT LIMITS

(A 5F)

REFER TO DETAIL #3 FOR RCB CONNECTION EXPANSION JOINT PER SHEET "S4"

N: 1297479.02
E: 865361.93

CHANNEL WALL

COS-1
26.99 AC GROSS
21.59 AC N-N

(EX. 48' X 6' RCB SD OUTLET WITH 20' ACCESS ROAD BY OTHERS)

MAIN STREET (PRIVATE)

(FUT. 50.00' ROADWAY)

VARIES COMMON OPEN SPACE AREA

15
LOT NO. 15
PAD: 0.0
FF: 1.00
28,789 SF

16
LOT NO. 16
PAD: 97.0
FF: 98.00
22,350 SF

17
LOT NO. 17
PAD: 94.0
FF: 95.00
21,538 SF

18
LOT NO. 18
PAD: 91.0
FF: 92.00
28,075 SF

VILLAGE 27 PARCEL E
THE HOWARD HUGHES COMPANY LLC
APN: 137-15-401-003

GENERAL CONSTRUCTION NOTES

1 G — INSTALL 3' CUT-OFF WALL PER STRUCTURAL DETAIL #6 ON SHEET "S1".

2 G — INSTALL SAFETY LADDER WITH 4' OPENING AT 600-FT INTERVALS PER HCDDM SECTION 707.3 AND STRUCTURAL DETAIL #14 ON SHEET "S2".

3 G — INSTALL VALLEY GUTTER, WIDTH SHOWN ON PLAN, PER DETAIL "E" ON SHEET "DT1" AND STRUCTURAL DETAIL #5 ON SHEET "S4".

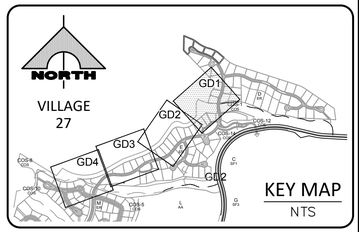
4 G — INSTALL 12' WIDE ACCESS ROAD WITH TYPE II AGGREGATE BASE, COMPACTED 95%.

5 G — INSTALL 20' MIN. WIDE CONCRETE ACCESS RAMP TO CONNECT WITH NORTH ACCESS ROAD.

6 G — INSTALL CONCRETE-LINED CHANNEL PER STRUCTURAL SECTIONS "A" & "B" ON SHEET "S3".

7 G — INSTALL CMU RETAINING WALL, HEIGHT PER PLAN.

8 G — INSTALL 26' WIDE TRAPEZOIDAL VALLEY GUTTER PER DETAIL #1 ON SHEET "GD2".



NORTH

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

DRAINAGE CERTIFICATION

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10/18/2022

MLADJAN J. GRUJICIC, PE NO. 17109 — DATE

FLOOD ZONE NOTE

SITE LOCATED ON THE FEDERAL EMERGENCY AGENCY (FEMA) FLOOD INSURANCE RATE MAP (FIRM) CONTAINING COMMUNITY PARCEL NUMBERS 32003C2125E & 32003C2150E, DATED SEPTEMBER 27, 2002. THE FIRM MAP SHOWS THAT THE PROJECT IS LOCATED WITHIN A ZONE "X" DEFINED AS BEING OUTSIDE THE 500-YEAR FLOODPLAIN AND NOT LOCATED WITHIN A FEMA DESIGNATED SPECIAL FLOOD ZONE HAZARD AREA (SFHA).

FILL NOTE

ALL IMPORTED MATERIAL SHOULD BE APPROVED BY THE GEOTECHNICAL FIRM PROVIDING TESTING DURING CONSTRUCTION, PRIOR TO IMPORTING. STRUCTURAL FILL SHOULD BE OBSERVED AND TESTED AS NECESSARY TO DETERMINE COMPLIANCE WITH THE COMPACTION REQUIREMENTS PRESENTED IN THE APPROVED GEOTECHNICAL REPORT.

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GRID NORTH AS DEFINED BY THE CENTRAL MERIDIAN OF THE NEVADA COORDINATE REFERENCE SYSTEM (NCRS), LAS VEGAS HIGH ELEVATION ZONE, NORTH AMERICAN DATUM OF 1983; SAID MERIDIAN BEING COINCIDENT WITH 114°58' WEST OF THE GREENWICH MERIDIAN.

LINEAR UNIT: US SURVEY FOOT (FTUS)
DATUM (REFERENCE FRAME): NAD 83 (2011) EPOCH 2010.00
SYSTEM: NEVADA COORDINATE REFERENCE SYSTEM (NCRS)
ZONE:LAS VEGAS HIGH ELEVATION ZONE

PROJECTION: TRANSVERSE MERCATOR
STANDARD PARALLEL (AND LATITUDE OF GRID ORIGIN): 36°15'00"N
LONGITUDE OF CENTRAL MERIDIAN: 114°58'00"W
NORTHING AT GRID ORIGIN: 400,000.00 M (1,312,333.3333 FTUS)
EASTING AT CENTRAL MERIDIAN: 300,000 M (984,250.0000 FTUS)
SCALE FACTOR ON CENTRAL MERIDIAN: 1.000135 (EXACT)

NOTES:
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BM #	DESCRIPTION	NAVD 88 DATUM	NAVD 88 DATUM
CLV BM No. 7LV0934SW6	FIND RIVET AND PLATE IN TOP OF CURB SE CORNER OF DESERT MOON RD. AND SKY VISTA DR. T20S,R59E,S34	3318.31 (FEET)	1,011.422 (METERS)

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L#: LXX-XXXXX — CLV#: 107VXXXXX

ENGINEER - STATE OF NEVADA - PROFESSIONAL
MLADJAN J. GRUJICIC
No. 17109
Exp. 06/30/2023
CIVIL

REV	DESCRIPTION	DATE	AGEN APP	DATE	GCW APP	DATE

90% REVIEW - NOT FOR CONSTRUCTION

DATE: 10/19/2022

PROJECT NO. 62052-3085
DESIGN: AS
DRAWN: NP
CHECK: JG
PLOT DATE: 10-19-22
PLOT TIME: 09:10:53

GCW ENGINEERS \ SURVEYORS
1555 S. RAINBOW BLVD.
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T: 702.804.2000
F: 702.804.2299
gcwengineering.com

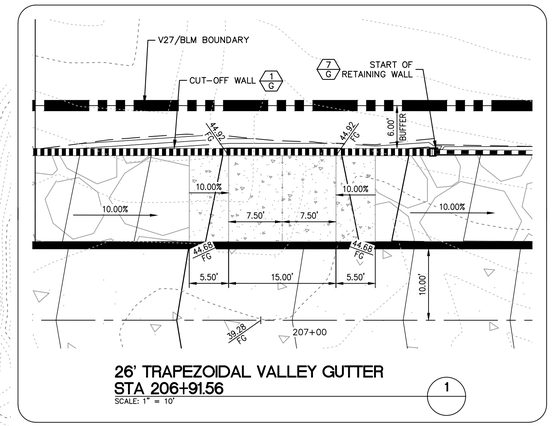
F:\PROJECTS\62052-3085\DWG\PRODUCTION\62052-3085D33_GD.DWG
NICHOLAS PORTUGAL

THE HOWARD HUGHES COMPANY ,LLC

VILLAGE 27 PARCEL M & E BOUNDARY DRAINAGE IMPROVEMENTS

GRADING PLAN 1

DRAWING
GD1
6 OF 21 SHTS



26' TRAPEZOIDAL VALLEY GUTTER
STA 206+91.56

SCALE: 1" = 10'

1

GENERAL CONSTRUCTION NOTES

1 G INSTALL 3' CUT-OFF WALL PER STRUCTURAL DETAIL #6 ON SHEET "S1".

2 G INSTALL SAFETY LADDER WITH 4' OPENING AT 600-FT INTERVALS PER HCDDM SECTION 707.3 AND STRUCTURAL DETAIL #14 ON SHEET "S2".

3 G INSTALL VALLEY GUTTER, WIDTH SHOWN ON PLAN, PER DETAIL "E" ON SHEET "D1" AND STRUCTURAL DETAIL #5 ON SHEET "S4".

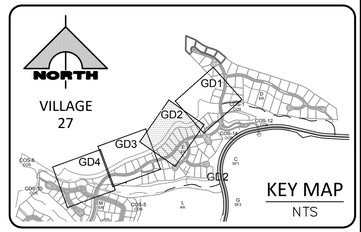
4 G INSTALL 12' WIDE ACCESS ROAD WITH TYPE II AGGREGATE BASE, COMPACTED 95%.

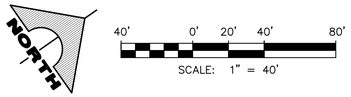
5 G INSTALL 20' MIN. WIDE CONCRETE ACCESS RAMP TO CONNECT WITH NORTH ACCESS ROAD.

6 G INSTALL CONCRETE-LINED CHANNEL PER STRUCTURAL SECTIONS "A" & "B" ON SHEET "S3".

7 G INSTALL CMU RETAINING WALL, HEIGHT PER PLAN.

8 G INSTALL 26' WIDE TRAPEZOIDAL VALLEY GUTTER PER DETAIL #1 ON SHEET "GD2".





MATCHLINE STA 212+00 - SEE DWG GD3

STA: 211+37.00 8' WIDE VALLEY GUTTER 3 G

3' CUT OFF WALL 1 G

4 G

PT: STA 210+30.26
N: 1296952.82
E: 864593.05

CHANNEL WALL

PC: STA 208+99.03
N: 1297045.31
E: 864685.23

STA: 208+15.22 END CONCRETE ACCESS ROAD

STA: 207+31.53 BEGIN CONCRETE ACCESS ROAD

12.00' ACCESS DRIVE

6.00' BUFFER

8 G STA: 206+91.56 26' WIDE TRAPEZOIDAL VALLEY GUTTER

STA: 206+75.52 END RETAINING WALL 7 G
TRW = 48.0, FG = 44.6
TF = 44.0

V27/BLM BOUNDARY

PT: STA 206+27.93
N: 1297267.36
E: 864840.75

TRW = 41.3
FG = 33.4
TF = 33.0

TRW = 36.0
FG = 30.9
TF = 30.0

TRW = 44.7
FG = 37.0
TF = 36.7

TRW = 44.7
FG = 36.3
TF = 36.0

STA: 204+75.63
END OF ACCESS RAMP

CONCRETE CHANNEL ACCESS RAMP - SEE BLOW-UP DETAIL "A" ON SHEET "D72"

TRW = 29.3
FG = 27.3
TF = 26.7

TRW = 26.0
FG = 23.1
TF = 22.7

TRW = 24.7
FG = 22.4
TF = 22.0

TRW = 35.3
FG = 26.9
TF = 26.0

TRW = 26.0
FG = 21.0
TF = 20.7

TRW = 22.0
FG = 18.3
TF = 17.3

PRC: STA 203+75.81
N: 1297343.64
E: 865063.83

STA: 203+59.34
BEGINNING OF ACCESS RAMP

STA: 203+24.19
START RETAINING WALL 7 G
TRW = 13.3, FG = 12.3
TF = 11.3

PC: STA 201+70.67
N: 1297384.93
E: 865255.70

PCC: STA 203+19.57
N: 1297334.69
E: 865119.17

7 G 4' WIDE SAFETY LADDERS
NORTH STA: 201+85.32
SOUTH STA: 201+66.00

MATCHLINE STA 201+50 - SEE DWG GD1

4' WIDE SAFETY LADDERS
NORTH STA: 208+43.60
SOUTH STA: 208+23.60 2 G

PROPOSED DAYLIGHT LIMITS

PC: STA 211+44.49
N: 1296886.97
E: 864499.71

80.00' CORFCD FLOOD CONTROL RIGHT-OF-WAY

RED ROCK CANYON NATIONAL CONSERVATION AREA UNITED STATES OF AMERICA APN: 137-16-000-004

RED ROCK CANYON NATIONAL CONSERVATION AREA UNITED STATES OF AMERICA APN: 137-15-301-002

VILLAGE 27 PARCEL E THE HOWARD HUGHES COMPANY LLC APN: 137-21-501-001

VILLAGE 27 PARCEL E THE HOWARD HUGHES COMPANY LLC APN: 137-15-401-003

MAIN STREET (PRIVATE)

(PUT. 50.00' ROADWAY)

STREET "B" (PRIVATE)

(PUT. 50.00' ROADWAY)

LOT NO. 7 PAD: 80.0 FF: 81.00 28,218 SF

LOT NO. 8 PAD: 69.0 FF: 70.00 26,698 SF

LOT NO. 9 PAD: 58.0 FF: 59.00 27,018 SF

LOT NO. 10 PAD: 47.0 FF: 48.00 27,525 SF

LOT NO. 11 PAD: 36.0 FF: 37.00 33,224 SF

LOT NO. 12 PAD: 28.0 FF: 29.00 28,893 SF

LOT NO. 13 PAD: 20.0 FF: 21.00 23,011 SF

LOT NO. 14 PAD: 11.0 FF: 12.00 25,761 SF

LOT NO. 38 PAD: 73.0 FF: 74.00 22,655 SF

LOT NO. 39 PAD: 61.0 FF: 62.00 22,228 SF

LOT NO. 40 PAD: 50.0 FF: 51.00 24,585 SF

LOT NO. 25 PAD: 29.0 FF: 30.00 22,046 SF

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10/18/2022

MLADJAN J. GRUJICIC, PE NO. 17109 DATE

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FREEWAY AND ARTERIAL SYSTEM OF TRANSPORTATION

AVOID HITTING OVERHEAD POWER LINES. IT'S COSTLY
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L#: LXX-XXXXX CLV#: 107VXXXXX

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LAS VEGAS, NV 89146
T: 702.804.2000
F: 702.804.2299
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F:\PROJECTS\62052-3085\DWG\PRODUCTION\62052-3085D03_GD.DWG

NICHOLAS PORTUGAL

PROJECT NO. 62052-3085

DESIGN: AS
DRAWN: NP
CHECK: JG
PLOT DATE: 10-19-22
PLOT TIME: 09:11:06

REV	DATE	DESCRIPTION	AGEN APP	DATE	GCW APP	DATE

DATE: 10/19/2022

90% REVIEW - NOT FOR CONSTRUCTION

THE HOWARD HUGHES COMPANY, LLC

VILLAGE 27 PARCEL M & E BOUNDARY DRAINAGE IMPROVEMENTS

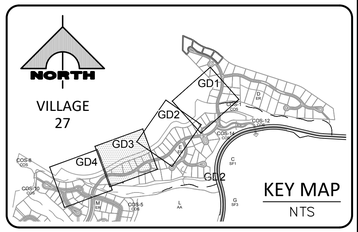
GRADING PLAN 2

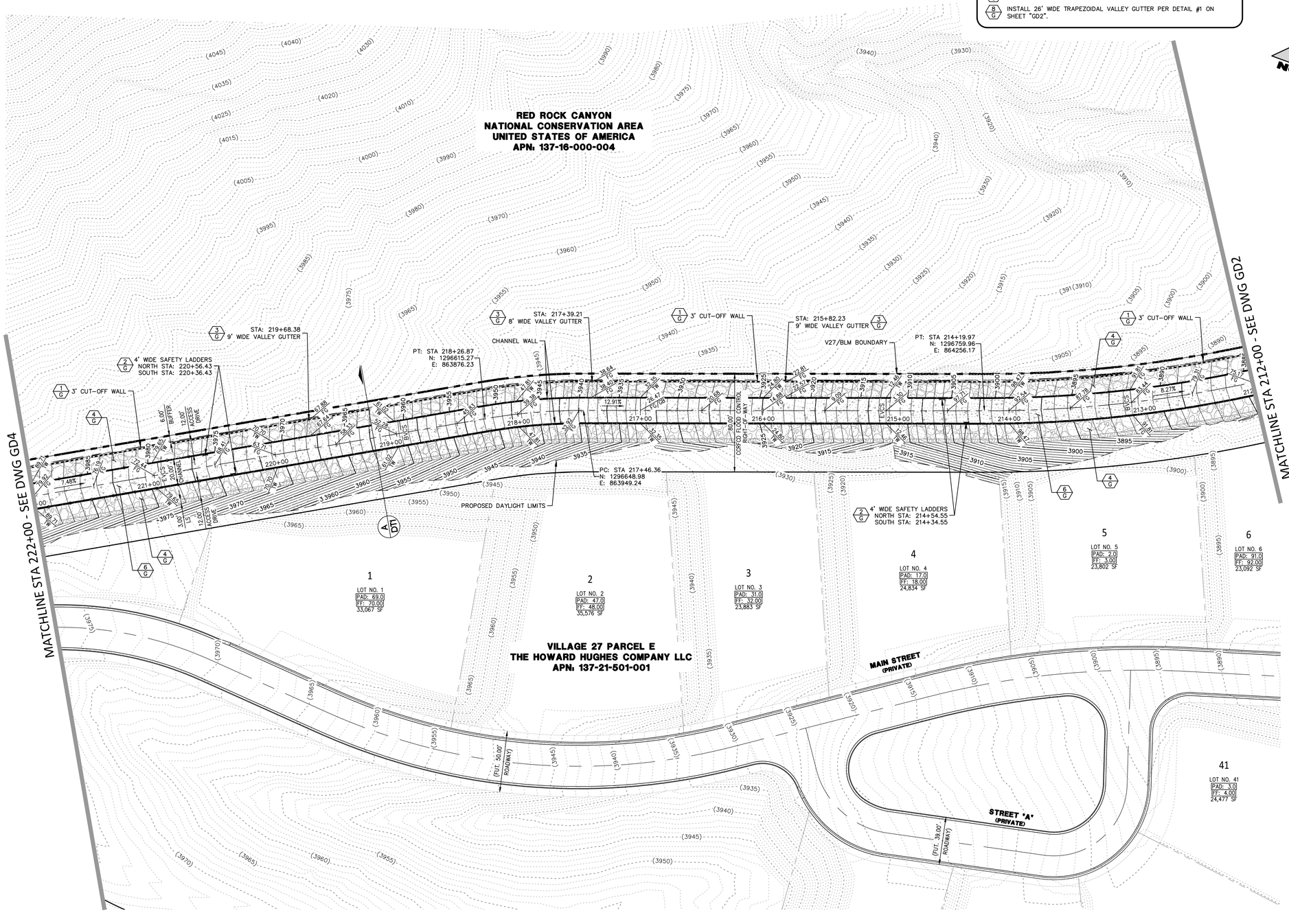
DRAWING GD2

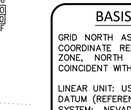
7 OF 21 SHTS

GENERAL CONSTRUCTION NOTES

1. INSTALL 3' CUT-OFF WALL PER STRUCTURAL DETAIL #6 ON SHEET "S1".
2. INSTALL SAFETY LADDER WITH 4' OPENING AT 600-FT INTERVALS PER HCDDM SECTION 707.3 AND STRUCTURAL DETAIL #14 ON SHEET "S2".
3. INSTALL VALLEY GUTTER, WIDTH SHOWN ON PLAN, PER DETAIL "E" ON SHEET "DT1" AND STRUCTURAL DETAIL #5 ON SHEET "S4".
4. INSTALL 12' WIDE ACCESS ROAD WITH TYPE II AGGREGATE BASE, COMPACTED 95%.
5. INSTALL 20' MIN. WIDE CONCRETE ACCESS RAMP TO CONNECT WITH NORTH ACCESS ROAD.
6. INSTALL CONCRETE-LINED CHANNEL PER STRUCTURAL SECTIONS "A" & "B" ON SHEET "S3".
7. INSTALL CMU RETAINING WALL, HEIGHT PER PLAN.
8. INSTALL 26' WIDE TRAPEZOIDAL VALLEY GUTTER PER DETAIL #1 ON SHEET "GD2".







