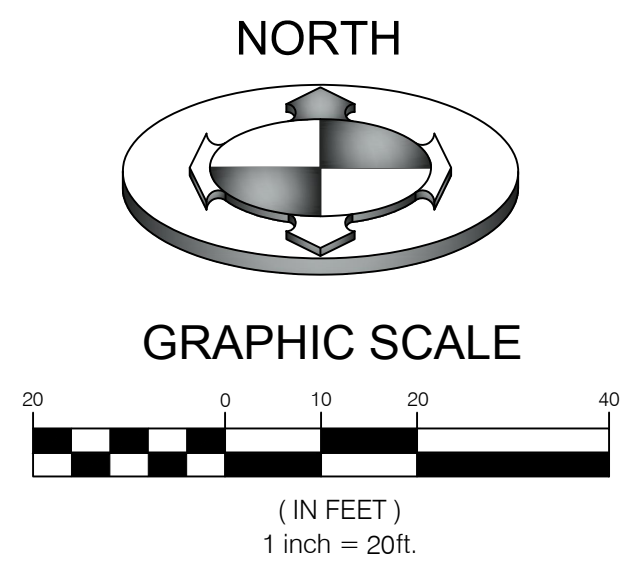


NOTE:

1. DEVELOPER AGREES TO COMPLY WITH ALL THE PROVISIONS OF THE SANDY CITY DEVELOPMENT CODE CONCERNING SITE PLAN REVIEW, DESIGN STANDARDS AND COMMERCIAL DEVELOPMENT REQUIREMENTS, INCLUDING, BUT NOT LIMITED TO, SETBACKS, BUILDING HEIGHTS, PARKING, PUBLIC IMPROVEMENTS, TRASH AREAS AND ENCLOSURES, LANDSCAPING STREET SCAPE (INCLUDING STREET TREES), STORAGE AREAS, SCREENING AT DISTRICT BOUNDARIES (WHERE REQUIRED), LIGHTING (WITH PROPER SHIELDING, SIGNS AND MECHANICAL EQUIPMENT SCREENING CONTRACTOR SHALL PROTECT EXISTING STREET LIGHTS AND UNDERGROUND WIRES. COORDINATE STREET LIGHTING ISSUES WITH DAVID PEARSON AT PUBLIC UTILITIES (801) 483-6738.
2. ALL AREAS NOT COVERED BY BUILDINGS, PARKING AND DRIVEWAYS SHALL BE LANDSCAPED AND SPRINKLED. STREET TREES SHALL BE AT LEAST 2" CALIPER. ON-SITE TREES SHALL BE AT LEAST 1.5" IN CALIPER OR 6" MIN HIGH FOR EVERGREEN TREES. ALL UTILITY TRENCH WORK IN THE PUBLIC WAY SHALL BE CONSTRUCTED AS PER APWA 255.
3. ALL ROOF-MOUNTED MECHANICAL EQUIPMENT MUST BE SCREED FROM VIEW FROM ALL ADJACENT ROADS AND PROPERTIES WITH ONE CONTINUOUS ARCHITECTURALLY DESIGN ROOF SCREE OR INCREASED PARAPET HEIGHT.
4. SIGNAGE LOCATION AND APPROVALS ARE TO BE OBTAINED UNDER SEPARATE REVIEW. SEPARATE PERMITS SHALL BE OBTAINED FOR ANY SIGNS.
5. ONSITE POWER LINES TO SERVICE THE DEVELOPMENT MUST BE PLACED UNDERGROUND FROM THE SOURCE. NO POLES OR OVERHEAD LINES WILL BE ALLOWED. EXISTING INSTALLATIONS SHALL BE ABANDONED, AND THE LINES BURIED.



CONSTRUCTION KEY NOTES REFERENCE

NO.	DESCRIPTION	DETAIL
①	ASPHALT PAVEMENT WITH GRANULAR BASE PER SANDY CITY STDS	1/CDT.01
②	CONCRETE CURB & GUTTER PER SANDY CITY STD. CG-01	2/CDT.01
③	5' SIDEWALK PER SANDY CITY STD. CG-02	3/CDT.01
④	ASPHALT FLUSH WITH SIDEWALK	
⑤	24" CONCRETE ROLLED GUTTER PER APWA #205 TYPE 'G'	
⑥	CONCRETE RELEASE CURB & GUTTER PER SANDY CITY STD. CG-01	2/CDT.01
⑦	UDOT STD. GW-2A CURB & GUTTER TYPES	6/CDT.01
⑧	UDOT STD. GW-3A CONCRETE DRIVE APPROACH AND SIDEWALK	5/CDT.01
⑨	DRIVE APPROACH PER SANDY CITY STDS.	4/CDT.01
⑩	ADA SIGN DETAIL	1/CDT.02
⑪	TAPER CURB AT 10:1	
⑫	8' PRECAST SOLID FENCE	5/CDT.03

AREA TABLE

PARTICULARS	S.F.	%
BUILDING	37,980	57.3
HARDSCAPE	16,268	24.5
LANDSCAPE	12,049	18.2
TOTAL	66,297	100

PARKING COUNT

PARTICULARS	STANDARD	ADA
PARKING STALLS	4	1
TOTAL	5	

CONSTRUCTION NOTES:

1. BUILDER/OWNER SHALL REPLACE ANY EXISTING SIDEWALK OR CURB & GUTTER ALONG FRONTAGE OF THIS PROJECT, THAT IS FOUND TO BE DEFECTIVE, AS DIRECTED BY THE SANDY CITY INSPECTOR.
2. ALL PUBLIC IMPROVEMENTS, WHICH ARE TO BE OWNED AND MAINTAINED BY SANDY CITY, SHALL BE CONSTRUCTED ACCORDING TO THE SANDY CITY STANDARD SPECIFICATIONS AND DETAILS FOR MUNICIPAL CONSTRUCTION (LATEST EDITION). THE SPECIFICATIONS CAN BE FOUND IN PDF FORMAT ONLINE AT WWW.SANDY.UTAH.GOV (CLICK ON 'DEPARTMENTS', THEN 'PUBLIC WORKS', THEN 'STANDARD SPECIFICATIONS').
3. BUILDER/OWNER SHALL SECURE AN EXCAVATION PERMIT FROM SANDY CITY PUBLIC WORKS DEPARTMENT PRIOR TO DOING ANY WORK IN THE SANDY CITY RIGHT OF WAY. TRAFFIC PLAN, BONDING, AND INSURANCE WILL BE REQUIRED.
4. FOLLOW ALL RECOMMENDATIONS OF THE APPROVED GEOTECHNICAL REPORT. SANDY CITY STANDARD SPECIFICATIONS AND DETAILS SHALL GOVERN, HOWEVER, UNLESS GEOTECHNICAL REPORT RECOMMENDATIONS ARE MORE STRINGENT.
5. DUST, MUD, AND EROSION SHALL BE ADEQUATELY CONTROLLED BY WHATEVER MEANS NECESSARY, AND THE ROADWAY SHALL BE KEPT FREE OF MUD AND DEBRIS, AT ALL TIMES.
6. ANY PROPOSED CHANGES TO THE APPROVED DESIGN SHALL BE REVIEWED AND APPROVED BY THE ENGINEER OR ARCHITECT OF RECORD AND THE CITY ENGINEER.
7. NOTIFY SANDY CITY PUBLIC WORKS INSPECTION DEPARTMENT, 801-568-2999, 48 HOURS PRIOR TO BEGINNING CONSTRUCTION OF ANY ROADWAYS OR PUBLIC IMPROVEMENTS, INCLUDING SEWER FACILITIES. ALL INSPECTIONS MUST BE DONE PRIOR TO OR CONCURRENT WITH CONSTRUCTION. FAILURE TO MAKE THIS NOTIFICATION MAY RESULT IN THE UNCOVERING AND/OR REMOVAL OF ALL CONSTRUCTION DONE WITHOUT NOTIFICATION, AT THE DISCRETION OF THE CITY ENGINEER.
8. THE USE OF MOTOR OILS AND OTHER PETROLEUM-BASED OR TOXIC LIQUIDS, FOR DUST SUPPRESSION, IS ABSOLUTELY PROHIBITED.
9. MINIMUM 12% SLOPE IN LANDSCAPED AREAS.
10. PROVIDE A PROCTOR TEST FOR ROADBASE MATERIAL THAT IS TO BE PLACED IN THE PUBLIC RIGHT OF WAY, TO THE SANDY CITY PUBLIC WORKS INSPECTOR, WHEN DELIVERED OR PLACED ON SITE.
11. A PROFESSIONAL ENGINEER, CURRENTLY LICENSED IN UTAH, SHALL INSPECT, DURING CONSTRUCTION, AND APPROVE AFTER CONSTRUCTION, ANY RETAINING WALLS THAT ARE HIGHER THAN 3.9 FEET FROM BOTTOM OF FOOTING TO TOP OF WALL. PROVIDE A LETTER OF APPROVAL, STAMPED, SIGNED, AND DATED BY SAID PROFESSIONAL ENGINEER, TO THE CITY ENGINEER PRIOR TO RELEASE OF THE GUARANTEE.
12. FOR ANY RETAINING WALLS FOUR FEET HIGH OR HIGHER, AS MEASURED FROM TOP OF WALL TO BOTTOM OF FOOTING - A RETAINING WALL DESIGN, STAMPED, WITH THE STAMP SIGNED AND DATED BY A PROFESSIONAL ENGINEER, CURRENTLY LICENSED IN THE STATE OF UTAH, AND INCLUDING PLANS, DETAILS, AND CALCULATIONS, SHALL BE SUBMITTED TO THE SANDY CITY ENGINEER (RYAN KUMIP, 801-568-2962, RKUMIP@SANDY.UTAH.GOV) FOR REVIEW AND APPROVAL. PRIOR TO OBTAINING A RETAINING WALL PERMIT, WHICH PERMIT SHALL BE OBTAINED FROM THE SANDY CITY BUILDING DIVISION (SHAY WHITEMAN, 801-568-7251) PRIOR TO COMMENCING CONSTRUCTION OF THE WALL.
13. ALL PUBLIC IMPROVEMENTS IN THE STATE RIGHT-OF-WAY SHALL BE CONSTRUCTED AS REQUIRED BY UTAH DEPARTMENT OF TRANSPORTATION REGION TWO.
14. BUILDER/OWNER SHALL SECURE AN EXCAVATION PERMIT FROM UTAH DEPARTMENT OF TRANSPORTATION REGION TWO PRIOR TO DOING ANY WORK WITHIN THE UDOT RIGHT OF WAY.
15. IT IS UNLAWFUL FOR ANY PERSON TO INSTALL SURVEY MONUMENTS HAVING A SPATIAL RELATIONSHIP WITH ANY SECTION OR QUARTER SECTION CORNER WITHOUT HAVING FIRST OBTAINED FROM THE SALT LAKE COUNTY SURVEYORS OFFICE A PERMIT FOR SUCH INSTALLATION (UT CODE ANN. SECTION 17-23-17). ALL SURVEY MONUMENTS INSTALLED SHALL BE IN ACCORDANCE WITH THE PERMIT ISSUED AND SHALL BE SUBJECT TO INSPECTION AND APPROVAL BY THE SALT LAKE COUNTY SURVEYORS OFFICE. STANDARD PRECAST MONUMENTS WILL BE FURNISHED BY THE COUNTY SURVEYORS OFFICE.
16. INSTALL SURVEY MONUMENTS ACCORDING TO THE RECORDED PLAT PER SALT LAKE COUNTY SPECIFICATIONS.
17. INSTALL SURVEY MONUMENTS, OFFSET FROM EACH LOT'S PROPERTY CORNERS, IN CURB OR SIDEWALK.
18. PROVIDE SLOPE AWAY FROM BUILDINGS THAT COMPLIES WITH THE REQUIREMENTS OF THE INTERNATIONAL BUILDING CODE (2% MINIMUM / 12% MAXIMUM ON HARD SURFACES; 8% MINIMUM / 2:1 MAXIMUM IN LANDSCAPE AREAS - FOR MINIMUM 10 FEET IN ANY CASE).