40' 0' 20' 40' 80'

SCALE: 1" = 40'

DRAINAGE CERTIFICATION

I CERTIFY THAT THE GRADING PLANS ARE IN CONFORMANCE WITH THE APPROVED DRAINAGE STUDY PER #DS-05586B ON FILE AT THE CITY OF LAS VEGAS FOR THIS PROJECT.

10/18/2022

MLADJAN J. GRUJICIC, PE NO. 17109 DATE

FLOOD ZONE NOTE

SITE LOCATED ON THE FEDERAL EMERGENCY AGENCY (FEMA) FLOOD INSURANCE RATE MAP (FIRM) CONTAINING COMMUNITY PARCEL NUMBERS 32003C2125E & 32003C2150E, DATED SEPTEMBER 27, 2002. THE FIRM MAP SHOWS THAT THE PROJECT IS LOCATED WITHIN A ZONE "X" DEFINED AS BEING OUTSIDE THE 500-YEAR FLOODPLAIN AND NOT LOCATED WITHIN A FEMA DESIGNATED SPECIAL FLOOD ZONE HAZARD AREA (SFHA).

FILL NOTE

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SITE CLEARING NOTES

1. STRIP AND REMOVE EXISTING VEGETATION, DEBRIS, UNCONTROLLED FILL, ALL LOOSE OR DISTURBED NATURAL SOILS, AND OTHER DELETERIOUS MATERIALS FROM PROPOSED GRADING AREAS. EXCAVATION SHOULD EXTEND AT LEAST 5 FEET BEYOND THE AREAS TO BE IMPROVED IN PLAN VIEW. UNCONTROLLED FILL IS DEFINED AS ANY EXISTING FILL THAT WAS NOT PROPERLY PLACED, OBSERVED AND TESTED.
2. ALL EXPOSED SURFACES SHOULD BE FREE OF MOUNDS AND DEPRESSIONS WHICH COULD PREVENT UNIFORM COMPACTION.

GEOTECHNICAL NOTE

ALL GRADING SHALL BE IN ACCORDANCE WITH THE SPECIFICATION MANUAL AND THE SOILS REPORT AS PREPARED BY UNIVERSAL ENGINEERING SCIENCES, PROJECT NUMBER G-20-156, DATED SEPTEMBER 1, 2022, WHERE CONFLICTS OCCUR THE MOST RESTRICTIVE SHALL GOVERN.

DATUM NOTE

THIS SET OF DRAWINGS IS BASED UPON NAVD 88, PREVIOUS DRAWINGS MAY BE BASED ON OTHER DATUM. CARE SHOULD BE OBSERVED WHEN UTILIZING THIS SET OF DRAWINGS.

BASIS OF BEARINGS AND COORDINATES

GRID NORTH AS DEFINED BY THE CENTRAL MERIDIAN OF THE NEVADA COORDINATE REFERENCE SYSTEM (NCRS), LAS VEGAS HIGH ELEVATION ZONE, NORTH AMERICAN DATUM OF 1983; SAID MERIDIAN BEING COINCIDENT WITH 114°58' WEST OF THE GREENWICH MERIDIAN.

LINEAR UNIT: US SURVEY FOOT (FTUS)
DATUM (REFERENCE FRAME): NAD 83 (2011) EPOCH 2010.00
SYSTEM: NEVADA COORDINATE REFERENCE SYSTEM (NCRS)
ZONE:LAS VEGAS HIGH ELEVATION ZONE

PROJECTION: TRANSVERSE MERCATOR
STANDARD PARALLEL (AND LATITUDE OF GRID ORIGIN): 36°15'00"N
LONGITUDE OF CENTRAL MERIDIAN: 114°58'00"W
NORTHING AT GRID ORIGIN: 400,000.00 M (1,312,333.3333 FTUS)
EASTING AT CENTRAL MERIDIAN: 300,000 M (984,250.0000 FTUS)
SCALE FACTOR ON CENTRAL MERIDIAN: 1.000135 (EXACT)

NOTES:
1. ALL DISTANCES AND BEARINGS SHOWN HEREON ARE PROJECTED (GRID) VALUES BASED ON THE PRECEDING PROJECTION DEFINITION. THE PROJECTION WAS DEFINED SUCH THAT PROJECTED (GRID) DISTANCES ARE EQUIVALENT TO "GROUND" DISTANCES IN THE PROJECT AREA.
2. GRID BEARINGS SHOWN HEREON (OR IMPLIED BY GRID COORDINATES) DO NOT EQUAL GEODETIC BEARINGS DUE TO MERIDIAN CONVERGENCE.

BENCHMARK

BM #	DESCRIPTION	NAVD 88 DATUM	NAVD 88 DATUM
CLV BM No. 7LV0934SW6	FIND RIVET AND PLATE IN TOP OF CURB SE CORNER OF DESERT MOON RD. AND SKY VISTA DR. T20S,R59E,S34	3318.31 (FEET)	1,011.422 (METERS)

Call before you Dig
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Call 811 or 1-800-642-2444

FAST
Call before you UnderGround
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FREEWAY AND ARTERIAL SYSTEM OF TRANSPORTATION

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1-702-227-2929

L#: LXX-XXXXX CLV#: 107VXXXXX

PROFESSIONAL ENGINEER - STATE OF NEVADA - MLADJAN J. GRUJICIC - No. 17109 - Exp. 06/30/2023 - CIVIL

DATE: 10/19/2022

90% REVIEW - NOT FOR CONSTRUCTION

REV	DESCRIPTION	DATE	AGEN APP	DATE	GCW APP	DATE

PROJECT NO. 62052-3085
DESIGN: AS
DRAWN: NP
CHECK: JG
PLOT DATE: 10-19-22
PLOT TIME: 09:11:15

GCW ENGINEERS \ SURVEYORS
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LAS VEGAS, NV 89146
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F: 702.804.2299
gcwengineering.com

F:\PROJECTS\6000\62052-3085\DWG\PRODUCTION\62052-3085CO3_GD.DWG

NICHOLAS PORTUGAL

THE HOWARD HUGHES COMPANY ,LLC

VILLAGE 27 PARCEL M & E BOUNDARY DRAINAGE IMPROVEMENTS

GRADING PLAN 3

DRAWING
GD3
8 OF 21 SHTS

STORM DRAIN CONSTRUCTION NOTES

1 SD — CONSTRUCT 36" RCP INLET PER CONCRETE PENETRATION DETAIL #8 ON STRUCTURAL SHEET "S1".

2 SD — INSTALL TYPE II MANHOLE WITH 30-INCH RING AND COVER PER CCAUSD NO. 405.1.

3 SD — INSTALL TEMPORARY PLUG AND CAP.

GENERAL CONSTRUCTION NOTES

1 G — INSTALL 3' CUT-OFF WALL PER STRUCTURAL DETAIL #6 ON SHEET "S1".

2 G — INSTALL SAFETY LADDER WITH 4' OPENING AT 600-FT INTERVALS PER HCDDM SECTION 707.3 AND STRUCTURAL DETAIL #14 ON SHEET "S2".

3 G — INSTALL VALLEY GUTTER, WIDTH SHOWN ON PLAN, PER DETAIL "E" ON SHEET "DT1" AND STRUCTURAL DETAIL #5 ON SHEET "S4".

4 G — INSTALL 12' WIDE ACCESS ROAD WITH TYPE II AGGREGATE BASE, COMPACTED 95%.

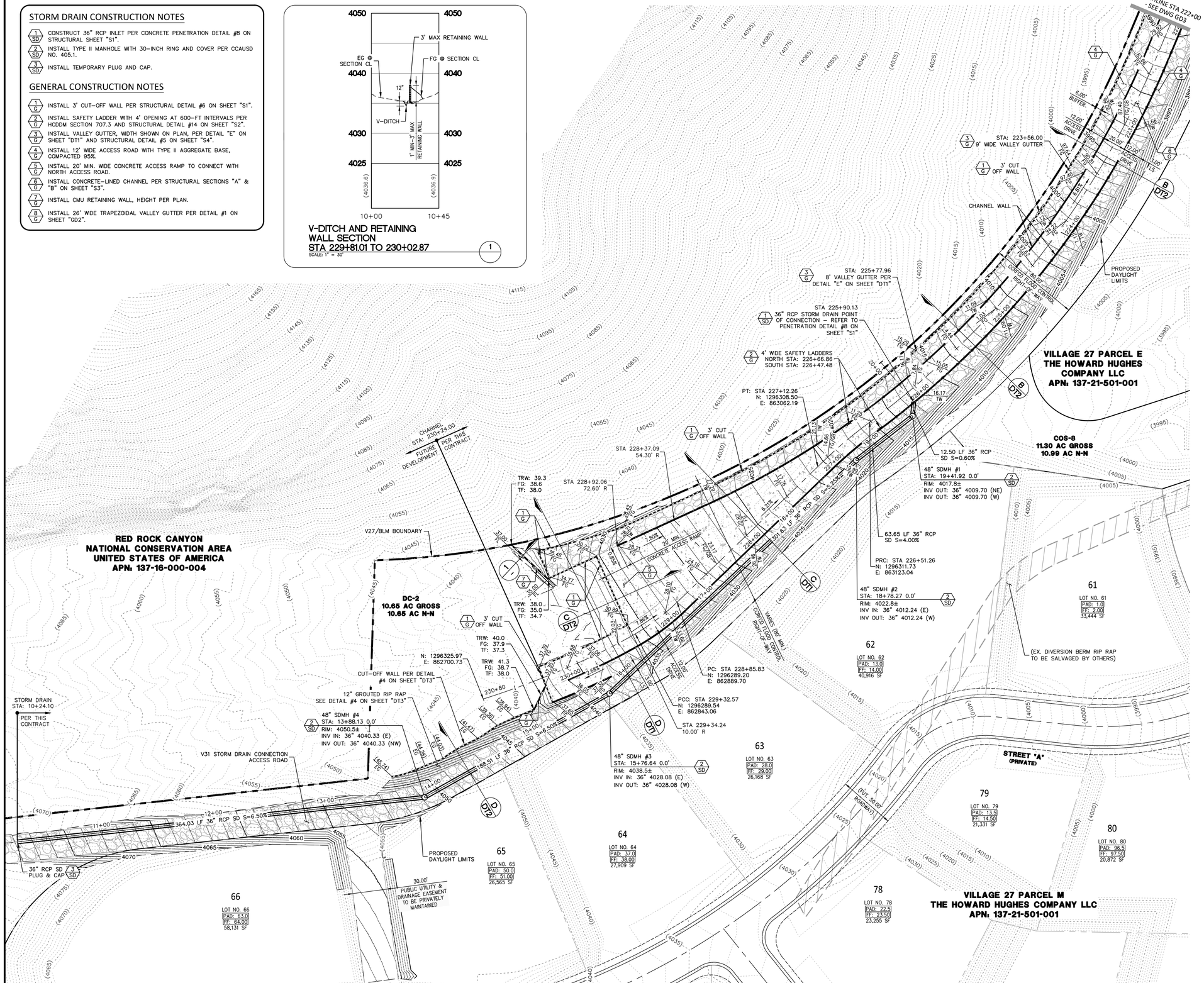
5 G — INSTALL 20' MIN. WIDE CONCRETE ACCESS RAMP TO CONNECT WITH NORTH ACCESS ROAD.

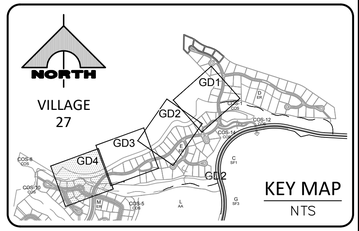
6 G — INSTALL CONCRETE-LINED CHANNEL PER STRUCTURAL SECTIONS "A" & "B" ON SHEET "S3".

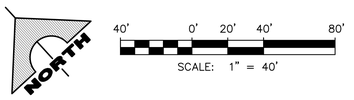
7 G — INSTALL CMU RETAINING WALL, HEIGHT PER PLAN.

8 G — INSTALL 26' WIDE TRAPEZOIDAL VALLEY GUTTER PER DETAIL #1 ON SHEET "GD2".

V-DITCH AND RETAINING WALL SECTION
STA 229+81.01 TO 230+02.87
SCALE: 1" = 30'
1







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10/18/2022

MLADJAN J. GRUJICIC, PE NO. 17109 — DATE

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ZONE:LAS VEGAS HIGH ELEVATION ZONE

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FAST — Call before you UnderGround 1-702-433-5500 FREEWAY AND ARTERIAL SYSTEM OF TRANSPORTATION

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L#: LXX-XXXXX — CLV#: 107VXXXXX

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F: 702.804.2299
gcwengineering.com
F:\PROJECTS\620\62052-3085\DWG\PRODUCTION\62052-3085003_GD.DWG
NICHOLAS PORTILLO

PROFESSIONAL ENGINEER — STATE OF NEVADA — MLADJAN J. GRUJICIC — No. 17109 — Exp. 06/30/2023 — CIVIL

REV	DATE	DESCRIPTION	AGEN APP	DATE	GCW APP	DATE
						10/19/2022

PROJECT NO. 62052-3085
DESIGN: AS
DRAWN: NP
CHECK: JG
PLOT DATE: 10-19-22
PLOT TIME: 09:16:49

THE HOWARD HUGHES COMPANY, LLC

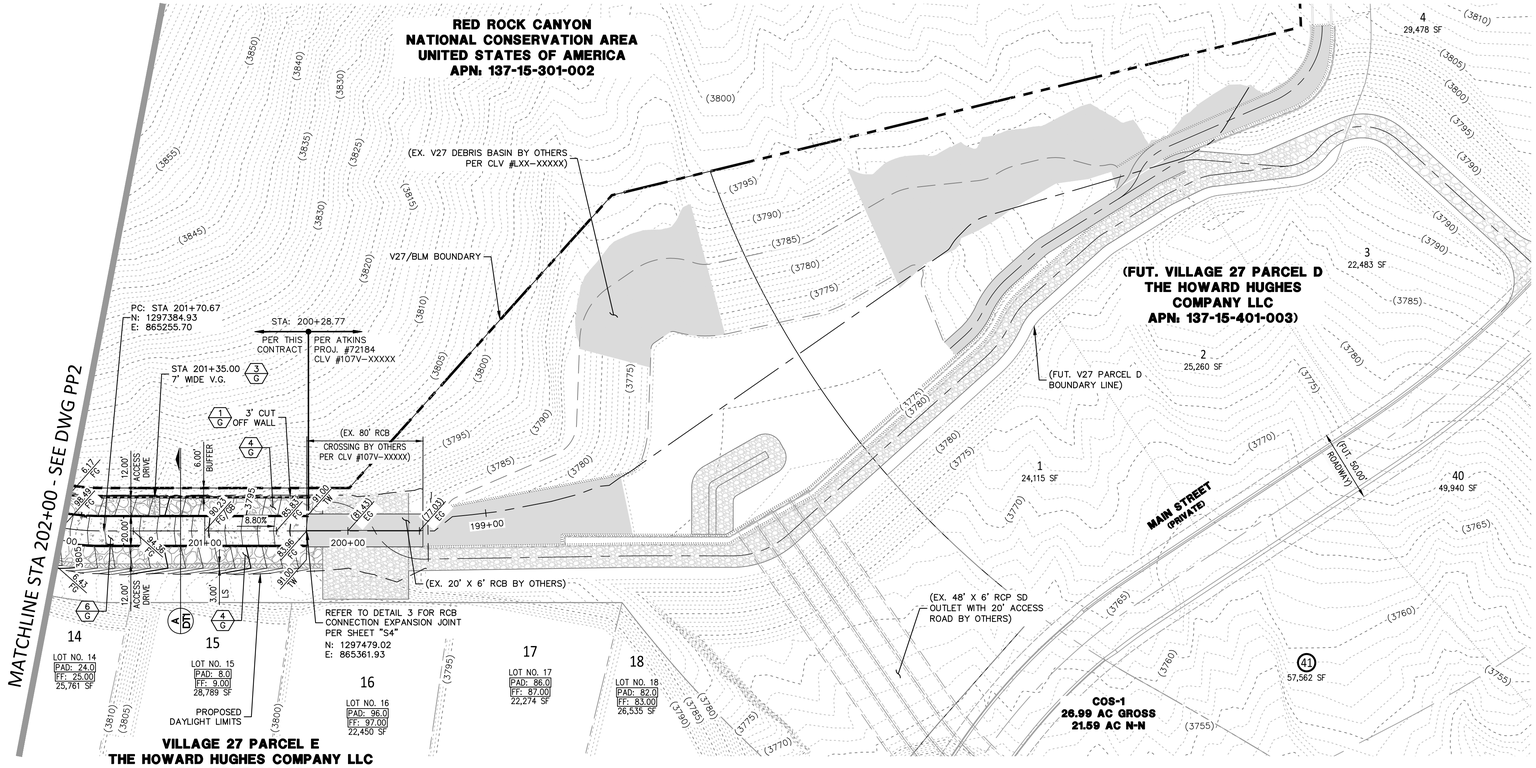
VILLAGE 27 PARCEL M & E BOUNDARY DRAINAGE IMPROVEMENTS

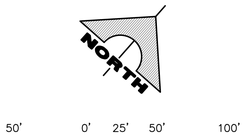
GRADING PLAN 4

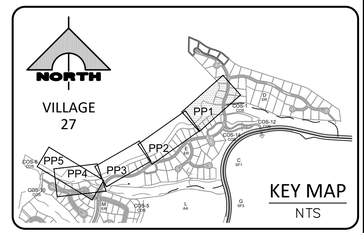
DRAWING GD4

9 OF 21 SHTS

90% REVIEW - NOT FOR CONSTRUCTION

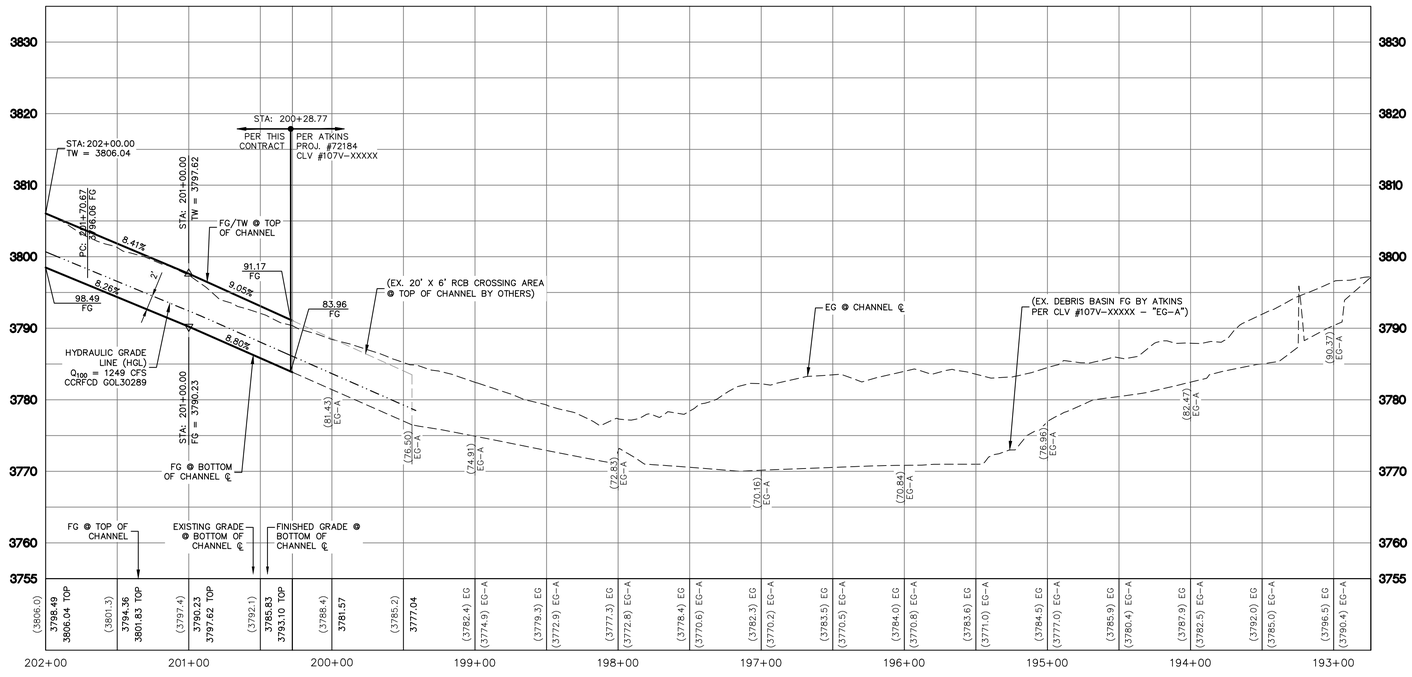






PARCEL M & E BOUNDARY CHANNEL - PLAN & PROFILE

(PUBLIC)
SCALE: HORIZ 1" = 50'
VERT. 1" = 10'



GENERAL CONSTRUCTION NOTES

1. (1/G) INSTALL 3' CUT-OFF WALL PER STRUCTURAL DETAIL #6 ON SHEET "S1".
2. (2/G) INSTALL SAFETY LADDER WITH 4' OPENING AT 600-FT INTERVALS PER HCDDM SECTION 707.3 AND STRUCTURAL DETAIL #14 ON SHEET "S2".
3. (3/G) INSTALL VALLEY GUTTER, WIDTH SHOWN ON PLAN, PER DETAIL "E" ON SHEET "DT1" AND STRUCTURAL DETAIL #5 ON SHEET "S4".
4. (4/G) INSTALL 12' WIDE ACCESS ROAD WITH TYPE II AGGREGATE BASE, COMPACTED 95%.
5. (5/G) INSTALL 20' MIN. WIDE CONCRETE ACCESS RAMP TO CONNECT WITH NORTH ACCESS ROAD.
6. (6/G) INSTALL CONCRETE-LINED CHANNEL PER STRUCTURAL SECTIONS "A" & "B" ON SHEET "S3".
7. (7/G) INSTALL CMU RETAINING WALL, HEIGHT PER PLAN.
8. (8/G) INSTALL 26' WIDE TRAPEZOIDAL VALLEY GUTTER PER DETAIL #1 ON SHEET "GD2".

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L#: LXX-XXXXX | CLV#: 107VXXXXX

PROFESSIONAL ENGINEER - STATE OF NEVADA
NICHOLAS PORTUGAL GRUJICIC
No. 17107
Exp. 06/30/2023
DATE: 10/19/2022

90% REVIEW - NOT FOR CONSTRUCTION

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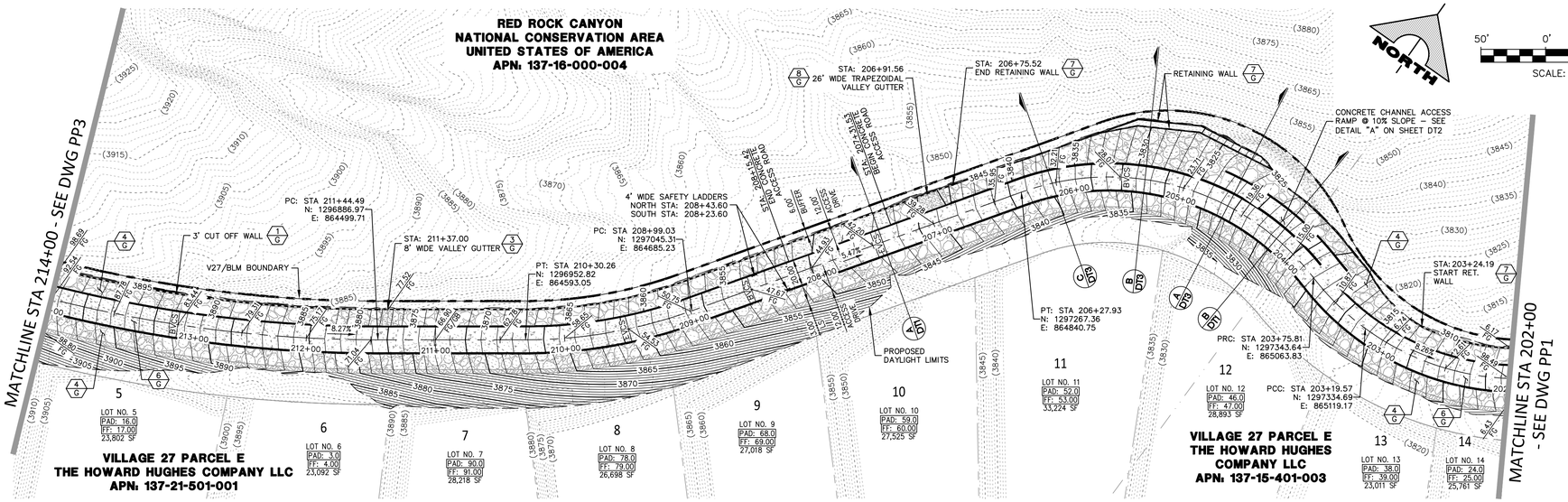
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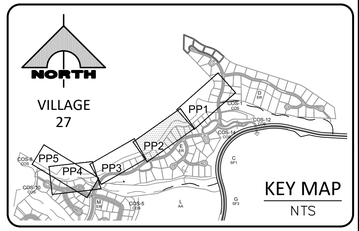
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LAS VEGAS, NV 89146
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NICHOLAS PORTUGAL

THE HOWARD HUGHES COMPANY ,LLC
VILLAGE 27 PARCEL M & E BOUNDARY DRAINAGE IMPROVEMENTS
PLAN & PROFILE 1

DRAWING
PP1
10 OF 21 SHTS





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DATUM (REFERENCE FRAME): NAD 83 (2011) EPOCH 2010.00
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PROJECTION: TRANSVERSE MERCATOR
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EASTING AT CENTRAL MERIDIAN: 300,000 M (984,250.0000 FTUS)
SCALE FACTOR ON CENTRAL MERIDIAN: 1.000135 (EXACT)

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BM #	DESCRIPTION	NAVD 88 DATUM	NAVD 88 DATUM
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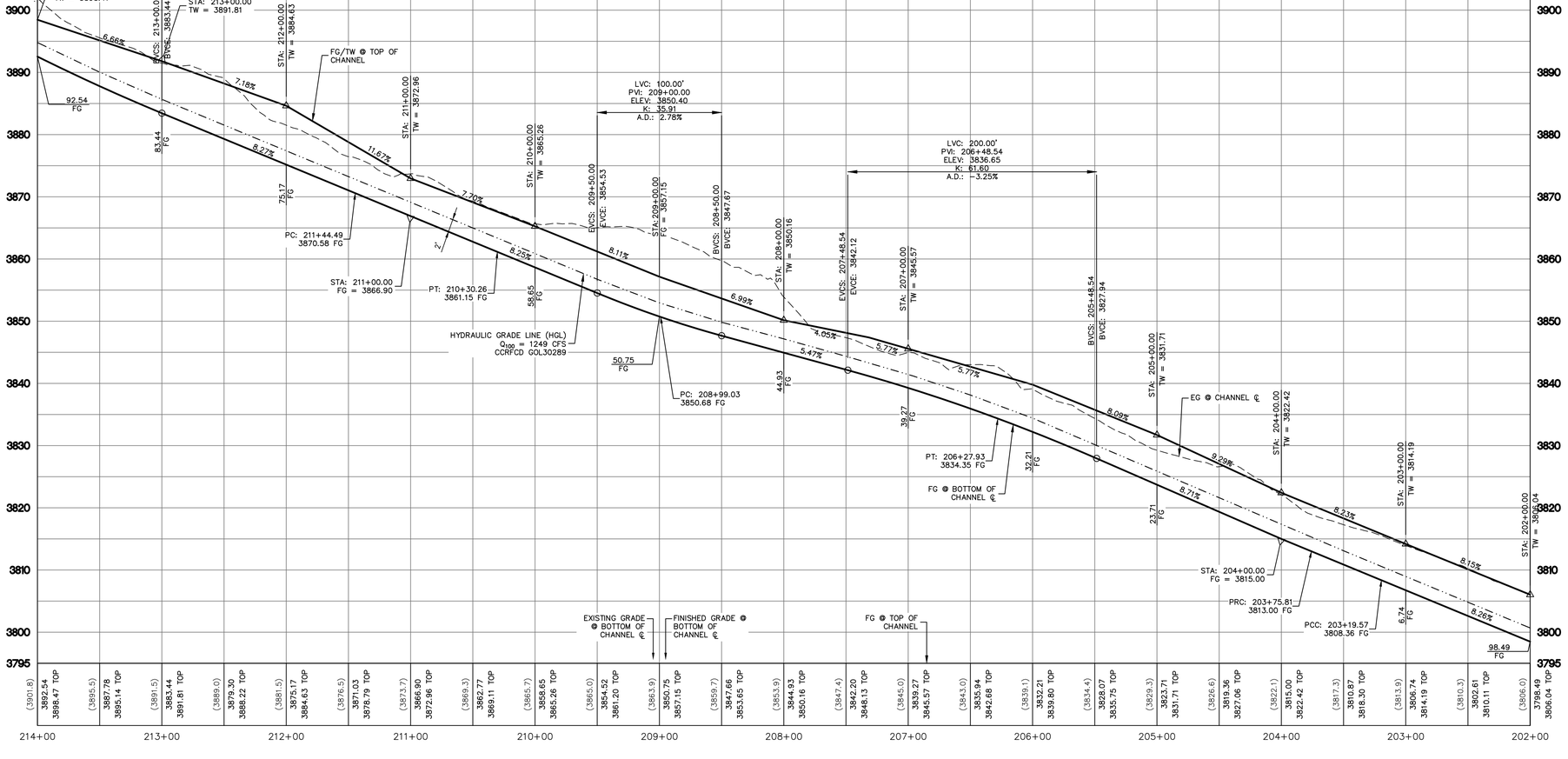
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CALL BEFORE YOU DO OVERHEAD
1-702-227-2929

L#: LXX–XXXXX CLV#: 107VXXXXX

PARCEL M & E BOUNDARY CHANNEL - PLAN & PROFILE

(PUBLIC)
SCALE: HORIZ 1" = 50'
VERT. 1" = 10'



(3901.8)	(3895.5)	(3887.5)	(3889.0)	(3881.5)	(3876.5)	(3873.7)	(3869.3)	(3865.7)	(3865.0)	(3863.9)	(3859.7)	(3853.9)	(3847.4)	(3845.0)
3892.54 3898.47 TOP	3887.78 3895.14 TOP	3883.44 3891.81 TOP	3879.30 3888.22 TOP	3875.17 3884.63 TOP	3871.03 3878.79 TOP	3866.90 3872.96 TOP	3862.77 3869.11 TOP	3858.65 3865.26 TOP	3854.52 3861.20 TOP	3850.75 3857.15 TOP	3847.66 3853.65 TOP	3844.93 3850.16 TOP	3842.20 3848.13 TOP	3839.27 3845.57 TOP

(3843.0)	(3839.1)	(3834.4)	(3829.3)	(3826.6)	(3822.1)	(3817.5)	(3813.9)	(3810.3)	(3806.0)					
3835.94 3842.68 TOP	3832.21 3839.60 TOP	3828.07 3835.75 TOP	3823.71 3831.71 TOP	3819.36 3827.06 TOP	3815.00 3822.42 TOP	3810.87 3818.30 TOP	3806.74 3814.19 TOP	3802.61 3810.11 TOP	3798.49 3806.04 TOP					

GCV
ENGINEERS \ SURVEYORS
1555 S. RAINBOW BLVD.
LAS VEGAS, NV 89146
T: 702.804.2000
F: 702.804.2299
gcvengineering.com
F:\PROJECTS\6500\62052-3085\DWG\PRODUCTION\62052-3085CH4_PP.DWG
NICHOLAS PORTUGAL

PROFESSIONAL ENGINEER – STATE OF NEVADA
NICHOLAS ANTHONY PORTUGAL
No. 17107
GRUJICIC
Exp. 06/30/2023
CIVIL
DATE: 10/19/2022

90% REVIEW - NOT FOR CONSTRUCTION

REV	DATE	DESCRIPTION	AGEN APP	DATE	GCV APP	DATE

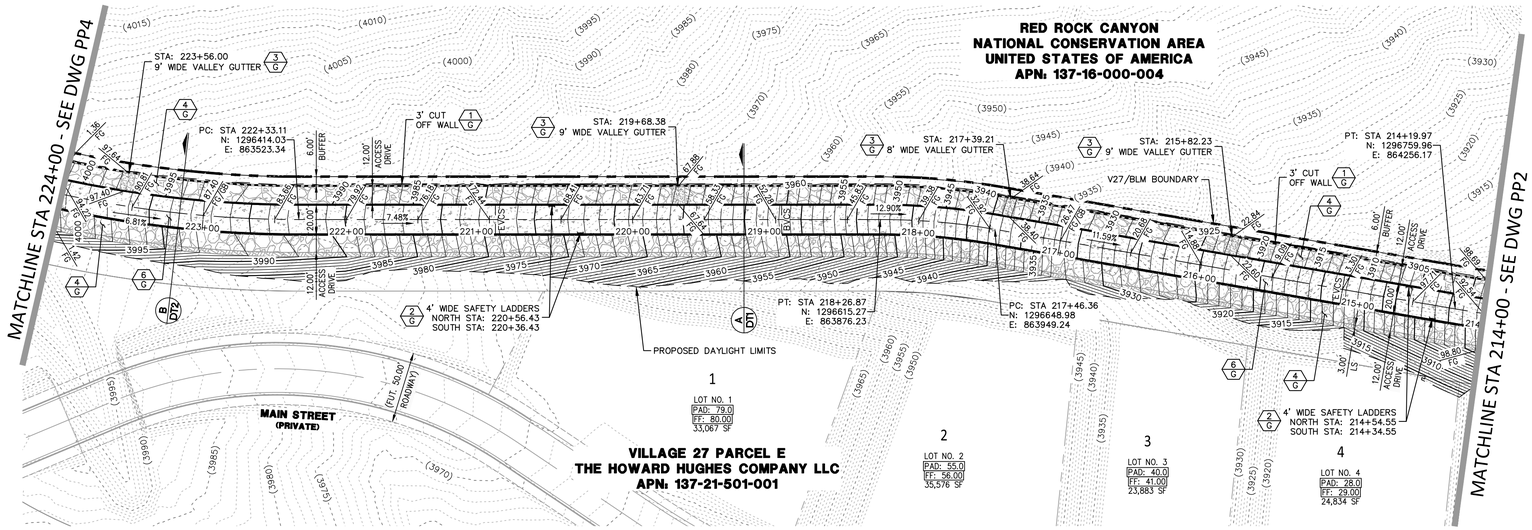
PROJECT NO. 62052-3085
DESIGN: AS
DRAWN: NP
CHECK: JG
PLOT DATE: 10-19-22
PLOT TIME: 09:11:53

THE HOWARD HUGHES COMPANY ,LLC

VILLAGE 27 PARCEL M & E BOUNDARY DRAINAGE IMPROVEMENTS

PLAN & PROFILE 2

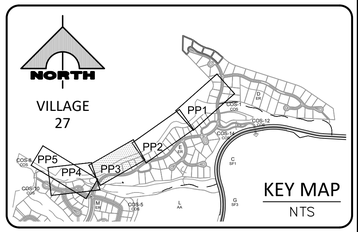
DRAWING
PP2
11 OF 21 SHTS





50' 0' 25' 50' 100'

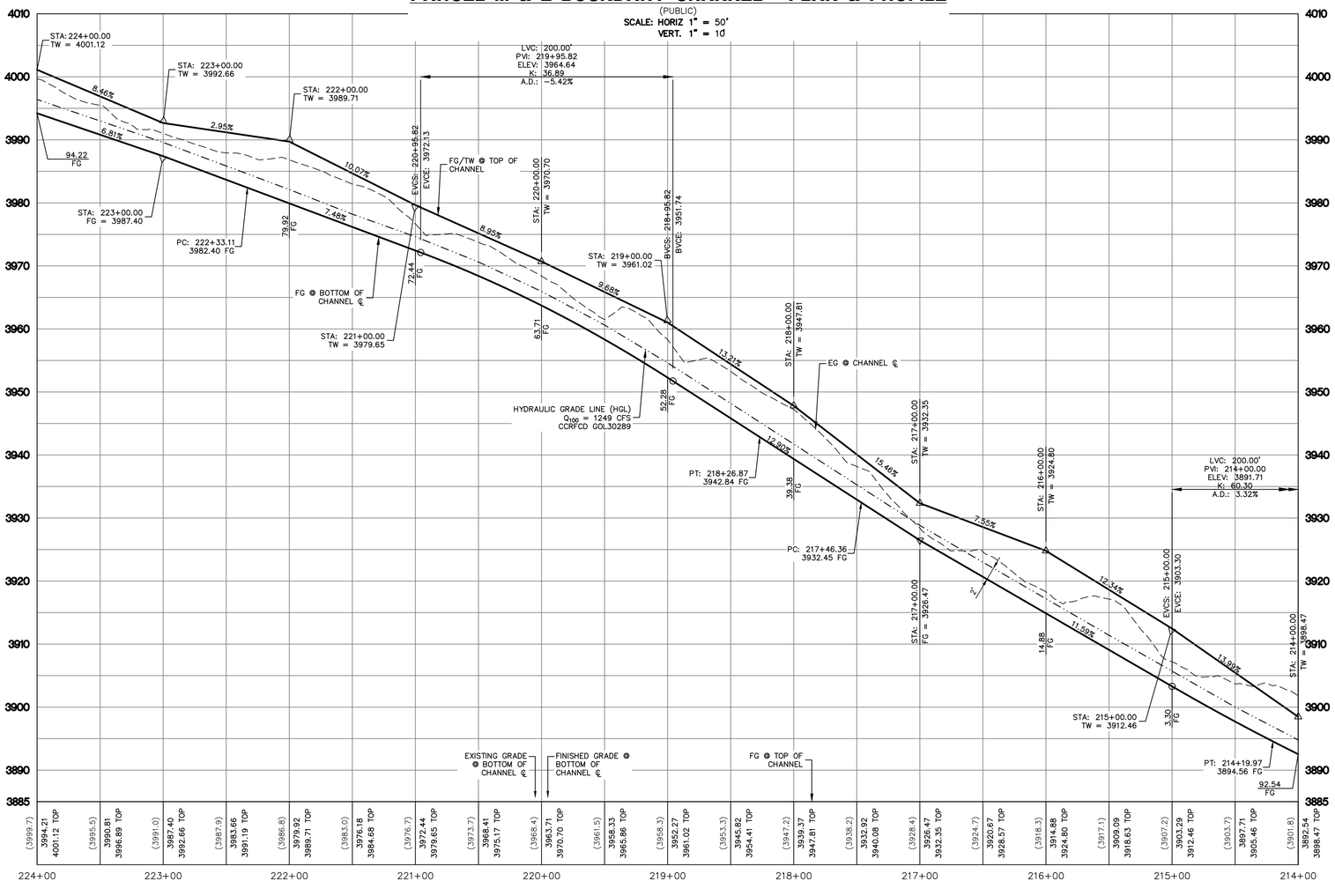
SCALE: 1" = 50'