NOTE:
ALL PARKING STALL AND DRIVE LANE DIMENSIONS ARE TO FACE OF CURB WHERE APPLICABLE.

UDOT APPROACH NOTE:
NEW DRIVEWAY APPROACH TO BE CONSTRUCTED WITH 8" THICK CONCRETE OVER 8" THICK UNTREATED BASE COURSE.

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938 SOUTH STATE STREET SUITE #100
SANDY, UTAH 84070 (801) 542-7192
www.benchmarkcivil.com

BENCHMARK CIVIL

SANDY STORAGE UNITS
8802 SOUTH 700 EAST
SANDY, UTAH

PROJECT NO. 1611229

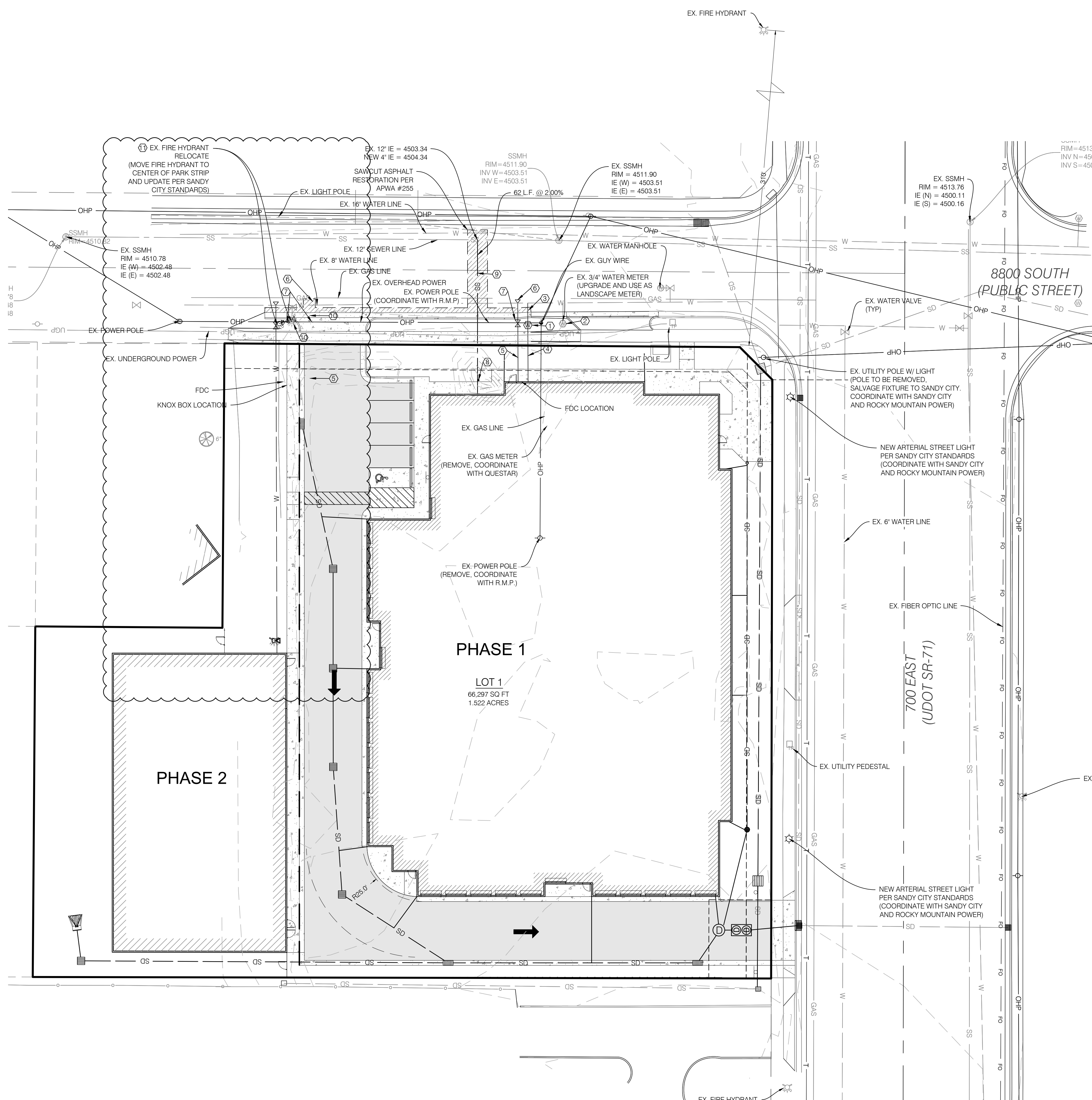
SITE PLAN

CSP.01
3 OF 10

DATE: 07/11/2017
REVISIONS:
3 5/11/17 REVISED PER CITY REQUINS
4 7/11/17 REVISED PER CITY AND UDOT REQUINS
5 12/05/17 ADDED INVERTS FOR ROOF DRAINS
6 01/05/18 BASED BUILD. FEE & ADD DETENT. PONDIS PER OWNER
7 03/05/18 UPDATED PLAN TO ADD BUILDING INFO.
8 06/07/18 UPDATED DRAINAGE LABELS
9 06/07/18 ACCORDINGLY FOR REVISION SHEETS