KEY MAP
NTS

PARCEL M & E BOUNDARY CHANNEL - PLAN & PROFILE

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3. 3/G INSTALL VALLEY GUTTER, WIDTH SHOWN ON PLAN, PER DETAIL "E" ON SHEET "DT1" AND STRUCTURAL DETAIL #5 ON SHEET "S4".
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ENGINEER – STATE OF NEVADA – PROFESSIONAL
NICHOLAS PORTUGAL GRUJICIC
Exp. 06/30/2023
No. 17107
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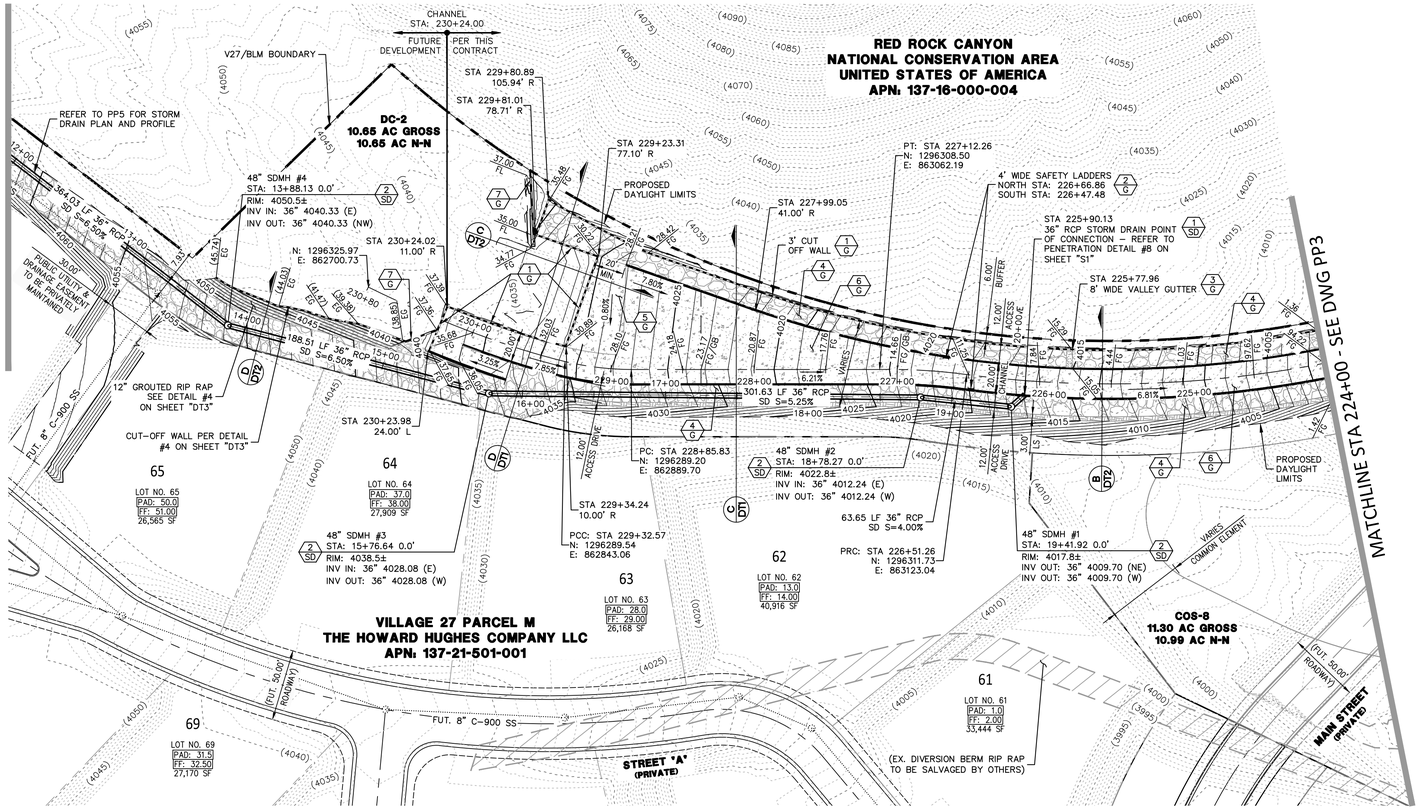
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F:\PROJECTS\62000\62052-3085\DWG\PRODUCTION\62052-3085CP4_PP.DWG
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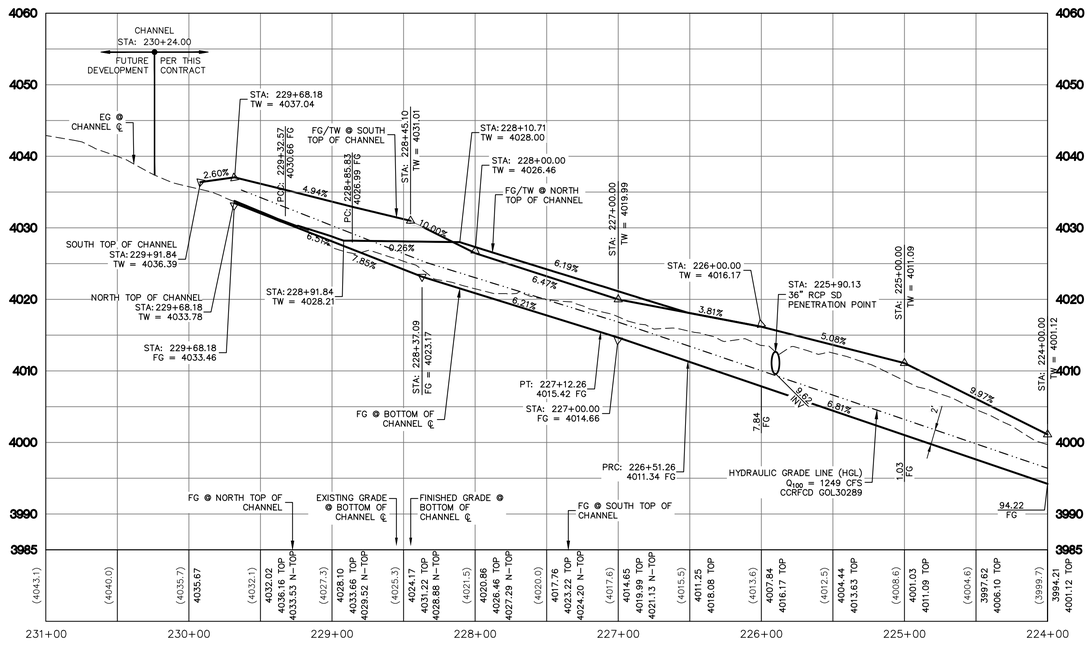
THE HOWARD HUGHES COMPANY ,LLC
VILLAGE 27 PARCEL M & E BOUNDARY DRAINAGE IMPROVEMENTS
PLAN & PROFILE 3

DRAWING
PP3
12 OF 21 SHTS



PARCEL M & E BOUNDARY CHANNEL - PLAN & PROFILE

(PUBLIC)
SCALE: HORIZ 1" = 50'
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STORM DRAIN CONSTRUCTION NOTES

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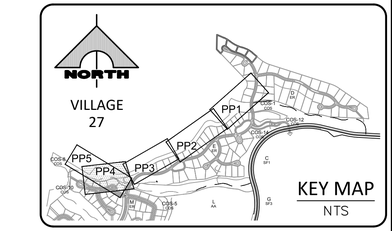
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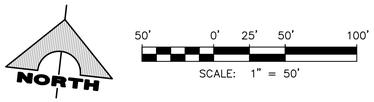
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PROFESSIONAL ENGINEER — STATE OF NEVADA
NICHOLAS PORTUGAL GRUJICIC
No. 17107
Exp. 06/30/2023
CIVIL

REV	DESCRIPTION	DATE	AGEN APP	DATE	GCW APP	DATE

FOR CONTINUATION - SEE DWG PP4

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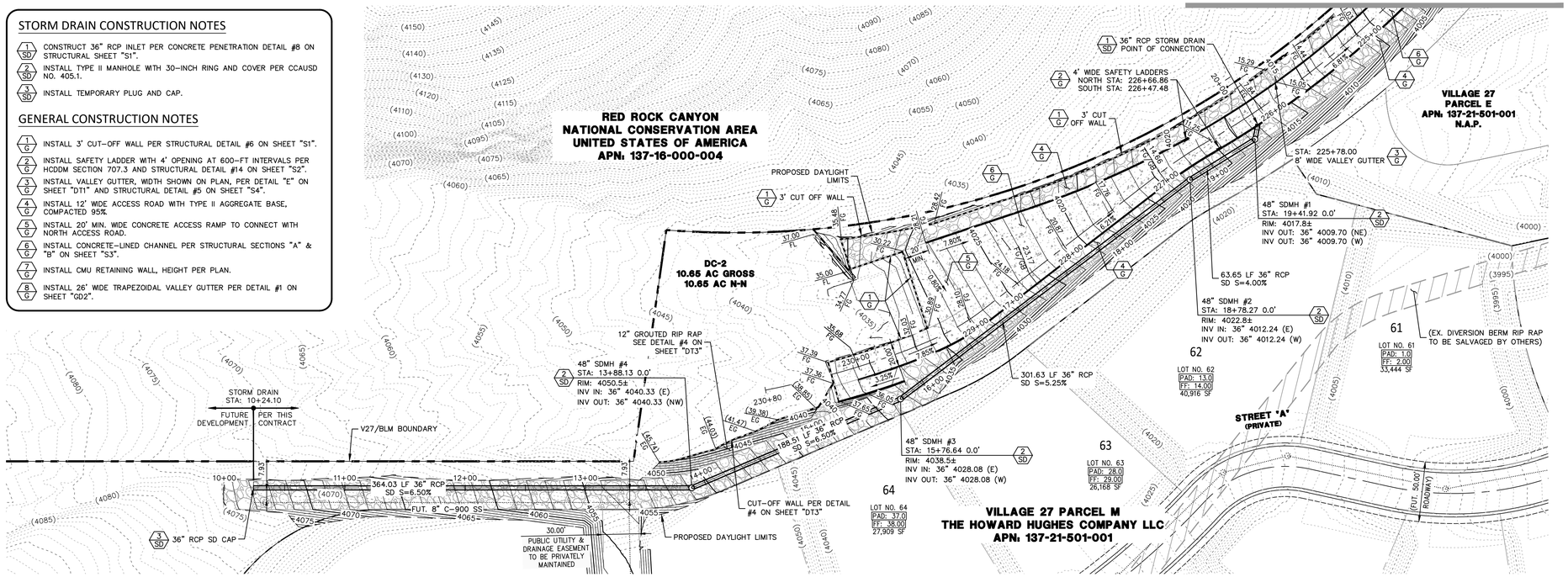
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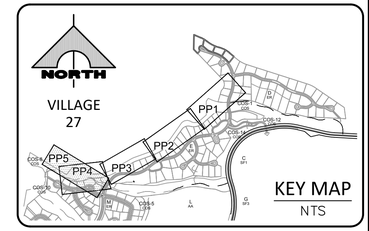
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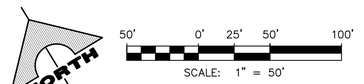
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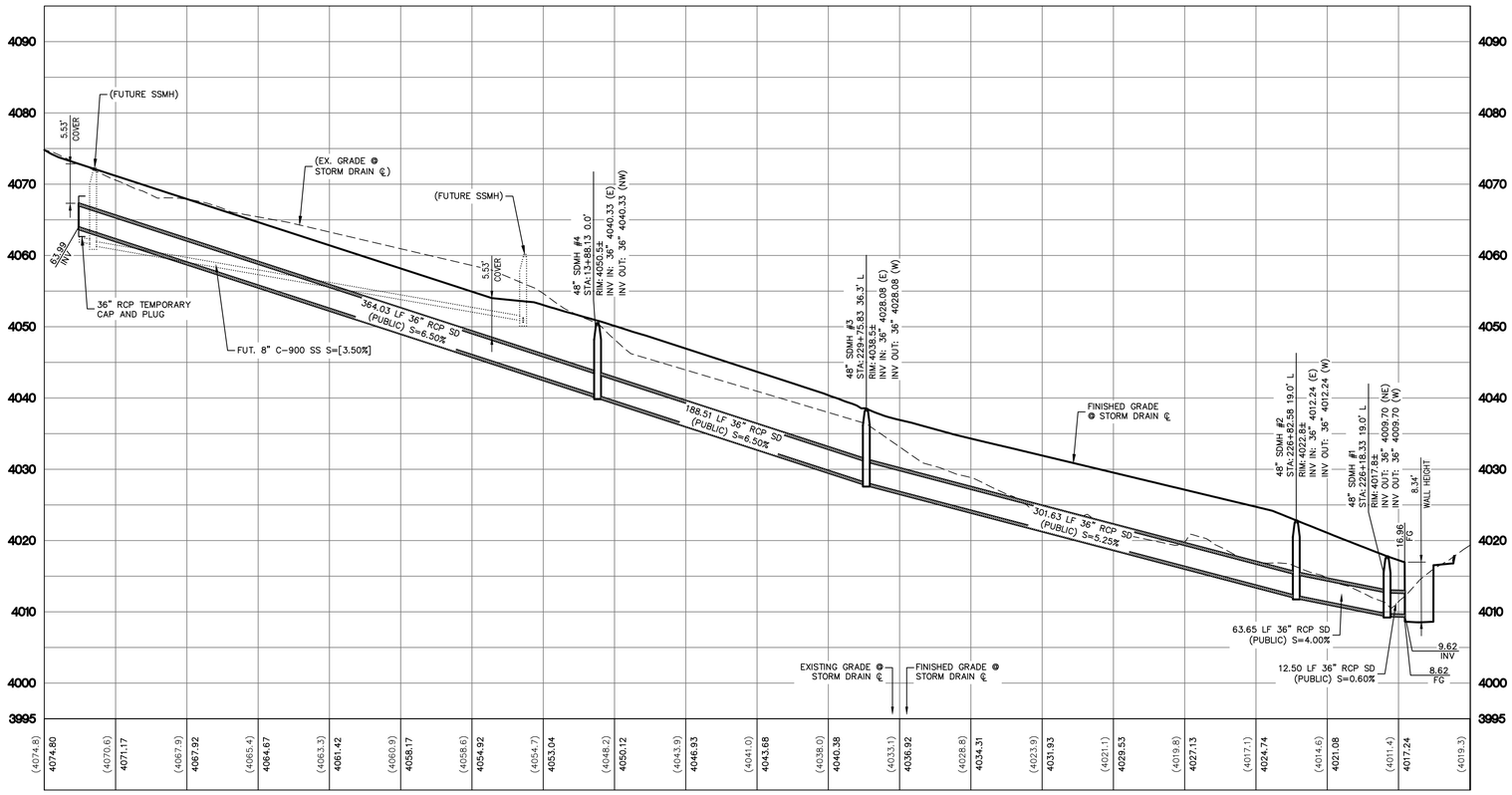






V31 DETENTION BASIN STORM DRAIN CONNECTION - PLAN & PROFILE

(PUBLIC)
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VERT. 1" = 10'



FLOOD ZONE NOTE

SITE LOCATED ON THE FEDERAL EMERGENCY AGENCY (FEMA) FLOOD INSURANCE RATE MAP (FIRM) CONTAINING COMMUNITY PARCEL NUMBERS 32003C2125E AND 32003C2150E, DATED SEPTEMBER 27, 2002. THE FIRM MAP SHOWS THAT THE PROJECT IS LOCATED WITHIN A ZONE "X" DEFINED AS BEING OUTSIDE THE 500-YEAR FLOODPLAIN AND NOT LOCATED WITHIN A FEMA DESIGNATED SPECIAL FLOOD ZONE HAZARD AREA (SFHA).

FILL NOTE

ALL IMPORTED MATERIAL SHOULD BE APPROVED BY THE GEOTECHNICAL FIRM PROVIDING TESTING DURING CONSTRUCTION, PRIOR TO IMPORTING. STRUCTURAL FILL SHOULD BE OBSERVED AND TESTED AS NECESSARY TO DETERMINE COMPLIANCE WITH THE COMPACTION REQUIREMENTS PRESENTED IN THE APPROVED GEOTECHNICAL REPORT.

SITE CLEARING NOTES

1. STRIP AND REMOVE EXISTING VEGETATION, DEBRIS, UNCONTROLLED FILL, ALL LOOSE OR DISTURBED NATURAL SOILS, AND OTHER DELETERIOUS MATERIALS FROM PROPOSED GRADING AREAS. EXCAVATION SHOULD EXTEND AT LEAST 5 FEET BEYOND THE AREAS TO BE IMPROVED IN PLAN VIEW. UNCONTROLLED FILL IS DEFINED AS ANY EXISTING FILL THAT WAS NOT PROPERLY PLACED, OBSERVED AND TESTED.
2. ALL EXPOSED SURFACES SHOULD BE FREE OF MOUNDS AND DEPRESSIONS WHICH COULD PREVENT UNIFORM COMPACTION.

GEOTECHNICAL NOTE

ALL GRADING SHALL BE IN ACCORDANCE WITH THE SPECIFICATION MANUAL AND THE SOILS REPORT AS PREPARED BY UNIVERSAL ENGINEERING SCIENCES, PROJECT NUMBER G-20-156, DATED SEPTEMBER 1, 2022, WHERE CONFLICTS OCCUR THE MOST RESTRICTIVE SHALL GOVERN.

DATUM NOTE

THIS SET OF DRAWINGS IS BASED UPON NAVD 88, PREVIOUS DRAWINGS MAY BE BASED ON OTHER DATUM. CARE SHOULD BE OBSERVED WHEN UTILIZING THIS SET OF DRAWINGS.

BASIS OF BEARINGS AND COORDINATES

GRID NORTH AS DEFINED BY THE CENTRAL MERIDIAN OF THE NEVADA COORDINATE REFERENCE SYSTEM (NCRS), LAS VEGAS HIGH ELEVATION ZONE, NORTH AMERICAN DATUM OF 1983; SAID MERIDIAN BEING COINCIDENT WITH 114°58' WEST OF THE GREENWICH MERIDIAN.

LINEAR UNIT: US SURVEY FOOT (FTUS)
DATUM (REFERENCE FRAME): NAD 83 (2011) EPOCH 2010.00
SYSTEM: NEVADA COORDINATE REFERENCE SYSTEM (NCRS)
ZONE:LAS VEGAS HIGH ELEVATION ZONE

PROJECTION: TRANSVERSE MERCATOR
STANDARD PARALLEL (AND LATITUDE OF GRID ORIGIN): 36°15'00"N
LONGITUDE OF CENTRAL MERIDIAN: 114°58'00"W
NORTHING AT GRID ORIGIN: 400,000.00 M (1,312,333.3333 FTUS)
EASTING AT CENTRAL MERIDIAN: 300,000 M (984,250.0000 FTUS)
SCALE FACTOR ON CENTRAL MERIDIAN: 1.000135 (EXACT)

NOTES:
1. ALL DISTANCES AND BEARINGS SHOWN HEREON ARE PROJECTED (GRID) VALUES BASED ON THE PRECEDING PROJECTION DEFINITION. THE PROJECTION WAS DEFINED SUCH THAT PROJECTED (GRID) DISTANCES ARE EQUIVALENT TO "GROUND" DISTANCES IN THE PROJECT AREA.
2. GRID BEARINGS SHOWN HEREON (OR IMPLIED BY GRID COORDINATES) DO NOT EQUAL GEODETIC BEARINGS DUE TO MERIDIAN CONVERGENCE.

BENCHMARK

BM #	DESCRIPTION	NAVD 88 DATUM	NAVD 88 DATUM
CLV BM No. 7LV0934SW6	FIND RIVET AND PLATE IN TOP OF CURB SE CORNER OF DESERT MOON RD. AND SKY VISTA DR. T20S,R59E,S34	3318.31 (FEET)	1,011.422 (METERS)

Call before you Dig — Avoid cutting underground utility lines. It's costly. Call 811 OR 1-800-642-2444

FAST — Call before you UnderGround 1-702-432-5300 FREEWAY AND ARTERIAL SYSTEM OF TRANSPORTATION

AVOID HITTING OVERHEAD POWER LINES. IT'S COSTLY — CALL BEFORE YOU DO OVERHEAD 1-702-227-2929

L#: LXX-XXXXX | CLV#: 107VXXXXX

ENGINEER - STATE OF NEVADA — PROFESSIONAL — NICHOLAS JOHN GRUJICIC — No. 17101 — Exp. 06/30/2023 — CIVIL

REV	DATE	DESCRIPTION	AGEN APP	DATE	GCW APP	DATE
						10/19/2022

90% REVIEW - NOT FOR CONSTRUCTION

PROJECT NO. 62052-3085
DESIGN: AS
DRAWN: NP
CHECK: JG
PLOT DATE: 10-19-22
PLOT TIME: 09:12:32

GCW ENGINEERS \ SURVEYORS
1555 S. RAINBOW BLVD.
LAS VEGAS, NV 89146
T: 702.804.2000
F: 702.804.2299
gcwengineering.com

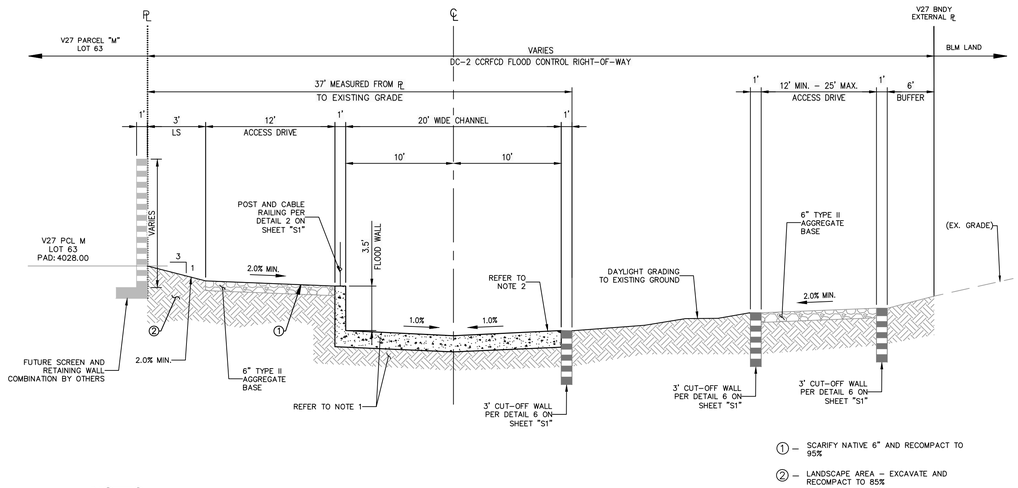
F:\PROJECTS\6201\62052-3085\GWC\PRODUCTION\62052-3085DCH_PP.DWG — NICHOLAS PORTUGAL

THE HOWARD HUGHES COMPANY, LLC

VILLAGE 27 PARCEL M & E BOUNDARY DRAINAGE IMPROVEMENTS

V31 STORM DRAIN CONNECTION PLAN AND PROFILE

DRAWING
PP5
14 OF 21 SHTS



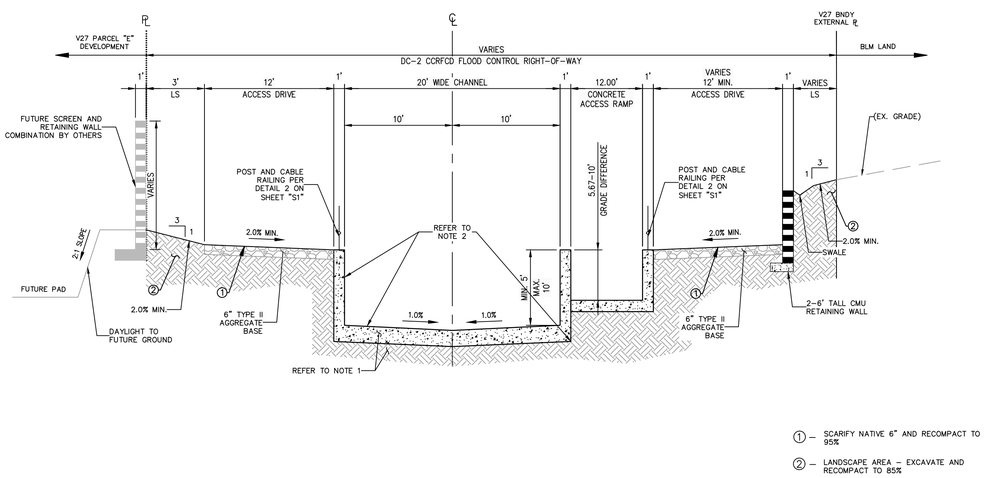
NOTES:

1. REFER TO STRUCTURAL PLANS FOR CHANNEL FLOOR THICKNESS AND SUBGRADE DETAIL INFORMATION.
2. CORRUGATED WALL FACE WITH 1-INCH FORMED PATTERN ON BOTH SIDES OF THE CHANNEL ALONG WITH 3-INCHES OF SACRIFICIAL CONCRETE WITH A TINED FLOW LINE ON THE BOTTOM OF THE CHANNEL.

CHANNEL INLET SECTION

SCALE: NTS

D



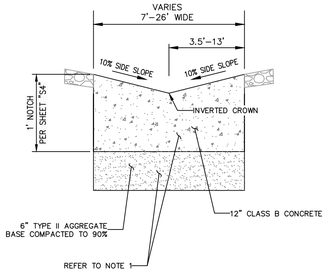
NOTES:

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2. CORRUGATED WALL FACE WITH 1-INCH FORMED PATTERN ON BOTH SIDES OF THE CHANNEL ALONG WITH 3-INCHES OF SACRIFICIAL CONCRETE WITH A TINED FLOW LINE ON THE BOTTOM OF THE CHANNEL.

CHANNEL ACCESS RAMP SECTION WITH SINGLE RETAINING WALL

SCALE: NTS -- STA 203+59.34 TO 204+75.63

B



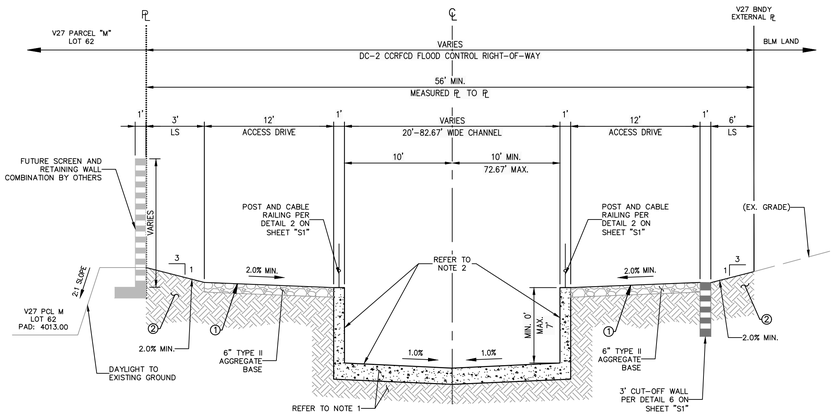
NOTES:

1. REFER TO DETAIL 5 ON SHEET "S4" FOR STRUCTURAL BAR REINFORCEMENT AROUND VALLEY GUTTER NOTCHES AND TYPICAL GUTTER WALL REINFORCEMENT.

VALLEY GUTTER DETAIL

SCALE: NTS

E



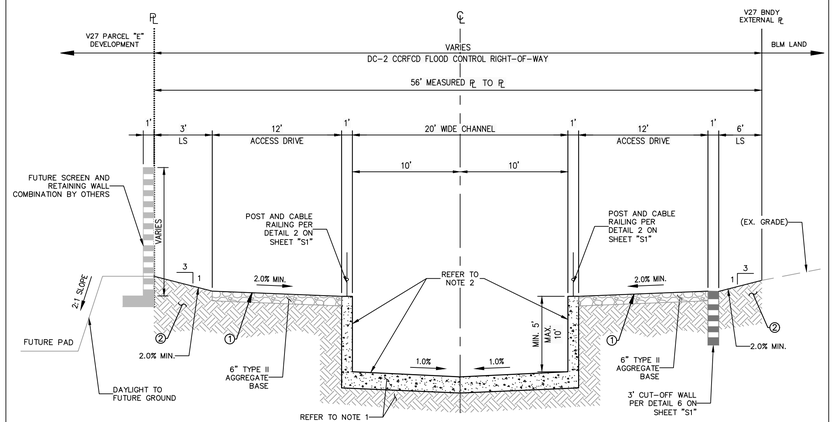
NOTES:

1. REFER TO STRUCTURAL PLANS FOR CHANNEL FLOOR THICKNESS AND SUBGRADE DETAIL INFORMATION.
2. CORRUGATED WALL FACE WITH 1-INCH FORMED PATTERN ON BOTH SIDES OF THE CHANNEL ALONG WITH 3-INCHES OF SACRIFICIAL CONCRETE WITH A TINED FLOW LINE ON THE BOTTOM OF THE CHANNEL.

EXPANDED CHANNEL SECTION

SCALE: NTS

C



NOTES:

1. REFER TO STRUCTURAL PLANS FOR CHANNEL FLOOR THICKNESS AND SUBGRADE DETAIL INFORMATION.
2. CORRUGATED WALL FACE WITH 1-INCH FORMED PATTERN ON BOTH SIDES OF THE CHANNEL ALONG WITH 3-INCHES OF SACRIFICIAL CONCRETE WITH A TINED FLOW LINE ON THE BOTTOM OF THE CHANNEL.

TYPICAL BOUNDARY CHANNEL SECTION

SCALE: NTS

A

L#: LXX-XXXXX | CLV#: 107VXXXXX

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gcwengineering.com

F:\PROJECTS\62052-3085\DWG\PRODUCTION\62052-3085DS_DT.DWG

NICHOLAS PORTUGAL

PROJECT NO. 62052-3085

DESIGN: AS
DRAWN: NP
CHECK: JG
PLOT DATE: 10-19-22
PLOT TIME: 09:13:11

REV	DATE	DESCRIPTION	AGEN APP	DATE	GCW APP	DATE

DATE: 10/19/2022

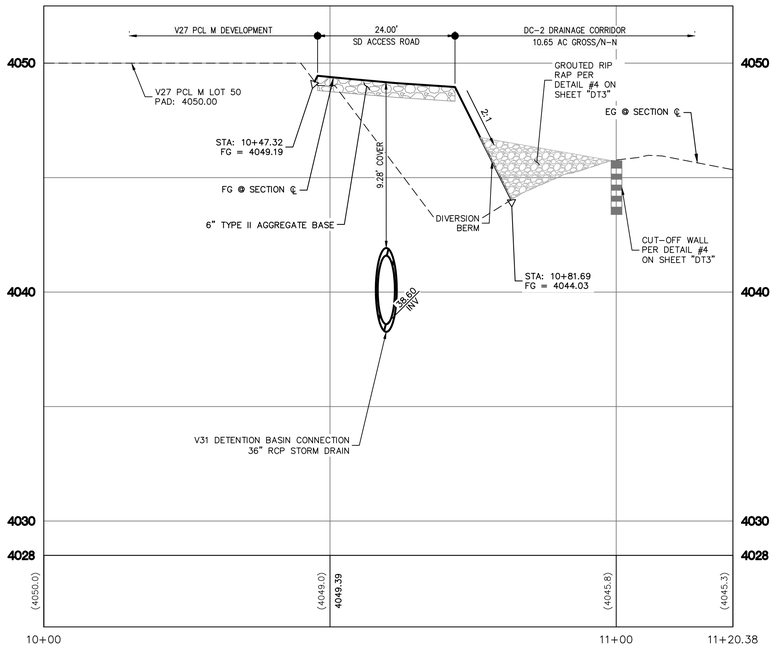
90% REVIEW - NOT FOR CONSTRUCTION

THE HOWARD HUGHES COMPANY, LLC

VILLAGE 27 PARCEL M & E BOUNDARY DRAINAGE IMPROVEMENTS

TYPICAL DETAILS & SECTIONS 1

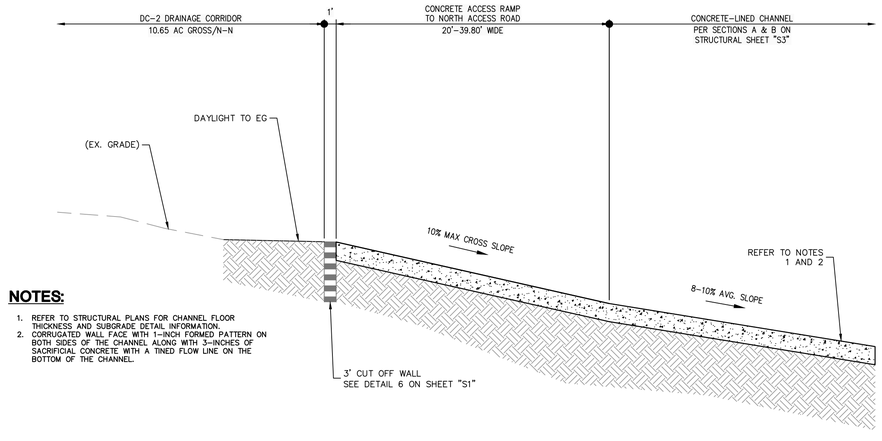
DRAWING
DT1
15 OF 21 SHTS



V31 STORM DRAIN CONNECTION ACCESS ROAD SD STA 14+14.89

SCALE: HOR. = 12.5', VERT. = 3.125'

D



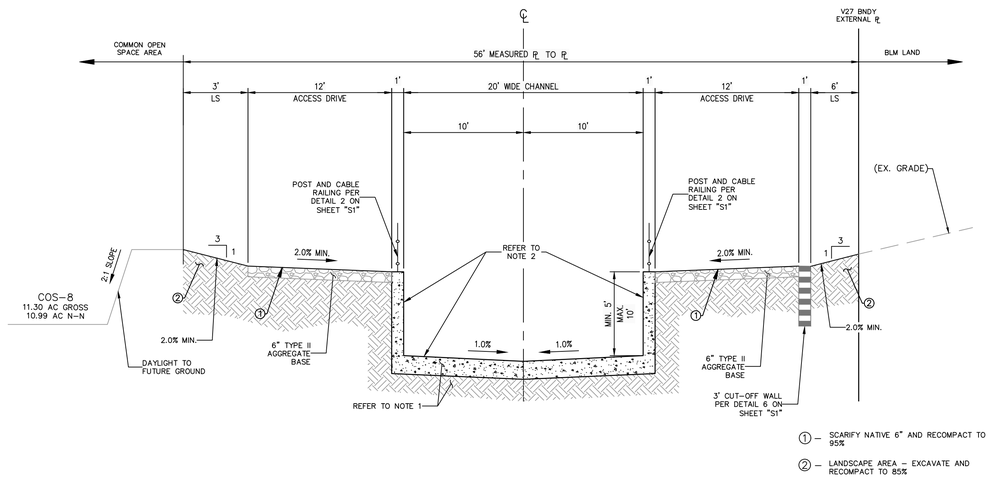
NOTES:

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2. CORRUGATED WALL FACE WITH 1-INCH FORMED PATTERN ON BOTH SIDES OF THE CHANNEL ALONG WITH 3-INCHES OF SACRIFICIAL CONCRETE WITH A TINED FLOW LINE ON THE BOTTOM OF THE CHANNEL.