DESIGNED BY: TJB
CHECKED BY: DPB
FIELD DRAWN BY: ZSCL
DATE: 07/11/2017
DWG. FILE: 1611229Site

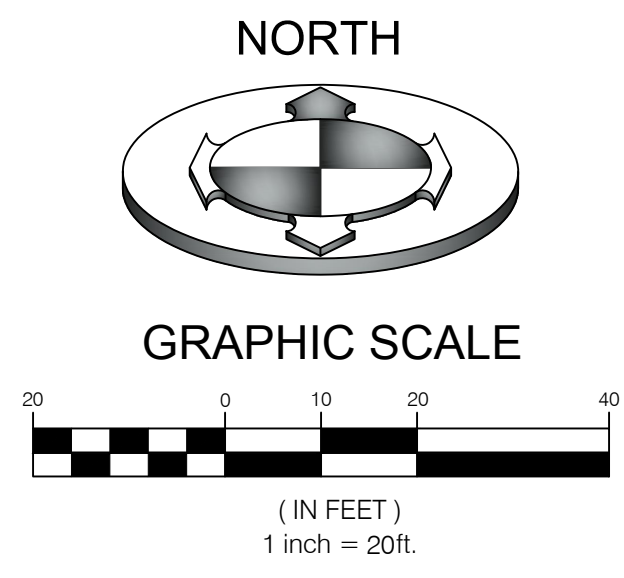
5718
No. 4551254
LeeAnn D. Miller
LICENSED PROFESSIONAL ENGINEER



NOTE:
PRIOR TO FABRICATION OR CONSTRUCTION, CONTRACTOR IS TO BEGIN AT THE LOW END OF ALL GRAVITY UTILITY LINES AND VERIFY THE INVERT ELEVATION OF THE POINT OF CONNECTION AND NOTIFY ENGINEER IF THIS POINT IS HIGHER THAN SHOWN ON THE PLANS FOR A REDESIGN.

NOTE:
CONTRACTOR IS RESPONSIBLE FOR POT-HOLING TO IDENTIFY ANY CONFLICTS BEFORE ANY PIPE INSTALLATION. CONTACT ENGINEER IF ANY CONFLICTS ARE IDENTIFIED.

NOTE:
THE DAILY ANTICIPATED SANITARY SEWER FLOW RATE IS 227.27 GAL/DAY.



CONSTRUCTION KEY NOTES REFERENCE		
NO.	DESCRIPTION	DETAIL
①	1" WATER METER PER SANDY CITY STDS.	4/CDT.03
②	LANDSCAPE METER WITH BACKFLOW PREVENTION PER SANDY CITY STDS.	
③	1" TYPE 'K' COPPER WATER SERVICE LINE	
④	1" POLY WATER SERVICE LINE	
⑤	6" CLASS 52 DUCTILE IRON FIRE LINE	
⑥	HOT TAP AND THRUST BLOCK PER SANDY CITY STANDARDS FIGURE 07A	
⑦	GATE VALVE PER SANDY CITY STANDARDS FIGURE 02	
⑧	SEWER CLEANOUT	
⑨	4" PVC SDR-35 SEWER LATERAL @ 2% MIN. SLOPE	2/CDT.02
⑩	8" CLASS 52 DUCTILE IRON FIRE LINE TO BE MAINTAINED BY OWNER	
⑪	FIRE HYDRANT PER SANDY CITY STANDARDS	

NOTE:
SIZE OF FIRE SPRINKLER LINE TO BE CONFIRMED WITH FIRE PROTECTION ENGINEER PRIOR TO CONSTRUCTION.