CONCRETE ACCESS RAMP AT DC-2

SCALE: NTS

C



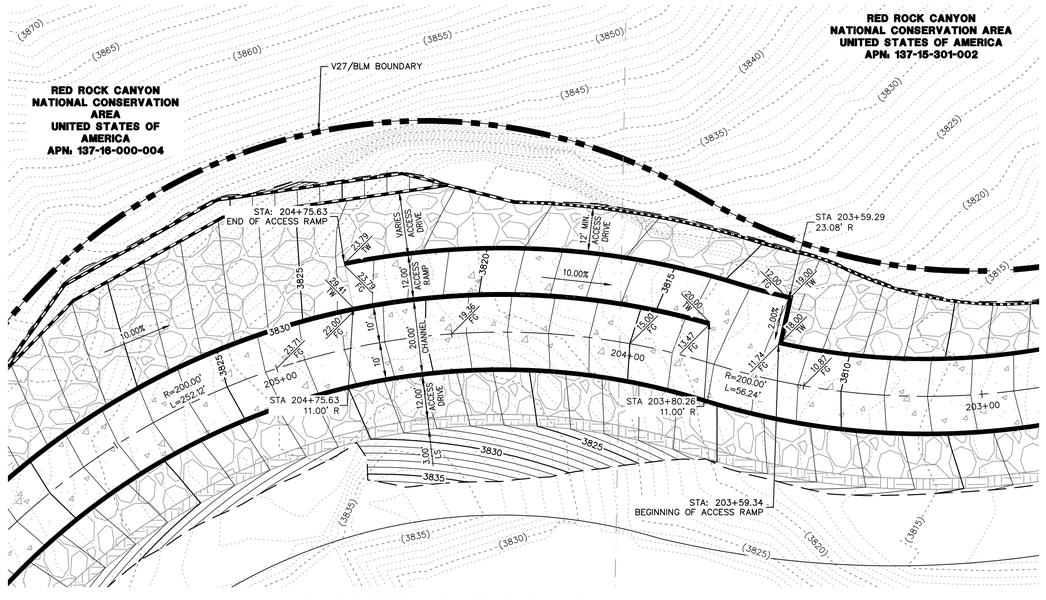
NOTES:

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BOUNDARY CHANNEL SECTION AT COS-8

SCALE: NTS

B



CONCRETE ACCESS RAMP STA 203+59.34 - 204+75.63

SCALE: 1" = 20'

A

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gcvengineering.com
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NICHOLAS PORTUGAL

THE HOWARD HUGHES COMPANY ,LLC

VILLAGE 27 PARCEL M & E BOUNDARY DRAINAGE IMPROVEMENTS

TYPICAL DETAILS & SECTIONS 2

PROJECT NO. 62052-3085

DESIGN: AS
DRAWN: NP
CHECK: JG
PLOT DATE: 10-19-22
PLOT TIME: 09:13:19

REV	DATE	DESCRIPTION	AGEN APP	DATE	GCW APP	DATE

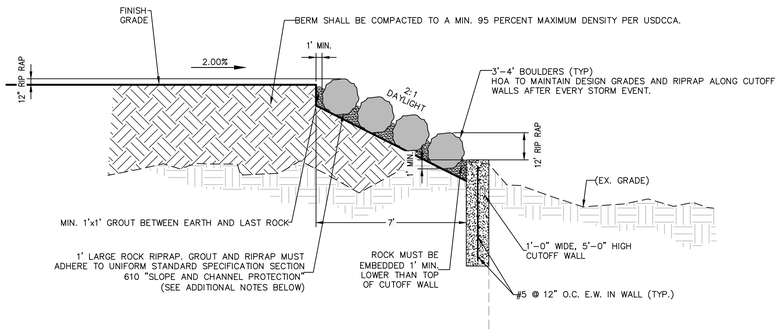
DATE: 10/19/2022

90% REVIEW - NOT FOR CONSTRUCTION

PROFESSIONAL ENGINEER - STATE OF NEVADA
NICHOLAS PORTUGAL GRUJICIC
No. 17107
Exp. 06/30/2023
CIVIL

DRAWING
DT2
16 OF 21 SHTS

L#: LXX–XXXXX | CLV#: 107VXXXXX



NOTES:

1. WASHES MUST BE INSPECTED AND MAINTAINED AFTER EACH STORM EVENT. IF THE CUT-OFF WALL IS EXPOSED, BACKFILL MUST BE PLACED TO THE TOP OF CUT-OFF WALL, BENCHED 1-FOOT HORIZONTALLY AND GRADED TO A 3:1 SLOPE.
2. CONTRACTOR SHALL USE PRIMARILY 3-FOOT AND 4-FOOT LARGE ROCK (BOULDER) RIPRAP FOR SLOPE PROTECTION, WITH 1-FOOT AND 2-FOOT ROCK USED TO FILL VOIDS BETWEEN THE 3-FOOT AND 4-FOOT BOULDERS.
3. ALL VOIDS SHALL BE FILLED WITH GROUT TO A MINIMUM DEPTH OF HALF THE DEPTH OF THE ROCK/BOULDER.
4. BOTTOM ROW OF ROCK/SHOULDER ADJACENT TO THE CUT-OFF WALL MUST BE EMBEDDED 1-FOOT BELOW THE TOP OF THE CUT-OFF WALL.
5. EXCLUDING THE BOTTOM ROW OF ROCK/BOULDER, THE BOTTOM OF ALL 3-FOOT AND 4-FOOT ROCK/BOULDER MUST BE A MINIMUM OF 1-FOOT BELOW THE TOP OF THE LOWER ROCK, AND 1-FOOT AND 2-FOOT ROCK MUST BE A MINIMUM OF 6" BELOW THE TOP OF THE LOWER ROCK.

RTC SECTION 610: SLOPE AND CHANNEL PROTECTION ADDITIONAL NOTES

610.02.04 STONES FOR RIPRAP

A. STONES USED FOR RIPRAP SHALL BE HARD, DURABLE, ANGULAR IN SHAPE, RESISTANT TO WEATHERING AND EROSION, AND FREE FROM SPOILS, CRACKS, AND ORGANIC MATTER.

ADD 4 AND 5 TO THIS SUBSECTION:

4. THE SPECIFIC GRAVITY OF THE CONCRETE EMBEDDED RIPRAP SHALL NOT BE LESS THAN 2.45.
5. THE NOMINAL STONE SIZE FOR THE GROUTED RIPRAP LARGE ROCK SHALL BE 3-FOOT TO 4-FOOT, WITH 1-FOOT TO 2-FOOT FILLER ROCK.

C. CONTROL OF GRADATION WILL BE BY VISUAL INSPECTION.

REVISE SUBSECTION AS FOLLOWS:

1. THE CONTRACTOR SHALL PROVIDE A SAMPLE OF STONE AT LEAST 5 TONS MEETING THE GRADATION FOR GROUTED RIPRAP LARGE ROCK.

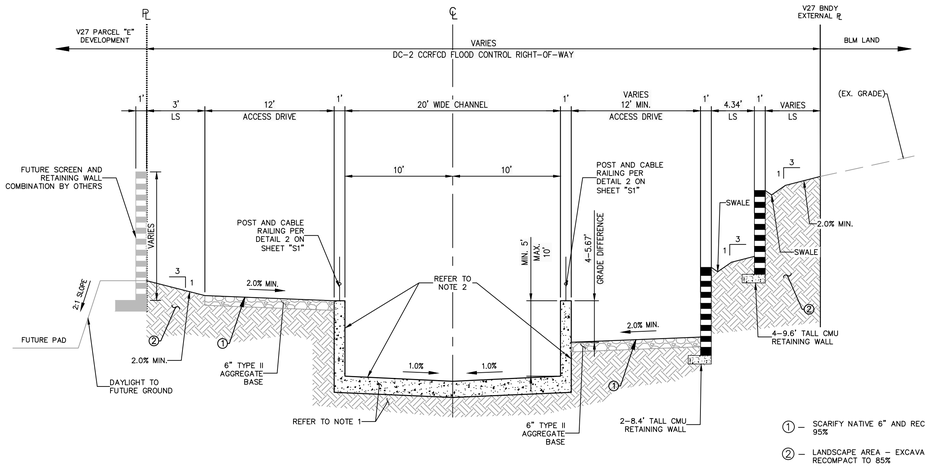
REVISE SUBSECTION D. AS FOLLOWS:

D. CALICHE STONE OR CEMENTITIOUS MATERIALS MEETING THE REQUIREMENTS OF THIS SECTION MAY BE USED AS RIPRAP WITH PRIOR APPROVAL OF THE ENGINEER. CALICHE STONE OR CEMENTITIOUS MATERIAL MAY NOT BE USED FOR GROUTED RIPRAP LARGE ROCK.

GROUTED RIP RAP LARGE ROCK SECTION

SCALE: NTS

D



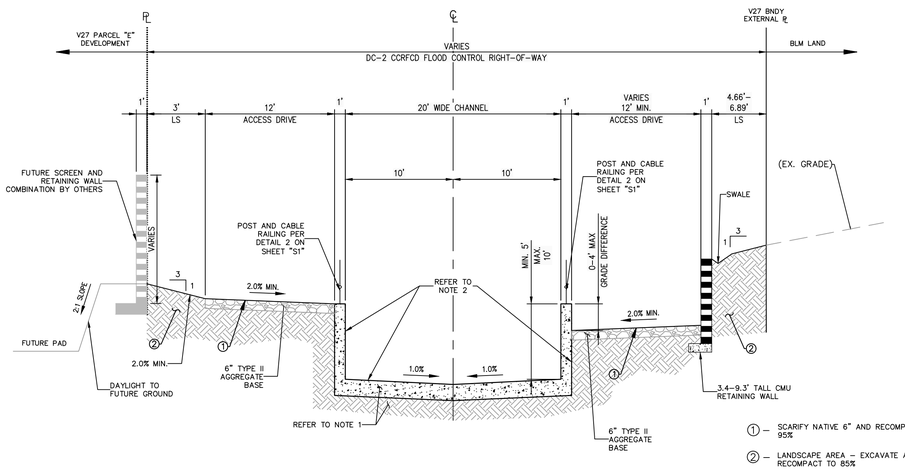
NOTES:

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2. CORRUGATED WALL FACE WITH 1-INCH FORMED PATTERN ON BOTH SIDES OF THE CHANNEL ALONG WITH 3-INCHES OF SACRIFICIAL CONCRETE WITH A TINED FLOW LINE ON THE BOTTOM OF THE CHANNEL.

NORTH CHANNEL ACCESS DRIVE SECTION WITH DOUBLE RETAINING WALLS

SCALE: NTS

B



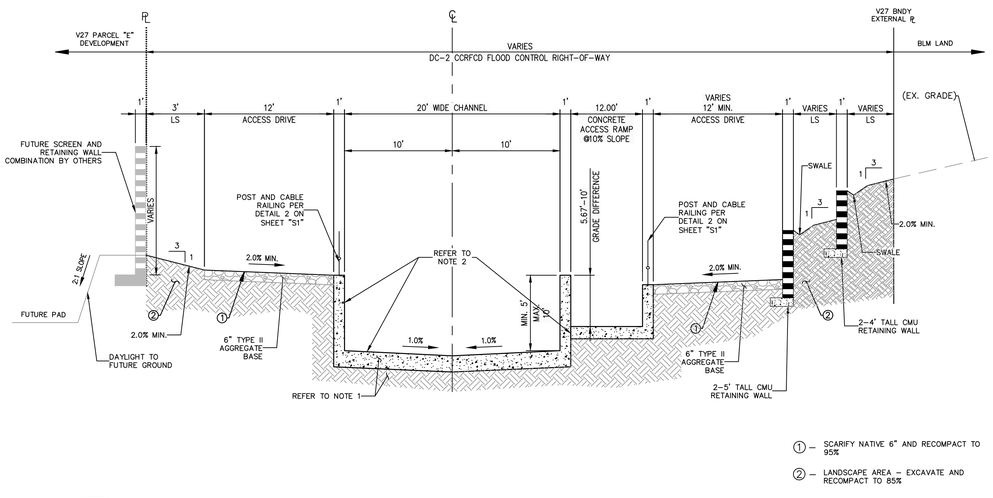
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NORTH CHANNEL ACCESS DRIVE SECTION WITH SINGLE RETAINING WALL

SCALE: NTS

C



NOTES:

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CHANNEL ACCESS RAMP SECTION WITH DOUBLE RETAINING WALLS

SCALE: NTS -- STA 203+59 TO 204+75.63

A

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gcwengineering.com

F:\PROJECTS\6000\62052-3085\DWG\PRODUCTION\62052-3085CDS_DT.DWG

NICHOLAS PORTUGAL

PROFESSIONAL ENGINEER – STATE OF NEVADA – No. 17107 – MILADJAN GRUJICIC – Exp. 06/30/2023 – CIVIL

REV	DESCRIPTION	DATE	AGEN APP	DATE	GCW APP	DATE
						10/19/2022

90% REVIEW - NOT FOR CONSTRUCTION

PROJECT NO. 62052-3085

DESIGN: AS
DRAWN: NP
CHECK: MG
PLOT DATE: 10-19-22
PLOT TIME: 09:13:24

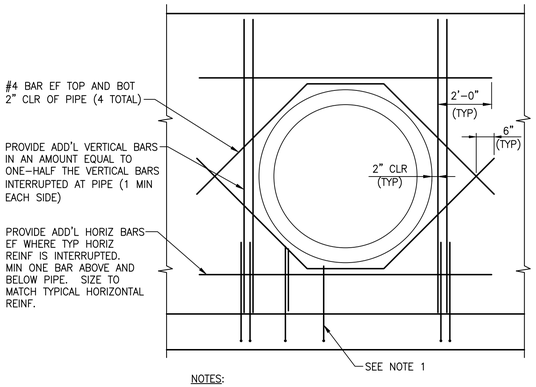
THE HOWARD HUGHES COMPANY, LLC

VILLAGE 27 PARCEL M & E BOUNDARY DRAINAGE IMPROVEMENTS

TYPICAL DETAILS & SECTIONS 3

DRAWING
DT3
17 OF 21 SHTS

L#: LXX-XXXXX | CLV#: 107VXXXXX

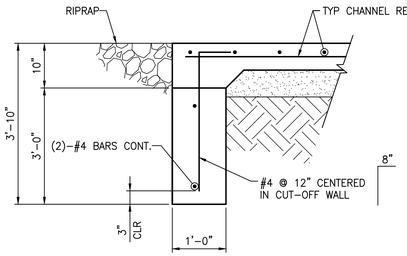


NOTES:

1. FIELD CUT TYPICAL WALL REINFORCING 2" CLR OF PIPE.
2. IF BARS CANNOT EXTEND BEYOND PIPE AS SHOWN, EXTEND AS FAR AS POSSIBLE AND PROVIDE STANDARD HOOK.

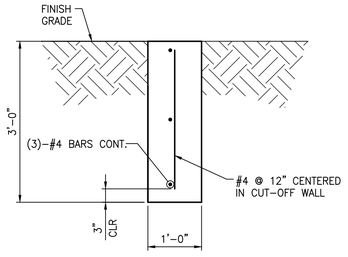
8 PIPE PENETRATION DETAIL

SCALE: NTS



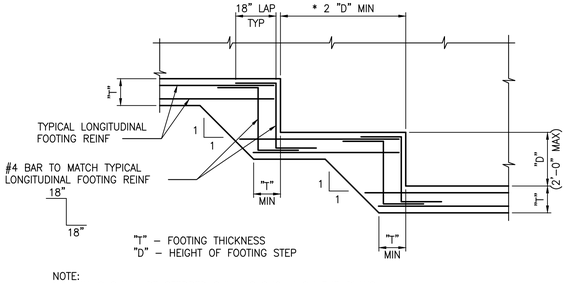
7 CUTOFF WALL W/ CHANNEL SLAB

SCALE: NTS



6 CUTOFF WALL

SCALE: 3/4" = 1'-0"

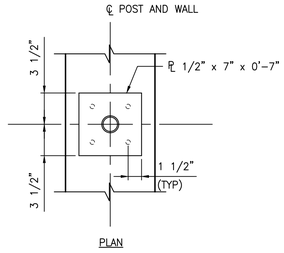


NOTE:

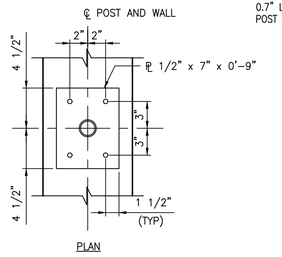
1. WALLS SHALL BE STEPPED ONLY AS SHOWN ON THE PLANS.
2. FOOTINGS MAY BE SLOPED AT 6% MAXIMUM SLOPE.

5 TYPICAL FOOTING STEP DETAIL

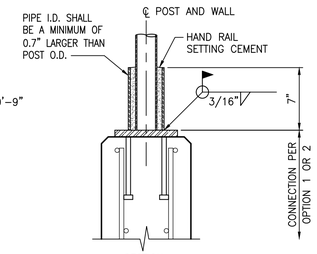
SCALE: N.T.S.



PLAN

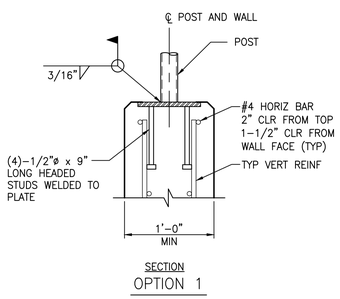


PLAN



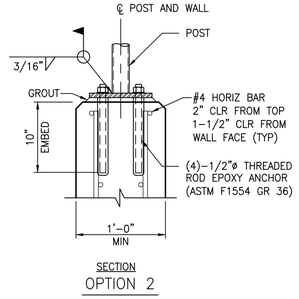
SECTION

ALTERNATIVE (OPTION 1 AND 2)



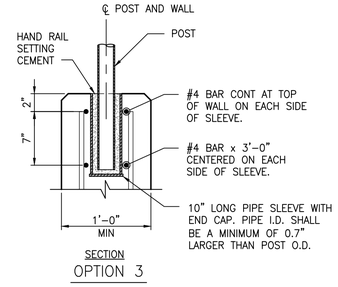
SECTION

OPTION 1



SECTION

OPTION 2

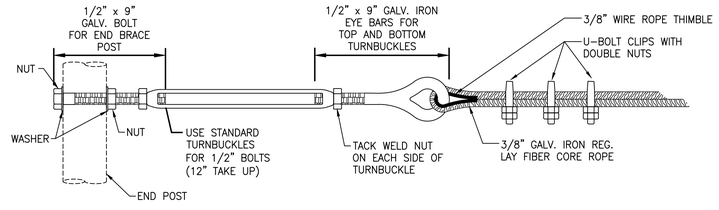


SECTION

OPTION 3

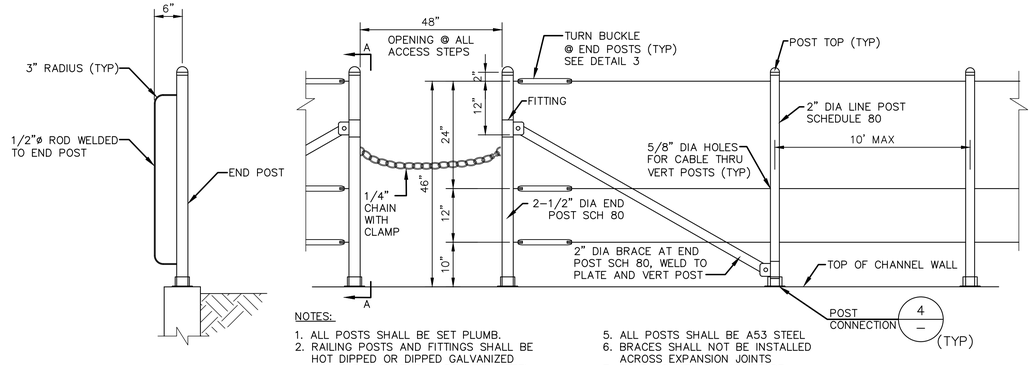
4 POST CONNECTION DETAIL

SCALE: NTS



3 TURNBUCKLE DETAIL

SCALE: NTS



SECTION A-A

NOTES:

1. ALL POSTS SHALL BE SET PLUMB.
2. RAILING POSTS AND FITTINGS SHALL BE HOT DIPPED OR DIPPED GALVANIZED MALLEABLE CAST IRON PRESSED STEEL.
3. GALVANIZE COMPONENTS AFTER FABRICATION.
4. BRACE BANDS SIZED FOR 2000 LBS. (WORKING LOAD).
5. ALL POSTS SHALL BE A53 STEEL
6. BRACES SHALL NOT BE INSTALLED ACROSS EXPANSION JOINTS
7. POLE MOUNTS SHALL NOT BE LOCATED WITHIN 1-FOOT OF EXPANSION JOINTS.