BUILDING TYPE	II B
TOTAL SQUARE FOOTAGE	83,166
FIRE SPRINKLERS	YES

- WATER NOTES:**
1. NOTIFY SANDY CITY PUBLIC UTILITIES INSPECTOR (801-568-7280), AT LEAST ONE BUSINESS DAY (24 HOURS) PRIOR TO BEGINNING CONSTRUCTION.
 2. A PRE-CONSTRUCTION MEETING IS REQUIRED ONCE FINAL APPROVAL HAS BEEN GRANTED. THE PRE-CONSTRUCTION MEETING SHALL BE SCHEDULED THROUGH SANDY CITY PUBLIC WORKS DEPARTMENT.
 3. ALL CONSTRUCTION SHALL CONFORM TO THE LATEST REVISION OF THE SANDY CITY STANDARD SPECIFICATIONS AND DETAILS FOR MUNICIPAL CONSTRUCTION AND/OR OTHER REQUIREMENTS AS SET FORTH IN THE PUBLIC UTILITIES FINAL REVIEW AND APPROVAL LETTER ESTABLISHED FOR THE DEVELOPMENT. SPECIFICATIONS AND DETAILS CAN BE OBTAINED ON THE SANDY CITY WEBSITE.
 4. SUBMITTALS ARE REQUIRED TO BE APPROVED BY THE CONSULTING ENGINEER FOR ALL BEDDING, BACKFILL, PIPE, METERS, BOXES, VAULTS, VALVES, FIRE HYDRANTS, BLOWOFFS, VAULTS, ETC. RELATING TO THE WATER SYSTEM. SUBMITTALS MUST HAVE SUFFICIENT INFORMATION TO SHOW THAT THE PROPOSED ITEMS CONFORM TO SANDY CITY STANDARDS AND SPECIFICATIONS.
 5. CONSTRUCTION WORK SHALL BE CONDUCTED IN ACCORDANCE WITH THE UTAH POLLUTION DISCHARGE ELIMINATION SYSTEM (UPDES) REGULATIONS.
 6. LOCATE WATER LINE 4-FEET OFF LIP OF GUTTER ON THE NORTH AND/OR EAST SIDE OF ROADWAY.
 7. A MINIMUM OF 48-INCHES AND A MAXIMUM OF 60-INCHES OF COVER FROM THE TOP OF THE PIPE TO THE FINISH GRADE IS REQUIRED.
 8. FOR DUCTILE IRON PIPE, USE THICKNESS CLASS 52 OR BETTER.
 9. FOR POLYVINYL CHLORIDE (PVC) PIPE, USE CLASS DR-14 OR BETTER. 10 GAUGE WIRE SHALL BE PLACED ON TOP OF THE PIPE (PER SANDY CITY SPECIFICATIONS) FOR FUTURE RELOCATION. NO DEFLECTION IN PIPE JOINTS WILL BE ALLOWED ON PVC PIPES.
 10. ALL MECHANICAL JOINTS MUST BE RESTRAINED USING MEGA LUGS OR APPROVED EQUAL.
 11. USE 6-INCH COMPRESSION TYPE HYDRANT BY MUELLER CENTURION OR CLOW MEDALLION. EXISTING HYDRANTS REQUIRED FOR FIRE PROTECTION THAT DO NOT MEET CURRENT STANDARDS SHALL BE UPGRADED TO MEET CURRENT SANDY CITY STANDARDS AND SPECIFICATIONS.
 12. WHEN THE DISTANCE FROM THE WATER MAIN TO THE FIRE HYDRANT IS GREATER THAN 6-FEET AN ADDITIONAL AUXILIARY VALVE SHALL BE FLANGED TO THE FIRE HYDRANT.
 13. ALL DEAD ENDS SHALL BE PLUGGED WITH A 2-INCH WASH-OUT OR END WITH A FIRE HYDRANT.
 14. ALL DUCTILE IRON WATER LINES, FITTING, AND VALVES SHALL BE POLY-BAGGED IN ACCORDANCE WITH SANDY CITY STANDARDS AND SPECIFICATIONS.
 15. ALL WATER LINES SHALL BE BEDDED WITH SAND (6-INCHES MINIMUM BELOW AND 12-INCHES MINIMUM ON EACH SIDE AND ON TOP OF THE PIPE).

- SEWER CONSTRUCTION NOTES:**
1. SEWER IMPROVEMENTS SHALL BE CONSTRUCTED IN STRICT ACCORDANCE WITH SANDY SUBURBAN IMPROVEMENT DISTRICT (SSID) DESIGN STANDARDS AND CONSTRUCTION SPECIFICATIONS. COPIES OF THE DISTRICT STANDARDS AND SPECIFICATIONS ARE AVAILABLE AT THE DISTRICT OFFICE, 8855 S. 700 W. SANDY, UTAH 84070.
 2. VIDEO INSPECTION, AIR TESTS, VACUUM TESTS OF MANHOLES AND DEFLECTION TESTS SHALL BE PERFORMED ON ALL INSTALLED SEWER IMPROVEMENTS PRIOR TO FINAL ACCEPTANCE. ADDITIONAL TESTS MAY BE REQUIRED BY THE DISTRICT ENGINEER OR INSPECTOR. DEFECTS DESIGNATED BY THE DISTRICT ENGINEER OR INSPECTOR SHALL BE REPAIRED AT NO COST TO THE DISTRICT PRIOR TO ACCEPTANCE OF THE SEWER IMPROVEMENTS.

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NO.	DATE	DESCRIPTION
3	5/11/17	REVISED PER CITY REVISIONS
4	7/11/17	REVISED PER CITY AND UDOT REVISIONS
5	12/05/17	ADDED INVERTS FOR ROOF DRAINS
6	01/05/18	BASED BUILD. FEE & ADD DETENT. PONDING PER OWNER
7	03/05/18	UPDATED PLAN TO ADD BUILDING INFO.
8	05/07/18	UPDATED DRAINAGE LABELS
9	07/11/2017	SCALE MEASURED FROM FULL SIZE SHEETS
10	07/11/2017	SCALE 1/4" = 10' FOR REVISIONS



BENCHMARK ENGINEERING & LAND SURVEYING

938 SOUTH STATE STREET SUITE # 100
SANDY, UTAH 84070 (801) 542-7192
www.benchmarkcivil.com

SANDY STORAGE UNITS

8802 SOUTH 700 EAST
SANDY, UTAH

PROJECT NO. 1611229

UTILITY PLAN

CUP.01
4 OF 10

Pipe Sizing- Entire Site (Worst Case)

Rational Method
 Note: choose i based on design storm
 C= 0.9 (unitless)
 i= 1.15 in/hr
 A= 1.52 acres
 Q=CIA 1.5732 cfs

Hydraulic Calculations Manning's Equation
 Q= 1.5732
 k= 1.486
 Slope= 0.003 (ft/ft)
 n= 0.012
 diam. (ft)= 0.89513
 diam. (in)= 10.74156

Minimum Diameter Required: 11"

NOTE:
 THE PROPERTY IS LOCATED BETWEEN
 MILEPOST 10.4 AND 10.5 ON SR-71

NOTE:
 CONTRACTOR IS RESPONSIBLE FOR POT-HOLING TO IDENTIFY
 ANY CONFLICTS BEFORE ANY PIPE INSTALLATION. CONTACT
 ENGINEER IF ANY CONFLICTS ARE IDENTIFIED.