2 POST AND CABLE RAILING

SCALE: NTS

GENERAL STRUCTURAL NOTES

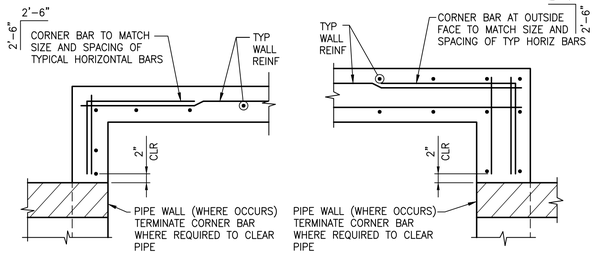
1. DESIGN SPECIFICATIONS: AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, EIGHTH EDITION, 2018.
2. CONSTRUCTION SPECIFICATIONS: CLARK COUNTY UNIFORM STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION.
3. EXISTING UTILITIES: THE CONTRACTOR SHALL BE RESPONSIBLE FOR LOCATING ALL EXISTING UTILITIES WITHIN THE WORK AREA, AND PROVIDING PROTECTION FOR THE VARIOUS UTILITIES AFFECTED PRIOR TO PROCEEDING WITH THE WORK.
4. CONCRETE: CONCRETE SHALL BE CLASS D MODIFIED AND SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH AT 28 DAYS OF f'c=6,000 PSI AND A MAXIMUM WATER TO CEMENT RATIO, BY WEIGHT, OF 0.45. USE TYPE V CEMENT PER ASTM C-150. ALL EXPOSED EDGES OF CONCRETE SHALL BE CHAMFERED 3/4", UNLESS NOTED OTHERWISE.
5. REINFORCING STEEL: ALL REINFORCING STEEL SHALL BE ASTM A615 GRADE 60. DIMENSIONS ARE FROM OUT TO OUT OF BARS. MINIMUM CLEARANCE TO REINFORCING STEEL SHALL BE 3" WHERE CONCRETE IS CAST AGAINST SOIL AND 2" ELSEWHERE, UNLESS NOTED OTHERWISE. HOOKS MAY BE ROTATED OR TILTED AS NECESSARY TO PROVIDE THE PROPER CLEARANCES.
6. BEDDING MATERIAL: BEDDING MATERIAL SHALL BE 6-INCHES OF TYPE II AGGREGATE BASE COMPACTED TO 95% OF THE MAXIMUM DRY DENSITY. EXPOSED NATIVE SOILS IN BOTTOMS OF EXCAVATIONS SHALL BE SCARIFIED TO A DEPTH OF 6-INCHES, MOISTURE-CONDITIONED TO WITHIN 2% OF OPTIMUM MOISTURE CONTENT AND COMPACTED TO 90%.
7. STRUCTURAL STEEL: STRUCTURAL STEEL SHALL BE DETAILED, FABRICATED, AND ERECTED IN ACCORDANCE WITH THE LATEST EDITIONS AND SUPPLEMENTS OF THE AISC SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS AND CODE OF STANDARD PRACTICE FOR STEEL BUILDINGS AND BRIDGES.
8. GALVANIZING: ALL EXPOSED METAL AND METAL PARTS SHALL BE GALVANIZED. GALVANIZING DAMAGED BY FABRICATION SHALL RECEIVE TWO COATS OF ZINC RICH PAINT (GALVANOX OR EQUAL).
9. EPOXY: ADHESIVE ANCHORS SHALL BE INSTALLED WITH SIMPSON STRONG-TIE "SET -3G" (ICC-ES ESR-4057), "SET-XP" (ICC-ES ESR-2508), OR APPROVED EQUAL. INSTALL IN ACCORDANCE WITH MANUFACTURER INSTRUCTIONS. INSTALLERS SHALL HAVE ACI/CRSI ADHESIVE ANCHOR INSTALLER CERTIFICATION. PROVIDE CONTINUOUS SPECIAL INSPECTION.
10. INVERTS, SLOPES, BEARINGS, ALIGNMENTS, AND ELEVATIONS SHOWN ARE FOR "REFERENCE ONLY". INFORMATION ON CIVIL DRAWINGS SHALL GOVERN.
11. CONTRACTOR SHALL PROVIDE SLOPE STABILIZATION, SHEETING, BRACING, AND/OR SHORING AS REQUIRED TO PROTECT EXISTING EMBANKMENTS, STRUCTURES, AND UNDERGROUND ITEMS.
12. BACKFILL BEHIND RETAINING WALL PER REQUIREMENTS OF GEOTECHNICAL REPORT. CONTRACTOR SHALL KEEP HEAVY EQUIPMENT AWAY FROM RETAINING WALL AND USE SMALL WALK BEHIND COMPACTORS WITHIN 4 FEET OF THE WALL.
13. THE DESIGN IS BASED ON SOILS REPORT PREPARED BY NOVA GEOTECHNICAL & INSPECTION SERVICES, PROJECT NO. G-20-156, DATED DECEMBER 1, 2020 AND THE FOLLOWING SOILS PROPERTIES:

ALLOWABLE SOILS BEARING PRESSURE = 2,500 psf MINIMUM AND INCREASES WITH EMBEDMENT AND FOOTING WIDTH TO MAXIMUM 4,000 psf
SOIL ACTIVE PRESSURE, EFP = 35 psf/ft
SOIL AT-REST PRESSURE, EFP = 55 psf/ft
SOIL PASSIVE PRESSURE, EFP = 250 psf/ft
COEFFICIENT OF FRICTION = 0.45
SITE CLASS = D

SPECIAL INSPECTION:

	CONTINUOUS MONITORING	PERIODIC MONITORING
FOUNDATION SOILS, EXCAVATIONS		X
FILL MATERIALS AND PLACEMENT	X	
FOUNDATION SUB-GRADES		X
REBAR PLACEMENT IN CONCRETE		X
VERIFICATION OF CONCRETE MIX DESIGN, CURING, FORMWORK		X
CONCRETE SAMPLING AND TESTING	X	
INSPECTION OF CONCRETE PLACEMENT	X	
POST-INSTALLED ADHESIVE ANCHORS	X	

1. SPECIAL INSPECTIONS ARE TO BE PERFORMED BY QUALIFIED FIRMS OR PERSONNEL. THE SPECIAL INSPECTOR MUST BE ICC CERTIFIED AND APPROVED BY CLARK COUNTY IN THE CATEGORY OF WORK REQUIRED TO HAVE SPECIAL INSPECTION.
2. THE CONSTRUCTION MATERIALS TESTING LABORATORY MUST BE APPROVED BY CLARK COUNTY, FOR TESTING OF MATERIALS, SYSTEMS, COMPONENTS, AND EQUIPMENTS.
3. AS IDENTIFIED WITHIN THE CONTRACT DOCUMENTS, AND THE IBC 2018 BUILDING CODE CHAPTER 17. THE SPECIAL INSPECTORS SHALL MAINTAIN RECORDS OF ALL INSPECTIONS PERTAINING TO THE PORTIONS OF WORK THEY ARE TO INSPECT. PROVIDE COPIES OF REPORTS TO THE OWNER AND ARCHITECT/ ENGINEER PERIODICALLY AND AS REQUIRED FOR ADEQUATE COMMUNICATION AS WORK PROGRESSES.



SINGLE REINFORCING STEEL MAT

DOUBLE REINFORCING STEEL MAT

1 TYP. WALL CORNER DETAIL

SCALE: NTS

L#: LXX-XXXXX | CLV#: 107VXXXXX

ENGINEER: STATE OF NEVADA — DAVID A. TURNER — No. 18919 — PROFESSIONAL ENGINEER — CIVIL STRUCTURAL — DATE: 10/19/2022

90% REVIEW - NOT FOR CONSTRUCTION

REV	DESCRIPTION	DATE	AGEN APP	DATE	GCW APP	DATE

PROJECT NO. 62052-3085

DESIGN: DT
DRAWN: DT
CHECK: JS
PLOT DATE: 10-19-22
PLOT TIME: 09:13:37

GCW ENGINEERS \ SURVEYORS
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gcwengineering.com

F:\PROJECTS\6000\62052-3085\DWG\PRODUCTION\STRUCT\62052-3085_S1.DWG

NICHOLAS PORTUGAL

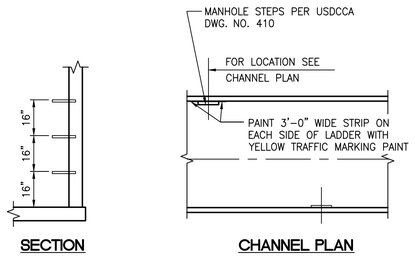
THE HOWARD HUGHES COMPANY, LLC

VILLAGE 27 PARCEL M & E BOUNDARY DRAINAGE IMPROVEMENTS

GENERAL STRUCTURAL NOTES AND TYPICAL DETAILS

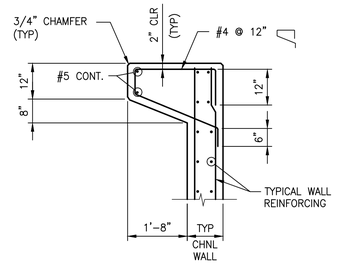
DRAWING S1

18 OF 21 SHTS

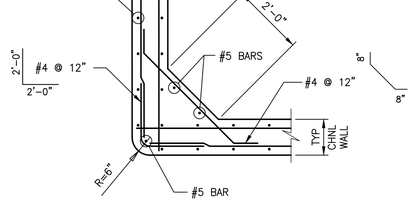


NOTE:
REFER TO CHANNEL PLAN FOR LADDER LOCATIONS.
PROVIDE OPENING IN POST AND CABLE RAILING WHERE CHANNEL STEPS ARE LOCATED.

14 - TYPICAL CHANNEL STEPS
SCALE: NTS

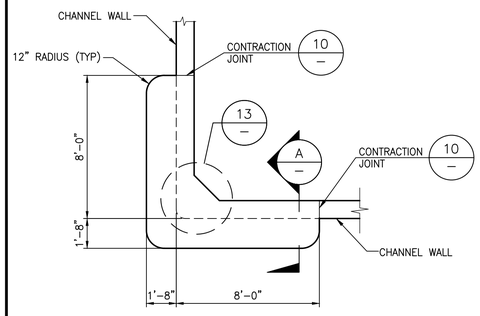


A - SECTION
SCALE: 1/2" = 1'-0"

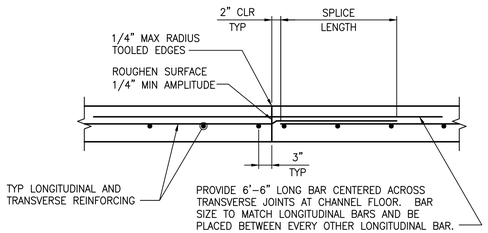


NOTE: SPLASH GUARD NOT SHOWN ON THIS DETAIL.

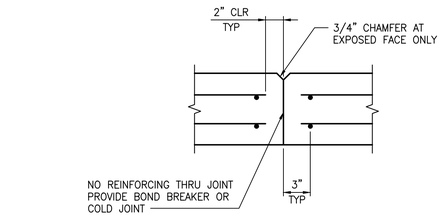
13 - DETAIL
SCALE: NTS



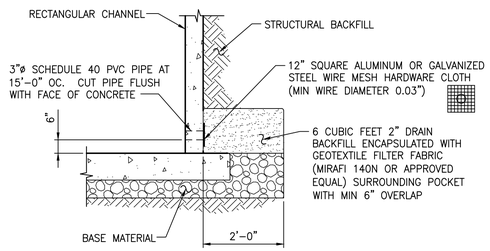
12 - SPLASH GUARD DETAIL
SCALE: NTS



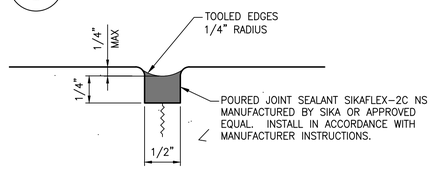
11 - CONSTRUCTION JOINT DETAIL
SCALE: NTS



10 - WALL CONTRACTION JOINT
SCALE: NTS

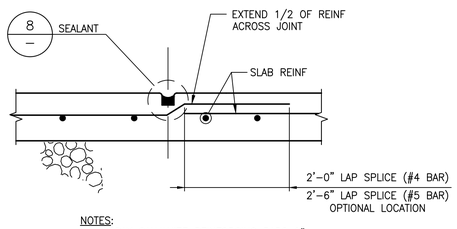


9 - CHANNEL WEEPHOLE DETAIL
SCALE: NTS



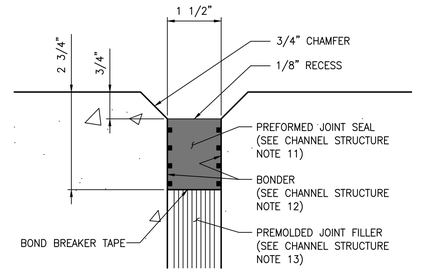
NOTE:
JOINT MUST BE TOOLED, SAW-CUTTING IS NOT ALLOWED.

8 - SEALANT DETAIL
SCALE: NTS

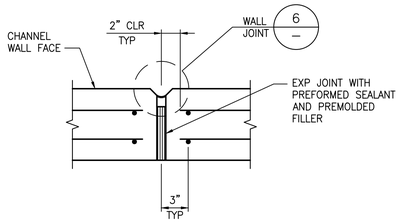


NOTES:
1. SPRAY GALVANIZE REINFORCING BARS 9" EACH SIDE OF WEAKENED PLANE JOINT.
2. CONSTRUCTION JOINTS ARE ALLOWED AT LONGITUDINAL JOINTS.

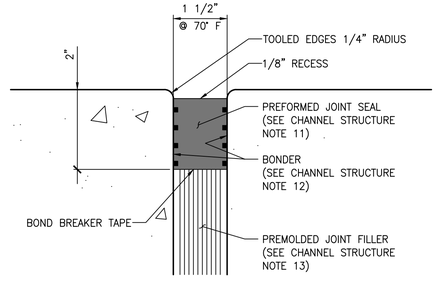
7 - WEAKENED PLAN JOINT
SCALE: NTS



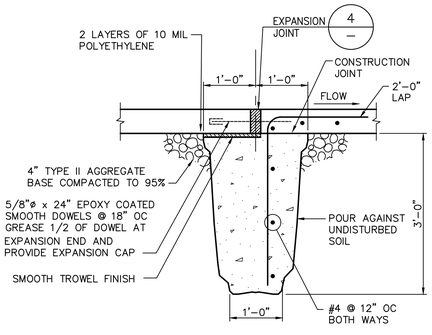
6 - WALL JOINT SEALANT
SCALE: NTS



5 - WALL EXPANSION JOINT
SCALE: NTS



4 - SLAB EXPANSION JOINT
SCALE: NTS

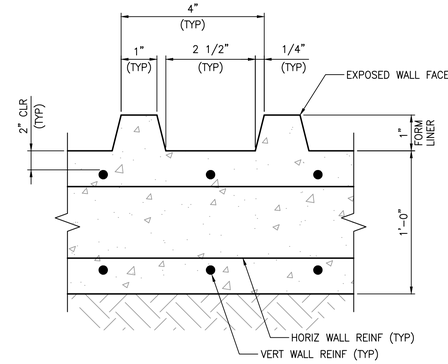


NOTE:
CUTOFF WALL TO EXTEND FULL WIDTH OF CHANNEL.

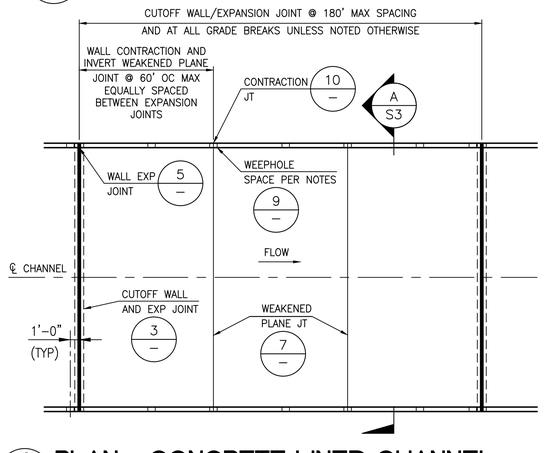
3 - TYP. TRANSVERSE CUTOFF WALL
SCALE: NTS

CONCRETE LINED CHANNEL STRUCTURE NOTES

1. TRANSVERSE AND LONGITUDINAL JOINTS IN INVERT SLAB AND SIDE SLOPE OF PAVED TRAPEZOIDAL CHANNELS AND WALLS FOR RECTANGULAR CHANNELS WILL BE REQUIRED AT THE END OF EACH CONTINUOUS POURING OPERATION. SEE TYPICAL CONSTRUCTION JOINT DETAIL. TRANSVERSE CONSTRUCTION JOINTS SHALL NOT BE PLACED WITHIN 3–FEET OF A MANHOLE, WITHIN 10–FEET OF JUNCTION STRUCTURE OPENINGS, OR WITHIN 50 FEET OF AN EXPANSION JOINT.
2. ALL TRANSVERSE JOINTS IN WALLS AND SLABS (CONSTRUCTION, WEAKENED, CONTRACTION AND EXPANSION) SHALL BE IN THE SAME PLANE. NO STAGGERING OF JOINTS WILL BE PERMITTED UNLESS SHOWN OTHERWISE. TRANSVERSE CONSTRUCTION JOINTS SHALL BE NORMAL OR RADIAL TO CENTERLINE OF CONSTRUCTION.
3. ALL SINGLE LAYER REINFORCEMENT SHALL BE PLACED IN THE CENTER OF CONCRETE UNLESS NOTED OTHERWISE.
4. IN CURVED CHANNEL SECTIONS, TRANSVERSE BARS SHALL BE PLACED NORMAL TO THE CHANNEL CENTERLINE.
5. IN CURVED CHANNEL SECTIONS, THE MAXIMUM SPACING OF BARS SHALL NOT EXCEED THAT SHOWN FOR TYPICAL SECTIONS. STEEL SHALL BE PLACED RADIALLY FROM THE MAXIMUM SPACING.
6. IN CURVED CHANNEL SECTIONS, TRANSVERSE JOINTS SHALL BE NORMAL TO CENTERLINE AND SHALL NOT EXCEED 60' MAX SPACING.
7. AT THE BEGINNING AND ENDING OF ALL POURS, A COMPLETE CURTAIN OF MAIN REINFORCEMENT SHALL BE PLACED 3–INCHES FROM THE TRANSVERSE CONSTRUCTION, CONTRACTION AND EXPANSION JOINTS.
8. WEEPHOLES ARE REQUIRED AT 15–FEET OC ON EACH SIDE OF CHANNEL PER THE TYPICAL WEEPHOLE DETAIL FOR ALL OPEN CHANNEL STRUCTURES.
9. WEAKENED PLANE JOINTS TO BE CENTERED WITH WEEPHOLES WHEN JOINTS OCCUR.
10. DO NOT LOCATE CUTOFF WALLS WHERE A CONFLICT WITH EXISTING UTILITIES WILL OCCUR.
11. PREFORMED EXPANSION JOINT SEAL: PLY–SEAL XE MANUFACTURED BY POLYSET OR APPROVED EQUAL. SIZE AND INSTALL SEAL IN ACCORDANCE WITH MANUFACTURER INSTRUCTIONS. THE WIDTH OF THE SEAL SHALL BE GREATER THAN THE WIDTH OF THE JOINT AT THE TIME OF INSTALLATION. MEASURE WIDTH OF JOINT AFTER INITIAL SHRINKAGE AND THERMAL MOVEMENT HAS OCCURRED. ALL JOINTS IN THE COMPRESSION SEAL SHALL BE HEAT WELDED.
12. BONDER: PLY–BONDER MANUFACTURED BY POLYSET OR APPROVED EQUAL. INSTALL IN ACCORDANCE WITH MANUFACTURER INSTRUCTIONS. APPLY TO BOTH SIDES OF SEAL AND CONCRETE. BONDER SHALL FILL THE GROOVES OF THE SEAL.
13. PREMOLDED JOINT FILLER: PLY–SEAL FG WITH TEAR STRIP MANUFACTURED BY POLYSET OR EQUAL. INSTALL IN ACCORDANCE WITH MANUFACTURER INSTRUCTIONS.
14. PROVIDE ACCESS STEPS INTO CHANNEL PER TYPICAL DETAIL.