NOTE:
 PRIOR TO FABRICATION OR CONSTRUCTION, CONTRACTOR
 IS TO BEGIN AT THE LOW END OF ALL GRAVITY UTILITY LINES
 AND VERIFY THE INVERT ELEVATION OF THE POINT OF
 CONNECTION AND NOTIFY ENGINEER IF THIS POINT IS
 HIGHER THAN SHOWN ON THE PLANS FOR A REDESIGN.

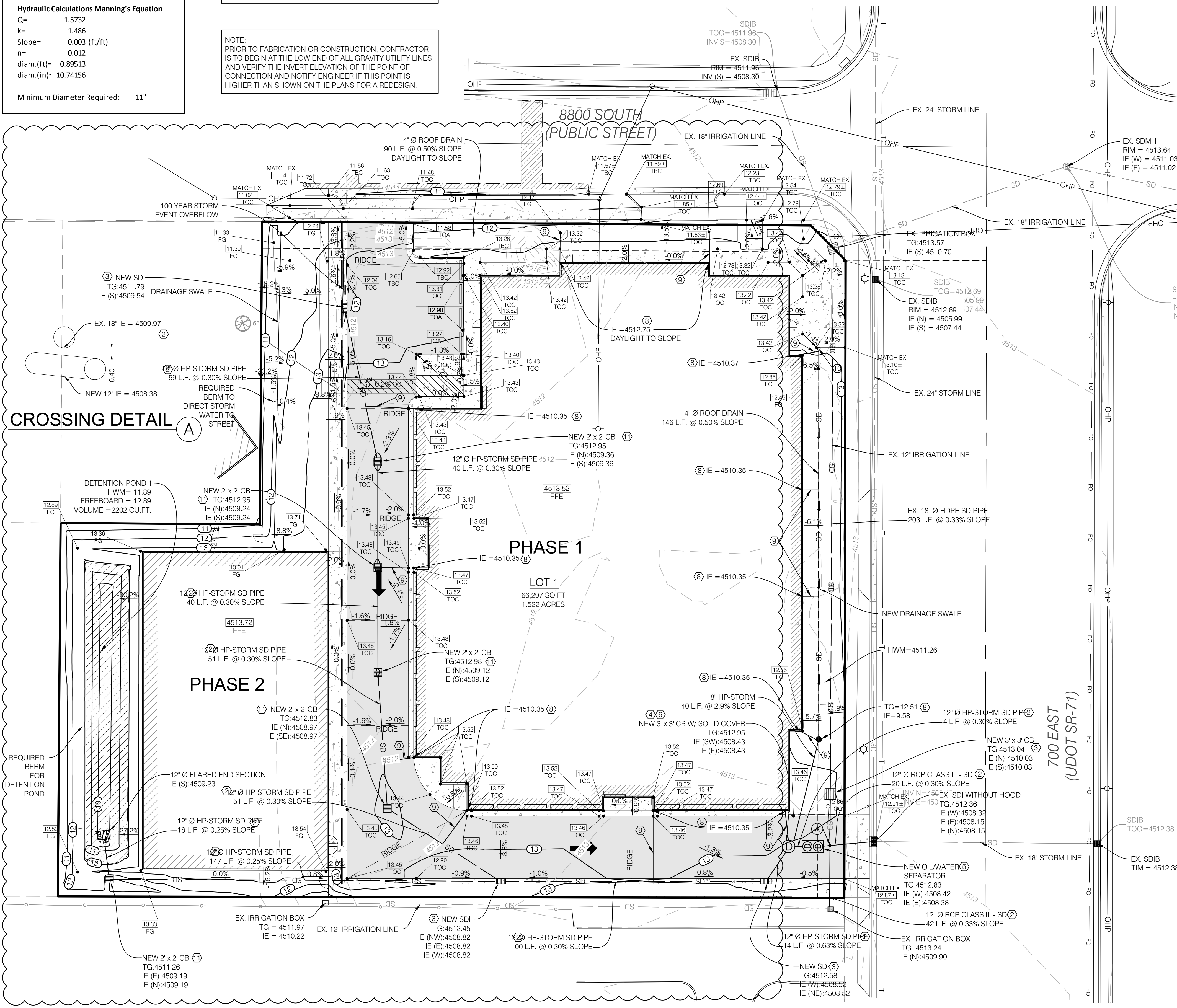
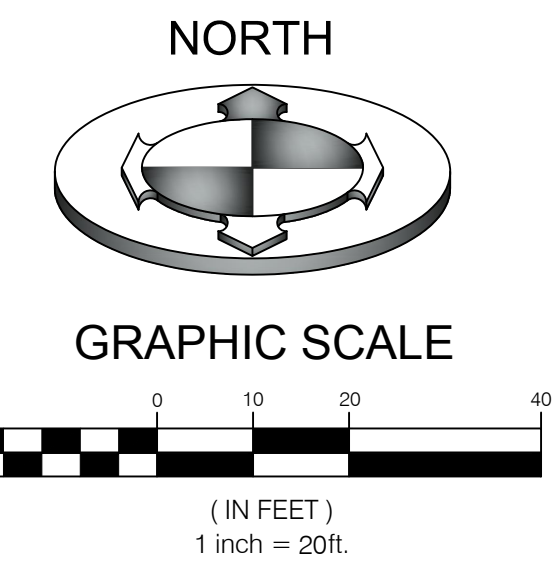
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BENCHMARK:
 STREET MONUMENT AT THE INTERSECTION OF
 8800 SOUTH & 700 EAST STREETS
 (BRASS CAP FOUND)
 ELEVATION: 4512.72'

SURVEY CONTROL NOTE:
 THE CONTRACTOR OR SURVEYOR PERFORMING THE CONSTRUCTION SURVEYING SHALL BE RESPONSIBLE TO PROVIDE
 CONSTRUCTION LAYOUT PER THE APPROVED PLANS ONLY. THE SURVEYOR SHALL ALSO BE RESPONSIBLE FOR VERIFYING
 HORIZONTAL CONTROL FROM THE SURVEY MONUMENTS AND FOR VERIFYING ANY ADDITIONAL CONTROL POINTS SHOWN ON
 THE SURVEY OR IMPROVEMENTS PLANS OR ON ELECTRONIC DATA PROVIDED BY BENCHMARK ENGINEERING AND LAND
 SURVEYING. THE SURVEYOR SHALL ALSO USE THE BENCHMARKS AS SHOWN ON THE PLAN, AND VERIFY THEM AGAINST NO
 LESS THAN THREE EXISTING HARD IMPROVEMENT ELEVATIONS INCLUDED ON THESE PLANS OR ON ELECTRONIC DATA
 PROVIDED BY BENCHMARK ENGINEERING AND LAND SURVEYING. IF ANY DISCREPANCIES ARE ENCOUNTERED, THE
 SURVEYOR SHALL IMMEDIATELY NOTIFY THE ENGINEER AND RESOLVE THE DISCREPANCIES BEFORE PROCEEDING WITH ANY
 CONSTRUCTION SURVEYING. IT IS ALSO THE RESPONSIBILITY OF THE SURVEYOR TO VERIFY ANY ELECTRONIC DATA WITH
 THE APPROVED STAMPED AND SIGNED PLANS AND NOTIFY THE ENGINEER WITH ANY DISCREPANCIES.



GRADING AND DRAINAGE KEY NOTES REFERENCE

NO	DESCRIPTION	DETAIL
①	GRADE SITE TO ELEVATIONS SHOWN ON PLAN	
②	12" DIAMETER ADS - HP STORM OR EQUAL STORM DRAIN LINE	1/CDT.03
③	STORM DRAIN INLET BOX WITHOUT A HOOD	2/CDT.03
④	3x3 CATCH BASIN SOUTH-WEST OF A/B	3/CDT.02
⑤	OIL/WATER SEPARATOR	3/CDT.03
⑥	2.6" ORIFICE PLATE ON EAST SIDE/PIPE	
⑦	ROOF DRAIN WITH CLEANOUT	
⑧	4" DIAMETER ROOF DRAIN (MIN. 2.0% SLOPE)	
⑨	STORM DRAIN CLEAN OUT	
⑩	2x2 CATCH BASIN	2/CDT.03

STORM DRAINAGE CALCULATIONS
 Rational Method (Q=CIA)

Area Identification (A)	Rational Coefficient (C)	C*A
Roof = 37,980	0.9	34,182 SF.
Pavement = 16,268	0.9	14,641.2 SF.
Landscaping = 12,049	0.2	2,409.8 SF.
Sum:		66,297 SF.

SANDY CITY DESIGN STORM (10 YEAR EVENT)

Time (min)	Intensity (in/hr)	Rainfall (inches)	Rainfall Excess (cu ft.)	Allowed (cu ft.)	Volume to Detain (cu ft.)
5	3.65	0.30	1299	219	1079
15	2.23	0.56	2380	657	1723
30	1.41	0.71	3010	1315	1695
45	1.13	0.85	3618	1972	1646
60	0.91	0.91	3885	2630	1255
120	0.54	1.08	4611	5250	0
180	0.39	1.17	4995	7890	0
360	0.25	1.50	6404	15780	0
720	0.15	1.80	7685	31560	0
1440	0.09	2.16	9222	63119	0

Detention Pond 1 = 2,202 cf

Total Detention Volume = 2,202 cf

Is there enough existing storm water storage? **YES**

Orifice Design:
 The storm runoff will be detained at 0.2 cfs/acre

$Q = C_d A_o \sqrt{2gh}$

Total acreage of development: 1.52 acres
 Allowable discharge: 0.2 cfs/acre
 Max head: 2.78 ft
 Design diameter for orifice: 2.6 inch

Discharge
 Percolation rate (P) 10.00 min/in
 Percolation surface area (S) 1,982.58 sf
 Allowed Perc. Discharge (Q) 0.28 cfs
 Allowed Storm Discharge (Q) 0.20 cfs
 Total Allowed Discharge (Q) 0.48 cfs