2 - WALL FORMLINER DETAIL
SCALE: NTS



1 - PLAN - CONCRETE LINED CHANNEL
SCALE: NTS

L#: LXX–XXXXX | CLV#: 107VXXXXX

ENGINEER: STATE OF NEVADA — DAVID A. TURNER — No. 18979 — PROFESSIONAL ENGINEER — 10/19/2022 — CIVIL STRUCTURAL

90% REVIEW - NOT FOR CONSTRUCTION

REV	DATE	DESCRIPTION	DATE	AGEN APP	DATE	GCW APP

PROJECT NO. 62052-3085
DESIGN: DT
DRAWN: DT
CHECK: JS
PLOT DATE: 10-19-22
PLOT TIME: 09:13:40

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NICHOLAS PORTUGAL

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THE HOWARD HUGHES COMPANY, LLC

VILLAGE 27 PARCEL M & E BOUNDARY DRAINAGE IMPROVEMENTS

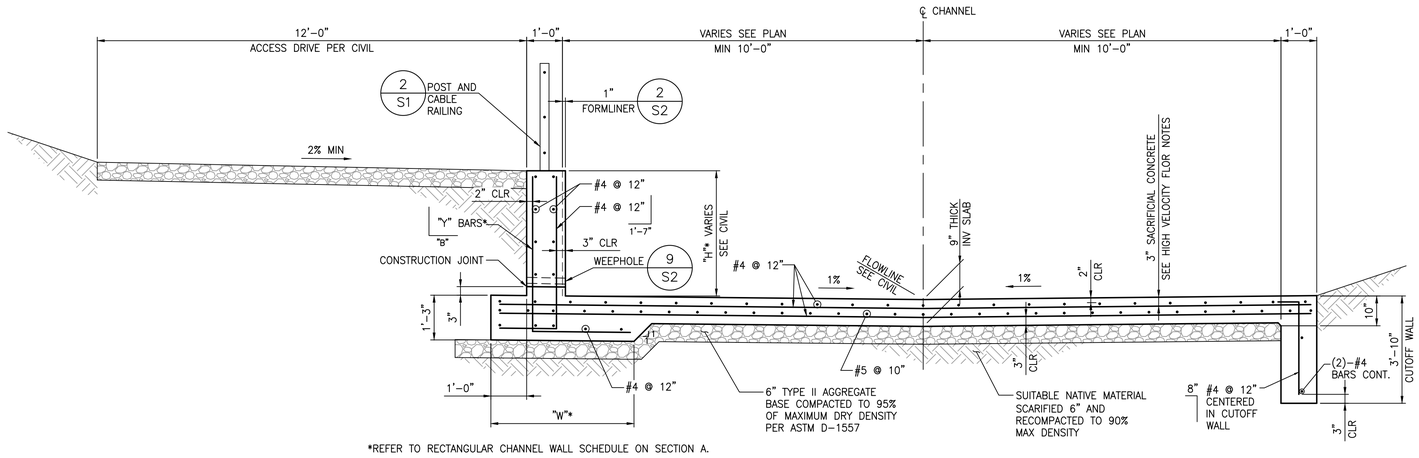
RECTANGULAR CHANNEL STRUCTURAL NOTES AND TYPICAL DETAILS

DRAWING
S2
19 OF 21 SHTS

HIGH VELOCITY FLOW NOTES:

HIGH VELOCITY FLOWS ARE ANTICIPATED IN CHANNEL. THE FOLLOWING MEASURES SHALL BE TAKEN TO MITIGATE DAMAGE FROM HIGH VELOCITY FLOWS:

1. USE 3" SACRIFICIAL CONCRETE WEARING SURFACE WITH REINFORCING BARS IN THE SACRIFICIAL CONCRETE LAYER. FOOTING THICKNESS IS ALSO INCREASED TO ALLOW FOR THE SACRIFICIAL WEARING SURFACE.
2. TINE SURFACE OF INVERT SLAB. IN ADVANCE OF CURING OPERATIONS, USE A MECHANICAL STEEL TINE DEVICE TO FORM GROOVES PERPENDICULAR TO THE CENTERLINE. DO NOT PERFORM TINING TOO EARLY, WHERE BY THE GROOVES MAY CLOSE UP. MAKE TINES OF RECTANGULAR CROSS SECTION AND OF SUFFICIENT THICKNESS AND RESILIENCE TO RESULT IN GROOVES SPACED APPROXIMATELY 2" ON CENTER, 3/32" TO 1/8" WIDE, AND 1/8" TO 1/4" DEEP IN THE FINISHED CONCRETE PAVEMENT. TINE CONCRETE WITHIN 12" OF WALLS AND JOINTS BUT NO CLOSER THAN 6".
3. USE 1" DEEP TRAPEZOIDAL FORMLINER ON EXPOSED FACE OF CHANNEL WALLS PER DETAIL 2 ON DRAWING S2.
4. CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH AT 28 DAYS OF f'c=6,000 PSI.



*REFER TO RECTANGULAR CHANNEL WALL SCHEDULE ON SECTION A.

B CHANNEL INLET SECTION

SCALE: 1/2" = 1'-0"

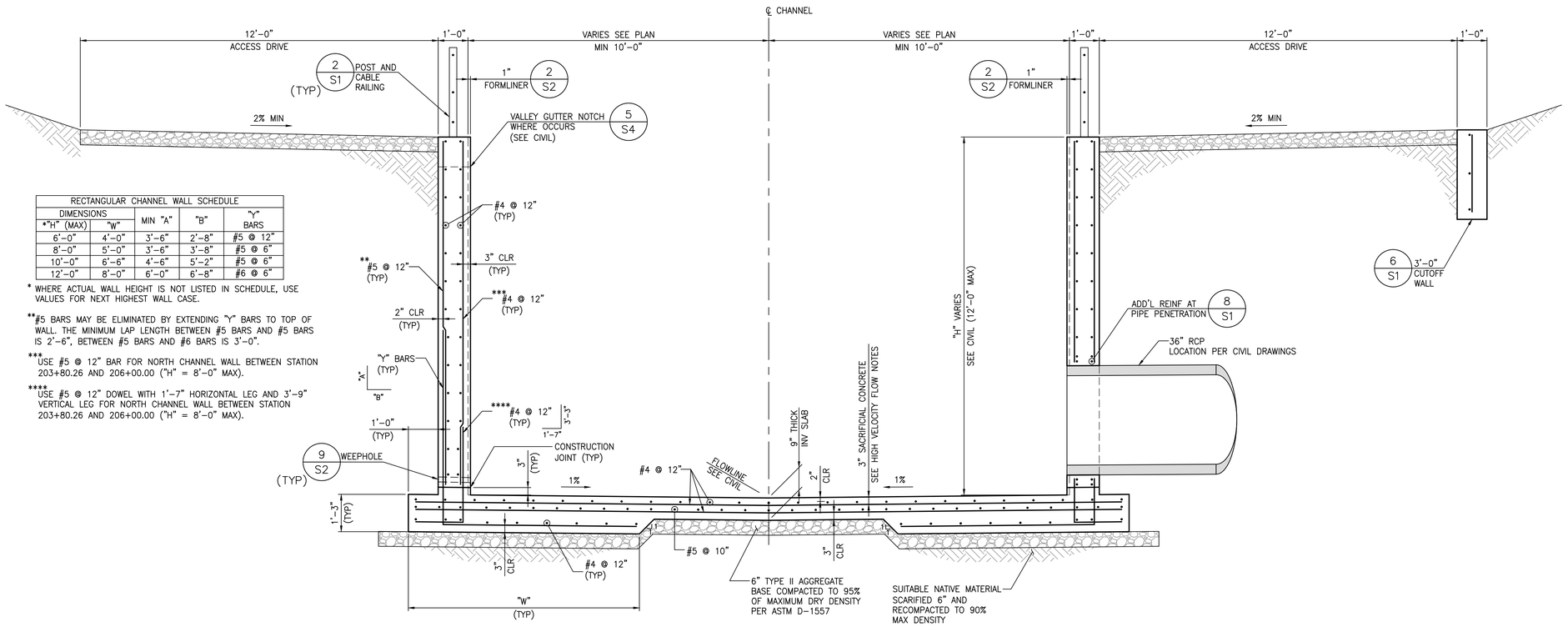
RECTANGULAR CHANNEL WALL SCHEDULE				
DIMENSIONS		MIN "A"	"B"	"Y" BARS
*"H" (MAX)	"W"			
6'-0"	4'-0"	3'-6"	2'-8"	#5 @ 12"
8'-0"	5'-0"	3'-6"	3'-8"	#5 @ 6"
10'-0"	6'-6"	4'-6"	5'-2"	#5 @ 6"
12'-0"	8'-0"	6'-0"	6'-8"	#6 @ 6"

* WHERE ACTUAL WALL HEIGHT IS NOT LISTED IN SCHEDULE, USE VALUES FOR NEXT HIGHEST WALL CASE.

**#5 BARS MAY BE ELIMINATED BY EXTENDING "Y" BARS TO TOP OF WALL. THE MINIMUM LAP LENGTH BETWEEN #5 BARS AND #5 BARS IS 2'-6", BETWEEN #5 BARS AND #6 BARS IS 3'-0".

***USE #5 @ 12" BAR FOR NORTH CHANNEL WALL BETWEEN STATION 203+80.26 AND 206+00.00 ("H" = 8'-0" MAX).

****USE #5 @ 12" DOWEL WITH 1'-7" HORIZONTAL LEG AND 3'-9" VERTICAL LEG FOR NORTH CHANNEL WALL BETWEEN STATION 203+80.26 AND 206+00.00 ("H" = 8'-0" MAX).



A TYPICAL RECTANGULAR CHANNEL SECTION

SCALE: 1/2" = 1'-0"

L#: LXX-XXXXX | CLV#: 107VXXXXX

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F:\PROJECTS\600\62052-3085\DWG\PRODUCTION\STRUCT\62052-3085_S1.DWG
NICHOLAS PORTUGAL

PROJECT NO. 62052-3085

DESIGN: DT | DRAWN: DT | CHECK: JS | PLOT DATE: 10-19-22 | PLOT TIME: 09:13:42

REV	DESCRIPTION	DATE	AGEN APP	DATE	GCW APP	DATE

90% REVIEW - NOT FOR CONSTRUCTION

DATE: 10/19/2022



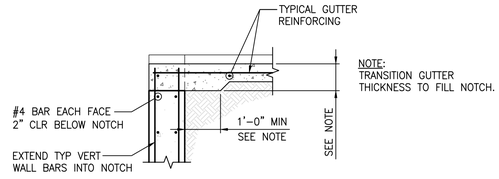
THE HOWARD HUGHES COMPANY ,LLC

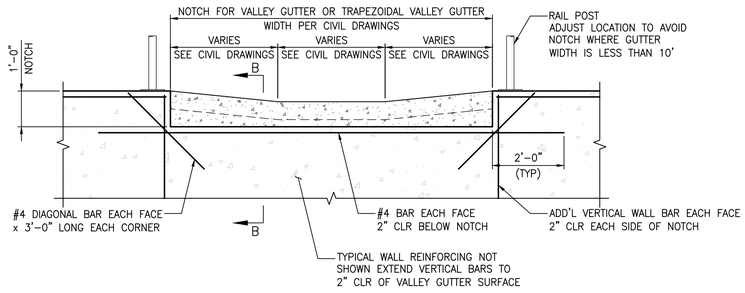
VILLAGE 27 PARCEL M & E BOUNDARY DRAINAGE IMPROVEMENTS

RECTANGULAR CHANNEL SECTIONS

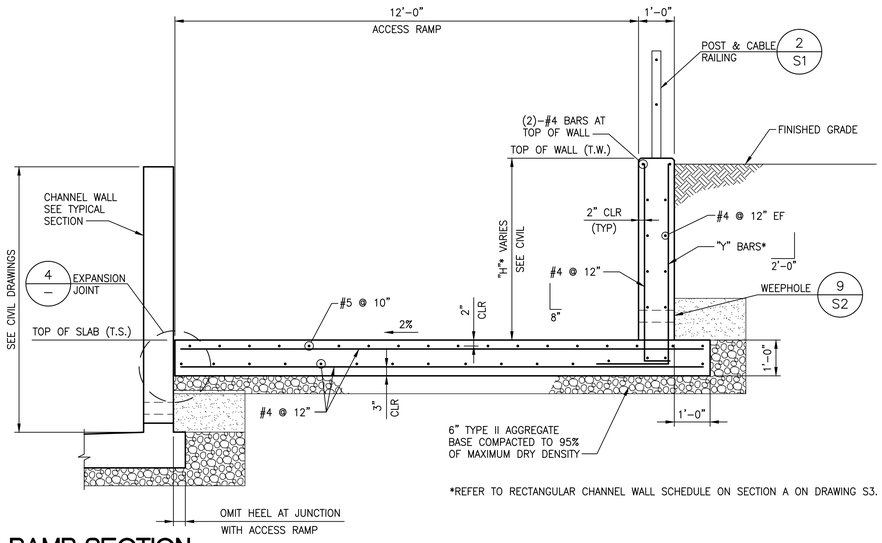
DRAWING S3

20 OF 21 SHTS

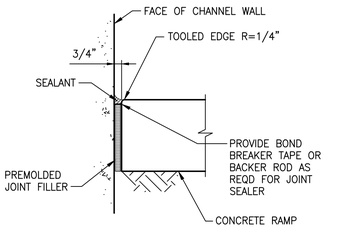




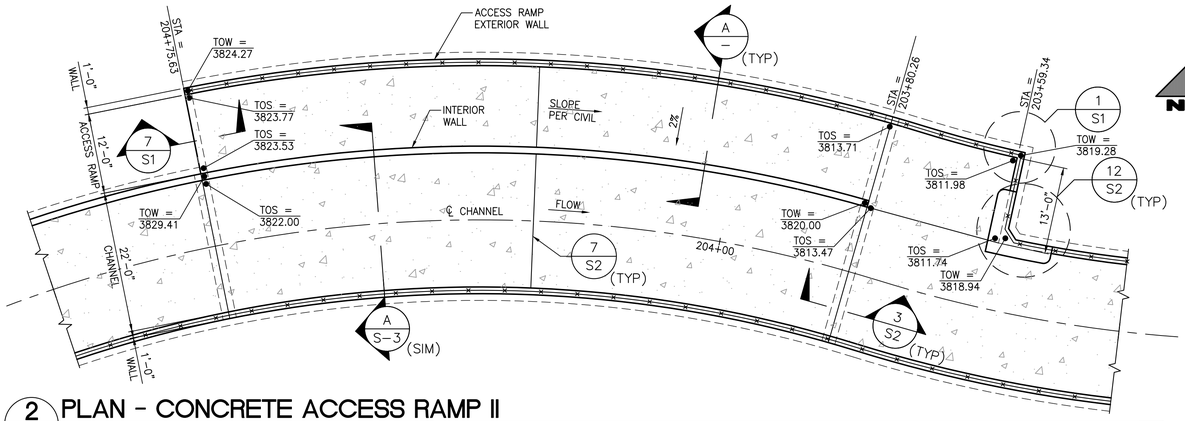
5 CHANNEL WALL NOTCH AT VALLEY GUTTER
SCALE: NTS



A ACCESS RAMP SECTION
SCALE: 1/2" = 1'-0"

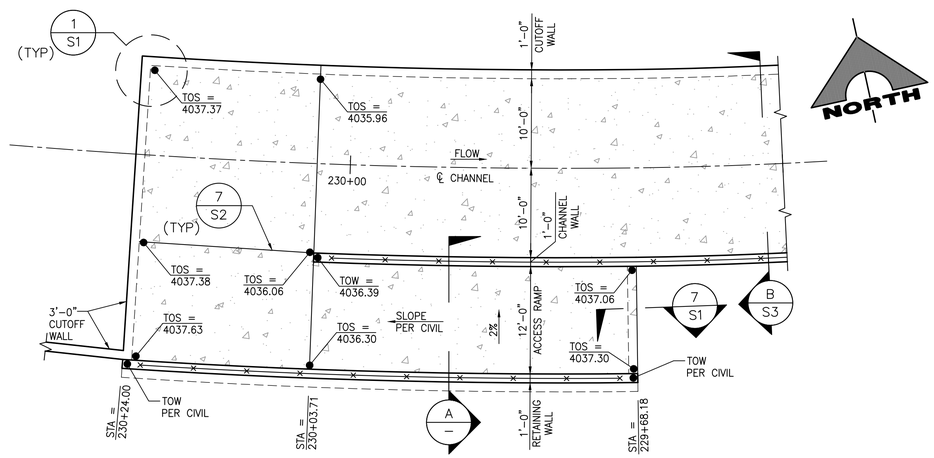


4 EXPANSION JOINT DETAIL
SCALE: NTS



2 PLAN - CONCRETE ACCESS RAMP II
SCALE: 3/32" = 1'-0"

3 EXPANSION JOINT DETAIL AT RCB CONNECTION
SCALE: NTS



1 PLAN - CONCRETE ACCESS RAMP I
SCALE: 1/8" = 1'-0"

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PROFESSIONAL ENGINEER - STATE OF NEVADA - DAVID A. TURNER - No. 18978 - CIVIL STRUCTURAL - 10/19/2022 - DATE OF SIGNATURE: 10/19/2022

90% REVIEW - NOT FOR CONSTRUCTION

REV	DATE	DESCRIPTION	DATE	AGEN APP	DATE	GCV APP	DATE

PROJECT NO. 62052-3085

DESIGN: DT
DRAWN: DT
CHECK: JG
PLOT DATE: 10-19-22
PLOT TIME: 09:13:45

F:\PROJECTS\62052-3085\DWG\PRODUCTION\STRUCT\62052-3085_S1.DWG NICHOLAS PORTUGAL

THE HOWARD HUGHES COMPANY, LLC

VILLAGE 27 PARCEL M & E BOUNDARY DRAINAGE IMPROVEMENTS

CONCRETE ACCESS RAMP DETAILS

DRAWING
S4
21 OF 21 SHTS

L#: LXX-XXXXX | CLV#: 107VXXXXX