- STORM WATER NOTES:**
- NOTIFY SANDY CITY PUBLIC UTILITIES INSPECTOR (801-568-7280), AT LEAST ONE BUSINESS DAY (24 HOURS) PRIOR TO BEGINNING CONSTRUCTION.
 - A PRE-CONSTRUCTION MEETING IS REQUIRED ONCE FINAL APPROVAL HAS BEEN GRANTED. THE PRE-CONSTRUCTION MEETING SHALL BE SCHEDULED THROUGH SANDY CITY PUBLIC WORKS DEPARTMENT.
 - ALL CONSTRUCTION SHALL CONFORM TO THE LATEST REVISION OF THE SANDY CITY STANDARD SPECIFICATIONS AND DETAILS FOR MUNICIPAL CONSTRUCTION AND/OR OTHER REQUIREMENTS AS SET FORTH IN THE PUBLIC UTILITIES FINAL REVIEW AND APPROVAL LETTER ESTABLISHED FOR THE DEVELOPMENT. SPECIFICATIONS AND DETAILS CAN BE OBTAINED ON THE SANDY CITY WEBSITE.
 - SUBMITTALS ARE REQUIRED TO BE APPROVED BY THE CONSULTING ENGINEER FOR ALL BEDDING, BACKFILL, PIPE AND STRUCTURES (INLET BOXES, COMBO BOXES, AND JUNCTION BOXES). SUBMITTALS MUST HAVE SUFFICIENT INFORMATION TO SHOW THAT THE PROPOSED ITEMS CONFORM TO SANDY CITY STANDARDS AND SPECIFICATIONS.
 - CONSTRUCTION WORK SHALL BE CONDUCTED IN ACCORDANCE WITH THE UTAH POLLUTION DISCHARGE ELIMINATION SYSTEM (UPDES) REGULATIONS.
 - ALL MATERIALS AND WORK DONE IN UDOT RIGHT-OF-WAY SHALL CONFORM TO UDOT STANDARDS AND SPECIFICATIONS.
 - NON-SHRINK GROUT SHALL BE USED WHEREVER GROUT IS REQUIRED FOR THE STORM DRAIN FACILITIES.
 - CUT PIPES OFF FLUSH WITH THE INSIDE WALL OF THE BOX OR MANHOLE AND GROUT AT CONNECTION OF PIPE TO BOX TO A SMOOTH FINISH. ADDITIONALLY, ALL JAGGED OR SHARP EDGES AT PIPE CONNECTIONS ARE TO BE REMOVED AND GROUDED SMOOTH.
 - GROUT BETWEEN GRADE RINGS. FOR EACH INLET BOX THAT IS LOCATED NEXT TO A CURB, THE CURB AND GUTTER CONTRACTOR IS RESPONSIBLE TO REMOVE ALL PROTRUDING, JAGGED OR SHARP CONCRETE EDGES AND TO GROUT BETWEEN BOTTOM OF INLET LID FRAME AND TOP OF CONCRETE BOX. GROUT TO CREATE A SMOOTH, BEVELED TRANSITION AT ALL EDGES IN CLEAN OUT AND INLET BOXES. GROUT AROUND ALL EDGES OF THE RESTRICTIVE ORIFICE PLATE.
 - REMOVE SNAP TIES, NAILS, REBAR AND OTHER PROTRUSIONS FROM THE BOX OR PIPE INSIDE SURFACE, AS WELL AS ALL FORM WORK, PLASTIC AND CARDBOARD.
 - SILT AND DEBRIS ARE TO BE CLEANED OUT OF ALL INLET BOXES, COMBO BOXES, JUNCTION BOXES AND PIPE. THE BOXES AND PIPES ARE TO BE MAINTAINED IN A CLEAN CONDITION UNTIL AFTER THE FINAL BOND RELEASE INSPECTION.
 - CLEAN OFF ALL MANHOLE LIDS AND INLET GRATES OF ASPHALT, CONCRETE, TAR OR OTHER ADHESIVES TO ALLOW ACCESS.
 - WHERE A SUMP IS REQUIRED, THE SANDY CITY PUBLIC UTILITIES INSPECTOR SHALL BE CONTACTED PRIOR TO CONSTRUCTION TO PROVIDE AN OPPORTUNITY TO CHECK THE VOLUME OF GRAVEL AND GRAVEL GRADATION.
 - SIGNS MUST BE POSTED NEAR EACH INLET BOX LOCATED IN A DRINKING WATER RECHARGE ZONE WITH THE FOLLOWING WORDS "WARNING THIS IS A DRINKING WATER AQUIFER RECHARGE AREA. DISPOSAL OF ANY WASTE MATERIALS IN THE STORM WATER IS STRICTLY PROHIBITED."
 - ALL INLET, COMBO, AND JUNCTION BOXES SHALL BE PLACED ON 12-INCH (MIN.) COMPACTED STABILIZATION MATERIAL.
 - A VIDEO OF ALL PIPES MUST BE COMPLETED BEFORE THE 80% OR 90% BOND RELEASE AND AGAIN BEFORE FINAL BOND RELEASE.
 - A REPRESENTATIVE OF THE MANUFACTURER OR SUPPLIER SHALL BE ON-SITE DURING INSTALLATION OF OIL/WATER SEPARATORS AND UNDERGROUND DETENTION/RETENTION SYSTEMS. THE MANUFACTURER OR SUPPLIER SHALL PROVIDE A LETTER STATING THAT THE SYSTEM WAS INSTALLED PER MANUFACTURER'S SPECIFICATIONS. IF IT IS UNKNOWN WHETHER A REPRESENTATIVE IS REQUIRED TO BE PRESENT DURING INSTALLATION, CONTACT THE SANDY CITY PUBLIC UTILITIES INSPECTOR.
 - A LETTER FROM THE CONSULTANT ENGINEER IS REQUIRED TO BE SUBMITTED TO SANDY CITY PUBLIC UTILITIES DEPARTMENT, PRIOR TO 90% BOND RELEASE, VERIFYING THAT THE VOLUME FOR RETENTION/DETENTION PONDS WAS INSTALLED PER THE APPROVED PLANS.

PROJECT NO. 1611229

GRADING & DRAINAGE PLAN

CGD.01
 5 OF 10

BENCHMARK ENGINEERING & LAND SURVEYING
 9138 SOUTH STATE STREET SUITE # 100
 SANDY, UTAH 84070 (801) 542-7192
 www.benchmarkcivil.com

PROFESSIONAL ENGINEER
 No. 57118
 LeeAnn D. Miller

DATE: 07/11/2017
 DRAWN BY: ZSCL
 CHECKED BY: DPB
 TUB NO.: 3
 DATE: 5/11/17
 REVISION PER CITY REGULATIONS
 4 7/11/17 REVISION PER CITY AND UDOT REGULATIONS
 5 12/05/17 ADDED INVERTS FOR ROOF DRAINS
 6 01/05/18 BASED BUILD. FEE & ADDITIONAL POINTS PER OWNER
 7 03/05/18 UPDATED PLAN TO ADD BUILDING INFO.
 8 05/07/18 UPDATED DRAINAGE LABELS
 9 05/07/18 ACCORDING TO REQUESTED SIZE SHEETS

SANDY STORAGE UNITS
 8802 SOUTH 700 EAST
 SANDY, UTAH